ETSI EN 303 722 V1.2.1 (2022-03)



**Wideband Data Transmission Systems (WDTS)
for Fixed Network Radio Equipment operating
in the 57 GHz to 71 GHz band;
Harmonised Standard for access to radio spectrum**

1 Scope

The present document specifies technical characteristics and methods of measurements for Wideband Data Transmission Systems (WDTS) fixed network radio equipment operating in the 57 GHz to 71 GHz band taking into consideration ERC Recommendation 70-03 [i.3], annex 3 (frequency bands c2 and c3) and Commission Decision 2006/771/EC [i.4] bands 75a and 75b.

This radio equipment is capable of operating in all or any part of the frequency bands given in table 1.

Table 1: Radiocommunications service frequency band

Transmit/Receive	Radiocommunications service frequency band
Transmit	57 GHz to 71 GHz
Receive	57 GHz to 71 GHz

NOTE 1: The technical characteristics of applications using these radio equipment are further described in ETSI TR 103 583 [i.1].

NOTE 2: The relationship between the present document and essential requirements of article 3.2 of Directive 2014/53/EU [i.5] is given in annex A.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TR 103 583 (V1.1.1): "System Reference document (SRdoc); Technical characteristics of Multiple Gigabit Wireless Systems (MGWS) in radio spectrum between 57 GHz and 71 GHz".

[i.2] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.

4.2.1.1 Definition

The spectral power density is the mean Equivalent Isotropically Radiated Power (EIRP) density ($EIRP_0$) during a transmission burst.

4.2.1.2 Limit

The maximum spectral power density is applicable to the system as a whole when operated at the highest power spectral density level ($EIRP_0$). The maximum spectral power density shall be as indicated in table 2.

Table 2: Power Spectral Density (PSD) limit

Condition	Maximum $EIRP_0$
Fixed outdoor installations with ≥ 30 dBi transmit antenna gain	38 dBm/MHz
Otherwise	23 dBm/MHz

NOTE: Information on PSD limit is aligned with the Commission Implementing Decision (EU) 2019/1345 [i.6] (see Annex, Table 2, Bands 75a and 75b).

4.2.1.3 Conformance

Conformance tests as defined in clause 5.2.3 shall be carried out and result compared to the limit.

4.2.2 RF output power

4.2.2.0 Applicability

The present requirement applies to all equipment within the scope of the present document.

4.2.2.1 Definition

The RF output power is the mean Equivalent Isotropically Radiated Power (EIRP) for the equipment during a transmission burst.

4.2.2.2 Limit

The maximum RF output power is applicable to the system as a whole when operated at the highest stated power level. For a smart antenna system, the limit applies to the configuration that results in the highest EIRP. In case of multiple (adjacent or non-adjacent) channels the total RF output power of all channels shall be less than or equal to the limits in table 3.

The maximum RF output power shall be as indicated in table 3.

Table 3: RF output power limit

Antenna Gain (G_A)	Additional Conditions	Maximum power level (EIRP)
G_A < 13 dBi		27 dBm + G_A
13 dBi ≤ G_A < 30 dBi		40 dBm
30 dBi ≤ G_A		40 dBm
	Fixed outdoor installations	55 dBm

NOTE: Information on RF output power limit is aligned with the Commission Implementing Decision (EU) 2019/1345 [i.6] (see Annex, Table 2, Bands 75a and 75b).

4.2.2.3 Conformance

Conformance tests as defined in clause 5.2.4 shall be carried out and result compared to the limit.

4.2.5.3 Limit

4.2.5.3.0 General

ATPC and/or ALA shall be implemented by the equipment and shall be active under all circumstances, except that the transmission of control, management, and synchronization frames are permitted without the use of ATPC or ALA.

4.2.5.3.1 Automatic Transmit Power Control

For devices equipped with transmitter power control, the difference in the average output power between the highest power setting and lowest power setting shall be greater than or equal to 3 dB for a given constant data rate and nominal channel bandwidth.

4.2.5.3.2 Automatic Link Adaptation

For devices equipped with automatic link adaptation, the difference in the average output power between that measured for highest data rate and that measured for the lowest data rate should be greater than or equal to 3 dB for a given constant path loss and nominal channel bandwidth. Alternatively, the duty cycle of the transmissions measured for highest data rate shall be reduced by 10 % compared to that measured for the lowest data rate.

4.2.5.4 Conformance

The conformance tests as defined in clause 5.2.7 shall be carried out.

4.2.6 Occupied Channel Bandwidth

4.2.6.1 Applicability

This requirement applies to all equipment within the scope of the present document.

4.2.6.2 Definition

The Occupied Channel Bandwidth is the bandwidth containing 99 % of the power of the signal.

4.2.6.3 Limit

The Occupied Channel Bandwidth shall be less than the declared nominal Channel Bandwidth for all transmissions. The device shall support a mode of transmission with a necessary bandwidth at least 70 % of the declared nominal channel bandwidth. In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet this requirement.

When equipment has simultaneous transmissions in adjacent channels, these transmissions may be considered as one signal with an actual nominal channel bandwidth of "n" times the individual nominal channel bandwidth where "n" is the number of adjacent channels. When equipment has simultaneous transmissions in non-adjacent channels, each power envelope shall be considered separately.

4.2.6.4 Conformance

Conformance tests as defined in clause 5.2.8 shall be carried out and result compared to the limit.

4.2.7 Receiver unwanted emissions in the spurious domain

4.2.7.0 Applicability

The present requirement applies to all equipment within the scope of the present document.