

FCC PART 22H/24E MEASUREMENT AND TEST REPORT

For

Pod Trackers Pty Ltd

Bay 10 Middlemiss Street, Lavender Bay NSW 2060, Australia

E.U.T.: Pod Live

Model Name: POD-001

Brand Name: Pod

FCC ID: 2AD83001

Report Number: NTC1501109F

Test Date(s): January 13, 2015 to February 07, 2015

Report Date(s): February 07, 2015

Prepared by

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Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Dongguan Nore Testing Center Co., Ltd. The test results referenced from this report are relevant only to the sample tested.

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1 GENERAL INFORMATION

1.1 Product Description for Equipment under Test

This device is a Pet tracking device with GSM and BT functions. It's powered by DC 3.7V Li-ion battery. For more details features, please refer to User's Manual.

Manufacturer	: Shenzhen NZP Technology Co., Limited
Address	: 5 th Floor, Jinxicheng Building, Xuqu Rd., Longhua Banan Dist., Shenzhen, China
Power Supply	: DC 3.7V Li-ion Battery
Model name	: POD-001
Note	: None

Technical parameters For GSM Function

Hardware version	: 1.1
Software version	: 1.1
Frequency Bands	: GSM 850, PCS 1900
Frequency:	: Cellular Band: 824.2-848.8MHz (TX) 869.2-893.8MHz(RX) PCS Band: 1850.2-1909.8MHz (TX) 1930.2-1989.8MHz(RX)
Modulation	: GMSK for GSM/GPRS
Antenna Type	: Integral
Antenna gain	: 0dBi (declaration by manufacturer)
GPRS Class	: 8

For BT function

BT Version	: BLE
Frequency:	: 2402-2480MHz
Modulation	: GFSK
Number of Channel	: 40
Channel space	: 2MHz
Antenna Type	: PCB
Antenna Gain	: 0dBi (declaration by manufacturer)

1.2 Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Part 24 Subpart E - Personal Communication Services

Applicable Standards: ANSI/TIA/EIA-603-C, ANSI C63.10-2013.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters..

1.3 Special Accessories

Not available for this EUT intended for grant.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Objective

This type approval report is prepared on behalf of Everwise Ltd. in accordance with Part 2, Subpart J, Part 22 Subpart H, and Part 24 Subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for output power, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, band edge and radiated margin.

1.6 Test Facility and Location

Listed by FCC, August 02, 2011

The Certificate Registration Number is 665078.

Listed by Industry Canada, July 01, 2011

The Certificate Registration Number is 9743A.

Dongguan NTC Co., Ltd.

(Full Name: Dongguan Nore Testing Center Co., Ltd.)

Building D, Gaosheng Science and Technology Park, Hongtu Road,
Nancheng District, Dongguan City, Guangdong, China

(Full Name: Building D, Gaosheng Science & Technology Park,
Zhouxi Longxi Road, Nancheng District, Dongguan, Guangdong, China.

1.7 Summary of Test Results

FCC Rules	Description Of Test	Result
§2.1046 §22.913(a) §24.232(c)	RF Output Power	Compliant
§ 2.1049 § 22.905 § 22.917 § 24.238	Occupied Bandwidth	Compliant
§ 2.1055 § 22.355 § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant
§ 22.917 (a) § 24.238 (a)	Out of band emission, Band Edge	Compliant
§ 2.1047	Modulation Characteristics	N/A
§ 2.1051 § 22.917 (a) § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053 § 22.917 (a) § 24.238 (a)	Field Strength of Spurious Radiation	Compliant

2. RF OUTPUT POWER

2.1 Applicable Standard

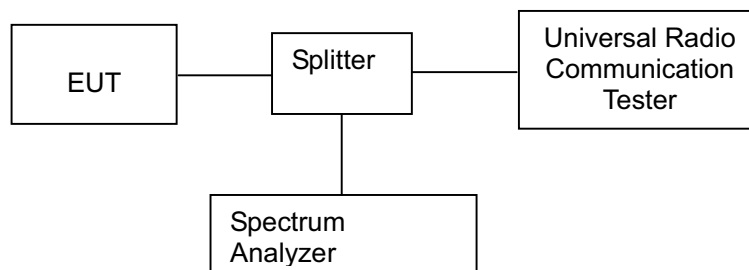
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c), in no case may the peak output power of a base station transmitter exceed 2 watt EIRP.

2.2 Test Procedure

Conducted Method:

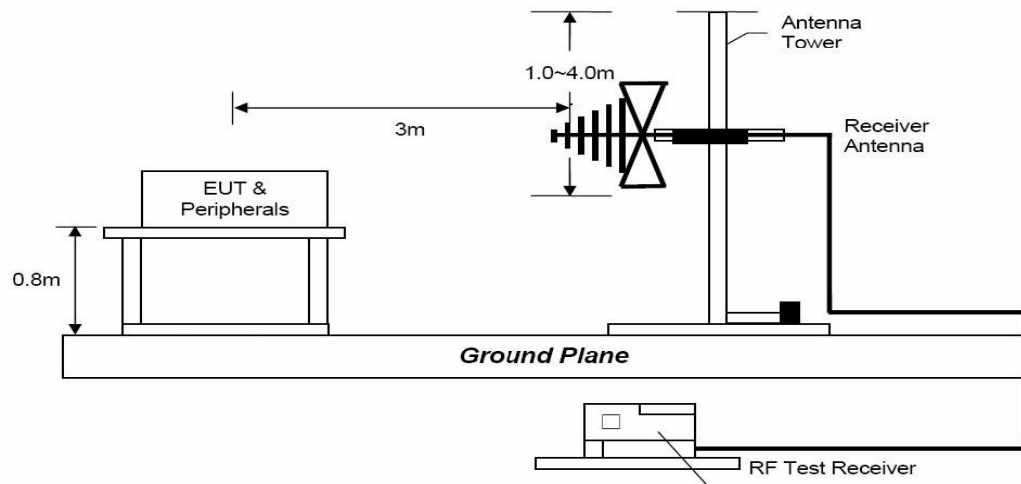
The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a spectrum analysis. Transmitter output was read off the spectrum analysis in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to spectrum analysis reading.



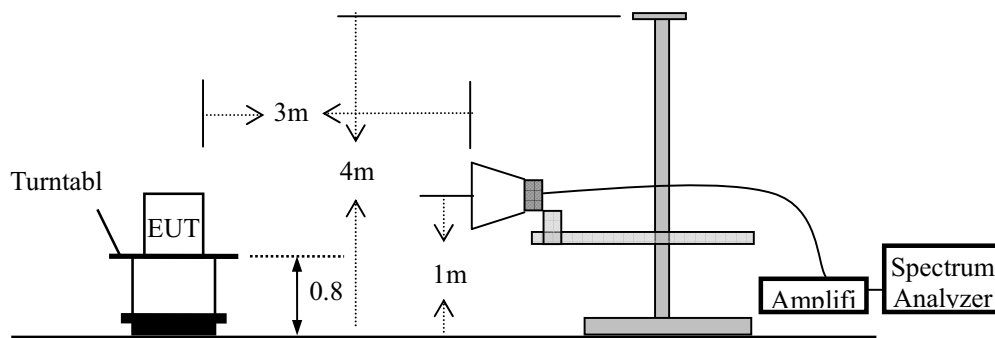
Radiated method:

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 1m to 4m. The reading was recorded and the field strength (E in dBuV/m) was calculated. ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows: EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows: $ERP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$

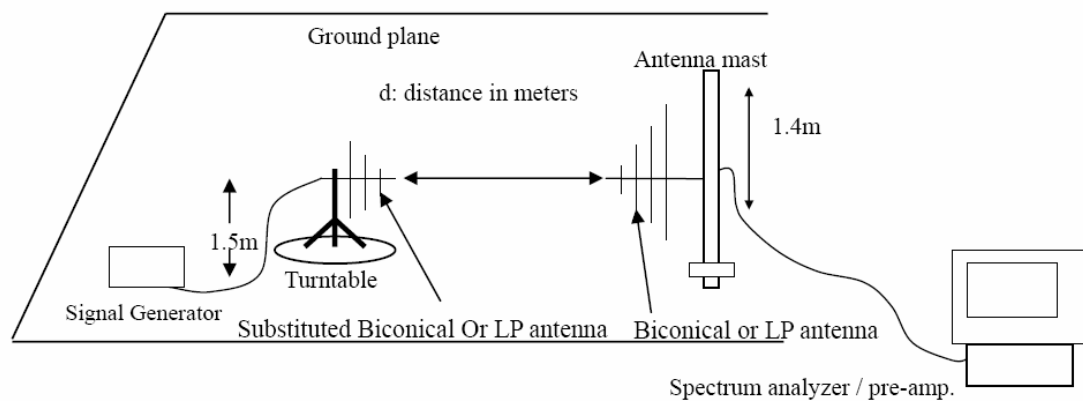
Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-Up, Frequency above 1GHz



Substituted Method Test Set-UP



Conducted Power:

Humidity :		50 %	Temperature :	22 °C
Test Result:		PASS	Test By:	Sance
Mode	Channel	Frequency (MHz)	Output Power (dBm)	Tune up power tolerant
Cellular Band (Part 22H) GSM GSM 850				
GSM	128	824.2	32.88	32±1
	189	836.4	32.95	32±1
	251	848.8	32.98	32±1
GPRS 8	128	824.2	32.87	32±1
	189	836.4	32.93	32±1
	251	848.8	32.96	32±1
Cellular Band (Part 22H) GPRS GSM 850				
GSM	128	824.2	32.56	32±1
	189	836.4	32.14	32±1
	251	848.8	32.33	32±1
GPRS 8	128	824.2	32.19	32±1
	189	836.4	32.62	32±1
	251	848.8	32.65	32±1
PCS Band (Part 24E) GSM GSM 1900				
GSM	512	1850.2	28.64	29±1
	661	1880.0	28.29	29±1
	810	1909.8	28.45	29±1
GPRS 8	512	1850.2	28.63	29±1
	661	1880.0	28.28	29±1
	810	1909.8	28.45	29±1
PCS Band (Part 24E) GPRS GSM 1900				
GSM	512	1850.2	28.52	29±1
	661	1880.0	28.84	29±1
	810	1909.8	28.83	29±1
GPRS 8	512	1850.2	28.26	29±1
	661	1880.0	28.54	29±1
	810	1909.8	28.18	29±1

Radiated Power (ERP and EIRP)

Humidity :		50 %	Temperature :			22 °C	
Mode:		GSM850	Test By:			Sance	
Test Result:		PASS					
Channel	Frequency (MHz)	Substituted level (dBm)	Polarization (H/V) Antenna	Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
GSM Cellular Band (Part 22H)							
128	824.2	21.72	H	7.86	0.9	28.68	38.45
		13.83	V	7.86	0.9	20.79	38.45
189	836.4	21.52	H	7.81	0.9	28.43	38.45
		13.48	V	7.81	0.9	20.39	38.45
251	848.8	21.61	H	7.81	0.9	28.52	38.45
		13.57	V	7.81	0.9	20.48	38.45
GPRS Cellular Band (Part 22H)							
128	824.2	22.05	H	7.86	0.9	29.01	38.45
		13.68	V	7.86	0.9	20.64	38.45
189	836.4	21.46	H	7.81	0.9	28.37	38.45
		13.59	V	7.81	0.9	20.50	38.45
251	848.8	21.55	H	7.81	0.9	28.46	38.45
		13.08	V	7.81	0.9	19.99	38.45

GSM PCS Band (Part 24E)							
512	1850.2	18.68	H	8.04	2.3	24.42	33.0
		16.65	V	8.04	2.3	22.39	33.0
661	1880.0	18.85	H	8.06	2.3	24.61	33.0
		16.77	V	8.06	2.3	22.53	33.0
810	1909.8	16.79	H	8.09	2.3	22.58	33.0
		16.68	V	8.09	2.3	22.47	33.0
GPRS PCS Band (Part 24E)							
512	1850.2	18.86	H	8.04	2.3	24.60	33.0
		16.24	V	8.04	2.3	21.98	33.0
661	1880.0	18.71	H	8.06	2.3	24.47	33.0
		16.53	V	8.06	2.3	22.29	33.0
810	1909.8	16.34	H	8.09	2.3	22.13	33.0
		16.37	V	8.09	2.3	22.16	33.0

3. Test OCCUPIED BANDWIDTH

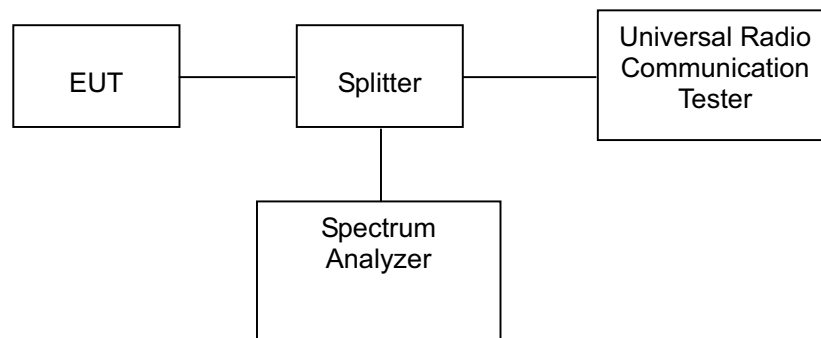
3.1 Applicable Standard

CFR 47 §2.1049, §22.917, §22.905 and §24.238.

3.2 Test Procedure

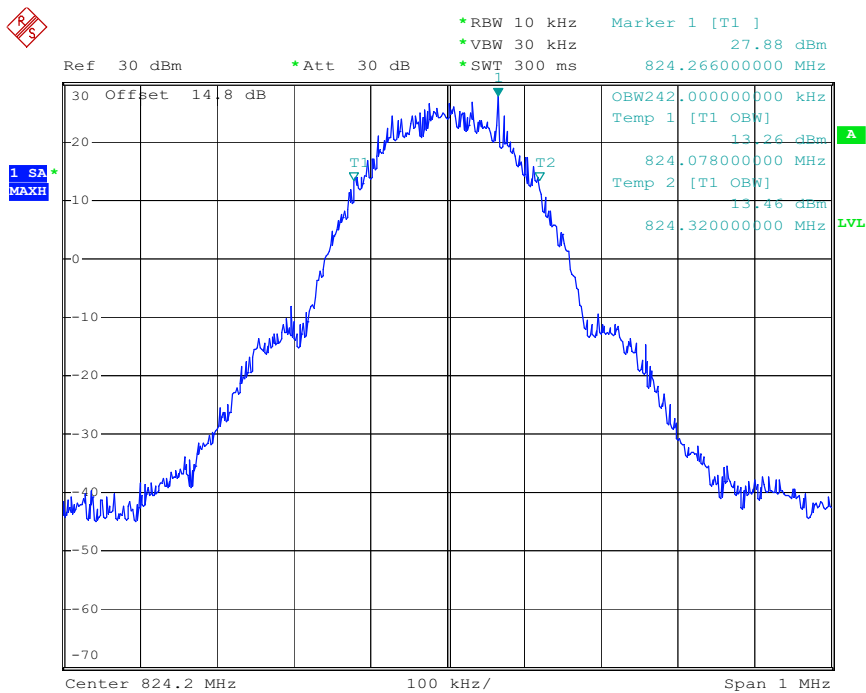
The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 30 kHz (Cellular /PCS) and the 26 dB & 99% bandwidth was recorded.



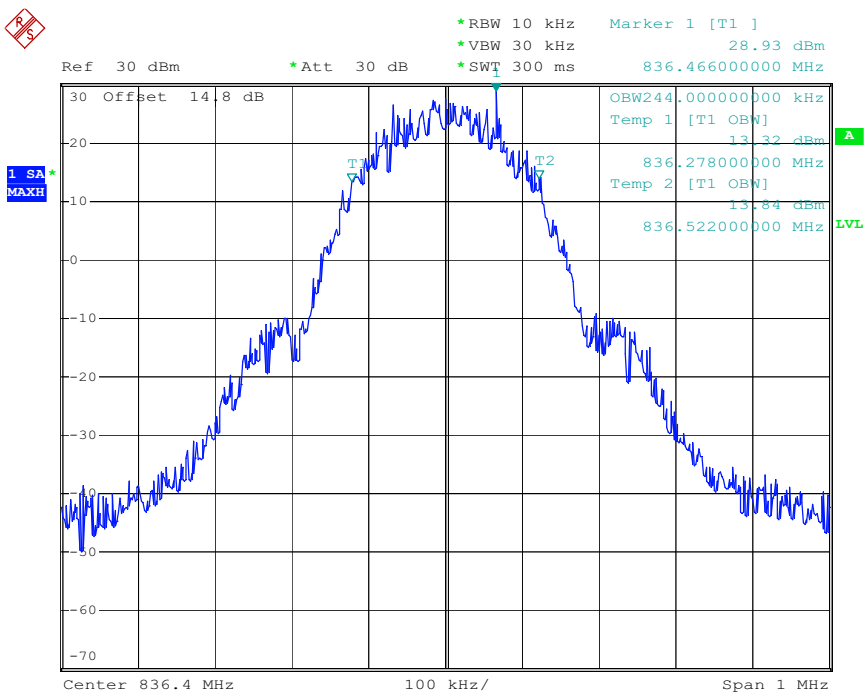
Humidity :		50 %	Temperature :	22 °C
Test Result:		PASS	Test By:	Sance
Mode	Channel	Frequency (MHz)	99% Power Bandwidth (kHz)	26 dB Bandwidth (kHz)
Cellular Band (Part 22H)				
GSM850 (GSM)	128	824.2	242	312
	189	836.4	244	316
	251	848.8	250	316
Cellular Band (Part 22H)				
GSM850 (GPRS)	128	824.2	244	308
	189	836.4	248	312
	251	848.8	246	314
PCS Band (Part 24E)				
GSM1900 (GSM)	512	1850.2	244	314
	661	1880.0	244	316
	810	1909.8	246	310
PCS Band (Part 24E)				
GSM1900 (GPRS)	512	1850.2	246	310
	661	1880.0	244	314
	810	1909.8	242	312

Cellular Band (Part 22H)



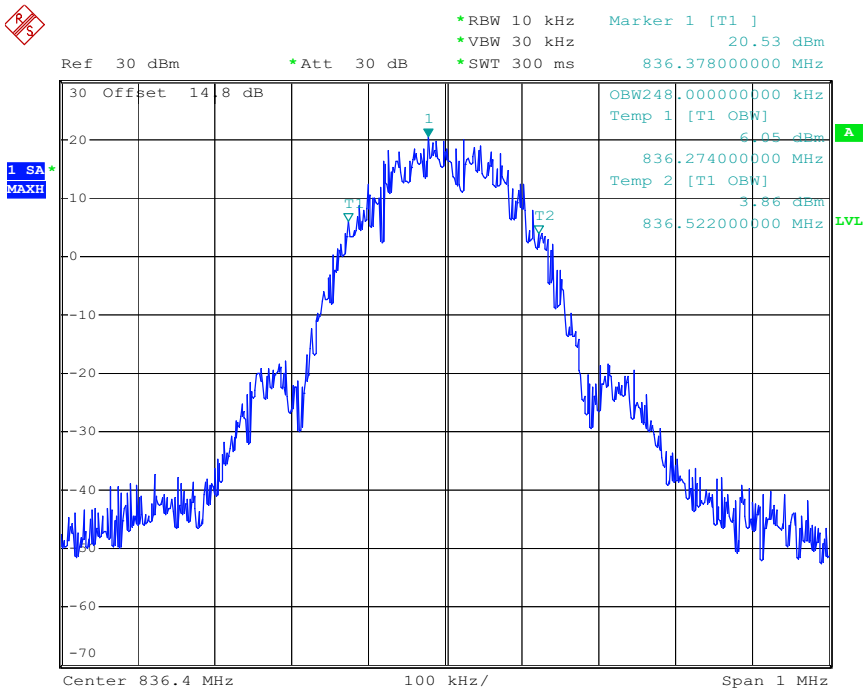
Date: 10.FEB.2015 13:25:33

99%Bandwidth (Channel 189) GSM



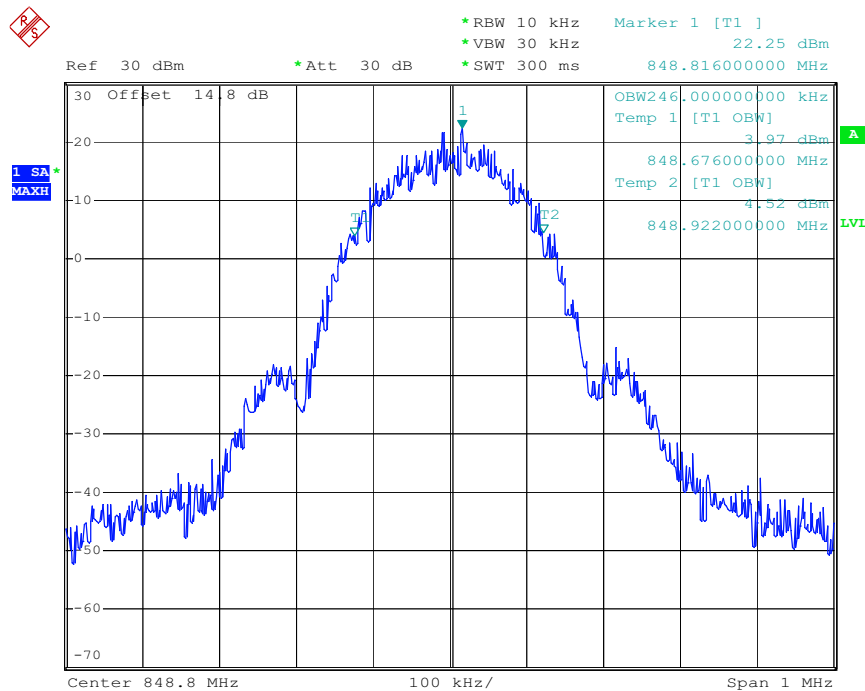
Date: 10.FEB.2015 13:11:12

99%Bandwidth (Channel 189) GPRS



Date: 10.FEB.2015 13:26:11

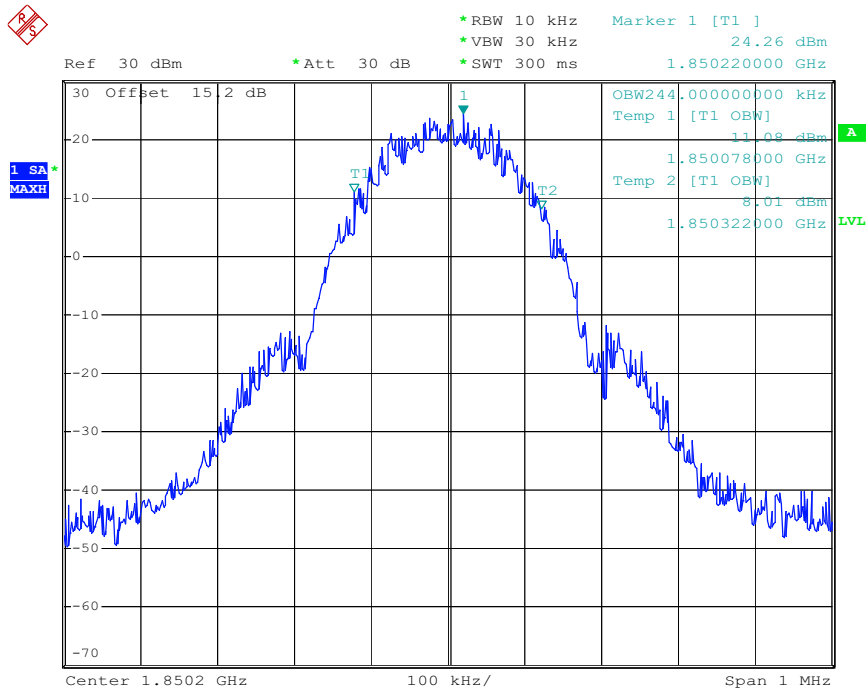
99%Bandwidth (Channel 251) GPRS



Date: 10.FEB.2015 12:56:29

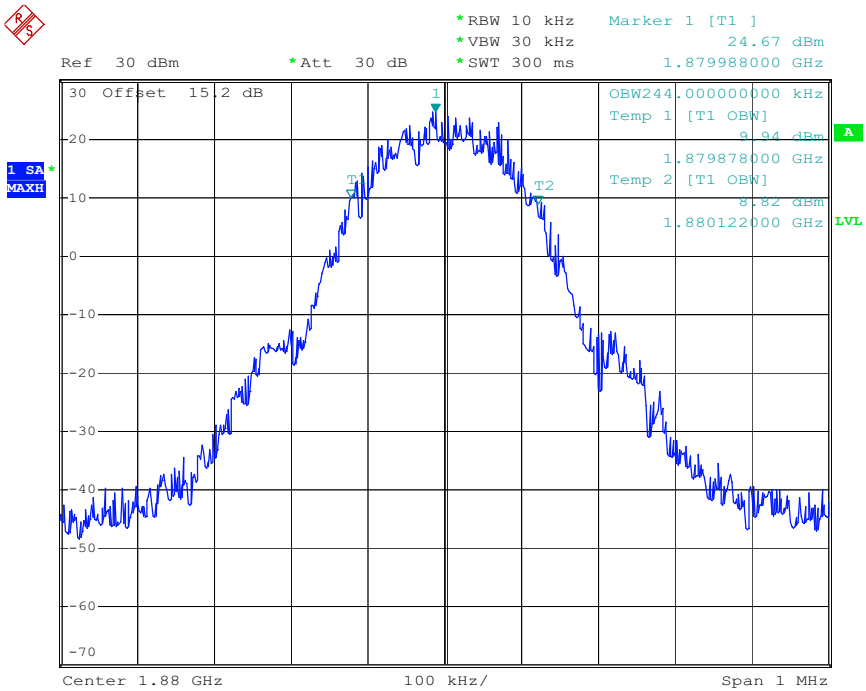
PCS Band (Part 24H)

99%Bandwidth (Channel 512) GSM



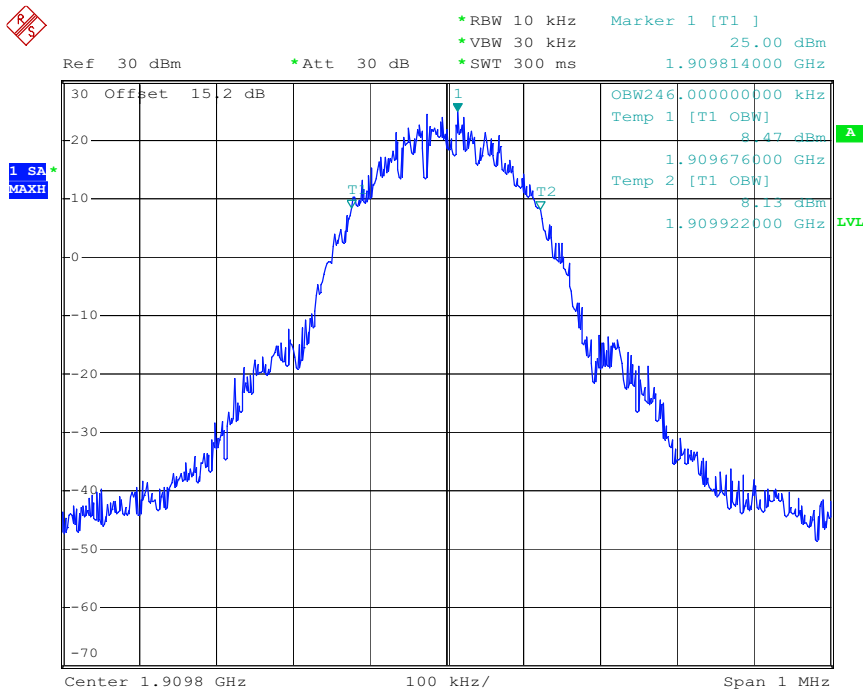
Date: 10.FEB.2015 14:22:37

99%Bandwidth (Channel 661) GSM



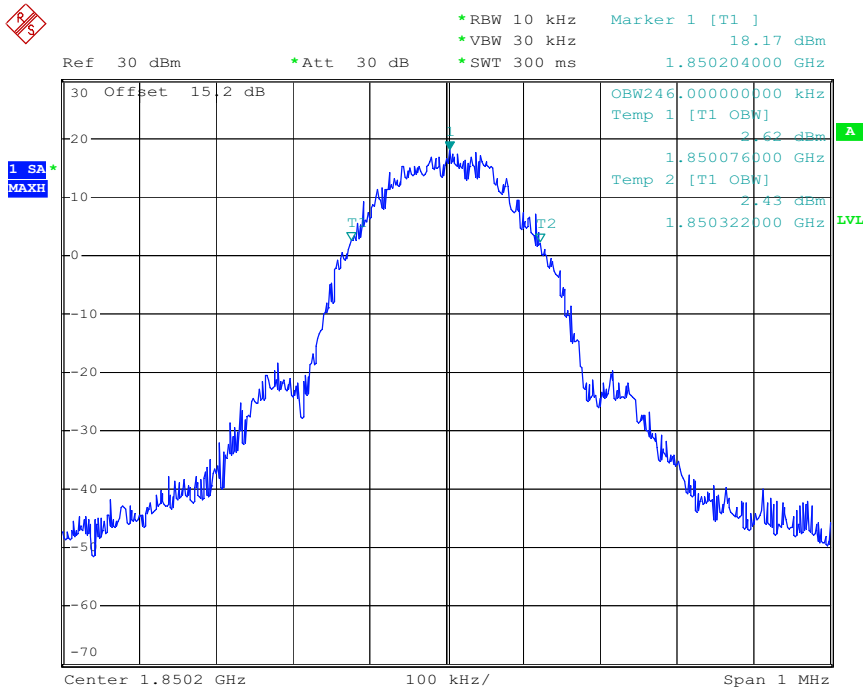
Date: 10.FEB.2015 13:57:25

99%Bandwidth (Channel 810) GSM



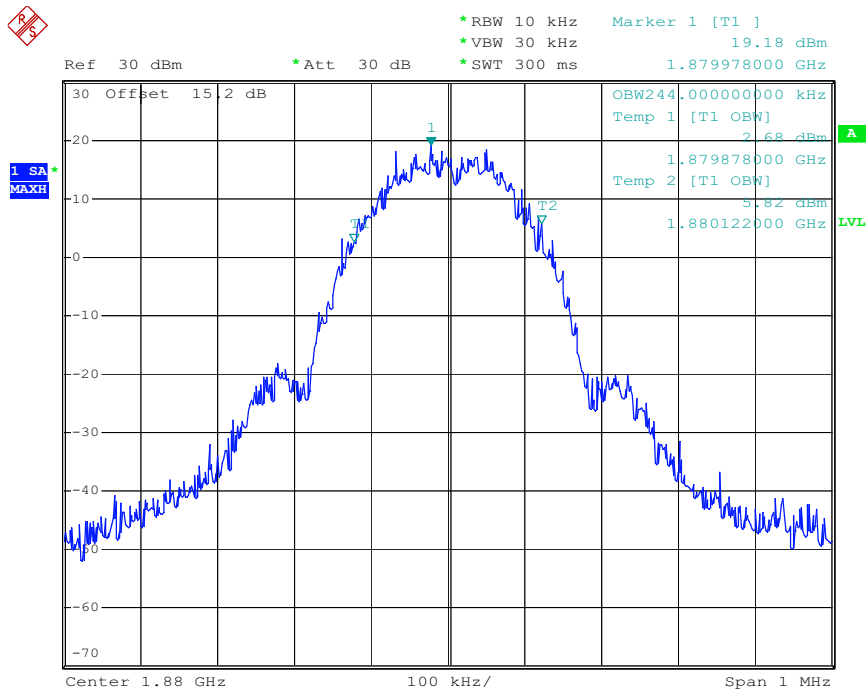
Date: 10.FEB.2015 14:35:33

99%Bandwidth (Channel 512) GPRS



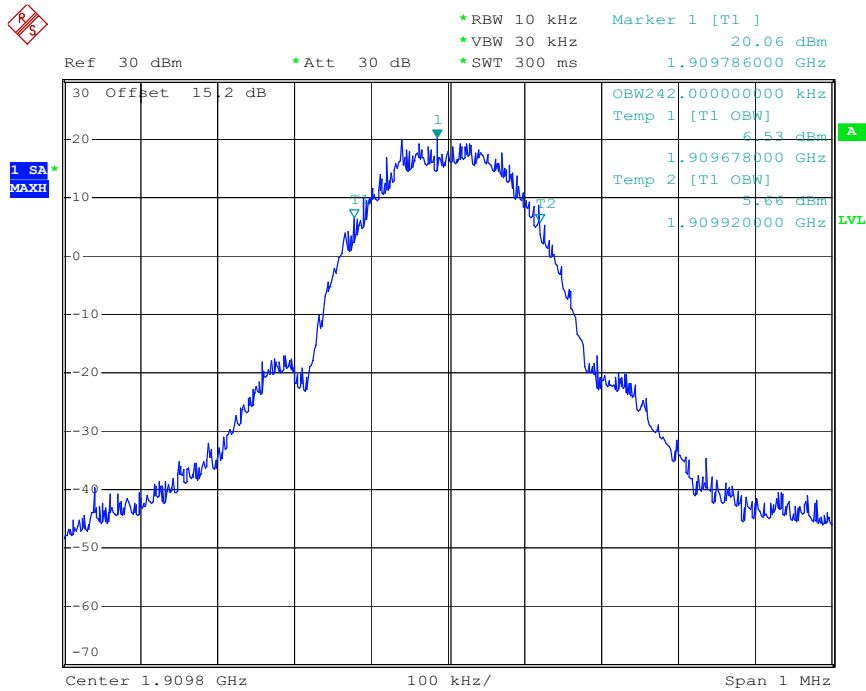
Date: 10.FEB.2015 13:57:51

99%Bandwidth (Channel 661) GPRS



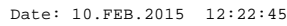
Date: 10.FEB.2015 14:19:30

99%Bandwidth (Channel 810) GPRS



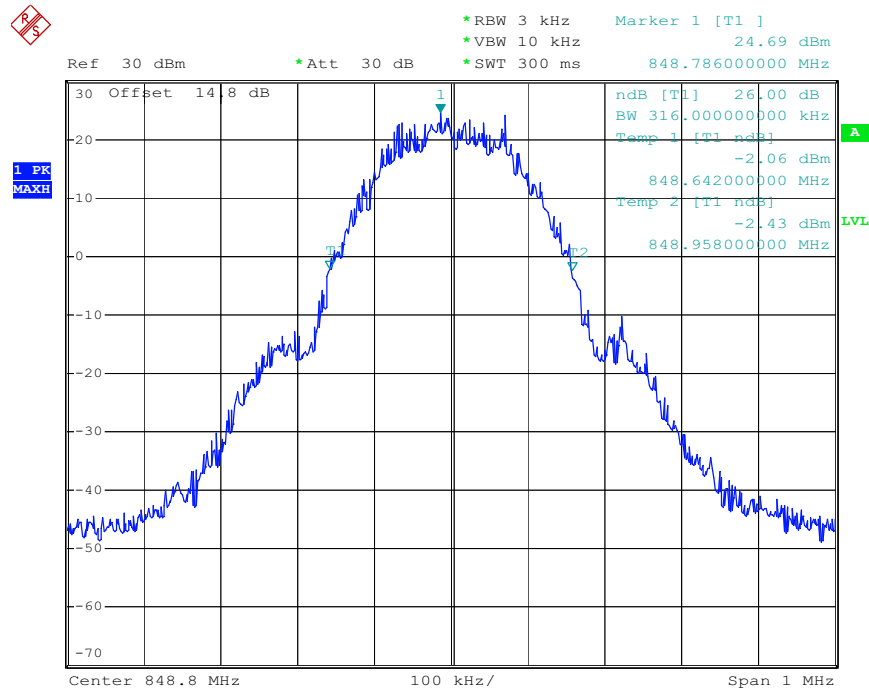
Date: 10.FEB.2015 14:18:13

26 dB Bandwidth (Channel 128) GSM



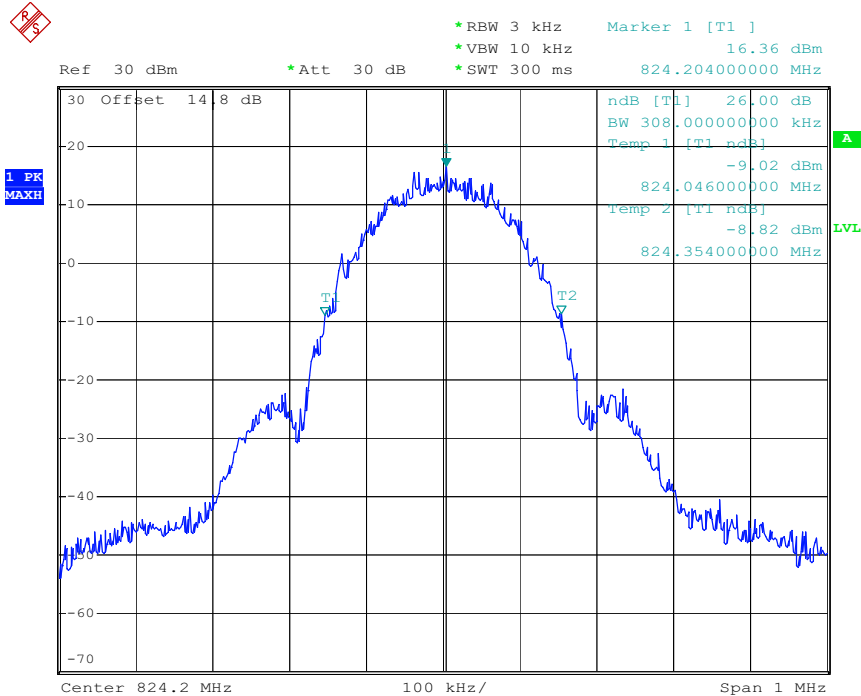
Date: 10.FEB.2015 12:35:24

26 dB Bandwidth (Channel 251) GSM



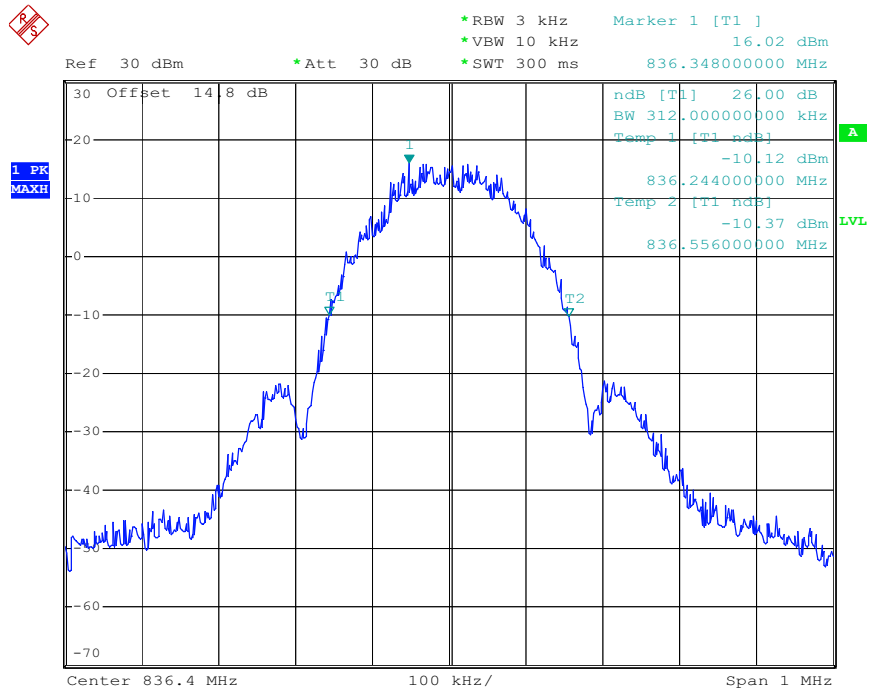
Date: 10.FEB.2015 12:23:10

26 dB Bandwidth (Channel 128) GPRS



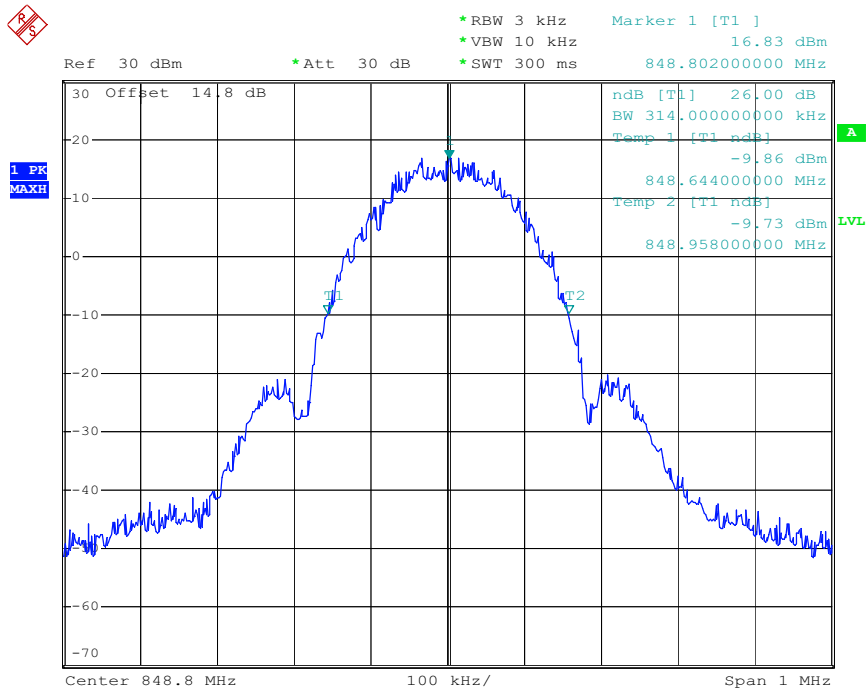
Date: 10.FEB.2015 12:21:52

26 dB Bandwidth (Channel 189) GPRS



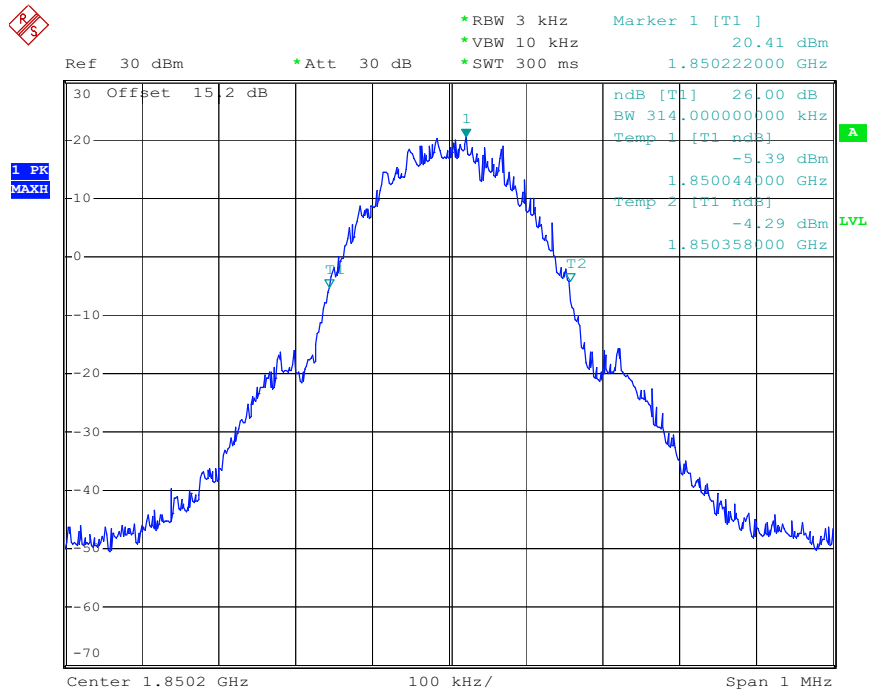
Date: 10.FEB.2015 12:37:33

26 dB Bandwidth (Channel 251) GPRS



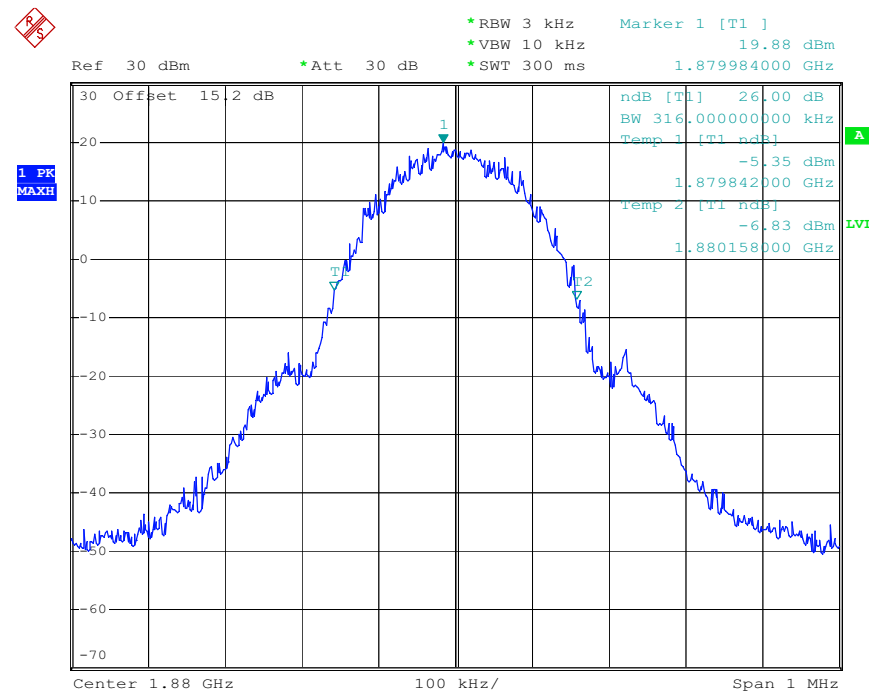
Date: 10.FEB.2015 12:22:18

PCS Band (Part 24H)
26 dB Bandwidth (Channel 512) GSM



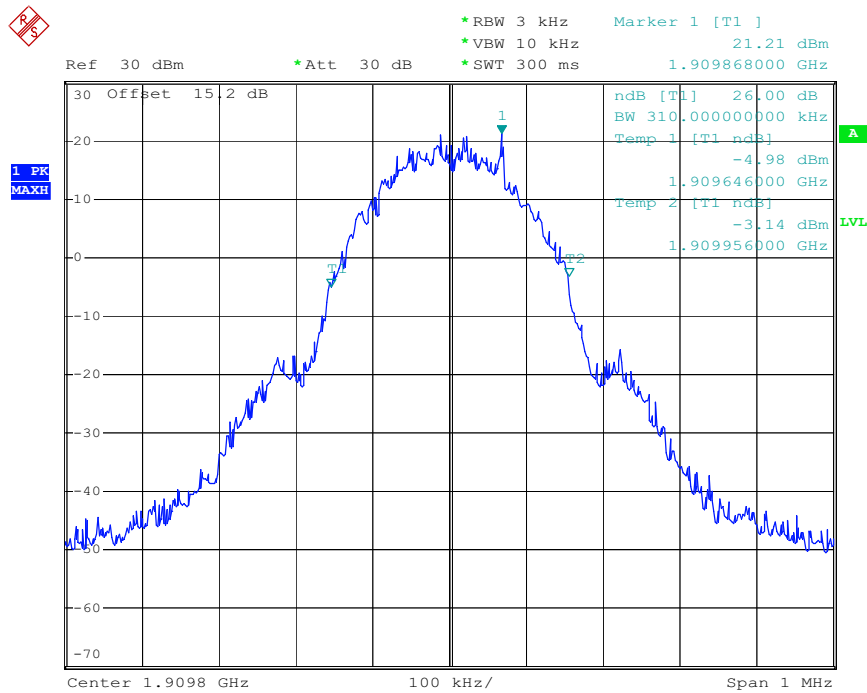
Date: 10.FEB.2015 13:30:38

26 dB Bandwidth (Channel 661) GSM



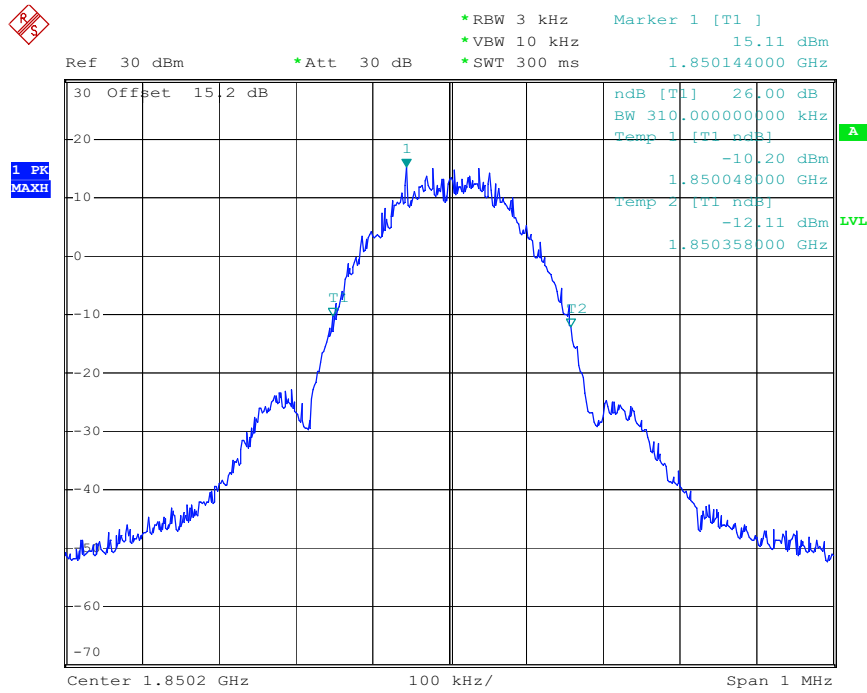
Date: 10.FEB.2015 13:29:20

26 dB Bandwidth (Channel 810) GSM



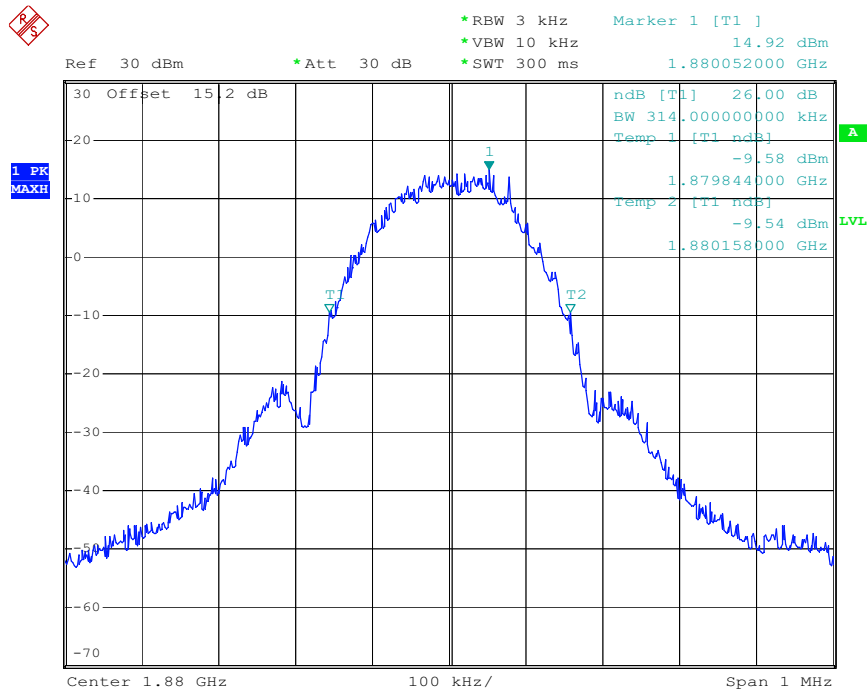
Date: 10.FEB.2015 13:31:04

26 dB Bandwidth (Channel 512) GPRS



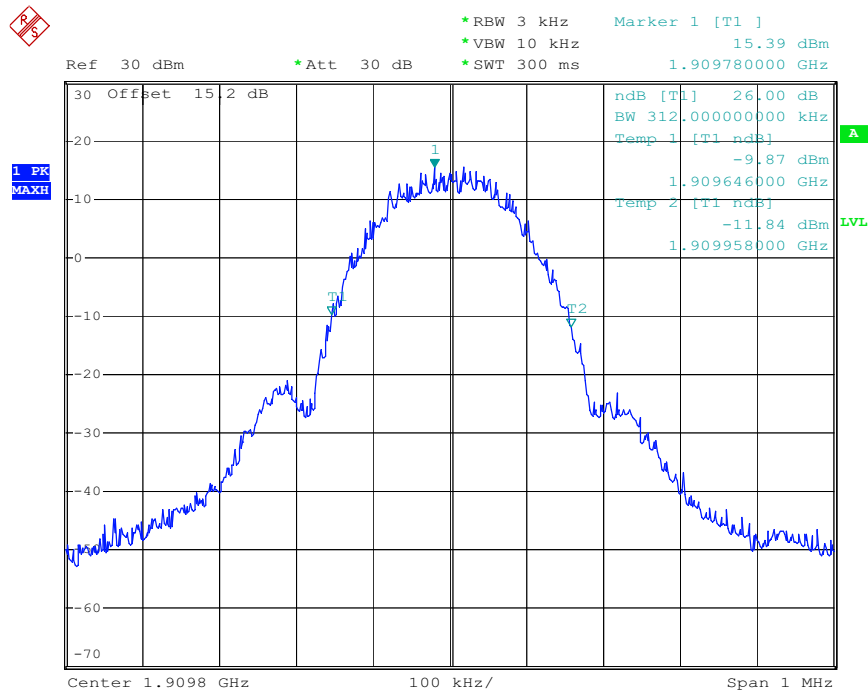
Date: 10.FEB.2015 13:29:46

26 dB Bandwidth (Channel 661) GPRS



Date: 10.FEB.2015 13:55:06

26 dB Bandwidth (Channel 810) GPRS



Date: 10.FEB.2015 13:30:12

4. FREQUENCY STABILITY

4.1 Applicable Standard

CFR47 § 2.1055 (a), § 2.1055 (d), §22.355, §24.235

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

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

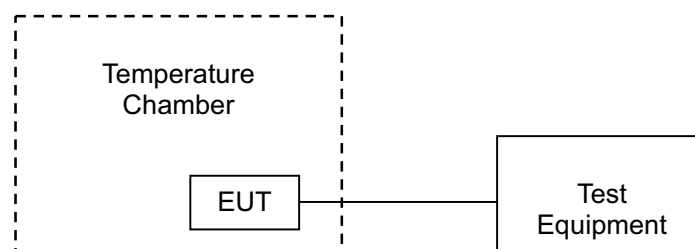
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

4.2 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 30 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



GSM Cellular Band				
Humidity :	50 %	Temperature :	22 °C	
Mode:	GSM850	Test By:	Sance	
Test Result:	PASS			
Middle channel, f _o =836.4MHz;				
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	25	0.030	2.5
0		19	0.023	2.5
10		22	0.026	2.5
20		16	0.019	2.5
30		8	0.010	2.5
40		10	0.012	2.5
50		17	0.020	2.5
55		23	0.028	2.5
25	3.7	8	0.010	2.5
	4.2	8	0.010	2.5
	3.5	12	0.014	2.5

Note: The manufacturer declared that the EUT could work within temperature range -10°C to 55°C and voltage range DC 3.5V to DC 4.2V. The nominal voltage is DC 3.7V.

GPRS Cellular Band				
Humidity :	50 %	Temperature :	22 °C	
Mode:	GSM850	Test By:	Sance	
Test Result:	PASS			
Middle channel, f _o =836.4MHz;				
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	25	0.016	2.5
0		19	0.010	2.5
10		22	0.024	2.5
20		16	0.023	2.5
30		8	0.027	2.5
40		10	0.005	2.5
50		17	0.019	2.5
55		23	0.022	2.5
25	3.7	8	0.019	2.5
	4.2	8	0.021	2.5
	3.5	12	0.023	2.5

Note: The manufacturer declared that the EUT could work within temperature range -10°C to 55°C and voltage range DC 3.5V to DC 4.2V. The nominal voltage is DC 3.7V.

GSM PCS Band				
Humidity :	50%	Temperature :	22 °C	
Mode:	GSM1900	Test By:	Sance	
Test Result:	PASS			
Middle channel, f _o =1880.0MHz;				
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	-29	-0.015	2.5
0		-31	-0.016	2.5
10		18	0.010	2.5
20		26	0.014	2.5
30		22	0.012	2.5
40		30	0.016	2.5
50		-19	-0.010	2.5
55		-21	-0.011	2.5
25	3.7	25	0.013	2.5
	4.2	31	0.016	2.5
	3.5	28	0.015	2.5

Note: The manufacturer declared that the EUT could work within temperature range -10°C to 55°C and voltage range DC 3.5V to DC 4.2V. The nominal voltage is DC 3.7V.

GPRS PCS Band				
Humidity :	50%	Temperature :	22 °C	
Mode:	GSM1900	Test By:	Sance	
Test Result:	PASS			
Middle channel, f _o =1880.0MHz;				
Temperature (°C)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.7	-25	-0.013	2.5
0		-28	-0.015	2.5
10		15	0.008	2.5
20		16	0.009	2.5
30		25	0.013	2.5
40		26	0.014	2.5
50		-17	-0.009	2.5
55		-22	-0.012	2.5
25	3.7	23	0.012	2.5
	4.2	28	0.015	2.5
	3.5	20	0.011	2.5

Note: The manufacturer declared that the EUT could work within temperature range -10°C to 55°C and voltage range DC 3.5V to DC 4.2V. The nominal voltage is DC 3.7V.

5. BAND EDGES

5.1 Applicable Standard

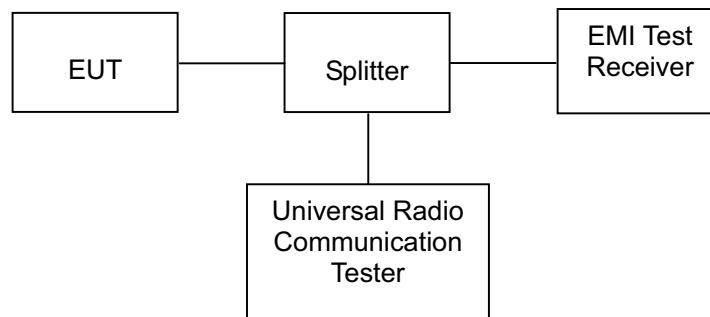
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

5.2 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 3 kHz.

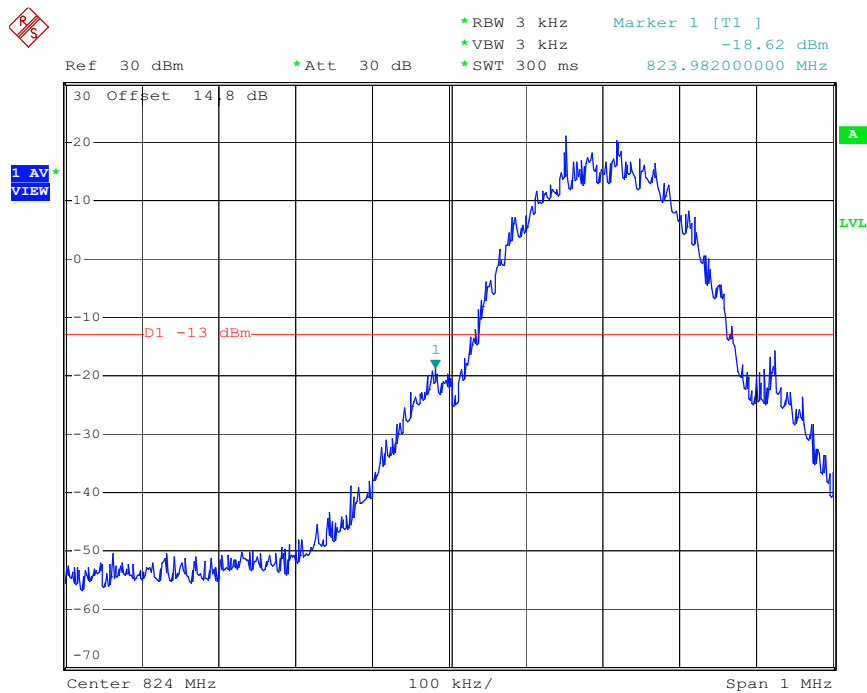


Humidity :	50 %	Temperature :	22 °C
Test Result:	PASS	Test By:	Sance
Mode	GSM850		
Frequency (MHz)	Emission (dBm)	Limit (dBm)	
Cellular Band (GSM)			
824	-18.42	-13	
849	-15.50	-13	
Cellular Band (GPRS)			
824	-26.58	-13	
849	-25.42	-13	
PCS Band (GSM)			
1850	-21.61	-13	
1910	-20.84	-13	
PCS Band (GPRS)			
1850	-25.90	-13	
1910	-27.70	-13	

- Note: 1. Correction Factor(dB)=10log(1% Emission BW/RBW)
For Part 22H, Correction Factor(dB)=10log(1%*316KHz/3KHz) ≈0.2;
For Part 24E, Correction Factor(dB)=10log(1%*316KHz/3KHz) ≈0.2.
2. Band Edge= Measurement Value + Correction Factor (dB)
3. For GSM 850, Offset= External attenuator + cable loss +10log (1%Emission BW/RBW)=14.8dB
For PCS 1900, Offset= External attenuator + cable loss +10log (1%Emission BW/RBW)=15.2dB

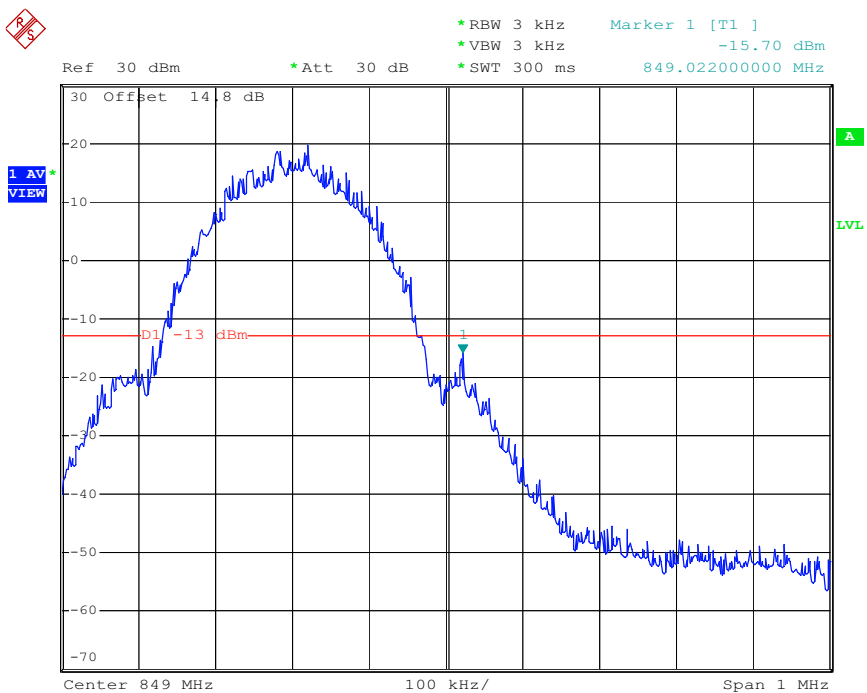


Cellular Band, Low Channel (GSM)



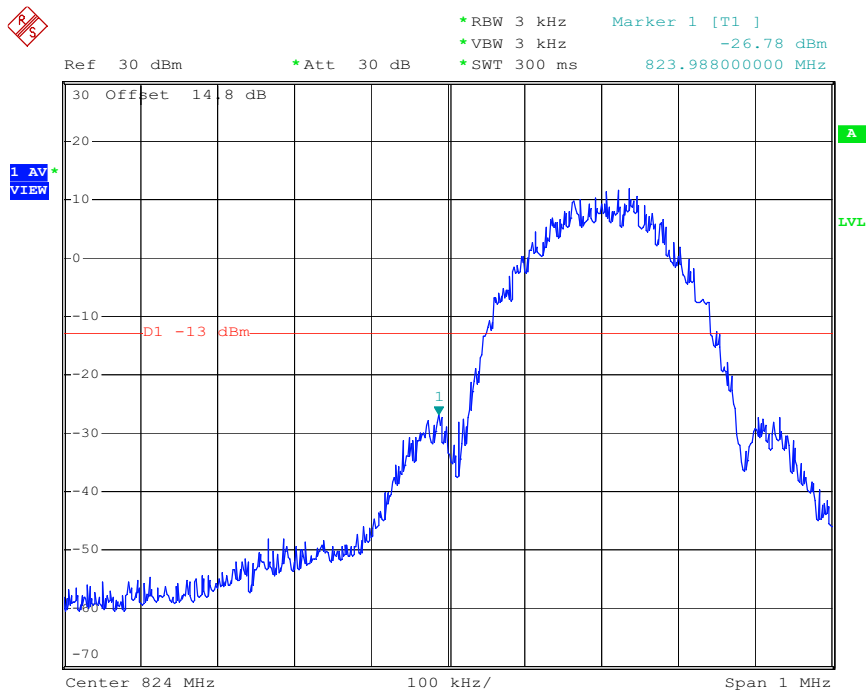
Date: 10.FEB.2015 12:59:38

Cellular Band, High Channel (GSM)



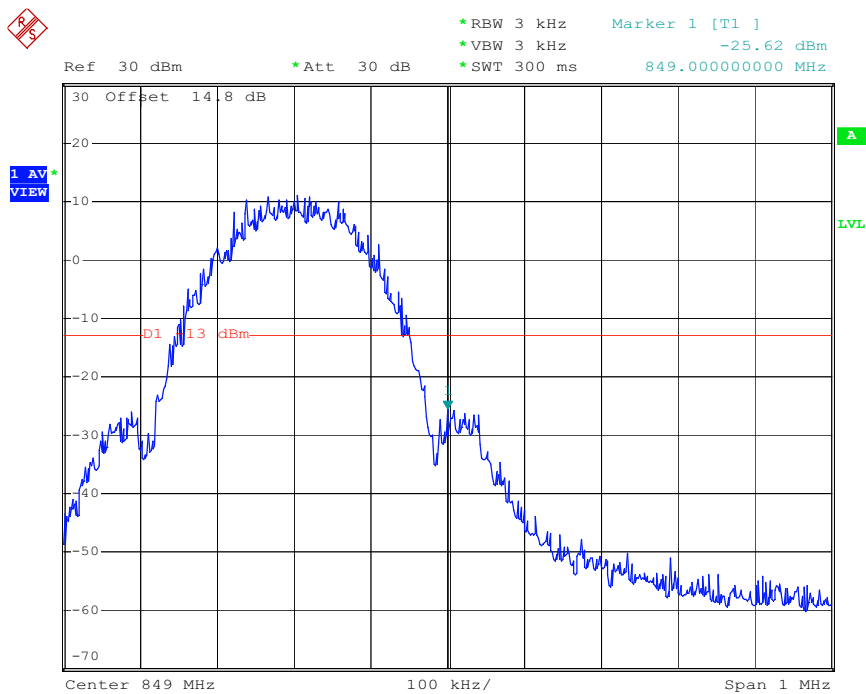
Date: 10.FEB.2015 14:01:00

Cellular Band, Low Channel (GPRS)



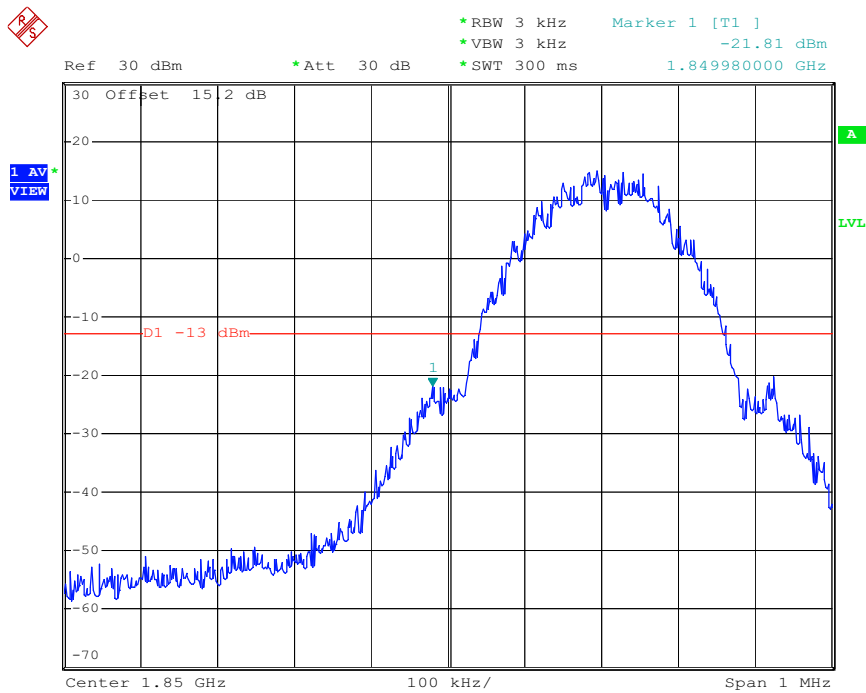
Date: 10.FEB.2015 14:01:26

Cellular Band, High Channel (GPRS)



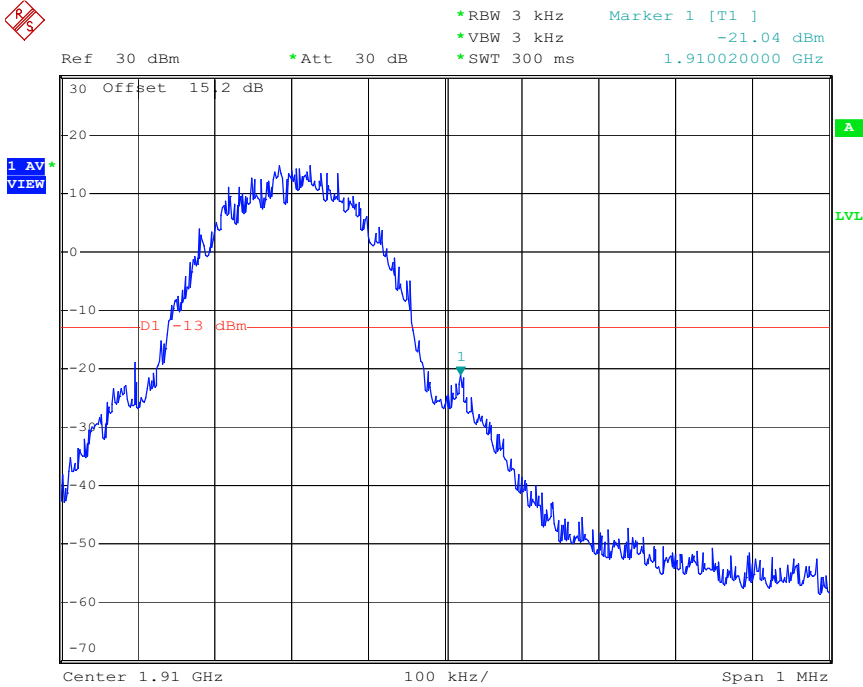
Date: 10.FEB.2015 12:25:01

PCS Band, Low Channel (GSM)



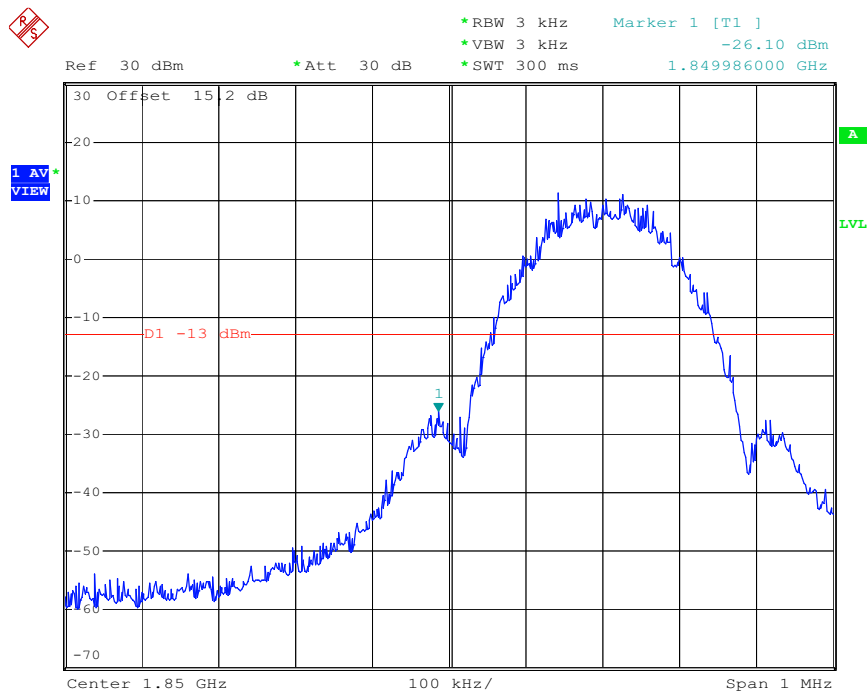
Date: 10.FEB.2015 12:25:27

PCS Band, High Channel (GSM)



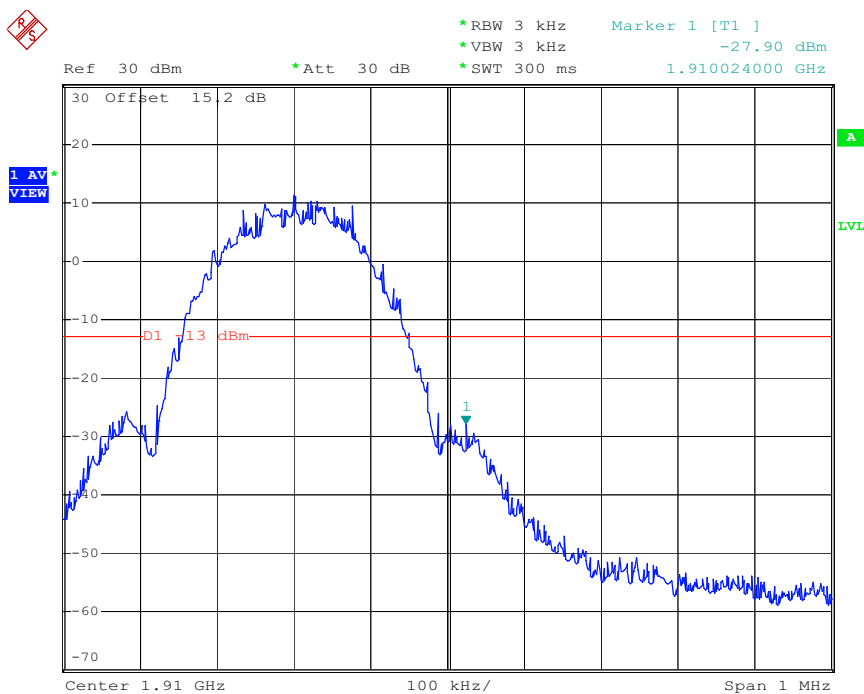
Date: 10.FEB.2015 13:32:54

PCS Band, Low Channel (GPRS)



Date: 10.FEB.2015 13:33:20

PCS Band, High Channel (GPRS)



Date: 10.FEB.2015 13:05:33

6. MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

7. SPURIOUS EMISSIONS AT ANTENNA TERMINALS

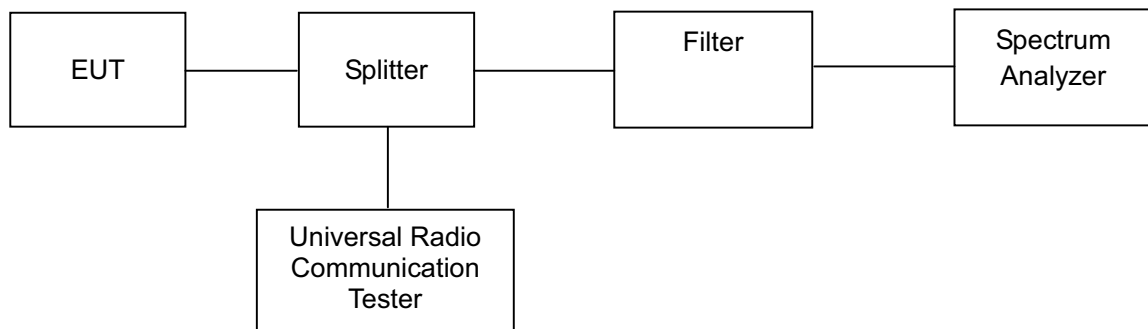
7.1 Applicable Standards

CFR 47 §2.1051, §22.917(a) and §24.238(a).

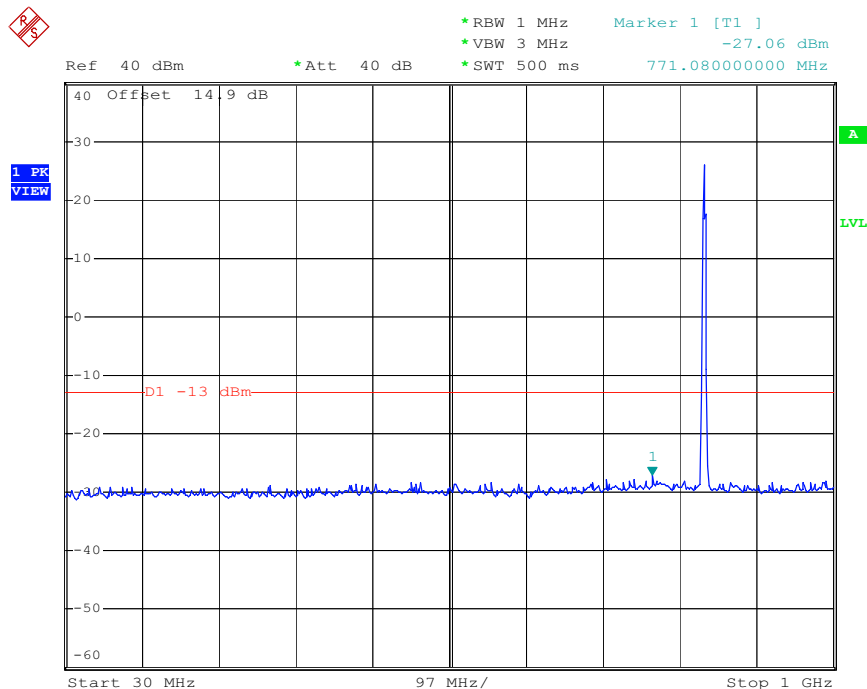
The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

7.2 Test Procedure

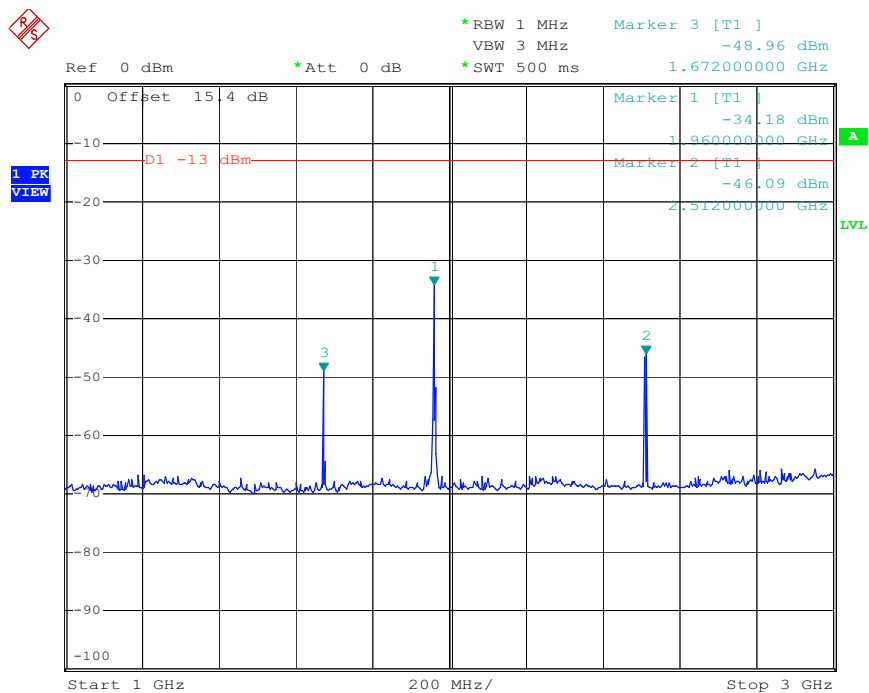
The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1000 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



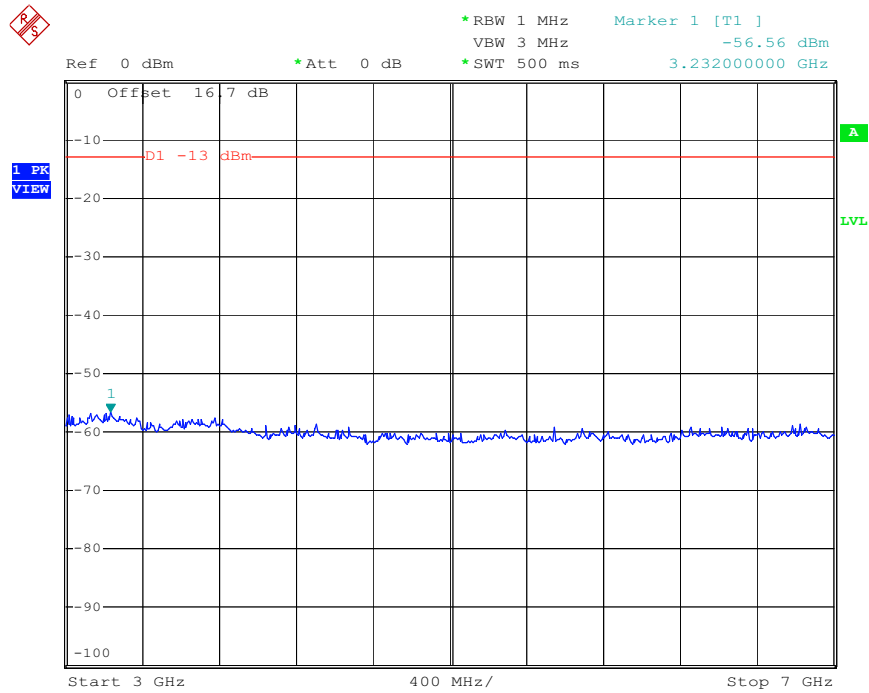
Cellular Band (Part 22H)
GSM
The worst case low channel 128



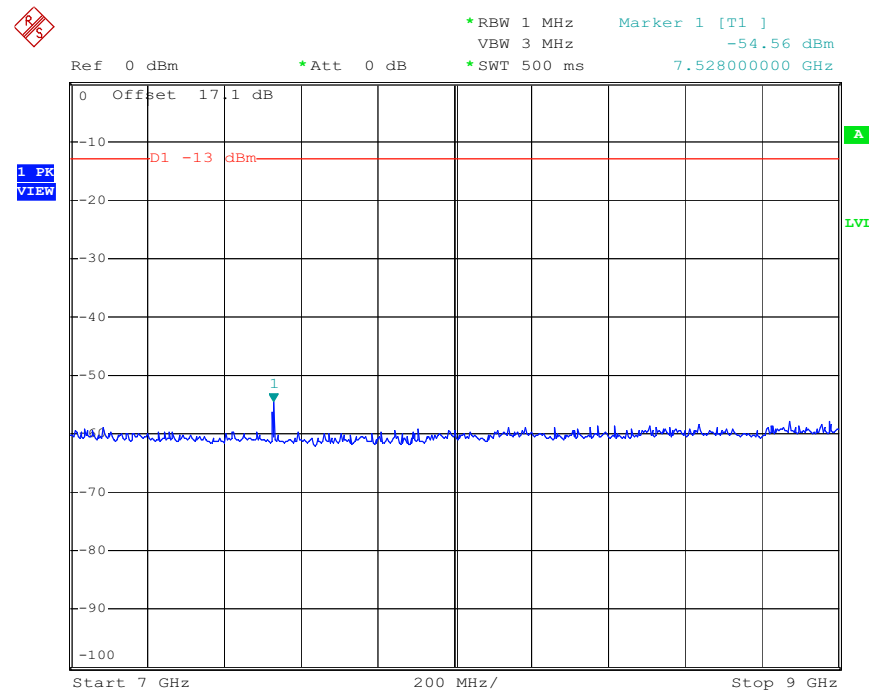
Date: 10.FEB.2015 13:07:30



Date: 10.FEB.2015 13:08:00

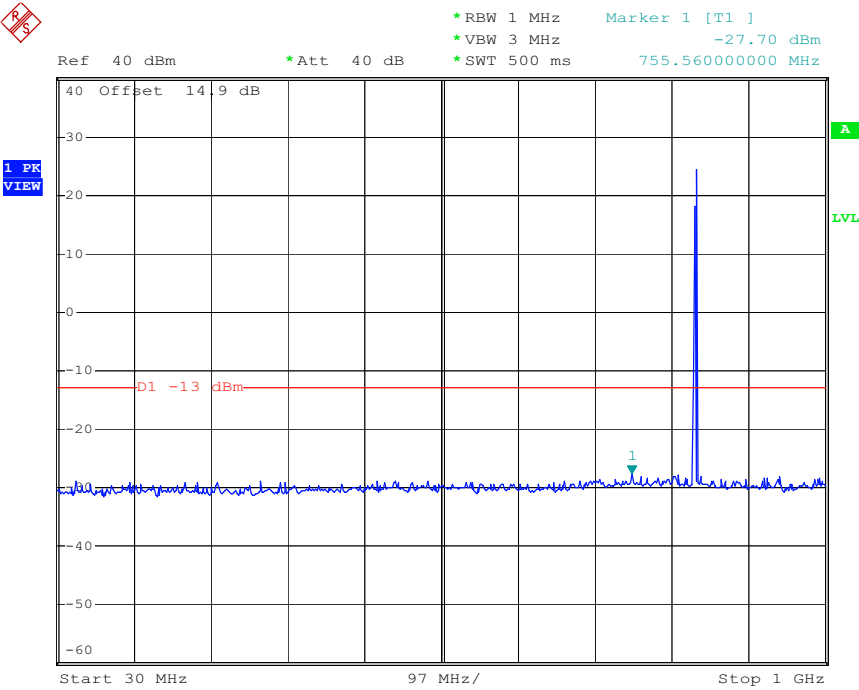


Date: 10.FEB.2015 14:08:51

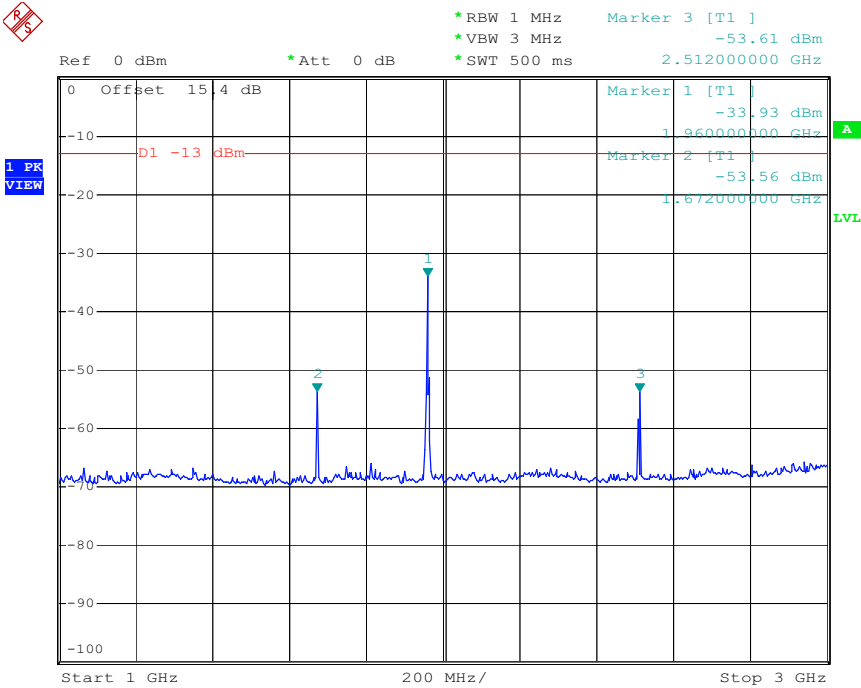


Date: 10.FEB.2015 14:09:47

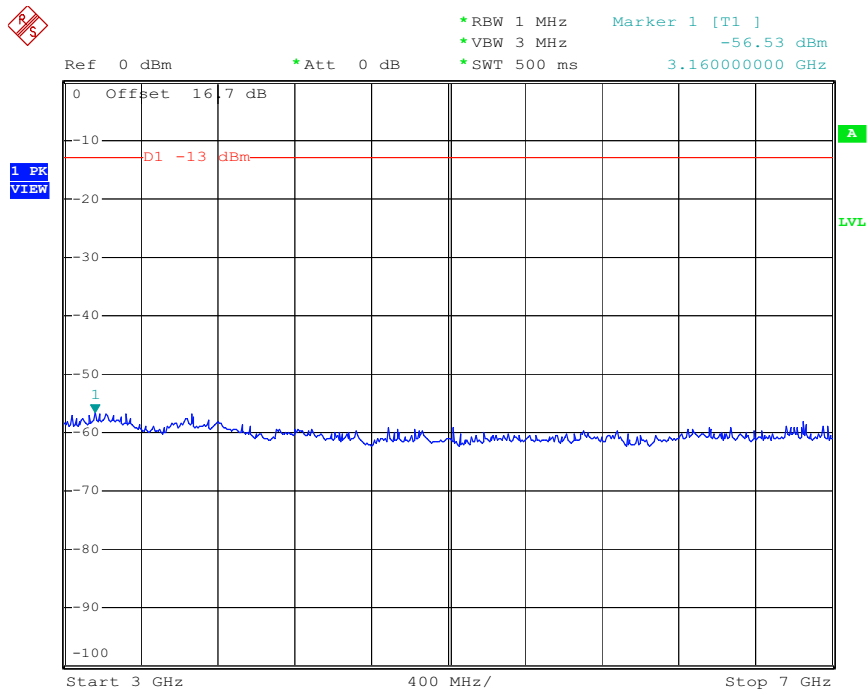
GRPS
The worst case low channel 189



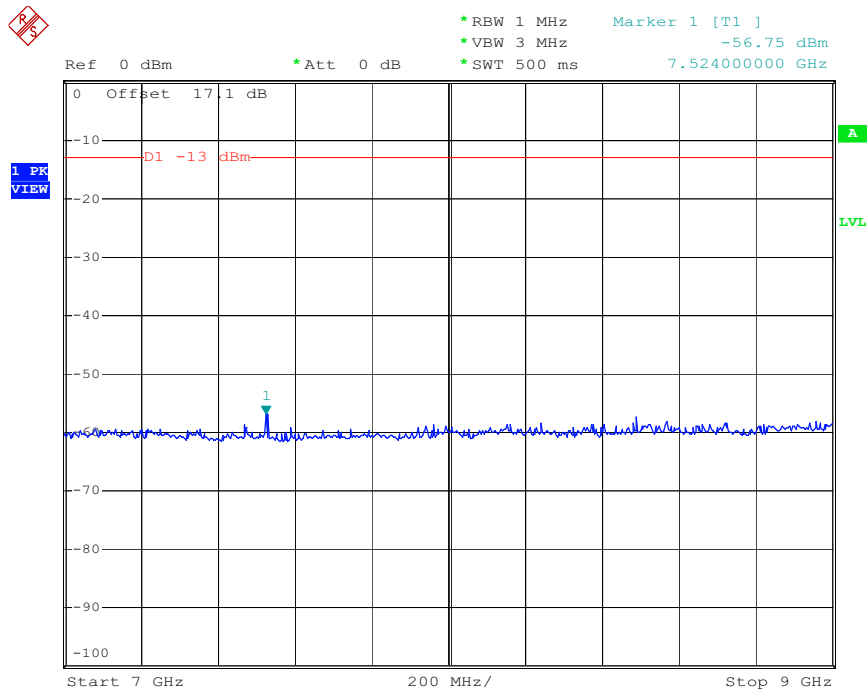
Date: 10.FEB.2015 14:10:22



Date: 10.FEB.2015 14:10:55

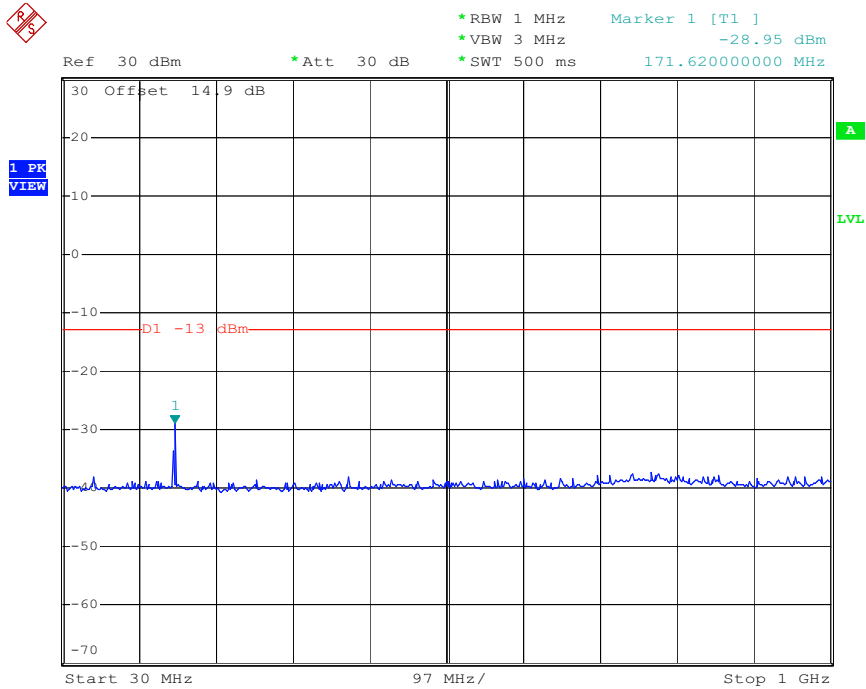


Date: 10.FEB.2015 12:48:10

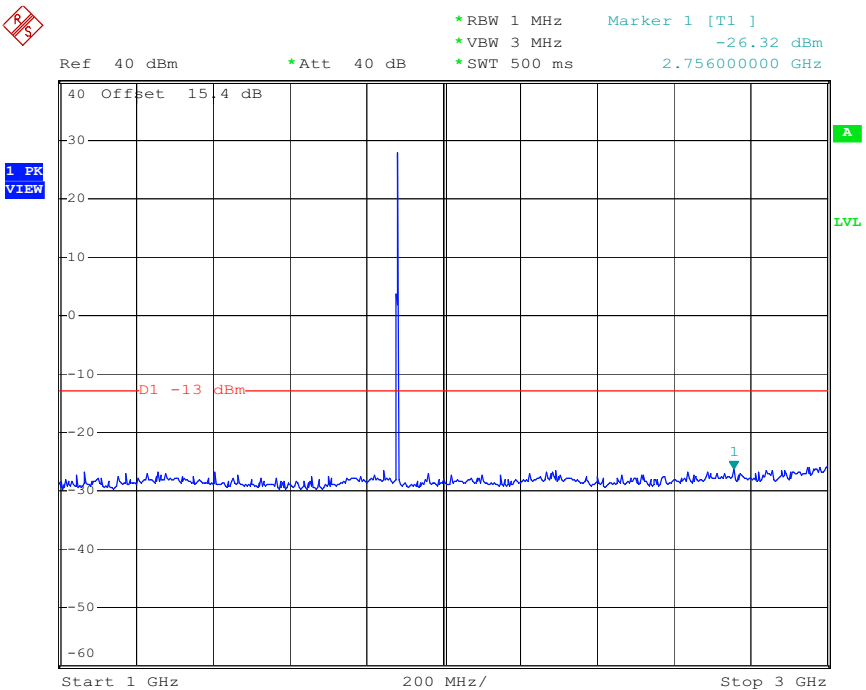


Date: 10.FEB.2015 12:49:07

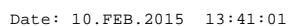
Cellular Band (Part 24H)
GSM
The worst case low channel 661

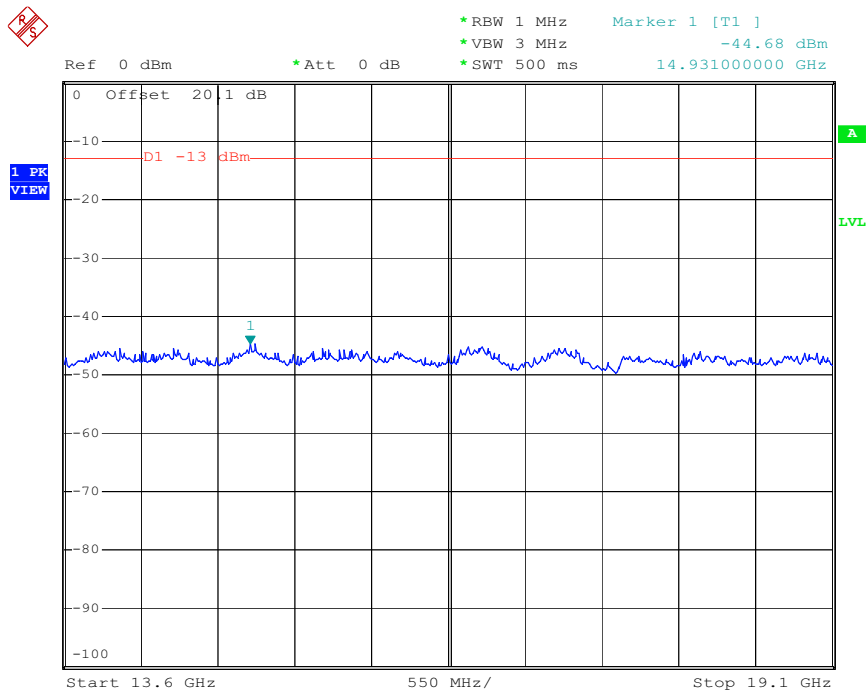


Date: 10.FEB.2015 12:50:21



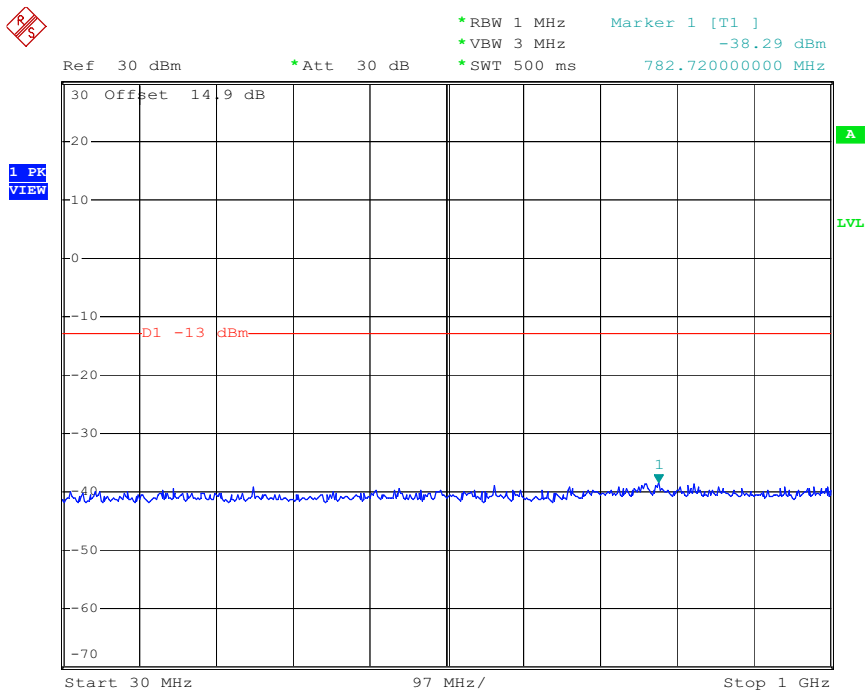
Date: 10.FEB.2015 12:50:58



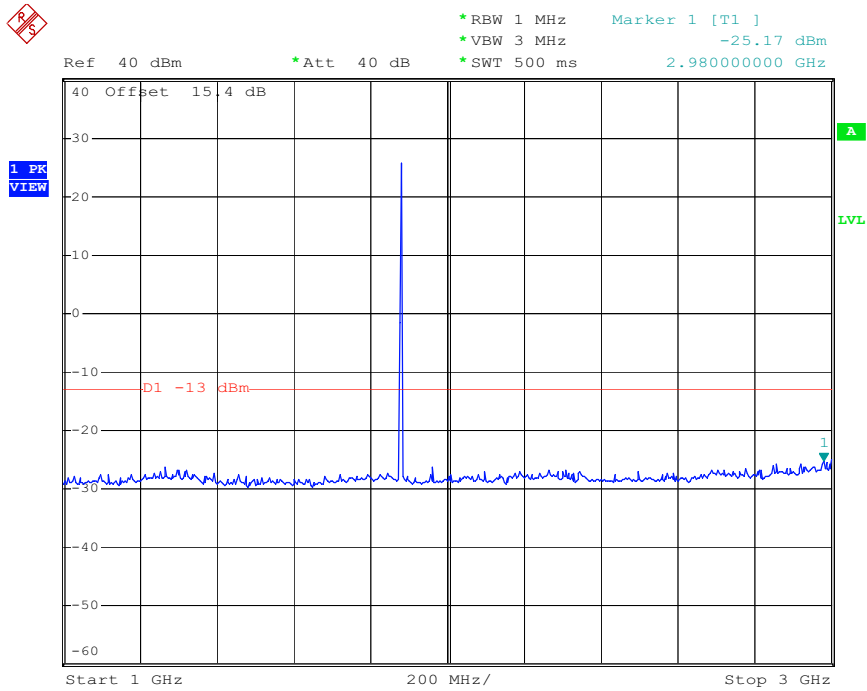


Date: 10.FEB.2015 13:42:46

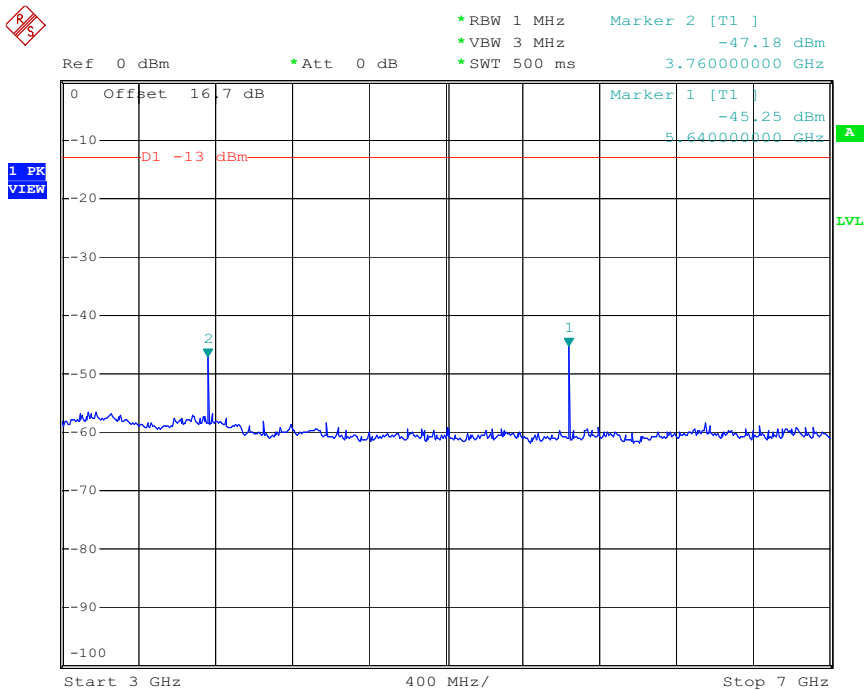
GPRS
The worst case low channel 661



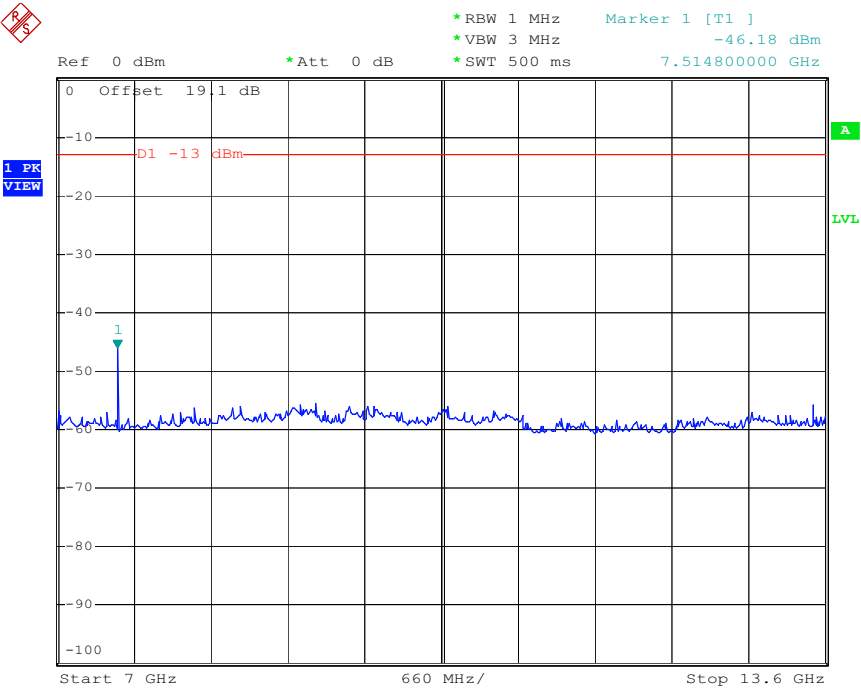
Date: 10.FEB.2015 13:43:24



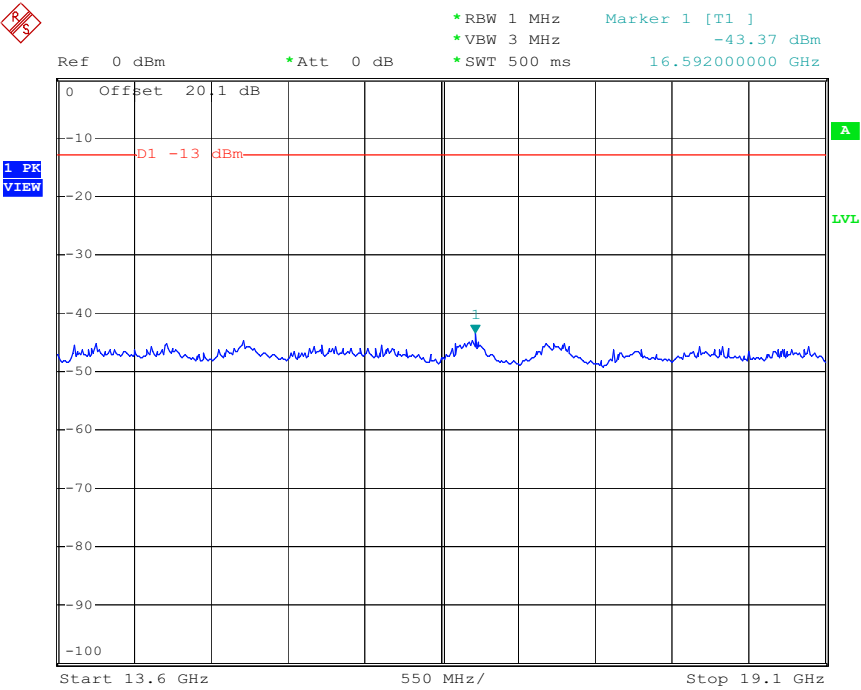
Date: 10.FEB.2015 16:08:17



Date: 10.FEB.2015 16:09:05



Date: 15.FEB.2015 16:09:45



Date: 10.FEB.2015 16:10:10

8. FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS

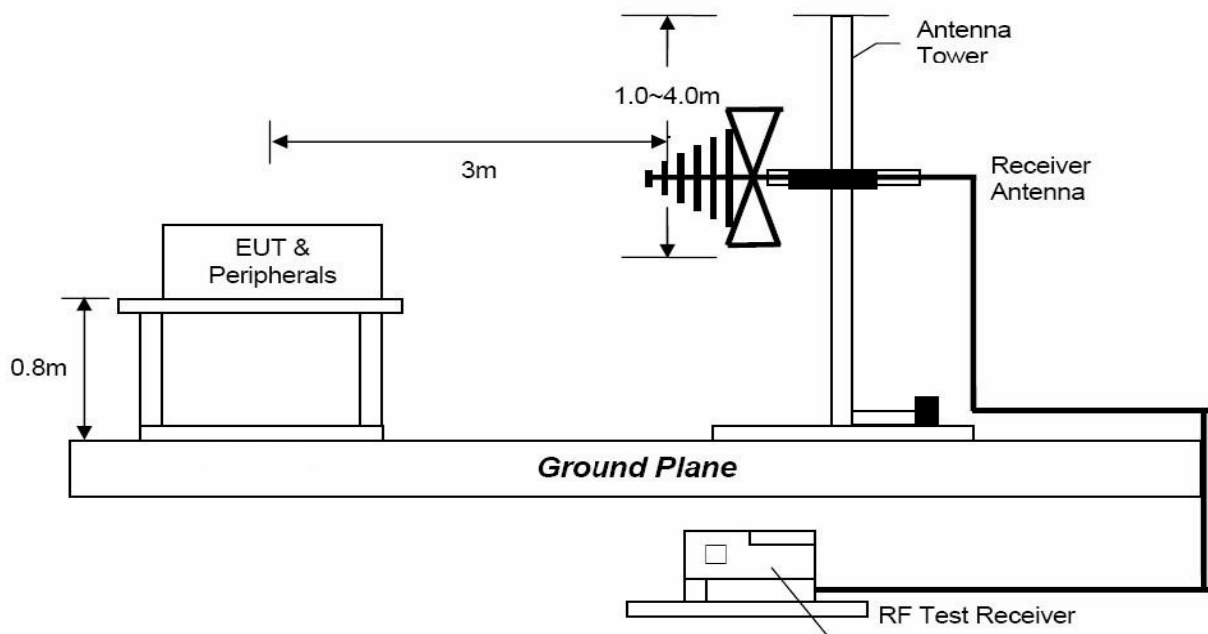
8.1 Applicable Standards

According to FCC §2.1053

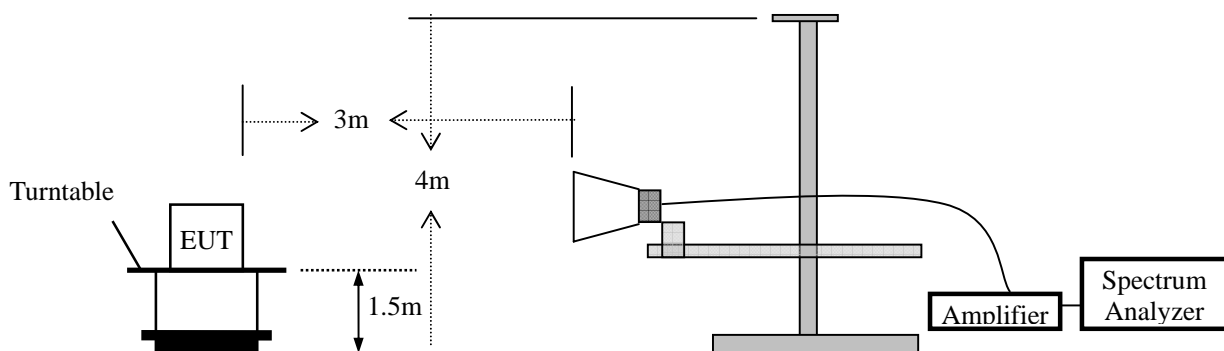
FCC §22.917(a), §24.238(a), the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than $43 + 10 \log$ (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

8.2 Test of Block Diagram of configuration

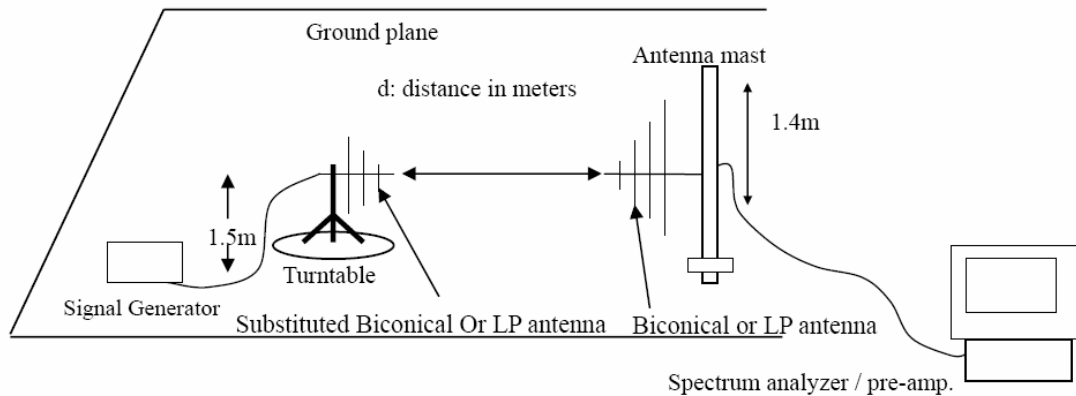
Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-Up, Frequency above 1GHz



Substituted Method Test Set-UP



8.3 Test Procedure

The EUT was placed on a non-conductive, The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. $EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain(dBi)} - \text{Cable Loss (dB)}$

GSM Cellular Band (Part 22H)							
Humidity :		50 %	Temperature :			22 °C	
Mode:		GSM850	Test By:			Sance	
Test Result:		PASS					
Channel	Frequency (MHz)	Substituted level (dBm)	Polarization (H/V) Antenna	Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
128	1648.4	-41.64	H	8.26	2.1	-35.48	-13.00
	1648.4	-43.32	V	8.26	2.1	-37.16	-13.00
	2472.6	-40.02	H	9.2	2.6	-33.42	-13.00
	2472.6	-42.21	V	9.2	2.6	-35.61	-13.00
	3296.8	-62.62	H	10.2	3.4	-55.82	-13.00
	3296.8	-63.53	V	10.2	3.4	-56.73	-13.00
189	1672.4	-40.35	H	8.26	2.1	-34.19	-13.00
	1672.4	-42.95	V	8.26	2.1	-36.79	-13.00
	2509.2	-43.44	H	9.2	2.6	-36.84	-13.00
	2509.2	-44.11	V	9.2	2.6	-37.51	-13.00
	3345.6	-63.38	H	10.2	3.5	-56.68	-13.00
	3345.6	-62.90	V	10.2	3.5	-56.20	-13.00
251	1697.6	-40.25	H	8.24	2.1	-34.11	-13.00
	1697.6	-42.78	V	8.24	2.1	-36.64	-13.00
	2546.4	-42.89	H	9.3	2.6	-36.19	-13.00
	2546.4	-46.34	V	9.3	2.6	-39.64	-13.00
	3395.2	-63.60	H	10.3	3.5	-56.80	-13.00
	3395.2	-63.72	V	10.3	3.5	-56.92	-13.00

Note: Spurious emissions below 1000MHz were found more than 20dB below limit line.

GPRS Cellular Band (Part 22H)							
Humidity :		50 %	Temperature :			22 °C	
Mode:		GSM850	Test By:			Sance	
Test Result:		PASS					
Channel	Frequency (MHz)	Substituted level (dBm)	Polarization (H/V) Antenna	Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
128	1648.4	-41.33	H	8.26	2.1	-35.17	-13.00
	1648.4	-42.15	V	8.26	2.1	-35.99	-13.00
	2472.6	-42.60	H	9.2	2.6	-36.00	-13.00
	2472.6	-42.04	V	9.2	2.6	-35.44	-13.00
	3296.8	-61.63	H	10.2	3.4	-54.83	-13.00
	3296.8	-61.91	V	10.2	3.4	-55.11	-13.00
189	1672.4	-40.55	H	8.26	2.1	-34.39	-13.00
	1672.4	-40.13	V	8.26	2.1	-33.97	-13.00
	2509.2	-43.94	H	9.2	2.6	-37.34	-13.00
	2509.2	-42.18	V	9.2	2.6	-35.58	-13.00
	3345.6	-63.11	H	10.2	3.5	-56.41	-13.00
	3345.6	-63.75	V	10.2	3.5	-57.05	-13.00
251	1697.6	-40.63	H	8.24	2.1	-34.49	-13.00
	1697.6	-41.18	V	8.24	2.1	-35.04	-13.00
	2546.4	-41.27	H	9.3	2.6	-34.57	-13.00
	2546.4	-45.42	V	9.3	2.6	-38.72	-13.00
	3395.2	-62.65	H	10.3	3.5	-55.85	-13.00
	3395.2	-62.20	V	10.3	3.5	-55.40	-13.00

Note: Spurious emissions below 1000MHz were found more than 20dB below limit line.

GSM PCS Band (Part 24E)							
Humidity :		50 %	Temperature :			22 °C	
Mode:		GSM1900	Test By:			Sance	
Test Result:		PASS					
Channel	Frequency (MHz)	Substituted level (dBm)	Polarization (H/V) Antenna	Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
512	3700.4	-46.55	H	10.5	3.8	-39.85	-13.00
	3700.4	-48.96	V	10.5	3.8	-42.26	-13.00
	5550.6	-43.88	H	11.1	5.2	-37.98	-13.00
	5550.6	-45.61	V	11.1	5.2	-39.71	-13.00
	7400.8	-50.74	H	10.1	6.5	-47.14	-13.00
	7400.8	-50.45	V	10.1	6.5	-46.85	-13.00
661	3760	-45.06	H	10.5	3.9	-38.46	-13.00
	3760	-46.70	V	10.5	3.9	-40.10	-13.00
	5640	-43.81	H	11.1	5.3	-38.01	-13.00
	5640	-44.72	V	11.1	5.3	-38.92	-13.00
	7520	-51.19	H	10.1	6.6	-47.69	-13.00
	7520	-50.75	V	10.1	6.6	-47.25	-13.00
810	3819.6	-44.93	H	10.6	4.0	-38.33	-13.00
	3819.6	-47.89	V	10.6	4.0	-41.29	-13.00
	5729.4	-44.78	H	11.2	5.3	-38.88	-13.00
	5729.4	-45.87	V	11.2	5.3	-39.97	-13.00
	7639.2	-50.39	H	10.2	6.7	-46.89	-13.00
	7639.2	-50.54	V	10.2	6.7	-47.04	-13.00

Note: Spurious emissions below 1000MHz were found more than 20dB below limit line.

GPRS PCS Band (Part 24E)							
Humidity :		50 %	Temperature :			22 °C	
Mode:		GSM1900	Test By:			Sance	
Test Result:		PASS					
Channel	Frequency (MHz)	Substituted level (dBm)	Polarization (H/V) Antenna	Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
512	3700.4	-45.04	H	10.5	3.8	-38.34	-13.00
	3700.4	-45.16	V	10.5	3.8	-38.46	-13.00
	5550.6	-43.29	H	11.1	5.2	-37.39	-13.00
	5550.6	-44.18	V	11.1	5.2	-38.28	-13.00
	7400.8	-51.07	H	10.1	6.5	-47.47	-13.00
	7400.8	-50.31	V	10.1	6.5	-46.71	-13.00
661	3760	-46.30	H	10.5	3.9	-39.70	-13.00
	3760	-46.88	V	10.5	3.9	-40.28	-13.00
	5640	-43.67	H	11.1	5.3	-37.87	-13.00
	5640	-42.03	V	11.1	5.3	-36.23	-13.00
	7520	-49.86	H	10.1	6.6	-46.36	-13.00
	7520	-50.56	V	10.1	6.6	-47.06	-13.00
810	3819.6	-44.22	H	10.6	4.0	-37.62	-13.00
	3819.6	-46.47	V	10.6	4.0	-39.87	-13.00
	5729.4	-46.53	H	11.2	5.3	-40.63	-13.00
	5729.4	-43.05	V	11.2	5.3	-37.15	-13.00
	7639.2	-51.31	H	10.2	6.7	-47.81	-13.00
	7639.2	-50.60	V	10.2	6.7	-47.10	-13.00

Note: Spurious emissions below 1000MHz were found more than 20dB below limit line.

9. Test Equipment List

Description	Manufacturer	Model Number	Serial Number	Characteristics	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	9KHz~7GHz	Nov. 24, 2014	Nov. 23, 2015
Antenna	Schwarzbeck	VULB9162	9162-010	30MHz~7GHz	Nov. 27, 2014	Nov. 26, 2015
Positioning Controller	UC	UC 3000	N/A	0~360°, 1-4m	N/A	N/A
Color Monitor	SUNSPO	SP-140A	N/A	N/A	N/A	N/A
Single Phase Power Line Filter	SAEMC	PF201A-32	110210	32A	N/A	N/A
3 Phase Power Line Filter	SAEMC	PF401A-200	110318	200A	N/A	N/A
DC Power Filter	SAEMC	PF301A-200	110245	200A	N/A	N/A
Cable	Huber+Suhner	CBL2-NN-1M	22390001	9KHz~7GHz	Nov. 08, 2014	Nov. 07, 2015
Cable	Huber+Suhner	CIL02	N/A	9KHz~7GHz	Nov. 08, 2014	Nov. 07, 2015
Power Amplifier	HP	HP 8447D	1145A00203	100KHz~1.3GHz	Nov. 08, 2014	Nov. 07, 2015
Horn Antenna	Schwarzbeck	BBHA9170	9170-372	15GHz~26.5GHz	Oct.24, 2014	Oct.23, 2015
Horn Antenna	Com-Power	AH-118	071078	1GHz~18GHz	Nov. 06, 2014	Nov. 05, 2015
Loop antenna	Daze	ZA30900A	0708	9KHz~30MHz	Oct.11, 2014	Oct.10, 2015
Spectrum Analyzer	Rohde & Schwarz	FSV26	101003	10Hz~40GHz	Apr. 09, 2014	Apr. 08, 2015
Pre-Amplifier	Agilent	8449B	3008A02964	1GHz~26.5GHz	Nov. 04, 2014	Nov. 03, 2015
L.I.S.N.	Rohde & Schwarz	ENV 216	101317	9KHz~30MHz	Nov. 08, 2014	Nov. 07, 2015
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	117060	May.14, 2015	May.13, 2014	May 12, 2015