

FCC Part 22/24/27 Compliance Test Report

Test Report no.:	FCC_Cellular_RM-1152_01.docx	Date of Report:	30-Nov-2015
Number of pages:	57	Customer's Contact person:	Juha Paukku
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FCC listing no.:	94436		
IC recognition no.:	661AK-1		
Tested devices/ accessories:	Phone RM-1152 / Battery BV-T3G (LG) / Charger AC-18E / Headset WH-108 / Dummy battery SD-134		
FCC ID:	PYARM-1152	IC:	
Supplement reports:	-		
Testing has been carried out in accordance with:	47 CFR 2/22/24/27/90, TIA-603-D, RSS-130 (Issue 1), RSS-132 (Issue 3), RSS-133 (Issue 6), RSS-139 (Issue 3), RSS-195 (Issue 2), RSS-199 (Issue 2) and RSS-Gen (Issue 4). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Microsoft.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document		
Date and signature for the contents:			

Hannu Soderholm, Engineer, EMC

1. Summary for FCC Part 2/22/24/27/90 Compliance Test Report

Date of receipt	21-Oct-2015
Testing completed	30-Nov-2015
The customer's contact person	Juha Paukku
Test Plan referred to	T:\Projects\RM-1152\TestPlan\Test_plan_EMC_FCC_RM-1152.xlsx
Notes	-
Document name	T:\Projects\RM-1152\EMC\FCC final Reports\FCC_Cellular_RM-1152_01.docx

1.1. EUT and Accessory Information

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-1152	004402742963899	1540	-	01078.10006.15421.42000	400052
Dummy battery	SD-134	2301637	v.1	-	-	400053
Phone	RM-1152	004402742963030	1540	-	01078.10006.15421.42000	400049
Phone	RM-1152	004402742963121	1540	-	01078.00008.15432.40000	400061
Battery	BV-T3G (LG)	4955405343010304094;0670783	1.0	-	-	400051
Charger	AC-18E	4090493521750501701;0675695	-	-	-	400050
Headset	WH-108	-	4.0	4.0	-	42927

1.2. Summary of Test Results

GSM 850:

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046(a), 22.913(a)	4.4	Conducted RF output power	NA
§22.913(a)	4.4	Radiated RF output power	PASSED
N/A	5.4	Peak to average power ratio	PASSED
§2.1049(h)	6.6	99 % occupied bandwidth	PASSED
§22.917(a)	4.5	Band edge compliance	PASSED
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NA
§22.917(a), §2.1053	4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	PASSED

GSM 1900:

Section in CFR 47	Section in RSS-GEN or RSS-133	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	NA
§24.232(b)	6.4	Radiated RF output power	PASSED
N/A	6.4	Peak to average power ratio	PASSED
§2.1049(h)	6.6	99 % occupied bandwidth	PASSED
§24.238(a)	6.5	Band edge compliance	PASSED
§24.238(a), §2.1051	6.5	Spurious emissions at antenna terminals	NA
§24.238(a), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED

WCDMA5:

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046(a), 22.913(a)	4.4	Conducted RF output power	NA
§22.913(a)	4.4	Radiated RF output power	PASSED
N/A	5.4	Peak to average power ratio	PASSED
§2.1049(h)	6.6	99 % occupied bandwidth	PASSED
§22.917(a)	4.5	Band edge compliance	PASSED
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NA
§22.917(a), §2.1053	4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	NA

LTE7:

Section in CFR 47	Section in RSS-GEN or RSS-199	Name of the test	Result
§2.1046(a)	4.4	Conducted RF output power	NA
§27.50(h)(2)	4.4	Radiated RF output power	PASSED
N/A	N/A	Peak to average power ratio	NA
§2.1049(h)	6.6	99 % occupied bandwidth	PASSED
§27.53(l)	4.5(b)	Band edge compliance	PASSED
§2.1051	4.5(b)	Spurious emissions at antenna terminals	NA
§27.53(l), §2.1053	4.5(b)	Spurious radiated emissions	PASSED
§27.54	4.3	Frequency stability, temperature variation	PASSED
§27.54	4.3	Frequency stability, voltage variation	PASSED

PASSED

FAILED

NP

The EUT complies with the essential requirements in the standard.

The EUT does not comply with the essential requirements in the standard.

The test was not performed by the TCC Microsoft Laboratory.

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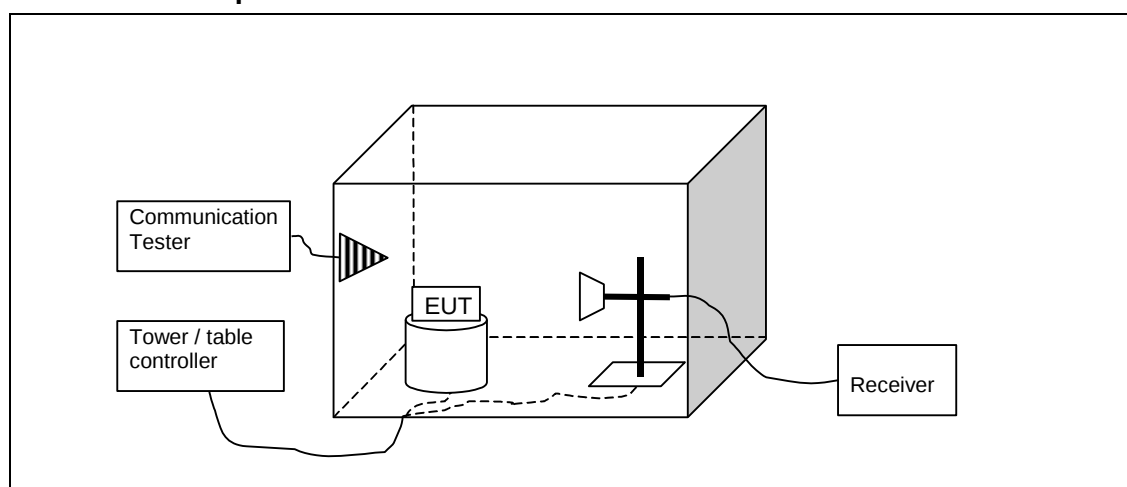
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2. Radiated RF output power

EUT with DUT number	RM-1152, DUT 400049, RM-1152, DUT 400061
Accessories with DUT numbers	BV-T3G (LG), DUT 400051 ; RM-1085, DUT 400020 ; WH-108, DUT 42927
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 44 / 100
Date of measurements	02-Nov-2015
Measured by	Timo Raiskio

2.1.1 Test setup



2.2. Test method and limit

The measurement was made according to TIA-603-D as follows:

The EUT was tested in an anechoic chamber with absorbers on the floor, measuring antenna at fixed height in horizontal and vertical polarizations and EUT set in three orthogonal orientations on the turn table, which was rotated 360 degrees.

The E(I)RP values were obtained using substitution method as described below:

$$P[dBm] = P_{SUBST\ TX} + P_{MEAS} - P_{SUBST\ RX} - L_{SUBST\ CABLES} + G_{SUBST\ TX\ ANT}$$

Where $P_{SUBST\ TX}$ is signal generator level. P_{MEAS} is measured power level from the EUT. $P_{SUBST\ RX}$ is measured power level in substitute measurement. $L_{SUBST\ CABLE}$ is the loss of the cable between the signal generator and the substitution antenna and $G_{SUBST\ TX\ ANT}$ is substitution antenna gain.

Limits for radiated RF output power measurements

Frequency range [MHz]	Limit [W]	Limit [dBm]
824 - 849	7 ERP	38.5
1850 - 1910	2 EIRP	33
2502.5 - 2567.5	2 EIRP	33

2.3. Orthogonal position 1 and 2, Antenna 1

2.3.1 GSM 850 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	26.19	0.416	-5.83	32.02	HORIZONTAL	PASSED
190 / 836.6	26.69	0.466	-5.06	31.75	HORIZONTAL	PASSED
251 / 848.8	26.31	0.428	-4.81	31.12	HORIZONTAL	PASSED

2.3.2 GSM 850 E-GPRS (MSC9) test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	22.1	0.162	-9.92	32.02	HORIZONTAL	PASSED
190 / 836.6	21.98	0.158	-9.77	31.75	HORIZONTAL	PASSED
251 / 848.8	24.55	0.285	-6.57	31.12	HORIZONTAL	PASSED

2.3.3 GSM 1900 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	21.97	0.157	-20.91	42.88	HORIZONTAL	PASSED
661 / 1880	22.06	0.161	-20.75	42.81	HORIZONTAL	PASSED
810 / 1909.8	23.04	0.202	-20.08	43.12	HORIZONTAL	PASSED

2.3.4 GSM 1900 E-GPRS (MSC9) test results, DUT 400061

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	22.27	0.169	-20.61	42.88	HORIZONTAL	PASSED
661 / 1880	21.98	0.158	-20.83	42.81	HORIZONTAL	PASSED
810 / 1909.8	23.49	0.223	-19.63	43.12	HORIZONTAL	PASSED

2.3.5 WCDMA5 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
4132 / 826.4	18.28	0.067	-13.75	32.03	HORIZONTAL	PASSED
4175 / 835	17.9	0.062	-14.05	31.95	HORIZONTAL	PASSED
4233 / 846.6	17.39	0.055	-13.78	31.17	HORIZONTAL	PASSED

2.3.6 LTE7 test results, Orthogonal position 1 and 2, Antenna 1, DUT 400049

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	24.24	0.266	-22.82	47.06	HORIZONTAL	PASSED
21100 / 2535	24.58	0.287	-22.68	47.26	HORIZONTAL	PASSED
21425 / 2567.5	25.26	0.336	-22.26	47.52	HORIZONTAL	PASSED

FDD, CBW 5MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.54	0.568	-19.52	47.06	HORIZONTAL	PASSED
21100 / 2535	27.86	0.611	-19.4	47.26	HORIZONTAL	PASSED
21425 / 2567.5	28.31	0.678	-19.21	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.29	0.269	-22.89	47.18	HORIZONTAL	PASSED
21100 / 2535	24.98	0.315	-22.28	47.26	HORIZONTAL	PASSED
21100 / 2565	25.38	0.345	-22.14	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.53	0.567	-19.65	47.18	HORIZONTAL	PASSED
21100 / 2535	27.86	0.611	-19.4	47.26	HORIZONTAL	PASSED
21100 / 2565	28.64	0.731	-18.88	47.52	HORIZONTAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	22.67	0.185	-24.57	47.24	HORIZONTAL	PASSED
21100 / 2535	23.03	0.201	-24.23	47.26	HORIZONTAL	PASSED
21100 / 2562.5	24.04	0.253	-23.51	47.55	HORIZONTAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	25.56	0.36	-21.68	47.24	HORIZONTAL	PASSED
21100 / 2535	26.41	0.437	-20.85	47.26	HORIZONTAL	PASSED
21100 / 2562.5	27.27	0.533	-20.28	47.55	HORIZONTAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	24.74	0.298	-22.5	47.24	HORIZONTAL	PASSED
21100 / 2535	25.25	0.335	-22.01	47.26	HORIZONTAL	PASSED
21100 / 2560	25.33	0.341	-22.25	47.58	HORIZONTAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	27.59	0.574	-19.65	47.24	HORIZONTAL	PASSED
21100 / 2535	28.51	0.71	-18.75	47.26	HORIZONTAL	PASSED
21100 / 2560	28.38	0.688	-19.2	47.58	HORIZONTAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	24.11	0.257	-22.95	47.06	HORIZONTAL	PASSED
21100 / 2535	24.18	0.262	-23.08	47.26	HORIZONTAL	PASSED
21425 / 2567.5	24.98	0.314	-22.54	47.52	HORIZONTAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.41	0.551	-19.65	47.06	HORIZONTAL	PASSED
21100 / 2535	28.38	0.689	-18.88	47.26	HORIZONTAL	PASSED
21425 / 2567.5	28.31	0.678	-19.21	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.83	0.304	-22.35	47.18	HORIZONTAL	PASSED
21100 / 2535	24.43	0.277	-22.83	47.26	HORIZONTAL	PASSED
21100 / 2565	24.59	0.288	-22.93	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.66	0.584	-19.52	47.18	HORIZONTAL	PASSED
21100 / 2535	27.99	0.63	-19.27	47.26	HORIZONTAL	PASSED
21100 / 2565	28.19	0.659	-19.33	47.52	HORIZONTAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	24.47	0.28	-22.77	47.24	HORIZONTAL	PASSED
21100 / 2535	24.55	0.285	-22.71	47.26	HORIZONTAL	PASSED
21100 / 2562.5	24.57	0.287	-22.98	47.55	HORIZONTAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	27.66	0.583	-19.58	47.24	HORIZONTAL	PASSED
21100 / 2535	27.93	0.621	-19.33	47.26	HORIZONTAL	PASSED
21100 / 2562.5	27.77	0.599	-19.78	47.55	HORIZONTAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	24.86	0.306	-22.38	47.24	HORIZONTAL	PASSED
21100 / 2535	24.79	0.301	-22.47	47.26	HORIZONTAL	PASSED
21100 / 2560	25.3	0.339	-22.28	47.58	HORIZONTAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	27.66	0.583	-19.58	47.24	HORIZONTAL	PASSED
21100 / 2535	28.38	0.689	-18.88	47.26	HORIZONTAL	PASSED
21100 / 2560	28.18	0.658	-19.4	47.58	HORIZONTAL	PASSED

2.4. Orthogonal position 3, Antenna 1

2.4.1 GSM 850 test results, 004402742963121

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	26.26	0.422	-5.76	32.02	HORIZONTAL	PASSED
190 / 836.6	26.91	0.491	-4.84	31.75	HORIZONTAL	PASSED
251 / 848.8	26.86	0.485	-4.26	31.12	HORIZONTAL	PASSED

2.4.2 GSM 850 E-GPRS (MSC9) test results, 004402742963121

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	21.87	0.154	-10.15	32.02	HORIZONTAL	PASSED
190 / 836.6	23.05	0.202	-8.7	31.75	HORIZONTAL	PASSED
251 / 848.8	23.21	0.21	-7.91	31.12	HORIZONTAL	PASSED

2.4.3 GSM 1900 test results, 004402742963121

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	26.85	0.484	-16.03	42.88	HORIZONTAL	PASSED
661 / 1880	26.64	0.462	-16.17	42.81	HORIZONTAL	PASSED
810 / 1909.8	27.99	0.63	-15.13	43.12	HORIZONTAL	PASSED

2.4.4 GSM 1900 E-GPRS (MSC9) test results, 004402742963121

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	22.3	0.17	-20.58	42.88	HORIZONTAL	PASSED
661 / 1880	22.45	0.176	-20.36	42.81	HORIZONTAL	PASSED
810 / 1909.8	23.49	0.223	-19.63	43.12	HORIZONTAL	PASSED

2.4.5 WCDMA5 test results, 004402742963121

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
4132 / 826.4	15.12	0.032	-16.48	31.6	VERTICAL	PASSED
4175 / 835	14.75	0.03	-16.94	31.69	VERTICAL	PASSED
4233 / 846.6	14.92	0.031	-16.96	31.88	VERTICAL	PASSED

2.4.6 LTE7 test results, Orthogonal position 3, Antenna 1, DUT 400049

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	24.12	0.258	-23.13	47.25	VERTICAL	PASSED
21100 / 2535	24.24	0.266	-23.16	47.4	VERTICAL	PASSED
21425 / 2567.5	24.84	0.305	-22.84	47.68	VERTICAL	PASSED

FDD, CBW 5MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.35	0.543	-19.9	47.25	VERTICAL	PASSED
21100 / 2535	27.88	0.613	-19.52	47.4	VERTICAL	PASSED
21425 / 2567.5	27.9	0.616	-19.78	47.68	VERTICAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.11	0.257	-23.29	47.4	VERTICAL	PASSED
21100 / 2535	24.44	0.278	-22.96	47.4	VERTICAL	PASSED
21100 / 2565	24.89	0.308	-22.77	47.66	VERTICAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.25	0.531	-20.15	47.4	VERTICAL	PASSED
21100 / 2535	27.69	0.587	-19.71	47.4	VERTICAL	PASSED
21100 / 2565	28.2	0.66	-19.46	47.66	VERTICAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	23.85	0.242	-23.54	47.39	VERTICAL	PASSED
21100 / 2535	24.14	0.259	-23.26	47.4	VERTICAL	PASSED
21100 / 2562.5	24.85	0.305	-22.84	47.69	VERTICAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	26.98	0.499	-20.41	47.39	VERTICAL	PASSED
21100 / 2535	27.69	0.587	-19.71	47.4	VERTICAL	PASSED
21100 / 2562.5	28.04	0.637	-19.65	47.69	VERTICAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	24.36	0.273	-22.99	47.35	VERTICAL	PASSED
21100 / 2535	24.41	0.276	-22.99	47.4	VERTICAL	PASSED
21100 / 2560	24.49	0.281	-23.24	47.73	VERTICAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	27.26	0.532	-20.09	47.35	VERTICAL	PASSED
21100 / 2535	27.94	0.622	-19.46	47.4	VERTICAL	PASSED
21100 / 2560	28.08	0.643	-19.65	47.73	VERTICAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	24.23	0.265	-23.02	47.25	VERTICAL	PASSED
21100 / 2535	24.16	0.26	-23.24	47.4	VERTICAL	PASSED
21425 / 2567.5	24.91	0.31	-22.77	47.68	VERTICAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.54	0.568	-19.71	47.25	VERTICAL	PASSED
21100 / 2535	27.75	0.596	-19.65	47.4	VERTICAL	PASSED
21425 / 2567.5	28.34	0.683	-19.34	47.68	VERTICAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.49	0.281	-22.91	47.4	VERTICAL	PASSED
21100 / 2535	24.12	0.258	-23.28	47.4	VERTICAL	PASSED
21100 / 2565	24.99	0.315	-22.67	47.66	VERTICAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.5	0.562	-19.9	47.4	VERTICAL	PASSED
21100 / 2535	27.75	0.596	-19.65	47.4	VERTICAL	PASSED
21100 / 2565	28.39	0.69	-19.27	47.66	VERTICAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	24.54	0.284	-22.85	47.39	VERTICAL	PASSED
21100 / 2535	24.21	0.264	-23.19	47.4	VERTICAL	PASSED
21100 / 2562.5	25.37	0.344	-22.32	47.69	VERTICAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	27.43	0.553	-19.96	47.39	VERTICAL	PASSED
21100 / 2535	27.88	0.613	-19.52	47.4	VERTICAL	PASSED
21100 / 2562.5	28.36	0.686	-19.33	47.69	VERTICAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	24.51	0.283	-22.84	47.35	VERTICAL	PASSED
21100 / 2535	24.35	0.272	-22.91	47.26	HORIZONTAL	PASSED
21100 / 2560	24.98	0.315	-22.75	47.73	VERTICAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	27.46	0.558	-19.78	47.24	HORIZONTAL	PASSED
21100 / 2535	27.99	0.63	-19.27	47.26	HORIZONTAL	PASSED
21100 / 2560	28.08	0.643	-19.65	47.73	VERTICAL	PASSED

2.5. Orthogonal position 1 and 2, Antenna 2

2.5.1 GSM 850 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	27.28	0.534	-4.74	32.02	HORIZONTAL	PASSED
190 / 836.6	27.09	0.512	-4.66	31.75	HORIZONTAL	PASSED
251 / 848.8	25.92	0.391	-5.2	31.12	HORIZONTAL	PASSED

2.5.2 GSM 850 E-GPRS (MSC9) test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	24.04	0.253	-7.98	32.02	HORIZONTAL	PASSED
190 / 836.6	23.11	0.205	-8.64	31.75	HORIZONTAL	PASSED
251 / 848.8	25.23	0.333	-6.72	31.95	VERTICAL	PASSED

2.5.3 GSM 1900 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	26.8	0.479	-16.08	42.88	HORIZONTAL	PASSED
661 / 1880	26.59	0.456	-16.22	42.81	HORIZONTAL	PASSED
810 / 1909.8	26.53	0.449	-16.59	43.12	HORIZONTAL	PASSED

2.5.4 GSM 1900 E-GPRS (MSC9) test results, DUT 400061

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	22.02	0.159	-20.86	42.88	HORIZONTAL	PASSED
661 / 1880	22.51	0.178	-20.3	42.81	HORIZONTAL	PASSED
810 / 1909.8	22.53	0.179	-20.59	43.12	HORIZONTAL	PASSED

2.5.5 WCDMA5 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
4132 / 826.4	16.73	0.047	-14.87	31.6	VERTICAL	PASSED
4175 / 835	16.35	0.043	-15.34	31.69	VERTICAL	PASSED
4233 / 846.6	16.35	0.043	-15.53	31.88	VERTICAL	PASSED

2.5.6 LTE7 test results, Orthogonal position 1 and 2, Antenna 2, DUT 400049

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	24.38	0.274	-22.68	47.06	HORIZONTAL	PASSED
21100 / 2535	23.46	0.222	-23.8	47.26	HORIZONTAL	PASSED
21425 / 2567.5	23.94	0.248	-23.58	47.52	HORIZONTAL	PASSED

FDD, CBW 5MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.48	0.56	-19.58	47.06	HORIZONTAL	PASSED
21100 / 2535	26.53	0.45	-20.73	47.26	HORIZONTAL	PASSED
21425 / 2567.5	26.98	0.499	-20.54	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.63	0.29	-22.55	47.18	HORIZONTAL	PASSED
21100 / 2535	23.3	0.214	-23.96	47.26	HORIZONTAL	PASSED
21100 / 2565	24.12	0.258	-23.4	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.98	0.628	-19.2	47.18	HORIZONTAL	PASSED
21100 / 2535	26.85	0.484	-20.41	47.26	HORIZONTAL	PASSED
21100 / 2565	27.11	0.514	-20.41	47.52	HORIZONTAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	24.53	0.284	-22.71	47.24	HORIZONTAL	PASSED
21100 / 2535	23.41	0.219	-23.85	47.26	HORIZONTAL	PASSED
21100 / 2562.5	24.24	0.265	-23.31	47.55	HORIZONTAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	28.1	0.646	-19.14	47.24	HORIZONTAL	PASSED
21100 / 2535	26.6	0.457	-20.66	47.26	HORIZONTAL	PASSED
21100 / 2562.5	26.82	0.481	-20.73	47.55	HORIZONTAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	24.9	0.309	-22.34	47.24	HORIZONTAL	PASSED
21100 / 2535	23.84	0.242	-23.42	47.26	HORIZONTAL	PASSED
21100 / 2560	24.31	0.27	-23.27	47.58	HORIZONTAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	28.5	0.707	-18.74	47.24	HORIZONTAL	PASSED
21100 / 2535	27.1	0.513	-20.16	47.26	HORIZONTAL	PASSED
21100 / 2560	27.36	0.545	-20.22	47.58	HORIZONTAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	23.94	0.248	-23.12	47.06	HORIZONTAL	PASSED
21100 / 2535	23.64	0.231	-23.62	47.26	HORIZONTAL	PASSED
21425 / 2567.5	23.26	0.212	-24.26	47.52	HORIZONTAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.35	0.543	-19.71	47.06	HORIZONTAL	PASSED
21100 / 2535	26.6	0.457	-20.66	47.26	HORIZONTAL	PASSED
21425 / 2567.5	26.79	0.478	-20.73	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.33	0.271	-22.85	47.18	HORIZONTAL	PASSED
21100 / 2535	23.24	0.211	-24.02	47.26	HORIZONTAL	PASSED
21100 / 2565	23.74	0.237	-23.78	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.6	0.575	-19.58	47.18	HORIZONTAL	PASSED
21100 / 2535	26.79	0.477	-20.47	47.26	HORIZONTAL	PASSED
21100 / 2565	26.85	0.485	-20.67	47.52	HORIZONTAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	24.45	0.278	-22.79	47.24	HORIZONTAL	PASSED
21100 / 2535	22.72	0.187	-24.54	47.26	HORIZONTAL	PASSED
21100 / 2562.5	24.37	0.274	-23.18	47.55	HORIZONTAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	27.72	0.592	-19.52	47.24	HORIZONTAL	PASSED
21100 / 2535	26.6	0.457	-20.66	47.26	HORIZONTAL	PASSED
21100 / 2562.5	27.14	0.517	-20.41	47.55	HORIZONTAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	25.31	0.34	-21.93	47.24	HORIZONTAL	PASSED
21100 / 2535	23.91	0.246	-23.35	47.26	HORIZONTAL	PASSED
21100 / 2560	24.59	0.288	-22.99	47.58	HORIZONTAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	28.9	0.776	-18.34	47.24	HORIZONTAL	PASSED
21100 / 2535	27.17	0.521	-20.09	47.26	HORIZONTAL	PASSED
21100 / 2560	27.36	0.545	-20.22	47.58	HORIZONTAL	PASSED

2.6. Orthogonal position 3, Antenna 2

2.6.1 GSM 850 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	26.46	0.443	-5.56	32.02	HORIZONTAL	PASSED
190 / 836.6	26.41	0.438	-5.34	31.75	HORIZONTAL	PASSED
251 / 848.8	25.62	0.365	-5.5	31.12	HORIZONTAL	PASSED

2.6.2 GSM 850 E-GPRS (MSC9) test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	23.54	0.226	-8.48	32.02	HORIZONTAL	PASSED
190 / 836.6	22.44	0.175	-9.31	31.75	HORIZONTAL	PASSED
251 / 848.8	21.68	0.147	-9.44	31.12	HORIZONTAL	PASSED

2.6.3 GSM 1900 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	22.21	0.166	-20.67	42.88	HORIZONTAL	PASSED
661 / 1880	22.41	0.174	-20.4	42.81	HORIZONTAL	PASSED
810 / 1909.8	22.1	0.162	-21.02	43.12	HORIZONTAL	PASSED

2.6.4 GSM 1900 E-GPRS (MSC9) test results, DUT 400061

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	22.62	0.183	-20.26	42.88	HORIZONTAL	PASSED
661 / 1880	22.28	0.169	-20.53	42.81	HORIZONTAL	PASSED
810 / 1909.8	22.3	0.17	-20.82	43.12	HORIZONTAL	PASSED

2.6.5 WCDMA5 test results, DUT 400061

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
4132 / 826.4	17.14	0.052	-14.89	32.03	HORIZONTAL	PASSED
4175 / 835	17.14	0.052	-14.81	31.95	HORIZONTAL	PASSED
4233 / 846.6	16.66	0.046	-14.51	31.17	HORIZONTAL	PASSED

2.6.6 LTE7 test results, Orthogonal position 3, Antenna 2, DUT 400049

FDD, CBW 5MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	23.9	0.245	-23.16	47.06	HORIZONTAL	PASSED
21100 / 2535	24.11	0.258	-23.15	47.26	HORIZONTAL	PASSED
21425 / 2567.5	23.51	0.224	-24.01	47.52	HORIZONTAL	PASSED

FDD, CBW 5MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	27.1	0.512	-19.96	47.06	HORIZONTAL	PASSED
21100 / 2535	27.36	0.544	-19.9	47.26	HORIZONTAL	PASSED
21425 / 2567.5	26.54	0.45	-20.98	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	24.18	0.262	-23	47.18	HORIZONTAL	PASSED
21100 / 2535	24.02	0.252	-23.24	47.26	HORIZONTAL	PASSED
21100 / 2565	23.45	0.221	-24.07	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.22	0.527	-19.96	47.18	HORIZONTAL	PASSED
21100 / 2535	27.23	0.528	-20.03	47.26	HORIZONTAL	PASSED
21100 / 2565	26.41	0.438	-21.11	47.52	HORIZONTAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	24.17	0.261	-23.07	47.24	HORIZONTAL	PASSED
21100 / 2535	23.65	0.232	-23.61	47.26	HORIZONTAL	PASSED
21100 / 2562.5	23.1	0.204	-24.45	47.55	HORIZONTAL	PASSED

FDD, CBW 15MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	27.21	0.526	-20.03	47.24	HORIZONTAL	PASSED
21100 / 2535	27.17	0.521	-20.09	47.26	HORIZONTAL	PASSED
21100 / 2562.5	26.12	0.41	-21.43	47.55	HORIZONTAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	23.56	0.227	-23.68	47.24	HORIZONTAL	PASSED
21100 / 2535	24.05	0.254	-23.21	47.26	HORIZONTAL	PASSED
21100 / 2560	23.31	0.214	-24.27	47.58	HORIZONTAL	PASSED

FDD, CBW 20MHz, QPSK, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	27.34	0.542	-19.9	47.24	HORIZONTAL	PASSED
21100 / 2535	27.17	0.521	-20.09	47.26	HORIZONTAL	PASSED
21100 / 2560	26.28	0.425	-21.3	47.58	HORIZONTAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	23.47	0.222	-23.59	47.06	HORIZONTAL	PASSED
21100 / 2535	24.04	0.253	-23.22	47.26	HORIZONTAL	PASSED
21425 / 2567.5	23.36	0.217	-24.16	47.52	HORIZONTAL	PASSED

FDD, CBW 5MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20775 / 2502.5	26.65	0.463	-20.41	47.06	HORIZONTAL	PASSED
21100 / 2535	26.85	0.484	-20.41	47.26	HORIZONTAL	PASSED
21425 / 2567.5	26.66	0.464	-20.86	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	23.43	0.22	-23.75	47.18	HORIZONTAL	PASSED
21100 / 2535	23.8	0.24	-23.46	47.26	HORIZONTAL	PASSED
21100 / 2565	23.43	0.22	-24.09	47.52	HORIZONTAL	PASSED

FDD, CBW 10MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2505	27.22	0.527	-19.96	47.18	HORIZONTAL	PASSED
21100 / 2535	27.04	0.506	-20.22	47.26	HORIZONTAL	PASSED
21100 / 2565	26.67	0.464	-20.85	47.52	HORIZONTAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	23.29	0.213	-23.95	47.24	HORIZONTAL	PASSED
21100 / 2535	22.57	0.181	-24.69	47.26	HORIZONTAL	PASSED
21100 / 2562.5	23.01	0.2	-24.68	47.69	VERTICAL	PASSED

FDD, CBW 15MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2507.5	26.64	0.462	-20.6	47.24	HORIZONTAL	PASSED
21100 / 2535	25.71	0.372	-21.55	47.26	HORIZONTAL	PASSED
21100 / 2562.5	25.89	0.388	-21.8	47.69	VERTICAL	PASSED

FDD, CBW 20MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	23.84	0.242	-23.4	47.24	HORIZONTAL	PASSED
21100 / 2535	23.84	0.242	-23.42	47.26	HORIZONTAL	PASSED
21100 / 2560	23.76	0.238	-23.82	47.58	HORIZONTAL	PASSED

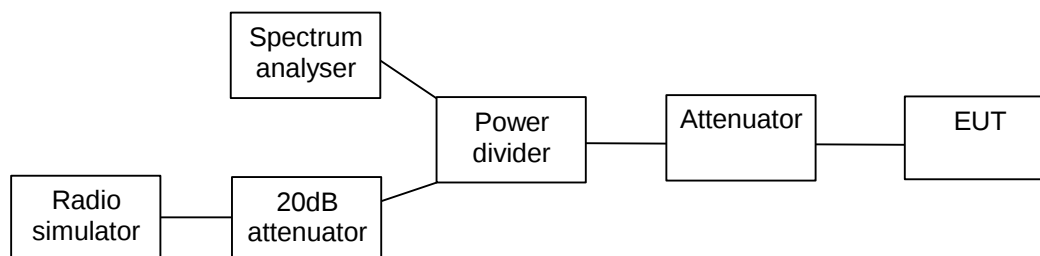
FDD, CBW 20MHz, 16QAM, 1RB mid, Peak detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2510	27.53	0.566	-19.71	47.24	HORIZONTAL	PASSED
21100 / 2535	27.17	0.521	-20.09	47.26	HORIZONTAL	PASSED
21100 / 2560	26.22	0.419	-21.36	47.58	HORIZONTAL	PASSED

3. Peak to average power ratio

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.35
Results	PASSED
Remarks	RF Cond 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 40 / 100.5
Date of measurements	25-Oct-2015
Measured by	Hannu Soderholm

3.1. Test Setup



3.2. Test method and limit

The measurement is made according to applicable RSS -standard.

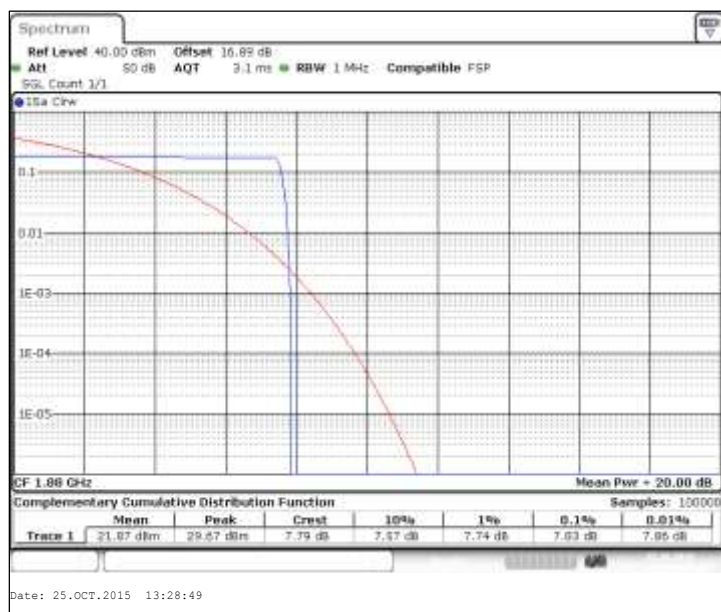
Limits for Peak to average power ratio measurements

Peak to average power ratio [dB]
≤ 13

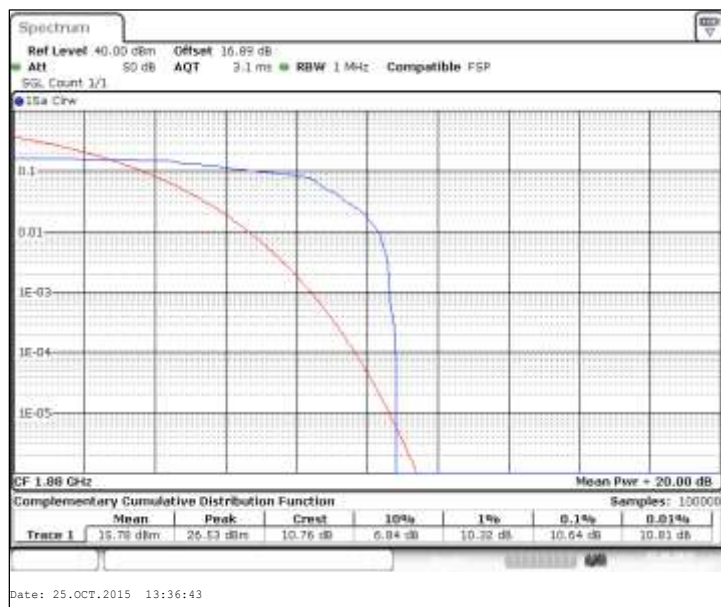
3.3. GSM 1900 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
GSM	661 / 1880.0	7.79	PASSED
EGPRS	661 / 1880.0	10.76	PASSED

GSM



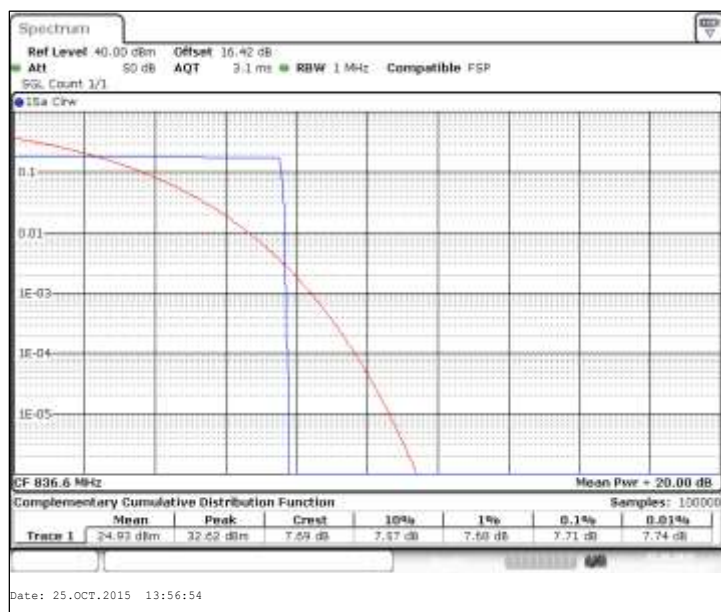
EGPRS



3.4. GSM 850 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
GSM	190 / 836.6	7.69	PASSED
EGPRS	190 / 836.6	10.37	PASSED

GSM



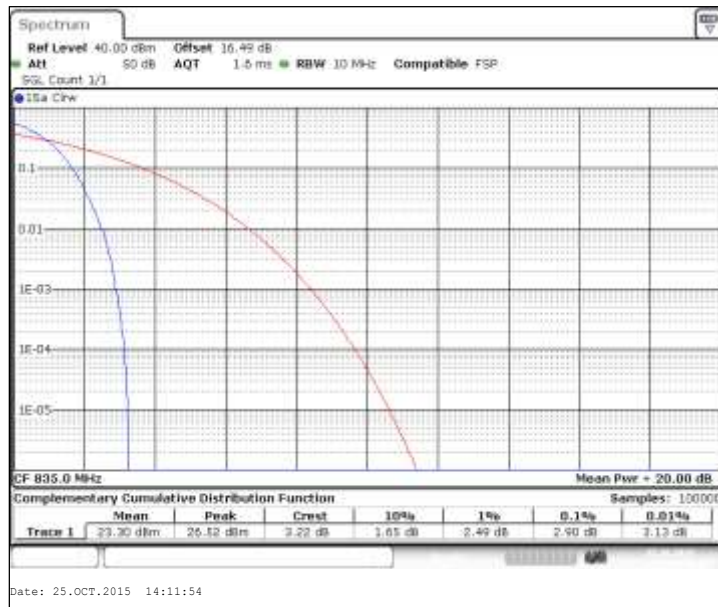
EGPRS



3.5. WCDMA5 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD	4175 / 835.0	3.22	PASSED

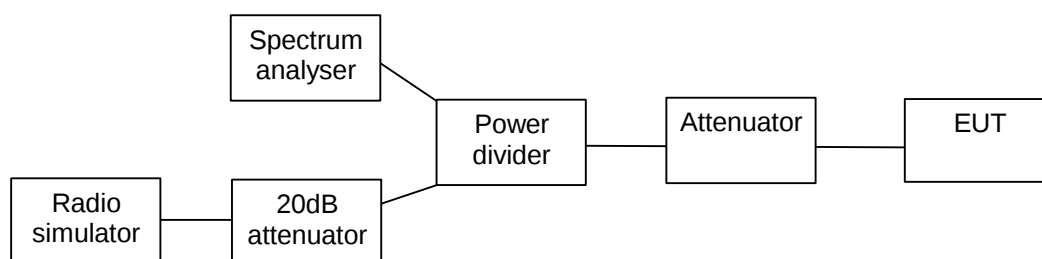
FDD



4. 99 % occupied bandwidth

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.35
Results	PASSED
Remarks	RF Cond 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 40 / 100.5
Date of measurements	30-Oct-2015
Measured by	Hannu Soderholm

4.1. Test Setup



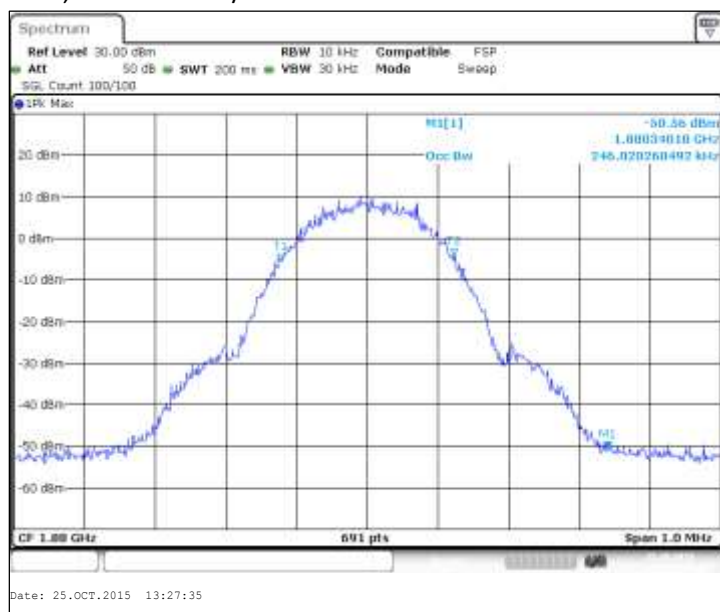
4.2. Test method and limit

The measurement is made according to TIA-603-D and RSS-Gen.

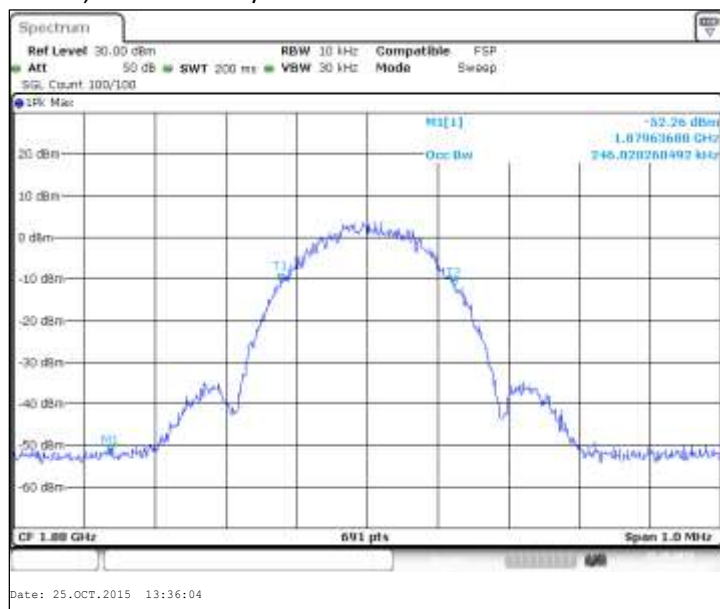
4.3. GSM 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	246
EGPRS	246

GSM, Channel 661 / 1880.0 MHz



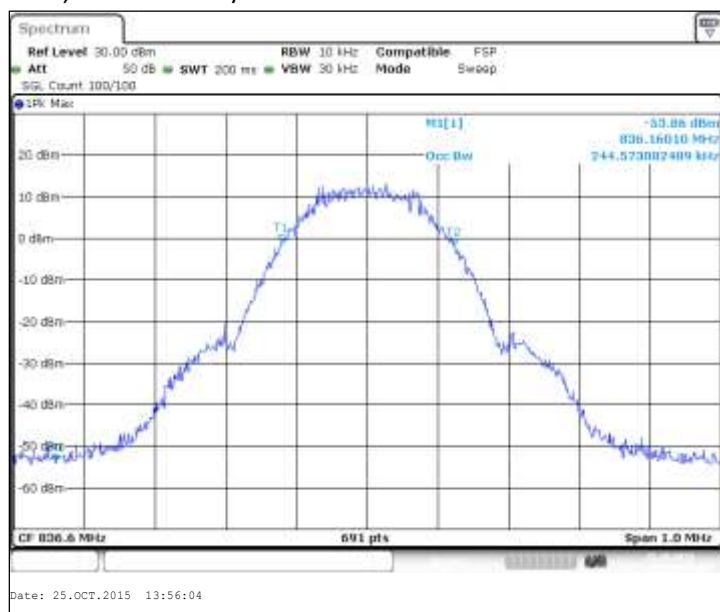
EGPRS, Channel 661 / 1880.0 MHz



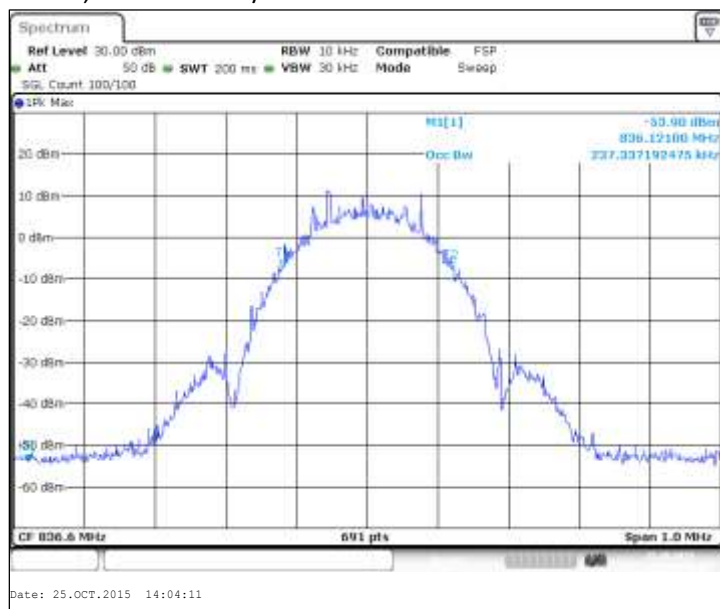
4.4. GSM 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	244.6
EGPRS	237.3

GSM, Channel 190 / 836.6 MHz



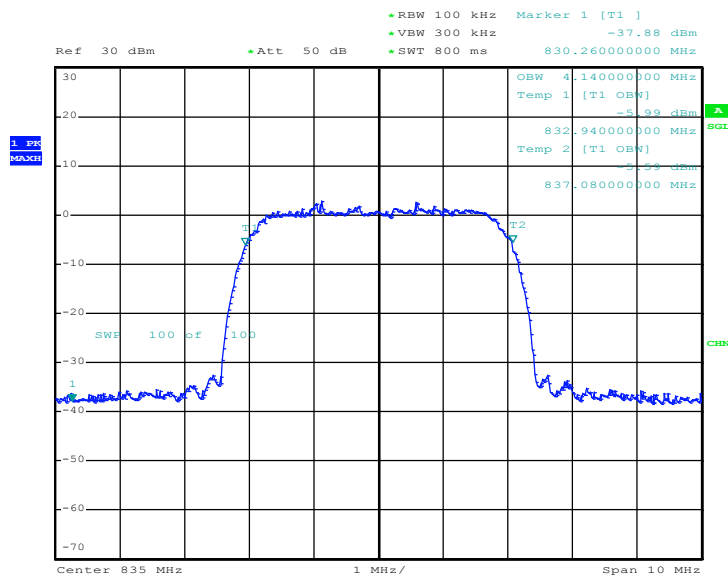
EGPRS, Channel 190 / 836.6 MHz



4.5. WCDMA5 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4140

FDD, Channel 4175 / 835.0 MHz

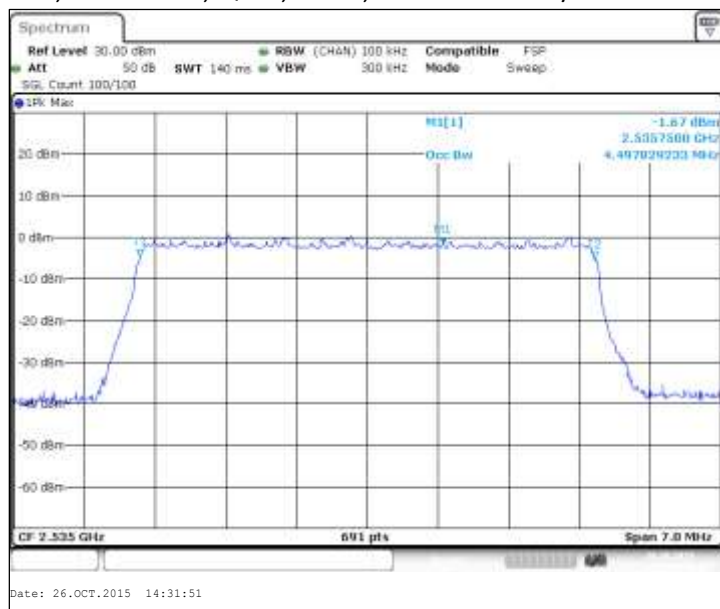


Date: 30.NOV.2015 10:40:23

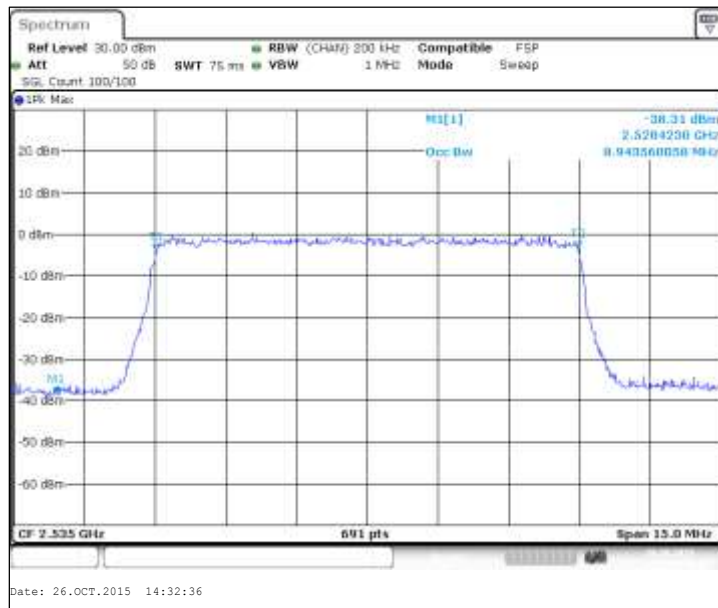
4.6. LTE7 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 5MHz, QPSK, 25 RB	4497.8
FDD, CBW 10MHz, QPSK, 50 RB	8943.6
FDD, CBW 15MHz, QPSK, 75 RB	13429.8
FDD, CBW 20MHz, QPSK, 100 RB	17872.6
FDD, CBW 5MHz, 16QAM, 25 RB	4477.6
FDD, CBW 10MHz, 16QAM, 50 RB	8943.6
FDD, CBW 15MHz, 16QAM, 75 RB	13400.9
FDD, CBW 20MHz, 16QAM, 100 RB	17872.6

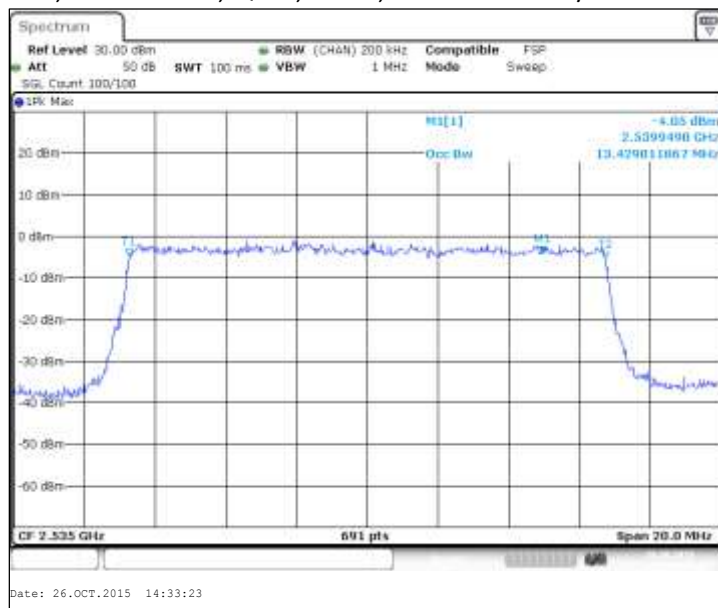
FDD, CBW 5MHz, QPSK, 25 RB, Channel 21100 / 2535.0 MHz



FDD, CBW 10MHz, QPSK, 50 RB, Channel 21100 / 2535.0 MHz



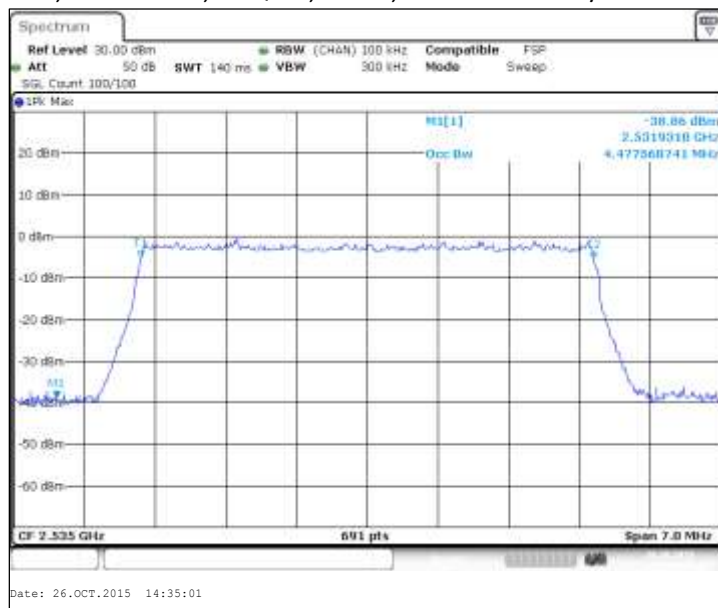
FDD, CBW 15MHz, QPSK, 75 RB, Channel 21100 / 2535.0 MHz



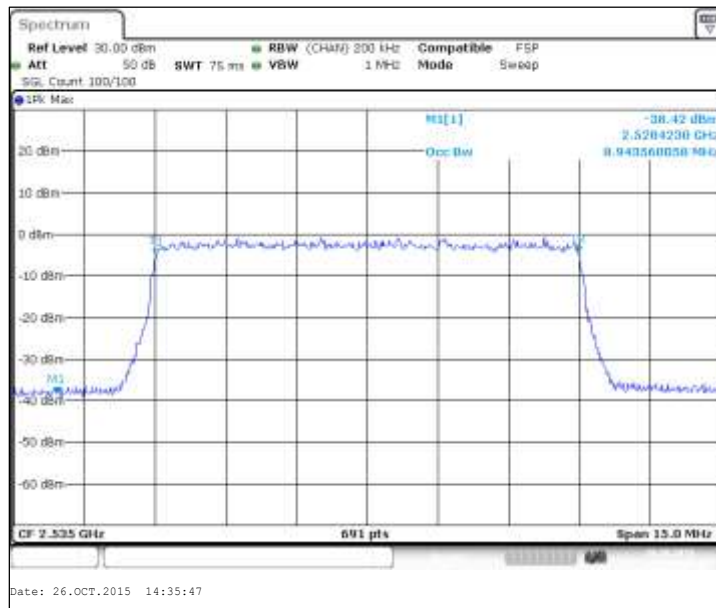
FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz



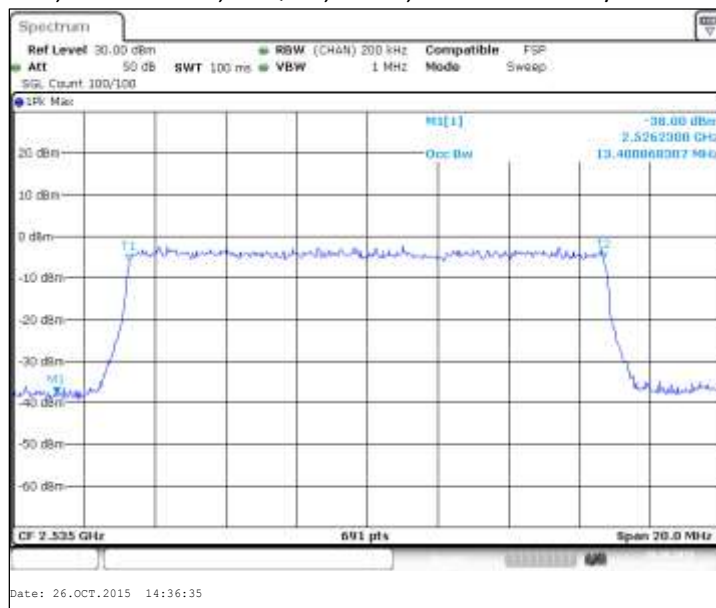
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 21100 / 2535.0 MHz



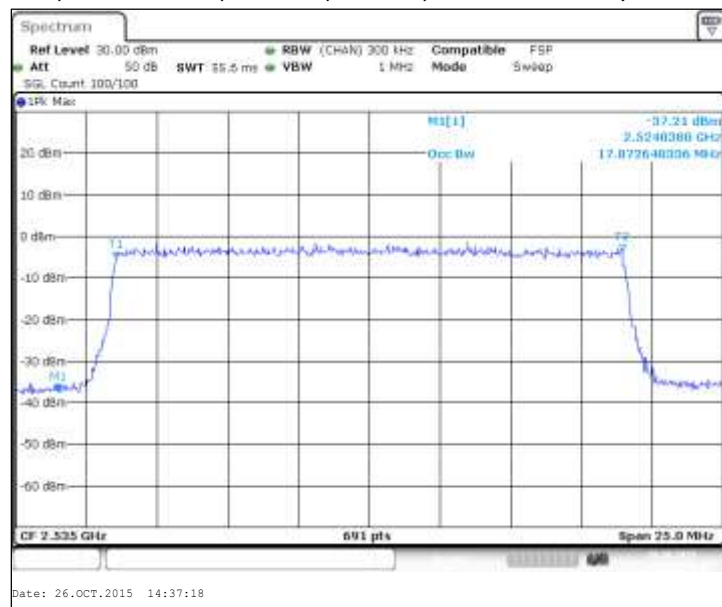
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 21100 / 2535.0 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 21100 / 2535.0 MHz



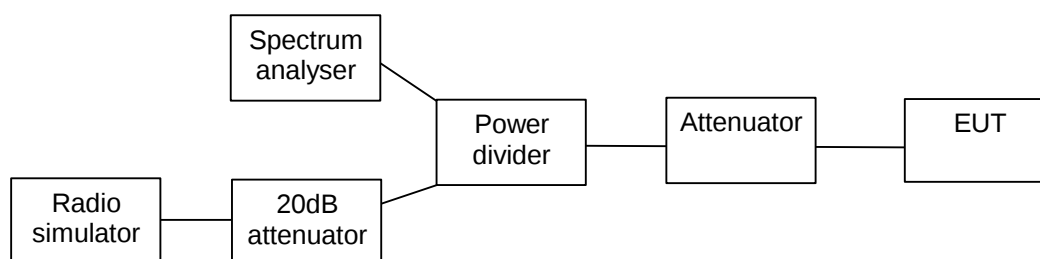
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 21100 / 2535.0 MHz



5. Band edge compliance

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.35
Results	PASSED
Remarks	RF Cond 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 40 / 100.5
Date of measurements	25-Oct-2015
Measured by	Hannu Soderholm

5.1. Test Setup



5.2. Test method and limit

The measurement is made according to TIA-603-D and applicable RSS standard.

LTE bands:

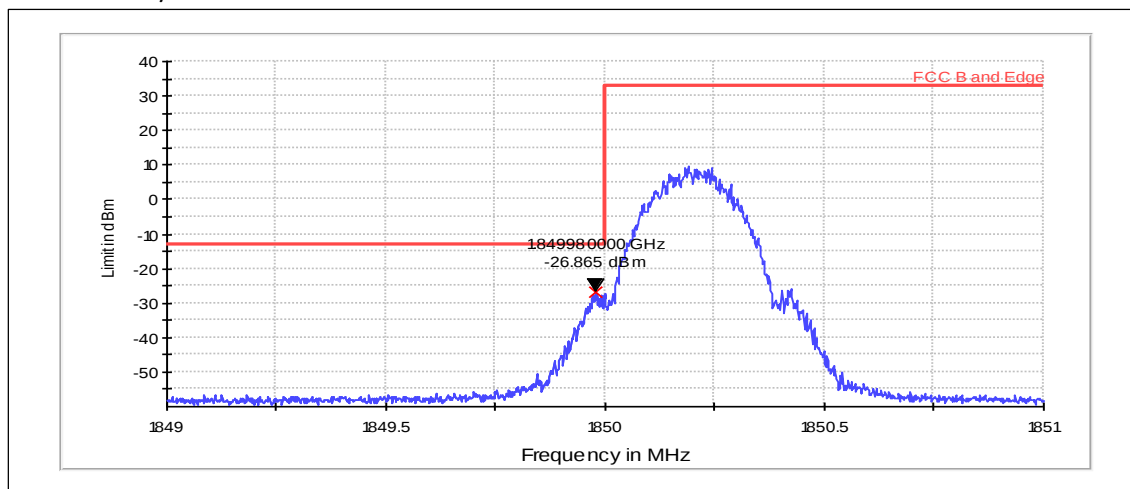
Previous evaluations have shown, that the currently selected CBW/RB configurations represent the worst case for this test. The evaluations are repeated every now and then to ensure, that the selections remain valid.

Limits for band edge compliance measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 1900	Below 1850 and above 1910	-13
GSM 850	Below 824 and above 849	-13
WCDMA5	Below 824 and above 849	-13
LTE7	2496 - 2499	-10 (RBW = 1 MHz, VBW = 3 MHz)
	2499 - 2500	-10 (RBW = 500 kHz, VBW = 2 MHz)
	2570 - 2571	-10 (RBW = 500 kHz, VBW = 2 MHz)
	2571 - 2575	-10 (RBW = 1 MHz, VBW = 3 MHz)

5.3. GSM 1900 Test results

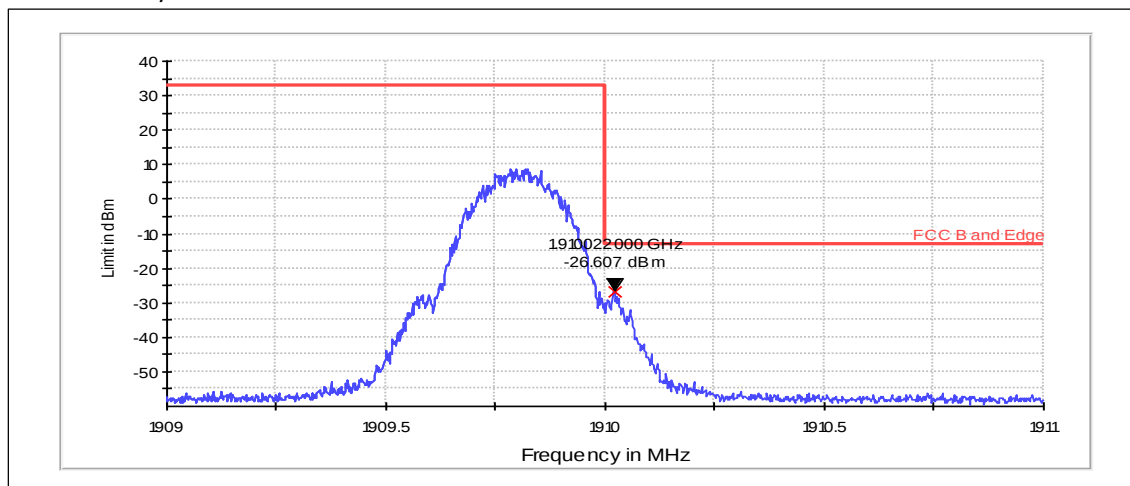
Channel 512 / 1850.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	1849.980	-26.87	PASSED

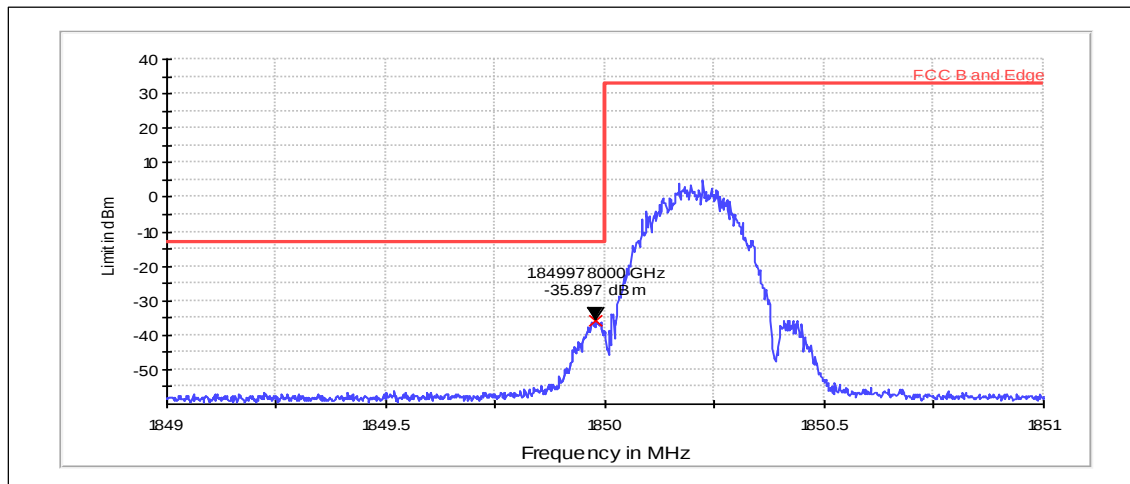
Channel 810 / 1909.8 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	1910.022	-26.61	PASSED

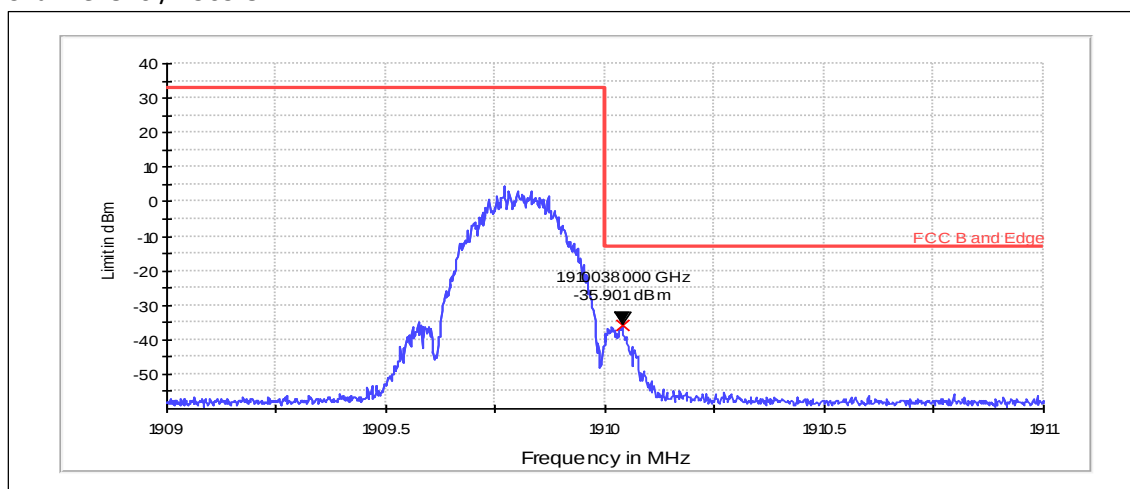
Channel 512 / 1850.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	1849.978	-35.90	PASSED

Channel 810 / 1909.8 MHz

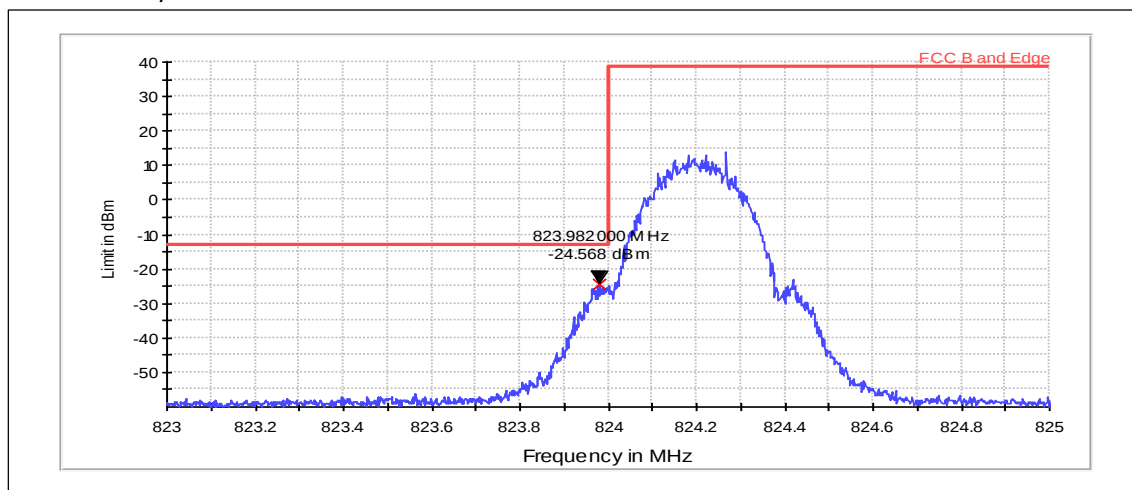


RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	1910.038	-35.90	PASSED

5.4. GSM 850 Test results

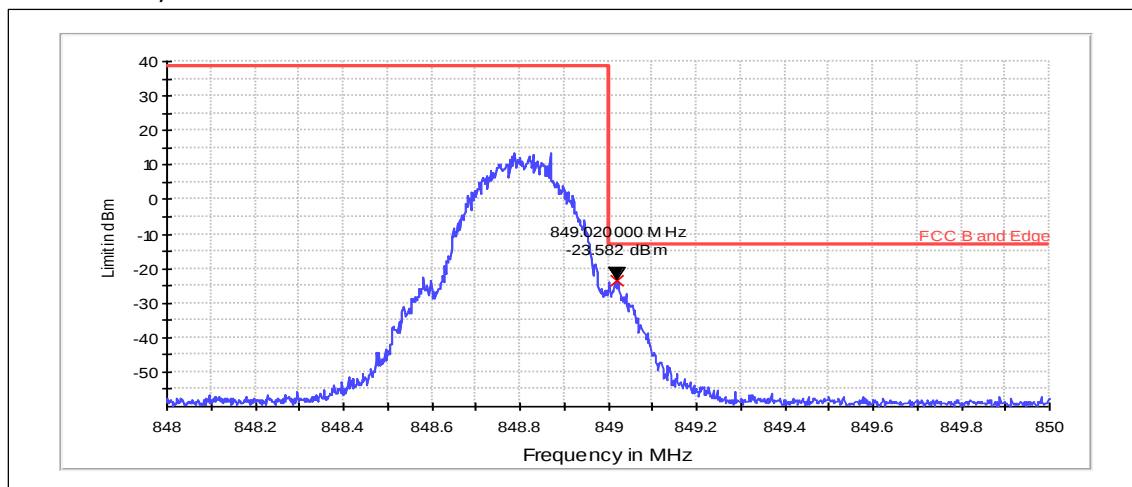
Channel 128 / 824.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	823.982	-24.57	PASSED

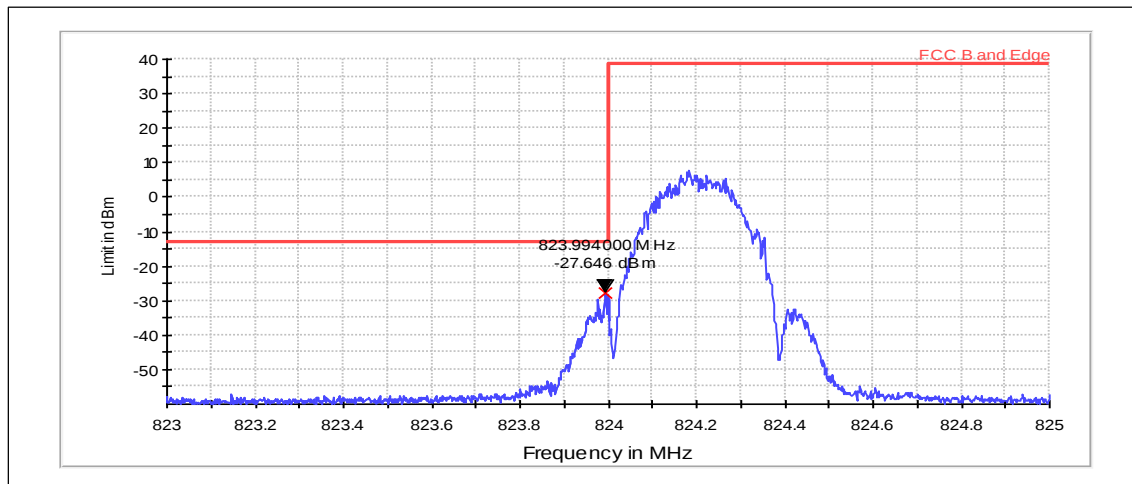
Channel 251 / 848.8 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	849.020	-23.58	PASSED

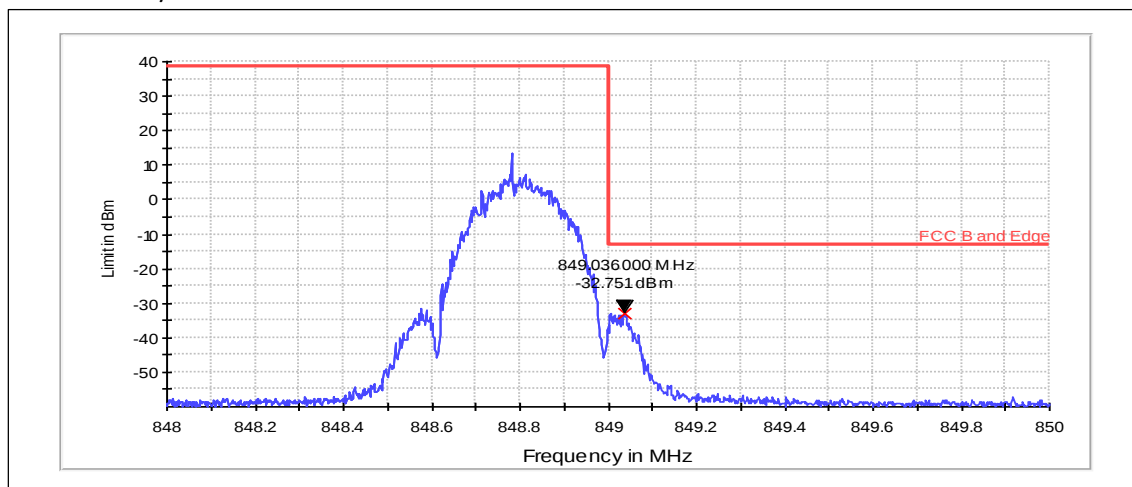
Channel 128 / 824.2 MHz



RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	823.994	-27.65	PASSED

Channel 251 / 848.8 MHz

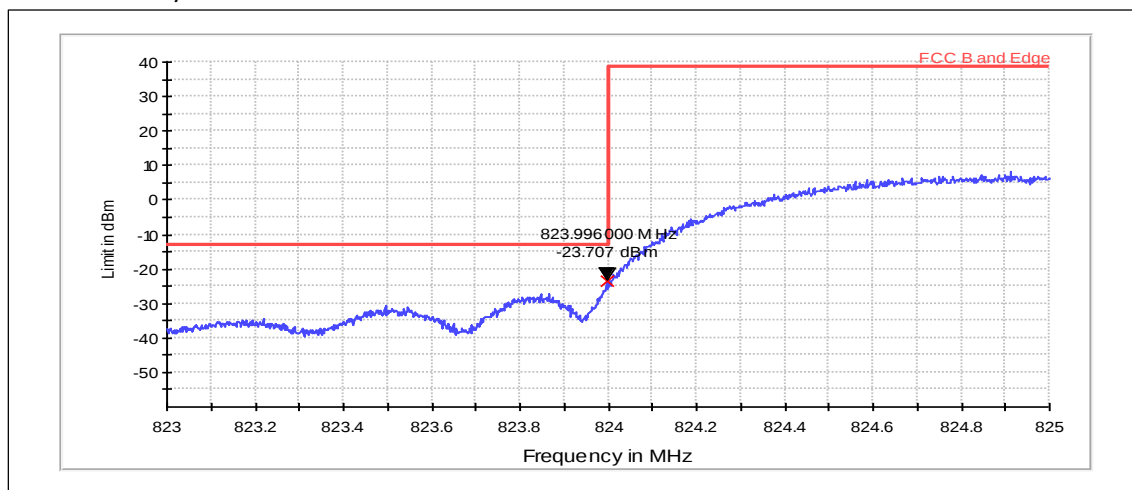


RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	849.036	-32.75	PASSED

5.5. WCDMA5 Test results

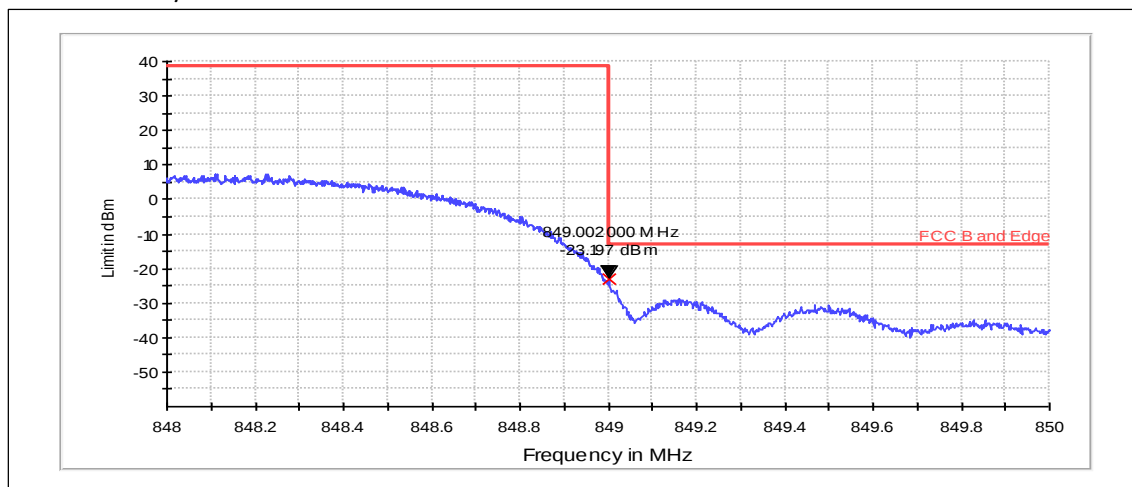
Channel 4132 / 826.4 MHz



RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	823.996	-23.71	PASSED

Channel 4233 / 846.6 MHz

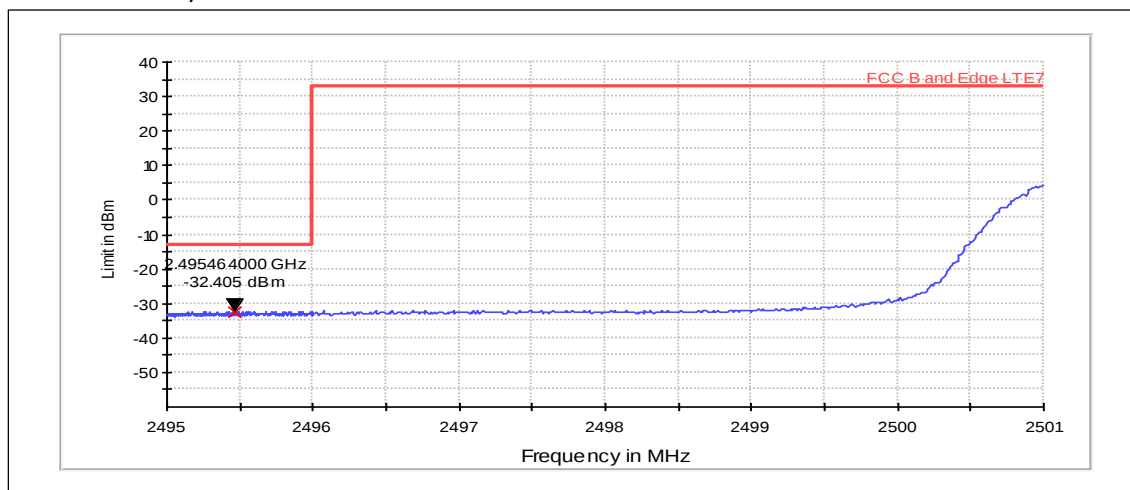


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	849.002	-23.20	PASSED

5.6. LTE7 Test results

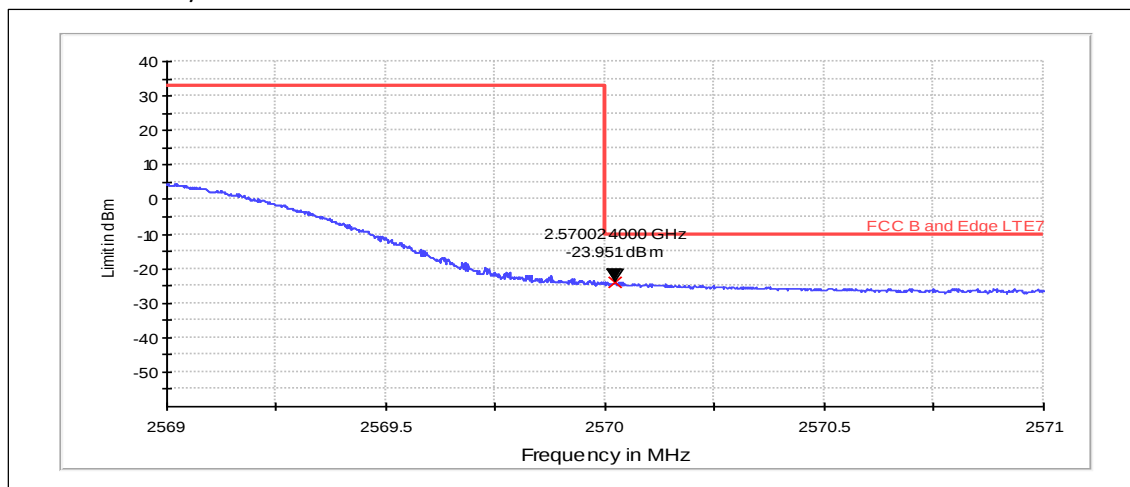
Channel 20850 / 2510 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	2495.464	-32.41	PASSED

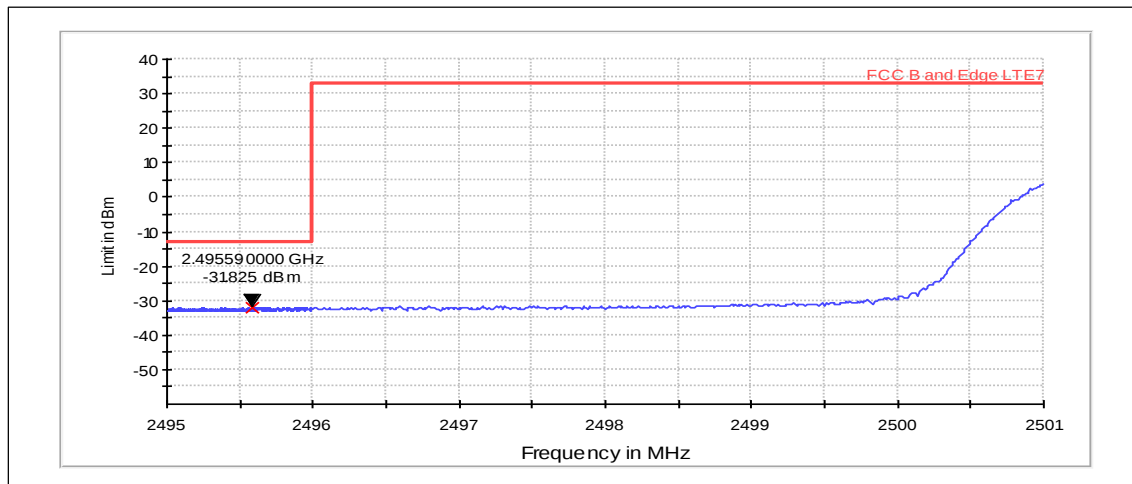
Channel 21350 / 2560 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	2570.024	-23.95	PASSED

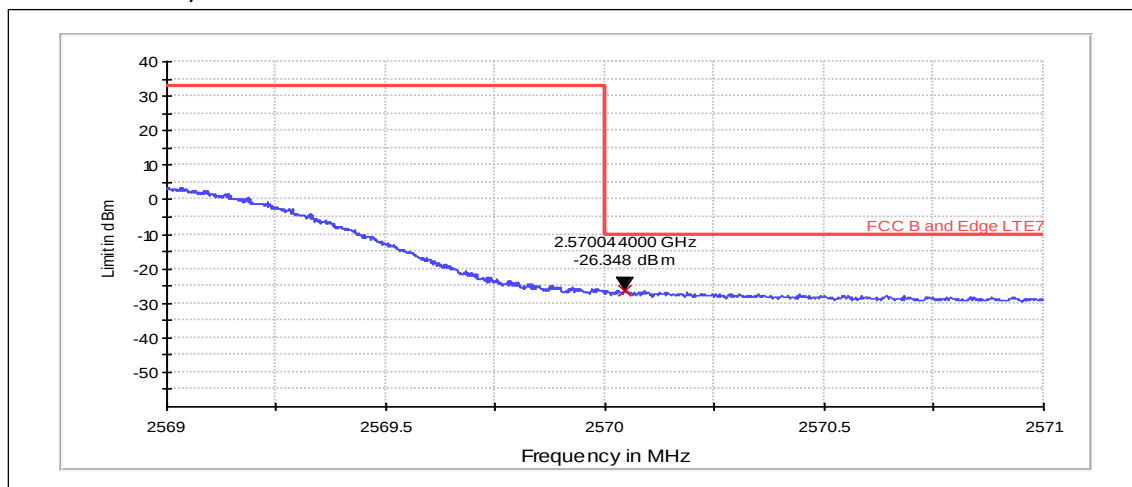
Channel 20850 / 2510 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	2495.590	-31.83	PASSED

Channel 21350 / 2560 MHz



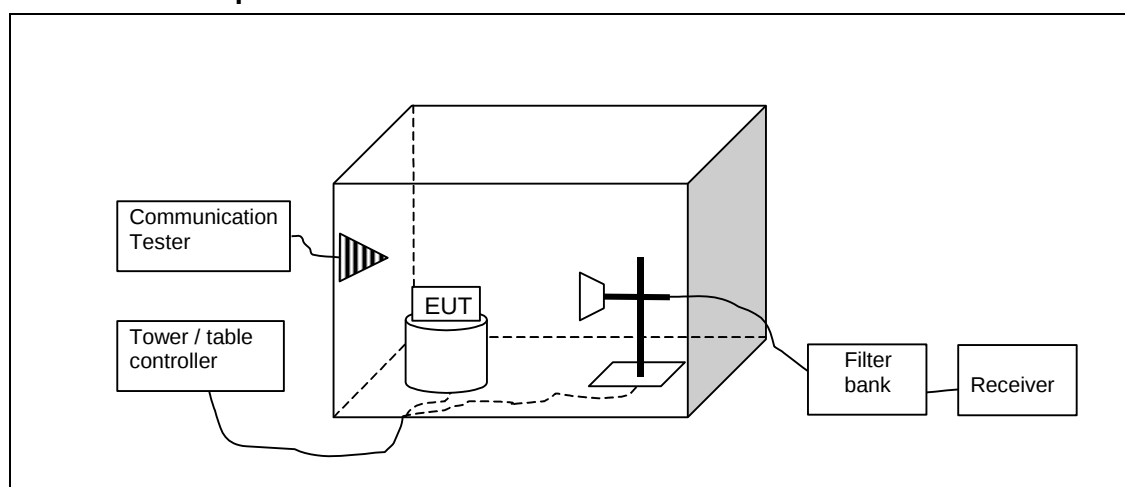
RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	2570.044	-26.35	PASSED

6. Spurious radiated emissions

EUT with DUT number	RM-1152, DUT 400049
Accessories with DUT numbers	BV-T3G (LG), DUT 400051 ; AC-18E, DUT 400050 ; WH-108, DUT 42927
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 101
Date of measurements	09-Nov-2015
Measured by	Hannu Söderholm

6.1.1 Test setup



6.2. Test method and limit

The measurement is made according to TIA-603-D as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor, measuring antenna at fixed height and EUT set in three orthogonal positions on the turn table.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement is made up to 10th harmonic of the EUT highest TX channel.

The results were obtained using substitution method as described below:

$$P [dBm] = P_{SUBST\ TX} + G_{SUBST\ TX\ ANT} - L_{SUBST\ CABLE}$$

Where $P_{SUBST\ TX}$ is signal generator level, which produces the same receiver reading P_{MEAS} in dBm as EUT. $G_{SUBST\ TX\ ANT}$ is substitution antenna gain and $L_{SUBST\ CABLE}$ is the loss of the cable between the signal

generator and the substitution antenna.

LTE bands:

Previous evaluations have shown, that the currently selected CBW/RB configurations represent the worst case for this test. The evaluations are repeated every now and then to ensure, that the selections remain valid.

Limits for spurious radiated emissions measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 850	30 - 8500	-13
GSM 1900	30 - 19100	-13
WCDMA5	30 - 8500	-13
LTE7	30 - 25700	-13

6.3. GSM 850 test results, Antenna 1

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
2807.295	-52.14	0.00611	-54.84	2.7	HORIZONTAL	PASSED
2824.609	-52.76	0.0053	-55.56	2.8	HORIZONTAL	PASSED
2889.739	-51.78	0.00664	-55.58	3.8	VERTICAL	PASSED
2949.301	-52.29	0.0059	-55.99	3.7	VERTICAL	PASSED
2955.311	-52.93	0.00509	-56.53	3.6	HORIZONTAL	PASSED
2961.242	-52.09	0.00618	-55.69	3.6	HORIZONTAL	PASSED

6.4. GSM 850 E-GPRS (MSC9) test results, Antenna 1

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
1673.42	-56.08	0.00247	-49.68	-6.4	HORIZONTAL	PASSED
2509.7	-44.68	0.03404	-45.58	0.9	HORIZONTAL	PASSED

6.5. GSM 1900 test results, Antenna 1

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
3789.379	-56.42	0.00228	-61.42	5	VERTICAL	PASSED
3795.15	-56.69	0.00214	-61.79	5.1	HORIZONTAL	PASSED
5613.868	-52.31	0.00587	-60.81	8.5	VERTICAL	PASSED
5640.2	-45.79	0.02636	-54.19	8.4	HORIZONTAL	PASSED
7534.99	-48.82	0.01312	-63.12	14.3	HORIZONTAL	PASSED

6.6. GSM 1900 E-GPRS (MSC9) test results, Antenna 1

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
3760.1	-55.14	0.00306	-60.04	4.9	VERTICAL	PASSED
5648.277	-52.64	0.00545	-61.24	8.6	VERTICAL	PASSED

6.7. WCDMA5 test results, Antenna 1

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
821.538	-44.37	0.03656	-76.37	32	HORIZONTAL	PASSED
847.632	-42.62	0.0547	-74.52	31.9	VERTICAL	PASSED
848.161	-44.45	0.03589	-75.55	31.1	HORIZONTAL	PASSED
848.563	-44.23	0.03776	-75.33	31.1	HORIZONTAL	PASSED
1672.345	-53.95	0.00403	-47.55	-6.4	HORIZONTAL	PASSED
2507.064	-52.89	0.00514	-53.69	0.8	HORIZONTAL	PASSED
2935.411	-51.2	0.00759	-55	3.8	VERTICAL	PASSED
2954.008	-51.94	0.0064	-55.54	3.6	VERTICAL	PASSED
3337.575	-58.48	0.00142	-59.78	1.3	VERTICAL	PASSED
4168.607	-56.46	0.00226	-60.56	4.1	HORIZONTAL	PASSED
5015.07	-54.43	0.00361	-60.33	5.9	HORIZONTAL	PASSED
5845.661	-54.28	0.00373	-60.68	6.4	HORIZONTAL	PASSED
6688.156	-49.65	0.01084	-58.45	8.8	VERTICAL	PASSED
7518.307	-50.75	0.00841	-62.95	12.2	VERTICAL	PASSED
8343.246	-50.57	0.00877	-63.77	13.2	VERTICAL	PASSED

6.8. LTE7 test results, Antenna 1

Channel 21100 / 2535.0 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
2547.74	-61.42	0.00072	-63.32	1.9	HORIZONTAL	PASSED
5070.461	-52.94	0.00508	-61.24	8.3	HORIZONTAL	PASSED
7605.421	-54.62	0.00345	-68.22	13.6	HORIZONTAL	PASSED
10140.822	-48.25	0.01496	-64.25	16	HORIZONTAL	PASSED

Channel 21100 / 2535.0 MHz

FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
2550.245	-62.06	0.00062	-63.96	1.9	HORIZONTAL	PASSED
5070.18	-53.4	0.00457	-61.7	8.3	HORIZONTAL	PASSED
7605.541	-54.78	0.00333	-68.38	13.6	HORIZONTAL	PASSED
10140.862	-49.26	0.01186	-65.26	16	HORIZONTAL	PASSED

6.9. GSM 850 test results, Antenna 2

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
2853.587	-52.8	0.00525	-55.9	3.1	VERTICAL	PASSED
2872.745	-51.81	0.00659	-55.01	3.2	HORIZONTAL	PASSED
2889.098	-51.83	0.00656	-55.13	3.3	HORIZONTAL	PASSED
2944.81	-51.83	0.00656	-55.63	3.8	VERTICAL	PASSED
2975.351	-51.88	0.00649	-55.48	3.6	VERTICAL	PASSED
2984.048	-52.2	0.00603	-55.9	3.7	VERTICAL	PASSED

6.10. GSM 850 E-GPRS (MSC9) test results, Antenna 2

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
1673.14	-52.39	0.00577	-45.99	-6.4	HORIZONTAL	PASSED
2509.82	-49.32	0.01169	-50.22	0.9	HORIZONTAL	PASSED

6.11. GSM 1900 test results, Antenna 2

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
3753.347	-56.61	0.00218	-61.41	4.8	VERTICAL	PASSED
5654.349	-52.28	0.00592	-60.78	8.5	VERTICAL	PASSED

6.12. GSM 1900 E-GPRS (MSC9) test results, Antenna 2

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
3760.06	-53.45	0.00452	-58.05	4.6	HORIZONTAL	PASSED
5640.14	-51.32	0.00738	-59.72	8.4	VERTICAL	PASSED

6.13. WCDMA5 test results, Antenna 2

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
848.582	-47.1	0.0195	-79	31.9	VERTICAL	PASSED
850.318	-47.62	0.0173	-79.72	32.1	VERTICAL	PASSED
1667.375	-54.93	0.00321	-48.43	-6.5	HORIZONTAL	PASSED
2502.735	-52.42	0.00573	-53.22	0.8	VERTICAL	PASSED
2844.669	-51.58	0.00695	-54.68	3.1	HORIZONTAL	PASSED
2925.351	-50.94	0.00805	-54.84	3.9	VERTICAL	PASSED
2927.956	-50.73	0.00845	-54.63	3.9	VERTICAL	PASSED
2943.146	-51.65	0.00684	-55.45	3.8	VERTICAL	PASSED
3348.677	-58.64	0.00137	-59.54	0.9	HORIZONTAL	PASSED
4172.134	-56.81	0.00208	-61.01	4.2	VERTICAL	PASSED
5001.082	-54.81	0.0033	-60.61	5.8	VERTICAL	PASSED
5844.699	-53.06	0.00494	-59.46	6.4	HORIZONTAL	PASSED
6689.559	-49.93	0.01016	-58.83	8.9	VERTICAL	PASSED
7508.527	-50.33	0.00927	-62.23	11.9	VERTICAL	PASSED
8353.507	-50.11	0.00975	-63.21	13.1	VERTICAL	PASSED

6.14. LTE7 test results, Antenna 2

Channel 21100 / 2535.0 MHz

FDD, CBW 5MHz, QPSK, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
2553.352	-61.75	0.00067	-63.55	1.8	HORIZONTAL	PASSED
5070.341	-47.07	0.01963	-55.37	8.3	HORIZONTAL	PASSED
7605.581	-51.55	0.007	-65.15	13.6	HORIZONTAL	PASSED
10140.661	-53.08	0.00492	-69.08	16	HORIZONTAL	PASSED

Channel 21100 / 2535.0 MHz

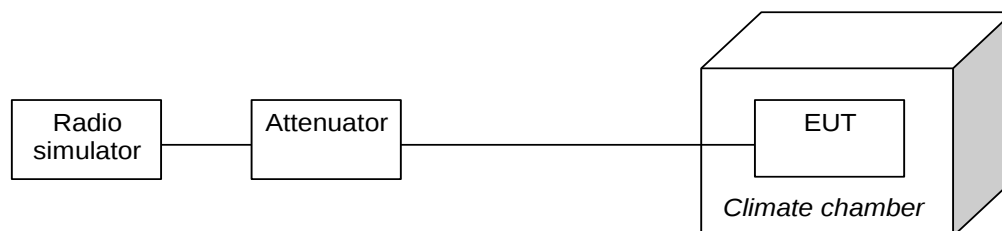
FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
2548.562	-61.38	0.00073	-63.28	1.9	HORIZONTAL	PASSED
5070.381	-47.95	0.01603	-56.25	8.3	HORIZONTAL	PASSED
7605.501	-52.41	0.00574	-66.01	13.6	HORIZONTAL	PASSED
10140.741	-53.27	0.00471	-69.27	16	HORIZONTAL	PASSED

7. Frequency stability, temperature variation

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.35
Results	PASSED
Remarks	RF Cond 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 40 / 100.5
Date of measurements	25-Oct-2015
Measured by	Hannu Soderholm

7.1. Test Setup



7.2. Test method and limit

The measurement is made according to TIA-603-D and applicable RSS standard as follows:

The climate chamber temperature is set to the maximum value and the temperature is allowed to stabilize.

The EUT is placed in the chamber.

The EUT is set in idle mode for 15 minutes.

The EUT is set to transmit.

The transmit frequency error was measured immediately.

The steps c - e were repeated for each temperature. Limits for frequency stability, temperature variation measurements

Frequency deviation [ppm]
+/- 2.5

7.3. GSM 1900 Test results

GSM, Channel 661 / 1880.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1880.00	-2.65000	-0.0014	PASSED
40	1880.00	5.49000	0.0029	PASSED
30	1880.00	6.52000	0.0035	PASSED
20	1880.00	-15.50000	-0.0082	PASSED
10	1880.00	1.10000	0.0006	PASSED
0	1880.00	-5.23000	-0.0028	PASSED
-10	1880.00	4.78000	0.0025	PASSED
-20	1880.00	9.04000	0.0048	PASSED
-30	1880.00	8.72000	0.0046	PASSED

7.4. GSM 850 Test results

GSM, Channel 190 / 836.6 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.60	0.65000	0.0008	PASSED
40	836.60	-3.29000	-0.0039	PASSED
30	836.60	-3.10000	-0.0037	PASSED
20	836.60	-0.77000	-0.0009	PASSED
10	836.60	-6.13000	-0.0073	PASSED
0	836.60	-4.26000	-0.0051	PASSED
-10	836.60	-7.36000	-0.0088	PASSED
-20	836.60	-2.32000	-0.0028	PASSED
-30	836.60	-0.45000	-0.0005	PASSED

7.5. LTE7 Test results

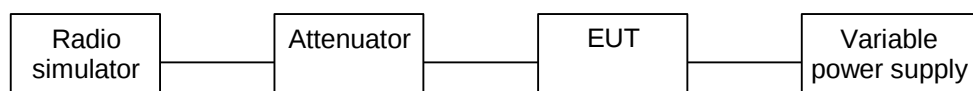
FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	2535.00	-2.96116	-0.0012	PASSED
40	2535.00	-1.40190	-0.0006	PASSED
30	2535.00	-4.37737	-0.0017	PASSED
20	2535.00	-3.63350	-0.0014	PASSED
10	2535.00	-2.81811	-0.0011	PASSED
0	2535.00	-3.89099	-0.0015	PASSED
-10	2535.00	-0.27180	-0.0001	PASSED
-20	2535.00	-3.67641	-0.0015	PASSED
-30	2535.00	-1.78814	-0.0007	PASSED

8. Frequency stability, voltage variation

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.35
Results	PASSED
Remarks	RF Cond 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 40 / 100.5
Date of measurements	25-Oct-2015
Measured by	Hannu Soderholm

8.1. Test Setup



8.2. Test method and limit

The measurement is made according to TIA-603-D and applicable RSS standard as follows:

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

Limits for frequency stability, voltage variation measurements

Frequency deviation [ppm]
+/- 2.5

8.3. GSM 1900 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	1880.00	-2.84000	-0.0015	PASSED
Battery cut-off point / 3.5	1880.00	-1.42000	-0.0008	PASSED
Nominal / 3.8	1880.00	-2.58000	-0.0014	PASSED

8.4. GSM 850 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	836.60	-0.71000	-0.0008	PASSED
Battery cut-off point / 3.5	836.60	-4.52000	-0.0054	PASSED
Nominal / 3.8	836.60	-6.97000	-0.0083	PASSED

8.5. LTE7 Test results

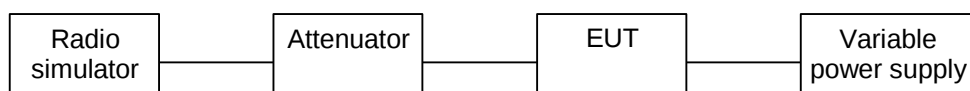
FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	2535.00	-4.36306	-0.0017	PASSED
Battery cut-off point / 3.5	2535.00	-4.92096	-0.0019	PASSED
Nominal / 3.8	2535.00	-3.17574	-0.0013	PASSED

9. Frequency stability, voltage variation, Band edge method

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	PASSED
Results	RF Cond 2
Remarks	23 / 40 / 100.5
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	25-Oct-2015
Date of measurements	26-Oct-2015
Measured by	Hannu Soderholm

9.1. Test Setup



9.2. Test method and limit

The measurement is made according to applicable RSS standard as follows:

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

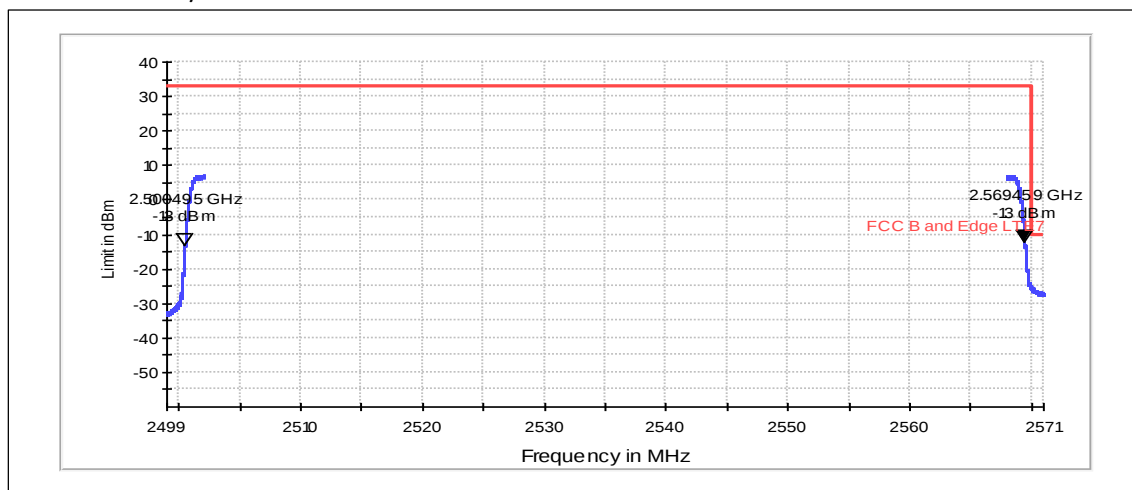
The results were then calculated as per section 4.3 of RSS-199.

Limits for frequency stability, voltage variation measurements

Limit
The results must be within the operating band.

9.3. LTE7 Test results

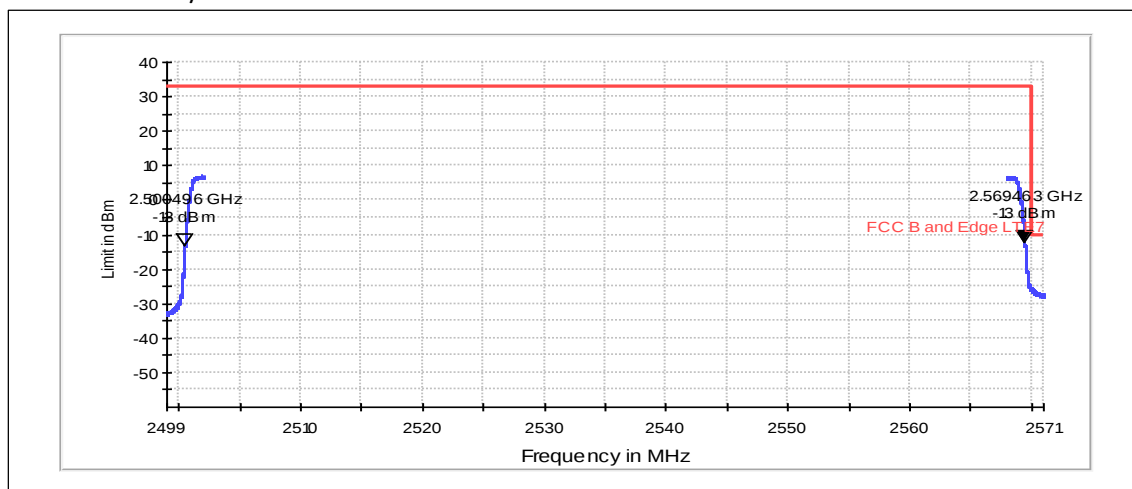
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Max / 4.4	1.53065	2500.494600	2500.494599	2569.459200	2569.459202	PASSED

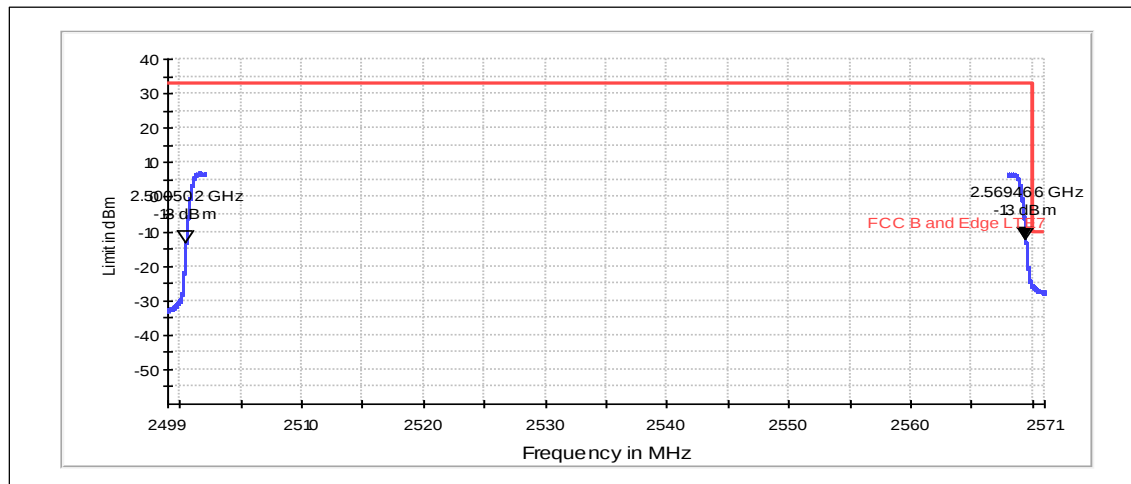
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Battery cut-off point / 3.5	2.05994	2500.495800	2500.495798	2569.463100	2569.463102	PASSED

Channel 21100 / 2535.0 MHz



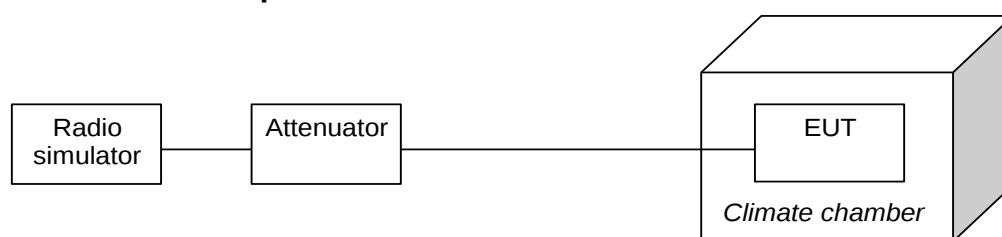
RMS (RBW: 500 kHz, VBW: 2 MHz)

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Nominal / 3.8	1.67370	2500.502400	2500.502398	2569.466400	2569.466402	PASSED

10. Frequency stability, temperature variation, Band edge method

EUT with DUT number	RM-1152, DUT 400052
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.35
Results	PASSED
Remarks	RF Cond 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 40 / 100.5
Date of measurements	26-Oct-2015
Measured by	Hannu Soderholm

10.1. Test Setup



10.2. Test method and limit

The measurement is made according to applicable RSS standard as follows:

The climate chamber temperature is set to the maximum value and the temperature is allowed to stabilize.

The EUT is placed in the chamber.

The EUT is set in idle mode for 15 minutes.

The EUT is set to transmit.

The transmit frequency error was measured immediately.

The steps c - e were repeated for each temperature.

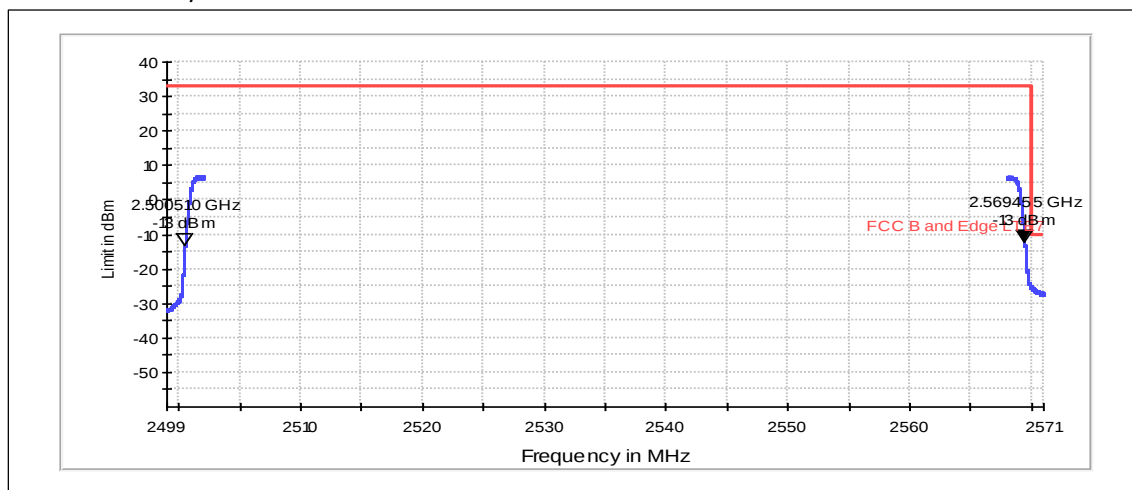
The results were then calculated as per section 4.3 of RSS-199.

Limits for frequency stability, temperature variation measurements

Limit
The results must be within the operating band.

10.3. LTE7 Test results

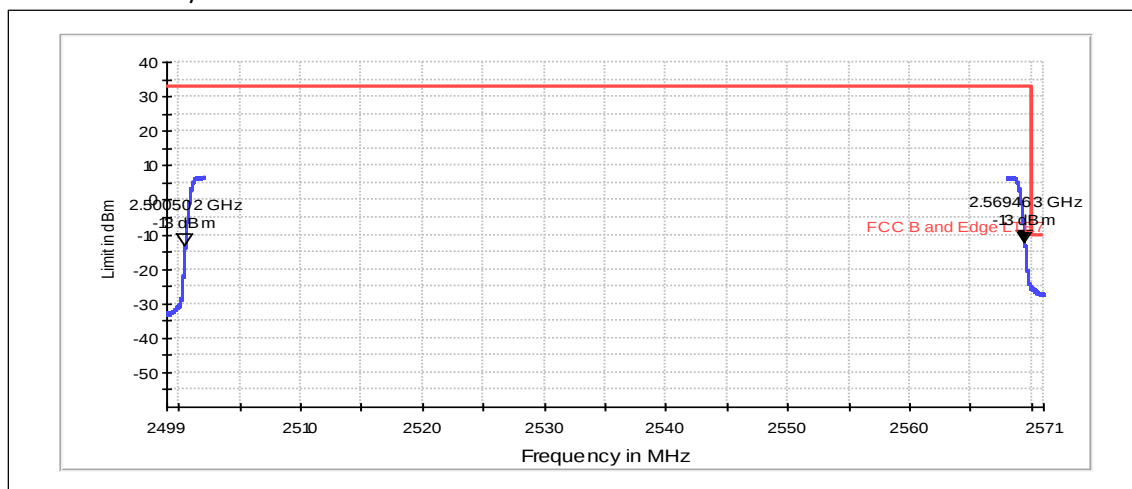
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
50	3.17574	2500.509600	2500.509597	2569.455300	2569.455303	PASSED

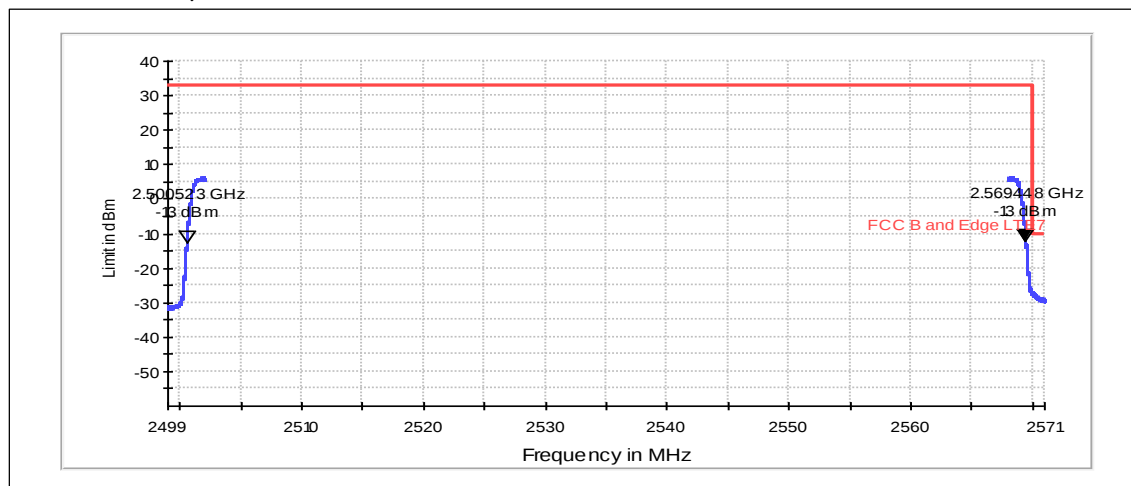
Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
20	1.65939	2500.501800	2500.501798	2569.463100	2569.463102	PASSED

Channel 21100 / 2535.0 MHz



RMS (RBW: 500 kHz, VBW: 2 MHz)

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
-30	3.86238	2500.522500	2500.522496	2569.447800	2569.447804	PASSED

11. Test Equipment

The calibration dates for all test equipment are maintained in the equipment register. The register alerts the test lab about expired calibrations. Therefore, tests are always done with calibrated equipment. The dates are provided by request.

11.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM350089	Power supply	6632A	Agilent	22/24/27, 15C, 15E
TM350090	Power supply	6632A	Agilent	22/24/27, 15C, 15E
TM30600	Impulse limiter	ESH3-Z2	R&S	15C, 15B
TM490017	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM490018	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM150128	Spectrum Analyzer	FSU26	R&S	22/24/27, 15C, 15E
TM23007	Oscilloscope	TDS684B	Tektronix	15E
TM22806	Battery	BAT 20/E	Fiskars	15C, 15B
TM22805	UPS	PS 20/1.2	Fiskars	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
-	Temperature test chamber	VT 4002	Vötsch	22/24/27
2001	Bluetooth tester	CBT	R&S	15C, 15B
2009	LISN 50 µH	ENV216	R&S	15C, 15B
2010	LISN 50 µH	ENV216	R&S	15C, 15B
2012	Power splitter	11667B	Agilent	22/24/27, 15C
2013	Attenuator	8493C	Agilent	22/24/27, 15C
2014	Attenuator	8493C	Agilent	22/24/27, 15C
2019	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2020	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
TM210166	Communication Tester	CMW500	R&S	22/24/27
TM210205	Communication Tester	CMU200	R&S	22/24/27
2023	Spectrum Analyzer	ESMI-RF	R&S	15B/15C
2024	Analyzer display unit	ESAI-D	R&S	15B/15C
TM110070	Signal Generator	SMF 100A	R&S	22/24/27, 15C, 15E, 15B
TM220065	Bluetooth tester	CBT	R&S	15C, 15B
TM210330	Communication Tester	CMU200	R&S	22/24/27, 15B
TM150131	Spectrum Analyzer	FSP30	R&S	22/24/27, 15C, 15E
TM210049	Communication Tester	CMU200	R&S	22/24/27

11.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C
TM38845	Receiver	ESIB 26	R&S	22/24/27, 15C, 15E, 15B
-	Antenna	HL562	R&S	22/24/27, 15C, 15E, 15B
-	Turntable	2188	EMCO	22/24/27, 15C, 15E, 15B
-	Turntable controller	2090	EMCO	22/24/27, 15C, 15E, 15B
-	RF system panel	OSP130	R&S	22/24/27, 15C, 15E, 15B
-	Mini mast	2075-2	ETS Lindgren	22/24/27, 15C, 15B
TM38843	Mini mast	2075	Emco	22/24/27, 15C, 15B
TM38842	Antenna mast controller	2090	Emco	22/24/27, 15C, 15B
TM30643	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
TM30644	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C, 15B
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	Miteq	22/24/27, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	Miteq	22/24/27, 15C, 15B
TM30599	Semi anechoic chamber	UNKNOWN	TDK	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	-	22/24/27, 15C, 15E, 15B
TM38066	High pass filter	WHKX3.0/18G-12SS	Wainwright	22/24/27, 15C, 15E, 15B
2028	High pass filter	WHKX 1.0/15G-12SS	Wainwright	22/24/27, 15C, 15E, 15B
TM37545	Tunable notch filter	800.0/960.0-0.2/40-8SSK	Wainwright	22
TM26512	Tunable notch filter	WRCD1850/1910-0.2/40-10SSK	Wainwright	24
-	Band reject filter	WRCG1877/1883-1870/1890-40/6EE	Wainwright	24
-	Band reject filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
TM23892	Controller	G-1000SDX	Yaesu	22/24/27, 15C, 15E
2001	Bluetooth tester	CBT	R&S	15C, 15B
TM210203	Communication Tester	CMU200	R&S	22/24/27, 15B
6023	Antenna	VUBA 9117	Schwarzbeck	22/24/27
TM210166	Communication Tester	CMW500	R&S	22/24/27
2025	Antenna	HFH2-Z2	R&S	15C
TM110070	Signal Generator	SMF 100A	R&S	22/24/27, 15C, 15E, 15B
2052	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C, 15B, 15E
-	Antenna	QSH18S20	Q-Par	22/24/27, 15C, 15B, 15E
-	Antenna	QSH20S20	Q-Par	22/24/27, 15C, 15B, 15E
-	Antenna	QSH20S20	Q-Par	22/24/27, 15C, 15B, 15E
TM220065	Bluetooth tester	CBT	R&S	15C, 15B

END OF REPORT