

PARTIAL Test Report

1-0307-25-01-03_TR1-R01

Number of pages:	33	Date of Report:	2025-Oct-08					
Testing company:	cetecom advanced GmbH Untertuerkheimer Str. 6-10 66117 Saarbruecken GERMANY		Applicant:	Schmitz Cargobull AG				
Product:	Telematic Device							
Model:	CTU-Pro							
FCC ID:	2BBVQ-CTUPRO	IC:	--					
		PMN:	--					
		HVIN:	--					
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							
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							
Signatures:	<table><tr><td> CN = Martin Nunier email = Martin.Nunier@cetecomadvanced.com C = DE O = cetecom advanced GmbH OU = Radio Labs 2025.10.08 14:36:17 +02'00'</td><td> CN = Timo Franke email = timo.franke@cetecomadvanced.com C = DE O = cetecom advanced GmbH OU = Radio Labs 2025.10.08 08:42:39 +02'00'</td></tr><tr><td>B.Eng. Martin Nunier Supervisor Radio Services Authorization of test report</td><td>Timo Franke Lab Manager Responsible of test report</td></tr></table>				 CN = Martin Nunier email = Martin.Nunier@cetecomadvanced.com C = DE O = cetecom advanced GmbH OU = Radio Labs 2025.10.08 14:36:17 +02'00'	 CN = Timo Franke email = timo.franke@cetecomadvanced.com C = DE O = cetecom advanced GmbH OU = Radio Labs 2025.10.08 08:42:39 +02'00'	B.Eng. Martin Nunier Supervisor Radio Services Authorization of test report	Timo Franke Lab Manager Responsible of test report
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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.

1.2 Attestation

I declare that all measurements were performed by me or under my supervision and that all measurements have been performed and are correct to my best knowledge and belief to Industry Canada standards. All of the above requirements are met in accordance with enumerated standards.

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)	--	--	NP
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)	--	--	NP
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	25	--	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)	28	--	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)	--	--	NP
Conducted RF output power	§27.50(d)(4), §2.1046	18	--	PASSED
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)	--	--	NP
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	25	--	PASSED
Spurious emissions at antenna terminals	§27.53(h), §2.1051	--	--	NP
Radiated spurious emissions	§27.53(h), §2.1051, §2.1057(a)	28	--	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)	--	--	NP
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)	--	--	NP
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	25	--	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)	28	--	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)	--	--	NP
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)	--	--	NP
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	25	--	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)	28	--	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)	--	--	NP
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)	--	--	NP
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	25	--	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)	28	--	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)	--	--	NP
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)	--	--	NP
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	25	--	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)	28	--	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)	--	--	NP
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)	--	--	NP
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	25	--	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)	28	--	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_FCC01" issued on 2021-12-10 by 7layers 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:	cetekom 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 testing manager:	Paul Shin
Receipt of EUT:	2025-Aug-21
Date(s) of test:	2025-Aug-28 to 2025-Sep-09
Version of template:	25.0401

2.5 Applicant's details

Applicant's name:	Schmitz Cargobull AG
Address:	Wilhelm-Schickard-Straße 4 48149 Münster Germany
Contact Person:	Cafer Ince
Contact Person's Email:	Cafer.ince@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	36.472	Telematic Device	CTU-Pro	7620000458 (without rechargeable battery)	N/A	H02	CBT.TCU3.EVO.21.01.D.075
EUT 2	36.473	Telematic Device	CTU-Pro	7620000458 (without rechargeable battery)	N/A	H02	CBT.TCU3.EVO.21.01.D.075

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

2.8 Untested Variant (VAR)

EUT No.*)	Sample No.	Product	Model	Type	SN	HW	SW
VAR 1	N/A	Telematic Device	CTU-Pro	7620000456 (with rechargeable battery)	N/A	H02	CBT.TCU3.EVO.21.01.D.075

*) 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
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*) 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	N/A	Cable harness	n/a	< 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
Set 1	EUT 1 + CAB 1	Used for radiated measurements.
Set 2	EUT 2 + CAB 1	Used for conducted measurements.

*) 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
Op. 1	LTE FDD Band 2 Traffic	Frequency / channel range: UL: 1850.0 to 1910 MHz, DL: 1930.0 to 2170 MHz / Channel: UL: 18600 to 19199, DL: 600 to 1199. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT
Op. 2	LTE FDD Band 4 Traffic	Frequency / channel range: UL: 1710.0 to 1755 MHz, DL: 2110.0 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
Op. 3	LTE FDD Band 5 Traffic	Frequency / channel range: UL: 824.0 to 849 MHz, DL: 869.0 to 894MHz / Channel: UL: 20400 to 20649, DL: 2400 to 2649. A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT
Op. 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
Op. 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
Op. 6	LTE FDD Band 13 Traffic	Frequency / channel range: UL: 777.0 to 787 MHz, DL: 746.00 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
Op. 7	LTE TDD Band 41 Traffic	Frequency / channel range: 2496 to 2690 MHz Channel: 39650 to 41589 A Communication link has been established between Wideband Radio Communication Tester CMW500 and EUT

*) 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	-	
Operational conditions	T _{nom} = +21 °C	T _{min} = N/A °C	T _{min} = N/A °C
EUT sample type	Engineering Samples		
Weight	1.1 kg		
Size [LxWxH]	246 cm x 141 cm x 59 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)	EARFCN range 18600 - 19199
	☒ LTE 4	1710 - 1755 (UL), 2110 - 2155 (DL)	EARFCN range 19950 - 20399
	☒ LTE 5	824 - 849 (UL), 869 -894 (DL)	EARFCN range 20400 - 20649
	☒ LTE 7	2505 - 2565 (UL), 2625 - 2685 (DL)	EARFCN range 20775 - 21350
	☒ LTE 12	699 - 716 (UL), 729 – 745.9 (DL)	EARFCN range 23010 - 23179
	☒ LTE 13	782 - 782 (UL), 751 - 751 (DL)	EARFCN range 23205 - 23230
	☒ LTE 41	2501 - 2685 (UL), 2501 - 2685 (DL)	EARFCN range 39675 - 41490
Antenna Type	☒ Integrated ☐ External, no RF- connector ☐ External, separate RF-connector		
Antenna gain	LTE band 2: 3.5 dBi		
	LTE band 4: 4.75 dBi		
	LTE band 5: 1 dBi		
	LTE band 7: 1.2 dBi		
	LTE band 12: 1 dBi		
	LTE band 13: 1 dBi		
	LTE band 41: 1.2 dBi		
FCC label attached	No		
Test firmware / software and storage location	EUT		
For further details refer Applicants Declaration & following technical documents			
Description of Reference Document (supplied by applicant)		Version	Total Pages
--		--	--

3.3 Worst case identification

LTE mode	Data rate
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3.4 Modifications on Test sample

Additions/deviations or exclusions	--
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4 Measurements

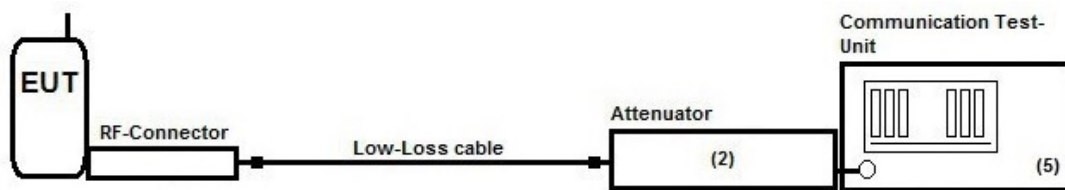
4.1 Conducted RF output power

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 5)

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] ☒	ISED Limit [W] ☒
LTE2	1850 - 1910	2 EIRP (33 dBm)	2 EIRP (33 dBm)
LTE4	1710 - 1755	1 EIRP (30dBm)	1 EIRP (30dBm)
LTE5	824 - 849	7 ERP (38.5 dBm)	7 ERP (38.5 dBm)
LTE7	2500 - 2570	2 EIRP (33 dBm)	2 EIRP (33 dBm)
LTE12	699 - 716	2 ERP (33 dBm)	5 ERP (37 dBm)
LTE13	777 - 787	3 ERP (34.8 dBm)	5 ERP (37 dBm)
LTE41	2496 - 2690	0.251 EIRP (24 dBm)	0.251 EIRP (24 dBm)

4.1.4 Result

LTE FDD Band 2															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 1.4 MHz	18607	1850.70	QPSK	RB_1_mid	22.20	3.50	25.70	0.37154	23.55	0.22646	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.37	3.50	24.87	0.30690	22.72	0.18707	3.00	34.77	3.00	34.77	Passed
	18900	1880.00	QPSK	RB_1_mid	22.30	3.50	25.80	0.38019	23.65	0.23174	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.43	3.50	24.93	0.31117	22.78	0.18967	3.00	34.77	3.00	34.77	Passed
	19193	1909.30	QPSK	RB_1_mid	22.98	3.50	26.48	0.44463	24.33	0.27102	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.50	3.50	25.00	0.31623	22.85	0.19275	3.00	34.77	3.00	34.77	Passed
BW 3 MHz	18615	1851.50	QPSK	RB_1_mid	22.23	3.50	25.73	0.37411	23.58	0.22803	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.94	3.50	24.44	0.27797	22.29	0.16943	3.00	34.77	3.00	34.77	Passed
	18900	1880.00	QPSK	RB_1_mid	22.34	3.50	25.84	0.38371	23.69	0.23388	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.14	3.50	24.64	0.29107	22.49	0.17742	3.00	34.77	3.00	34.77	Passed
	19185	1908.50	QPSK	RB_1_mid	22.78	3.50	26.28	0.42462	24.13	0.25882	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.27	3.50	24.77	0.29992	22.62	0.18281	3.00	34.77	3.00	34.77	Passed
BW 5 MHz	18625	1852.50	QPSK	RB_1_mid	21.35	3.50	24.85	0.30549	22.70	0.18621	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.40	3.50	24.90	0.30903	22.75	0.18836	3.00	34.77	3.00	34.77	Passed
	18900	1880.00	QPSK	RB_1_mid	22.00	3.50	25.50	0.35481	23.35	0.21627	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.32	3.50	24.82	0.30339	22.67	0.18493	3.00	34.77	3.00	34.77	Passed
	19175	1907.50	QPSK	RB_1_mid	22.40	3.50	25.90	0.38905	23.75	0.23714	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.51	3.50	25.01	0.31696	22.86	0.19320	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	18650	1855.00	QPSK	RB_1_mid	22.57	3.50	26.07	0.40458	23.92	0.24660	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.38	3.50	24.88	0.30761	22.73	0.18750	3.00	34.77	3.00	34.77	Passed
	18900	1880.00	QPSK	RB_1_mid	22.69	3.50	26.19	0.41591	24.04	0.25351	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.43	3.50	24.93	0.31117	22.78	0.18967	3.00	34.77	3.00	34.77	Passed
	19150	1905.00	QPSK	RB_1_mid	22.69	3.50	26.19	0.41591	24.04	0.25351	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.36	3.50	24.86	0.30620	22.71	0.18664	3.00	34.77	3.00	34.77	Passed
BW 15 MHz	18675	1857.50	QPSK	RB_1_mid	22.72	3.50	26.22	0.41879	24.07	0.25527	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.50	3.50	25.00	0.31623	22.85	0.19275	3.00	34.77	3.00	34.77	Passed
	18900	1880.00	QPSK	RB_1_mid	22.74	3.50	26.24	0.42073	24.09	0.25645	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.59	3.50	25.09	0.32285	22.94	0.19679	3.00	34.77	3.00	34.77	Passed
	19125	1902.50	QPSK	RB_1_mid	22.83	3.50	26.33	0.42954	24.18	0.26182	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.29	3.50	24.79	0.30130	22.64	0.18365	3.00	34.77	3.00	34.77	Passed
BW 20 MHz	18700	1860.00	QPSK	RB_1_mid	22.73	3.50	26.23	0.41976	24.08	0.25586	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.63	3.50	25.13	0.32584	22.98	0.19861	3.00	34.77	3.00	34.77	Passed
	18900	1800.00	QPSK	RB_1_mid	22.64	3.50	26.14	0.41115	23.99	0.25061	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.41	3.50	24.91	0.30974	22.76	0.18880	3.00	34.77	3.00	34.77	Passed
	19100	1900.00	QPSK	RB_1_mid	22.29	3.50	25.79	0.37931	23.64	0.23121	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.05	3.50	24.55	0.28510	22.40	0.17378	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

LTE FDD Band 4															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 1.4 MHz	19957	1710.70	QPSK	RB_1_mid	21.82	4.75	26.57	0.45394	24.42	0.27669	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.24	4.75	25.99	0.39719	23.84	0.24210	3.00	34.77	3.00	34.77	Passed
	20175	1732.50	QPSK	RB_1_mid	22.14	4.75	26.89	0.48865	24.74	0.29785	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.46	4.75	26.21	0.41783	24.06	0.25468	3.00	34.77	3.00	34.77	Passed
	20393	1754.30	QPSK	RB_1_mid	22.33	4.75	27.08	0.51050	24.93	0.31117	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.26	4.75	26.01	0.39902	23.86	0.24322	3.00	34.77	3.00	34.77	Passed
BW 3 MHz	19965	1711.50	QPSK	RB_1_mid	22.15	4.75	26.90	0.48978	24.75	0.29854	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.19	4.75	25.94	0.39264	23.79	0.23933	3.00	34.77	3.00	34.77	Passed
	20175	1732.50	QPSK	RB_1_mid	22.15	4.75	26.90	0.48978	24.75	0.29854	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.44	4.75	26.19	0.41591	24.04	0.25351	3.00	34.77	3.00	34.77	Passed
	20385	1753.50	QPSK	RB_1_mid	22.56	4.75	27.31	0.53827	25.16	0.32810	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.17	4.75	25.92	0.39084	23.77	0.23823	3.00	34.77	3.00	34.77	Passed
BW 5 MHz	19975	1712.50	QPSK	RB_1_mid	21.87	4.75	26.62	0.45920	24.47	0.27990	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.16	4.75	25.91	0.38994	23.76	0.23768	3.00	34.77	3.00	34.77	Passed
	20175	1732.50	QPSK	RB_1_mid	22.25	4.75	27.00	0.50119	24.85	0.30549	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.42	4.75	26.17	0.41400	24.02	0.25235	3.00	34.77	3.00	34.77	Passed
	20375	1752.50	QPSK	RB_1_mid	22.32	4.75	27.07	0.50933	24.92	0.31046	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.09	4.75	25.84	0.38371	23.69	0.23388	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	20000	1715.00	QPSK	RB_1_mid	22.39	4.75	27.14	0.51761	24.99	0.31550	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.18	4.75	25.93	0.39174	23.78	0.23878	3.00	34.77	3.00	34.77	Passed
	20175	1732.50	QPSK	RB_1_mid	22.29	4.75	27.04	0.50582	24.89	0.30832	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.20	4.75	25.95	0.39355	23.80	0.23988	3.00	34.77	3.00	34.77	Passed
	20350	1750.00	QPSK	RB_1_mid	22.58	4.75	27.33	0.54075	25.18	0.32961	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.07	4.75	25.82	0.38194	23.67	0.23281	3.00	34.77	3.00	34.77	Passed
BW 15 MHz	20025	1717.50	QPSK	RB_1_mid	22.34	4.75	27.09	0.51168	24.94	0.31189	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.07	4.75	25.82	0.38194	23.67	0.23281	3.00	34.77	3.00	34.77	Passed
	20175	1732.50	QPSK	RB_1_mid	22.08	4.75	26.83	0.48195	24.68	0.29376	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.97	4.75	25.72	0.37325	23.57	0.22751	3.00	34.77	3.00	34.77	Passed
	20325	1747.50	QPSK	RB_1_mid	22.21	4.75	26.96	0.49659	24.81	0.30269	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.95	4.75	25.70	0.37154	23.55	0.22646	3.00	34.77	3.00	34.77	Passed
BW 20 MHz	20050	1720.00	QPSK	RB_1_mid	22.17	4.75	26.92	0.49204	24.77	0.29992	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.06	4.75	25.81	0.38107	23.66	0.23227	3.00	34.77	3.00	34.77	Passed
	20175	1732.50	QPSK	RB_1_mid	22.36	4.75	27.11	0.51404	24.96	0.31333	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.29	4.75	26.04	0.40179	23.89	0.24491	3.00	34.77	3.00	34.77	Passed
	20300	1745.00	QPSK	RB_1_mid	22.47	4.75	27.22	0.52723	25.07	0.32137	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.25	4.75	26.00	0.39811	23.85	0.24266	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

LTE FDD Band 5															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 1.4 MHz	20407	824.70	QPSK	RB_1_mid	22.11	1.00	23.11	0.20464	20.96	0.12474	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.51	1.00	22.51	0.17824	20.36	0.10864	3.00	34.77	3.00	34.77	Passed
	20525	836.50	QPSK	RB_1_mid	21.72	1.00	22.72	0.18707	20.57	0.11402	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.94	1.00	21.94	0.15631	19.79	0.09528	3.00	34.77	3.00	34.77	Passed
	20643	848.30	QPSK	RB_1_mid	22.08	1.00	23.08	0.20324	20.93	0.12388	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.83	1.00	21.83	0.15241	19.68	0.09290	3.00	34.77	3.00	34.77	Passed
BW 3 MHz	20415	825.50	QPSK	RB_1_mid	22.46	1.00	23.46	0.22182	21.31	0.13521	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.36	1.00	22.36	0.17219	20.21	0.10495	3.00	34.77	3.00	34.77	Passed
	20525	836.50	QPSK	RB_1_mid	21.93	1.00	22.93	0.19634	20.78	0.11967	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.94	1.00	21.94	0.15631	19.79	0.09528	3.00	34.77	3.00	34.77	Passed
	20635	847.50	QPSK	RB_1_mid	21.99	1.00	22.99	0.19907	20.84	0.12134	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.88	1.00	21.88	0.15417	19.73	0.09397	3.00	34.77	3.00	34.77	Passed
BW 5 MHz	20425	826.50	QPSK	RB_1_mid	22.00	1.00	23.00	0.19953	20.85	0.12162	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.44	1.00	22.44	0.17539	20.29	0.10691	3.00	34.77	3.00	34.77	Passed
	20525	836.50	QPSK	RB_1_mid	21.91	1.00	22.91	0.19543	20.76	0.11912	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.95	1.00	21.95	0.15668	19.80	0.09550	3.00	34.77	3.00	34.77	Passed
	20625	846.50	QPSK	RB_1_mid	21.74	1.00	22.74	0.18793	20.59	0.11455	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.74	1.00	21.74	0.14928	19.59	0.09099	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	20450	829.00	QPSK	RB_1_mid	22.32	1.00	23.32	0.21478	21.17	0.13092	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.19	1.00	22.19	0.16558	20.04	0.10093	3.00	34.77	3.00	34.77	Passed
	20525	836.50	QPSK	RB_1_mid	21.98	1.00	22.98	0.19861	20.83	0.12106	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.99	1.00	21.99	0.15812	19.84	0.09638	3.00	34.77	3.00	34.77	Passed
	20600	844.00	QPSK	RB_1_mid	21.52	1.00	22.52	0.17865	20.37	0.10889	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.61	1.00	21.61	0.14488	19.46	0.08831	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

LTE FDD Band 7															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 5 MHz	20775	2502.50	QPSK	RB_1_mid	20.62	1.20	21.82	0.15205	19.67	0.09268	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.01	1.20	21.21	0.13213	19.06	0.08054	3.00	34.77	3.00	34.77	Passed
	21100	2535.00	QPSK	RB_1_mid	20.62	1.20	21.82	0.15205	19.67	0.09268	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.85	1.20	21.05	0.12735	18.90	0.07762	3.00	34.77	3.00	34.77	Passed
	21425	2567.50	QPSK	RB_1_mid	20.70	1.20	21.90	0.15488	19.75	0.09441	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.79	1.20	20.99	0.12560	18.84	0.07656	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	20800	2505.00	QPSK	RB_1_mid	21.27	1.20	22.47	0.17660	20.32	0.10765	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.02	1.20	21.22	0.13243	19.07	0.08072	3.00	34.77	3.00	34.77	Passed
	21100	2535.00	QPSK	RB_1_mid	20.93	1.20	22.13	0.16331	19.98	0.09954	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.84	1.20	21.04	0.12706	18.89	0.07745	3.00	34.77	3.00	34.77	Passed
	21400	2565.00	QPSK	RB_1_mid	20.84	1.20	22.04	0.15996	19.89	0.09750	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.77	1.20	20.97	0.12503	18.82	0.07621	3.00	34.77	3.00	34.77	Passed
BW 15 MHz	20825	2507.50	QPSK	RB_1_mid	21.11	1.20	22.31	0.17022	20.16	0.10375	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.96	1.20	21.16	0.13062	19.01	0.07962	3.00	34.77	3.00	34.77	Passed
	21100	2535.00	QPSK	RB_1_mid	21.14	1.20	22.34	0.17140	20.19	0.10447	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.93	1.20	21.13	0.12972	18.98	0.07907	3.00	34.77	3.00	34.77	Passed
	21375	2562.50	QPSK	RB_1_mid	21.46	1.20	22.66	0.18450	20.51	0.11246	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.74	1.20	20.94	0.12417	18.79	0.07568	3.00	34.77	3.00	34.77	Passed
BW 20 MHz	20850	2510.00	QPSK	RB_1_mid	21.11	1.20	22.31	0.17022	20.16	0.10375	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.87	1.20	21.07	0.12794	18.92	0.07798	3.00	34.77	3.00	34.77	Passed
	21100	2535.00	QPSK	RB_1_mid	21.18	1.20	22.38	0.17298	20.23	0.10544	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.87	1.20	21.07	0.12794	18.92	0.07798	3.00	34.77	3.00	34.77	Passed
	21350	2560.00	QPSK	RB_1_mid	20.68	1.20	21.88	0.15417	19.73	0.09397	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.80	1.20	21.00	0.12589	18.85	0.07674	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

LTE FDD Band 12															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 1.4 MHz	23017	699.70	QPSK	RB 1_mid	21.23	1.00	22.23	0.16711	20.08	0.10186	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.43	1.00	21.43	0.13900	19.28	0.08472	3.00	34.77	3.00	34.77	Passed
	23095	707.50	QPSK	RB 1_mid	21.51	1.00	22.51	0.17824	20.36	0.10864	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.51	1.00	21.51	0.14158	19.36	0.08630	3.00	34.77	3.00	34.77	Passed
	23173	715.30	QPSK	RB 1_mid	21.77	1.00	22.77	0.18923	20.62	0.11535	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.57	1.00	21.57	0.14355	19.42	0.08750	3.00	34.77	3.00	34.77	Passed
BW 3 MHz	23025	700.50	QPSK	RB 1_mid	21.56	1.00	22.56	0.18030	20.41	0.10990	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.39	1.00	21.39	0.13772	19.24	0.08395	3.00	34.77	3.00	34.77	Passed
	23095	707.50	QPSK	RB 1_mid	21.33	1.00	22.33	0.17100	20.18	0.10423	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.35	1.00	21.35	0.13646	19.20	0.08318	3.00	34.77	3.00	34.77	Passed
	Channel 23165	714.50	QPSK	RB 1_mid	21.84	1.00	22.84	0.19231	20.69	0.11722	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.62	1.00	21.62	0.14521	19.47	0.08851	3.00	34.77	3.00	34.77	Passed
BW 5 MHz	23035	701.50	QPSK	RB 1_mid	21.00	1.00	22.00	0.15849	19.85	0.09661	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.24	1.00	21.24	0.13305	19.09	0.08110	3.00	34.77	3.00	34.77	Passed
	23095	707.50	QPSK	RB 1_mid	21.32	1.00	22.32	0.17061	20.17	0.10399	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.41	1.00	21.41	0.13836	19.26	0.08433	3.00	34.77	3.00	34.77	Passed
	23155	713.50	QPSK	RB 1_mid	21.16	1.00	22.16	0.16444	20.01	0.10023	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.04	1.00	21.04	0.12706	18.89	0.07745	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	23060	704.00	QPSK	RB 1_mid	21.54	1.00	22.54	0.17947	20.39	0.10940	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.29	1.00	21.29	0.13459	19.14	0.08204	3.00	34.77	3.00	34.77	Passed
	23095	707.50	QPSK	RB 1_mid	21.28	1.00	22.28	0.16904	20.13	0.10304	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.31	1.00	21.31	0.13521	19.16	0.08241	3.00	34.77	3.00	34.77	Passed
	23130	711.00	QPSK	RB 1_mid	21.69	1.00	22.69	0.18578	20.54	0.11324	3.00	34.77	3.00	34.77	Passed
				RB 100PCT	20.57	1.00	21.57	0.14355	19.42	0.08750	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

LTE FDD Band 13															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 5 MHz	23205	779.50	QPSK	RB_1_mid	21.43	1.00	22.43	0.17498	20.28	0.10666	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.14	1.00	22.14	0.16368	19.99	0.09977	3.00	34.77	3.00	34.77	Passed
	23230	782.00	QPSK	RB_1_mid	21.90	1.00	22.90	0.19498	20.75	0.11885	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.98	1.00	21.98	0.15776	19.83	0.09616	3.00	34.77	3.00	34.77	Passed
	23255	784.50	QPSK	RB_1_mid	21.75	1.00	22.75	0.18836	20.60	0.11482	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.88	1.00	21.88	0.15417	19.73	0.09397	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	23230	782.00	QPSK	RB_1_mid	22.05	1.00	23.05	0.20184	20.90	0.12303	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.03	1.00	22.03	0.15959	19.88	0.09727	3.00	34.77	3.00	34.77	Passed
	23230	782.00	QPSK	RB_1_mid	22.32	1.00	23.32	0.21478	21.17	0.13092	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.06	1.00	22.06	0.16069	19.91	0.09795	3.00	34.77	3.00	34.77	Passed
	23230	782.00	QPSK	RB_1_mid	22.30	1.00	23.30	0.21380	21.15	0.13032	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	21.00	1.00	22.00	0.15849	19.85	0.09661	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

LTE FDD Band 41															
	Channel Nr.	ARFCN-Frequency (MHz)	Modulation	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	ISED Limit(W), ERP	ISED Limit (dBm), ERP	Verdict
BW 5 MHz	39675	2498.50	QPSK	RB_1_mid	20.83	1.20	22.03	0.15959	19.88	0.09727	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.18	1.20	21.38	0.13740	19.23	0.08375	3.00	34.77	3.00	34.77	Passed
	40620	2593.00	QPSK	RB_1_mid	20.41	1.20	21.61	0.14488	19.46	0.08831	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.93	1.20	21.13	0.12972	18.98	0.07907	3.00	34.77	3.00	34.77	Passed
	41565	2687.50	QPSK	RB_1_mid	20.63	1.20	21.83	0.15241	19.68	0.09290	3.00	34.77	3.00	34.77	Passed
BW 10 MHz	39700	2501.00	QPSK	RB_100PCT	19.86	1.20	21.06	0.12764	18.91	0.07780	3.00	34.77	3.00	34.77	Passed
				RB_1_mid	21.26	1.20	22.46	0.17620	20.31	0.10740	3.00	34.77	3.00	34.77	Passed
	40620	2593.00	QPSK	RB_100PCT	20.44	1.20	21.64	0.14588	19.49	0.08892	3.00	34.77	3.00	34.77	Passed
				RB_1_mid	21.09	1.20	22.29	0.16943	20.14	0.10328	3.00	34.77	3.00	34.77	Passed
	41540	2685.00	QPSK	RB_100PCT	19.92	1.20	21.12	0.12942	18.97	0.07889	3.00	34.77	3.00	34.77	Passed
BW 15 MHz	39725	2503.50	QPSK	RB_1_mid	21.19	1.20	22.39	0.17338	20.24	0.10568	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.90	1.20	21.10	0.12882	18.95	0.07852	3.00	34.77	3.00	34.77	Passed
	40620	2593.00	QPSK	RB_1_mid	21.02	1.20	22.22	0.16672	20.07	0.10162	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.86	1.20	21.06	0.12764	18.91	0.07780	3.00	34.77	3.00	34.77	Passed
	41515	2682.50	QPSK	RB_1_mid	21.28	1.20	22.48	0.17701	20.33	0.10789	3.00	34.77	3.00	34.77	Passed
BW 20 MHz	39750	2506.00	QPSK	RB_100PCT	20.12	1.20	21.32	0.13552	19.17	0.08260	3.00	34.77	3.00	34.77	Passed
				RB_1_mid	21.21	1.20	22.41	0.17418	20.26	0.10617	3.00	34.77	3.00	34.77	Passed
	40620	2593.00	QPSK	RB_100PCT	20.05	1.20	21.25	0.13335	19.10	0.08128	3.00	34.77	3.00	34.77	Passed
				RB_1_mid	21.33	1.20	22.53	0.17906	20.38	0.10914	3.00	34.77	3.00	34.77	Passed
	41490	2680.00	QPSK	RB_100PCT	19.91	1.20	21.11	0.12912	18.96	0.07870	3.00	34.77	3.00	34.77	Passed
BW 20 MHz	40620	2593.00	QPSK	RB_1_mid	21.41	1.20	22.61	0.18239	20.46	0.11117	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	20.09	1.20	21.29	0.13459	19.14	0.08204	3.00	34.77	3.00	34.77	Passed
	41490	2680.00	QPSK	RB_1_mid	21.04	1.20	22.24	0.16749	20.09	0.10209	3.00	34.77	3.00	34.77	Passed
				RB_100PCT	19.95	1.20	21.15	0.13032	19.00	0.07943	3.00	34.77	3.00	34.77	Passed
EIRP= RMS Power at Antenna Port + Maximum declared Antenna Gain - Path loss to Antenna Connector - Path loss in Antenna Cable															
ERP = EIRP - 2.15															

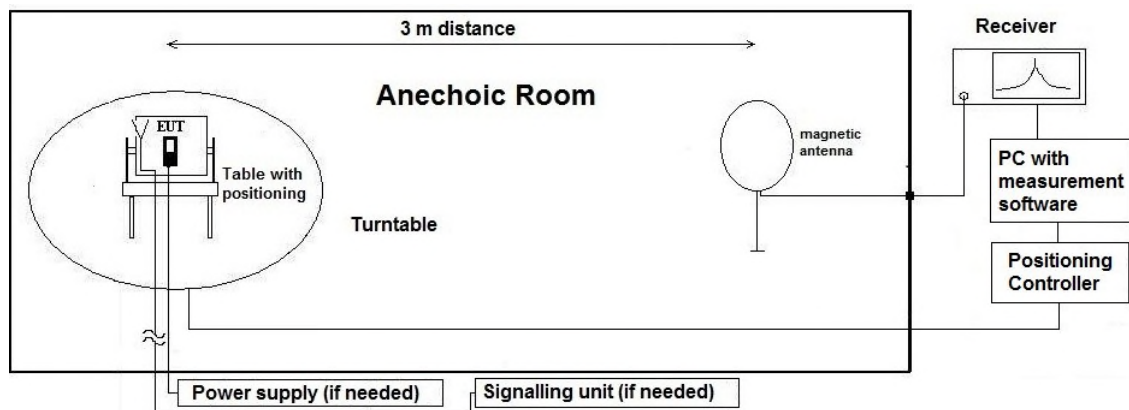
4.2 Radiated field strength emissions below 30 MHz

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 5)

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 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 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 to Extrapolation formulas valid for EUT's with maximum dimension of $0.625 \times \lambda$. 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	30	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		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
2.201	LTE FDD2	Set.1 Op. 1 Lying	No peaks < 6 dB margin found	Passed
2.202	LTE FDD2	Set.1 Op. 1 Standing	No peaks < 6 dB margin found	Passed
2.401	LTE FDD4	Set.1 Op. 2 Standing	No peaks < 6 dB margin found	Passed
2.501	LTE FDD5	Set.1 Op. 3 Standing	No peaks < 6 dB margin found	Passed
2.701	LTE FDD7	Set.1 Op. 4 Standing	No peaks < 6 dB margin found	Passed
2.1201	LTE FDD12	Set.1 Op. 5 Standing	No peaks < 6 dB margin found	Passed
2.1301	LTE FDD13	Set.1 Op. 6 Standing	No peaks < 6 dB margin found	Passed
2.4101	LTE TDD41	Set.1 Op. 7 Standing	No peaks < 6 dB margin found	Passed

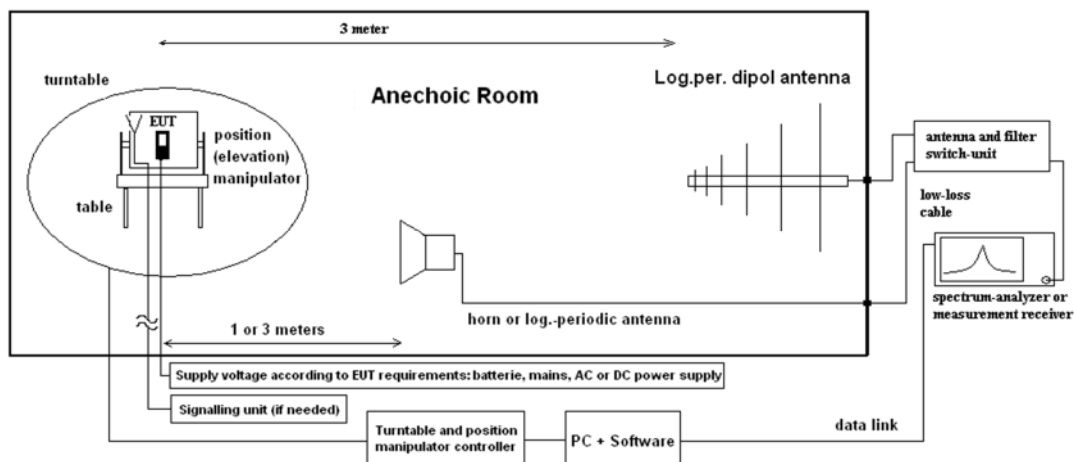
Remark: for more information and graphical plot see annex A1 1-0307-25-01-03_TR1-A201-R01

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 5)

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 1	120904 - FAC1 - Radiated Emissions
Test site 2	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 - 26000	-25	Peak	3 / 3

4.3.4 Result

Diagram	Band	Mode	30 MHz to 1000 MHz	1 GHz to 2.8 GHz	2.8 to 10 th Harmonics	Stop Freq [MHz]	Result
8.02	LTE FDD 2	Set 1 Op. 1	No peaks < 6 dB margin found	No peaks < 6 dB margin found	No peaks < 6 dB margin found	19500	Passed
8.04	LTE FDD 4	Set 1 Op. 2	No peaks < 6 dB margin found	No peaks < 6 dB margin found	No peaks < 6 dB margin found	18000	Passed
8.05a	LTE FDD 5	Set 1 Op. 3	No peaks < 6 dB margin found	--	--	1000	Passed
8.05b	LTE FDD 5	Set 1 Op. 3	--	No peaks < 6 dB margin found	No peaks < 6 dB margin found	9000	Passed
8.07a	LTE FDD 7	Set 1 Op. 4	No peaks < 6 dB margin found	No peaks < 6 dB margin found	--	2800	Passed
8.07b	LTE FDD 7	Set 1 Op. 4	--	No peaks < 6 dB margin found	No peaks < 6 dB margin found	--	Passed
8.07c	LTE FDD 7	Set 1 Op. 4	--	--	No peaks < 6 dB margin found	27000	Passed
8.12	LTE FDD 12	Set 1 Op. 5	No peaks < 6 dB margin found	No peaks < 6 dB margin found	No peaks < 6 dB margin found	9000	Passed
8.13	LTE FDD 13	Set 1 Op. 6	No peaks < 6 dB margin found	No peaks < 6 dB margin found	No peaks < 6 dB margin found	9000	Passed
8.13a	LTE FDD 13	Set 1 Op. 6	No peaks < 6 dB margin found	--	--	806	Passed
8.13b	LTE FDD 13	Set 1 Op. 6	No peaks < 6 dB margin found	No peaks < 6 dB margin found	--	1610	Passed
8.41a	LTE TDD 41	Set 1 Op. 7	No peaks < 6 dB margin found	No peaks < 6 dB margin found	--	2800	Passed
8.41b	LTE TDD 41	Set 1 Op. 7	--	--	No peaks < 6 dB margin found	7000	Passed
8.41c	LTE TDD 41	Set 1 Op. 7	--	--	No peaks < 6 dB margin found	18000	Passed
8.41d	LTE TDD 41	Set 1 Op. 7	--	--	No peaks < 6 dB margin found	27000	Passed

Remark: for more information and graphical plot see annex A1 **1-0307-25-01-03_TR1-A201-R01**

Remark: measurements in the frequency range 18GHz-26GHz were performed in Test site 2

4.4 Equipment lists

ID	Description	Manufacturer	SerNo	CheckType	Last Check	Interval	Next Check
	120901 - SAC3 - Radiated Emission <1GHz			chk	chk: 2025-Sep-05	chk: 12M	chk: 2026-Sep-05
20442	Semi Anechoic Chamber	ETS-Lindgren GmbH / Taufkirchen	without	chk	cal: - chk: -	cal: - chk: -	cal: - chk: -
20482	filter matrix Filter matrix SAR 1	cetecom advanced GmbH / Essen	without	chk	cal: - chk: -	cal: - chk: -	cal: - chk: -
20574	Biconilog Hybrid Antenna BTA-L	Frankonia GmbH / Heideck	980026L	cal	cal: 2025-Jun-06	cal: 36M	cal: 2028-Jun-06
20620	Test Receiver ESU26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100362	cal	cal: 2025-May-06	cal: 12M	cal: 2026-May-06
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: 2024-Sep-16	cal: 36M	cal: 2027-Sep-16
	120904 - FAC1 - Radiated Emissions			chk	chk: 2025-Mar-25	chk: 12M	chk: 2026-Mar-25
20020	Double-Ridged Waveguide Horn Antenna 3115 (Subst 1)	EMCO Elektronik GmbH / Gilching	9107-3699	calchk	cal: 2024-Sep-11 chk: 2013-Apr-20	cal: 36M chk: 12M	cal: 2027-Sep-11
20066	Notch Filter WRCT 1900/2200-5/40-10EEK	Wainwright Instruments GmbH / Andechs	5	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20121	Notch Filter WRCB 1879,5/1880,5EE	Wainwright Instruments GmbH / Andechs	15	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20122	Notch Filter WRCB 1747/1748	Wainwright Instruments GmbH / Andechs	12	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20254	High Pass Filter SHC 2600/12750-1.5KK	Trilithic	23042	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20287	Pre-Amplifier 25MHz - 4GHz AMF-2D-100M4G-35-10P	Miteq Inc.	379418	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20290	Notch Filter WRCA 901,9/903,15S	Wainwright Instruments GmbH / Andechs	3RR	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20291	High Pass Filter WHJ 2200-4EE	Wainwright Instruments GmbH / Andechs	14	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20338	Pre-Amplifier JS4-00102600-38-5P	Miteq Inc.	838697	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20341	Digital Multimeter Fluke 112	Fluke Deutschland GmbH / Glottertal	81650455	cal	cal: 2024-May-13	cal: 24M	cal: 2026-May-13
20436	Radio Communication Tester CMU200	Rohde & Schwarz Messgerätebau GmbH / Memmingen	103083	cal	cal: 2024-May-24	cal: 24M	cal: 2026-May-24
20448	Notch Filter WRCT 1850.0/2170.0-5/40-10SSK	Wainwright Instruments GmbH / Andechs	5	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20449	Notch Filter WRCT 824.0/894.0-5/40-8SSK	Wainwright Instruments GmbH / Andechs	1	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20484	Pre-Amplifier 2,5GHz - 18GHz AMF-5D-02501800-25-10P	Miteq Inc.	1244554	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20489	EMI Test Receiver ESU40	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100030	cal	cal: 2025-May-08	cal: 12M	cal: 2026-May-08
20512	Notch Filter WRCA 800/960-02/40-6EEK (GSM 850)	Wainwright Instruments GmbH / Andechs	24	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20549	Log. Per. Antenna HL025	Rohde & Schwarz Messgerätebau GmbH / Memmingen	1000060	calchk	cal: 2024-Oct-08	cal: 36M chk: 12M	cal: 2027-Oct-08
20558	Fully Anechoic Chamber 1	ETS-Lindgren GmbH / Taufkirchen	without	chk	chk: 2025-Mar-28	chk: 24M	chk: 2027-Mar-28
20608	Ultrabroadband-Antenna HL562	Rohde & Schwarz Messgerätebau GmbH / Memmingen	830547/009	cal	cal: 2023-Jul-04	cal: 36M	cal: 2026-Jul-04
20611	Power Supply E3632A	Agilent Technologies Deutschland GmbH	KR 75305854	cpu			
20690	Spectrum Analyzer FSU26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100302/026	cal	cal: 2025-May-07	cal: 24M	cal: 2027-May-07
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 / Braintree, Essex	16071300004	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20883	Open Switch and control Platform OSP-B20052 Satellite	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101432	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20884	Open Switch and control Platform OSP320	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101391	chk	chk: 2025-Mar-21	chk: 12M	chk: 2026-Mar-21
20977	Wideband Radio Communication Tester CMW500	Rohde & Schwarz Messgerätebau GmbH / Memmingen	172340	cal	cal: 2024-Jul-24	cal: 12M	cal: 2026-Jul-24
20412	Fully Anechoic Chamber 2	ETS-Lindgren GmbH / Taufkirchen	without	chk	chk: 2024-Oct-31	chk: 24M	chk: 2026-Oct-31
20811	Horn Antenna ASY-SGH-124-SMA	Antenna Systems Solutions S.L	29F14182337	cal	cal: 2024-Oct-08	cal: 36M	cal: 2027-Oct-08
20816	SGH Antenna SGH-26-WR10	Anteral S.L.	1144	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
20836	1-18 GHz Amplifier	Wright Technologies, Inc., Inc. / Roseville	0001	chk	chk: 2024-Oct-18	chk: 24M	chk: 2026-Oct-18
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: 2025-Jun-03	cal: 36M	cal: 2028-Jun-03

	120910 - Radio Laboratory 1 (TS 8997)			chk			
20559	Vector Signal Generator SMU200A	Rohde & Schwarz Messgerätebau GmbH / Memmingen	103736	cal	chk: 2025-Jul-14 cal: 2025-May-07	chk: 12M cal: 24M	chk: 2026-Jul-14 cal: 2027-May-07
20691	Open Switch and control Platform OSP157W 8 Port Plus	Rohde & Schwarz Messgerätebau GmbH / Memmingen	100950	cal	cal: 2023-Jun-30	cal: 36M	cal: 2026-Jun-30
20866	Signal Analyzer FSV3030	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101247	cal	cal: 2025-Jun-10	cal: 12M	cal: 2026-Jun-10
20927	Signal Generator SMF 100A	Rohde & Schwarz Messgerätebau GmbH / Memmingen	102109	cal	cal: 2025-May-08	cal: 36M	cal: 2028-May-08
20978	HMP2020 2-CH power Supply 188W	Rohde & Schwarz Messgerätebau GmbH / Memmingen	121649	cal	cal: 2024-Aug-06	cal: 24M	cal: 2026-Aug-06
20980	USB Wideband power Sensor U2021XA	Keysight Technologies Deutschland GmbH / Böblingen	MY64330007	cal	cal: 2025-Jul-02	cal: 12M	cal: 2026-Jul-02
80682	USM Switch Matrix	cetekom advanced GmbH / Saarbrücken	D001	cnn	cal: - chk: -	cal: - chk: -	cal: - chk: -
	120910 - Radio Laboratory 1 (TS 8997)			chk			
20559	Vector Signal Generator SMU200A	Rohde & Schwarz Messgerätebau GmbH / Memmingen	103736	cal	chk: 2025-Jul-14 cal: 2025-May-07	chk: 12M cal: 24M	chk: 2026-Jul-14 cal: 2027-May-07

4.4.1 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

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6 Opinions and interpretations

None

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7 List of abbreviations

None

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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 Pre-Amp
			100	1000	4.02	without Pre-Amp
			100	1000	4.26	with Pre-Amp
			1000	18000	4.36	without Pre-Amp
			1000	18000	5.23	with Pre-Amp
			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 7 GHz 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+FMCW [kHz]	EN, FCC, JP, ISCED	40000	77000	276.19	calculated for 77 GHz (FMCW) carrier
	Frequency Error / NFC [Hz]	EN, FCC, JP, ISCED	6000	7000	33.92	calculated for 6.5 GHz UWB Ch.5
			11.00	14.00	20.76	calculated for 13.56 MHz NFC carrier
5	TS 8997 Conducted Parameters	FCC15/18 / ISCED	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 2.4 GHz ISM
			5.18	5.825	7.180 ppm	6b. Bandwidth / 2-Marker Method for 5 GHz WLAN
			5.18	5.825	1.099 ppm	7. Frequency (Marker method) for 5 GHz WLAN
			30	6000	0.11561 µs	8. Medium-Utilization factor / Timing
			30	6000	1.85	9a. Blocking-Level of companion device
			30	6000	1.62	9b. Blocking Generator level
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
R01	Initial release	2025-Oct-08
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End Of Test Report