FCC Part 22/24/27 Compliance Test Report

Test Report no.:	FCC22&24&27_RM-975_04.docx	**Date of Report:**	14-May-2014
Number of pages:	50	**Customer's Contact person:**	Juha Paukku
Testing laboratory:	TCC Nokia Salo Laboratory P.O.Box(86) Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220	**Customer:**	Nokia Corporation P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880
FCC listing no.: **IC recognition no.:**	533467 661V-1		
Tested devices/ accessories:	**Phone RM-975 / Dummy Battery SD-128 / Headset WH-108 / Battery BL-5H / AC- Charger AC-20E**		
FCC ID:	PDNRM-975	**IC:**	661R-RM975
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Parts 22/24/27, TIA-603-C-2004 and IC standards, RSS-GEN (Issue 3, December 2010), RSS-130 (Issue 1, October 2013), RSS-132 (Issue 2, September 2005), RSS-133 (Issue 5, 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:			

Sami Lehtonen, Specialist, EMC

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

Date of receipt	4-Apr-2014
Testing completed	18-May-2014
The customer's contact person	Juha Paukku
Test Plan referred to	T:\Projects\RM-975\TestPlan\RS_testplan_RM-975.xlsm
Notes	Measured done from antenna 2
Document name	T:\Projects\RM-975\EMC\FCC22&24&27_RM-975_04.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-975	004402478041738	2020	-	01961.00014.14112.00000	18144
Dummy Battery	SD-128	-	0.1	-	-	18012
Headset	WH-108	-	-	-	-	18149
Phone	RM-975	004402478049996	2020	-	010601.00014.14112.00000	18152
Battery	BL-5H	4955403494010102563ö0670699	-	-	-	18153
Headset	WH-108	2376171	-	-	-	17990
AC-Charger	AC-20E	4090493271550402507ö0675628	-	-	-	17995

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	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	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	PASSED

WCDMA 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	NP
§24.232(b)	6.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§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

WCDMA 1700:

Section in CFR 47	Section in RSS-GEN or RSS-139	Name of the test	Result

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§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	NP
§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	NP
§2.1055(d)	6.3	Frequency stability, voltage variation	NP

WCDMA 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	NP
§22.913(a)	4.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§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

LTE1900 (Band 2):

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	NP
§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	NP
§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

LTE850 (Band 5):

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	NP
§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

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§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-130	Name of the test	Result
§2.1046(a)	4.4	Conducted RF output power	NP
§27.50(c)(10)	4.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§27.53(g)	4.6	Band edge compliance	PASSED
§27.53(g), §2.1051	4.6	Spurious emissions at antenna terminals	NP
§27.53(g), §2.1051	4.6	Spurious radiated emissions	PASSED
§2.1055(a)	4.3 (a)	Frequency stability, temperature variation	NP
§2.1055(d)	4.3 (a)	Frequency stability, voltage variation	NP

LTE Band 7:

Section in CFR 47	Section in RSS-GEN or RSS-130	Name of the test	Result
§2.1046(a)	4.4	Conducted RF output power	NP
§27.50(c)(10)	4.4	Radiated RF output power	PASSED
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§27.53(g)	4.6	Band edge compliance	PASSED
§27.53(g), §2.1051	4.6	Spurious emissions at antenna terminals	NP
§27.53(g), §2.1051	4.6	Spurious radiated emissions	PASSED
§2.1055(a)	4.3 (a)	Frequency stability, temperature variation	PASSED
§2.1055(d)	4.3 (a)	Frequency stability, voltage variation	PASSED

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.

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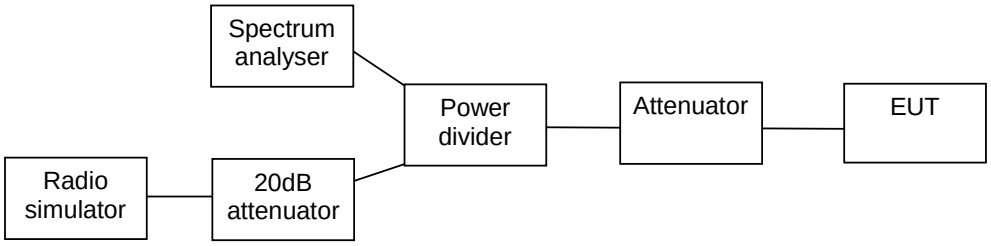
2. 99 % occupied bandwidth

(FCC §2.1049(h), RSS-132 4.6.1)

EUT with DUT number	RM-975, DUT 18144
Accessories with DUT numbers	SD-128, DUT 18012 ; WH-108, DUT 18149
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Measured from Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 58 / 101.5
Date of measurements	03-Apr-2014
Measured by	Jari Keto

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards.

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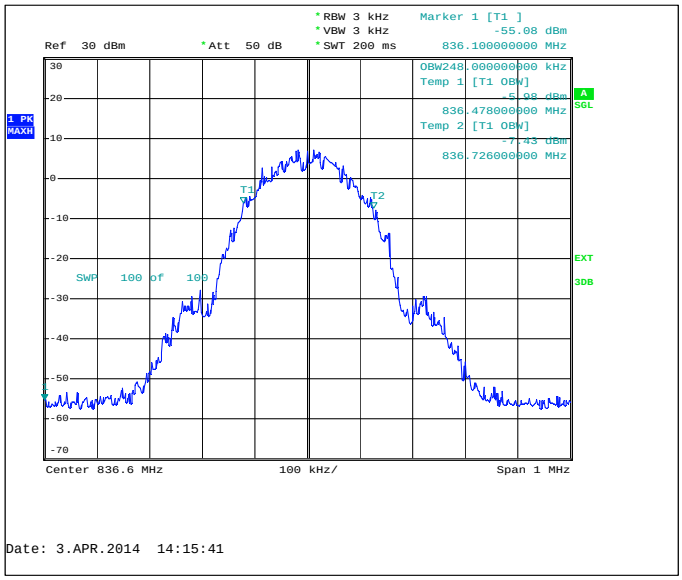
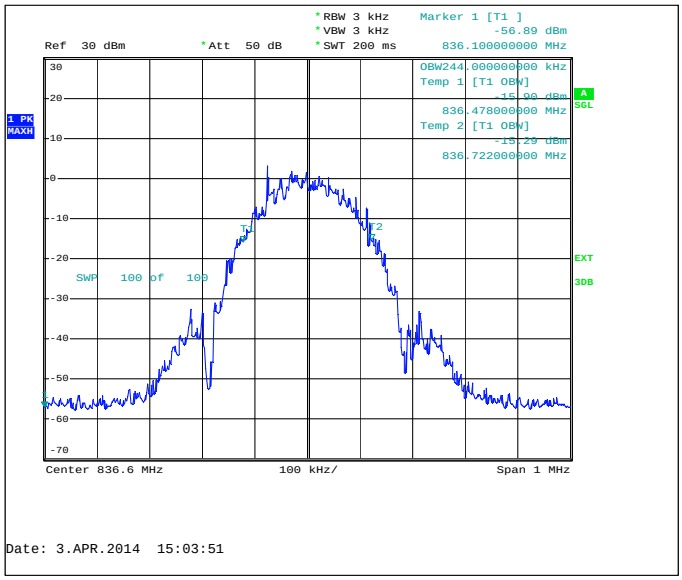
2.3. GSM 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	248
EGPRS	244
GPRS	246

GSM, Channel 190 / 836.6 MHz



EGPRS, Channel 190 / 836.6 MHz



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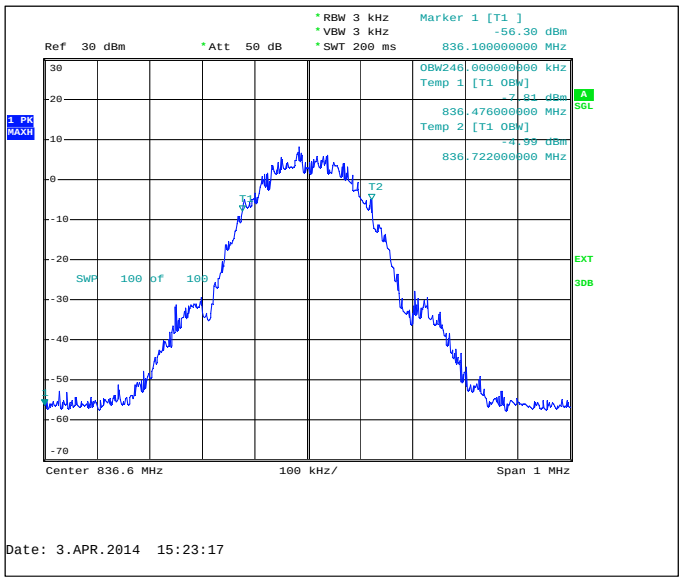
GPRS, Channel 190 / 836.6 MHz



2.4. LTE7 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 5MHz, QPSK, 25 RB	4480
FDD, CBW 10MHz, QPSK, 50 RB	8940
FDD, CBW 15MHz, QPSK, 75 RB	13440
FDD, CBW 20MHz, QPSK, 100 RB	17850
FDD, CBW 5MHz, 16QAM, 25 RB	4480
FDD, CBW 10MHz, 16QAM, 50 RB	8940
FDD, CBW 15MHz, 16QAM, 75 RB	13440
FDD, CBW 20MHz, 16QAM, 100 RB	17850

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

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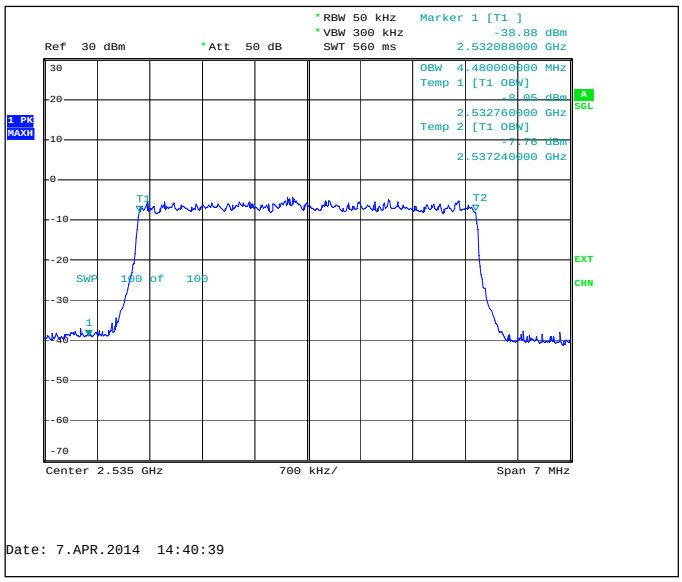
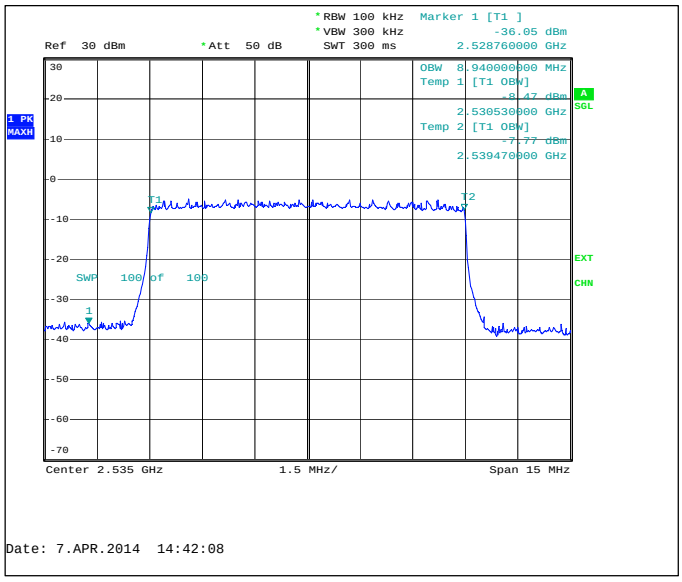


FDD, CBW 10MHz, QPSK, 50 RB, Channel 21100 / 2535.0 MHz



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

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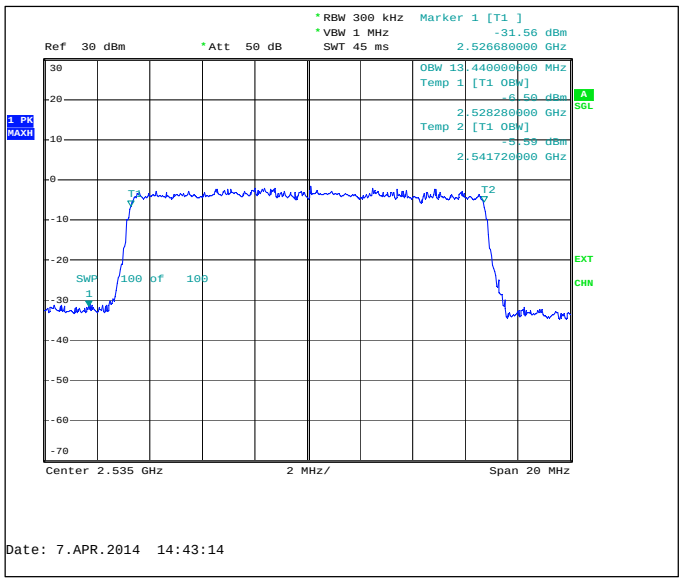

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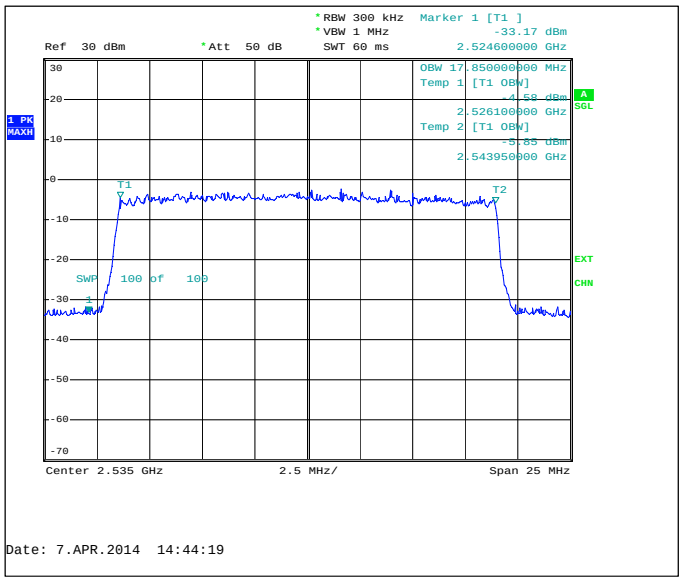
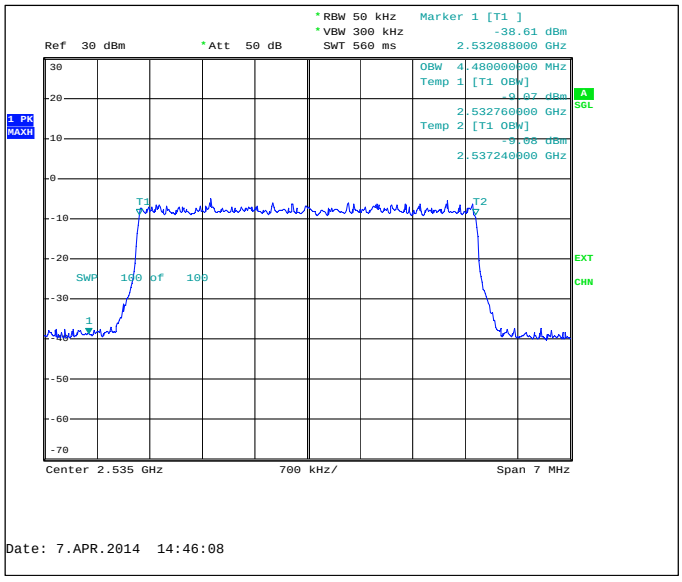
FDD, CBW 20MHz, QPSK, 100 RB, Channel 21100 / 2535.0 MHz



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



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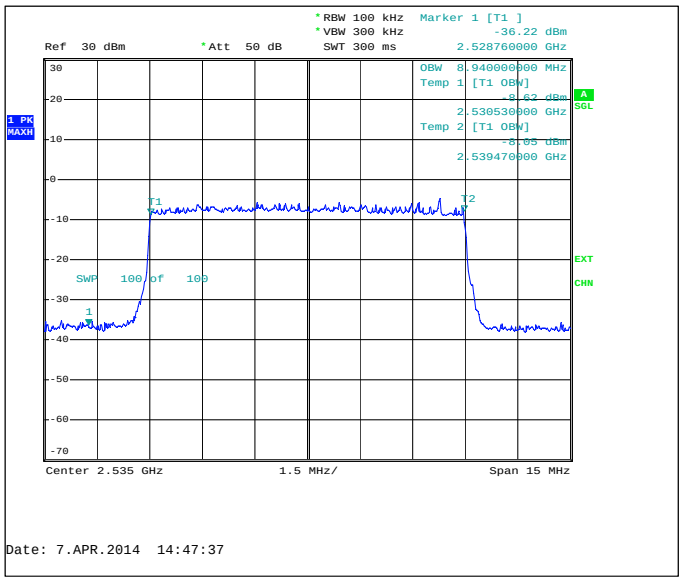
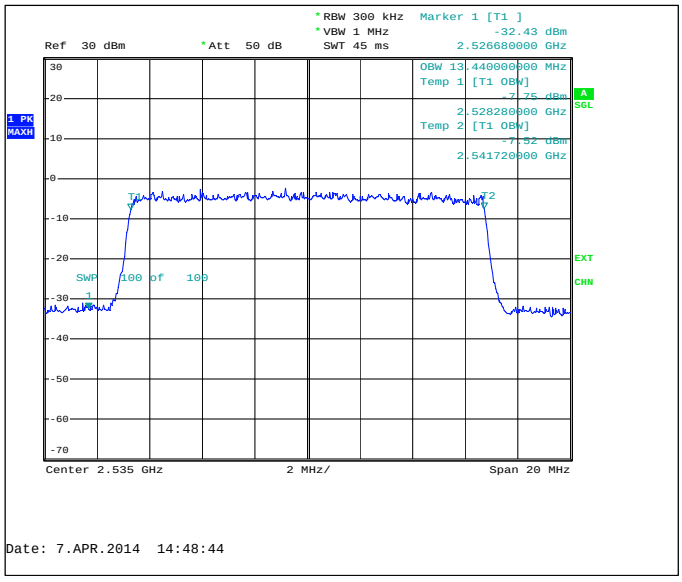
FDD, CBW 10MHz, 16QAM, 50 RB, Channel 21100 / 2535.0 MHz



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



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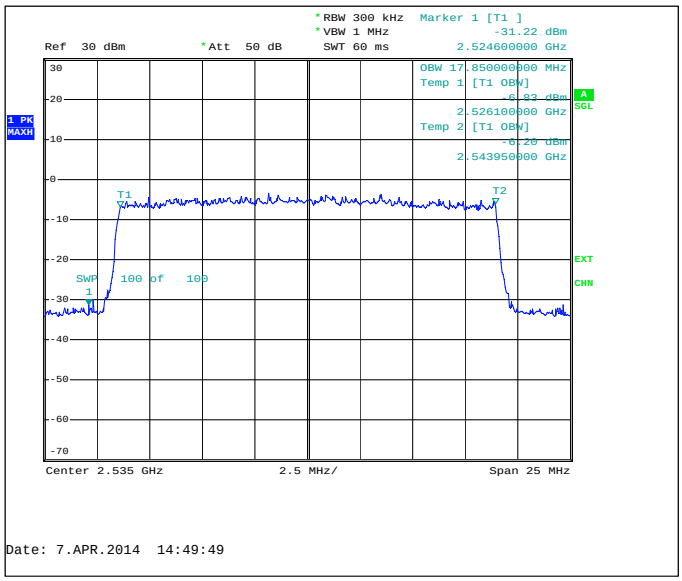
FDD, CBW 20MHz, 16QAM, 100 RB, Channel 21100 / 2535.0 MHz



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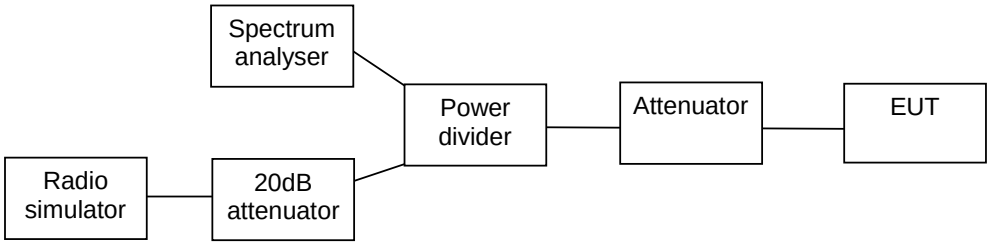
3. Band edge compliance

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

EUT with DUT number	RM-975, DUT 18144
Accessories with DUT numbers	SD-128, DUT 18012 ; WH-108, DUT 18149
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Measured from Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 58 / 101.5
Date of measurements	03-Apr-2014
Measured by	Jari Keto

3.1. Test Setup



3.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards.

Limits for band edge compliance measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 850	Below 824 and above 849	-13
WCDMA 1900	Below 1850 and above 1910	-13
WCDMA 1700	Below 1710 and above 1755	-13
WCDMA 850	Below 824 and above 849	-13

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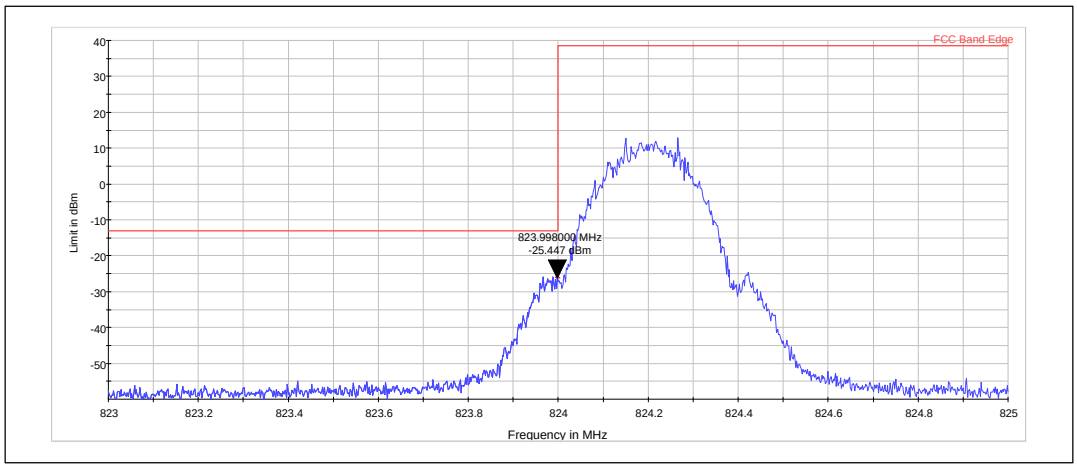
3.3. GSM 850 Test results

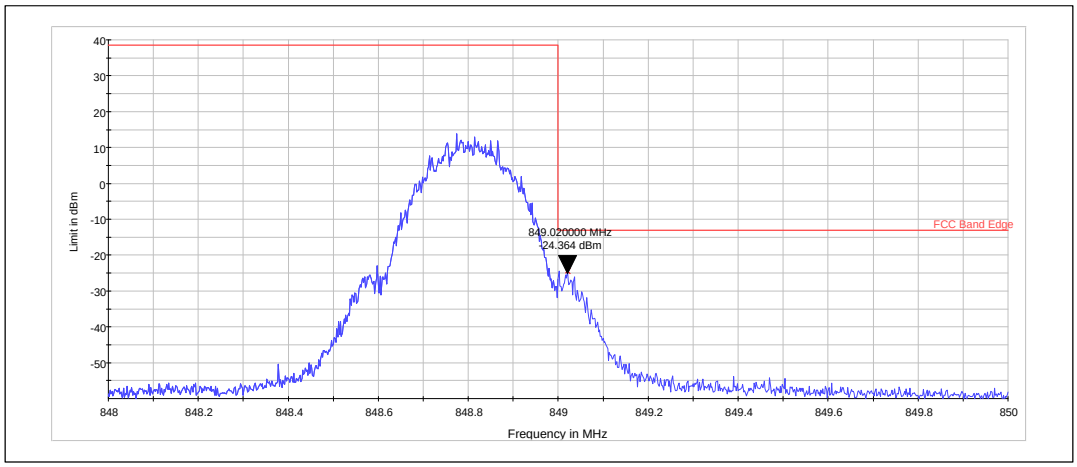
Channel 128 / 824.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GSM	823.998	-25.45	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	-24.36	PASSED

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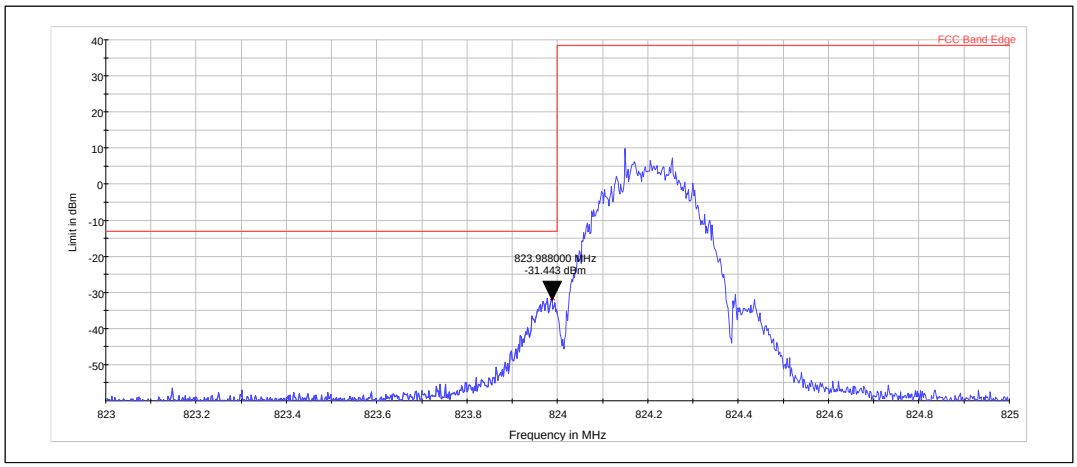
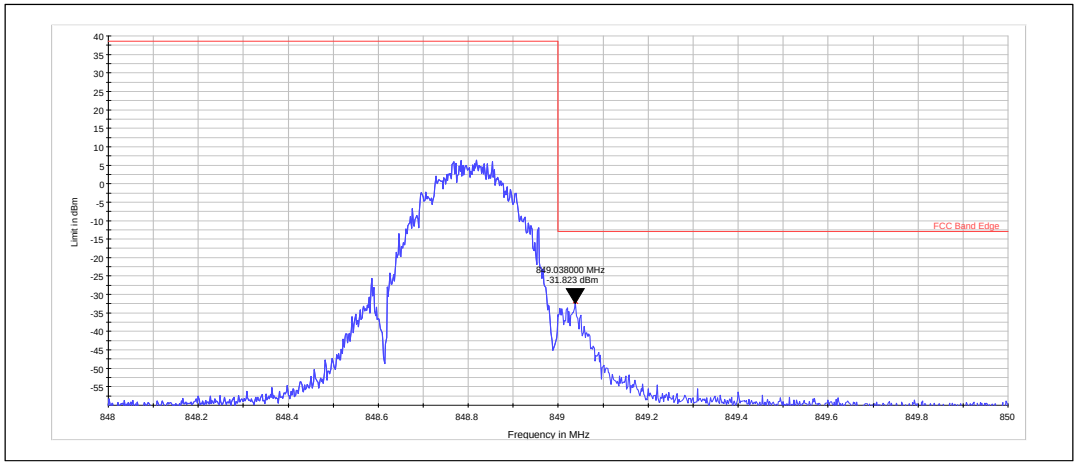
Channel 128 / 824.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
EGPRS	823.988	-31.44	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	849.038	-31.82	PASSED

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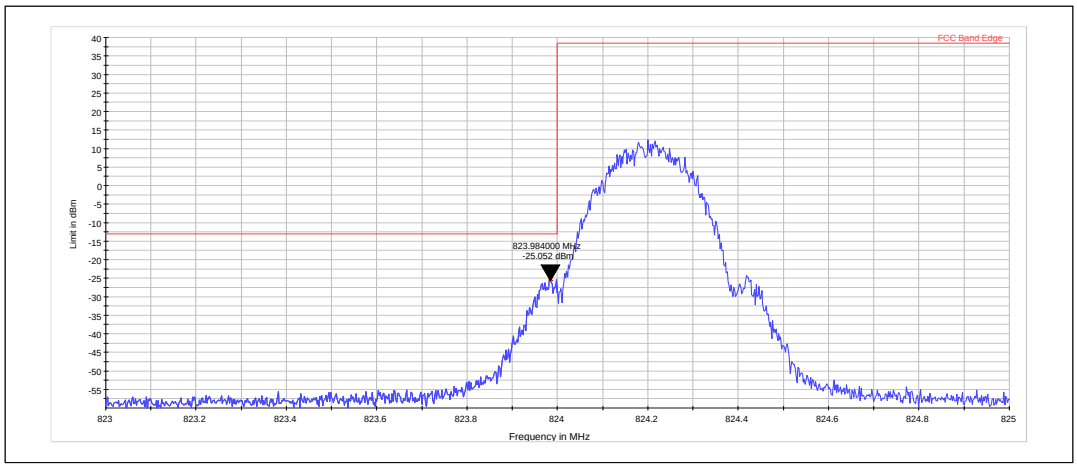
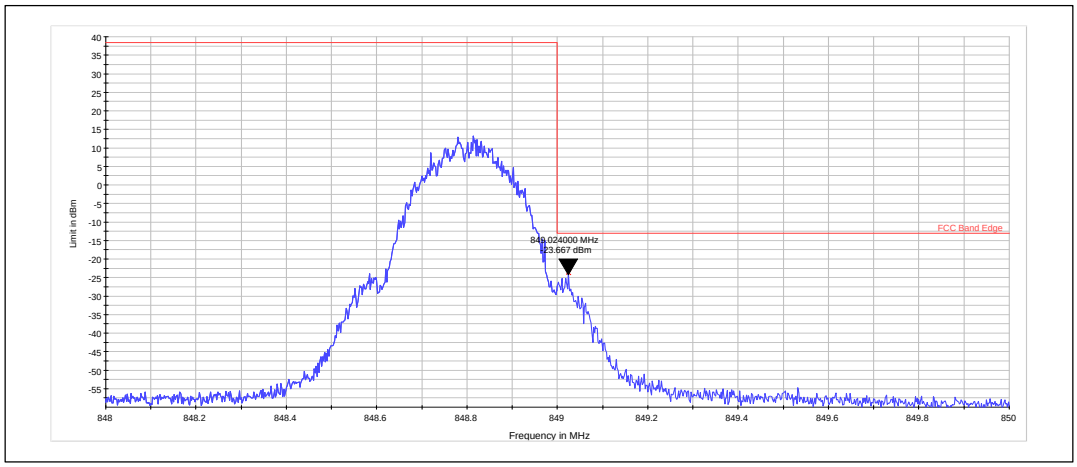
Channel 128 / 824.2 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GPRS	823.984	-25.05	PASSED

Channel 251 / 848.8 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
GPRS	849.024	-23.67	PASSED

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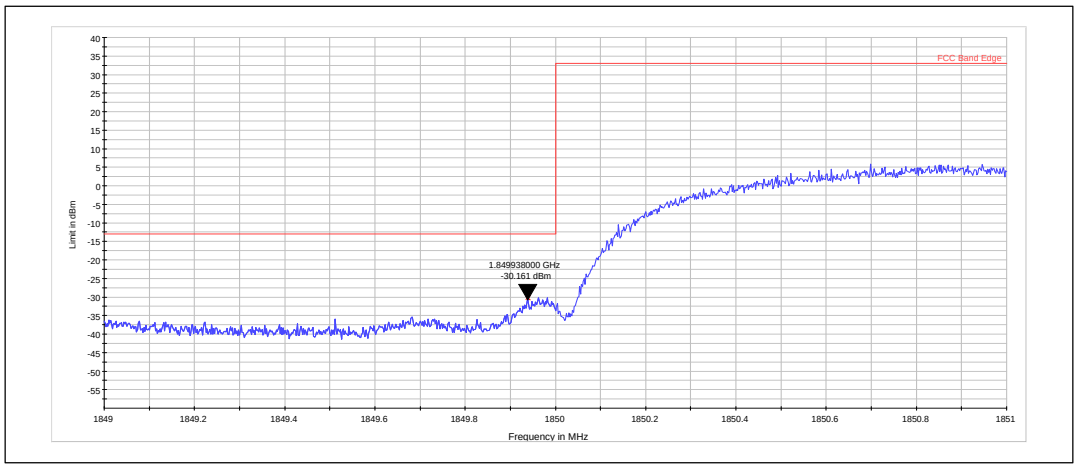
3.4. WCDMA 1900 Test results

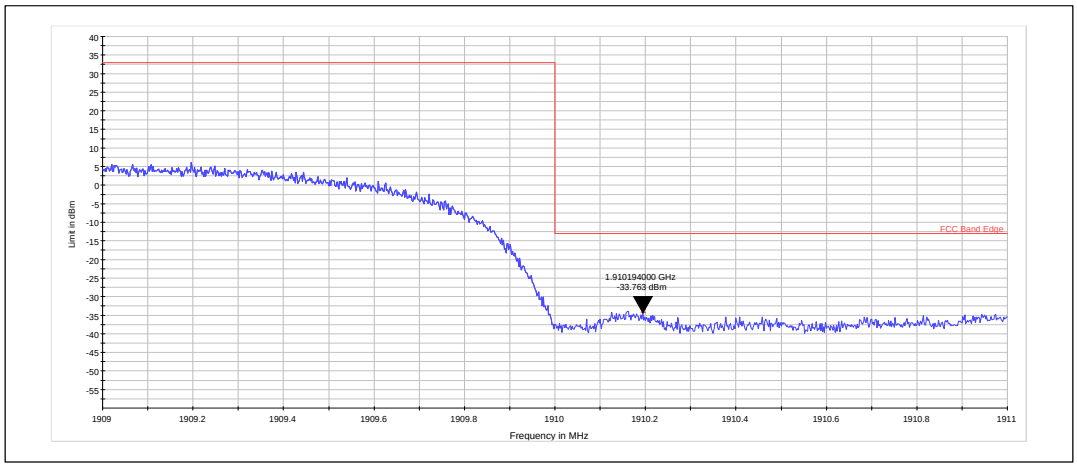
Channel 9262 / 1852.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1849.938	-30.16	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	1910.194	-33.76	PASSED

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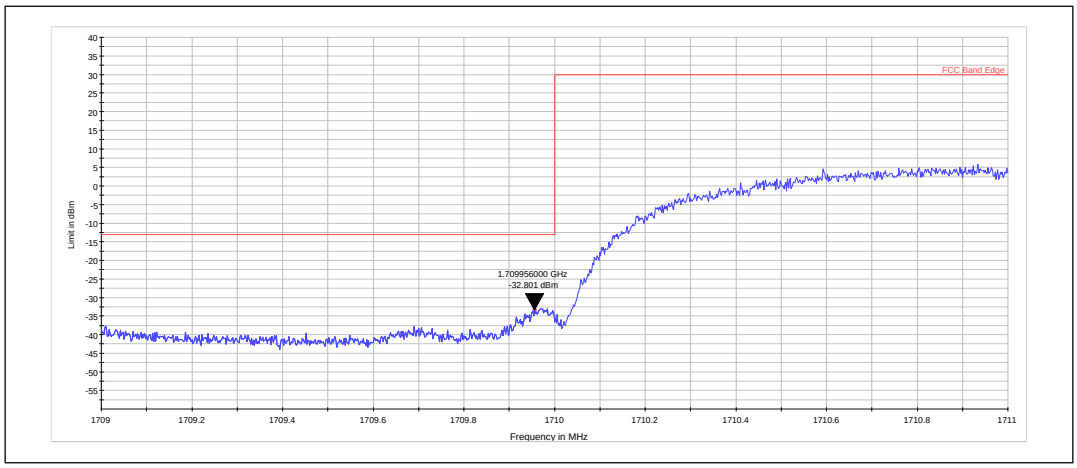
3.5. WCDMA 1700 Test results

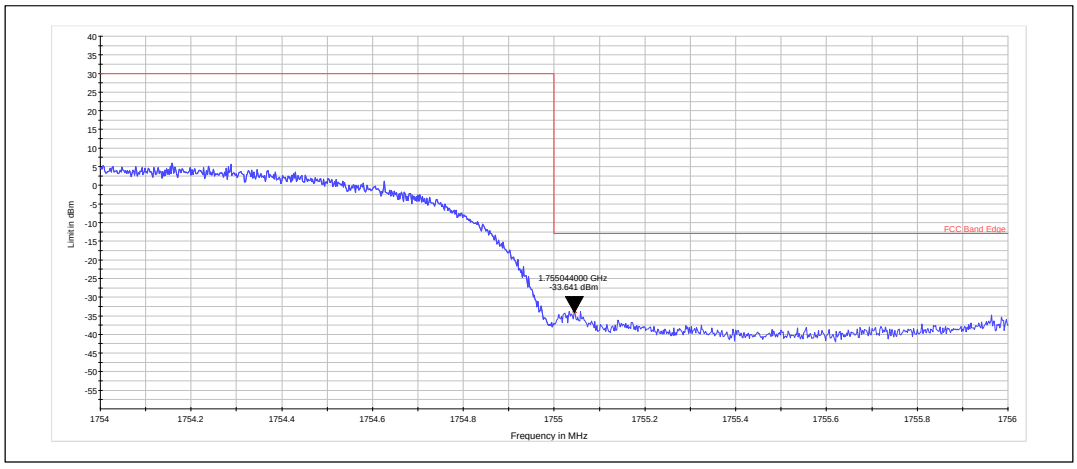
Channel 1312 / 1712.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	1709.956	-32.80	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	1755.044	-33.64	PASSED

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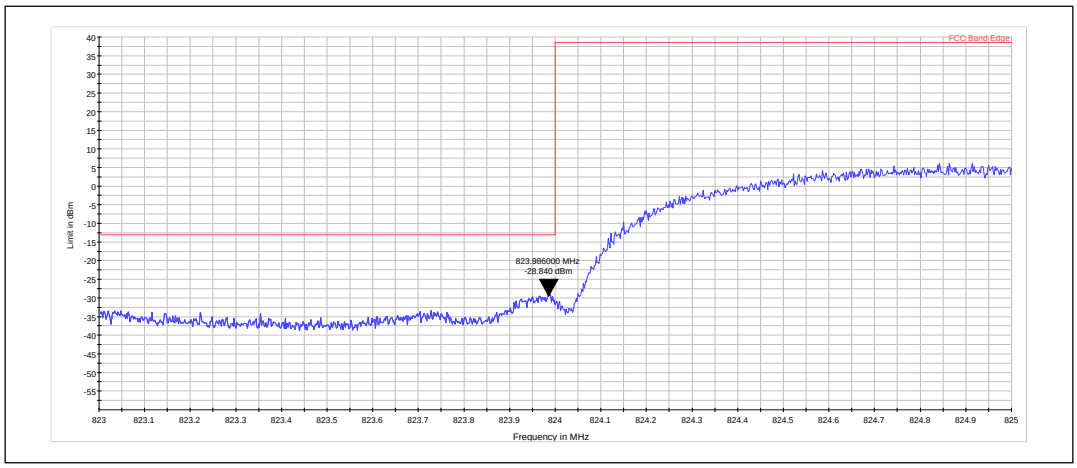
3.6. WCDMA 850 Test results

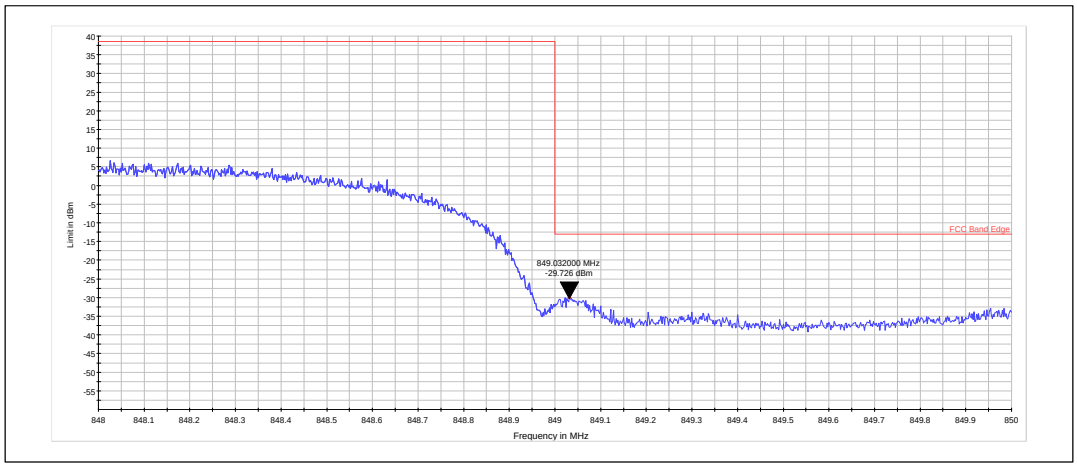
Channel 4132 / 826.4 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD	823.986	-28.84	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	849.032	-29.73	PASSED

3.7. LTE1900 (Band 2) Test results

Channel 18700 / 1860 MHz

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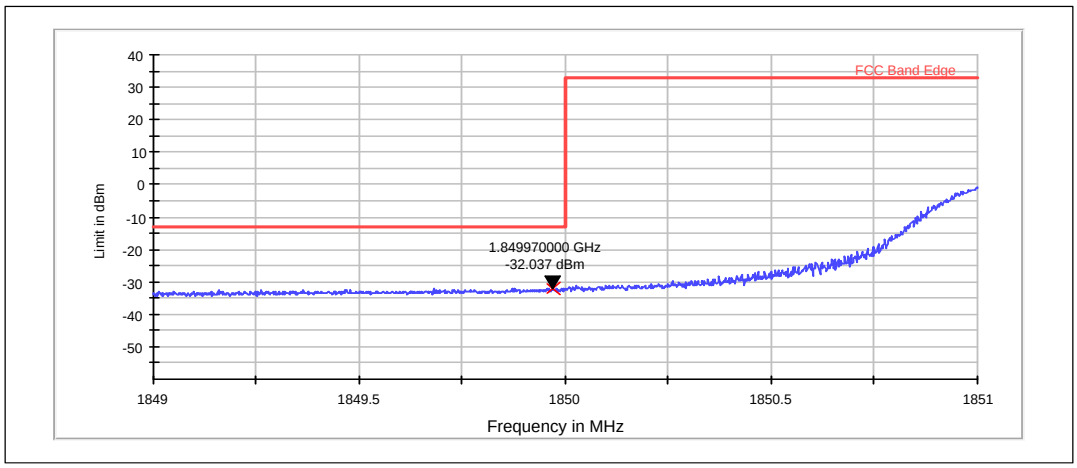
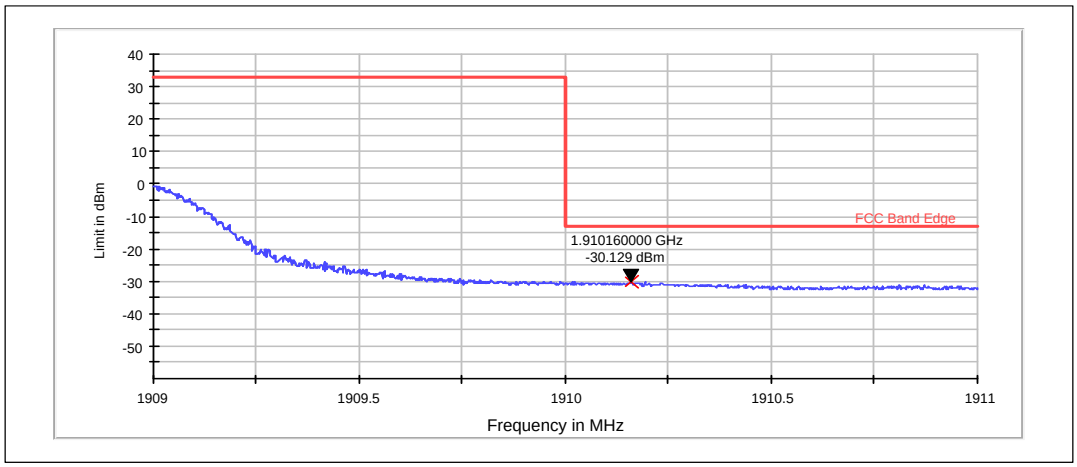


RMS (RBW: 200 kHz, VBW: 200 kHz, Max hold)

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1849.970	-32.04	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	1910.160	-30.13	PASSED

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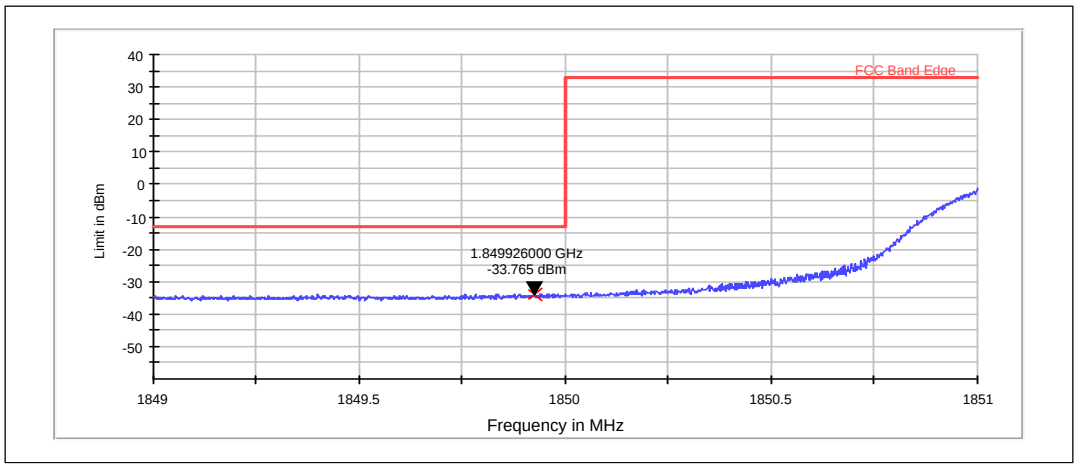
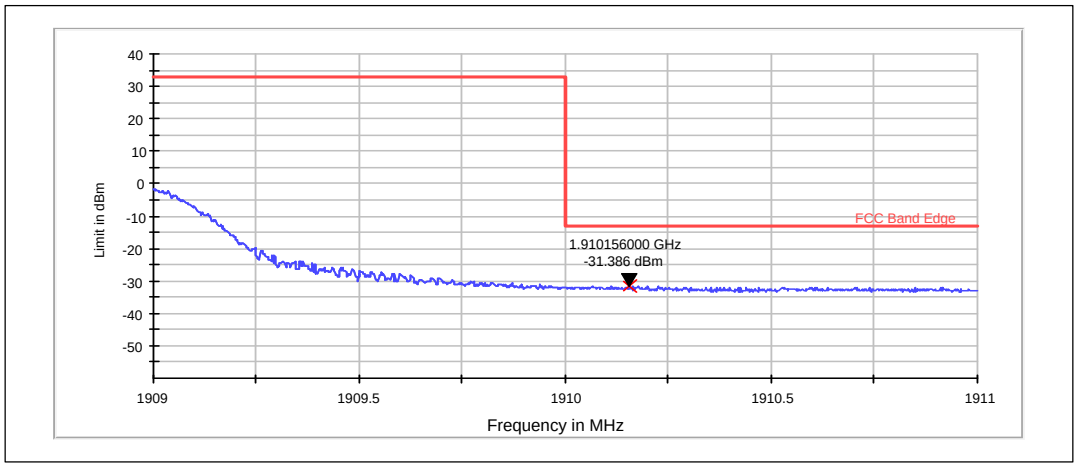
Channel 18700 / 1860 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1849.926	-33.76	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	1910.156	-31.39	PASSED

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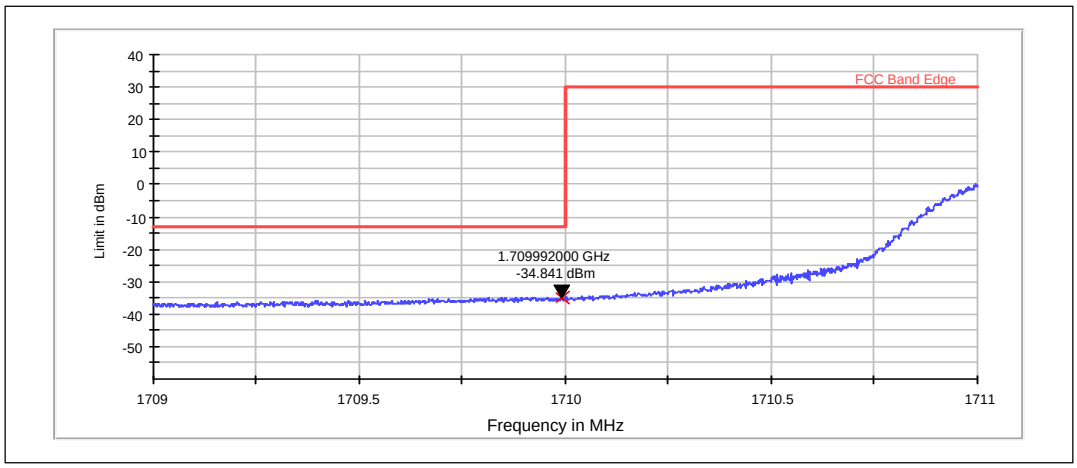
3.8. LTE1700 (Band 4) Test results

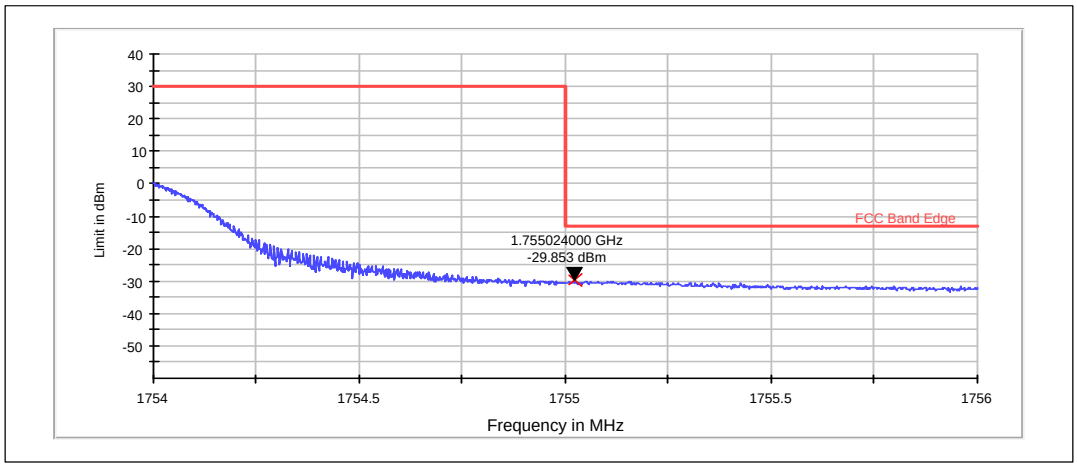
Channel 20050 / 1720 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	1709.992	-34.84	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	1755.024	-29.85	PASSED

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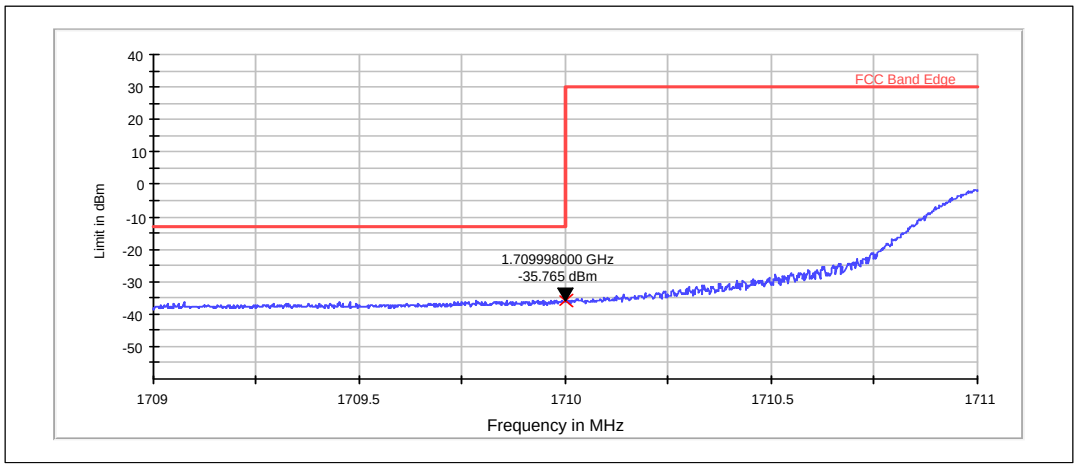
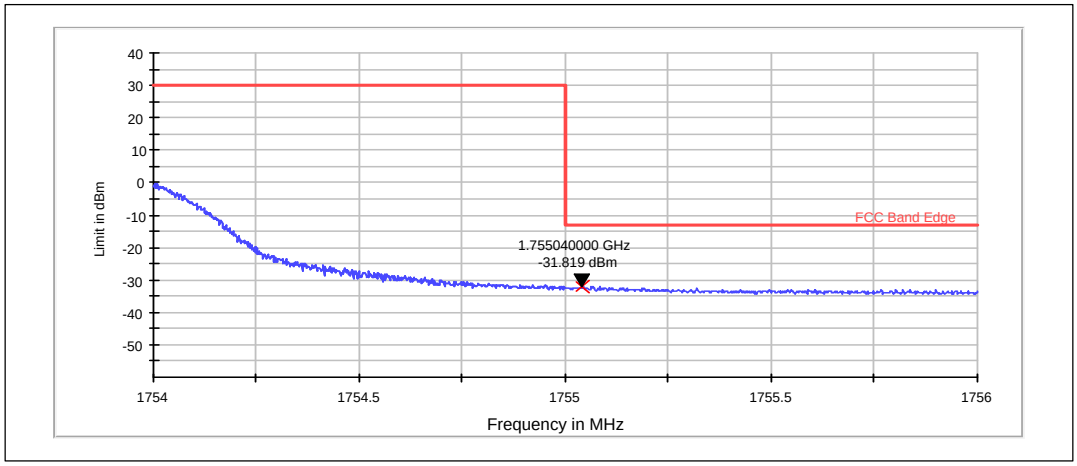
Channel 20050 / 1720 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	1709.998	-35.76	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	1755.040	-31.82	PASSED

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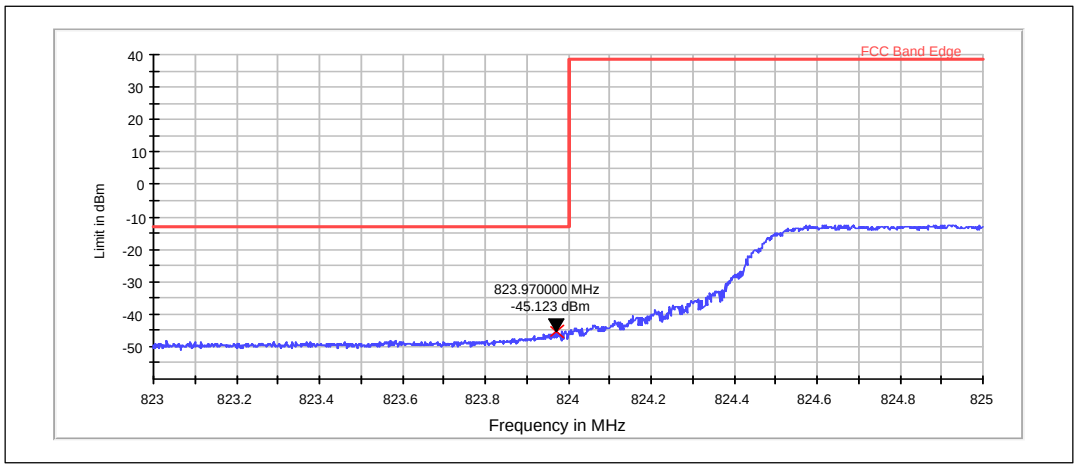
3.9. LTE850 (Band 5) Test results

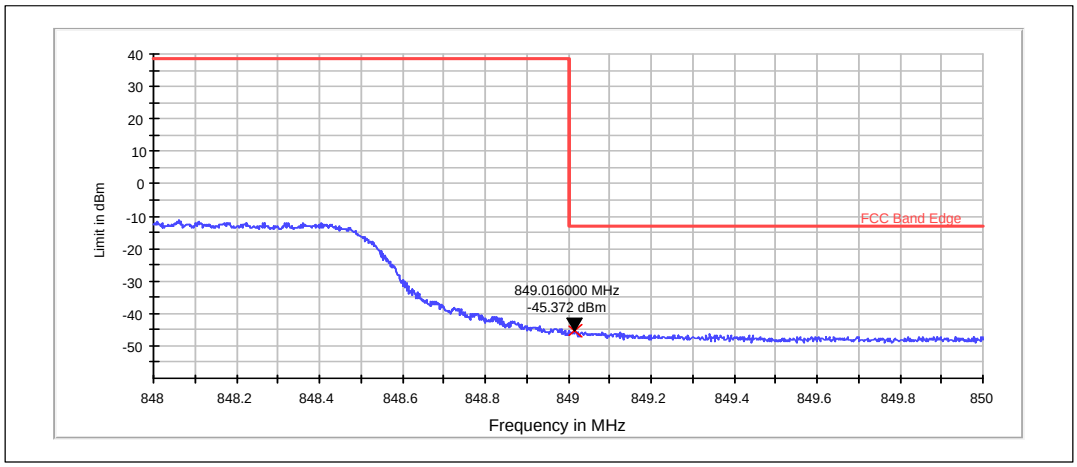
Channel 20450 / 829 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	823.970	-45.12	PASSED

Channel 20600 / 844 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	849.016	-45.37	PASSED

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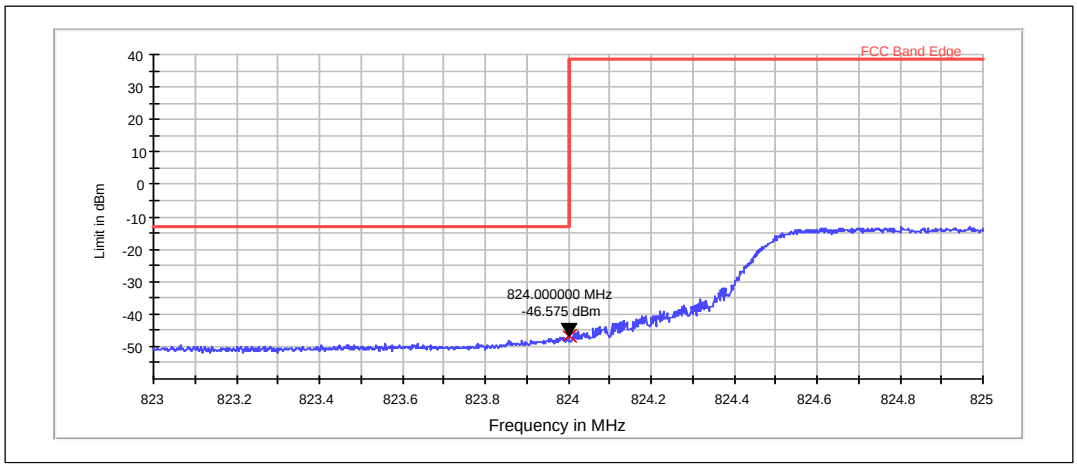
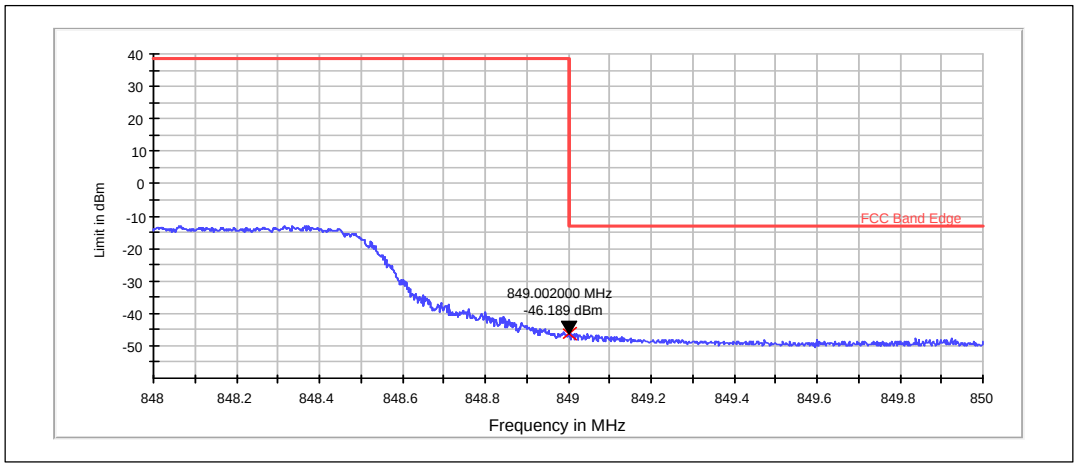
Channel 20450 / 829 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	824.000	-46.58	PASSED

Channel 20600 / 844 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	849.002	-46.19	PASSED

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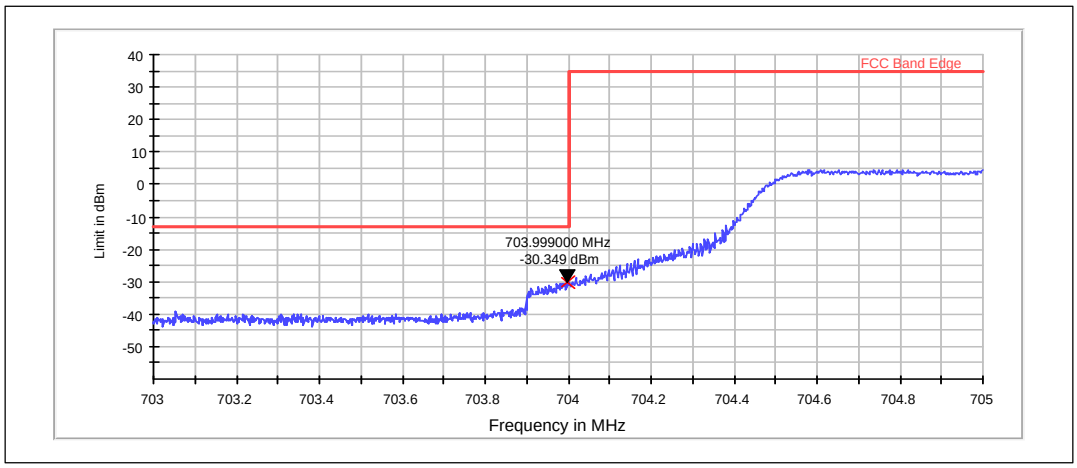
3.10. LTE700 Lower (Band 17) Test results

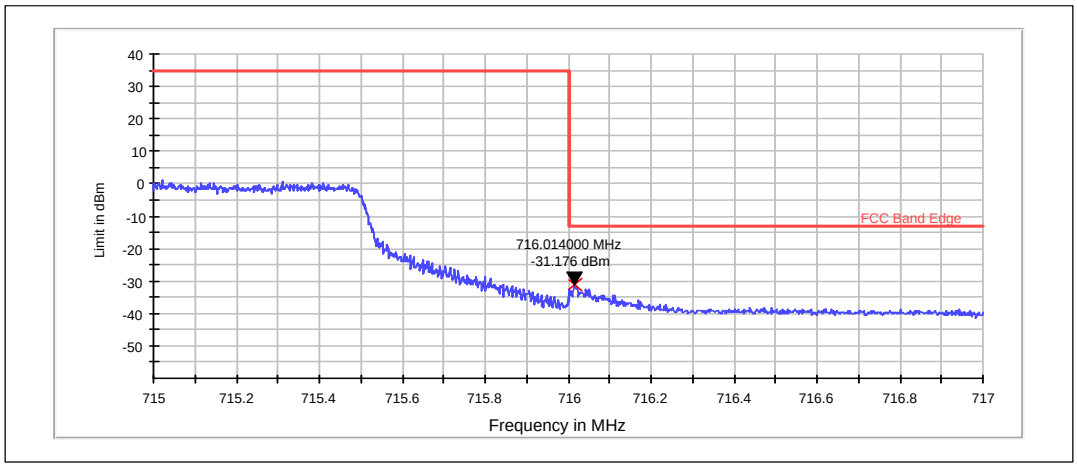
Channel 23780 / 709 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	703.999	-30.35	PASSED

Channel 23800 / 711 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, QPSK, 50 RB	716.014	-31.18	PASSED

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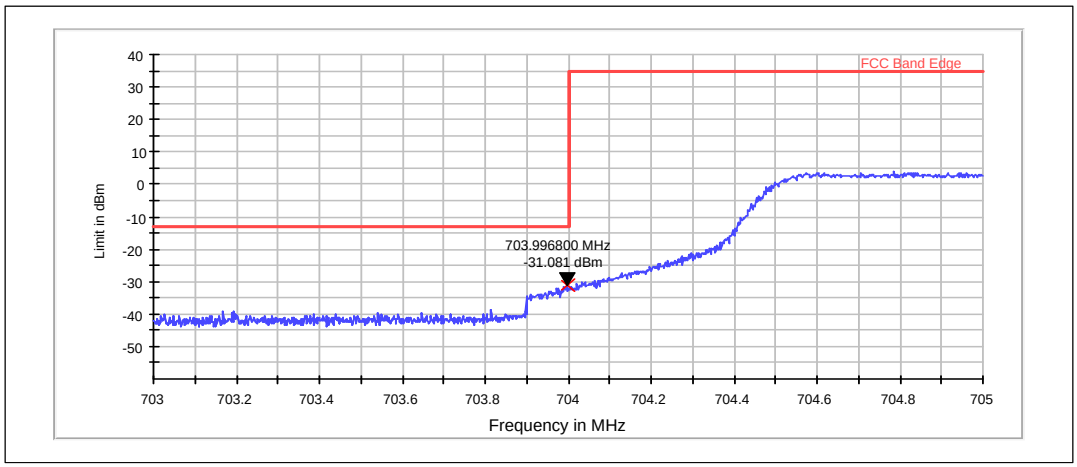
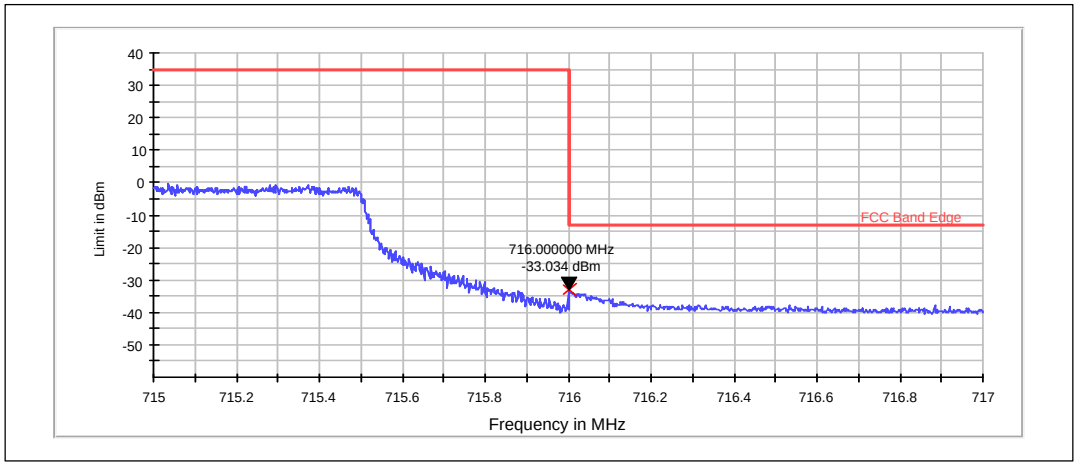
Channel 23780 / 709 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	703.997	-31.08	PASSED

Channel 23800 / 711 MHz



RMS detector

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 10MHz, 16QAM, 50 RB	716.000	-33.03	PASSED

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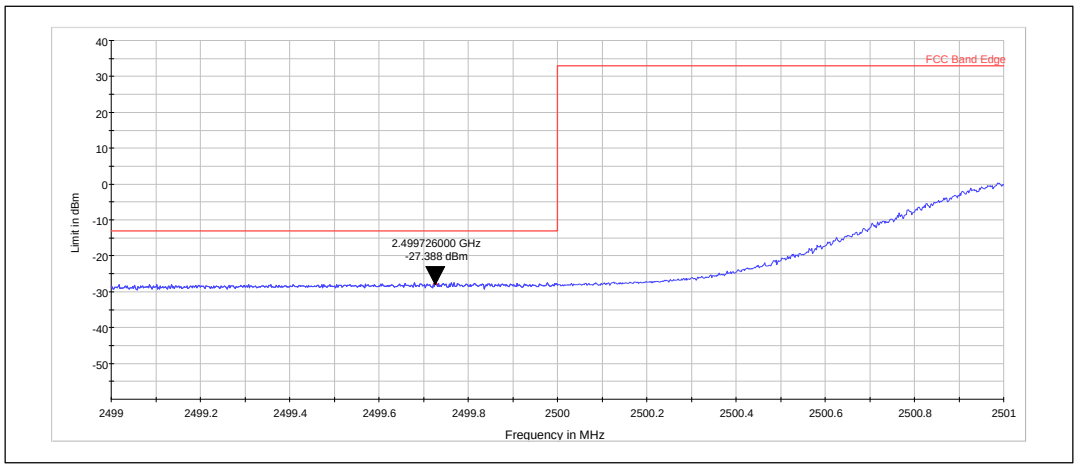
3.11. LTE7 Test results

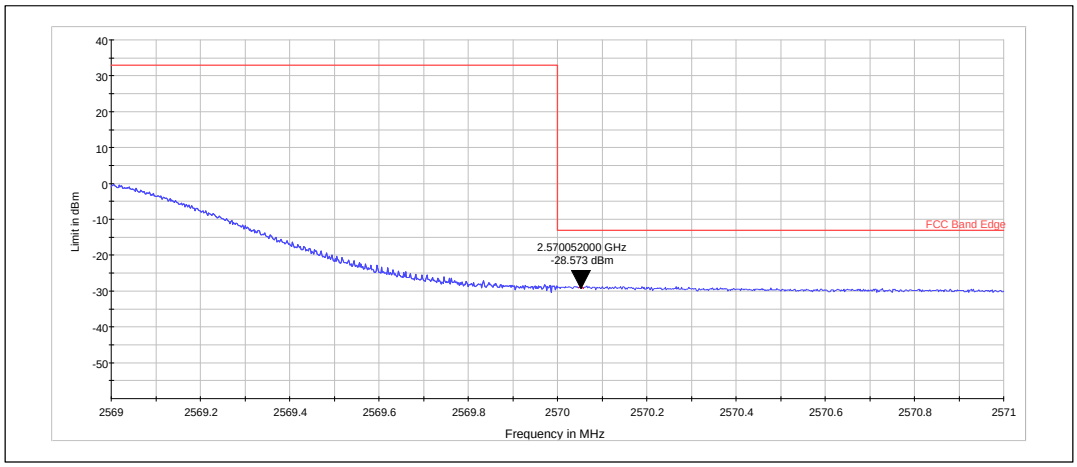
Channel 20850 / 2510 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, QPSK, 100 RB	2499.726	-27.39	PASSED

Channel 21350 / 2560 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	2570.052	-28.57	PASSED

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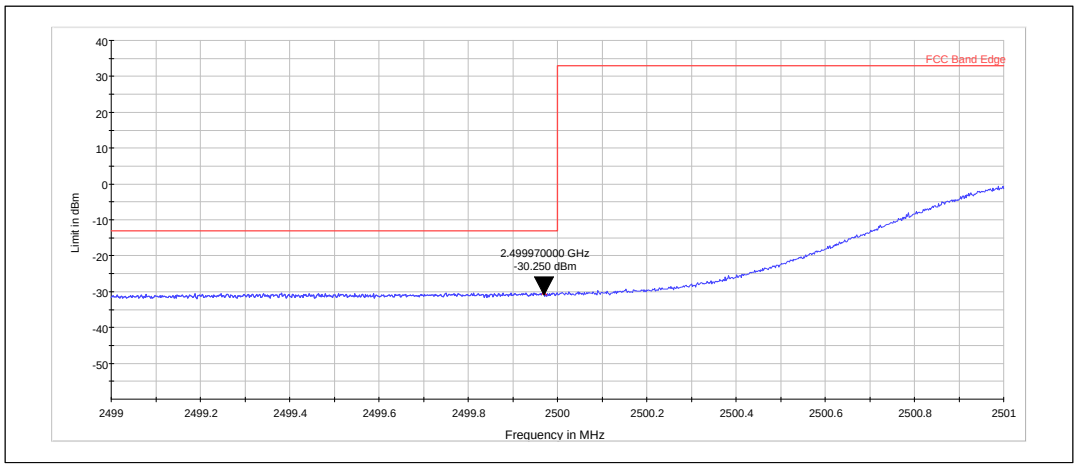
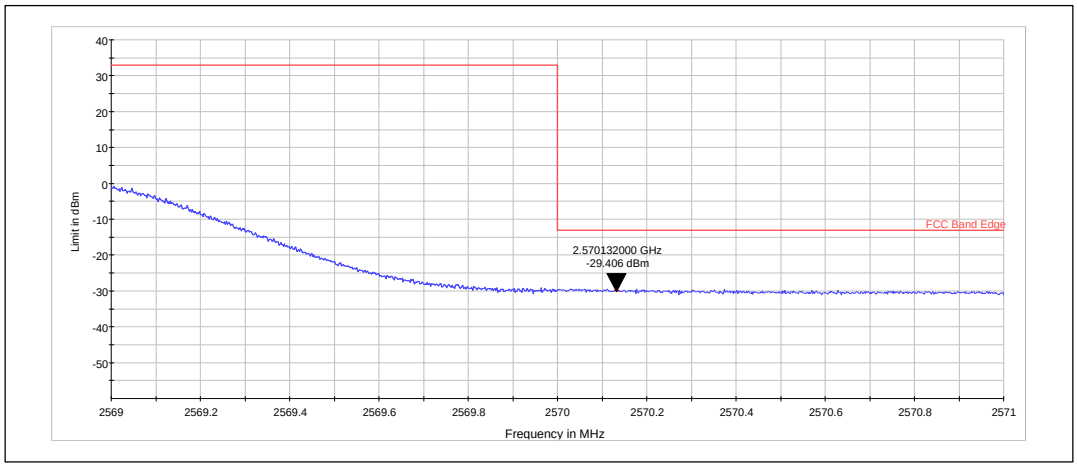
Channel 20850 / 2510 MHz



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

Operation mode (TX on)	Frequency [MHz]	Level [dBm]	Result
FDD, CBW 20MHz, 16QAM, 100 RB	2499.970	-30.25	PASSED

Channel 21350 / 2560 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	2570.132	-29.41	PASSED

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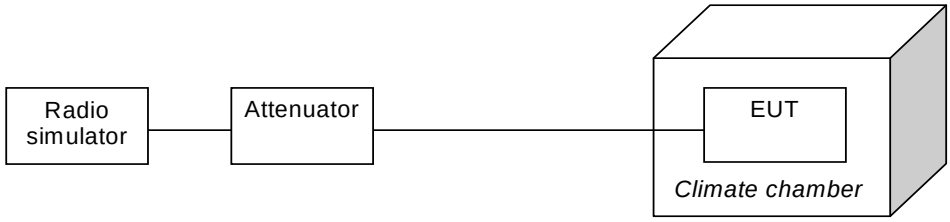
4. Frequency stability, temperature variation

(FCC §2.1055(a), RSS-132 4.3, RSS-139 6.3)

EUT with DUT number	RM-975, DUT 18144
Accessories with DUT numbers	SD-128, DUT 18012 ; WH-108, DUT 18149
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Measured from Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 58 / 101.5
Date of measurements	03-Apr-2014
Measured by	Jari Keto

4.1. Test Setup



4.2. Test method and limit

The measurement is made according to applicable FCC rule parts and IC standards 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

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4.3. GSM 850 Test results

GSM, Channel 190 / 836.6 MHz

Temperature [ºC]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.60	7.88000	0.0094	PASSED
40	836.60	8.72000	0.0104	PASSED
30	836.60	10.20000	0.0122	PASSED
20	836.60	11.62000	0.0139	PASSED
10	836.60	11.04000	0.0132	PASSED
0	836.60	11.75000	0.014	PASSED
-10	836.60	7.36000	0.0088	PASSED
-20	836.60	15.30000	0.0183	PASSED

4.4. LTE7 Test results

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

Temperature [ºC]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	2535.00	7.95364	0.0031	PASSED
40	2535.00	5.45025	0.0021	PASSED
30	2535.00	-7.05242	-0.0028	PASSED
20	2535.00	-6.82354	-0.0027	PASSED
10	2535.00	9.08375	0.0036	PASSED
0	2535.00	0.04292	0	PASSED
-10	2535.00	3.21865	0.0013	PASSED
-20	2535.00	8.02517	0.0032	PASSED

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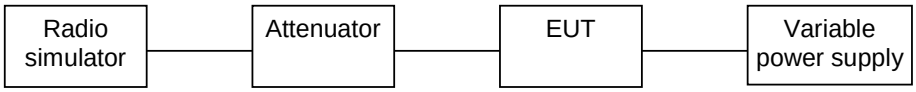
5. Frequency stability, voltage variation
(FCC §2.1055(d), RSS-132 4.3)

EUT with DUT number	RM-975, DUT 18144
Accessories with DUT numbers	SD-128, DUT 18012 ; WH-108, DUT 18149
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Measured from Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 58 / 101.5
Date of measurements	03-Apr-2014
Measured by	Jari Keto

5.1. Test Setup



5.2. Test method and limit
The measurement is made according to applicable FCC rule parts and IC standards 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

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5.3. GSM 850 Test results

GSM,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.2	836.60	8.33000	0.01	PASSED
Battery cut-off point / 3.5	836.60	7.17000	0.0086	PASSED
Nominal / 3.7	836.60	8.85000	0.0106	PASSED

5.4. 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 / 4.2	2535.00	3.17574	0.0013	PASSED
Battery cut-off point / 3.5	2535.00	-2.17438	-0.0009	PASSED
Nominal / 3.7	2535.00	2.18868	0.0009	PASSED

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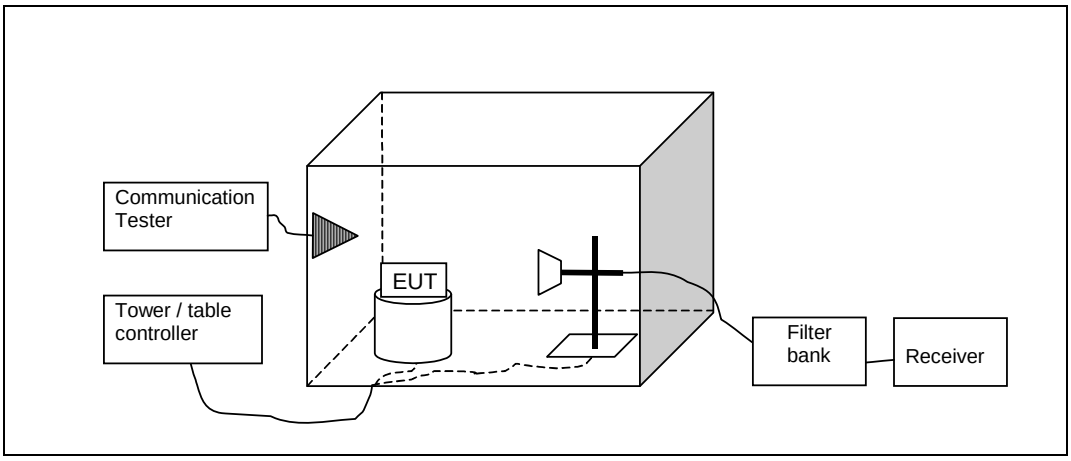
6. Spurious radiated emissions

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

EUT with DUT number	RM-975, DUT 18152
Accessories with DUT numbers	BL-5H, DUT 18153 ; WH-108, DUT 17990 ; AC-20E, DUT 17995
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Measured from Antenna 2
Temp [ºC] / Humidity [%RH] / Air Pressure [kPa]	22 / 42 / 101.4
Date of measurements	06-May-2014
Measured by	Sami Lehtonen

6.1.1 Test setup



6.2. 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.

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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.

Limits for spurious radiated emissions measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 850	30 - 8500	-13
WCDMA 1900	30 - 19100	-13
WCDMA 1700	30 - 17500	-13
WCDMA 850	30 - 8500	-13
LTE1900 (Band 2)	30 - 19100	-13
LTE1700 (Band 4)	30 - 17500	-13
LTE850 (Band 5)	30 - 8500	-13
LTE7	30 - 25700	-13
LTE700 Lower (Band 17)	30 - 7200	-13 (RBW = 100 kHz, ERP)

6.3. GSM 850 EDGE test results

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
1673.22	-56.54	0.00222	-62.94	6.4	VERTICAL	PASSED
2509.82	-43.98	0.03999	-55.98	12	HORIZONTAL	PASSED

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6.4. GSM 850 test results

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
1652.986	-57.86	0.00164	-64.26	6.4	VERTICAL	PASSED
1673.026	-55.29	0.00296	-61.69	6.4	VERTICAL	PASSED
1706.894	-57.49	0.00178	-63.29	5.8	VERTICAL	PASSED
2509.94	-44.92	0.03221	-56.82	11.9	HORIZONTAL	PASSED
2532.385	-51.78	0.00664	-63.88	12.1	HORIZONTAL	PASSED
3361.283	-60.25	0.00094	-63.65	3.4	HORIZONTAL	PASSED

6.5. WCDMA 1900 test results

Channel 9400 / 1880.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
3761.423	-48.23	0.01503	-54.73	6.5	HORIZONTAL	PASSED
5643.106	-51.83	0.00656	-62.13	10.3	VERTICAL	PASSED
7519.178	-47.82	0.01652	-63.92	16.1	HORIZONTAL	PASSED
9334.689	-43.04	0.04966	-65.54	22.5	VERTICAL	PASSED
9397.735	-43.91	0.04064	-65.31	21.4	HORIZONTAL	PASSED
9440.341	-44.29	0.03724	-65.29	21	HORIZONTAL	PASSED
9534.369	-42.34	0.05834	-64.64	22.3	VERTICAL	PASSED
9879.299	-43.2	0.04786	-65.8	22.6	VERTICAL	PASSED
9899.299	-42.86	0.05176	-65.76	22.9	VERTICAL	PASSED
9976.613	-43.73	0.04236	-65.43	21.7	HORIZONTAL	PASSED
11286.072	-41.11	0.07745	-64.41	23.3	HORIZONTAL	PASSED
13160.02	-51.7	0.00676	-68.7	17	VERTICAL	PASSED
15044.068	-49.37	0.01156	-71.37	22	VERTICAL	PASSED
16930	-46.78	0.02099	-72.28	25.5	VERTICAL	PASSED

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6.6. WCDMA 1700 test results

Channel 1412 / 1732.4 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
3467.185	-43.14	0.04853	-49.04	5.9	HORIZONTAL	PASSED
5187.721	-51.52	0.00705	-62.02	10.5	HORIZONTAL	PASSED
6936.394	-47.54	0.01762	-61.34	13.8	HORIZONTAL	PASSED
8669.315	-45.3	0.02951	-64	18.7	VERTICAL	PASSED
9316.774	-42.79	0.0526	-65.19	22.4	VERTICAL	PASSED
9539.78	-43.1	0.04898	-65.5	22.4	VERTICAL	PASSED
9587.595	-44.32	0.03698	-65.52	21.2	HORIZONTAL	PASSED
9815.772	-44.1	0.0389	-65.7	21.6	HORIZONTAL	PASSED
9915.451	-42.45	0.05689	-65.05	22.6	VERTICAL	PASSED
9948.076	-42.51	0.0561	-64.61	22.1	VERTICAL	PASSED
10397.586	-43.29	0.04688	-65.49	22.2	HORIZONTAL	PASSED
12130.828	-41.77	0.06653	-64.07	22.3	VERTICAL	PASSED
13865.713	-51.13	0.00771	-69.33	18.2	HORIZONTAL	PASSED
15594.666	-47.15	0.01928	-72.05	24.9	VERTICAL	PASSED
17327.467	-45.42	0.02871	-72.42	27	VERTICAL	PASSED

6.7. WCDMA 850 test results

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
852.236	-45.72	0.02679	-80.42	34.7	VERTICAL	PASSED
855.897	-45.6	0.02754	-80.4	34.8	VERTICAL	PASSED
957.705	-40.4	0.0912	-80.5	40.1	HORIZONTAL	PASSED
958.747	-39.49	0.11246	-79.69	40.2	HORIZONTAL	PASSED
959.289	-39.34	0.11641	-79.54	40.2	HORIZONTAL	PASSED
960.421	-39.81	0.10447	-80.01	40.2	HORIZONTAL	PASSED
1667.495	-56.94	0.00202	-63.14	6.2	VERTICAL	PASSED
2502.936	-50.26	0.00942	-62.16	11.9	HORIZONTAL	PASSED
3337.174	-55.88	0.00258	-59.48	3.6	HORIZONTAL	PASSED
4165.962	-57.97	0.0016	-63.47	5.5	HORIZONTAL	PASSED
5006.212	-54.38	0.00365	-62.98	8.6	VERTICAL	PASSED
5840.772	-53.43	0.00454	-62.03	8.6	VERTICAL	PASSED
6679.94	-49.62	0.01091	-60.22	10.6	VERTICAL	PASSED
7505.882	-49.32	0.01169	-63.62	14.3	VERTICAL	PASSED
8346.733	-47.78	0.01667	-63.78	16	VERTICAL	PASSED

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6.8. LTE1900 (Band 2) 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]	Polarisation	Results
1910.301	-62.26	0.00059	-71.66	9.4	HORIZONTAL	PASSED
3760.381	-53.77	0.0042	-60.27	6.5	HORIZONTAL	PASSED
5639.098	-61.83	0.00066	-71.93	10.1	HORIZONTAL	PASSED
7515.17	-58.68	0.00136	-74.58	15.9	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]	Polarisation	Results
3760.301	-57.36	0.00184	-63.86	6.5	HORIZONTAL	PASSED
5642.906	-61.96	0.00064	-72.16	10.2	HORIZONTAL	PASSED
7516.573	-58.63	0.00137	-74.63	16	HORIZONTAL	PASSED

6.9. LTE1700 (Band 4) 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]	Polarisation	Results
3465.381	-44.88	0.03251	-50.78	5.9	HORIZONTAL	PASSED
5187.5	-62.59	0.00055	-73.29	10.7	VERTICAL	PASSED
6930.421	-58.1	0.00155	-71.9	13.8	HORIZONTAL	PASSED
8669.334	-57.07	0.00196	-76.17	19.1	HORIZONTAL	PASSED
10396.463	-53.8	0.00417	-76.1	22.3	VERTICAL	PASSED

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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]	Polarisation	Results
3465.381	-44.99	0.0317	-50.89	5.9	HORIZONTAL	PASSED
5187.62	-62.83	0.00052	-73.33	10.5	HORIZONTAL	PASSED
6929.579	-58.33	0.00147	-72.23	13.9	VERTICAL	PASSED
8672.5	-57.36	0.00184	-76.16	18.8	VERTICAL	PASSED
10393.858	-53.77	0.0042	-76.07	22.3	VERTICAL	PASSED

6.10. LTE850 (Band 5) 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]	Polarisation	Results
852.388	-58.77	0.00133	-93.07	34.3	HORIZONTAL	PASSED
858.917	-56.2	0.0024	-90.5	34.3	HORIZONTAL	PASSED
881.971	-51.4	0.00724	-87	35.6	HORIZONTAL	PASSED
960.432	-50.28	0.00938	-90.48	40.2	HORIZONTAL	PASSED
1679.754	-76.77	2E-05	-82.57	5.8	HORIZONTAL	PASSED
2510.201	-64.18	0.00038	-76.08	11.9	HORIZONTAL	PASSED
3346.782	-62.54	0.00056	-66.14	3.6	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]	Polarisation	Results
821.013	-56.52	0.00223	-93.02	36.5	HORIZONTAL	PASSED
851.887	-56.27	0.00236	-90.57	34.3	HORIZONTAL	PASSED
866.132	-55.97	0.00253	-90.57	34.6	HORIZONTAL	PASSED
880.456	-51.33	0.00736	-87.03	35.7	HORIZONTAL	PASSED
955.404	-50.7	0.00851	-90.5	39.8	HORIZONTAL	PASSED
1665.926	-76.94	2E-05	-82.54	5.6	HORIZONTAL	PASSED
2509.961	-61.99	0.00063	-73.89	11.9	HORIZONTAL	PASSED
3346.661	-63.36	0.00046	-66.96	3.6	HORIZONTAL	PASSED

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6.11. 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]	Polarisation	Results
2573.659	-60.2	0.00095	-72.5	12.3	HORIZONTAL	PASSED
2575.948	-60.12	0.00097	-72.42	12.3	HORIZONTAL	PASSED
2578.641	-60.49	0.00089	-72.79	12.3	HORIZONTAL	PASSED
2578.998	-60.5	0.00089	-72.7	12.2	HORIZONTAL	PASSED
2586.745	-60.97	0.0008	-73.07	12.1	HORIZONTAL	PASSED
2588.437	-61.5	0.00071	-73.6	12.1	HORIZONTAL	PASSED
5070.381	-49.05	0.01245	-59.25	10.2	HORIZONTAL	PASSED
7600.772	-58.42	0.00144	-74.22	15.8	HORIZONTAL	PASSED
10140.902	-53.98	0.004	-75.68	21.7	HORIZONTAL	PASSED
12673.978	-53.78	0.00419	-75.38	21.6	HORIZONTAL	PASSED

Channel 21100 / 2535.0 MHz

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

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
5070.381	-50.05	0.00989	-60.25	10.2	HORIZONTAL	PASSED
7598.527	-58.41	0.00144	-74.31	15.9	HORIZONTAL	PASSED
10147.996	-53.51	0.00446	-75.71	22.2	VERTICAL	PASSED
12682.154	-53.02	0.00499	-74.92	21.9	VERTICAL	PASSED

6.12. LTE700 Lower (Band 17) test results

Channel 23790 / 710 MHz

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

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
1420.381	-58.52	0.00141	-63.02	4.5	HORIZONTAL	PASSED
2130.541	-66.99	0.0002	-76.59	9.6	HORIZONTAL	PASSED
2840.741	-67.77	0.00017	-81.77	14	HORIZONTAL	PASSED

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Channel 23790 / 710 MHz

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

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
1420.381	-59.19	0.00121	-63.69	4.5	HORIZONTAL	PASSED
2130.501	-67.9	0.00016	-77.5	9.6	HORIZONTAL	PASSED
2840.782	-67.77	0.00017	-81.77	14	HORIZONTAL	PASSED

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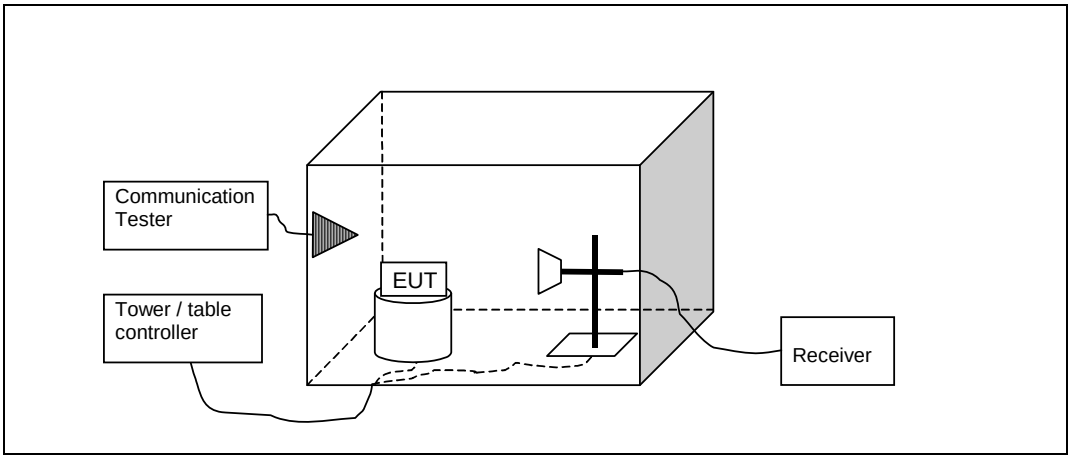
7. Radiated RF output power

(FCC §22.913(a), §24.232(b), RSS-132 4.4, RSS-133 6.4)

EUT with DUT number	RM-975, DUT 18152
Accessories with DUT numbers	BL-5H, DUT 18153
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	Measured from Antenna 2
Temp [ºC] / Humidity [%RH] / Air Pressure [kPa]	22 / 42 / 101.7
Date of measurements	07-Apr-2014
Measured by	Sami Lehtonen

7.1.1 Test setup



7.2. 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:

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

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

Limits for radiated RF output power measurements

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

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7.3. 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	30.64	1.157	-5.89	36.53	HORIZONTAL	PASSED
190 / 836.6	30.76	1.19	-5.02	35.78	VERTICAL	PASSED
251 / 848.8	29.59	0.91	-4.89	34.48	HORIZONTAL	PASSED

7.4. 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	29.86	0.968	-5.61	35.47	VERTICAL	PASSED
190 / 836.6	26.58	0.455	-9.2	35.78	VERTICAL	PASSED
251 / 848.8	25.64	0.366	-8.84	34.48	HORIZONTAL	PASSED

7.5. WCDMA 1900 test results

RMS detector

Channel / f_C [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
9262 / 1852.4	23.94	0.248	-20.62	44.56	HORIZONTAL	PASSED
9400 / 1880	25.92	0.39	-19.09	45.01	HORIZONTAL	PASSED
9538 / 1907.6	23.52	0.225	-21.95	45.47	HORIZONTAL	PASSED

7.6. WCDMA 1700 test results

RMS detector

Channel / f_C [MHz]	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
1312 / 1712.4	24.98	0.315	-19.26	44.24	HORIZONTAL	PASSED
1412 / 1732.4	24.67	0.293	-19.34	44.01	HORIZONTAL	PASSED
1513 / 1752.6	23.28	0.213	-20.91	44.19	HORIZONTAL	PASSED

7.7. WCDMA 850 test results

RMS detector

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results

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4132 / 826.4	22.37	0.172	-13.95	36.32	HORIZONTAL	PASSED
4175 / 835	19.93	0.098	-15.94	35.87	VERTICAL	PASSED
4233 / 846.6	20.48	0.112	-14.49	34.97	VERTICAL	PASSED

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7.8. LTE1900 (Band 2) 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
18625 / 1852.5	24.99	0.315	-19.58	44.57	HORIZONTAL	PASSED
18900 / 1880	26.58	0.455	-18.43	45.01	HORIZONTAL	PASSED
19175 / 1907.5	24.66	0.293	-20.81	45.47	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
18625 / 1852.5	25	0.316	-19.57	44.57	HORIZONTAL	PASSED
18900 / 1880	27.18	0.523	-17.83	45.01	HORIZONTAL	PASSED
19175 / 1907.5	24.45	0.279	-21.02	45.47	HORIZONTAL	PASSED

7.9. LTE1700 (Band 4) 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
19975 / 1712.5	25.93	0.392	-18.31	44.24	HORIZONTAL	PASSED
20175 / 1732.5	25.44	0.35	-18.57	44.01	HORIZONTAL	PASSED
20375 / 1752.5	24.5	0.282	-19.69	44.19	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	26	0.398	-18.24	44.24	HORIZONTAL	PASSED
20175 / 1732.5	25.34	0.342	-18.67	44.01	HORIZONTAL	PASSED
20375 / 1752.5	24.49	0.281	-19.7	44.19	HORIZONTAL	PASSED

7.10. LTE850 (Band 5) test results

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	21.49	0.141	-14.82	36.31	HORIZONTAL	PASSED
20525 / 836.5	20.52	0.113	-15.26	35.78	HORIZONTAL	PASSED
20625 / 846.5	18.05	0.064	-16.63	34.68	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

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20425 / 826.5	21.13	0.13	-15.18	36.31	HORIZONTAL	PASSED
20525 / 836.5	20.46	0.111	-15.38	35.84	VERTICAL	PASSED
20625 / 846.5	18.28	0.067	-16.4	34.68	HORIZONTAL	PASSED

7.11. 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	22.67	0.185	-26.57	49.24	HORIZONTAL	PASSED
21100 / 2535	23.26	0.212	-26.03	49.29	HORIZONTAL	PASSED
21425 / 2567.5	23.73	0.236	-25.2	48.93	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	22.75	0.188	-26.49	49.24	HORIZONTAL	PASSED
21100 / 2535	23.23	0.21	-26.06	49.29	HORIZONTAL	PASSED
21425 / 2567.5	23.74	0.237	-25.19	48.93	HORIZONTAL	PASSED

7.12. LTE700 Lower (Band 17) test results

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

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
23755 / 706.5	17.57	0.057	-14.32	31.89	HORIZONTAL	PASSED
23790 / 710	17.98	0.063	-13.97	31.95	HORIZONTAL	PASSED
23825 / 713.5	18.27	0.067	-15.03	33.3	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
23755 / 706.5	17.8	0.06	-14.85	32.65	VERTICAL	PASSED
23790 / 710	17.91	0.062	-14.04	31.95	HORIZONTAL	PASSED
23825 / 713.5	18.4	0.069	-14.9	33.3	VERTICAL	PASSED

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8. Test Equipment

8.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B
6044	V-network	ESH3-Z6	R&S	-
2059	V-network	ESH3-Z6	R&S	-
1759	LISN 50 µH	ESH3-Z5	R&S	22/24/27, 15C, 15B
2097	Pulse Limiter	ESH3-Z2	R&S	22/24/27, 15C, 15B
1999	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2390	Directional Coupler	DC2600	AR	-
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B
2060	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
1759	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
2039	Power Supply	PL330QMD	Thurlby	15C, 15B
6036	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
2359	Temperature Test Chamber	VT4002	Vötsch	22/24/27
2352	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C
6109	Communication Tester	CMU200	R&S	22/24/27, 15C
6246	Power Supply	66332A	HP	22/24/27, 15C
1992	Signal Generator	83630B	Agilent	15C, 15B
6098	Signal Generator	8648C	Agilent	-
6046	Attenuator 10dB	8493C	Agilent	22/24/27, 15C
6047	Attenuator 20dB	8493C	Agilent	22/24/27, 15C
6045	Power splitter	11667B	Agilent	22/24/27, 15C
6247	Communication Tester	CBT	R&S	22/24/27, 15C 15B
6052	Communication Tester	CMU200	R&S	22/24/27, 15C 15B
6248	Power Supply	6632B	-	22/24/27, 15C 15B
6106	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C 15B
6113	Signal Generator	SMF100A	R&S	22/24/27, 15C 15B
6202	Temperature Test Chamber	VT4002	Vötsch	22/24/27, 15C 15B
6122	Power Splitter	11667B	Agilent	22/24/27, 15C 15B
6134	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	22/24/27, 15C
6136	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	22/24/27, 15C
6103	Bluetooth tester	CBT	R&S	22/24/27, 15C 15B
6250	Power Supply	6651A	Agilent	22/24/27, 15C 15B
6108	Communication Tester	CMU200	R&S	22/24/27, 15C 15B
6105	Spectrum Analyzer	FSV-30	R&S	22/24/27, 15C 15B
6251	Temperature Test Chamber	VT4002	Vötsch	22/24/27, 15C 15B
6243	Power Splitter	1167B	Agilent	22/24/27, 15C 15B
6245	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	22/24/27, 15C 15B
6244	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	22/24/27, 15C 15B

8.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
2388	Bluetooth Tester	CBT	R&S	15B
10479	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2009	Signal Generator	SMP 22	R&S	22/24/27, 15C, 15B
2348	Controller	G-1000DXC	Yaesu	22/24/27, 15C, 15B
2349	Computer Controller	g-1000DXC	Yaesu	22/24/27, 15C, 15B
2116	Controller	EMCO 2090	ETS	22/24/27, 15C, 15B
2109	Power Supply	PL330QMD	Thurlby	22/24/27, 15C, 15B
2353	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
6115	Open switch and control unit	OSP 130	R&S	22/24/27, 15C 15B
6116	Open switch and control unit	OSP 150	R&S	22/24/27, 15C 15B

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Eq. No	Equipment	Type	Manufacturer	Used in
6117	Open switch and control unit	OSP 150	R&S	22/24/27, 15C 15B
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	22/24/27, 15C 15B
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	22/24/27
6159	Band Reject Filter	WRCD1747.8-0.4/40-5SS	Wainwright	22/24/27,15C, 15B
6158	Band Reject Filter	WRCT836.6-0.4/40-8SS	Wainwright	22/24/27,15C, 15B
6197	Band Reject Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	22/24/27,15C, 15B
2231	Band Reject Filter	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27,15C, 15B
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
2386	Band Reject Filter	WRCG1764.4/1770.4-1760.4/1774.4-40/6SS	Wainwright	22/24/27, 15C, 15B
2385	Band Reject Filter	WRCG1744.4/1750.4-1740.4/1754.4-40/6SS	Wainwright	22/24/27, 15C, 15B
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	15C
2188	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
6195	High Pass Filter	-	Wainwright	22/24/27, 15C, 15B
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	22/24/27, 15C, 15B
6212	Antenna Array system	-	TCC	22/24/27, 15C, 15B
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B
6089	Antenna	HFH2-Z2	R&S	15C, 15B
2027	CDN	M2 (modified) DC1	MEB	22/24/27, 15C, 15B
2028	CDN	M3 (modified) DC2	MEB	22/24/27, 15C, 15B
2176	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2135	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2029	Power Supply	PL330	Thurlby	22/24/27, 15C
6038	Data Logger	Testo 580	Testo	22/24/27, 15C, 15B
6037	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B

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