

FCC Part 22/24/27 Compliance Test Report

Test Report no.:	FCC22&24&27_RM-875_16	Date of Report:	22-May-2013
Number of pages:	61	Customer's Contact person:	Huhtala Tero
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FCC listing no.:	94436		
IC recognition no.:	661AK-1		
Tested devices/ accessories:	Phone RM-875 / Battery BV-5XW / AC charger AC-60U / Charging data cable CA-190CD / Headset WH-208		
FCC ID:	PDNA	IC:	-
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Parts 22/24/2, TIA-603-C-2004 and IC standards, RSS-GEN (Issue 3, December 2010), RSS-132 (Issue 2, September 2005), RSS-133 (Issue 5, February 2009), RSS-139 (Issue 2, February 2009). 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 Nokia.		
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:			

Jari Jantunen, System Manager, EMC

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

Date of receipt	06-Feb-2013
Testing completed	20-Feb-2013
The customer's contact person	Huhtala Tero
Test Plan referred to	T:\Projects\RM-877\TestPlan\RS_testplan_RM-877.xlsm
Notes	-
Document name	FCC22&24&27_RM-875_16.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WCDMA/WLAN/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM.877	004402471263545	1000		3012.0000.1304.10019	42970
Phone	RM-877	00440247126557	1000	-	3012.0000.1304.10019	42979
Battery	BV-5XW	-	LG 2.3	-	-	42971
AC charger	AC-60U	4090493047580200312;0675678	B1.0 HW0.2 MW0.2 PV02	-	-	42973
Charging data cable	CA-190CD	0730456246628	-	-	-	42977
Headset	WH-208	1411621	-	-	-	42831

1.2. Summary of Test Results

GSM850:

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	NP
§22.913(a)	4.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§22.917(a)	4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.5	Spurious radiated emissions	NP
§2.1055(a)	4.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	PASSED

GSM1900:

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	NP
§24.232(b)	6.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§24.238(a)	6.5	Band edge compliance	NP
§24.238(a), §2.1051	6.5	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.5	Spurious radiated emissions	NP
§2.1055(a)	6.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED

WCDMA 1900 (Band II):

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	NP
§24.232(b)	6.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§24.238(a)	6.5	Band edge compliance	NP
§24.238(a), §2.1051	6.5	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.5	Spurious radiated emissions	NP
§2.1055(a)	6.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED

WCDMA 1700 (Band IV):

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	NP
§27.50(d)(2)	6.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	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	NP
§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

WCDMA 850 (Band V):

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	NP
§22.913(a)	4.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§22.917(a)	4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.5	Spurious radiated emissions	NP
§2.1055(a)	4.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	PASSED

LTE 1900 (Band II):

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	NP
§24.232(b)	6.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	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	NP
§24.238(a), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	NP
§2.1055(d)	6.3	Frequency stability, voltage variation	NP

LTE1700 (Band 4):

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	NP
§27.50(d)(4)	6.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	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	NP
§27.53(h), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	NP
§2.1055(d)	6.3	Frequency stability, voltage variation	NP
N/A	N/A	Peak to average power ratio	NP

LTE 850 (Band V):

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	NP
§22.913(a)	4.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	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	NP
§22.917(a), §2.1053	4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.3	Frequency stability, voltage variation	NP

LTE700 Lower (Band 17):

Section in CFR 47	Section in RSS-GEN or RSS-133	Name of the test	Result
§2.1046 (a)	N/A	Conducted RF output power	NP
§27.50(c)(10)	N/A	Radiated RF output power	PASSED
§2.1049(h)	N/A	99 % occupied bandwidth	PASSED
§27.53(g)	N/A	Band edge compliance	PASSED
§27.53(g), §2.1051	N/A	Spurious emissions at antenna terminals	NP
§27.53(g), §2.1051	N/A	Spurious radiated emissions	PASSED
§2.1055(a)	N/A	Frequency stability, temperature variation	PASSED
§2.1055(d)	N/A	Frequency stability, voltage variation	PASSED
N/A	N/A	Peak to average power ratio	NP

PASSED

The EUT complies with the essential requirements in the standard.

FAILED

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

NP

The test was not performed by the TCC Nokia Laboratory.

The test results of PDNB are re-used for certification of the PDNA. The table above indicates the results, which will be re-used.

CONTENTS

1. Summary for FCC Part 22/24/27 Compliance Test Report	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	3
2. Radiated RF output power (FCC §22.913(a), §24.232(b), §27.50(d)(2), §27.53(h), §27.53(g), RSS-132 4.4, RSS-133 6.4)	8
2.2. Test method and limit	8
1.1 WCDMA 1700 (Band IV) TX Test results	9
2.3. LTE 1900 (Band II) test results	9
2.4. LTE 1700 (Band IV) test results	10
2.5. LTE 850 (Band V) test results	11
2.6. LTE700 Lower (Band 17) test results	12
3. 99% occupied bandwidth (FCC §2.1049(h), RSS-GEN 4.6.1)	14
3.1. Test Setup	14
3.2. Test method and limit	14
3.3. GSM 850 Test results	15
3.4. GSM 1900 Test results	16
3.5. WCDMA 1900 Test results	17
3.6. WCDMA 1700 Test results	17
3.7. WCDMA 850 Test results	18
3.8. LTE1900 (Band 2) Test results	19
3.9. LTE1700 (Band 4) Test results	26
3.10. LTE850 (Band 5) Test results	33
3.11. LTE700 Lower (Band 17) Test results	38
4. Band edge compliance (FCC §22.917(a), §24.238(a), §27.53(g), §27.53(h), §27.53(c)(2)(4), §27.53(g), RSS-132 4.5, RSS-133 6.5, RSS-139 6.5)	40
4.1. Test Setup	40
4.2. Test method and limit	40
4.3. WCDMA 1700 Test results	41
4.4. LTE1900 (Band 2) Test results	42
4.5. LTE1700 (Band 4) Test results	44
4.6. LTE850 (Band 5) Test results	46
4.7. LTE700 Lower (Band 17) Test results	48

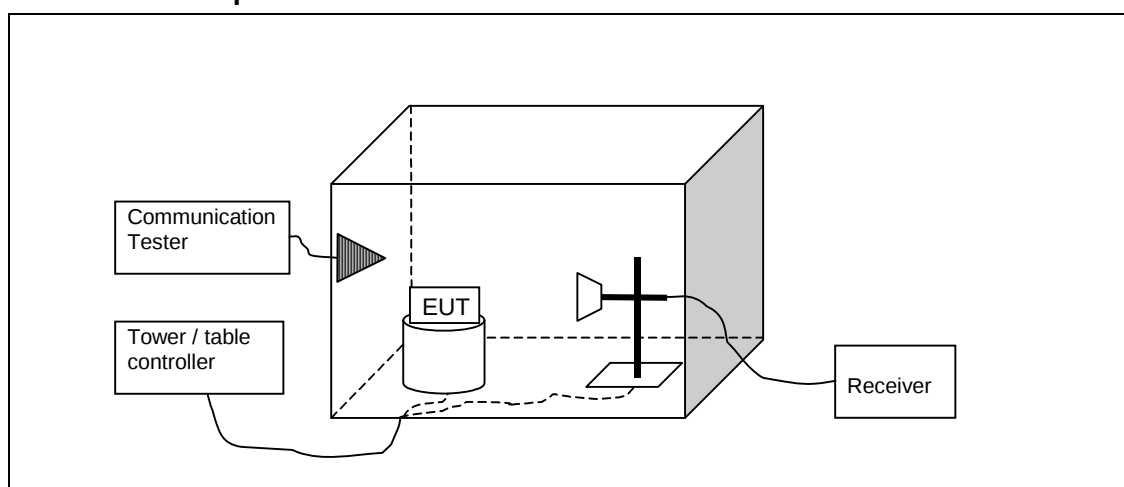
5. Spurious radiated emissions (FCC §22.917(a), §2.1053, §24.238(a), §2.1053, §27.53(g), §2.1053, §27.53(h), §27.53(g), RSS-132 4.5, RSS-133 6.5).....	50
5.2. Test method and limit	51
5.3. WCDMA 1700 (Band IV) test results	52
5.4. LTE 1900 (Band II) test results	52
5.5. LTE 1700 (Band IV) test results	53
5.6. LTE 850 (Band V) test results	54
5.7. LTE700 Lower (Band 17) test results	54
6. Frequency stability, temperature variation (FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3).....	55
6.1. Test Setup	55
6.2. Test method and limit	55
6.3. GSM 850 Test results	56
6.4. GSM 1900 Test results	56
6.5. WCDMA 1700 Test results	57
6.6. LTE700 Lower (Band 17) Test results	57
7. Frequency stability, voltage variation (FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3).....	58
7.1. Test Setup	58
7.2. Test method and limit	58
7.3. GSM 850 Test results	59
7.4. GSM 1900 Test results	59
7.5. WCDMA 1700 Test results	59
7.6. LTE700 Lower (Band 17) Test results	59
8. Test Equipment.....	60
8.1. Conducted measurements	60
8.2. Radiated measurements	61

2. Radiated RF output power

(FCC §22.913(a), §24.232(b), §27.50(d)(2), §27.53(h), §27.53(g), RSS-132 4.4, RSS-133 6.4)

EUT with DUT number	RM-877, DUT 42979
Accessories with DUT numbers	-
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	25 / 50 / 102.8
Date of measurements	20-Feb-2013
Measured by	Hannu Söderholm

2.1.1 Test setup



2.2. Test method and limit

The measurement is made according to TIA-603-C-2004 as follows:

The measurement is performed in the Anechoic Chamber with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system. The turntable is rotated 360 degrees and this is repeated for both horizontal and vertical receive antenna polarizations.

The EUT is placed on a nonconductive plate at 170 cm height.

The substitution method is used. The 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]
704 - 716	3 ERP	34.8
824 - 849	7 ERP	38.5
1710 - 1755	1 EIRP	30
1850 - 1910	2 EIRP	33

1.1 WCDMA 1700 (Band IV) TX Test results

Peak Detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBi]	L _{SUBST CABLE} [dB]	Polarisation	Result
1392 / 1712.4	28.06	0.640	-14.97	10	-28.01	9.82	4.8	HORIZONTAL	PASSED
1420 / 1740	28.28	0.673	-14.57	10	-27.75	10	4.9	HORIZONTAL	PASSED
1432 / 1752.6	28.78	0.755	-14.43	10	-28.11	10	4.9	HORIZONTAL	PASSED

RMS Detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBi]	L _{SUBST CABLE} [dB]	Polarisation	Result
1392 / 1712.4	24.29	0.269	-18.74	10	-28.01	9.82	4.8	HORIZONTAL	PASSED
1420 / 1740	24.58	0.287	-18.27	10	-27.75	10	4.9	HORIZONTAL	PASSED
1432 / 1752.6	25.12	0.325	-18.09	10	-28.11	10	4.9	HORIZONTAL	PASSED

2.3. LTE 1900 (Band II) test results

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
9262 / 1850.7	28.96	0.787	-15.36	10	-29.19	10.13	5	HORIZONTAL	PASSED
9400 / 1880	29.03	0.800	-15.16	10	-29.01	10.28	5.1	HORIZONTAL	PASSED
9538 / 1909.3	27.94	0.622	-16.17	10	-29.07	10.14	5.1	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
9262 / 1850.7	25.08	0.322	-19.24	10	-29.19	10.13	5	HORIZONTAL	PASSED
9400 / 1880	25.38	0.345	-18.81	10	-29.01	10.28	5.1	HORIZONTAL	PASSED
9538 / 1909.3	25.28	0.337	-18.83	10	-29.07	10.14	5.1	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
9262 / 1850.7	28.7	0.741	-15.62	10	-29.19	10.13	5	HORIZONTAL	PASSED
9400 / 1880	29.29	0.849	-14.9	10	-29.01	10.28	5.1	HORIZONTAL	PASSED
9538 / 1909.3	27.94	0.622	-16.17	10	-29.07	10.14	5.1	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
9262 / 1850.7	24.78	0.301	-19.54	10	-29.19	10.13	5	HORIZONTAL	PASSED
9400 / 1880	24.9	0.309	-19.29	10	-29.01	10.28	5.1	HORIZONTAL	PASSED
9538 / 1909.3	25.24	0.334	-18.87	10	-29.07	10.14	5.1	HORIZONTAL	PASSED

2.4. LTE 1700 (Band IV) test results

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
1392 / 1712.4	29.99	0.998	-13.84	10	-28.81	9.82	4.8	HORIZONTAL	PASSED
1420 / 1740	29.81	0.957	-13.04	10	-27.75	10	4.9	HORIZONTAL	PASSED
1432 / 1752.6	29.5	0.891	-13.71	10	-28.11	10	4.9	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
1392 / 1712.4	26.32	0.429	-17.51	10	-28.81	9.82	4.8	HORIZONTAL	PASSED
1420 / 1740	25.49	0.354	-17.36	10	-27.75	10	4.9	HORIZONTAL	PASSED
1432 / 1752.6	25.98	0.396	-17.23	10	-28.11	10	4.9	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
19957 / 1710.7	29.92	0.982	-13.91	10	-28.81	9.82	4.8	HORIZONTAL	PASSED
20175 / 1732.5	29.74	0.942	-13.11	10	-27.75	10	4.9	HORIZONTAL	PASSED
20175 / 1754.3	28.97	0.789	-14.24	10	-28.11	10	4.9	HORIZONTAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
19957 / 1710.7	26.21	0.418	-17.62	10	-28.81	9.82	4.8	HORIZONTAL	PASSED
20175 / 1732.5	25.27	0.337	-17.58	10	-27.75	10	4.9	HORIZONTAL	PASSED
20175 / 1754.3	26.2	0.417	-17.01	10	-28.11	10	4.9	HORIZONTAL	PASSED

2.5. LTE 850 (Band V) test results

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
20407 / 824.7	23.92	0.247	-9.07	10	-29.81	-3.42	3.4	HORIZONTAL	PASSED
20525 / 836.5	26.02	0.400	-6.22	10	-29.41	-3.77	3.4	HORIZONTAL	PASSED
20643 / 848.3	25.41	0.348	-7.15	10	-29.45	-3.49	3.4	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
20407 / 824.7	20.18	0.104	-13.1	10	-30.1	-3.42	3.4	VERTICAL	PASSED
20525 / 836.5	20.63	0.116	-11.61	10	-29.41	-3.77	3.4	HORIZONTAL	PASSED
20643 / 848.3	19.8	0.095	-12.76	10	-29.45	-3.49	3.4	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
20407 / 824.7	24.01	0.252	-9.27	10	-30.1	-3.42	3.4	VERTICAL	PASSED
20525 / 836.5	25.95	0.394	-6.29	10	-29.41	-3.77	3.4	HORIZONTAL	PASSED
20643 / 848.3	24.91	0.310	-7.65	10	-29.45	-3.49	3.4	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
20407 / 824.7	20.02	0.100	-13.26	10	-30.1	-3.42	3.4	VERTICAL	PASSED
20525 / 836.5	20.04	0.101	-12.2	10	-29.41	-3.77	3.4	HORIZONTAL	PASSED
20643 / 848.3	19.63	0.092	-12.93	10	-29.45	-3.49	3.4	VERTICAL	PASSED

2.6. LTE700 Lower (Band 17) test results

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23755 / 706.5	25.17	0.329	-6.82	10	-28.11	-3.02	3.1	VERTICAL	PASSED
23790 / 710	24.23	0.265	-7.28	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23825 / 713.5	24.04	0.254	-7.28	10	-27.27	-2.85	3.1	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23755 / 706.5	24.72	0.296	-7.27	10	-28.11	-3.02	3.1	VERTICAL	PASSED
23790 / 710	24.42	0.277	-7.09	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23825 / 713.5	24.04	0.254	-7.28	10	-27.27	-2.85	3.1	VERTICAL	PASSED

FDD, CBW 5MHz, QPSK, 25RB low, Peak detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23755 / 706.5	25.38	0.345	-6.61	10	-28.11	-3.02	3.1	VERTICAL	PASSED
23790 / 710	25.1	0.324	-6.41	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23825 / 713.5	24.78	0.301	-6.54	10	-27.27	-2.85	3.1	VERTICAL	PASSED

FDD, CBW 5MHz, 16QAM, 25RB low, Peak detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23755 / 706.5	25.59	0.362	-6.4	10	-28.11	-3.02	3.1	VERTICAL	PASSED
23790 / 710	24.91	0.310	-6.6	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23825 / 713.5	24.53	0.284	-6.79	10	-27.27	-2.85	3.1	VERTICAL	PASSED

FDD, CBW 10MHz, QPSK, 50RB low, Peak detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23780 / 709	21.48	0.141	-9.96	10	-27.56	-3.02	3.1	VERTICAL	PASSED
23790 / 710	21.88	0.154	-9.63	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23800 / 711	21.79	0.151	-9.82	10	-27.56	-2.85	3.1	VERTICAL	PASSED

FDD, CBW 10MHz, QPSK, 50RB low, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23780 / 709	16.3	0.043	-15.14	10	-27.56	-3.02	3.1	VERTICAL	PASSED
23790 / 710	16.11	0.041	-15.4	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23800 / 711	16.11	0.041	-15.5	10	-27.56	-2.85	3.1	VERTICAL	PASSED

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

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23755 / 706.5	24.84	0.305	-7.15	10	-28.11	-3.02	3.1	VERTICAL	PASSED
23790 / 710	24.36	0.273	-7.15	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23825 / 713.5	23.98	0.250	-7.34	10	-27.27	-2.85	3.1	VERTICAL	PASSED

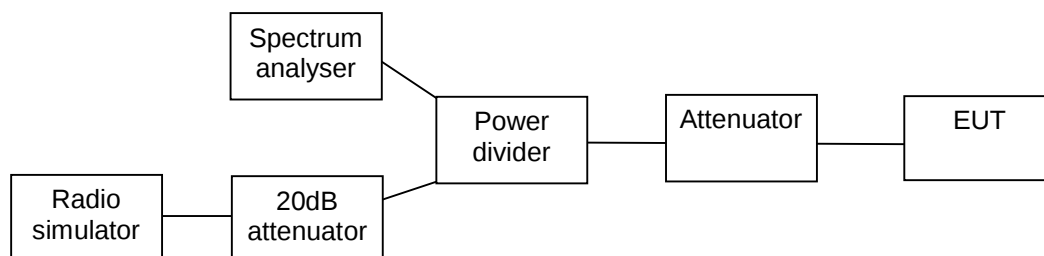
FDD, CBW 10MHz, 16QAM, 1RB mid, RMS detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX ANT} [dBd]	L _{SUBST CABLE} [dB]	Polarisation	Result
23755 / 706.5	21.21	0.132	-10.78	10	-28.11	-3.02	3.1	VERTICAL	PASSED
23790 / 710	20.53	0.113	-10.98	10	-27.56	-2.95	3.1	VERTICAL	PASSED
23825 / 713.5	20.33	0.108	-10.99	10	-27.27	-2.85	3.1	VERTICAL	PASSED

3. 99% occupied bandwidth (FCC §2.1049(h), RSS-GEN 4.6.1)

EUT with DUT number	RM-877, DUT 42970
Accessories with DUT numbers	BV-5XW, DUT 42971; AC-60U, DUT 42973; CA-190CD, DUT42977; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 37 / 99
Date of measurements	06-Feb-2013
Measured by	Timo Raiskio

3.1. Test Setup



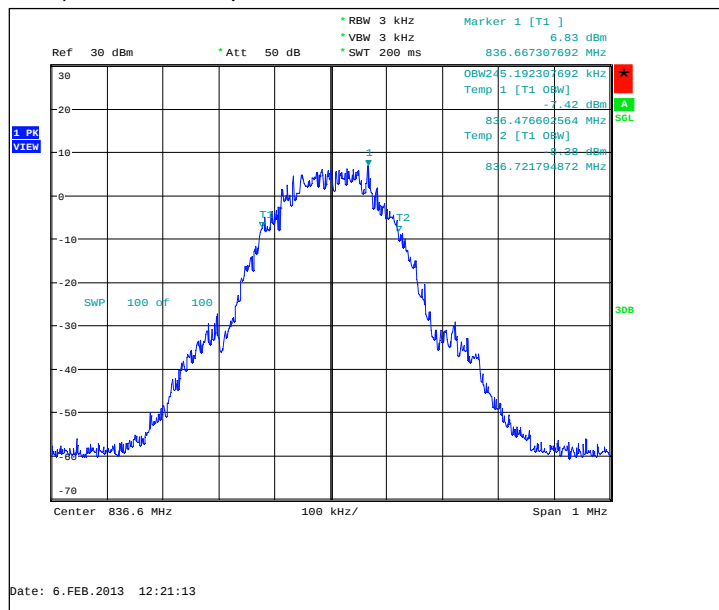
3.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24, 27 and IC standard RSS-GEN.

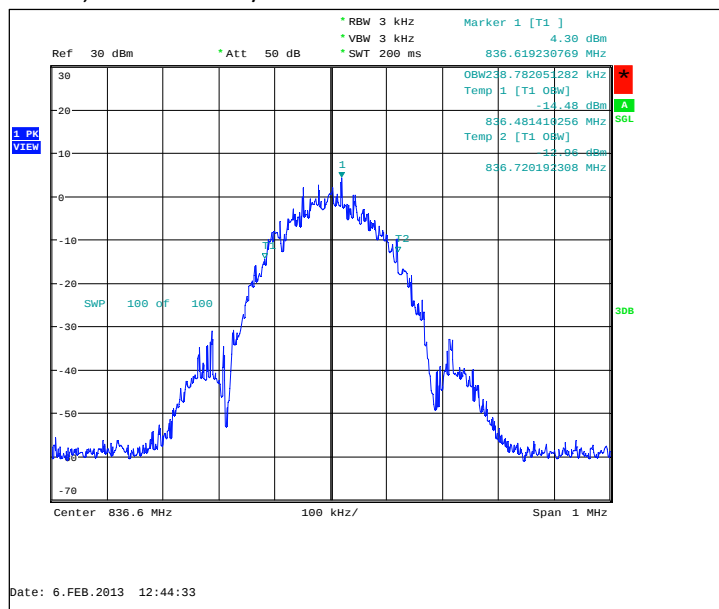
3.3. GSM 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	245.2
EGPRS	238.8

GSM, Channel 190 / 836.6 MHz



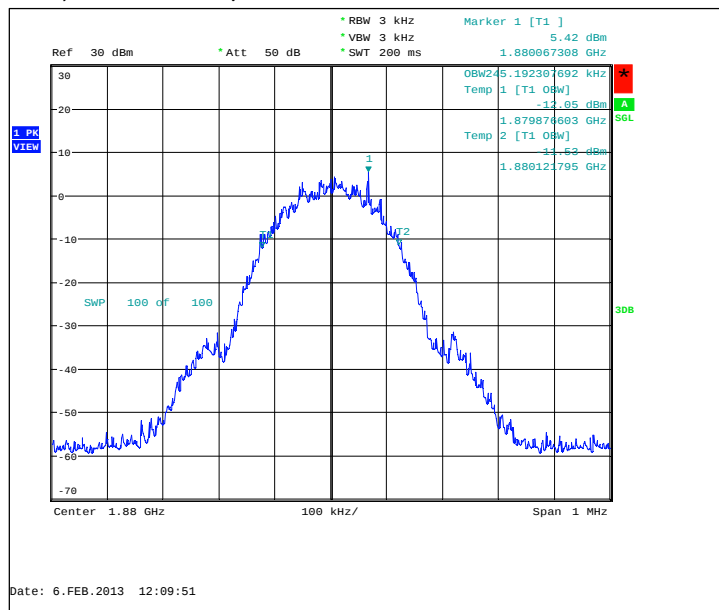
EGPRS, Channel 190 / 836.6 MHz



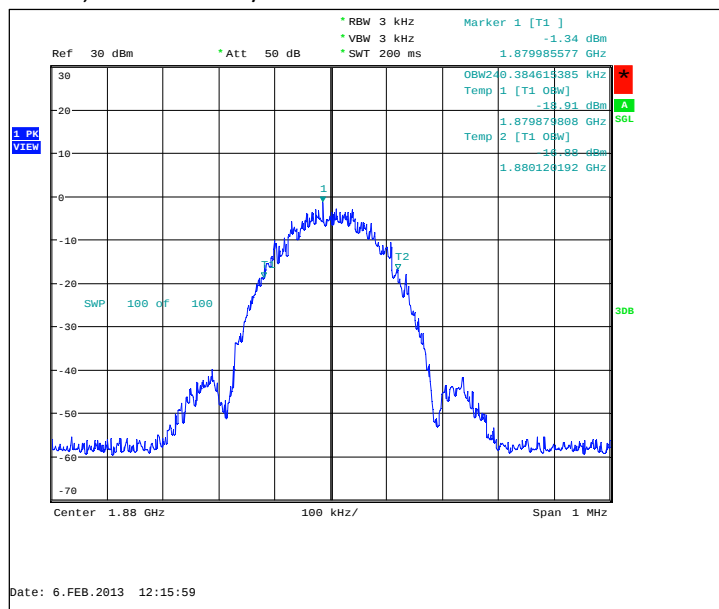
3.4. GSM 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	245.2
EGPRS	240.4

GSM, Channel 661 / 1880.0 MHz



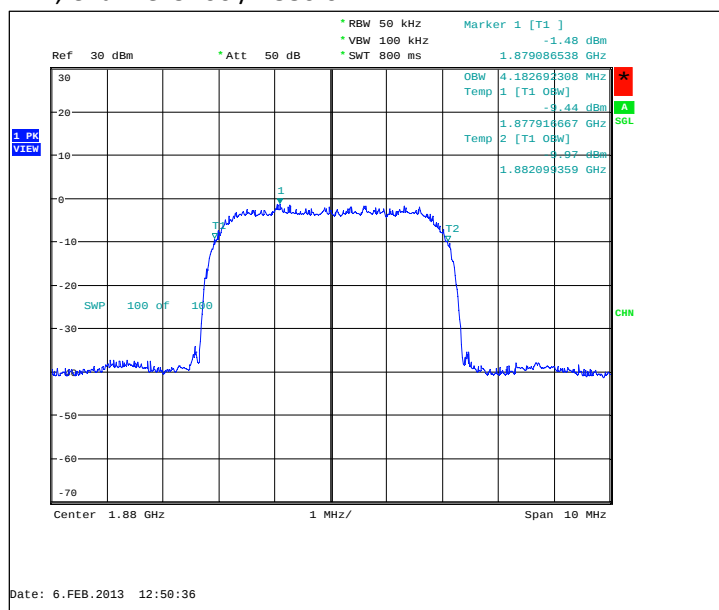
EGPRS, Channel 661 / 1880.0 MHz



3.5. WCDMA 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4182.7

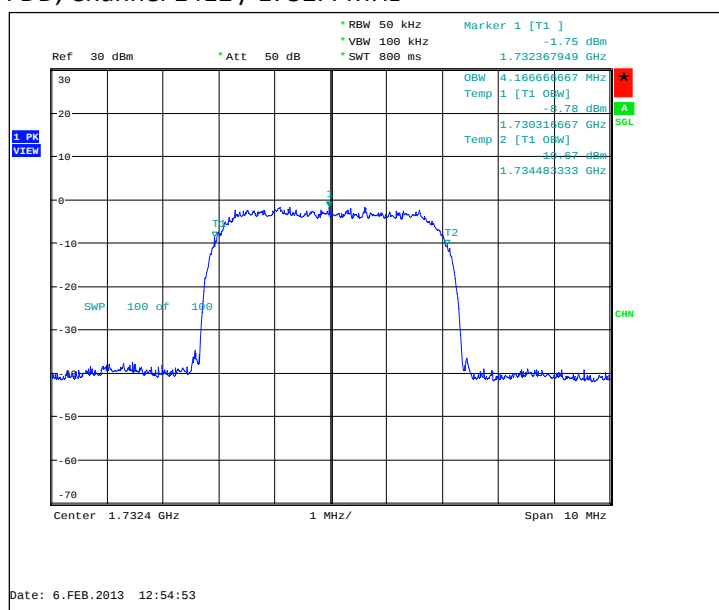
FDD, Channel 9400 / 1880.0 MHz



3.6. WCDMA 1700 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4166.7

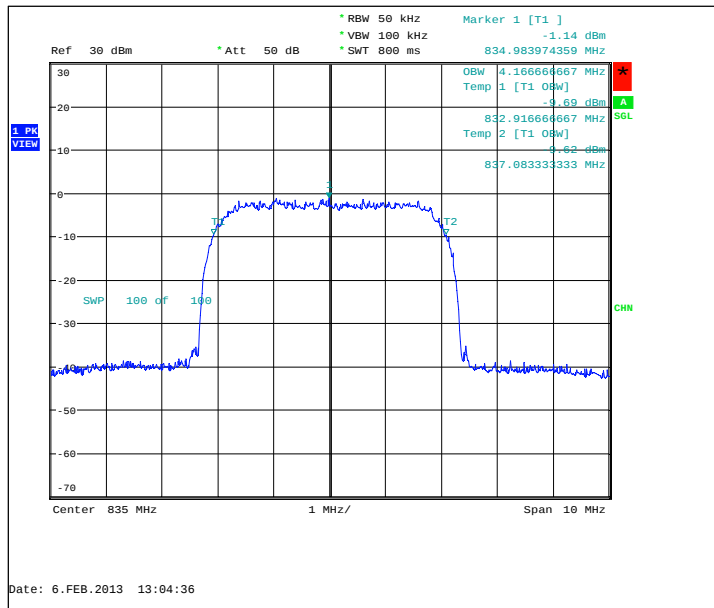
FDD, Channel 1412 / 1732.4 MHz



3.7. WCDMA 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4166.7

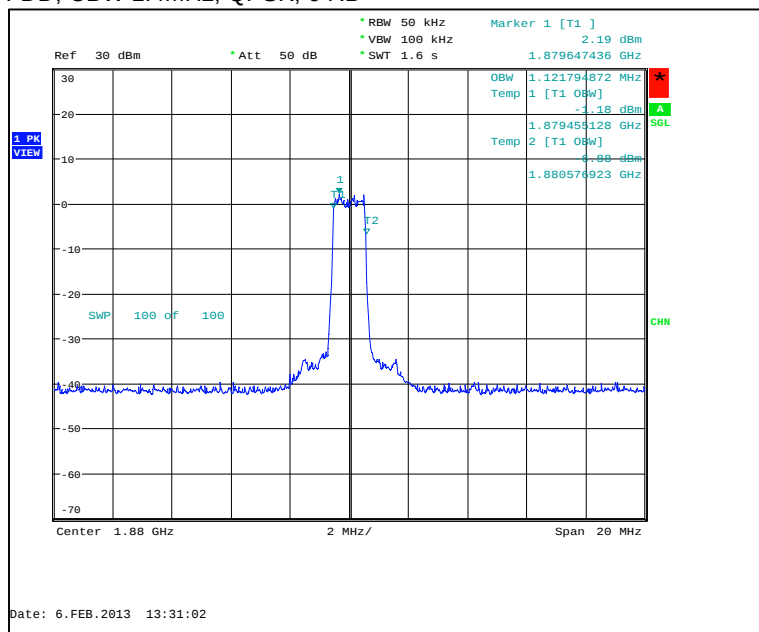
FDD, Channel 4175 / 835.0 MHz



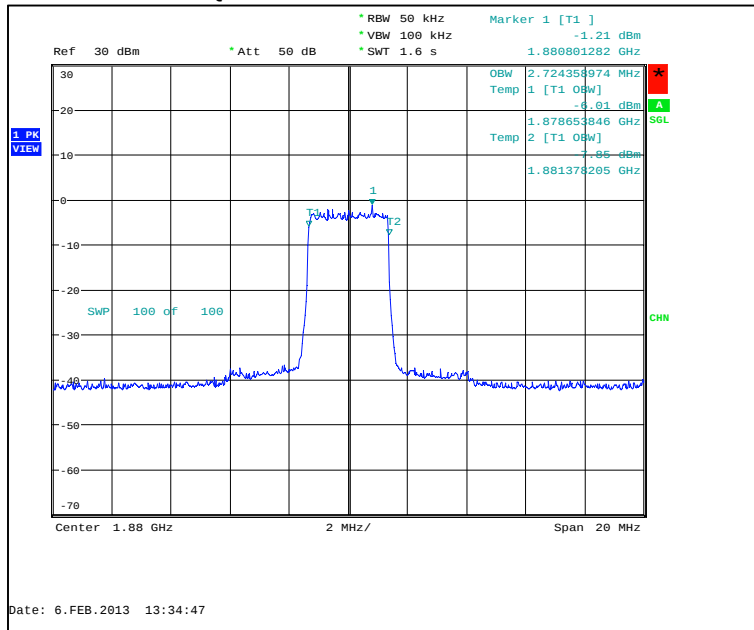
3.8. LTE1900 (Band 2) Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 1.4MHz, QPSK, 6 RB	1121.8
FDD, CBW 3MHz, QPSK, 15 RB	2724.4
FDD, CBW 5MHz, QPSK, 25 RB	4487.2
FDD, CBW 10MHz, QPSK, 50 RB	8910.3
FDD, CBW 15MHz, QPSK, 75 RB	13365.4
FDD, CBW 20MHz, QPSK, 100 RB	17852.6
FDD, CBW 1.4MHz, 16QAM, 6 RB	1121.8
FDD, CBW 3MHz, 16QAM, 15 RB	2692.3
FDD, CBW 5MHz, 16QAM, 25 RB	4487.2
FDD, CBW 10MHz, 16QAM, 50 RB	8942.3
FDD, CBW 15MHz, 16QAM, 75 RB	13397.4
FDD, CBW 20MHz, 16QAM, 100 RB	17852.6

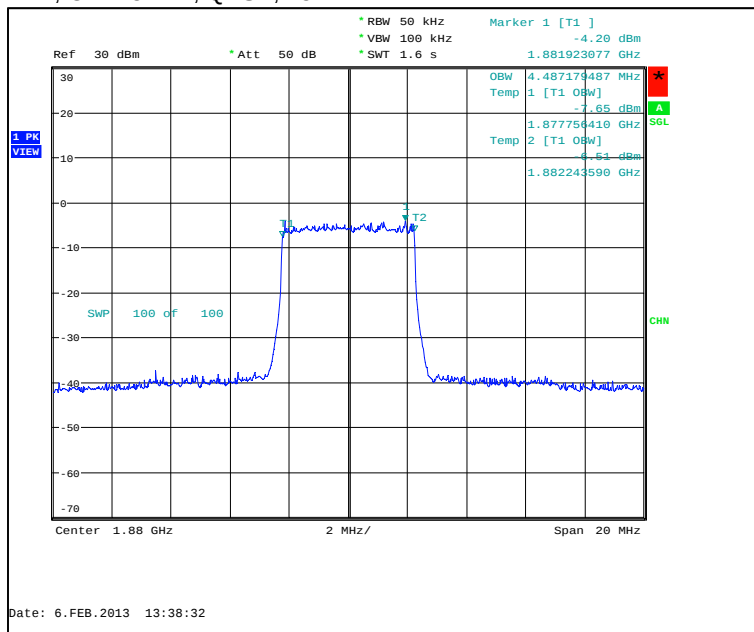
FDD, CBW 1.4MHz, QPSK, 6 RB



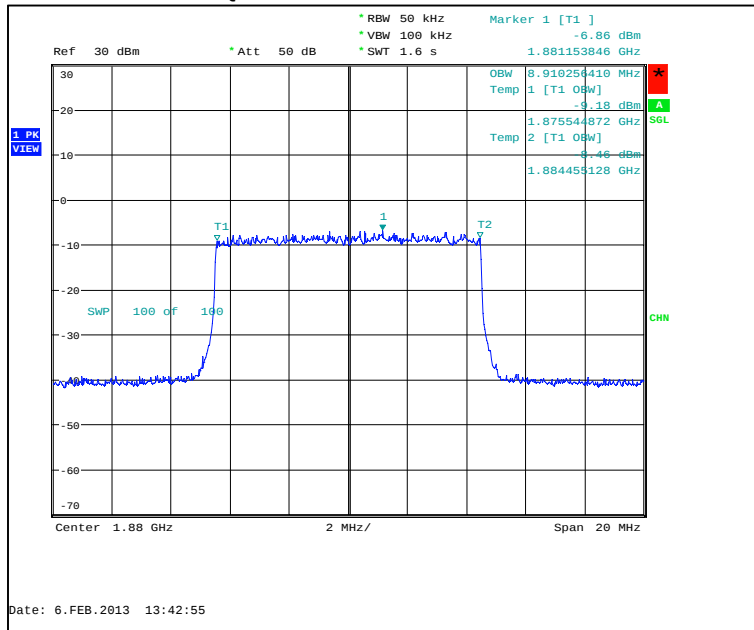
FDD, CBW 3MHz, QPSK, 15 RB



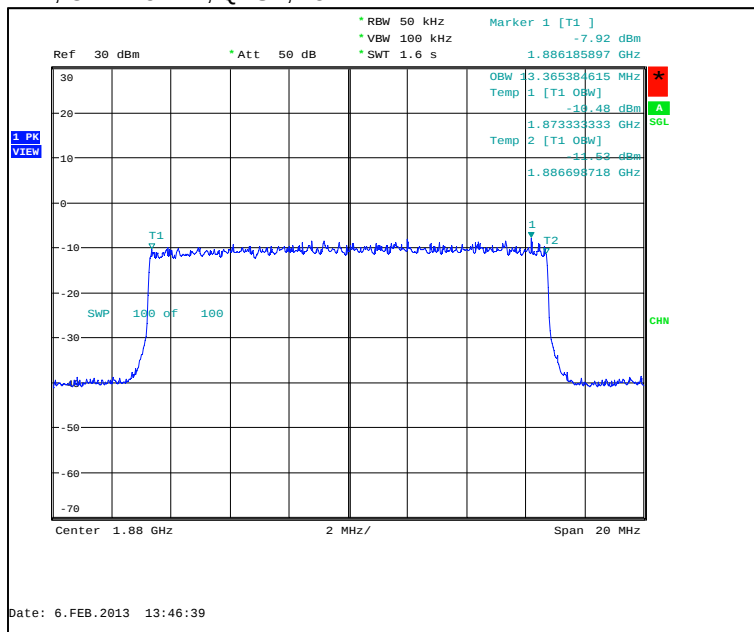
FDD, CBW 5MHz, QPSK, 25 RB



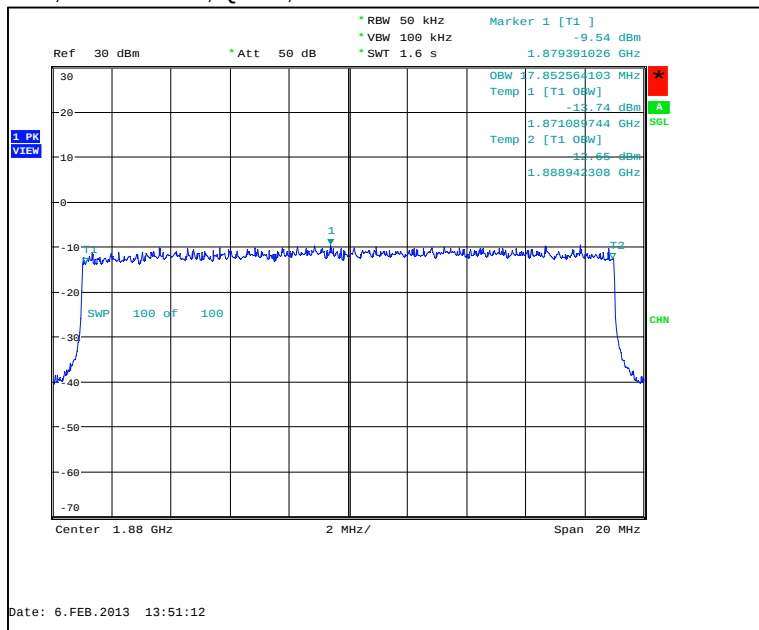
FDD, CBW 10MHz, QPSK, 50 RB



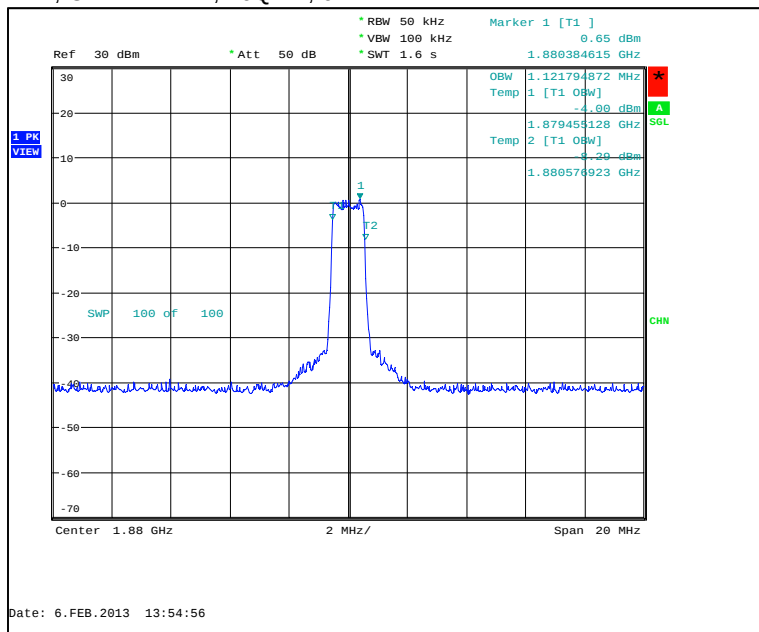
FDD, CBW 15MHz, QPSK, 75 RB



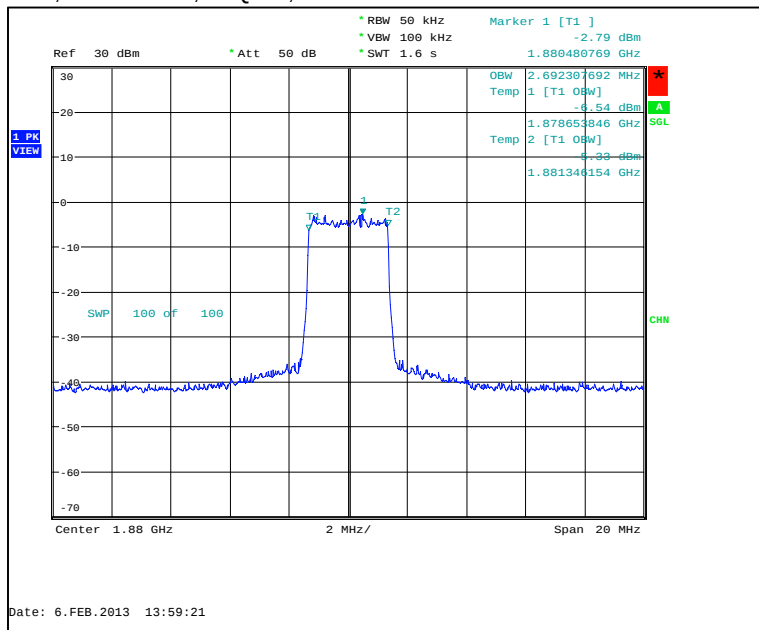
FDD, CBW 20MHz, QPSK, 100 RB



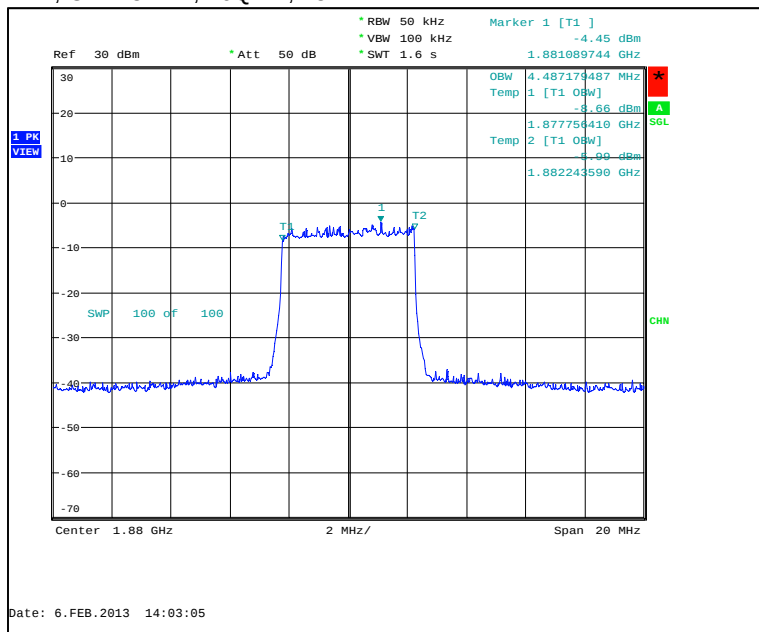
FDD, CBW 1.4MHz, 16QAM, 6 RB



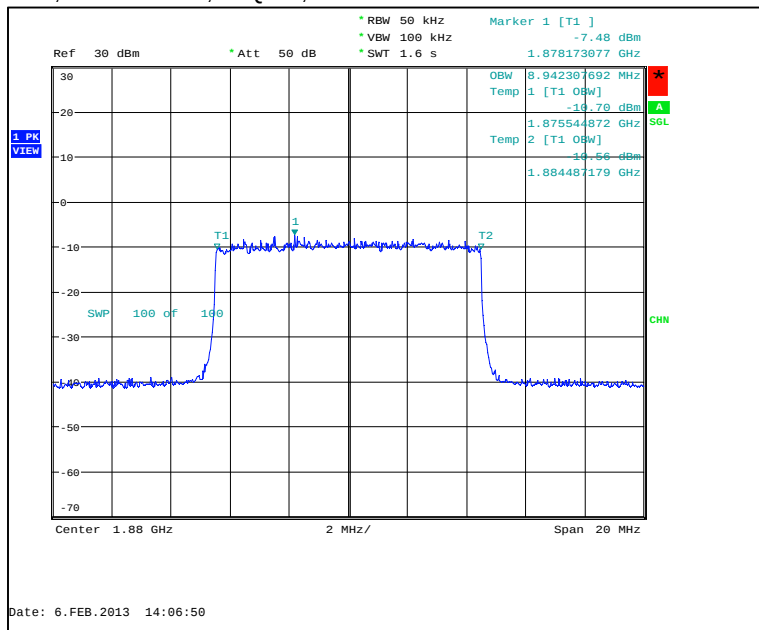
FDD, CBW 3MHz, 16QAM, 15 RB



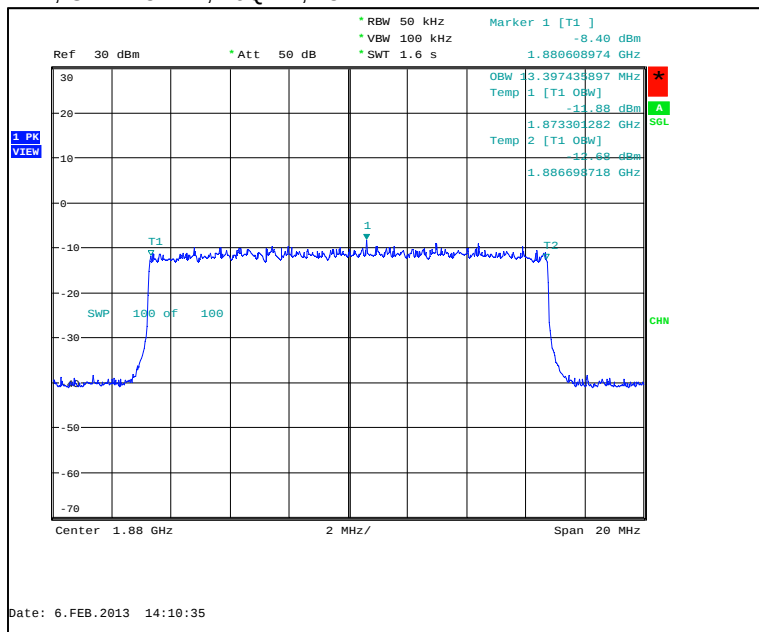
FDD, CBW 5MHz, 16QAM, 25 RB



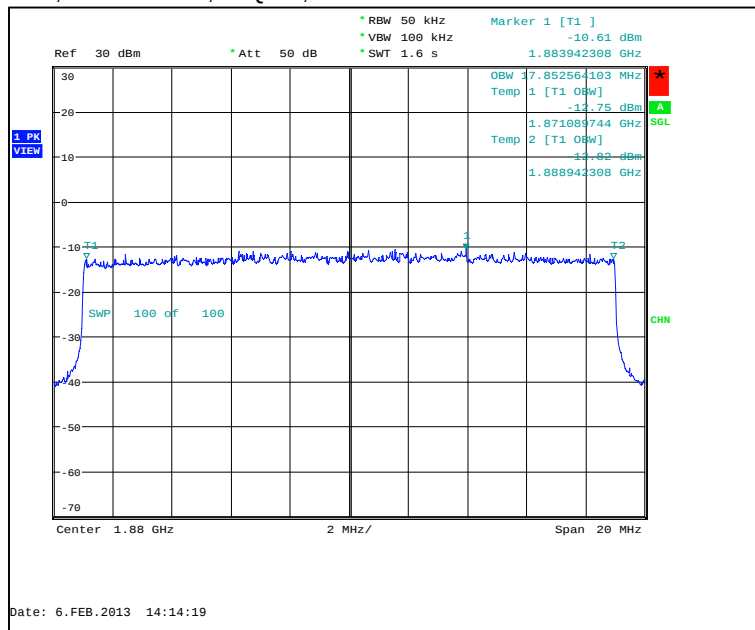
FDD, CBW 10MHz, 16QAM, 50 RB



FDD, CBW 15MHz, 16QAM, 75 RB



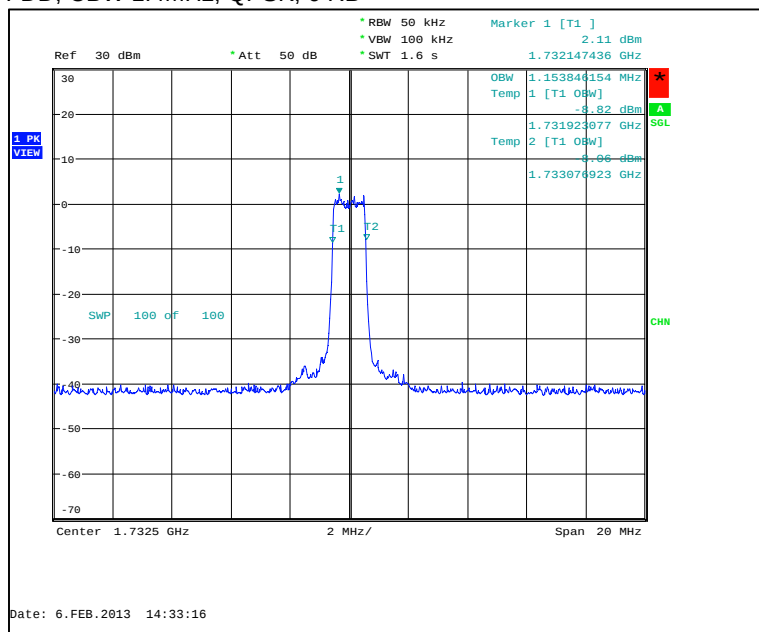
FDD, CBW 20MHz, 16QAM, 100 RB



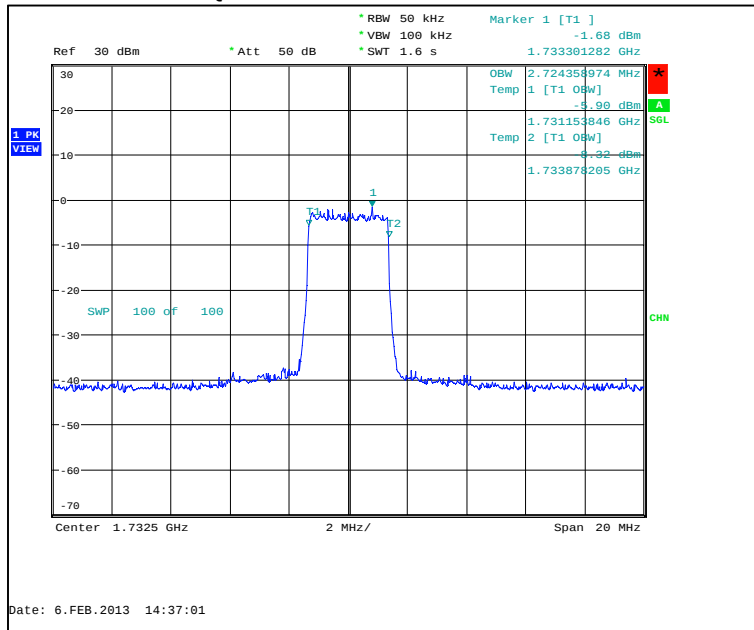
3.9. LTE1700 (Band 4) Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 1.4MHz, QPSK, 6 RB	1153.8
FDD, CBW 3MHz, QPSK, 6 RB	2724.4
FDD, CBW 5MHz, QPSK, 15 RB	4487.2
FDD, CBW 10MHz, QPSK, 25 RB	8942.3
FDD, CBW 15MHz, QPSK, 75 RB	13365.4
FDD, CBW 20MHz, QPSK, 75 RB	17852.6
FDD, CBW 1.4MHz, 16QAM, INV RB	1121.8
FDD, CBW 3MHz, 16QAM, 6 RB	2692.3
FDD, CBW 5MHz, 16QAM, 15 RB	4487.2
FDD, CBW 10MHz, 16QAM, 25 RB	8974.4
FDD, CBW 15MHz, 16QAM, 50 RB	13429.5
FDD, CBW 20MHz, 16QAM, INV RB	17852.6

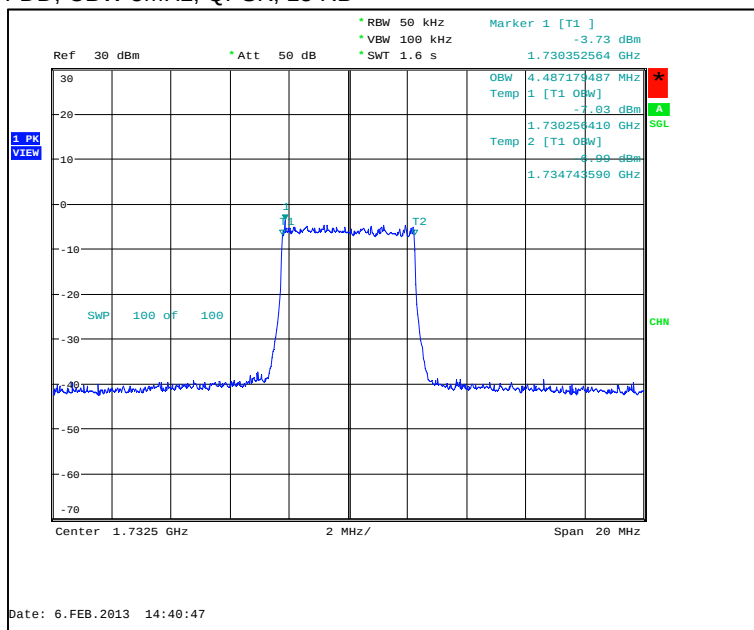
FDD, CBW 1.4MHz, QPSK, 6 RB



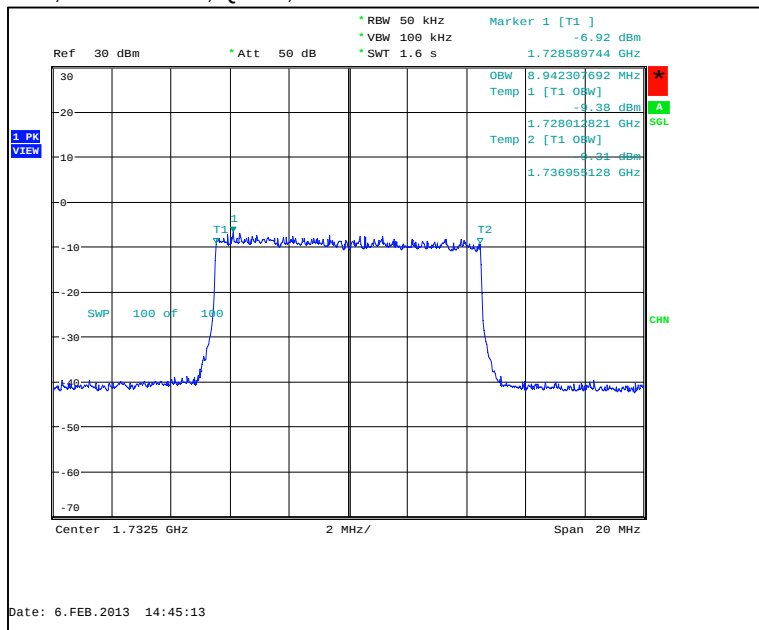
FDD, CBW 3MHz, QPSK, 6 RB



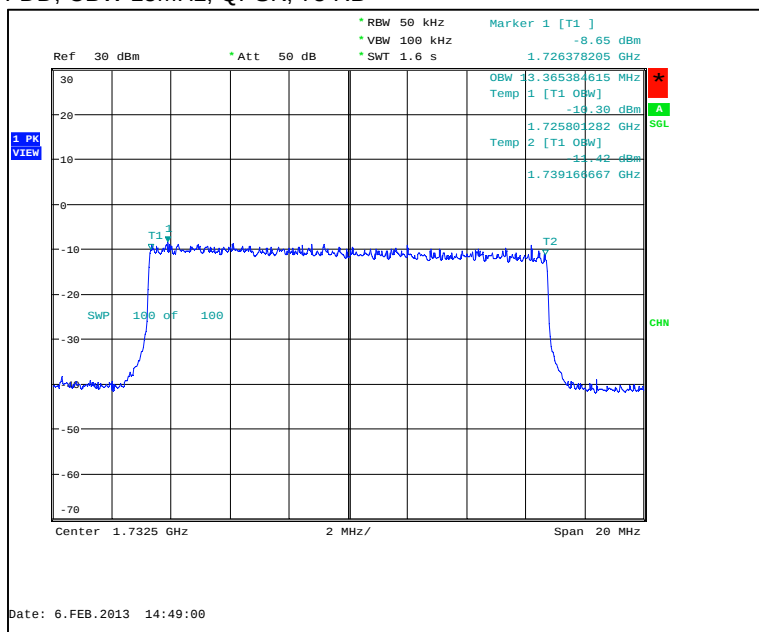
FDD, CBW 5MHz, QPSK, 15 RB



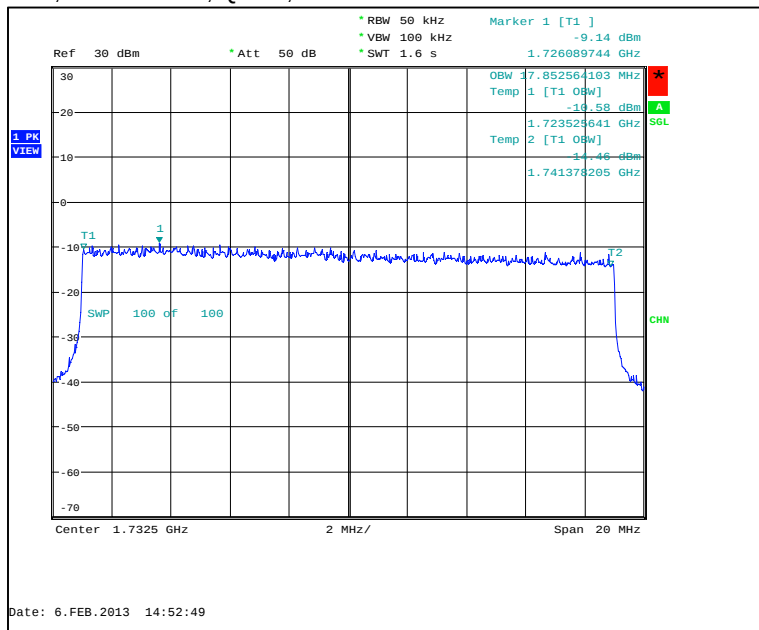
FDD, CBW 10MHz, QPSK, 25 RB



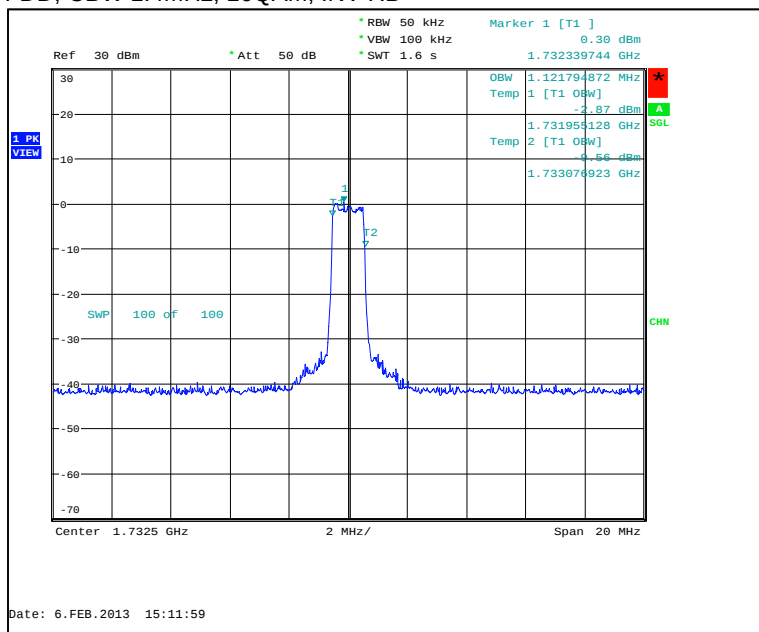
FDD, CBW 15MHz, QPSK, 75 RB



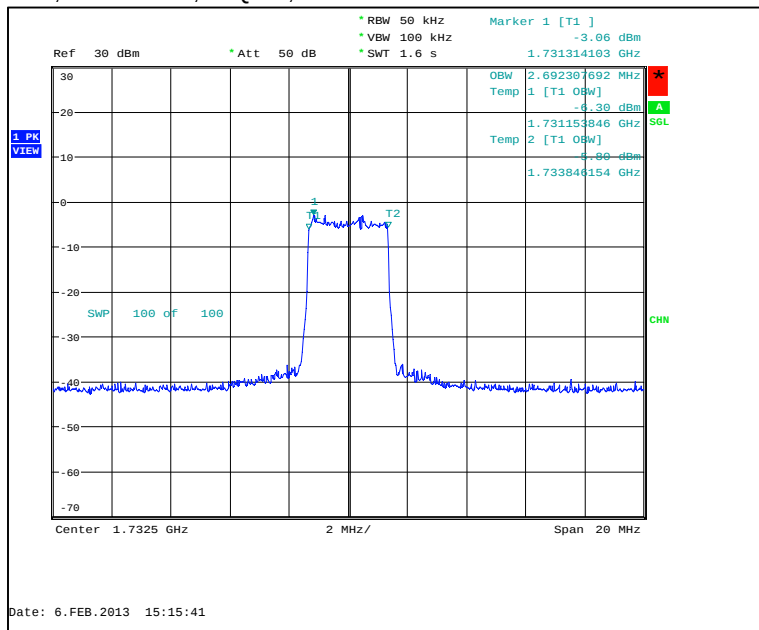
FDD, CBW 20MHz, QPSK, 75 RB



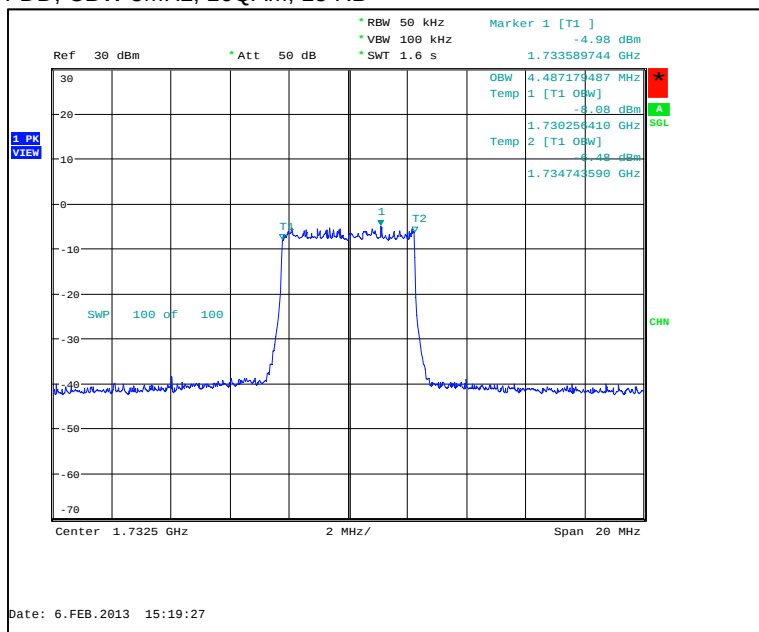
FDD, CBW 1.4MHz, 16QAM, INV RB



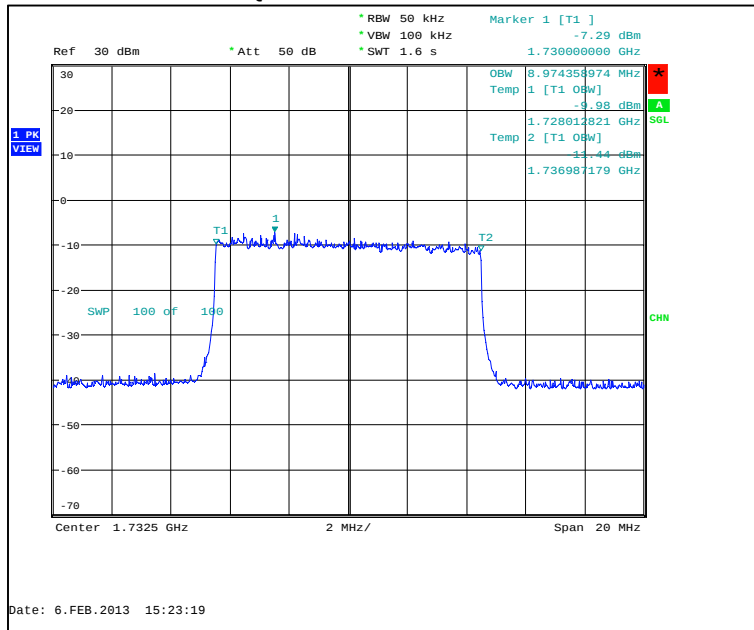
FDD, CBW 3MHz, 16QAM, 6 RB



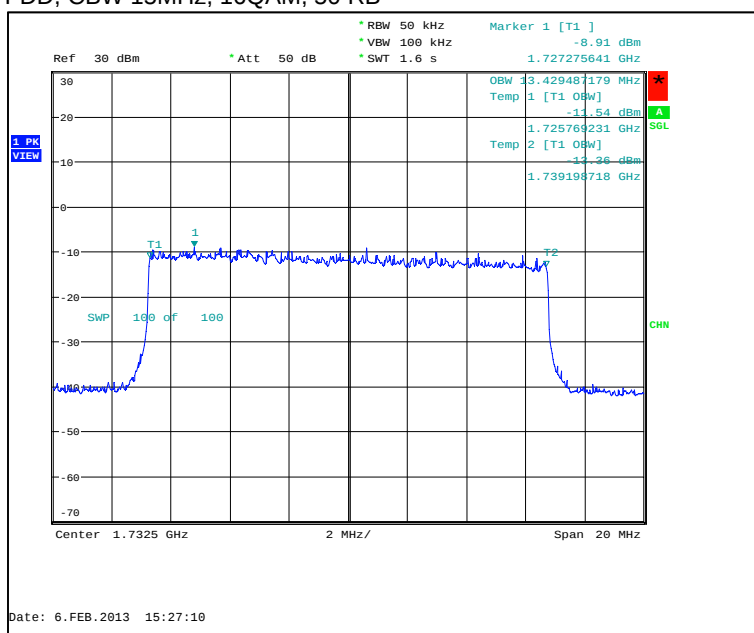
FDD, CBW 5MHz, 16QAM, 15 RB



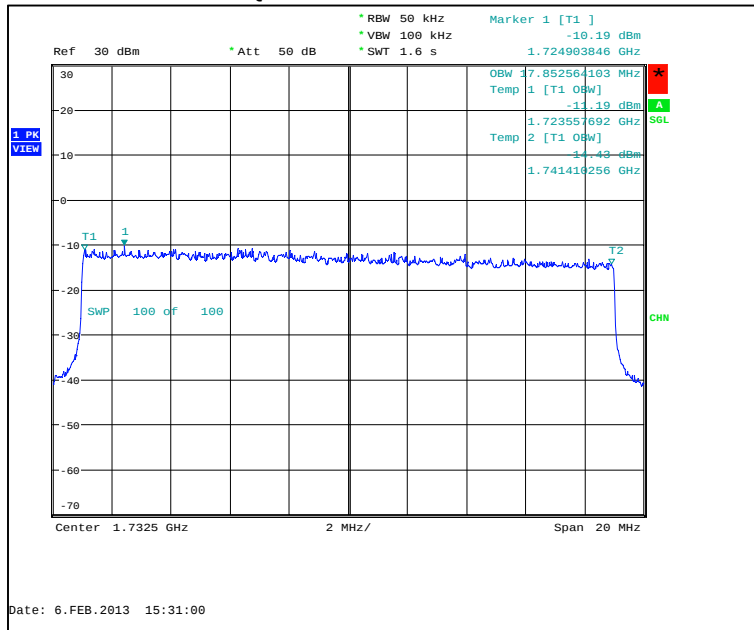
FDD, CBW 10MHz, 16QAM, 25 RB



FDD, CBW 15MHz, 16QAM, 50 RB



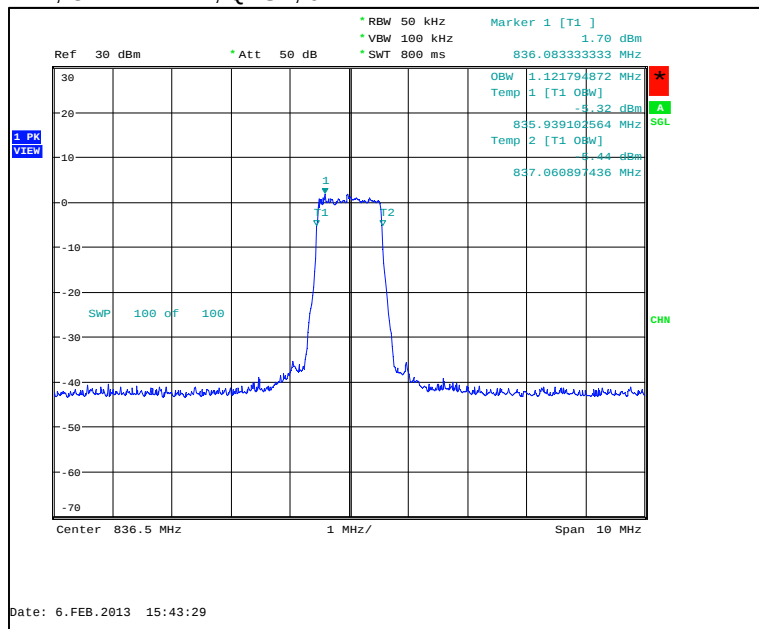
FDD, CBW 20MHz, 16QAM, INV RB



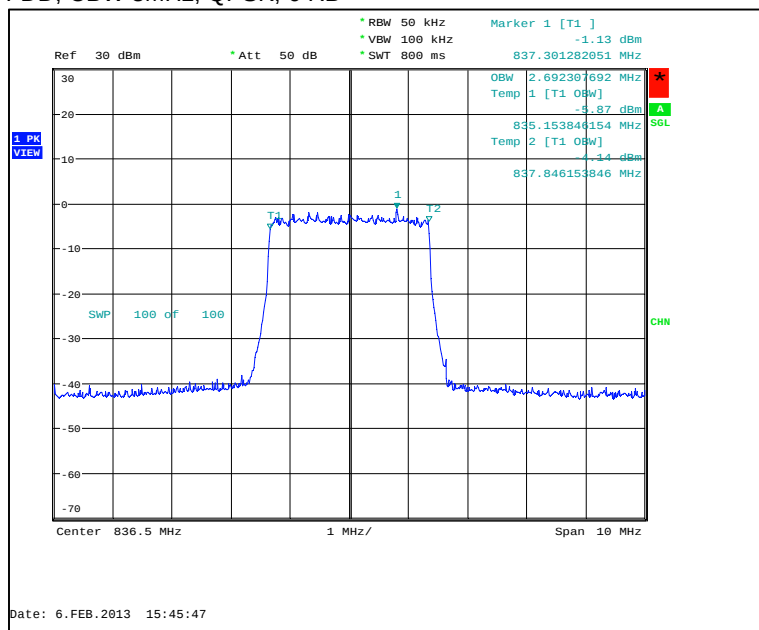
3.10. LTE850 (Band 5) Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 1.4MHz, QPSK, 6 RB	1121.8
FDD, CBW 3MHz, QPSK, 6 RB	2692.3
FDD, CBW 5MHz, QPSK, 15 RB	4487.2
FDD, CBW 10MHz, QPSK, 25 RB	8910.3
FDD, CBW 1.4MHz, 16QAM, INV RB	1121.8
FDD, CBW 3MHz, 16QAM, 6 RB	2692.3
FDD, CBW 5MHz, 16QAM, 15 RB	4471.2
FDD, CBW 10MHz, 16QAM, 25 RB	8926.3

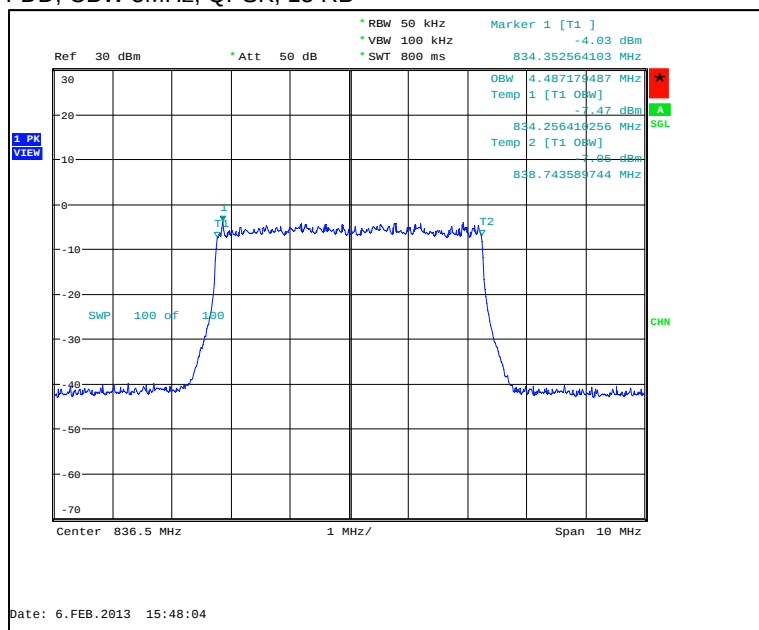
FDD, CBW 1.4MHz, QPSK, 6 RB



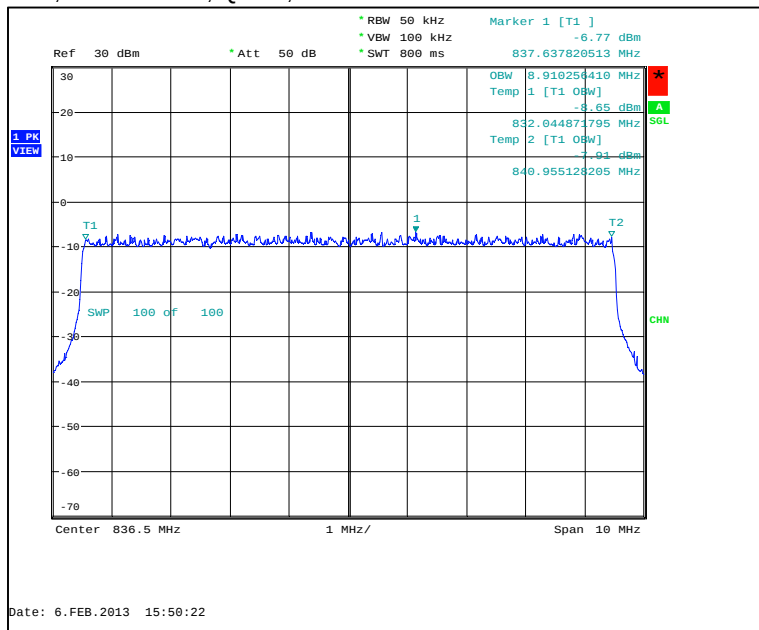
FDD, CBW 3MHz, QPSK, 6 RB



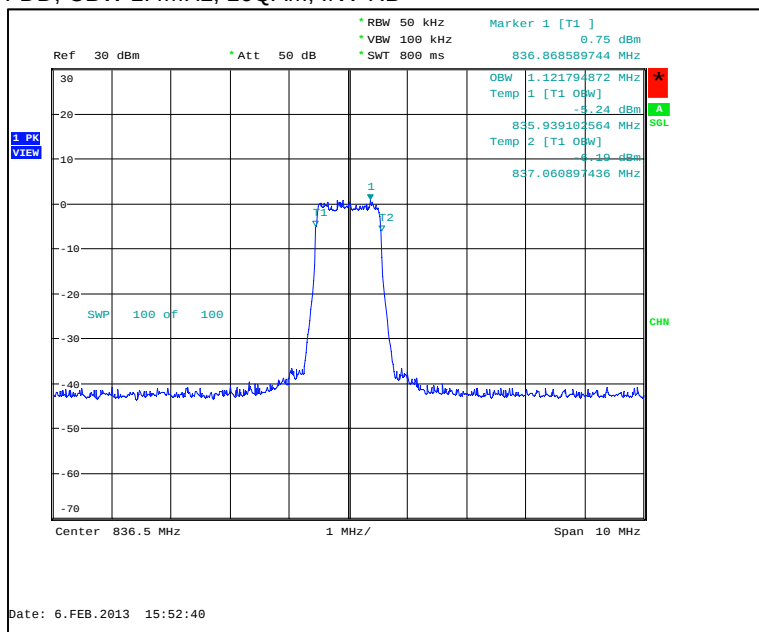
FDD, CBW 5MHz, QPSK, 15 RB



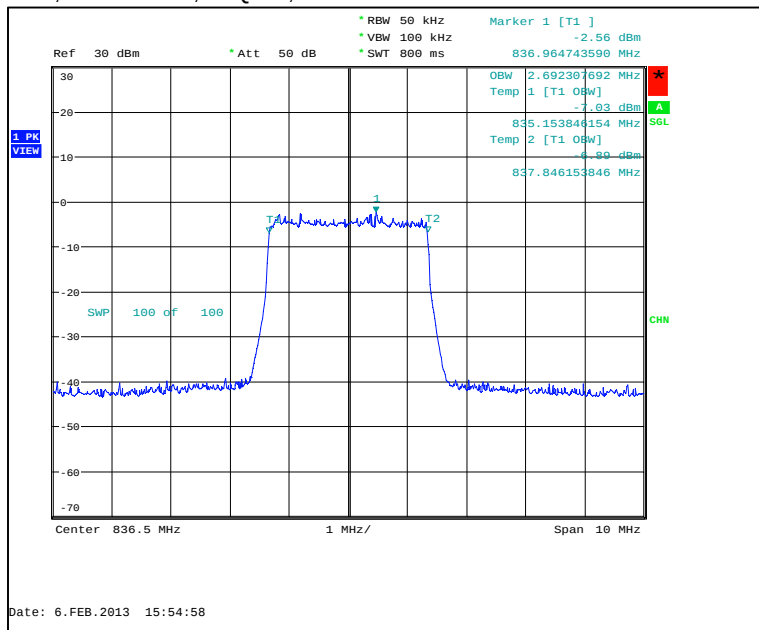
FDD, CBW 10MHz, QPSK, 25 RB



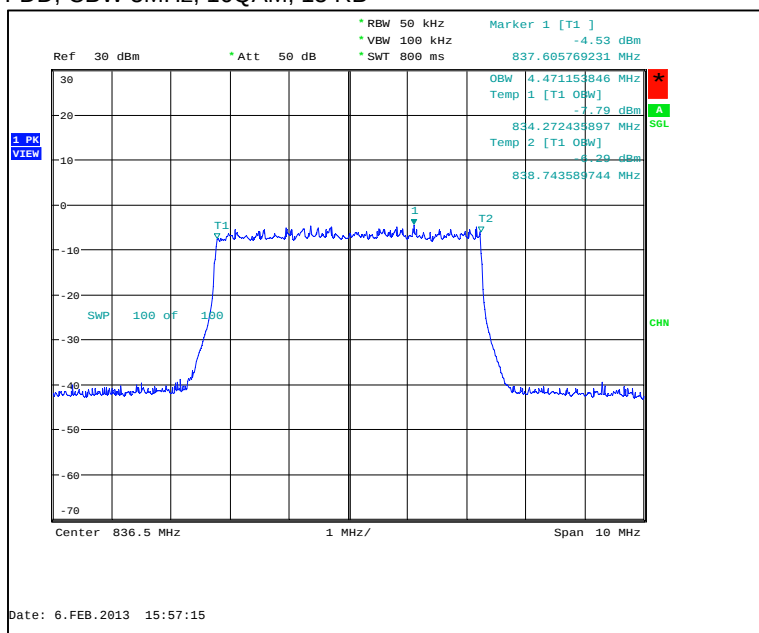
FDD, CBW 1.4MHz, 16QAM, INV RB



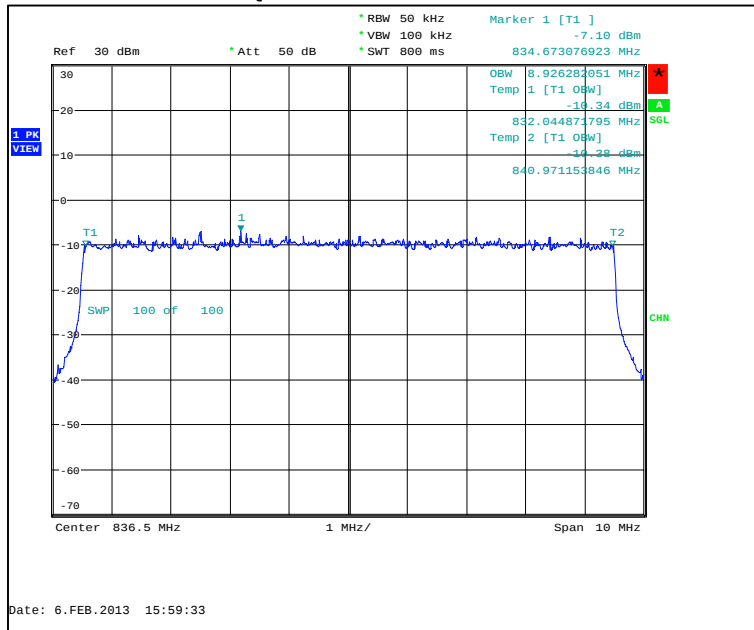
FDD, CBW 3MHz, 16QAM, 6 RB



FDD, CBW 5MHz, 16QAM, 15 RB



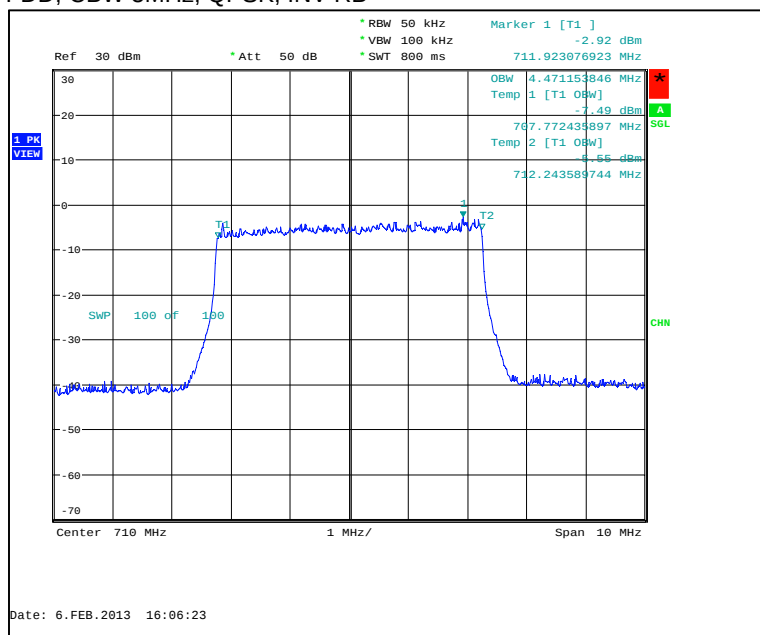
FDD, CBW 10MHz, 16QAM, 25 RB



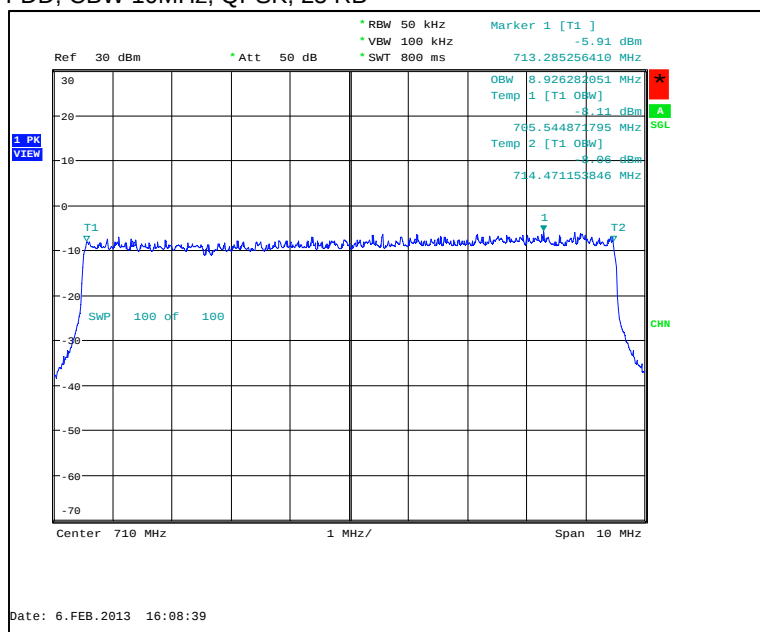
3.11. LTE700 Lower (Band 17) Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 5MHz, QPSK, INV RB	4471.2
FDD, CBW 10MHz, QPSK, 25 RB	8926.3
FDD, CBW 5MHz, 16QAM, INV RB	4471.2
FDD, CBW 10MHz, 16QAM, 25 RB	8926.3

FDD, CBW 5MHz, QPSK, INV RB



FDD, CBW 10MHz, QPSK, 25 RB

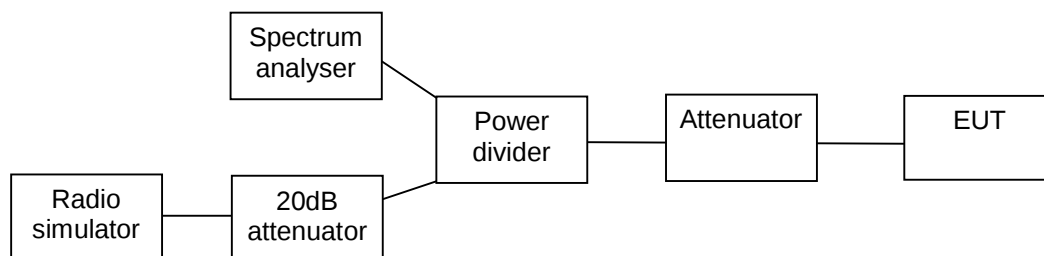


4. Band edge compliance

(FCC §22.917(a), §24.238(a), §27.53(g), §27.53(h), §27.53(c)(2)(4), §27.53(g), RSS-132 4.5, RSS-133 6.5, RSS-139 6.5)

EUT with DUT number	RM-877, DUT 42970
Accessories with DUT numbers	BV-5XW, DUT 42971; AC-60U, DUT 42973; CA-190CD, DUT42977; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 37 / 99
Date of measurements	06-Feb-2013
Measured by	Timo Raiskio

4.1. Test Setup



4.2. Test method and limit

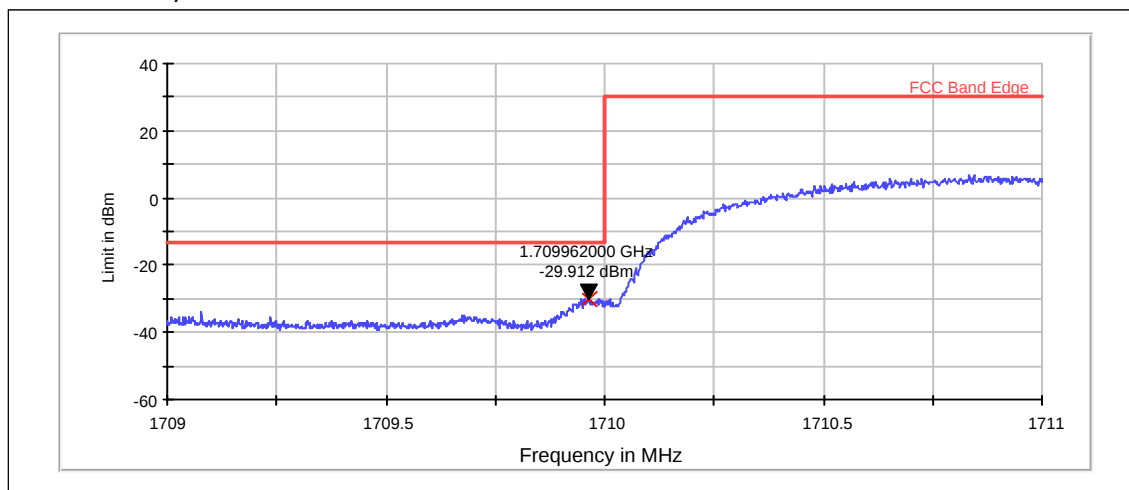
The measurement is made according to FCC rules parts 22, 24, 27 and IC standards , RSS-132, RSS-133, RSS-139.

Limits for band edge compliance measurements

Operation band	Frequency range [MHz]	Limit [dBm]
LTE 700 Lower	703.9 – 704 and 716 – 716.1 Below 703.9 and above 716.1	-13 (RBW = 30 kHz, ERP) -13 (RBW = 30 kHz, ERP)
GSM850 / WCDMA850 / LTE850	Below 824 and above 849	-13
WCDMA1700 / LTE1700	Below 1710 and above 1755	-13
GSM1900 / LTE1900 / WCDMA1900	Below 1850 and above 1910	-13

4.3. WCDMA 1700 Test results

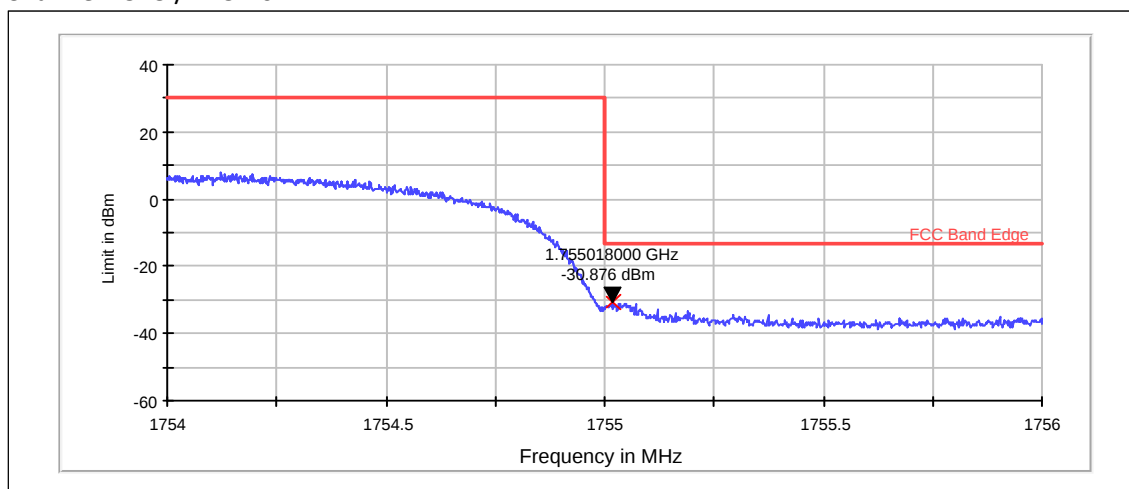
Channel 1312 / 1712.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1709.962	-29.91	PASSED

Channel 1513 / 1752.6 MHz

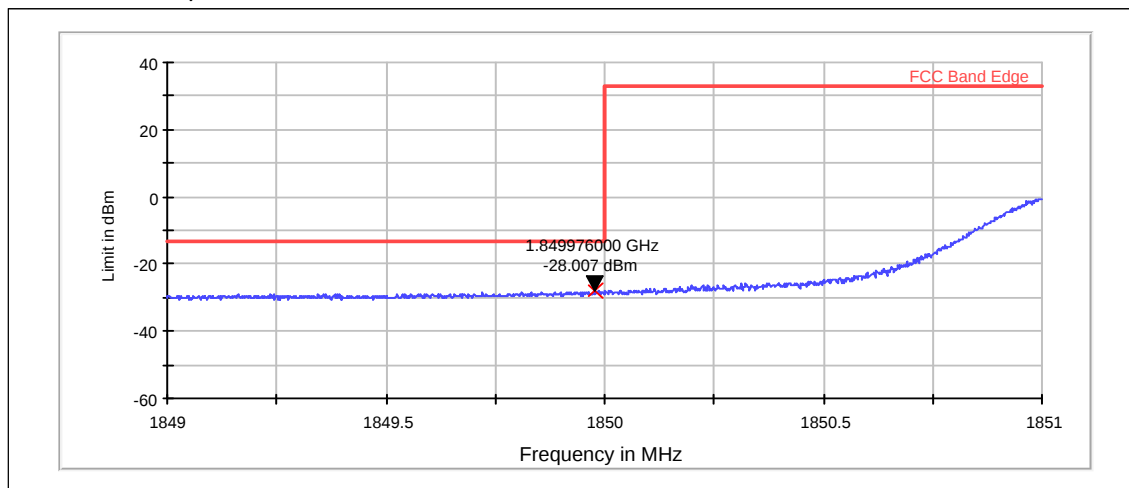


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1755.018	-30.88	PASSED

4.4. LTE1900 (Band 2) Test results

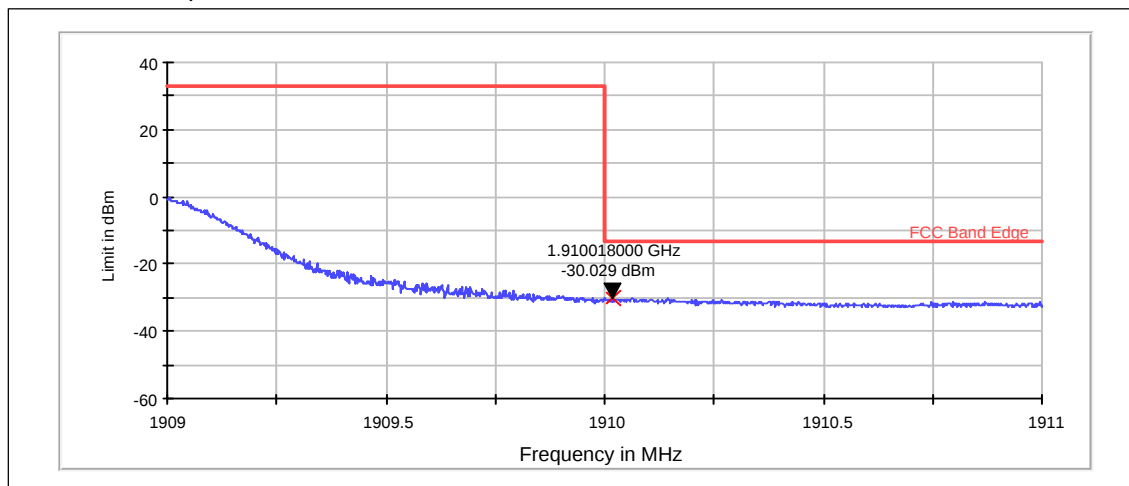
Channel 18700 / 1860 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1849.976	-28.01	PASSED

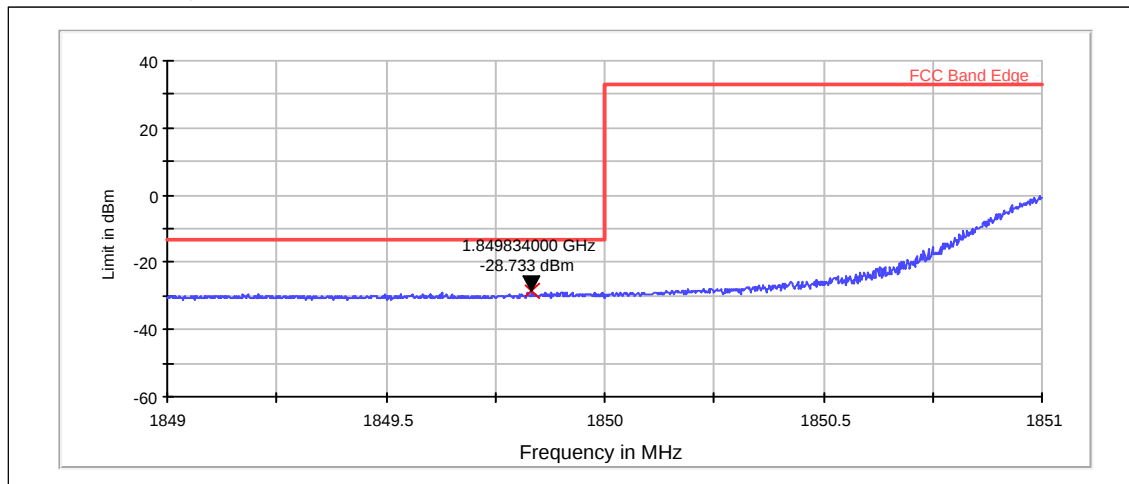
Channel 19100 / 1900 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1910.018	-30.03	PASSED

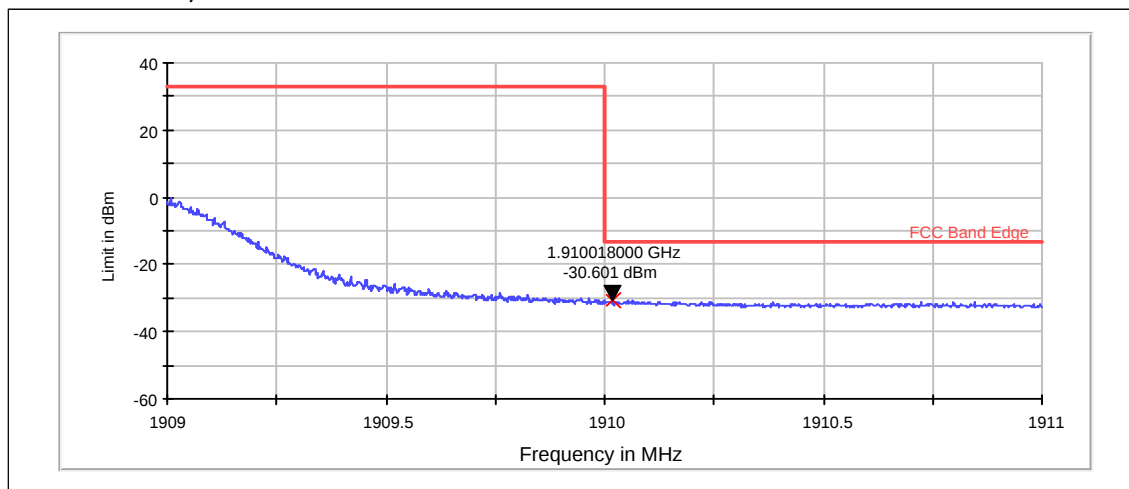
Channel 18700 / 1860 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1849.834	-28.73	PASSED

Channel 19100 / 1900 MHz

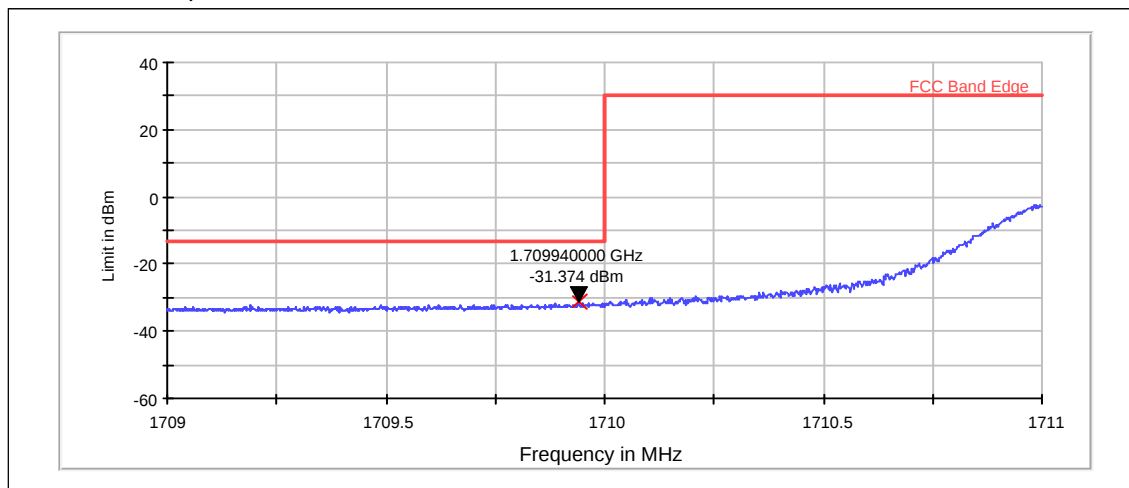


RMS (RBW: 200 kHz, VBW: 200 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1910.018	-30.60	PASSED

4.5. LTE1700 (Band 4) Test results

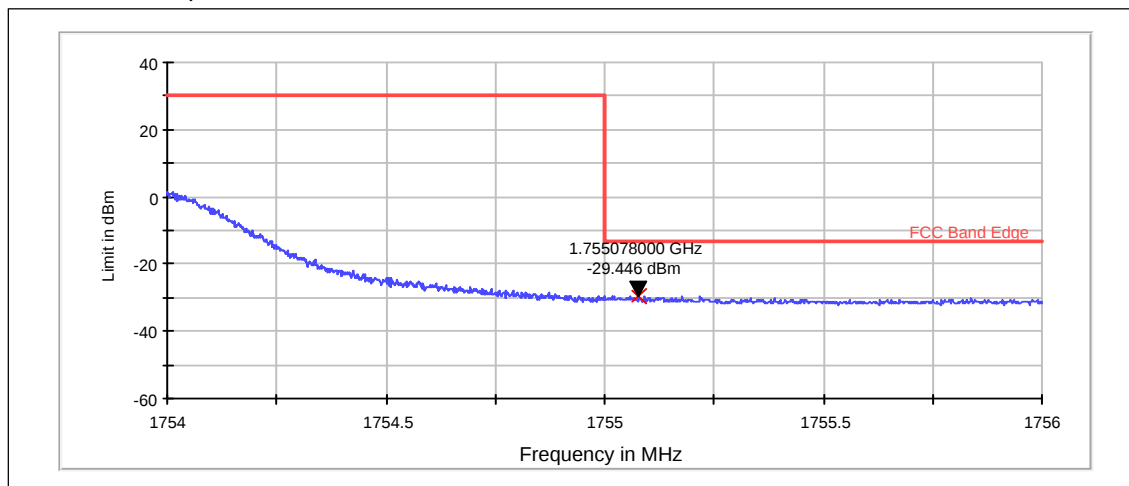
Channel 20050 / 1720 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1709.940	-31.37	PASSED

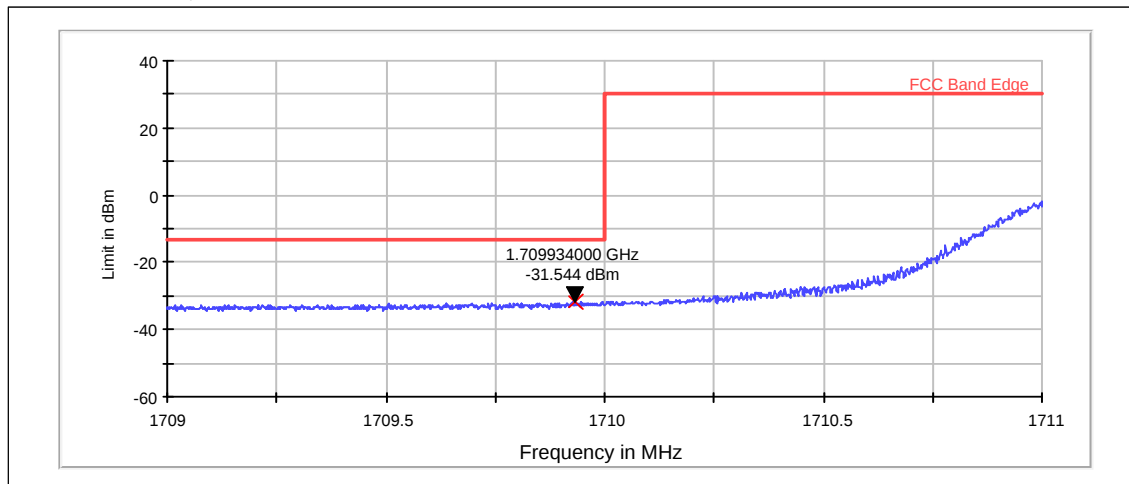
Channel 20300 / 1745 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1755.078	-29.45	PASSED

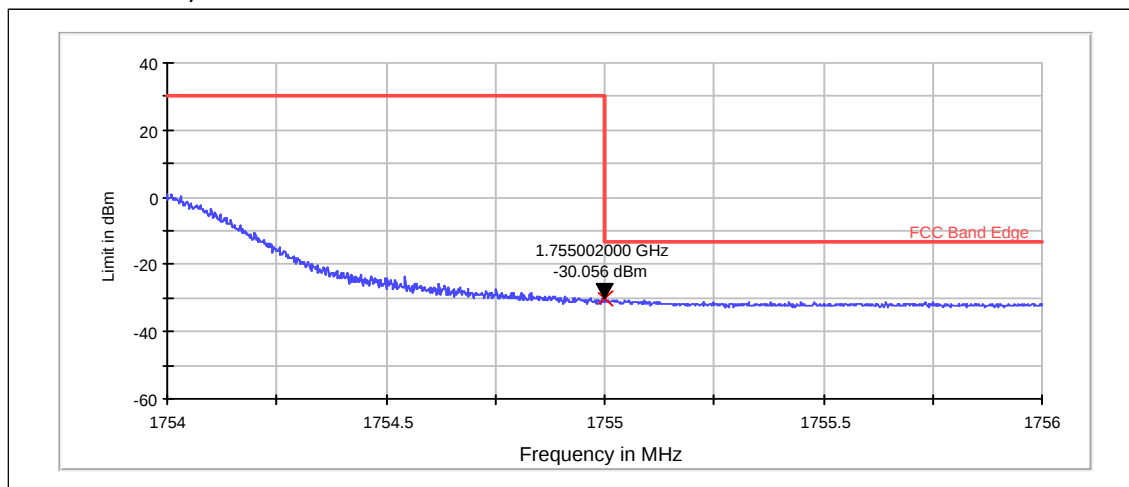
Channel 20050 / 1720 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1709.934	-31.54	PASSED

Channel 20300 / 1745 MHz

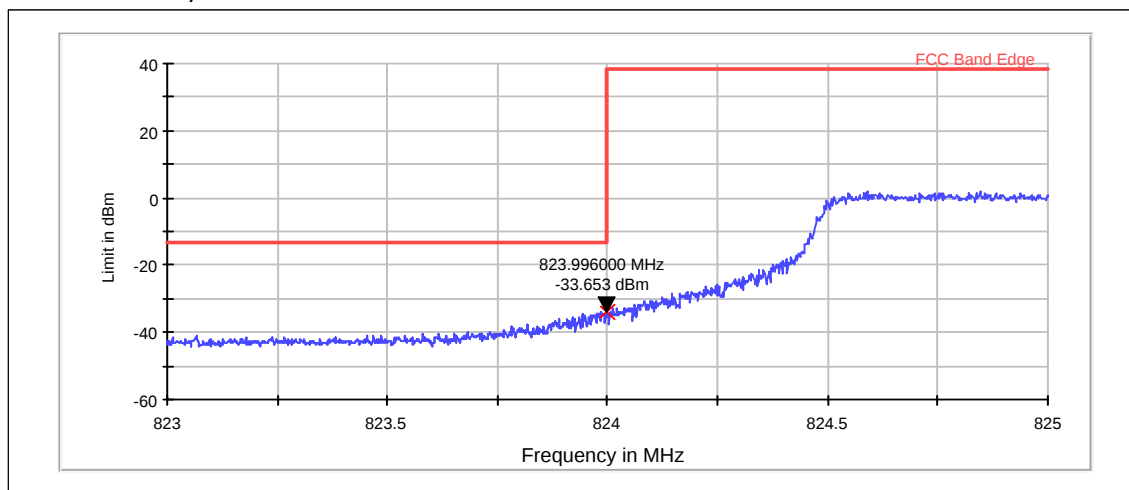


RMS (RBW: 200 kHz, VBW: 200 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1755.002	-30.06	PASSED

4.6. LTE850 (Band 5) Test results

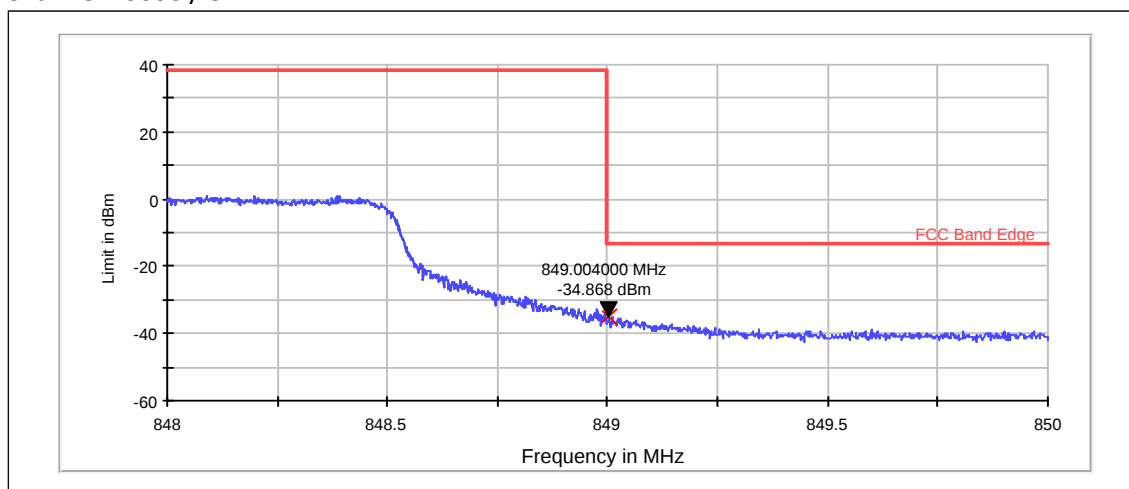
Channel 20450 / 829 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	823.996	-33.65	PASSED

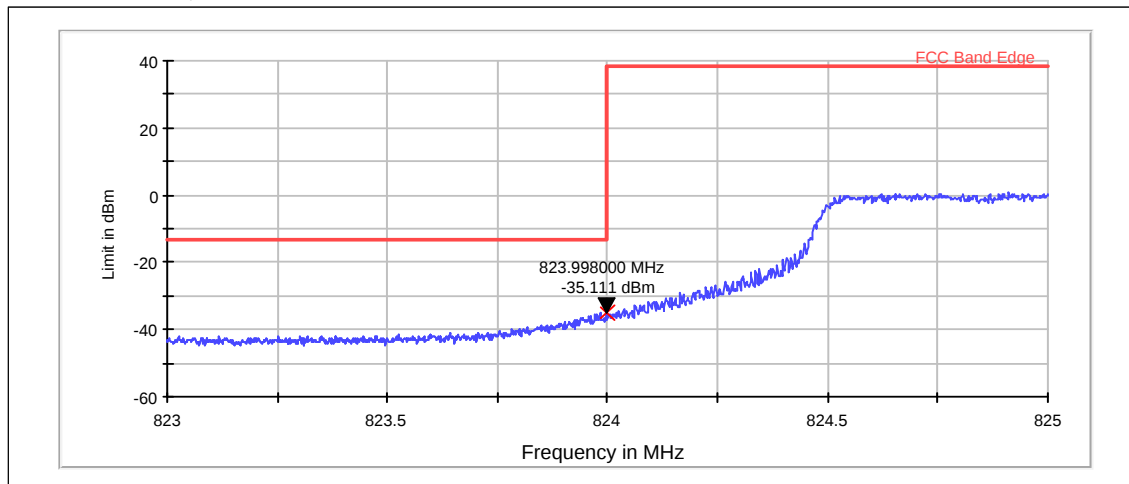
Channel 20600 / 844 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	849.004	-34.87	PASSED

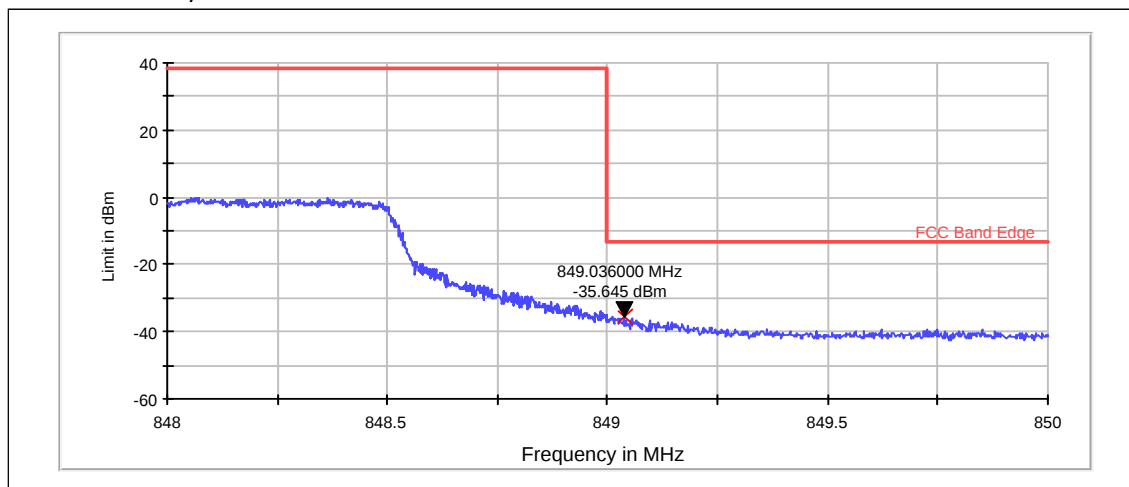
Channel 20450 / 829 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	823.998	-35.11	PASSED

Channel 20600 / 844 MHz

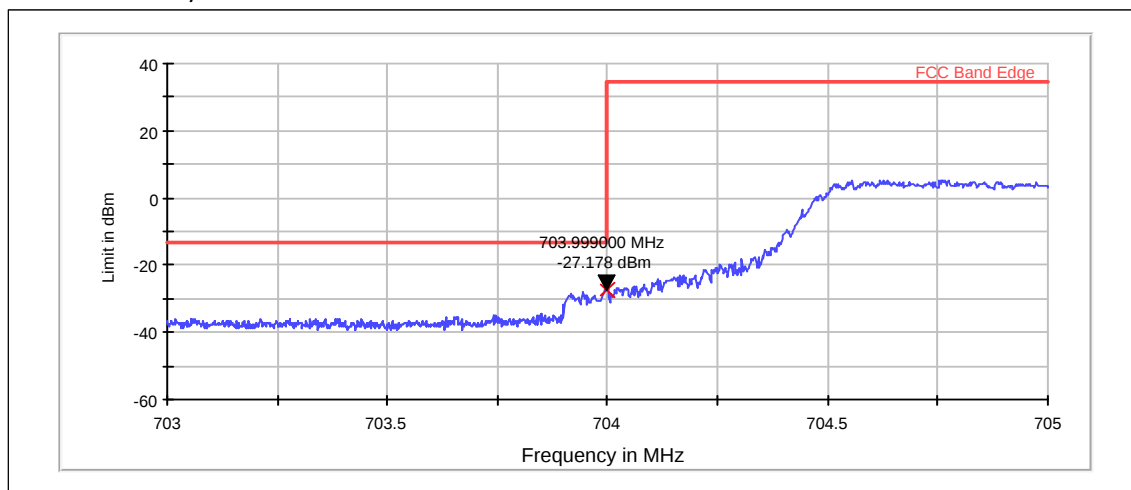


RMS (RBW: 50 kHz, VBW: 50 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	849.036	-35.65	PASSED

4.7. LTE700 Lower (Band 17) Test results

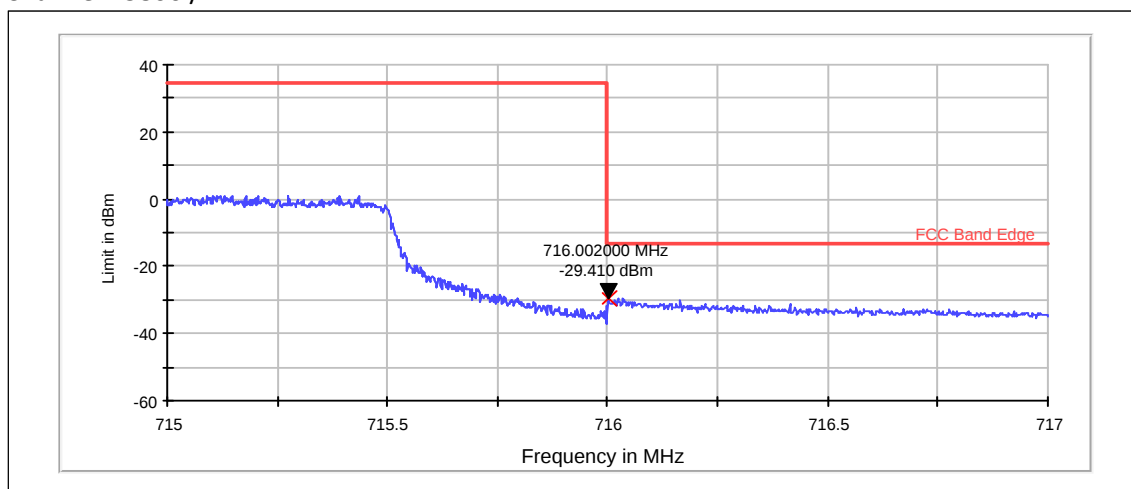
Channel 23780 / 709 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	703.999	-27.18	PASSED

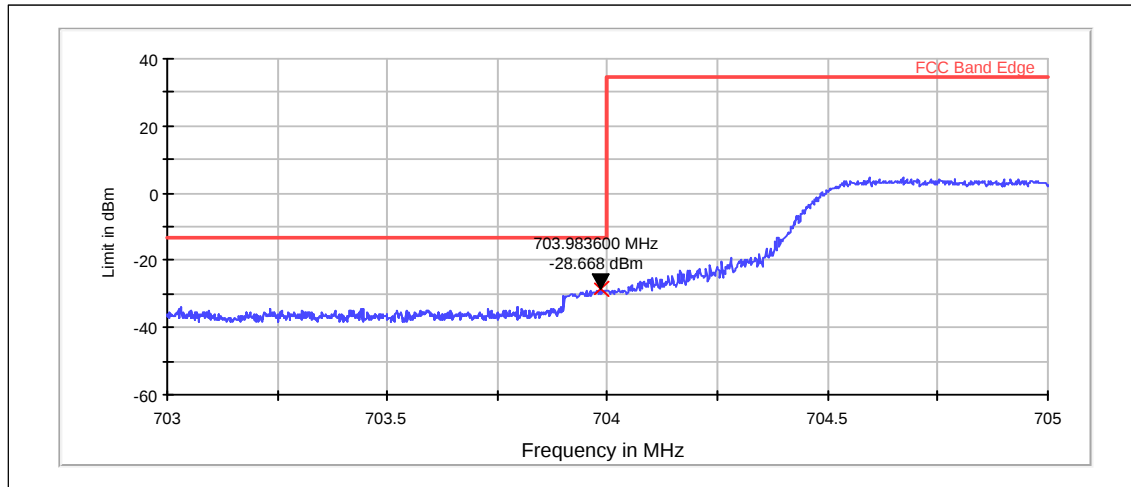
Channel 23800 / 711 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	716.002	-29.41	PASSED

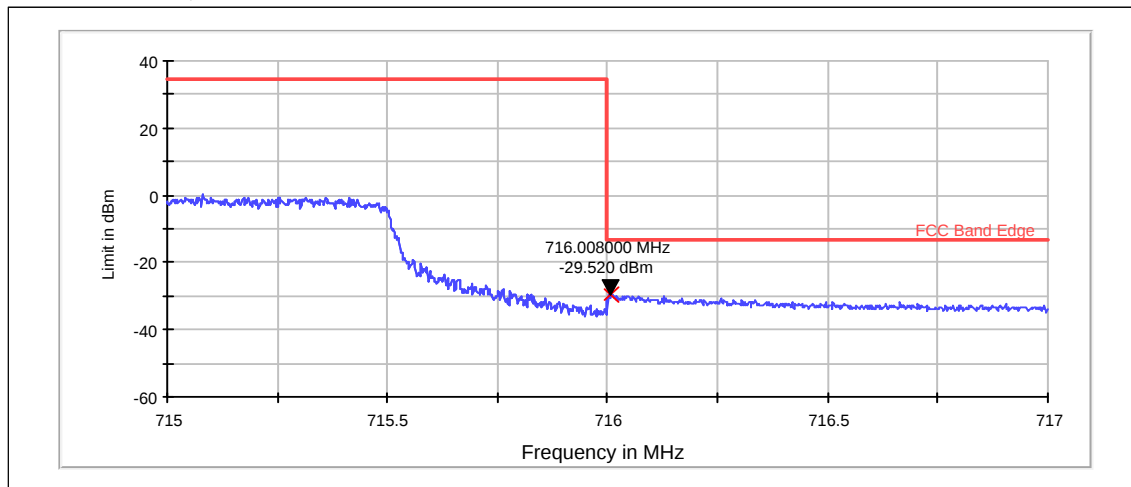
Channel 23780 / 709 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	703.984	-28.67	PASSED

Channel 23800 / 711 MHz



RMS detector

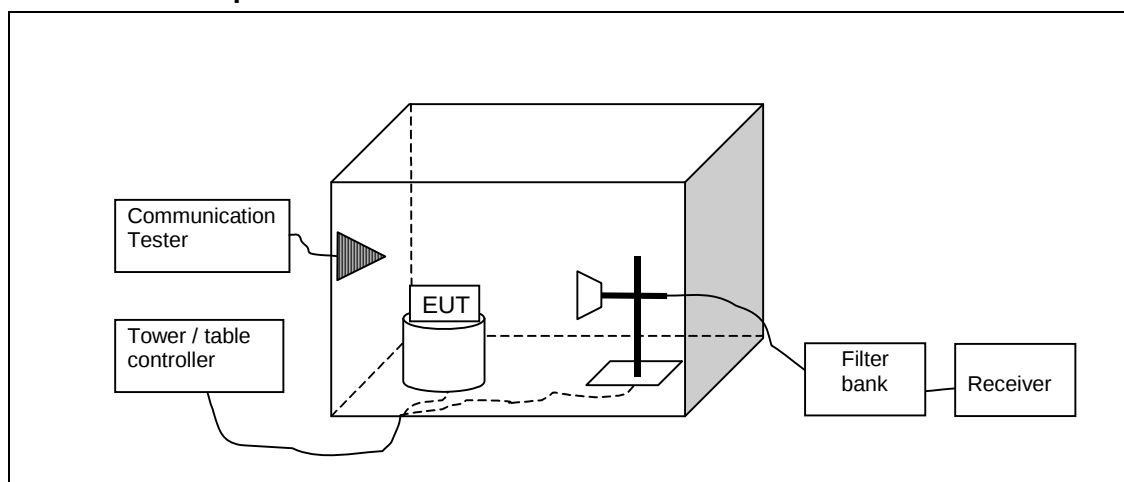
Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	716.008	-29.52	PASSED

5. Spurious radiated emissions

(FCC §22.917(a), §2.1053, §24.238(a), §2.1053, §27.53(g), §2.1053, §27.53(h), §27.53(g), RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-877, DUT 42979
Accessories with DUT numbers	AC-60U, DUT 42973 ; CA-190CD, DUT 42977 ; WH-208, DUT 42831 ; BV-5XW, DUT 42971
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	25 / 50 / 103
Date of measurements	13-Feb-2013
Measured by	Jari Jantunen

5.1.1 Test setup



5.2. Test method and limit

The measurement is made according to TIA-603-C-2004 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 using 2-axis EUT position system.

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.

The EUT is placed at nonconductive plate at the turntable center.

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 substitution method is used.

The measurement results are obtained as described below:

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

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

Limits for spurious radiated emissions measurements

Operation band	Frequency range [MHz]	Limit [dBm]
LTE 700 Lower	30 - 7200	-13 (RBW = 100 kHz, ERP)
GSM850 / WCDMA850 / LTE850	30 - 8500	-13
WCDMA1700 / LTE1700 / / GSM1900 / WCDMA1900 / LTE1900	30 - 18000	-13

5.3. WCDMA 1700 (Band IV) test results

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

Channel 1412 / 1732.4 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
1714.9	-35.81	0.26242	-32.65	-3.16	HORIZONTAL	PASSED
1755.22	-41.22	0.07544	-37.58	-3.64	HORIZONTAL	PASSED
3760.822	-53.69	0.00427	-62.07	8.38	VERTICAL	PASSED
5637.856	-50.05	0.00988	-61.11	11.06	VERTICAL	PASSED
7518.096	-49.9	0.01023	-63.85	13.95	HORIZONTAL	PASSED

5.4. LTE 1900 (Band II) test results

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

Channel 18900 / 1880.0 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
1959.133	-37.38	0.18285	-35.37	-2.01	VERTICAL	PASSED
3760.381	-55.29	0.00296	-63.68	8.39	VERTICAL	PASSED
5644.87	-61.02	0.00079	-71.68	10.66	HORIZONTAL	PASSED
7520.301	-60.4	0.00091	-74.61	14.21	VERTICAL	PASSED

Channel 18900 / 1880.0 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
1960.915	-37.5	0.17766	-35.51	-1.99	VERTICAL	PASSED
3760.341	-56.34	0.00233	-64.73	8.39	VERTICAL	PASSED
5634.329	-60.51	0.00089	-71.44	10.93	VERTICAL	PASSED
7523.226	-60.41	0.00091	-74.61	14.2	VERTICAL	PASSED

5.5. LTE 1700 (Band IV) test results

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

Channel 20175 / 1732.5 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
3465.22	-62.39	0.00058	-69.31	6.92	VERTICAL	PASSED
5207.5	-60.83	0.00083	-71.93	11.1	VERTICAL	PASSED
6937.194	-57.67	0.00171	-70.53	12.86	VERTICAL	PASSED
8652.54	-57.84	0.00164	-74.26	16.42	VERTICAL	PASSED
10394.379	-56.61	0.00218	-75.33	18.72	VERTICAL	PASSED

Channel 20175 / 1732.5 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
3465.301	-62.98	0.0005	-69.9	6.92	VERTICAL	PASSED
5207.5	-60.83	0.00083	-71.93	11.1	VERTICAL	PASSED
6937.515	-57.88	0.00163	-70.74	12.86	VERTICAL	PASSED
8652.66	-58.43	0.00143	-74.6	16.17	HORIZONTAL	PASSED
10394.379	-56.61	0.00218	-75.33	18.72	VERTICAL	PASSED

5.6. LTE 850 (Band V) test results

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

Channel 20525 / 836.5 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
857.599	-59.43	0.00114	-93.02	33.59	VERTICAL	PASSED
881.635	-44.31	0.03703	-79.04	34.73	VERTICAL	PASSED
882.957	-44.54	0.03516	-79.04	34.5	VERTICAL	PASSED
1673.461	-53.89	0.00409	-47.75	-6.14	HORIZONTAL	PASSED
2507.276	-73.26	5E-05	-74.96	1.7	VERTICAL	PASSED
3342.212	-76.31	2E-05	-80.99	4.68	VERTICAL	PASSED

Channel 20525 / 836.5 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
857.418	-59.45	0.00114	-93.03	33.58	VERTICAL	PASSED
880.593	-44.32	0.03697	-79.04	34.72	VERTICAL	PASSED
880.672	-44.31	0.03708	-79.05	34.74	VERTICAL	PASSED
1673.301	-53.53	0.00444	-47.39	-6.14	HORIZONTAL	PASSED
2504.069	-73.24	5E-05	-74.96	1.72	VERTICAL	PASSED
3355.639	-76.96	2E-05	-81.74	4.78	VERTICAL	PASSED

5.7. LTE700 Lower (Band 17) test results

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

Channel 23790 / 710 MHz

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

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
1420.421	-73.87	4E-05	-65.92	-7.95	VERTICAL	PASSED
2139.92	-75.16	3E-05	-73.32	-1.84	VERTICAL	PASSED
2840.782	-68.81	0.00013	-72.46	3.65	VERTICAL	PASSED

Channel 23790 / 710 MHz

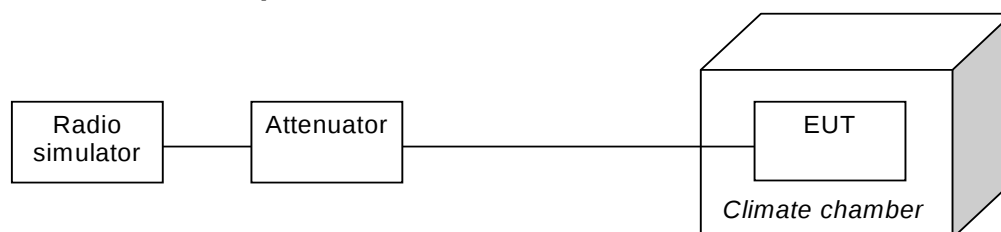
FDD, CBW 5MHz, 16QAM, 1 RB, RMS detector

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarization	Results
1420.461	-75.31	3E-05	-67.76	-7.55	HORIZONTAL	PASSED
2138.958	-74.92	3E-05	-73.02	-1.9	VERTICAL	PASSED
2840.822	-69.09	0.00012	-72.74	3.65	VERTICAL	PASSED

6. Frequency stability, temperature variation (FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3)

EUT with DUT number	RM-877, DUT 42970
Accessories with DUT numbers	BV-5XW, DUT 42971; AC-60U, DUT 42973; CA-190CD, DUT42977; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 37 / 99.8
Date of measurements	07-Feb-2013
Measured by	Timo Raiskio

6.1. Test Setup



6.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24, 27 and IC standard RSS-132, RSS-133 and RSS-139 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

6.3. GSM 850 Test results

GSM, Channel 190 / 836.6 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.60	-6.20000	-0.0074	PASSED
40	836.60	-20.66000	-0.0247	PASSED
30	836.60	-13.37000	-0.016	PASSED
20	836.60	-9.56000	-0.0114	PASSED
10	836.60	-5.04000	-0.006	PASSED
0	836.60	-2.13000	-0.0025	PASSED
-10	836.60	-4.13000	-0.0049	PASSED
-20	836.60	-1.61000	-0.0019	PASSED
-30	836.60	-9.30000	-0.0111	PASSED

6.4. GSM 1900 Test results

GSM, Channel 661 / 1880.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1880.00	-20.40000	-0.0109	PASSED
40	1880.00	-25.51000	-0.0136	PASSED
30	1880.00	-18.21000	-0.0097	PASSED
20	1880.00	-26.09000	-0.0139	PASSED
10	1880.00	-20.15000	-0.0107	PASSED
0	1880.00	-26.28000	-0.014	PASSED
-10	1880.00	-24.60000	-0.0131	PASSED
-20	1880.00	-18.79000	-0.01	PASSED
-30	1880.00	-17.43000	-0.0093	PASSED

6.5. WCDMA 1700 Test results

FDD, Channel 1412 / 1732.4 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1732.40	-5.88989	-0.0034	PASSED
40	1732.40	-2.05994	-0.0012	PASSED
30	1732.40	-6.72913	-0.0039	PASSED
20	1732.40	-2.65503	-0.0015	PASSED
10	1732.40	-3.03650	-0.0018	PASSED
0	1732.40	-4.07410	-0.0023	PASSED
-10	1732.40	-4.22669	-0.0024	PASSED
-20	1732.40	-4.24194	-0.0024	PASSED
-30	1732.40	1.19019	0.0007	PASSED

6.6. LTE700 Lower (Band 17) Test results

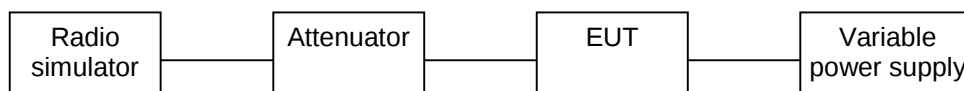
FDD, CBW 1MHz, QPSK, 50 RB, Channel 23790 / 710.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	710.00	-0.74387	-0.001	PASSED
40	710.00	-0.80109	-0.0011	PASSED
30	710.00	-0.94414	-0.0013	PASSED
20	710.00	-1.00000	-0.0014	PASSED
10	710.00	-0.28610	-0.0004	PASSED
0	710.00	0.72956	0.001	PASSED
-10	710.00	0.08583	0.0001	PASSED
-20	710.00	-0.82970	-0.0012	PASSED
-30	710.00	0.61512	0.0009	PASSED

7. Frequency stability, voltage variation (FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3)

EUT with DUT number	RM-877, DUT 42970
Accessories with DUT numbers	Dummy Battery
Operation Voltage [V] / [Hz]	3.5V / 4.1V / 4.2V
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 37 / 100.1
Date of measurements	08-Feb-2013
Measured by	Timo Raiskio

7.1. Test Setup



7.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24, 27 and IC standard RSS-132, RSS-133 and RSS-139 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

7.3. GSM 850 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.2	836.60	-8.59000	-0.0103	PASSED
Nominal / 4.1	836.60	-13.11000	-0.0157	PASSED
Battery cut-off point / 3.5	836.60	-8.01000	-0.0096	PASSED

7.4. GSM 1900 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.2	1880.00	-16.34000	-0.0087	PASSED
Nominal / 4.1	1880.00	-20.34000	-0.0108	PASSED
Battery cut-off point / 3.5	1880.00	-15.43000	-0.0082	PASSED

7.5. WCDMA 1700 Test results

FDD,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.2	1732.40	-2.34985	-0.0014	PASSED
Nominal / 4.1	1732.40	-3.46375	-0.002	PASSED
Battery cut-off point / 3.5	1732.40	-4.28772	-0.0025	PASSED

7.6. LTE700 Lower (Band 17) Test results

FDD, CBW 1MHz, QPSK, 50 RB, Channel 23790 / 710.0 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.2	710.00	-1.77383	-0.0025	PASSED
Nominal / 4.1	710.00	-1.55926	-0.0022	PASSED
Battery cut-off point / 3.5	710.00	-1.35899	-0.0019	PASSED

8. Test Equipment

8.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38112	Power supply	6632A	Agilent	22/24/27, 15C, 15E
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15E, 15B
TM37678	Communication Tester	CMU200	R&S	15C, 15B
TM30600	Impulse limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
TM26491	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
TM37610	Spectrum Analyzer	FSU26	R&S	22/24/27, 15C, 15E
TM23007	Oscilloscope	TDS684B	Tektronix	15E
TM22806	Battery	BAT 20/E	Fiskars	15C, 15B
TM22805	UPS	PS 20/1.2	Fiskars	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
-	Temperature test chamber	VT 4002	Vötsch	22/24/27
2058	Receiver	ESPC	R&S	15C, 15B
2001	Bluetooth tester	CBT	R&S	15C, 15B
2002	Communication Tester	CMU200	R&S	22/24/27, 15C
2009	LISN 50 μ H	ENV216	R&S	15C, 15B
2010	LISN 50 μ H	ENV216	R&S	15C, 15B
2012	Power splitter	11667B	Agilent	22/24/27, 15C
2013	Attenuator	8493C	Agilent	22/24/27, 15C
2014	Attenuator	8493C	Agilent	22/24/27, 15C
2019	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2020	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2021	Communication Tester	CMW500	R&S	22/24/27
2023	Spectrum Analyzer	ESMI-RF	R&S	15B/15C
2024	Analyzer display unit	ESAI-D	R&S	15B/15C

8.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38114	Power supply	6632A	Agilent	22/24/27, 15C, 15B
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15E, 15B
-	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C
TM26497	Antenna	3115	Emco	22/24/27, 15C, 15B
TM37773	Communication Tester	CMU200	R&S	22/24/27, 15B
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	TS-RSP	R&S	22/24/27, 15C, 15E, 15B
-	RF system panel	TS-RSP	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 μ H	LISN-5-20-2	FCC	22/24/27, 15C, 15B
TM30644	LISN 50 μ H	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 chambre	UNKNOWN	TDK	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	-	22/24/27, 15C, 15E, 15B
TM38066	High pass filter	WHKX3.0/18G-12SS	Wainwright	22/24/27, 15C, 15E, 15B
2028	High pass filter	WHKX 1.0/15G-12SS	Wainwright	22/24/27, 15C, 15E, 15B
TM37545	Tunable notch filter	800.0/960.0-0.2/40-8SSK	Wainwright	22
TM26512	Tunable notch filter	WRCD1850/1910-0.2/40-10SSK	Wainwright	24
-	Band reject filter	WRCG1877/1883-1870/1890-40/6EE	Wainwright	24
-	Band reject filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
-	Band reject filter	WRCG832/838-825/848-40/5SS	Wainwright	22
TM23892	Controller	G-1000SDX	Yaesu	22/24/27
2001	Bluetooth tester	CBT	R&S	15C, 15B
6023	Antenna	VUBA 9117	Schwarzbeck	22/24/27
2021	Communication Tester	CMW500	R&S	22/24/27
2025	Antenna	HFH2-Z2	R&S	15C