ETSI TS 137 106 V16.1.0 (2020-11)

LTE;
User Equipment (UE) requirements
for shared spectrum channel access
(3GPP TS 37.106 version 16.1.0 Release 16)

Reference
RTS/TSGR-0437106vg10

Keywords
LTE

ETSI

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Contents

Foreword

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

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1 Scope

The present document establishes the minimum UE RF characteristics for shared spectrum channel access.

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.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] ITU-R Recommendation M.1545: "Measurement uncertainty as it applies to test limits for the terrestrial component of International Mobile Telecommunications-2000".

[3] Void

[4] 3GPP TS 36.101: "User Equipment (UE) radio transmission and reception".

[5] 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".

[6] 3GPP TS 37.213: "Physical layer procedures for shared spectrum channel access".

[7] 3GPP TS 38.521-1: "NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 standalone".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the followingapply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Channel bandwidth: The RF bandwidth supporting a single E-UTRA RF carrier with the transmission bandwidth configured in the uplink or downlink of a cell. The channel bandwidth is measured in MHz and is used as a reference for transmitter and receiver RF requirements.

3.2 Symbols

For the purposes of the present document, the following symbols apply:

$BW_{Channel}$ Channel bandwidth

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

BS	Base Station
E-UTRA	Evolved Universal Terrestrial Radio Access
NR	New Radio
PUSCH	Physical Uplink Shared Channel
UE	User Equipment

4 General

4.1 Relationship between minimum requirements and test requirements

The Minimum Requirements given in this specification make no allowance for measurement uncertainty. The test specification TS 36.521-1 [5] Annex F defines Test Tolerances for E-UTRA, and the test specification TS 38.521-1 [7] Annex F defines Test Tolerances for NR. These Test Tolerances are individually calculated for each test. The Test Tolerances are used to relax the Minimum Requirements in this specification to create Test Requirements.

The measurement results returned by the Test System are compared - without any modification - against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ITU-R M.1545 [2].

4.2 Applicability of minimum requirements

a) In this specification the Minimum Requirements are specified as general requirements and additional requirements. Where the Requirement is specified as a general requirement, the requirement is mandated to be met in all scenarios

b) For specific scenarios for which an additional requirement is specified, in addition to meeting the general requirement, the UE is mandated to meet the additional requirements.

c) The requirements in this specification for E-UTRA TDD operating bands apply for downlink and uplink operations using Frame Structure Type 3.

5 Channel access procedures

5.1 Uplink channel access procedure

For uplink operation in Band 46, Band 49, Band n46 and Band n96, a channel access procedure for PUSCH transmission as described in TS 37.213 [6], Clause 4.2.1 is specified.

5.1.1 Channel access parameters

Channel access related parameters for PUSCH are listed in Table 5.1.1-1.

Table 5.1.1-1: Channel access parameters for PUSCH

Parameter	Unit	Value	
LBT measurement bandwidth (BW)	MHz	20	10
Energy detection threshold	dBm/BW	-72	-75
Detection timing	microseconds	25	

5.1.2 Minimum requirement

The UE shall be able to assess whether the medium is busy or idle with at least 90% probability, using a channel access procedure with the parameters in Table 5.1.1-1.

Annex A (informative): Change history

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
2018-02	RAN4#86	R4-1801547				TS skeleton	0.0.1
2018-06	RAN#80	RP-181030				v1.0.0 submitted for plenary approval	1.0.0
2018-06	RAN#80					Approved by plenary – Rel-15 spec under change control	15.0.0
2020-06	RAN#88	-	-	-	-	Update to Rel-16 version (MCC)	16.0.0
2020-09	RAN#89	RP-201512	0003		A	CR to TS 37.106 with correction to referencies to TS 37.213 Rel-16	16.1.0
2020-09	RAN#89	RP-201915	0004		B	CR to TS 37.106 with introduction of NR-U feature	16.1.0

History

Document history		
V16.0.0	September 2020	Publication
V16.1.0	November 2020	Publication