

FCC Part 22/24/27 Compliance Test Report

Test Report no.:	FCC_Cellular_RM-1154_01.docx	Date of Report:	28-Jan-2016
Number of pages:	129	Customer's Contact person:	Juha Paukku
Testing laboratory:	TCC Microsoft Tampere Laboratory P.O. Box 403 Visiokatu 3 FIN-33101 TAMPERE, FINLAND Tel. +358 71 800 8000 Fax. +358 71 804 6880	Customer:	Microsoft P.O. Box 403 Visiokatu 4 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880
FCC listing no.:	94436		
IC recognition no.:	661AK-1		
Tested devices/ accessories:	Phone RM-1154 / Battery BV-T3G / Charger AC-18E / Headset WH-108 / Dummy Battery SD-134		
FCC ID:	PYARM-1154	IC:	661X-RM1154
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:			

Timo Raiskio, System Manager, EMC

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

Date of receipt	01-Dec-2015
Testing completed	28-Jan-2016
The customer's contact person	Juha Paukku
Test Plan referred to	Y:\Projects\RM-1154\TestPlan\TP_EMC_FCC_RM-1154.xlsx
Notes	-
Document name	T:\Projects\RM-1154\EMC\FCC_Cellular_RM-1154_01.docx

1.1. EUT and Accessory Information

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-1154	004402743285904	1560	-	01078.00017.15461.48000	400064
Dummy Battery	SD-134	2301637	v.1	-	-	400053
Phone	RM-1154	004402743286001	1560	-	01078.00017.15461.48000	400063
Battery	BV-T3G	4955405384B11010253;0670783	1.0	-	-	400062
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	-
§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	-
§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	-
§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	-
§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

WCDMA2:

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	-
§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	-
§24.238(a), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	-
§2.1055(d)	6.3	Frequency stability, voltage variation	-

WCDMA4:

Section in CFR 47	Section in RSS-GEN or RSS-139	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	-
§27.50(d)(2)	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
§27.53(g)	6.5	Band edge compliance	PASSED
§27.53(g), §2.1051	6.5	Spurious emissions at antenna terminals	-
§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	-
§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	-
§22.917(a), §2.1053	4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	-
§2.1055(d)	4.3	Frequency stability, voltage variation	-

LTE2:

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	-
§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	-
§24.238(a), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	-
§2.1055(d)	6.3	Frequency stability, voltage variation	-

LTE4:

Section in CFR 47	Section in RSS-GEN or RSS-139	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	-
§27.50(d)(4)	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
§27.53(h)	6.5	Band edge compliance	PASSED
§27.53(h), §2.1051	6.5	Spurious emissions at antenna terminals	-
§27.53(h), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	-
§2.1055(d)	6.3	Frequency stability, voltage variation	-

LTE5:

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	-
§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	-
§22.917(a), §2.1053	4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	-
§2.1055(d)	4.3	Frequency stability, voltage variation	-

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	-
§27.50(h)(2)	4.4	Radiated RF output power	PASSED
N/A	N/A	Peak to average power ratio	-
§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	-
§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

LTE38:

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	-
§27.50(h)(2)	4.4	Radiated RF output power	PASSED
N/A	N/A	Peak to average power ratio	-
§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	-
§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

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

NP

The test was not performed by the TCC Microsoft Laboratory.

CONTENTS

1.1.	FCC Part 22/24/27 Compliance Test Report.....	1
2.	Summary for FCC Part 22/24/27 Compliance Test Report	2
2.1.	EUT and Accessory Information	2
2.2.	Summary of Test Results	2
3.	Radiated RF output power, Antenna 1.....	10
3.2.	Test method and limit	11
3.3.	GSM 850 test results	12
3.4.	GSM 850 E-GPRS (MSC9) test results.....	12
3.5.	GSM 1900 test results	12
3.6.	GSM 1900 E-GPRS (MSC9) test results.....	12
3.7.	WCDMA2 test results	13
3.8.	WCDMA4 test results	13
3.9.	WCDMA5 test results	13
3.10.	LTE2 test results.....	14
3.11.	LTE4 test results.....	16
3.12.	LTE5 test results.....	18
3.13.	LTE7 test results.....	20
3.14.	LTE38 TX test results	22
1.	Radiated RF output power, Antenna 2.....	24
1.2.	Test method and limit	25
1.3.	GSM 850 test results	26
1.4.	GSM 850 E-GPRS (MSC9) test results.....	26
1.5.	GSM 1900 test results	26
1.6.	GSM 1900 E-GPRS (MSC9) test results.....	26
1.7.	WCDMA2 test results	27
1.8.	WCDMA4 test results	27
1.9.	WCDMA5 test results	27
1.10.	LTE2 test results.....	28
1.11.	LTE4 test results.....	30
1.12.	LTE5 test results.....	32
1.13.	LTE7 test results.....	34
1.14.	LTE38 TX test results	36
2.	Peak to average power ratio	38
2.1.	Test Setup	38
2.2.	Test method and limit	38
2.3.	GSM 850 Test results.....	39
2.4.	GSM 1900 Test results.....	40

2.5.	WCDMA2 Test results	41
2.6.	WCDMA4 Test results	41
2.7.	WCDMA5 Test results	42
2.8.	LTE2 Test results.....	43
2.9.	LTE4 Test results.....	44
2.10.	LTE5 Test results.....	45
3.	99 % occupied bandwidth	46
3.1.	Test Setup	46
3.2.	Test method and limit	46
3.3.	GSM 850 Test results	47
3.4.	GSM 1900 Test results	48
3.5.	WCDMA2 Test results	49
3.6.	WCDMA4 Test results	50
3.7.	WCDMA5 Test results	51
3.8.	LTE2 Test results.....	52
3.9.	LTE4 Test results.....	58
3.10.	LTE5 Test results.....	65
3.11.	LTE7 Test results.....	69
3.12.	LTE38 Test results.....	74
4.	Band edge compliance.....	79
4.1.	Test Setup	79
4.2.	Test method and limit	79
4.3.	GSM 850 Test results	80
4.4.	GSM 1900 Test results	82
4.5.	WCDMA2 Test results	84
4.6.	WCDMA4 Test results	85
4.7.	WCDMA5 Test results	86
4.8.	LTE2 Test results.....	87
4.9.	LTE4 Test results.....	89
4.10.	LTE5 Test results.....	91
4.11.	LTE7 Test results.....	93
4.12.	LTE38 Test results.....	95
5.	Spurious radiated emissions, Antenna 1	97
5.2.	Test method and limit	98
5.3.	GSM 850 test results	99
5.4.	GSM 1900 test results	99
5.5.	GSM 850 E-GPRS (MSC9) test results.....	99
5.6.	GSM 1900 E-GPRS (MSC9) test results.....	99
5.7.	WCDMA2 test results	100

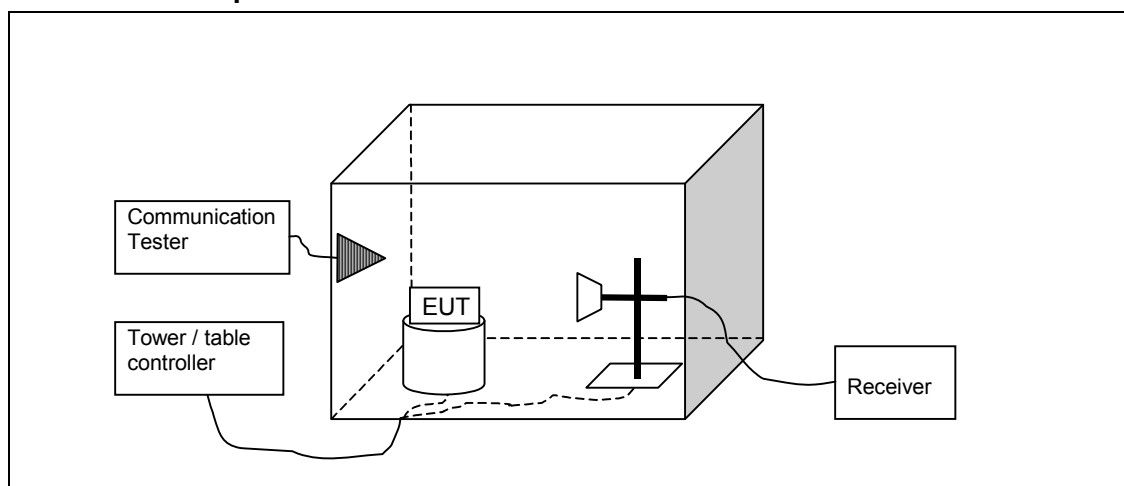
5.8.	WCDMA4 test results	100
5.9.	WCDMA5 test results	101
5.10.	LTE2 test results	101
5.11.	LTE4 test results	102
5.12.	LTE5 test results	102
5.13.	LTE7 test results	103
5.14.	LTE38 TX test results	103
6.	Spurious radiated emissions, Antenna 2	104
6.2.	Test method and limit	105
6.3.	GSM 850 test results	106
6.4.	GSM 850 E-GPRS (MSC9) test results	106
6.5.	GSM 1900 test results	106
6.6.	GSM 1900 E-GPRS (MSC9) test results	106
6.7.	WCDMA2 test results	107
6.8.	WCDMA4 test results	107
6.9.	WCDMA5 test results	108
6.10.	LTE2 test results	108
6.11.	LTE4 test results	109
6.12.	LTE5 test results	109
6.13.	LTE7 test results	110
6.14.	LTE38 TX test results	110
7.	Frequency stability, temperature variation.....	111
7.1.	Test Setup	111
7.2.	Test method and limit	111
7.3.	GSM 850 Test results	112
7.4.	GSM 1900 Test results	112
7.5.	WCDMA4 Test results	112
7.6.	LTE7 Test results.....	113
7.7.	LTE38 Test results.....	113
8.	Frequency stability, voltage variation.....	114
8.1.	Test Setup	114
8.2.	Test method and limit	114
8.3.	GSM 850 Test results	115
8.4.	GSM 1900 Test results	115
8.5.	WCDMA4 Test results	115
8.6.	LTE7 Test results.....	115
8.7.	LTE38 Test results.....	115
9.	Frequency stability, temperature variation, Band edge method	116
9.1.	Test Setup	116

9.2.	Test method and limit	116
9.3.	WCDMA4 Test results	117
9.4.	LTE7 Test results.....	118
9.5.	LTE38 Test results.....	120
10.	Frequency stability, voltage variation, (Band edge method).....	122
10.1.	Test Setup	122
10.2.	Test method and limit	122
10.3.	WCDMA4 Test results	123
10.4.	LTE7 Test results.....	124
10.5.	LTE38 Test results.....	126
11.	Test Equipment	128
11.1.	Conducted measurements	128
11.2.	Radiated measurements	129

2. Radiated RF output power, Antenna 1

EUT with DUT number	RM-1154, DUT 400063
Accessories with DUT numbers	BV-T3G, DUT 400062 ; AC-18E, DUT 400050 ; WH-108, DUT 42927
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 38
Date of measurements	04-Dec-2015
Measured by	Hannu Söderholm

2.1.1 Test setup



2.2. Test method and limit

The measurement is 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 measurement results are obtained as described below:

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

Where $P_{\text{SUBST TX}}$ is signal generator level. P_{MEAS} is measured power level from the EUT. $P_{\text{SUBST RX}}$ is measured power level in substitute measurement. $L_{\text{SUBST CABLE}}$ is the loss of the cable between the signal generator and the substitution antenna and $G_{\text{SUBST TX ANT}}$ 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
1710 - 1755	1 EIRP	30
2502.5 - 2567.5	2 EIRP	33

2.3. GSM 850 test results

RMS detector

Channel / f_c [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
128 / 824.2	23.72	0.235	-7.93	31.65	VERTICAL	PASSED
190 / 836.6	24.63	0.29	-7.01	31.64	VERTICAL	PASSED
251 / 848.8	25.22	0.333	-6.73	31.95	VERTICAL	PASSED

2.4. GSM 850 E-GPRS (MSC9) test results

RMS detector

Channel / f_c [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
128 / 824.2	23.91	0.246	-7.74	31.65	VERTICAL	PASSED
190 / 836.6	20.04	0.101	-11.6	31.64	VERTICAL	PASSED
251 / 848.8	20.81	0.121	-11.14	31.95	VERTICAL	PASSED

2.5. GSM 1900 test results

RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
512 / 1850.2	27.78	0.6	-15.1	42.88	HORIZONTAL	PASSED
661 / 1880	28.68	0.738	-14.13	42.81	HORIZONTAL	PASSED
810 / 1909.8	29.58	0.907	-13.54	43.12	HORIZONTAL	PASSED

2.6. GSM 1900 E-GPRS (MSC9) test results

RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
512 / 1850.2	24.5	0.282	-18.38	42.88	HORIZONTAL	PASSED
661 / 1880	25.83	0.383	-16.98	42.81	HORIZONTAL	PASSED
810 / 1909.8	26.33	0.429	-16.79	43.12	HORIZONTAL	PASSED

2.7. WCDMA2 test results

RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
9262 / 1852.4	21.36	0.137	-21.5	42.86	HORIZONTAL	PASSED
9400 / 1880	20.66	0.117	-22.15	42.81	HORIZONTAL	PASSED
9538 / 1907.6	20.3	0.107	-22.66	42.96	HORIZONTAL	PASSED

2.8. WCDMA4 test results

RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
1312 / 1712.4	22.36	0.172	-19.57	41.93	VERTICAL	PASSED
1412 / 1732.4	20.26	0.106	-21.9	42.16	VERTICAL	PASSED
1513 / 1752.6	21.43	0.139	-20.86	42.29	VERTICAL	PASSED

2.9. WCDMA5 test results

RMS detector

Channel / f_c [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
4132 / 826.4	14.63	0.029	-16.97	31.6	VERTICAL	PASSED
4175 / 835	15.62	0.036	-16.07	31.69	VERTICAL	PASSED
4233 / 846.6	15.86	0.039	-16.02	31.88	VERTICAL	PASSED

2.10. LTE2 test results

FDD, CBW 1.4MHz, QPSK, 1RB mid, RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 1850.7	21.13	0.13	-21.75	42.88	HORIZONTAL	PASSED
18900 / 1880	21.35	0.136	-21.46	42.81	HORIZONTAL	PASSED
18900 / 1909.3	22.04	0.16	-21.03	43.07	HORIZONTAL	PASSED

FDD, CBW 3MHz, QPSK, 1RB mid, RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 1851.5	21	0.126	-21.87	42.87	HORIZONTAL	PASSED
18900 / 1880	21.46	0.14	-21.35	42.81	HORIZONTAL	PASSED
18900 / 1908.5	21.55	0.143	-21.45	43	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
26065 / 1852.5	20.74	0.119	-22.12	42.86	HORIZONTAL	PASSED
18900 / 1880	21.36	0.137	-21.45	42.81	HORIZONTAL	PASSED
19175 / 1907.5	21.63	0.146	-21.34	42.97	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 / 1855	20.98	0.125	-21.9	42.88	HORIZONTAL	PASSED
18900 / 1880	21.19	0.132	-21.62	42.81	HORIZONTAL	PASSED
18900 / 1905	21.68	0.147	-21.38	43.06	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 / 1857.5	21.29	0.134	-21.62	42.91	HORIZONTAL	PASSED
18900 / 1880	21.55	0.143	-21.26	42.81	HORIZONTAL	PASSED
18900 / 1902.5	21.39	0.138	-21.68	43.07	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 / 1860	21.41	0.138	-21.53	42.94	HORIZONTAL	PASSED
18900 / 1880	21.45	0.14	-21.36	42.81	HORIZONTAL	PASSED
18900 / 1900	21.69	0.147	-21.39	43.08	HORIZONTAL	PASSED

FDD, CBW 1.4MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1850.7	20.98	0.125	-21.9	42.88	HORIZONTAL	PASSED
18900 / 1880	21.42	0.139	-21.39	42.81	HORIZONTAL	PASSED
18900 / 1909.3	21.94	0.156	-21.13	43.07	HORIZONTAL	PASSED

FDD, CBW 3MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1851.5	20.62	0.115	-22.25	42.87	HORIZONTAL	PASSED
18900 / 1880	21.17	0.131	-21.64	42.81	HORIZONTAL	PASSED
18900 / 1908.5	21.34	0.136	-21.66	43	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
26065 / 1852.5	20.47	0.111	-22.39	42.86	HORIZONTAL	PASSED
18900 / 1880	21.19	0.131	-21.62	42.81	HORIZONTAL	PASSED
19175 / 1907.5	21.2	0.132	-21.77	42.97	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 / 1855	20.68	0.117	-22.2	42.88	HORIZONTAL	PASSED
18900 / 1880	21.71	0.148	-21.1	42.81	HORIZONTAL	PASSED
18900 / 1905	21.65	0.146	-21.41	43.06	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 / 1857.5	21.42	0.139	-21.49	42.91	HORIZONTAL	PASSED
18900 / 1880	21.49	0.141	-21.32	42.81	HORIZONTAL	PASSED
18900 / 1902.5	21.95	0.157	-21.12	43.07	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 / 1860	21.55	0.143	-21.39	42.94	HORIZONTAL	PASSED
18900 / 1880	21.31	0.135	-21.5	42.81	HORIZONTAL	PASSED
18900 / 1900	21.82	0.152	-21.26	43.08	HORIZONTAL	PASSED

2.11. LTE4 test results

FDD, CBW 1.4MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1710.7	21.09	0.128	-20.85	41.94	VERTICAL	PASSED
20175 / 1732.5	19.62	0.092	-22.46	42.08	HORIZONTAL	PASSED
20175 / 1754.3	19.54	0.09	-22.7	42.24	HORIZONTAL	PASSED

FDD, CBW 3MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1711.5	20.83	0.121	-21.11	41.94	VERTICAL	PASSED
20175 / 1732.5	20.06	0.101	-22.02	42.08	HORIZONTAL	PASSED
20175 / 1753.5	20.39	0.109	-21.88	42.27	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
19975 / 1712.5	20.58	0.114	-21.35	41.93	VERTICAL	PASSED
20175 / 1732.5	19.99	0.1	-22.09	42.08	HORIZONTAL	PASSED
20375 / 1752.5	20.22	0.105	-22.07	42.29	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 / 1715	20.66	0.116	-21.17	41.83	VERTICAL	PASSED
20175 / 1732.5	19.66	0.092	-22.42	42.08	HORIZONTAL	PASSED
20175 / 1750	20.2	0.105	-22.03	42.23	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 / 1717.5	19.94	0.099	-21.9	41.84	VERTICAL	PASSED
20175 / 1732.5	19.99	0.1	-22.09	42.08	HORIZONTAL	PASSED
20175 / 1747.5	19.71	0.093	-22.53	42.24	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 / 1720	19.73	0.094	-22.13	41.86	VERTICAL	PASSED
20175 / 1732.5	19.79	0.095	-22.29	42.08	HORIZONTAL	PASSED
20175 / 1745	20.17	0.104	-21.96	42.13	HORIZONTAL	PASSED

FDD, CBW 1.4MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1710.7	21.07	0.128	-20.87	41.94	VERTICAL	PASSED
20175 / 1732.5	20.21	0.105	-21.87	42.08	HORIZONTAL	PASSED
20175 / 1754.3	19.5	0.089	-22.74	42.24	HORIZONTAL	PASSED

FDD, CBW 3MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1711.5	20.73	0.118	-21.21	41.94	VERTICAL	PASSED
20175 / 1732.5	19.23	0.084	-22.93	42.16	VERTICAL	PASSED
20175 / 1753.5	20.31	0.107	-21.96	42.27	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
19975 / 1712.5	20.37	0.109	-21.56	41.93	VERTICAL	PASSED
20175 / 1732.5	19.64	0.092	-22.44	42.08	HORIZONTAL	PASSED
20375 / 1752.5	20.19	0.104	-22.1	42.29	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 / 1715	20.68	0.117	-21.15	41.83	VERTICAL	PASSED
20175 / 1732.5	19.47	0.088	-22.69	42.16	VERTICAL	PASSED
20175 / 1750	20.15	0.104	-22.08	42.23	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 / 1717.5	20.39	0.109	-21.45	41.84	VERTICAL	PASSED
20175 / 1732.5	19.45	0.088	-22.71	42.16	VERTICAL	PASSED
20175 / 1747.5	19.91	0.098	-22.33	42.24	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 / 1720	19.89	0.097	-21.97	41.86	VERTICAL	PASSED
20175 / 1732.5	19.85	0.097	-22.23	42.08	HORIZONTAL	PASSED
20175 / 1745	19.86	0.097	-22.27	42.13	HORIZONTAL	PASSED

2.12. LTE5 test results

FDD, CBW 1.4MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 824.7	17.19	0.052	-14.45	31.64	VERTICAL	PASSED
20525 / 836.5	17.48	0.056	-14.17	31.65	VERTICAL	PASSED
20525 / 848.3	18.15	0.065	-13.8	31.95	VERTICAL	PASSED

FDD, CBW 3MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 825.5	16.74	0.047	-14.89	31.63	VERTICAL	PASSED
20525 / 836.5	17.44	0.055	-14.21	31.65	VERTICAL	PASSED
20525 / 847.5	17.87	0.061	-14.05	31.92	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20425 / 826.5	17.03	0.051	-14.57	31.6	VERTICAL	PASSED
20525 / 836.5	17.48	0.056	-14.17	31.65	VERTICAL	PASSED
20625 / 846.5	18.12	0.065	-13.76	31.88	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 829	17.64	0.058	-13.94	31.58	VERTICAL	PASSED
20525 / 836.5	17.83	0.061	-13.82	31.65	VERTICAL	PASSED
20525 / 844	19.07	0.081	-12.83	31.9	VERTICAL	PASSED

FDD, CBW 1.4MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 824.7	17.07	0.051	-14.57	31.64	VERTICAL	PASSED
20525 / 836.5	17.6	0.058	-14.05	31.65	VERTICAL	PASSED
20525 / 848.3	18.38	0.069	-13.57	31.95	VERTICAL	PASSED

FDD, CBW 3MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 825.5	16.66	0.046	-14.97	31.63	VERTICAL	PASSED
20525 / 836.5	17.27	0.053	-14.38	31.65	VERTICAL	PASSED
20525 / 847.5	17.65	0.058	-14.27	31.92	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20425 / 826.5	17.01	0.05	-14.59	31.6	VERTICAL	PASSED
20525 / 836.5	16.9	0.049	-14.75	31.65	VERTICAL	PASSED
20625 / 846.5	17.68	0.059	-14.2	31.88	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 829	17.32	0.054	-14.26	31.58	VERTICAL	PASSED
20525 / 836.5	17.37	0.055	-14.28	31.65	VERTICAL	PASSED
20525 / 844	18.28	0.067	-13.62	31.9	VERTICAL	PASSED

2.13. LTE7 test results

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	23.25	0.211	-23.81	47.06	HORIZONTAL	PASSED
21100 / 2535	23.68	0.233	-23.58	47.26	HORIZONTAL	PASSED
21425 / 2567.5	24.45	0.279	-23.07	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	26.21	0.418	-20.85	47.06	HORIZONTAL	PASSED
21100 / 2535	26.79	0.477	-20.47	47.26	HORIZONTAL	PASSED
21425 / 2567.5	26.92	0.492	-20.6	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	23.14	0.206	-24.04	47.18	HORIZONTAL	PASSED
21100 / 2535	23.58	0.228	-23.68	47.26	HORIZONTAL	PASSED
21100 / 2565	24.09	0.257	-23.43	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	26.33	0.43	-20.85	47.18	HORIZONTAL	PASSED
21100 / 2535	26.79	0.477	-20.47	47.26	HORIZONTAL	PASSED
21100 / 2565	26.98	0.499	-20.54	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	23.3	0.214	-23.94	47.24	HORIZONTAL	PASSED
21100 / 2535	23.44	0.221	-23.82	47.26	HORIZONTAL	PASSED
21100 / 2562.5	23.9	0.246	-23.65	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	26.58	0.455	-20.66	47.24	HORIZONTAL	PASSED
21100 / 2535	26.6	0.457	-20.66	47.26	HORIZONTAL	PASSED
21100 / 2562.5	26.7	0.467	-20.85	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	23.16	0.207	-24.08	47.24	HORIZONTAL	PASSED
21100 / 2535	23.28	0.213	-23.98	47.26	HORIZONTAL	PASSED
21100 / 2560	24.19	0.262	-23.39	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	26.64	0.461	-20.6	47.24	HORIZONTAL	PASSED
21100 / 2535	26.53	0.45	-20.73	47.26	HORIZONTAL	PASSED
21100 / 2560	27.11	0.514	-20.47	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	23.53	0.225	-23.72	47.25	VERTICAL	PASSED
21100 / 2535	23.26	0.212	-24.14	47.4	VERTICAL	PASSED
21425 / 2567.5	23.74	0.237	-23.94	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	26.78	0.477	-20.47	47.25	VERTICAL	PASSED
21100 / 2535	26.99	0.5	-20.41	47.4	VERTICAL	PASSED
21425 / 2567.5	26.57	0.454	-21.11	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	23.56	0.227	-23.84	47.4	VERTICAL	PASSED
21100 / 2535	23.41	0.219	-23.99	47.4	VERTICAL	PASSED
21100 / 2565	23.94	0.248	-23.72	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	26.93	0.493	-20.47	47.4	VERTICAL	PASSED
21100 / 2535	26.93	0.493	-20.47	47.4	VERTICAL	PASSED
21100 / 2565	26.55	0.452	-21.11	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	23.61	0.23	-23.78	47.39	VERTICAL	PASSED
21100 / 2535	23.37	0.217	-24.03	47.4	VERTICAL	PASSED
21100 / 2562.5	23.3	0.214	-24.39	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	26.92	0.492	-20.47	47.39	VERTICAL	PASSED
21100 / 2535	26.74	0.472	-20.66	47.4	VERTICAL	PASSED
21100 / 2562.5	26.52	0.449	-21.17	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	23.91	0.246	-23.44	47.35	VERTICAL	PASSED
21100 / 2535	23.32	0.215	-24.08	47.4	VERTICAL	PASSED
21100 / 2560	24.05	0.254	-23.68	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	27.13	0.516	-20.22	47.35	VERTICAL	PASSED
21100 / 2535	26.67	0.465	-20.73	47.4	VERTICAL	PASSED
21100 / 2560	27.51	0.564	-20.22	47.73	VERTICAL	PASSED

2.14. LTE38 TX test results

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2572.5	25.71	0.372	-22.02	47.73	VERTICAL	PASSED
0 / 2595	25.12	0.325	-22.73	47.85	VERTICAL	PASSED
0 / 2617.5	24.32	0.27	-23.49	47.81	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2575	25.83	0.383	-21.94	47.77	VERTICAL	PASSED
0 / 2595	25.33	0.341	-22.52	47.85	VERTICAL	PASSED
0 / 2614.2	24.76	0.299	-23.13	47.89	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2577.5	25.58	0.361	-22.15	47.73	VERTICAL	PASSED
0 / 2595	25.26	0.336	-22.59	47.85	VERTICAL	PASSED
0 / 2612.5	24.47	0.28	-23.41	47.88	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2580	25.4	0.347	-22.29	47.69	VERTICAL	PASSED
0 / 2595	25.71	0.372	-22.14	47.85	VERTICAL	PASSED
0 / 2610	24.53	0.284	-23.32	47.85	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2572.5	25.76	0.376	-21.97	47.73	VERTICAL	PASSED
0 / 2595	24.99	0.316	-22.86	47.85	VERTICAL	PASSED
0 / 2617.5	24.31	0.27	-23.5	47.81	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2575	25.92	0.391	-21.85	47.77	VERTICAL	PASSED
0 / 2595	25.71	0.372	-22.14	47.85	VERTICAL	PASSED
0 / 2614.2	24.49	0.281	-23.4	47.89	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2577.5	25.67	0.369	-22.06	47.73	VERTICAL	PASSED
0 / 2595	25.45	0.351	-22.4	47.85	VERTICAL	PASSED
0 / 2612.5	24.51	0.282	-23.37	47.88	VERTICAL	PASSED

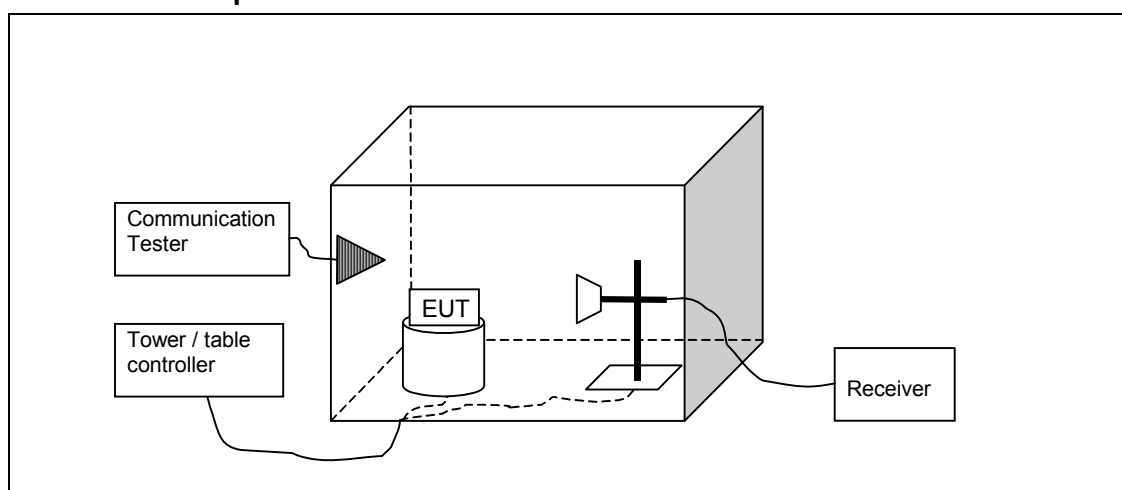
TDD, CBW 20MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 2580	25.34	0.342	-22.35	47.69	VERTICAL	PASSED
0 / 2595	25.82	0.382	-22.03	47.85	VERTICAL	PASSED
0 / 2610	24.45	0.278	-23.4	47.85	VERTICAL	PASSED

1. Radiated RF output power, Antenna 2

EUT with DUT number	RM-1154, DUT 400063
Accessories with DUT numbers	BV-T3G, DUT 400062 ; AC-18E, DUT 400050 ; WH-108, DUT 42927
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 36 / 102
Date of measurements	07-Dec-2015
Measured by	Hannu Söderholm

1.1.1 Test setup



1.2. Test method and limit

The measurement is 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 measurement results are obtained as described below:

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

Where $P_{\text{SUBST TX}}$ is signal generator level. P_{MEAS} is measured power level from the EUT. $P_{\text{SUBST RX}}$ is measured power level in substitute measurement. $L_{\text{SUBST CABLE}}$ is the loss of the cable between the signal generator and the substitution antenna and $G_{\text{SUBST TX ANT}}$ 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
1710 - 1755	1 EIRP	30

1.3. GSM 850 test results

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	22.59	0.182	-9.06	31.65	VERTICAL	PASSED
190 / 836.6	22.9	0.195	-8.74	31.64	VERTICAL	PASSED
251 / 848.8	22.99	0.199	-8.13	31.12	HORIZONTAL	PASSED

1.4. GSM 850 E-GPRS (MSC9) test results

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
128 / 824.2	20.11	0.102	-11.54	31.65	VERTICAL	PASSED
190 / 836.6	19.56	0.09	-12.08	31.64	VERTICAL	PASSED
251 / 848.8	22.2	0.166	-9.75	31.95	VERTICAL	PASSED

1.5. GSM 1900 test results

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	27.52	0.564	-15.36	42.88	HORIZONTAL	PASSED
661 / 1880	27.1	0.513	-15.71	42.81	HORIZONTAL	PASSED
810 / 1909.8	26.82	0.481	-16.3	43.12	HORIZONTAL	PASSED

1.6. GSM 1900 E-GPRS (MSC9) test results

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
512 / 1850.2	23.88	0.245	-19	42.88	HORIZONTAL	PASSED
661 / 1880	23.62	0.23	-19.19	42.81	HORIZONTAL	PASSED
810 / 1909.8	23.03	0.201	-20.09	43.12	HORIZONTAL	PASSED

1.7. WCDMA2 test results

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
9262 / 1852.4	21.58	0.144	-21.28	42.86	HORIZONTAL	PASSED
9400 / 1880	20.83	0.121	-21.98	42.81	HORIZONTAL	PASSED
9538 / 1907.6	20.63	0.116	-22.33	42.96	HORIZONTAL	PASSED

1.8. WCDMA4 test results

RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
1312 / 1712.4	22.27	0.169	-19.66	41.93	VERTICAL	PASSED
1412 / 1732.4	22.27	0.169	-19.89	42.16	VERTICAL	PASSED
1513 / 1752.6	21.94	0.156	-20.35	42.29	VERTICAL	PASSED

1.9. WCDMA5 test results

RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
4132 / 826.4	12.79	0.019	-19.24	32.03	HORIZONTAL	PASSED
4175 / 835	11.76	0.015	-20.19	31.95	HORIZONTAL	PASSED
4233 / 846.6	14.03	0.025	-17.14	31.17	HORIZONTAL	PASSED

1.10. LTE2 test results

FDD, CBW 1.4MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1850.7	22.85	0.193	-20.03	42.88	HORIZONTAL	PASSED
18900 / 1880	22.03	0.159	-20.78	42.81	HORIZONTAL	PASSED
18900 / 1909.3	21.13	0.13	-21.94	43.07	HORIZONTAL	PASSED

FDD, CBW 3MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1851.5	22.09	0.162	-20.78	42.87	HORIZONTAL	PASSED
18900 / 1880	21.76	0.15	-21.05	42.81	HORIZONTAL	PASSED
18900 / 1908.5	20.65	0.116	-22.35	43	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
26065 / 1852.5	21.95	0.157	-20.91	42.86	HORIZONTAL	PASSED
18900 / 1880	21.33	0.136	-21.48	42.81	HORIZONTAL	PASSED
19175 / 1907.5	20.56	0.114	-22.41	42.97	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 / 1855	22.22	0.167	-20.66	42.88	HORIZONTAL	PASSED
18900 / 1880	21.54	0.142	-21.27	42.81	HORIZONTAL	PASSED
18900 / 1905	20.7	0.118	-22.36	43.06	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 / 1857.5	22.13	0.163	-20.78	42.91	HORIZONTAL	PASSED
18900 / 1880	21.23	0.133	-21.58	42.81	HORIZONTAL	PASSED
18900 / 1902.5	19.84	0.096	-23.23	43.07	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 / 1860	22.44	0.175	-20.5	42.94	HORIZONTAL	PASSED
18900 / 1880	21.41	0.138	-21.4	42.81	HORIZONTAL	PASSED
18900 / 1900	20.13	0.103	-22.95	43.08	HORIZONTAL	PASSED

FDD, CBW 1.4MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1850.7	22.02	0.159	-20.86	42.88	HORIZONTAL	PASSED
18900 / 1880	20.66	0.116	-22.15	42.81	HORIZONTAL	PASSED
18900 / 1909.3	20.89	0.123	-22.18	43.07	HORIZONTAL	PASSED

FDD, CBW 3MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1851.5	21.78	0.151	-21.09	42.87	HORIZONTAL	PASSED
18900 / 1880	21.04	0.127	-21.77	42.81	HORIZONTAL	PASSED
18900 / 1908.5	20.99	0.125	-22.01	43	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
26065 / 1852.5	21.57	0.144	-21.29	42.86	HORIZONTAL	PASSED
18900 / 1880	21.19	0.132	-21.62	42.81	HORIZONTAL	PASSED
19175 / 1907.5	20.55	0.113	-22.42	42.97	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 / 1855	22.14	0.164	-20.74	42.88	HORIZONTAL	PASSED
18900 / 1880	20.8	0.12	-22.01	42.81	HORIZONTAL	PASSED
18900 / 1905	20.86	0.122	-22.2	43.06	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 / 1857.5	22.06	0.161	-20.85	42.91	HORIZONTAL	PASSED
18900 / 1880	20.61	0.115	-22.2	42.81	HORIZONTAL	PASSED
18900 / 1902.5	20.09	0.102	-22.98	43.07	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 / 1860	22.22	0.167	-20.72	42.94	HORIZONTAL	PASSED
18900 / 1880	21.52	0.142	-21.29	42.81	HORIZONTAL	PASSED
18900 / 1900	19.95	0.099	-23.13	43.08	HORIZONTAL	PASSED

1.11. LTE4 test results

FDD, CBW 1.4MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1710.7	23.26	0.212	-18.68	41.94	VERTICAL	PASSED
20175 / 1732.5	23.01	0.2	-19.15	42.16	VERTICAL	PASSED
20175 / 1754.3	22.65	0.184	-19.6	42.25	VERTICAL	PASSED

FDD, CBW 3MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1711.5	22.95	0.197	-18.99	41.94	VERTICAL	PASSED
20175 / 1732.5	22.89	0.195	-19.27	42.16	VERTICAL	PASSED
20175 / 1753.5	22.62	0.183	-19.65	42.27	VERTICAL	PASSED

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

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
19975 / 1712.5	22.82	0.191	-19.11	41.93	VERTICAL	PASSED
20175 / 1732.5	22.55	0.18	-19.61	42.16	VERTICAL	PASSED
20375 / 1752.5	22.48	0.177	-19.81	42.29	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 / 1715	23.19	0.208	-18.64	41.83	VERTICAL	PASSED
20175 / 1732.5	22.79	0.19	-19.37	42.16	VERTICAL	PASSED
20175 / 1750	22.51	0.178	-19.72	42.23	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 / 1717.5	22.67	0.185	-19.17	41.84	VERTICAL	PASSED
20175 / 1732.5	22.56	0.18	-19.6	42.16	VERTICAL	PASSED
20175 / 1747.5	22.61	0.182	-19.65	42.26	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 / 1720	22.61	0.182	-19.25	41.86	VERTICAL	PASSED
20175 / 1732.5	22.59	0.181	-19.57	42.16	VERTICAL	PASSED
20175 / 1745	22.68	0.185	-19.51	42.19	VERTICAL	PASSED

FDD, CBW 1.4MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1710.7	23.15	0.207	-18.79	41.94	VERTICAL	PASSED
20175 / 1732.5	22.66	0.184	-19.5	42.16	VERTICAL	PASSED
20175 / 1754.3	21.97	0.157	-20.28	42.25	VERTICAL	PASSED

FDD, CBW 3MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 1711.5	22.66	0.184	-19.28	41.94	VERTICAL	PASSED
20175 / 1732.5	22.65	0.184	-19.51	42.16	VERTICAL	PASSED
20175 / 1753.5	22.39	0.173	-19.88	42.27	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
19975 / 1712.5	22.79	0.19	-19.14	41.93	VERTICAL	PASSED
20175 / 1732.5	22.31	0.17	-19.85	42.16	VERTICAL	PASSED
20375 / 1752.5	22.48	0.177	-19.81	42.29	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 / 1715	22.69	0.186	-19.14	41.83	VERTICAL	PASSED
20175 / 1732.5	22.88	0.194	-19.28	42.16	VERTICAL	PASSED
20175 / 1750	22.12	0.163	-20.11	42.23	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 / 1717.5	22.88	0.194	-18.96	41.84	VERTICAL	PASSED
20175 / 1732.5	22.81	0.191	-19.35	42.16	VERTICAL	PASSED
20175 / 1747.5	22.43	0.175	-19.83	42.26	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 / 1720	22.98	0.199	-18.88	41.86	VERTICAL	PASSED
20175 / 1732.5	22.74	0.188	-19.42	42.16	VERTICAL	PASSED
20175 / 1745	22.92	0.196	-19.27	42.19	VERTICAL	PASSED

1.12. LTE5 test results

FDD, CBW 1.4MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 824.7	14.53	0.028	-17.49	32.02	HORIZONTAL	PASSED
20525 / 836.5	15.65	0.037	-16.12	31.77	HORIZONTAL	PASSED
20525 / 848.3	15.54	0.036	-15.59	31.13	HORIZONTAL	PASSED

FDD, CBW 3MHz, QPSK, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 825.5	14.27	0.027	-17.74	32.01	HORIZONTAL	PASSED
20525 / 836.5	15.24	0.033	-16.53	31.77	HORIZONTAL	PASSED
20525 / 847.5	15.25	0.033	-15.9	31.15	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20425 / 826.5	14.21	0.026	-17.82	32.03	HORIZONTAL	PASSED
20525 / 836.5	15.47	0.035	-16.3	31.77	HORIZONTAL	PASSED
20625 / 846.5	15.11	0.032	-16.07	31.18	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 829	14.6	0.029	-17.46	32.06	HORIZONTAL	PASSED
20525 / 836.5	15.52	0.036	-16.25	31.77	HORIZONTAL	PASSED
20525 / 844	15.37	0.034	-16	31.37	HORIZONTAL	PASSED

FDD, CBW 1.4MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 824.7	14.88	0.031	-17.14	32.02	HORIZONTAL	PASSED
20525 / 836.5	15.43	0.035	-16.34	31.77	HORIZONTAL	PASSED
20525 / 848.3	15.52	0.036	-15.61	31.13	HORIZONTAL	PASSED

FDD, CBW 3MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 825.5	14.47	0.028	-17.54	32.01	HORIZONTAL	PASSED
20525 / 836.5	15.05	0.032	-16.72	31.77	HORIZONTAL	PASSED
20525 / 847.5	15.42	0.035	-15.73	31.15	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
20425 / 826.5	14.04	0.025	-17.99	32.03	HORIZONTAL	PASSED
20525 / 836.5	15.3	0.034	-16.47	31.77	HORIZONTAL	PASSED
20625 / 846.5	15.04	0.032	-16.14	31.18	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Results
0 / 829	14.6	0.029	-17.46	32.06	HORIZONTAL	PASSED
20525 / 836.5	15.31	0.034	-16.46	31.77	HORIZONTAL	PASSED
20525 / 844	15.07	0.032	-16.3	31.37	HORIZONTAL	PASSED

1.13. LTE7 test results

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	23.23	0.21	-23.83	47.06	HORIZONTAL	PASSED
21100 / 2535	23.23	0.21	-24.03	47.26	HORIZONTAL	PASSED
21425 / 2567.5	23.24	0.211	-24.28	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	26.21	0.418	-20.85	47.06	HORIZONTAL	PASSED
21100 / 2535	26.66	0.463	-20.6	47.26	HORIZONTAL	PASSED
21425 / 2567.5	25.9	0.389	-21.62	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	23.09	0.204	-24.09	47.18	HORIZONTAL	PASSED
21100 / 2535	23.46	0.222	-23.8	47.26	HORIZONTAL	PASSED
21100 / 2565	22.94	0.197	-24.58	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	26.08	0.405	-21.1	47.18	HORIZONTAL	PASSED
21100 / 2535	26.6	0.457	-20.66	47.26	HORIZONTAL	PASSED
21100 / 2565	25.71	0.372	-21.81	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	22.89	0.194	-24.35	47.24	HORIZONTAL	PASSED
21100 / 2535	23.4	0.219	-23.86	47.26	HORIZONTAL	PASSED
21100 / 2562.5	22.9	0.195	-24.65	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	26.14	0.411	-21.1	47.24	HORIZONTAL	PASSED
21100 / 2535	26.47	0.444	-20.79	47.26	HORIZONTAL	PASSED
21100 / 2562.5	25.61	0.364	-21.94	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	23.12	0.205	-24.12	47.24	HORIZONTAL	PASSED
21100 / 2535	23.37	0.217	-23.89	47.26	HORIZONTAL	PASSED
21100 / 2560	23.07	0.203	-24.51	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	26.58	0.455	-20.66	47.24	HORIZONTAL	PASSED
21100 / 2535	26.6	0.457	-20.66	47.26	HORIZONTAL	PASSED
21100 / 2560	25.71	0.372	-21.87	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	22.68	0.185	-24.38	47.06	HORIZONTAL	PASSED
21100 / 2535	22.98	0.199	-24.28	47.26	HORIZONTAL	PASSED
21425 / 2567.5	23.06	0.202	-24.46	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	26.34	0.43	-20.72	47.06	HORIZONTAL	PASSED
21100 / 2535	26.22	0.418	-21.04	47.26	HORIZONTAL	PASSED
21425 / 2567.5	25.71	0.372	-21.81	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	22.46	0.176	-24.72	47.18	HORIZONTAL	PASSED
21100 / 2535	22.56	0.18	-24.7	47.26	HORIZONTAL	PASSED
21100 / 2565	22.8	0.191	-24.72	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	25.89	0.388	-21.29	47.18	HORIZONTAL	PASSED
21100 / 2535	26.15	0.412	-21.11	47.26	HORIZONTAL	PASSED
21100 / 2565	25.84	0.383	-21.68	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	23.12	0.205	-24.12	47.24	HORIZONTAL	PASSED
21100 / 2535	22.97	0.198	-24.29	47.26	HORIZONTAL	PASSED
21100 / 2562.5	22.99	0.199	-24.56	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	26.39	0.435	-20.85	47.24	HORIZONTAL	PASSED
21100 / 2535	26.15	0.412	-21.11	47.26	HORIZONTAL	PASSED
21100 / 2562.5	25.87	0.386	-21.68	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	22.87	0.193	-24.37	47.24	HORIZONTAL	PASSED
21100 / 2535	23.07	0.203	-24.19	47.26	HORIZONTAL	PASSED
21100 / 2560	23.28	0.213	-24.3	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	26.32	0.429	-20.92	47.24	HORIZONTAL	PASSED
21100 / 2535	26.53	0.45	-20.73	47.26	HORIZONTAL	PASSED
21100 / 2560	26.09	0.407	-21.49	47.58	HORIZONTAL	PASSED

1.14. LTE38 TX test results

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2572.5	24.83	0.304	-22.69	47.52	HORIZONTAL	PASSED
0 / 2595	24.43	0.278	-23.1	47.53	HORIZONTAL	PASSED
0 / 2617.5	23.79	0.239	-23.98	47.77	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2575	25.2	0.331	-22.4	47.6	HORIZONTAL	PASSED
0 / 2595	24.48	0.28	-23.05	47.53	HORIZONTAL	PASSED
0 / 2614.2	23.86	0.243	-23.93	47.79	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2577.5	24.76	0.299	-22.75	47.51	HORIZONTAL	PASSED
0 / 2595	24.33	0.271	-23.2	47.53	HORIZONTAL	PASSED
0 / 2612.5	23.74	0.237	-23.99	47.73	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2580	25.32	0.34	-22.1	47.42	HORIZONTAL	PASSED
0 / 2595	24.73	0.297	-22.8	47.53	HORIZONTAL	PASSED
0 / 2610	24.12	0.258	-23.52	47.64	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2572.5	24.75	0.299	-22.77	47.52	HORIZONTAL	PASSED
0 / 2595	24.31	0.27	-23.22	47.53	HORIZONTAL	PASSED
0 / 2617.5	23.54	0.226	-24.23	47.77	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2575	24.65	0.292	-22.95	47.6	HORIZONTAL	PASSED
0 / 2595	24.91	0.31	-22.62	47.53	HORIZONTAL	PASSED
0 / 2614.2	23.92	0.246	-23.87	47.79	HORIZONTAL	PASSED

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

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2577.5	24.73	0.297	-22.78	47.51	HORIZONTAL	PASSED
0 / 2595	24.63	0.29	-22.9	47.53	HORIZONTAL	PASSED
0 / 2612.5	23.52	0.225	-24.21	47.73	HORIZONTAL	PASSED

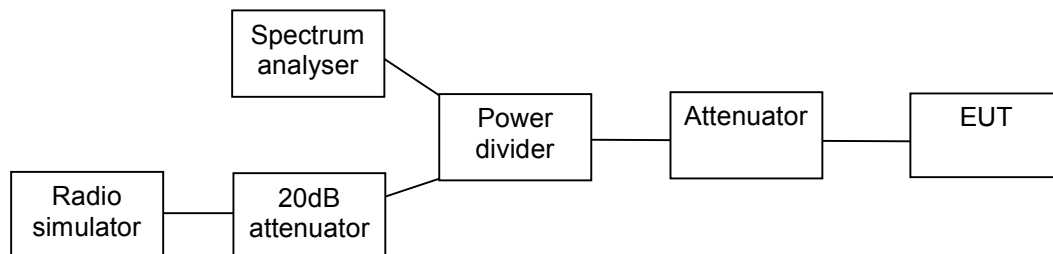
TDD, CBW 20MHz, 16QAM, 1RB mid, RMS detector

Channel / f_c [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
0 / 2580	24.54	0.285	-22.88	47.42	HORIZONTAL	PASSED
0 / 2595	24.7	0.295	-22.83	47.53	HORIZONTAL	PASSED
0 / 2610	23.98	0.25	-23.66	47.64	HORIZONTAL	PASSED

2. Peak to average power ratio

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to applicable RSS -standard.

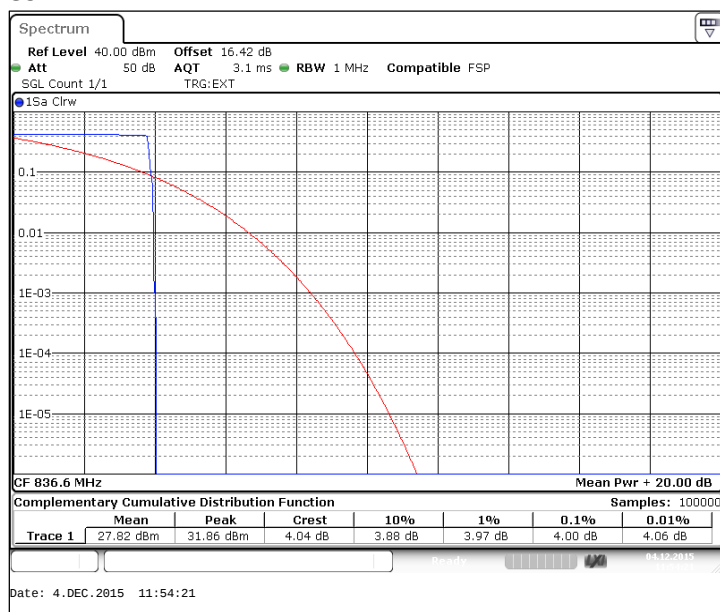
Limits for Peak to average power ratio measurements

Peak to average power ratio [dB]
≤ 13

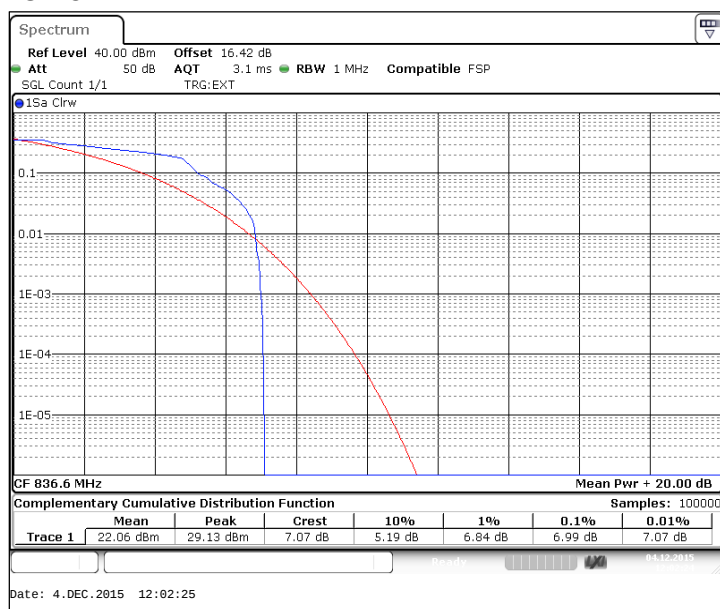
2.3. GSM 850 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
GSM	190 / 836.6	4.04	PASSED
EGPRS	190 / 836.6	7.07	PASSED

GSM



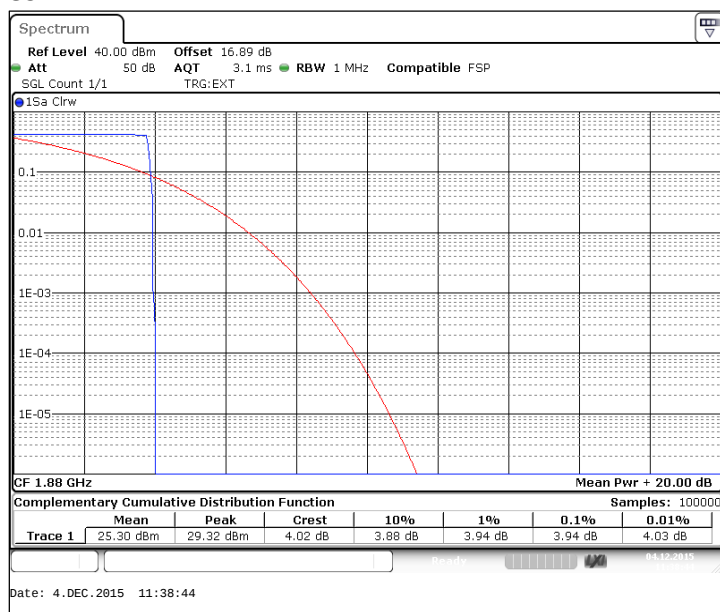
EGPRS



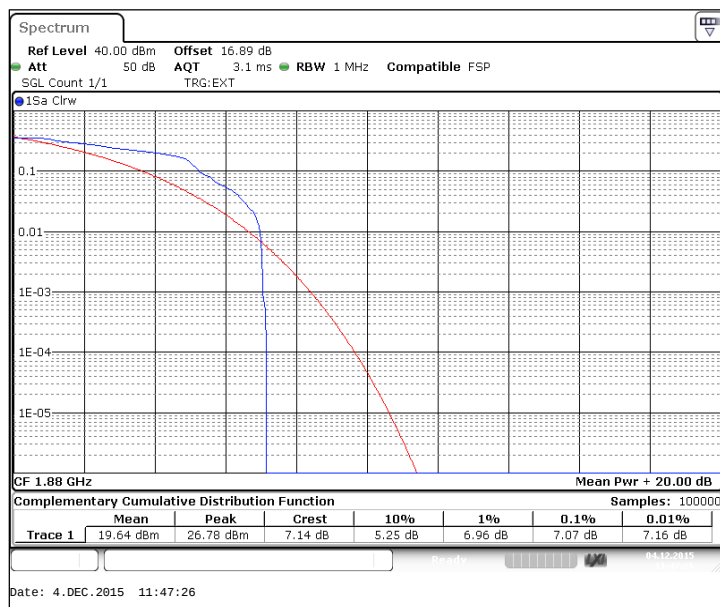
2.4. GSM 1900 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
GSM	661 / 1880.0	4.02	PASSED
EGPRS	661 / 1880.0	7.14	PASSED

GSM



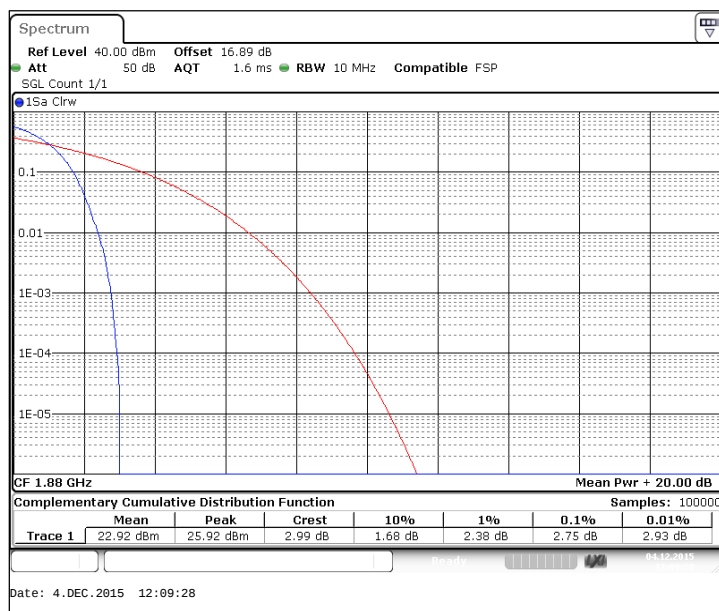
EGPRS



2.5. WCDMA2 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD	9400 / 1880.0	2.99	PASSED

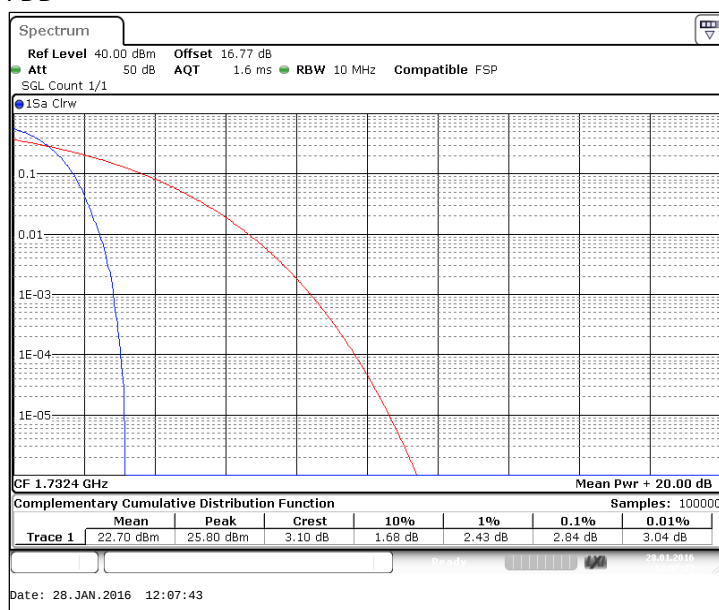
FDD



2.6. WCDMA4 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD	1412 / 1732.4	3.10	PASSED

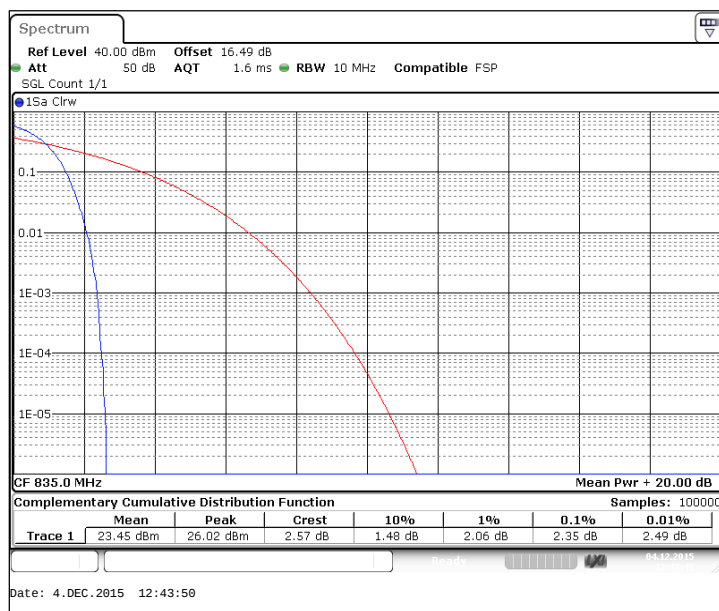
FDD



2.7. WCDMA5 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD	4175 / 835.0	2.57	PASSED

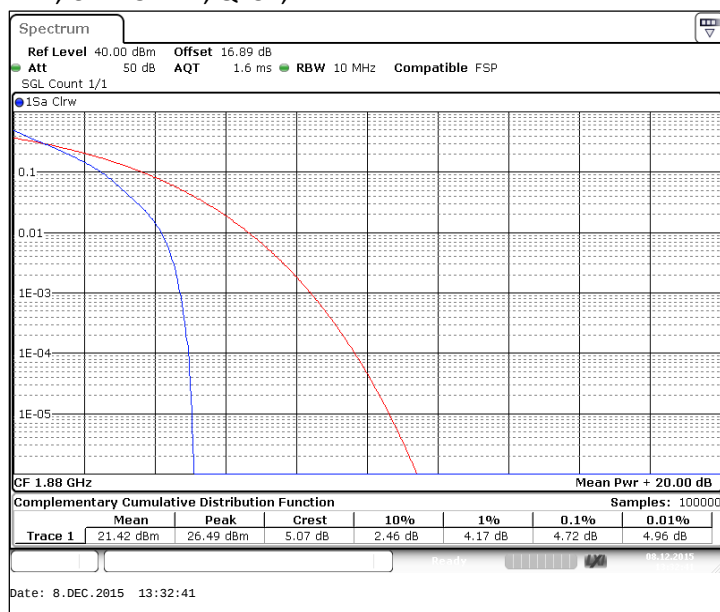
FDD



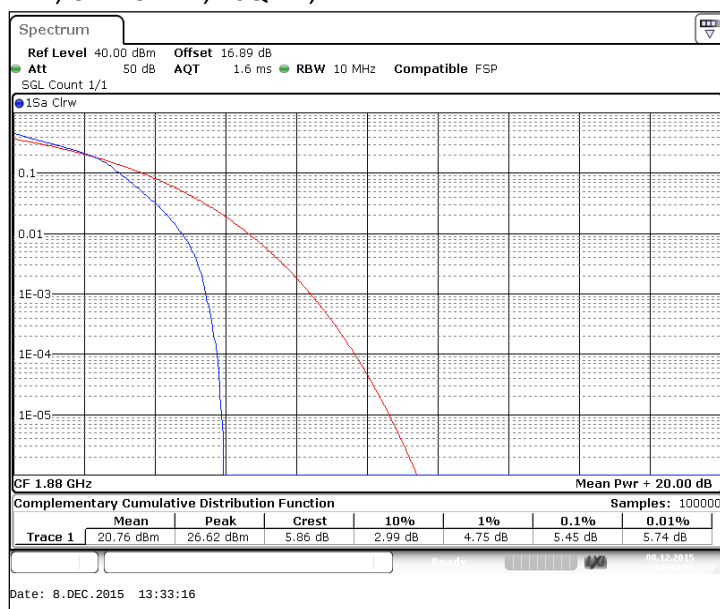
2.8. LTE2 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD, CBW 5MHz, QPSK, 25 RB	18900 / 1880.0	5.07	PASSED
FDD, CBW 5MHz, 16QAM, 25 RB	18900 / 1880.0	5.86	PASSED

FDD, CBW 5MHz, QPSK, INV RB



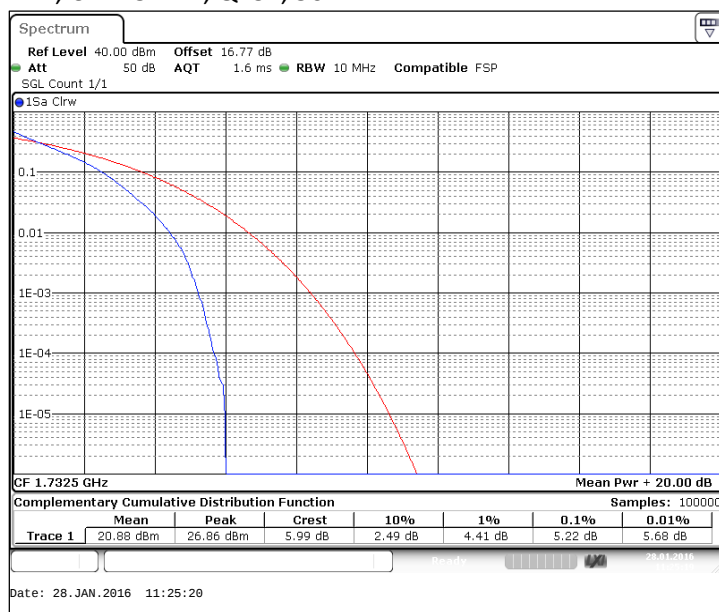
FDD, CBW 5MHz, 16QAM, INV RB



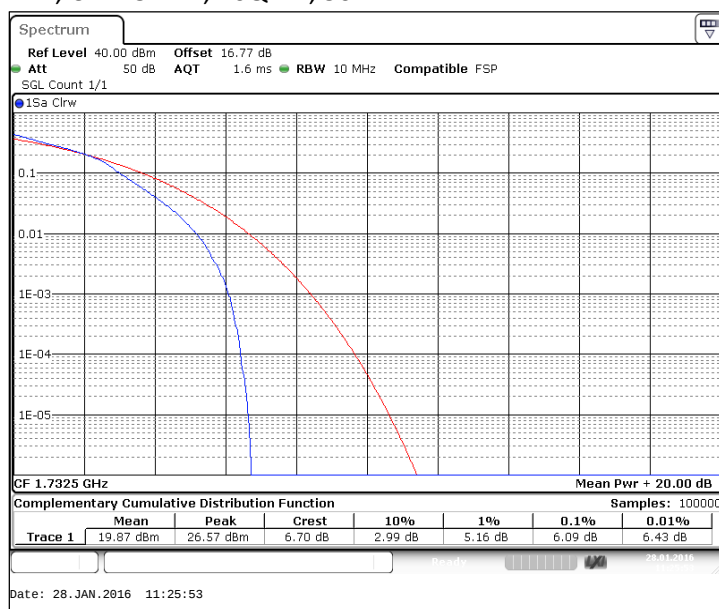
2.9. LTE4 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD, CBW 5MHz, QPSK, 50 RB	20175 / 1732.5	5.99	PASSED
FDD, CBW 5MHz, 16QAM, 50 RB	20175 / 1732.5	6.70	PASSED

FDD, CBW 5MHz, QPSK, 50 RB



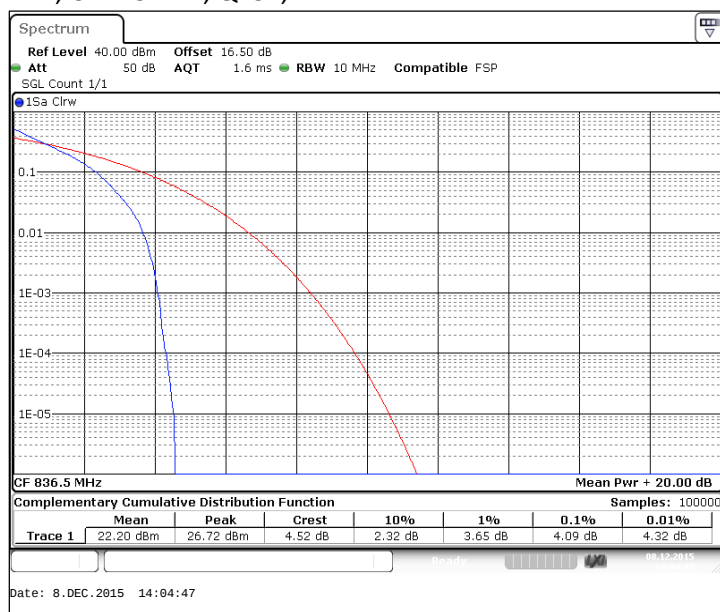
FDD, CBW 5MHz, 16QAM, 50 RB



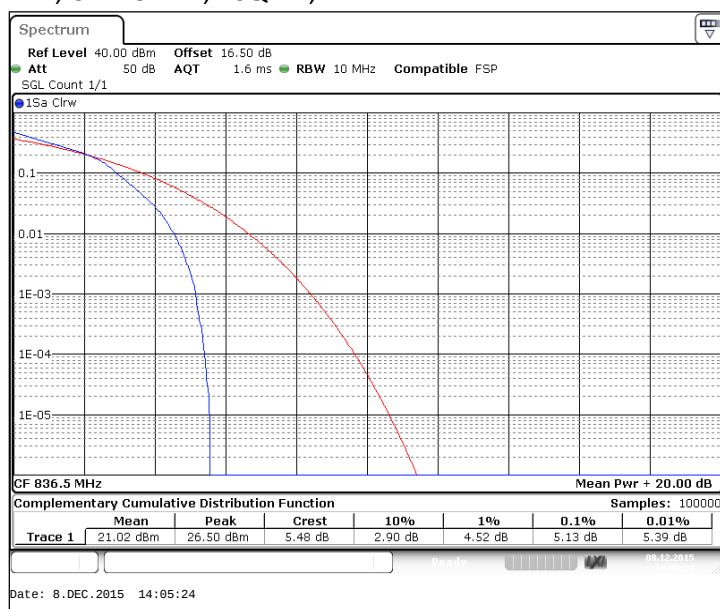
2.10. LTE5 Test results

Operation mode (TX on)	Channel / f _c [MHz]	Peak to average power ratio [dB]	Result
FDD, CBW 5MHz, QPSK, 25 RB	20525 / 836.5	4.52	PASSED
FDD, CBW 5MHz, 16QAM, 25 RB	20525 / 836.5	5.48	PASSED

FDD, CBW 5MHz, QPSK, INV RB



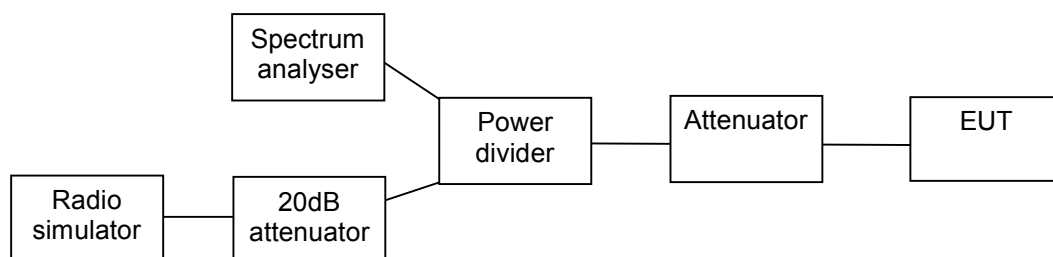
FDD, CBW 5MHz, 16QAM, INV RB



3. 99 % occupied bandwidth

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

3.1. Test Setup



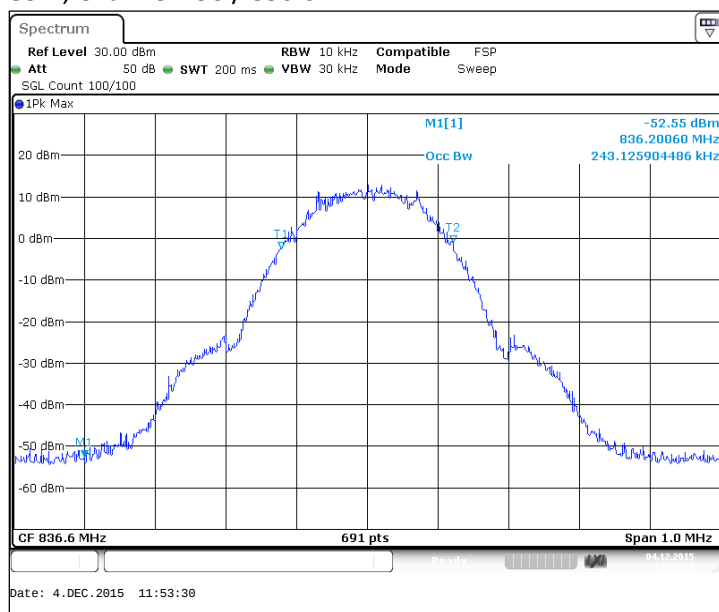
3.2. Test method and limit

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

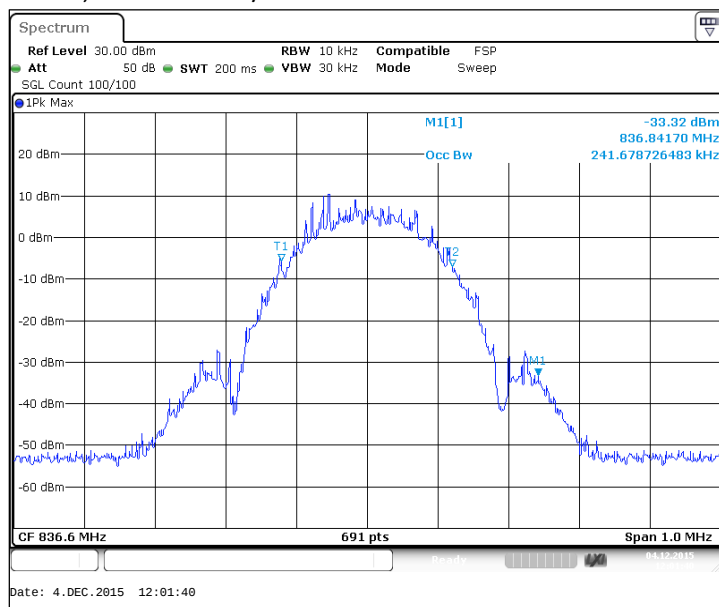
3.3. GSM 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	243.1
EGPRS	241.7

GSM, Channel 190 / 836.6 MHz



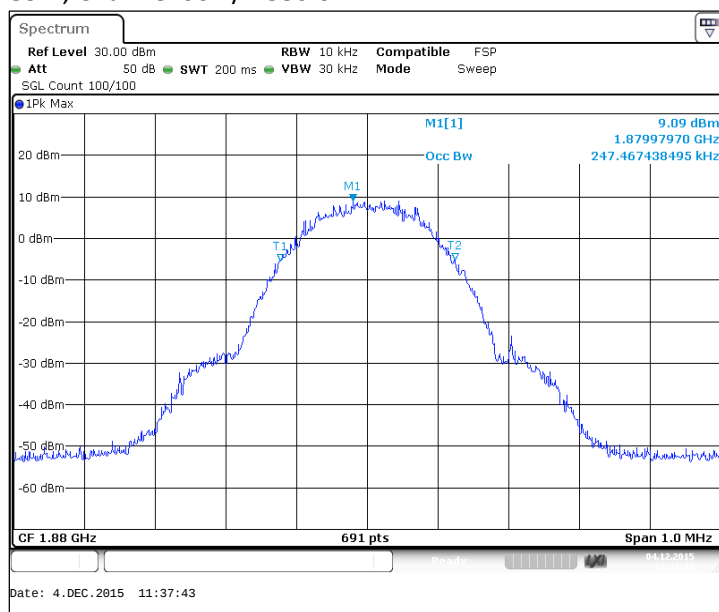
EGPRS, Channel 190 / 836.6 MHz



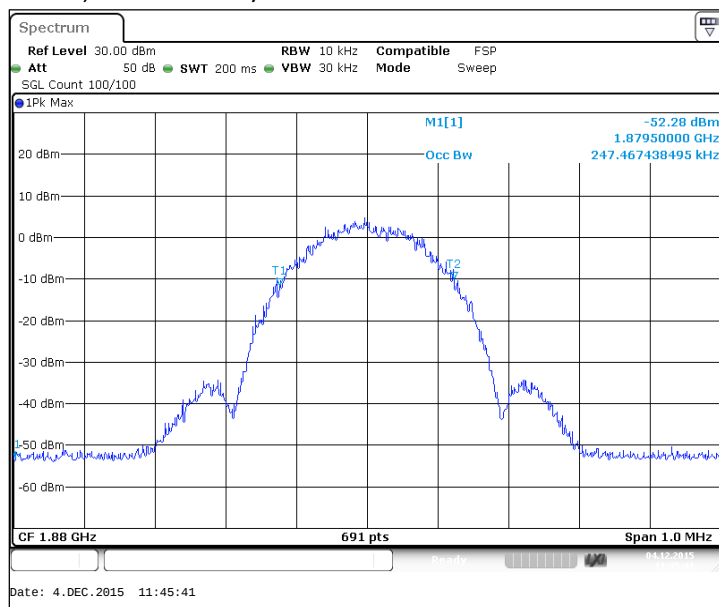
3.4. GSM 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	247.5
EGPRS	247.5

GSM, Channel 661 / 1880.0 MHz



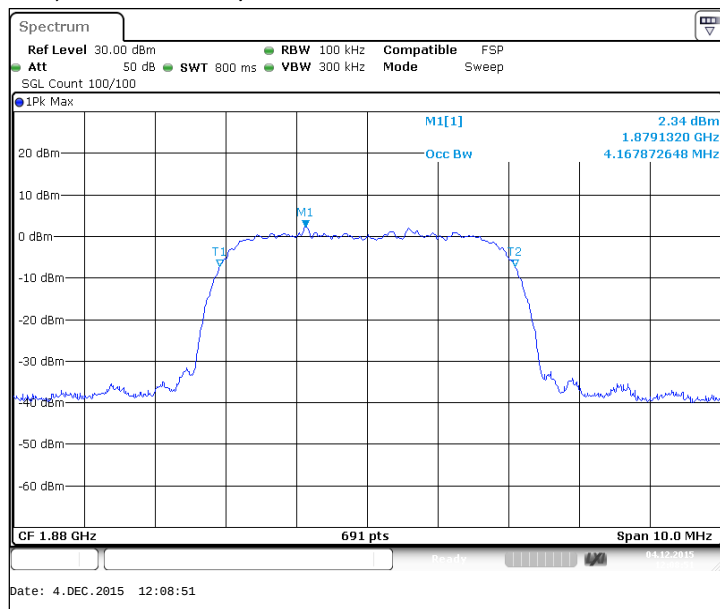
EGPRS, Channel 661 / 1880.0 MHz



3.5. WCDMA2 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4167.9

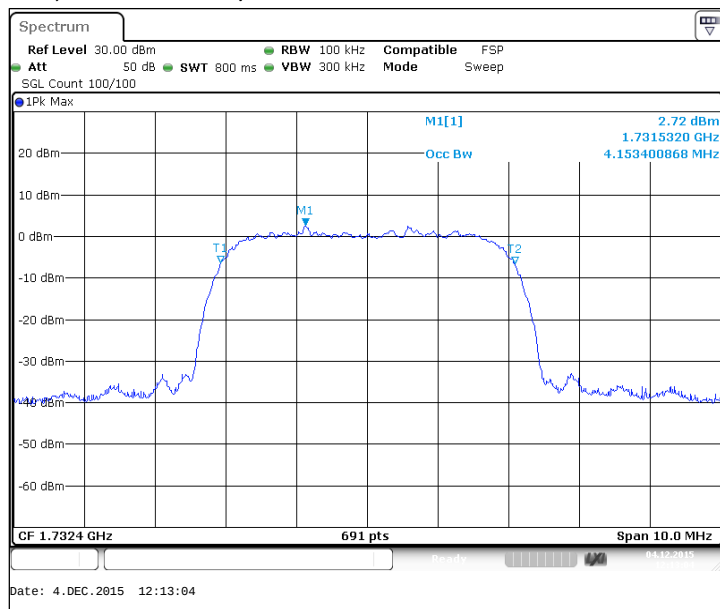
FDD, Channel 9400 / 1880.0 MHz



3.6. WCDMA4 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4153.4

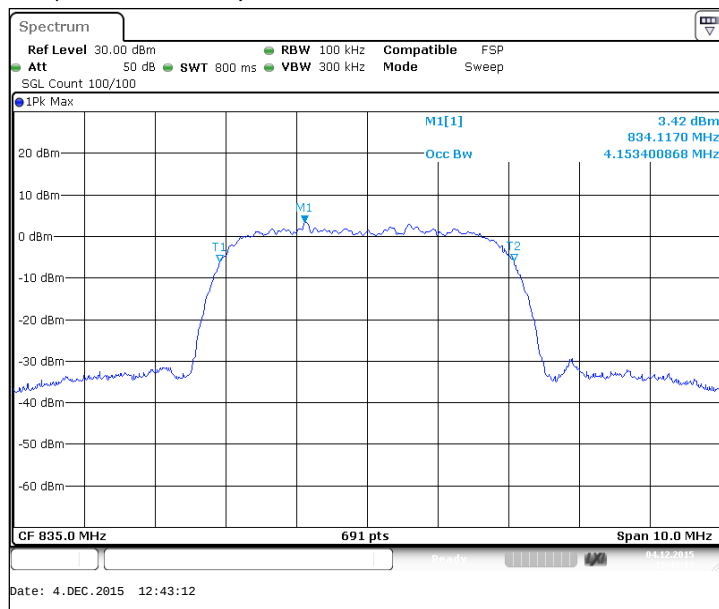
FDD, Channel 1412 / 1732.4 MHz



3.7. WCDMA5 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4153.4

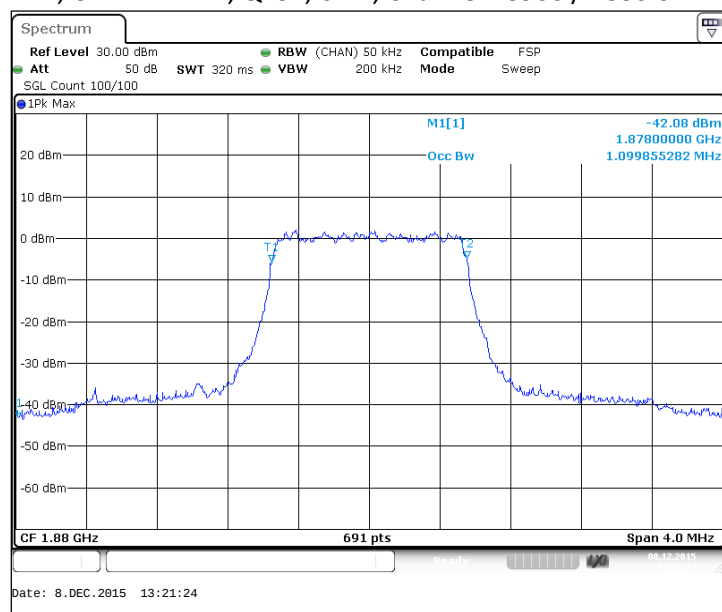
FDD, Channel 4175 / 835.0 MHz



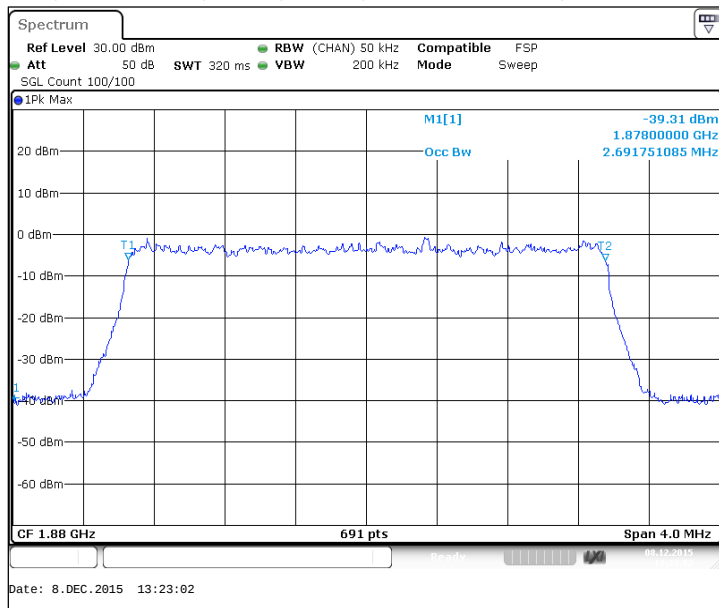
3.8. LTE2 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 1.4MHz, QPSK, 6 RB	1099.9
FDD, CBW 3MHz, QPSK, 15 RB	2691.8
FDD, CBW 5MHz, QPSK, 25 RB	4487.7
FDD, CBW 10MHz, QPSK, 50 RB	8943.6
FDD, CBW 15MHz, QPSK, 75 RB	13429.8
FDD, CBW 20MHz, QPSK, 100 RB	17836.5
FDD, CBW 1.4MHz, 16QAM, 6 RB	1105.6
FDD, CBW 3MHz, 16QAM, 15 RB	2680.2
FDD, CBW 5MHz, 16QAM, 25 RB	4477.6
FDD, CBW 10MHz, 16QAM, 50 RB	8965.3
FDD, CBW 15MHz, 16QAM, 75 RB	13400.9
FDD, CBW 20MHz, 16QAM, 100 RB	17872.6

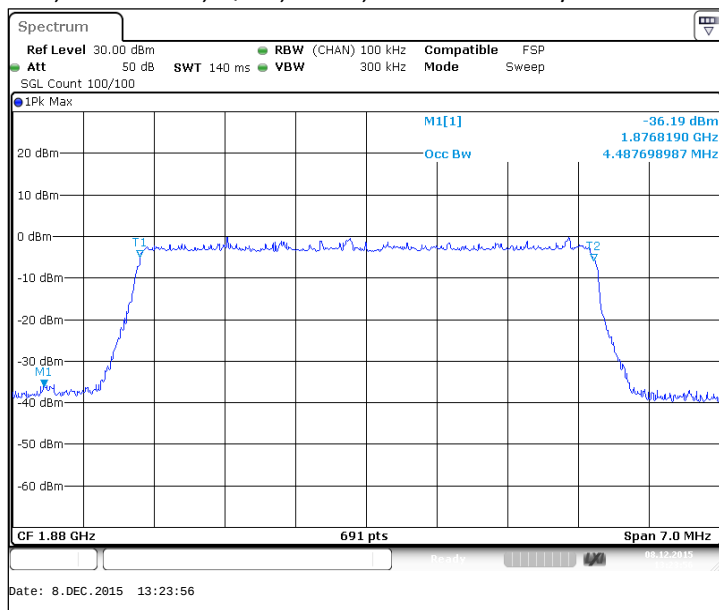
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 18900 / 1880.0 MHz



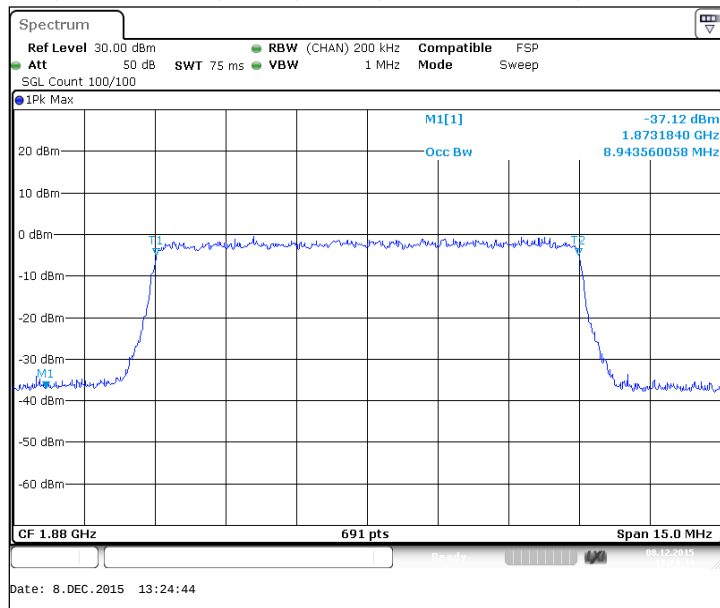
FDD, CBW 3MHz, QPSK, 15 RB, Channel 18900 / 1880.0 MHz



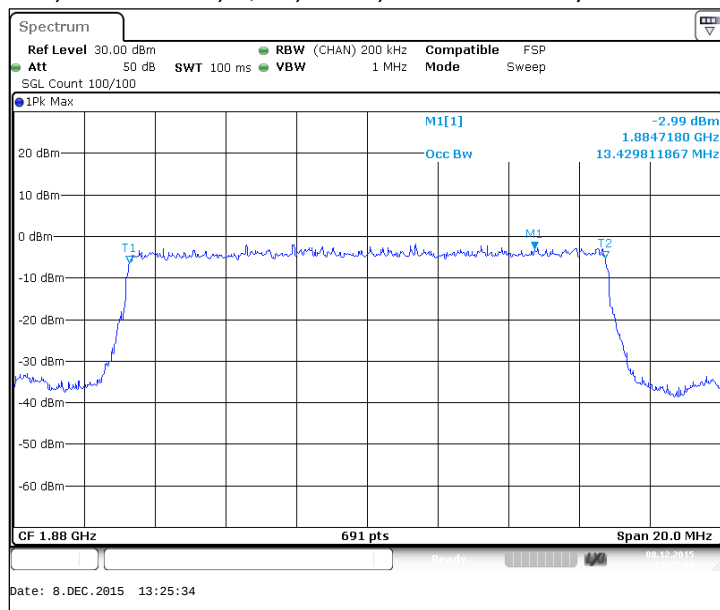
FDD, CBW 5MHz, QPSK, 25 RB, Channel 18900 / 1880.0 MHz



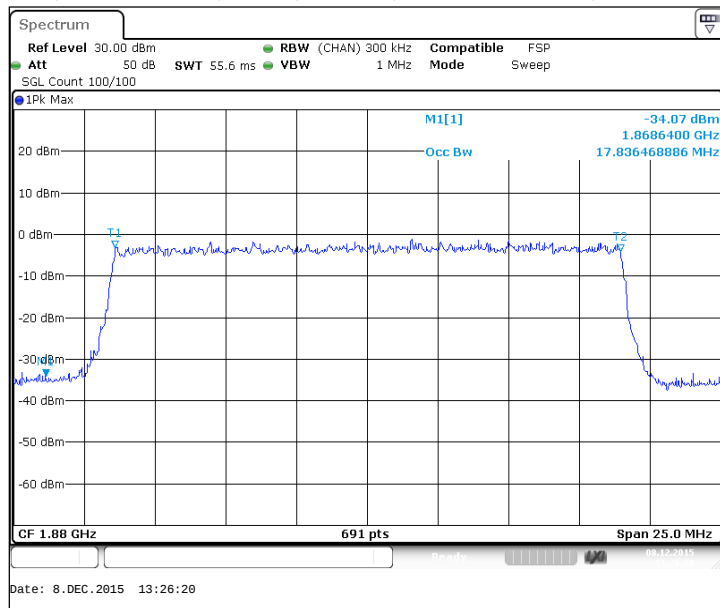
FDD, CBW 10MHz, QPSK, 50 RB, Channel 18900 / 1880.0 MHz



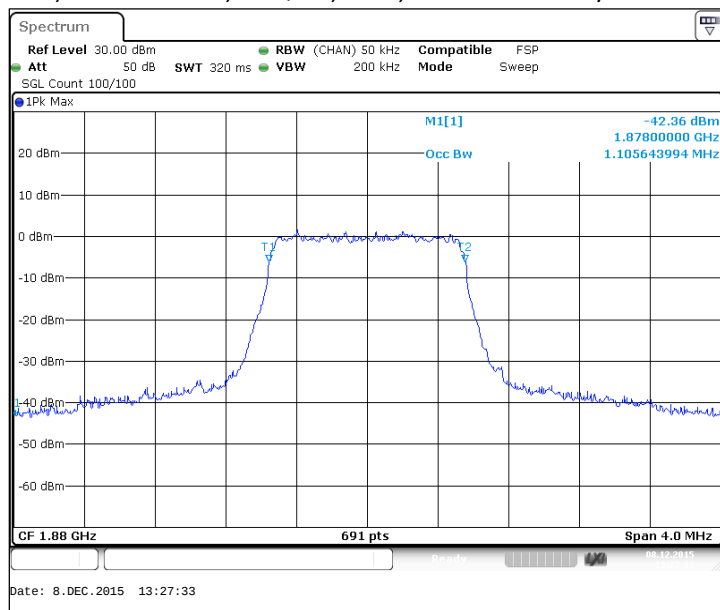
FDD, CBW 15MHz, QPSK, 75 RB, Channel 18900 / 1880.0 MHz



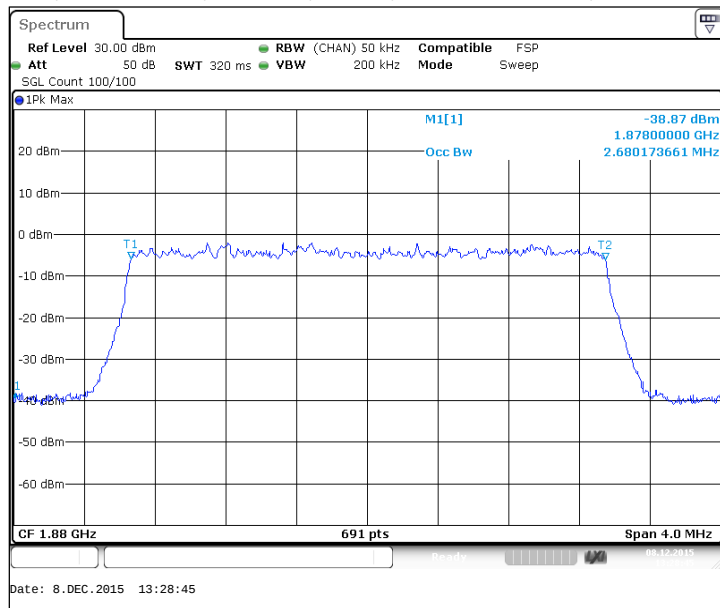
FDD, CBW 20MHz, QPSK, 100 RB, Channel 18900 / 1880.0 MHz



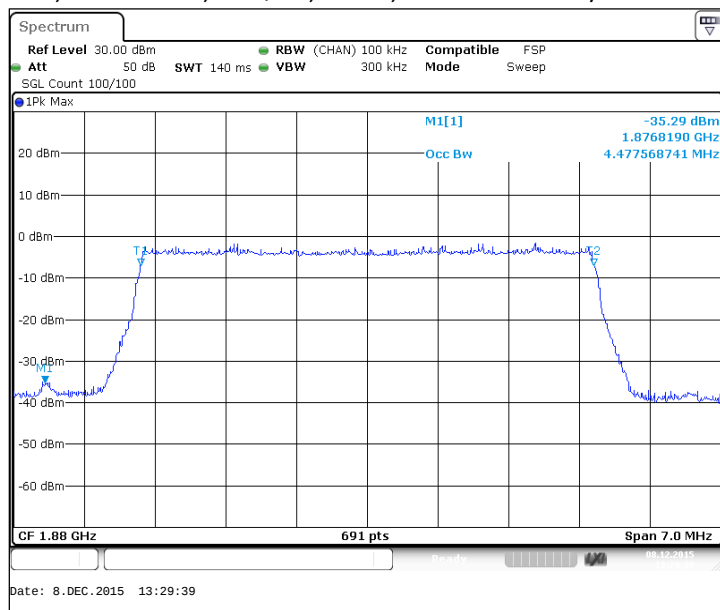
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 18900 / 1880.0 MHz



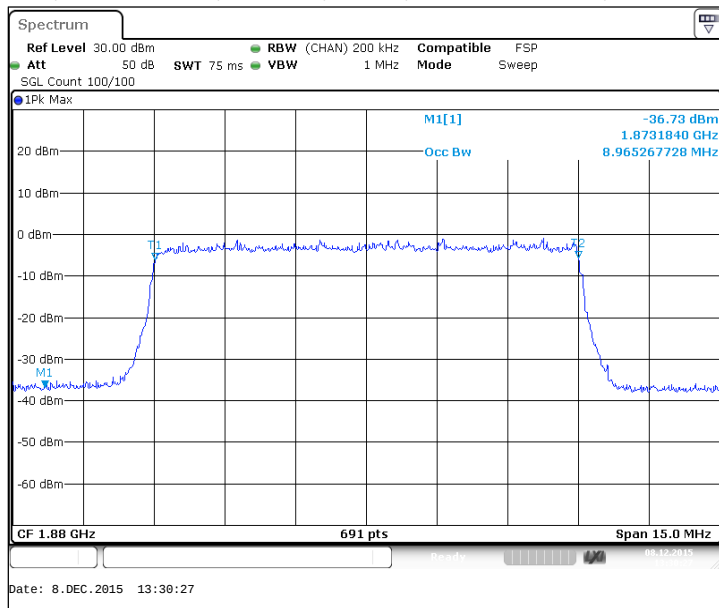
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 18900 / 1880.0 MHz



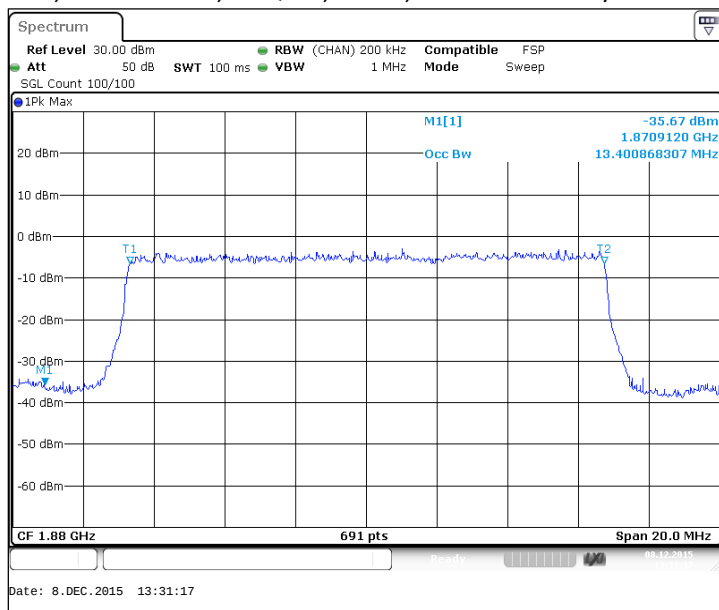
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 18900 / 1880.0 MHz



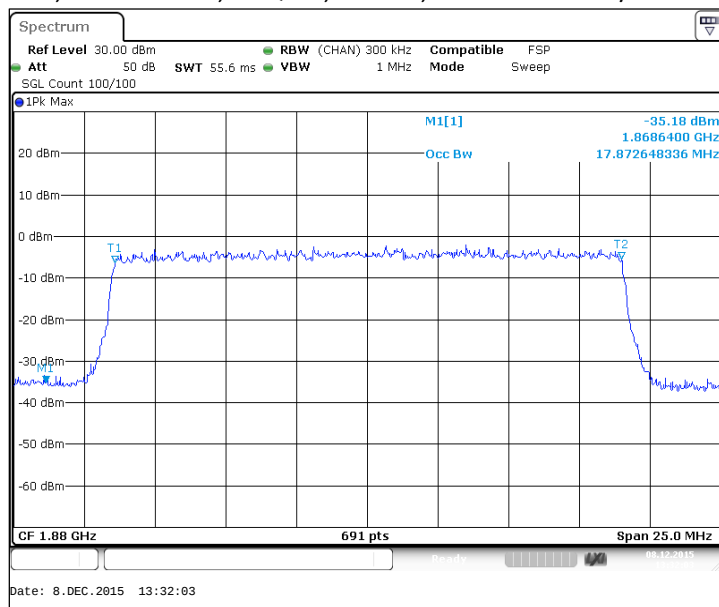
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 18900 / 1880.0 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 18900 / 1880.0 MHz



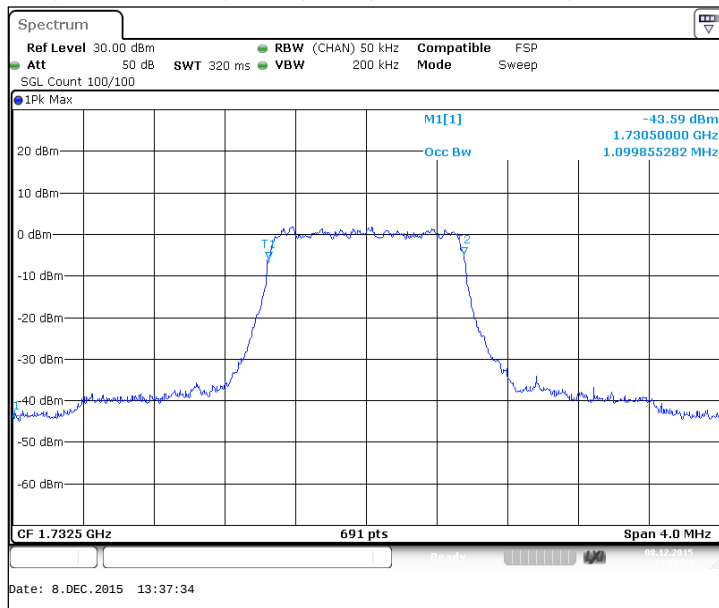
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 18900 / 1880.0 MHz



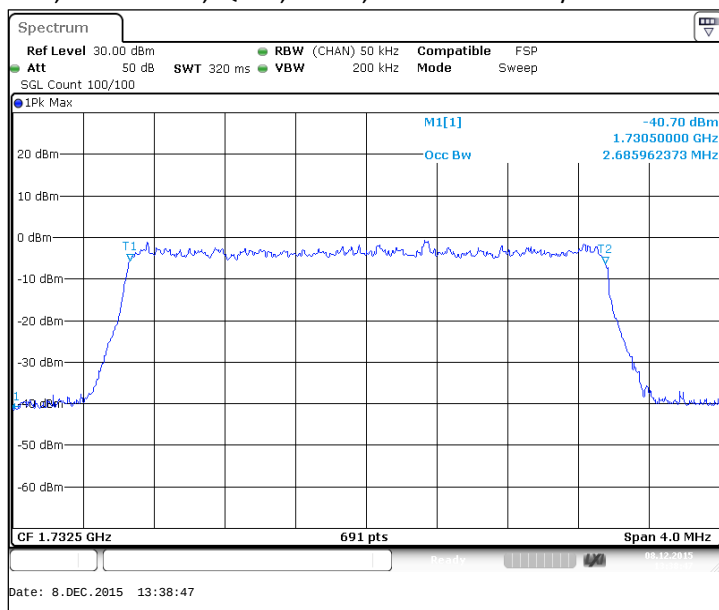
3.9. LTE4 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 1.4MHz, QPSK, 6 RB	1099.9
FDD, CBW 3MHz, QPSK, 15 RB	2686
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	17836.5
FDD, CBW 1.4MHz, 16QAM, 6 RB	1105.6
FDD, CBW 3MHz, 16QAM, 15 RB	2680.2
FDD, CBW 5MHz, 16QAM, 25 RB	4477.6
FDD, CBW 10MHz, 16QAM, 50 RB	8943.6
FDD, CBW 15MHz, 16QAM, 75 RB	13371.9
FDD, CBW 20MHz, 16QAM, 100 RB	17836.5

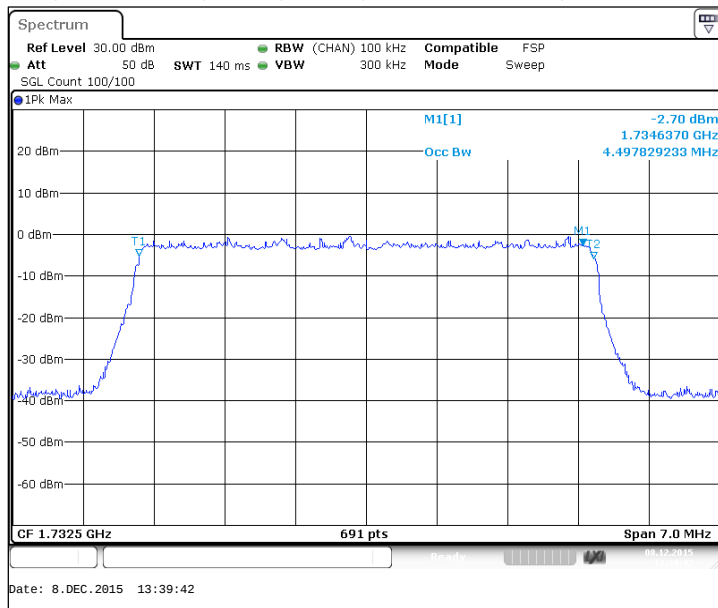
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 20175 / 1732.5 MHz



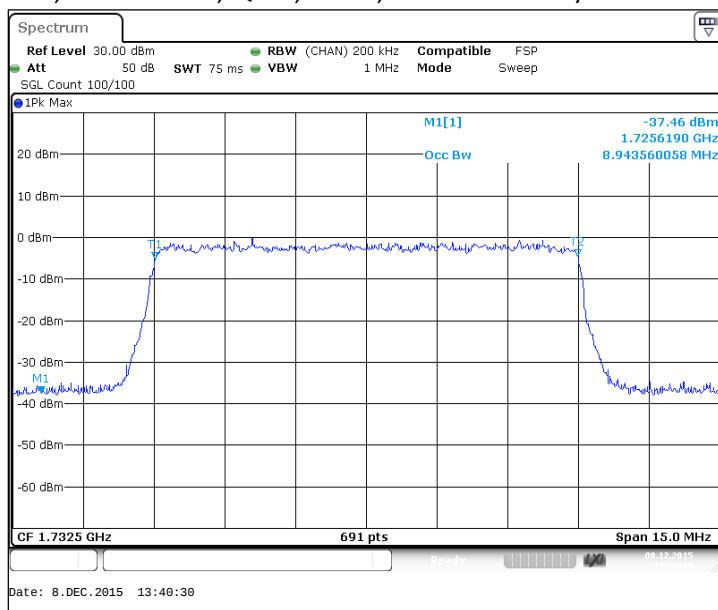
FDD, CBW 3MHz, QPSK, 15 RB, Channel 20175 / 1732.5 MHz



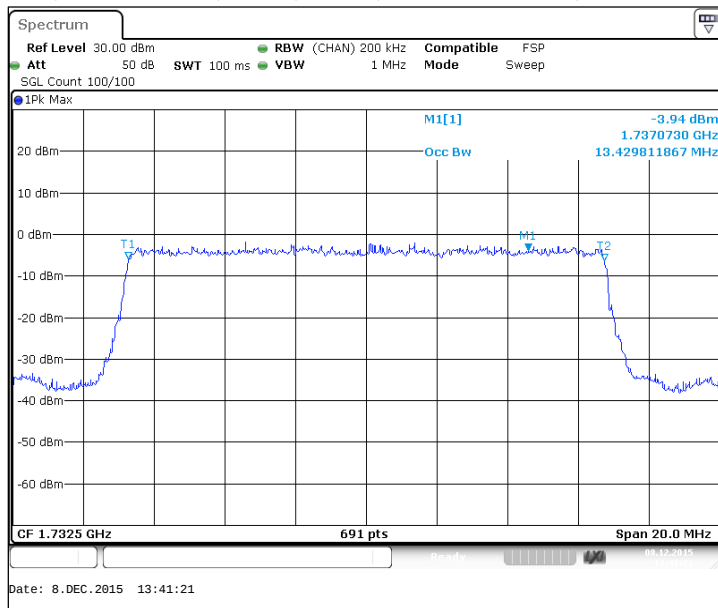
FDD, CBW 5MHz, QPSK, 25 RB, Channel 20175 / 1732.5 MHz



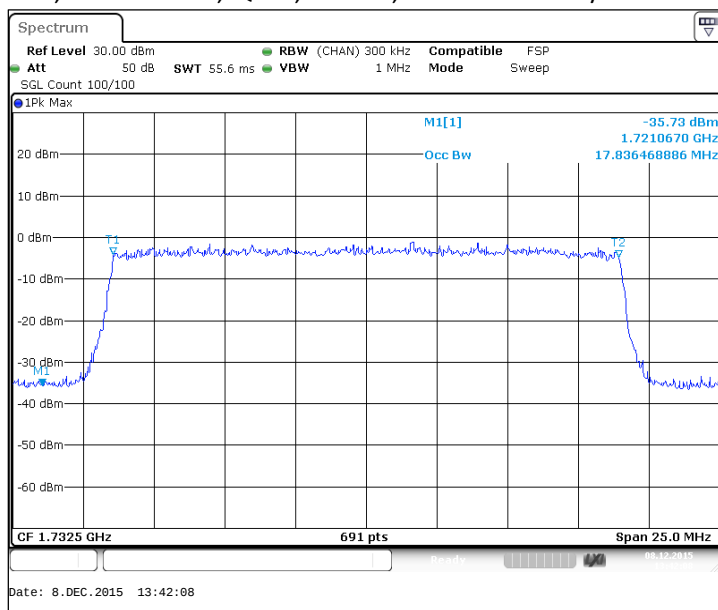
FDD, CBW 10MHz, QPSK, 50 RB, Channel 20175 / 1732.5 MHz



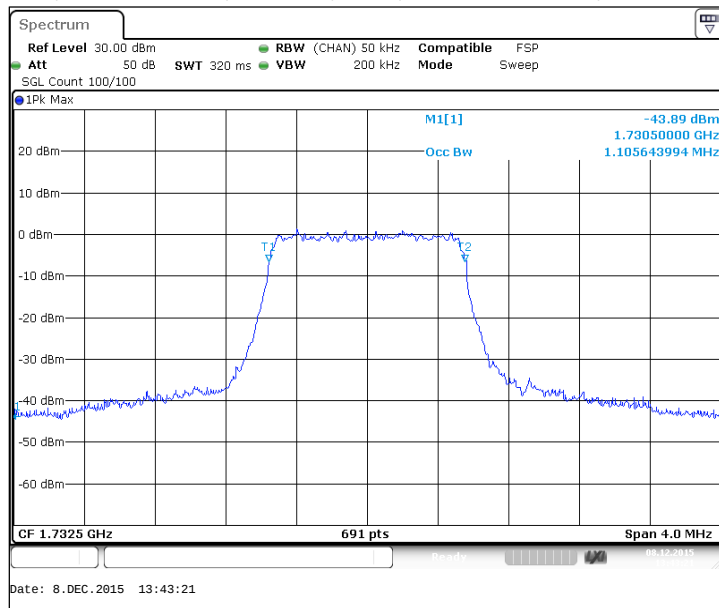
FDD, CBW 15MHz, QPSK, 75 RB, Channel 20175 / 1732.5 MHz



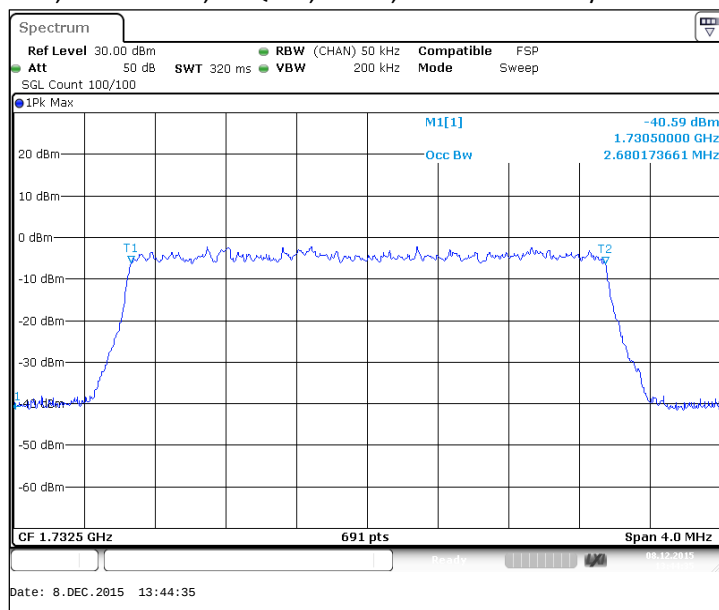
FDD, CBW 20MHz, QPSK, 100 RB, Channel 20175 / 1732.5 MHz



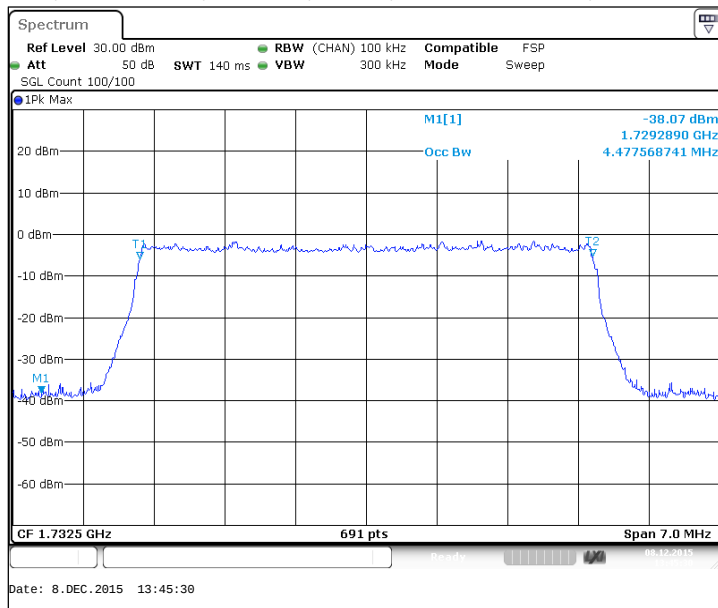
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 20175 / 1732.5 MHz



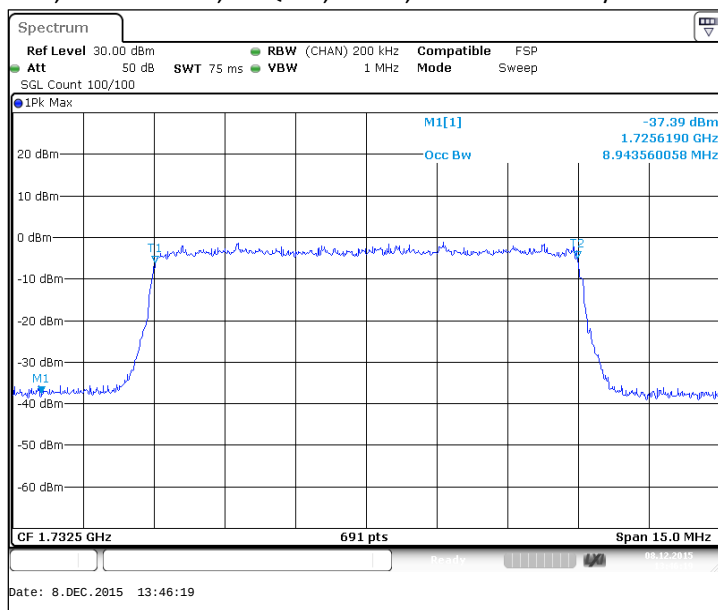
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 20175 / 1732.5 MHz



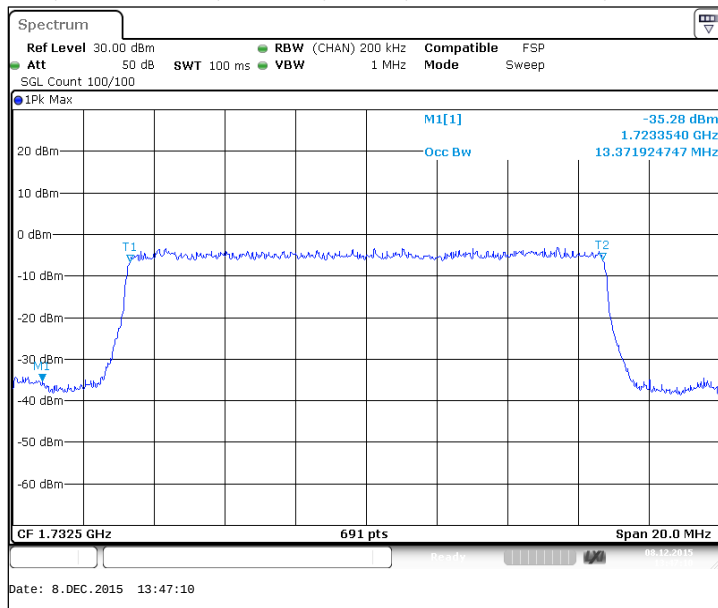
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 20175 / 1732.5 MHz



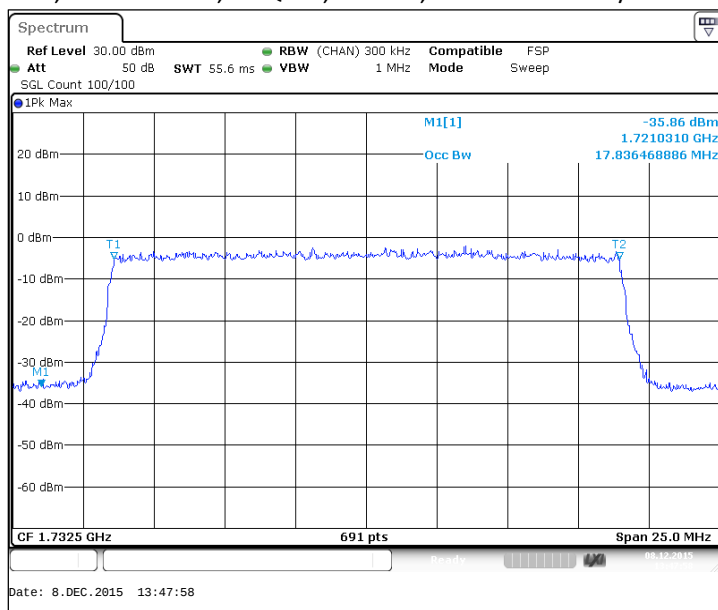
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 20175 / 1732.5 MHz



FDD, CBW 15MHz, 16QAM, 75 RB, Channel 20175 / 1732.5 MHz



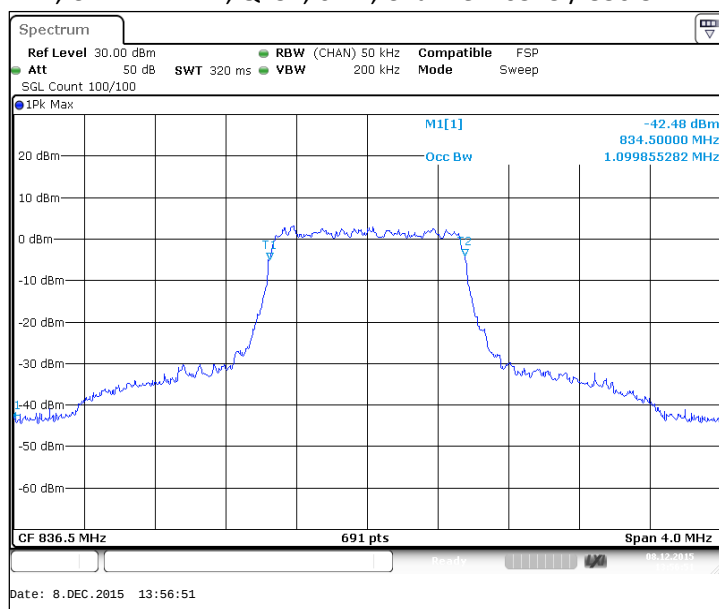
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 20175 / 1732.5 MHz



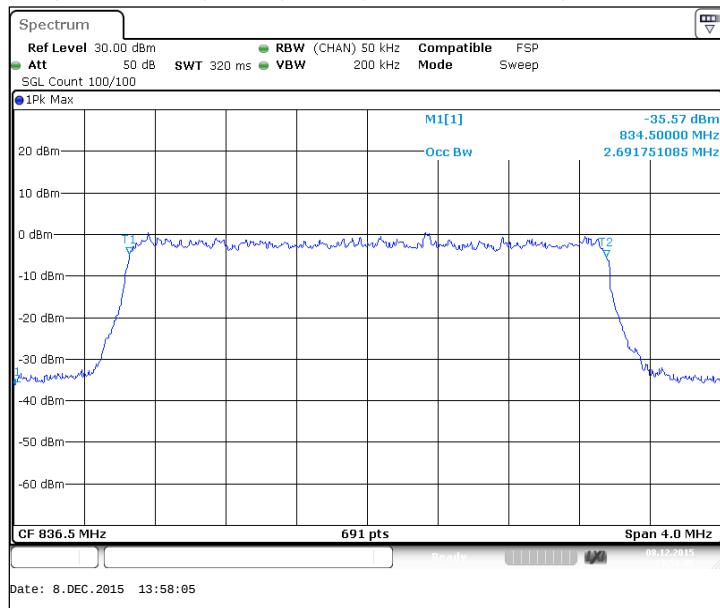
3.10. LTE5 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 1.4MHz, QPSK, 6 RB	1099.9
FDD, CBW 3MHz, QPSK, 15 RB	2691.8
FDD, CBW 5MHz, QPSK, 25 RB	4497.8
FDD, CBW 10MHz, QPSK, 50 RB	8965.3
FDD, CBW 1.4MHz, 16QAM, 6 RB	1105.6
FDD, CBW 3MHz, 16QAM, 15 RB	2680.2
FDD, CBW 5MHz, 16QAM, 25 RB	4487.7
FDD, CBW 10MHz, 16QAM, 50 RB	8943.6

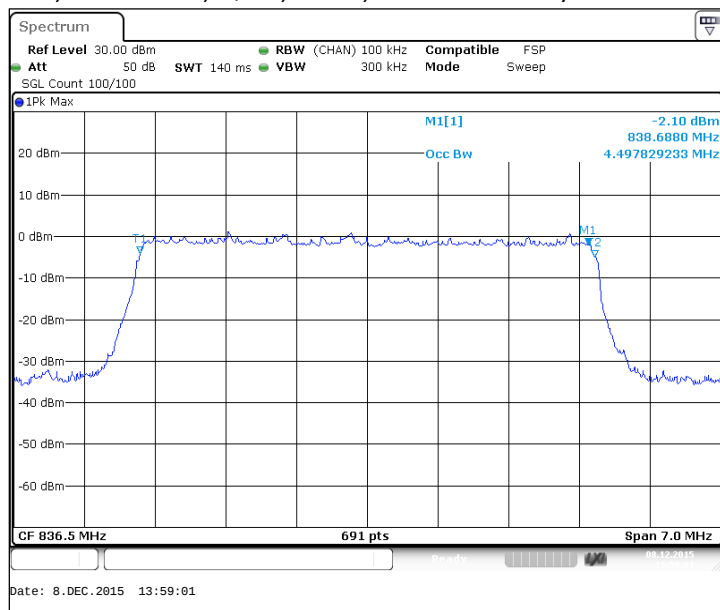
FDD, CBW 1.4MHz, QPSK, 6 RB, Channel 20525 / 836.5 MHz



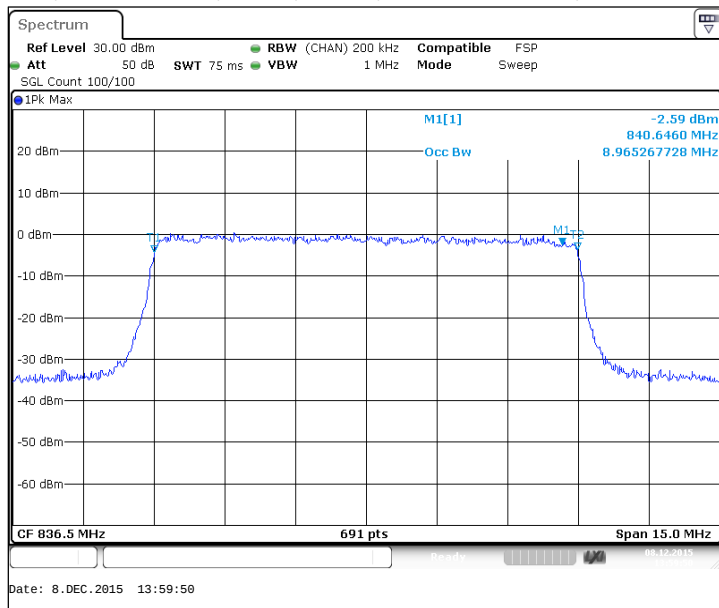
FDD, CBW 3MHz, QPSK, 15 RB, Channel 20525 / 836.5 MHz



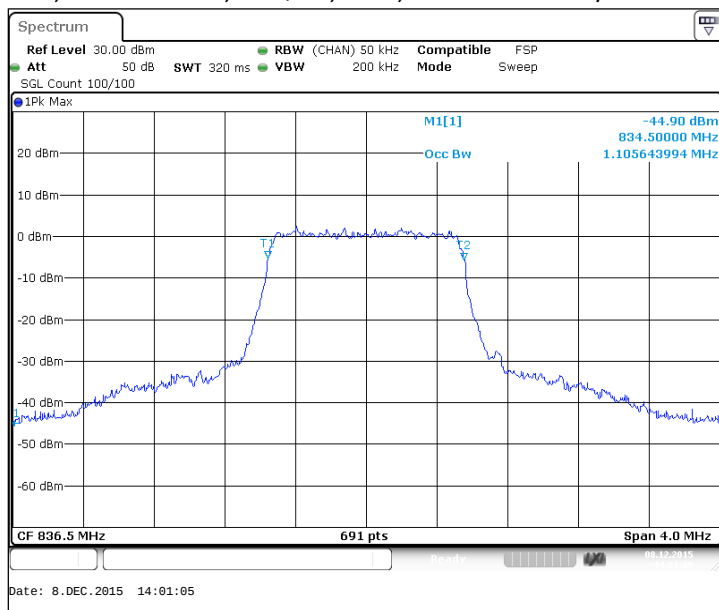
FDD, CBW 5MHz, QPSK, 25 RB, Channel 20525 / 836.5 MHz



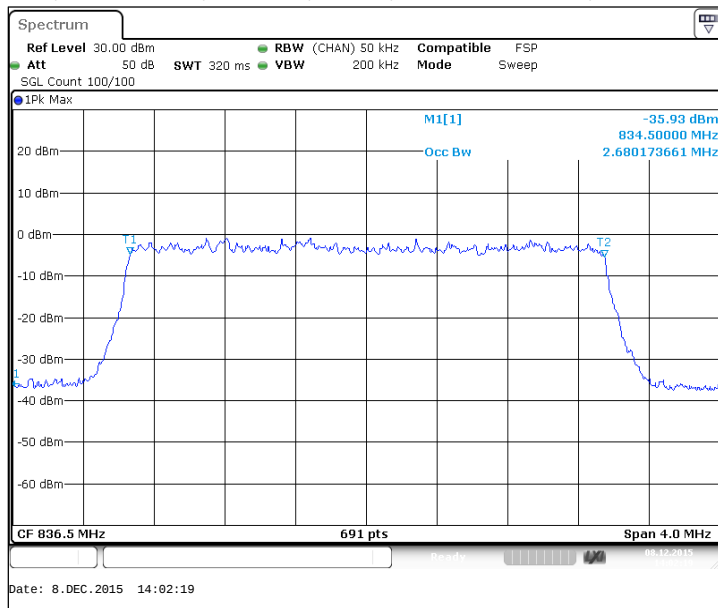
FDD, CBW 10MHz, QPSK, 50 RB, Channel 20525 / 836.5 MHz



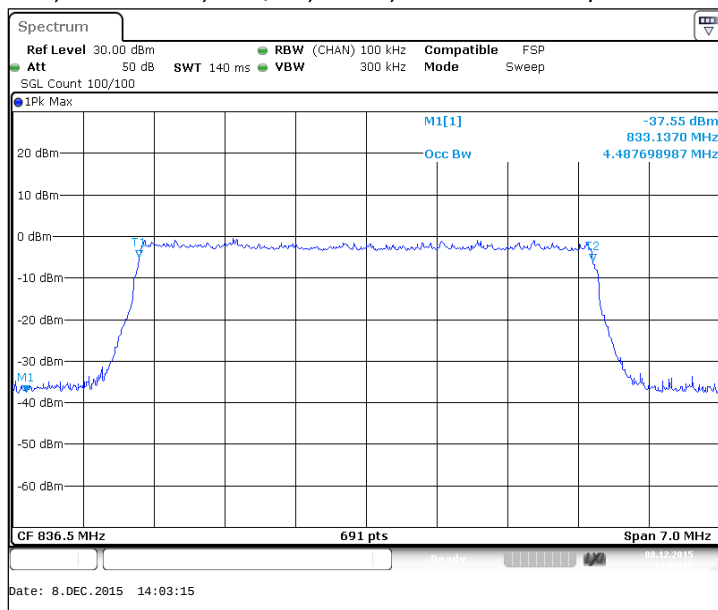
FDD, CBW 1.4MHz, 16QAM, 6 RB, Channel 20525 / 836.5 MHz



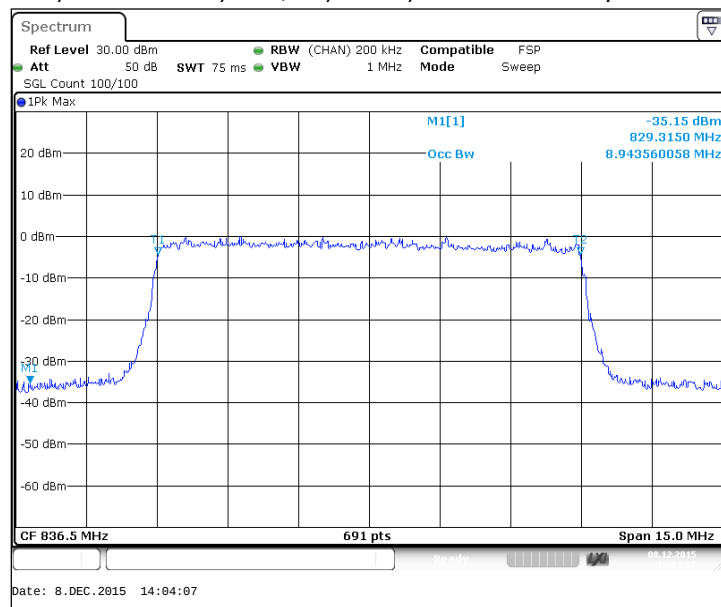
FDD, CBW 3MHz, 16QAM, 15 RB, Channel 20525 / 836.5 MHz



FDD, CBW 5MHz, 16QAM, 25 RB, Channel 20525 / 836.5 MHz



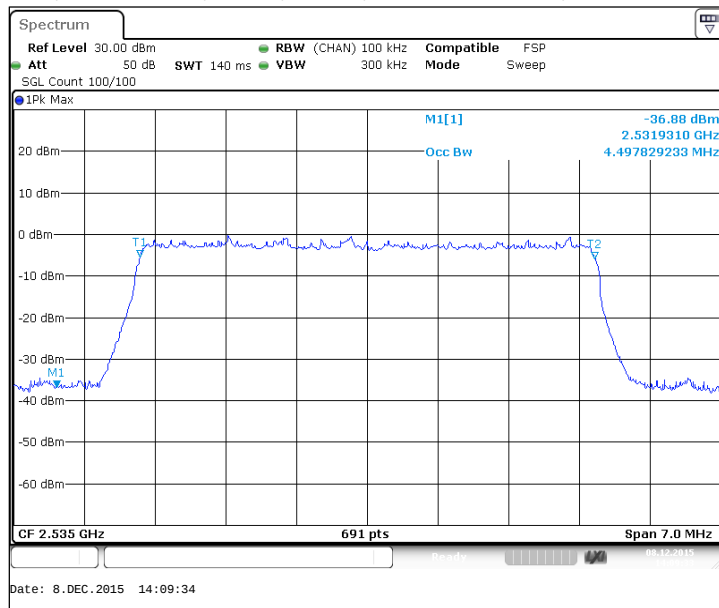
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 20525 / 836.5 MHz



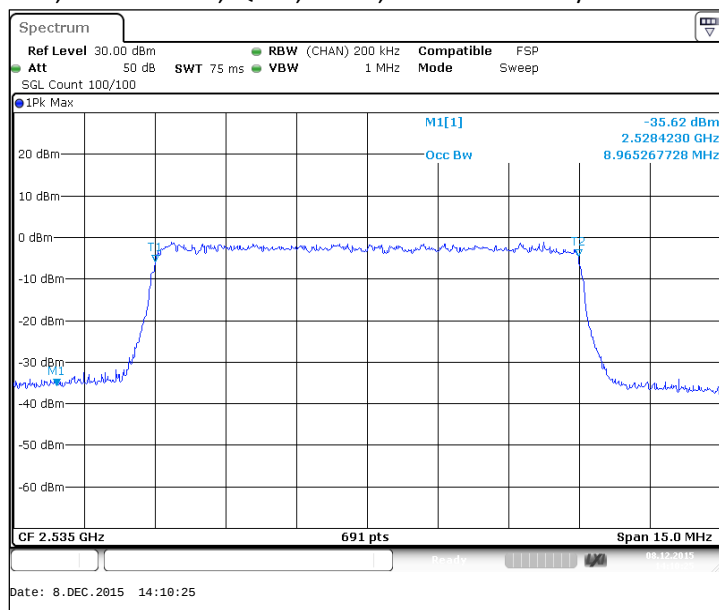
3.11. LTE7 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 5MHz, QPSK, 25 RB	4497.8
FDD, CBW 10MHz, QPSK, 50 RB	8965.3
FDD, CBW 15MHz, QPSK, 75 RB	13458.8
FDD, CBW 20MHz, QPSK, 100 RB	17908.8
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

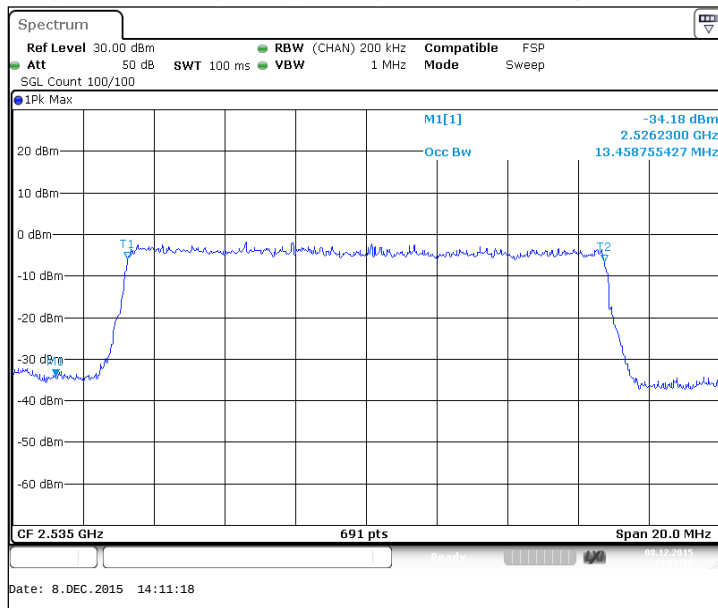
FDD, CBW 5MHz, QPSK, 25 RB, Channel 21100 / 2535.0 MHz



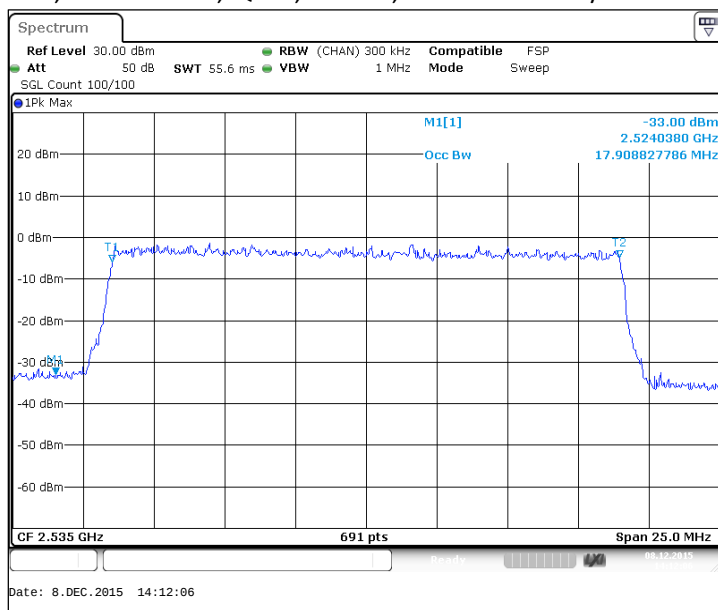
FDD, CBW 10MHz, QPSK, 50 RB, Channel 21100 / 2535.0 MHz



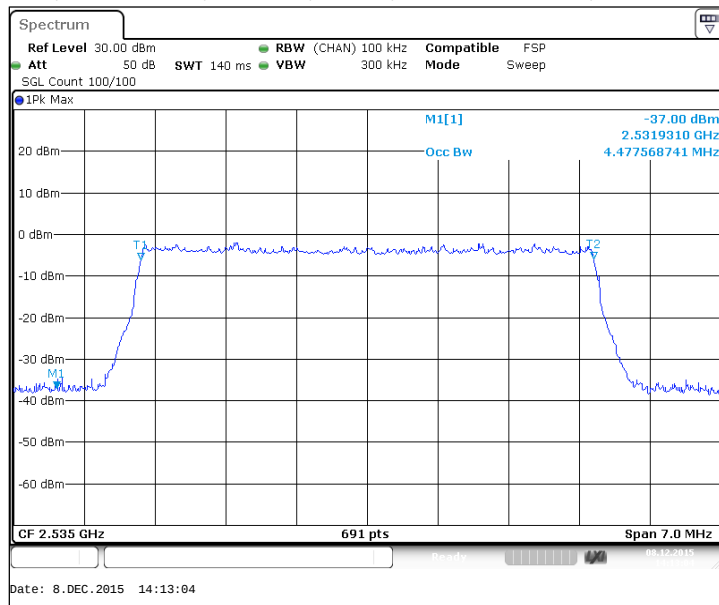
FDD, CBW 15MHz, QPSK, 75 RB, Channel 21100 / 2535.0 MHz



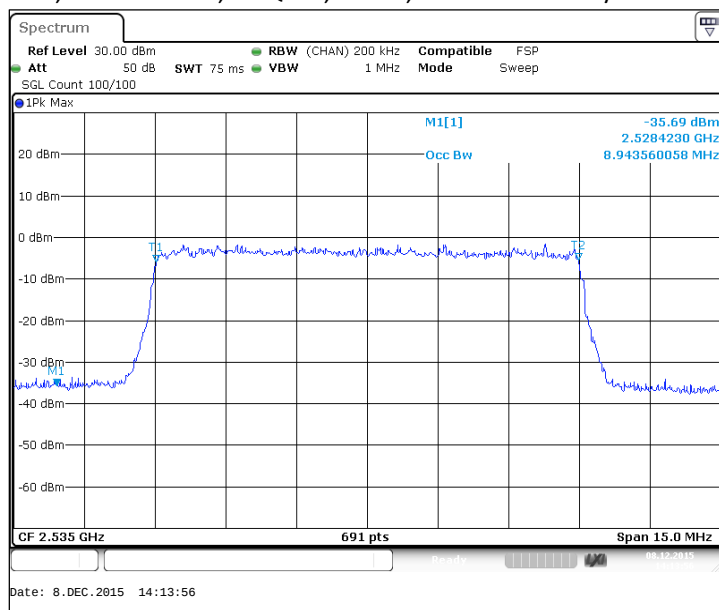
FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz



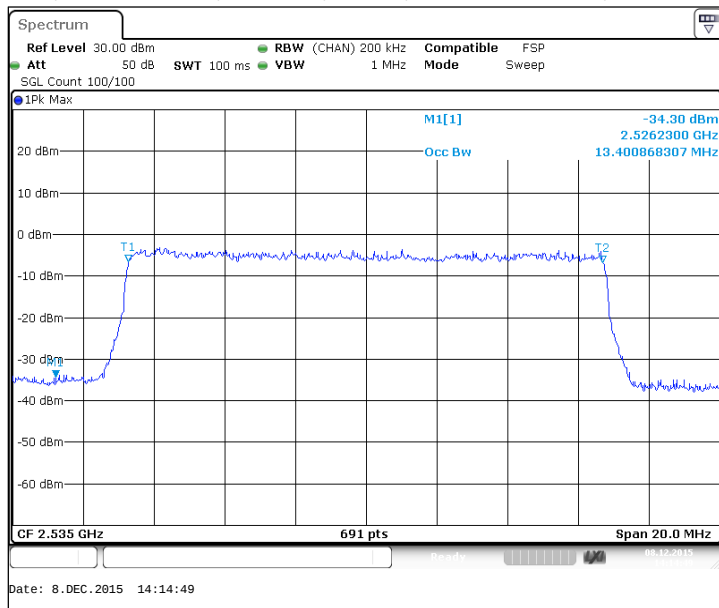
FDD, CBW 5MHz, 16QAM, 25 RB, Channel 21100 / 2535.0 MHz



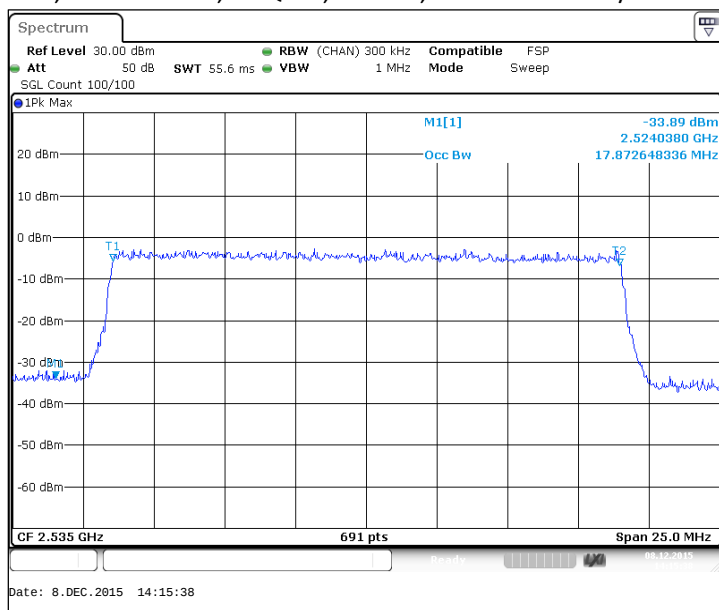
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 21100 / 2535.0 MHz



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



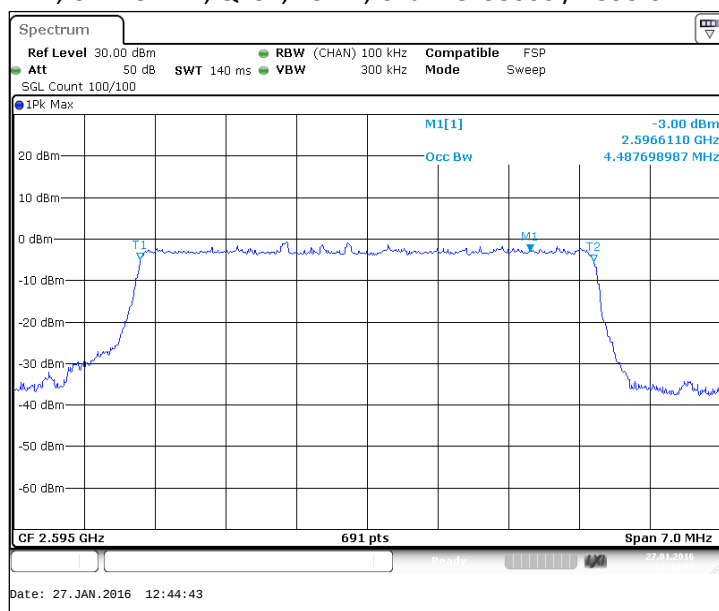
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 21100 / 2535.0 MHz



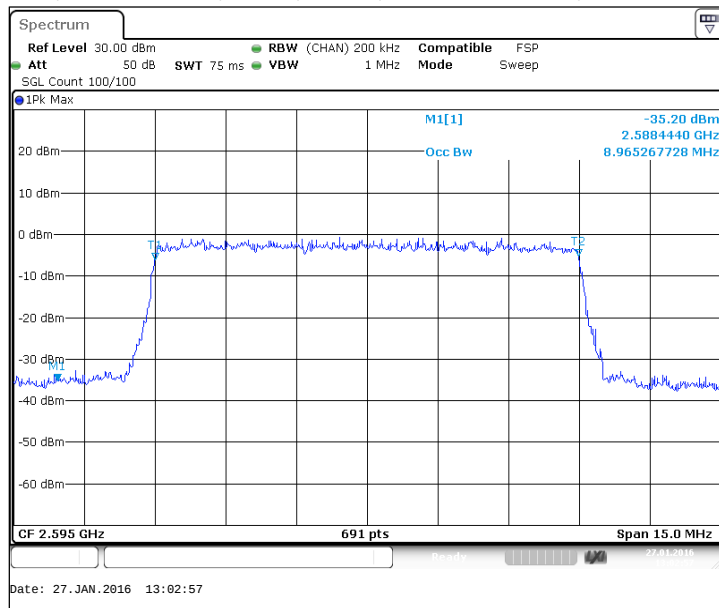
3.12. LTE38 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
TDD, CBW 5MHz, QPSK, 25 RB	4487.7
TDD, CBW 10MHz, QPSK, 50 RB	8965.3
TDD, CBW 15MHz, QPSK, 75 RB	13429.8
TDD, CBW 20MHz, QPSK, 100 RB	17872.6
TDD, CBW 5MHz, 16QAM, 25 RB	4477.6
TDD, CBW 10MHz, 16QAM, 50 RB	8965.3
TDD, CBW 15MHz, 16QAM, 75 RB	13400.9
TDD, CBW 20MHz, 16QAM, 100 RB	17836.5

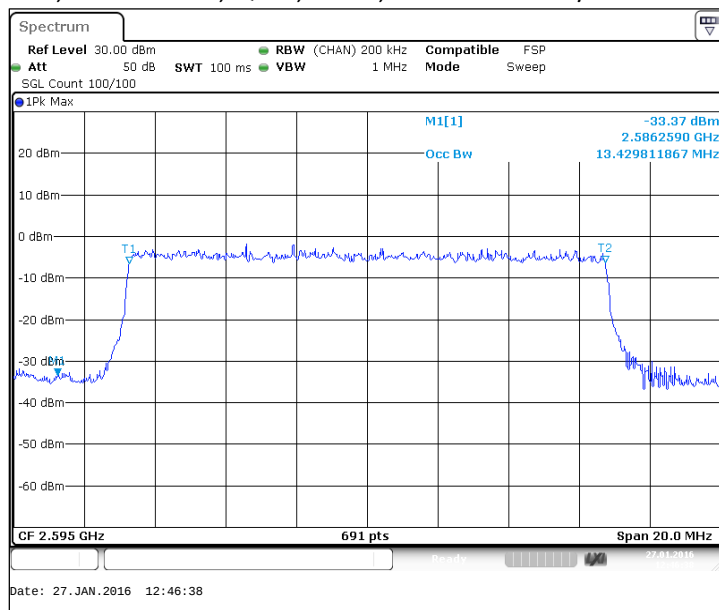
TDD, CBW 5MHz, QPSK, 25 RB, Channel 38000 / 2595.0 MHz



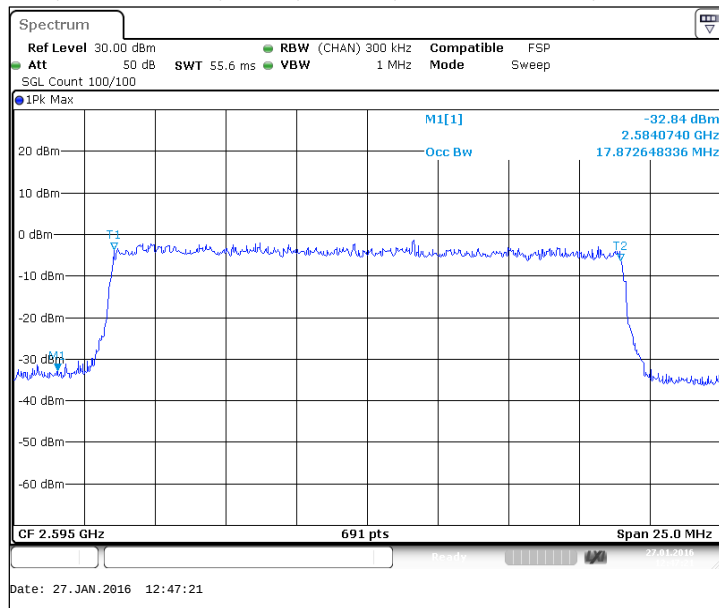
TDD, CBW 10MHz, QPSK, 50 RB, Channel 38000 / 2595.0 MHz



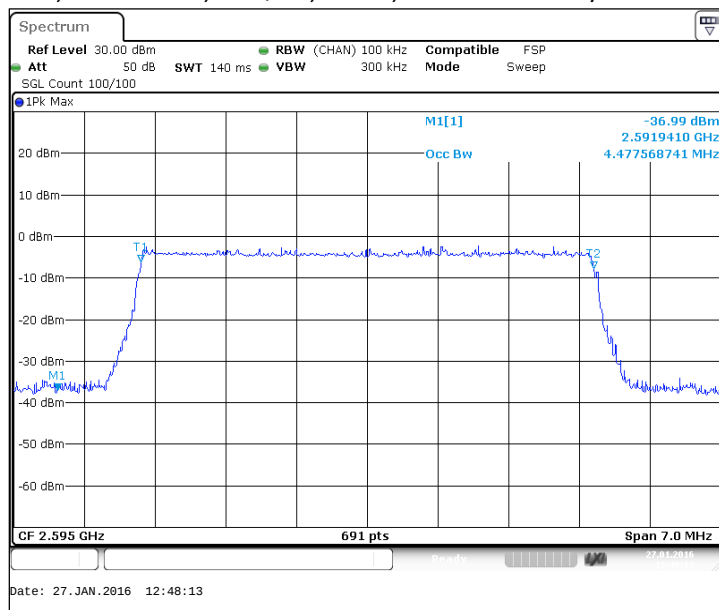
TDD, CBW 15MHz, QPSK, 75 RB, Channel 38000 / 2595.0 MHz



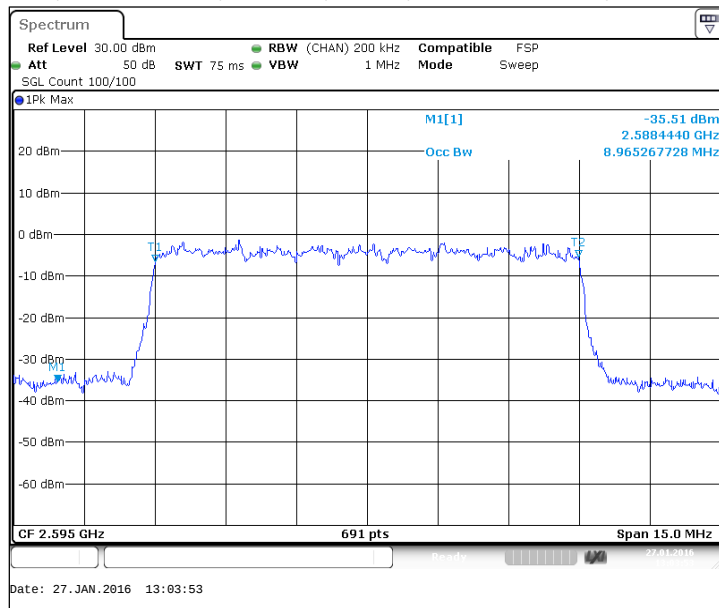
TDD, CBW 20MHz, QPSK, 100 RB, Channel 38000 / 2595.0 MHz



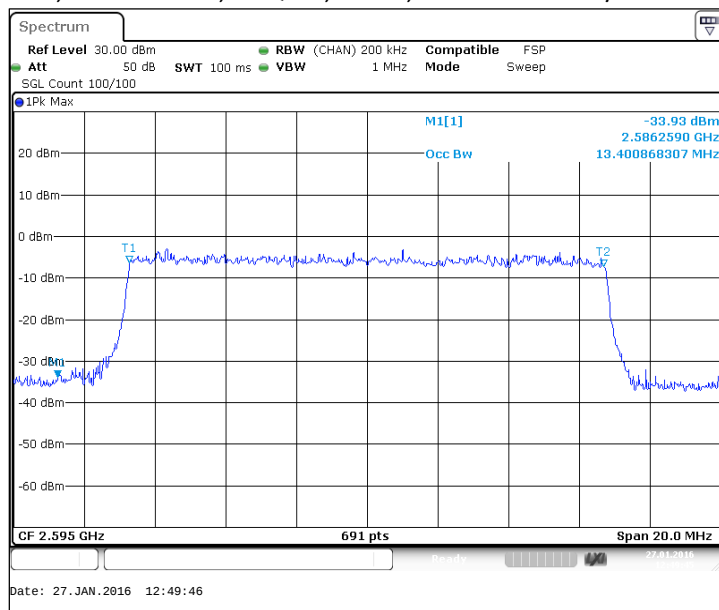
TDD, CBW 5MHz, 16QAM, 25 RB, Channel 38000 / 2595.0 MHz



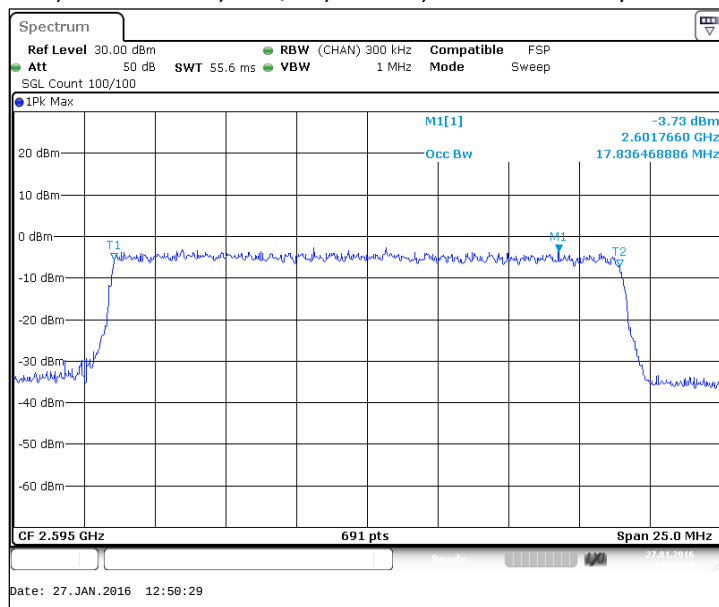
TDD, CBW 10MHz, 16QAM, 50 RB, Channel 38000 / 2595.0 MHz



TDD, CBW 15MHz, 16QAM, 75 RB, Channel 38000 / 2595.0 MHz



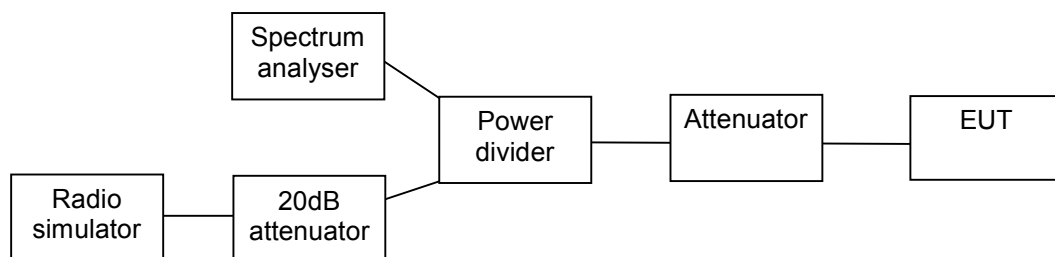
TDD, CBW 20MHz, 16QAM, 100 RB, Channel 38000 / 2595.0 MHz



4. Band edge compliance

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

4.1. Test Setup



4.2. Test method and limit

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

LTE bands:

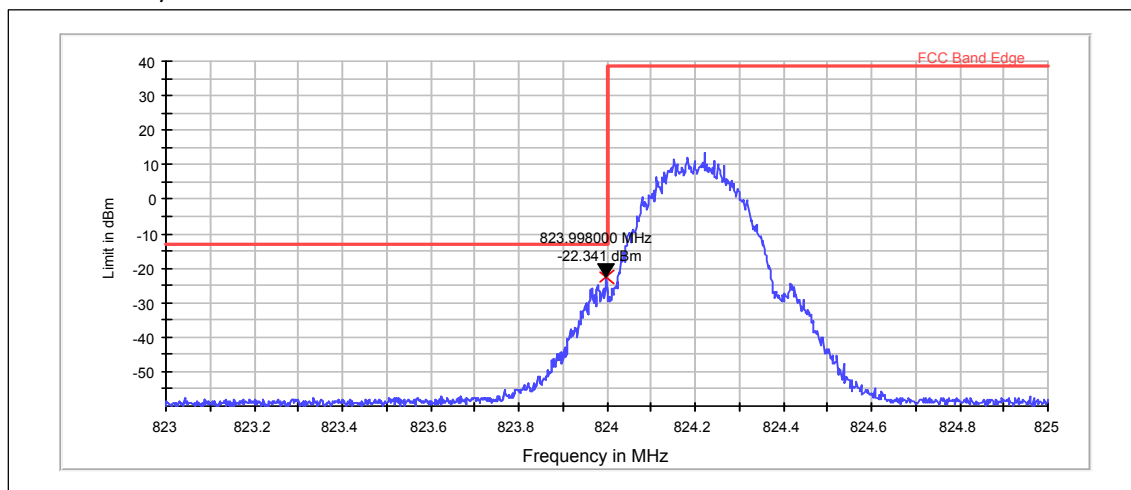
Previous evaluations have shown, that the currently selected CBW/RB configurations represent the worst case for this test. The evaluations are repeated every now and then to ensure, that the selections remain valid.

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
WCDMA2	Below 1850 and above 1910	-13
WCDMA4	Below 1710 and above 1755	-13
WCDMA5	Below 824 and above 849	-13
LTE2	Below 1850 and above 1910	-13
LTE4	Below 1710 and above 1755	-13
LTE5	Below 824 and above 849	-13
LTE7	2496 - 2499 2499 - 2500 2570 - 2571 2571 - 2575	-10 (RBW = 1 MHz, VBW = 3 MHz) -10 (RBW = 500 kHz, VBW = 2 MHz) -10 (RBW = 500 kHz, VBW = 2 MHz) -10 (RBW = 1 MHz, VBW = 3 MHz)

4.3. GSM 850 Test results

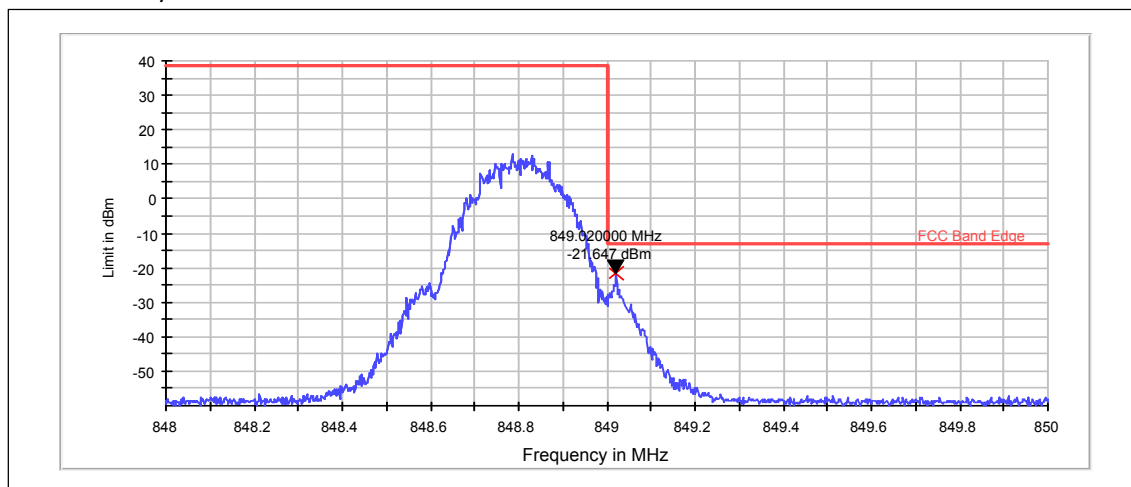
Channel 128 / 824.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	823.998	-22.34	PASSED

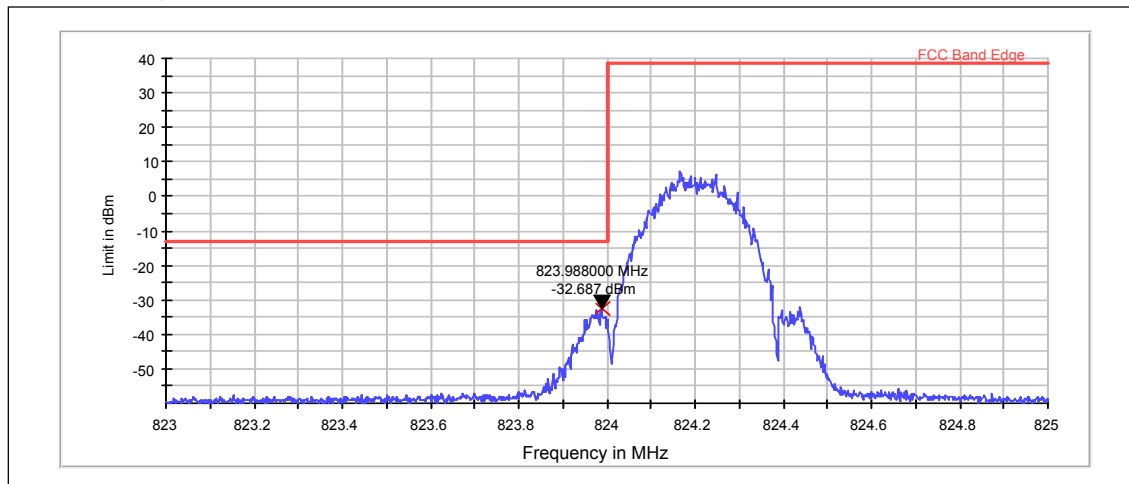
Channel 251 / 848.8 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	849.020	-21.65	PASSED

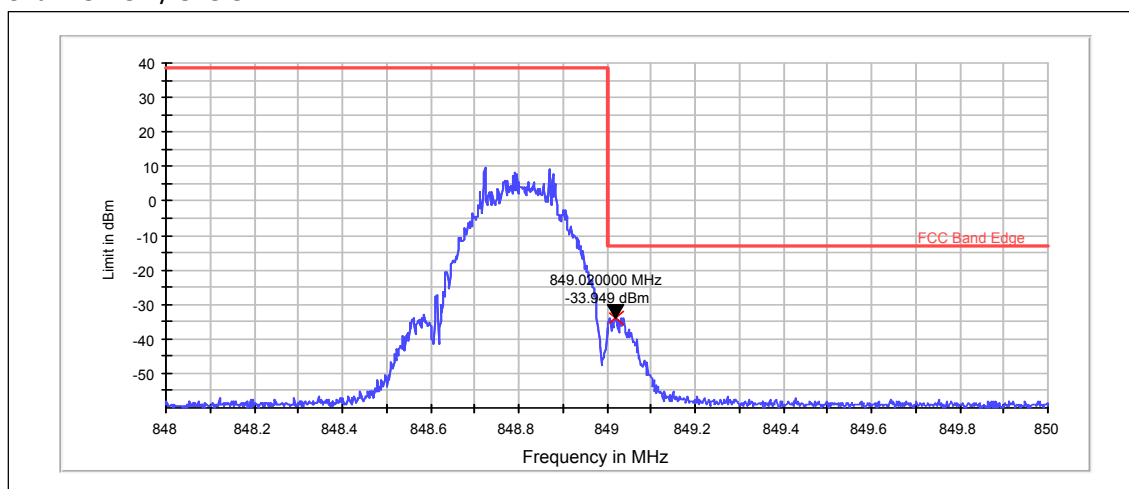
Channel 128 / 824.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	823.988	-32.69	PASSED

Channel 251 / 848.8 MHz

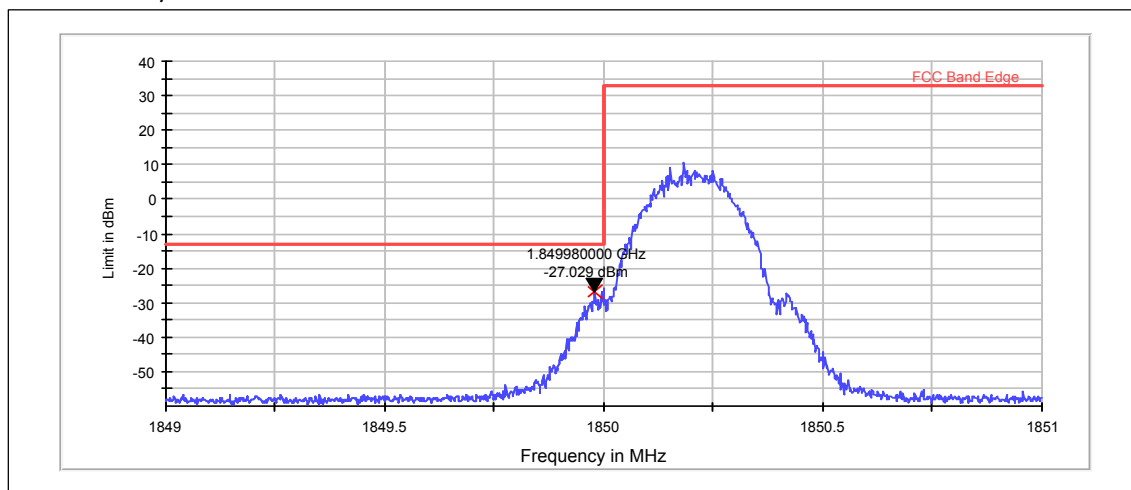


RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	849.020	-33.95	PASSED

4.4. GSM 1900 Test results

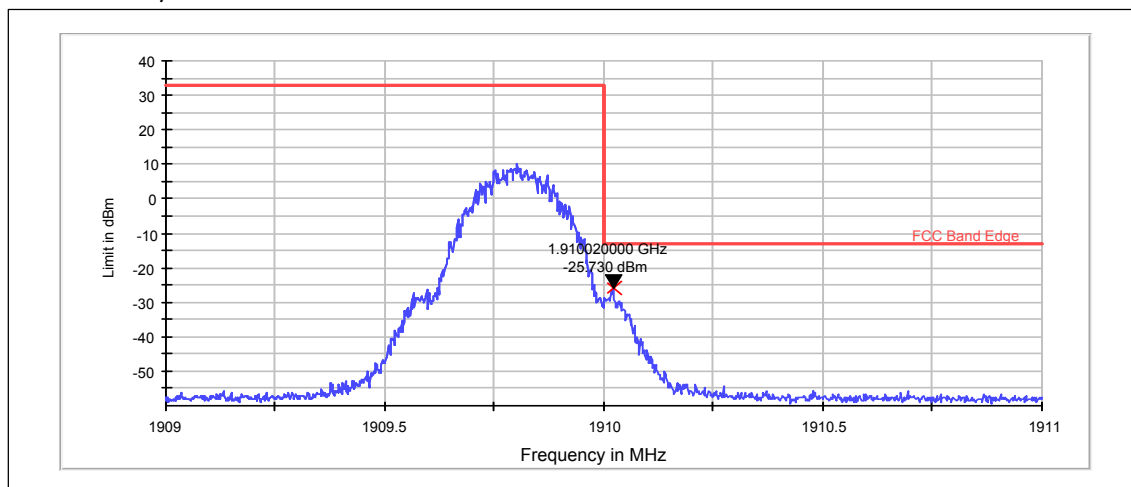
Channel 512 / 1850.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	1849.980	-27.03	PASSED

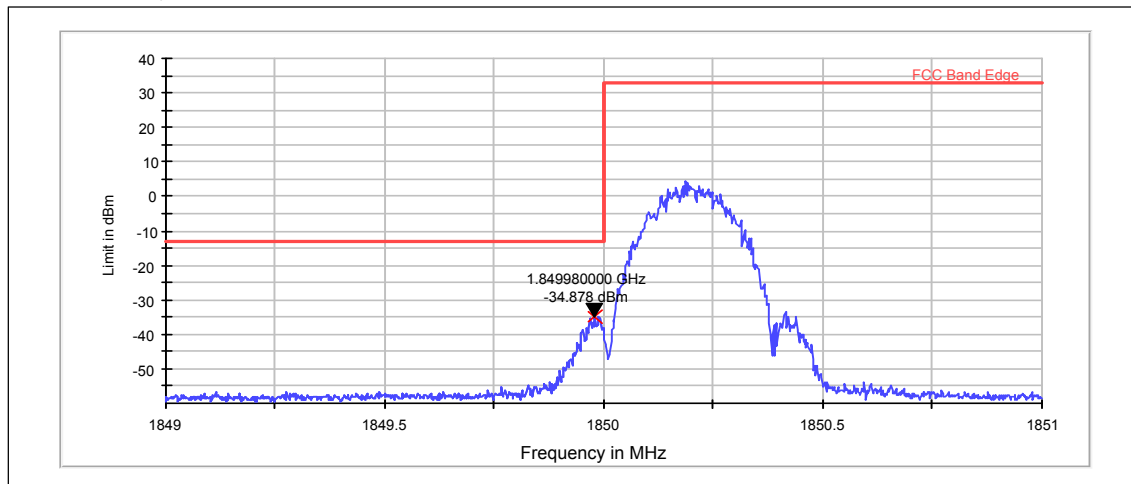
Channel 810 / 1909.8 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	1910.020	-25.73	PASSED

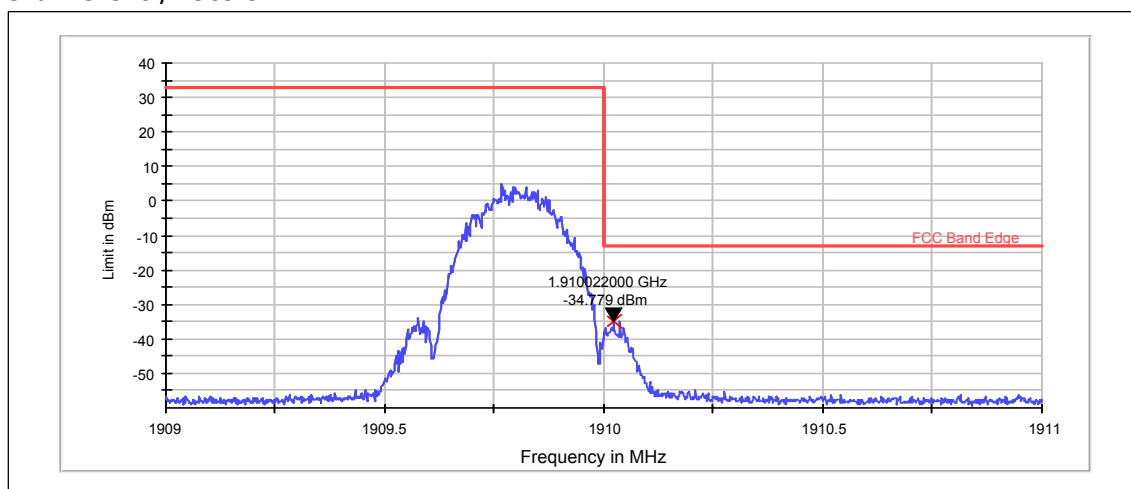
Channel 512 / 1850.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	1849.980	-34.88	PASSED

Channel 810 / 1909.8 MHz

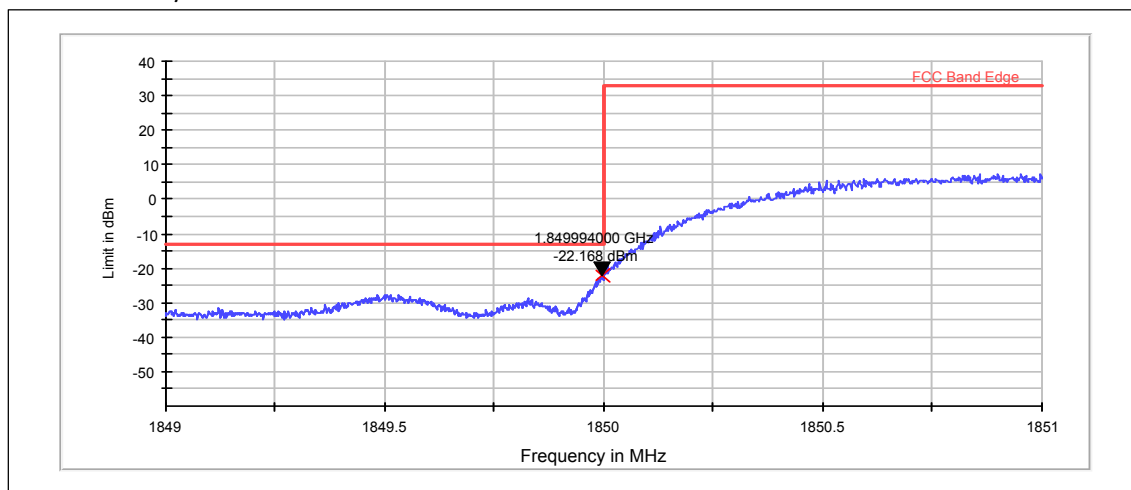


RMS (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	1910.022	-34.78	PASSED

4.5. WCDMA2 Test results

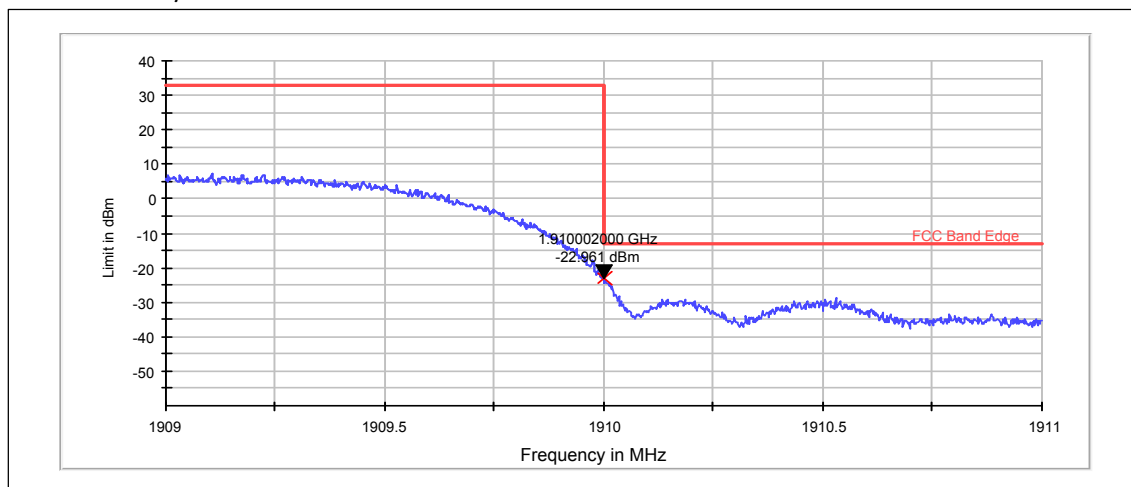
Channel 9262 / 1852.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1849.994	-22.17	PASSED

Channel 9538 / 1907.6 MHz

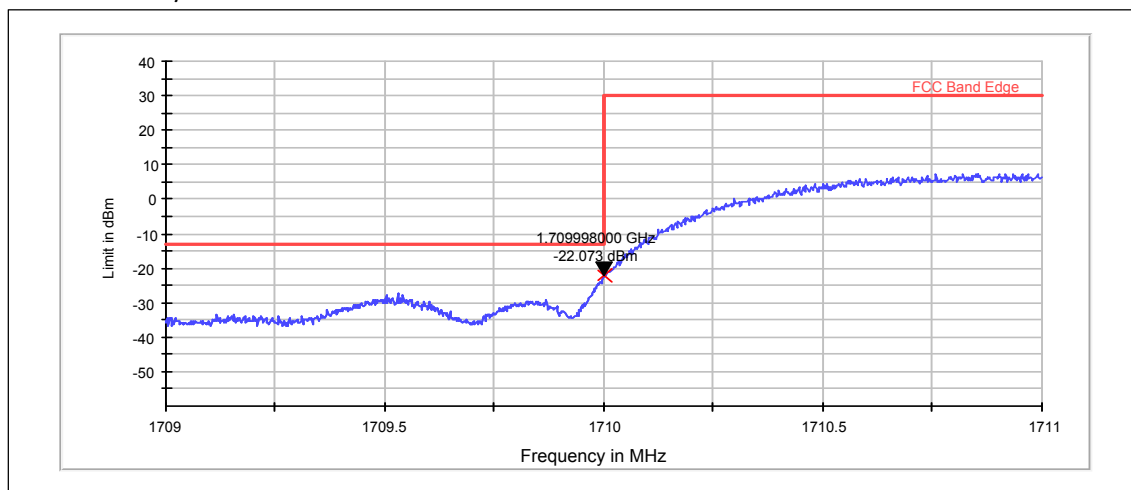


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1910.002	-22.96	PASSED

4.6. WCDMA4 Test results

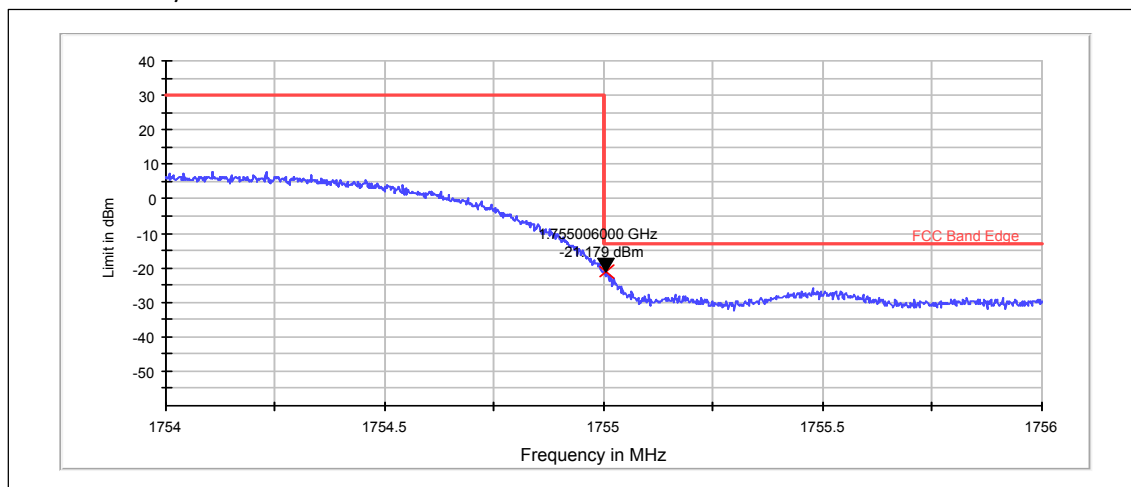
Channel 1312 / 1712.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1709.998	-22.07	PASSED

Channel 1513 / 1752.6 MHz

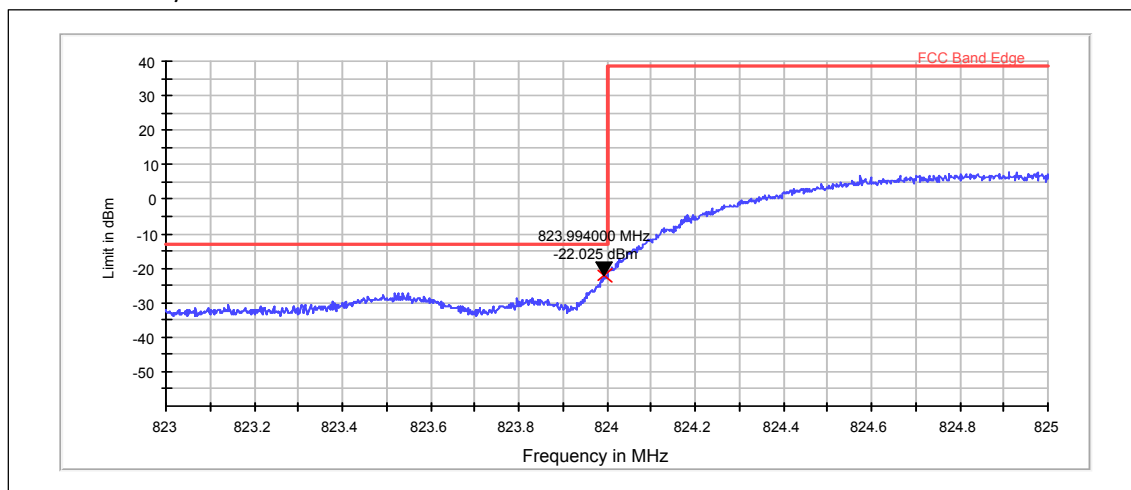


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1755.006	-21.18	PASSED

4.7. WCDMA5 Test results

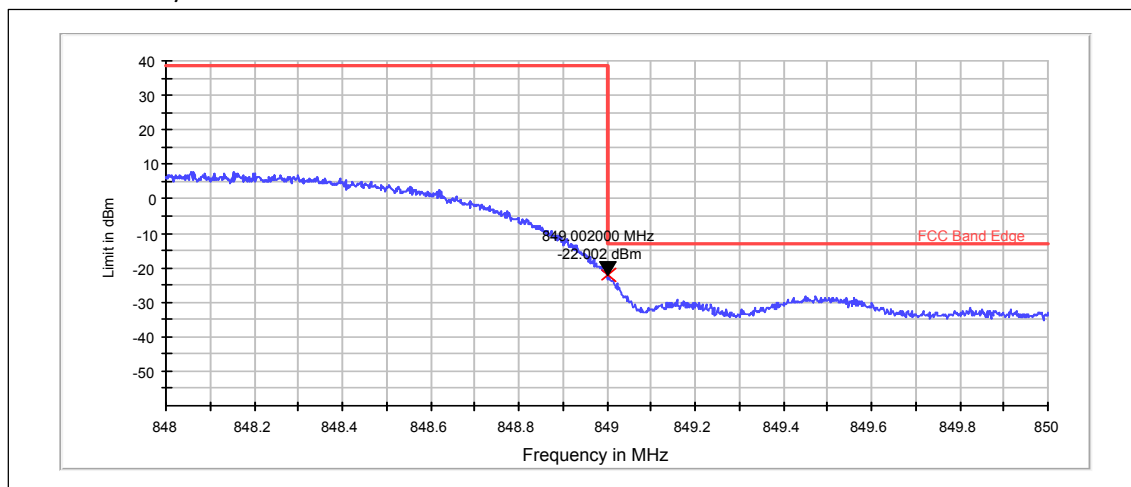
Channel 4132 / 826.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	823.994	-22.03	PASSED

Channel 4233 / 846.6 MHz

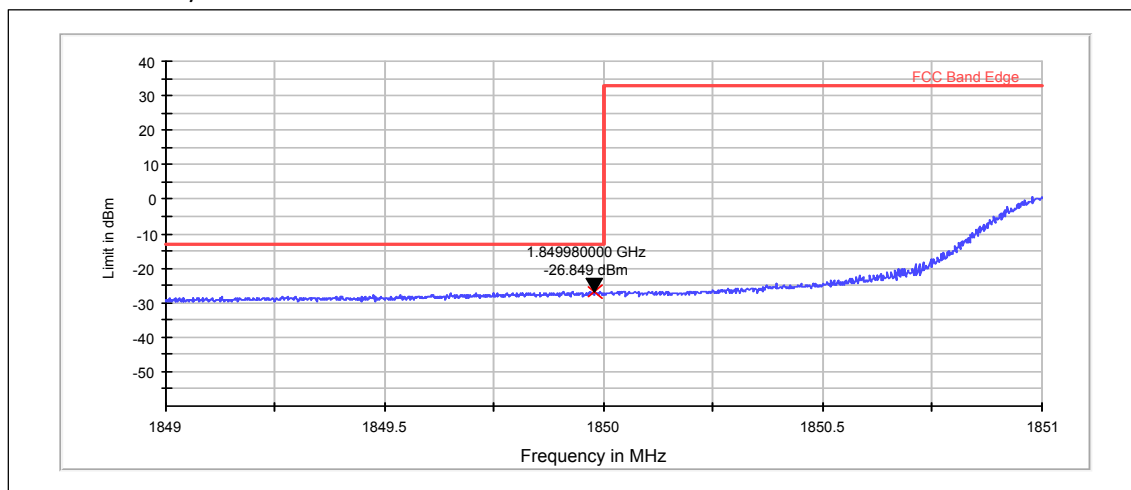


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	849.002	-22.00	PASSED

4.8. LTE2 Test results

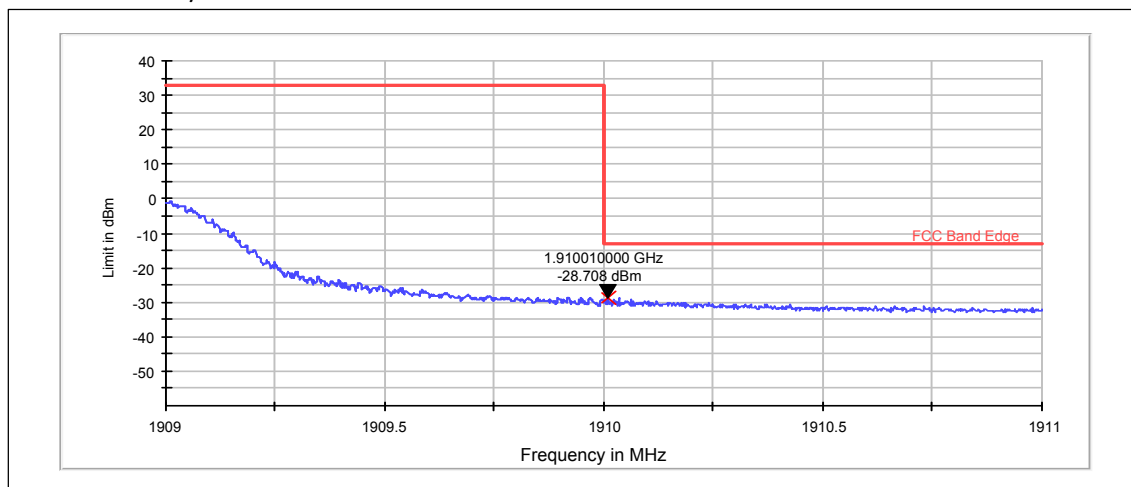
Channel 18700 / 1860 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1849.980	-26.85	PASSED

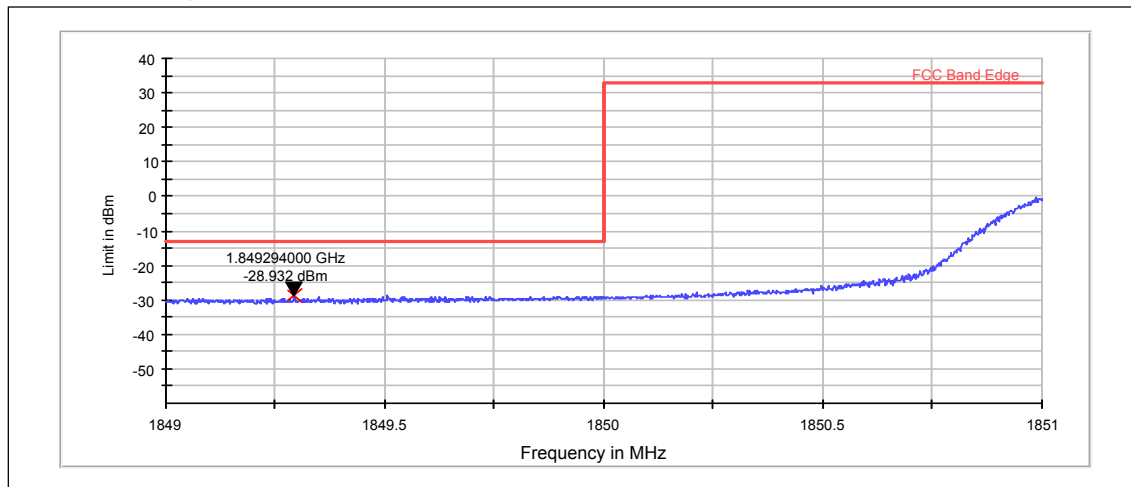
Channel 19100 / 1900 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1910.010	-28.71	PASSED

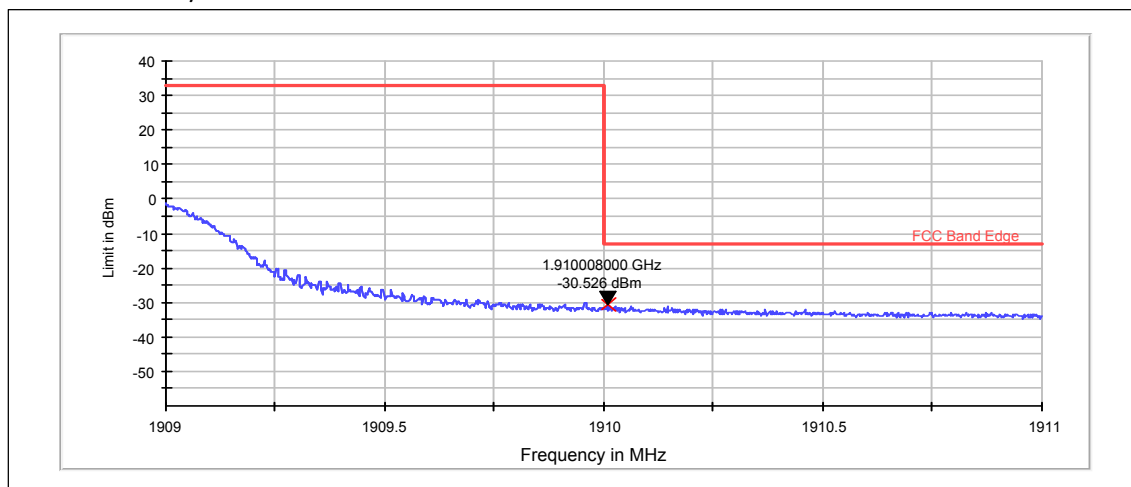
Channel 18700 / 1860 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1849.294	-28.93	PASSED

Channel 19100 / 1900 MHz

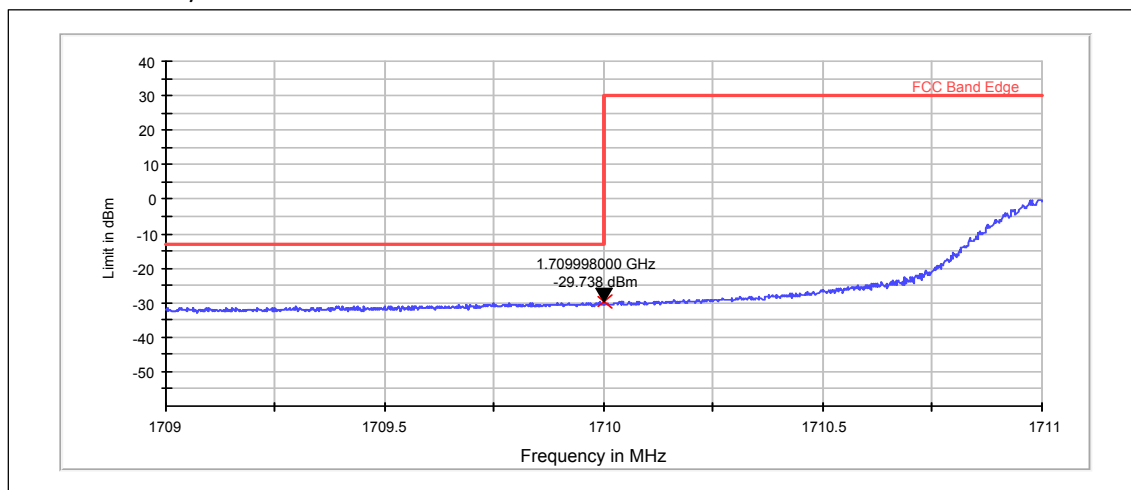


RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1910.008	-30.53	PASSED

4.9. LTE4 Test results

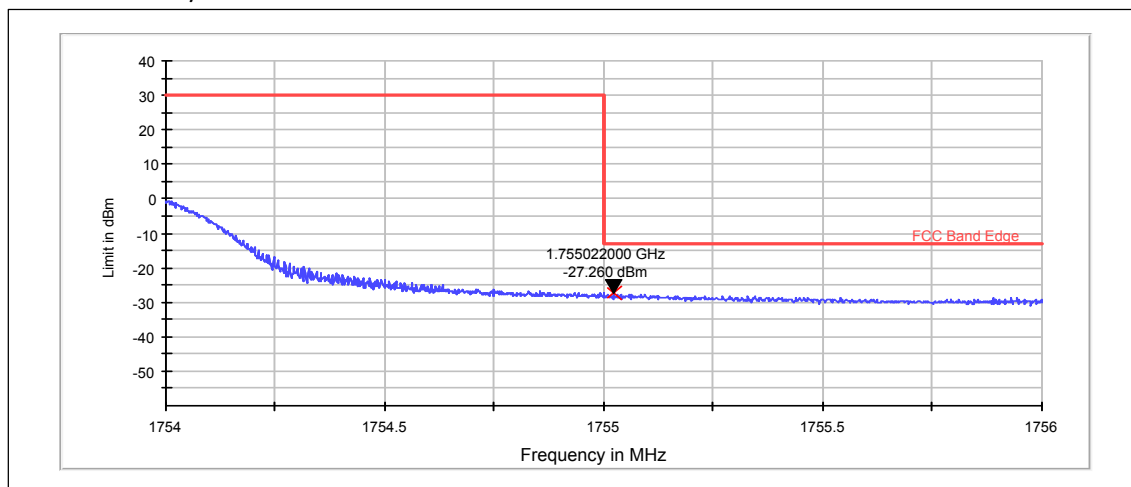
Channel 20050 / 1720 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1709.998	-29.74	PASSED

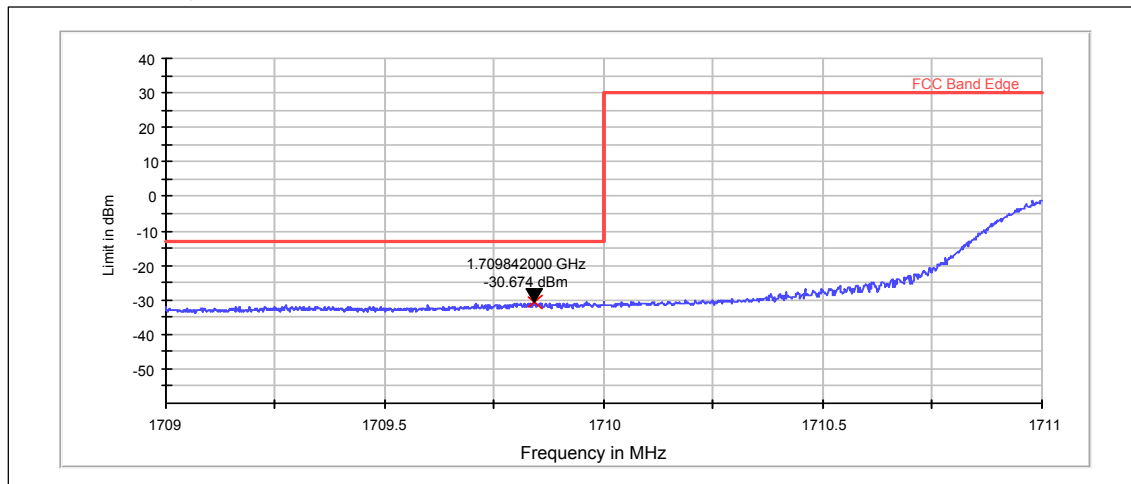
Channel 20300 / 1745 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1755.022	-27.26	PASSED

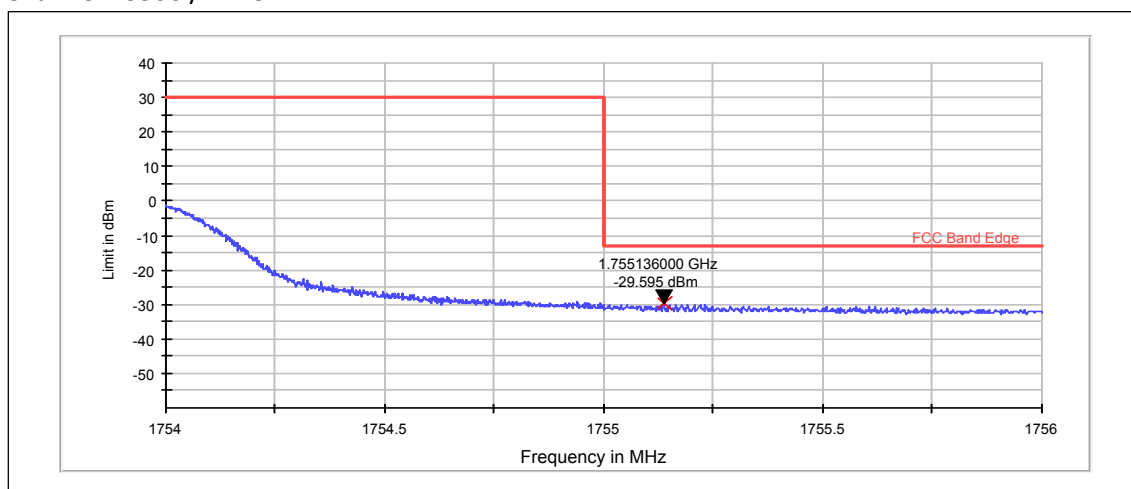
Channel 20050 / 1720 MHz



RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1709.842	-30.67	PASSED

Channel 20300 / 1745 MHz

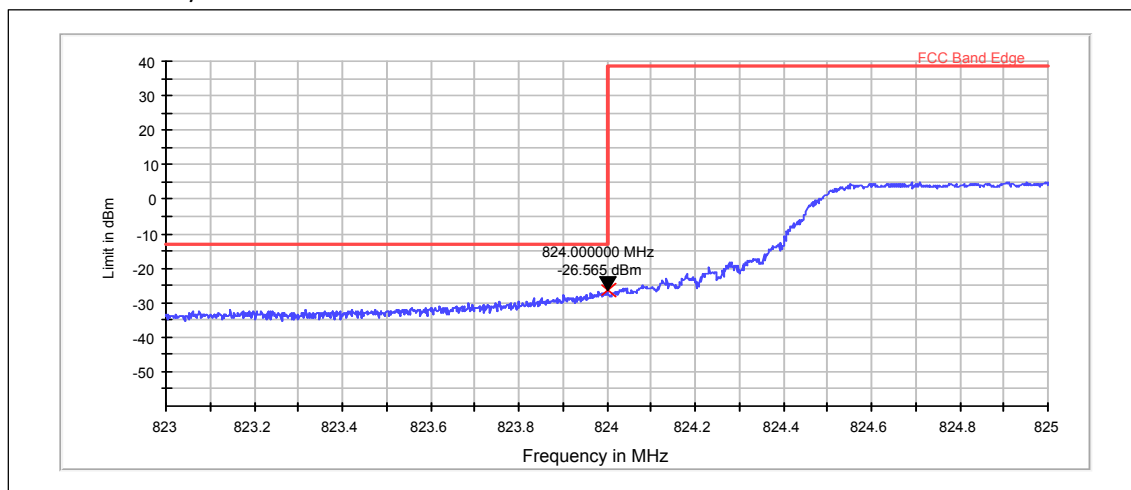


RMS (RBW: 200 kHz, VBW: 1 MHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1755.136	-29.59	PASSED

4.10. LTE5 Test results

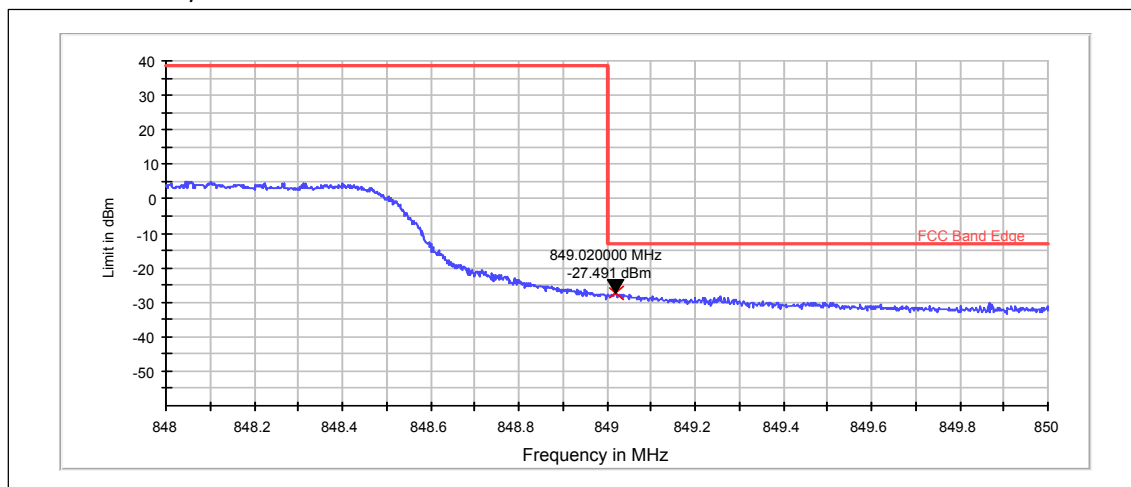
Channel 20450 / 829 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	824.000	-26.56	PASSED

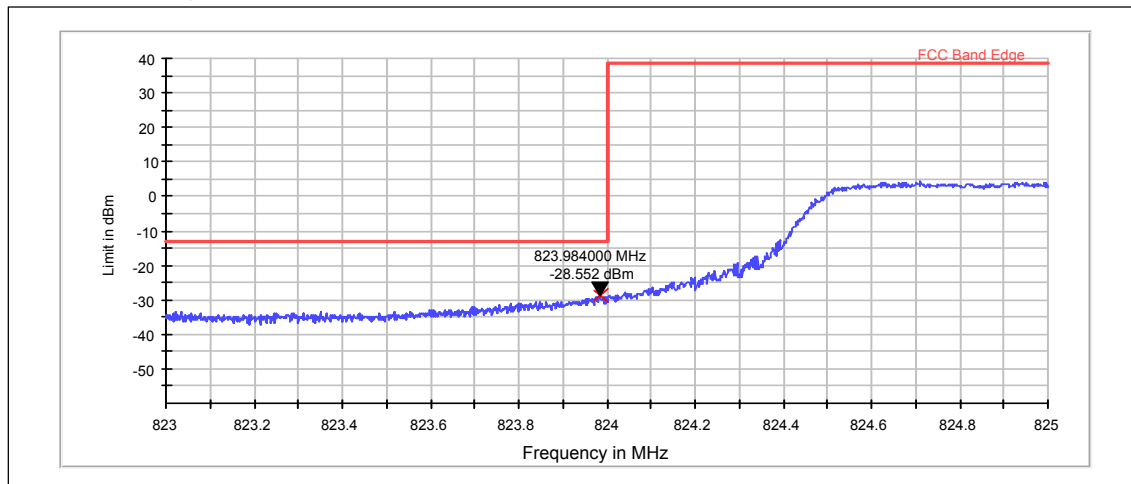
Channel 20600 / 844 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	849.020	-27.49	PASSED

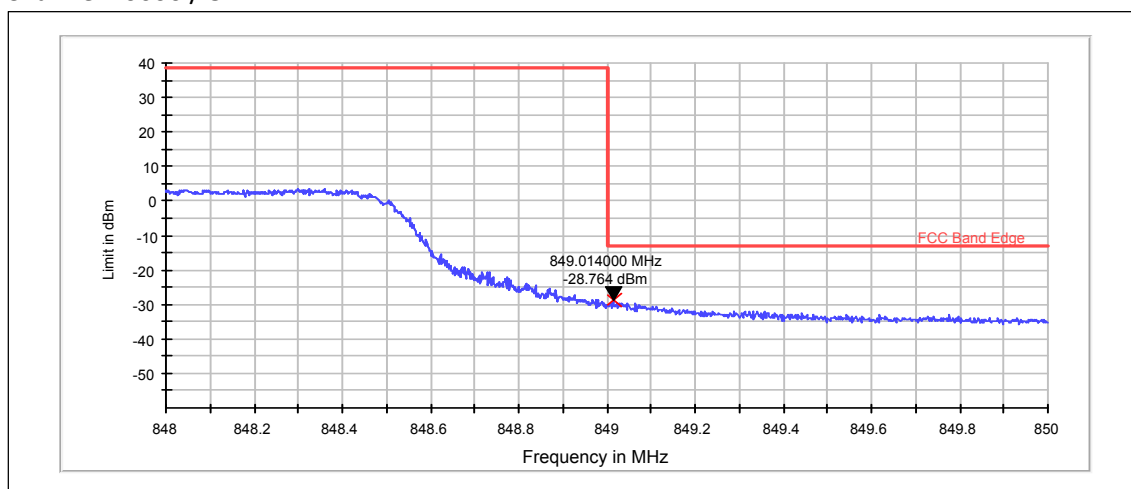
Channel 20450 / 829 MHz



RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	823.984	-28.55	PASSED

Channel 20600 / 844 MHz

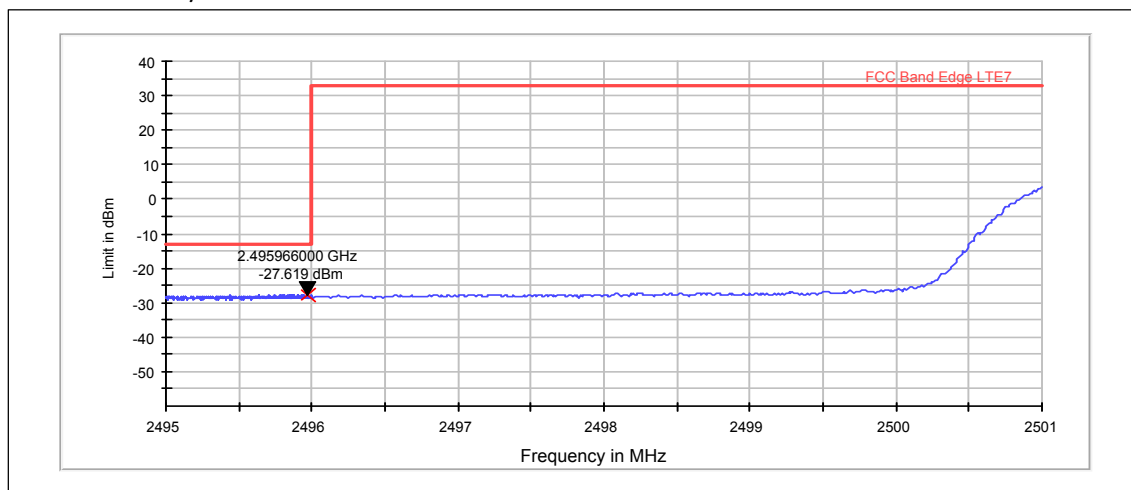


RMS (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	849.014	-28.76	PASSED

4.11. LTE7 Test results

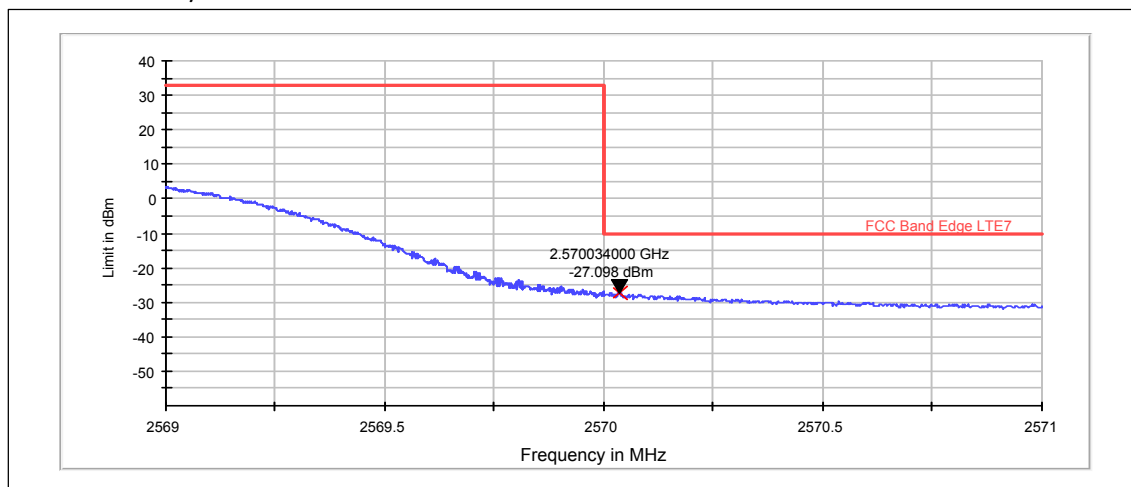
Channel 20850 / 2510 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	2495.966	-27.62	PASSED

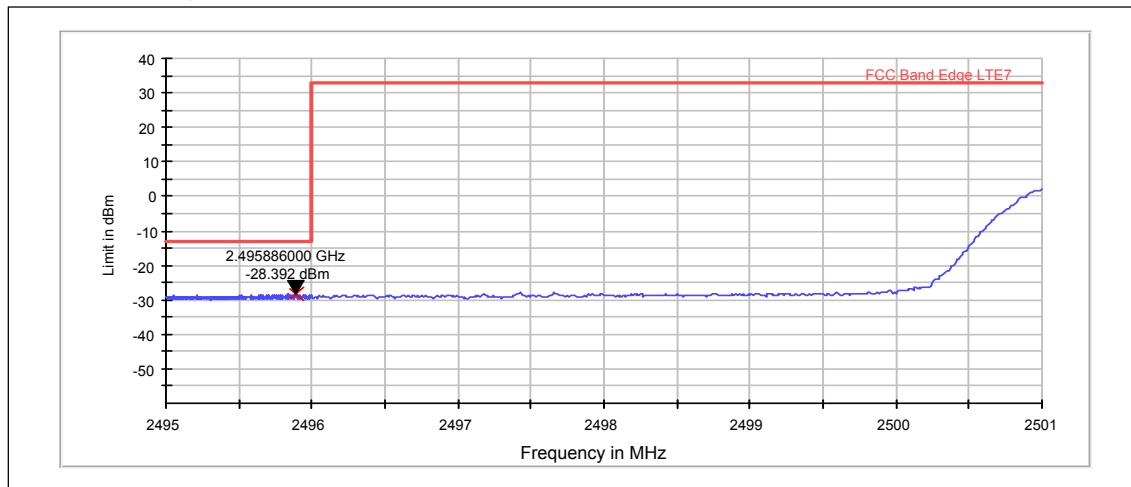
Channel 21350 / 2560 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	2570.034	-27.10	PASSED

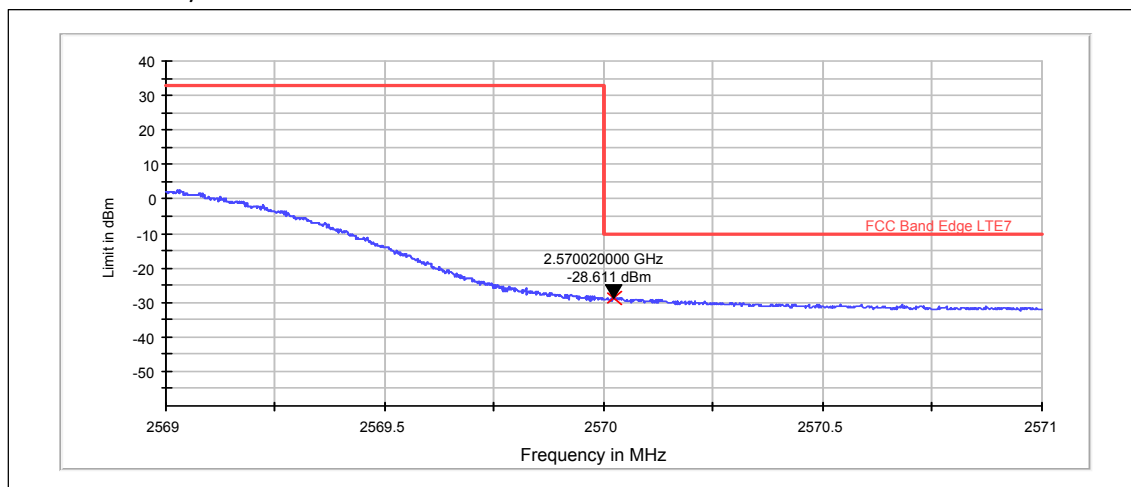
Channel 20850 / 2510 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	2495.886	-28.39	PASSED

Channel 21350 / 2560 MHz

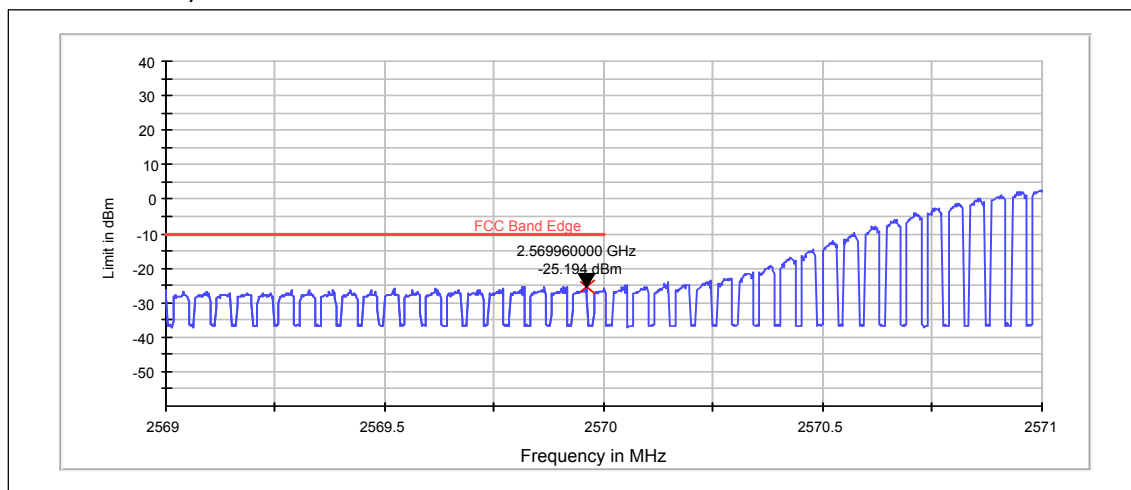


RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	2570.020	-28.61	PASSED

4.12. LTE38 Test results

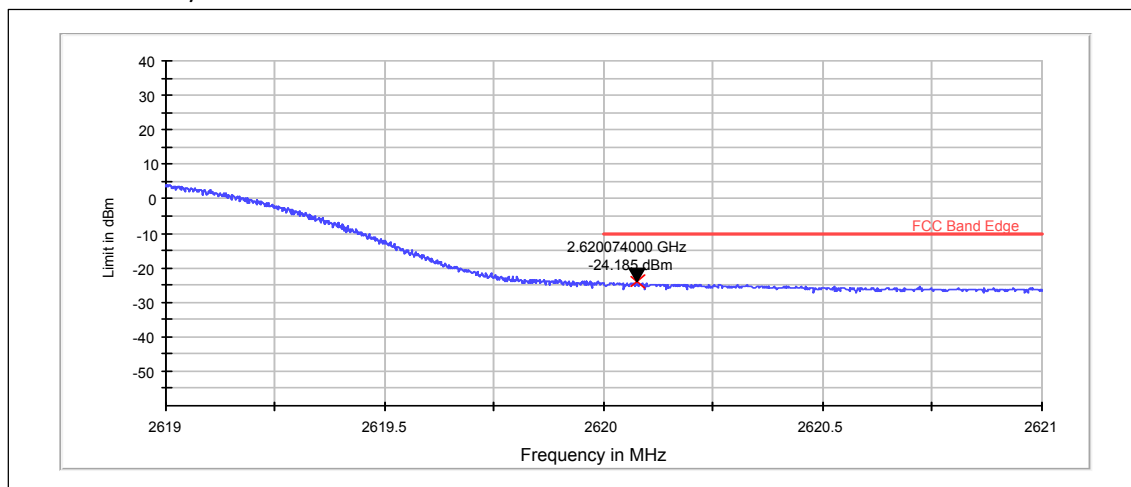
Channel 37850 / 2580 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
TDD, CBW 20MHz, QPSK, 100 RB	2569.960	-25.19	PASSED

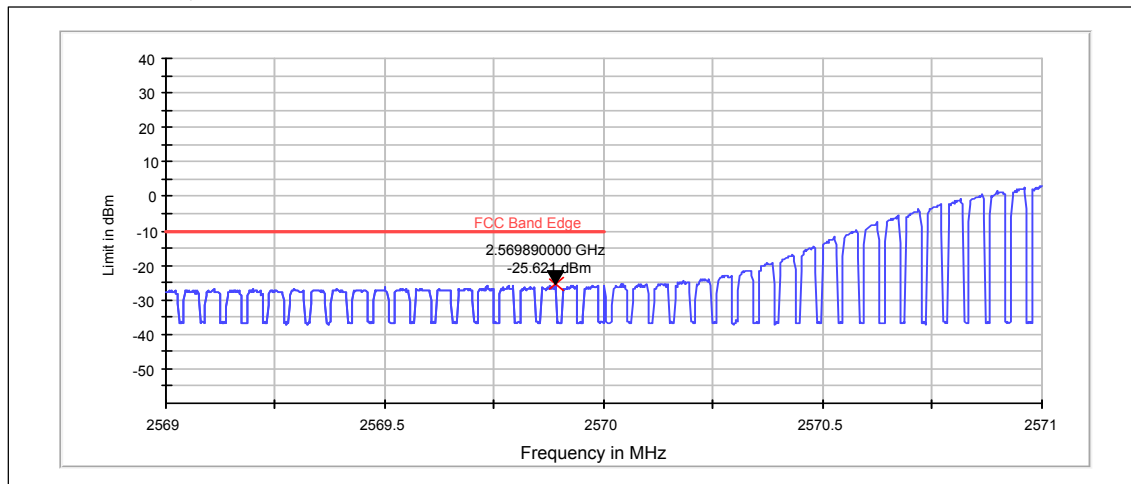
Channel 38150 / 2610 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
TDD, CBW 20MHz, QPSK, 100 RB	2620.074	-24.19	PASSED

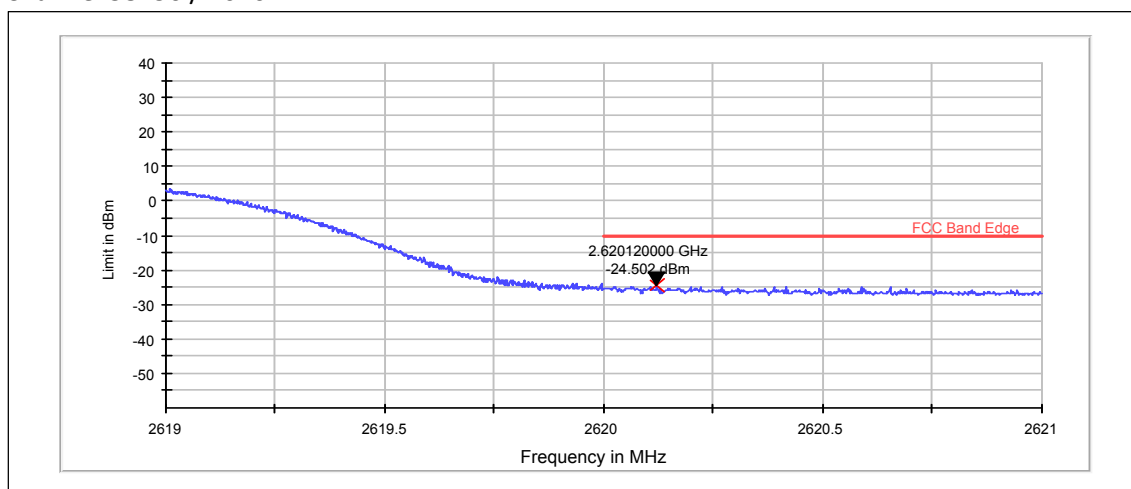
Channel 37850 / 2580 MHz



RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
TDD, CBW 20MHz, 16QAM, 100 RB	2569.890	-25.62	PASSED

Channel 38150 / 2610 MHz



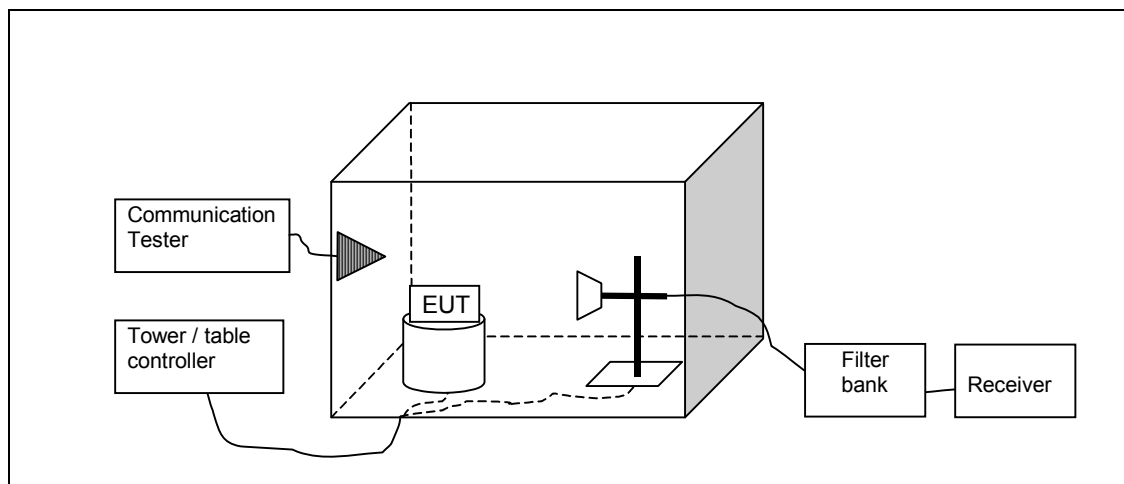
RMS detector, Max hold

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
TDD, CBW 20MHz, 16QAM, 100 RB	2620.120	-24.50	PASSED

5. Spurious radiated emissions, Antenna 1

EUT with DUT number	RM-1154, DUT 400063
Accessories with DUT numbers	BV-T3G, DUT 400062 ; 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
Date of measurements	01-Dec-2015
Measured by	Hannu Söderholm

5.1.1 Test setup



5.2. Test method and limit

The measurement was 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 and measuring antenna at fixed height and EUT set in three orthogonal positions on the turntable.

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 substitution method is used.

The measurement results are obtained 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
WCDMA2	30 - 19100	-13
WCDMA4	30 - 17500	-13
WCDMA5	30 - 8500	-13
LTE2	30 - 19100	-13
LTE4	30 - 17500	-13
LTE5	30 - 8500	-13
LTE7	30 - 25700	-13

5.3. GSM 850 test results

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1673.026	-42.66	0.0542	-36.46	-6.2	29.66	VERTICAL	PASSED
1673.146	-42.45	0.05689	-36.25	-6.2	29.45	VERTICAL	PASSED
2509.739	-41.55	0.06998	-42.45	0.9	28.55	HORIZONTAL	PASSED
2509.86	-41.69	0.06776	-42.59	0.9	28.69	HORIZONTAL	PASSED
3324.729	-58	0.00158	-59.2	1.2	45	VERTICAL	PASSED
3344.729	-58.96	0.00127	-60.26	1.3	45.96	VERTICAL	PASSED

5.4. GSM 1900 test results

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3759.96	-52.94	0.00508	-57.84	4.9	39.94	VERTICAL	PASSED
5639.84	-42.95	0.0507	-51.35	8.4	29.95	HORIZONTAL	PASSED
5640.24	-43.08	0.0492	-51.48	8.4	30.08	VERTICAL	PASSED
7558.637	-48.77	0.01327	-62.77	14	35.77	HORIZONTAL	PASSED

5.5. GSM 850 E-GPRS (MSC9) test results

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1673.14	-46.06	0.02477	-39.66	-6.4	33.06	HORIZONTAL	PASSED
2509.82	-42.09	0.0618	-42.99	0.9	29.09	HORIZONTAL	PASSED

5.6. GSM 1900 E-GPRS (MSC9) test results

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3757.575	-56.33	0.00233	-61.23	4.9	43.33	VERTICAL	PASSED
5640.1	-51.37	0.00729	-59.77	8.4	38.37	HORIZONTAL	PASSED

5.7. WCDMA2 test results

Channel 9400 / 1880.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3754.048	-55.36	0.00291	-60.16	4.8	42.36	VERTICAL	PASSED
3768.397	-55.28	0.00296	-59.98	4.7	42.28	HORIZONTAL	PASSED
5638.377	-51.27	0.00746	-59.67	8.4	38.27	VERTICAL	PASSED
5647.595	-51.49	0.0071	-60.09	8.6	38.49	VERTICAL	PASSED
7522.946	-48.07	0.0156	-62.47	14.4	35.07	VERTICAL	PASSED
7528.156	-48.35	0.01462	-62.55	14.2	35.35	VERTICAL	PASSED
9401.743	-46.45	0.02265	-63.05	16.6	33.45	VERTICAL	PASSED
11281.343	-43.51	0.04457	-62.21	18.7	30.51	HORIZONTAL	PASSED
13150.681	-52.42	0.00573	-64.32	11.9	39.42	VERTICAL	PASSED
15040.902	-51.64	0.00685	-65.54	13.9	38.64	HORIZONTAL	PASSED
16920.942	-50.29	0.00935	-67.09	16.8	37.29	HORIZONTAL	PASSED

5.8. WCDMA4 test results

Channel 1412 / 1732.4 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1715	-38.28	0.14859	-33.78	-4.5	25.28	HORIZONTAL	PASSED
1755.321	-48.6	0.0138	-44.6	-4	35.6	HORIZONTAL	PASSED
3463.257	-55.82	0.00262	-59.82	4	42.82	VERTICAL	PASSED
3754.329	-55.2	0.00302	-60	4.8	42.2	VERTICAL	PASSED
3772.766	-55.19	0.00303	-60.29	5.1	42.19	VERTICAL	PASSED
5189.204	-51.63	0.00687	-60.03	8.4	38.63	HORIZONTAL	PASSED
5643.066	-51.53	0.00703	-60.03	8.5	38.53	VERTICAL	PASSED
6939.6	-46.91	0.02037	-58.21	11.3	33.91	VERTICAL	PASSED
7512.525	-48.27	0.01489	-62.37	14.1	35.27	VERTICAL	PASSED
8661.259	-46.83	0.02075	-63.13	16.3	33.83	VERTICAL	PASSED
10402.196	-46.61	0.02183	-63.41	16.8	33.61	VERTICAL	PASSED
12134.034	-45.27	0.02972	-63.87	18.6	32.27	VERTICAL	PASSED
13868.318	-51.57	0.00697	-63.27	11.7	38.57	HORIZONTAL	PASSED
15588.654	-51.18	0.00762	-66.28	15.1	38.18	HORIZONTAL	PASSED
17317.287	-48.51	0.01409	-66.61	18.1	35.51	HORIZONTAL	PASSED

5.9. WCDMA5 test results

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
849.925	-50.57	0.00877	-81.77	31.2	37.57	HORIZONTAL	PASSED
855.979	-49.02	0.01253	-81.42	32.4	36.02	VERTICAL	PASSED
1004.329	-62.94	0.00051	-52.44	-10.5	49.94	HORIZONTAL	PASSED
1674.95	-58.84	0.00131	-52.64	-6.2	45.84	VERTICAL	PASSED
2495.842	-53.91	0.00406	-54.81	0.9	40.91	VERTICAL	PASSED
2503.146	-53.57	0.0044	-54.17	0.6	40.57	HORIZONTAL	PASSED
2508.477	-53.3	0.00468	-54.2	0.9	40.3	VERTICAL	PASSED
3346.353	-59.5	0.00112	-60.4	0.9	46.5	HORIZONTAL	PASSED
3351.283	-58.71	0.00135	-59.61	0.9	45.71	HORIZONTAL	PASSED
4182.675	-56.81	0.00208	-61.11	4.3	43.81	VERTICAL	PASSED
5001.643	-54.99	0.00317	-60.79	5.8	41.99	VERTICAL	PASSED
5845.822	-53.29	0.00469	-59.39	6.1	40.29	VERTICAL	PASSED
6672.164	-50.63	0.00865	-59.23	8.6	37.63	VERTICAL	PASSED
7507.485	-50.76	0.00839	-62.66	11.9	37.76	VERTICAL	PASSED
8341.323	-49.48	0.01127	-62.68	13.2	36.48	VERTICAL	PASSED

5.10. LTE2 test results

Channel 18900 / 1880.0 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1958.863	-36.44	0.22699	-33.94	-2.5	23.44	HORIZONTAL	PASSED
3760.782	-65.08	0.00031	-69.68	4.6	52.08	HORIZONTAL	PASSED
5634.208	-62.17	0.00061	-70.47	8.3	49.17	HORIZONTAL	PASSED
7510.321	-59.76	0.00106	-73.66	13.9	46.76	HORIZONTAL	PASSED

Channel 18900 / 1880.0 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1958.061	-37.55	0.17579	-35.05	-2.5	24.55	HORIZONTAL	PASSED
3760.341	-64.89	0.00032	-69.49	4.6	51.89	HORIZONTAL	PASSED
5648.958	-62.56	0.00055	-70.76	8.2	49.56	HORIZONTAL	PASSED
7514.689	-59.91	0.00102	-73.61	13.7	46.91	HORIZONTAL	PASSED

5.11. LTE4 test results

Channel 20175 / 1732.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3465.501	-65.08	0.00031	-69.08	4	52.08	VERTICAL	PASSED
5198.001	-59.03	0.00125	-67.43	8.4	46.03	HORIZONTAL	PASSED
6929.539	-58.28	0.00149	-69.68	11.4	45.28	HORIZONTAL	PASSED
8662.52	-58	0.00158	-74.3	16.3	45	VERTICAL	PASSED
10385	-57.19	0.00191	-74.29	17.1	44.19	HORIZONTAL	PASSED

Channel 20175 / 1732.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3465.461	-65.27	0.0003	-69.27	4	52.27	VERTICAL	PASSED
5198.001	-58.73	0.00134	-67.13	8.4	45.73	HORIZONTAL	PASSED
6929.699	-58.28	0.00149	-69.68	11.4	45.28	HORIZONTAL	PASSED
8661.999	-58	0.00158	-74.3	16.3	45	VERTICAL	PASSED
10385.16	-57.19	0.00191	-74.29	17.1	44.19	HORIZONTAL	PASSED

5.12. LTE5 test results

Channel 20525 / 836.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
858.579	-60.87	0.00082	-93.07	32.2	47.87	HORIZONTAL	PASSED
879.782	-43.45	0.04519	-77.45	34	30.45	HORIZONTAL	PASSED
882.713	-44.02	0.03963	-77.92	33.9	31.02	HORIZONTAL	PASSED
1673.381	-66.97	0.0002	-60.57	-6.4	53.97	HORIZONTAL	PASSED
2509.881	-67.39	0.00018	-68.29	0.9	54.39	HORIZONTAL	PASSED
3353.275	-78.13	2E-05	-79.03	0.9	65.13	HORIZONTAL	PASSED

Channel 20525 / 836.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
858.88	-60.83	0.00083	-93.03	32.2	47.83	HORIZONTAL	PASSED
880.904	-44.09	0.03899	-77.99	33.9	31.09	HORIZONTAL	PASSED
880.974	-44.09	0.03899	-77.99	33.9	31.09	HORIZONTAL	PASSED
1673.261	-67.11	0.00019	-60.71	-6.4	54.11	HORIZONTAL	PASSED
2510.001	-66.03	0.00025	-66.83	0.8	53.03	HORIZONTAL	PASSED
3354.397	-78.13	2E-05	-79.03	0.9	65.13	HORIZONTAL	PASSED

5.13. LTE7 test results

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]	Margin [dB]	Polarisation	Results
2548.282	-62.28	0.00059	-64.18	1.9	49.28	HORIZONTAL	PASSED
2653.312	-40.99	0.07962	-42.99	2	27.99	HORIZONTAL	PASSED
5070.22	-55.24	0.00299	-63.54	8.3	42.24	HORIZONTAL	PASSED
7603.176	-59.98	0.001	-73.58	13.6	46.98	HORIZONTAL	PASSED
10132.044	-56.94	0.00202	-73.04	16.1	43.94	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]	Margin [dB]	Polarisation	Results
2548.502	-62.28	0.00059	-64.18	1.9	49.28	HORIZONTAL	PASSED
2654.805	-40.6	0.0871	-42.5	1.9	27.6	HORIZONTAL	PASSED
5070.261	-55.64	0.00273	-63.94	8.3	42.64	HORIZONTAL	PASSED
7607.024	-59.96	0.00101	-73.66	13.7	46.96	HORIZONTAL	PASSED
10136.894	-56.97	0.00201	-73.07	16.1	43.97	HORIZONTAL	PASSED

5.14. LTE38 TX test results

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
2582.42	-55.91	0.00256	-57.51	1.6	42.91	HORIZONTAL	PASSED
2607.54	-54.21	0.00379	-56.21	2	41.21	HORIZONTAL	PASSED
5190.461	-50.16	0.00964	-58.56	8.4	37.16	HORIZONTAL	PASSED
7786.583	-58.54	0.0014	-73.04	14.5	45.54	HORIZONTAL	PASSED
10371.603	-56.84	0.00207	-73.94	17.1	43.84	HORIZONTAL	PASSED

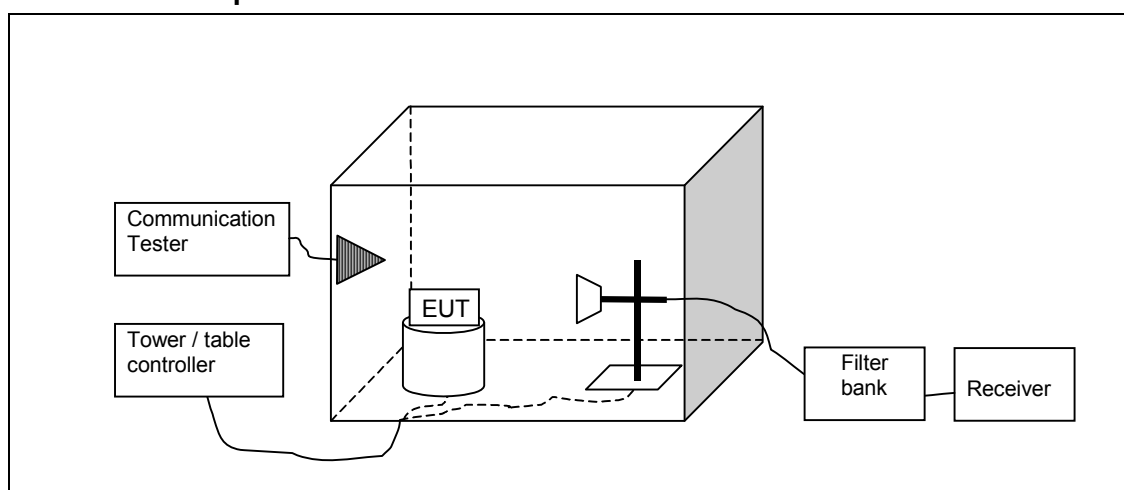
TDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
2582.48	-56.16	0.00242	-57.76	1.6	43.16	HORIZONTAL	PASSED
2607.56	-54.95	0.0032	-56.95	2	41.95	HORIZONTAL	PASSED
5190.421	-49.13	0.01222	-57.53	8.4	36.13	HORIZONTAL	PASSED
7786.423	-58.83	0.00131	-73.33	14.5	45.83	HORIZONTAL	PASSED
10375.01	-56.84	0.00207	-73.94	17.1	43.84	HORIZONTAL	PASSED

6. Spurious radiated emissions, Antenna 2

EUT with DUT number	RM-1154, DUT 400063
Accessories with DUT numbers	BV-T3G, DUT 400062 ; 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
Date of measurements	02-Dec-2015
Measured by	Hannu Söderholm

6.1.1 Test setup



6.2. Test method and limit

The measurement was 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 and measuring antenna at fixed height and EUT set in three orthogonal positions on the turntable.

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 substitution method is used.

The measurement results are obtained 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]
LTE2	30 - 19100	-13
LTE4	30 - 17500	-13
LTE5	30 - 8500	-13
LTE7	30 - 25700	-13
GSM 850	30 - 8500	-13
GSM 1900	30 - 19100	-13
WCDMA2	30 - 19100	-13
WCDMA4	30 - 17500	-13
WCDMA5	30 - 8500	-13

6.3. GSM 850 test results

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1673.226	-42.22	0.05998	-35.82	-6.4	29.22	HORIZONTAL	PASSED
1673.267	-45.38	0.02897	-38.98	-6.4	32.38	HORIZONTAL	PASSED
2509.9	-43.26	0.04721	-44.06	0.8	30.26	HORIZONTAL	PASSED
2509.98	-42.76	0.05297	-43.56	0.8	29.76	HORIZONTAL	PASSED
3329.178	-59.19	0.00121	-60.39	1.2	46.19	VERTICAL	PASSED

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

Channel 190 / 836.6 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1673.1	-47.41	0.01816	-41.01	-6.4	34.41	HORIZONTAL	PASSED
2509.94	-49.98	0.01005	-50.78	0.8	36.98	HORIZONTAL	PASSED

6.5. GSM 1900 test results

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3779.158	-56.18	0.00241	-61.28	5.1	43.18	VERTICAL	PASSED
5640.04	-42.02	0.06281	-50.42	8.4	29.02	HORIZONTAL	PASSED
5640.16	-41.4	0.07244	-49.8	8.4	28.4	HORIZONTAL	PASSED
7518.236	-48.5	0.01413	-62.9	14.4	35.5	VERTICAL	PASSED

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

Channel 661 / 1880.0 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3767.756	-56.17	0.00242	-61.17	5	43.17	VERTICAL	PASSED
5648.076	-52.06	0.00622	-60.66	8.6	39.06	VERTICAL	PASSED

6.7. WCDMA2 test results

Channel 9400 / 1880.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3766.673	-54.92	0.00322	-59.92	5	41.92	VERTICAL	PASSED
5645.471	-51.04	0.00787	-59.54	8.5	38.04	VERTICAL	PASSED
7520.782	-48.18	0.01521	-62.68	14.5	35.18	VERTICAL	PASSED
7529.479	-48.1	0.01549	-62.2	14.1	35.1	HORIZONTAL	PASSED
9391.242	-47.04	0.01977	-63.64	16.6	34.04	VERTICAL	PASSED
11270.762	-44.95	0.03199	-63.55	18.6	31.95	VERTICAL	PASSED
13159.098	-52.26	0.00594	-64.26	12	39.26	VERTICAL	PASSED
15046.072	-52.42	0.00573	-66.22	13.8	39.42	VERTICAL	PASSED
16916.373	-50.53	0.00885	-67.23	16.7	37.53	HORIZONTAL	PASSED

6.8. WCDMA4 test results

Channel 1412 / 1732.4 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1714.92	-38.86	0.13002	-34.36	-4.5	25.86	HORIZONTAL	PASSED
1755.421	-48.7	0.01349	-44.7	-4	35.7	HORIZONTAL	PASSED
3466.183	-55.88	0.00258	-59.88	4	42.88	HORIZONTAL	PASSED
3770.12	-55.83	0.00261	-60.63	4.8	42.83	HORIZONTAL	PASSED
5200.507	-51.76	0.00667	-60.06	8.3	38.76	HORIZONTAL	PASSED
5652.204	-51.52	0.00705	-60.12	8.6	38.52	VERTICAL	PASSED
6930.542	-47.71	0.01694	-59.11	11.4	34.71	HORIZONTAL	PASSED
7528.717	-48.55	0.01396	-62.75	14.2	35.55	VERTICAL	PASSED
8661.9	-46.51	0.02234	-62.81	16.3	33.51	VERTICAL	PASSED
10394.5	-46.58	0.02198	-63.58	17	33.58	VERTICAL	PASSED
10773.527	-44.54	0.03516	-62.74	18.2	31.54	HORIZONTAL	PASSED
12127.942	-45.29	0.02958	-63.79	18.5	32.29	HORIZONTAL	PASSED
13851.124	-51.6	0.00692	-63.7	12.1	38.6	VERTICAL	PASSED
15601.56	-51.59	0.00693	-66.69	15.1	38.59	HORIZONTAL	PASSED
17315.924	-48.81	0.01315	-66.91	18.1	35.81	HORIZONTAL	PASSED

6.9. WCDMA5 test results

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
851.913	-48.79	0.01321	-80.99	32.2	35.79	VERTICAL	PASSED
857.4	-49.28	0.0118	-81.88	32.6	36.28	VERTICAL	PASSED
1008.577	-62.95	0.00051	-52.85	-10.1	49.95	VERTICAL	PASSED
1668.377	-56.86	0.00206	-50.46	-6.4	43.86	HORIZONTAL	PASSED
1669.158	-58.11	0.00155	-51.91	-6.2	45.11	VERTICAL	PASSED
1669.319	-58.6	0.00138	-52.2	-6.4	45.6	HORIZONTAL	PASSED
2502.064	-53.13	0.00486	-53.73	0.6	40.13	HORIZONTAL	PASSED
2504.9	-53.59	0.00438	-54.29	0.7	40.59	HORIZONTAL	PASSED
3335.09	-58.57	0.00139	-59.87	1.3	45.57	VERTICAL	PASSED
4165.601	-56.57	0.0022	-60.67	4.1	43.57	HORIZONTAL	PASSED
5010.261	-54.42	0.00361	-60.32	5.9	41.42	VERTICAL	PASSED
5843.697	-53.4	0.00457	-59.8	6.4	40.4	HORIZONTAL	PASSED
6674.77	-49.85	0.01035	-58.75	8.9	36.85	HORIZONTAL	PASSED
7517.345	-50.25	0.00944	-62.45	12.2	37.25	VERTICAL	PASSED
8345.451	-49.89	0.01026	-62.89	13	36.89	HORIZONTAL	PASSED

6.10. LTE2 test results

Channel 18900 / 1880.0 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1960.426	-36.3	0.23442	-33.8	-2.5	23.3	HORIZONTAL	PASSED
3760.301	-64.15	0.00038	-68.75	4.6	51.15	HORIZONTAL	PASSED
5640.501	-53.61	0.00436	-62.01	8.4	40.61	HORIZONTAL	PASSED
7511.844	-59.81	0.00104	-73.61	13.8	46.81	HORIZONTAL	PASSED

Channel 18900 / 1880.0 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
1959.183	-36.42	0.22803	-33.92	-2.5	23.42	HORIZONTAL	PASSED
3760.541	-62.84	0.00052	-67.44	4.6	49.84	HORIZONTAL	PASSED
5640.581	-53.22	0.00476	-61.62	8.4	40.22	HORIZONTAL	PASSED
7519.419	-59.8	0.00105	-73.6	13.8	46.8	HORIZONTAL	PASSED

6.11. LTE4 test results

Channel 20175 / 1732.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3465.421	-59.93	0.00102	-63.93	4	46.93	VERTICAL	PASSED
5198.041	-57.38	0.00183	-65.78	8.4	44.38	HORIZONTAL	PASSED
6929.619	-58.28	0.00149	-69.68	11.4	45.28	HORIZONTAL	PASSED
8662.199	-58	0.00158	-74.3	16.3	45	VERTICAL	PASSED
10385.04	-56.86	0.00206	-73.96	17.1	43.86	HORIZONTAL	PASSED

Channel 20175 / 1732.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
3465.501	-65.08	0.00031	-69.08	4	52.08	VERTICAL	PASSED
5198.001	-60.53	0.00089	-68.93	8.4	47.53	HORIZONTAL	PASSED
6930.06	-58.29	0.00148	-69.69	11.4	45.29	HORIZONTAL	PASSED
8662.039	-58	0.00158	-74.3	16.3	45	VERTICAL	PASSED
10385.441	-56.86	0.00206	-73.96	17.1	43.86	HORIZONTAL	PASSED

6.12. LTE5 test results

Channel 20525 / 836.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
856.315	-61.19	0.00076	-92.99	31.8	48.19	HORIZONTAL	PASSED
881.082	-49.62	0.01091	-83.52	33.9	36.62	HORIZONTAL	PASSED
1668.691	-68.32	0.00015	-61.92	-6.4	55.32	HORIZONTAL	PASSED
2511.324	-73.37	5E-05	-74.27	0.9	60.37	HORIZONTAL	PASSED
3341.812	-78.05	2E-05	-79.05	1	65.05	HORIZONTAL	PASSED

Channel 20525 / 836.5 MHz

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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
855.894	-61.25	0.00075	-93.05	31.8	48.25	HORIZONTAL	PASSED
881.176	-50.65	0.00861	-84.55	33.9	37.65	HORIZONTAL	PASSED
1673.22	-72.59	6E-05	-66.19	-6.4	59.59	HORIZONTAL	PASSED
2505.191	-72.94	5E-05	-73.64	0.7	59.94	HORIZONTAL	PASSED
3347.383	-78.13	2E-05	-79.03	0.9	65.13	HORIZONTAL	PASSED

6.13. LTE7 test results

Channel 21100 / 2535.0 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
2548.963	-63.15	0.00048	-65.05	1.9	50.15	HORIZONTAL	PASSED
5070.381	-54.41	0.00362	-62.71	8.3	41.41	HORIZONTAL	PASSED
7597.725	-59.9	0.00102	-73.6	13.7	46.9	HORIZONTAL	PASSED
10131.483	-56.94	0.00202	-73.04	16.1	43.94	HORIZONTAL	PASSED

Channel 21100 / 2535.0 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
2547.781	-62.21	0.0006	-64.11	1.9	49.21	HORIZONTAL	PASSED
5070.301	-55.24	0.00299	-63.54	8.3	42.24	HORIZONTAL	PASSED
7600.451	-60.27	0.00094	-73.97	13.7	47.27	HORIZONTAL	PASSED
10139.739	-56.98	0.002	-72.98	16	43.98	HORIZONTAL	PASSED

6.14. LTE38 TX test results

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
2609.684	-61.93	0.00064	-63.83	1.9	48.93	HORIZONTAL	PASSED
5190.341	-47.42	0.01811	-55.82	8.4	34.42	HORIZONTAL	PASSED
7784.98	-56.75	0.00211	-71.25	14.5	43.75	HORIZONTAL	PASSED
10370.12	-56.84	0.00207	-73.94	17.1	43.84	HORIZONTAL	PASSED

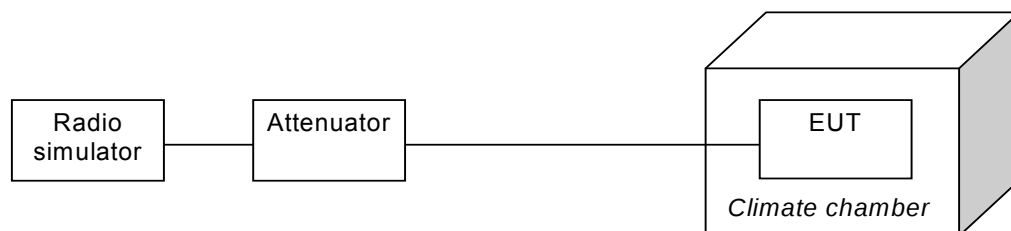
TDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin [dB]	Polarisation	Results
2607.575	-62.09	0.00062	-64.09	2	49.09	HORIZONTAL	PASSED
2607.68	-61.68	0.00068	-63.68	2	48.68	HORIZONTAL	PASSED
2607.711	-61.89	0.00065	-63.89	2	48.89	HORIZONTAL	PASSED
2607.732	-62.41	0.00057	-64.41	2	49.41	HORIZONTAL	PASSED
2608.562	-47.72	0.0169	-49.72	2	34.72	HORIZONTAL	PASSED
2623.597	-51.09	0.00778	-53.19	2.1	38.09	HORIZONTAL	PASSED
5190.501	-48.25	0.01496	-56.65	8.4	35.25	HORIZONTAL	PASSED
7788.707	-58.79	0.00132	-73.29	14.5	45.79	HORIZONTAL	PASSED
10386.754	-57.19	0.00191	-74.29	17.1	44.19	HORIZONTAL	PASSED

7. Frequency stability, temperature variation

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

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 850 Test results

GSM, Channel 190 / 836.6 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.60	2.91000	0.0035	PASSED
40	836.60	3.94000	0.0047	PASSED
30	836.60	-2.39000	-0.0029	PASSED
20	836.60	-0.26000	-0.0003	PASSED
10	836.60	5.17000	0.0062	PASSED
0	836.60	5.62000	0.0067	PASSED
-10	836.60	2.45000	0.0029	PASSED
-20	836.60	4.58000	0.0055	PASSED
-30	836.60	8.14000	0.0097	PASSED

7.4. GSM 1900 Test results

GSM, Channel 661 / 1880.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1880.00	7.10000	0.0038	PASSED
40	1880.00	10.40000	0.0055	PASSED
30	1880.00	4.52000	0.0024	PASSED
20	1880.00	6.52000	0.0035	PASSED
10	1880.00	6.65000	0.0035	PASSED
0	1880.00	14.01000	0.0075	PASSED
-10	1880.00	5.17000	0.0028	PASSED
-20	1880.00	21.57000	0.0115	PASSED
-30	1880.00	32.22000	0.0171	PASSED

7.5. WCDMA4 Test results

FDD, Channel 1412 / 1732.4 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1732.40	-2.18201	-0.0013	PASSED
40	1732.40	-4.05884	-0.0023	PASSED
30	1732.40	-4.04358	-0.0023	PASSED
20	1732.40	-4.21143	-0.0024	PASSED
10	1732.40	-3.17383	-0.0018	PASSED
0	1732.40	0.74768	0.0004	PASSED
-10	1732.40	1.08337	0.0006	PASSED
-20	1732.40	1.32752	0.0008	PASSED
-30	1732.40	4.85230	0.0028	PASSED

7.6. 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	-1.00000	-0.0004	PASSED
40	2535.00	-1.00000	-0.0004	PASSED
30	2535.00	-1.00000	-0.0004	PASSED
20	2535.00	-1.00000	-0.0004	PASSED
10	2535.00	-1.00000	-0.0004	PASSED
0	2535.00	-1.00000	-0.0004	PASSED
-10	2535.00	-1.00000	-0.0004	PASSED
-20	2535.00	-1.00000	-0.0004	PASSED
-30	2535.00	-1.00000	-0.0004	PASSED

7.7. LTE38 Test results

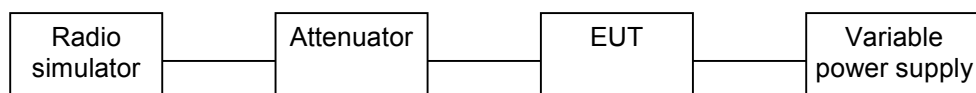
TDD, CBW 20MHz, Q64, 50 RB, Channel 38000 / 2595.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	2595.00	-4.82082	-0.0019	PASSED
40	2595.00	123.22430	0.0475	PASSED
30	2595.00	-4.11987	-0.0016	PASSED
20	2595.00	-17.13753	-0.0066	PASSED
10	2595.00	225.93500	0.0871	PASSED
0	2595.00	-220.65640	-0.085	PASSED
-10	2595.00	-88.26256	-0.034	PASSED
-20	2595.00	193.21920	0.0745	PASSED
-30	2595.00	127.24400	0.049	PASSED

8. Frequency stability, voltage variation

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.4
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

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 850 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	836.60	1.87000	0.0022	PASSED
Battery cut-off point / 3.5	836.60	2.32000	0.0028	PASSED
Nominal / 3.8	836.60	4.07000	0.0049	PASSED

8.4. GSM 1900 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	1880.00	3.10000	0.0016	PASSED
Battery cut-off point / 3.5	1880.00	7.36000	0.0039	PASSED
Nominal / 3.8	1880.00	5.94000	0.0032	PASSED

8.5. WCDMA4 Test results

FDD,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	1732.40	-0.12207	-0.0001	PASSED
Battery cut-off point / 3.5	1732.40	-4.82178	-0.0028	PASSED
Nominal / 3.8	1732.40	-4.10461	-0.0024	PASSED

8.6. 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	-2.91824	-0.0012	PASSED
Battery cut-off point / 3.5	2535.00	0.07153	0	PASSED
Nominal / 3.8	2535.00	-1.48773	-0.0006	PASSED

8.7. LTE38 Test results

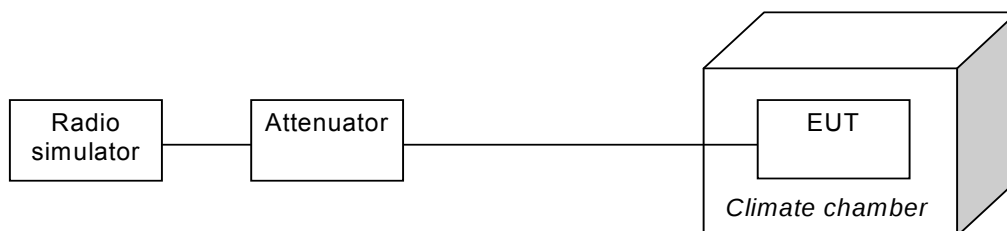
TDD, CBW 20MHz, QPSK, 100 RB, Channel 38000 / 2595.0 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.4	2595.00	-126.29990	-0.0487	PASSED
Battery cut-off point / 3.5	2595.00	39.36768	0.0152	PASSED
Nominal / 3.8	2595.00	-64.54468	-0.0249	PASSED

9. Frequency stability, temperature variation, Band edge method

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

9.1. Test Setup



9.2. 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.

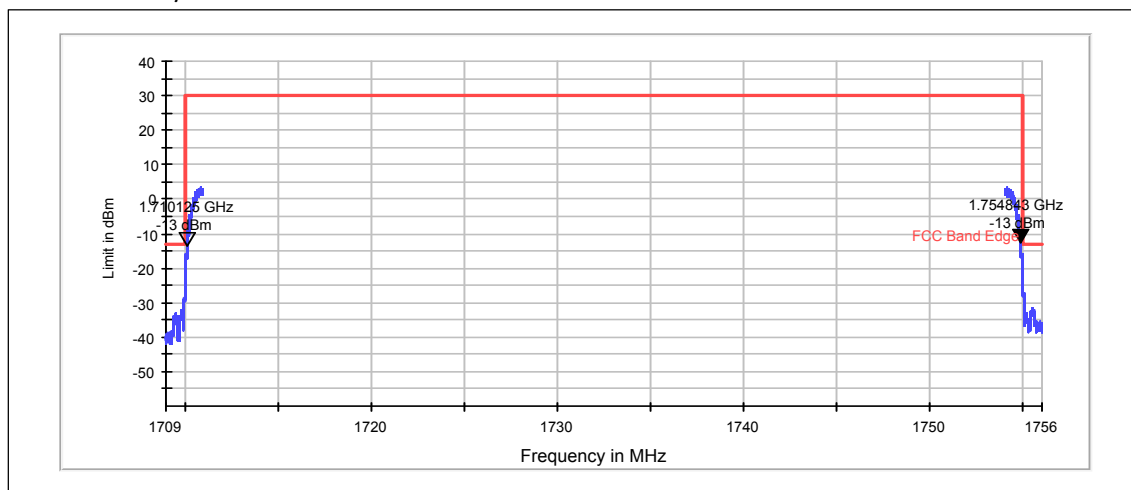
The results were then calculated as per section 4.3 of RSS-199.

Limits for frequency stability, temperature variation measurements

Limit
The results must be within the operating band.

9.3. WCDMA4 Test results

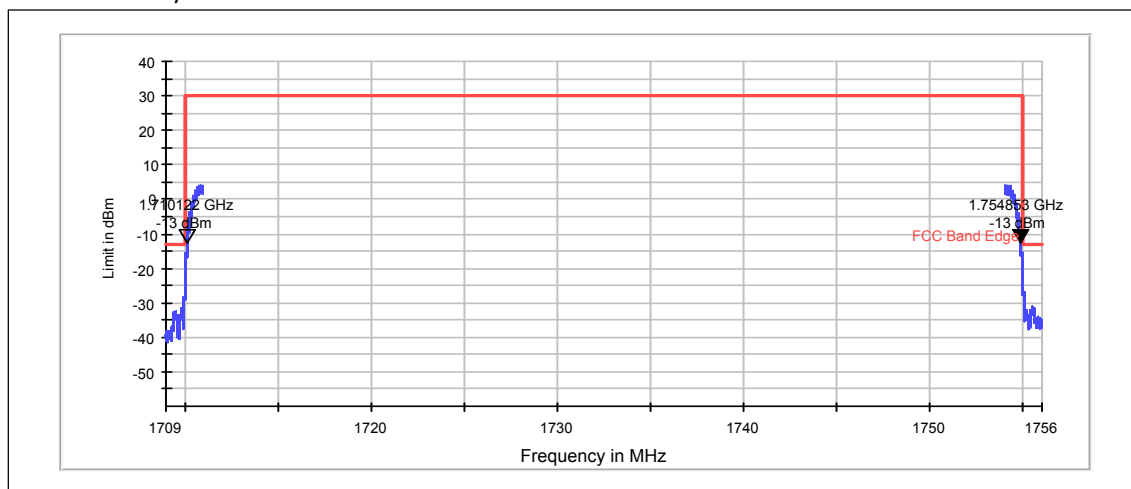
Channel 1412 / 1732.4 MHz



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

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
50	14.22119	1710.125400	1710.125386	1754.843200	1754.843214	PASSED

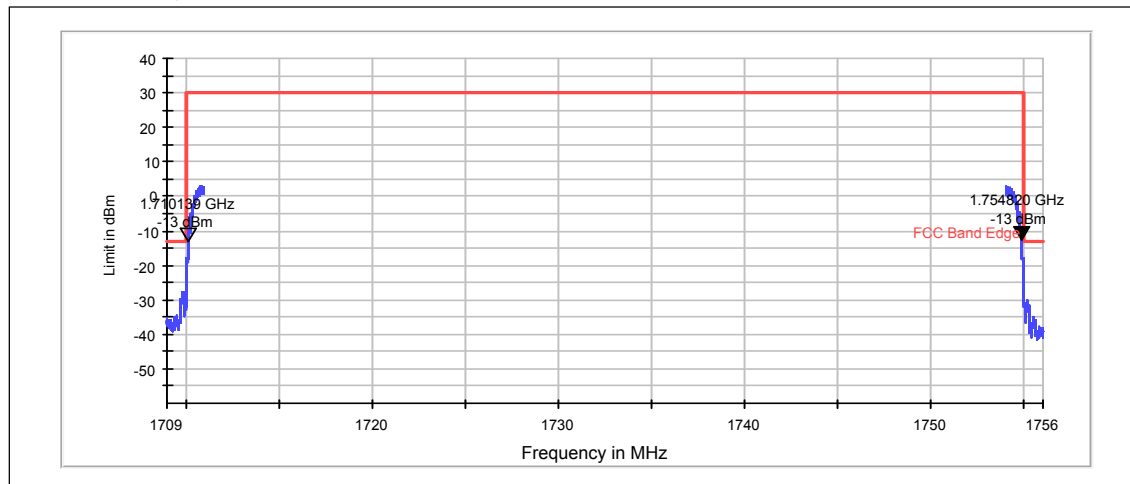
Channel 1412 / 1732.4 MHz



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

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
20	-11.18469	1710.121600	1710.121589	1754.853000	1754.853011	PASSED

Channel 1412 / 1732.4 MHz

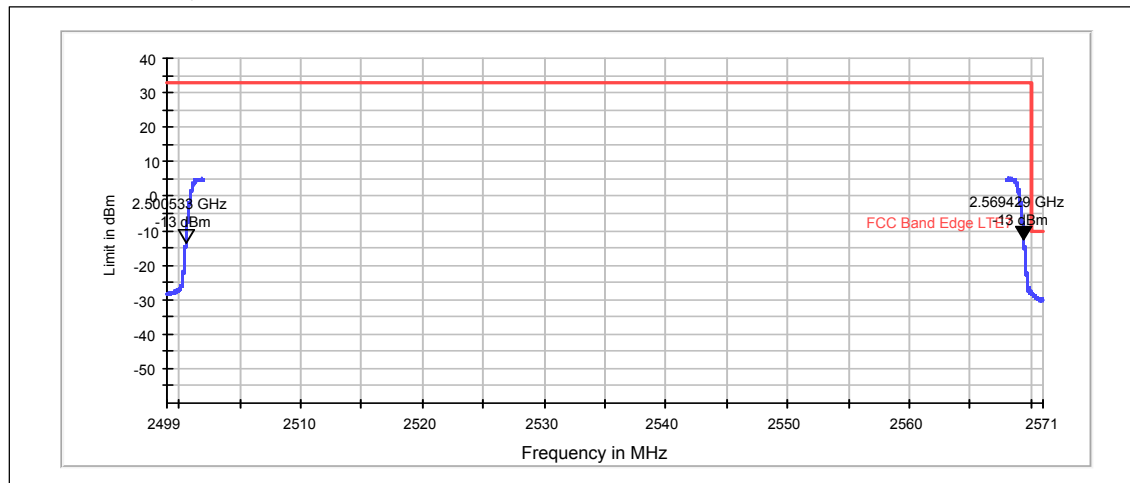


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
-30	11.07788	1710.138800	1710.138789	1754.820400	1754.820411	PASSED

9.4. LTE7 Test results

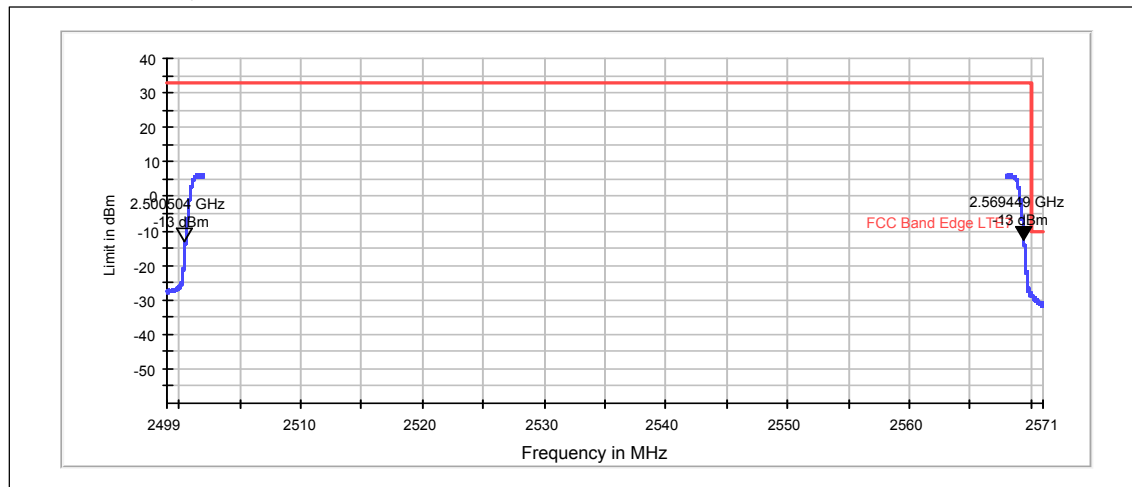
Channel 21100 / 2535.0 MHz



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	-1.13010	2500.532700	2500.532699	2569.428600	2569.428601	PASSED

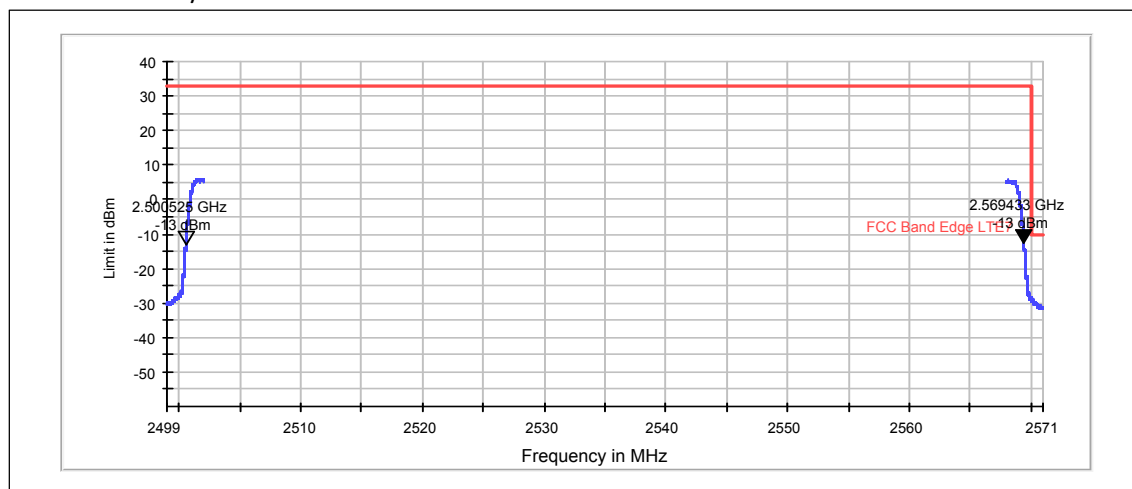
Channel 21100 / 2535.0 MHz



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	2.24590	2500.504200	2500.504198	2569.448700	2569.448702	PASSED

Channel 21100 / 2535.0 MHz

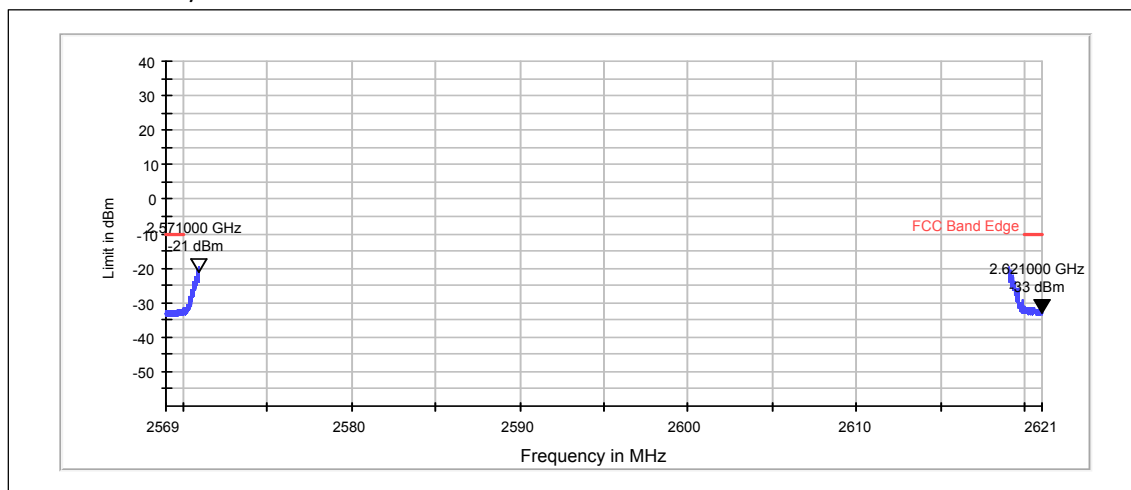


RMS (RBW: 500 kHz, VBW: 2 MHz)

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
-30	1.57356	2500.524600	2500.524598	2569.432800	2569.432802	PASSED

9.5. LTE38 Test results

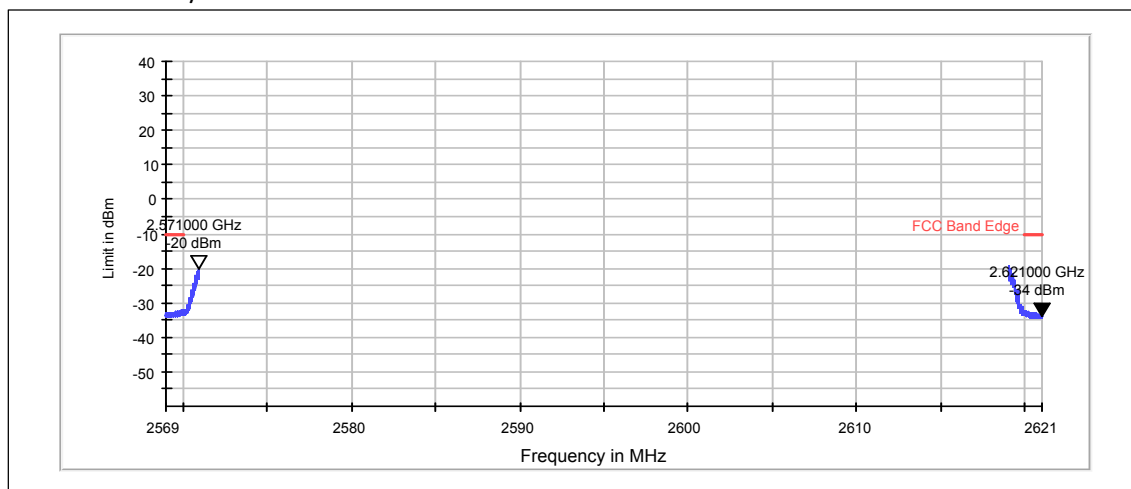
Channel 38000 / 2595.0 MHz



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	-263.38580	2571.000000	2570.999737	2621.000000	2621.000263	PASSED

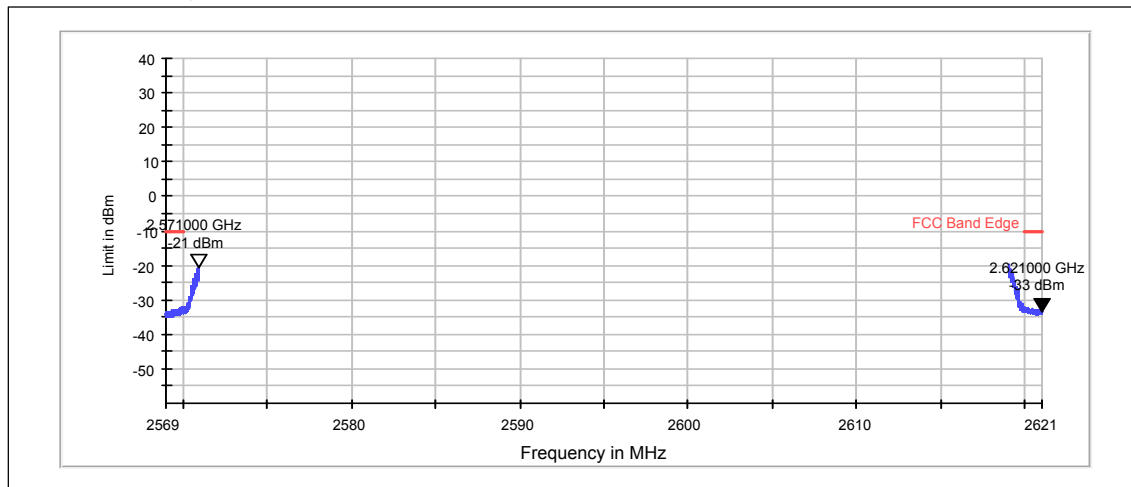
Channel 38000 / 2595.0 MHz



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	10.42843	2571.000000	2570.999990	2621.000000	2621.000010	PASSED

Channel 38000 / 2595.0 MHz



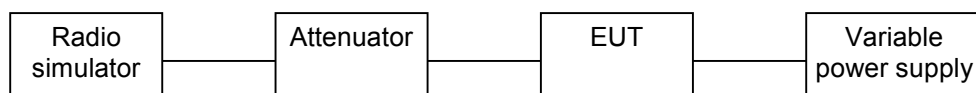
RMS (RBW: 500 kHz, VBW: 2 MHz)

Temperature [°C]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
-30	-125.05530	2571.000000	2570.999875	2621.000000	2621.000125	PASSED

10. Frequency stability, voltage variation, (Band edge method)

EUT with DUT number	RM-1154, DUT 400064
Accessories with DUT numbers	SD-134, DUT 400053
Operation Voltage [V] / [Hz]	3.5 / 3.8 / 4.4
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 37 / 100.2
Date of measurements	04-Dec-2015
Measured by	Timo Raiskio

10.1. Test Setup



10.2. Test method and limit

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

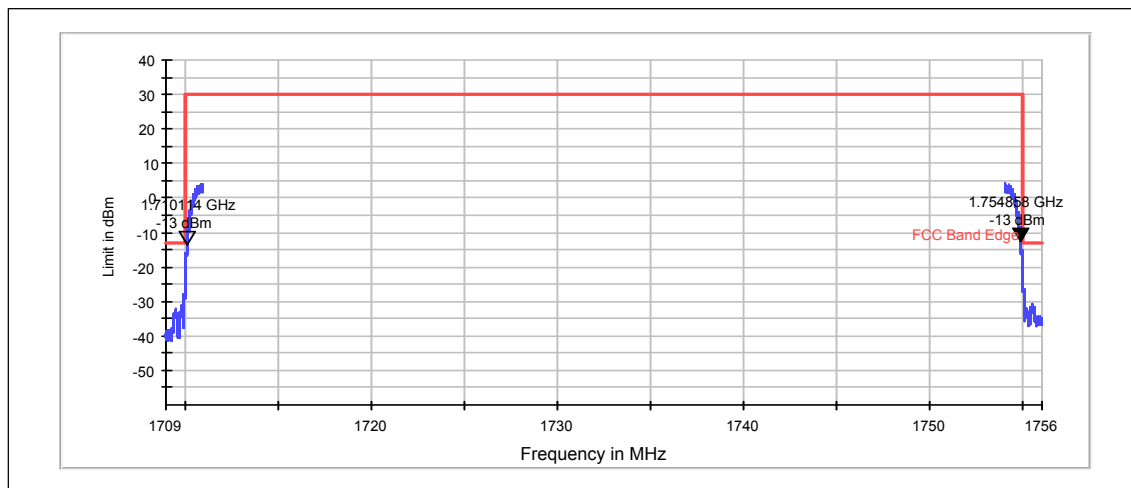
The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

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

Limits for frequency stability, voltage variation measurements

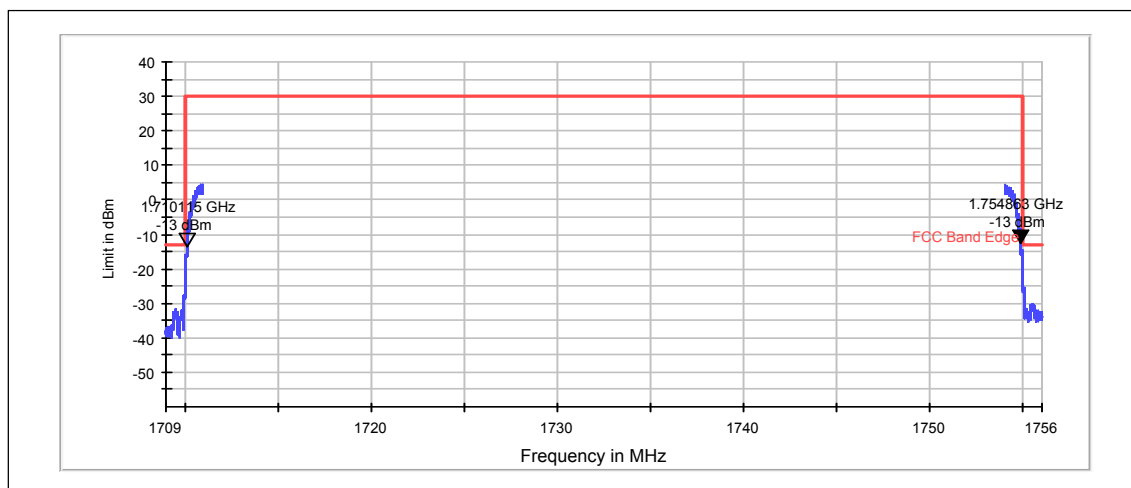
Limit
The results must be within the operating band.

10.3. WCDMA4 Test results



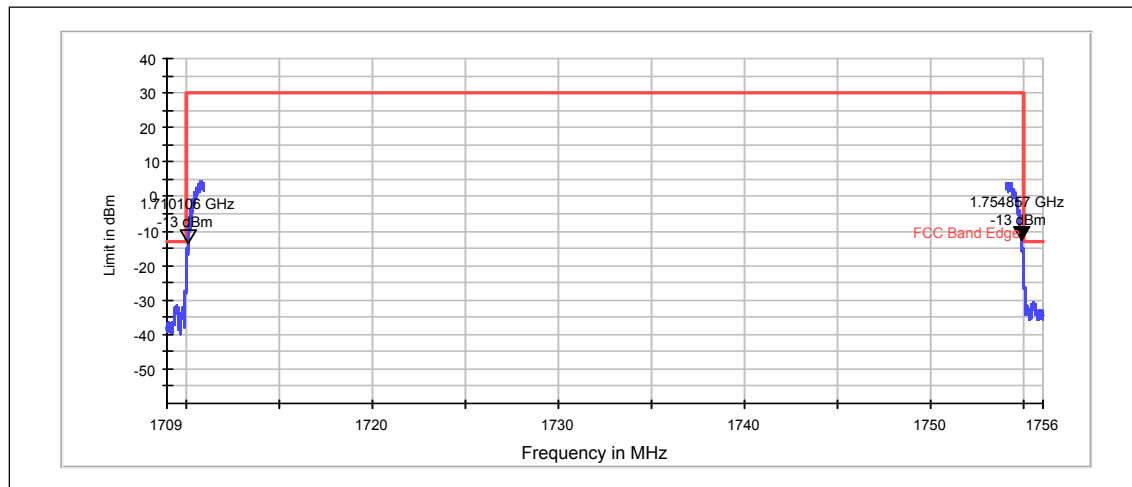
RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker - Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Battery cut-off point / 3.5	-3.93677	1710.113600	1710.113596	1754.858200	1754.858204	PASSED



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

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker - Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Nominal / 3.8	4.19617	1710.114600	1710.114596	1754.862800	1754.862804	PASSED

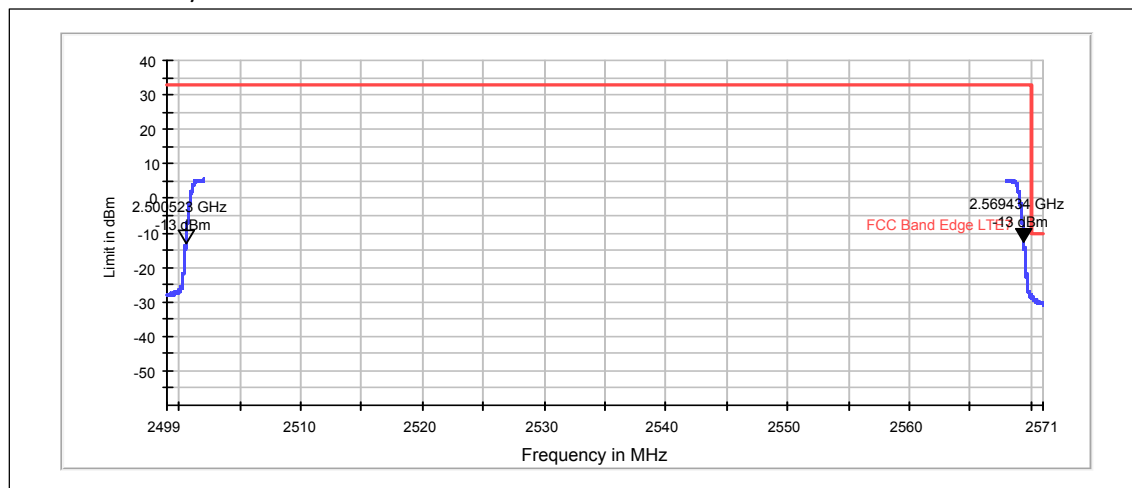


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Max / 4.4	3.05176	1710.106200	1710.106197	1754.856800	1754.856803	PASSED

10.4. LTE7 Test results

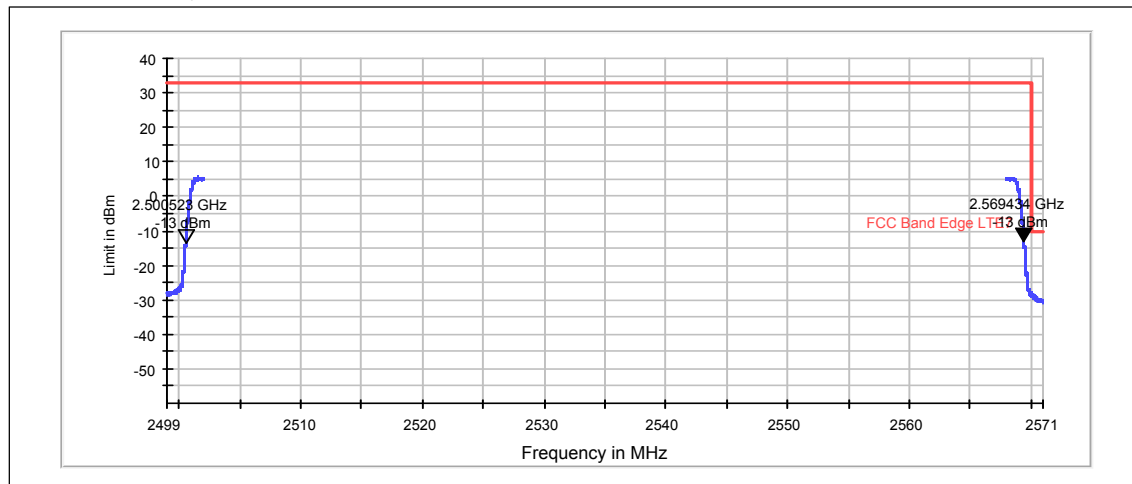
Channel 21100 / 2535.0 MHz



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	1.38760	2500.523400	2500.523399	2569.433700	2569.433701	PASSED

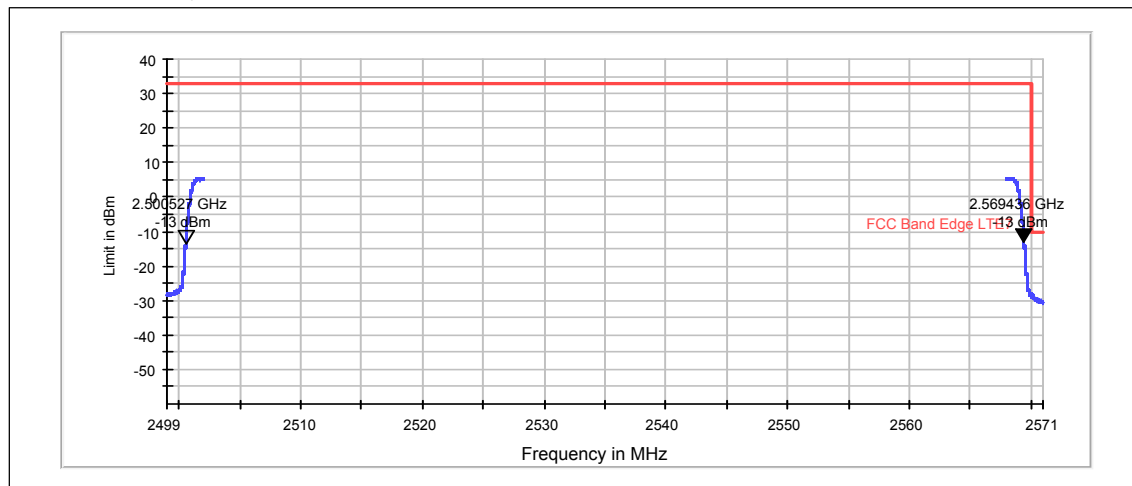
Channel 21100 / 2535.0 MHz



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	3.49045	2500.523100	2500.523097	2569.433700	2569.433704	PASSED

Channel 21100 / 2535.0 MHz

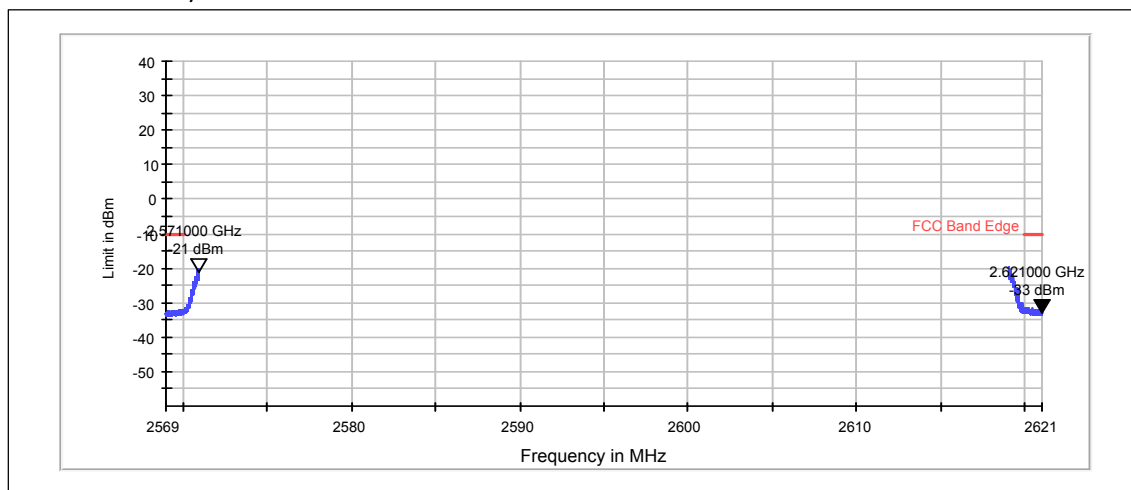


RMS (RBW: 500 kHz, VBW: 2 MHz)

Voltage level [V]	Deviation [Hz]	Low marker [MHz]	Marker – Dev [MHz]	High marker [MHz]	Marker + Dev [MHz]	Result
Nominal / 3.8	-0.78678	2500.526700	2500.526699	2569.435500	2569.435501	PASSED

10.5. LTE38 Test results

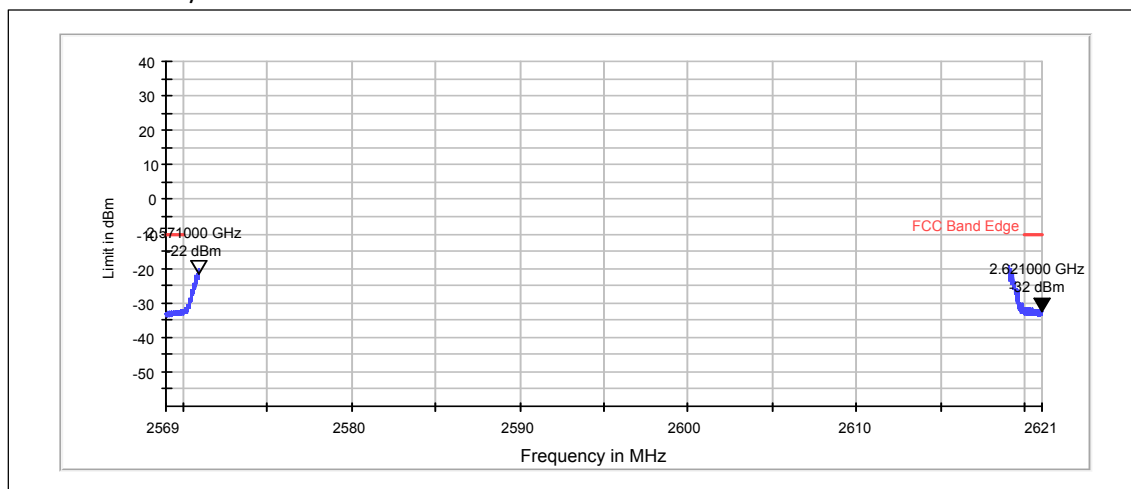
Channel 38000 / 2595.0 MHz



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	103.81220	2571.000000	2570.999896	2621.000000	2621.000104	PASSED

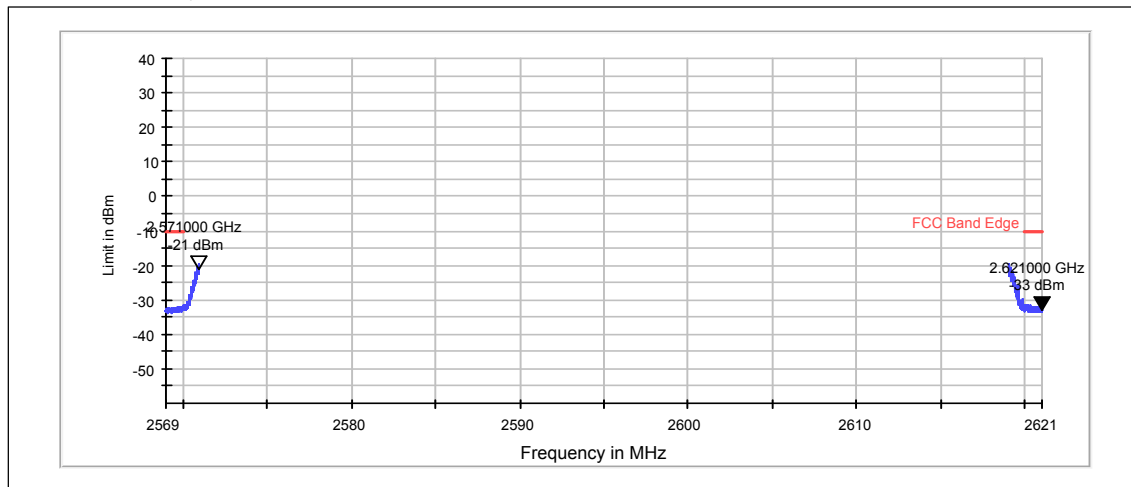
Channel 38000 / 2595.0 MHz



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	148.11520	2571.000000	2570.999852	2621.000000	2621.000148	PASSED

Channel 38000 / 2595.0 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	104.62760	2571.000000	2570.999895	2621.000000	2621.000105	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
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
TM770113	Temperature test chamber	VT 4002	Vötsch	22/24/27
TM220042	Bluetooth tester	CBT	R&S	15C, 15B
TM490119	LISN 50 µH	ENV216	R&S	15C, 15B
TM490120	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
-	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
-	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
TM110070	Signal Generator	SMF 100A	R&S	22/24/27, 15C, 15E, 15B
TM220065	Bluetooth tester	CBT	R&S	15C, 15B
TM210246	Communication Tester	CMU200	R&S	22/24/27, 15B
TM150131	Spectrum Analyzer	FSP30	R&S	22/24/27, 15C, 15E
TM210043	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	dfx	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
TM220042	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
TM540070	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