FCC Part 22/24/27 Compliance Test Report

Test Report no.:	FCC22&24&27_RM-845_02.docx	**Date of Report:**	13-Aug-2012
Number of pages:	32	**Customer's Contact person:**	Abadilla Victoria
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 16620 W Bernardo Drive San Diego, CA 92127 Tel +1 858-831-5000 Fax. +1 858 385 1598
FCC listing no.: **IC recognition no.:**	533467 661V-1		
Tested devices/ accessories:	**Phone RM-845 / Battery BP-4W / AC-Charger AC-50U / Headset WH-902**		
FCC ID:	QMNRM-845	**IC:**	661X-RM845
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-132 (Issue 2, September 2005), RSS-133 (Issue 5, February 2009), Canada RSS-129 (Issue 2, September 1999). 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:	Digitally signed by Kalle Hannila DN: cn=Kalle Hannila, o=DRD/DQD/DCO/CMCL, ou=TCC Nokia, email=EXT-kalle.t.hannila@nokia.com, c=FI Date: 2012.08.15 12:48:37 +03'00'		

Kalle Hannila, Engineer, EMC&SAR

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

Date of receipt	27-Jul-2012
Testing completed	08-Aug-2012
The customer's contact person	Victoria Abadilla
Test Plan referred to	T:\Projects\RM-845\TestPlan\RS_testplan_RM-845.xlsm
Notes	-
Document name	T:\Projects\RM-845\EMC\FCC22&24&27_RM-845_02.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:
GSM/CDMA/WCDMA/Bluetooth
The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-845	C1A138246/30584/E2	0209		1525.0003.8422.9720.12272	16538
Battery	BP-4W	393213215514010054öö0670671				16528
Phone	RM-845	352875050016897	0209		1521.0003.8422.9710.12271	16577
Battery	BP-4W	393213215514010114öö0670671	-	-	-	16578
AC-Charger	AC-50U	409049215427050147öö0675620	-	-	-	16562
Headset	WH-902	209E2R	-	-	-	16563
Phone	RM-845	352875050016426	0209	-	1525.0003.8422.9710.12271	16546
Battery	BP-4W	393213215514010106 7öö0670671	-	-	-	16547
Headset	WH-902	209E2R	-	-	-	16564
AC-Charger	AC-50U	409049215427050146 7öö0675620	-	-	-	16558

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	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

CDMA800:

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

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

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	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED

CDMA1900:

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

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LTE700 Upper (Band 13):

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046 (a)	N/A	Conducted RF output power	NP
§27.50(b)(10)	N/A	Radiated RF output power	PASSED
§2.1049(h)	N/A	99 % occupied bandwidth	PASSED
§27.53(c)(2)(4)	N/A	Band edge compliance	PASSED
§27.53(c)(2)(4),(f), §2.1051	N/A	Spurious emissions at antenna terminals	NP
§27.53(c)(2)(4),(f), §2.1053	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

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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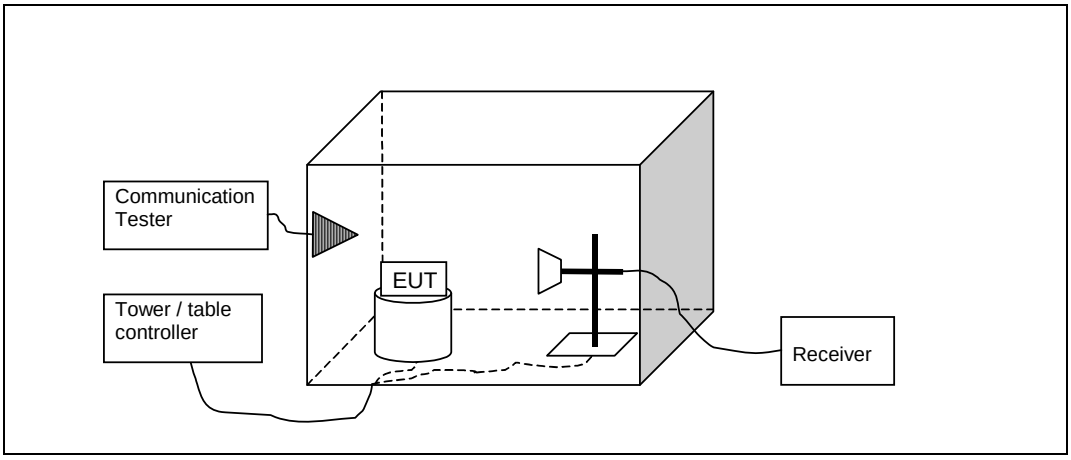
2. Radiated RF output power

(FCC §22.913(a), §24.232(b), §27.53(c)(2)(4), RSS-132 4.4, RSS-133 6.4)

EUT with DUT number	RM-845, DUT 16538
Accessories with DUT numbers	BP-4W, DUT 16528
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 69 / 101.2
Date of measurements	24-Jul-2012
Measured by	Kalle Hannila / Jari Keto

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:

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

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]
777 - 787	3 ERP	34.8
824 - 849	7 ERP	38.5
1850 - 1910	2 EIRP	33

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2.3. LTE700 Upper (Band 13) test results

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

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
23230 / 782	21.02	0.126	-11.72	32.74	VERTICAL	PASSED

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

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
23230 / 782	15.58	0.036	-17.16	32.74	VERTICAL	PASSED

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

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
23230 / 782	21.68	0.147	-11.06	32.74	VERTICAL	PASSED

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

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
23230 / 782	18.92	0.078	-14.77	33.69	HORIZONTAL	PASSED

2.4. GSM850 TX test results

Peak detector

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
128 / 824.2	30.76	1.192	-4.08	34.84	VERTICAL	PASSED
190 / 836.6	30.75	1.188	-3.5	34.25	VERTICAL	PASSED
251 / 848.8	30.31	1.074	-3.5	33.81	VERTICAL	PASSED

2.5. GSM850-E1 TX test results

Peak detector

Channel / f_C [MHz]	ERP [dBm]	ERP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Results
128 / 824.2	27.83	0.607	-79.78	107.61	VERTICAL	PASSED
190 / 836.6	28.02	0.633	-79.61	107.63	VERTICAL	PASSED
251 / 848.8	27.69	0.587	-79.9	107.59	VERTICAL	PASSED

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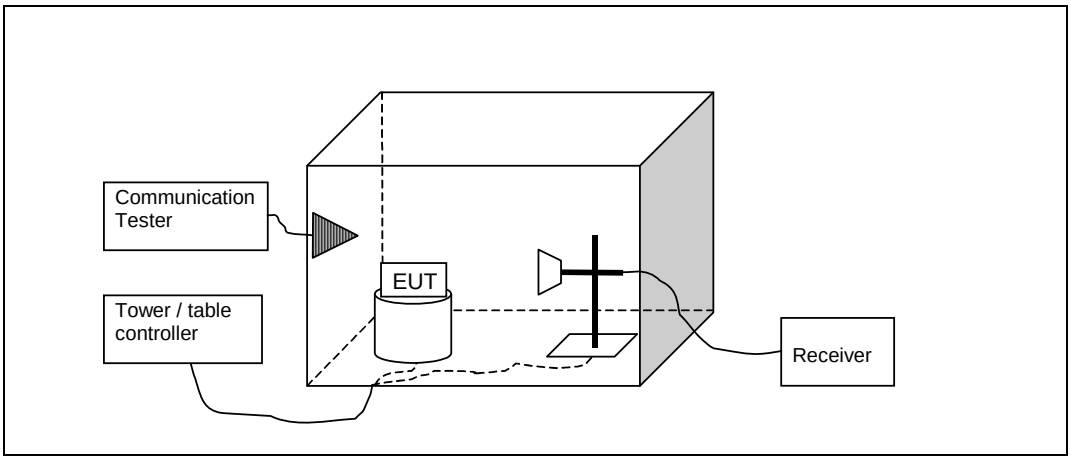
3. Band edge compliance

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

EUT with DUT number	RM-845, DUT 16538
Accessories with DUT numbers	BP-4W, DUT 16528
Operation Voltage [V] / [Hz]	-
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 69 / 101.2
Date of measurements	24-Jul-2012
Measured by	Kalle Hannila / Jari Keto

3.1.1 Test setup



3.2. Test method and limit

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

Limits for band edge compliance measurements

Operation band	Frequency range [MHz]	Limit [dBm]
LTE 700 Upper	776.9 -777 and 787 - 787.1 Below 776.9 and above 787.1 763-775 and 793-805	-13 (RBW = 30 kHz, ERP) -13 (RBW = 100 kHz, ERP) -35 (RBW = 6.25 kHz, ERP)
CDMA800 / GSM850 / WCDMA850	Below 824 and above 849	-13
CDMA1900 / GSM1900 / WCDMA1900	Below 1850 and above 1910	-13

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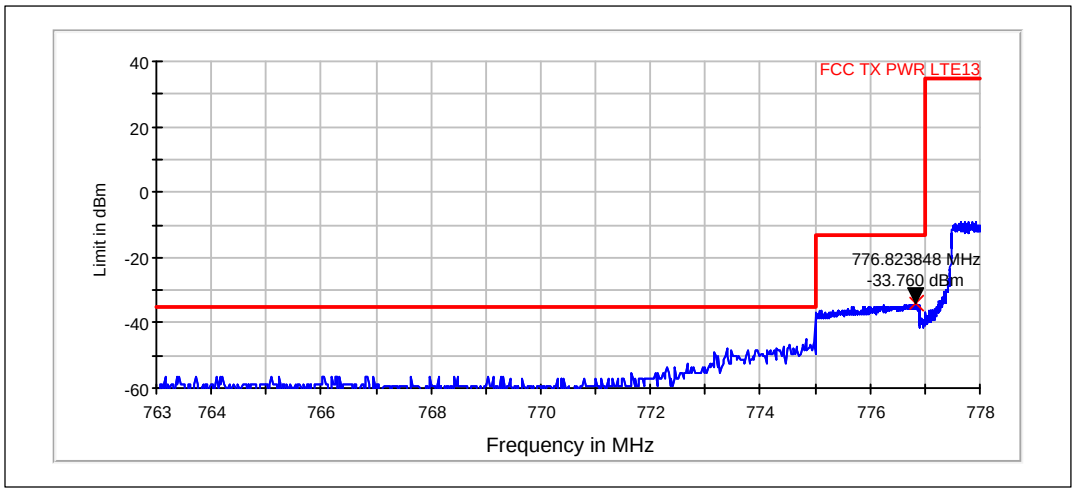
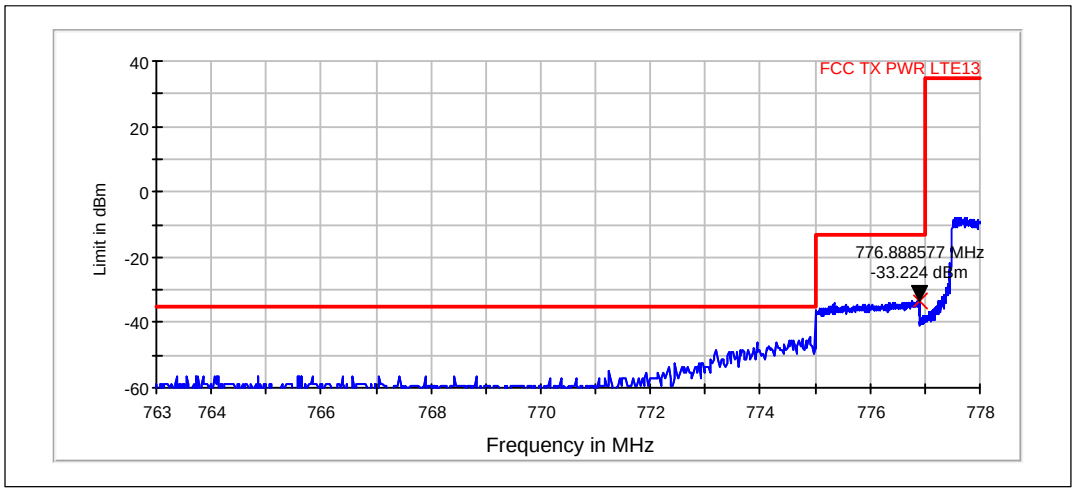
3.3. LTE700 Upper (Band 13) test results



RMS detector

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
FDD, CBW 10MHz, QPSK, 50 RB	23230 / 782	-33.76	PASSED



RMS detector

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
FDD, CBW 10MHz, 16QAM, 50 RB	23230 / 782	-33.22	PASSED

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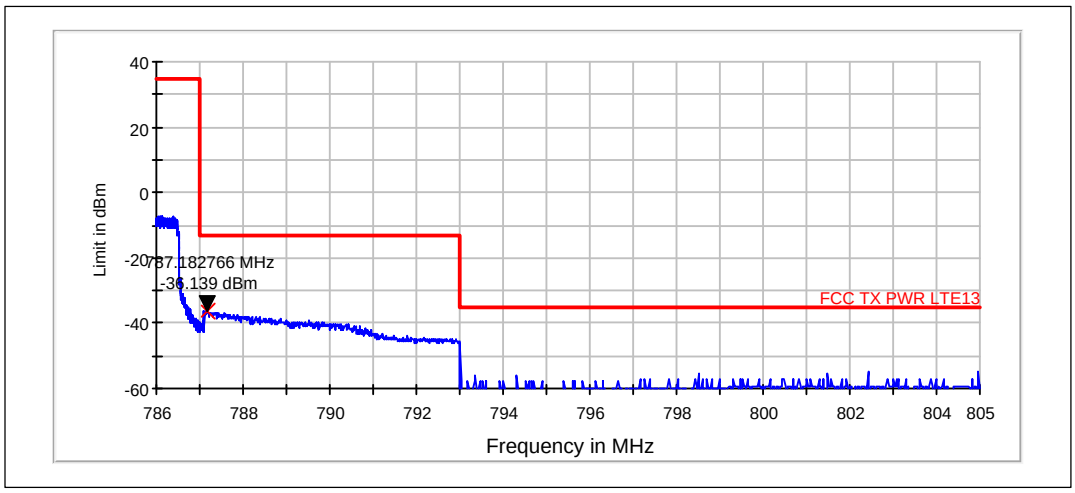
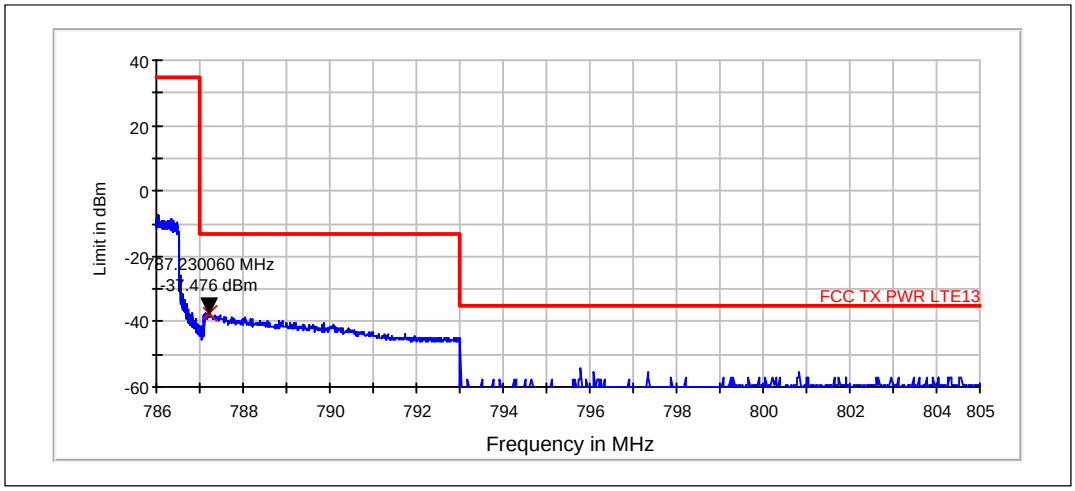


RMS detector

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
FDD, CBW 10MHz, QPSK, 50 RB	23230 / 782	-36.14	PASSED



RMS detector

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
FDD, CBW 10MHz, 16QAM, 50 RB	23230 / 782	-37.48	PASSED

3.4. GSM850 test results

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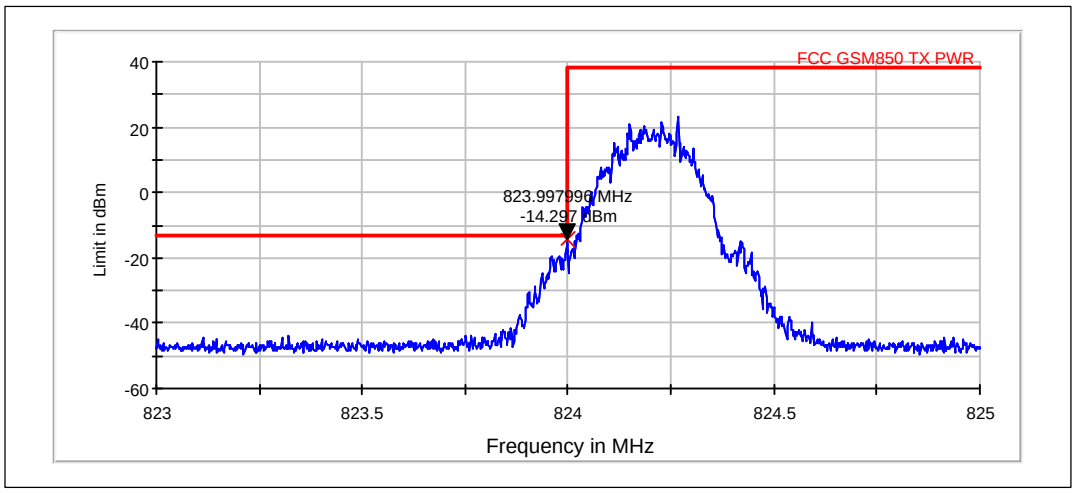
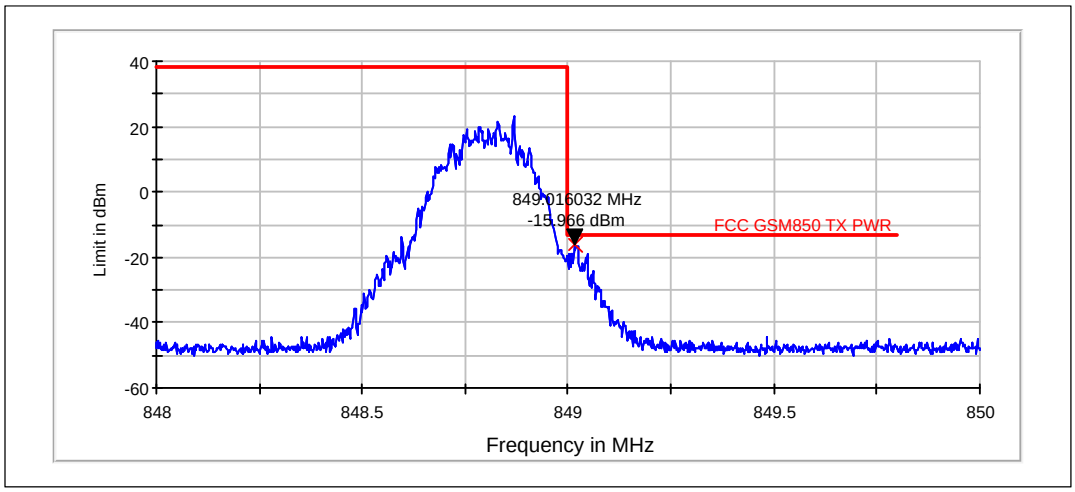


Peak (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
GSM	128 / 824.2	-14.3	PASSED



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

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
GSM	251 / 848.8	-15.97	PASSED

3.5. GSM850-E1 test results

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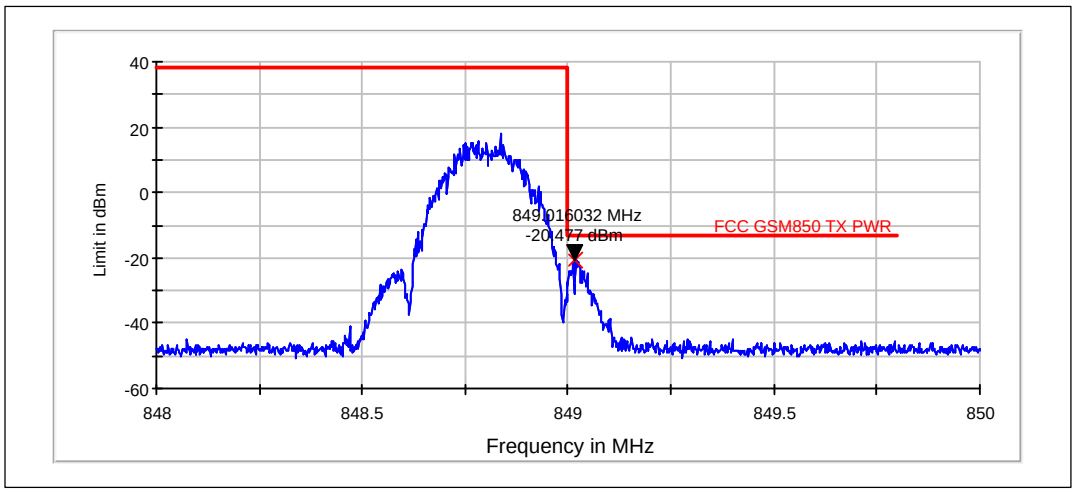
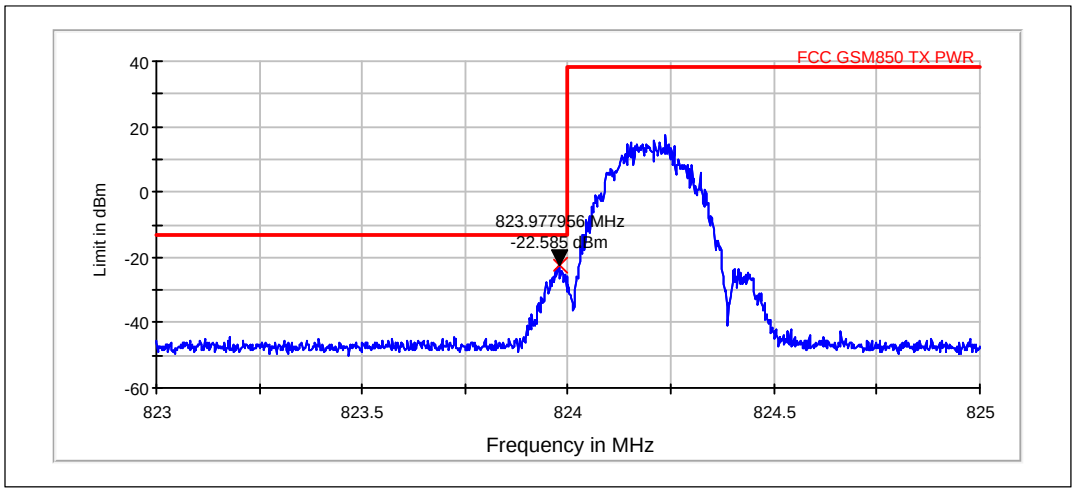


Peak (RBW: 3 kHz, VBW: 3 kHz, Max hold)

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
E-GPRS (MSC9)	251 / 848.8	-20.48	PASSED



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

Operation mode (TX on)	Channel fc [MHz]	Level [dBm]	Results
E-GPRS (MSC9)	128 / 824.2	-22.59	PASSED

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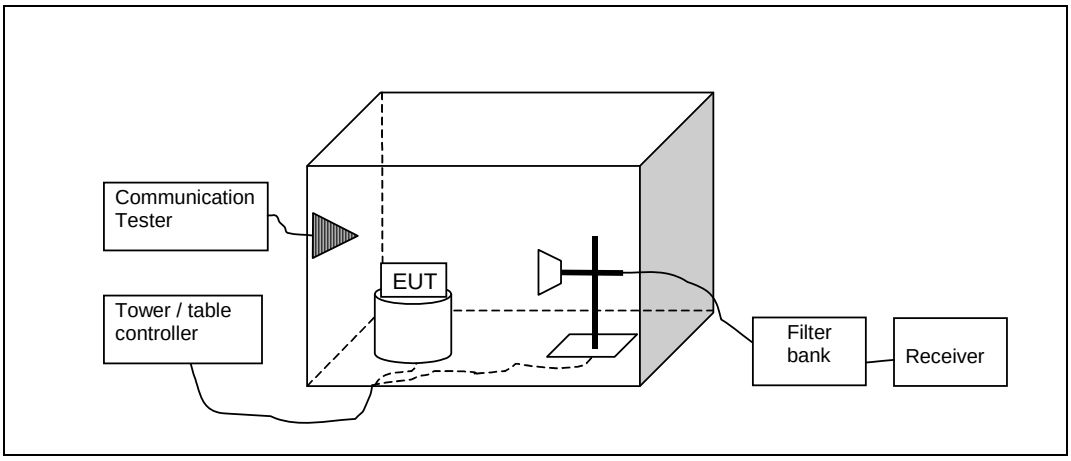
4. Spurious radiated emissions

(FCC §22.917(a), §2.1053, §24.238(a), §2.1053, §27.53(c)(2)(4), RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-845, DUT 16577
Accessories with DUT numbers	BP-4W, DUT 16578 ; AC-50U, DUT 16562 ; WH-902, DUT 16563
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 /101.2
Date of measurements	30-Jul-2012
Measured by	Kalle Hannila / Jari Keto

4.1.1 Test setup



4.2. 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]
LTE 700 Upper	30 – 8000 763-775 and 793-805 1559 – 1610 1559 – 1610	-13 (RBW = 100 kHz, ERP) -35 (RBW = 6.25 kHz, ERP) -40 (RBW = 1 MHz) -50 (RBW = 700 Hz)
CDMA800 / GSM850 / WCDMA850	30 - 8500	-13
CDMA1900 / GSM1900 / WCDMA1900	30 - 18000	-13

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4.3. GSM850 TX test results

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
848.642	-56.51	0.00223	-53.39	-3.12	VERTICAL	PASSED
848.663	-57.79	0.00166	-54.66	-3.13	VERTICAL	PASSED
848.745	-56.47	0.00226	-53.33	-3.14	VERTICAL	PASSED
848.852	-59.06	0.00124	-55.85	-3.21	HORIZONTAL	PASSED
1673.106	-41.46	0.07153	-46.15	4.69	HORIZONTAL	PASSED
2523.768	-52.45	0.00569	-63.6	11.15	HORIZONTAL	PASSED

4.4. GSM1900 TX test results

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
9335.511	-45.24	0.02994	-63.84	18.6	HORIZONTAL	PASSED
9400.16	-42.64	0.05448	-61.63	18.99	VERTICAL	PASSED
9665.731	-45.06	0.03116	-64.47	19.41	VERTICAL	PASSED
9755.07	-44.19	0.03807	-63.63	19.44	VERTICAL	PASSED
9944.329	-44.78	0.03328	-64.3	19.52	VERTICAL	PASSED
14458.697	-43.3	0.04681	-67.84	24.54	VERTICAL	PASSED

4.5. GSM850-E1 TX test results

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
848.645	-66.95	0.0002	-63.75	-3.2	HORIZONTAL	PASSED
848.813	-66.48	0.00023	-63.33	-3.15	VERTICAL	PASSED
848.881	-66.16	0.00024	-63.04	-3.12	VERTICAL	PASSED
850.271	-66.62	0.00022	-63.93	-2.69	VERTICAL	PASSED
1673.206	-48.53	0.01403	-53.22	4.69	HORIZONTAL	PASSED
2511.683	-52.2	0.00602	-62.71	10.51	HORIZONTAL	PASSED

4.6. GSM1900-E1 TX test results

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
9367.395	-43.58	0.04383	-62.32	18.74	HORIZONTAL	PASSED
9439.419	-44.85	0.03276	-63.74	18.89	VERTICAL	PASSED
9687.715	-44.35	0.03675	-64.12	19.77	VERTICAL	PASSED
9745.992	-45.24	0.02992	-64.62	19.38	VERTICAL	PASSED

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9937.174	-44.32	0.03699	-63.83	19.51	VERTICAL	PASSED
14427.415	-42.11	0.06153	-66.98	24.87	VERTICAL	PASSED

4.7. LTE700 Upper (Band 13) test results

Channel 23230 / 782 MHz

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

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
749.058	-39.97	0.10072	-73.32	33.35	VERTICAL	PASSED
763.09	-72.77	5E-05	-107	34.23	VERTICAL	PASSED
804.976	-71.99	6E-05	-107	35.01	HORIZONTAL	PASSED
897.612	-58.17	0.00152	-93.03	34.86	HORIZONTAL	PASSED
1573.719	-69.05	0.00012	-73.32	4.27	HORIZONTAL	PASSED
1609.038	-68.62	0.00014	-73.31	4.69	HORIZONTAL	PASSED
1884.99	-75.19	3E-05	-81.74	6.55	HORIZONTAL	PASSED
2356	-73.11	5E-05	-82.57	9.46	HORIZONTAL	PASSED
3128.581	-75.92	3E-05	-77.96	2.04	HORIZONTAL	PASSED

4.8. WCDMA 1900 (Band II) test results

Channel 9400 / 1880.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
2430.376	-51.16	0.00766	-62.93	11.77	HORIZONTAL	PASSED
8687.475	-45.54	0.02796	-62.65	17.11	VERTICAL	PASSED
9269.359	-44.87	0.03256	-63.58	18.71	HORIZONTAL	PASSED
9358.617	-43.79	0.04177	-62.53	18.74	VERTICAL	PASSED
9692.605	-43.16	0.04835	-62.91	19.75	VERTICAL	PASSED
9948.838	-43.83	0.04139	-63.35	19.52	VERTICAL	PASSED

4.9. WCDMA 850 (Band V) test results

Channel 4175 / 835.0 MHz

FDD mode, Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
821.638	-44.27	0.03742	-78.84	34.57	VERTICAL	PASSED
847.6	-45.61	0.02745	-79.62	34.01	VERTICAL	PASSED
848.078	-46.36	0.02314	-80.29	33.93	VERTICAL	PASSED
999.519	-42.47	0.05665	-79.98	37.51	HORIZONTAL	PASSED
1000.12	-58.39	0.00145	-60.88	2.49	HORIZONTAL	PASSED

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2453.246	-53.27	0.00471	-63.19	9.92	HORIZONTAL	PASSED

4.10. CDMA800 TX test results

Channel 384 / 836.52 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
1663.627	-58.13	0.00154	-63.51	5.38	VERTICAL	PASSED
1672.846	-55.53	0.0028	-61.14	5.61	VERTICAL	PASSED
2497.255	-53.76	0.00421	-64.04	10.28	VERTICAL	PASSED
2525.03	-51.63	0.00688	-62.86	11.23	HORIZONTAL	PASSED
3327.315	-59.51	0.00112	-60.66	1.15	VERTICAL	PASSED
3361.784	-60.36	0.00092	-61.64	1.28	VERTICAL	PASSED

4.11. CDMA800-EVDO TX test results

Channel 384 / 836.52 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
1672.044	-57.01	0.00199	-62.64	5.63	VERTICAL	PASSED
1676.172	-56.96	0.00201	-62.46	5.5	VERTICAL	PASSED
2505.912	-53.11	0.00489	-63.87	10.76	HORIZONTAL	PASSED
3349.118	-59.77	0.00106	-60.76	0.99	HORIZONTAL	PASSED

4.12. CDMA1900 TX test results

Channel 600 / 1880 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
9281.824	-44.64	0.03437	-63.32	18.68	HORIZONTAL	PASSED
9366.112	-43.5	0.0447	-62.21	18.71	HORIZONTAL	PASSED
9553.086	-44.14	0.03856	-63.06	18.92	HORIZONTAL	PASSED
9692.926	-42.77	0.05291	-62.52	19.75	VERTICAL	PASSED
9791.283	-44.13	0.03864	-63.58	19.45	HORIZONTAL	PASSED
10002.285	-44.01	0.03974	-63.3	19.29	VERTICAL	PASSED

4.13. CDMA1900-EVDO TX test results

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Channel 600 / 1880 MHz

Peak detector

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarization	Results
9310.882	-44.33	0.03687	-63.24	18.91	VERTICAL	PASSED
9671.403	-42.84	0.05201	-62.36	19.52	VERTICAL	PASSED
9734.449	-44.48	0.03564	-63.77	19.29	VERTICAL	PASSED
9801.222	-44.07	0.03915	-63.6	19.53	HORIZONTAL	PASSED
9926.353	-43.89	0.04084	-63.59	19.7	HORIZONTAL	PASSED
9929.118	-42.74	0.05317	-62.39	19.65	HORIZONTAL	PASSED

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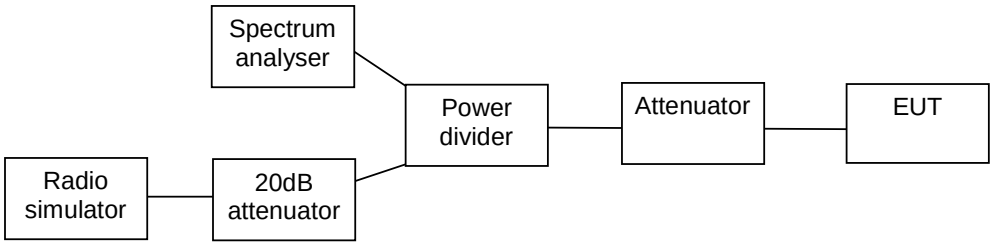
5. 99% occupied bandwidth

(FCC §2.1049(h), RSS-GEN 4.6.1)

EUT with DUT number	RM-845, DUT 16546
Accessories with DUT numbers	BP-4W, DUT 16547 ; WH-902, DUT 16564 ; AC-50U, DUT 16558
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 101
Date of measurements	20-Jul-2012
Measured by	Sami Lehtonen

5.1. Test Setup



5.2. Test method and limit

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

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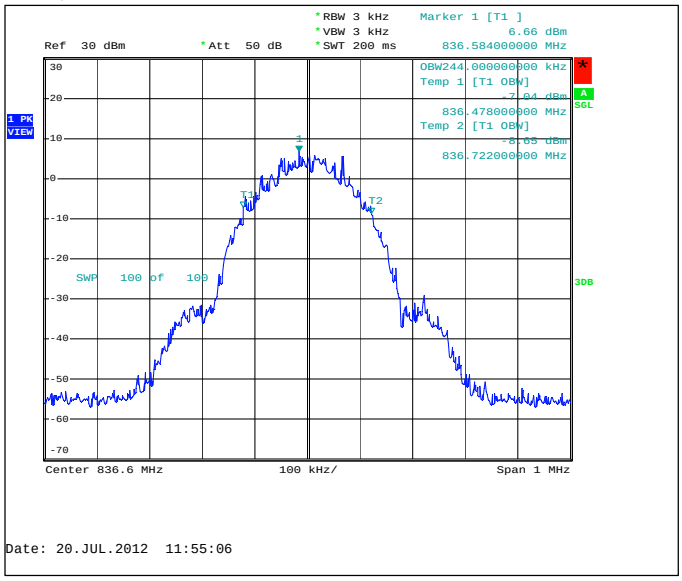
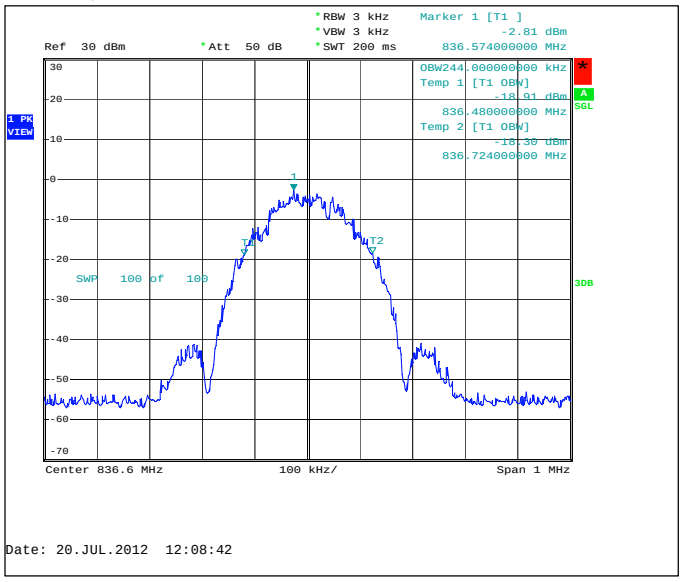
5.3. GSM 850 Test results

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

GSM, Channel 190 / 836.6 MHz



EGPRS, Channel 190 / 836.6 MHz



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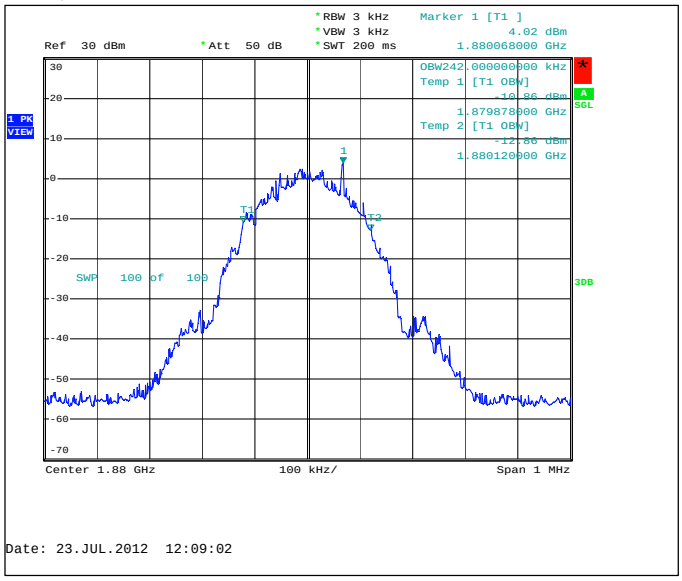
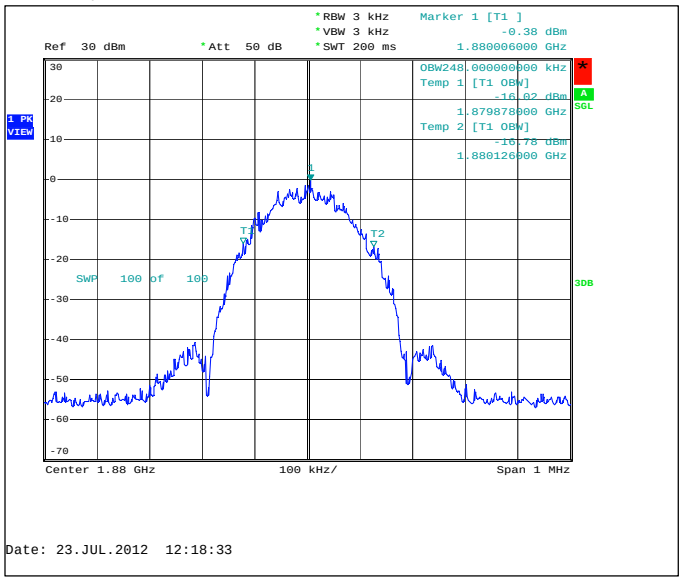
5.4. GSM 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	242
EGPRS	248

GSM, Channel 661 / 1880.0 MHz



EGPRS, Channel 661 / 1880.0 MHz



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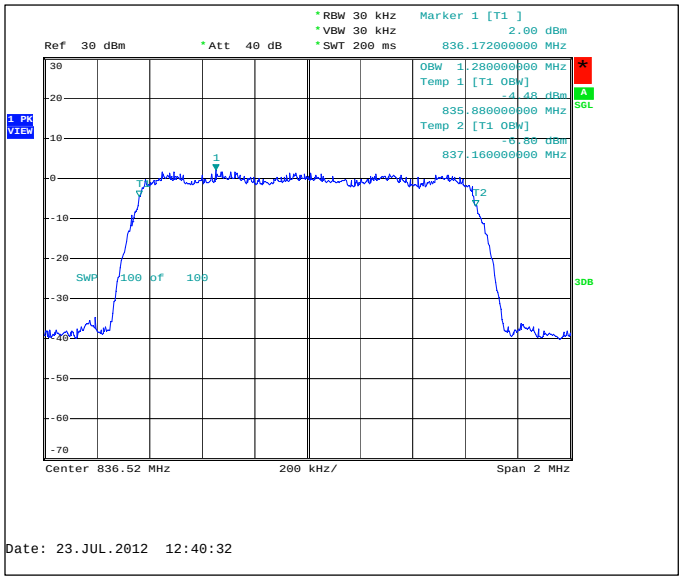
5.5. CDMA 800 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
CDMA	1280

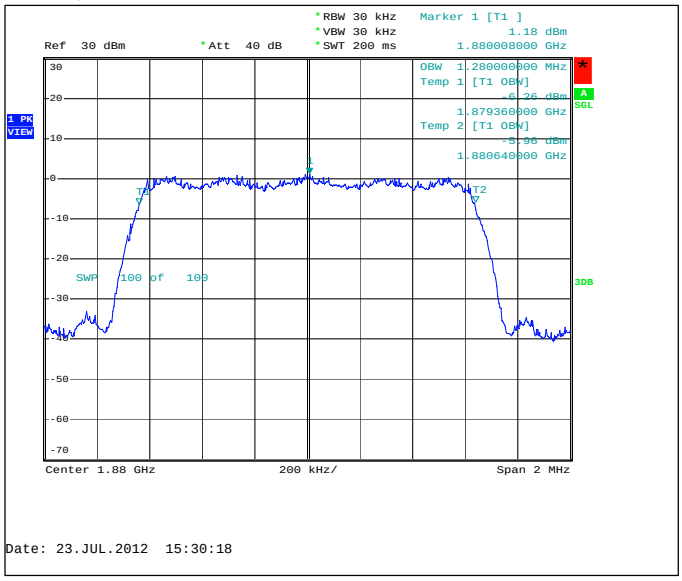
CDMA, Channel 384 / 836.52 MHz



5.6. CDMA 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
CDMA	1280

CDMA, Channel 600 / 1880.0 MHz



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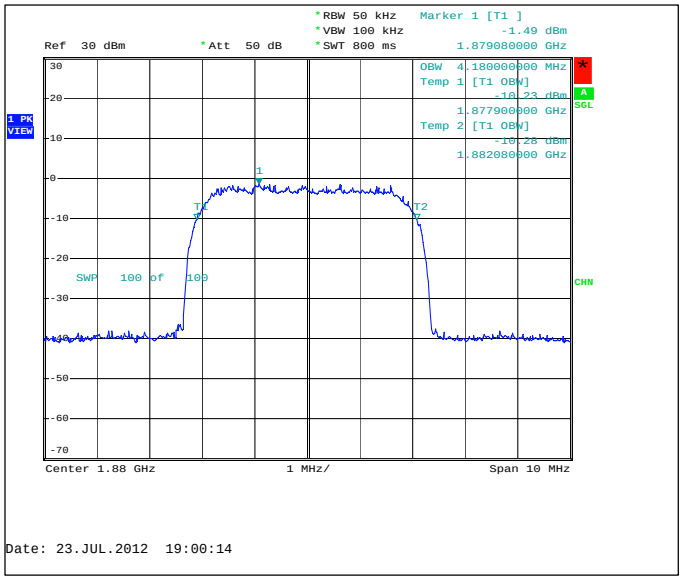
5.7. WCDMA 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4180

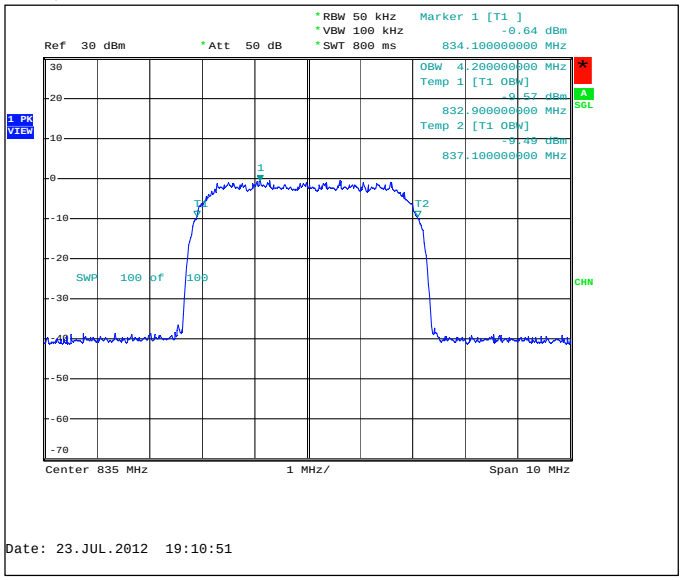
FDD, Channel 9400 / 1880.0 MHz



5.8. WCDMA 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4200

FDD, Channel 4175 / 835.0 MHz



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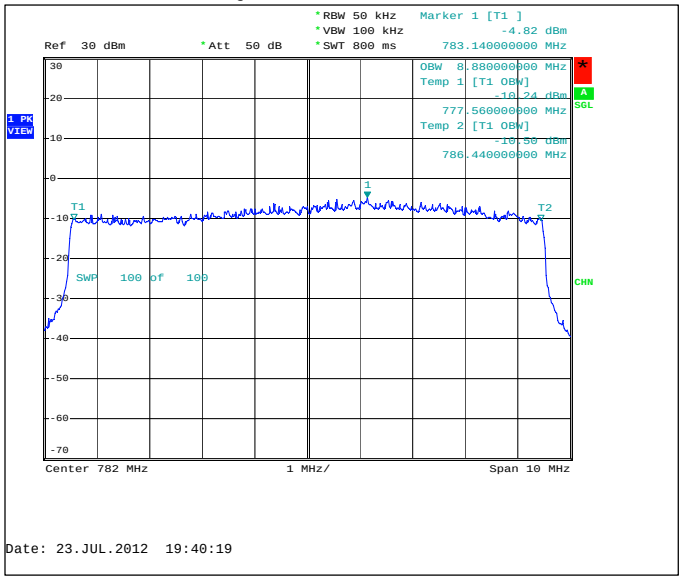
5.9. LTE700 Upper (Band 13) Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 10MHz, QPSK, 50 RB	8880

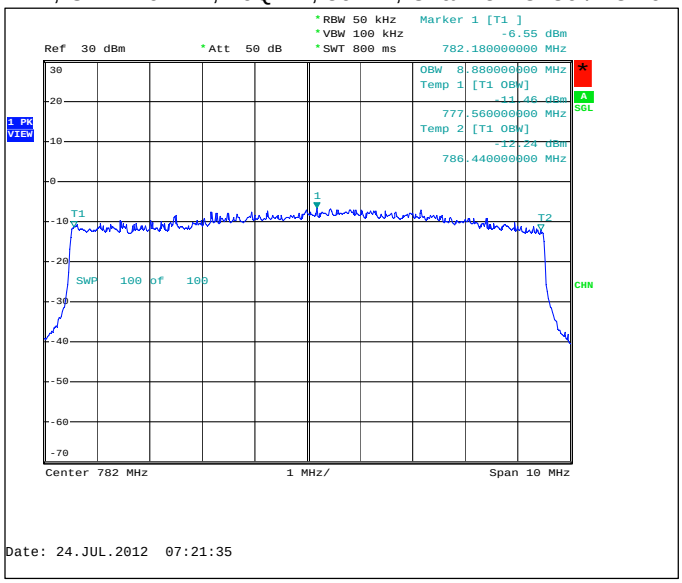
FDD, CBW 10MHz, QPSK, 50 RB, Channel 23230 / 782.0 MHz



5.10. LTE700 Upper (Band 13) Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD, CBW 10MHz, 16QAM, 50 RB	8880

FDD, CBW 10MHz, 16QAM, 50 RB, Channel 23230 / 782.0 MHz



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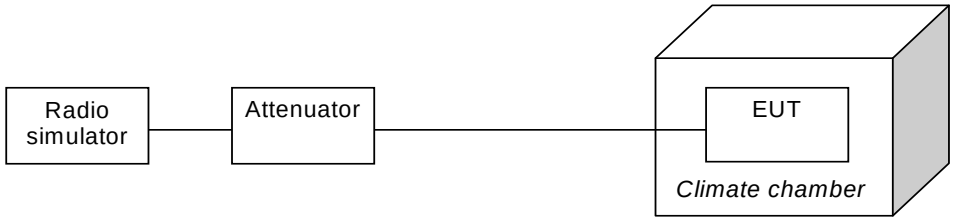
6. Frequency stability, temperature variation

(FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3)

EUT with DUT number	RM-845, DUT 16546
Accessories with DUT numbers	BP-4W, DUT 16547 ; WH-902, DUT 16564 ; AC-50U, DUT 16558
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 101
Date of measurements	20-Jul-2012
Measured by	Sami Lehtonen

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

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6.3. GSM 850 Test results

GSM, Channel 190 / 836.6 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.6	-14.72	-0.0176	PASSED
40	836.6	-7.55	-0.009	PASSED
30	836.6	-21.89	-0.0262	PASSED
20	836.6	-1.61	-0.0019	PASSED
10	836.6	-12.14	-0.0145	PASSED
0	836.6	-3.29	-0.0039	PASSED
-10	836.6	-8.78	-0.0105	PASSED
-20	836.6	-5.94	-0.0071	PASSED
-30	836.6	-17.18	-0.0205	PASSED

6.4. GSM 1900 Test results

GSM, Channel 661 / 1880.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1880	-26.15	-0.0139	PASSED
40	1880	-1.29	-0.0007	PASSED
30	1880	4.2	0.0022	PASSED
20	1880	14.92	0.0079	PASSED
10	1880	9.69	0.0052	PASSED
0	1880	-5.55	-0.003	PASSED
-10	1880	-12.53	-0.0067	PASSED
-20	1880	0.45	0.0002	PASSED
-30	1880	-19.5	-0.0104	PASSED

6.5. CDMA 800 Test results

CDMA, Channel 384 / 836.52 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.52	-7.10449	-0.0085	PASSED
40	836.52	-10.47363	-0.0125	PASSED
30	836.52	-7.32422	-0.0088	PASSED
20	836.52	-5.49316	-0.0066	PASSED
10	836.52	-9.15527	-0.011	PASSED
0	836.52	-7.54395	-0.009	PASSED
-10	836.52	-3.51563	-0.0042	PASSED
-20	836.52	2.05078	0.0025	PASSED
-30	836.52	3.14941	0.0038	PASSED

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6.6. CDMA 1900 Test results

CDMA, Channel 600 / 1880.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1880	2.05078	0.0011	PASSED
40	1880	4.24805	0.0023	PASSED
30	1880	1.9043	0.001	PASSED
20	1880	4.10156	0.0022	PASSED
10	1880	2.63672	0.0014	PASSED
0	1880	5.05371	0.0027	PASSED
-10	1880	4.98047	0.0026	PASSED
-20	1880	5.41992	0.0029	PASSED
-30	1880	5.05371	0.0027	PASSED

6.7. LTE700 Upper (Band 13) Test results

Channel 23230 / 782.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	782	-0.18597	-0.0002	PASSED
40	782	-0.43036	-0.0006	PASSED
30	782	-1.73092	-0.0022	PASSED
20	782	-1.25885	-0.0016	PASSED
10	782	-1.53065	-0.002	PASSED
0	782	-1.28746	-0.0016	PASSED
-10	782	-2.08855	-0.0027	PASSED
-20	782	-0.12875	-0.0002	PASSED
-30	782	-2.31743	-0.003	PASSED

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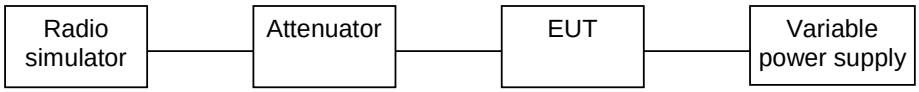
7. Frequency stability, voltage variation

(FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3)

EUT with DUT number	RM-845, DUT 16546
Accessories with DUT numbers	Dummy battery
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 101
Date of measurements	24-Jul-2012
Measured by	Sami Lehtonen

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

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7.3. LTE700 Upper (Band 13) Test results

Channel 23230 / 782.0 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.1	782	-2.13146	-0.0027	PASSED
Nominal / 3.7	782	-1.17302	-0.0015	PASSED
Battery cut-off point / 3.5	782	-1.18733	-0.0015	PASSED

7.4. GSM 1900 Test results

GSM, Channel 661 / 1880.0 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.1	1880	-12.79	-0.0068	PASSED
Nominal / 3.7	1880	-21.76	-0.0116	PASSED
Battery cut-off point / 3.5	1880	1.74	0.0009	PASSED

7.5. GSM 850 Test results

GSM, Channel 190 / 836.6 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.1	836.6	-13.17	-0.0157	PASSED
Nominal / 3.7	836.6	-15.76	-0.0188	PASSED
Battery cut-off point / 3.5	836.6	-4.13	-0.0049	PASSED

7.6. CDMA 800 Test results

CDMA,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.1	836.52	-7.03125	-0.0084	PASSED
Nominal / 3.7	836.52	-6.88477	-0.0082	PASSED
Battery cut-off point / 3.5	836.52	-9.375	-0.0112	PASSED

7.7. CDMA 1900 Test results

CDMA,

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.08	1880	4.24805	0.0023	PASSED
Nominal / 3.7	1880	4.54102	0.0024	PASSED
Battery cut-off point / 3.5	1880	2.63672	0.0014	PASSED

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8. Test Equipment

8.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
6038	Data Logger	Testo 580	Testo	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
2389	Signal Generator	SMJ 100A	R&S	-
6009	GPS Antenna	SA-700	Chronos	-
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	-
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	-
6015	Receiver	ESI	R&S	-
2059	V-network	ESH3-Z6	R&S	-
6044	V-network	ESH3-Z6	R&S	-
1759	LISN 50 µH	ESH3-Z5	R&S	-
2390	Directional Coupler	DC2600	AR	-
1916	Communication Tester	CMTA84	R&S	-
6012	CDN	CDN USB/c	Teseq	-
2388	Bluetooth Tester	CBT	R&S	-
6046	Attenuator 10dB	8493C	Agilent	-
6047	Attenuator 20dB	8493C	Agilent	-
6036	Data Logger	175-H2	Testo	-
6045	Power splitter	11667B	Agilent	-
6039	USB Interface	5541765	Testo	-
10479	Communication Tester	CMW500	R&S	-
6094	Communication Tester	CMW500	R&S	-
6096	EMC Analyzer	E7405A	HP	-
6098	Signal Generator	8648C	Agilent	-
6103	Bluetooth tester	CBT	R&S	-
6113	Signal Generator	SMF100A	R&S	-
6120	Thermal Chamber	WT 20/40	Weiss	-
6121	Power Splitter	HP11667B	Agilent	-
6122	Power Splitter	HP11667B	Agilent	-
6134	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	-
6136	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	-
2359	Temperature Test Chamber	VT4002	Vötsch	-
2347	Communication Tester	CMU200	R&S	-
2180	Communication Tester	CMU200	R&S	-
2156	Communication Tester	CMU200	R&S	-
1999	Receiver	ESIB26	R&S	-
2352	Spectrum Analyzer	FSP-30	R&S	-
2097	Pulse Limiter	ESH3-Z2	R&S	-
2039	Power Supply	PL330QMD	Thurlby	-
1992	Signal Generator	83630B	Agilent	-
2206	Signal Generator	SMX	R&S	-

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8.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
6038	Data Logger	Testo 580	Testo	-
6014	Substitute Calibration Cable	Sucoflex 104PB	Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
2389	Signal Generator	SMJ 100A	R&S	-
6009	GPS Antenna	SA-700	Chronos	-
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	-
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	-
1988	Antenna	HL562	R&S	-
-	RF immunity / Emission Software	EMC32	R&S	-
1917	Communication Tester	CMTA84	R&S	-
2388	Bluetooth Tester	CBT	R&S	-
6037	Data Logger	175-H2	Testo	-
6039	USB Interface	5541765	Testo	-
6087	Antenna	BBHA 9120D	Scharzbeck	-
6088	Antenna	VUBA 9117	Scharzbeck	-
6089	Antenna	HFH2-Z2	R&S	-
10479	Communication Tester	CMW500	R&S	-
6094	Communication Tester	CMW500	R&S	-
6103	Bluetooth tester	CBT	R&S	-
6113	Signal Generator	SMF100A	R&S	-
6115	Open switch and control unit	OSP 130	R&S	-
6116	Open switch and control unit	OSP 150	R&S	-
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	-
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	-
6135	Notch Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	-
2140	Antenna	EMCO93110B	EMCO	-
2142	Antenna	3146	EMCO	-
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	-
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2043	Band Reject Filter	WRCA824/849-0,2-6SS	Wainwright	22
2347	Communication Tester	CMU200	R&S	-
2180	Communication Tester	CMU200	R&S	-
2156	Communication Tester	CMU200	R&S	-
2176	CDN	CDN 801-M3	Lüthi	-
2027	CDN	M2 (modified) DC1	MEB	-
2028	CDN	M3 (modified) DC2	MEB	-
1984	Antenna	BBHA 9120 D	Schwarzbeck	-
6017	Antenna	SBA 9113	Schwarzbeck	-
2009	Signal Generator	SMP 22	R&S	-
2029	Power Supply	PL330	Thurlby	-
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	-
2353	Receiver	ESIB26	R&S	-
2135	CDN	CDN 801-M3	Lüthi	-

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