

TEST REPORT

of

FCC Part 22 Subpart H and Part 24 Subpart E
FCC ID: ZNFE730F

Equipment Under Test : Cellular/PCS GSM/EDGE & Cellular WCDMA/HSPA
Phone with WLAN & Bluetooth
Model Name : LG-E730f(Add : E730f, LGE730f)
Serial No. : N/A
Applicant : LG Electronics MobileComm U.S.A., Inc.
Manufacturer : LG Electronics MobileComm U.S.A., Inc.
Date of Test(s) : 2011.11.05 ~ 2011.11.25
Date of Issue : 2011.12.05

In the configuration tested, the EUT complied with the standards specified above.

Tested By:



Date

2011.12.05

Duke Ko

Approved By:



Date

2011.12.05

Charles Kim

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1. General information

1.1. Testing laboratory

SGS Korea Co., Ltd.(Gunpo Laboratory)

- 705, Dongchun-Dong Sooji-Gu, Yongin-Shi, Kyungki-Do, South Korea.
- Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040

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1.2. Details of applicant

Applicant : LG Electronics mobileComm U.S.A.,Inc.
Address : 10101 Old Grove Road, San Diego, CA 92131
Contact Person : Choi, Dae-Seung
Phone No. : +82 +10 2846 2750

1.3. Description of EUT

Kind of Product	Cellular/PCS GSM/EDGE & Cellular WCDMA/HSPA Phone with WLAN & Bluetooth
Model Name	LG-E730f(Add : E730f, LGE730f)
Serial Number	N/A
Power Supply	DC 3.7 V (Li-Ion Battery)
Rated Power	GSM850 : 32.6 dBm GSM1900 : 29.2 dBm WCDMA850 : 23.5 dBm
Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1 850.2 MHz ~ 1 909.8 MHz WCDMA850: 826.4 MHz ~ 846.6 MHz Bluetooth: 2 402 ~ 2 480 MHz WLAN: 2 412 ~ 2 462 MHz (11b/g/n_HT20)
Class of GPRS	Class 12, Class B
Emission Designator	250KGXW (GSM850), 243KG7W (GSM850 EDGE), 245KGXW (GSM1900), 237KG7W (GSM1900 EDGE), 4M15F9W (WCDMA850)

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1.4. Description of test mode

Band	Frequency (MHz)	Voice GSM (dBm)	GPRS Data			
			GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot
			(dBm)	(dBm)	(dBm)	(dBm)
GSM 850	824.2	32.60	32.60	29.90	28.60	27.00
	836.6	32.50	32.50	29.90	28.60	26.90
	848.8	32.50	32.60	29.90	28.40	26.50
GSM 1900	1 850.2	29.00	28.90	26.70	24.50	23.00
	1 880.0	29.10	29.00	26.40	24.70	23.20
	1 909.8	29.20	29.10	26.50	24.80	23.20

Band	Frequency (MHz)	EDGE Data			
		EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
		(dBm)	(dBm)	(dBm)	(dBm)
GSM 850	824.2	26.20	23.50	21.90	20.40
	836.6	26.10	23.50	21.80	20.10
	848.8	26.00	23.40	21.80	19.80
GSM 1900	1 850.2	24.20	21.90	20.30	17.40
	1 880.0	24.30	22.00	20.40	17.50
	1 909.8	24.30	22.00	20.40	17.70

3GPP Release version	Mode	3GPP 34.121	Cellular Band[dBm]		
		Subtest	4132	4183	4233
99	WCDMA	12.2kbps RMC	23.06	23.14	23.45
5	HSDPA	Subtest1	22.62	22.69	22.95
5		Subtest2	22.63	22.74	23.03
5		Subtest3	22.18	22.36	22.58
5		Subtest4	22.34	22.33	22.56
5	HSUPA	Subtest1	22.12	22.16	22.64
5		Subtest2	21.28	21.34	21.36
5		Subtest3	21.32	21.52	21.43
5		Subtest4	21.21	21.36	21.45
5		Subtest5	22.45	22.12	22.40

- GSM (850 / 1900) & WCDMA (850)

We found out the test mode with the highest power level after we analyze all the data rates.

So we chose 1 TX Slot for GSM850 & Voice GSM for GSM1 900 and WCDMA 850 12.2 kbps RMC (worst case) as a representative.

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1.5. Test equipment list

Equipment	Manufacturer	Model	S/N	Cal Due.
Signal Generator	R&S	SMBV100A	255384	Jul. 20, 2012
Signal Generator	R&S	SMR40	100272	Jul. 15, 2012
Spectrum Analyzer	R&S	FSV30	100768	Mar. 31, 2012
Mobile Test Unit	R&S	CMU200	106190	May. 30, 2012
Directional Coupler	KRYTAR	152613	122661	May. 16, 2012
High Pass Filter	Wainwright	WHK3.0/18G-10SS	344	Jul. 07, 2012
Band Reject Filter	Wainwright	WRCG824/849-814/85 960/10SS	7	Apr. 01, 2012
DC power Supply	Agilent	U8002A	MY49030063	Jan. 05, 2012
Preamplifier	H.P.	8447F	2944A03909	Jul. 04, 2012
Preamplifier	R&S	SCU 18	10117	Mar. 23, 2012
Preamplifier	SCHWARZBECK MESSELEKTRONIK	JS44-18004000-35-8P	1546891	Jul. 04, 2012
Test Receiver	R&S	ESU26	100109	Feb. 21, 2012
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	396	Apr. 27, 2013
Horn Antenna	R&S	HF 906	100326	Oct. 08, 2012
Horn Antenna	SCHWARZBECK MESSELEKTRONIK	BBH 9120D	BBHA9170431	Mar. 17, 2012
Dipole Antenna	SCHWARZBECK MESSELEKTRONIK	VHA 9103/UHA 9105	9103-2817 9105-2514	May. 14, 2013
Antenna Master	INN-CO	MM4000	N.C.R.	N.C.R.
Turn Table	INN-CO	DS 1200 S	N.C.R.	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N.C.R.	N.C.R.

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1.6. Summary of test results

The EUT has been tested according to the following specifications:

APPLIED STANDARD : FCC Part 22, 24		
Section in FCC part	Test Item	Result
§2.1046 §22.913(a) §24.232(b)	RF Radiated Output Power	Complied
§2.1053 §22.917(a) §24.238(a)	Spurious Radiated Emission	Complied
§2.1046(a)	Conducted Output Power	Complied
§2.1049(h) (i)	Occupied Bandwidth	Complied
§2.1051 §22.917(a) §24.238(a)	Spurious Emission at Antenna Terminal	Complied
§2.1055 §22.355 §24.235	Frequency Stability	Complied
§22.917(a) §24.238(a)	Band Edge	Complied

1.7. Test report revision

Revision	Report number	Description
0	F690501/RF-RTL005133	Initial
1	F690501/RF-RTL005133-1	Revised frequency bands and emission designator

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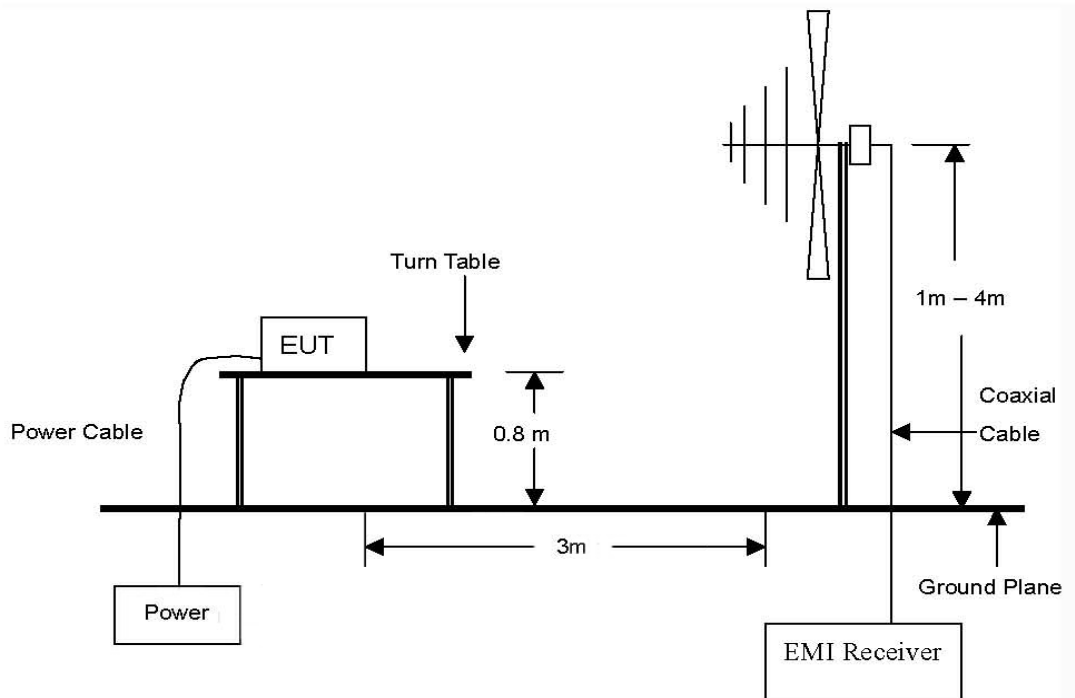
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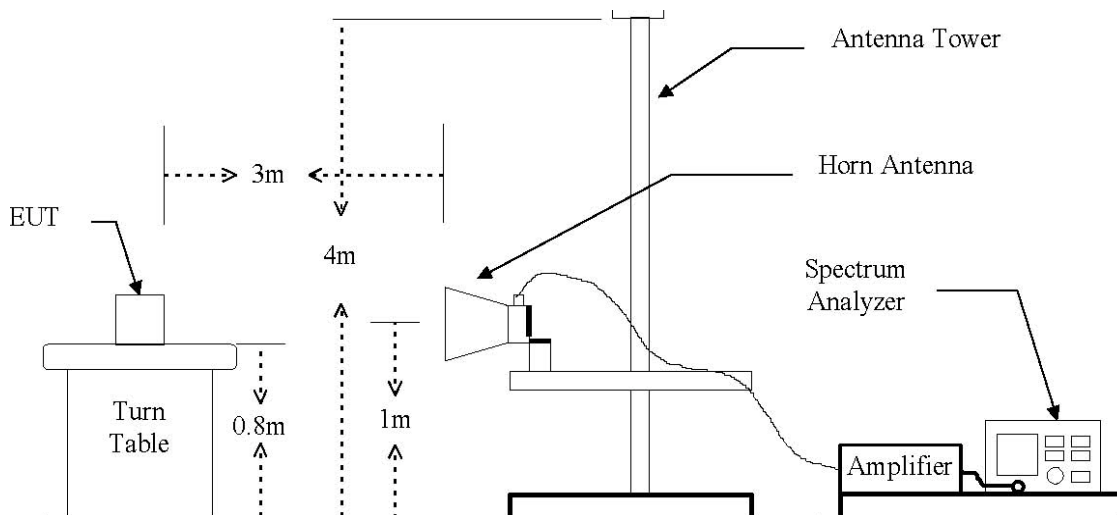
2. RF radiated output power & spurious radiated emission

2.1. Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 18 GHz Emissions.



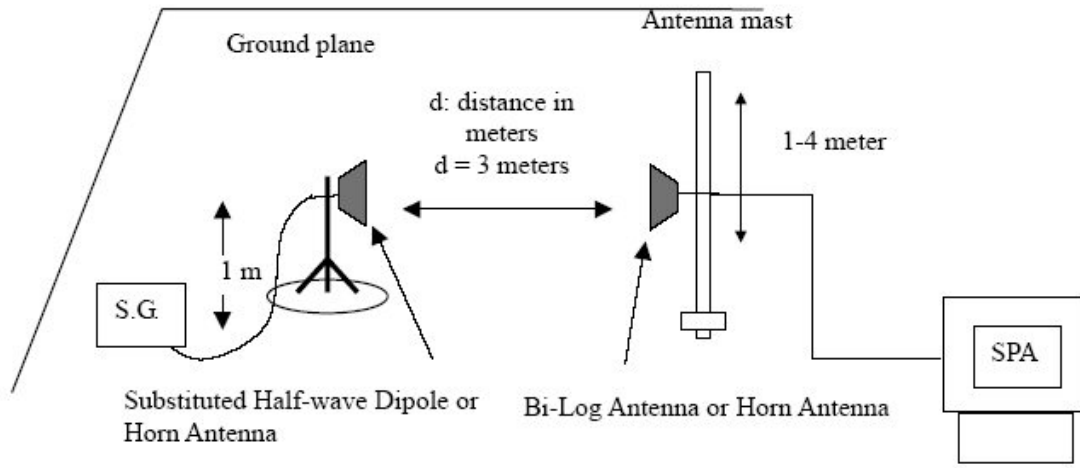
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The diagram below shows the test setup for substituted method



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2.2. Limit

FCC §22.913(a), the ERP of mobile transmitters must not exceed 7 watts.

FCC §24.232(b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

2.3. Test procedure : Based on ANSI/TIA 603C: 2004

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. During the measurement of the EUT, the resolution bandwidth was to 1 MHz and the average bandwidth was set to 1 MHz.
5. The transmitter shall be switched on; the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.
7. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
10. The EUT was replaced by half-wave dipole (824 ~ 849 MHz) or horn antenna (1 850 ~ 1 910 MHz) connected to a signal generator.
11. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
13. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
14. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

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2.4. Test result for RF radiated output power

Ambient temperature : (24 ± 2) °C
Relative humidity : 47 % R.H.

GSM850

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
824.20	V	33.10	3.42	-2.90	26.78	476.43
824.20	H	19.65	3.42	-2.90	13.33	21.53
836.60	V	34.55	3.38	-2.97	28.20	660.69
836.60	H	20.65	3.38	-2.97	14.30	26.92
848.80	V	36.36	3.33	-3.21	29.82	959.40
848.80	H	23.50	3.33	-3.21	16.96	49.66

GSM850 (EDGE)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
848.80	V	32.91	3.33	-3.21	26.37	433.51
848.80	H	19.93	3.33	-3.21	13.39	21.83

GSM1900

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 850.20	V	23.30	4.87	9.12	27.55	568.85
1 850.20	H	23.89	4.87	9.12	28.14	651.63
1 880.00	V	21.51	4.91	9.20	25.80	380.19
1 880.00	H	21.82	4.91	9.20	26.11	408.32
1 909.80	V	22.96	4.94	9.27	27.29	535.80
1 909.80	H	20.92	4.94	9.27	25.25	334.97

GSM1900 (EDGE)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 850.20	V	17.98	4.87	9.12	22.23	167.11
1 850.20	H	22.09	4.87	9.12	26.34	430.53

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WCDMA850

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
826.40	V	26.50	3.41	-2.88	20.21	104.95
826.40	H	12.28	3.41	-2.88	5.99	3.97
836.60	V	27.07	3.38	-2.97	20.72	118.03
836.60	H	13.24	3.38	-2.97	6.89	4.89
846.60	V	28.68	3.34	-3.16	22.18	165.20
846.60	H	14.71	3.34	-3.16	8.21	6.62

Remark:

1. E.R.P. & E.I.R.P. = [S.G level + Amp.](dB m) - Cable loss(dB) + Ant. gain (dB d/dB i)
2. The E.R.P. & E.I.R.P. was measured in three orthogonal EUT position(x-axis, y-axis and z-axis). Worst cases are z-axis.

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2.5. Spurious radiated emission

- Modulation Signal : GSM850
- Measured output Power : 29.82 dB m = 0.96 W
- Distance : 3 meters
- Limit : $-(43 + 10\log_{10}(W)) = -42.82$ dB c

Frequency (MHz)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P (dB m)	dB c	Margin (dB)
Low Channel (824.2 MHz)							
1648.49	V	-47.95	4.54	6.44	-46.05	-75.87	33.05
1648.49	H	-54.84	4.54	6.44	-52.94	-82.76	39.94
Middle Channel (836.6 MHz)							
1673.25	V	-42.04	4.58	6.51	-40.11	-69.93	27.11
1673.25	H	-51.36	4.58	6.51	-49.43	-79.25	36.43
High Channel (848.8 MHz)							
1697.70	V	-38.96	4.62	6.57	-37.01	-66.83	24.01
1697.70	H	-49.05	4.62	6.57	-47.10	-76.92	34.10

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- Modulation Signal : GSM1900
- Measured output Power : 28.14 dB m = 0.65 W
- Distance : 3 meters
- Limit : $-(43 + 10\log_{10}(W)) = -41.13$ dB c

Frequency (MHz)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel(1 850.2 MHz)							
3700.40	V	-51.09	7.13	11.85	-46.37	-74.51	33.37
3700.40	H	-47.76	7.13	11.85	-43.04	-71.18	30.04
Middle Channel(1 880.0 MHz)							
3759.87	V	-46.76	7.23	11.85	-42.14	-70.28	29.14
3759.87	H	-48.52	7.23	11.85	-43.90	-72.04	30.90
High Channel(1 909.8 MHz)							
3819.74	V	-44.57	7.33	11.84	-40.06	-68.20	27.06
3819.74	H	-50.18	7.33	11.84	-45.67	-73.81	32.67

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- Modulation Signal : WCDMA850
- Measured output Power : 22.18 dB m = 0.17 W
- Distance : 3 meters
- Limit : $-(43 + 10\log_{10}(W)) = -35.30$ dB c

Frequency (MHz)	Ant. Pol. (H/V)	S.G level (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel(826.4 MHz)							
1651.24	V	-55.17	4.54	6.45	-53.26	-75.44	40.26
1651.24	H	-61.91	4.54	6.45	-60.00	-82.18	47.00
Middle Channel(836.6 MHz)							
1671.49	V	-53.12	4.57	6.50	-51.19	-73.37	38.19
1671.49	H	-62.31	4.57	6.50	-60.38	-82.56	47.38
High Channel(846.6 MHz)							
1694.70	V	-50.82	4.61	6.56	-48.87	-71.05	35.87
1694.73	H	-60.82	4.61	6.56	-58.87	-81.05	45.87

Remark:

1. E.R.P. & E.I.R.P. = S.G level (dB m) - Cable loss (dB) + Ant. gain (dB d/dB i)
2. No more harmonic above 3rd harmonic for all channel.

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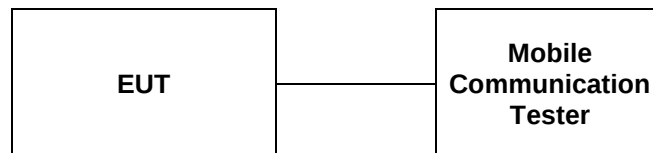
3. Conducted Output Power

3.1. Limit

Requirements: CFR 47, Section §2.1046

3.2. Test Procedure

1. The RF output of the transmitter was connected to the input of the Mobile Communication Test Unit through sufficient attenuation.
2. The mobile was set up for the max. output power with pseudo random data modulation.
3. The power was measured with



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3.3. Test Result

Ambient temperature : (24 ± 2) °C
Relative humidity : 47 % R.H.

Band	Frequency (MHz)	Voice GSM (dBm)	GPRS Data			
			GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)
GSM 850	824.2	32.60	32.60	29.90	28.60	27.00
	836.6	32.50	32.50	29.90	28.60	26.90
	848.8	32.50	32.60	29.90	28.40	26.50
GSM 1900	1 850.2	29.00	28.90	26.70	24.50	23.00
	1 880.0	29.10	29.00	26.40	24.70	23.20
	1 909.8	29.20	29.10	26.50	24.80	23.20

Band	Frequency (MHz)	EDGE Data			
		EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)	EDGE 3 TX Slot (dBm)	EDGE 4 TX Slot (dBm)
GSM 850	824.2	26.20	23.50	21.90	20.40
	836.6	26.10	23.50	21.80	20.10
	848.8	26.00	23.40	21.80	19.80
GSM 1900	1 850.2	24.20	21.90	20.30	17.40
	1 880.0	24.30	22.00	20.40	17.50
	1 909.8	24.30	22.00	20.40	17.70

3GPP Release version	Mode	3GPP 34.121	Cellular Band[dBm]		
		Subtest	4132	4183	4233
99	WCDMA	12.2kbps RMC	23.06	23.14	23.45
5	HSDPA	Subtest1	22.62	22.69	22.95
5		Subtest2	22.63	22.74	23.03
5		Subtest3	22.18	22.36	22.58
5		Subtest4	22.34	22.33	22.56
5	HSUPA	Subtest1	22.12	22.16	22.64
5		Subtest2	21.28	21.34	21.36
5		Subtest3	21.32	21.52	21.43
5		Subtest4	21.21	21.36	21.45
5		Subtest5	22.45	22.12	22.40

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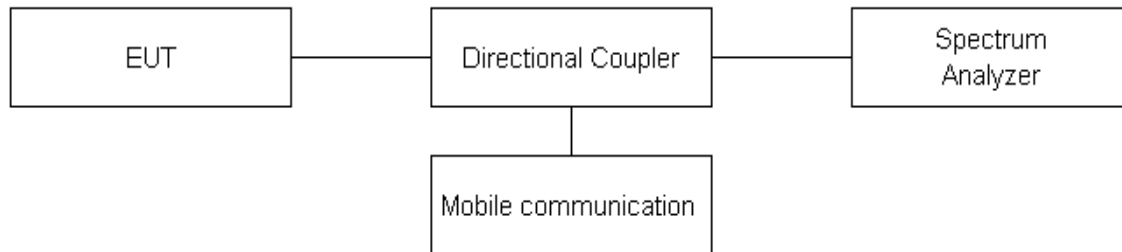
4. Occupied Bandwidth 99 %

4.1. Limit

Requirements: CFR 47, Section §2.1049.

4.2. Test Procedure

1. The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.
2. The resolution bandwidth of the spectrum analyzer was set.
Occupied Bandwidth 99 % was tested under



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4.3 Test Results

Ambient temperature : (24 ± 2) °C
Relative humidity : 47 % R.H.

Band	Mode	Frequency (MHz)	Occupied Bandwidth (MHz)
GSM850	1 Tx slot	824.2	0.240
		836.6	0.240
		848.8	0.250
	EDGE	848.8	0.243
GSM1900	1 Tx slot	1 850.2	0.236
		1 880.0	0.243
		1 909.8	0.245
	EDGE	1 909.8	0.237
WCDMA850	12.2kbps RMC	826.4	4.139
		836.6	4.139
		846.6	4.153

Please refer to the following plots.

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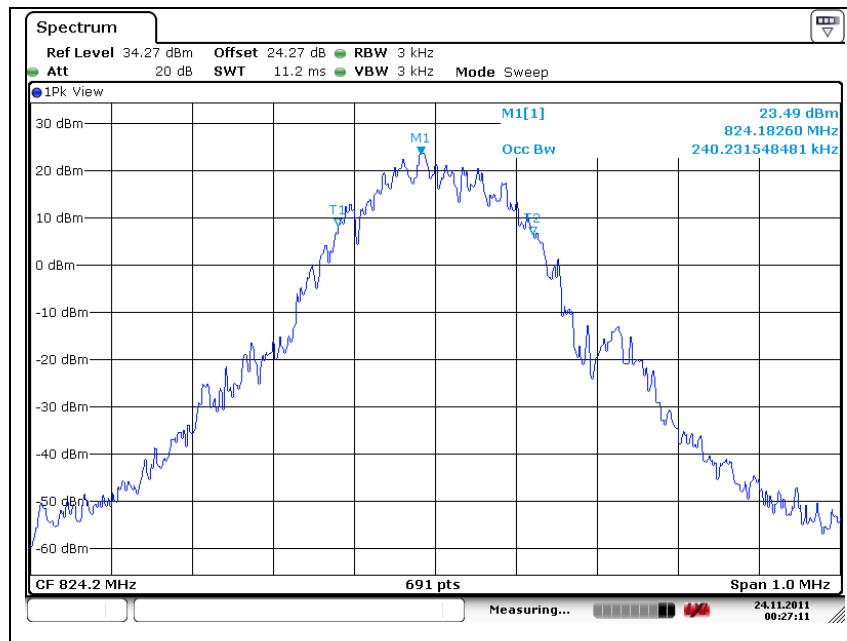
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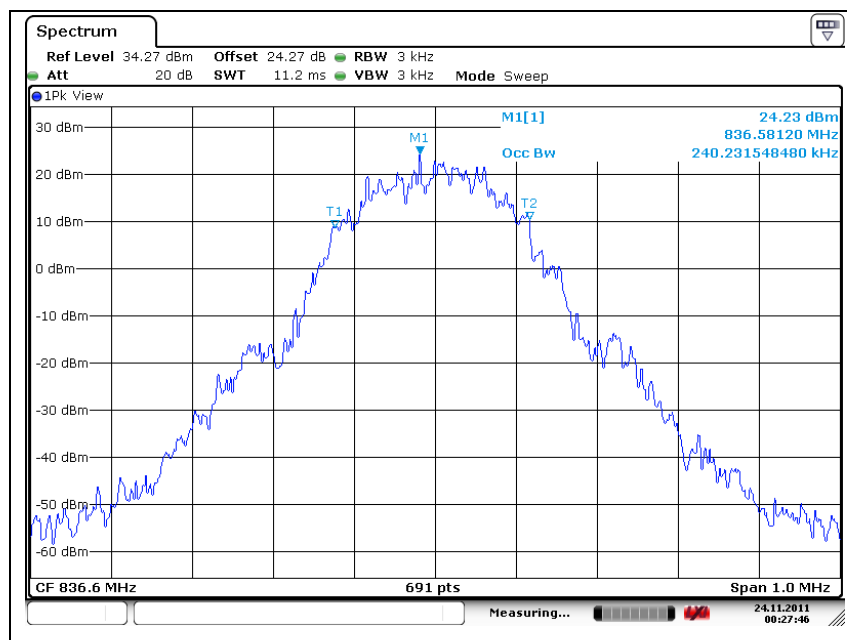
GSM850

99 %

Low Channel



Middle Channel



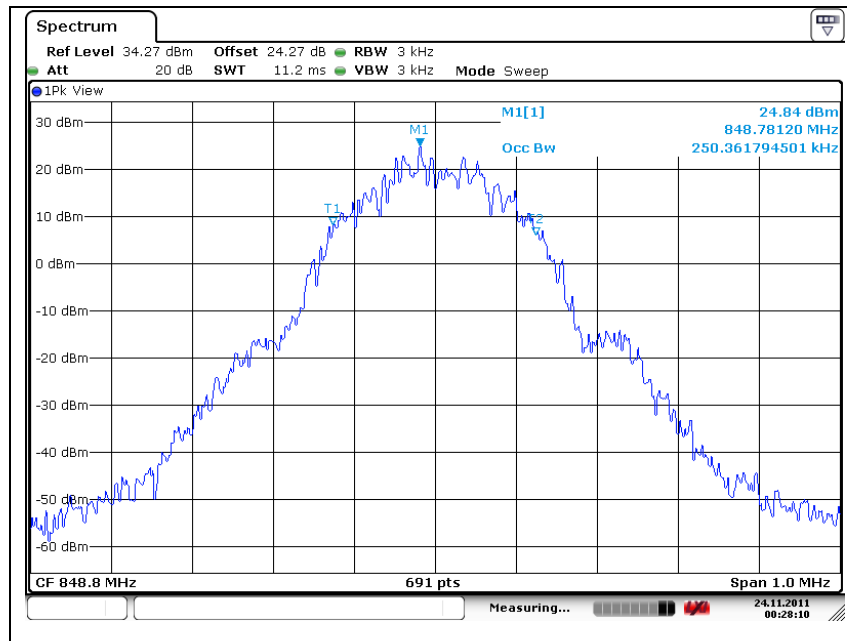
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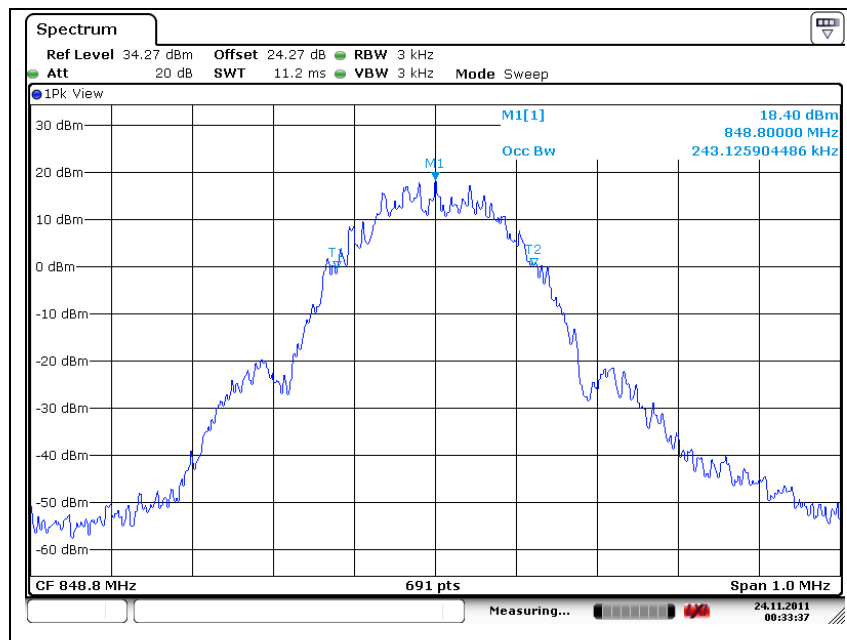
High Channel



GSM850 EDGE

99 %

Low Channel



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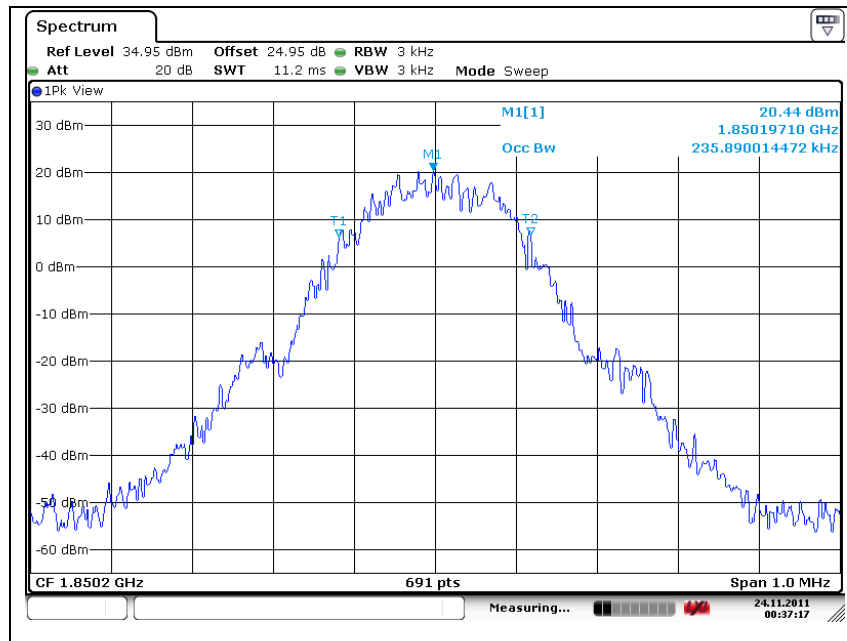
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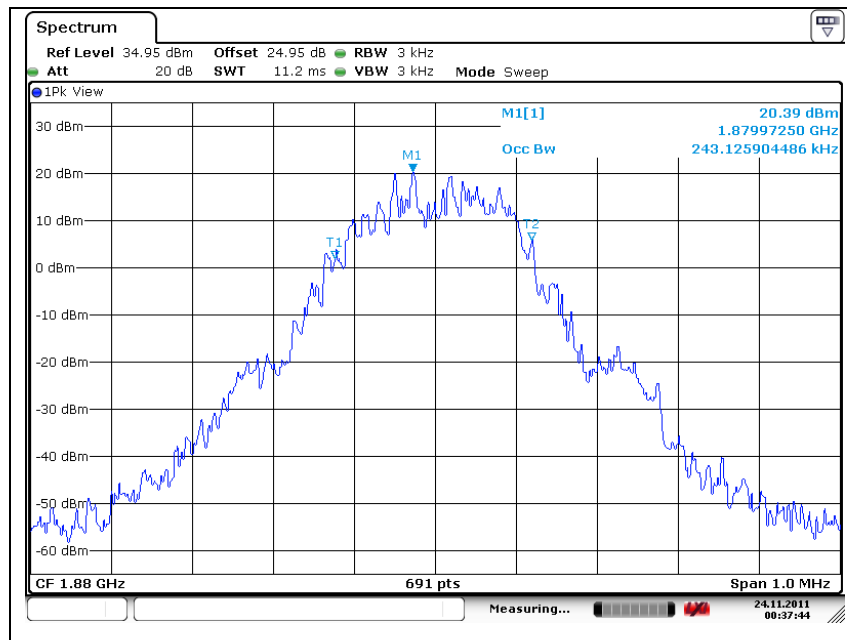
GSM1900

99 %

Low Channel



Middle Channel



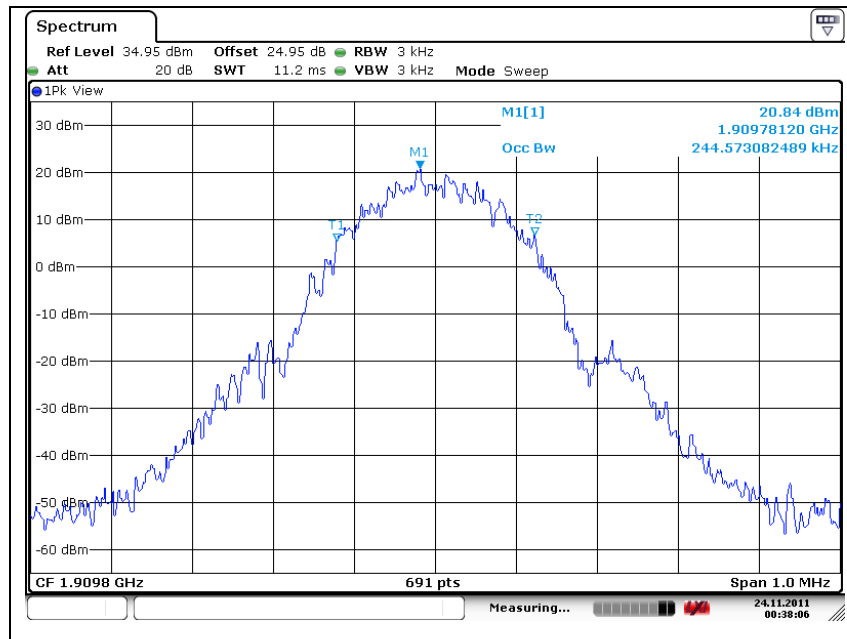
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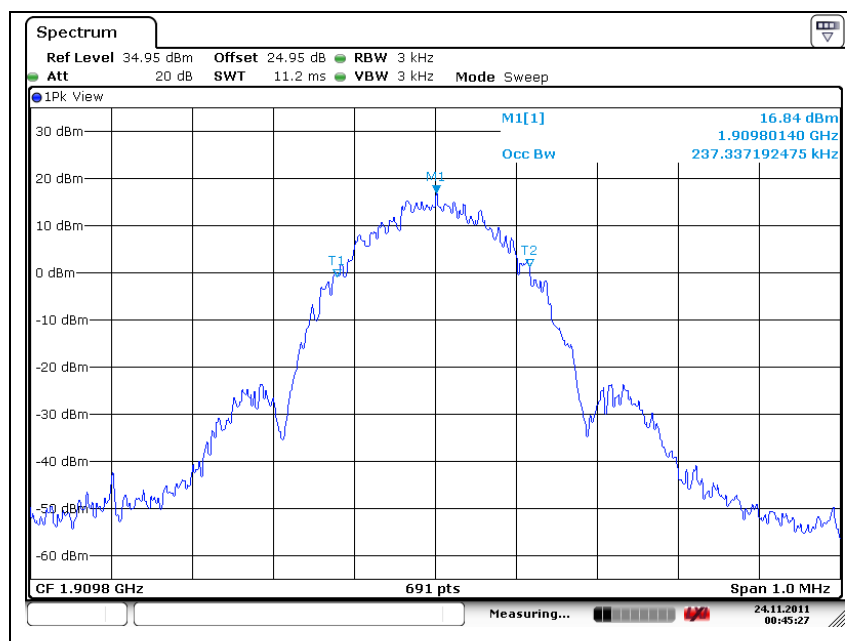
High Channel



GSM1900 EDGE

99 %

Middle Channel



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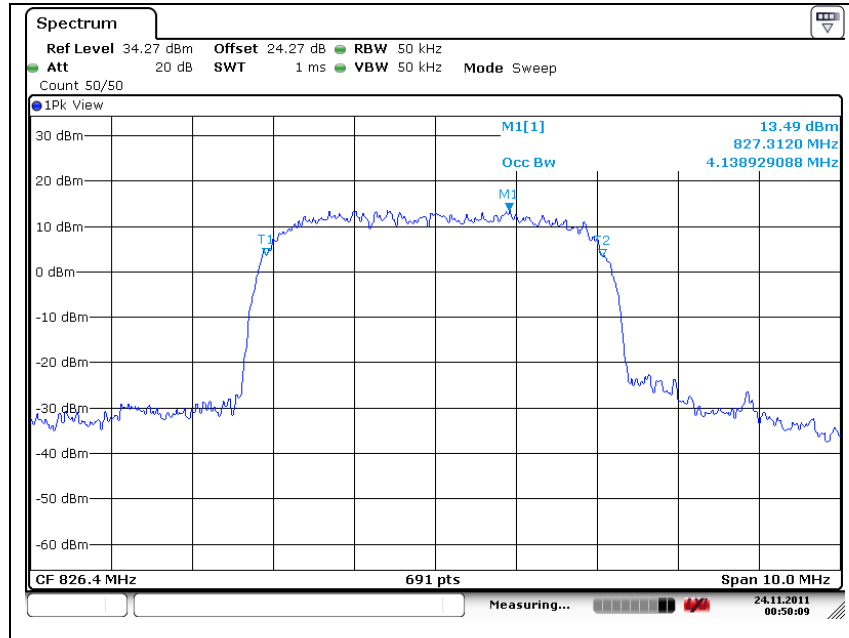
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

www.kr.sgs.com/ee

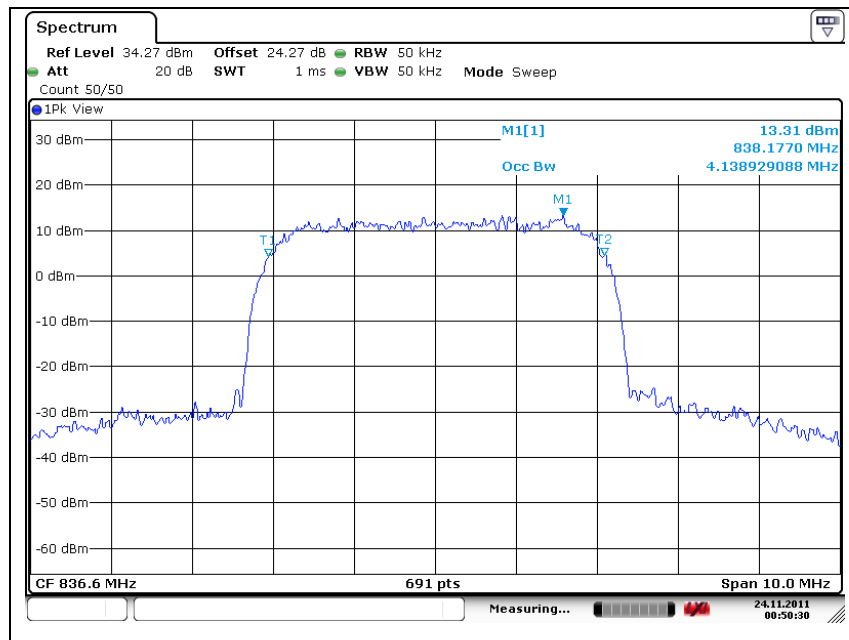
WCDMA850

99 %

Low Channel



Middle Channel



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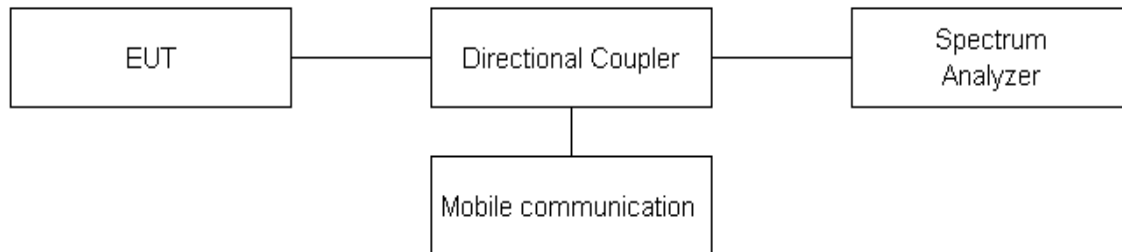
5. Spurious Emissions at Antenna Terminal

5.1. Limit

§ 22.917(a) and §24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least $43 + 10\log(P)$ dB.

5.2. Test Procedure

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 1 MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.
3. Spurious Emission was tested under



5.3. Test Results

Ambient temperature : $(24 \pm 2) ^\circ\text{C}$
 Relative humidity : 47 % R.H.

Please refer to the following plots.

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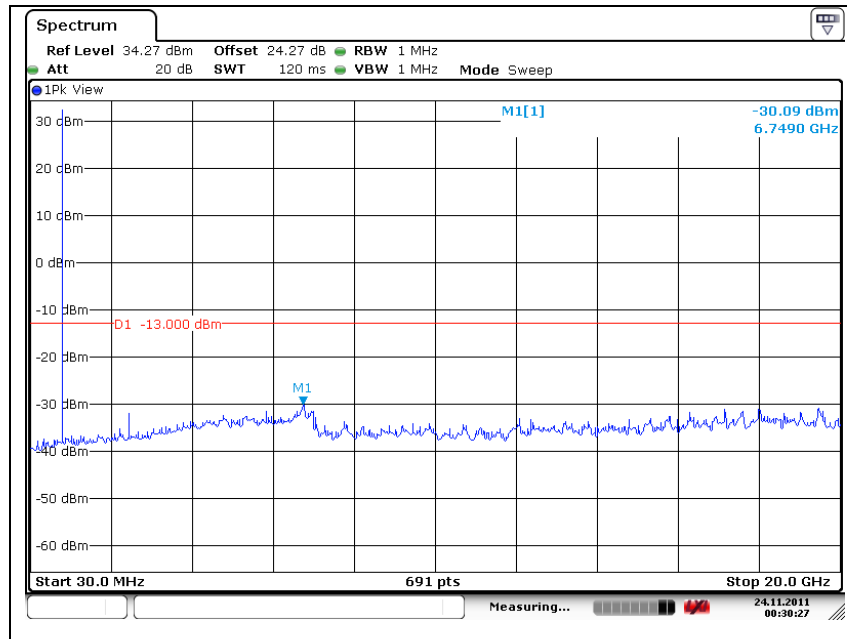
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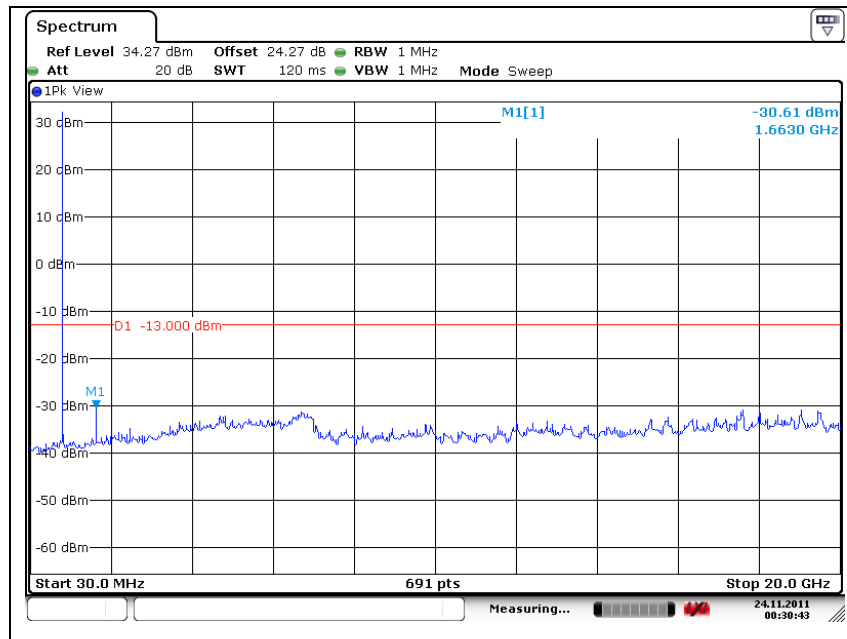
www.kr.sgs.com/ee

GSM850

Low Channel



Middle Channel



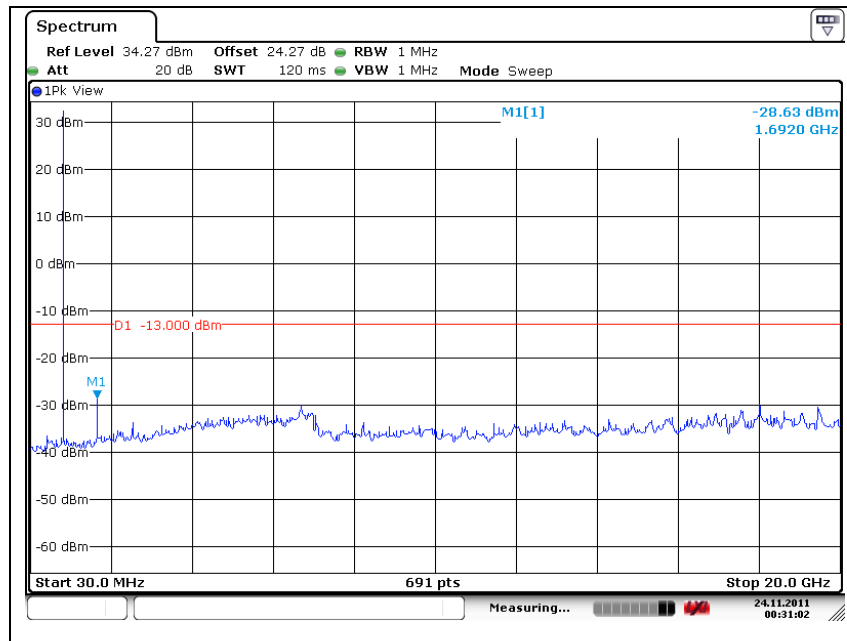
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High Channel



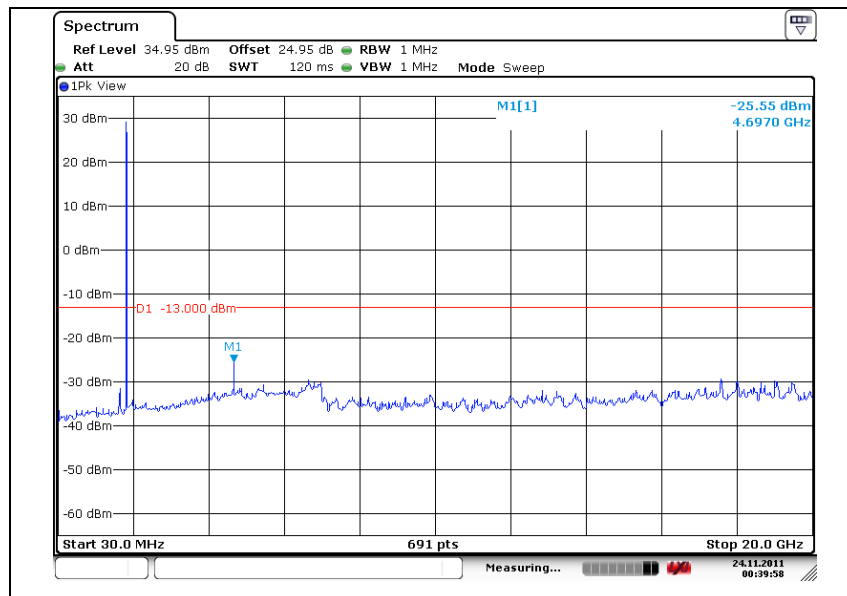
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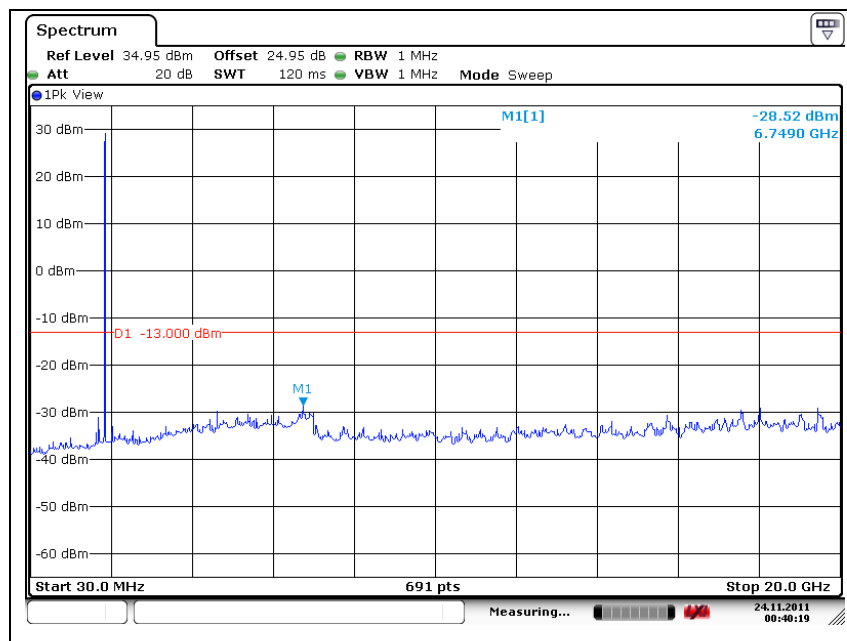
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GSM1900 Low Channel



Middle Channel



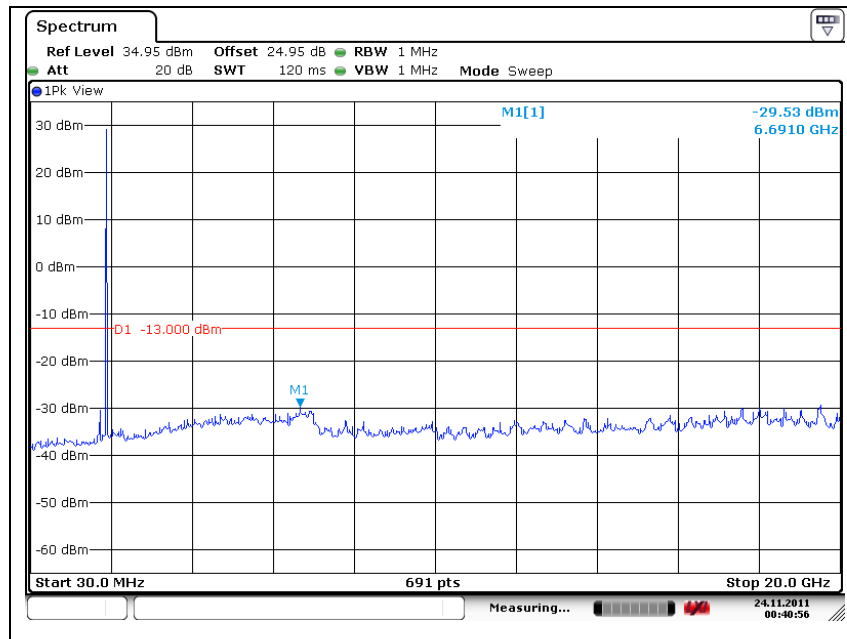
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High Channel



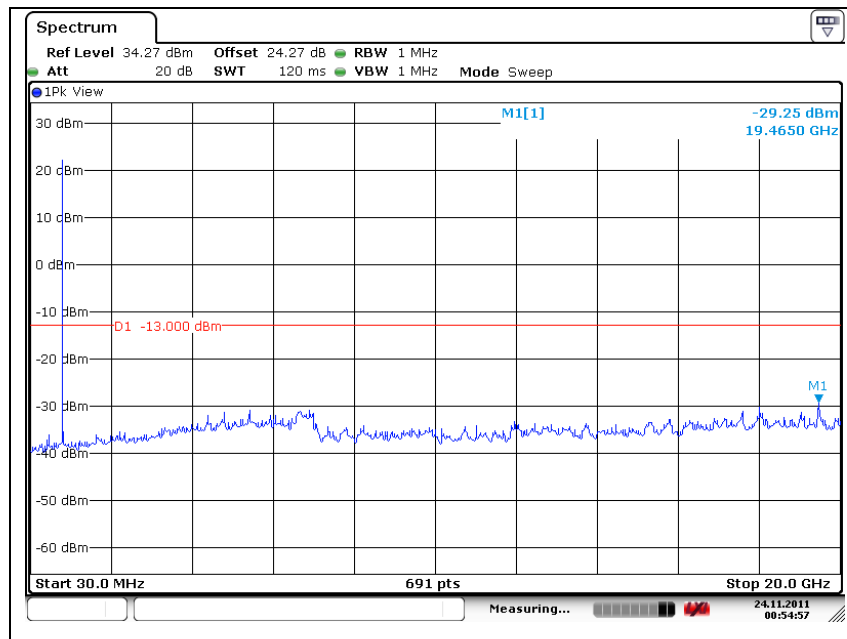
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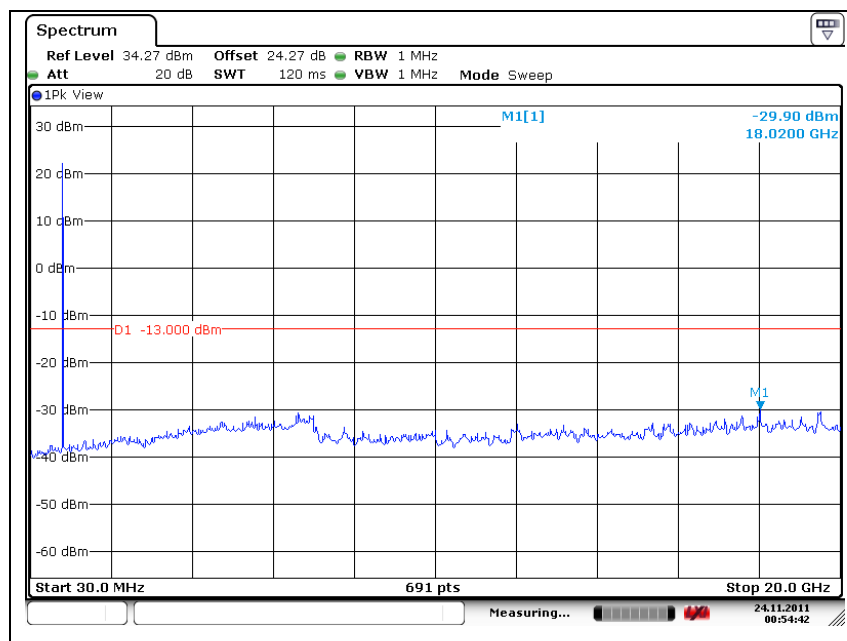
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WCDMA850 Low Channel



Middle Channel



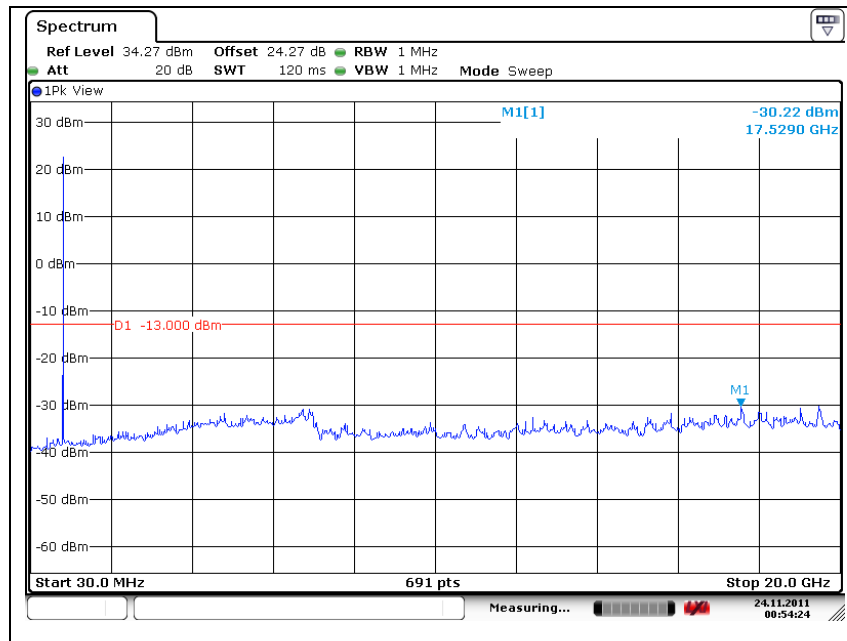
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High Channel



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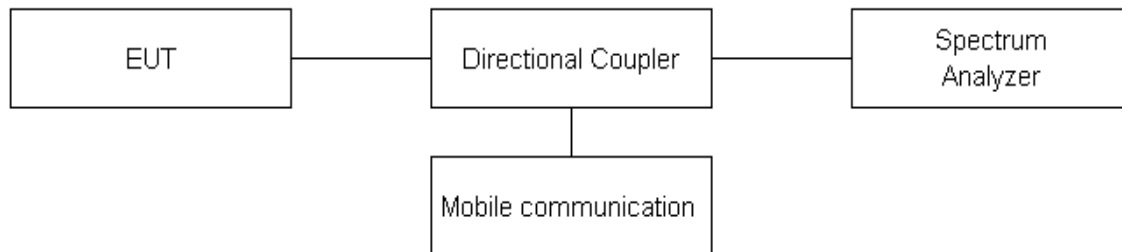
6. Band Edge

6.1. Limit

§ 22.917(a) and §24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least $43+10\log(P)$ dB.

6.2. Test Procedure

1. The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.
2. The center of the spectrum analyzer was set to block edge frequency.



6.3. Test Results

Ambient temperature : $(24 \pm 2) ^\circ\text{C}$
 Relative humidity : 47 % R.H.

Please refer to the following plots.

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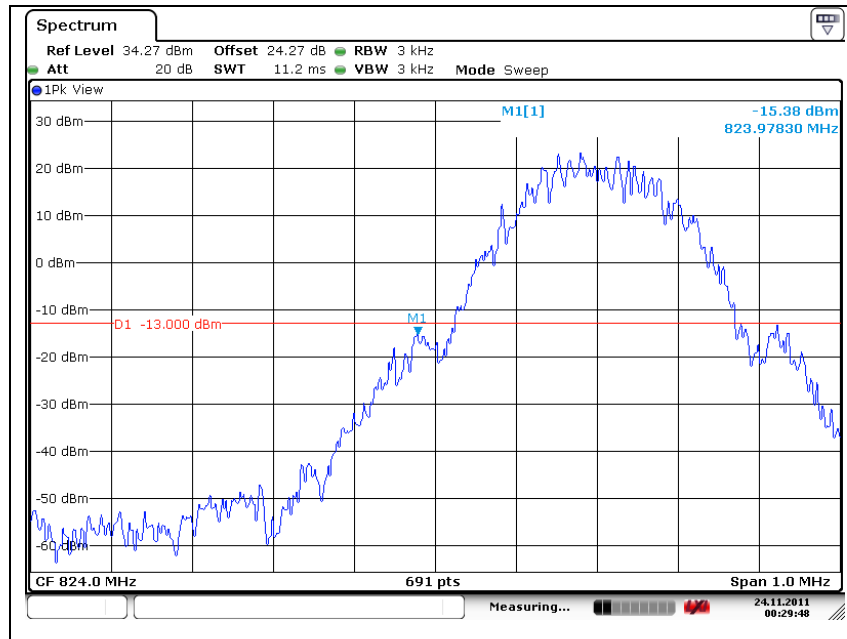
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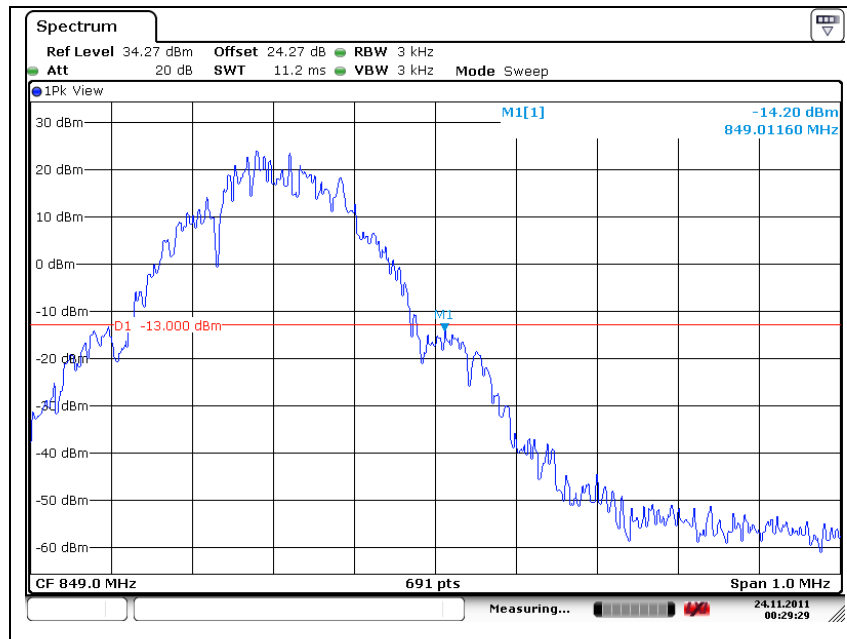
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GSM850

Low Channel



High Channel



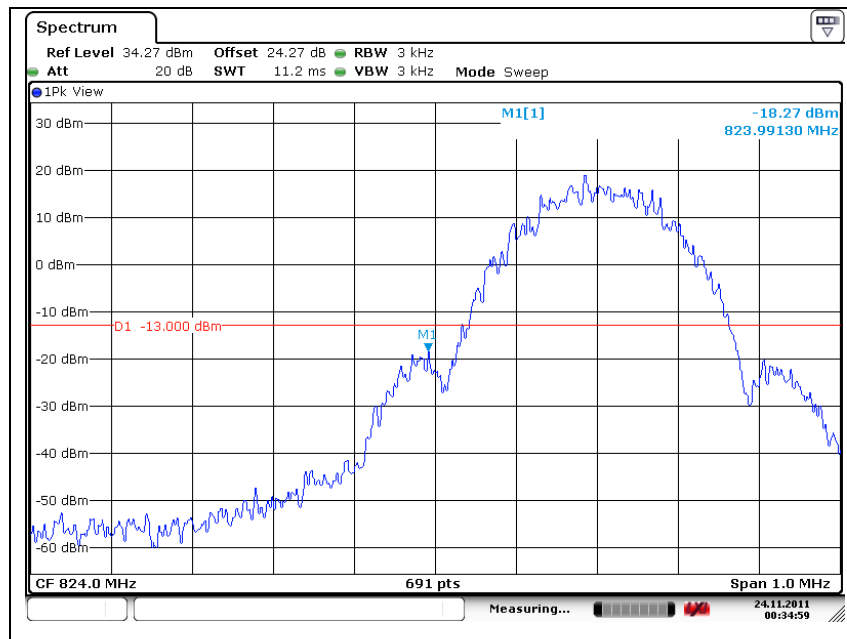
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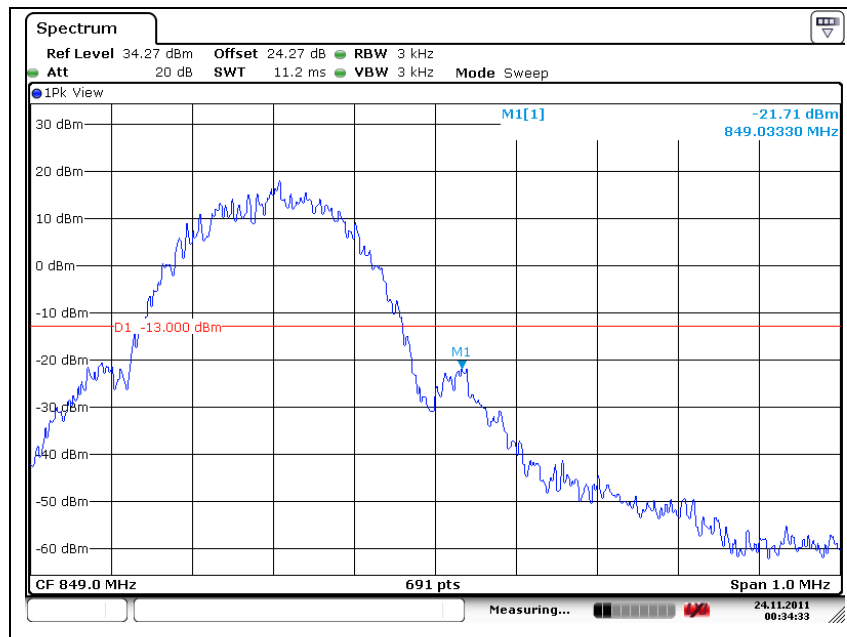
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GSM850 EDGE Low Channel



High Channel



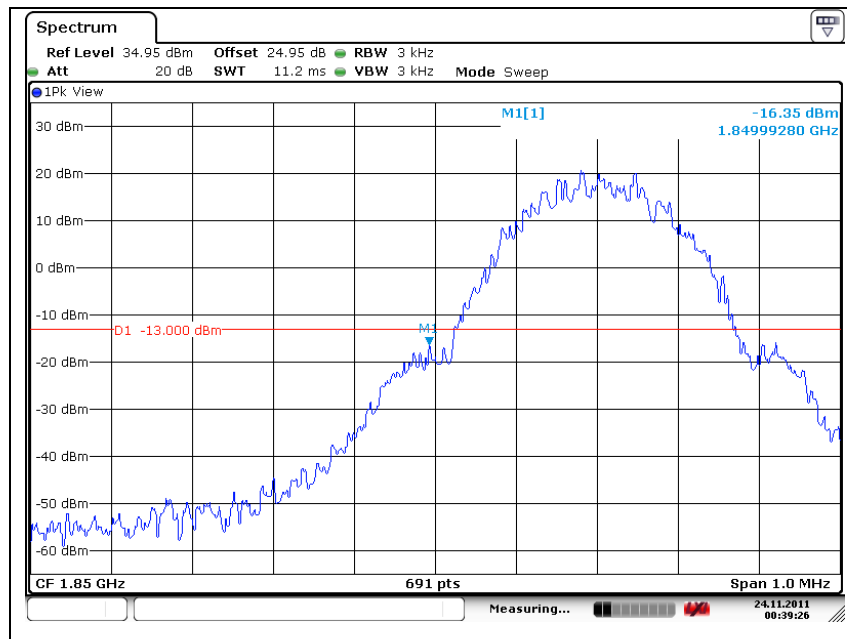
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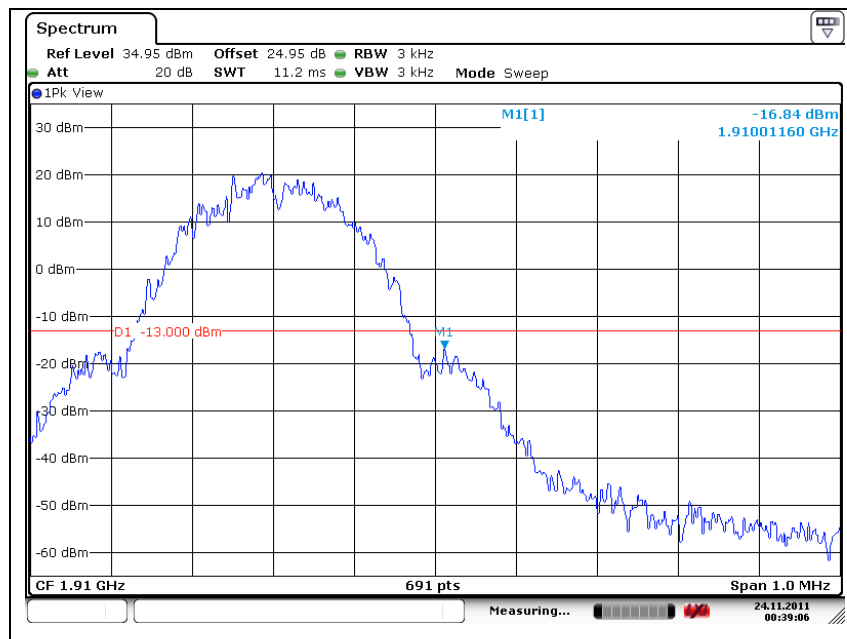
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GSM1900 Low Channel



High Channel



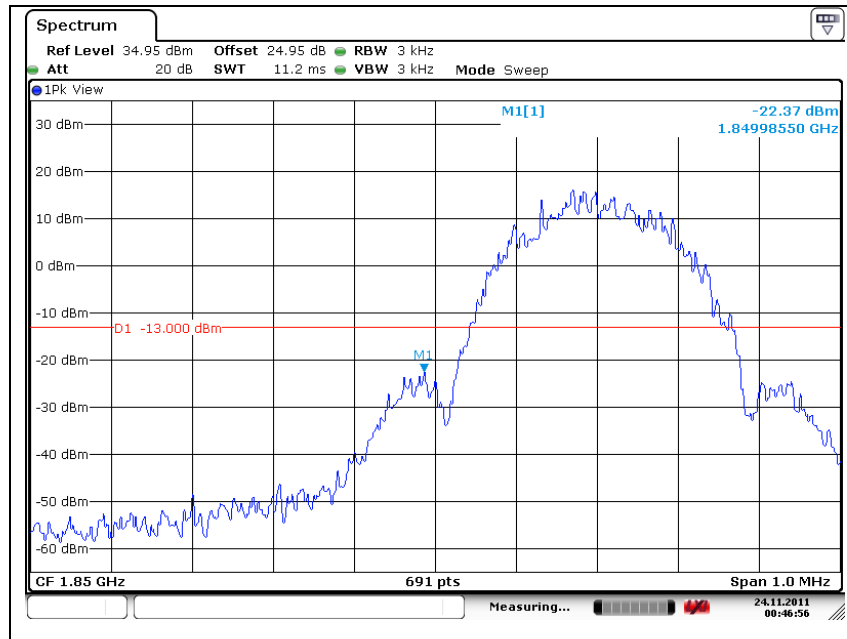
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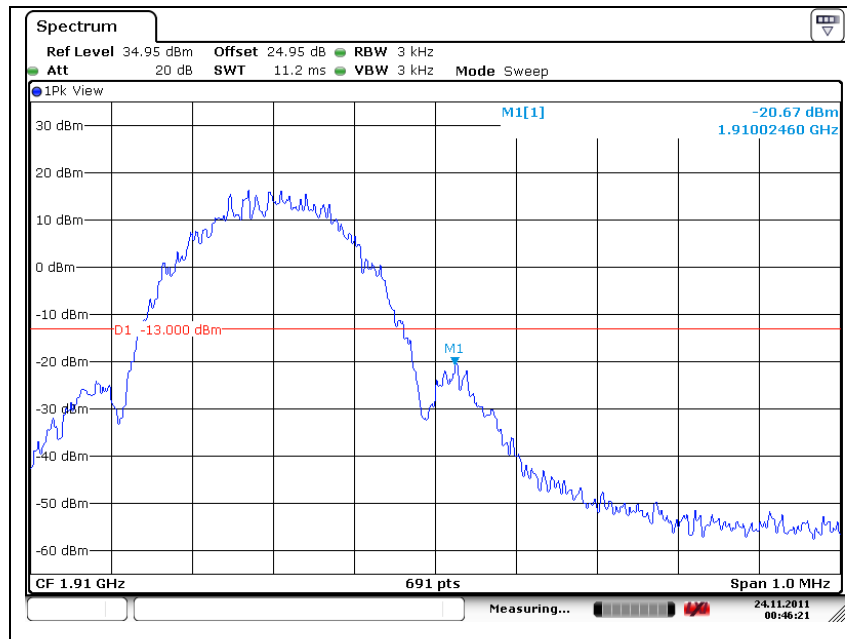
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GSM1900 EDGE Low Channel



High Channel



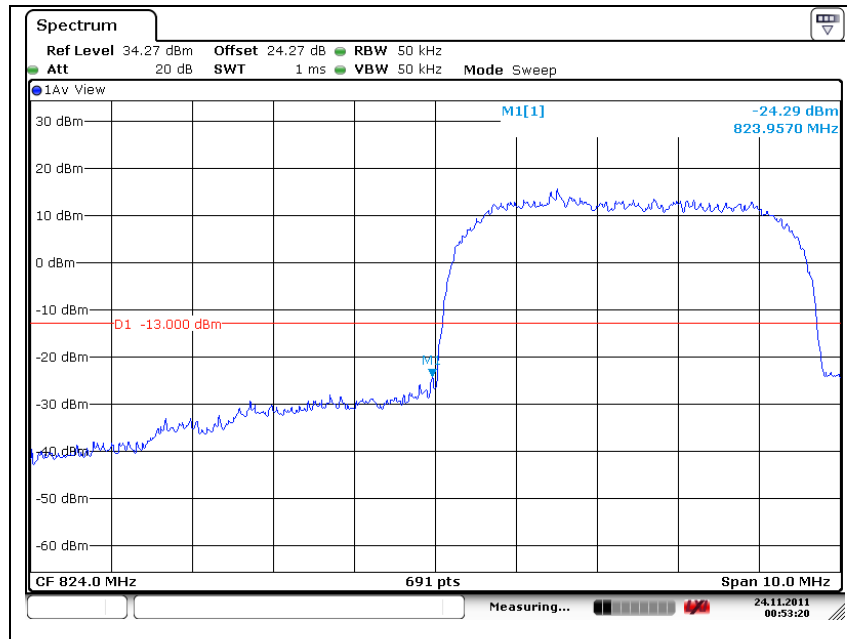
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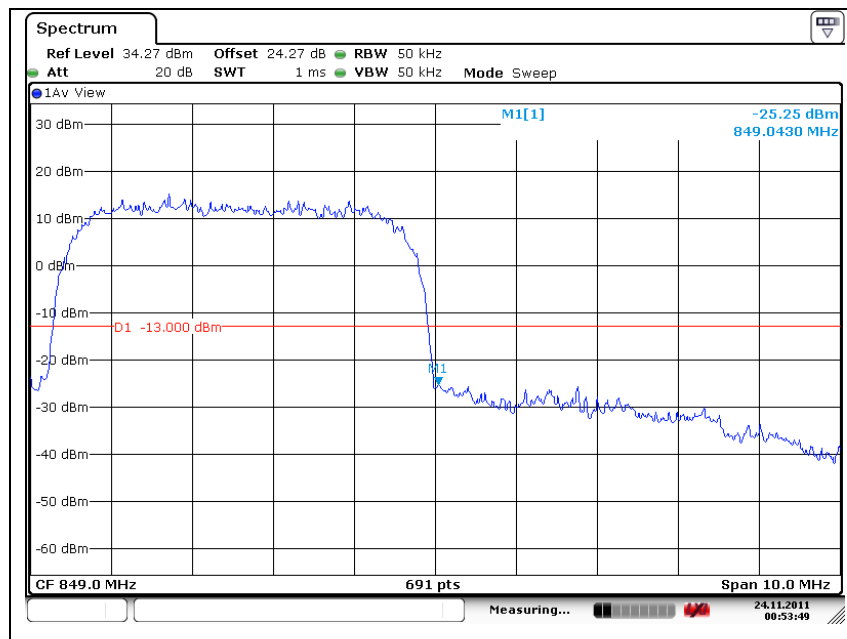
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WCDMA850 Low Channel



High Channel



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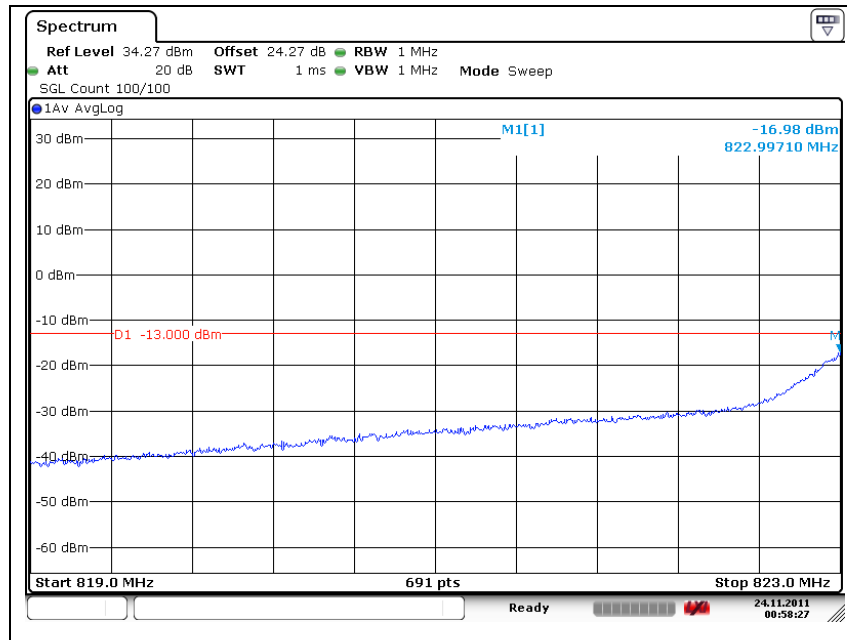
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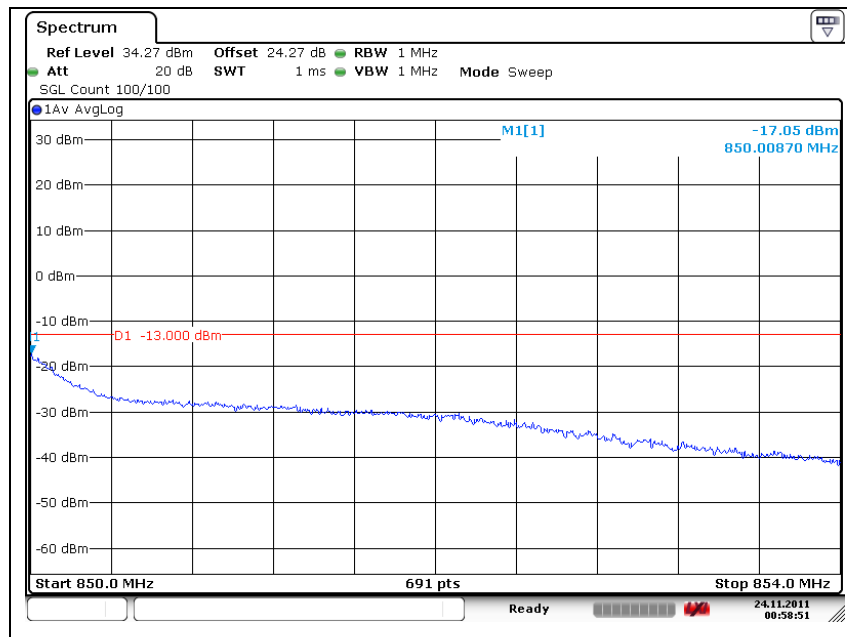
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4 MHz span plot_WCDMA850

Low Channel



High Channel



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7. Frequency Stability

7.1. Limit

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:

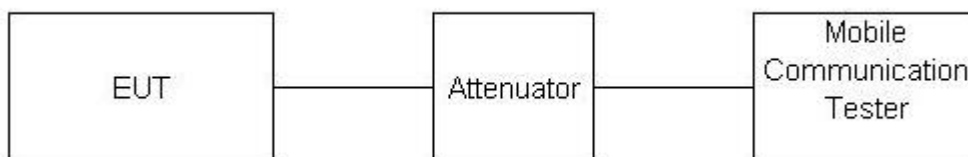
According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table of this section.

For Mobile devices operating in the 824 to 849 MHz band at a power level less than or equal to 3 Watts, the limit specified in Table C-1 is +/- 2.5 ppm.

§24.235 The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

7.2. Test Procedure

1. Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed-through attenuators.
2. The EUT was placed inside the temperature chamber.
3. After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.



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7.3. Test Results

Ambient temperature : (24 ± 2) °C
Relative humidity : 47 % R.H.

GSM850 mode at middle channel

Reference Frequency: 836.6 MHz, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	3.7	-17	-0.020
40		-12	-0.014
30		-14	-0.017
24		-15	-0.018
10		-13	-0.016
0		-7	-0.008
-10		-5	-0.006
-20		-11	-0.013
-30		-16	-0.019
Frequency Stability versus power Supply			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
24	4.255	-6	-0.007
	3.4 (batt. End point)	-25	-0.030

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GSM1900 mode at middle channel

Reference Frequency: 1 880.0 MHz, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (℃)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	3.7	-23	-0.027
40		-2	-0.002
30		24	0.029
24		37	0.044
10		42	0.050
0		35	0.042
-10		30	0.036
-20		28	0.033
-30		45	0.054
Frequency Stability versus power Supply			
Environment Temperature (℃)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
24	4.255	-29	-0.035
	3.4 (batt. End point)	46	0.055

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WCDMA850 mode at middle channel

Reference Frequency: 850.0 MHz, Limit: 2.5 ppm			
Frequency Stability versus Temperature			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
50	3.7	17	0.020
40		24	0.029
30		-6	-0.007
24		-13	-0.016
10		-24	-0.029
0		-28	-0.033
-10		-38	-0.045
-20		-25	-0.030
-30		-44	-0.053
Frequency Stability versus power Supply			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
24	4.255	-11	-0.013
	3.4 (batt. End point)	-20	-0.024

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