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**Universal Mobile Telecommunications System (UMTS);
LTE;
Digital cellular telecommunications system (Phase 2+) (GSM);
User Equipment (UE) and Mobile Station (MS) GSM, UTRA and
E-UTRA over the air performance requirements
(3GPP TS 37.144 version 14.2.0 Release 14)**



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Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	6
1 Scope	7
2 References	7
3 Definitions, symbols and abbreviations	7
3.1 Definitions	7
3.2 Symbols.....	8
3.3 Abbreviations	8
4 General	8
4.1 Minimum requirements for roaming bands	8
4.2 Relationship between minimum requirements for roaming bands and test requirements	8
4.3 Terminal classes	9
4.3.1 Mechanical modes	9
4.4 UTRA chip rates.....	9
5 Frequency bands.....	9
5.1 GSM frequency bands	9
5.2 UTRA FDD frequency bands.....	9
5.3 UTRA TDD frequency bands.....	10
5.4 E-UTRA FDD frequency bands	10
5.5 E-UTRA TDD frequency bands	10
6 Transmitter total radiated power	11
6.1 Minimum requirement for roaming bands for handheld UE	11
6.1.1 Beside the head phantom position	11
6.1.1.1 GSM.....	12
6.1.1.2 UTRA FDD.....	12
6.1.1.3 UTRA LCR TDD.....	13
6.1.2 Beside the head and hand phantom position.....	13
6.1.2.1 UTRA FDD.....	13
6.1.2.2 UTRA LCR TDD.....	14
6.1.2.3 E-UTRA FDD	14
6.1.2.4 E-UTRA TDD.....	14
6.1.3 Hand phantom browsing mode position	14
6.1.3.1 UTRA FDD.....	14
6.1.3.2 UTRA LCR TDD.....	15
6.1.3.3 E-UTRA FDD	15
6.1.3.4 E-UTRA TDD.....	15
6.2 Minimum requirement for roaming bands for LME.....	15
6.2.1 GSM.....	15
6.2.2 UTRA FDD	16
6.2.3 UTRA LCR TDD	16
6.2.4 E-UTRA FDD.....	17
6.2.5 E-UTRA TDD	17
6.3 Minimum requirement for roaming bands for LEE.....	17
6.3.1 GSM.....	17
6.3.2 UTRA FDD	17
6.3.3 UTRA LCR TDD	18
6.3.4 E-UTRA FDD.....	19
6.3.5 E-UTRA TDD	19
7 Receiver total radiated sensitivity	19
7.1 Minimum requirement for roaming bands for handheld UE	19

7.1.1	Beside the head phantom position	20
7.1.1.1	GSM.....	20
7.1.1.2	UTRA FDD.....	20
7.1.1.3	UTRA LCR TDD.....	21
7.1.2	Beside the head and hand phantoms position	21
7.1.2.1	UTRA FDD.....	21
7.1.2.2	UTRA LCR TDD.....	22
7.1.2.3	E-UTRA FDD.....	22
7.1.2.4	E-UTRA TDD.....	22
7.1.3	Hand phantom browsing mode position	22
7.1.3.1	UTRA FDD.....	22
7.1.3.2	UTRA LCR TDD.....	23
7.1.3.3	E-UTRA FDD.....	23
7.1.3.4	E-UTRA TDD.....	23
7.2	Minimum requirement for roaming bands for LME.....	23
7.2.1	GSM.....	24
7.2.2	UTRA FDD	24
7.2.3	UTRA LCR TDD	24
7.2.4	E-UTRA FDD.....	25
7.2.5	E-UTRA TDD	25
7.3	Minimum requirement for roaming bands for LEE.....	25
7.3.1	GSM.....	25
7.3.2	UTRA FDD	26
7.3.3	UTRA LCR TDD	27
7.3.4	E-UTRA FDD.....	27
7.3.5	E-UTRA TDD	27
8	Receiver total radiated multi-antenna sensitivity	27
8.1	Minimum requirement for roaming bands for handheld UE	27
8.1.1	Free Space.....	27
8.1.1.1	E-UTRA FDD.....	28
8.1.1.2	E-UTRA TDD.....	29
Annex A (normative): Environmental conditions		30
A.1	General	30
A.2	Environmental requirements	30
A.2.2	Temperature	30
A.2.3	Voltage	30
Annex B (informative): Recommended performance		31
B.1	General	31
B.2	Transmitter total radiated power	31
B.2.1	Recommended performance for handheld UE	31
B.2.1.1	Beside the head phantom position	31
B.2.1.1.1	GSM.....	31
B.2.1.1.2	UTRA FDD.....	32
B.2.1.1.3	UTRA LCR TDD.....	32
B.2.1.2	Beside the head and hand phantoms position	33
B.2.1.2.1	UTRA FDD.....	33
B.2.1.2.2	UTRA LCR TDD.....	33
B.2.1.2.3	E-UTRA FDD.....	34
B.2.1.2.4	E-UTRA TDD.....	34
B.2.1.3	Hand phantom browsing mode position	34
B.2.1.3.1	UTRA FDD.....	34
B.2.1.3.2	UTRA LCR TDD.....	34
B.2.1.3.3	E-UTRA FDD.....	35
B.2.1.3.4	E-UTRA TDD.....	35
B.2.2	Recommended performance for LME.....	35
B.2.2.1	GSM.....	35
B.2.2.2	UTRA FDD	35

B.2.2.3	UTRA LCR TDD	35
B.2.2.4	E-UTRA FDD.....	36
B.2.2.5	E-UTRA TDD	36
B.2.3	Recommended performance for LEE	36
B.2.3.1	GSM.....	36
B.2.3.2	UTRA FDD	36
B.2.3.3	UTRA LCR TDD	37
B.2.3.4	E-UTRA FDD.....	38
B.2.3.5	E-UTRA TDD	38
B.3	Receiver total radiated sensitivity	38
B.3.1	Recommended performance for handheld UE	38
B.3.1.1	Beside the head phantom position	38
B.3.1.1.1	GSM.....	38
B.3.1.1.2	UTRA FDD.....	38
B.3.1.1.3	UTRA LCR TDD.....	39
B.3.1.2	Beside the head and hand phantoms position	39
B.3.1.2.1	UTRA FDD.....	39
B.3.1.2.2	UTRA LCR TDD.....	39
B.3.1.2.3	E-UTRA FDD	40
B.3.1.2.4	E-UTRA TDD.....	40
B.3.1.3	Hand phantom browsing mode position	40
B.3.1.3.1	UTRA FDD.....	40
B.3.1.3.2	UTRA LCR TDD.....	40
B.3.1.3.3	E-UTRA FDD	41
B.3.1.3.4	E-UTRA TDD.....	41
B.3.2	Recommended performance for LME.....	41
B.3.2.1	GSM.....	41
B.3.2.2	UTRA FDD	41
B.3.2.3	UTRA LCR TDD	41
B.3.2.4	E-UTRA FDD.....	42
B.3.2.5	E-UTRA TDD	42
B.3.3	Recommended performance for LEE.....	42
B.3.3.1	GSM.....	42
B.3.3.2	UTRA FDD	42
B.3.3.3	UTRA LCR TDD	43
B.3.3.4	E-UTRA FDD.....	43
B.3.3.5	E-UTRA TDD	43
Annex C (informative):	Change history	44
History		45

Foreword

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1 Scope

The present document establishes over the air antenna minimum requirements for user equipment (UE) and mobile station (MS).

Handheld UE requirements are defined for roaming bands for the speech position (beside the head and beside the head and hand) and hand phantom browsing mode position. Laptop mounted equipment requirements are defined for roaming bands for the data transfer position (laptop ground plane phantom). Laptop embedded equipment requirements are defined for roaming bands for the data transfer position (free space).

All bands are potential roaming bands, and the requirements for roaming bands shall therefore be fulfilled for all bands supported by a UE/MS.

Requirements for operating bands are dependent on how the network has been built and are thus operator specific and cannot be specified here. Recommended performance values for operating bands (Annex B) are however included in this specification for information. It should be recognised that the ability to meet the recommended performance values depends on the number of frequency bands supported by the UE/MS.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
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- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 25 101: "User Equipment (UE) radio transmission and reception (FDD)".
- [3] 3GPP TS 45.005: "Radio transmission and reception".
- [4] 3GPP TS 34.114: "User Equipment (UE) / Mobile Station (MS) Over The Air (OTA) antenna performance; Conformance testing".
- [5] ETSI ETR 273: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Improvement of radiated methods of measurement (using test sites) and evaluation of the corresponding measurement uncertainties; Part 1: Uncertainties in the measurement of mobile radio equipment characteristics; Sub-part 2: Examples and annexes".
- [6] 3GPP TR 25.914: "Measurements of radio performances for UMTS terminals in speech mode"
- [7] 3GPP TR 37.977: "Verification of radiated multi-antenna reception performance of User Equipment (UE)"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], TR 37.977 [7] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1] or TR 37.977 [7].