

ETSI TS 136 521-1 V14.4.0 (2017-11)



LTE;
Evolved Universal Terrestrial Radio Access (E-UTRA);
User Equipment (UE) conformance specification;
Radio transmission and reception;
Part 1: Conformance testing
(3GPP TS 36.521-1 version 14.4.0 Release 14)



Reference

RTS/TSGR-0536521-1ve40

Keywords

LTE

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2017.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	92
Introduction	92
1 Scope	93
2 References	94
3 Definitions, symbols and abbreviations	96
3.1 Definitions	96
3.2 Symbols.....	98
3.3 Abbreviations	100
4 General	103
4.1 Categorization of test requirements in CA, UL-MIMO, ProSe, Dual Connectivity, UE category 0, UE category M1, UE category 1bis, UE category NB1 and V2X Communication.....	104
4.2 RF requirements in later releases	105
5 Frequency bands and channel arrangement.....	106
5.1 General	106
5.2 Operating bands.....	106
5.2A Operating bands for CA	108
5.2B Operating bands for UL-MIMO	118
5.2C Operating bands for Dual Connectivity.....	118
5.2D Operating bands for ProSe.....	119
5.2E Operating bands for UE category 0 and UE category M1	120
5.2F Operating bands for UE category NB1.....	120
5.2G Operating bands for V2X Communication.....	120
5.3 TX–RX frequency separation.....	121
5.3A TX–RX frequency separation for CA.....	122
5.4 Channel arrangement.....	122
5.4.1 Channel spacing.....	122
5.4.1A Channel spacing for CA.....	123
5.4.1F Channel spacing for UE category NB1.....	123
5.4.2 Channel bandwidth	123
5.4.2.1 Channel bandwidths per operating band	124
5.4.2A Channel bandwidth for CA	127
5.4.2A.1 Channel bandwidths per operating band for CA	129
5.4.2B Channel bandwidth for UL-MIMO.....	179
5.4.2B.1 Channel bandwidths per operating band for UL- MIMO.....	179
5.4.2C Channel bandwidth for Dual Connectivity	179
5.4.2D Channel bandwidth for ProSe	179
5.4.2D.1 Channel bandwidths per operating band for ProSe	179
5.4.2F Channel bandwidth for category NB1	180
5.4.2G Channel bandwidth for V2X Communication	181
5.4.2G.1 Channel bandwidths per operating band for V2X Communication	181
5.4.3 Channel raster	182
5.4.3A Channel raster for CA.....	183
5.4.3F Channel raster for UE category NB1	183
5.4.4 Carrier frequency and EARFCN.....	183
5.4.4F Carrier frequency and EARFCN for category NB1	185
6 Transmitter Characteristics.....	186
6.1 General	186
6.2 Transmit power	187
6.2.1 Void	187

6.2.2	UE Maximum Output Power	187
6.2.2.1	Test purpose	187
6.2.2.2	Test applicability	187
6.2.2.3	Minimum conformance requirements	187
6.2.2.4	Test description	189
6.2.2.4.1	Initial condition	189
6.2.2.4.2	Test procedure	190
6.2.2.4.3	Message contents	190
6.2.2.5	Test requirements	190
6.2.2_1	Maximum Output Power for HPUE	192
6.2.2_1.1	Test purpose	192
6.2.2_1.2	Test applicability	192
6.2.2_1.3	Minimum conformance requirements	192
6.2.2_1.4	Test description	192
6.2.2_1.5	Test requirements	193
6.2.2A	UE Maximum Output Power for CA	194
6.2.2A.0	Minimum conformance requirements	194
6.2.2A.1	UE Maximum Output Power for CA (intra-band contiguous DL CA and UL CA)	196
6.2.2A.1.1	Test purpose	196
6.2.2A.1.2	Test applicability	196
6.2.2A.1.3	Minimum conformance requirements	196
6.2.2A.1.4	Test description	196
6.2.2A.1.5	Test Requirements	198
6.2.2A.2	UE Maximum Output Power for CA (inter-band DL CA and UL CA)	199
6.2.2A.2.1	Test purpose	199
6.2.2A.2.2	Test applicability	199
6.2.2A.2.3	Minimum conformance requirements	199
6.2.2A.2.4	Test description	199
6.2.2A.2.5	Test Requirements	201
6.2.2A.3	UE Maximum Output Power for CA (intra-band non-contiguous DL CA and UL CA)	203
6.2.2A.4.1	UE Maximum Output Power for CA (intra-band contiguous 3DL CA and 3UL CA)	203
6.2.2A.4.1.1	Test purpose	203
6.2.2A.4.1.2	Test applicability	203
6.2.2A.4.1.3	Minimum conformance requirements	203
6.2.2A.4.1.4	Test description	203
6.2.2A.4.1.5	Test Requirements	205
6.2.2A.4.2	UE Maximum Output Power for CA (inter-band 3DL CA and 3UL CA)	205
6.2.2A.4.2.1	Test purpose	206
6.2.2A.4.2.2	Test applicability	206
6.2.2A.4.2.3	Minimum conformance requirements	206
6.2.2A.4.2.4	Test description	206
6.2.2A.4.2.5	Test Requirements	208
6.2.2B	UE Maximum Output Power for UL-MIMO	208
6.2.2B.1	Test purpose	208
6.2.2B.2	Test applicability	209
6.2.2B.3	Minimum conformance requirements	209
6.2.2B.4	Test description	211
6.2.2B.4.1	Initial condition	211
6.2.2B.4.2	Test procedure	212
6.2.2B.4.3	Message contents	212
6.2.2B.5	Test requirements	212
6.2.2B_1	HPUE Maximum Output Power for UL-MIMO	214
6.2.2B_1.1	Test purpose	214
6.2.2B_1.2	Test applicability	214
6.2.2B_1.3	Minimum conformance requirements	214
6.2.2B_1.4	Test description	214
6.2.2B_1.5	Test requirements	215
6.2.2C	.....	216
6.2.2D	UE Maximum Output Power for ProSe	216
6.2.2D.0	Minimum conformance requirements	216
6.2.2D.1	UE Maximum Output Power for ProSe Discovery	216
6.2.2D.1.1	Test purpose	216

6.2.2D.1.2	Test applicability	216
6.2.2D.1.3	Minimum Conformance requirements.....	216
6.2.2D.1.4	Test description	216
6.2.2D.1.5	Test requirements	218
6.2.2D.2	UE Maximum Output Power for ProSe Direct Communication.....	218
6.2.2D.2.1	Test purpose	218
6.2.2D.2.2	Test applicability	218
6.2.2D.2.3	Minimum conformance requirements.....	218
6.2.2D.2.4	Test description	218
6.2.2E	UE Maximum Output Power for UE category 0.....	219
6.2.2E.1	Test purpose	219
6.2.2E.2	Test applicability.....	219
6.2.2E.3	Minimum conformance requirements	219
6.2.2E.4	Test description.....	219
6.2.2E.4.3	Message contents.....	220
6.2.2E.5	Test requirements.....	220
6.2.2EA	UE Maximum Output Power for UE category M1	222
6.2.2EA.1	Test purpose	222
6.2.2EA.2	Test applicability.....	222
6.2.2EA.3	Minimum conformance requirements	222
6.2.2EA.4	Test description	223
6.2.2EA.4.3	Message contents.....	224
6.2.2EA.5	Test requirements	224
6.2.2F	UE Maximum Output Power for category NB1	225
6.2.2F.1	Test purpose	225
6.2.2F.2	Test applicability.....	225
6.2.2F.3	Minimum conformance requirements	225
6.2.2F.4	Test description	226
6.2.2F.4.1	Initial condition	226
6.2.2F.4.2	Test procedure.....	227
6.2.2F.4.3	Message contents.....	227
6.2.2F.5	Test requirements.....	227
6.2.2G	UE Maximum Output Power for V2X Communication	228
6.2.2G.1	UE Maximum Output Power for V2X Communication / Non-concurrent with E-UTRA uplink transmission	228
6.2.2G.1.1	Test purpose	228
6.2.2G.1.2	Test applicability	228
6.2.2G.1.3	Minimum conformance requirements.....	228
6.2.2G.1.4	Test description	229
6.2.2G.1.4.1	Initial conditions	229
6.2.2G.1.4.2	Test procedure.....	229
6.2.2G.1.4.3	Message contents	229
6.2.2G.1.5	Test requirements	230
6.2.2G.2	UE Maximum Output Power for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmission	230
6.2.2G.2.1	Test purpose	230
6.2.2G.2.2	Test applicability	230
6.2.2G.2.3	Minimum conformance requirements.....	230
6.2.2G.2.4	Test description	231
6.2.2G.2.4.1	Initial conditions	231
6.2.2G.2.4.2	Test procedure.....	232
6.2.2G.2.4.3	Message contents	233
6.2.2G.2.5	Test requirements	233
6.2.3	Maximum Power Reduction (MPR)	233
6.2.3.1	Test purpose	233
6.2.3.2	Test applicability.....	233
6.2.3.3	Minimum conformance requirements	234
6.2.3.4	Test description	234
6.2.3.4.1	Initial condition	234
6.2.3.4.2	Test procedure	235
6.2.3.4.3	Message contents.....	235
6.2.3.5	Test requirements.....	236

6.2.3_1	Maximum Power Reduction (MPR) for HPUE	238
6.2.3_1.1	Test purpose	238
6.2.3_1.2	Test applicability	238
6.2.3_1.3	Minimum conformance requirements	238
6.2.3_1.4	Test description	239
6.2.3_1.5	Test requirements	239
6.2.3_2	Maximum Power Reduction (MPR) for Multi-Cluster PUSCH	239
6.2.3_2.1	Test purpose	239
6.2.3_2.2	Test applicability	239
6.2.3_2.3	Minimum conformance requirements	240
6.2.3_2.4	Test description	240
6.2.3_2.4.1	Initial condition	240
6.2.3_2.4.2	Test procedure	241
6.2.3_2.4.3	Message contents	241
6.2.3_2.5	Test requirements	241
6.2.3_3	Maximum Power Reduction (MPR) for UL 64QAM	242
6.2.3_3.1	Test purpose	243
6.2.3_3.2	Test applicability	243
6.2.3_3.3	Minimum conformance requirements	243
6.2.3_3.4	Test description	243
6.2.3_3.4.1	Initial condition	243
6.2.3_3.4.2	Test procedure	244
6.2.3_3.4.3	Message contents	244
6.2.3_3.5	Test requirements	245
6.2.3_4	Maximum Power Reduction (MPR) for Multi-Cluster PUSCH with UL 64QAM	247
6.2.3_4.1	Test purpose	247
6.2.3_4.2	Test applicability	247
6.2.3_4.3	Minimum conformance requirements	247
6.2.3_4.4	Test description	248
6.2.3_4.4.1	Initial condition	248
6.2.3_4.4.2	Test procedure	249
6.2.3_4.4.3	Message contents	249
6.2.3_4.5	Test requirements	249
6.2.3A	Maximum Power Reduction (MPR) for CA	250
6.2.3A.1	Maximum Power Reduction (MPR) for CA (intra-band contiguous DL CA and UL CA)	250
6.2.3A.1.1	Test purpose	250
6.2.3A.1.2	Test applicability	250
6.2.3A.1.3	Minimum conformance requirements	251
6.2.3A.1.4	Test description	252
6.2.3A.1.5	Test Requirements	255
6.2.3A.1_1	Maximum Power Reduction (MPR) for CA (intra-band contiguous DL CA and UL CA) for UL 64QAM	257
6.2.3A.1_1.1	Test purpose	258
6.2.3A.1_1.2	Test applicability	258
6.2.3A.1_1.3	Minimum conformance requirements	258
6.2.3A.1_1.4	Test description	259
6.2.3A.1_1.5	Test requirement	261
6.2.3A.2	Maximum Power Reduction (MPR) for CA (inter-band DL CA and UL CA)	262
6.2.3A.2.1	Test purpose	262
6.2.3A.2.2	Test applicability	262
6.2.3A.2.3	Minimum conformance requirements	262
6.2.3A.2.4	Test description	263
6.2.3A.2.5	Test Requirements	267
6.2.3A.2_1	Maximum Power Reduction (MPR) for CA (inter-band DL CA and UL CA) for UL 64QAM	270
6.2.3A.2_1.1	Test purpose	270
6.2.3A.2_1.2	Test applicability	270
6.2.3A.2_1.3	Minimum conformance requirements	270
6.2.3A.2_1.4	Test description	271
6.2.3A.2_1.5	Test Requirements	273
6.2.3A.3	Maximum Power Reduction (MPR) for CA (intra-band non-contiguous DL CA and UL CA)	274
6.2.3A.3.1	Test purpose	274
6.2.3A.3.2	Test applicability	274

6.2.3A.3.3	Minimum conformance requirements.....	275
6.2.3A.3.4	Test description	275
6.2.3A.3.5	Test Requirements	277
6.2.3A.3_1	Maximum Power Reduction (MPR) for CA (intra-band non-contiguous DL CA and UL CA) for UL 64QAM.....	277
6.2.3A.3_1.1	Test purpose	277
6.2.3A.3_1.2	Test applicability	277
6.2.3A.3_1.3	Minimum conformance requirements.....	277
6.2.3A.3_1.4	Test description	278
6.2.3A.3_1.5	Test Requirements	279
6.2.3B	Maximum Power Reduction (MPR) for UL-MIMO.....	279
6.2.3B.1	Test purpose	279
6.2.3B.2	Test applicability.....	279
6.2.3B.3	Minimum conformance requirements	280
6.2.3B.4	Test description	280
6.2.3B.4.1	Initial condition	280
6.2.3B.4.2	Test procedure	281
6.2.3B.4.3	Message contents.....	282
6.2.3B.5	Test requirements	282
6.2.3D	UE Maximum Output Power for ProSe.....	284
6.2.3D.0	Minimum conformance requirements	284
6.2.3D.1	Maximum Power Reduction (MPR) for ProSe Discovery	285
6.2.3D.1.1	Test purpose	285
6.2.3D.1.2	Test applicability	285
6.2.3D.1.3	Minimum conformance requirements.....	285
6.2.3D.1.4	Test description	285
6.2.3D.1.4.1	Initial condition	285
6.2.3D.1.4.2	Test procedure	286
6.2.3D.1.4.3	Message contents.....	286
6.2.3D.1.5	Test requirements	287
6.2.3D.2	Maximum Power Reduction (MPR) ProSe Direct Communication.....	288
6.2.3D.2.1	Test purpose	289
6.2.3D.2.2	Test applicability	289
6.2.3D.2.3	Minimum conformance requirements.....	289
6.2.3D.2.4	Test description	289
6.2.3D.2.4.1	Initial conditions.....	289
6.2.3D.2.4.2	Test procedure	289
6.2.3D.2.4.3	Message contents.....	289
6.2.3D.2.5	Test requirements	289
6.2.3E	Maximum Power Reduction (MPR) for UE category 0.....	289
6.2.3E.1	Test purpose	289
6.2.3E.2	Test applicability.....	289
6.2.3E.3	Minimum conformance requirements	289
6.2.3E.4	Test description	289
6.2.3E.4.1	Initial condition	289
6.2.3E.4.2	Test procedure	290
6.2.3E.4.3	Message contents.....	290
6.2.3E.5	Test requirements	290
6.2.3EA	Maximum Power Reduction (MPR) for UE category M1	291
6.2.3EA.1	Test purpose	291
6.2.3EA.2	Test applicability.....	291
6.2.3EA.3	Minimum conformance requirements	291
6.2.3EA.4	Test description	292
6.2.3EA.4.1	Initial condition	292
6.2.3EA.4.2	Test procedure	294
6.2.3EA.4.3	Message contents.....	294
6.2.3EA.5	Test requirements	294
6.2.3F	Maximum Power Reduction (MPR) for category NB1	297
6.2.3F.1	Test purpose	297
6.2.3F.2	Test applicability.....	297
6.2.3F.3	Minimum conformance requirements	297
6.2.3F.4	Test description	298

6.2.3F.4.1	Initial condition	298
6.2.3F.4.2	Test procedure	299
6.2.3F.4.3	Message contents	299
6.2.3F.5	Test requirements	299
6.2.3G	Maximum Power Reduction (MPR) for V2X communication	299
6.2.3G.1	Maximum Power Reduction (MPR) for V2X Communication / Power class 3	300
6.2.3G.1.1	Maximum Power Reduction (MPR) for V2X Communication / Power class 3 / Contiguous allocation of PSCCH and PSSCH	300
6.2.3G.1.1.1	Test purpose	300
6.2.3G.1.1.2	Test applicability	300
6.2.3G.1.1.3	Minimum conformance requirements	300
6.2.3G.1.1.4	Test description	300
6.2.3G.1.1.4.1	Initial condition	300
6.2.3G.1.1.4.2	Test procedure	301
6.2.3G.1.1.4.3	Message contents	301
6.2.3G.1.1.5	Test Requirements	301
6.2.3G.1.2	.....	302
6.2.3G.1.3	Maximum Power Reduction (MPR) for V2X Communication / Power class 3 / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmission	302
6.2.3G.1.3.1	Test purpose	302
6.2.3G.1.3.2	Test applicability	302
6.2.3G.1.3.3	Minimum conformance requirements	302
6.2.3G.1.3.4	Test description	302
6.2.3G.1.3.4.1	Initial conditions	302
6.2.3G.1.3.4.2	Test procedure	303
6.2.3G.1.3.4.3	Message contents	304
6.2.3G.1.3.5	Test requirements	304
6.2.4	Additional Maximum Power Reduction (A-MPR)	304
6.2.4.1	Test purpose	304
6.2.4.2	Test applicability	304
6.2.4.3	Minimum conformance requirements	305
6.2.4.4	Test description	317
6.2.4.4.1	Initial condition	317
6.2.4.4.2	Test procedure	346
6.2.4.4.3	Message contents	346
6.2.4.5	Test requirements	351
6.2.4_1	Additional Maximum Power Reduction (A-MPR) for HPUE	380
6.2.4_1.2	Test applicability	381
6.2.4_1.3	Minimum conformance requirements	381
6.2.4_1.4	Test description	382
6.2.4_1.5	Test requirements	383
6.2.4_2	Additional Maximum Power Reduction (A-MPR) for UL 64QAM	385
6.2.4_2.1	Test purpose	385
6.2.4_2.2	Test applicability	385
6.2.4_2.3	Minimum conformance requirements	385
6.2.4_2.4	Test description	385
6.2.4_2.4.1	Initial condition	385
6.2.4_2.4.2	Test procedure	399
6.2.4_2.4.3	Message contents	399
6.2.4_2.5	Test requirements	399
6.2.4_3	Additional Maximum Power Reduction (A-MPR) with PUSCH frequency hopping	411
6.2.4_3.1	Test purpose	411
6.2.4_3.2	Test applicability	411
6.2.4_3.3	Minimum conformance requirements	412
6.2.4_3.4	Test description	412
6.2.4_3.5	Test requirements	413
6.2.4A	Additional Maximum Power Reduction (A-MPR) for CA	414
6.2.4A.1	Additional Maximum Power Reduction (A-MPR) for CA (intra-band contiguous DL CA and UL CA)	414
6.2.4A.1.1	Test purpose	414
6.2.4A.1.2	Test applicability	414
6.2.4A.1.3	Minimum conformance requirements	414

6.2.4A.1.3.5	A-MPR for CA_NS_05 for CA_38C.....	418
6.2.4A.1.3.6	A-MPR for CA_NS_06 for CA_7C.....	418
6.2.4A.1.3.7	A-MPR for CA_NS_07 for CA_39C.....	419
6.2.4A.1.4	Test description	420
6.2.4A.1.5	Test requirements	426
6.2.4A.1_1	Additional Maximum Power Reduction (A-MPR) for CA (intra-band contiguous DL CA and UL CA) for UL 64QAM.....	432
6.2.4A.1_1.1	Test purpose	432
6.2.4A.1_1.2	Test applicability	432
6.2.4A.1_1.3	Minimum conformance requirements.....	433
6.2.4A.1_1.3.5	A-MPR for CA_NS_05 for CA_38C.....	436
6.2.4A.1_1.3.6	A-MPR for CA_NS_06 for CA_7C.....	437
6.2.4A.1_1.3.7	A-MPR for CA_NS_07 for CA_39C.....	438
6.2.4A.1_1.3.8	A-MPR for CA_NS_08 for CA_42C.....	439
6.2.4A.1_1.4	Test description	439
6.2.4A.1_1.5	Test requirements	444
6.2.4A.2	Additional Maximum Power Reduction (A-MPR) for CA (inter-band DL CA and UL CA).....	450
6.2.4A.2.1	Test purpose	450
6.2.4A.2.2	Test applicability	451
6.2.4A.2.3	Minimum conformance requirements.....	451
6.2.4A.2.4	Test description	451
6.2.4A.2.4.1	Initial conditions	451
6.2.4A.2.4.2	Test procedure.....	464
6.2.4A.2.4.3	Message contents	465
6.2.4A.2.5	Test requirements	468
6.2.4A.3	Additional Maximum Power Reduction (A-MPR) for CA (intra-band non-contiguous DL CA and UL CA).....	473
6.2.4A.3.1	Minimum conformance requirements.....	473
6.2.4A.2_1	Additional Maximum Power Reduction (A-MPR) for CA (inter-band DL CA and UL CA) for UL 64QAM.....	473
6.2.4A.2_1.1	Test purpose	473
6.2.4A.2_1.2	Test applicability	473
6.2.4A.2_1.3	Minimum conformance requirements.....	474
6.2.4A.2_1.4	Test description	474
6.2.4A.2_1.4.1	Initial conditions	474
6.2.4A.2_1.4.2	Test procedure.....	486
6.2.4A.2_1.4.3	Message contents	487
6.2.4A.2_1.5	Test requirements	487
6.2.4B	Additional Maximum Power Reduction (A-MPR) for UL-MIMO.....	491
6.2.4B.1	Test purpose	491
6.2.4B.2	Test applicability	492
6.2.4B.3	Minimum conformance requirements	492
6.2.4B.4	Test description	492
6.2.4B.4.1	Initial condition	492
6.2.4B.4.2	Test procedure	515
6.2.4B.4.3	Message contents.....	515
6.2.4B.5	Test requirements	515
6.2.4E	Additional Maximum Power Reduction (A-MPR) for UE category 0	537
6.2.4E.1	Test purpose	537
6.2.4E.2	Test applicability.....	538
6.2.4E.3	Minimum conformance requirements	538
6.2.4E.4	Test description	538
6.2.4E.4.1	Initial condition	538
6.2.4E.4.2	Test procedure	542
6.2.4E.4.3	Message contents.....	542
6.2.4E.5	Test requirements	543
6.2.4EA	Additional Maximum Power Reduction (A-MPR) for UE category M1	549
6.2.4EA.1	Test purpose	549
6.2.4EA.2	Test applicability.....	549
6.2.4EA.3	Minimum conformance requirements	550
6.2.4EA.4	Test description	551
6.2.4EA.4.1	Initial condition	551

6.2.4EA.4.2	Test procedure	559
6.2.4EA.4.3	Message contents	559
6.2.4EA.5	Test requirements	562
6.2.4G	Additional Maximum Power Reduction (A-MPR) for V2X Communication	569
6.2.4G.1	Additional Maximum Power Reduction (A-MPR) for V2X Communication / Non-concurrent with E-UTRA uplink transmissions	569
6.2.4G.1.1	Test purpose	569
6.2.4G.1.2	Test applicability	569
6.2.4G.1.3	Minimum conformance requirements	570
6.2.4G.1.4	Test description	570
6.2.4G.1.4.1	Initial condition	570
6.2.4G.1.4.2	Test procedure	571
6.2.4G.1.4.3	Message contents	571
6.2.4G.1.5	Test Requirements	571
6.2.5	Configured UE transmitted Output Power	571
6.2.5.1	Test purpose	571
6.2.5.2	Test applicability	571
6.2.5.3	Minimum conformance requirements	571
6.2.5.4	Test description	601
6.2.5.4.1	Initial conditions	601
6.2.5.4.2	Test procedure	602
6.2.5.4.3	Message contents	602
6.2.5.5	Test requirement	603
6.2.5_1	Configured UE transmitted Output Power for HPUE	603
6.2.5_1.1	Test purpose	603
6.2.5_1.2	Test applicability	604
6.2.5_1.3	Minimum conformance requirements	604
6.2.5_1.4	Test description	604
6.2.5_1.4.1	Initial conditions	604
6.2.5_1.4.2	Test procedure	604
6.2.5_1.4.3	Message contents	604
6.2.5_1.5	Test requirement	605
6.2.5A	Configured transmitted power for CA	606
6.2.5A.1	Configured UE transmitted Output Power for CA (intra-band contiguous DL CA and UL CA)	606
6.2.5A.1.1	Test purpose	606
6.2.5A.1.2	Test applicability	606
6.2.5A.1.3	Minimum conformance requirements	606
6.2.5A.1.4	Test description	608
6.2.5A.1.5	Test requirement	609
6.2.5A.2	Void	610
6.2.5A.3	Configured UE transmitted Output Power for CA (inter-band DL CA and UL CA)	610
6.2.5A.3.1	Test purpose	610
6.2.5A.3.2	Test applicability	610
6.2.5A.3.3	Minimum conformance requirements	610
6.2.5A.3.4	Test description	612
6.2.5A.3.5	Test requirement	613
6.2.5A.4	Configured UE transmitted Output Power for CA (intra-band non-contiguous DL CA and UL CA)	614
6.2.5A.4.1	Test purpose	614
6.2.5A.4.2	Test applicability	614
6.2.5A.4.3	Minimum conformance requirements	614
6.2.5A.4.4	Test description	615
6.2.5A.4.5	Test requirement	617
6.2.5B	Configured UE transmitted Output Power for UL-MIMO	618
6.2.5B.1	Test purpose	618
6.2.5B.2	Test applicability	618
6.2.5B.3	Minimum conformance requirements	618
6.2.5B.4	Test description	619
6.2.5B.4.1	Initial conditions	619
6.2.5B.4.2	Test procedure	619
6.2.5B.4.3	Message contents	620
6.2.5B.5	Test requirement	620

6.2.5E	Configured UE transmitted Output Power for UE category 0	621
6.2.5E.1	Test purpose	621
6.2.5E.2	Test applicability	621
6.2.5E.3	Minimum conformance requirements	621
6.2.5E.4	Test description	621
6.2.5E.4.1	Initial conditions	621
6.2.5E.4.2	Test procedure	621
6.2.5E.4.3	Message contents	621
6.2.5E.5	Test requirement	622
6.2.5EA	Configured UE transmitted Power for UE category M1	622
6.2.5EA.1	Test purpose	622
6.2.5EA.2	Test applicability	622
6.2.5EA.3	Minimum conformance requirements	622
6.2.5EA.4	Test description	623
6.2.5EA.4.1	Initial condition	623
6.2.5EA.4.2	Test procedure	624
6.2.5EA.4.3	Message contents	624
6.2.5EA.5	Test requirements	624
6.2.5F	Configured UE transmitted Output Power for UE category NB1	625
6.2.5F.1	Test purpose	625
6.2.5F.2	Test applicability	625
6.2.5F.3	Minimum conformance requirements	625
6.2.5F.4	Test description	626
6.2.5F.4.1	Initial conditions	626
6.2.5F.4.2	Test procedure	627
6.2.5F.4.3	Message contents	627
6.2.5F.5	Test requirement	627
6.2.5G	Configured UE transmitted Output Power for V2X Communication	627
6.2.5G.1	Configured UE transmitted Output Power for V2X Communication / Non-concurrent with E- UTRA uplink transmission	628
6.2.5G.1.1	Test purpose	628
6.2.5G.1.2	Test applicability	628
6.2.5G.1.3	Minimum conformance requirements	628
6.2.5G.1.4	Test description	629
6.2.5G.1.4.1	Initial conditions	629
6.2.5G.1.4.2	Test procedure	629
6.2.5G.1.4.3	Message contents	629
6.2.5G.1.5	Test requirements	629
6.2.5G.2	Configured UE transmitted Output Power for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmission	629
6.2.5G.2.1	Test purpose	630
6.2.5G.2.2	Test applicability	630
6.2.5G.2.3	Minimum conformance requirements	630
6.2.5G.2.4	Test description	632
6.2.5G.2.4.1	Initial conditions	632
6.2.5G.2.4.2	Test procedure	633
6.2.5G.2.4.3	Message contents	633
6.2.5G.2.5	Test requirements	633
6.3	Output Power Dynamics	634
6.3.1	Void	634
6.3.2	Minimum Output Power	634
6.3.2.1	Test purpose	634
6.3.2.2	Test applicability	634
6.3.2.3	Minimum conformance requirements	634
6.3.2.4	Test description	634
6.3.2.4.1	Initial conditions	634
6.3.2.4.2	Test procedure	635
6.3.2.4.3	Message contents	635
6.3.2.5	Test requirement	635
6.3.2A	Minimum Output Power for CA	636
6.3.2A.0	Minimum conformance requirements	636
6.3.2A.1	Minimum Output Power for CA (intra-band contiguous DL CA and UL CA)	636

6.3.2A.1.1	Test purpose	636
6.3.2A.1.2	Test applicability	637
6.3.2A.1.3	Minimum conformance requirements	637
6.3.2A.1.4	Test description	637
6.3.2A.1.4.1	Initial conditions	637
6.3.2A.1.4.2	Test procedure.....	638
6.3.2A.1.4.3	Message contents	638
6.3.2A.1.5	Test requirements	638
6.3.2A.2	Minimum Output Power for CA (inter-band DL CA and UL CA)	638
6.3.2A.2.1	Test purpose	638
6.3.2A.2.2	Test applicability	639
6.3.2A.2.3	Minimum conformance requirements.....	639
6.3.2A.2.4	Test description	639
6.3.2A.2.4.1	Initial conditions	639
6.3.2A.2.4.2	Test procedure.....	640
6.3.2A.2.4.3	Message contents	640
6.3.2A.2.5	Test requirements	640
6.3.2A.3	Minimum Output Power for CA (intra-band non-contiguous DL CA and UL CA)	641
6.3.2A.3.1	Test purpose	641
6.3.2A.3.2	Test applicability	641
6.3.2A.3.3	Minimum conformance requirements.....	641
6.3.2A.3.4	Test description	641
6.3.2A.3.4.1	Initial conditions	641
6.3.2A.3.4.2	Test procedure.....	642
6.3.2A.3.4.3	Message contents	642
6.3.2A.3.5	Test requirements	642
6.3.2B	Minimum Output Power for UL-MIMO.....	643
6.3.2B.1	Test purpose	643
6.3.2B.2	Test applicability.....	643
6.3.2B.3	Minimum conformance requirements	643
6.3.2B.4	Test description	643
6.3.2B.4.1	Initial conditions	643
6.3.2B.4.2	Test procedure	644
6.3.2B.4.3	Message contents.....	644
6.3.2B.5	Test requirement	644
6.3.2E	Minimum Output Power for UE category 0.....	645
6.3.2E.1	Test purpose	645
6.3.2E.2	Test applicability.....	645
6.3.2E.3	Minimum conformance requirements	645
6.3.2E.4	Test description	645
6.3.2E.4.1	Initial conditions	645
6.3.2E.4.2	Test procedure	646
6.3.2E.4.3	Message contents.....	646
6.3.2E.5	Test requirement	646
6.3.2EA	Minimum Output Power for UE category M1	646
6.3.2EA.1	Test purpose	646
6.3.2EA.2	Test applicability.....	647
6.3.2EA.3	Minimum conformance requirements	647
6.3.2EA.4	Test description	647
6.3.2EA.4.1	Initial condition	647
6.3.2EA.4.2	Test procedure	648
6.3.2EA.4.3	Message contents.....	648
6.3.2EA.5	Test requirements.....	648
6.3.2F	Minimum Output Power for category NB1	648
6.3.2F.1	Test purpose	648
6.3.2F.2	Test applicability.....	648
6.3.2F.3	Minimum conformance requirements	649
6.3.2F.4	Test description	649
6.3.2F.4.1	Initial conditions	649
6.3.2F.4.2	Test procedure	650
6.3.2F.4.3	Message contents.....	650
6.3.2F.5	Test requirements.....	650

6.3.3	Transmit OFF power.....	650
6.3.3.1	Test purpose	650
6.3.3.2	Test applicability.....	650
6.3.3.3	Minimum conformance requirement.....	651
6.3.3.4	Test description	651
6.3.3.5	Test requirement	651
6.3.3A	UE Transmit OFF power for CA	651
6.3.3A.0	Minimum conformance requirements	651
6.3.3A.1	UE Transmit OFF power for CA (intra-band contiguous DL CA and UL CA).....	652
6.3.3A.1.1	Test purpose	652
6.3.3A.1.2	Test applicability	652
6.3.3A.1.3	Minimum conformance requirements.....	652
6.3.3A.1.4	Test description	652
6.3.3A.1.5	Test Requirements	652
6.3.3A.2	UE Transmit OFF power for CA (inter-band DL CA and UL CA)	653
6.3.3A.2.1	Test purpose	653
6.3.3A.2.2	Test applicability	653
6.3.3A.2.3	Minimum conformance requirements.....	653
6.3.3A.2.4	Test description	653
6.3.3A.2.5	Test Requirements	653
6.3.3A.3	UE Transmit OFF power for CA (intra-band non-contiguous DL CA and UL CA).....	653
6.3.3A.3.1	Test purpose	653
6.3.3A.3.2	Test applicability	653
6.3.3A.3.3	Minimum conformance requirements.....	654
6.3.3A.3.4	Test description	654
6.3.3A.3.5	Test Requirements	654
6.3.3B	UE Transmit OFF power for UL-MIMO.....	654
6.3.3B.1	Test purpose	654
6.3.3B.2	Test applicability.....	654
6.3.3B.3	Minimum conformance requirement.....	654
6.3.3B.4	Test description	654
6.3.3B.5	Test requirement	655
6.3.3C	.....	655
6.3.3D	UE Transmit OFF power for ProSe	655
6.3.3D.0	Minimum conformance requirements	655
6.3.3D.1	UE Transmit OFF power for ProSe Direct Discovery	655
6.3.3D.1.1	Test purpose	656
6.3.3D.1.2	Test applicability	656
6.3.3D.1.3	Minimum Conformance requirements.....	656
6.3.3D.1.4	Test description	656
6.3.3D.1.5	Test requirements	657
6.3.3E	UE Transmit OFF power for UE category 0.....	657
6.3.3E.1	Test purpose	657
6.3.3E.2	Test applicability.....	657
6.3.3E.3	Minimum conformance requirement.....	657
6.3.3E.4	Test description	658
6.3.3E.5	Test requirement	658
6.3.3EA	UE Transmit OFF power for UE category M1	658
6.3.3EA.1	Test purpose	658
6.3.3EA.2	Test applicability.....	658
6.3.3EA.3	Minimum conformance requirements	658
6.3.3EA.4	Test description	658
6.3.3EA.5	Test requirements.....	659
6.3.3F	Transmit OFF power for category NB1	659
6.3.3F.1	Test purpose	659
6.3.3F.2	Test applicability.....	659
6.3.3F.3	Minimum conformance requirement.....	659
6.3.3F.4	Test description	659
6.3.3F.5	Test requirement	659
6.3.4	ON/OFF time mask.....	659
6.3.4.1	General ON/OFF time mask	659
6.3.4.1.1	Test purpose	659

6.3.4.1.2	Test applicability	660
6.3.4.1.3	Minimum conformance requirement	660
6.3.4.1.4	Test description	660
6.3.4.1.5	Test requirement	662
6.3.4.2	PRACH and SRS time mask	663
6.3.4.2.1	PRACH time mask	663
6.3.4.2.2	SRS time mask	666
6.3.4A	ON/OFF time mask for CA	671
6.3.4A.0	Minimum conformance requirements	671
6.3.4A.1	General ON/OFF time mask for CA	671
6.3.4A.1.1	General ON/OFF time mask for CA (intra-band contiguous DL CA and UL CA)	671
6.3.4A.1.1.4.2	Test procedure	673
6.3.4A.1.1.4.3	Message contents	673
6.3.4A.1.1.5	Test requirement	674
6.3.4A.1.2	General ON/OFF time mask for CA (inter-band DL CA and UL CA)	674
6.3.4A.1.2.4.2	Test procedure	675
6.3.4A.1.2.4.3	Message contents	676
6.3.4A.1.2.5	Test requirement	676
6.3.4A.1.3	General ON/OFF time mask for CA (intra-band non-contiguous DL CA and UL CA)	676
6.3.4A.1.3.4.2	Test procedure	677
6.3.4A.1.3.4.3	Message contents	677
6.3.4A.1.3.5	Test requirement	677
6.3.4B	ON/OFF time mask for UL-MIMO	678
6.3.4B.1	General ON/OFF time mask for UL-MIMO	678
6.3.4B.1.1	Test purpose	678
6.3.4B.1.2	Test applicability	678
6.3.4B.1.3	Minimum conformance requirement	678
6.3.4B.1.4	Test description	678
6.3.4B.1.5	Test requirement	680
6.3.4C	ON/OFF time mask for DC	681
6.3.4C.1	General ON/OFF time mask for Dual Connectivity	681
6.3.4C.1.1	Test purpose	681
6.3.4C.1.2	Test applicability	681
6.3.4C.1.3	Minimum conformance requirements	681
6.3.4C.1.4	Test description	681
6.3.4C.1.4.1	Initial conditions	681
6.3.4C.1.4.2	Test procedure	682
6.3.4C.1.4.3	Message contents	683
6.3.4C.1.5	Test requirement	684
6.3.4C.1_1	General ON/OFF time mask for asynchronous Dual Connectivity	684
6.3.4C.1_1.1	Test purpose	684
6.3.4C.1_1.2	Test applicability	684
6.3.4C.1_1.3	Minimum conformance requirements	684
6.3.4C.1_1.4	Test description	685
6.3.4C.1_1.4.1	Initial conditions	685
6.3.4C.1_1.4.2	Test procedure	686
6.3.4C.1_1.4.3	Message contents	686
6.3.4C.1_1.5	Test requirement	688
6.3.4E	ON/OFF time mask for UE category 0	689
6.3.4E.1	General ON/OFF time mask for UE category 0	689
6.3.4E.1.1	Test purpose	689
6.3.4E.1.2	Test applicability	689
6.3.4E.1.3	Minimum conformance requirement	689
6.3.4E.1.4	Test description	689
6.3.4E.1.5	Test requirement	690
6.3.4E.2	PRACH and SRS time mask for UE category 0	691
6.3.4E.2.1	PRACH time mask for UE category 0	691
6.3.4E.2.2	SRS time mask for UE category 0	692
6.3.4EA	ON/OFF time mask for UE category M1	693
6.3.4EA.1	General ON/OFF time mask for UE category M1	693
6.3.4EA.1.1	Test purpose	693
6.3.4EA.1.2	Test applicability	693

6.3.4EA.1.3	Minimum conformance requirement	693
6.3.4EA.1.4	Test description	693
6.3.4EA.1.5	Test requirement	695
6.3.4EA.2	PRACH and SRS ON/OFF time mask for UE category M1	695
6.3.4EA.2.1	PRACH time mask for UE category M1	695
6.3.4EA.2.2	SRS time mask for UE category M1	697
6.3.4F	ON/OFF time mask for category NB1	699
6.3.4F.1	General ON/OFF time mask for category NB1	699
6.3.4F.1.1	Test purpose	699
6.3.4F.1.2	Test applicability	699
6.3.4F.1.3	Minimum conformance requirement	699
6.3.4F.1.4	Test description	699
6.3.4F.1.5	Test requirement	701
6.3.4F.2	NPRACH time mask for category NB1	701
6.3.4F.2.1	Test purpose	701
6.3.4F.2.2	Test applicability	701
6.3.4F.2.3	Minimum conformance requirement	701
6.3.4F.2.4	Test description	702
6.3.4F.2.5	Test requirement	703
6.3.4G	ON/OFF time mask for V2X Communication	704
6.3.4G.1	General ON/OFF time mask for V2X Communication	704
6.3.4G.1.1	Test purpose	704
6.3.4G.1.2	Test applicability	704
6.3.4G.1.3	Minimum conformance requirements	704
6.3.4G.1.4	Test description	704
6.3.4G.1.4.1	Initial conditions	704
6.3.4G.1.4.2	Test procedure	705
6.3.4G.1.4.3	Message contents	705
6.3.4G.1.5	Test requirement	705
6.3.5	Power Control	705
6.3.5.1	Power Control Absolute power tolerance	705
6.3.5.1.1	Test purpose	705
6.3.5.1.2	Test applicability	705
6.3.5.1.3	Minimum conformance requirement	705
6.3.5.1.4	Test description	706
6.3.5.1.5	Test requirement	707
6.3.5.2	Power Control Relative power tolerance	708
6.3.5.2.1	Test purpose	708
6.3.5.2.2	Test applicability	708
6.3.5.2.3	Minimum conformance requirement	708
6.3.5.2.4	Test description	709
6.3.5.2.5	Test requirement	716
6.3.5.3	Aggregate power control tolerance	727
6.3.5.3.1	Test purpose	727
6.3.5.3.2	Test applicability	727
6.3.5.3.3	Minimum conformance requirement	727
6.3.5.3.4	Test description	727
6.3.5.3.5	Test requirement	730
6.3.5_1	Power Control for HPUE	730
6.3.5_1.1	Power Control Absolute power tolerance for HPUE	730
6.3.5_1.1.1	Test purpose	730
6.3.5_1.1.2	Test applicability	730
6.3.5_1.1.3	Minimum conformance requirement	730
6.3.5_1.1.4	Test description	730
6.3.5_1.1.5	Test requirement	731
6.3.5_1.2	Power Control Relative power tolerance for HPUE	732
6.3.5_1.2.1	Test purpose	732
6.3.5_1.2.2	Test applicability	732
6.3.5_1.2.3	Minimum conformance requirement	732
6.3.5_1.2.4	Test description	732
6.3.5_1.2.5	Test requirement	732
6.3.5_1.3	Aggregate power control tolerance for HPUE	732

6.3.5_1.3.1	Test purpose	732
6.3.5_1.3.2	Test applicability	732
6.3.5_1.3.3	Minimum conformance requirement	732
6.3.5_1.3.4	Test description	733
6.3.5_1.3.5	Test requirement	733
6.3.5A	Power Control for CA	733
6.3.5A.1	Power Control Absolute power tolerance for CA	733
6.3.5A.1.0	Minimum conformance requirements	733
6.3.5A.1.1	Power Control Absolute power tolerance for CA (intra-band contiguous DL CA and UL CA) ...	733
6.3.5A.1.2	Power Control Absolute power tolerance for CA (inter-band DL CA and UL CA)	737
6.3.5A.1.3	Power Control Absolute power tolerance for CA (intra-band non-contiguous DL CA and UL CA)	741
6.3.5A.2	Power Control Relative power tolerance for CA	744
6.3.5A.2.0	Minimum conformance requirements	744
6.3.5A.2.1	Power Control Relative power tolerance for CA (intra-band contiguous DL CA and UL CA) ...	746
6.3.5A.2.2	Power Control Relative power tolerance for CA (inter-band DL CA and UL CA)	755
6.3.5A.2.3	Power Control Relative power tolerance for CA (intra-band non-contiguous DL CA and UL CA)	772
6.3.5A.3	Aggregate power control tolerance for CA	776
6.3.5A.3.0	Minimum conformance requirements	776
6.3.5A.3.1	Aggregate power control tolerance for CA (intra-band contiguous DL CA and UL CA)	776
6.3.5A.3.2	Aggregate power control tolerance for CA (inter-band DL CA and UL CA)	780
6.3.5A.3.3	Aggregate power control tolerance for CA (intra-band non-contiguous DL CA and UL CA)	782
6.3.5B	Power Control for UL- MIMO	784
6.3.5B.1	Power Control Absolute Power Tolerance for UL- MIMO	784
6.3.5B.1.1	Test purpose	784
6.3.5B.1.2	Test applicability	784
6.3.5B.1.3	Minimum conformance requirement	784
6.3.5B.1.4	Test description	784
6.3.5B.1.5	Test requirement	786
6.3.5B.2	Power Control Relative power tolerance for UL-MIMO	787
6.3.5B.2.1	Test purpose	787
6.3.5B.2.2	Test applicability	787
6.3.5B.2.3	Minimum conformance requirement	787
6.3.5B.2.4	Test description	788
6.3.5B.2.5	Test requirement	794
6.3.5B.3	Aggregate power control tolerance for UL-MIMO	804
6.3.5B.3.1	Test purpose	804
6.3.5B.3.2	Test applicability	804
6.3.5B.3.3	Minimum conformance requirement	804
6.3.5B.3.4	Test description	804
6.3.5B.3.5	Test requirement	806
6.3.5C	Power Control for DC	807
6.3.5C.1	.....	807
6.3.5C.2	Power Control Relative power tolerance for Dual Connectivity	807
6.3.5C.2.1	Test purpose	807
6.3.5C.2.2	Test applicability	807
6.3.5C.2.3	Minimum conformance requirement	807
6.3.5C.2.4	Test description	807
6.3.5C.2.5	Test requirement	815
6.3.5C.2_1	Power Control Relative power tolerance for asynchronous Dual Connectivity	824
6.3.5C.2_1.1	Test purpose	824
6.3.5C.2_1.2	Test applicability	824
6.3.5C.2_1.3	Minimum conformance requirement	824
6.3.5C.2_1.4	Test description	825
6.3.5C.2_1.5	Test requirement	833
6.3.5D	.....	842
6.3.5E	Power Control for UE category 0	842
6.3.5E.1	Power Control Absolute power tolerance for UE category 0	842
6.3.5E.1.1	Test purpose	842
6.3.5E.1.2	Minimum conformance requirement	842
6.3.5E.1.3	Test applicability	842

6.3.5E.1.4	Test description	843
6.3.5E.1.5	Test requirement	843
6.3.5E.2	Power Control Relative power tolerance for UE category 0	844
6.3.5E.2.1	Test purpose	844
6.3.5E.2.2	Test applicability	844
6.3.5E.2.3	Minimum conformance requirement	844
6.3.5E.2.4	Test description	844
6.3.5E.2.5	Test requirement	853
6.3.5E.3	Aggregate power control tolerance for UE category 0	854
6.3.5E.3.1	Test purpose	854
6.3.5E.3.2	Test applicability	854
6.3.5E.3.3	Minimum conformance requirement	854
6.3.5E.3.4	Test description	854
6.3.5E.3.5	Test requirement	866
6.3.5EA	Power control for UE category M1	866
6.3.5EA.1	Power Control Absolute power tolerance for UE category M1	866
6.3.5EA.1.1	Test purpose	866
6.3.5EA.1.2	Test applicability	866
6.3.5EA.1.3	Minimum conformance requirement	866
6.3.5EA.1.4	Test description	867
6.3.5EA.1.5	Test requirement	868
6.3.5EA.2	Power Control Relative power tolerance for UE category M1	869
6.3.5EA.2.1	Test purpose	869
6.3.5EA.2.2	Test applicability	869
6.3.5EA.2.3	Minimum conformance requirement	869
6.3.5EA.2.4	Test description	870
6.3.5EA.2.5	Test requirement	879
6.3.5EA.3	Aggregate power control tolerance for UE category M1	882
6.3.5EA.3.1	Test purpose	882
6.3.5EA.3.2	Test applicability	882
6.3.5EA.3.3	Minimum conformance requirement	882
6.3.5EA.3.4	Test description	882
6.3.5EA.3.5	Test requirement	885
6.3.5EA.3_1	Aggregate power control tolerance for UE category M1 (CE Mode B)	886
6.3.5EA.3_1.1	Test purpose	886
6.3.5EA.3_1.2	Test applicability	886
6.3.5EA.3_1.3	Minimum conformance requirement	886
6.3.5EA.3_1.4	Test description	887
6.3.5EA.3_1.5	Test requirement	888
6.3.5F	Power Control for category NB1	888
6.3.5F.1	Power Control Absolute power tolerance for category NB1	888
6.3.5F.1.1	Test purpose	888
6.3.5F.1.2	Test applicability	888
6.3.5F.1.3	Minimum conformance requirements	888
6.3.5F.1.4	Test description	889
6.3.5F.1.5	Test requirement	891
6.3.5F.2	Power Control Relative power tolerance for category NB1	892
6.3.5F.2.1	Test purpose	892
6.3.5F.2.2	Test applicability	892
6.3.5F.2.3	Minimum conformance requirements	892
6.3.5F.2.4	Test description	892
6.3.5F.2.5	Test requirement	894
6.4	Void	897
6.5	Transmit signal quality	898
6.5.1	Frequency Error	898
6.5.1.1	Test purpose	898
6.5.1.2	Test applicability	898
6.5.1.3	Minimum conformance requirements	898
6.5.1.4	Test description	898
6.5.1.4.1	Initial condition	898
6.5.1.4.2	Test procedure	899
6.5.1.4.3	Message contents	900

6.5.1.5	Test requirement	900
6.5.1A	Frequency error for CA.....	900
6.5.1A.0	Minimum conformance requirements	900
6.5.1A.1	Frequency error for CA (intra-band contiguous DL CA and UL CA)	900
6.5.1A.1.1	Test purpose	900
6.5.1A.1.2	Test applicability	900
6.5.1A.1.3	Minimum conformance requirements.....	900
6.5.1A.1.4	Test description	900
6.5.1A.1.5	Test Requirements.....	902
6.5.1A.2	Frequency error for CA (inter-band DL CA and UL CA).....	902
6.5.1A.2.1	Test purpose	902
6.5.1A.2.2	Test applicability	902
6.5.1A.2.3	Minimum conformance requirements.....	902
6.5.1A.2.4	Test description	902
6.5.1A.2.4.3	Message contents.....	904
6.5.1A.2.5	Test requirement.....	904
6.5.1A.3	Frequency error for CA (intra-band non-contiguous DL CA and UL CA).....	904
6.5.1A.3.1	Test purpose	904
6.5.1A.3.2	Test applicability	904
6.5.1A.3.3	Minimum conformance requirements.....	904
6.5.1A.3.4	Test description	904
6.5.1A.3.5	Test Requirements	905
6.5.1A.4.1	Frequency error for CA (intra-band contiguous 3DL CA and 3UL CA)	905
6.5.1A.4.1.1	Test purpose	906
6.5.1A.4.1.2	Test applicability	906
6.5.1A.4.1.3	Minimum conformance requirements.....	906
6.5.1A.4.1.4	Test description	906
6.5.1A.4.1.5	Test Requirements.....	908
6.5.1A.4.2	Frequency error for CA (inter-band 3DL CA and 3UL CA).....	908
6.5.1A.4.2.1	Test purpose	908
6.5.1A.4.2.2	Test applicability	908
6.5.1A.4.2.3	Minimum conformance requirements.....	908
6.5.1A.4.2.4	Test description	909
6.5.1A.4.2.4.3	Message contents.....	910
6.5.1A.4.2.5	Test requirement.....	910
6.5.1B	Frequency Error for UL-MIMO.....	910
6.5.1B.1	Test purpose	910
6.5.1B.2	Test applicability.....	910
6.5.1B.3	Minimum conformance requirements	910
6.5.1B.4	Test description	910
6.5.1B.4.1	Initial condition	910
6.5.1B.4.2	Test procedure	911
6.5.1B.4.3	Message contents.....	912
6.5.1B.5	Test requirement	912
6.5.1C	.....	912
6.5.1D	Frequency Error for ProSe.....	912
6.5.1D.0	Minimum conformance requirements	912
6.5.1D.1	Frequency error for ProSe Direct Discovery.....	912
6.5.1D.1.1	Test purpose	912
6.5.1D.1.2	Test applicability	912
6.5.1D.1.3	Minimum conformance requirements.....	912
6.5.1D.1.4	Test description	913
6.5.1D.1.5	Test requirement	914
6.5.1D.2	Frequency error for ProSe Direct Communication	914
6.5.1D.2.1	Test purpose	915
6.5.1D.2.2	Test applicability	915
6.5.1D.2.3	Minimum conformance requirements.....	915
6.5.1D.2.4	Test description	915
6.5.1D.2.5	Test requirements	915
6.5.1E	Frequency Error for UE category 0	915
6.5.1E.1	Test purpose	915
6.5.1E.2	Test applicability.....	915

6.5.1E.3	Minimum conformance requirements	915
6.5.1E.4	Test description	916
6.5.1E.4.1	Initial condition	916
6.5.1E.4.2	Test procedure	916
6.5.1E.4.3	Message contents	916
6.5.1E.5	Test requirement	916
6.5.1EA	Frequency Error for UE category M1	917
6.5.1EA.1	Test purpose	917
6.5.1EA.2	Test applicability	917
6.5.1EA.3	Minimum conformance requirements	917
6.5.1EA.4	Test description	917
6.5.1EA.4.1	Initial condition	917
6.5.1EA.4.2	Test procedure	918
6.5.1EA.4.3	Message contents	918
6.5.1EA.5	Test requirement	918
6.5.1EA_1	Frequency Error for UE category M1 (CEmodeB)	918
6.5.1EA_1.1	Test purpose	918
6.5.1EA_1.2	Test applicability	918
6.5.1EA_1.3	Minimum conformance requirements	918
6.5.1EA_1.4	Test description	919
6.5.1EA_1.4.1	Initial condition	919
6.5.1EA_1.4.2	Test procedure	920
6.5.1EA_1.4.3	Message contents	920
6.5.1EA_1.5	Test requirement	920
6.5.1F	Frequency Error for category NB1	920
6.5.1F.1	Test purpose	920
6.5.1F.2	Test applicability	920
6.5.1F.3	Minimum conformance requirements	921
6.5.1F.4	Test description	921
6.5.1F.4.1	Initial conditions	921
6.5.1F.4.2	Test procedure	922
6.5.1F.4.3	Message contents	922
6.5.1F.5	Test requirement	922
6.5.1G	Frequency Error for V2X Communication	922
6.5.1G.1	Frequency Error for V2X Communication / Non-concurrent with E-UTRA uplink transmission	922
6.5.1G.1.1	Test purpose	922
6.5.1G.1.2	Test applicability	922
6.5.1G.1.3	Minimum Conformance Requirements	922
6.5.1G.1.4	Test description	923
6.5.1G.1.4.1	Initial condition	923
6.5.1G.1.4.2	Test procedure	923
6.5.1G.1.4.3	Message contents	923
6.5.1G.1.5	Test requirement	924
6.5.2	Transmit modulation	924
6.5.2.1	Error Vector Magnitude (EVM)	924
6.5.2.1.1	Test Purpose	924
6.5.2.1.2	Test applicability	924
6.5.2.1.3	Minimum conformance requirements	924
6.5.2.1.4	Test description	925
6.5.2.1.5	Test requirement	929
6.5.2.1_1	Error Vector Magnitude (EVM) for UL 64QAM	929
6.5.2.1_1.1	Test Purpose	929
6.5.2.1_1.2	Test applicability	929
6.5.2.1_1.3	Minimum conformance requirements	930
6.5.2.1_1.4	Test description	930
6.5.2.1_1.5	Test requirement	931
6.5.2.1A	PUSCH-EVM with exclusion period	932
6.5.2.1A.1	Test purpose	932
6.5.2.1A.2	Test applicability	932
6.5.2.1A.3	Minimum conformance requirement	932
6.5.2.1A.4	Test description	932
6.5.2.1A.5	Test requirement	934

6.5.2.1E	Error Vector Magnitude (EVM) for UE category 0	934
6.5.2.1E.1	Error Vector Magnitude (EVM) for UE category 0.....	934
6.5.2.1E.2	PUSCH-EVM with exclusion period for UE category 0	936
6.5.2.1EA	Error Vector Magnitude (EVM) for UE category M1.....	939
6.5.2.1EA.1	Error Vector Magnitude (EVM) for UE category M1	939
6.5.2.1EA.2	PUSCH-EVM with exclusion period for UE category M1	942
6.5.2.1F.1	Error Vector Magnitude (EVM) for category NB1	946
6.5.2.1F.1.1	Test Purpose	946
6.5.2.1F.1.2	Test applicability	946
6.5.2.1F.1.3	Minimum conformance requirements.....	946
6.5.2.1F.1.4	Test description	946
6.5.2.1F.1.5	Test requirement	948
6.5.2.2	Carrier leakage	949
6.5.2.2.1	Test Purpose	949
6.5.2.2.2	Test applicability	949
6.5.2.2.3	Minimum conformance requirements.....	949
6.5.2.2.4	Test description	949
6.5.2.2.5	Test requirement	951
6.5.2.2E	Carrier leakage for UE category 0.....	951
6.5.2.2E.1	Test Purpose	951
6.5.2.2E.2	Test applicability	951
6.5.2.2E.3	Minimum conformance requirements.....	952
6.5.2.2E.4	Test description	952
6.5.2.2E.5	Test requirement	952
6.5.2.2EA	Carrier leakage for UE category M1	953
6.5.2.2EA.1	Test Purpose	953
6.5.2.2EA.2	Test applicability	953
6.5.2.2EA.3	Minimum conformance requirements.....	953
6.5.2.2EA.4	Test description	953
6.5.2.2EA.5	Test requirement	954
6.5.2.2F	Carrier leakage for category NB1	955
6.5.2.2F.1	Test Purpose	955
6.5.2.2F.2	Test applicability	955
6.5.2.2F.3	Minimum conformance requirements.....	955
6.5.2.2F.4	Test description	955
6.5.2.2F.5	Test requirement	957
6.5.2.3	In-band emissions for non allocated RB	957
6.5.2.3.1	Test Purpose	957
6.5.2.3.2	Test applicability	957
6.5.2.3.3	Minimum conformance requirements.....	957
6.5.2.3.4	Test description	959
6.5.2.3.5	Test requirement	962
6.5.2.3E	In-band emissions for non allocated RB for UE category 0.....	963
6.5.2.3E.1	Test Purpose	963
6.5.2.3E.2	Test applicability	963
6.5.2.3E.3	Minimum conformance requirements.....	963
6.5.2.3E.4	Test description	964
6.5.2.3E.5	Test requirement	964
6.5.2.3EA	In-band emissions for non allocated RB for UE category M1	965
6.5.2.3EA.1	Test Purpose	965
6.5.2.3EA.2	Test applicability	965
6.5.2.3EA.3	Minimum conformance requirements.....	965
6.5.2.3EA.4	Test description	966
6.5.2.3EA.5	Test requirement	969
6.5.2.3F	In-band emissions for non allocated RB for category NB1.....	970
6.5.2.3F.1	Test purpose	970
6.5.2.3F.2	Test applicability	970
6.5.2.3F.3	Minimum conformance requirements.....	971
6.5.2.3F.4	Test description	971
6.5.2.3F.4.1	Initial conditions	971
6.5.2.3F.4.2	Test procedure	972
6.5.2.3F.4.3	Message contents.....	972

6.5.2.3F.5	Test requirement	973
6.5.2.3G	In-band emissions for non-allocated RB for V2X Communication	974
6.5.2.3G.1	In-band emissions for non-allocated RB for V2X Communication / Non-concurrent with E- UTRA uplink transmissions	974
6.5.2.3G.1.1	Test Purpose	974
6.5.2.3G.1.2	Test applicability	975
6.5.2.3G.1.3	Minimum conformance requirements	975
6.5.2.3G.1.4	Test description	976
6.5.2.3G.1.4.1	Initial conditions	976
6.5.2.3G.1.4.2	Test procedure	977
6.5.2.3G.1.4.3	Message contents	978
6.5.2.3G.1.5	Test requirement	980
6.5.2.3G.2	.....	982
6.5.2.3G.3	In-band emissions for non-allocated RB for V2X Communication / Intra-band contiguous MCC operation	982
6.5.2.3G.3.1	Test purpose	982
6.5.2.3G.3.2	Test Applicability	982
6.5.2.3G.3.3	Minimum conformance requirements	982
6.5.2.3G.3.4	Test Description	984
6.5.2.3G.3.4.1	Initial Conditions	984
6.5.2.3G.3.4.2	Test Procedure	985
6.5.2.3G.3.4.3	Message Contents	986
6.5.2.3G.3.5	Test Requirement	987
6.5.2.4	EVM equalizer spectrum flatness	989
6.5.2.4.1	Test Purpose	989
6.5.2.4.2	Test applicability	990
6.5.2.4.3	Minimum conformance requirements	990
6.5.2.4.4	Test description	991
6.5.2.4.5	Test requirement	992
6.5.2.4E	EVM equalizer spectrum flatness for UE category 0	993
6.5.2.4E.1	Test Purpose	993
6.5.2.4E.2	Test applicability	993
6.5.2.4E.3	Minimum conformance requirements	993
6.5.2.4E.4	Test description	993
6.5.2.4E.5	Test requirement	994
6.5.2.4EA	EVM equalizer spectrum flatness for UE category M1	995
6.5.2.4EA.1	Test Purpose	995
6.5.2.4EA.2	Test applicability	995
6.5.2.4EA.3	Minimum conformance requirements	995
6.5.2.4EA.4	Test description	995
6.5.2.4EA.5	Test requirement	996
6.5.2.4G	EVM equalizer spectrum flatness for V2X transmission	997
6.5.2.4G.1	Spectrum Emission Mask for V2X Communication / Non-concurrent with E-UTRA uplink transmissions	997
6.5.2.4G.1.1	Test Purpose	998
6.5.2.4G.1.2	Test applicability	998
6.5.2.4G.1.3	Minimum conformance requirements	998
6.5.2.4G.1.4	Test description	999
6.5.2.4G.1.4.1	Initial conditions	999
6.5.2.4G.1.4.2	Test procedure	1000
6.5.2.4G.1.4.3	Message contents	1000
6.5.2.4G.1.5	Test requirement	1001
6.5.2A	Transmit modulation for CA	1002
6.5.2A.1	Error Vector Magnitude (EVM) for CA	1002
6.5.2A.1.0	Minimum conformance requirements	1002
6.5.2A.1.1	Error Vector Magnitude (EVM) for CA (intra-band contiguous DL CA and UL CA)	1002
6.5.2A.1.1_1	EVM for CA (intra-band contiguous DL CA and UL CA) with UL 64QAM	1005
6.5.2A.1.2	Error Vector Magnitude (EVM) for CA (inter-band DL CA and UL CA)	1008
6.5.2A.1.2_1	Error Vector Magnitude (EVM) for CA (inter-band DL CA and UL CA) for UL 64QAM	1011
6.5.2A.1.3	Error Vector Magnitude (EVM) for CA (intra-band non-contiguous DL CA and UL CA)	1013
6.5.2A.1.3_1	Error Vector Magnitude (EVM) for CA (intra-band non-contiguous DL CA and UL CA) for UL 64QAM	1016

6.5.2A.2	Carrier leakage for CA	1019
6.5.2A.2.0	Minimum conformance requirements	1019
6.5.2A.2.1	Carrier leakage for CA (intra-band contiguous DL CA and UL CA)	1019
6.5.2A.2.2	Carrier leakage for CA (inter-band DL CA and UL CA)	1022
6.5.2A.2.3	Carrier leakage for CA (intra-band non-contiguous DL CA and UL CA)	1024
6.5.2A.3	In-band emissions for non allocated RB for CA	1027
6.5.2A.3.0	Minimum conformance requirements	1027
6.5.2A.3.1	In-band emissions for non allocated RB for CA (intra-band contiguous DL CA and UL CA) ...	1028
6.5.2A.3.2	In-band emissions for non allocated RB for CA (inter-band DL CA and UL CA)	1033
6.5.2A.3.3	In-band emissions for non allocated RB for CA (intra-band non-contiguous DL CA and UL CA)	1037
6.5.2B	Transmit modulation for UL- MIMO	1040
6.5.2B.1	Error Vector Magnitude (EVM) for UL- MIMO	1040
6.5.2B.1.1	Test Purpose	1040
6.5.2B.1.2	Test applicability	1041
6.5.2B.1.3	Minimum conformance requirements	1041
6.5.2B.1.4	Test description	1041
6.5.2B.1.5	Test requirement	1043
6.5.2B.2	Carrier leakage for UL-MIMO	1044
6.5.2B.2.1	Test Purpose	1044
6.5.2B.2.2	Test applicability	1044
6.5.2B.2.3	Minimum conformance requirements	1044
6.5.2B.2.4	Test description	1044
6.5.2B.2.5	Test requirement	1045
6.5.2B.3	In-band emissions for non allocated RB for UL-MIMO	1046
6.5.2B.3.1	Test Purpose	1046
6.5.2B.3.2	Test applicability	1046
6.5.2B.3.3	Minimum conformance requirements	1046
6.5.2B.3.4	Test description	1047
6.5.2B.3.5	Test requirement	1049
6.5.2B.4	EVM equalizer spectrum flatness for UL-MIMO	1050
6.5.2B.4.1	Test Purpose	1050
6.5.2B.4.2	Test applicability	1050
6.5.2B.4.3	Minimum conformance requirements	1050
6.5.2B.4.4	Test description	1051
6.5.2B.4.5	Test requirement	1052
6.6	Output RF spectrum emissions	1053
6.6.1	Occupied bandwidth	1053
6.6.1.1	Test purpose	1053
6.6.1.2	Test applicability	1053
6.6.1.2	Minimum conformance requirements	1053
6.6.1.4	Test description	1054
6.6.1.4.1	Initial conditions	1054
6.6.1.4.2	Test procedure	1054
6.6.1.4.3	Message contents	1055
6.6.1.5	Test requirement	1055
6.6.1A	Occupied bandwidth for CA	1055
6.6.1A.0	Minimum conformance requirements	1055
6.6.1A.1	Occupied bandwidth for CA (intra-band contiguous DL CA and UL CA)	1055
6.6.1A.1.1	Test purpose	1055
6.6.1A.1.2	Test applicability	1056
6.6.1A.1.3	Minimum conformance requirements	1056
6.6.1A.1.4	Test description	1056
6.6.1A.1.5	Test Requirements	1058
6.6.1A.2	Occupied bandwidth for CA (inter-band DL CA and UL CA)	1058
6.6.1A.2.1	Test purpose	1058
6.6.1A.2.2	Test applicability	1058
6.6.1A.2.3	Minimum conformance requirements	1058
6.6.1A.2.4	Test description	1058
6.6.1A.2.5	Test Requirements	1060
6.6.1A.3	Occupied bandwidth for CA (intra-band non-contiguous DL CA and UL CA)	1060
6.6.1A.3.1	Test purpose	1060

6.6.1A.3.2	Test applicability	1060
6.6.1A.3.3	Minimum conformance requirements.....	1060
6.6.1A.3.4	Test description	1060
6.6.1A.3.5	Test Requirements.....	1062
6.6.1B	Occupied bandwidth for UL-MIMO.....	1062
6.6.1B.1	Test purpose	1062
6.6.1B.2	Test applicability.....	1062
6.6.1B.3	Minimum conformance requirements	1062
6.6.1B.4	Test description	1063
6.6.1B.4.1	Initial conditions	1063
6.6.1B.4.2	Test procedure	1063
6.6.1B.4.3	Message contents.....	1064
6.6.1E	Occupied bandwidth for UE category 0.....	1064
6.6.1E.1	Test purpose	1064
6.6.1E.2	Test applicability.....	1064
6.6.1E.2	Minimum conformance requirements	1064
6.6.1E.4	Test description	1064
6.6.1E.4.1	Initial conditions	1064
6.6.1E.4.2	Test procedure	1065
6.6.1E.4.3	Message contents.....	1065
6.6.1E.5	Test requirement	1065
6.6.1EA	Occupied bandwidth for UE category M1	1065
6.6.1EA.1	Test purpose	1065
6.6.1EA.2	Test applicability.....	1065
6.6.1EA.2	Minimum conformance requirements	1065
6.6.1EA.4	Test description	1066
6.6.1EA.4.1	Initial conditions.....	1066
6.6.1EA.4.2	Test procedure	1066
6.6.1EA.4.3	Message contents.....	1067
6.6.1EA.5	Test requirement	1067
6.6.1F	Occupied bandwidth for category NB1	1067
6.6.1F.1	Test purpose	1067
6.6.1F.2	Test applicability.....	1067
6.6.1F.3	Minimum conformance requirements	1067
6.6.1F.4	Test description	1067
6.6.1F.4.1	Initial conditions	1067
6.6.1F.4.2	Test procedure	1068
6.6.1F.4.3	Message contents.....	1068
6.6.1F.5	Test requirement	1069
6.6.1G	Occupied bandwidth for V2X Communication	1069
6.6.1G.1	Occupied bandwidth for V2X Communication / Non-concurrent with E-UTRA uplink transmission	1069
6.6.1G.1.1	Test purpose	1069
6.6.1G.1.2	Test applicability	1069
6.6.1G.1.3	Minimum conformance requirements.....	1069
6.6.1G.1.4	Test description	1069
6.6.1G.1.4.1	Initial conditions	1069
6.6.1G.1.4.2	Test procedure.....	1070
6.6.1G.1.4.3	Message contents	1070
6.6.1G.1.5	Test requirements	1070
6.6.1G.2	Occupied bandwidth for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmissions	1071
6.6.1G.2.1	Test purpose	1071
6.6.1G.2.2	Test applicability	1071
6.6.1G.2.3	Minimum conformance requirements.....	1071
6.6.1G.2.4	Test description	1071
6.6.1G.2.4.1	Initial conditions	1071
6.6.1G.2.4.2	Test procedure.....	1072
6.6.1G.2.4.3	Message contents	1073
6.6.1G.2.5	Test requirements	1073
6.6.2	Out of band emission.....	1073
6.6.2.1	Spectrum Emission Mask.....	1073

6.6.2.1.1	Test purpose	1073
6.6.2.1.2	Test applicability	1073
6.6.2.1.3	Minimum conformance requirements.....	1073
6.6.2.1.4	Test description	1074
6.6.2.1.5	Test requirements	1076
6.6.2.1_1	Spectrum Emission Mask for Multi-Cluster PUSCH.....	1077
6.6.2.1_1.1	Test purpose	1077
6.6.2.1_1.2	Test applicability	1077
6.6.2.1_1.3	Minimum conformance requirements.....	1077
6.6.2.1_1.4	Test description	1078
6.6.2.1_1.5	Test requirements	1079
6.6.2.1A	Spectrum emission mask for CA.....	1080
6.6.2.1A.0	Minimum conformance requirements.....	1080
6.6.2.1A.1	Spectrum emission mask for CA (intra-band contiguous DL CA and UL CA)	1081
6.6.2.1A.2	Spectrum emission mask for CA (inter-band DL CA and UL CA).....	1087
6.6.2.1A.3	Spectrum emission mask for CA (intra-band non-contiguous DL CA and UL CA)	1091
6.6.2.1B	Spectrum Emission Mask for UL-MIMO	1094
6.6.2.1B.1	Test purpose	1094
6.6.2.1B.2	Test applicability	1094
6.6.2.1B.3	Minimum conformance requirements.....	1094
6.6.2.1B.4	Test description	1095
6.6.2.1B.5	Test requirements	1097
6.6.2.1E	Spectrum Emission Mask for UE category 0	1098
6.6.2.1E.1	Test purpose	1098
6.6.2.1E.2	Test applicability	1098
6.6.2.1E.3	Minimum conformance requirements.....	1098
6.6.2.1E.4	Test description	1098
6.6.2.1E.5	Test requirements	1099
6.6.2.1EA	Spectrum Emission Mask for UE category M1.....	1100
6.6.2.1EA.1	Test purpose	1100
6.6.2.1EA.2	Test applicability	1100
6.6.2.1EA.3	Minimum conformance requirements.....	1101
6.6.2.1EA.4	Test description	1101
6.6.2.1EA.5	Test requirements	1103
6.6.2.1F	Spectrum Emission Mask for category NB1	1104
6.6.2.1F.1	Test purpose	1104
6.6.2.1F.2	Test applicability	1104
6.6.2.1F.3	Minimum conformance requirements.....	1104
6.6.2.1F.4	Test description	1105
6.6.2.1F.5	Test requirements	1106
6.6.2.1G	Spectrum Emission Mask for V2X Communication.....	1107
6.6.2.1G.1	Spectrum Emission Mask for V2X Communication Non-concurrent with E-UTRA uplink transmissions	1107
6.6.2.1G.1.1	Test purpose.....	1107
6.6.2.1G.1.2	Test applicability.....	1107
6.6.2.1G.1.3	Minimum conformance requirements	1107
6.6.2.1G.1.4	Test description.....	1108
6.6.2.1G.1.4.1	Initial conditions.....	1108
6.6.2.1G.1.4.2	Test procedure.....	1108
6.6.2.1G.1.4.3	Message contents.....	1109
6.6.2.1G.1.5	Test requirements.....	1110
6.6.2.1G.2	.....	1111
6.6.2.1G.3	Spectrum Emission Mask for V2X Communication / Intra-band contiguous MCC operation ...	1111
6.6.2.1G.3.1	Test purpose.....	1111
6.6.2.1G.3.2	Test Applicability	1111
6.6.2.1G.3.3	Minimum conformance requirements	1111
6.6.2.1G.3.4	Test Description	1112
6.6.2.1G.3.4.1	Initial conditions.....	1112
6.6.2.1G.3.4.2	Test procedure.....	1112
6.6.2.1G.3.4.3	Message Contents.....	1113
6.6.2.1G.3.5	Test Requirement	1115
6.6.2.2	Additional Spectrum Emission Mask.....	1115

6.6.2.2.1	Test purpose	1115
6.6.2.2.2	Test applicability	1115
6.6.2.2.3	Minimum conformance requirements.....	1115
6.6.2.2.4	Test description	1117
6.6.2.2.5	Test requirements	1132
6.6.2.2_1	Additional Spectrum Emission Mask for UL 64QAM.....	1136
6.6.2.2_1.1	Test purpose	1136
6.6.2.2_1.2	Test applicability	1136
6.6.2.2_1.3	Minimum conformance requirements.....	1136
6.6.2.2_1.4	Test description	1136
6.6.2.2_1.5	Test requirements	1143
6.6.2.2_2	Additional Spectrum Emission Mask with PUSCH frequency hopping	1143
6.6.2.2_2.1	Test purpose	1143
6.6.2.2_2.2	Test applicability	1143
6.6.2.2_2.3	Minimum conformance requirements.....	1143
6.6.2.2_2.4	Test description	1143
6.6.2.2_2.5	Test requirements	1144
6.6.2.2A	Additional Spectrum Emission Mask for CA.....	1148
6.6.2.2A.1	Additional Spectrum Emission Mask for CA (intra-band contiguous DL CA and UL CA)	1148
6.6.2.2A.1_1	Additional Spectrum Emission Mask for CA (intra-band contiguous DL CA and UL CA) for UL 64QAM	1151
6.6.2.2A.2	Additional Spectrum Emission Mask for CA (inter-band DL CA and UL CA).....	1153
6.6.2.2A.3	Additional Spectrum Emission Mask for CA (intra-band non-contiguous DL CA and UL CA)	1167
6.6.2.2A.2_1	Additional Spectrum Emission Mask for CA (inter-band DL CA and UL CA) for UL 64QAM.....	1171
6.6.2.2B	Additional Spectrum Emission Mask for UL-MIMO	1181
6.6.2.2B.1	Test purpose	1181
6.6.2.2B.2	Test applicability	1181
6.6.2.2B.3	Minimum conformance requirements.....	1181
6.6.2.2B.4	Test description	1181
6.6.2.2B.5	Test requirements	1189
6.6.2.2E	Additional Spectrum Emission Mask for UE category 0	1189
6.6.2.2E.1	Test purpose	1189
6.6.2.2E.2	Test applicability	1189
6.6.2.2E.3	Minimum conformance requirements.....	1189
6.6.2.2E.4	Test description	1189
6.6.2.2E.5	Test requirements	1193
6.6.2.2EA	Additional Spectrum Emission Mask for UE category M1	1197
6.6.2.2EA.1	Test purpose	1197
6.6.2.2EA.2	Test applicability	1197
6.6.2.2EA.3	Minimum conformance requirements.....	1197
6.6.2.2EA.4	Test description	1198
6.6.2.2EA.5	Test requirements	1202
6.6.2.2G	Additional Spectrum Emission Mask for V2X Communication	1204
6.6.2.2G.1	Additional Spectrum Emission Mask for V2X Communication / Non-concurrent with E-UTRA uplink transmissions	1204
6.6.2.2G.1.1	Test purpose.....	1204
6.6.2.2G.1.2	Test applicability.....	1204
6.6.2.2G.1.3	Minimum conformance requirements	1205
6.6.2.2G.1.4	Test description.....	1205
6.6.2.2G.1.4.1	Initial conditions.....	1205
6.6.2.2G.1.4.2	Test procedure.....	1206
6.6.2.2G.1.4.3	Message contents.....	1206
6.6.2.2G.1.5	Test requirements.....	1207
6.6.2.3	Adjacent Channel Leakage power Ratio	1207
6.6.2.3.1	Test purpose	1207
6.6.2.3.2	Test applicability	1207
6.6.2.3.3	Minimum conformance requirements.....	1207
6.6.2.3.4	Test description	1209
6.6.2.3.5	Test requirement	1211
6.6.2.3_1	Adjacent Channel Leakage power Ratio for HPUE.....	1212
6.6.2.3_1.1	Test purpose	1212

6.6.2.3_1.2	Test applicability	1212
6.6.2.3_1.3	Minimum conformance requirements.....	1212
6.6.2.3_1.4	Test description	1213
6.6.2.3_1.5	Test requirement.....	1214
6.6.2.3_2	Adjacent Channel Leakage power Ratio for Multi-Cluster PUSCH	1214
6.6.2.3_2.1	Test purpose	1214
6.6.2.3_2.2	Test applicability	1214
6.6.2.3_2.3	Minimum conformance requirements.....	1215
6.6.2.3_2.4	Test description	1216
6.6.2.3_2.5	Test requirement.....	1218
6.6.2.3_3	Adjacent Channel Leakage power Ratio for UL 64QAM.....	1219
6.6.2.3_3.1	Test purpose	1219
6.6.2.3_3.2	Test applicability	1219
6.6.2.3_3.3	Minimum conformance requirements.....	1219
6.6.2.3_3.4	Test description	1219
6.6.2.3_3.5	Test requirement.....	1220
6.6.2.3_4	Adjacent Channel Leakage power Ratio for Multi-Cluster PUSCH with UL 64QAM	1221
6.6.2.3_4.1	Test purpose	1221
6.6.2.3_4.2	Test applicability	1221
6.6.2.3_4.3	Minimum conformance requirements.....	1221
6.6.2.3_4.4	Test description	1221
6.6.2.3_4.5	Test requirement.....	1222
6.6.2.3A	Adjacent Channel Leakage power Ratio for CA.....	1223
6.6.2.3A.0	Minimum conformance requirements.....	1223
6.6.2.3A.0.1	Minimum requirement UTRA for CA	1223
6.6.2.3A.0.2	Minimum requirements for CA E-UTRA.....	1224
6.6.2.3A.1	Adjacent Channel Leakage power Ratio for CA (intra-band contiguous DL CA and UL CA)...	1225
6.6.2.3A.1_1	Adjacent Channel Leakage power Ratio for CA (intra-band contiguous DL CA and UL CA) for UL 64QAM.....	1229
6.6.2.3A.2	Adjacent Channel Leakage power Ratio for CA (inter-band DL CA and UL CA)	1231
6.6.2.3A.2_1	Adjacent Channel Leakage power Ratio for CA (inter-band DL CA and UL CA) for UL 64QAM.....	1235
6.6.2.3A.3	Adjacent Channel Leakage power Ratio for CA (intra-band non-contiguous DL CA and UL CA).....	1238
6.6.2.3A.3.1	Test purpose.....	1238
6.6.2.3A.3_1	Adjacent Channel Leakage power Ratio for CA (intra-band non-contiguous DL CA and UL CA) for UL 64QAM.....	1238
6.6.2.3A.3_1.1	Test purpose.....	1238
6.6.2.3A.3_1.2	Test applicability.....	1238
6.6.2.3A.3_1.3	Minimum conformance requirements	1238
6.6.2.3A.3_1.4	Test description.....	1238
6.6.2.3A.3_1.4.1	Initial condition	1238
6.6.2.3A.3_1.4.3	Message contents.....	1240
6.6.2.3A.3_1.5	Test Requirements	1240
6.6.2.3A.3.2	Test applicability.....	1240
6.6.2.3A.3.3	Minimum conformance requirements	1240
6.6.2.3A.3.4	Test description.....	1240
6.6.2.3A.3.4.1	Initial condition	1240
6.6.2.3A.3.4.3	Message contents.....	1242
6.6.2.3A.3.5	Test Requirements	1242
6.6.2.3A.3.5.1	Test requirements E-UTRA.....	1242
6.6.2.3B	Adjacent Channel Leakage power Ratio for UL-MIMO.....	1243
6.6.2.3B.1	Test purpose	1243
6.6.2.3B.2	Test applicability	1243
6.6.2.3B.3	Minimum conformance requirements.....	1243
6.6.2.3B.4	Test description	1245
6.6.2.3B.5	Test requirement.....	1247
6.6.2.3E	Adjacent Channel Leakage power Ratio for UE category 0	1248
6.6.2.3E.1	Test purpose	1248
6.6.2.3E.2	Test applicability	1248
6.6.2.3E.3	Minimum conformance requirements.....	1248
6.6.2.3E.4	Test description	1248

6.6.2.3E.5	Test requirement	1249
6.6.2.3EA	Adjacent Channel Leakage power Ratio for UE category M1	1250
6.6.2.3EA.1	Test purpose	1250
6.6.2.3EA.2	Test applicability	1250
6.6.2.3EA.3	Minimum conformance requirements	1251
6.6.2.3EA.4	Test description	1252
6.6.2.3EA.5	Test requirement	1254
6.6.2.3F	Adjacent Channel Leakage power Ratio for category NB1	1255
6.6.2.3F.1	Test purpose	1255
6.6.2.3F.2	Test applicability	1255
6.6.2.3F.3	Minimum conformance requirements	1256
6.6.2.3F.4	Test description	1256
6.6.2.3F.5	Test requirement	1258
6.6.2.4	Void	1258
6.6.3	Spurious emissions	1258
6.6.3.1	Transmitter Spurious emissions	1259
6.6.3.1.1	Test purpose	1259
6.6.3.1.2	Test applicability	1259
6.6.3.1.3	Minimum conformance requirements	1259
6.6.3.1.4	Test description	1259
6.6.3.1.5	Test requirement	1261
6.6.3.1_1	Transmitter Spurious emissions for Multi-Cluster PUSCH	1261
6.6.3.1_1.1	Test purpose	1261
6.6.3.1_1.2	Test applicability	1261
6.6.3.1_1.3	Minimum conformance requirements	1261
6.6.3.1_1.4	Test description	1262
6.6.3.1_1.5	Test requirement	1263
6.6.3.1A	Transmitter Spurious emissions for CA	1264
6.6.3.1A.0	Minimum conformance requirements	1264
6.6.3.1A.1	Transmitter Spurious emissions for CA (intra-band contiguous DL CA and UL CA)	1265
6.6.3.1A.2	Transmitter Spurious emissions for CA (inter-band DL CA and UL CA)	1268
6.6.3.1A.3	Transmitter Spurious emissions for CA (intra-band non-contiguous DL CA and UL CA)	1275
6.6.3.2	Spurious emission band UE co-existence	1277
6.6.3.2.1	Test purpose	1277
6.6.3.2.2	Test applicability	1277
6.6.3.2.3	Minimum conformance requirements	1277
6.6.3.2.4	Test description	1308
6.6.3.2.5	Test requirement	1312
6.6.3.2_1	Void	1315
6.6.3.2A	Spurious emission band UE co-existence for CA	1315
6.6.3.2A.0	Minimum conformance requirements	1315
6.6.3.2A.1	Spurious emission band UE co-existence for CA (intra-band contiguous DL CA and UL CA)	1337
6.6.3.2A.2	Spurious emission band UE co-existence for CA (inter-band DL CA and UL CA)	1339
6.6.3.2A.3	Spurious emission band UE co-existence for CA (intra-band non-contiguous DL CA and UL CA)	1354
6.6.3.3	Additional spurious emissions	1356
6.6.3.3.1	Test purpose	1356
6.6.3.3.2	Test applicability	1356
6.6.3.3.3	Minimum conformance requirements	1356
6.6.3.3.4	Test description	1363
6.6.3.3.5	Test requirement	1396
6.6.3.3_1	Additional spurious emissions for UL 64QAM	1404
6.6.3.3_1.1	Test purpose	1404
6.6.3.3_1.2	Test applicability	1404
6.6.3.3_1.3	Minimum conformance requirements	1404
6.6.3.3_1.4	Test description	1405
6.6.3.3_1.5	Test requirement	1416
6.6.3.3A	Additional spurious emissions for CA	1416
6.6.3.3A.1	Additional spurious emissions for CA (intra-band contiguous DL CA and UL CA)	1416
6.6.3.3A.1.4	Test description	1419
6.6.3.3A.1.4.1	Initial conditions	1419
6.6.3.3A.1.4.2	Test procedure	1423

6.6.3.3A.1.4.3	Message contents	1423
6.6.3.3A.1.5	Test requirement	1424
6.6.3.3A.1_1	Additional spurious emissions for CA (intra-band contiguous DL CA and UL CA) for UL 64QAM.....	1427
6.6.3.3A.1_1.4	Test description.....	1427
6.6.3.3A.1_1.4.1	Initial conditions	1427
6.6.3.3A.1_1.4.2	Test procedure.....	1432
6.6.3.3A.1_1.4.3	Message contents	1432
6.6.3.3A.1_1.5	Test requirement	1432
6.6.3.3A.2	Additional spurious emissions for CA (inter-band DL CA and UL CA)	1432
6.6.3.3A.2.4	Test description.....	1432
6.6.3.3A.2.4.1	Initial conditions	1432
6.6.3.3A.2.4.2	Test procedures	1438
6.6.3.3A.2.4.3	Message contents	1438
6.6.3.3A.2.5	Test requirement	1438
6.6.3.3A.2_1	Additional spurious emissions for CA (inter-band DL CA and UL CA) for UL 64QAM	1438
6.6.3.3A.2_1.4	Test description.....	1439
6.6.3.3A.2_1.4.1	Initial conditions	1439
6.6.3.3A.2_1.4.2	Test procedures	1444
6.6.3.3A.2_1.4.3	Message contents	1444
6.6.3.3A.2_1.5	Test requirement	1444
6.6.3.3A.3	Additional spurious emissions for CA (intra-band non-contiguous DL CA and UL CA)	1444
6.6.3B	Spurious emission for UL-MIMO	1444
6.6.3B.1	Transmitter Spurious emissions for UL-MIMO	1444
6.6.3B.1.1	Test purpose	1444
6.6.3B.1.2	Test applicability	1444
6.6.3B.1.3	Minimum conformance requirements.....	1444
6.6.3B.1.4	Test description	1445
6.6.3B.1.5	Test requirement	1446
6.6.3B.2	Spurious emission band UE co-existence for UL-MIMO	1446
6.6.3B.2.1	Test purpose	1446
6.6.3B.2.2	Test applicability	1446
6.6.3B.2.3	Minimum conformance requirements.....	1446
6.6.3B.2.4	Test description	1447
6.6.3B.2.5	Test requirement	1449
6.6.3B.3	Additional spurious emissions for UL-MIMO	1452
6.6.3B.3.1	Test purpose	1452
6.6.3B.3.2	Test applicability	1452
6.6.3B.3.3	Minimum conformance requirements.....	1452
6.6.3B.3.4	Test description	1452
6.6.3B.3.5	Test requirement	1474
6.6.3E	Spurious emission for UE category 0	1474
6.6.3E.1	Transmitter Spurious emissions for UE category 0.....	1474
6.6.3E.1.1	Test purpose	1474
6.6.3E.1.2	Test applicability	1474
6.6.3E.1.3	Minimum conformance requirements.....	1474
6.6.3E.1.4	Test description	1474
6.6.3E.1.5	Test requirement	1475
6.6.3E.2	Spurious emission band UE co-existence for UE category 0	1476
6.6.3E.2.1	Test purpose	1476
6.6.3E.2.2	Test applicability	1476
6.6.3E.2.3	Minimum conformance requirements.....	1476
6.6.3E.2.4	Test description	1479
6.6.3E.2.5	Test requirement	1481
6.6.3E.3	Additional spurious emissions for UE category 0.....	1482
6.6.3E.3.1	Test purpose	1482
6.6.3E.3.2	Test applicability	1482
6.6.3E.3.3	Minimum conformance requirements.....	1482
6.6.3E.3.4	Test description	1483
6.6.3E.3.5	Test requirement	1484
6.6.3EA	Spurious emission for UE category M1	1485
6.6.3EA.1	Transmitter Spurious emissions for UE category M1	1485

6.6.3EA.1.1	Test purpose	1485
6.6.3EA.1.2	Test applicability	1485
6.6.3EA.1.3	Minimum conformance requirements.....	1485
6.6.3EA.1.4	Test description	1485
6.6.3EA.1.5	Test requirement	1487
6.6.3EA.2	Spurious emission band UE co-existence for UE category M1	1487
6.6.3EA.2.1	Test purpose	1487
6.6.3EA.2.2	Test applicability	1487
6.6.3EA.2.3	Minimum conformance requirements.....	1487
6.6.3EA.2.4	Test description	1492
6.6.3EA.2.5	Test requirement	1494
6.6.3EA.3	Additional spurious emissions for UE category M1	1495
6.6.3EA.3.1	Test purpose	1495
6.6.3EA.3.2	Test applicability	1495
6.6.3EA.3.3	Minimum conformance requirements.....	1495
6.6.3EA.3.4	Test description	1499
6.6.3EA.3.5	Test requirement	1505
6.6.3F	Spurious emission for category NB1	1506
6.6.3F.1	Transmitter Spurious emissions for category NB1	1506
6.6.3F.1.1	Test purpose	1506
6.6.3F.1.2	Test applicability	1506
6.6.3F.1.3	Minimum conformance requirements.....	1506
6.6.3F.1.4	Test description	1506
6.6.3F.1.5	Test requirement	1507
6.6.3F.2	Spurious emission band UE co-existence for category NB1	1508
6.6.3F.2.1	Test purpose	1508
6.6.3F.2.2	Test applicability	1508
6.6.3F.2.3	Minimum conformance requirements.....	1508
6.6.3F.2.4	Test description	1515
6.6.3F.2.5	Test requirement	1517
6.6.3G.1	Transmitter Spurious emissions for V2X Communication / Non-concurrent with E-UTRA uplink transmissions.....	1517
6.6.3G.1.1	Test purpose	1517
6.6.3G.1.2	Test applicability	1517
6.6.3G.1.3	Minimum conformance requirements.....	1518
6.6.3G.1.4	Test description	1518
6.6.3G.1.4.1	Initial conditions	1518
6.6.3G.1.4.2	Test procedure.....	1519
6.6.3G.1.4.3	Message contents	1519
6.6.3G.1.5	Test requirement	1521
6.6.3G.1_1	Spurious emission band UE co-existence for V2X Communication / Non-concurrent with E-UTRA uplink transmissions	1521
6.6.3G.1_1.1	Test purpose	1522
6.6.3G.1_1.2	Test applicability	1522
6.6.3G.1_1.3	Minimum conformance requirements.....	1522
6.6.3G.1_1.4	Test description	1528
6.6.3G.1_1.4.1	Initial conditions	1528
6.6.3G.1_1.4.2	Test procedure.....	1529
6.6.3G.1_1.4.3	Message contents	1529
6.6.3G.1_1.5	Test requirement	1529
6.6.3G.2	.....	1529
6.6.3G.3	Introduction of Spurious emission for V2X Communication / Intra-band contiguous MCC operation	1529
6.6.3G.3.1	Test purpose	1529
6.6.3G.3.2	Test applicability	1530
6.6.3G.3.3	Minimum conformance requirements.....	1530
6.6.3G.3.4	Test description	1530
6.6.3G.3.4.1	Initial conditions	1530
6.6.3G.3.4.2	Test procedure.....	1531
6.6.3G.3.4.3	Message contents	1531
6.6.3G.3.5	Test requirement	1533

6.6.3G.3_1	Spurious emission band UE co-existence for V2X Communication / Intra-band contiguous MCC operation	1533
6.6.3G.3_1.1	Test purpose	1533
6.6.3G.3_1.2	Test Applicability	1533
6.6.3G.3_1.3	Minimum conformance requirements	1534
6.6.3G.3_1.4	Test Description	1534
6.6.3G.3_1.4.1	Initial conditions	1534
6.6.3G.3_1.4.2	Test procedure	1535
6.6.3G.3_1.4.3	Message contents	1535
6.6.3G.3_1.5	Test requirement	1535
6.7	Transmit intermodulation	1535
6.7.1	Test purpose	1535
6.7.2	Test applicability	1535
6.7.3	Minimum conformance requirements	1535
6.7.4	Test description	1536
6.7.4.1	Initial conditions	1536
6.7.4.3	Test procedure	1537
6.7.4.3	Message contents	1537
6.7.5	Test requirement	1537
6.7A	Transmit intermodulation for CA	1537
6.7A.0	Minimum conformance requirements	1537
6.7A.1	Transmit intermodulation for CA (intra-band contiguous DL CA and UL CA)	1538
6.7A.1.1	Test purpose	1538
6.7A.1.2	Test applicability	1538
6.7A.1.3	Minimum conformance requirements	1538
6.7A.1.4	Test description	1538
6.7A.1.4.1	Initial conditions	1538
6.7A.1.4.2	Test procedure	1539
6.7A.1.4.3	Message contents	1540
6.7A.1.5	Test requirement	1540
6.7A.2	Transmit intermodulation for CA (inter-band DL CA and UL CA)	1540
6.7A.2.1	Test purpose	1540
6.7A.2.2	Test applicability	1540
6.7A.2.3	Minimum conformance requirements	1540
6.7A.2.4	Test description	1541
6.7A.2.4.1	Initial conditions	1541
6.7A.2.4.2	Test procedure	1542
6.7A.2.4.3	Message contents	1543
6.7A.2.5	Test requirement	1543
6.7B	Transmit intermodulation for UL-MIMO	1544
6.7B.1	Test purpose	1544
6.7B.2	Test applicability	1544
6.7B.3	Minimum conformance requirements	1544
6.7B.4	Test description	1544
6.7B.4.1	Initial conditions	1544
6.7B.4.2	Test procedure	1545
6.7B.4.3	Message contents	1546
6.7E	Transmit intermodulation for UE category 0	1546
6.7E.1	Test purpose	1546
6.7E.2	Test applicability	1546
6.7E.3	Minimum conformance requirements	1546
6.7E.4	Test description	1546
6.7E.4.1	Initial conditions	1546
6.7E.4.2	Test procedure	1546
6.7E.4.3	Message contents	1546
6.7E.5	Test requirement	1546
6.7EA	Transmit intermodulation for UE category M1	1547
6.7EA.1	Test purpose	1547
6.7EA.2	Test applicability	1547
6.7EA.3	Minimum conformance requirements	1547
6.7EA.4	Test description	1548
6.7EA.4.1	Initial conditions	1548

6.7EA.4.2	Test procedure.....	1548
6.7EA.4.3	Message contents	1549
6.7EA.5	Test requirement	1549
6.7F	Transmit intermodulation for category NB1	1549
6.7F.1	Test purpose.....	1549
6.7F.2	Test applicability	1549
6.7F.3	Minimum conformance requirements	1549
6.7F.4	Test description.....	1550
6.7F.4.1	Initial conditions	1550
6.7F.4.3	Test procedure.....	1551
6.7F.4.3	Message contents	1551
6.7F.5	Test requirement	1551
6.8	Time alignment	1551
6.8.1	Void	1552
6.8A	Void.....	1552
6.8B	Time alignment error for UL-MIMO	1552
6.8B.1	Test purpose.....	1552
6.8B.2	Test applicability	1552
6.8B.3	Minimum conformance requirements	1552
6.8B.4	Test description.....	1552
6.8B.4.1	Initial condition	1552
6.8B.4.2	Test procedure.....	1553
6.8B.4.3	Message contents	1553
6.8B.5	Test requirements.....	1553
7	Receiver Characteristics	1554
7.1	General	1554
7.2	Diversity characteristics	1555
7.3	Reference sensitivity level.....	1556
7.3.1	Test purpose.....	1556
7.3.2	Test applicability	1556
7.3.3	Minimum conformance requirements	1556
7.3.4	Test description.....	1587
7.3.4.1	Initial conditions	1587
7.3.4.2	Test procedure.....	1589
7.3.4.3	Message contents	1589
7.3.5	Test requirement	1591
7.3_1	Reference sensitivity level with 4 Rx antenna ports.....	1595
7.3_1.1	Test purpose.....	1595
7.3_1.2	Test applicability	1595
7.3_1.3	Minimum conformance requirements	1595
7.3_1.4	Test description.....	1595
7.3_1.4.1	Initial conditions	1595
7.3_1.4.2	Test procedure.....	1596
7.3_1.4.3	Message contents	1596
7.3_1.5	Test requirement	1597
7.3A	Reference sensitivity level for CA	1597
7.3A.0	Minimum conformance requirements	1597
7.3A.1	Reference sensitivity level for CA (intra-band contiguous DL CA and UL CA)	1667
7.3A.1.1	Test purpose	1667
7.3A.1.2	Test applicability	1667
7.3A.1.3	Minimum conformance requirements	1667
7.3A.1.4	Test description	1667
7.3A.1.4.1	Initial conditions	1667
7.3A.1.4.2	Test procedure	1669
7.3A.1.4.3	Message contents.....	1670
7.3A.1.5	Test requirement	1670
7.3A.2	Reference sensitivity level for CA (intra-band contiguous DL CA without UL CA).....	1671
7.3A.2.1	Test purpose	1671
7.3A.2.2	Test applicability	1671
7.3A.2.3	Minimum conformance requirements	1671
7.3A.2.4	Test description	1671

7.3A.2.4.1	Initial conditions	1671
7.3A.2.4.2	Test procedure	1672
7.3A.2.4.3	Message contents	1673
7.3A.2.5	Test requirement	1673
7.3A.3	Reference sensitivity level for CA (inter-band DL CA without UL CA)	1675
7.3A.3.1	Test purpose	1675
7.3A.3.2	Test applicability	1675
7.3A.3.3	Minimum conformance requirements	1675
7.3A.3.4	Test description	1675
7.3A.3.4.1	Initial conditions	1675
7.3A.3.4.2	Test procedure	1687
7.3A.3.4.3	Message contents	1688
7.3A.3.5	Test requirement	1688
7.3A.4	Reference sensitivity level for CA (intra-band non-contiguous DL CA without UL CA)	1699
7.3A.4.1	Test purpose	1699
7.3A.4.2	Test applicability	1699
7.3A.4.3	Minimum conformance requirements	1699
7.3A.4.4	Test description	1700
7.3A.4.4.1	Initial conditions	1700
7.3A.4.4.2	Test procedure	1702
7.3A.4.4.3	Message contents	1702
7.3A.4.5	Test requirement	1703
7.3A.5	Reference sensitivity level for 3DL CA	1705
7.3A.5.1	Test purpose	1705
7.3A.5.2	Test applicability	1705
7.3A.5.3	Minimum conformance requirements	1706
7.3A.5.4	Test description	1706
7.3A.5.4.1	Initial conditions	1706
7.3A.5.4.2	Test procedure	1740
7.3A.5.4.3	Message contents	1740
7.3A.5.5	Test requirement	1740
7.3A.6	Reference sensitivity level for CA (inter-band DL CA and UL CA)	1754
7.3A.6.1	Test purpose	1754
7.3A.6.2	Test applicability	1754
7.3A.6.3	Minimum conformance requirements	1754
7.3A.6.4	Test description	1754
7.3A.6.4.1	Initial conditions	1754
7.3A.6.4.2	Test procedure	1756
7.3A.6.4.3	Message contents	1756
7.3A.6.5	Test requirement	1756
7.3A.7	Reference sensitivity level for CA (intra-band non-contiguous DL CA and UL CA)	1759
7.3A.7.1	Test purpose	1759
7.3A.7.2	Test applicability	1759
7.3A.7.3	Minimum conformance requirements	1759
7.3A.7.4	Test description	1759
7.3A.7.4.1	Initial conditions	1759
7.3A.7.4.2	Test procedure	1759
7.3A.7.4.3	Message contents	1760
7.3A.7.5	Test requirement	1760
7.3A.8	.....	1760
7.3A.9	Reference sensitivity level for 4DL CA	1760
7.3A.9.1	Test purpose	1761
7.3A.9.2	Test applicability	1761
7.3A.9.3	Minimum conformance requirements	1761
7.3A.9.4	Test description	1761
7.3A.9.4.1	Initial conditions	1761
7.3A.9.4.2	Test procedure	1787
7.3A.9.4.3	Message contents	1787
7.3A.9.5	Test requirement	1787
7.3A.10	Reference sensitivity level for 5DL CA	1796
7.3A.10.1	Test purpose	1796
7.3A.10.2	Test applicability	1796

7.3A.10.3	Minimum conformance requirements	1796
7.3A.10.4	Test description	1797
7.3A.10.4.1	Initial conditions	1797
7.3A.10.4.2	Test procedure	1810
7.3A.10.4.3	Message contents	1810
7.3A.10.5	Test requirement	1810
7.3B	Reference sensitivity level for UL-MIMO	1813
7.3B.1	Test purpose	1813
7.3B.2	Test applicability	1813
7.3B.3	Minimum conformance requirements	1813
7.3B.4	Test description	1814
7.3B.4.1	Initial conditions	1814
7.3B.4.2	Test procedure	1815
7.3B.4.3	Message contents	1815
7.3B.4.3.1	Message contents exceptions (network signalled value "NS_01")	1815
7.3B.4.3.2	Message contents exceptions (network signalled value "NS_03")	1815
7.3B.4.3.3	Message contents exceptions (network signalled value "NS_06")	1815
7.3B.4.3.4	Message contents exceptions (network signalled value "NS_[09]")	1815
7.3B.5	Test requirement	1816
7.3C	.....	1820
7.3D	Reference sensitivity level for ProSe	1820
7.3D.0	Minimum requirements (QPSK) for ProSe	1820
7.3D.1	Reference sensitivity level for ProSe Direct Discovery	1821
7.3D.1.1	Test purpose	1821
7.3D.1.2	Test applicability	1821
7.3D.1.3	Minimum conformance requirements	1821
7.3D.1.4	Test description	1822
7.3D.1.4.1	Initial conditions	1822
7.3D.1.4.2	Test procedure	1822
7.3D.1.4.3	Message contents	1823
7.3D.1.5	Test requirements	1824
7.3D.2	Reference sensitivity level for ProSe Direct Communication	1824
7.3D.2.1	Test purpose	1824
7.3D.2.2	Test applicability	1824
7.3D.2.3	Minimum conformance requirements	1824
7.3D.2.4	Test description	1825
7.3D.2.4.1	Initial conditions	1825
7.3D.2.4.2	Test procedure	1825
7.3D.2.4.3	Message contents	1825
7.3D.2.5	Test requirements	1825
7.3EA	Reference sensitivity level for UE category M1	1828
7.3EA.1	Test purpose	1828
7.3EA.2	Test applicability	1828
7.3EA.3	Minimum conformance requirements	1828
7.3EA.4	Test description	1832
7.3EA.4.1	Initial conditions	1832
7.3EA.4.2	Test procedure	1832
7.3EA.4.3	Message contents	1833
7.3EA.4.3.1	Message contents exceptions (network signalled value "NS_01")	1833
7.3EA.4.3.2	Message contents exceptions (network signalled value "NS_03")	1833
7.3EA.4.3.3	Message contents exceptions (network signalled value "NS_06")	1833
7.3EA.4.3.4	Message contents exceptions (network signalled value "NS_09")	1833
7.3EA.4.3.5	Message contents exceptions (network signalled value "NS_08")	1833
7.3EA.5	Test requirement	1834
7.3F	Reference sensitivity level for category NB1	1835
7.3F.1	Reference sensitivity level without repetitions for category NB1	1835
7.3F.1.1	Test purpose	1835
7.3F.1.2	Test applicability	1835
7.3F.1.3	Minimum conformance requirements	1835
7.3F.1.4	Test description	1836
7.3F.1.4.1	Initial conditions	1836
7.3F.1.4.2	Test Procedure	1836

7.3F.1.4.3	Message contents	1836
7.3F.1.5	Test requirement	1837
7.3F.2	Reference sensitivity level with repetitions for category NB1	1837
7.3F.2.1	Test purpose	1837
7.3F.2.2	Test applicability	1837
7.3F.2.3	Minimum conformance requirements	1837
7.3F.2.4	Test description	1837
7.3F.2.5	Test requirement	1838
7.3G	Reference sensitivity level for V2X Communication	1839
7.3G.0	Minimum conformance requirements	1839
7.3G.1	Reference sensitivity level for V2X Communication / Non-concurrent with E-UTRA uplink transmissions	1840
7.3G.1.1	Test purpose	1840
7.3G.1.2	Test applicability	1840
7.3G.1.3	Minimum conformance requirements	1840
7.3G.1.4	Test description	1841
7.3G.1.4.1	Initial conditions	1841
7.3G.1.4.2	Test procedure	1841
7.3G.1.4.3	Message contents	1841
7.3G.1.5	Test requirements	1841
7.3G.2	Reference sensitivity level for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmissions	1842
7.3G.2.1	Test purpose	1842
7.3G.2.2	Test applicability	1842
7.3G.2.3	Minimum conformance requirements	1842
7.3G.2.4	Test description	1842
7.3G.2.4.1	Initial conditions	1842
7.3G.2.4.2	Test procedure	1843
7.3G.2.4.3	Message contents	1843
7.3G.2.5	Test requirements	1843
7.3G.3	Reference sensitivity level for V2X Communication / Intra-band contiguous MCC operation	1844
7.3G.3.1	Test purpose	1844
7.3G.3.2	Test applicability	1844
7.3G.3.3	Minimum conformance requirements	1845
7.3G.3.4.1	Initial conditions	1845
7.3G.3.4.2	Test procedure	1845
7.3G.3.4.3	Message contents	1845
7.3G.3.5	Test requirements	1845
7.4	Maximum input level	1846
7.4.1	Test purpose	1846
7.4.2	Test applicability	1846
7.4.3	Minimum conformance requirements	1846
7.4.4	Test description	1846
7.4.4.1	Initial conditions	1846
7.4.4.2	Test procedure	1848
7.4.4.3	Message contents	1848
7.4.5	Test requirement	1848
7.4_1	Maximum input level with 4 Rx antenna ports	1849
7.4_1.1	Test purpose	1849
7.4_1.2	Test applicability	1849
7.4_1.3	Minimum conformance requirements	1849
7.4_1.4	Test description	1849
7.4_1.4.1	Initial conditions	1849
7.4_1.4.2	Test procedure	1850
7.4_1.4.3	Message contents	1850
7.4_1.5	Test requirement	1850
7.4_H	Maximum input level for 256QAM in DL	1851
7.4_H.1	Test purpose	1851
7.4_H.2	Test applicability	1851
7.4_H.3	Minimum conformance requirements	1851
7.4_H.4	Test description	1851
7.4_H.4.1	Initial conditions	1851

7.4_H.4.2	Test procedure.....	1852
7.4_H.4.3	Message contents	1852
7.4_H.5	Test requirement	1852
7.4A	Maximum input level for CA	1853
7.4A.1	Maximum input level for CA (intra-band contiguous DL CA and UL CA).....	1854
7.4A.1.1	Test purpose	1854
7.4A.1.2	Test applicability.....	1854
7.4A.1.3	Minimum conformance requirements	1854
7.4A.1.4	Test description	1855
7.4A.1.4.1	Initial conditions	1855
7.4A.1.4.2	Test procedure	1857
7.4A.1.4.3	Message contents.....	1857
7.4A.1.5	Test requirement	1858
7.4A.1_H	Maximum input level for CA (intra-band contiguous DL CA and UL CA) for 256QAM in DL.....	1859
7.4A.1_H.1	Test purpose	1859
7.4A.1_H.2	Test applicability.....	1859
7.4A.1_H.3	Minimum conformance requirements	1859
7.4A.1_H.4	Test description	1859
7.4A.1_H.4.1	Initial conditions	1859
7.4A.1_H.4.2	Test procedure	1860
7.4A.1_H.4.3	Message contents.....	1860
7.4A.1_H.5	Test requirement	1861
7.4A.2	Maximum input level for CA (intra-band contiguous DL CA without UL CA).....	1861
7.4A.2.1	Test purpose	1861
7.4A.2.2	Test applicability.....	1861
7.4A.2.3	Minimum conformance requirements	1861
7.4A.2.4	Test description	1861
7.4A.2.4.1	Initial conditions.....	1861
7.4A.2.4.2	Test procedure	1863
7.4A.2.4.3	Message contents.....	1863
7.4A.2.5	Test requirement	1863
7.4A.2_H	Maximum input level for CA (intra-band contiguous DL CA without UL CA) for 256QAM in DL	1864
7.4A.2_H.1	Test purpose	1864
7.4A.2_H.2	Test applicability.....	1864
7.4A.2_H.3	Minimum conformance requirements	1864
7.4A.2_H.4	Test description	1864
7.4A.2_H.4.1	Initial conditions	1864
7.4A.2_H.4.2	Test procedure	1865
7.4A.2_H.4.3	Message contents.....	1866
7.4A.2_H.5	Test requirement	1866
7.4A.3	Maximum input level for CA (inter-band DL CA without UL CA).....	1866
7.4A.3.1	Test purpose	1866
7.4A.3.2	Test applicability.....	1866
7.4A.3.3	Minimum conformance requirements	1866
7.4A.3.4	Test description	1866
7.4A.3.4.1	Initial conditions	1866
7.4A.3.4.2	Test procedure	1869
7.4A.3.4.3	Message contents.....	1869
7.4A.3.5	Test requirement	1869
7.4A.3_H	Maximum input level for CA (inter-band DL CA without UL CA) for 256QAM in DL.....	1869
7.4A.3_H.1	Test purpose	1869
7.4A.3_H.2	Test applicability.....	1870
7.4A.3_H.3	Minimum conformance requirements	1870
7.4A.3_H.4	Test description	1870
7.4A.3_H.4.1	Initial conditions	1870
7.4A.3_H.4.2	Test procedure	1872
7.4A.3_H.4.3	Message contents.....	1872
7.4A.3_H.5	Test requirement	1872
7.4A.4	Maximum input level for CA (intra band non-contiguous DL CA without UL CA).....	1872
7.4A.4.1	Test purpose	1872
7.4A.4.2	Test applicability.....	1872
7.4A.4.3	Minimum conformance requirements	1872

7.4A.4.4	Test description	1872
7.4A.4.4.1	Initial conditions	1872
7.4A.4.4.2	Test procedure	1875
7.4A.4.4.3	Message contents	1875
7.4A.4.5	Test requirement	1875
7.4A.4_H	Maximum input level for CA (intra band non-contiguous DL CA without UL CA) for 256QAM in DL	1875
7.4A.4_H.1	Test purpose	1875
7.4A.4_H.2	Test applicability	1875
7.4A.4_H.3	Minimum conformance requirements	1875
7.4A.4_H.4	Test description	1876
7.4A.4_H.4.1	Initial conditions	1876
7.4A.4_H.4.2	Test procedure	1877
7.4A.4_H.4.3	Message contents	1878
7.4A.4_H.5	Test requirement	1878
7.4A.5_H	Maximum input level for 3DL CA for 256QAM in DL	1885
7.4A.5_H.1	Test purpose	1885
7.4A.5_H.2	Test applicability	1885
7.4A.5_H.3	Minimum conformance requirements	1885
7.4A.5_H.4	Test description	1885
7.4A.5_H.4.1	Initial conditions	1885
7.4A.5_H.4.2	Test procedure	1890
7.4A.5_H.4.3	Message contents	1891
7.4A.5_H.5	Test requirement	1892
7.4A.6	.....	1892
7.4A.7	Maximum input level for 4DL CA	1892
7.4A.7.1	Test purpose	1892
7.4A.7.2	Test applicability	1892
7.4A.7.3	Minimum conformance requirements	1893
7.4A.7.4	Test description	1893
7.4A.7.4.1	Initial conditions	1893
7.4A.7.4.2	Test procedure	1900
7.4A.7.4.3	Message contents	1901
7.4A.7.5	Test requirement	1902
7.4A.8	Maximum input level for 5DL CA	1902
7.4A.8.1	Test purpose	1902
7.4A.8.2	Test applicability	1902
7.4A.8.3	Minimum conformance requirements	1903
7.4A.8.4	Test description	1903
7.4A.8.4.1	Initial conditions	1903
7.4A.8.4.2	Test procedure	1909
7.4A.8.4.3	Message contents	1911
7.4A.8.5	Test requirement	1911
7.4B	Maximum input level for UL-MIMO	1912
7.4B.1	Test purpose	1912
7.4B.2	Test applicability	1912
7.4B.3	Minimum conformance requirements	1912
7.4B.4	Test description	1912
7.4B.4.1	Initial conditions	1912
7.4B.4.2	Test procedure	1913
7.4B.4.3	Message contents	1914
7.4B.5	Test requirement	1914
7.4C	.....	1914
7.4D	Maximum input level for ProSe	1914
7.4D.0	Minimum conformance requirements	1914
7.4D.1	Maximum input level for ProSe Direct Discovery	1914
7.4D.1.1	Test purpose	1915
7.4D.1.2	Test applicability	1915
7.4D.1.3	Minimum conformance requirements	1915
7.4D.1.4	Test description	1915
7.4D.1.4.1	Initial conditions	1915
7.4D.1.4.2	Test procedure	1916

7.4D.1.4.3	Message contents.....	1916
7.4D.1.5	Test requirement	1917
7.4D.2	Maximum input level for ProSe Direct Communication	1917
7.4D.2.1	Test purpose	1917
7.4D.2.2	Test applicability.....	1917
7.4D.2.3	Minimum conformance requirements	1917
7.4D.2.4	Test description	1917
7.4D.2.4.1	Initial conditions.....	1918
7.4D.2.4.2	Test procedure.....	1918
7.4D.2.4.3	Message contents.....	1918
7.4D.2.5	Test requirements	1918
7.4E	Maximum input level for UE category 0.....	1918
7.4E.1	Test purpose.....	1918
7.4E.2	Test applicability	1918
7.4E.3	Minimum conformance requirements.....	1918
7.4E.4	Test description.....	1918
7.4E.4.1	Initial conditions	1918
7.4E.4.2	Test procedure.....	1919
7.4E.4.3	Message contents	1919
7.4E.5	Test requirement	1919
7.4EA	Maximum input level for UE category M1	1919
7.4EA.1	Test purpose.....	1919
7.4EA.2	Test applicability	1920
7.4EA.3	Minimum conformance requirements.....	1920
7.4EA.4	Test description.....	1920
7.4EA.4.1	Initial conditions	1920
7.4EA.4.2	Test procedure.....	1921
7.4EA.4.3	Message contents	1921
7.4EA.5	Test requirement	1921
7.4F	Maximum input level for category NB1.....	1922
7.4F.1	Test Purpose.....	1922
7.4F.2	Test Applicability	1922
7.4F.3	Minimum Conformance Requirements.....	1922
7.4F.4	Test Description.....	1922
7.4F.4.1	Initial Conditions.....	1922
7.4F.4.2	Test Procedure.....	1923
7.4F.4.3	Message Contents	1923
7.4F.5	Test requirement	1923
7.4G	Maximum input level for V2X Communication	1923
7.4G.1	Maximum input level for V2X Communication / Non-concurrent with E-UTRA uplink transmissions.....	1923
7.4G.1.1	Test purpose	1923
7.4G.1.2	Test applicability.....	1923
7.4G.1.3	Minimum conformance requirements	1924
7.4G.1.4	Test description	1924
7.4G.1.4.1	Initial conditions.....	1924
7.4G.1.4.2	Test procedure	1925
7.4G.1.4.3	Message contents.....	1925
7.4G.1.5	Test requirements.....	1925
7.4G.2	Maximum input level for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmissions	1925
7.4G.2.1	Test purpose	1925
7.4G.2.2	Test applicability.....	1925
7.4G.2.3	Minimum conformance requirements	1925
7.4G.2.4	Test description	1926
7.4G.2.4.1	Initial conditions.....	1926
7.4G.2.4.2	Test procedure	1926
7.4G.2.4.3	Message contents.....	1927
7.4G.2.5	Test requirements.....	1927
7.4G.3	Maximum input level for V2X Communication / Intra-band contiguous MCC operation	1927
7.4G.3.1	Test purpose	1927
7.4G.3.2	Test applicability.....	1927

7.4G.3.3	Minimum conformance requirements	1927
7.4G.3.4	Test description	1928
7.4G.3.4.1	Initial conditions	1928
7.4G.3.4.2	Test procedure	1928
7.4G.3.4.3	Message contents	1928
7.4G.3.5	Test requirements	1928
7.5	Adjacent Channel Selectivity (ACS)	1929
7.5.1	Test purpose	1929
7.5.2	Test applicability	1929
7.5.3	Minimum conformance requirements	1929
7.5.4	Test description	1930
7.5.4.1	Initial conditions	1930
7.5.4.2	Test procedure	1931
7.5.4.3	Message contents	1932
7.5.5	Test requirement	1932
7.5_1	Adjacent Channel Selectivity (ACS) with 4 Rx antenna ports	1933
7.5_1.1	Test purpose	1933
7.5_1.2	Test applicability	1933
7.5_1.3	Minimum conformance requirements	1933
7.5_1.4	Test description	1933
7.5.4_1.1	Initial conditions	1933
7.5_1.4.2	Test procedure	1934
7.5_1.4.3	Message contents	1934
7.5_1.5	Test requirement	1934
7.5A	Adjacent Channel Selectivity (ACS) for CA	1935
7.5A.1	Adjacent Channel Selectivity (ACS) for CA (intra-band contiguous DL CA and UL CA)	1938
7.5A.1.1	Test purpose	1938
7.5A.1.2	Test applicability	1938
7.5A.1.3	Minimum conformance requirements	1938
7.5A.1.4	Test description	1938
7.5A.1.4.1	Initial conditions	1938
7.5A.1.4.2	Test procedure	1940
7.5A.1.4.3	Message contents	1941
7.5A.1.5	Test Requirements	1942
7.5A.2	Adjacent Channel Selectivity (ACS) for CA (intra-band contiguous DL CA without UL CA)	1943
7.5A.2.1	Test purpose	1943
7.5A.2.2	Test applicability	1943
7.5A.2.3	Minimum conformance requirements	1943
7.5A.2.4	Test description	1943
7.5A.2.4.1	Initial conditions	1943
7.5A.2.4.2	Test procedure	1944
7.5A.2.4.3	Message contents	1945
7.5A.2.5	Test Requirements	1945
7.5A.3	Adjacent Channel Selectivity (ACS) for CA (inter-band DL CA without UL CA)	1946
7.5A.3.1	Test purpose	1946
7.5A.3.2	Test applicability	1946
7.5A.3.3	Minimum conformance requirements	1946
7.5A.3.4	Test description	1947
7.5A.3.4.1	Initial conditions	1947
7.5A.3.4.2	Test procedure	1948
7.5A.3.4.3	Message contents	1949
7.5A.3.5	Test Requirements	1949
7.5A.4	Adjacent Channel Selectivity (ACS) for CA (intra-band non-contiguous DL CA without UL CA)	1951
7.5A.4.1	Test purpose	1951
7.5A.4.2	Test applicability	1951
7.5A.4.3	Minimum conformance requirements	1951
7.5A.4.4	Test description	1951
7.5A.4.4.1	Initial conditions	1951
7.5A.4.4.2	Test procedure	1954
7.5A.4.4.3	Message contents	1954
7.5A.4.5	Test requirement	1954
7.5A.5	Adjacent Channel Selectivity (ACS) for 3DL CA	1955

7.5A.5.1	Test purpose	1955
7.5A.5.2	Test applicability	1955
7.5A.5.3	Minimum conformance requirements	1956
7.5A.5.4	Test description	1956
7.5A.5.4.1	Initial conditions	1956
7.5A.5.4.2	Test procedure	1960
7.5A.5.4.3	Message contents	1961
7.5A.5.5	Test requirement	1962
7.5A.6	.....	1963
7.5A.7	Adjacent Channel Selectivity (ACS) for 4DL CA	1963
7.5A.7.1	Test purpose	1963
7.5A.7.2	Test applicability	1964
7.5A.7.3	Minimum conformance requirements	1964
7.5A.7.4	Test description	1964
7.5A.7.4.1	Initial conditions	1964
7.5A.7.4.2	Test procedure	1971
7.5A.7.4.3	Message contents	1972
7.5A.7.5	Test requirement	1973
7.5A.8	Adjacent Channel Selectivity (ACS) for 5DL CA	1975
7.5A.8.1	Test purpose	1975
7.5A.8.2	Test applicability	1975
7.5A.8.3	Minimum conformance requirements	1975
7.5A.8.4	Test description	1975
7.5A.8.4.1	Initial conditions	1975
7.5A.8.4.2	Test procedure	1979
7.5A.8.4.3	Message contents	1980
7.5A.8.5	Test requirement	1980
7.5B	Adjacent Channel Selectivity (ACS) for UL-MIMO	1982
7.5B.1	Test purpose	1982
7.5B.2	Test applicability	1982
7.5B.3	Minimum conformance requirements	1982
7.5B.4	Test description	1983
7.5B.4.1	Initial conditions	1983
7.5B.4.2	Test procedure	1983
7.5B.4.3	Message contents	1984
7.5B.5	Test requirement	1984
7.5D	Adjacent Channel Selectivity (ACS) for ProSe	1985
7.5D.0	Minimum conformance requirements	1985
7.5D.1	Adjacent Channel Selectivity (ACS) for ProSe Direct Discovery	1986
7.5D.1.1	Test Purpose	1986
7.5D.1.2	Test Applicability	1986
7.5D.1.3	Minimum Conformance Requirements	1987
7.5D.1.4	Test Description	1987
7.5D.1.4.1	Initial Conditions	1987
7.5D.1.4.2	Test Procedure	1987
7.5D.1.4.3	Message Contents	1988
7.5D.1.5	Test Requirement	1989
7.5D.2	Adjacent Channel Selectivity (ACS) for ProSe Direct Communication	1990
7.5D.2.1	Test Purpose	1990
7.5D.2.2	Test Applicability	1990
7.5D.2.3	Minimum Conformance Requirements	1990
7.5D.2.4	Test Description	1990
7.5D.2.4.1	Initial Conditions	1990
7.5D.2.4.2	Test Procedure	1990
7.5D.2.4.3	Message Contents	1990
7.5D.2.5	Test Requirement	1990
7.5E	Adjacent Channel Selectivity (ACS) for category 0	1990
7.5E.1	Test purpose	1990
7.5E.2	Test applicability	1991
7.5E.3	Minimum conformance requirements	1991
7.5E.4	Test description	1991
7.5E.4.1	Initial conditions	1991

7.5E.4.2	Test procedure.....	1991
7.5E.4.3	Message contents	1991
7.5E.5	Test requirement	1992
7.5EA	Adjacent Channel Selectivity (ACS) for UE category M1	1992
7.5EA.1	Test purpose.....	1992
7.5EA.2	Test applicability	1993
7.5EA.3	Minimum conformance requirements.....	1993
7.5EA.4	Test description.....	1994
7.5EA.4.1	Initial conditions	1994
7.5EA.4.2	Test procedure.....	1995
7.5EA.4.3	Message contents	1995
7.5EA.5	Test requirement	1996
7.5F	Adjacent Channel Selectivity (ACS) for category NB1	1997
7.5F.1	Test purpose.....	1997
7.5F.2	Test applicability	1997
7.5F.3	Minimum conformance requirements.....	1997
7.5F.4	Test description.....	1998
7.5F.4.1	Initial conditions	1998
7.5F.4.2	Test procedure.....	1998
7.5F.4.3	Message contents	1999
7.5F.5	Test requirement	1999
7.5G	Adjacent Channel Selectivity (ACS) for V2X Communication.....	2000
7.5G.1	Adjacent channel selectivity (ACS) for V2X Communication / Non-concurrent with E-UTRA uplink transmissions.....	2000
7.5G.1.1	Test Purpose.....	2000
7.5G.1.2	Test Applicability	2000
7.5G.1.3	Minimum Conformance Requirements.....	2000
7.5G.1.4	Test Description	2001
7.5G.1.4.1	Initial Conditions	2001
7.5G.1.4.2	Test Procedure.....	2002
7.5G.1.4.3	Message Contents.....	2002
7.5G.1.5	Test Requirement	2002
7.5G.2	Adjacent channel selectivity (ACS) for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmissions	2003
7.5G.2.1	Test Purpose.....	2003
7.5G.2.2	Test Applicability.....	2003
7.5G.2.3	Minimum Conformance Requirements.....	2003
7.5G.2.4	Test Description.....	2004
7.5G.2.4.1	Initial Conditions	2004
7.5G.2.4.2	Test Procedure.....	2005
7.5G.2.4.3	Message Contents.....	2006
7.5G.2.5	Test Requirement	2006
7.5G.3	Adjacent channel selectivity (ACS) for V2X Communication / Intra-band contiguous MCC operation	2006
7.5G.3.1	Test Purpose.....	2007
7.5G.3.2	Test Applicability.....	2007
7.5G.3.3	Minimum Conformance Requirements.....	2007
7.5G.3.4	Test Description.....	2008
7.5G.3.4.1	Initial Conditions	2008
7.5G.3.4.2	Test Procedure.....	2008
7.5G.3.4.3	Message Contents.....	2009
7.5G.3.5	Test Requirement	2009
7.6	Blocking characteristics	2009
7.6.1	In-band blocking.....	2010
7.6.1.1	Test Purpose.....	2010
7.6.1.2	Test Applicability.....	2010
7.6.1.3	Minimum Conformance Requirements.....	2010
7.6.1.4	Test Description	2011
7.6.1.4.1	Initial Conditions	2011
7.6.1.4.2	Test Procedure.....	2012
7.6.1.4.3	Message Contents.....	2013
7.6.1.5	Test Requirement	2013

7.6.1_1	In-band blocking with 4 Rx antenna ports	2014
7.6.1_1.1	Test Purpose	2014
7.6.1_1.2	Test Applicability	2014
7.6.1_1.3	Minimum Conformance Requirements	2015
7.6.1_1.4	Test Description	2015
7.6.1_1.4.1	Initial Conditions	2015
7.6.1_1.4.2	Test Procedure	2015
7.6.1_1.4.3	Message Contents	2015
7.6.1_1.5	Test Requirement	2015
7.6.1A	In-band blocking for CA	2016
7.6.1A.0	Minimum conformance requirements	2016
7.6.1A.1	In-band blocking for CA (intra-band contiguous DL CA and UL CA)	2019
7.6.1A.1.1	Test Purpose	2019
7.6.1A.1.2	Test Applicability	2019
7.6.1A.1.3	Minimum Conformance Requirements	2019
7.6.1A.1.4	Test Description	2019
7.6.1A.1.5	Test Requirement	2023
7.6.1A.2	In-band blocking for CA (intra-band contiguous DL CA without UL CA)	2024
7.6.1A.2.1	Test Purpose	2024
7.6.1A.2.2	Test Applicability	2024
7.6.1A.2.3	Minimum Conformance Requirements	2024
7.6.1A.2.4	Test Description	2024
7.6.1A.2.4.1	Initial Conditions	2024
7.6.1A.2.4.2	Test Procedure	2025
7.6.1A.2.4.3	Message Contents	2026
7.6.1A.2.5	Test Requirement	2026
7.6.1A.3	In-band blocking for CA (inter-band DL CA without UL CA)	2027
7.6.1A.3.1	Test Purpose	2027
7.6.1A.3.2	Test Applicability	2027
7.6.1A.3.3	Minimum Conformance Requirements	2027
7.6.1A.3.4	Test Description	2027
7.6.1A.3.4.1	Initial Conditions	2027
7.6.1A.3.4.2	Test Procedure	2028
7.6.1A.3.4.3	Message Contents	2029
7.6.1A.3.5	Test Requirement	2029
7.6.1A.4	In-band blocking for CA (intra-band non-contiguous DL CA without UL CA)	2031
7.6.1A.4.1	Test Purpose	2031
7.6.1A.4.2	Test Applicability	2031
7.6.1A.4.3	Minimum Conformance Requirements	2031
7.6.1A.4.4	Test description	2031
7.6.1A.4.4.1	Initial Conditions	2031
7.6.1A.4.4.2	Test Procedure	2034
7.6.1A.4.4.3	Message Contents	2034
7.6.1A.4.5	Test Requirement	2034
7.6.1A.5	In-band blocking for 3DL CA	2035
7.6.1A.5.1	Test Purpose	2035
7.6.1A.5.2	Test Applicability	2035
7.6.1A.5.3	Minimum Conformance Requirements	2035
7.6.1A.5.4	Test Description	2035
7.6.1A.5.4.1	Initial Conditions	2035
7.6.1A.5.4.2	Test Procedure	2039
7.6.1A.5.4.3	Message Contents	2040
7.6.1A.5.5	Test Requirement	2040
7.6.1A.6	.....	2043
7.6.1A.7	In-band blocking for 4DL CA	2043
7.6.1A.7.1	Test Purpose	2043
7.6.1A.7.2	Test Applicability	2043
7.6.1A.7.3	Minimum Conformance Requirements	2043
7.6.1A.7.4	Test Description	2043
7.6.1A.7.4.1	Initial Conditions	2043
7.6.1A.7.4.2	Test Procedure	2050
7.6.1A.7.4.3	Message Contents	2051

7.6.1A.7.5	Test Requirement.....	2052
7.6.1A.8	In-band blocking for 5DL CA.....	2054
7.6.1A.8.1	Test Purpose	2054
7.6.1A.8.2	Test Applicability	2054
7.6.1A.8.3	Minimum Conformance Requirements	2054
7.6.1A.8.4	Test Description.....	2054
7.6.1A.8.4.1	Initial Conditions	2054
7.6.1A.8.4.2	Test Procedure	2059
7.6.1A.8.4.3	Message Contents	2060
7.6.1A.8.5	Test Requirement.....	2060
7.6.1B	In-band blocking for UL-MIMO	2062
7.6.1B.1	Test Purpose.....	2062
7.6.1B.2	Test Applicability.....	2062
7.6.1B.3	Minimum Conformance Requirements.....	2062
7.6.1B.4	Test Description	2062
7.6.1B.4.1	Initial Conditions	2062
7.6.1B.4.2	Test Procedure	2063
7.6.1B.4.3	Message Contents	2064
7.6.1B.5	Test Requirement	2064
7.6.1D	In-band blocking for ProSe.....	2065
7.6.1D.0	Minimum conformance requirements	2065
7.6.1D.1	In-band blocking for ProSe Direct Discovery	2066
7.6.1D.1.1	Test Purpose	2067
7.6.1D.1.2	Test Applicability	2067
7.6.1D.1.3	Minimum Conformance Requirements	2067
7.6.1D.1.4	Test Description.....	2067
7.6.1D.1.5	Test Requirement.....	2069
7.6.1D.2	In-band blocking for ProSe Direct Communication.....	2070
7.6.1D.2.1	Test Purpose	2070
7.6.1D.2.2	Test Applicability	2070
7.6.1D.2.3	Minimum Conformance Requirements	2070
7.6.1D.2.4	Test Description.....	2070
7.6.1D.2.5	Test Requirement.....	2070
7.6.1E	In-band blocking for UE category 0	2071
7.6.1E.1	Test Purpose.....	2071
7.6.1E.2	Test Applicability.....	2071
7.6.1E.3	Minimum Conformance Requirements.....	2071
7.6.1E.4	Test Description	2071
7.6.1E.4.1	Initial Conditions	2071
7.6.1E.4.2	Test Procedure	2072
7.6.1E.4.3	Message Contents	2072
7.6.1E.5	Test Requirement	2072
7.6.1F	In-band blocking for category NB1	2073
7.6.1F.1	Test Purpose.....	2073
7.6.1F.2	Test Applicability.....	2073
7.6.1F.3	Minimum Conformance Requirements	2073
7.6.1F.4	Test Description	2074
7.6.1F.4.1	Initial Conditions	2074
7.6.1F.4.2	Test Procedure	2074
7.6.1F.4.3	Message Contents	2075
7.6.1F.5	Test Requirement	2075
7.6.1G	In-band blocking for V2X Communication	2075
7.6.1G.1	In-band blocking for V2X Communication / Non-concurrent with E-UTRA uplink transmissions.....	2075
7.6.1G.1.1	Test Purpose	2075
7.6.1G.1.2	Test Applicability.....	2076
7.6.1G.1.3	Minimum Conformance Requirements	2076
7.6.1G.1.4	Test Description	2076
7.6.1G.1.4.1	Initial conditions	2076
7.6.1G.1.4.2	Test procedure	2077
7.6.1G.1.4.3	Message contents.....	2077
7.6.1G.1.5	Test Requirement	2077

7.6.1G.2	In-band blocking for V2X Communication / Simultaneous E-UTRA V2X sidelink and E-UTRA uplink transmissions.....	2078
7.6.1G.2.1	Test Purpose	2078
7.6.1G.2.2	Test Applicability	2078
7.6.1G.2.3	Minimum Conformance Requirements	2078
7.6.1G.2.4	Test Description.....	2079
7.6.1G.2.4.1	Initial conditions.....	2079
7.6.1G.2.4.2	Test procedure	2080
7.6.1G.2.4.3	Message contents.....	2081
7.6.1G.2.5	Test Requirement.....	2081
7.6.1G.3	In-band blocking for V2X Communication / Intra-band contiguous MCC operation.....	2081
7.6.1G.3.1	Test Purpose	2081
7.6.1G.3.2	Test Applicability	2082
7.6.1G.3.3	Minimum Conformance Requirements	2082
7.6.1G.3.4	Test Description.....	2082
7.6.1G.3.4.1	Initial conditions.....	2082
7.6.1G.3.4.2	Test procedure	2083
7.6.1G.3.4.3	Message contents.....	2083
7.6.1G.3.5	Test Requirement.....	2083
7.6.1EA	In-band blocking for UE category M1	2084
7.6.1EA.1	Test Purpose	2084
7.6.1EA.2	Test Applicability.....	2084
7.6.1EA.3	Minimum Conformance Requirements	2084
7.6.1EA.4	Test Description	2085
7.6.1EA.4.1	Initial Conditions	2085
7.6.1EA.4.2	Test Procedure	2086
7.6.1EA.4.3	Message Contents.....	2086
7.6.1EA.5	Test Requirement	2087
7.6.2	Out-of-band blocking.....	2087
7.6.2.1	Test Purpose	2087
7.6.2.2	Test Applicability.....	2087
7.6.2.3	Minimum Conformance Requirements	2088
7.6.2.4	Test Description	2089
7.6.2.4.1	Initial Conditions	2089
7.6.2.4.2	Test Procedure	2090
7.6.2.4.3	Message Contents.....	2090
7.6.2.5	Test Requirement	2090
7.6.2_1	Out-of-band blocking with 4 Rx antenna ports.....	2091
7.6.2_1.1	Test Purpose	2091
7.6.2_1.2	Test Applicability.....	2091
7.6.2_1.3	Minimum Conformance Requirements	2092
7.6.2_1.4	Test Description	2092
7.6.2_1.4.1	Initial Conditions	2092
7.6.2_1.4.2	Test Procedure	2092
7.6.2_1.4.3	Message Contents.....	2092
7.6.2_1.5	Test Requirement	2092
7.6.2A	Out-of-band blocking for CA.....	2093
7.6.2A.0	Minimum conformance requirements	2093
7.6.2A.1	Out-of-band blocking for CA (intra-band contiguous DL CA and UL CA)	2096
7.6.2A.1.1	Test Purpose	2096
7.6.2A.1.2	Test Applicability	2096
7.6.2A.1.3	Minimum Conformance Requirements	2096
7.6.2A.1.4	Test Description.....	2097
7.6.2A.1.5	Test Requirement.....	2099
7.6.2A.2	Out-of-band blocking for CA (intra-band contiguous DL CA without UL CA).....	2100
7.6.2A.2.1	Test Purpose	2100
7.6.2A.2.2	Test Applicability	2100
7.6.2A.2.3	Minimum Conformance Requirements	2100
7.6.2A.2.4	Test Description.....	2100
7.6.2A.2.4.1	Initial Conditions	2100
7.6.2A.2.4.2	Test Procedure	2101
7.6.2A.2.4.3	Message Contents	2102

7.6.2A.2.5	Test Requirement.....	2102
7.6.2A.3	Out-of-band blocking for CA (inter-band DL CA without UL CA)	2102
7.6.2A.3.1	Test Purpose	2102
7.6.2A.3.2	Test Applicability	2103
7.6.2A.3.3	Minimum Conformance Requirements	2103
7.6.2A.3.4	Test Description.....	2103
7.6.2A.3.4.1	Initial Conditions	2103
7.6.2A.3.4.2	Test Procedure	2105
7.6.2A.3.4.3	Message Contents	2105
7.6.2A.3.5	Test Requirement.....	2105
7.6.2A.4	Out-of-band blocking for CA (intra-band non-contiguous DL CA without UL CA).....	2107
7.6.2A.4.1	Test Purpose	2107
7.6.2A.4.2	Test Applicability	2107
7.6.2A.4.3	Minimum Conformance Requirements	2107
7.6.2A.4.4	Test description	2107
7.6.2A.4.4.1	Initial Conditions	2107
7.6.2A.4.4.2	Test Procedure	2108
7.6.2A.4.4.3	Message Contents	2109
7.6.2A.4.5	Test Requirement.....	2109
7.6.2A.5	Out-of-band blocking for 3DL CA.....	2110
7.6.2A.5.1	Test Purpose	2110
7.6.2A.5.2	Test Applicability	2110
7.6.2A.5.3	Minimum Conformance Requirements	2110
7.6.2A.5.4	Test Description.....	2110
7.6.2A.5.4.1	Initial Conditions	2110
7.6.2A.5.4.2	Test Procedure	2113
7.6.2A.5.4.3	Message Contents	2114
7.6.2A.5.5	Test Requirement.....	2114
7.6.2A.6	.....	2117
7.6.2A.7	Out-of-band blocking for 4DL CA.....	2117
7.6.2A.7.1	Test Purpose	2117
7.6.2A.7.2	Test Applicability	2117
7.6.2A.7.3	Minimum Conformance Requirements	2117
7.6.2A.7.4	Test Description.....	2117
7.6.2A.7.4.1	Initial Conditions	2117
7.6.2A.7.4.2	Test Procedure	2123
7.6.2A.7.4.3	Message Contents	2124
7.6.2A.7.5	Test Requirement.....	2124
7.6.2A.8	Out-of-band blocking for 5DL CA.....	2127
7.6.2A.8.1	Test Purpose	2127
7.6.2A.8.2	Test Applicability	2127
7.6.2A.8.3	Minimum Conformance Requirements	2127
7.6.2A.8.4	Test Description.....	2127
7.6.2A.8.4.1	Initial Conditions	2127
7.6.2A.8.4.2	Test Procedure	2131
7.6.2A.8.4.3	Message Contents	2132
7.6.2A.8.5	Test Requirement.....	2132
7.6.2B	Out-of-band blocking for UL-MIMO	2134
7.6.2B.1	Test Purpose	2134
7.6.2B.2	Test Applicability.....	2134
7.6.2B.3	Minimum Conformance Requirements	2134
7.6.2B.4	Test Description	2135
7.6.2B.4.1	Initial Conditions	2135
7.6.2B.4.2	Test Procedure.....	2136
7.6.2B.4.3	Message Contents.....	2136
7.6.2B.5	Test Requirement	2136
7.6.2D	Out-of-band blocking for ProSe.....	2137
7.6.2D.0	Minimum conformance requirements	2137
7.6.2D.1	Out-of-band blocking for ProSe Direct Discovery	2138
7.6.2D.1.1	Test Purpose	2138
7.6.2D.1.2	Test Applicability	2138
7.6.2D.1.3	Minimum Conformance Requirements	2139

7.6.2D.1.4	Test Description.....	2139
7.6.2D.1.5	Test Requirement.....	2141
7.6.2D.2	Out-of-band blocking for Prose Direct Communication	2142
7.6.2D.2.1	Test Purpose	2142
7.6.2D.2.2	Test Applicability	2142
7.6.2D.2.3	Minimum Conformance Requirements	2142
7.6.2D.2.4	Test Description.....	2142
7.6.2D.2.5	Test Requirement.....	2142
7.6.2E	Out-of-band blocking for UE category 0	2142
7.6.2E.1	Test Purpose	2142
7.6.2E.2	Test Applicability.....	2142
7.6.2E.3	Minimum Conformance Requirements	2143
7.6.2E.4	Test Description	2143
7.6.2E.4.1	Initial Conditions	2143
7.6.2E.4.2	Test Procedure.....	2143
7.6.2E.4.3	Message Contents.....	2143
7.6.2E.5	Test Requirement	2143
7.6.2G	Out-of-band blocking for V2X Communication.....	2144
7.6.2G.1	Out-of-band blocking for V2X Communication/ Non-concurrent with E-UTRA uplink transmissions.....	2144
7.6.2G.1.1	Test Purpose	2144
7.6.2G.1.2	Test Applicability.....	2144
7.6.2G.1.3	Minimum Conformance Requirements	2145
7.6.2G.1.4	Test Description	2145
7.6.2G.1.4.1	Initial conditions	2145
7.6.2G.1.4.2	Test procedure	2146
7.6.2G.1.4.3	Message contents.....	2146
7.6.2G.1.5	Test Requirement	2146
7.6.2F	Out-of-band blocking for category NB1	2147
7.6.2F.1	Test Purpose	2147
7.6.2F.2	Test Applicability.....	2147
7.6.2F.3	Minimum Conformance Requirements	2147
7.6.2F.4	Test Description	2148
7.6.2F.4.1	Initial Conditions	2148
7.6.2F.4.2	Test Procedure.....	2149
7.6.2F.4.3	Message Contents	2149
7.6.2F.5	Test Requirement	2149
7.6.2EA	Out-of-band blocking for UE category M1.....	2149
7.6.2EA.1	Test Purpose	2149
7.6.2EA.2	Test Applicability.....	2150
7.6.2EA.3	Minimum Conformance Requirements	2150
7.6.2EA.4	Test Description	2150
7.6.2EA.4.1	Initial Conditions	2150
7.6.2EA.4.2	Test Procedure.....	2150
7.6.2EA.4.3	Message Contents.....	2151
7.6.2EA.5	Test Requirement	2151
7.6.3	Narrow band blocking	2152
7.6.3.1	Test Purpose	2152
7.6.3.2	Test Applicability.....	2152
7.6.3.3	Minimum Conformance Requirements	2152
7.6.3.4	Test Description	2153
7.6.3.4.1	Initial Conditions	2153
7.6.3.4.2	Test Procedure.....	2154
7.6.3.4.3	Message Contents.....	2155
7.6.3.5	Test Requirement	2155
7.6.3_1	Narrow band blocking with 4 Rx antenna ports.....	2155
7.6.3_1.1	Test Purpose	2155
7.6.3_1.2	Test Applicability.....	2156
7.6.3_1.3	Minimum Conformance Requirements	2156
7.6.3_1.4	Test Description	2156
7.6.3_1.4.1	Initial Conditions	2156
7.6.3_1.4.2	Test Procedure.....	2156

7.6.3_1.4.3	Message Contents	2156
7.6.3_1.5	Test Requirement	2157
7.6.3A	Narrow band blocking for CA	2157
7.6.3A.0	Minimum conformance requirements	2157
7.6.3A.1	Narrow band blocking for CA (intra-band contiguous DL CA and UL CA)	2158
7.6.3A.1.1	Test Purpose	2158
7.6.3A.1.2	Test Applicability	2158
7.6.3A.1.3	Minimum Conformance Requirements	2158
7.6.3A.1.4	Test Description	2158
7.6.3A.1.5	Test Requirement	2161
7.6.3A.2	Narrow band blocking for CA (intra-band contiguous DL CA without UL CA)	2161
7.6.3A.2.1	Test Purpose	2161
7.6.3A.2.2	Test Applicability	2162
7.6.3A.2.3	Minimum Conformance Requirements	2162
7.6.3A.2.4	Test Description	2162
7.6.3A.2.4.1	Initial Conditions	2162
7.6.3A.2.4.2	Test Procedure	2163
7.6.3A.2.4.3	Message Contents	2164
7.6.3A.2.5	Test Requirement	2164
7.6.3A.3	Narrow band blocking for CA (inter-band DL CA without UL CA)	2165
7.6.3A.3.1	Test Purpose	2165
7.6.3A.3.2	Test Applicability	2165
7.6.3A.3.3	Minimum Conformance Requirements	2165
7.6.3A.3.4	Test Description	2165
7.6.3A.3.4.1	Initial Conditions	2165
7.6.3A.3.4.2	Test Procedure	2167
7.6.3A.3.4.3	Message Contents	2167
7.6.3A.3.5	Test Requirement	2167
7.6.3A.4	Narrow band blocking for CA (intra-band non-contiguous DL CA without UL CA)	2168
7.6.3A.4.1	Test Purpose	2168
7.6.3A.4.2	Test Applicability	2168
7.6.3A.4.3	Minimum Conformance Requirements	2168
7.6.3A.4.4	Test description	2168
7.6.3A.4.4.1	Initial Conditions	2168
7.6.3A.4.4.2	Test Procedure	2170
7.6.3A.4.4.3	Message Contents	2170
7.6.3A.4.5	Test Requirement	2170
7.6.3A.5	Narrow band blocking for 3DL CA	2171
7.6.3A.5.1	Test Purpose	2171
7.6.3A.5.2	Test Applicability	2171
7.6.3A.5.3	Minimum Conformance Requirements	2171
7.6.3A.5.4	Test Description	2171
7.6.3A.5.4.1	Initial Conditions	2171
7.6.3A.5.4.2	Test Procedure	2175
7.6.3A.5.4.3	Message Contents	2176
7.6.3A.5.5	Test Requirement	2176
7.6.3A.6	.....	2177
7.6.3A.7	Narrow band blocking for 4DL CA	2177
7.6.3A.7.1	Test Purpose	2177
7.6.3A.7.2	Test Applicability	2177
7.6.3A.7.3	Minimum Conformance Requirements	2177
7.6.3A.7.4	Test Description	2178
7.6.3A.7.4.1	Initial Conditions	2178
7.6.3A.7.4.2	Test Procedure	2185
7.6.3A.7.4.3	Message Contents	2186
7.6.3A.7.5	Test Requirement	2187
7.6.3A.8	Narrow band blocking for 5DL CA	2187
7.6.3A.8.1	Test Purpose	2187
7.6.3A.8.2	Test Applicability	2188
7.6.3A.8.3	Minimum Conformance Requirements	2188
7.6.3A.8.4	Test Description	2188
7.6.3A.8.4.1	Initial Conditions	2188

7.6.3A.8.4.2	Test Procedure	2195
7.6.3A.8.4.3	Message Contents	2197
7.6.3A.8.5	Test Requirement.....	2197
7.6.3B	Narrow band blocking for UL-MIMO	2198
7.6.3B.1	Test Purpose	2198
7.6.3B.2	Test Applicability.....	2198
7.6.3B.3	Minimum Conformance Requirements	2198
7.6.3B.4	Test Description	2198
7.6.3B.4.1	Initial Conditions	2198
7.6.3B.4.2	Test Procedure.....	2199
7.6.3B.4.3	Message Contents.....	2200
7.6.3B.5	Test Requirement	2200
7.6.3D	Narrow band blocking for ProSe	2200
7.6.3D.0	Minimum conformance requirements	2200
7.6.3D.1	Narrow band blocking for ProSe Direct Discovery	2201
7.6.3D.1.1	Test Purpose	2201
7.6.3D.1.2	Test Applicability	2201
7.6.3D.1.3	Minimum Conformance Requirements	2201
7.6.3D.1.4	Test Description.....	2202
7.6.3D.1.5	Test Requirement.....	2204
7.6.3D.2	Narrow band blocking for ProSe Direct Communication	2204
7.6.3D.2.1	Test Purpose	2204
7.6.3D.2.2	Test Applicability	2204
7.6.3D.2.3	Minimum Conformance Requirements	2205
7.6.3D.2.4	Test Description.....	2205
7.6.3D.2.5	Test Requirement.....	2205
7.6.3E	Narrow band blocking for UE category 0.....	2205
7.6.3E.1	Test Purpose	2205
7.6.3E.2	Test Applicability.....	2205
7.6.3E.3	Minimum Conformance Requirements	2205
7.6.3E.4	Test Description	2205
7.6.3E.4.1	Initial Conditions	2205
7.6.3E.4.2	Test Procedure.....	2206
7.6.3E.4.3	Message Contents.....	2206
7.6.3E.5	Test Requirement	2206
7.6.3EA	Narrow band blocking for UE Category M1	2207
7.6.3EA.1	Test Purpose.....	2207
7.6.3EA.2	Test Applicability.....	2207
7.6.3EA.3	Minimum Conformance Requirements	2207
7.6.3EA.4	Test Description	2207
7.6.3EA.4.1	Initial Conditions	2207
7.6.3EA.4.2	Test Procedure.....	2208
7.6.3EA.4.3	Message Contents.....	2208
7.6.3EA.5	Test Requirement	2209
7.7	Spurious response.....	2209
7.7.1	Test Purpose.....	2209
7.7.2	Test Applicability	2209
7.7.3	Minimum Conformance Requirements.....	2209
7.7.4	Test Description.....	2210
7.7.4.1	Initial Conditions.....	2210
7.7.4.2	Test Procedure.....	2210
7.7.4.3	Message Contents	2210
7.7.5	Test Requirement.....	2211
7.7_1	Spurious response with 4 Rx antenna ports.....	2211
7.7_1.1	Test Purpose.....	2211
7.7_1.2	Test Applicability	2211
7.7_1.3	Minimum Conformance Requirements.....	2212
7.7_1.4	Test Description.....	2212
7.7_1.4.1	Initial Conditions.....	2212
7.7_1.4.2	Test Procedure.....	2212
7.7_1.4.3	Message Contents	2212
7.7_1.5	Test Requirement.....	2212

7.7A	Spurious response for CA	2213
7.7A.0	Minimum conformance requirements	2213
7.7A.1	Spurious response for CA (intra-band contiguous DL CA and UL CA)	2214
7.7A.1.1	Test Purpose	2214
7.7A.1.2	Test Applicability	2214
7.7A.1.3	Minimum Conformance Requirements	2214
7.7A.1.4	Test Description	2214
7.7A.1.4.1	Initial Conditions	2214
7.7A.1.4.2	Test Procedure	2214
7.7A.1.4.3	Message Contents	2215
7.7A.1.5	Test Requirement	2216
7.7A.2	Spurious response for CA (intra-band contiguous DL CA without UL CA)	2217
7.7A.2.1	Test Purpose	2217
7.7A.2.2	Test Applicability	2217
7.7A.2.3	Minimum Conformance Requirements	2217
7.7A.2.4	Test Description	2217
7.7A.2.4.1	Initial Conditions	2217
7.7A.2.4.2	Test Procedure	2217
7.7A.2.4.3	Message Contents	2217
7.7A.2.5	Test Requirement	2217
7.7A.3	Spurious response for CA (inter-band DL CA without UL CA)	2218
7.7A.3.1	Test Purpose	2218
7.7A.3.2	Test Applicability	2218
7.7A.3.3	Minimum Conformance Requirements	2218
7.7A.3.4	Test Description	2218
7.7A.3.4.1	Initial Conditions	2218
7.7A.3.4.2	Test Procedure	2218
7.7A.3.4.3	Message Contents	2218
7.7A.3.5	Test Requirement	2219
7.7A.4	Spurious response for CA (intra-band non-contiguous DL CA without UL CA)	2219
7.7A.4.1	Test Purpose	2219
7.7A.4.2	Test Applicability	2219
7.7A.4.3	Minimum Conformance Requirements	2219
7.7A.4.4	Test Description	2219
7.7A.4.4.1	Initial Conditions	2219
7.7A.4.4.2	Test Procedure	2220
7.7A.4.4.3	Message Contents	2220
7.7A.4.5	Test Requirement	2220
7.7A.5	Spurious response for 3DL CA	2221
7.7A.5.1	Test Purpose	2221
7.7A.5.2	Test Applicability	2221
7.7A.5.3	Minimum Conformance Requirements	2221
7.7A.5.4	Test Description	2221
7.7A.5.4.1	Initial Conditions	2221
7.7A.5.4.2	Test Procedure	2221
7.7A.5.4.3	Message Contents	2221
7.7A.5.5	Test Requirement	2222
7.7A.6		2222
7.7A.7	Spurious response for 4DL CA	2222
7.7A.7.1	Test Purpose	2222
7.7A.7.2	Test Applicability	2222
7.7A.7.3	Minimum Conformance Requirements	2223
7.7A.7.4	Test Description	2223
7.7A.7.4.1	Initial Conditions	2223
7.7A.7.4.2	Test Procedure	2223
7.7A.7.4.3	Message Contents	2223
7.7A.7.5	Test Requirement	2223
7.7A.8	Spurious response for 5DL CA	2224
7.7A.8.1	Test Purpose	2224
7.7A.8.2	Test Applicability	2224
7.7A.8.3	Minimum Conformance Requirements	2224
7.7A.8.4	Test Description	2224

7.7A.8.4.1	Initial Conditions	2224
7.7A.8.4.2	Test Procedure	2224
7.7A.8.4.3	Message Contents	2225
7.7A.8.5	Test Requirement	2225
7.7B	Spurious response for UL-MIMO	2226
7.7B.1	Test Purpose.....	2226
7.7B.2	Test Applicability	2226
7.7B.3	Minimum Conformance Requirements.....	2226
7.7B.4	Test Description	2226
7.7B.4.1	Initial Conditions.....	2226
7.7B.4.2	Test Procedure.....	2226
7.7B.4.3	Message Contents	2227
7.7B.5	Test Requirement.....	2227
7.7D	Spurious response for ProSe.....	2227
7.7D.0	Minimum conformance requirements.....	2227
7.7D.1	Spurious response for ProSe Direct Discovery.....	2228
7.7D.1.1	Test Purpose	2228
7.7D.1.2	Test Applicability.....	2228
7.7D.1.3	Minimum Conformance Requirements.....	2228
7.7D.1.4	Test Description	2229
7.7D.1.4.1	Initial Conditions	2229
7.7D.1.4.2	Test Procedure.....	2229
7.7D.1.4.3	Message Contents	2229
7.7D.1.5	Test Requirement	2230
7.7D.2	Spurious response for ProSe Direct Communication.....	2230
7.7D.2.1	Test Purpose	2231
7.7D.2.2	Test Applicability.....	2231
7.7D.2.3	Minimum Conformance Requirements.....	2231
7.7D.2.4	Test Description	2231
7.7D.2.4.1	Initial Conditions	2231
7.7D.2.4.2	Test Procedure.....	2231
7.7D.2.4.3	Message Contents	2231
7.7D.2.5	Test Requirement	2231
7.7E	Spurious response for UE category 0	2231
7.7E.1	Test Purpose.....	2231
7.7E.2	Test Applicability	2231
7.7E.3	Minimum Conformance Requirements.....	2231
7.7E.4	Test Description.....	2231
7.7E.4.1	Initial Conditions.....	2231
7.7E.4.2	Test Procedure.....	2232
7.7E.4.3	Message Contents	2232
7.7E.5	Test Requirement.....	2232
7.7EA	Spurious response for UE category M1.....	2232
7.7EA.1	Test Purpose.....	2232
7.7EA.2	Test Applicability	2232
7.7EA.3	Minimum Conformance Requirements.....	2232
7.7EA.4	Test Description.....	2233
7.7EA.4.1	Initial Conditions.....	2233
7.7EA.4.2	Test Procedure.....	2233
7.7EA.4.3	Message Contents	2233
7.7EA.5	Test Requirement.....	2234
7.7F	Spurious response for category NB1	2234
7.7F.1	Test purpose.....	2234
7.7F.2	Test applicability	2234
7.7F.3	Minimum conformance requirements	2235
7.7F.4	Test description.....	2235
7.7F.4.1	Initial conditions	2235
7.7F.4.2	Test procedure.....	2235
7.7F.4.3	Message contents	2235
7.7F.5	Test requirement	2235
7.7G	Spurious response for V2X Communication.....	2236
7.7G.1	Test Purpose.....	2236

7.7G.2	Test Applicability	2236
7.7G.3	Minimum Conformance Requirements.....	2236
7.7G.4	Test Description.....	2236
7.7G.4.1	Initial Conditions.....	2236
7.7G.4.2	Test Procedure.....	2236
7.7G.4.3	Message Contents	2237
7.7G.5	Test Requirement.....	2237
7.8	Intermodulation characteristics	2237
7.8.1	Wide band Intermodulation	2237
7.8.1.1	Test purpose	2237
7.8.1.2	Test applicability.....	2237
7.8.1.3	Minimum conformance requirements	2237
7.8.1.4	Test description	2238
7.8.1.4.1	Initial condition	2238
7.8.1.4.2	Test procedure	2239
7.8.1.4.3	Message contents.....	2240
7.8.1.5	Test requirements.....	2240
7.8.1_1	Wide band Intermodulation with 4 Rx antenna ports	2241
7.8.1_1.1	Test purpose	2241
7.8.1_1.2	Test applicability.....	2241
7.8.1_1.3	Minimum conformance requirements	2241
7.8.1_1.4	Test description	2241
7.8.1_1.4.1	Initial condition	2241
7.8.1_1.4.2	Test procedure	2242
7.8.1_1.4.3	Message contents.....	2242
7.8.1_1.5	Test requirements.....	2242
7.8.1A	Wide band Intermodulation for CA	2243
7.8.1A.0	Minimum conformance requirements	2243
7.8.1A.1	Wideband intermodulation for CA (intra-band contiguous DL CA and UL CA).....	2246
7.8.1A.1.1	Test purpose	2246
7.8.1A.1.2	Test applicability	2246
7.8.1A.1.3	Minimum conformance requirements.....	2246
7.8.1A.1.4	Test description	2246
7.8.1A.1.4.1	Initial condition.....	2246
7.8.1A.1.4.2	Test procedure.....	2247
7.8.1A.1.4.3	Message contents	2248
7.8.1A.1.5	Test requirements	2249
7.8.1A.2	Wideband intermodulation for CA (intra-band contiguous DL CA without UL CA).....	2250
7.8.1A.2.1	Test purpose	2250
7.8.1A.2.2	Test applicability	2250
7.8.1A.2.3	Minimum conformance requirements.....	2250
7.8.1A.2.4	Test description	2250
7.8.1A.2.4.1	Initial condition.....	2250
7.8.1A.2.4.2	Test procedure.....	2252
7.8.1A.2.4.3	Message contents	2252
7.8.1A.2.5	Test requirements	2252
7.8.1A.3	Wideband intermodulation for CA (inter-band DL CA without UL CA).....	2253
7.8.1A.3.1	Test purpose	2253
7.8.1A.3.2	Test applicability	2253
7.8.1A.3.3	Minimum conformance requirements.....	2253
7.8.1A.3.4	Test description	2253
7.8.1A.3.4.1	Initial condition.....	2253
7.8.1A.3.4.2	Test procedure.....	2255
7.8.1A.3.4.3	Message contents	2255
7.8.1A.3.5	Test requirements	2255
7.8.1A.4	Wideband intermodulation for CA (intra band non-contiguous DL CA without UL CA).....	2257
7.8.1A.4.1	Test purpose	2257
7.8.1A.4.2	Test applicability	2257
7.8.1A.4.3	Minimum conformance requirements.....	2257
7.8.1A.4.4	Test description	2257
7.8.1A.4.4.1	Initial condition.....	2257
7.8.1A.4.4.2	Test procedure.....	2260

7.8.1A.4.4.3	Message contents	2260
7.8.1A.4.5	Test requirements	2260
7.8.1A.5	Wideband intermodulation for 3DL CA	2261
7.8.1A.5.1	Test purpose	2261
7.8.1A.5.2	Test applicability	2261
7.8.1A.5.3	Minimum conformance requirements	2261
7.8.1A.5.4	Test description	2261
7.8.1A.5.5	Test requirement	2266
7.8.1A.6	.....	2268
7.8.1A.7	Wideband intermodulation for 4DL CA	2268
7.8.1A.7.1	Test purpose	2268
7.8.1A.7.2	Test applicability	2268
7.8.1A.7.3	Minimum conformance requirements	2268
7.8.1A.7.4	Test description	2268
7.8.1A.7.5	Test requirement	2277
7.8.1A.8	Wideband intermodulation for 5DL CA	2278
7.8.1A.8.1	Test purpose	2278
7.8.1A.8.2	Test applicability	2278
7.8.1A.8.3	Minimum conformance requirements	2278
7.8.1A.8.4	Test description	2279
7.8.1A.8.5	Test requirement	2288
7.8.1B	Wide band Intermodulation for UL-MIMO	2290
7.8.1B.1	Test purpose	2290
7.8.1B.2	Test applicability	2290
7.8.1B.3	Minimum conformance requirements	2290
7.8.1B.4	Test description	2290
7.8.1B.4.1	Initial condition	2290
7.8.1B.4.2	Test procedure	2291
7.8.1B.4.3	Message contents	2292
7.8.1B.5	Test requirements	2292
7.8.1C	.....	2293
7.8.1D	Wide band intermodulation for ProSe	2293
7.8.1D.0	Minimum conformance requirements	2293
7.8.1D.1	Wide band intermodulation for ProSe Direct Discovery	2293
7.8.1D.1.1	Test Purpose	2294
7.8.1D.1.2	Test Applicability	2294
7.8.1D.1.3	Minimum Conformance Requirements	2294
7.8.1D.1.4	Test Description	2294
7.8.1D.1.5	Test Requirement	2296
7.8.1D.2	Wide band intermodulation for ProSe Direct Communication	2297
7.8.1D.2.1	Test Purpose	2297
7.8.1D.2.2	Test Applicability	2297
7.8.1D.2.3	Minimum Conformance Requirements	2297
7.8.1D.2.4	Test Description	2297
7.8.1D.2.5	Test Requirement	2297
7.8.1E	Wide band Intermodulation for UE category 0	2297
7.8.1E.1	Test purpose	2297
7.8.1E.2	Test applicability	2297
7.8.1E.3	Minimum conformance requirements	2297
7.8.1E.4	Test description	2297
7.8.1E.4.1	Initial condition	2297
7.8.1E.4.2	Test procedure	2298
7.8.1E.4.3	Message contents	2298
7.8.1E.5	Test requirements	2298
7.8.1EA	Wide band Intermodulation for UE category M1	2299
7.8.1EA.1	Test purpose	2299
7.8.1EA.2	Test applicability	2299
7.8.1EA.3	Minimum conformance requirements	2299
7.8.1EA.4	Test description	2300
7.8.1EA.4.1	Initial condition	2300
7.8.1EA.4.2	Test procedure	2301
7.8.1EA.4.3	Message contents	2301

7.8.1EA.5	Test requirements	2301
7.8.1F	Wide band Intermodulation for category NB1	2302
7.8.1F.1	Test purpose	2302
7.8.1F.2	Test applicability	2302
7.8.1F.3	Minimum conformance requirements	2302
7.8.1F.4	Test description	2302
7.8.1F.4.1	Initial condition	2302
7.8.1F.4.2	Test procedure	2303
7.8.1F.4.3	Message contents	2303
7.8.1F.5	Test requirements	2303
7.8.1G	Wide band Intermodulation for V2X Communication	2304
7.8.1G.1	Wide band Intermodulation for V2X Communication / Non-concurrent with E-UTRA uplink transmissions	2304
7.8.1G.1.1	Test Purpose	2304
7.8.1G.1.2	Test Applicability	2304
7.8.1G.1.3	Minimum Conformance Requirements	2304
7.8.1G.1.4	Test Description	2305
7.8.1G.1.4.1	Initial Conditions	2305
7.8.1G.1.4.2	Test Procedure	2306
7.8.1G.1.4.3	Message Contents	2306
7.8.1G.1.5	Test Requirement	2306
7.8.2	Void	2306
7.9	Spurious emissions	2306
7.9.1	Test Purpose	2306
7.9.2	Test Applicability	2307
7.9.3	Minimum Conformance Requirements	2307
7.9.4	Test Description	2307
7.9.4.1	Initial Conditions	2307
7.9.4.2	Test Procedure	2308
7.9.4.3	Message Contents	2308
7.9.5	Test Requirement	2308
7.9_1	Spurious emissions with 4 Rx antenna ports	2308
7.9_1.1	Test Purpose	2308
7.9_1.2	Test Applicability	2308
7.9_1.3	Minimum Conformance Requirements	2308
7.9_1.4	Test Description	2308
7.9_1.4.1	Initial Conditions	2308
7.9_1.4.2	Test Procedure	2309
7.9_1.4.3	Message Contents	2309
7.9_1.5	Test Requirement	2309
7.9A	Spurious emissions for CA	2309
7.9A.1	Test Purpose	2309
7.9A.2	Test Applicability	2310
7.9A.3	Minimum Conformance Requirements	2310
7.9A.4	Test Description	2310
7.9A.4.1	Initial Conditions	2310
7.9A.4.2	Test Procedure	2311
7.9A.4.3	Message Contents	2312
7.9A.5	Test Requirement	2312
7.9E	Spurious emissions for UE category 0	2312
7.9E.1	Test Purpose	2312
7.9E.2	Test Applicability	2312
7.9E.3	Minimum Conformance Requirements	2312
7.9E.4	Test Description	2312
7.9E.4.1	Initial Conditions	2312
7.9E.4.2	Test Procedure	2313
7.9E.4.3	Message Contents	2313
7.9E.5	Test Requirement	2313
7.9EA	Spurious emissions for UE category M1	2313
7.9EA.1	Test Purpose	2313
7.9EA.2	Test Applicability	2313
7.9EA.3	Minimum Conformance Requirements	2314

7.9EA.4	Test Description.....	2314
7.9EA.4.1	Initial Conditions.....	2314
7.9EA.4.2	Test Procedure.....	2315
7.9EA.4.3	Message Contents	2315
7.9EA.5	Test Requirement.....	2315
7.9G	Spurious emissions for V2X Communication	2315
7.9G.1	Test Purpose.....	2315
7.9G.2	Test Applicability	2315
7.9G.3	Minimum Conformance Requirements.....	2316
7.9G.4	Test Description.....	2316
7.9G.4.1	Initial Conditions.....	2316
7.9G.4.2	Test Procedure.....	2317
7.9G.4.3	Message Contents	2317
7.9.1G.5	Test Requirement.....	2317
7.10	Void.....	2317
7.10A	Receiver image for CA.....	2317
8	Performance Requirement.....	2318
8.1	General	2318
8.1.1	Receiver antenna capability	2318
8.1.1.1	Simultaneous unicast and MBMS operations.....	2319
8.1.1.2	Dual-antenna receiver capability in idle mode.....	2319
8.1.2	Applicability of requirements	2319
8.1.2.1	Applicability of requirements for different channel bandwidths.....	2319
8.1.2.2	Definition of CA capability.....	2319
8.1.2.2A	Definition of dual connectivity capability.....	2323
8.1.2.3	Applicability and test rules for different CA configurations and bandwidth combination sets.....	2323
8.1.2.3A	Applicability and test rules for different dual connectivity configuration and bandwidth combination set	2325
8.1.2.3B	Applicability and test rules for different TDD-FDD CA configurations and bandwidth combination sets.....	2326
8.1.2.3D	Applicability and test rules for different CA with LAA SCell(s) configurations and bandwidth combination sets.....	2328
8.1.2.4	Test coverage for different number of component carriers	2329
8.1.2.6	Applicability of performance requirements for 4Rx capable UEs	2330
8.1.2.6.1	Applicability rule and antenna connection for single carrier tests with 2Rx	2330
8.1.2.6.2	Applicability rule and antenna connection for CA and DC tests with 2Rx	2332
8.1.2.6.3	Applicability rule and antenna connection for single carrier tests with 4Rx	2332
8.1.2.6.4	Applicability rule for 256QAM tests	2332
8.2	Demodulation of PDSCH (Cell-Specific Reference Symbols)	2333
8.2.1	FDD (Fixed Reference Channel)	2333
8.2.1.1	FDD PDSCH Single Antenna Port Performance (Cell-Specific Reference Symbols).....	2333
8.2.1.1.1	FDD PDSCH Single Antenna Port Performance.....	2333
8.2.1.1.1_1	FDD PDSCH Single Antenna Port Performance (Release 9 and forward)	2337
8.2.1.1.1_2	FDD PDSCH Single Antenna Port Performance (Release 10 and forward)	2339
8.2.1.1.1_A	FDD PDSCH Single Antenna Port Performance for CA.....	2341
8.2.1.1.1_A.1	FDD PDSCH Single Antenna Port Performance for CA (2DL CA)	2341
8.2.1.1.1_A.2	FDD PDSCH Single Antenna Port Performance for CA (3DL CA)	2344
8.2.1.1.1_A.3	Void.....	2348
8.2.1.1.1_A.4	FDD PDSCH Single Antenna Port Performance for CA (4DL CA)	2348
8.2.1.1.1_A.5	FDD PDSCH Single Antenna Port Performance for CA (5 DL CA)	2352
8.2.1.1.2	FDD PDSCH Single Antenna Port Performance with 1 PRB in presence of MBSFN	2355
8.2.1.2	FDD PDSCH Transmit Diversity Performance (Cell-Specific Reference Symbols).....	2357
8.2.1.2.1_1	FDD PDSCH Transmit Diversity 2x2 (Release 9 and forward).....	2359
8.2.1.2.2	FDD PDSCH Transmit Diversity 4x2	2360
8.2.1.2.2_1	FDD PDSCH Transmit Diversity 4x2 (Release 9 and forward).....	2362
8.2.1.2.3	.....	2364
8.2.1.2.3_C	FDD PDSCH Transmit diversity 2x2 for eICIC.....	2364
8.2.1.2.3_C.1	FDD PDSCH Transmit diversity 2x2 for eICIC (non-MBSFN ABS).....	2364
8.2.1.2.3_D	.....	2369
8.2.1.2.3_E	FDD PDSCH Transmit diversity 2x2 for feICIC	2369
8.2.1.2.3_E.1	FDD PDSCH Transmit diversity 2x2 for feICIC (non-MBSFN ABS)	2369

8.2.1.2.4	FDD PDSCH Transmit Diversity 2x2 with TM3 Interference Model – Enhanced Performance Requirement Type A	2375
8.2.1.2.5	FDD PDSCH Transmit Diversity 2x2 with TM2 Interference Model – Enhanced Performance Requirement Type B.....	2379
8.2.1.2.6	FDD PDSCH Transmit Diversity 2x2 with TM9 Interference Model – Enhanced Performance Requirement Type B.....	2382
8.2.1.3	FDD PDSCH Open Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols) ..	2386
8.2.1.3.1	FDD PDSCH Open Loop Spatial Multiplexing 2x2.....	2386
8.2.1.3.1_1	FDD PDSCH Open Loop Spatial Multiplexing 2x2 (Release 11 and forward)	2388
8.2.1.3.1_A	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA	2390
8.2.1.3.1_A.1	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (2DL CA).....	2390
8.2.1.3.1_A.2	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (3DL CA).....	2394
8.2.1.3.1_A.3	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (4DL CA).....	2398
8.2.1.3.1_A.4	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (5DL CA).....	2402
8.2.1.3.1A	FDD Soft buffer management test.....	2406
8.2.1.3.1A_A.1	FDD PDSCH Soft buffer management test for CA (2 DL CA).....	2406
8.2.1.3.1A_A.2	Void.....	2409
8.2.1.3.1B	FDD PDSCH Open Loop Spatial Multiplexing 2x2 – Enhanced Performance Requirement Type C.....	2409
8.2.1.3.1B.1	Test purpose.....	2409
8.2.1.3.1B.2	Test applicability.....	2410
8.2.1.3.1B.3	Minimum conformance requirements	2410
8.2.1.3.1B.4	Test description.....	2410
8.2.1.3.1B.4.1	Initial conditions.....	2410
8.2.1.3.1B.4.2	Test procedure.....	2411
8.2.1.3.1B.4.3	Message contents.....	2411
8.2.1.3.1B.5	Test requirement	2411
8.2.1.3.1C.1	Test purpose.....	2412
8.2.1.3.1C.2	Test applicability.....	2412
8.2.1.3.1C.3	Minimum conformance requirements	2412
8.2.1.3.1C.4	Test description.....	2413
8.2.1.3.1C.4.1	Initial conditions.....	2413
8.2.1.3.1C.4.2	Test procedure.....	2413
8.2.1.3.1C.4.3	Message contents.....	2413
8.2.1.3.1C.5	Test requirement	2414
8.2.1.3.2	FDD PDSCH Open Loop Spatial Multiplexing 4x2.....	2415
8.2.1.3.3_C	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for eICIC	2417
8.2.1.3.3_C.1	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for eICIC (non-MBSFN ABS)	2417
8.2.1.3.3_C.2	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for eICIC (MBSFN ABS)	2423
8.2.1.3.3_D	.....	2429
8.2.1.3.3_E	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for feICIC.....	2429
8.2.1.3.3_E.1	FDD PDSCH Open Loop Spatial Multiplexing 2x2 for feICIC (demodulation subframe overlaps with aggressor cell ABS and CRS assistance information are configured, non-MBSFN ABS)	2429
8.2.1.4	FDD PDSCH Closed Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols)	2436
8.2.1.4.1	FDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2.....	2436
8.2.1.4.1_1	FDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2 (Release 9 and forward)	2440
8.2.1.4.1_A to D	.....	2442
8.2.1.4.1_E	FDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2 for feICIC	2442
8.2.1.4.1_E.1	FDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2 for feICIC (non-MBSFN ABS)	2442
8.2.1.4.1_H	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 2x2 for 256QAM in DL.....	2449
8.2.1.4.2A	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 2x2 – Enhanced Performance Requirement Type C.....	2452
8.2.1.4.2	FDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 4x2.....	2454
8.2.1.4.2_1	FDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 4x2 (Release 9 and forward)	2459
8.2.1.4.2_A	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA.....	2460
8.2.1.4.2_A.1	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (2DL CA)	2460
8.2.1.4.2_A.2	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (3DL CA)	2466
8.2.1.4.2_A.3	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (4DL CA)	2472

8.2.1.4.2_A.4	FDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (5DL CA)	2476
8.2.1.4.3	FDD PDSCH Closed Loop Single Layer Spatial Multiplexing 2x2 with TM4 Interference Model – Enhanced Performance Requirement Type A	2478
8.2.1.4.3A	FDD PDSCH Closed Loop Multi-Layer Spatial Multiplexing 4x2 for Dual Connectivity	2483
8.2.1.4.4	FDD PDSCH Closed Loop Single Layer Spatial Multiplexing 2x2 with TM4 Interference Model – Enhanced Performance Requirement Type B	2487
8.2.1.5	.....	2491
8.2.1.6	.....	2491
8.2.1.7	Carrier aggregation with power imbalance	2491
8.2.1.7_A.1	FDD Carrier aggregation with power imbalance (intra-band contiguous DL CA).....	2491
8.2.1.8	FFS	2494
8.2.1.9	FDD PDSCH performance in HST-SFN scenario	2494
8.2.1.9.1	Test purpose	2494
8.2.1.9.2	Test applicability	2494
8.2.1.9.3	Minimum conformance requirements.....	2494
8.2.1.9.4	Test description	2495
8.2.1.9.5	Test requirement	2495
8.2.2	TDD (Fixed Reference Channel)	2496
8.2.2.1	TDD PDSCH Single Antenna Port Performance (Cell-Specific Reference Symbols).....	2498
8.2.2.1.1	TDD PDSCH Single Antenna Port Performance	2498
8.2.2.1.1_1	TDD PDSCH Single Antenna Port Performance (Release 9 and forward)	2501
8.2.2.1.1_2	TDD PDSCH Single Antenna Port Performance (Release 10 and forward)	2503
8.2.2.1.1_A	TDD PDSCH Single Antenna Port Performance for CA	2505
8.2.2.1.1_A.1	TDD PDSCH Single Antenna Port Performance for CA (2DL CA).....	2505
8.2.2.1.1_A.2	TDD PDSCH Single Antenna Port Performance for CA (3DL CA).....	2508
8.2.2.1.1_A.3	TDD PDSCH Single Antenna Port Performance for CA (4DL CA).....	2511
8.2.2.1.2	TDD PDSCH Single Antenna Port Performance with 1 PRB in the presence of MBSFN	2513
8.2.2.2	TDD PDSCH Transmit Diversity Performance (Cell-Specific Reference Symbols).....	2516
8.2.2.2.1	TDD PDSCH Transmit Diversity 2x2	2516
8.2.2.2.1_1	TDD PDSCH Transmit Diversity 2x2 (Release 9 and forward).....	2518
8.2.2.2.2	TDD PDSCH Transmit Diversity 4x2	2518
8.2.2.2.2_1	TDD PDSCH Transmit Diversity 4x2 (Release 9 and forward).....	2520
8.2.2.2.3_C	TDD PDSCH Transmit diversity 2x2 for eICIC	2521
8.2.2.2.3_C.1	TDD PDSCH Transmit diversity 2x2 for eICIC (non-MBSFN ABS)	2521
8.2.2.2.3_D	.....	2526
8.2.2.2.3_E	TDD PDSCH Transmit diversity 2x2 for feICIC	2526
8.2.2.2.3_E.1	TDD PDSCH Transmit diversity 2x2 for feICIC (non-MBSFN ABS)	2526
8.2.2.2.4	TDD PDSCH Transmit Diversity 2x2 with TM3 Interference Model – Enhanced Performance Requirement Type A	2532
8.2.2.2.5	Minimum Requirement 2 Tx Antenna Port (when <i>EIMTA-MainConfigServCell-r12</i> is configured)	2537
8.2.2.2.6	TDD PDSCH Transmit Diversity 2x2 with TM2 Interference Model – Enhanced Performance Requirement Type B	2539
8.2.2.2.7	TDD PDSCH Transmit Diversity 2x2 with TM9 Interference Model – Enhanced Performance Requirement Type B	2543
8.2.2.3	TDD PDSCH Open Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols) ..	2547
8.2.2.3.1	TDD PDSCH Open Loop Spatial Multiplexing 2x2	2547
8.2.2.3.1_1	TDD PDSCH Open Loop Spatial Multiplexing 2x2 (Release 11 and forward)	2549
8.2.2.3.1_A	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA	2550
8.2.2.3.1_A.1	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (2DL CA).....	2550
8.2.2.3.1_A.2	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (3DL CA).....	2554
8.2.2.3.1_A.3	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for CA (4DL CA).....	2558
8.2.2.3.1A	TDD Soft buffer management test.....	2561
8.2.2.3.1A_A.1	TDD PDSCH Soft buffer management test for CA (2 DL CA).....	2561
8.2.2.3.1A_A.2	Void	2563
8.2.2.3.1A_A.3	Void	2563
8.2.2.3.1B	TDD PDSCH Open Loop Spatial Multiplexing 2x2 - Enhanced Performance Requirement Type C	2563
8.2.2.3.1B.1	Test purpose	2563
8.2.2.3.1B.2	Test applicability.....	2563
8.2.2.3.1B.3	Minimum conformance requirements	2563
8.2.2.3.1B.4	Test description.....	2564

8.2.2.3.1B.5	Test requirement	2565
8.2.2.3.1C.1	Test purpose	2565
8.2.2.3.1C.2	Test applicability	2566
8.2.2.3.1C.3	Minimum conformance requirements	2566
8.2.2.3.1C.4	Test description	2567
8.2.2.3.1C.4.1	Initial conditions	2567
8.2.2.3.1C.4.2	Test procedure	2567
8.2.2.3.1C.4.3	Message contents	2567
8.2.2.3.1C.5	Test requirement	2568
8.2.2.3.2	TDD PDSCH Open Loop Spatial Multiplexing 4x2	2569
8.2.2.3.3_C	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for eICIC	2571
8.2.2.3.3_C.1	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for eICIC (non-MBSFN ABS)	2571
8.2.2.3.3_C.2	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for eICIC (MBSFN ABS)	2577
8.2.2.3.3_D	.....	2583
8.2.2.3.3_E	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for feICIC	2583
8.2.2.3.3_E.1	TDD PDSCH Open Loop Spatial Multiplexing 2x2 for feICIC (demodulation subframe overlaps with aggressor cell ABS and CRS assistance information are configured, non-MBSFN ABS)	2583
8.2.2.4	TDD PDSCH Closed Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols)	2590
8.2.2.4.1	TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2	2590
8.2.2.4.1_1	TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2 (Release 9 and forward)	2594
8.2.2.4.1_A to D	.....	2596
8.2.2.4.1_E	TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2 for feICIC	2596
8.2.2.4.1_E.1	TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 2x2 for feICIC (non-MBSFN ABS)	2596
8.2.2.4.1_H	TDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 2x2 for 256QAM in DL	2604
8.2.2.4.2	TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 4x2	2607
8.2.2.4.2_1	TDD PDSCH Closed Loop Single/Multi Layer Spatial Multiplexing 4x2 (Release 9 and forward)	2612
8.2.2.4.2_A	TDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA	2613
8.2.2.4.2_A.1	TDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (2DL CA)	2613
8.2.2.4.2_A.2	TDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (3DL CA)	2618
8.2.2.4.2_A.3	TDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for CA (4DL CA)	2624
8.2.2.4.2A	TDD PDSCH Closed Loop Multi Layer Spatial Multiplexing 2x2 – Enhanced Performance Requirement Type C	2630
8.2.2.4.3	TDD PDSCH Closed Loop Single Layer Spatial Multiplexing 2x2 with TM4 Interference Model – Enhanced Performance Requirement Type A	2633
8.2.2.4.4	TDD PDSCH Closed Loop Multi-Layer Spatial Multiplexing 4x2 for Dual Connectivity	2638
8.2.2.4.5	TDD PDSCH Closed Loop Single Layer Spatial Multiplexing 2x2 with TM4 Interference Model – Enhanced Performance Requirement Type B	2642
8.2.2.5	.....	2647
8.2.2.6	.....	2647
8.2.2.7	Carrier aggregation with power imbalance	2647
8.2.2.7_A.1	TDD Carrier aggregation with power imbalance (intra-band contiguous DL CA)	2647
8.2.2.8	FFS	2650
8.2.2.9	TDD PDSCH HST-SFN performance in HST-SFN scenario	2650
8.2.3	TDD FDD CA (Fixed Reference Channel)	2652
8.2.3.1	TDD FDD CA PDSCH Single Antenna Port Performance	2653
8.2.3.1.1.1	TDD FDD CA PDSCH Single Antenna Port Performance for FDD PCell (2DL CA)	2653
8.2.3.1.1.2	TDD FDD CA PDSCH Single Antenna Port Performance for FDD PCell (3DL CA)	2657
8.2.3.1.1.3	TDD FDD CA PDSCH Single Antenna Port Performance for FDD PCell (4DL CA)	2661
8.2.3.1.1.4	TDD FDD CA PDSCH Single Antenna Port Performance for FDD PCell (5DL CA)	2665
8.2.3.1.2.1	TDD FDD CA PDSCH Single Antenna Port Performance for TDD PCell (2DL CA)	2669
8.2.3.1.2.2	TDD FDD CA PDSCH Single Antenna Port Performance for TDD PCell (3DL CA)	2673
8.2.3.1.2.3	TDD FDD CA PDSCH Single Antenna Port Performance for TDD PCell (4DL CA)	2677
8.2.3.1.2.4	TDD FDD CA PDSCH Single Antenna Port Performance for TDD PCell (5DL CA)	2681
8.2.3.2	TDD FDD CA PDSCH Open Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols)	2685
8.2.3.2.1	TDD FDD CA PDSCH Open Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols) for FDD PCell	2685

8.2.3.2.1.1	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for FDD PCell (2DL CA)	2685
8.2.3.2.1.2	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for FDD PCell (3DL CA)	2690
8.2.3.2.1A	TDD FDD CA PDSCH Soft buffer management test for FDD PCell (2DL CA).....	2693
8.2.3.2.1.3	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for FDD PCell (4DL CA)	2697
8.2.3.2.1.4	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for FDD PCell (5DL CA)	2700
8.2.3.2.2	TDD FDD CA PDSCH Open Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols) for TDD PCell	2703
8.2.3.2.2.1	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for TDD PCell (2DL CA).....	2703
8.2.3.2.2.2	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for TDD PCell (3DL CA).....	2708
8.2.3.2.2.3	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for TDD PCell (4DL CA).....	2711
8.2.3.2.2.4	TDD FDD CA PDSCH Open Loop Spatial Multiplexing 2x2 for TDD PCell (5DL CA).....	2715
8.2.3.2.2A	TDD FDD CA PDSCH Soft buffer management test for TDD PCell (2DL CA)	2718
8.2.3.3	TDD FDD CA PDSCH Closed Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols)	2723
8.2.3.3.1	TDD FDD CA PDSCH Closed Loop Spatial Multiplexing Performance (Cell-Specific Reference Symbols) for FDD PCell	2723
8.2.3.3.1.1	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for FDD PCell (2DL CA)	2723
8.2.3.3.1.2	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for FDD PCell (3DL CA)	2729
8.2.3.3.1.3	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for FDD PCell (4DL CA)	2732
8.2.3.3.1.4	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for FDD PCell (5DL CA)	2736
8.2.3.3.2	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for TDD PCell.....	2739
8.2.3.3.2.1	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for TDD PCell (2DL CA)	2739
8.2.3.3.2.2	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for TDD PCell (3DL CA)	2746
8.2.3.3.2.3	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for TDD PCell (4DL CA)	2748
8.2.3.3.2.4	TDD FDD CA PDSCH Closed Loop Multi Layer Spatial Multiplexing 4x2 for TDD PCell (5DL CA)	2752
8.2.4	LAA	2756
8.2.4.1	LAA PDSCH CA Closed-Loop Spatial Multiplexing Performance	2756
8.2.4.1.1	LAA PDSCH CA Closed Loop Spatial Multiplexing Performance with 4 Tx Antenna port and with FDD as Pcell (FDD single carrier).....	2756
8.2.4.1.1.1	Test purpose	2756
8.2.4.1.1.2	Test applicability	2756
8.2.4.1.1.3	Minimum conformance requirements	2756
8.2.4.1.1.4	Test description	2758
8.2.4.1.1.5	Test requirement.....	2762
8.2.4.1.2	LAA PDSCH CA Closed Loop Spatial Multiplexing Performance with 4 Tx Antenna port and with TDD as Pcell (TDD single carrier)	2763
8.2.4.1.2.1	Test purpose	2763
8.2.4.1.2.2	Test applicability	2763
8.2.4.1.2.3	Minimum conformance requirements	2764
8.2.4.1.2.4	Test description	2766
8.2.4.1.2.5	Test requirement.....	2770
8.3	Demodulation of PDSCH (User-Specific Reference Symbols).....	2771
8.3.1	FDD	2771
8.3.1.1	FDD PDSCH Single-layer Spatial Multiplexing Performance (UE-Specific Reference Symbols) ..	2772
8.3.1.1.1_D	FDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 without a simultaneous transmission for eDL-MIMO.....	2772
8.3.1.1.1_D.1	Test purpose	2772
8.3.1.1.1_D.2	Test applicability.....	2772
8.3.1.1.1_D.3	Minimum conformance requirements	2772
8.3.1.1.1_D.4	Test description.....	2773
8.3.1.1.1_D.5	Test requirement	2775
8.3.1.1.1_H	FDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 without a simultaneous transmission for eDL-MIMO for 256QAM in DL	2776
8.3.1.1.1_H.1	Test purpose.....	2776

8.3.1.1.1_H.2	Test applicability.....	2776
8.3.1.1.1_H.3	Minimum conformance requirements	2776
8.3.1.1.1_H.4	Test description.....	2776
8.3.1.1.2_D	FDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 with a simultaneous transmission for eDL-MIMO.....	2776
8.3.1.1.2_D.1	Test purpose.....	2776
8.3.1.1.2_D.2	Test applicability.....	2777
8.3.1.1.2_D.3	Minimum conformance requirements	2777
8.3.1.1.2_D.4	Test description.....	2778
8.3.1.1.3	FDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM9 Interference Model - Enhanced Performance Requirement Type A.....	2781
8.3.1.1.3.1	Test purpose.....	2781
8.3.1.1.3.2	Test applicability.....	2781
8.3.1.1.3.3	Minimum conformance requirements	2781
8.3.1.1.3.4	Test description.....	2783
8.3.1.1.4	FDD PDSCH Closed Loop Single Layer Spatial Multiplexing on antenna ports 7 or 8 with TM9 Interference Model – Enhanced Performance Requirement Type B	2788
8.3.1.1.5	FDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with CRS Interference Model - Enhanced Performance Requirement Type B	2794
8.3.1.1.6	FDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM3 interference model - Enhanced Performance Requirement Type B.....	2797
8.3.1.1.7	FDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM10 serving cell configuration and TM9 interference model - Enhanced Performance Requirement Type B.....	2801
8.3.1.1.7.1	Test purpose.....	2802
8.3.1.1.7.2	Test applicability.....	2802
8.3.1.1.7.3	Minimum conformance requirements	2802
8.3.1.1.7.4	Test description.....	2804
8.3.1.2	FDD PDSCH Dual-layer Spatial Multiplexing Performance (UE-Specific Reference Symbols).....	2808
8.3.1.2.1_D	FDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO	2808
8.3.1.2.1_D.1	Test purpose.....	2808
8.3.1.2.1_D.2	Test applicability.....	2808
8.3.1.2.1_D.3	Minimum conformance requirements	2808
8.3.1.2.1_D.4	Test description.....	2809
8.3.1.2.1_D.4.2	Test procedure.....	2810
8.3.1.2.1_D.4.3	Message contents.....	2810
8.3.1.2.1_D.5	Test requirement	2811
8.3.1.2.1_D_1	FDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO (Release 11 and forward).....	2812
8.3.1.2.1_D_1.1	Test purpose.....	2812
8.3.1.2.1_D_1.2	Test applicability.....	2812
8.3.1.2.1_D_1.3	Minimum conformance requirements	2812
8.3.1.2.1_D_1.4	Test description.....	2813
8.3.1.2.1_D_1.4.2	Test procedure.....	2814
8.3.1.2.1_D_1.4.3	Message contents.....	2814
8.3.1.2.1_D_1.5	Test requirement.....	2815
8.3.1.2.2	FDD PDSCH Dual-layer Spatial Multiplexing – Enhanced Performance Requirement Type C	2817
8.3.1.2.2.1	Test purpose.....	2817
8.3.1.2.2.2	Test applicability.....	2817
8.3.1.2.2.3	Minimum conformance requirements	2817
8.3.1.2.2.4	Test description.....	2818
8.3.1.2.2.4.1	Initial conditions.....	2818
8.3.1.2.2.4.2	Test procedure.....	2819
8.3.1.2.2.4.3	Message contents.....	2819
8.3.1.2.2.5	Test requirement	2820
8.3.1.3	FDD PDSCH Performance with DCI format 2D and non Quasi Co-located Antenna Ports	2821
8.3.1.3.1_F	FDD PDSCH Performance with DCI format 2D, non Quasi Co-located Antenna Ports, Same Cell ID and single NZP CSI-RS resource for CoMP.....	2821
8.3.1.3.1_F.1	Test purpose.....	2821
8.3.1.3.1_F.2	Test applicability.....	2821
8.3.1.3.1_F.3	Minimum conformance requirements	2821
8.3.1.3.1_F.4	Test description.....	2823

8.3.1.3.1_F.4.1	Initial conditions.....	2823
8.3.1.3.1_F.4.2	Test procedure.....	2823
8.3.1.3.1_F.4.3	Message contents.....	2824
8.3.1.3.1_F.5	Test requirement.....	2825
8.3.1.3.2_F	FDD PDSCH Performance with DCI format 2D, non Quasi Co-located Antenna Ports, Same Cell ID and multiple NZP CSI-RS resources for CoMP.....	2826
8.3.1.3.2_F.1	Test purpose.....	2826
8.3.1.3.2_F.2	Test applicability.....	2826
8.3.1.3.2_F.3	Minimum conformance requirements.....	2826
8.3.1.3.2_F.4	Test description.....	2828
8.3.1.3.2_F.4.1	Initial conditions.....	2828
8.3.1.3.2_F.4.2	Test procedure.....	2828
8.3.1.3.2_F.4.3	Message contents.....	2829
8.3.1.3.2_F.5	Test requirements.....	2831
8.3.1.3.3_F	FDD PDSCH Performance with DCI format 2D, non Quasi Co-located Antenna Ports, Different Cell ID, Colliding CRS and single NZP CSI-RS resource for CoMP.....	2832
8.3.1.3.3_F.1	Test purpose.....	2832
8.3.1.3.3_F.2	Test applicability.....	2832
8.3.1.3.3_F.3	Minimum conformance requirements.....	2832
8.3.1.3.3_F.4	Test description.....	2834
8.3.1.3.3_F.4.1	Initial conditions.....	2834
8.3.1.3.3_F.4.2	Test procedure.....	2834
8.3.1.3.3_F.4.3	Message contents.....	2834
8.3.1.3.3_F.5	Test requirements.....	2836
8.3.2	TDD.....	2836
8.3.2.1	TDD PDSCH Single-layer Spatial Multiplexing Performance (UE-Specific Reference Symbols) ..	2837
8.3.2.1.1	TDD PDSCH Single-layer Spatial Multiplexing on antenna port 5 (Release 8 and forward)	2837
8.3.2.1.1_1	TDD PDSCH Single-layer Spatial Multiplexing on antenna port 5 (Release 9 and forward)	2840
8.3.2.1.2	TDD PDSCH Single-layer Spatial Multiplexing on antenna port 7 or 8 without a simultaneous transmission.....	2842
8.3.2.1.2_D	TDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 without a simultaneous transmission for eDL-MIMO.....	2844
8.3.2.1.2_H	TDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 without a simultaneous transmission for eDL-MIMO for 256QAM in DL	2849
8.3.2.1.3	TDD PDSCH Single-layer Spatial Multiplexing on antenna port 7 or 8 with a simultaneous transmission.....	2851
8.3.2.1.3_D	TDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 with a simultaneous transmission for eDL-MIMO.....	2853
8.3.2.1.4	TDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM9 Interference Model - Enhanced Performance Requirement Type A.....	2858
8.3.2.1.4.1	Test purpose.....	2858
8.3.2.1.4.2	Test applicability.....	2858
8.3.2.1.4.3	Minimum conformance requirements.....	2858
8.3.2.1.4.4	Test description.....	2860
8.3.2.1.4.5	Test requirement.....	2863
8.3.2.1.5	TDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM9 Interference Model - Enhanced Performance Requirement Type B.....	2865
8.3.2.1.6	TDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with CRS Interference Model - Enhanced Performance Requirement Type B	2871
8.3.2.1.7	TDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM3 Interference Model - Enhanced Performance Requirement Type B	2875
8.3.2.1.8	TDD PDSCH Closed Loop Single-layer Spatial Multiplexing on antenna ports 7 or 8 with TM10 serving cell configuration and TM9 interference model - Enhanced Performance Requirement Type B.....	2880
8.3.2.1.8.1	Test purpose.....	2880
8.3.2.1.8.2	Test applicability.....	2880
8.3.2.1.8.3	Minimum conformance requirements.....	2880
8.3.2.1.8.4	Test description.....	2882
8.3.2.2	TDD PDSCH Dual-layer Spatial Multiplexing Performance (UE-Specific Reference Symbols)	2886
8.3.2.2.1	TDD PDSCH Dual-layer Spatial Multiplexing	2886
8.3.2.2.1_D	TDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO	2889
8.3.2.2.1_D.1	Test purpose.....	2889

8.3.2.2.1_D.2	Test applicability.....	2889
8.3.2.2.1_D.3	Minimum conformance requirements	2889
8.3.2.2.1_D.4	Test description.....	2890
8.3.2.2.1_D.4.2	Test procedure.....	2891
8.3.2.2.1_D.4.3	Message contents.....	2891
8.3.2.2.1_D.5	Test requirement.....	2892
8.3.2.2.1_D_1	TDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO (Release 11 and forward).....	2893
8.3.2.2.1_D_1.1	Test purpose.....	2893
8.3.2.2.1_D_1.2	Test applicability.....	2893
8.3.2.2.1_D_1.3	Minimum conformance requirements	2893
8.3.2.2.1_D_1.4	Test description.....	2894
8.3.2.2.1_D_1.4.2	Test procedure.....	2895
8.3.2.2.1_D_1.4.3	Message contents.....	2895
8.3.2.2.1_D_1.5	Test requirement.....	2896
8.3.2.2.2	TDD PDSCH Dual-layer Spatial Multiplexing – Enhanced Performance Requirement Type C	2898
8.3.2.2.2.1	Test purpose.....	2898
8.3.2.2.2.2	Test applicability.....	2898
8.3.2.2.2.3	Minimum conformance requirements	2898
8.3.2.2.2.4	Test description.....	2899
8.3.2.2.2.4.1	Initial conditions.....	2899
8.3.2.2.2.4.2	Test procedure.....	2900
8.3.2.2.2.4.3	Message contents.....	2900
8.3.2.2.2.5	Test requirement	2900
8.3.2.3	Dual-Layer Spatial Multiplexing (with multiple CSI-RS configurations)	2901
8.3.2.4	TDD PDSCH Performance with DCI format 2D and non Quasi Co-located Antenna Ports	2901
8.3.2.4.1_F	TDD PDSCH Performance with DCI format 2D, non Quasi Co-located Antenna Ports, Same Cell ID and single NZP CSI-RS resource for CoMP.....	2901
8.3.2.4.1_F.1	Test purpose.....	2901
8.3.2.4.1_F.2	Test applicability.....	2901
8.3.2.4.1_F.3	Minimum conformance requirements	2901
8.3.2.4.1_F.4	Test description.....	2903
8.3.2.4.1_F.4.1	Initial conditions.....	2903
8.3.2.4.1_F.4.2	Test procedure.....	2903
8.3.2.4.1_F.4.3	Message contents.....	2904
8.3.2.4.1_F.5	Test requirement	2905
8.3.2.4.2_F	TDD PDSCH Performance with DCI format 2D, non Quasi Co-located Antenna Ports, Same Cell ID and multiple NZP CSI-RS resources for CoMP	2906
8.3.2.4.2_F.1	Test purpose.....	2906
8.3.2.4.2_F.2	Test applicability.....	2906
8.3.2.4.2_F.3	Minimum conformance requirements	2906
8.3.2.4.2_F.4	Test description.....	2908
8.3.2.4.2_F.4.1	Initial conditions.....	2908
8.3.2.4.2_F.4.2	Test procedure.....	2908
8.3.2.4.2_F.4.3	Message contents.....	2909
8.3.2.4.2_F.5	Test requirements.....	2911
8.3.2.4.3_F	TDD PDSCH Performance with DCI format 2D, non Quasi Co-located Antenna Ports, Different Cell ID, Colliding CRS and single NZP CSI-RS resource for CoMP.....	2912
8.3.2.4.3_F.1	Test purpose.....	2912
8.3.2.4.3_F.2	Test applicability.....	2912
8.3.2.4.3_F.3	Minimum conformance requirements	2912
8.3.2.4.3_F.4	Test description.....	2914
8.3.2.4.3_F.4.1	Initial conditions.....	2914
8.3.2.4.3_F.4.2	Test procedure.....	2914
8.3.2.4.3_F.4.3	Message contents.....	2914
8.3.2.4.3_F.5	Test requirements.....	2916
8.3.3	LAA	2917
8.3.3.1	Dual-Layer Spatial Multiplexing with DM-RS	2917
8.3.3.1.1	LAA Dual-Layer Spatial Multiplexing with DM-RS with FDD as PCell	2917
8.3.3.1.1.1	Test purpose.....	2917
8.3.3.1.1.2	Test applicability.....	2917
8.3.3.1.1.3	Minimum conformance requirements	2917
8.3.3.1.1.4	Test description.....	2920

8.3.3.1.1.4.1	Initial conditions.....	2920
8.3.3.1.1.4.2	Test procedure.....	2921
8.3.3.1.1.4.3	Message contents.....	2921
8.3.3.1.1.5	Test Requirements	2922
8.3.3.1.2	LAA Dual-Layer Spatial Multiplexing with DM-RS with TDD as PCell.....	2923
8.3.3.1.2.1	Test purpose.....	2923
8.3.3.1.2.2	Test applicability.....	2923
8.3.3.1.2.3	Minimum conformance requirements	2923
8.3.3.1.2.4	Test description.....	2926
8.3.3.1.2.4.1	Initial conditions.....	2926
8.3.3.1.2.4.2	Test procedure.....	2927
8.3.3.1.2.4.3	Message contents.....	2927
8.3.3.1.2.5	Test Requirements	2928
8.4	Demodulation of PCFICH/PDCCH.....	2929
8.4.1	FDD.....	2929
8.4.1.1	FDD PCFICH/PDCCH Single-antenna Port Performance.....	2929
8.4.1.1.1	Test purpose	2929
8.4.1.1.2	Test applicability	2929
8.4.1.1.3	Minimum conformance requirements.....	2929
8.4.1.1.4	Test description	2930
8.4.1.1.5	Test requirement.....	2930
8.4.1.2	FDD PCFICH/PDCCH Transmit Diversity Performance	2931
8.4.1.2.1	FDD PCFICH/PDCCH Transmit Diversity 2x2.....	2931
8.4.1.2.1_1	FDD PCFICH/PDCCH Transmit Diversity 2x2 (Release 9 and forward)	2933
8.4.1.2.2	FDD PCFICH/PDCCH Transmit Diversity 4x2.....	2936
8.4.1.2.2_1	FDD PCFICH/PDCCH Transmit Diversity 4x2 (Release 9 and forward)	2938
8.4.1.2.3	.....	2940
8.4.1.2.3_C	FDD PCFICH/PDCCH Transmit Diversity 2x2 for eICIC	2940
8.4.1.2.3_C.1	FDD PCFICH/PDCCH Transmit Diversity 2x2 for eICIC (non-MBSFN ABS)	2940
8.4.1.2.3_C.2	FDD PCFICH/PDCCH Transmit Diversity 2x2 for eICIC (MBSFN ABS).....	2946
8.4.1.2.3_D	.....	2952
8.4.1.2.3_E	FDD PCFICH/PDCCH Transmit Diversity 2x2 for feICIC	2952
8.4.1.2.3_E.1	FDD PCFICH/PDCCH Transmit Diversity 2x2 for feICIC (non-MBSFN ABS)	2952
8.4.1.2.3_E.2	FDD PCFICH/PDCCH Transmit Diversity 2x2 for feICIC (MBSFN ABS)	2958
8.4.1.2.4	.....	2964
8.4.1.2.5	FDD Enhanced Downlink Control Channel Performance Type A for PCFICH/PDCCH, 2 Tx Antenna Port under Asynchronous Network.....	2964
8.4.1.2.6	FDD Enhanced Downlink Control Channel Performance Type A for PCFICH/PDCCH, 2 Tx Antenna Port with Non-Colliding CRS Dominant Interferer	2968
8.4.1.2.7	FDD Enhanced Downlink Control Channel Performance Type B for PCFICH/PDCCH, 2 Tx Antenna Port with Colliding CRS Dominant Interferer	2971
8.4.1.2.8	FDD Enhanced Downlink Control Channel Performance Type B for PCFICH/PDCCH, 2 Tx Antenna Port with Non-Colliding CRS Dominant Interferer	2974
8.4.2	TDD.....	2977
8.4.2.1	TDD PCFICH/PDCCH Single-antenna Port Performance	2977
8.4.2.1.1	Test purpose	2977
8.4.2.1.2	Test applicability	2977
8.4.2.1.3	Minimum conformance requirements.....	2977
8.4.2.1.4	Test description	2978
8.4.2.1.5	Test requirement.....	2979
8.4.2.2	TDD PCFICH/PDCCH Transmit Diversity Performance.....	2979
8.4.2.2.1	TDD PCFICH/PDCCH Transmit Diversity 2x2	2979
8.4.2.2.1_1	TDD PCFICH/PDCCH Transmit Diversity 2x2 (Release 9 and forward)	2982
8.4.2.2.2	TDD PCFICH/PDCCH Transmit Diversity 4x2	2984
8.4.2.2.2_1	TDD PCFICH/PDCCH Transmit Diversity 4x2 (Release 9 and forward)	2987
8.4.2.2.3_C	TDD PCFICH/PDCCH Transmit Diversity 2x2 for eICIC	2989
8.4.2.2.3_C.1	TDD PCFICH/PDCCH Transmit Diversity 2x2 for eICIC (non-MBSFN ABS)	2989
8.4.2.2.3_C.2	TDD PCFICH/PDCCH Transmit Diversity 2x2 for eICIC (MBSFN ABS)	2996
8.4.2.2.3_D	.....	3002
8.4.2.2.3_E	TDD PCFICH/PDCCH Transmit Diversity 2x2 for feICIC.....	3002
8.4.2.2.3_E.1	TDD PCFICH/PDCCH Transmit Diversity 2x2 for feICIC (non-MBSFN ABS).....	3002
8.4.2.2.3_E.2	TDD PCFICH/PDCCH Transmit Diversity 2x2 for feICIC (MBSFN ABS).....	3008

8.4.2.2.4	.....	3015
8.4.2.2.5	TDD Enhanced Downlink Control Channel Performance Type A for PCFICH/PDCCH, 2 Tx Antenna Port with Colliding CRS Dominant Interferer	3015
8.4.2.2.6	TDD Enhanced Downlink Control Channel Performance Type A for PCFICH/PDCCH, 2 Tx Antenna Port with Non-Colliding CRS Dominant Interferer	3018
8.4.2.2.7	TDD Enhanced Downlink Control Channel Performance Type B for PCFICH/PDCCH, 2 Tx Antenna Port with Colliding CRS Dominant Interferer	3021
8.4.2.2.8	TDD Enhanced Downlink Control Channel Performance Type B for PCFICH/PDCCH, 2 Tx Antenna Port with Non-Colliding CRS Dominant Interferer	3024
8.4.3	LAA	3027
8.4.3.1	Transmit Diversity Performance	3027
8.4.3.1.1	LAA PCFICH/PDCCH Transmit Diversity 2x2 with FDD as Pcell	3027
8.4.3.1.2	LAA PCFICH/PDCCH Transmit Diversity 2x2 with TDD as Pcell	3031
8.5	Demodulation of PHICH	3035
8.5.1	FDD	3035
8.5.1.1	FDD PHICH Single-antenna Port Performance	3035
8.5.1.1.1	Test purpose	3035
8.5.1.1.2	Test applicability	3035
8.5.1.1.3	Minimum conformance requirements	3035
8.5.1.1.4	Test description	3036
8.5.1.1.5	Test requirement	3037
8.5.1.2	FDD PHICH Transmit Diversity Performance	3038
8.5.1.2.1	FDD PHICH Transmit Diversity 2x2	3038
8.5.1.2.1_1	FDD PHICH Transmit Diversity 2x2 (Release 9 and forward)	3041
8.5.1.2.2	FDD PHICH Transmit Diversity 4x2	3043
8.5.1.2.2_1	FDD PHICH Transmit Diversity 4x2 (Release 9 and forward)	3046
8.5.1.2.3	.....	3048
8.5.1.2.3_A	.....	3048
8.5.1.2.3_B	.....	3048
8.5.1.2.3_C	FDD PHICH Transmit Diversity 2x2 for eICIC	3048
8.5.1.2.3_C.1	FDD PHICH Transmit Diversity 2x2 for eICIC (non-MBSFN ABS)	3048
8.5.1.2.3_D	.....	3054
8.5.1.2.3_E	FDD PHICH Transmit Diversity 2x2 for feICIC	3054
8.5.1.2.3_E.1	FDD PHICH Transmit Diversity 2x2 for feICIC (non-MBSFN ABS)	3054
8.5.2	TDD	3061
8.5.2.1	TDD PHICH Single-antenna Port Performance	3061
8.5.2.1.1	Test purpose	3061
8.5.2.1.2	Test applicability	3061
8.5.2.1.3	Minimum conformance requirements	3061
8.5.2.1.4	Test description	3062
8.5.2.1.5	Test requirement	3064
8.5.2.2	TDD PHICH Transmit Diversity Performance	3064
8.5.2.2.1	TDD PHICH Transmit Diversity 2x2	3064
8.5.2.2.1_1	TDD PHICH Transmit Diversity 2x2 (Release 9 and forward)	3067
8.5.2.2.2	TDD PHICH Transmit Diversity 4x2	3070
8.5.2.2.2_1	TDD PHICH Transmit Diversity 4x2 (Release 9 and forward)	3072
8.5.2.2.3	.....	3075
8.5.2.2.3_A	.....	3075
8.5.2.2.3_B	.....	3075
8.5.2.2.3_C	TDD PHICH Transmit Diversity 2x2 for eICIC	3075
8.5.2.2.3_C.1	TDD PHICH Transmit Diversity 2x2 for eICIC (non-MBSFN ABS)	3075
8.5.2.2.3_D	.....	3081
8.5.2.2.3_E	TDD PHICH Transmit Diversity 2x2 for feICIC	3081
8.5.2.2.3_E.1	TDD PHICH Transmit Diversity 2x2 for feICIC (non-MBSFN ABS)	3081
8.6	Demodulation of PBCH	3088
8.7	Sustained downlink data rate provided by lower layers	3088
8.7.1	FDD	3088
8.7.1.1	FDD sustained data rate performance	3088
8.7.1.1.1	Test purpose	3088
8.7.1.1.2	Test applicability	3089
8.7.1.1.3	Minimum requirements	3089
8.7.1.1.4	Test description	3091

8.7.1.1.5	Test requirement	3093
8.7.1.1_1	FDD sustained data rate performance (Rel-10 and forward)	3094
8.7.1.1_1.1	Test purpose	3094
8.7.1.1_1.2	Test applicability	3094
8.7.1.1_1.3	Minimum requirements	3094
8.7.1.1_1.4	Test description	3095
8.7.1.1_1.5	Test requirement	3095
8.7.1.1_A	FDD sustained data rate performance for CA	3096
8.7.1.1_A.1	FDD Sustained data rate performance for CA (2DL CA)	3096
8.7.1.1_A.2	FDD Sustained data rate performance for CA (3DL CA)	3104
8.7.1.1_A.3	Void	3112
8.7.1.1_A.4	FDD Sustained data rate performance for CA (4DL CA)	3112
8.7.1.1_A.5	FDD Sustained data rate performance for CA (5DL CA)	3119
8.7.1.1_H	FDD sustained data rate performance for 256QAM in DL	3124
8.7.1.1_H.1	FDD sustained data rate performance for 256QAM in DL (Single Carrier)	3124
8.7.1.1_H.1.1	Test purpose	3124
8.7.1.1_H.1.2	Test applicability	3125
8.7.1.1_H.1.3	Minimum requirements	3125
8.7.1.1_H.1.4	Test description	3125
8.7.1.1_H.1.5	Test requirement	3126
8.7.1.1_H.2	FDD Sustained data rate performance for CA (2DL CA) for 256QAM in DL	3127
8.7.1.1_H.3	FDD Sustained data rate performance for CA for 256QAM in DL (3DL CA)	3130
8.7.2	TDD	3136
8.7.2.1	TDD sustained data rate performance	3137
8.7.2.1.1	Test purpose	3137
8.7.2.1.2	Test applicability	3138
8.7.2.1.3	Minimum requirements	3138
8.7.2.1.4	Test description	3139
8.7.2.1.5	Test requirement	3142
8.7.2.1_1	TDD sustained data rate performance (Rel-10 and forward)	3142
8.7.2.1_1.1	Test purpose	3142
8.7.2.1_1.2	Test applicability	3142
8.7.2.1_1.3	Minimum requirements	3142
8.7.2.1_1.4	Test description	3143
8.7.2.1_1.5	Test requirement	3143
8.7.2.1_A	TDD sustained data rate performance for CA	3144
8.7.2.1_A.1	TDD sustained data rate performance for CA (2DL CA)	3144
8.7.2.1_A.2	TDD Sustained data rate performance for CA (3DL CA)	3149
8.7.2.1_A.3	TDD Sustained data rate performance for CA (4DL CA)	3155
8.7.2.1_A.4	Void	3161
8.7.2.1_H	TDD sustained data rate performance for 256QAM in DL	3161
8.7.2.1_H.1	TDD sustained data rate performance for 256QAM in DL (Single Carrier)	3161
8.7.2.1_H.1.1	Test purpose	3161
8.7.2.1_H.1.2	Test applicability	3161
8.7.2.1_H.1.3	Minimum requirements	3161
8.7.2.1_H.1.4	Test description	3162
8.7.2.1_H.1.5	Test requirement	3163
8.7.2.1_H.2	TDD sustained data rate performance for CA (2DL CA) for 256QAM in DL	3164
8.7.2.1_H.3	TDD Sustained data rate performance for CA (3DL CA) for 256QAM in DL	3166
8.7.3	FDD (EPDCCH scheduling)	3169
8.7.3.1	FDD sustained data rate performance for EPDCCH scheduling	3170
8.7.3.1.1	Test purpose	3170
8.7.3.1.2	Test applicability	3170
8.7.3.1.3	Minimum requirements	3171
8.7.3.1.4	Test description	3172
8.7.3.1.5	Test requirement	3175
8.7.4	TDD (EPDCCH scheduling)	3176
8.7.4.1	TDD sustained data rate performance for EPDCCH scheduling	3177
8.7.4.1.1	Test purpose	3177
8.7.4.1.2	Test applicability	3177
8.7.4.1.3	Minimum requirements	3178
8.7.4.1.4	Test description	3179

8.7.4.1.5	Test requirement	3182
8.7.5	TDD FDD CA Sustained data rate performance	3182
8.7.5.1	TDD FDD CA Sustained data rate performance for FDD PCell	3184
8.7.5.1.1	TDD FDD CA Sustained data rate performance for FDD PCell (2DL CA)	3184
8.7.5.1.1.1	Test purpose	3184
8.7.5.1.1.2	Test applicability	3184
8.7.5.1.1.3	Minimum requirements	3184
8.7.5.1.1.4	Test description	3185
8.7.5.1.1.5	Test requirement	3188
8.7.5.1.2	TDD FDD CA Sustained data rate performance for FDD PCell (3DL CA)	3189
8.7.5.1.2.1	Test purpose	3189
8.7.5.1.2.2	Test applicability	3189
8.7.5.1.2.3	Minimum requirements	3189
8.7.5.1.2.4	Test description	3190
8.7.5.1.2.5	Test requirement	3195
8.7.5.1.3	TDD FDD CA Sustained data rate performance for FDD PCell (4DL CA)	3196
8.7.5.1.3.1	Test purpose	3196
8.7.5.1.3.2	Test applicability	3196
8.7.5.1.3.3	Minimum requirements	3196
8.7.5.1.3.4	Test description	3198
8.7.5.1.3.5	Test requirement	3203
8.7.5.1.4	TDD FDD CA Sustained data rate performance for FDD PCell (5DL CA)	3205
8.7.5.1.4.1	Test purpose	3205
8.7.5.1.4.2	Test applicability	3205
8.7.5.1.4.3	Minimum requirements	3205
8.7.5.1.4.4	Test description	3207
8.7.5.1.4.5	Test requirement	3210
8.7.5.1_H	TDD FDD CA Sustained data rate performance for FDD PCell for 256QAM in DL	3211
8.7.5.1_H.1	TDD FDD CA Sustained data rate performance for FDD PCell (2DL CA) for 256QAM in DL	3211
8.7.5.1_H.1.1	Test purpose	3211
8.7.5.1_H.1.2	Test applicability	3211
8.7.5.1_H.1.3	Minimum requirements	3211
8.7.5.1_H.1.4	Test description	3212
8.7.5.1_H.1.5	Test requirement	3213
8.7.5.1_H.2	TDD FDD CA Sustained data rate performance for FDD PCell (3DL CA) for 256QAM in DL	3214
8.7.5.1_H.2.1	Test purpose	3214
8.7.5.1_H.2.2	Test applicability	3214
8.7.5.1_H.2.3	Minimum requirements	3214
8.7.5.1_H.2.4	Test description	3215
8.7.5.1_H.2.5	Test requirement	3217
8.7.5.1_H.3	TDD FDD CA Sustained data rate performance for FDD PCell (4DL CA) for 256QAM in DL	3218
8.7.5.1_H.3.1	Test purpose	3218
8.7.5.1_H.3.2	Test applicability	3218
8.7.5.1_H.3.3	Minimum requirements	3219
8.7.5.1_H.3.4	Test description	3219
8.7.5.1_H.3.5	Test requirement	3221
8.7.5.1_H.4	TDD FDD CA Sustained data rate performance for FDD PCell (5DL CA) for 256QAM in DL	3222
8.7.5.1_H.4.1	Test purpose	3222
8.7.5.1_H.4.2	Test applicability	3223
8.7.5.1_H.4.3	Minimum requirements	3223
8.7.5.1_H.4.4	Test description	3223
8.7.5.1_H.4.5	Test requirement	3224
8.7.5.2	TDD FDD CA Sustained data rate performance for TDD PCell	3225
8.7.5.2.1	TDD FDD CA Sustained data rate performance for TDD PCell (2DL CA)	3225
8.7.5.2.1.1	Test purpose	3225
8.7.5.2.1.2	Test applicability	3225
8.7.5.2.1.3	Minimum requirements	3225
8.7.5.2.1.4	Test description	3227
8.7.5.2.1.5	Test requirement	3230
8.7.5.2.2	TDD FDD CA Sustained data rate performance for TDD PCell (3DL CA)	3231
8.7.5.2.2.1	Test purpose	3231
8.7.5.2.2.2	Test applicability	3231

8.7.5.2.2.3	Minimum requirements	3231
8.7.5.2.2.4	Test description	3233
8.7.5.2.2.5	Test requirement	3237
8.7.5.2.3	TDD FDD CA Sustained data rate performance for TDD PCell (4DL CA)	3238
8.7.5.2.3.1	Test purpose	3238
8.7.5.2.3.2	Test applicability	3238
8.7.5.2.3.3	Minimum requirements	3238
8.7.5.2.3.4	Test description	3241
8.7.5.2.3.5	Test requirement	3246
8.7.5.2_H	TDD FDD CA Sustained data rate performance for TDD PCell for 256QAM in DL	3248
8.7.5.2_H.1	TDD FDD CA Sustained data rate performance for TDD PCell (2DL CA) for 256QAM in DL	3248
8.7.5.2_H.1.1	Test purpose	3248
8.7.5.2_H.1.2	Test applicability	3248
8.7.5.2_H.1.3	Minimum requirements	3248
8.7.5.2_H.1.4	Test description	3249
8.7.5.2_H.1.5	Test requirement	3250
8.7.5.2_H.2	TDD FDD CA Sustained data rate performance for TDD PCell (3DL CA) for 256QAM in DL	3250
8.7.5.2_H.2.1	Test purpose	3250
8.7.5.2_H.2.2	Test applicability	3250
8.7.5.2_H.2.3	Minimum requirements	3250
8.7.5.2_H.2.4	Test description	3251
8.7.5.2_H.2.5	Test requirement	3253
8.7.6	FDD (Dual Connectivity)	3254
8.7.6.1	FDD sustained data rate performance for Dual Connectivity 64QAM	3255
8.7.6.1.1	Test purpose	3255
8.7.6.1.2	Test applicability	3255
8.7.6.1.3	Minimum conformance requirements	3255
8.7.6.1.4	Test description	3257
8.7.6.1.4.1	Initial conditions	3257
8.7.6.1.4.2	Test procedure	3258
8.7.6.1.4.3	Message contents	3258
8.7.6.1.5	Test requirement	3260
8.7.6.2	FDD sustained data rate performance for Dual Connectivity 256QAM	3261
8.7.6.2.1	Test purpose	3261
8.7.6.2.2	Test applicability	3261
8.7.6.2.3	Minimum conformance requirements	3261
8.7.6.2.4	Test description	3263
8.7.6.2.5	Test requirement	3265
8.7.7	TDD (Dual Connectivity)	3266
8.7.7.1	TDD sustained data rate performance for Dual Connectivity 64QAM	3267
8.7.7.1.1	Test purpose	3267
8.7.7.1.2	Test applicability	3267
8.7.7.1.3	Minimum conformance requirements	3267
8.7.7.1.4	Test description	3269
8.7.7.1.4.1	Initial conditions	3269
8.7.7.1.4.2	Test procedure	3269
8.7.7.1.4.3	Message contents	3270
8.7.7.1.5	Test requirement	3271
8.7.7.2	TDD sustained data rate performance for Dual Connectivity 256QAM	3272
8.7.7.2.1	Test purpose	3272
8.7.7.2.2	Test applicability	3272
8.7.7.2.3	Minimum conformance requirements	3272
8.7.7.2.4	Test description	3274
8.7.7.2.5	Test requirement	3276
8.7.8	.....	3277
8.7.9	FDD sustained data rate performance (4 layer MIMO)	3277
8.7.9.1	Minimum conformance requirements	3277
8.7.9.2	FDD sustained data rate performance for 4 layer MIMO (single carrier)	3279
8.7.9.2.1	Test purpose	3279
8.7.9.2.2	Test applicability	3279
8.7.9.2.3	Minimum conformance requirements	3279
8.7.9.2.4	Test description	3279

8.7.9.2.5	Test requirement	3283
8.7.9.3	FDD sustained data rate performance for 4 layer MIMO (2DL CA)	3283
8.7.9.3.1	Test purpose	3283
8.7.9.3.2	Test applicability	3284
8.7.9.3.3	Minimum conformance requirements	3284
8.7.9.3.4	Test description	3284
8.7.9.3.5	Test requirement	3292
8.7.9.4	FDD sustained data rate performance for 4 layer MIMO (3DL CA)	3292
8.7.9.4.1	Test purpose	3292
8.7.9.4.2	Test applicability	3292
8.7.9.4.3	Minimum conformance requirements	3292
8.7.9.4.4	Test description	3292
8.7.9.4.5	Test requirement	3304
8.7.10	TDD sustained data rate performance (4 layer MIMO)	3304
8.7.11	TDD FDD CA Sustained data rate performance (4 layer MIMO)	3304
8.8	Demodulation of EPDCCH	3305
8.8.1	Distributed Transmission	3305
8.8.1.1	FDD distributed EPDCCH performance	3305
8.8.1.1.1	Test purpose	3305
8.8.1.1.2	Test applicability	3305
8.8.1.1.3	Minimum conformance requirements	3305
8.8.1.1.4	Test description	3306
8.8.1.1.5	Test requirement	3307
8.8.1.2	TDD distributed EPDCCH performance	3307
8.8.1.2.1	Test purpose	3307
8.8.1.2.2	Test applicability	3307
8.8.1.2.3	Minimum conformance requirements	3307
8.8.1.2.4	Test description	3308
8.8.1.2.5	Test requirement	3309
8.8.2	Localized Transmission with TM9	3310
8.8.2.1	FDD localized EPDCCH performance with TM9	3310
8.8.2.1.1	Test purpose	3310
8.8.2.1.2	Test applicability	3310
8.8.2.1.3	Minimum conformance requirements	3310
8.8.2.1.4	Test description	3312
8.8.2.1.5	Test requirement	3313
8.8.2.2	TDD localized EPDCCH performance with TM9	3313
8.8.2.2.1	Test purpose	3313
8.8.2.2.2	Test applicability	3313
8.8.2.2.3	Minimum conformance requirements	3313
8.8.2.2.4	Test description	3315
8.8.2.2.5	Test requirement	3316
8.8.3	Localized transmission with TM10 Type B quasi co-location type	3316
8.8.3.1	FDD localized EPDCCH transmission with TM10 Type B quasi co-location type	3316
8.8.3.1.1	Test purpose	3316
8.8.3.1.2	Test applicability	3316
8.8.3.1.3	Minimum conformance requirements	3316
8.8.3.1.4	Test description	3318
8.8.3.1.5	Test requirement	3321
8.8.3.2	TDD localized EPDCCH transmission with TM10 Type B quasi co-location type	3321
8.8.3.2.1	Test purpose	3321
8.8.3.2.2	Test applicability	3321
8.8.3.2.3	Minimum conformance requirements	3321
8.8.3.2.4	Test description	3323
8.8.3.2.5	Test requirement	3326
8.9	Demodulation (Single receiver antenna)	3326
8.9.1	PDSCH	3326
8.9.1.1	FDD and half-duplex FDD (Fixed Reference Channel)	3326
8.9.1.1.1	FDD PDSCH Transmit Diversity 2x1 for UE category 0	3326
8.9.1.1.2	FDD closed-loop spatial multiplexing performance (Cell-Specific Reference Symbols)	3328
8.9.1.1.3	FDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 for UE category 0	3330
8.9.1.2	TDD (Fixed Reference Channel)	3333

8.9.1.2.1	TDD PDSCH Transmit Diversity for UE category 0	3333
8.9.1.2.2	TDD closed-loop spatial multiplexing performance (Cell-Specific Reference Symbols)	3335
8.9.1.2.3	TDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 for UE category 0)	3338
8.9.2	PHICH	3341
8.9.2.1	FDD and half-duplex FDD.....	3341
8.9.2.1.1	FDD PHICH Transmit Diversity for UE category 0.....	3341
8.9.2.1.1.1	Test purpose	3341
8.9.2.1.1.2	Test applicability	3341
8.9.2.1.1.3	Minimum conformance requirements	3341
8.9.2.1.1.4	Test description	3342
8.9.2.1.1.4.1	Initial conditions	3342
8.9.2.1.1.4.2	Test procedure	3342
8.9.2.1.1.4.3	Message contents.....	3342
8.9.2.1.1.5	Test requirement	3343
8.9.2.2.1	TDD PHICH Transmit Diversity for UE category 0	3343
8.9.2.2.1.1	Test purpose	3343
8.9.2.2.1.2	Test applicability	3343
8.9.2.2.1.3	Minimum conformance requirements	3343
8.9.2.2.1.4	Test description	3344
8.9.2.2.1.4.1	Initial conditions	3344
8.9.2.2.1.4.2	Test procedure	3345
8.9.2.2.1.4.3	Message contents.....	3345
8.9.2.2.1.5	Test requirement	3345
8.10	Demodulation (4 receiver antenna ports)	3345
8.10.1	PDSCH	3345
8.10.1.1	FDD (Fixed Reference Channel).....	3345
8.10.1.1.1	FDD PDSCH Transmit Diversity 2x4	3345
8.10.1.1.2	FDD PDSCH Open Loop Spatial Multiplexing 2x4.....	3348
8.10.1.1.3	FDD PDSCH Closed Loop Single Layer Spatial Multiplexing 2x4 with TM4 Interference Model – Enhanced Performance Requirement Type A	3350
8.10.1.1.4	FDD PDSCH Closed Loop Spatial Multiplexing 4x4.....	3355
8.10.1.1.5	FDD PDSCH Single-layer Spatial Multiplexing 2x4 on antenna ports 7 or 8 with TM9 interference model – Enhanced Performance Requirement Type A.....	3358
8.10.1.1.6	FDD Dual-Layer Spatial Multiplexing 2x4 (User-Specific Reference Symbols).....	3366
8.10.1.1.7	FDD Open-loop spatial multiplexing, 3 Layer Multiplexing with 4 Tx Antenna Ports	3372
8.10.1.1.8	FDD Closed-loop spatial multiplexing performance, 4 Layers spatial multiplexing 4 Tx antennas	3374
8.10.1.1.9	FDD 4 Layer Spatial Multiplexing (User-Specific Reference Symbols).....	3378
8.10.1.1.9.1	Test purpose	3378
8.10.1.1.9.2	Test applicability.....	3378
8.10.1.1.9.3	Minimum conformance requirements	3378
8.10.1.1.9.4	Test description.....	3380
8.10.1.1.9.4.2	Test procedure.....	3380
8.10.1.1.9.4.3	Message contents.....	3380
8.10.1.1.9.5	Test requirement	3383
8.10.1.2	TDD (Fixed Reference Channel)	3383
8.10.1.2.1	TDD PDSCH Transmit Diversity 2x4.....	3383
8.10.1.2.2	TDD PDSCH Open Loop Spatial Multiplexing 2x4	3385
8.10.1.2.3	TDD PDSCH Closed Loop Single Layer Spatial Multiplexing 2x4 with TM4 Interference Model – Enhanced Performance Requirement Type A	3387
8.10.1.2.4	TDD PDSCH Closed Loop Spatial Multiplexing 4x4.....	3392
8.10.1.2.5	TDD PDSCH Single-layer Spatial Multiplexing 2x4 on antenna ports 7 or 8 with TM9 interference model – Enhanced Performance Requirement Type A.....	3395
8.10.1.2.6	TDD Dual-Layer Spatial Multiplexing 2x4 (User-Specific Reference Symbols)	3402
8.10.1.2.6.1	Test purpose	3402
8.10.1.2.6.2	Test applicability.....	3402
8.10.1.2.6.3	Minimum conformance requirements	3402
8.10.1.2.6.4	Test description.....	3404
8.10.1.2.6.4.2	Test procedure.....	3404
8.10.1.2.6.4.3	Message contents.....	3404
8.10.1.2.6.5	Test requirement	3405
8.10.1.2.7	TDD Open-loop spatial multiplexing, 3 Layer Multiplexing with 4 Tx Antenna Ports	3407

8.10.1.2.8	TDD Closed-loop spatial multiplexing performance, 4 Layers spatial multiplexing 4 Tx antennas	3409
8.10.1.2.9	TDD 4 Layer Spatial Multiplexing (User-Specific Reference Symbols)	3413
8.10.1.2.9.1	Test purpose	3413
8.10.1.2.9.2	Test applicability	3413
8.10.1.2.9.3	Minimum conformance requirements	3413
8.10.1.2.9.4	Test description	3415
8.10.1.2.9.4.2	Test procedure	3415
8.10.1.2.9.4.3	Message contents	3415
8.10.1.2.9.5	Test requirement	3418
8.10.2	PCFICH/PDCCH	3418
8.10.2.1	FDD	3418
8.10.2.1.1	FDD PCFICH/PDCCH Single-antenna Port Performance 1x4	3418
8.10.2.1.1.1	Test purpose	3418
8.10.2.1.1.2	Test applicability	3418
8.10.2.1.1.3	Minimum conformance requirements	3418
8.10.2.1.1.4	Test description	3419
8.10.2.1.1.4.1	Initial conditions	3419
8.10.2.1.1.4.2	Test procedure	3419
8.10.2.1.1.4.3	Message contents	3420
8.10.2.1.1.5	Test requirement	3420
8.10.2.1.2	FDD PCFICH/PDCCH Transmit Diversity 2x4	3420
8.10.2.1.2.1	Test purpose	3420
8.10.2.1.2.2	Test applicability	3420
8.10.2.1.2.3	Minimum conformance requirements	3420
8.10.2.1.2.4	Test description	3421
8.10.2.1.2.4.1	Initial conditions	3421
8.10.2.1.2.4.2	Test procedure	3421
8.10.2.1.2.4.3	Message contents	3422
8.10.2.1.2.5	Test requirement	3422
8.10.2.1.3	FDD PCFICH/PDCCH Transmit Diversity 4x4	3422
8.10.2.1.3.1	Test purpose	3422
8.10.2.1.3.2	Test applicability	3422
8.10.2.1.3.3	Minimum conformance requirements	3423
8.10.2.1.3.4	Test description	3423
8.10.2.1.3.4.1	Initial conditions	3423
8.10.2.1.3.4.2	Test procedure	3424
8.10.2.1.3.4.3	Message contents	3424
8.10.2.1.3.5	Test requirement	3424
8.10.2.2	TDD	3425
8.10.2.2.1	TDD PCFICH/PDCCH Single-antenna Port Performance 1x4	3425
8.10.2.2.1.1	Test purpose	3425
8.10.2.2.1.2	Test applicability	3425
8.10.2.2.1.3	Minimum conformance requirements	3425
8.10.2.2.1.4	Test description	3426
8.10.2.2.1.4.1	Initial conditions	3426
8.10.2.2.1.4.2	Test procedure	3426
8.10.2.2.1.4.3	Message contents	3426
8.10.2.2.1.5	Test requirement	3426
8.10.2.2.2	TDD PCFICH/PDCCH Transmit Diversity 2x4	3427
8.10.2.2.2.1	Test purpose	3427
8.10.2.2.2.2	Test applicability	3427
8.10.2.2.2.3	Minimum conformance requirements	3427
8.10.2.2.2.4	Test description	3428
8.10.2.2.2.4.1	Initial conditions	3428
8.10.2.2.2.4.2	Test procedure	3428
8.10.2.2.2.4.3	Message contents	3428
8.10.2.2.2.5	Test requirement	3429
8.10.2.2.3	TDD PCFICH/PDCCH Transmit Diversity 4x4	3429
8.10.2.2.3.1	Test purpose	3429
8.10.2.2.3.2	Test applicability	3429
8.10.2.2.3.3	Minimum conformance requirements	3429

8.10.2.2.3.4	Test description.....	3430
8.10.2.2.3.4.1	Initial conditions.....	3430
8.10.2.2.3.4.2	Test procedure.....	3431
8.10.2.2.3.4.3	Message contents.....	3431
8.10.2.2.3.5	Test requirement	3431
8.10.3	PHICH	3432
8.10.3.1	FDD.....	3432
8.10.3.1.1	FDD PHICH Single-antenna Port Performance 1x4	3432
8.10.3.1.2	FDD PHICH Transmit Diversity 2x4	3434
8.10.3.1.3	FDD PHICH Transmit Diversity 4x4	3437
8.10.3.2	TDD	3439
8.10.3.2.1	TDD PHICH Single-antenna Port Performance 1x4	3439
8.10.3.2.2	TDD PHICH Transmit Diversity 2x4	3442
8.10.3.2.3	TDD PHICH Transmit Diversity 4x4	3444
8.10.4	ePDCCH	3447
8.10.4.1	Distributed Transmission with 4Rx.....	3447
8.10.4.1.1	FDD distributed EPDCCH performance 2x4	3447
8.10.4.1.1.1	Test purpose	3447
8.10.4.1.1.2	Test applicability	3447
8.10.4.1.1.3	Minimum conformance requirements.....	3447
8.10.4.1.1.4	Test description	3448
8.10.4.1.1.5	Test requirement	3449
8.10.4.1.2	TDD distributed EPDCCH performance 2x4	3449
8.10.4.1.2.1	Test purpose	3449
8.10.4.1.2.2	Test applicability	3449
8.10.4.1.2.3	Minimum conformance requirements.....	3450
8.10.4.1.2.4	Test description	3451
8.10.4.1.2.5	Test requirement	3452
8.10.4.2	Localized Transmission with TM9 2x4.....	3452
8.10.4.2.1	FDD localized EPDCCH performance with TM9 2x4	3452
8.10.4.2.1.1	Test purpose	3452
8.10.4.2.1.2	Test applicability.....	3452
8.10.4.2.1.3	Minimum conformance requirements	3452
8.10.4.2.1.4	Test description.....	3454
8.10.4.2.1.5	Test requirement	3455
8.10.4.2.2	TDD localized EPDCCH performance with TM9 2x4.....	3455
8.10.4.2.2.1	Test purpose.....	3455
8.10.4.2.2.2	Test applicability.....	3455
8.10.4.2.2.3	Minimum conformance requirements	3455
8.10.4.2.2.4	Test description.....	3457
8.10.4.2.2.5	Test requirement	3458
8.11	Demodulation (UE supporting coverage enhancement).....	3458
8.11.1	PDSCH	3458
8.11.1.1	FDD and half-duplex FDD (Fixed Reference Channel).....	3458
8.11.1.1.1	FDD and half-duplex FDD Closed-loop spatial multiplexing performance for UE category M1	3459
8.11.1.1.2	FDD and half-duplex FDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 for UE category M1	3463
8.11.1.1.3	FDD and half-duplex FDD PDSCH Transmit Diversity 2x1 for UE category M1	3466
8.11.1.1.3_1	FDD and half-duplex FDD PDSCH Transmit Diversity 2x1 for UE category M1 (CEmodeB)	3469
8.11.1.2	TDD (Fixed Reference Channel)	3470
8.11.1.2.1	TDD Closed-loop spatial multiplexing performance for UE category M1 (Cell-Specific Reference Symbols).....	3471
8.11.1.2.2	TDD PDSCH Single-layer Spatial Multiplexing on antenna ports 7 or 8 for UE category M1	3474
8.11.1.2.3	TDD PDSCH Transmit Diversity for UE category M1	3477
8.11.1.2.3_1	TDD PDSCH Transmit Diversity for UE category M1 (CEModeB)	3479
8.11.2	MPDCCH	3480
8.11.2.1	FDD and HD-FDD.....	3480
8.11.2.1.1	FDD and HD-FDD demodulation of MPDCCH in CE Mode A	3480
8.11.2.1.1.1	Test purpose.....	3480
8.11.2.1.1.2	Test applicability.....	3480
8.11.2.1.1.3	Minimum conformance requirements	3480

8.11.2.1.1.4	Test description.....	3481
8.11.2.1.1.5	Test requirement	3482
8.11.2.1.2	FDD and half-duplex FDD demodulation of MPDCCH in CE Mode B	3483
8.11.2.1.2.1	Test purpose.....	3483
8.11.2.1.2.2	Test applicability.....	3483
8.11.2.1.2.3	Minimum conformance requirements	3483
8.11.2.1.2.4	Test description.....	3484
8.11.2.1.2.5	Test requirement	3486
8.11.2.2	TDD	3486
8.11.2.2.1	TDD demodulation of MPDCCH in CE Mode A.....	3486
8.11.2.2.1.1	Test purpose.....	3486
8.11.2.2.1.2	Test applicability.....	3486
8.11.2.2.1.3	Minimum conformance requirements	3486
8.11.2.2.1.4	Test description.....	3487
8.11.2.2.1.5	Test requirement	3488
8.11.2.2.2	TDD demodulation of MPDCCH in CE Mode B.....	3489
8.11.2.2.2.1	Test purpose.....	3489
8.11.2.2.2.2	Test applicability.....	3489
8.11.2.2.2.3	Minimum conformance requirements	3489
8.11.2.2.2.4	Test description.....	3490
8.11.2.2.2.5	Test requirement	3492
8.11.3	Demodulation of PBCH (enhanced coverage).....	3492
8.12	Demodulation of Narrowband IoT	3492
8.12.1	NPDSCH	3492
8.12.1.1	Half-duplex FDD	3492
8.12.1.1.1	Demodulation of NPDSCH (Cell-Specific Reference Symbols) in In-band mode for category NB1	3493
8.12.1.1.2	Demodulation of NPDSCH (Cell-Specific Reference Symbols) in standalone and Guard-band mode for category NB1	3496
8.12.2	NPDCCH.....	3498
8.12.2.1	Half-duplex FDD	3498
8.12.2.1.1	Demodulation of NPDCCH single-antenna performance for category NB1	3499
8.12.2.1.2	Demodulation of NPDCCH Transmit diversity performance for category NB1	3501
8.13	.....	3504
8.13.1	.....	3504
8.13.2	.....	3504
8.13.3	.....	3504
8.13.3.1	.....	3504
8.13.3.2	.....	3504
8.13.3.3	Enhanced Performance Requirements Type A Closed-loop spatial multiplexing	3504
8.13.3.3.1	TDD-FDD CA PDSCH Closed Loop Single Layer Spatial Multiplexing 2x4 with TM4 Interference Model-Enhanced Performance Requirement Type A for FDD Pcell (2DL CA).....	3504
8.13.3.3.2	TDD-FDD CA PDSCH Closed Loop Single Layer Spatial Multiplexing 2x4 with TM4 Interference Model-Enhanced Performance Requirement Type A for TDD Pcell (2DL CA).....	3511
8.13.3.4	Enhanced Performance Requirements Type A – Single-layer Spatial Multiplexing (User-Specific Reference Symbols)	3518
8.13.3.4.1	TDD-FDD CA PDSCH Single-layer Spatial Multiplexing 2x4 on antenna ports 7 or 8 with TM9 Interference Model-Enhanced Performance Requirement Type A for FDD Pcell (2DL CA).....	3518
8.13.3.4.2	TDD-FDD CA PDSCH Single-layer Spatial Multiplexing 2x4 on antenna ports 7 or 8 with TM9 Interference Model-Enhanced Performance Requirement Type A for TDD Pcell (2DL CA).....	3528
9	Reporting of Channel State Information	3539
9.1	General	3539
9.1.1	Applicability of requirements	3539
9.1.1.1	Applicability of requirements for different channel bandwidths.....	3539
9.1.1.2	Applicability and test rules for different CA configurations and bandwidth combination sets.....	3539
9.1.1.2A	Applicability and test rules for different TDD-FDD CA configurations and bandwidth combination sets.....	3540
9.1.1.3	Test coverage for different number of component carriers	3541
9.1.1.4	Applicability of performance requirements for 4Rx capable UEs	3541

9.1.1.4.1	Applicability rule and antenna connection for single carrier tests with 2Rx	3541
9.1.1.4.2	Applicability rule and antenna connection for CA tests with 2Rx.....	3543
9.1.1.4.3	Applicability rule and antenna connection for single carrier tests with 4Rx	3543
9.2	CQI Reporting under AWGN conditions	3544
9.2.1	CQI Reporting under AWGN conditions - PUCCH 1-0 (Cell-Specific Reference Symbols)	3544
9.2.1.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-0	3544
9.2.1.1.1	Test purpose	3544
9.2.1.1.2	Test applicability	3544
9.2.1.1.3	Minimum conformance requirements.....	3544
9.2.1.1.4	Test description	3546
9.2.1.1.5	Test requirement.....	3547
9.2.1.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-0	3548
9.2.1.2.1	Test purpose	3548
9.2.1.2.2	Test applicability	3548
9.2.1.2.3	Minimum conformance requirements.....	3548
9.2.1.2.4	Test description	3549
9.2.1.2.5	Test requirement.....	3551
9.2.1.3	.....	3551
9.2.1.3_C	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for eICIC	3551
9.2.1.3_C.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for eICIC (non-MBSFN ABS) ..	3551
9.2.1.4	.....	3556
9.2.1.4_C	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for eICIC.....	3556
9.2.1.4_C.1	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for eICIC (non-MBSFN ABS) ..	3556
9.2.1.5	.....	3563
9.2.1.5_E	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for feICIC.....	3563
9.2.1.5_E.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for feICIC (non-MBSFN ABS) ..	3563
9.2.1.5_E.1.1	Test purpose	3563
9.2.1.5_E.1.2	Test applicability	3563
9.2.1.5_E.1.3	Minimum conformance requirements.....	3563
9.2.1.5_E.1.4	Test description	3565
9.2.1.5_E.1.5	Test requirement.....	3569
9.2.1.6	.....	3570
9.2.1.6_E	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for feICIC.....	3570
9.2.1.6_E.1	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for feICIC (non-MBSFN ABS) ..	3570
9.2.1.6_E.1.1	Test purpose	3570
9.2.1.6_E.1.2	Test applicability	3570
9.2.1.6_E.1.3	Minimum conformance requirements.....	3570
9.2.1.6_E.1.4	Test description	3572
9.2.1.6_E.1.5	Test requirement.....	3578
9.2.1.7	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for 256QAM in DL	3578
9.2.1.7.1	Test purpose	3578
9.2.1.7.2	Test applicability	3578
9.2.1.7.3	Minimum conformance requirements.....	3578
9.2.1.7.4	Test description	3579
9.2.1.7.5	Test requirement.....	3581
9.2.1.8	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for 256QAM in DL	3581
9.2.1.8.1	Test purpose	3581
9.2.1.8.2	Test applicability	3581
9.2.1.8.3	Minimum conformance requirements.....	3581
9.2.1.8.4	Test description	3582
9.2.1.8.5	Test requirement.....	3584
9.2.2	CQI Reporting under AWGN conditions - PUCCH 1-1 (Cell-Specific Reference Symbols)	3584
9.2.2.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-1	3584
9.2.2.1.1	Test purpose	3584
9.2.2.1.2	Test applicability	3585
9.2.2.1.3	Minimum conformance requirements.....	3585
9.2.2.1.4	Test description	3586
9.2.2.1.5	Test requirement.....	3588
9.2.2.1_D.5	Test requirement.....	3589
9.2.2.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-1	3589
9.2.2.2.1	Test purpose	3589
9.2.2.2.2	Test applicability	3589

9.2.2.2.3	Minimum conformance requirements.....	3589
9.2.2.2.4	Test description	3590
9.2.2.2.5	Test requirement	3593
9.2.3	CQI Reporting under AWGN conditions - PUCCH 1-1 (CSI Reference Symbols).....	3594
9.2.3.1_D	FDD CQI Reporting under AWGN conditions – PUCCH 1-1 for eDL-MIMO	3594
9.2.3.1_D.1	Test purpose	3594
9.2.3.1_D.2	Test applicability	3594
9.2.3.1_D.3	Minimum conformance requirements.....	3594
9.2.3.1_D.4	Test description	3595
9.2.3.1_D.5	Test requirement	3598
9.2.3.2_D	TDD CQI Reporting under AWGN conditions – PUCCH 1-1 for eDL-MIMO	3599
9.2.3.2_D.1	Test purpose	3599
9.2.3.2_D.2	Test applicability	3599
9.2.3.2_D.3	Minimum conformance requirements.....	3599
9.2.3.2_D.4	Test description	3600
9.2.3.2_D.5	Test requirement	3604
9.2.4	CQI Reporting under AWGN conditions - Single CSI Process.....	3604
9.2.4.1_F	FDD CQI Reporting under AWGN conditions - Single CSI Process for CoMP	3604
9.2.4.1_F.1	Test purpose	3604
9.2.4.1_F.2	Test applicability	3604
9.2.4.1_F.3	Minimum conformance requirements.....	3605
9.2.4.1_F.4	Test description	3607
9.2.4.1_F.5	Test requirement	3611
9.2.4.2_F	TDD CQI Reporting under AWGN conditions - Single CSI Process for CoMP	3612
9.2.4.2_F.1	Test purpose	3612
9.2.4.2_F.2	Test applicability	3612
9.2.4.2_F.3	Minimum conformance requirements.....	3612
9.2.4.2_F.4	Test description	3614
9.2.4.2_F.5	Test requirement	3619
9.2.5	FFS.....	3620
9.2.6	CQI Reporting under AWGN Conditions-PUSCH 3-0 – LAA (Cell-Specific Reference Symbols).....	3620
9.2.6.1	LAA CQI Reporting under AWGN Conditions with Frame Structure Type 3 with FDD as Pcell (PUSCH 3-0).....	3620
9.2.6.1.1	Test purpose	3620
9.2.6.1.2	Test applicability	3620
9.2.6.1.3	Minimum conformance requirements.....	3620
9.2.6.1.4	Test description	3622
9.2.6.1.5	Test requirement	3625
9.2.6.2	LAA CQI Reporting under AWGN Conditions with Frame Structure Type 3 with TDD as Pcell (PUSCH 3-0).....	3626
9.2.6.2.1	Test purpose	3626
9.2.6.2.2	Test applicability	3626
9.2.6.2.3	Minimum conformance requirements.....	3626
9.2.6.2.4	Test description	3628
9.2.6.2.5	Test requirement	3632
9.2.7	CQI Reporting under AWGN Conditions-PUSCH 3-1 - LAA.....	3632
9.2.7.1	LAA CQI Reporting under AWGN Conditions with Frame Structure Type 3 with FDD as Pcell (PUSCH 3-1).....	3632
9.2.7.1.1	Test purpose	3632
9.2.7.1.2	Test applicability	3632
9.2.7.1.3	Minimum conformance requirements.....	3632
9.2.7.1.4	Test description	3634
9.2.7.1.5	Test requirement	3638
9.2.7.2	LAA CQI Reporting under AWGN Conditions with Frame Structure Type 3 with TDD as Pcell (PUSCH 3-1).....	3639
9.2.7.2.1	Test purpose	3639
9.2.7.2.2	Test applicability	3639
9.2.7.2.3	Minimum conformance requirements.....	3639
9.2.7.2.4	Test description	3641
9.2.7.2.5	Test requirement	3646
9.3	CQI Reporting under fading conditions	3646
9.3.1	Frequency-selective scheduling mode	3646

9.3.1.1	CQI Reporting under fading conditions – PUSCH 3-0 (Cell-Specific Reference Symbols).....	3646
9.3.1.1.1	FDD CQI Reporting under fading conditions – PUSCH 3-0.....	3646
9.3.1.1.2	TDD CQI Reporting under fading conditions – PUSCH 3-0	3650
9.3.1.2	CQI Reporting under fading conditions – PUSCH 3-1 (CSI Reference Symbols)	3654
9.3.1.2.1_D	FDD CQI Reporting under fading conditions – PUSCH 3-1 for eDL MIMO.....	3654
9.3.1.2.2_D	TDD CQI Reporting under fading conditions – PUSCH 3-1 for eDL MIMO	3660
9.3.1.2.3	FDD CQI Reporting under fading conditions – PUSCH 3-1 for 256QAM in DL	3666
9.3.1.2.4	TDD CQI Reporting under fading conditions – PUSCH 3-1 for 256QAM in DL	3671
9.3.1.3	CQI Reporting under fading conditions – PUSCH 3-0 (Cell-Specific Reference Symbols).....	3676
9.3.1.3.1	.....	3676
9.3.1.3.1_E	FDD CQI Reporting under fading conditions – PUSCH 3-0 for feICIC.....	3676
9.3.1.3.1_E.1	FDD CQI Reporting under fading conditions – PUSCH 3-0 for feICIC (non-MBSFN ABS)....	3676
9.3.1.3.2	.....	3681
9.3.1.3.2_E	TDD CQI Reporting under fading conditions – PUSCH 3-0 for feICIC.....	3681
9.3.1.3.2_E.1	TDD CQI Reporting under fading conditions – PUSCH 3-0 for feICIC (non-MBSFN ABS)....	3681
9.3.2	Frequency non-selective scheduling mode	3688
9.3.2.1	CQI Reporting under fading conditions – PUCCH 1-0 (Cell-Specific Reference Symbols).....	3688
9.3.2.1.1	FDD CQI Reporting under fading conditions – PUCCH 1-0	3688
9.3.2.1.1_1	FDD CQI Reporting under fading conditions - PUCCH 1-0 (Release 9 and forward).....	3693
9.3.2.1.2	TDD CQI Reporting under fading conditions – PUCCH 1-0.....	3694
9.3.2.2	CQI Reporting under fading conditions – PUCCH 1-1 (CSI Reference Symbols).....	3699
9.3.2.2.1_D	FDD CQI Reporting under fading conditions – PUCCH 1-1 for eDL-MIMO.....	3699
9.3.2.2.1_D.1	Test purpose.....	3699
9.3.2.2.1_D.2	Test applicability.....	3699
9.3.2.2.1_D.3	Minimum conformance requirements	3699
9.3.2.2.1_D.4	Test description.....	3700
9.3.2.2.1_D.4.2	Test procedure.....	3701
9.3.2.2.1_D.4.3	Message contents.....	3702
9.3.2.2.1_D.5	Test requirement.....	3704
9.3.2.2.2_D	TDD CQI Reporting under fading conditions – PUCCH 1-1 for eDL-MIMO.....	3705
9.3.2.2.2_D.1	Test purpose.....	3705
9.3.2.2.2_D.2	Test applicability.....	3705
9.3.2.2.2_D.3	Minimum conformance requirements	3705
9.3.2.2.2_D.4	Test description.....	3707
9.3.2.2.2_D.4.2	Test procedure.....	3707
9.3.2.2.2_D.4.3	Message contents.....	3708
9.3.3	Frequency-selective interference	3712
9.3.3.1	CQI Reporting under fading conditions and frequency-selective interference – PUSCH 3-0 (Cell-Specific Reference Symbols)	3712
9.3.3.1.1	FDD CQI Reporting under fading conditions and frequency-selective interference – PUSCH 3-0.....	3712
9.3.3.1.2	TDD CQI Reporting under fading conditions and frequency-selective interference – PUSCH 3-0.....	3715
9.3.4	UE-selected subband CQI.....	3718
9.3.4.1	CQI Reporting under fading conditions – PUSCH 2-0 (Cell-Specific Reference Symbols).....	3719
9.3.4.1.1	FDD CQI Reporting under fading conditions – PUSCH 2-0.....	3719
9.3.4.1.2	TDD CQI Reporting under fading conditions – PUSCH 2-0	3723
9.3.4.2	CQI Reporting under fading conditions – PUCCH 2-0 (Cell-Specific Reference Symbols)	3727
9.3.4.2.1	FDD CQI Reporting under fading conditions – PUCCH 2-0	3727
9.3.4.2.2	TDD CQI Reporting under fading conditions – PUCCH 2-0.....	3732
9.3.5	Additional requirements for enhanced receiver Type A	3738
9.3.5.1	PUCCH 1-0 (Cell-Specific Reference Symbol).....	3738
9.3.5.1.1	FDD CQI Reporting under fading conditions - PUCCH 1-0 - Enhanced Performance Requirement Type A	3738
9.3.5.1.2	TDD CQI Reporting under fading conditions - PUCCH 1-0 - Enhanced Performance Requirement Type A	3743
9.3.5.2	PUCCH 1-1 (CSI Reference Symbol).....	3748
9.3.5.2.1	FDD CQI Reporting under fading conditions - PUCCH 1-1 - Enhanced Performance Requirement Type A	3748
9.3.5.2.2	TDD CQI Reporting under fading conditions - PUCCH 1-1 - Enhanced Performance Requirement Type A	3754
9.3.6	CQI Reporting under fading conditions (With multiple CSI processes).....	3761

9.3.6.1_F	FDD CQI Reporting under fading conditions with CSI processes for CoMP.....	3761
9.3.6.1_F.1	FDD CQI Reporting under fading conditions with Single CSI process for CoMP	3761
9.3.6.1_F.1.1	Test purpose.....	3761
9.3.6.1_F.1.2	Test applicability.....	3761
9.3.6.1_F.1.3	Minimum conformance requirements	3761
9.3.6.1_F.1.4	Test description.....	3765
9.3.6.1_F.1.4.1	Initial conditions.....	3765
9.3.6.1_F.1.4.2	Test procedure.....	3765
9.3.6.1_F.1.4.3	Message contents.....	3766
9.3.6.1_F.1.5	Test requirement	3768
9.3.6.1_F.2	FDD CQI Reporting under fading conditions with Three CSI processes for CoMP	3771
9.3.6.1_F.2.1	Test purpose.....	3771
9.3.6.1_F.2.2	Test applicability.....	3771
9.3.6.1_F.2.3	Minimum conformance requirements	3771
9.3.6.1_F.2.4	Test description.....	3771
9.3.6.1_F.2.4.1	Initial conditions.....	3771
9.3.6.1_F.2.4.2	Test procedure.....	3771
9.3.6.1_F.2.4.3	Message contents.....	3772
9.3.6.1_F.2.5	Test requirement	3775
9.3.6.1_F.3	FDD CQI Reporting under fading conditions with Four CSI processes for CoMP.....	3776
9.3.6.1_F.3.1	Test purpose.....	3776
9.3.6.1_F.3.2	Test applicability.....	3776
9.3.6.1_F.3.3	Minimum conformance requirements	3776
9.3.6.1_F.3.4	Test description.....	3776
9.3.6.1_F.3.4.1	Initial conditions.....	3776
9.3.6.1_F.3.4.2	Test procedure.....	3776
9.3.6.1_F.3.4.3	Message contents.....	3777
9.3.6.1_F.3.5	Test requirement	3780
9.3.6.2_F	TDD CQI Reporting under fading conditions with CSI processes for CoMP.....	3781
9.3.6.2_F.1	TDD CQI Reporting under fading conditions with Single CSI process for CoMP	3781
9.3.6.2_F.1.1	Test purpose.....	3781
9.3.6.2_F.1.2	Test applicability.....	3781
9.3.6.2_F.1.3	Minimum conformance requirements	3781
9.3.6.2_F.1.4	Test description.....	3784
9.3.6.2_F.1.4.1	Initial conditions.....	3784
9.3.6.2_F.1.4.2	Test procedure.....	3784
9.3.6.2_F.1.4.3	Message contents.....	3785
9.3.6.2_F.1.5	Test requirement	3787
9.3.6.2_F.2	TDD CQI Reporting under fading conditions with Three CSI processes for CoMP.....	3790
9.3.6.2_F.2.1	Test purpose.....	3790
9.3.6.2_F.2.2	Test applicability.....	3790
9.3.6.2_F.2.3	Minimum conformance requirements	3790
9.3.6.2_F.2.4	Test description.....	3790
9.3.6.2_F.2.4.1	Initial conditions.....	3790
9.3.6.2_F.2.4.2	Test procedure.....	3790
9.3.6.2_F.2.4.3	Message contents.....	3791
9.3.6.2_F.2.5	Test requirement	3794
9.3.6.2_F.3	TDD CQI Reporting under fading conditions with Four CSI processes for CoMP	3795
9.3.6.2_F.3.1	Test purpose.....	3795
9.3.6.2_F.3.2	Test applicability.....	3795
9.3.6.2_F.3.3	Minimum conformance requirements	3795
9.3.6.2_F.3.4	Test description.....	3795
9.3.6.2_F.3.4.1	Initial conditions.....	3795
9.3.6.2_F.3.4.2	Test procedure.....	3795
9.3.6.2_F.3.4.3	Message contents.....	3796
9.3.6.2_F.3.5	Test requirement	3799
9.3.7	PUSCH 3-2 for eDL MIMO Enhancement.....	3800
9.3.7.1	FDD CQI Reporting under fading conditions - PUSCH 3-2 for eDL MIMO Enhancement	3800
9.3.7.1.1	Test purpose	3800
9.3.7.1.2	Test applicability	3800
9.3.7.1.3	Minimum conformance requirements.....	3800
9.3.7.1.4	Test description	3801

9.3.7.1.5	Test requirement	3805
9.3.7.2	TDD CQI Reporting under fading conditions - PUSCH 3-2 for eDL MIMO Enhancement	3806
9.3.7.2.1	Test purpose	3806
9.3.7.2.2	Test applicability	3807
9.3.7.2.3	Minimum conformance requirements	3807
9.3.7.2.4	Test description	3808
9.3.7.2.5	Test requirement	3813
9.3.8	Additional requirements for enhanced receiver Type B	3814
9.3.8.1	PUCCH 1-1 (Cell-Specific Reference Symbols)	3814
9.3.8.1.1	FDD CQI Reporting under fading conditions - PUCCH 1-1 (Cell-Specific Reference Symbols) TM4 - Enhanced Receiver Type B	3814
9.3.8.1.2	TDD CQI Reporting under fading conditions - PUCCH 1-1 (Cell-Specific Reference Symbols) TM4 - Enhanced Receiver Type B	3818
9.3.8.2	PUCCH 1-1 (CSI Reference Symbols)	3824
9.3.8.2.1	FDD CQI Reporting under fading conditions - PUCCH 1-1 (CSI Reference Symbol) TM9 - Enhanced Receiver Type B	3824
9.3.8.2.2	TDD CQI Reporting under fading conditions - PUCCH 1-1 (CSI Reference Symbol) TM9 - Enhanced Receiver Type B	3830
9.3.8.3	CSI process	3836
9.3.8.3.1	FDD CQI Reporting under fading conditions - PUCCH 1-1 (CSI Reference Symbol) TM10 with TM9 interference - Enhanced Receiver Type B	3836
9.3.8.3.2	TDD CQI Reporting under fading conditions - PUCCH 1-1 (CSI Reference Symbol) TM10 with TM9 interference - Enhanced Receiver Type B	3843
9.4	Reporting of Precoding Matrix Indicator (PMI)	3850
9.4.1	Single PMI	3851
9.4.1.1	PMI Reporting – PUSCH 3-1 (Single PMI) (Cell-Specific Reference Symbols)	3851
9.4.1.1.1	FDD PMI Reporting – PUSCH 3-1 (Single PMI)	3851
9.4.1.1.2	TDD PMI Reporting – PUSCH 3-1 (Single PMI)	3853
9.4.1.2	PMI Reporting – PUCCH 2-1 (Single PMI) (Cell-Specific Reference Symbols)	3856
9.4.1.2.1	FDD PMI Reporting – PUCCH 2-1 (Single PMI)	3856
9.4.1.2.2	TDD PMI Reporting – PUCCH 2-1 (Single PMI)	3860
9.4.1.3	PMI Reporting – PUSCH 3-1 (Single PMI) (CSI Reference Symbols)	3864
9.4.1.3.1	.....	3864
9.4.1.3.1_D	FDD Reporting of PMI – PUSCH 3-1 (Single PMI) for eDL MIMO	3864
9.4.1.3.2_D	TDD Reporting of PMI – PUSCH 3-1 (Single PMI) for eDL-MIMO	3868
9.4.1.4	PMI Reporting – PUCCH 1-1 (Single PMI) (CSI Reference Symbol)	3873
9.4.1.4.1	FDD PMI Reporting with 4Tx enhanced codebook – PUCCH 1-1 (Single PMI) for eDL MIMO Enhancement	3873
9.4.1.4.2	TDD PMI Reporting with 4Tx enhanced codebook – PUCCH 1-1 (Single PMI) for eDL MIMO Enhancement	3878
9.4.2	Multiple PMI	3883
9.4.2.1	PMI Reporting – PUSCH 1-2 (Multiple PMI) (Cell-Specific Reference Symbols)	3883
9.4.2.1.1	FDD PMI Reporting – PUSCH 1-2 (Multiple PMI)	3883
9.4.2.1.1_1	FDD PMI Reporting – PUSCH 1-2 (Multiple PMI) (Release 9 and forward)	3886
9.4.2.1.2	TDD PMI Reporting – PUSCH 1-2 (Multiple PMI)	3889
9.4.2.1.2_1	TDD PMI Reporting – PUSCH 1-2 (Multiple PMI) (Release 9 and forward)	3892
9.4.2.2	PMI Reporting – PUSCH 2-2 (Multiple PMI) (Cell-Specific Reference Symbols)	3895
9.4.2.2.1	FDD PMI Reporting – PUSCH 2-2 (Multiple PMI)	3895
9.4.2.2.2	TDD PMI Reporting – PUSCH 2-2 (Multiple PMI)	3898
9.4.2.3	PMI Reporting – PUSCH 1-2 (Multiple PMI) (CSI Reference Symbols)	3901
9.4.2.3.1	.....	3901
9.4.2.3.1_D	FDD PMI Reporting - PUSCH 1-2 (Multiple PMI) for eDL-MIMO	3901
9.4.2.3.2_D	TDD PMI Reporting - PUSCH 1-2 (Multiple PMI) for eDL-MIMO	3905
9.4.2.3.3	FDD PMI Reporting with 4Tx enhanced codebook - PUSCH 1-2 (Multiple PMI) for eDL-MIMO Enhancement	3910
9.4.2.3.4	TDD PMI Reporting with 4Tx enhanced codebook - PUSCH 1-2 (Multiple PMI) for eDL-MIMO Enhancement	3914
9.4.2.3.4.1	Test purpose	3914
9.4.2.3.4.2	Test applicability	3914
9.4.2.3.4.3	Minimum conformance requirements	3914
9.4.2.3.4.4.2	Test procedure	3916
9.5	Reporting of Rank Indicator (RI)	3919

9.5.1	RI Reporting (Cell-Specific Reference Symbols).....	3919
9.5.1.1	FDD RI Reporting– PUCCH 1-1	3919
9.5.1.1.1	Test purpose	3919
9.5.1.1.2	Test applicability	3919
9.5.1.1.3	Minimum conformance requirements.....	3919
9.5.1.1.4	Test description	3921
9.5.1.1.5	Test requirement	3923
9.5.1.1_1	FDD RI Reporting– PUCCH 1-1 (Release 10)	3923
9.5.1.1_1.1	Test purpose	3923
9.5.1.1_1.2	Test applicability	3923
9.5.1.1_1.3	Minimum conformance requirements.....	3923
9.5.1.1_1.4	Test description	3924
9.5.1.1_1.5	Test requirement	3925
9.5.1.1_2	FDD RI Reporting– PUCCH 1-1 (Release 11)	3926
9.5.1.1_2.1	Test purpose	3926
9.5.1.1_2.2	Test applicability	3926
9.5.1.1_2.3	Minimum conformance requirements.....	3926
9.5.1.1_2.4	Test description	3927
9.5.1.1_2.5	Test requirement	3928
9.5.1.2	TDD RI Reporting – PUSCH 3-1	3928
9.5.1.2.1	Test purpose	3928
9.5.1.2.2	Test applicability	3928
9.5.1.2.3	Minimum conformance requirements.....	3928
9.5.1.2.4	Test description	3929
9.5.1.2.5	Test requirement	3932
9.5.1.2_1	TDD RI Reporting – PUSCH 3-1 (Release 10).....	3932
9.5.1.2_1.1	Test purpose	3932
9.5.1.2_1.2	Test applicability	3932
9.5.1.2_1.3	Minimum conformance requirements.....	3932
9.5.1.2_1.4	Test description	3933
9.5.1.2_1.5	Test requirement	3934
9.5.1.2_2	TDD RI Reporting – PUSCH 3-1 (Release 11).....	3934
9.5.1.2_2.1	Test purpose	3934
9.5.1.2_2.2	Test applicability	3935
9.5.1.2_2.3	Minimum conformance requirements.....	3935
9.5.1.2_2.4	Test description	3935
9.5.1.2_2.5	Test requirement	3936
9.5.2	RI Reporting (CSI Reference Symbols).....	3936
9.5.2.1	.....	3936
9.5.2.1_D	FDD RI Reporting- PUCCH 1-1 for eDL-MIMO.....	3936
9.5.2.1_D.1	Test purpose	3936
9.5.2.1_D.2	Test applicability	3936
9.5.2.1_D.3	Minimum conformance requirements.....	3936
9.5.2.1_D.4	Test description	3938
9.5.2.1_D.5	Test requirement	3941
9.5.2.2_D	TDD RI Reporting- PUCCH 1-1 for eDL-MIMO	3941
9.5.2.2_D.1	Test purpose	3941
9.5.2.2_D.2	Test applicability	3941
9.5.2.2_D.3	Minimum conformance requirements.....	3941
9.5.2.2_D.4	Test description	3943
9.5.2.2_D.5	Test requirement	3946
9.5.3	RI Reporting (two CSI subframe sets are configured).....	3946
9.5.3.1_C	FDD RI Reporting – PUCCH 1-0 for eICIC.....	3946
9.5.3.1_C.1	FDD RI Reporting – PUCCH 1-0 for eICIC (non-MBSFN ABS)	3946
9.5.3.1_C.1.1	Test purpose	3946
9.5.3.1_C.1.2	Test applicability.....	3946
9.5.3.1_C.1.3	Minimum conformance requirements	3947
9.5.3.1_C.1.4	Test description.....	3949
9.5.3.1_C.1.4.1	Initial conditions.....	3949
9.5.3.1_C.1.4.2	Test procedure.....	3950
9.5.3.1_C.1.4.3	Message contents.....	3950
9.5.3.1_C.1.5	Test requirement	3952

9.5.3.2_C	TDD RI Reporting – PUCCH 1-0 for eICIC.....	3952
9.5.3.2_C.1	TDD RI Reporting – PUCCH 1-0 for eICIC (non-MBSFN ABS).....	3952
9.5.3.2_C.1.1	Test purpose.....	3952
9.5.3.2_C.1.2	Test applicability.....	3953
9.5.3.2_C.1.3	Minimum conformance requirements.....	3953
9.5.3.2_C.1.4	Test description.....	3955
9.5.3.2_C.1.4.1	Initial conditions.....	3955
9.5.3.2_C.1.4.2	Test procedure.....	3956
9.5.3.2_C.1.4.3	Message contents.....	3956
9.5.3.2_C.1.5	Test requirement.....	3958
9.5.4	RI Reporting (two CSI subframe sets and CRS assistance information are configured).....	3959
9.5.4.1_E	FDD RI Reporting – PUCCH 1-0 for feICIC.....	3959
9.5.4.1_E.1	FDD RI Reporting – PUCCH 1-0 for feICIC (non-MBSFN ABS).....	3959
9.5.4.1_E.1.1	Test purpose.....	3959
9.5.4.1_E.1.2	Test applicability.....	3959
9.5.4.1_E.1.3	Minimum conformance requirements.....	3959
9.5.4.1_E.1.4	Test description.....	3961
9.5.4.1_E.1.4.1	Initial conditions.....	3961
9.5.4.1_E.1.4.2	Test procedure.....	3962
9.5.4.1_E.1.4.3	Message contents.....	3962
9.5.4.1_E.1.5	Test requirement.....	3965
9.5.4.2_E	TDD RI Reporting – PUCCH 1-0 for feICIC.....	3965
9.5.4.2_E.1	TDD RI Reporting – PUCCH 1-0 for feICIC (non-MBSFN ABS).....	3965
9.5.4.2_E.1.1	Test purpose.....	3965
9.5.4.2_E.1.2	Test applicability.....	3965
9.5.4.2_E.1.3	Minimum conformance requirements.....	3965
9.5.4.2_E.1.4	Test description.....	3968
9.5.4.2_E.1.4.1	Initial conditions.....	3968
9.5.4.2_E.1.4.2	Test procedure.....	3969
9.5.4.2_E.1.4.3	Message contents.....	3969
9.5.4.2_E.1.5	Test requirement.....	3973
9.5.5	RI Reporting (with CSI processes).....	3973
9.5.5.1_F	FDD RI Reporting with CSI processes for CoMP.....	3973
9.5.5.1_F.1	FDD RI Reporting with Single CSI process for CoMP.....	3973
9.5.5.1_F.1.1	Test purpose.....	3973
9.5.5.1_F.1.2	Test applicability.....	3973
9.5.5.1_F.1.3	Minimum conformance requirements.....	3973
9.5.5.1_F.1.4	Test description.....	3975
9.5.5.1_F.1.4.1	Initial conditions.....	3975
9.5.5.1_F.1.4.2	Test procedure.....	3976
9.5.5.1_F.1.4.3	Message contents.....	3976
9.5.5.1_F.1.5	Test requirement.....	3979
9.5.5.1_F.2	FDD RI Reporting with Multiple CSI processes for CoMP.....	3981
9.5.5.1_F.2.1	Test purpose.....	3981
9.5.5.1_F.2.2	Test applicability.....	3981
9.5.5.1_F.2.3	Minimum conformance requirements.....	3982
9.5.5.1_F.2.4	Test description.....	3982
9.5.5.1_F.2.4.1	Initial conditions.....	3982
9.5.5.1_F.2.4.2	Test procedure.....	3982
9.5.5.1_F.2.4.3	Message contents.....	3983
9.5.5.1_F.2.5	Test requirement.....	3985
9.5.5.2_F	TDD RI Reporting with CSI processes for CoMP.....	3985
9.5.5.2_F.1	TDD RI Reporting with Single CSI process for CoMP.....	3985
9.5.5.2_F.1.1	Test purpose.....	3985
9.5.5.2_F.1.2	Test applicability.....	3985
9.5.5.2_F.1.3	Minimum conformance requirements.....	3985
9.5.5.2_F.1.4	Test description.....	3988
9.5.5.2_F.1.4.1	Initial conditions.....	3988
9.5.5.2_F.1.4.2	Test procedure.....	3988
9.5.5.2_F.1.4.3	Message contents.....	3989
9.5.5.2_F.1.5	Test requirement.....	3991
9.5.5.2_F.2	TDD RI Reporting with Multiple CSI processes for CoMP.....	3993

9.5.5.2_F.2.1	Test purpose.....	3993
9.5.5.2_F.2.2	Test applicability.....	3993
9.5.5.2_F.2.3	Minimum conformance requirements.....	3993
9.5.5.2_F.2.4	Test description.....	3993
9.5.5.2_F.2.4.1	Initial conditions.....	3993
9.5.5.2_F.2.4.2	Test procedure.....	3994
9.5.5.2_F.2.4.3	Message contents.....	3994
9.5.5.2_F.2.5	Test requirement.....	3997
9.6	Additional requirements for carrier aggregation.....	3997
9.6.1	Periodic reporting on multiple cells (Cell-Specific Reference Symbols).....	3997
9.6.1.1_A	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA.....	3997
9.6.1.1_A.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA(2DL CA).....	3997
9.6.1.1_A.1.1	Test purpose.....	3997
9.6.1.1_A.1.2	Test applicability.....	3997
9.6.1.1_A.1.3	Minimum conformance requirements.....	3997
9.6.1.1_A.1.4	Test description.....	3998
9.6.1.1_A.1.4.1	Initial conditions.....	3998
9.6.1.1_A.1.4.2	Test procedure.....	3999
9.6.1.1_A.1.4.3	Message contents.....	3999
9.6.1.1_A.1.5	Test requirement.....	4001
9.6.1.1_A.2	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA (3DL CA).....	4002
9.6.1.1_A.2.1	Test purpose.....	4002
9.6.1.1_A.2.2	Test applicability.....	4002
9.6.1.1_A.2.3	Minimum conformance requirements.....	4002
9.6.1.1_A.2.4	Test description.....	4003
9.6.1.1_A.2.4.1	Initial conditions.....	4003
9.6.1.1_A.2.4.2	Test procedure.....	4004
9.6.1.1_A.2.4.3	Message contents.....	4004
9.6.1.1_A.2.5	Test requirement.....	4006
9.6.1.1_A.3	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA (4DL CA).....	4006
9.6.1.1_A.3.1	Test purpose.....	4006
9.6.1.1_A.3.2	Test applicability.....	4007
9.6.1.1_A.3.3	Minimum conformance requirements.....	4007
9.6.1.1_A.3.4	Test description.....	4008
9.6.1.1_A.3.4.1	Initial conditions.....	4008
9.6.1.1_A.3.4.2	Test procedure.....	4009
9.6.1.1_A.3.5	Test requirement.....	4011
9.6.1.1_A.4	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA (5DL CA).....	4012
9.6.1.1_A.4.1	Test purpose.....	4012
9.6.1.1_A.4.2	Test applicability.....	4012
9.6.1.1_A.4.3	Minimum conformance requirements.....	4012
9.6.1.1_A.4.4	Test description.....	4013
9.6.1.1_A.4.4.1	Initial conditions.....	4013
9.6.1.1_A.4.4.2	Test procedure.....	4014
9.6.1.1_A.4.4.3	Message contents.....	4015
9.6.1.1_A.4.5	Test requirement.....	4017
9.6.1.2_A	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA.....	4017
9.6.1.2_A.1	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA (2DL CA).....	4017
9.6.1.2_A.1.1	Test purpose.....	4017
9.6.1.2_A.1.2	Test applicability.....	4017
9.6.1.2_A.1.3	Minimum conformance requirements.....	4017
9.6.1.2_A.1.4	Test description.....	4018
9.6.1.2_A.1.4.1	Initial conditions.....	4018
9.6.1.2_A.1.4.2	Test procedure.....	4019
9.6.1.2_A.1.4.3	Message contents.....	4019
9.6.1.2_A.1.5	Test requirement.....	4022
9.6.1.2_A.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA (3DL CA).....	4022
9.6.1.2_A.2.1	Test purpose.....	4022
9.6.1.2_A.2.2	Test applicability.....	4022
9.6.1.2_A.2.3	Minimum conformance requirements.....	4022
9.6.1.2_A.2.4	Test description.....	4023
9.6.1.2_A.2.4.1	Initial conditions.....	4023

9.6.1.2_A.2.4.2	Test procedure	4024
9.6.1.2_A.2.5	Test requirement	4027
9.6.1.2_A.3	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 for CA (4DL CA)	4027
9.6.1.2_A.3.1	Test purpose	4027
9.6.1.2_A.3.2	Test applicability	4027
9.6.1.2_A.3.3	Minimum conformance requirements	4028
9.6.1.2_A.3.4	Test description	4028
9.6.1.2_A.3.4.1	Initial conditions	4028
9.6.1.2_A.3.4.2	Test procedure	4029
9.6.1.2_A.3.5	Test requirement	4032
9.6.1.3	TDD-FDD CA for FDD PCell	4032
9.6.1.3.1	TDD FDD CA CQI Reporting under AWGN conditions – PUCCH 1-0 for FDD PCell (2DL CA)	4032
9.6.1.3.1.2	Test applicability	4032
9.6.1.3.1.3	Minimum conformance requirements	4032
9.6.1.3.1.4	Test description	4033
9.6.1.3.1.4.1	Initial conditions	4033
9.6.1.3.1.4.2	Test procedure	4034
9.6.1.3.1.4.3	Message contents	4034
9.6.1.3.1.5	Test requirement	4037
9.6.1.3.2	TDD FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for FDD PCell (3DL CA)	4037
9.6.1.3.2.1	Test purpose	4037
9.6.1.3.2.2	Test applicability	4037
9.6.1.3.2.3	Minimum conformance requirements	4037
9.6.1.3.2.4	Test description	4038
9.6.1.3.2.4.1	Initial conditions	4038
9.6.1.3.2.4.2	Test procedure	4039
9.6.1.3.2.5	Test requirement	4042
9.6.1.3.3	TDD FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for FDD PCell (4DL CA)	4043
9.6.1.3.3.1	Test purpose	4043
9.6.1.3.3.2	Test applicability	4043
9.6.1.3.3.3	Minimum conformance requirements	4043
9.6.1.3.3.4	Test description	4044
9.6.1.3.3.4.1	Initial conditions	4044
9.6.1.3.3.4.2	Test procedure	4045
9.6.1.3.3.5	Test requirement	4048
9.6.1.3.4	TDD FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for FDD PCell (5DL CA)	4049
9.6.1.3.4.1	Test purpose	4049
9.6.1.3.4.2	Test applicability	4049
9.6.1.3.4.3	Minimum conformance requirements	4049
9.6.1.3.4.4	Test description	4050
9.6.1.3.4.4.1	Initial conditions	4050
9.6.1.3.4.4.2	Test procedure	4051
9.6.1.3.4.5	Test requirement	4054
9.6.1.4	TDD-FDD CA for TDD PCell	4054
9.6.1.4.1	TDD FDD CA CQI Reporting under AWGN conditions – PUCCH 1-0 for TDD PCell (2DL CA)	4054
9.6.1.4.1.2	Test applicability	4054
9.6.1.4.1.3	Minimum conformance requirements	4054
9.6.1.4.1.4	Test description	4055
9.6.1.4.1.4.1	Initial conditions	4055
9.6.1.4.1.4.2	Test procedure	4056
9.6.1.4.1.4.3	Message contents	4056
9.6.1.4.1.5	Test requirement	4059
9.6.1.4.2	TDD FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for TDD PCell (3DL CA)	4059
9.6.1.4.2.1	Test purpose	4059
9.6.1.4.2.2	Test applicability	4059
9.6.1.4.2.3	Minimum conformance requirements	4059
9.6.1.4.2.4	Test description	4060
9.6.1.4.2.4.1	Initial conditions	4060
9.6.1.4.2.4.2	Test procedure	4061
9.6.1.4.2.5	Test requirement	4064

9.6.1.4.3	TDD FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for TDD PCell (4DL CA)	4065
9.6.1.4.3.1	Test purpose	4065
9.6.1.4.3.2	Test applicability	4065
9.6.1.4.3.3	Minimum conformance requirements	4065
9.6.1.4.3.4	Test description	4066
9.6.1.4.3.4.1	Initial conditions	4066
9.6.1.4.3.4.2	Test procedure	4067
9.6.1.4.3.5	Test requirement	4070
9.6.1.4.4	TDD FDD CQI Reporting under AWGN conditions – PUCCH 1-0 for TDD PCell (5DL CA)	4071
9.6.1.4.4.1	Test purpose	4071
9.6.1.4.4.2	Test applicability	4071
9.6.1.4.4.3	Minimum conformance requirements	4071
9.6.1.4.4.4	Test description	4072
9.6.1.4.4.4.1	Initial conditions	4072
9.6.1.4.4.4.2	Test procedure	4073
9.6.1.4.4.5	Test requirement	4076
9.7	CSI reporting for UE DL category 0	4076
9.7.1	CQI reporting definition under AWGN conditions	4076
9.7.1.1	FDD and Half duplex FDD CQI reporting definition under AWGN conditions for UE category 0	4076
9.7.1.1.1	Test purpose	4076
9.7.1.1.2	Test applicability	4076
9.7.1.1.3	Minimum conformance requirements	4076
9.7.1.1.4	Test description	4077
9.7.1.1.5	Test requirement	4078
9.7.1.2	TDD CQI reporting definition under AWGN conditions for UE category 0	4078
9.7.1.2.1	Test purpose	4078
9.7.1.2.2	Test applicability	4078
9.7.1.2.3	Minimum conformance requirements	4078
9.7.1.2.4	Test description	4079
9.7.1.2.5	Test requirement	4080
9.7.2	CQI reporting under fading conditions	4081
9.7.2.1	FDD and Half duplex FDD CQI reporting definition under fading conditions for UE category 0	4081
9.7.2.1.1	Test purpose	4081
9.7.2.1.2	Test applicability	4081
9.7.2.1.3	Minimum conformance requirements	4081
9.7.2.1.4	Test description	4082
9.7.2.1.5	Test requirement	4084
9.7.2.2	TDD CQI reporting definition under fading conditions for UE category 0	4084
9.7.2.2.1	Test purpose	4084
9.7.2.2.2	Test applicability	4084
9.7.2.2.3	Minimum conformance requirements	4085
9.7.2.2.4	Test description	4086
9.7.2.2.5	Test requirement	4087
9.8	CSI reporting for UE DL category M1	4087
9.8.1	CQI reporting definition under AWGN conditions	4087
9.8.1.1	FDD and Half duplex FDD CQI reporting definition under AWGN conditions for UE category M1	4087
9.8.1.1.4	Test description	4088
9.8.1.2	TDD CQI reporting definition under AWGN conditions for UE category M1	4090
9.8.1.2.4	Test description	4092
9.8.2	UE-selected subband CQI	4094
9.8.2.1	FDD and half-duplex FDD UE-selected subband CQI for UE category M1	4094
9.8.2.1.4	Test description	4096
9.8.2.2	TDD UE-selected subband CQI for UE category M1	4098
9.8.2.2.4	Test description	4100
9.9	CSI reporting for 4Rx UE	4102
9.9.1	CQI Reporting under AWGN conditions	4102
9.9.1.1	CQI reporting under AWGN conditions - PUCCH 1-0 with Rank 1 (Cell-Specific Reference Symbols)	4102
9.9.1.1.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-0 with Rank 1 1x4	4102
9.9.1.1.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-0 with Rank 1 1x4	4105
9.9.1.1.2.5	Test requirement	4108

9.9.1.2	CQI reporting under AWGN conditions - PUCCH 1-1 with Rank 2 (CSI Reference Symbols)	4109
9.9.1.2.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-1 with Rank 2 4x4	4109
9.9.1.2.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-1 with Rank 2 8x4	4114
9.9.1.3	CQI Reporting under AWGN conditions - PUCCH 1-1 (Cell-Specific Reference Symbols).....	4120
9.9.1.3.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-1 with rank 4 4x4.....	4120
9.9.1.3.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-1 with rank 4 4x4.....	4124
9.9.1.4	CQI reporting under AWGN conditions - PUCCH 1-1 with Rank 3 (CSI Reference Symbols)	4128
9.9.1.4.1	FDD CQI Reporting under AWGN conditions – PUCCH 1-1 with Rank 3 4x4	4128
9.9.1.4.2	TDD CQI Reporting under AWGN conditions – PUCCH 1-1 with Rank 3 4x4	4133
9.9.2	CQI Reporting under fading conditions.....	4139
9.9.2.1	CQI Reporting under fading conditions - PUCCH 1-0 (Cell-Specific Reference Symbols) for Enhanced Performance Requirement Type A	4139
9.9.2.1.1	FDD CQI Reporting under fading conditions - PUCCH 1-0 - Enhanced Performance Requirement Type A 1x4	4139
9.9.2.1.2	TDD CQI Reporting under fading conditions - PUCCH 1-0 - Enhanced Performance Requirement Type A 1x4	4144
9.9.2.2	CQI Reporting under fading conditions - PUCCH 1-1 (CSI Reference Symbol) for Enhanced Performance Requirement Type A.....	4149
9.9.2.2.1	FDD CQI Reporting under fading conditions - PUCCH 1-1 - Enhanced Performance Requirement Type A 2x4	4149
9.9.2.2.2	TDD CQI Reporting under fading conditions - PUCCH 1-1 - Enhanced Performance Requirement Type A 2x4	4155
9.9.3	Reporting of Precoding Matrix Indicator (PMI) for 4Rx UE.....	4162
9.9.3.1	PMI Reporting – PUSCH 3-1 (Single PMI) (Cell-Specific Reference Symbols)	4162
9.9.3.1.1	TDD PMI Reporting – PUSCH 3-1 (Single PMI) 8x4	4162
9.9.4	Reporting of Rank Indicator (RI)	4167
9.9.4.1	RI Reporting– PUCCH 1-1 4x4	4167
9.9.4.1.1	FDD RI Reporting– PUCCH 1-1 4x4.....	4167
9.9.4.1.1.1	Test purpose	4167
9.9.4.1.1.2	Test applicability	4167
9.9.4.1.1.3	Minimum conformance requirements.....	4167
9.9.4.1.1.4	Test description	4169
9.9.4.1.1.5	Test requirement.....	4171
9.9.4.1.2	TDD RI Reporting– PUSCH 3-1 4x4.....	4171
9.9.4.1.2.1	Test purpose	4171
9.9.4.1.2.2	Test applicability	4171
9.9.4.1.2.3	Minimum conformance requirements.....	4171
9.9.4.1.2.4	Test description	4173
9.9.4.1.2.5	Test requirement.....	4175
9.9.4.2	RI Reporting- PUCCH 1-1 for eDL-MIMO 1x4.....	4175
9.9.4.2.1	FDD RI Reporting- PUCCH 1-1 for eDL-MIMO 1x4	4175
9.9.4.2.1.1	Test purpose	4175
9.9.4.2.1.2	Test applicability	4175
9.9.4.2.1.3	Minimum conformance requirements.....	4175
9.9.4.2.1.4	Test description	4177
9.9.4.2.1.5	Test requirement.....	4180
9.9.4.2.2	TDD RI Reporting- PUCCH 1-1 for eDL-MIMO 1x4.....	4180
9.9.4.2.2.1	Test purpose	4180
9.9.4.2.2.2	Test applicability	4180
9.9.4.2.2.3	Minimum conformance requirements.....	4180
9.9.4.2.2.4	Test description	4182
9.9.4.2.2.5	Test requirement.....	4185
10	MBMS Performance.....	4185
10.1	FDD MBMS performance (Fixed Reference Channel)	4185
10.1.1	Test purpose.....	4185
10.1.2	Test applicability	4185
10.1.3	Minimum conformance requirements	4186
10.1.4	Test description.....	4187
10.1.4.1	Initial conditions	4187
10.1.4.2	Test procedure.....	4187
10.1.4.3	Message contents	4187

10.1.5	Test requirement	4189
10.1_1	FDD MBMS performance (Fixed Reference Channel) (Release 13 and forward).....	4189
10.1_1.1	Test purpose.....	4189
10.1_1.2	Test applicability	4189
10.1_1.3	Minimum conformance requirements	4189
10.1_1.4	Test description.....	4190
10.1_1.4.1	Initial conditions	4190
10.1_1.4.2	Test procedure.....	4190
10.1_1.4.3	Message contents	4190
10.1_1.5	Test requirement	4190
10.2	TDD MBMS performance (Fixed Reference Channel).....	4190
10.2.1	Test purpose.....	4190
10.2.2	Test applicability	4190
10.2.3	Minimum conformance requirements	4191
10.2.4	Test description.....	4192
10.2.4.1	Initial conditions	4192
10.2.4.2	Test procedure.....	4192
10.2.4.3	Message contents	4192
10.2.5	Test requirement	4194
10.2_1	TDD MBMS performance (Fixed Reference Channel) (Release 13 and forward)	4195
10.2.1	Test purpose.....	4195
10.2.2	Test applicability	4195
10.2.3	Minimum conformance requirements	4195
10.2.4	Test description.....	4195
10.2.4.1	Initial conditions	4195
10.2_1.4.2	Test procedure.....	4195
10.2.4.3	Message contents	4196
10.2_1.5	Test requirement	4196
11	Performance Requirement (ProSe Direct Discovery)	4196
11.1	General	4196
11.1.1	Applicability of requirements	4196
11.1.2	Reference DRX configuration	4196
11.2	Demodulation of PSDCH (single link performance).....	4197
11.2.1	FDD PSDCH Single Link Performance (ProSe Direct Discovery)	4197
11.2.1.1	Test Purpose	4197
11.2.1.2	Test Applicability.....	4197
11.2.1.3	Minimum Conformance Requirements	4197
11.2.1.4	Test Description	4198
11.2.1.4.1	Initial Conditions	4198
11.2.1.4.2	Test Procedure.....	4199
11.2.1.4.3	Message Contents	4199
11.2.1.5	Test Requirement	4200
11.2.2	TDD PSDCH Single Link Performance (ProSe Direct Discovery)	4200
11.2.2.1	Test Purpose	4200
11.2.2.2	Test Applicability.....	4200
11.2.2.3	Minimum Conformance Requirements	4201
11.2.2.4	Test Description	4201
11.2.2.4.1	Initial Conditions	4201
11.2.2.4.2	Test Procedure.....	4202
11.2.2.4.3	Message Contents	4202
11.2.2.5	Test Requirement	4203
11.3	Power imbalance performance with two links.....	4203
11.3.1	FDD Power imbalance performance with two links	4203
11.3.1.1	Test Purpose	4204
11.3.1.2	Test Applicability.....	4204
11.3.1.3	Minimum Conformance Requirements	4204
11.3.1.4	Test Description	4205
11.3.1.5	Test Requirement	4205
11.3.2	TDD Power imbalance performance with two links	4205
11.3.2.1	Test Purpose	4205
11.3.2.2	Test Applicability.....	4205

11.3.2.3	Minimum Conformance Requirements	4205
11.3.2.4	Test Description	4206
11.3.2.5	Test Requirement	4207
11.4	Multiple timing reference test	4207
11.4.1	FDD Multiple timing reference test	4207
11.4.1.1	Test Purpose	4207
11.4.1.2	Test Applicability	4207
11.4.1.3	Minimum Conformance Requirements	4207
11.4.1.4	Test Description	4209
11.4.1.4.1	Initial Conditions	4209
11.4.1.4.2	Test Procedure	4209
11.4.1.4.3	Message Contents	4209
11.4.1.5	Test Requirement	4209
11.5	Maximum Sidelink processes test	4210
11.5.1	FDD maximum Sidelink processes test (ProSe Direct Discovery)	4210
11.5.1.1	Test Purpose	4210
11.5.1.2	Test Applicability	4210
11.5.1.3	Minimum Conformance Requirements	4210
11.5.1.4	Test Description	4212
11.5.1.4.1	Initial Conditions	4212
11.5.1.4.2	Test Procedure	4212
11.5.1.4.3	Message Contents	4213
11.5.1.5	Test Requirement	4213
11.5.2	TDD maximum Sidelink processes test (ProSe Direct Discovery)	4214
11.5.2.1	Test Purpose	4214
11.5.2.2	Test Applicability	4214
11.5.2.3	Minimum Conformance Requirements	4214
11.5.2.4	Test Description	4216
11.5.2.4.1	Initial Conditions	4216
11.5.2.4.2	Test Procedure	4216
11.5.2.4.3	Message Contents	4217
11.5.2.5	Test Requirement	4218
12	Performance requirement (ProSe Direct Communication)	4218
12.1	General	4218
12.1.1	Applicability of requirements	4218
12.1.2	Reference DRX configuration	4218
12.2	Demodulation of PSSCH	4218
12.2.1	FDD PSSCH Single Link Performance for ProSe Direct communication	4218
12.2.1.1	Test Purpose	4219
12.2.1.2	Test Applicability	4219
12.2.1.3	Minimum Conformance Requirements	4219
12.2.1.4	Test Description	4221
12.2.1.4.1	Initial Conditions	4221
12.2.1.4.2	Test Procedure	4221
12.2.1.4.3	Message Contents	4221
12.2.1.5	Test Requirement	4221
12.3	Demodulation of PSCCH (single link performance)	4221
12.4	Demodulation of PSBCH (single link performance)	4221
12.5	Power imbalance performance with two links	4222
12.5.1	FDD Power imbalance performance with two links	4222
12.5.1.1	Test Purpose	4222
12.5.1.2	Test Applicability	4222
12.5.1.3	Minimum Conformance Requirements	4222
12.5.1.4	Test Description	4224
12.5.1.4.1	Initial Conditions	4224
12.5.1.4.2	Test Procedure	4224
12.5.1.4.3	Message Contents	4224
12.5.1.5	Test Requirement	4224
12.6	Multiple timing reference test	4225
12.7	Maximum Sidelink processes test	4225
12.7.1	FDD Maximum Sidelink Processes for ProSe Direct communication	4225

12.7.1.1	Test Purpose	4225
12.7.1.2	Test Applicability	4225
12.7.1.3	Minimum Conformance Requirements	4225
12.7.1.4	Test Description	4226
12.7.1.4.1	Initial Conditions	4226
12.7.1.4.2	Test Procedure	4227
12.7.1.4.3	Message Contents	4227
12.7.1.5	Test Requirement	4227
13	FFS	4227
14	Performance requirement (V2X Sidelink Communication)	4227
14.1	General	4227
14.1.1	Applicability of requirements	4227
14.2	Demodulation of PSSCH	4227
14.2.1	Test Purpose	4228
14.2.2	Test Applicability	4228
14.2.3	Minimum Conformance Requirements	4228
14.2.4	Test Description	4228
14.2.5	Test Requirement	4228
14.3	Demodulation of PSCCH	4229
14.3.1	Test Purpose	4229
14.3.2	Test Applicability	4229
14.3.3	Minimum Conformance Requirements	4229
14.3.4	Test Description	4230
14.3.5	Test Requirement	4230
Annex A (normative): Measurement Channels		4231
A.1	General	4231
A.2	UL reference measurement channels	4232
A.2.1	General	4232
A.2.1.1	Applicability and common parameters	4232
A.2.1.2	Determination of payload size	4232
A.2.1.3	Overview of UL reference measurement channels	4233
A.2.2	Reference measurement channels for FDD	4246
A.2.2.1	Full RB allocation	4246
A.2.2.1.1	QPSK	4246
A.2.2.1.2	16-QAM	4247
A.2.2.1.3	64-QAM	4249
A.2.2.2	Partial RB allocation	4249
A.2.2.2.1	QPSK	4250
A.2.2.2.2	16-QAM	4252
A.2.2.2.3	64-QAM	4254
A.2.2.3	Reference measurement channels for sustained downlink data rate provided by lower layers	4255
A.2.3	Reference measurement channels for TDD	4255
A.2.3.1	Full RB allocation	4256
A.2.3.1.1	QPSK	4256
A.2.3.1.2	16-QAM	4258
A.2.3.1.3	64-QAM	4260
A.2.3.2	Partial RB allocation	4260
A.2.3.2.1	QPSK	4261
A.2.3.2.2	16-QAM	4264
A.2.3.2.3	64-QAM	4268
A.2.3.3	Reference measurement channels for sustained downlink data rate provided by lower layers	4269
A.2.4	Reference measurement channels for category NB1	4270
A.3	DL reference measurement channels	4272
A.3.1	General	4272
A.3.1.1	Overview of DL reference measurement channels	4272
A.3.2	Reference measurement channel for receiver characteristics	4284
A.3.2A	Downlink Reference measurement channel for TX characteristics	4304
A.3.2B	Downlink Reference measurement channel for ProSe testing	4308

A.3.3	Reference measurement channel for PDSCH performance requirements (FDD)	4310
A.3.3.1	Single-antenna transmission (Common Reference Symbols)	4310
A.3.3.2	Multi-antenna transmission (Common Reference Symbols)	4315
A.3.3.2.1	Two antenna ports	4315
A.3.3.2.2	Four antenna ports	4319
A.3.3.3	Reference Measurement Channel for UE-Specific Reference Symbols	4319
A.3.3.3.0	Two antenna ports (no CSI-RS)	4319
A.3.3.3.1	Two antenna port (CSI-RS)	4321
A.3.3.3.2	Four antenna ports (CSI-RS)	4322
A.3.4	Reference measurement channel for PDSCH performance requirements (TDD)	4327
A.3.4.1	Single-antenna transmission (Common Reference Symbols)	4327
A.3.4.2	Multi-antenna transmission (Common Reference Symbols)	4334
A.3.4.2.1	Two antenna ports	4334
A.3.4.2.2	Four antenna ports	4341
A.3.4.3	Reference Measurement Channels for UE-Specific Reference Symbols	4342
A.3.4.3.3	Two antenna ports (CSI-RS)	4345
A.3.4.3.4	Four antenna ports (CSI-RS)	4347
A.3.4.3.5	Eight antenna ports (CSI-RS)	4351
A.3.5	Reference measurement channels for PDCCH/PCFICH performance requirements	4354
A.3.5.1	FDD	4354
A.3.5.2	TDD	4355
A.3.5.3	LAA	4357
A.3.6	Reference measurement channels for PHICH performance requirements	4357
A.3.7	[FFS]	4358
A.3.8	Reference measurement channels for MBMS performance requirements	4358
A.3.8.1	FDD	4358
A.3.8.2	TDD	4360
A.3.9	Reference measurement channels for sustained downlink data rate provided by lower layers	4362
A.3.9.1	FDD	4362
A.3.9.2	TDD	4365
A.3.9.3	FDD (EPDCCH scheduling)	4372
A.3.9.4	TDD (EPDCCH scheduling)	4373
A.3.10	Reference Measurement Channels for EPDCCH performance requirements	4374
A.3.10.1	FDD	4374
A.3.10.2	TDD	4375
A.3.11	Reference Measurement Channels for MPDCCH performance requirements	4375
A.3.11.1	FDD and half-duplex FDD	4375
A.3.11.2	TDD	4376
A.3.12	Reference measurement channels for NPDSCH performance requirements	4376
A.3.15	Reference Measurement Channels for LAA SCell with frame structure Type-3	4379
A.3.15.1	Multi-antenna transmission (Common Reference Symbols)	4379
A.3.15.1.1	Four antenna ports	4379
A.3.15.2	Reference Measurement Channel for UE-Specific Reference Symbols	4380
A.3.15.2.1	Two antenna ports (CSI-RS)	4380
A.4	CQI reference measurement channels	4380
A.4.1	Additional CSI reference measurement channels	4386
A.5	OFDMA Channel Noise Generator (OCNG)	4388
A.5.1	OCNG Patterns for FDD	4388
A.5.1.1	OCNG FDD pattern 1: One sided dynamic OCNG FDD pattern	4388
A.5.1.2	OCNG FDD pattern 2: Two sided dynamic OCNG FDD pattern	4389
A.5.1.3	OCNG FDD pattern 3: 49 RB OCNG allocation with MBSFN in 10 MHz	4390
A.5.1.4	OCNG FDD pattern 4: One sided dynamic OCNG FDD pattern for MBMS transmission	4390
A.5.1.5	OCNG FDD pattern 5: One sided dynamic 16QAM modulated OCNG FDD pattern	4391
A.5.1.6	OCNG FDD pattern 6: dynamic OCNG FDD pattern when user data is in 2 non-contiguous blocks....	4392
A.5.1.8	OCNG FDD pattern 8: One sided dynamic OCNG FDD pattern for TM10 transmission	4393
A.5.2	OCNG Patterns for TDD	4393
A.5.2.1	OCNG TDD pattern 1: One sided dynamic OCNG TDD pattern	4394
A.5.2.2	OCNG TDD pattern 2: Two sided dynamic OCNG TDD pattern	4394
A.5.2.3	OCNG TDD pattern 3: 49 RB OCNG allocation with MBSFN in 10 MHz	4395
A.5.2.4	OCNG TDD pattern 4: One sided dynamic OCNG TDD pattern for MBMS transmission	4396

A.5.2.5	OCNG TDD pattern 5: One sided dynamic 16QAM modulated OCNG TDD pattern.....	4396
A.5.2.6	OCNG TDD pattern 6: dynamic OCNG TDD pattern when user data is in 2 non-contiguous blocks ...	4397
A.5.2.8	OCNG TDD pattern 8: One sided dynamic OCNG TDD pattern for TM10 transmission	4398
A.5.3	OCNG Patterns for frame structure type 3	4399
A.5.3.1	OCNG FS3 pattern 1: One sided dynamic OCNG frame structure type 3 pattern.....	4399
A.6	Sidelink reference measurement channels.....	4400
A.6.1	General	4400
A.6.2	Reference measurement channel for receiver characteristics	4400
A.6.3	Reference measurement channels for PSDCH performance requirements	4403
A.6.4	Reference measurement channels for PSCCH performance requirements.....	4403
A.6.5	Reference measurement channels for PSSCH performance requirements	4404
A.6.6	Reference measurement channels for PSBCH performance requirements.....	4404
A.7	Sidelink reference resource pool configurations	4405
A.7.1	Reference resource pool configurations for ProSe Direct Discovery demodulation tests	4405
A.7.1.1	FDD	4405
A.7.1.2	TDD	4407
A.7.2	Reference resource pool configurations for ProSe Direct Communication demodulation tests.....	4409
A.7.2.1	FDD	4409
A.8	V2X reference measurement channels	4414
A.8.1	General	4414
A.8.2	Reference measurement channel for receiver characteristics	4415
A.8.3	Reference measurement channel for transmitter characteristics.....	4416
A.8.4	Reference measurement for PSCCH performance requirements.....	4418
A.8.5	Reference measurement for PSSCH performance requirements	4419
A.9	V2X reference resource pool configurations.....	4419
Annex B (normative): Propagation Conditions.....		4421
B.0	No interference.....	4421
B.1	Static propagation condition.....	4421
B.1.1	Definition of Additive White Gaussian Noise (AWGN) Interferer.....	4422
B.2	Multi-path fading Propagation Conditions.....	4422
B.2.1	Delay profiles	4422
B.2.2	Combinations of channel model parameters	4423
B.2.3	MIMO Channel Correlation Matrices	4423
B.2.3.1	Definition of MIMO Correlation Matrices	4424
B.2.3.2	MIMO Correlation Matrices at High, Medium and Low Level.....	4425
B.2.3A	MIMO Channel Correlation Matrices using cross polarized antennas	4427
B.2.3A.1	Definition of MIMO Correlation Matrices using cross polarized antennas	4428
B.2.3A.2	Spatial Correlation Matrices using cross polarized antennas at eNB and UE sides	4428
B.2.3A.2.1	Spatial Correlation Matrices at eNB side	4428
B.2.3A.2.2	Spatial Correlation Matrices at UE side	4428
B.2.3A.3	MIMO Correlation Matrices using cross polarized antennas	4429
B.2.3A.4	Beam steering approach	4430
B.2.4	Propagation conditions for CQI tests.....	4430
B.2.5	FFS	4430
B.2.6	MBSFN Propagation Channel Profile	4430
B.3	High speed train scenario	4431
B.3A	HST-SFN scenario	4432
B.4	Beamforming Model	4436
B.4.1	Single-layer random beamforming (Antenna port 5, 7 or 8).....	4436
B.4.2	Dual-layer random beamforming (antenna ports 7 and 8).....	4436
B.4.3	Generic beamforming model (antenna ports 7-14).....	4437
B.4.4	Random beamforming for EPDCCH distributed transmission (Antenna port 107 and 109).....	4437
B.4.5	Random beamforming for EPDCCH localized transmission (Antenna port 107, 108, 109 or 110).....	4438
B.5	Interference models for enhanced performance requirements Type-A	4438

B.5.1	Dominant interferer proportion	4438
B.5.2	Transmission mode 3 interference model.....	4438
B.5.3	Transmission mode 4 interference model.....	4439
B.5.4	Transmission mode 9 interference model.....	4439
B.6	Interference models for enhanced performance requirements Type-B	4439
B.6.1	Transmission mode 2 interference model.....	4440
B.6.2	Transmission mode 3 interference model.....	4440
B.6.3	Transmission mode 4 interference model.....	4440
B.6.4	Transmission mode 9 interference model.....	4441
B.6.5	CRS interference model	4441
B.6.6	Random interference model	4441
B.7	FFS	4442
B.8	Burst transmission models for Frame structure type 3	4442
B.8.1	Burst transmission model for one LAA SCell.....	4442
Annex C (normative): Downlink Physical Channels.....		4444
C.0	Downlink signal levels	4444
C.1	General	4444
C.2	Set-up	4450
C.3	Connection	4454
C.3.0	Measurement of Transmitter Characteristics.....	4454
C.3.1	Measurement of Receiver Characteristics	4455
C.3.2	Measurement of Performance requirements.....	4457
C.3.3	Aggressor cell power allocation for Measurement of Performance Requirements when ABS is Configured.....	4460
C.3.4	Power Allocation for Measurement of Performance Requirements when Quasi Co-location Type B: same Cell ID.....	4461
C.3.5	Simplified CA testing method.....	4461
Annex D (normative): Characteristics of the Interfering Signal		4463
D.1	General	4463
D.2	Interference signals.....	4463
Annex E (normative): Global In-Channel TX-Test		4464
E.1	General	4464
E.2	Signals and results	4464
E.2.1	Basic principle.....	4464
E.2.2	Output signal of the TX under test	4464
E.2.3	Reference signal	4465
E.2.4	Measurement results.....	4465
E.2.5	Measurement points	4465
E.3	Signal processing.....	4466
E.3.1	Pre FFT minimization process.....	4466
E.3.2	Timing of the FFT window	4466
E.3.3	Post FFT equalisation.....	4467
E.4	Derivation of the results	4468
E.4.1	EVM.....	4468
E.4.2	Averaged EVM	4469
E.4.3	In-band emissions measurement.....	4469
E.4.4	EVM equalizer spectrum flatness.....	4471
E.4.5	Frequency error and Carrier leakage	4472
E.4.6	EVM of Demodulation reference symbols (EVM _{DMRS})	4472
E.4.6.1	1 st average for EVM _{DMRS}	4473
E.4.6.2	Final average for EVM _{DMRS}	4473

E.5	EVM and inband emissions for PUCCH.....	4473
E.5.1	Basic principle.....	4473
E.5.2	Output signal of the TX under test.....	4473
E.5.3	Reference signal.....	4473
E.5.4	Measurement results.....	4473
E.5.5	Measurement points.....	4474
E.5.6	Pre FFT minimization process.....	4474
E.5.7	Timing of the FFT window.....	4474
E.5.8	Post FFT equalisation.....	4474
E.5.9	Derivation of the results.....	4475
E.5.9.1	EVM _{PUCCH}	4475
E.5.9.2	Averaged EVM _{PUCCH}	4476
E.5.9.3	In-band emissions measurement.....	4476
E.6	EVM for PRACH.....	4477
E.6.1	Basic principle.....	4477
E.6.2	Output signal of the TX under test.....	4477
E.6.3	Reference signal.....	4477
E.6.4	Measurement results.....	4478
E.6.5	Measurement points.....	4478
E.6.6	Pre FFT minimization process.....	4478
E.6.7	Timing of the FFT window.....	4478
E.6.8	Post FFT equalisation.....	4479
E.6.9	Derivation of the results.....	4479
E.6.9.1	EVM _{PRACH}	4479
E.6.9.2	Averaged EVM _{PRACH}	4480
E.7	EVM with exclusion period.....	4480
E.7.1	General.....	4480
E.7.2	The model.....	4480
E.7.3	Illustration.....	4481
E.7.4	Formula.....	4484
E.8	EVM for category NB1.....	4485
E.8.1	Averaged EVM.....	4485
E.8.2	EVM of Demodulation reference symbols (EVM _{DMRS}).....	4485
E.8.3	EVM for NPRACH.....	4485
E.8.4	Window length for category NB1.....	4485
Annex F (normative): Measurement uncertainties and Test Tolerances		4486
F.1	Acceptable uncertainty of Test System (normative).....	4486
F.1.1	Measurement of test environments.....	4486
F.1.2	Measurement of transmitter.....	4487
F.1.3	Measurement of receiver.....	4501
F.1.4	Measurement of performance requirements.....	4517
F.1.5	Measurement of Channel State Information reporting.....	4556
F.2	Interpretation of measurement results (normative).....	4568
F.3	Test Tolerance and Derivation of Test Requirements (informative).....	4568
F.3.1	Measurement of test environments.....	4569
F.3.2	Measurement of transmitter.....	4570
F.3.3	Measurement of receiver.....	4595
F.3.4	Measurement of performance requirements.....	4611
F.3.5	Measurement of Channel State Information reporting.....	4631
Annex G (normative): Statistical Testing.....		4641
G.1	General.....	4641
G.2	Statistical testing of receiver characteristics.....	4641
G.2.1	General.....	4641
G.2.2	Mapping throughput to error ratio.....	4641
G.2.3	Design of the test.....	4642

G.2.4	Numerical definition of the pass fail limits	4642
G.2.5	Pass fail decision rules	4643
G.2.6	Test conditions for receiver tests	4644
G.2A	Statistical testing of receiver characteristics with CA	4645
G.2A.1	General	4645
G.2A.2	Mapping throughput to error ratio	4645
G.2A.3	.....	4646
G.2A.4	Pass fail limits	4646
G.2A.5	void.....	4647
G.2A.6	Test conditions for receiver tests with CA	4647
G.3	Statistical testing of Performance Requirements with throughput	4647
G.3.1	General	4647
G.3.2	Mapping throughput to error ratio	4648
G.3.3	Design of the test.....	4648
G.3.4	Pass Fail limit	4648
G.3.5	Minimum Test time	4649
G.3.6	Test conditions for receiver performance tests	4670
G.3A	Statistical testing of Performance Requirements with throughput for CA/DC/LAA	4676
G.3A.1	General	4676
G.3A.2	Mapping throughput to error ratio	4676
G.3A.3	Design of the test.....	4676
G.3A.4	Pass Fail limit	4677
G.3A.5	Minimum test time	4677
G.3A.6	Test conditions	4710
G.4	Statistical testing of Performance Requirements with probability of misdetection	4712
G.4.1	General	4712
G.4.2	Mapping the UE reaction to error ratio	4712
G.4.3	Design of the test.....	4712
G.4.4	Numerical definition of the pass fail limits	4713
G.4.5	Pass fail decision rules	4714
G.4.6	Minimum Test time	4715
G.4.7	Test conditions for receiver performance tests	4721
G.5	Measuring throughput ratio	4722
G.5.1	General	4722
G.5.2	Establishing t_{rnd}	4722
G.5.2a	Establishing $t_{ue, follow1, follow2}$	4722
G.5.3	Measuring T-put	4723
G.5.4	Number of samples for throughput ratios	4723
G.6	Statistical testing of MBMS Performance	4729
G.6.1	General	4729
G.6.2	Mapping of MBMS Packet ratio to BLER	4729
G.6.3	Design of the test.....	4729
G.6.4	Test time for MBMS performance tests	4730
G.7	Theory to derive the numbers in Table G.2.4-1 (Informative)	4730
G.7.1	Error Ratio (ER)	4730
G.7.2	Test Design.....	4730
G.7.3	Confidence level.....	4731
G.7.4	Introduction: Supplier Risk versus Customer Risk	4731
G.7.5	Supplier Risk versus Customer Risk	4731
G.7.6	Introduction: Standard test versus early decision concept	4732
G.7.7	Standard test versus early decision concept	4732
G.7.8	Selectivity.....	4732
G.7.9	Design of the test.....	4733
G.7.10	Simulation to derive the pass fail limits in Table G.2.4-1	4734
Annex H (normative):	Uplink Physical Channels	4736

H.0	Uplink Signal Levels	4736
H.0.1	Uplink Signal Levels for NB1	4736
H.1	General	4736
H.1.1	General for NB1	4738
H.2	Set-up	4738
H.2.1	Set-up for NB1	4738
H.3	Connection	4738
H.3.0	Measurement of Transmitter Characteristics	4738
H.3.1	Measurement of Receiver Characteristics	4739
H.3.2	Measurement of Performance Requirements	4739
H.4	Connection for NB1	4739
H.4.0	Measurement of Transmitter Characteristics	4739
H.4.1	Measurement of Receiver Characteristics	4739
H.4.2	Measurement of Performance Requirements	4739
Annex I (informative): Handling requirements and tests for different releases and UE capabilities		4740
I.1	General Considerations	4740
I.2	Concrete scenarios	4741
I.2.1	Tests for minimum requirements varying between releases, without introduction of new features	4741
I.2.2	Tests for CA (Carrier aggregation)	4742
I.2.2.1	CA Tx tests (Chapter 6)	4742
I.2.2.2	CA Rx tests (Chapter 7)	4743
I.2.2.3	CA Performance tests (Chapter 8)	4743
I.2.3	Tests for UL-MIMO (Uplink Multiple Antenna Transmission)	4744
I.2.3.1	UL-MIMO Tx tests (Chapter 6)	4744
I.2.3.2	UL-MIMO Rx tests (Chapter 7)	4744
I.2.4	Tests for eDL-MIMO (Enhanced Downlink Multiple Antenna Transmission)	4745
I.2.4.1	eDL MIMO Performance tests (Chapter 8)	4745
I.2.4.2	eDL MIMO CSI tests (Chapter 9)	4745
I.2.5	Tests for eICIC (Enhanced Inter-carrier Interference Cancellation / Coordination)	4746
I.2.5.1	eICIC Performance tests (Chapter 8)	4746
I.2.5.2	eICIC CSI tests (Chapter 9)	4746
I.2.6	Tests for feICIC (Further Enhanced Non CA-based ICIC for LTE)	4747
I.2.6.1	feICIC Performance tests (Chapter 8)	4747
I.2.6.2	feICIC CSI tests (Chapter 9)	4747
I.2.7	Tests for DL CoMP (Downlink Coordinated Multipoint Transmission)	4747
I.2.7.1	CoMP Performance tests (Chapter 8)	4747
I.2.7.2	CoMP CSI tests (Chapter 9)	4748
I.2.8	Tests for Further eDL-MIMO (Enhanced Downlink Multiple Antenna Transmission) Enhancement for LTE-A	4748
I.2.8.1	eDL MIMO Enhancement CSI tests (Chapter 9)	4748
I.2.9	Tests for UE category 0	4749
I.2.9.1	UE category 0 Tx tests (Chapter 6)	4749
I.2.9.2	UE category 0 Rx tests (Chapter 7)	4749
I.2.9.3	UE category 0 Performance tests (Chapter 8)	4749
I.2.9.4	UE category 0 CSI tests (Chapter 9)	4750
I.2.9A	Tests for UE category M1	4750
I.2.9A.1	UE category M1 Tx tests (Chapter 6)	4750
I.2.9A.2	UE category M1 Rx tests (Chapter 7)	4751
I.2.9A.3	UE category M1 Performance tests (Chapter 8)	4751
I.2.9A.4	UE category M1 CSI tests (Chapter 9)	4751
I.2.10	Tests for SCE-L1 (Small Cell Enhancements-Physical layer)	4751
I.2.10.1	SCE-L1 Receiver tests (Chapter 7)	4751
I.2.10.2	SCE-L1 Performance tests (Chapter 8)	4752
I.2.10.3	SCE-L1 CSI tests (Chapter 9)	4753
I.2.11	Tests for ProSe	4754
I.2.11.1	ProSe Tx tests (Chapter 6)	4754

I.2.11.2	ProSe Rx tests (Chapter 7).....	4754
I.2.11.3	ProSe Performance tests (Chapter 8).....	4754
I.2.11.4	ProSe CSI tests (Chapter 9).....	4754
I.2.12	Tests for 4 Rx antenna ports.....	4755
I.2.12.1	4 Rx antenna ports Rx tests (Chapter 7).....	4755
I.2.12.2	4 Rx antenna ports Performance tests (Chapter 8).....	4755
I.2.12.3	4 Rx antenna ports CSI tests (Chapter 9).....	4755
Annex J (normative): Modified MPR behaviour		4756
J.1	Indication of modified MPR behaviour.....	4756
Annex K (normative): NB-IoT Test Frequencies		4758
K.1	NB-IoT Test frequencies for TRx Tests.....	4758
K.1.1	Test frequencies selection criteria 1	4758
K.1.2	Test frequencies selection criteria 2	4758
K.1.3	Test frequencies selection criteria 3	4759
K.2	NB-IoT Test frequencies for Demodulation Tests	4759
K.2.1	Test frequencies selection criteria 1.....	4759
Annex L (informative): Change history		4760
History		4875

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is part 1 of a multi-parts TS:

3GPP TS 36.521-1: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification Radio transmission and reception; Part 1: Conformance Testing.

3GPP TS 36.521-2 [11]: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification Radio transmission and reception; Part 2: Implementation Conformance Statement (ICS).

3GPP TS 36.521-3 [12]: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification Radio transmission and reception; Part 3: Radio Resource Management (RRM) conformance testing.

1 Scope

The present document specifies the measurement procedures for the conformance test of the user equipment (UE) that contain transmitting characteristics, receiving characteristics and performance requirements as part of the 3G Long Term Evolution (3G LTE). Conformance test for the support of RRM (Radio Resource Management) are specified in TS 36.521-3 [12].

The requirements are listed in different clauses only if the corresponding parameters deviate. More generally, tests are only applicable to those mobiles that are intended to support the appropriate functionality. To indicate the circumstances in which tests apply, this is noted in the "*definition and applicability*" part of the test.

For example only Release 8 and later UE declared to support LTE shall be tested for this functionality. In the event that for some tests different conditions apply for different releases, this is indicated within the text of the test itself.