

PARTIAL Test Report

23-1-0035501T002a-C02

Number of pages:	35	Date of Report:	2024-Sep-02
Testing company:	cetecom advanced GmbH Untertuerkheimer Str. 6-10 66117 Saarbruecken GERMANY	Applicant:	Schmitz Cargobull AG
Product: Model:	Telematic Device CTU-Pro		
FCC ID:	2BBVQ-CTUPRO	IC:	N/A
Testing has been carried out in accordance with:	FCC Regulations Title 47 CFR, Chapter I, Subchapter A Part 15, Subpart C Intentional Radiators; § 15.209 Radiated emission limits; general requirements Title 47 CFR, Chapter I, Subchapter B Part 22, Subpart H Cellular Radiotelephone Service Part 24, Subpart E Paging and Radiotelephone Service Part 27, Subpart C Miscellaneous Wireless Communications Services Title 47 CFR, Chapter I, Subchapter D Part 90, Subpart I, General technical standards; Subpart S Private Land Mobile Radio Services		
Tested Technology:	LTE		
Test Results:	☒ The EUT complies with the requirements in respect of selected parameters subject to the test. The test results relate only to devices specified in this document The current version of Test Report “TR23-1-0035501T002a-C02” replaces the test report “TR23-1-0035501T002a-C01” dated 2024-Jul-19. The replaced test report is herewith invalid.		
Signatures:	B.Eng Martin Nunier Supervisor Radio Services Authorization of test report Timo Franke Test Manager Responsible of test report		

Table of Contents

Table of Annex.....	3
1 General information	4
1.1 Disclaimer and Notes.....	4
1.3 Summary of Test Results	5
1.4 Summary of Test Methods	9
2 Administrative Data	10
2.1 Identification of the Testing Laboratory	10
2.2 General limits for environmental conditions.....	10
2.3 Test Laboratories sub-contracted.....	10
2.4 Organizational Items	10
2.5 Applicant's details	10
2.6 Manufacturer's details	10
2.7 Equipment under Test (EUT)	11
2.8 Untested Variant (VAR)	11
2.9 Auxiliary Equipment (AE)	11
2.10 Connected cables (CAB).....	11
2.11 Software (SW).....	11
2.12 EUT set-ups.....	12
2.13 EUT operation modes	13
3 Equipment under test (EUT)	15
3.1 General Data of Main EUT as Declared by Applicant.....	15
3.2 Detailed Technical data of Main EUT as Declared by Applicant	15
3.3 Worst case identification.....	16
3.4 Modifications on Test sample.....	16
4 Measurements.....	17
4.1 Conducted RF output power	17
4.2 Radiated field strength emissions below 30 MHz	21
4.3 Radiated spurious emissions	25
4.4 Radiated Band Edge.....	28
4.5 Equipment lists	31
5 Results from external laboratory.....	33
6 Opinions and interpretations.....	33
7 List of abbreviations	33
8 Measurement Uncertainty valid for conducted/radiated measurements	34
9 Versions of test reports (change history)	35

Table of Annex			
Annex No.	Contents	Reference Description	Total Pages
Annex 1	Test result diagrams	TR23-1-0035501T002a-C02-A1	64
Annex 2	Internal photographs of EUT	To be provided by applicant	--
Annex 3	External photographs of EUT	TR23-1-0035501T002a-C02-A3	6
Annex 4	Test set-up photographs	TR23-1-0035501T002a-C02-A4	5
Annex 5	Declaration of applicant of model differences	TR23-1-0035501T002a-C02-A5	2
The listed attachments are separate documents.			

1 General information

1.1 Disclaimer and Notes

The test results of this test report relate exclusively to the test item specified in this test report as specified in chapter 2.7. cetecom advanced does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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Also we refer on special conditions which the applicant should fulfill according §2.927 to §2.948, special focus regarding modification of the equipment and availability of sample equipment for market surveillance tests.

1.3 Summary of Test Results

Test case in LTE2 band	Reference Clause FCC ☒	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§2.1046	18	--	PASSED
Radiated RF output power	§24.232(c), §2.1046	--	--	NP
26dB Emission bandwidth	§24.238(b), §2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§24.238(b), §2.1049	--	--	NP
Radiated Band Edge	§24.238(a)(b), §2.1053(a), §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§24.238(a)(b), §2.1051	--	--	NP
Peak to Average ratio (PAPR)	§24.232(d), §2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§24.238(a)(b), §2.1051, §2.1057(a)	--	--	NP
Radiated spurious emissions	§24.238(a)(b), §2.1053, §2.1057(a)	26	--	PASSED
Frequency stability, temperature variation	§24.235, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§24.235, §2.1055(d)(1)	--	--	NP

Test case in LTE4 band	Reference Clause FCC	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§27.50(d)(4), §2.1046	18	--	NP
Radiated RF output power	§27.50(d)(4), §2.1046	--	--	NP
26dB Emission bandwidth	§27.53(h)(3), §2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§27.53(h)(3), §2.1049	--	--	NP
Radiated Band Edge	§27.53(h), §2.1053, §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§27.53(h), §2.1051, §2.1057(a)	--	--	NP
Peak to Average ratio (PAPR)	§27.50(d)(4)(5), §2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§27.53(h), §2.1051	--	--	NP
Radiated spurious emissions	§27.53(h), §2.1051, §2.1057(a)	26	--	PASSED
Frequency stability, temperature variation	§27.54, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§27.54, §2.1055(d)(1)	--	--	NP

Test case in LTE5 band	Reference Clause FCC	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§22.913(a)(5), §2.1046	18	--	PASSED
Radiated RF output power	§22.913, §2.1046	--	--	NP
26dB Emission bandwidth	§22.917(b), §2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§22.917(b), §2.1049	--	--	NP
Radiated Band Edge	§22.917(a)(b), §2.1053(a), §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§22.917(a)(b), §2.1051, §2.1057(a)	--	--	NP
Peak to Average ratio (PAPR)	§22.913(d), §2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§22.917(a)(b), §2.1051, §2.1057(a)	--	--	NP
Radiated spurious emissions	§22.917(a)(b), §2.1051, §2.1057(a)	26	--	PASSED
Frequency stability, temperature variation	§22.355, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§22.355, §2.1055(d)(1)	--	--	NP

Test case in LTE7 band	Reference Clause FCC	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§27.50(h)(2), §2.1046	18	--	PASSED
Radiated RF output power	§27.50(h)(2), §2.1046	--	--	NP
26dB Emission bandwidth	§27.53(h)(3), §2.202(a), §2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§27.53(h)(3), §2.202(a)	--	--	NP
Radiated Band Edge	§27.53(m)(4), §2.1053, §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§27.53(m)(4), §2.1051, §2.1057(a)	--	--	NP
Peak to Average ratio (PAPR)	§27.50(h)(2), §2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§27.53(m)(4), §2.1051, §2.1057(a)	--	--	NP
Radiated spurious emissions	§27.53(m)(4), §2.1053, §2.1057(a)	26	--	PASSED
Frequency stability, temperature variation	§27.54, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§27.54, §2.1055(d)(1)	--	--	NP

Test case in LTE12 band	Reference Clause FCC	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§27.50(c)(10), §2.1046	18	--	PASSED
Radiated RF output power	§27.50(c)(10), §2.1046	--	--	NP
26dB Emission bandwidth	§2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§2.1049	--	--	NP
Radiated Band Edge	§27.53(g), §2.1053, §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§27.53(g), §2.1053(a), §2.1057(a)	--	--	NP
Peak to Average ratio (PAPR)	§27.50(c)(10), §2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§27.53(g), §2.1051, §2.1057(a)	--	--	NP
Radiated spurious emissions	§27.53(g), §2.1053(a) §2.1057(1)	26	--	PASSED
Frequency stability, temperature variation	§27.54, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§27.54, §2.1055(d)(1)	--	--	NP

Test case in LTE13 band	Reference Clause FCC	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§27.50(b)(10)(11), §2.1046(a)	18	--	PASSED
Radiated RF output power	§27.50(b)(10)(11) §2.1046(a)	--	--	NP
26dB Emission bandwidth	§2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§2.1049	--	--	NP
Radiated Band Edge	§27.53(c)(3)(4), §2.1053, §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§27.53(c)(3)(4), §2.1051, §2.1057(a)	--	--	NP
Peak to Average ratio (PAPR)	§2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§27.53(c)(2)(3)(4), §2.1051, §2.1057(a)	--	--	NP
Radiated spurious emissions	§27.53(c)(2)(3)(4) §27.53(f) §27.1053(a)(b) §2.1053, §2.1057(a)	26	--	PASSED
Frequency stability, temperature variation	§27.54, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§27.54, §2.1055(d)(1)	--	--	NP

Test case in LTE41 band	Reference Clause FCC	Page	Remark	Result
AC-Power Lines Conducted Emissions	§15.207(a)	--	--	N/A
Conducted RF output power	§27.50(h)(2), §2.1046	18	--	PASSED
Radiated RF output power	§27.50(h)(2), §2.1046	--	--	NP
26dB Emission bandwidth	§27.53(h)(3), §2.202(a), §2.1049	--	--	NP
Occupied Channel Bandwidth 99%	§27.53(h)(3), §2.202(a), §2.1049	--	--	NP
Radiated Band Edge	§27.53(m)(4), §2.1053, §2.1057(a)	30	--	PASSED
Conducted RF Band Edge	§27.53(m)(4), §2.1051, §2.1057(a)	--	--	NP
Peak to Average ratio (PAPR)	§27.50(h)(2), §2.1046	--	--	NP
Radiated field strength emissions below 30 MHz	§15.205, §15.209	24	--	PASSED
Spurious emissions at antenna terminals	§27.53(m)(4), §2.1051, §2.1057(a)	--	--	NP
Radiated spurious emissions	§27.53(m)(4), §2.1053, §2.1057(a)	26	--	PASSED
Frequency stability, temperature variation	§27.54, §2.1055(a)(1)	--	--	NP
Frequency stability, voltage variation	§27.54, §2.1055(d)(1)	--	--	NP

PASSED	The EUT complies with the essential requirements in the standard.
FAILED	The EUT does not comply with the essential requirements in the standard.
N/A	Test case does not apply to the test object.
NP	The test was not performed by the cetecom advanced Laboratory.

Decision Rule: cetecom advanced GmbH follows [ILAC G8:2019 chapter 4.2.1 \(Simple Acceptance Rule\)](#).

Remarks:

- Please check the module report "MDE_UBLOX_2029_FCC_01" issued on 2021-Dec-10 by 7 layers GmbH, for not performed measurements by the cetecom advanced laboratory.

1.4 Summary of Test Methods

Test case	Test method
AC-Power Lines Conducted Emissions	ANSI C63.4-2014, §7, ANSI C63.10-2013 §6.2
Conducted RF output power	ANSI C63.26:2015, §5.2, KDB 971168 D01 v03r01
Radiated RF output power	ANSI C63.26:2015, §5.2.7, KDB 971168 D01 v03r01
Occupied Channel Bandwidth 99%	ANSI C63.26:2015, §5.4.4, KDB 971168 D01 v03r01
26dB Emission bandwidth	ANSI C63.26:2015, §5.4.3, KDB 971168 D01 v03r01
Modulation characteristics	ANSI C63.26:2015, §5.3
Radiated Band Edge	ANSI C63.26:2015, §5.5, KDB 971168 D01 v03r01
Conducted RF Band Edge	ANSI C63.26:2015, §5.7, KDB 971168 D01 v03r01
Peak to Average ratio (PAPR)	ANSI C63.26:2015, §5.2.6
Result calculated with measured conducted RF-power value and stated/measured antenna gain for band of interest	
Radiated field strength emissions below 30 MHz	ANSI C63.4-2014 §5.3, §8.2.1, §8.3.1.1+§8.3.2.1
Spurious emissions at antenna terminals	ANSI C63.26:2015, §5.7, KDB 971168 D01 v03r01
Radiated spurious emissions	ANSI C63.26:2015, §5.5, KDB 971168 D01 v03r01, ANSI C63.26.1:2018

2 Administrative Data

2.1 Identification of the Testing Laboratory

Company name:	cetecom advanced GmbH
Address:	Untertuerkheimer Str. 6-10 66117 Saarbruecken Germany
Responsible for testing laboratory:	Dipl.-Ing. (FH) Andreas Luckenbill M.Sc.
Accreditation scope:	DAkkS Webpage: FCC ISED
IC Lab company No. / CAB ID:	3462D / DE0001
Test location 1:	Im Teelbruch 116; 45219 Essen
Test location 2:	--

2.2 General limits for environmental conditions

Temperature:	22±2 °C
Relative. humidity:	45±15% rH

2.3 Test Laboratories sub-contracted

Company name:	--
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2.4 Organizational Items

Responsible test manager:	Timo Franke
Receipt of EUT:	2023-Jun-14
Date(s) of test:	2023-Jun-26 to 2023-Jul-03
Version of template:	23.0402

2.5 Applicant's details

Applicant's name:	Schmitz Cargobull AG
Address:	Bahnhofstrasse 22 48612 Horstmar Germany
Contact Person:	Dieter Honkomp
Contact Person's Email:	dieter.honkomp@cargobull.com

2.6 Manufacturer's details

Manufacturer's name:	Bosch Car Multimédia Portugal, S.A.
Address:	Rua Max Grundig, 35 4705-820 Lomar Braga Norte Portugal

2.7 Equipment under Test (EUT)

EUT No. *)	Sample No.	Product	Model	Type	SN	HW	SW
EUT 1	23-1-00355S04_C01	Telematic Device	CTU-Pro	7620000458	99003313	H01	CBT.TCU3_EVO.2 1.01.D.064
EUT 2	23-1-00355S05_C01	Telematic Device	CTU-Pro	7620000458	99003219	H01	CBT.TCU3_EVO.2 1.01.D.064

*) EUT short description is used to simplify the identification of the EUT in this test report.

2.8 Untested Variant (VAR)

VAR No. *)	Sample No.	Product	Model	Type	SN	HW	SW
VAR 1	23-1-00355S15_C01	Telematic Device	CTU-Pro	7620000456	99003222	H01	CBT.TCU3_EVO.2 1.01.D.064

*) The listed additional untested model variant(s) (VAR) is/are not object of evaluation of compliance. For further information please see Annex 5: Declaration of applicant of model differences.

If the table above does not show any other line than the headline, no untested variants are available.

2.9 Auxiliary Equipment (AE)

AE No. *)	Sample No.	Auxiliary Equipment	Model	SN	HW	SW
AE 1	23-1-00355S11_C01	Laptop	HP EliteBook 840	N/A	N/A	N/A
AE 2	23-1-00355S12_C01	Power supply	N/A	N/A	N/A	N/A

*) AE short description is used to simplify the identification of the auxiliary equipment in this test report. If the table above does not show any other line than the headline, no AE was used during testing nor was taken into account for evaluation

2.10 Connected cables (CAB)

CAB No. *)	Sample No.	Cable Type	Connectors / Details	Length
CAB 1	23-1-00355S07_C01	Cable harness	--	< 300 cm
CAB 2	23-1-00355S08_C01	Cable harness	--	< 300 cm

*) CAB short description is used to simplify the identification of the connected cables in this test report. If the table above does not show any other line than the headline, no cable was used during testing nor was taken into account for evaluation

2.11 Software (SW)

SW No. *)	Sample No.	SW Name	Description	SW Status
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*) SW short description is used to simplify the identification of the used software in this test report. If the table above does not show any other line than the headline, no SW was used during testing nor was taken into account for evaluation.

2.12 EUT set-ups

set-up no. *)	Combination of EUT and AE	Description
1	EUT 1 + AE 1+ AE 2 + CAB 1 + CAB 2 + CAB 4	Used for radiated measurements. AE 1 + CAB 4 used only for configuration.
2	EUT 2 + AE 1+ AE 2 + CAB 1 + CAB 2 + CAB 4	Used for conducted measurements. AE 1 + CAB 4 used only for configuration.
3	EUT 1 + AE 1+ AE 2 + CAB 3 + CAB 4	Used for radiated measurements. AE 1 + CAB 4 used only for configuration.

*) EUT set-up no. is used to simplify the identification of the EUT set-up in this test report.

2.13 EUT operation modes

EUT operating mode no. *)	Operating modes	Additional information
Operating mode 1	LTE FDD Band 2 Traffic	Frequency / channel range: UL: 1850.0 to 1910 MHz, DL: 1930.0 to 1990 MHz / Channel: UL: 18600 to 19199, DL: 600 to 1199. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 18700, Uplink frequency: 1860.0 MHz, RB:1, Start RB:low, BW:20 MHz
Operating mode 2	LTE FDD Band 4 Traffic	Frequency / channel range: UL:1710 to 1755 MHz, DL: 2110 to 2155 MHz / Channel: UL: 19950 to 20399, DL: 1950 to 2399. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 20175, Uplink frequency: 1732.5 MHz, RB:1, Start RB:mid, BW:20 MHz, BW:10 MHz
Operating mode 3	LTE FDD Band 5 Traffic	Frequency / channel range: UL:824 to 849 MHz, DL: 869 to 894 MHz / Channel: UL: 20400 to 20649, DL: 2400 to 2649. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 20600, Uplink frequency: 844 MHz, RB:1, Start RB:high, BW:10 MHz
Operating mode 4	LTE FDD Band 7 Traffic	Frequency / channel range: UL:2500 to 2570 MHz, DL: 2620 to 2690 MHz / Channel: UL: 20750 to 21449, DL: 2750 to 3449. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 20800, Uplink frequency: 2505 MHz, RB:1, Start RB:low, BW:10 MHz
Operating mode 5	LTE FDD Band 12 Traffic	Frequency / channel range: UL: 699 to 716 MHz, DL: 729 to 746 MHz / Channel: UL: 23010 to 23179, DL: 5010 to 5179. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 23130, Uplink frequency: 711 MHz, RB:1, Start RB:high, BW:10 MHz

Operating mode 6	LTE FDD Band 13 Traffic	Frequency / channel range: UL: 777 to 787 MHz, DL: 746 to 756 MHz / Channel: UL: 23180 to 23279, DL: 5180 to 5279. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 23230, Uplink frequency: 782.0 MHz, RB:1, Start RB:mid, BW:10 MHz
Operating mode 7	LTE TDD Band 41 Traffic	Frequency / channel range: UL: 2498.5 to 2680 MHz, DL: 2498.5 to 2680 MHz / Channel: UL: 39675 to 41490, DL: 39675 to 41490. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT, Uplink Channel: 39700, Uplink frequency: 2501 MHz, RB:1, Start RB:low, BW:10 MHz

*) EUT operating mode no. is used to simplify the test report.

3 Equipment under test (EUT)

3.1 General Data of Main EUT as Declared by Applicant

Firmware	☐ for normal use	☒ Special version for test execution
Power supply	☐ AC Mains	-
	☒ DC Mains	12 V DC
	☐ Battery	-
EUT sample type	Pre-Production	
Weight	1.350 kg	
Size [LxWxH]	24.5 cm x 16.0 cm x 6.0 cm	
Interfaces/Ports	--	
For further details refer Applicants Declaration & following technical documents		

3.2 Detailed Technical data of Main EUT as Declared by Applicant

TX Frequency range [MHz] and Number of channels	☒ LTE 2	1850 - 1910 (UL), 1930 - 1990 (DL)	UARFCN range 18600 - 19199
	☒ LTE 4	1710 - 1755 (UL), 2110 - 2155 (DL)	UARFCN range 19950 - 20399
	☒ LTE 5	824 - 849 (UL), 869 -894 (DL)	UARFCN range 20400 - 20649
	☒ LTE 7	2505 - 2565 (UL), 2625 - 2685 (DL)	UARFCN range 20775 - 21350
	☒ LTE 12	699 - 716 (UL), 2625 - 2685 (DL)	UARFCN range 23010 - 23179
	☒ LTE 13	782 - 782 (UL), 751 - 751 (DL)	UARFCN range 23205 - 23230
	☐ LTE 17	704 - 716 (UL), 734 - 746 (DL)	UARFCN range 23755 - 23800
	☐ LTE 25	1850 - 1915 (UL), 1930 - 1995 (DL)	UARFCN range 26040 - 26689
	☐ LTE 26	814 – 848.9 (UL), 859 – 893.9 (DL)	UARFCN range 26690 - 27039
	☐ LTE 28	708 - 743 (UL), 763 - 798 (DL)	UARFCN range 27225 - 27645
	☒ LTE 41	2501 - 2685 (UL), 2501 - 2685 (DL)	UARFCN range 39675 - 41490
	☐ LTE 66	1710 - 1780 (UL), 2110 - 2200 (DL)	UARFCN range 131972 - 132671
Type of modulation	QPSK 16-QAM		
Data rates	Downlink Max -- kbps	Uplink Max --kbps	
Emission designator	Nominal CBW	See initial certification of the module:	
Antenna Type	☒ Integrated ☐ External, no RF- connector ☐ External, separate RF-connector		
Antenna gain	LTE band 2: max 3.50 dBi		LTE band 17: -- dBi
	LTE band 4: max 4.75 dBi		LTE band 25: -- dBi
	LTE band 5: max 1 dBi		LTE band 26: -- dBi
	LTE band 7: max 1.20 dBi		LTE band 28: -- dBi
	LTE band 12: max 1 dBi		LTE band 41: max 1.20 dBi
	LTE band 13: max 1 dBi		LTE band 66: -- dBi
FCC label attached	No		
Test firmware / software and storage location	EUT 1 and EUT 2		
For further details refer Applicants Declaration & following technical documents			
Description of Reference Document (supplied by applicant)		Version	Total Pages
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3.3 Worst case identification

LTE mode	Data rate
LTE B02	QPSK, BW20, 1RB@low
LTE B04	QPSK, BW20, 1RB@mid
LTE B05	QPSK, BW10, 1RB@high
LTE B07	QPSK, BW10, 1RB@low
LTE B12	QPSK, BW10, 1RB@high
LTE B13	QPSK, BW10, 1RB@mid
LTE B41	QPSK, BW10, 1RB@low

3.4 Modifications on Test sample

Additions/deviations or exclusions	--
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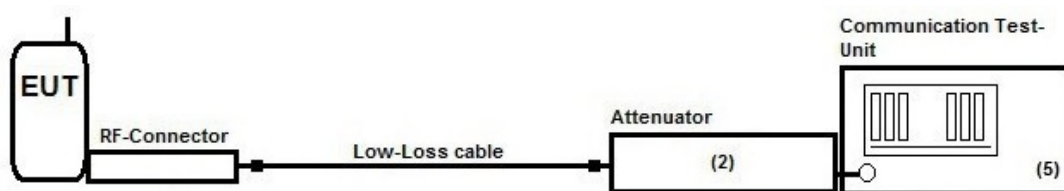
4 Measurements

4.1 Conducted RF output power

4.1.1 Description of the general test setup and methodology, see below example:

Following modified test set-up apply for tests performed inside the climatic chamber (frequency stability) or conducted RF-carrier power-measurement. The EUT RF-Signal is directly connected over suitable RF-connector over low-loss cable and an attenuator (2) to the cellular radio communication test-unit. (5). The measurements were performed with the integrated power measurement function of the communication test-unit. (5).

Schematic:



Testing method:

The measurement is made according to relevant reference clauses:
(See Tables *Summary of Test Results* and *Summary of Test Methods* on page 9)

EUT settings

The EUT was instructed to send with maximum power (if adjustable) according applicants instructions.
The measurements were made at the low, middle and high carrier frequencies of each of the supported operating band within the designated range within the allowed channel bandwidths. Choosing three TX-carrier frequencies of the mobile phone, should be sufficient to demonstrate compliance

4.1.2 Measurement Location

Test site	120910 - Radio Laboratory 1 (TS 8997)
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4.1.3 Limit

Operation band	Frequency Range [MHz]	FCC Limit [W] ☒
LTE2	1850 - 1910	2 EIRP (33 dBm)
LTE4	1710 - 1755	1 EIRP (30 dBm)
LTE5	824 - 849	7 ERP (38.5 dBm)
LTE7	2500 - 2570	2 EIRP (33 dBm)
LTE12	699 - 716	3 ERP (34.8 dBm)
LTE13	777 - 787	3 ERP (34.8 dBm)
LTE41	2496 - 2690	2 EIRP (33 dBm)

4.1.4 Result

LTE FDD Band 2														
	Channel Nr.	ARFCN-Frequency [MHz]	Modulation	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] EIRP	FCC Limit [dBm] EIRP	Verdict
BW 20 MHz	18700	1860.00	QPSK	1	mid	22.76	3.50	26.26	0.42267	24.11	0.25763	2.00	33.01	Passed
	18900	1880.00	QPSK	1	mid	22.51	3.50	26.01	0.39902	23.86	0.24322	2.00	33.01	Passed
	19100	1900.00	QPSK	1	mid	22.21	3.50	25.71	0.37239	23.56	0.22699	2.00	33.01	Passed
BW 20 MHz	18700	1860.00	16-QAM	1	mid	22.71	3.50	26.21	0.41783	24.06	0.25468	2.00	33.01	Passed
	18900	1880.00	16-QAM	1	mid	22.34	3.50	25.84	0.38371	23.69	0.23388	2.00	33.01	Passed
	19100	1900.00	16-QAM	1	mid	21.64	3.50	25.14	0.32659	22.99	0.19907	2.00	33.01	Passed
Measured by cetecom advanced GmbH														
EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable														
ERP = EIRP - 2.15														

Remark: module report overall maximum value for LTE FDD 2 = 23.47 dBm at BW = 20 MHz, QPSK, 1RB@mid

LTE FDD Band 4														
	Channel Nr.	ARFCN-Frequency [MHz]	Modulation	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] EIRP	FCC Limit [dBm] EIRP	Verdict
BW 20 MHz	20050	1720.00	QPSK	1	mid	23.00	4.75	27.75	0.59566	25.60	0.36308	1.00	30.00	Passed
	20175	1732.50	QPSK	1	mid	23.14	4.75	27.89	0.61518	25.74	0.37497	1.00	30.00	Passed
	20300	1745.00	QPSK	1	mid	22.66	4.75	27.41	0.55081	25.26	0.33574	1.00	30.00	Passed
BW 20 MHz	20050	1720.00	16-QAM	1	mid	22.53	4.75	27.28	0.53456	25.13	0.32584	1.00	30.00	Passed
	20175	1732.50	16-QAM	1	mid	22.44	4.75	27.19	0.52360	25.04	0.31915	1.00	30.00	Passed
	20300	1745.00	16-QAM	1	mid	22.46	4.75	27.21	0.52602	25.06	0.32063	1.00	30.00	Passed
Measured by cetecom advanced GmbH														
EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable														
ERP = EIRP - 2.15														

Remark: module report overall maximum value for LTE FDD 4 = 23.96 dBm at BW = 20 MHz, QPSK, 1RB@mid

LTE FDD Band 5														
	Channel Nr.	ARFCN- Frequency [MHz]	Modulati on	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] ERP	FCC Limit [dBm] ERP	Verdict
BW 10 MHz	20450	829.00	QPSK	1	mid	22.27	1.00	23.27	0.21232	21.12	0.12942	7.00	38.45	Passed
	20525	836.50	QPSK	1	mid	22.20	1.00	23.20	0.20893	21.05	0.12735	7.00	38.45	Passed
	20600	844.00	QPSK	1	mid	22.33	1.00	23.33	0.21528	21.18	0.13122	7.00	38.45	Passed
BW 10 MHz	20450	829.00	16-QAM	1	mid	22.10	1.00	23.10	0.20417	20.95	0.12445	7.00	38.45	Passed
	20525	836.50	16-QAM	1	mid	21.75	1.00	22.75	0.18836	20.60	0.11482	7.00	38.45	Passed
	20600	844.00	16-QAM	1	mid	22.16	1.00	23.16	0.20701	21.01	0.12618	7.00	38.45	Passed
Measured by cetecom advanced GmbH														
EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable														
ERP = EIRP - 2.15														

Remark: module report overall maximum value for LTE FDD 5 = 24.04 dBm at BW = 10 MHz, QPSK, 1RB@mid

LTE FDD Band 7														
	Channel Nr.	ARFCN-Frequency [MHz]	Modulation	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] EIRP	FCC Limit [dBm] EIRP	Verdict
BW 10 MHz	20800	2505.00	QPSK	1	mid	21.44	1.20	22.64	0.18365	20.49	0.11194	2.00	33.01	Passed
	21100	2535.00	QPSK	1	mid	21.30	1.20	22.50	0.17783	20.35	0.10839	2.00	33.01	Passed
	21400	2565.00	QPSK	1	mid	20.98	1.20	22.18	0.16520	20.03	0.10069	2.00	33.01	Passed
BW 10 MHz	20800	2505.00	16-QAM	1	mid	21.61	1.20	22.81	0.19099	20.66	0.11641	2.00	33.01	Passed
	21100	2535.00	16-QAM	1	mid	21.78	1.20	22.98	0.19861	20.83	0.12106	2.00	33.01	Passed
	21400	2565.00	16-QAM	1	mid	21.22	1.20	22.42	0.17458	20.27	0.10641	2.00	33.01	Passed
BW 20 MHz	20850	2510.00	QPSK	1	mid	22.44	1.20	23.64	0.23121	21.49	0.14093	3.00	34.77	Passed
	21100	2535.00	QPSK	1	mid	22.48	1.20	23.68	0.23335	21.53	0.14223	4.00	36.02	Passed
	21350	2560.00	QPSK	1	mid	22.02	1.20	23.22	0.20989	21.07	0.12794	5.00	36.99	Passed
BW 20 MHz	20850	2510.00	16-QAM	1	mid	21.70	1.20	22.90	0.19498	20.75	0.11885	6.00	37.78	Passed
	21100	2535.00	16-QAM	1	mid	21.16	1.20	22.36	0.17219	20.21	0.10495	7.00	38.45	Passed
	21350	2560.00	16-QAM	1	mid	21.39	1.20	22.59	0.18155	20.44	0.11066	8.00	39.03	Passed

Measured by cetecom advanced GmbH

EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable

ERP = EIRP - 2.15

Remark: module report overall maximum value for LTE FDD 7 = 22.70 dBm at BW = 10 MHz, QPSK, 1RB@low

LTE FDD Band 12														
	Channel Nr.	ARFCN-Frequency [MHz]	Modulation	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] ERP	FCC Limit [dBm] ERP	Verdict
BW 10 MHz	23060	704.00	QPSK	1	mid	21.88	1.00	22.88	0.19409	20.73	0.11830	3.00	34.77	Passed
	23095	707.50	QPSK	1	mid	22.17	1.00	23.17	0.20749	21.02	0.12647	3.00	34.77	Passed
	23130	711.00	QPSK	1	mid	22.48	1.00	23.48	0.22284	21.33	0.13583	3.00	34.77	Passed
BW 10 MHz	23060	704.00	16-QAM	1	mid	22.33	1.00	23.33	0.21528	21.18	0.13122	3.00	34.77	Passed
	23095	707.50	16-QAM	1	mid	22.41	1.00	23.41	0.21928	21.26	0.13366	3.00	34.77	Passed
	23130	711.00	16-QAM	1	mid	22.64	1.00	23.64	0.23121	21.49	0.14093	3.00	34.77	Passed

Measured by cetecom advanced GmbH

EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable

ERP = EIRP - 2.15

Remark: module report overall maximum value for LTE FDD 12 = 24.39 dBm at BW = 10 MHz, QPSK, 1RB@mid

LTE FDD Band 13														
	Channel Nr.	ARFCN-Frequency [MHz]	Modulation	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] ERP	FCC Limit [dBm] ERP	Verdict
BW 10 MHz	23230	782.00	QPSK	1	mid	22.75	1.00	23.75	0.23714	21.60	0.14454	3.00	34.77	Passed
BW 10 MHz	23230	782.00	16-QAM	1	mid	22.18	1.00	23.18	0.20797	21.03	0.12677	3.00	34.77	Passed

Measured by cetecom advanced GmbH

EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable

ERP = EIRP - 2.15

Remark: module report overall maximum value for LTE FDD 13 = 24.07 dBm at BW = 10 MHz, QPSK, 1RB@mid

LTE TDD Band 41														
	Channel Nr.	ARFCN-Frequency [MHz]	Modulation	RB	Start RB	RMS Power at Antenna Port [dBm]	Maximum declared Antenna Gain [dBi]	EIRP in [dBm]	EIRP in [Watt]	ERP in [dBm]	ERP in [Watt]	FCC Limit [W] EIRP	FCC Limit [dBm] EIRP	Verdict
BW 10 MHz	39700	2501.00	QPSK	1	low	21.75	1.20	22.95	0.19724	20.80	0.12023	2.00	33.01	Passed
	40620	2593.00	QPSK	1	low	21.42	1.20	22.62	0.18281	20.47	0.11143	2.00	33.01	Passed
	41540	2685.00	QPSK	1	low	21.41	1.20	22.61	0.18239	20.46	0.11117	2.00	33.01	Passed
BW 10 MHz	39700	2501.00	16-QAM	1	mid	23.41	1.20	24.61	0.28907	22.46	0.17620	2.00	33.01	Passed
	40620	2593.00	16-QAM	1	mid	22.65	1.20	23.85	0.24266	21.70	0.14791	2.00	33.01	Passed
	41540	2685.00	16-QAM	1	mid	22.36	1.20	23.56	0.22699	21.41	0.13836	2.00	33.01	Passed
BW 20 MHz	39750	2506.00	QPSK	1	mid	23.30	1.20	24.50	0.28184	22.35	0.17179	2.00	33.01	Passed
	40620	2593.00	QPSK	1	mid	24.00	1.20	25.20	0.33113	23.05	0.20184	2.00	33.01	Passed
	41490	2680.00	QPSK	1	mid	23.51	1.20	24.71	0.29580	22.56	0.18030	2.00	33.01	Passed
BW 20 MHz	39750	2506.00	16-QAM	1	mid	22.49	1.20	23.69	0.23388	21.54	0.14256	2.00	33.01	Passed
	40620	2593.00	16-QAM	1	mid	21.49	1.20	22.69	0.18578	20.54	0.11324	2.00	33.01	Passed
	41490	2680.00	16-QAM	1	mid	21.92	1.20	23.12	0.20512	20.97	0.12503	2.00	33.01	Passed
Measured by cetecom advanced GmbH														
EIRP = RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable														
ERP = EIRP - 2.15														

Remark: module report overall maximum value for LTE TDD 41 = 24.26 dBm at BW = 10 MHz, QPSK, 1RB@low

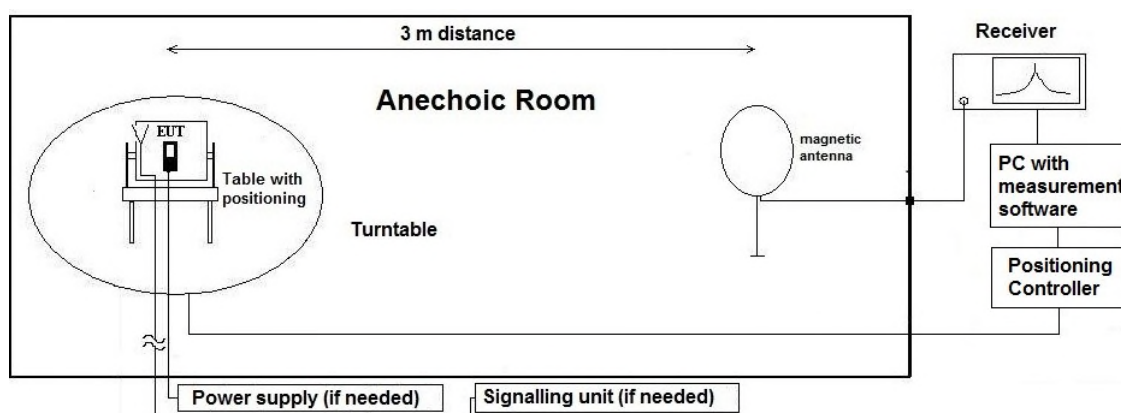
4.2 Radiated field strength emissions below 30 MHz

4.2.1 Description of the general test setup and methodology, see below example:

Evaluating the radiated field emissions are done first by an exploratory emission measurement and a final measurement for most critical frequencies determined.

The loop antenna was placed at 1 m height above ground plane and 3 m measurement distance from set-up for investigations. Because of reduced measurement distance, correction data were applied, as stated in chapter "General Limit - Radiated field strength emissions below 30 MHz". The tests are performed in the semi anechoic room recognized by the regulatory commission.

Schematic:



Testing method:

The measurement is made according to relevant reference clauses:

(See Tables *Summary of Test Results* and *Summary of Test Methods* on page 9)

Exploratory, preliminary measurements

The EUT and its associated accessories are placed on a non-conductive position manipulator (tipping device) of 0.8 m height which is placed on the turntable. By rotating the turntable (step 90°, range 0° to 360°) and the EUT itself either on 3-orthogonal axis (portable equipment) or 2-orthogonal axis (defined operational position of EUT), the emission spectrum was recorded.

The loop antenna was moved at least to 2-perpendicular axes (antenna vector in direction of EUT and parallel to EUT) in order to maximize the emissions. The results are documented in a diagram. Critical frequencies (low margin to limit) are saved within a data reduction table for further investigations. If various operating modes are supported, further investigations are made to find the worst-case. Also the interconnection cables and equipment position were varied in order to maximize the emissions.

Final measurement on critical frequencies

Based on the exploratory measurements, the most critical frequencies are re-measured by maintaining the EUT's worst-case operation mode, cable position, etc.

First a frequency zoom around the critical frequency is done to locate the frequency more precisely. After this step, for all identified critical frequencies, the maximum peak was determined.

Following parameters were varied: the turntable angle continuously in the range 0 to 360 degree, the EUT itself either over 3-orthogonal axis (not defined usage position) or 2-orthogonal axis (defined usage position).

On the determined worst-case position, a final measurement with necessary bandwidth and detector according standard has been carried out.

Formula:

$$E_C = E_R + AF + C_L + D_F - G_A$$

$$M = L_T - E_C$$

AF = Antenna factor

C_L = Cable loss

D_F = Distance correction factor (if used)

E_C = Electrical field – corrected value

E_R = Receiver reading

G_A = Gain of pre-amplifier (if used)

L_T = Limit

M = Margin

All units are dB-units, positive margin means value is below limit.

4.2.2 Sample calculation

Raw-Value [dBuV/m]	Antenna factor	Distance Correction [dB]	Cable Loss	Preamplifier	Resulting correction value [dB]	Final result [dBuV/m]	Remarks
19.83	18.9	-70.75	0.18	--	-51.67	-31.83	30 to 3 m correction used according ANSI C63.10-2013

Remark: This calculation is based on an example value at 458 kHz

4.2.3 Correction factors due to reduced meas. distance ($f < 30$ MHz):

The used correction factors when the measurement distance is reduced compared to regulatory measurement distance, are calculated according Extrapolation formulas valid for EUT's with maximum dimension of $0.625 \times \text{Lambda}$. Formula 2+3+4 as presented in ANSI C63.10, Chapter 6.4.4 are used for the calculations of proper extrapolation factors

Frequency Range	f [kHz/MHz]	Lambda [m]	Far-Field Point [m]	Distance Limit accord. 15.209 [m]	1st Condition (dmeas < Dnear-field)	2nd Condition (Limit distance bigger dnear-field)	Distance Correction accord. Formula
kHz	9	33333.33	5305.17	300	fulfilled	not fulfilled	-80.00
	10	30000.00	4774.65		fulfilled	not fulfilled	-80.00
	20	15000.00	2387.33		fulfilled	not fulfilled	-80.00
	30	10000.00	1591.55		fulfilled	not fulfilled	-80.00
	40	7500.00	1193.66		fulfilled	not fulfilled	-80.00
	50	6000.00	954.93		fulfilled	not fulfilled	-80.00
	60	5000.00	795.78		fulfilled	not fulfilled	-80.00
	70	4285.71	682.09		fulfilled	not fulfilled	-80.00
	80	3750.00	596.83		fulfilled	not fulfilled	-80.00
	90	3333.33	530.52		fulfilled	not fulfilled	-80.00
	100	3000.00	477.47		fulfilled	not fulfilled	-80.00
	125	2400.00	381.97		fulfilled	not fulfilled	-80.00
	200	1500.00	238.73		fulfilled	fulfilled	-78.02
	300	1000.00	159.16		fulfilled	fulfilled	-74.49
	400	750.00	119.37		fulfilled	fulfilled	-72.00
	490	612.24	97.44		fulfilled	fulfilled	-70.23
	500	600.00	95.49		fulfilled	not fulfilled	-40.00
	600	500.00	79.58		fulfilled	not fulfilled	-40.00
	700	428.57	68.21		fulfilled	not fulfilled	-40.00
	800	375.00	59.68		fulfilled	not fulfilled	-40.00
	900	333.33	53.05		fulfilled	not fulfilled	-40.00
MHz	1.00	300.00	47.75	30	fulfilled	not fulfilled	-40.00
	1.59	188.50	30.00		fulfilled	not fulfilled	-40.00
	2.00	150.00	23.87		fulfilled	fulfilled	-38.02
	3.00	100.00	15.92		fulfilled	fulfilled	-34.49
	4.00	75.00	11.94		fulfilled	fulfilled	-32.00
	5.00	60.00	9.55		fulfilled	fulfilled	-30.06
	6.00	50.00	7.96		fulfilled	fulfilled	-28.47
	7.00	42.86	6.82		fulfilled	fulfilled	-27.13
	8.00	37.50	5.97		fulfilled	fulfilled	-25.97
	9.00	33.33	5.31		fulfilled	fulfilled	-24.95
	10.00	30.00	4.77		fulfilled	fulfilled	-24.04
	10.60	28.30	4.50		fulfilled	fulfilled	-23.53
	11.00	27.27	4.34		fulfilled	fulfilled	-23.21
	12.00	25.00	3.98		fulfilled	fulfilled	-22.45
	13.56	22.12	3.52		fulfilled	fulfilled	-21.39
	15.00	20.00	3.18		fulfilled	fulfilled	-20.51
	15.92	18.85	3.00		fulfilled	fulfilled	-20.00
	17.00	17.65	2.81		not fulfilled	fulfilled	-20.00
	18.00	16.67	2.65		not fulfilled	fulfilled	-20.00
	20.00	15.00	2.39		not fulfilled	fulfilled	-20.00
	21.00	14.29	2.27		not fulfilled	fulfilled	-20.00
	23.00	13.04	2.08		not fulfilled	fulfilled	-20.00
	25.00	12.00	1.91		not fulfilled	fulfilled	-20.00
	27.00	11.11	1.77		not fulfilled	fulfilled	-20.00
	29.00	10.34	1.65		not fulfilled	fulfilled	-20.00
	30.00	10.00	1.59		not fulfilled	fulfilled	-20.00

4.2.4 Measurement Location

Test site	120901 - SAC3 - Radiated Emission <1GHz
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4.2.5 Limit

Radiated emissions limits (3 meters)					
Frequency Range [MHz]	Limit [$\mu\text{V}/\text{m}$]	Limit [$\text{dB}\mu\text{V}/\text{m}$]	Distance [m]	Detector	RBW [kHz]
0.009 – 0.09	2400 / f [kHz]	67.6 – 20Log(f) (kHz)	300	Pk & Avg	0.2
0.09 – 0.11	2400 / f [kHz]	67.6 – 20Log(f) (kHz)	300	Quasi peak	0.2
0.11 – 0.15	2400 / f [kHz]	67.6 – 20Log(f) (kHz)	300	Pk & Avg	0.2
0.15 – 0.49	2400 / f [kHz]	67.6 – 20Log(f) (kHz)	300	Pk & Avg	9
0.49 – 1.705	24000 / f [kHz]	87.6 – 20Log(f) (kHz)	30	Quasi peak	9
1.705 - 30	30	29.5	30	Quasi peak	9

*Remark: In Canada same limits apply, just unit reference is different

4.2.6 Result

Diagram	Band	Mode	Maximum Level [$\text{dB}\mu\text{V}/\text{m}$] Frequency Range 0.009 – 30 MHz	Result
2.201a	2	1	No peaks < 6 dB margin found	Passed
2.201b	2	1	No peaks < 6 dB margin found	Passed
2.401	4	2	No peaks < 6 dB margin found	Passed
2.501	5	3	No peaks < 6 dB margin found	Passed
2.701	7	4	No peaks < 6 dB margin found	Passed
2.1201	12	5	No peaks < 6 dB margin found	Passed
2.1301	13	6	No peaks < 6 dB margin found	Passed
2.4101	41	7	No peaks < 6 dB margin found	Passed

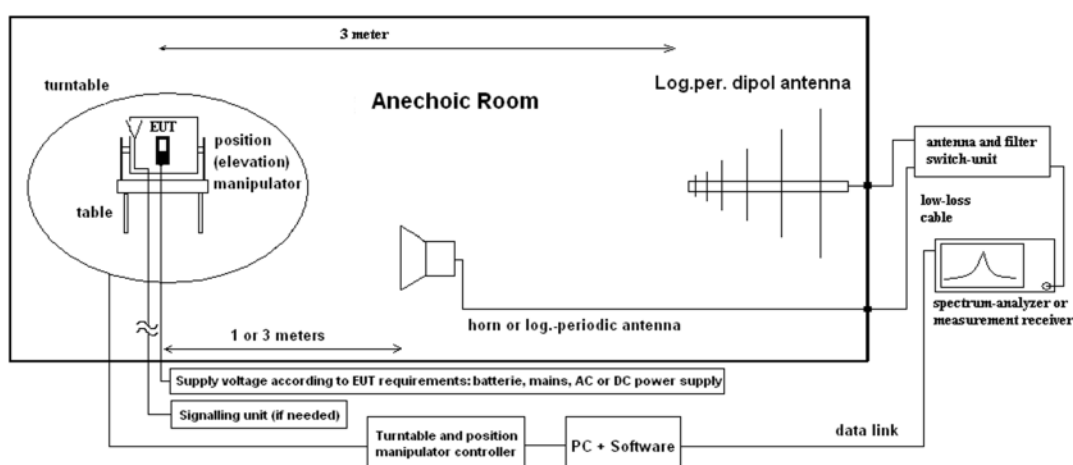
Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

4.3 Radiated spurious emissions

4.3.1 Description of the general test setup and methodology, see below example:

Evaluating the emissions have to be done first by an exploratory emissions measurement and a final measurement for most critical frequencies. The tests are performed in a CISPR 16-1-4:2010 compliant fully anechoic room (FAR) recognized by the regulatory commission. The measurement distance was set to 3 meter for frequencies up to 18 GHz and 2 meter above 18 GHz. A logarithmic periodic antenna is used for the frequency range 30 MHz to 1 GHz. Horn antennas are used for frequency range 1 GHz to 40 GHz. The EUT is aligned within 3 dB beam width of the measurement antenna with three orthogonal axis measurements on the EUT.

Schematic:



Testing method:

The measurement is made according to relevant reference clauses:

(See Tables *Summary of Test Results* and *Summary of Test Methods* on page 9)

Exploratory, preliminary measurements

The EUT and its associated accessories are placed on a non-conductive position manipulator (tipping device) of 1.50 m height which is placed on the turntable. By rotating the turntable (range 0° to 360°, step 45°) and the EUT itself on 3-orthogonal axis (the emission spectrum and it's characteristics was recorded with an EMI-receiver, broadband antenna and software).

The measurements are performed in horizontal and vertical polarization of the measurement antennas. The results are documented in a diagram. Critical frequencies (low margin to limit) are saved within a table for further investigations. If various operating modes are supported, further investigations are made to find the worst-case of them. Also the interconnection cables and equipment position were varied in order to maximize the emissions.

Final measurement on critical frequencies

Based on the exploratory measurements, the most critical frequencies are re-measured by main-taining the EUT's worst-case operation mode, cable position, etc.

First a frequency zoom around the critical frequency is done to locate the frequency more precisely. After this step, for all identified critical frequencies, the maximum peak was determined.

Following parameters were varied: the turntable angle continuously in the range 0 to 360 degree, the EUT itself over 3-orthogonal axis and the height for EUT with large dimensions.

On the determined worst-case position, a final measurement with necessary bandwidth and detector according standard has been carried out.

The readings on the spectrum analyzer are corrected with conversion value between field strength and E(I)RP, so the readings shown are equivalent to ERP/EIRP values. Critical measurements near the limit are re-measured with a substitution method accord. ANSI/TIA/EIA 603 C/D

Formula:

$$P_{EIRP} = P_{MEAS} + C_L + FSL - G_{PreA} - G_{ANT} \quad (1)$$

P_{MEAS} = measured power at instrument

M = Margin

L_T = Limit

FSL = Free Space loss = Function(frequency, measurement distance)

$$M = L_T - P_{EIRP}$$

C_L = cable loss

G_{PreA} = Gain of pre-amplifier (if used)

G_{ANT} = Gain of antenna in [dBi]

All units are dB-units, positive margin means value is below limit.

4.3.2 Measurement Location

Test site	120904 - FAC1 - Radiated Emissions
	120907 - FAC2 - Radiated Emissions

4.3.3 Limit

Operation band	Frequency Range [MHz]	Limit [dBm]	Detector [MaxHold]	RBW / VBW [MHz]
LTE2	30 - 19100	-13	Peak	3 / 3
LTE4	30 - 17500	-13	Peak	3 / 3
LTE5	30 - 8500	-13	Peak	3 / 3
LTE7	30 - 25700	-25	Peak	3 / 3
LTE12	30 - 7200	-13	Peak	3 / 3
LTE13	30 - 8000 763-775 and 793-805 1559 – 1610 1559 – 1610	-13 -35 (RBW = 6.25 kHz, ERP) -40 (RBW = 1 MHz) -50 (RBW = 700 Hz)	Peak	3 / 3
LTE41	30 - 23100	-25	Peak	3 / 3

4.3.4 Result

Diagram	Band	Mode	30 MHz to 18 GHz	18 GHz to 19.5 GHz	Result
8.02	LTE2	1	No peaks < 6 dB margin found		Passed
8.03a	LTE2	1 AntH	--	No peaks < 6 dB margin found	Passed
8.03b	LTE2	1 AntV	--	No peaks < 6 dB margin found	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

Diagram	Band	Mode	30 MHz to 18 GHz	Result
8.04	LTE4	2	No peaks < 6 dB margin found	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

Diagram	Band	Mode	30 MHz to 9 GHz	Result
8.05	LTE5	3	No peaks < 6 dB found	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

Diagram	Band	Mode	30 MHz to 2.8 GHz	2.8 GHz to 18 GHz	18 GHz to 27 GHz	Result
8.06a	LTE7	4	No peaks < 6 dB margin found	--	--	Passed
8.06b	LTE7	4	--	No peaks < 6 dB margin found	--	Passed
8.07a_c	LTE7	4 AntH	--	--	No peaks < 6 dB margin found	Passed
8.07a_d	LTE7	4 AntV	--	--	No peaks < 6 dB margin found	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

Diagram	Band	Mode	30 MHz to 8 GHz	Result
8.12	LTE12	5	No peaks found	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

Diagram	Band	Mode	30 MHz to 1 GHz	763 MHz to 806 MHz	1 GHz to 8 GHz	1.559 GHz to 1.61 GHz	Result
8.13a	LTE13	6	No peaks < 6 dB margin found	--	--	--	Passed
8.13b	LTE13	6	--	No peaks < 6 dB margin found	--	--	Passed
8.13c	LTE13	6	--	--	No peaks < 6 dB margin found	--	Passed
8.13d	LTE13	6	--	--	--	No peaks < 6 dB margin found	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

Diagram	Band	Mode	30 MHz to 2.8 GHz	2.8 GHz to 7 GHz	7 GHz to 18 GHz	18 GHz to 27 GHz	Result
8.41a	LTE41	7	No peaks < 6 dB margin found	--	--	--	Passed
8.41b	LTE41	7	--	No peaks < 6 dB margin found	--	--	Passed
8.41c	LTE41	7	--	--	No peaks < 6 dB margin found	--	Passed
8.41d	LTE41	7 AntH	--	--	--	No peaks < 6 dB margin found	Passed
8.41e	LTE41	7 AntV	--	--	--	No peaks < 6 dB margin found	Passed

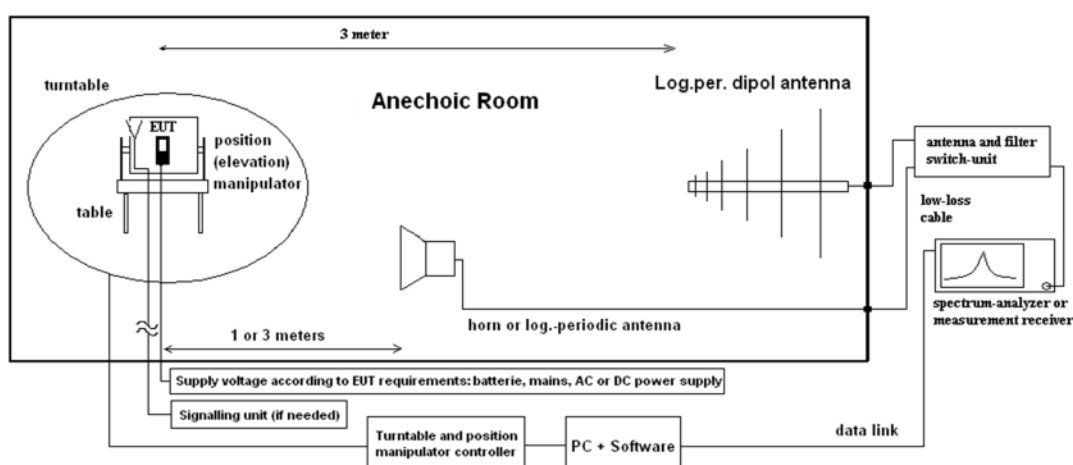
Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

4.4 Radiated Band Edge

4.4.1 Description of the general test setup and methodology, see below example:

Evaluating the emissions have to be done first by an exploratory emissions measurement and a final measurement for most critical frequencies. The tests are performed in a CISPR 16-1-4:2010 compliant fully anechoic room (FAR) recognized by the regulatory commission. The measurement distance was set to 3 meter for frequencies up to 18 GHz and 2 meter above 18 GHz. A logarithmic periodic antenna is used for the frequency range 30 MHz to 1 GHz. Horn antennas are used for frequency range 1 GHz to 40 GHz. The EUT is aligned within 3 dB beam width of the measurement antenna with three orthogonal axis measurements on the EUT

Schematic:



Testing method:

The measurement is made according to relevant reference clauses:
(See Tables *Summary of Test Results* and *Summary of Test Methods* on page 9)

See chapter Radiated Spurious Emission for Test method.

4.4.2 Measurement Location

Test site	120904 - FAC1 - Radiated Emissions
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4.4.3 Limit

Operation band	Frequency Range [MHz]	Limit [dBm]	Detector [MaxHold]	RBW / VBW [MHz]
LTE2	Below 1850 and above 1910	-13	Peak	0.03 / 0.3
LTE4	Below 1710 and above 1755	-13	Peak	0.03 / 0.3
LTE5	Below 824 and above 849	-13	Peak	0.02 / 0.2
LTE7	2496 - 2499 2499 – 2500 2570 – 2571 2571 – 2575	-10 (RBW = 1 MHz, VBW = 3 MHz) -10 (RBW = 500 kHz, VBW = 2 MHz) -10 (RBW = 500 kHz, VBW = 2 MHz) -10 (RBW = 1 MHz, VBW = 3 MHz)	Peak	0.03 / 0.3
LTE12	698.9 – 699.0 and 716.0 – 716.1 Below 698.9 and above 716.1	-13 (RBW = 30 kHz, VBW = 100 kHz) -13 (RBW = 100 kHz, VBW = 300 kHz)	Peak	0.03 / 0.3
LTE13	776.9 - 777 and 787 - 787.1 Below 776.9 and above 787.1 763-775 and 793-805	-13 (RBW = 30 kHz, VBW = 100 kHz) -13 (RBW = 100 kHz, VBW = 300 kHz) -35 (RBW = 10 kHz, VBW = 30 kHz)	Peak	0.03 / 0.3
LTE41	2490.5 - 2495 2495 – 2496 2690 – 2691 2691 – 2695	-13 (RBW = 1 MHz, VBW = 3 MHz) -13 (RBW = 500 kHz, VBW = 2 MHz) -10 (RBW = 500 kHz, VBW = 2 MHz) -10 (RBW = 1 MHz, VBW = 3 MHz)	Peak	0.03 / 0.3

4.4.4 Result

Diagram	Band	Mode	Edge [Low / High]	Value [dBm]	Result
9.203a	LTE2	1 RB1	low	< -22.5	Passed
9.203b	LTE2	1 FullRB	low	< -22.5	Passed
9.204a	LTE2	1 RB1	High	< -22.5	Passed
9.204b	LTE2	1 FullRB	High	< -27.5	Passed
9.403a	LTE4	2 RB1	low	-21.55	Passed
9.403b	LTE4	2 FullRB	low	-28.29	Passed
9.404a	LTE4	2 RB1	High	-29.21	Passed
9.404b	LTE4	2 FullRB	High	-29.21	Passed
9.501a	LTE5	3 RB1	Low	< -30	Passed
9.501b	LTE5	3 FullRB	Low	-37.39	Passed
9.502a	LTE5	3 RB1	High	< -30	Passed
9.502b	LTE5	3 FullRB	High	< -35	Passed
9.701	LTE7	4 25RB AntV	High	-29.18	Passed
9.702	LTE7	4 1RB49 AntV	High	-29.96	Passed
9.703	LTE7	4 1RB49 AntH	High	-26.87	Passed
9.704	LTE7	4 25RB AntH	High	-25.67	Passed
9.705	LTE7	4 25RB AntV	Low	-32.57	Passed
9.706	LTE7	4 1RB0 AntV	Low	-30.97	Passed
9.707	LTE7	4 25RB AntH	Low	-31.95	Passed
9.708	LTE7	4 1RB0 AntH	Low	-30.11	Passed
9.1201a	LTE12	5 RB1	Low	-53.71	Passed
9.1201b	LTE12	5 FullRB	Low	-50.89	Passed
9.1202a	LTE12	5 RB1	High	-26.89	Passed
9.1202b	LTE12	5 FullRB	High	-31.98	Passed
9.1301a	LTE13	6 RB1	Low	-56.43	Passed
9.1301b	LTE13	6 FullRB	Low	-46.15	Passed
9.1302a	LTE13	6 RB1	High	-27.37	Passed
9.1302b	LTE13	6 FullRB	High	-34.67	Passed
9.4101	LTE41	4 1RB0 AntV	Low	-30.65	Passed
9.4102	LTE41	4 25RB AntV	Low	-31.17	Passed
9.4103	LTE41	4 25RB AntH	Low	-30.74	Passed
9.4104	LTE41	4 1RB0 AntH	Low	-29.87	Passed
9.4105	LTE41	4 25RB AntH	High	-30.23	Passed
9.4106	LTE41	4 1RB49 AntH	High	-25.13	Passed
9.4107	LTE41	4 1RB49 AntV	High	-28.13	Passed
9.4108	LTE41	4 25RB AntV	High	-32.08	Passed

Remark: for more information and graphical plot see annex A1 **TR23-1-0035501T002a-C02-A1**

4.5 Equipment lists

ID	Description	Manufacturer	SerNo	CheckType	Last Check	Interval	Next Check
	120901 - SAC3 - Radiated Emission <1GHz			calchk	cal: 2015-Jul-21	cal: 10Y	cal: 2025-Jul-21
20442	Semi Anechoic Chamber	ETS-Lindgren GmbH / Taufkirchen	-	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20482	filter matrix Filter matrix SAR 1	CETECOM GmbH	-	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20574	Biconilog Hybrid Antenna BTA-L	Frankonia GmbH / Heideck	980026L	cal	cal: 2022-Jun-15	cal: 36M	cal: 2025-Jun-15
20620	Test Receiver ESU26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100362	cal	cal: 2023-May-24	cal: 12M	cal: 2024-May-24
20885	Power Supply EA3632A	Agilent Technologies Deutschland GmbH	75305850	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
25038	Loop Antenna HFH2-Z2	Rohde & Schwarz Messgerätebau GmbH / Memmingen	879824/13	cal	cal: 2022-Jul-04	cal: 24M	cal: 2024-Jul-04
	120904 - FAC1 - Radiated Emissions			chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20020	Horn Antenna 3115 (Subst 1)	EMCO Elektronik GmbH	9107-3699	calchk	cal: 2021-Aug-17 chk: 2013-Apr-20	cal: 36M chk: 12M	cal: 2024-Aug-17
20066	Notch Filter WRCT 1900/2200-5/40-10EEK	Wainwright Instruments GmbH	5	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20121	Notch Filter WRCB 1879,5/1880,5EE	Wainwright Instruments GmbH	15	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20122	Notch Filter WRCB 1747/1748	Wainwright Instruments GmbH	12	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20254	High Pass Filter 5HC 2600/12750-1.5KK	Trilithic	23042	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20287	Pre-Amplifier 25MHz - 4GHz AMF-2D-100M4G-3S-10P	Miteq Inc.	379418	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20290	Notch Filter WRCA 901,9/903,1SS	Wainwright Instruments GmbH	3RR	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20291	High Pass Filter WHJ 2200-4EE	Wainwright Instruments GmbH	14	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20338	Pre-Amplifier 100MHz - 26GHz JS4-00102600-38-5P	Miteq Inc.	838697	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20341	Digital Multimeter Fluke 112	Fluke Deutschland GmbH / Glottertal	81650455	cal	cal: 2022-May-18	cal: 24M	cal: 2024-May-18
20439	Ultrabroadband-Antenna HL562	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100248	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20448	Notch Filter WRCT 1850,0/2170,0-5/40-10SSK	Wainwright Instruments GmbH	5	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20449	Notch Filter WRCT 824,0/894,0-5/40-8SSK	Wainwright Instruments GmbH	1	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20484	Pre-Amplifier 2,5GHz - 18GHz AMF-5D-02501800-25-10P	Miteq Inc.	1244554	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20489	Test Receiver ESU40	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100030	cal	cal: 2023-May-24	cal: 12M	cal: 2024-May-24
20512	Notch Filter WRCA 800/960-02/40-6EEK (GSM 850)	Wainwright Instruments GmbH	24	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20549	Log. Per. Antenna HL025	Rohde & Schwarz Messgerätebau GmbH	1000060	calchk	cal: 2021-Aug-18	cal: 36M chk: 12M	cal: 2024-Aug-18
20558	Fully Anechoic Chamber 1	ETS-Lindgren GmbH / Taufkirchen	-	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20611	Power Supply E3632A	Agilent Technologies Deutschland GmbH	KR 75305854	cpu			
20670	Radio Communication Tester CMU200	Rohde & Schwarz Messgerätebau GmbH / Memmingen	106833	cal	cal: 2022-May-10	cal: 24M	cal: 2024-May-10
20690	Spectrum Analyzer FSU	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100302/026	cal	cal: 2023-May-25	cal: 24M	cal: 2025-May-25
20720	Measurement Software EMC32 [FAC]	Rohde & Schwarz Messgerätebau GmbH	V10.xx	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20868	High Pass Filter AFH-07000	AtlanTecRF	16071300004	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20883	Open Switch and control Platform OSP-B20052 Satellite	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101432	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
20884	Open Switch and control Platform OSP320	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101391	chk	chk: 2023-Aug-22	chk: 12M	chk: 2024-Aug-22
	120907 - FAC2 - Radiated Emissions			chk	chk: 2023-Feb-21	chk: 12M	chk: 2024-Feb-21
20005	AC - LISN 50 Ohm/50µH ESH2-Z5	Rohde & Schwarz Messgerätebau GmbH / Memmingen	861741/005	cal	cal: 2023-May-25	cal: 12M	cal: 2024-May-25
20133	Horn Antenna 3115 (Meas 1)	EMCO Elektronik GmbH / Gilching	9012-3629	cal	cal: 2023-May-22	cal: 36M	cal: 2026-May-22
20302	Horn Antenna BBHA9170 (Meas 1)	Schwarzbeck Mess-Elektronik OHG / Schönaun	155	cpu	chk: 2020-Apr-15	chk: 12M	
20412	Fully Anechoic Chamber 2	ETS-Lindgren GmbH / Taufkirchen	without	chk	chk: 2023-Apr-14	chk: 12M	chk: 2024-Apr-14
20729	FS-Z140	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101004	cal	cal: 2023-Jun-16	cal: 36M	cal: 2026-Jun-16
20730	FS-Z110	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101468	cal	cal: 2023-Jun-02	cal: 36M	cal: 2026-Jun-02
20731	FS-Z75	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101022	cal	cal: 2022-May-18	cal: 36M	cal: 2025-May-18
20732	Signal- and Spectrum Analyzer FSW67	Rohde & Schwarz Messgerätebau GmbH / Memmingen	104023	cal	cal: 2023-May-25	cal: 12M	cal: 2024-May-25
20733	Harmonic Mixer FS-Z220	RPG-Radiometer Physics GmbH	101009	cal	cal: 2021-May-27	cal: 36M	cal: 2024-May-27
20734	Harmonic Mixer FS-Z325	RPG-Radiometer Physics GmbH	101005	cal	cal: 2021-May-27	cal: 36M	cal: 2024-May-27
20811	Horn Antenna ASY-SGH-124-SMA	Antenna Systems Solutions S.L	29F14182337	cal	cal: 2021-Oct-20	cal: 36M	cal: 2024-Oct-20
20836	1-18 GHz Amplifier	Wright Technologies, Inc., Inc. / Roseville	0001	chk		chk: 36M	
20907	Waveguide WR-15 attenuator STA-30-15-M2	SAGE Millimeter Inc.	13256-01	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20908	Waveguide WR 10 attenuator STA-30-10-M2	SAGE Millimeter Inc.	13256-01	cnn	cal: -	cal: -	cal: -

ID	Description	Manufacturer	SerNo	CheckType	Last Check	Interval	Next Check
					chk: -	chk: -	chk: -
20909	Waveguide Horn Antenna PE9881-24	Pasternack Enterprises, Inc.	37/2016	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20910	Frequency Multiplier 936VF-10/385	MI-Wave, Millimeter Wave Products Inc.	142	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20911	Frequency Multiplier 938WF-10/387	MI-Wave, Millimeter Wave Products Inc.	141	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20913	Phase Amplitude Stable Cable Assembly DC-40GHz	RF-Lambda Europe GmbH	AC19040001	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
25457	DRG Horn Antenna SAS-574	A.H. Systems, Inc. / Chatsworth	383	cal	cal: 2022-Mar-28	cal: 36M	cal: 2025-Mar-28
	120910 - Radio Laboratory 1 (TS 8997)			chk	chk: 2023-Jul-10	chk: 12M	chk: 2024-Jul-10
20559	Vector Signal Generator SMU200A	Rohde & Schwarz Messgerätebau GmbH / Memmingen	103736	cal	cal: 2023-May-25	cal: 24M	cal: 2025-May-25
20687	Signal Generator SMF 100A	Rohde & Schwarz Messgerätebau GmbH / Memmingen	102073	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20691	Open Switch and control Platform OSP157W 8 Port Plus	Rohde & Schwarz Messgerätebau GmbH	100950	cal	cal: 2023-Jun-30	cal: 36M	cal: 2026-Jun-30
20805	Open Switch and control Platform OSP B157WX 40GHz 8Port Switch	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101264	cal	cal: 2023-May-26	cal: 36M	cal: 2026-May-26
20866	Signal Analyzer FSV3030	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101247	cal	cal: 2023-Jun-14	cal: 12M	cal: 2024-Jun-14
20871	NRP-Z81	Rohde & Schwarz Messgerätebau GmbH / Memmingen	104631	cal	cal: 2023-May-23	cal: 12M	cal: 2024-May-23
20872	NRX Power Meter	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101831	cal	cal: 2022-May-17	cal: 24M	cal: 2024-May-17
20873	WTS-80 Schirmbox	CETECOM GmbH	P3101	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20904	Climatic Chamber Climevent C/1000/70a/S	Weiss Umwelttechnik GmbH / Reiskirchen-Lindenstruth	58226223240010	cal	cal: 2022-Nov-29	cal: 24M	cal: 2024-Nov-29

Tools used in 'P1M1'

4.5.1 Legend

Note / remarks	Interval of calibration & Verification
12M	12 months
24M	24 months
36M	36 months
10Y	10 Years

Abbreviation Check Type	Description
cnn	Calibration and verification not necessary
cal	Calibration
calchk	Calibration plus intermediate Verification
chk	Verification
cpu	Verification before usage

5 Results from external laboratory

None

-

6 Opinions and interpretations

None

-

7 List of abbreviations

None

-

8 Measurement Uncertainty valid for conducted/radiated measurements

The reported uncertainties are calculated based on the standard uncertainty multiplied with the appropriate coverage factor **k**, such that a confidence level of approximately 95% is achieved. For uncertainty determination, each component used in the concrete measurement set-up was taken in account and its contribution to the overall uncertainty according its statistical distribution calculated.

Issue No.	Measurement type	Reference	Frequency range of measurement		Calculated Uncertainty based on confidence level of 95.54%	Remarks
			Start [MHz]	Stop [MHz]		
1	Magnetic field strength	EN,FCC,JP,IC	0.009	30	4.86	Magnetic loop antenna, Pre-amp on
2	RF-Output power (eirp) Unwanted emissions (eirp) [dB]	EN,FCC,JP,IC	30	100	4.57	without Pre-Amp
			30	100	4.91	with PreAmp
			100	1000	4.02	without Pre-Amp
			100	1000	4.26	with PreAmp
			1000	18000	4.36	without Pre-Amp
			1000	18000	5.23	with PreAmp
			18000	33000	4.92	Schwarzbeck BBHA9170 (#20302) Antenna set-up non-waveguide antenna)
			33000	50000	4.17	Set-up for Q-Band (WR-22), non-wave guide antenna
			40000	60000	4.69	Set-up U-Band (WR-19), non-waveguide antenna
			50000	75000	4.06	External Mixer set-up V-Band (WR-15)
			75000	110000	4.17	External Mixer set-up W-Band (WR-6)
			90000	140000	5.49	External Mixer set-up F-Band (WR-8)
			140000	225000	6.22	External Mixer set-up G-Band (WR-5)
			225000	325000	7.04	External Mixer set-up (WR-3)
			325000	500000	8.84	External Mixer set-up (WR-2.2)
3	Radiated Blocking [dB]	EN	1000	18000	2.85	Typical set-up with microwave generator and antenna, value for 7GHz calculated
			18000	33000	4.66	Typical set-up with microwave generator and antenna
			33000	50000	3.48	WR-22 set-up
			50000	75000	3.73	WR-15 set-up
			75000	110000	4.26	WR-6 set-up
4	Frequency Error / UWB+FCW [kHz]	EN, FCC,JP, ISED	40000	77000	276.19	calculated for 77 GHz (FCW) carrier
	Frequency Error / NFC [Hz]	EN, FCC,JP, ISED	6000	7000	33.92	calculated for 6.5GHz UWB Ch.5
			11.00	14.00	20.76	calculated for 13.56MHz NFC carrier
5	TS 8997 conducted Parameters	FCC15/18 / ISED	30	6000	1.11	1. Power measurement with Fast-sampling-detector
			30	6000	1.20	2. Power measurement with Spectrum-Analyzer
			30	6000	1.20	3. Power Spectrum-Density measurement
			30	7500	1.20	4. Conducted Spurious emissions:
			0.009	30	2.56	5. Conducted Spurious emissions:
			2.4	2.48	1.95 ppm	6a. Bandwidth / 2-Marker Method for 2.4GHz ISM
			5.18	5.825	7.180 ppm	6b. Bandwidth / 2-Marker Method for 5GHz WLAN
			5.18	5.825	1.099 ppm	7 Frequency (Marker method) for 5GHz WLAN
			30	6000	0.11561µs	8 Medium-Utilization factor / Timing
			30	6000	1.85	9 Blocking-Level of companion device
			30	6000	1.62	9 Blocking Generator level
			30	6000		
			30	6000		
			30	6000		
6	Conducted emissions	EN, FCC	0.009	30	3.57	general EMI-measurements on AC/DC ports

9 Versions of test reports (change history)

Version	Applied changes	Date of release
--	Initial release	2024-Apr-10
C01	Change of antenna gain information and some formatting	2024-Jul-19
C02	Change of antenna gain information Updated Conducted RF output power in chapter 4.1 Minor organizatoric changes	2024-Sep-02

End Of Test Report