



**CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 22 Subpart H / Part 24 Subpart E
Canada RSS132 / RSS-133**

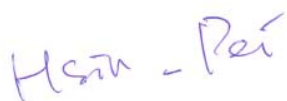
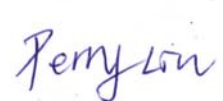

Report No.: 12-08-MAS-184-01

Client: **Unication CO., LTD.**
Product: **G1 Voice Pager**
Model: **G1**
FCC ID: **LEA-G1**
IC ID: **3819A-G1**
Manufacturer/supplier: **Unication CO., LTD.**

Date test item received: 2012/08/16
Date test campaign completed: 2012/10/29
Date of issue: 2012/10/29

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*Total number of pages of this test report: 56 pages
Total number of pages of photos: External photos 1 pages
Internal photos 6 pages
Setup photos 3 pages*

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TEST REPORT CERTIFICATION

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Manufacturer : Unication CO., LTD.
Address : 5F, NO. 6, Wu-Kung 5Rd. Hsinchuang City, Taipei, Taiwan ROC.
EUT : G1 Voice Pager
Trade name : Unication
Model No. : G1
Power Source : 1. Battery: 3.7Vdc
2.Adapter:
Input : AC 100~240V , 47~63Hz , 1A
Output: DC12V , 4.15A , 50W
Regulations applied : FCC 47 CFR, Part 22 Subpart H and Part 24 Subpart E
Canada RSS132 Issue 2 and RSS-133 Issue 5

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- ③ Filing: FCC, Industry Canada, VCCI
- ④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through TAF
- ⑤ FCC Registration Number: 91095, 392735, 278818
- ⑥ Industry Canada Site Regisitration number: IC 2949A-2



NVLAP Lab Code 200133-0

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1. GENERAL INFORMATION

1.1 Product Description

- a) Type of EUT : G1 Voice Pager
- b) Trade Name : Unication
- c) Model No. : G1
- d) FCC ID : LEA-G1

1.2 Characteristics of Device

G1 is an G1 Voice Pager.

This device includes GSM, Bluetooth and Pager function. This device only can use GSM to make the emergency call. GSM and Bluetooth function cannot operate at the same time. No headset (cable) or Bluetooth headset can use by user when the GSM emergency call is making. The device is only to connect the voice message from voice pager receiver to a Bluetooth headset.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4 and FCC CFR 47, 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

1.4 Modifiction List of EUT

N/A

1.5 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.

This site has been accreditation as a FCC filing site.

1.6 Test Summary

FCC Part Section (s)	RSS Section (s)	Test Description	Test Limit	Test Condition	Test Result	Note
TRANSMITTER MODE (TX)						
2.1049, 22.917(a), 24.238 (a)	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	
2.1051, 22.917(a) 24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Band Edge/Conducted Spurious Emissions	<43+ log ₁₀ (P[Watts]) at Band Edge and for all out-band emissions		PASS	
24.232(d)	RSS-133 (6.4)	Peak-Average Ratio	<13 dB		PASS	
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	
22.913(a)(2)	RSS-132 (4.4) [SRSP-503(5.1.3)]	Effective Radiated Power	<7 Watts max. ERP	RADIATED	PASS	
24.232(c)	RSS-133 (6.4) [SRSP-510(5.1.2)]	Equivalent Isotropic Radiated Power	<2 Watts max. EIRP		PASS	
2.1053, 22.917(a), 24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Undesirable Emissions	<43+log ₁₀ (P[Watts]) for all out-band emissions		PASS	
2.1055,22.355,24.235	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	<2.5 ppm		PASS	
RECEIVER MODE (RX) / DIGITAL EMISSIONS						
N/A	RSS-132 (4.6) RSS-133 (6.6)	Receiver Spurious Emissions Limits	<RSS-Gen limits [Section 6; Table 1]	RADIATED	PASS	

2. SYSTEM TEST CONFIGURATION

2.1 Justification

For the purposes of this test report ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT during the test. The simulate equipment was used to control the RF channel under the highest, middle and lowest frequency and transmit the maximum RF power.

2.2 Devices for Tested System

Device	Manufacture	Model	Cable Description
* G1 Voice Pager	Unication CO., LTD.	G1	----
*Cradle	Unication CO., LTD.	073573	1.8m, Unshielded Power Line (Adaptor)

Remark “*” means equipment under test.

2.2.1 Test Channel – Frequency comparison table for test:

GSM 850		PCS 1900	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.2	512	1850.2
190	836.6	661	1880.0
251	848.8	810	1909.8

2.2.2 Power Control Level (CMU200)

GSM 850	5 (33 dBm)
PCS 1900	0 (30 dBm)

3. PEAK POWER MEASUREMENT

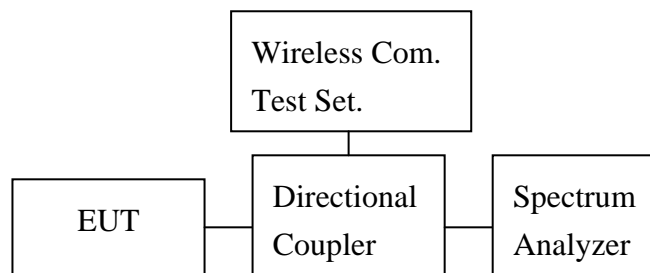
3.1 Applicable Standard

According to FCC §2.1046.

3.2 Measurement Procedure

The setup of the EUT as shown in figure 1. The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a Spectrum Analyzer. Transmitter output was read off the Spectrum Analyzer in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the Spectrum Analyzer reading.

Figure 1: Peak power measurement configuration.



3.3 Measuring Instrument

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2013
Directional Coupler	AR	DC7420	09/12/2013
Universal Digital Radiocommunication Tester	R&S	CMU200	04/22/2013

3.4 Test Result

Test Date : 09/18/2012

Temperature : 26°C

Humidity : 54%

850 Band

Limits:

Power Control Level	Normal Peak Output Power	Tolerance (dB)
5	33dBm (2W)*	±2

*GSM Specification – ETSI EN 300 910 V8.5.1 (2000-11) Section 4.1

Power measurements:

Test Mode	Channel	Frequency (MHz)	Reading (dBm)	Attenuator & Cable Loss (dB)	Maximum Peak Output Power (dBm)	Antenna Gain (dBi)
GSM850	128	824.2	6.92	23.4	30.32	1
	190	836.6	7.49	23.4	30.89	1
	251	848.8	7.47	23.4	30.87	1

1900 Band

Limits:

Power Control Level	Normal Peak Output Power	Tolerance (dB)
0	30dBm (1W)*	±2

*GSM Specification – ETSI EN 300 910 V8.5.1 (2000-11) Section 4.1

Power measurements:

Test Mode	Channel	Frequency (MHz)	Reading (dBm)	Attenuator & Cable Loss (dB)	Maximum Peak Output Power (dBm)	Antenna Gain (dBi)
PCS1900	512	1850.2	4.70	23.7	28.40	3.6
	661	1880.0	4.34	23.7	28.04	3.6
	810	1909.8	5.06	23.7	28.76	3.6

4. ERP & EIRP MEASUREMENT

4.1 Standard Applicable

According to FCC §2.1046 and FCC §22.913(b): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts. FCC §24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

4.2 Measurement Procedure

The setup of the EUT as shown in figure 2 and figure 3. The EUT was placed on a 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 of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

4.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	R&S	ESIB7	07/10/2013
Spectrum Analyzer	Rohde & Schwarz	FSU46	01/08/2013
Horn Antenna	EMCO	3115	07/17/2013
Horn Antenna	EMCO	3115	07/17/2013
BiLog Antenna	ETC	MCTD2986	11/24/2012
Horn Antenna	EMCO	3116	07/17/2013
Horn Antenna	EMCO	3116	07/17/2013
Preamplifier	Hewlett-Packard	8449B	10/24/2013
SYNESIZED SWEEPER	AGILENT	83640B	10/02/2013
DIPOLE ANTENNA	SCHWRZBECK	1166;1167	09/07/2014
DIPOLE ANTENNA	SCHWRZBECK	897;898	09/07/2014

Figure 2 : Frequencies measured below 1 GHz and above 1GHz configuration

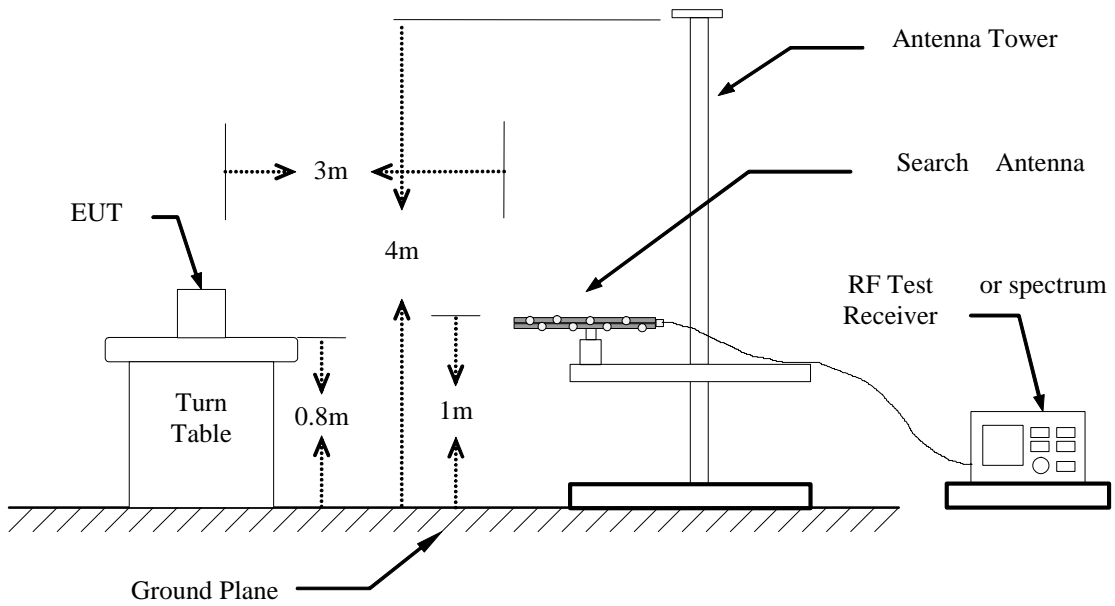
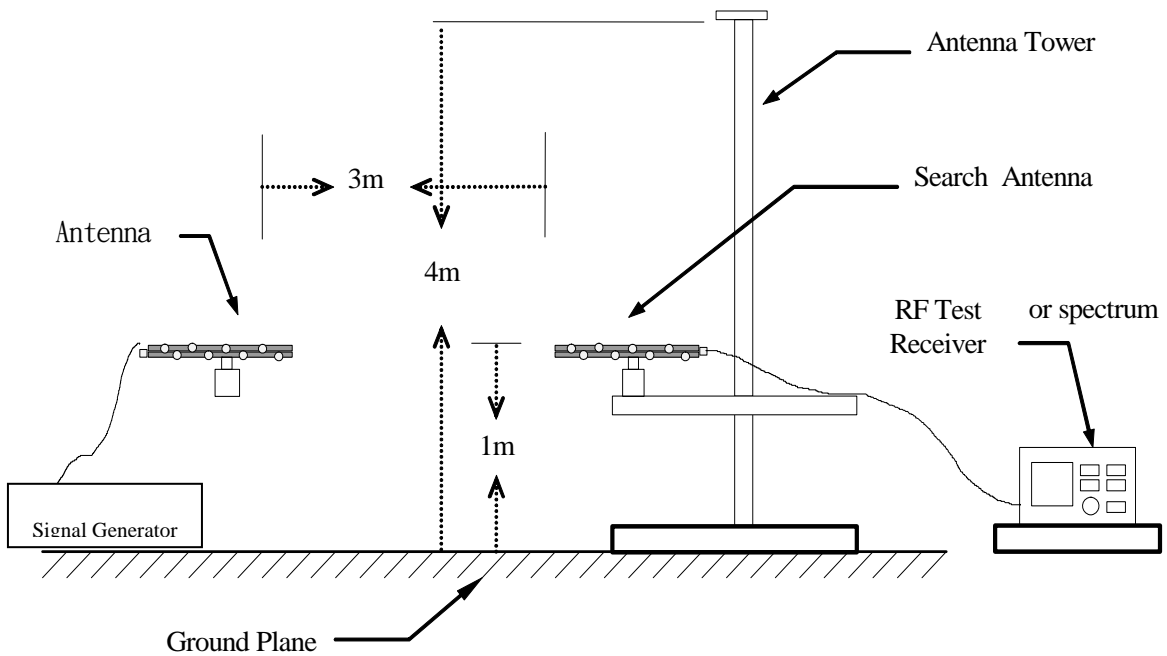


Figure 3 : Frequencies measured with substitution method



4.4 Test Result

Test Date : 09/18/2012

Temperature : 26°C

Humidity : 54%

GSM 850 Band (ERP)

Test Mode	Channel	Frequency (MHz)	Polarity H/V	Rx S.A. Reading @3m (dBuV)	Tx S.G. Reading (dBm)	Tx Cable loss (dB)	Tx Antenna Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
GSM850	128	824.200	H	123.31	31.16	3.68	2.15	27.48	38.50	-11.02
	128	824.200	V	128.93	36.86	3.68	2.15	33.18	38.50	-5.32
	190	836.600	H	123.77	32.00	3.71	2.15	28.29	38.50	-10.21
	190	836.600	V	129.59	37.48	3.71	2.15	33.77	38.50	-4.73
	251	848.800	H	124.16	32.06	3.74	2.15	28.32	38.50	-10.18
	251	848.800	V	129.36	37.22	3.74	2.15	33.48	38.50	-5.02

PCS 1900 Band (EIRP)

Test Mode	Channel	Frequency (MHz)	Polarity H/V	Rx S.A. Reading @3m (dBuV)	Tx S.G. Reading (dBm)	Tx Cable loss (dB)	Tx Antenna Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
PCS1900	512	1850.200	H	127.51	22.01	1.08	8.51	29.44	33.00	-3.44
	512	1850.200	V	130.49	25.28	1.08	8.51	32.71	33.00	-0.27
	661	1880.000	H	125.07	20.22	1.08	8.53	27.67	33.00	-5.33
	661	1880.000	V	128.83	23.06	1.08	8.53	30.51	33.00	-2.49
	810	1909.800	H	124.85	19.96	1.09	8.55	27.42	33.00	-5.58
	810	1909.800	V	126.08	20.64	1.09	8.55	28.10	33.00	-4.90

ERP (Freq. <1GHz)=Tx S.G. Reading - Tx Cable loss + Tx Antenna Gain - 2.15

EIRP (Freq. >=1GHz)=Tx S.G. Reading - Tx Cable loss + Tx Antenna Gain

5. OCCUPIED BANDWIDTH MEASUREMENT

5.1 Standard Applicable

According to §FCC 2.1049.

5.2 Measurement Procedure

The setup of the EUT as shown in figure 1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

5.3 Measuring Instrument

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2013
Directional Coupler	AR	DC7420	09/12/2013
Universal Digital Radiocommunication Tester	R&S	CMU200	04/22/2013

5.4 Test Result

Test Date : 09/18/2012

Temperature : 26°C

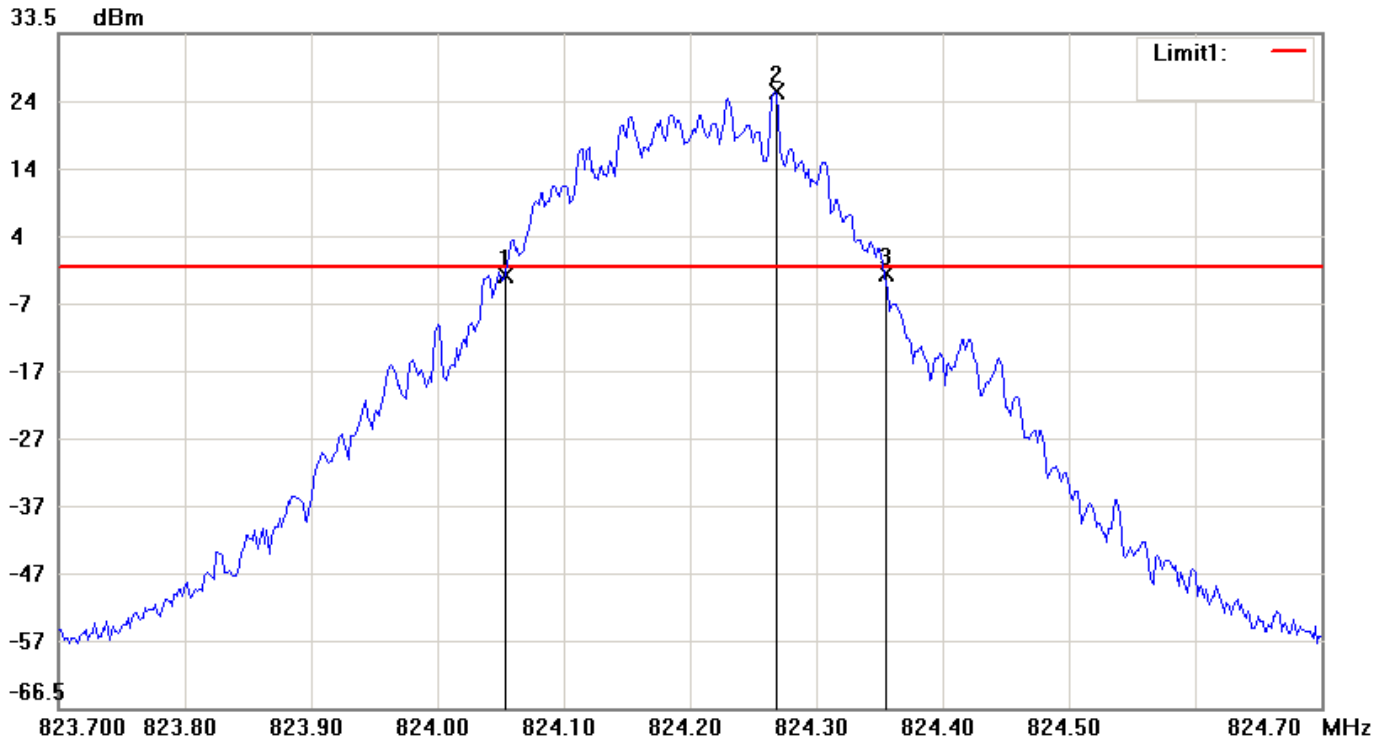
Humidity : 54%

850MHz Band

Test Mode	Channel	Frequency (MHz)	Bandwidth (kHz)	Occupied Bandwidth (kHz)
GSM850	128	824.2	300.0	253.1298
	190	836.6	300.0	246.1333
	251	848.8	295.3	245.2505

Note: Please refer to page 15 to page 20 for chart

File: 12-08-FCC Data: #22 Date: 2012/9/18 Temperature: 26 °C
 Time: PM 01:31:39 Humidity: 54 %

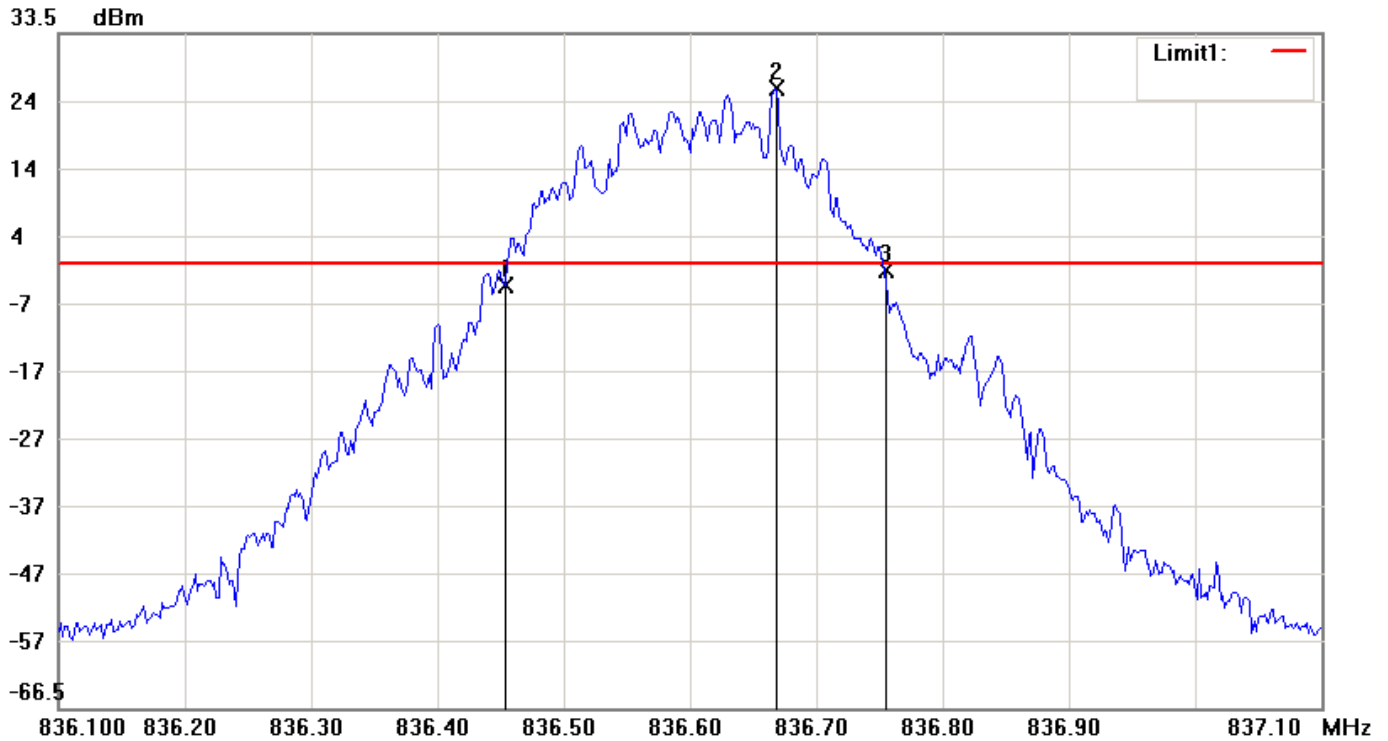


Condition: RF Conducted
 EUT: Sweep Time: 105.44ms Att.: 40dB
 Model: G1 RBW: 3 KHz VBW: 10 KHz
 Test Mode:
 Note: GSM 850 CH128 / BANDWIDTH

No.	Frequency(MHz)	Level(dBm)
1	824.0533	-2.46
2	824.2667	24.85
3	824.3533	-2.23

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	0.3	0.23

File: 12-08-FCC Data: #23 Date: 2012/9/18 Temperature: 26 °C
 Time: PM 01:34:46 Humidity: 54 %

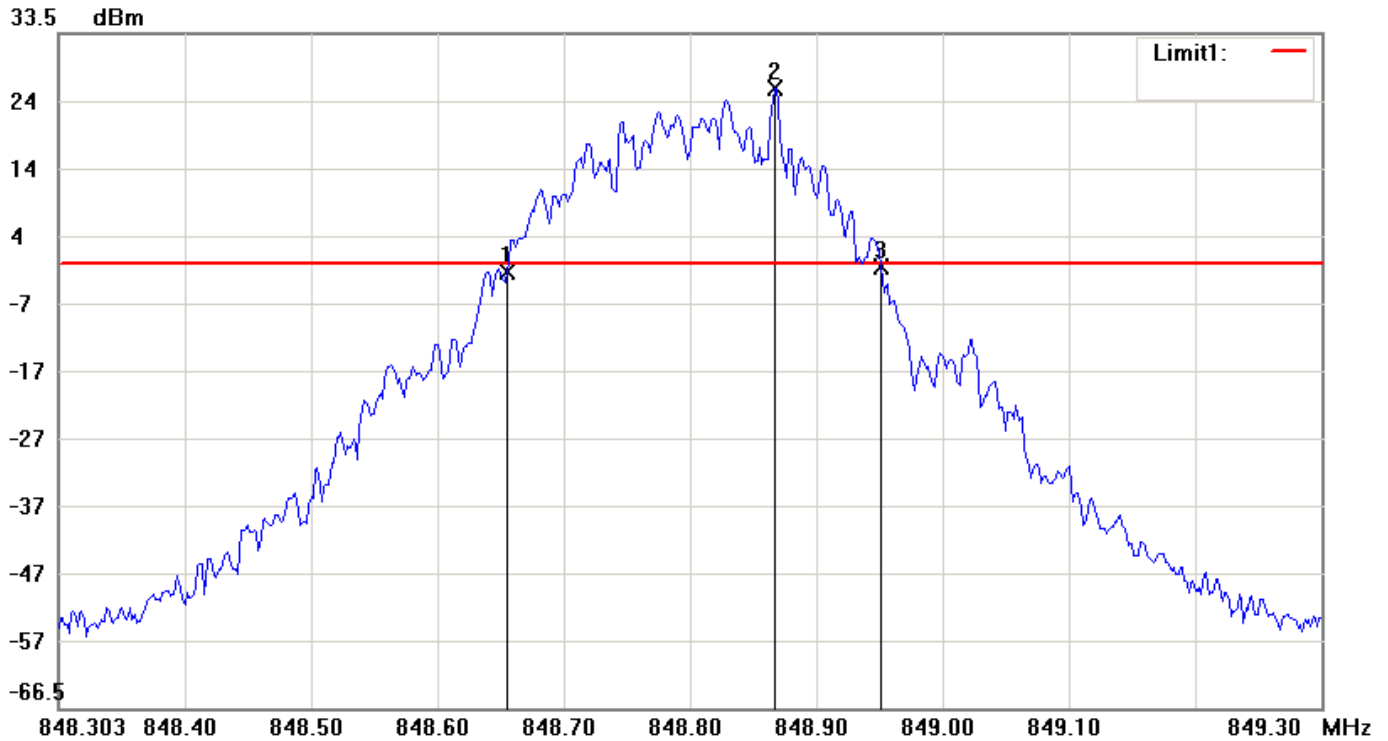


Condition: RF Conducted
 EUT: Sweep Time: 105.44ms Att.: 40dB
 Model: G1 RBW: 3 KHz VBW: 10 KHz
 Test Mode:
 Note: GSM 850 CH190 / BANDWIDTH

No.	Frequency(MHz)	Level(dBm)
1	836.4533	-3.85
2	836.6667	25.32
3	836.7533	-1.65

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	0.3	2.2

File: 12-08-FCC Data: #24 Date: 2012/9/18 Temperature: 26 °C
 Time: PM 01:40:48 Humidity: 54 %



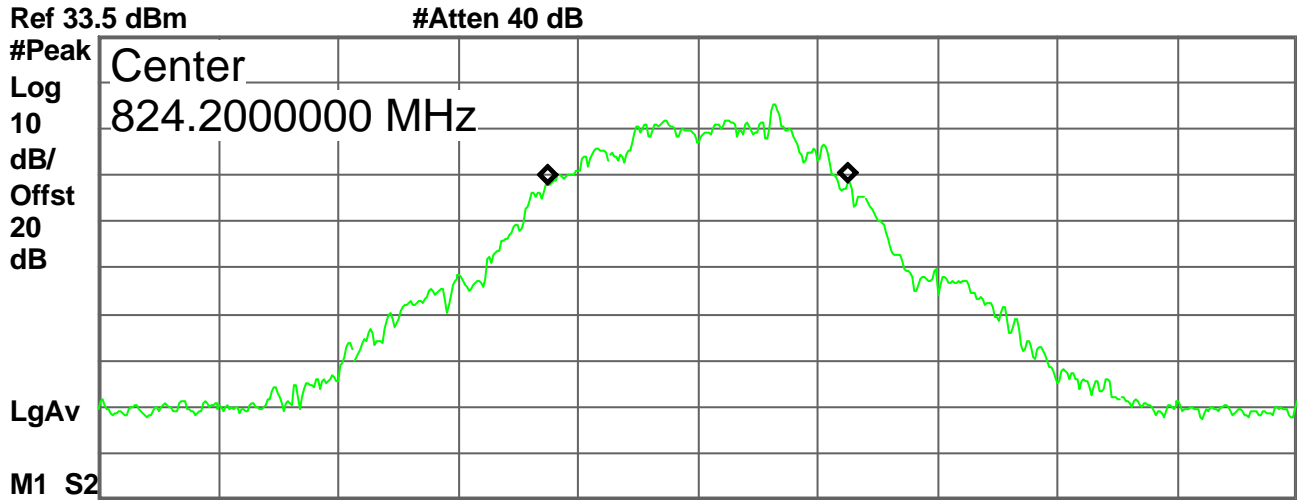
Condition: RF Conducted
 EUT: Sweep Time: 104.92ms Att.: 40dB
 Model: G1 RBW: 3 KHz VBW: 10 KHz
 Test Mode:
 Note: GSM 850 CH251 / BANDWIDTH

No.	Frequency(MHz)	Level(dBm)
1	848.6557	-1.91
2	848.8663	25.30
3	848.9510	-1.18

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	0.2953	0.73



T



Center 824.200 0 MHz #VBW 10 kHz Span 1 MHz

#Res BW 3 kHz Sweep 105.4 ms (601 pts)

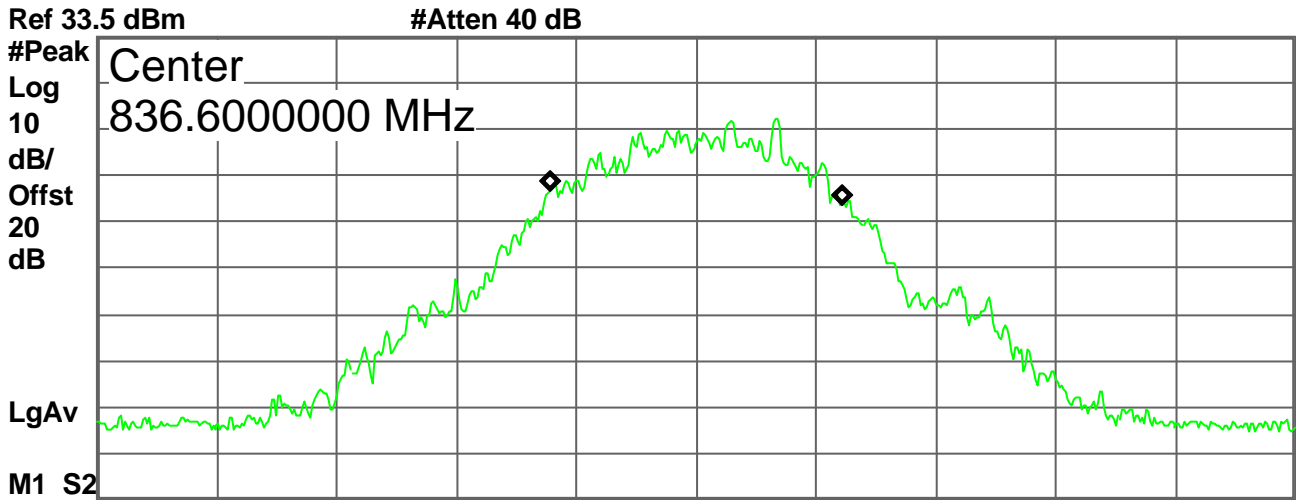
Occupied Bandwidth
253.1298 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 62.745 Hz
x dB Bandwidth 311.114 kHz

Agilent

T



Center 836.600 0 MHz Span 1 MHz
#Res BW 3 kHz #VBW 10 kHz Sweep 105.4 ms (601 pts)

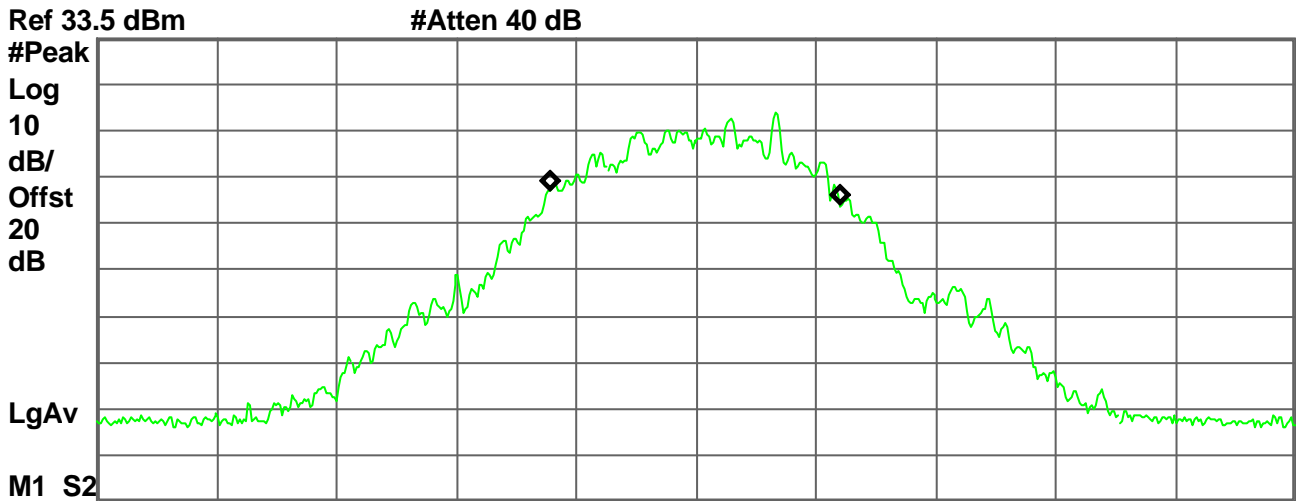
Occupied Bandwidth
246.1333 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -398.668 Hz
x dB Bandwidth 309.205 kHz



T



Center 848.800 0 MHz Span 1 MHz
#Res BW 3 kHz #VBW 10 kHz Sweep 105.4 ms (601 pts)

Occupied Bandwidth
245.2505 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -149.669 Hz
x dB Bandwidth 301.617 kHz

Test Date : 09/17/2012

Temperature : 26°C

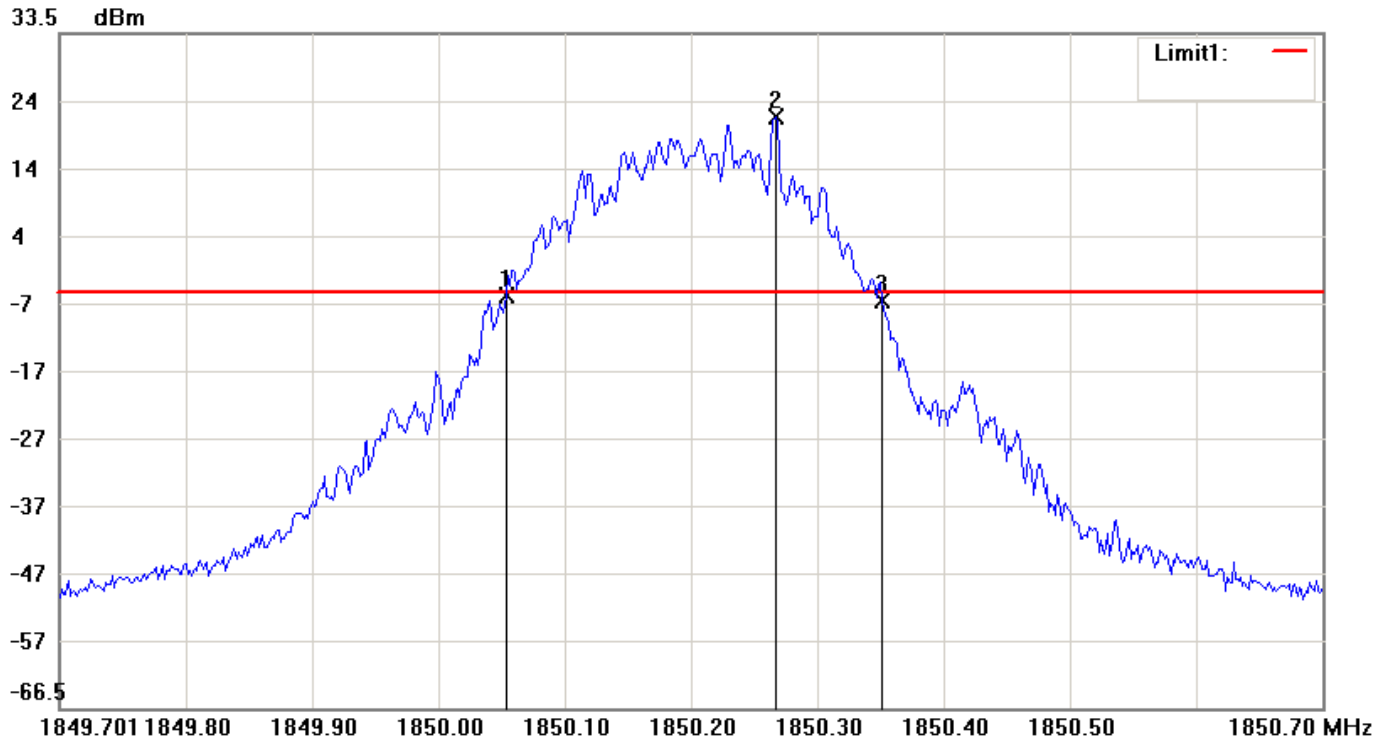
Humidity : 54%

1900 Band

Test Mode	Channel	Frequency (MHz)	Bandwidth (kHz)	Occupied Bandwidth (kHz)
PCS1900	512	1850.2	298.2	238.0089
	661	1880.0	300.0	237.7561
	810	1909.8	298.3	245.1580

Note: Please refer to page 22 to page 27 for chart

File: 12-08-FCC Data: #1 Date: 2012/9/17 Temperature: 26 °C
 Time: PM 03:09:13 Humidity: 54 %

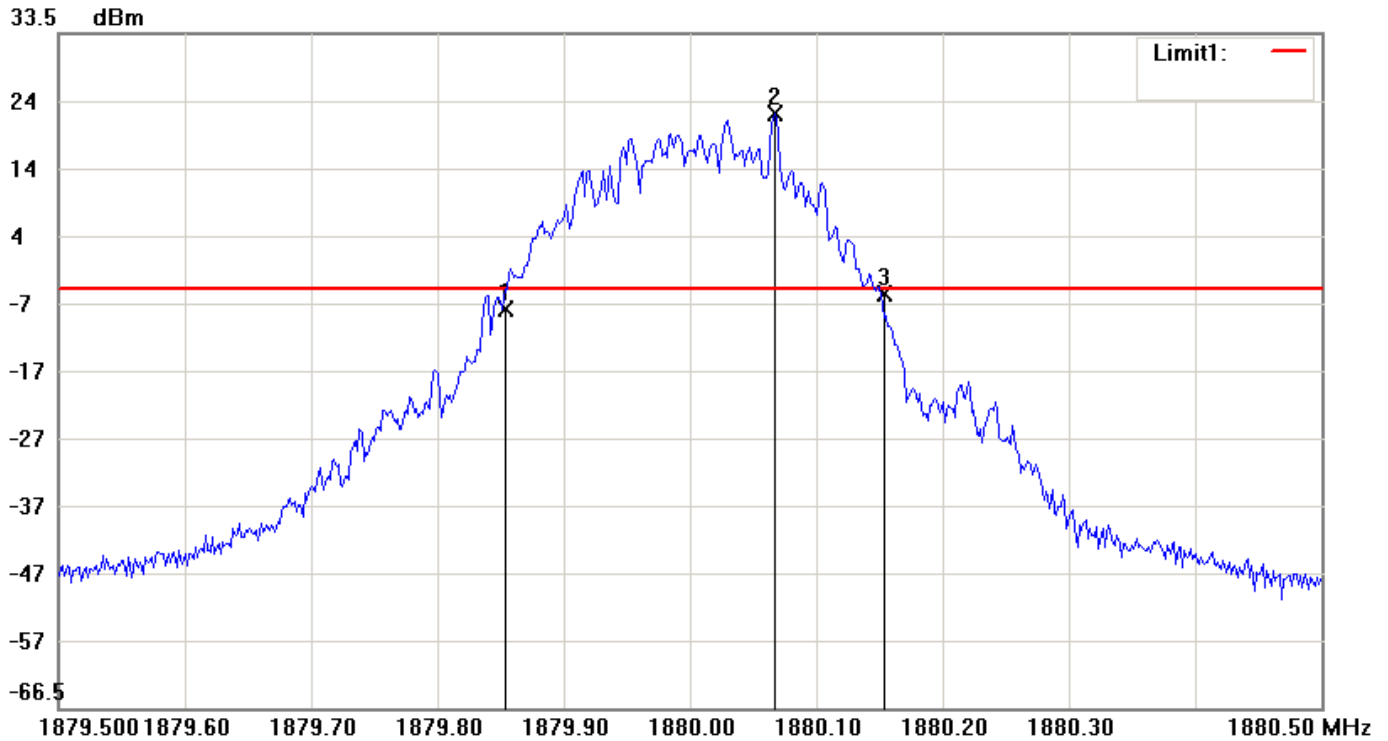


Condition: RF Conducted
 EUT: Sweep Time: 1054.4ms Att.: 40dB
 Model: G1 RBW: 3 KHz VBW: 10 KHz
 Test Mode:
 Note: GSM 1900 CH512 / BANDWIDTH

No.	Frequency(MHz)	Level(dBm)
1	1850.0540	-5.49
2	1850.2672	21.17
3	1850.3522	-6.06

No.		Δ Frequency(MHz)	Δ Level(dB)
1	mk3-mk1	0.2982	-0.57

File: 12-08-FCC Data: #2 Date: 2012/9/17 Temperature: 26 °C
 Time: PM 03:18:46 Humidity: 54 %

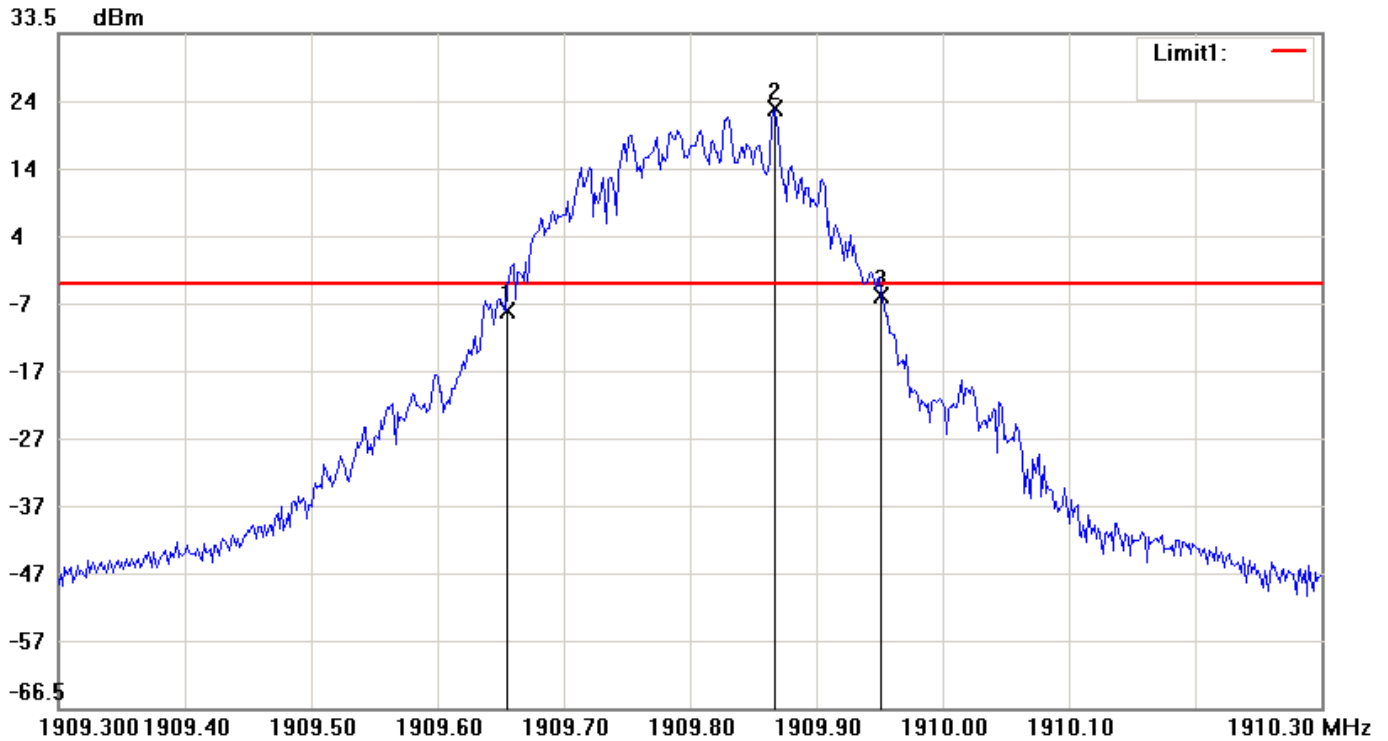


Condition: RF Conducted
 EUT: Sweep Time: 1054.4ms Att.: 40dB
 Model: G1 RBW: 3 KHz VBW: 10 KHz
 Test Mode:
 Note: GSM 1900 CH661 / BANDWIDTH

No.	Frequency(MHz)	Level(dBm)
1	1879.8516	-7.48
2	1880.0666	21.63
3	1880.1516	-5.18

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	0.3	2.3

File: 12-08-FCC Data: #3 Date: 2012/9/17 Temperature: 26 °C
 Time: PM 03:23:09 Humidity: 54 %



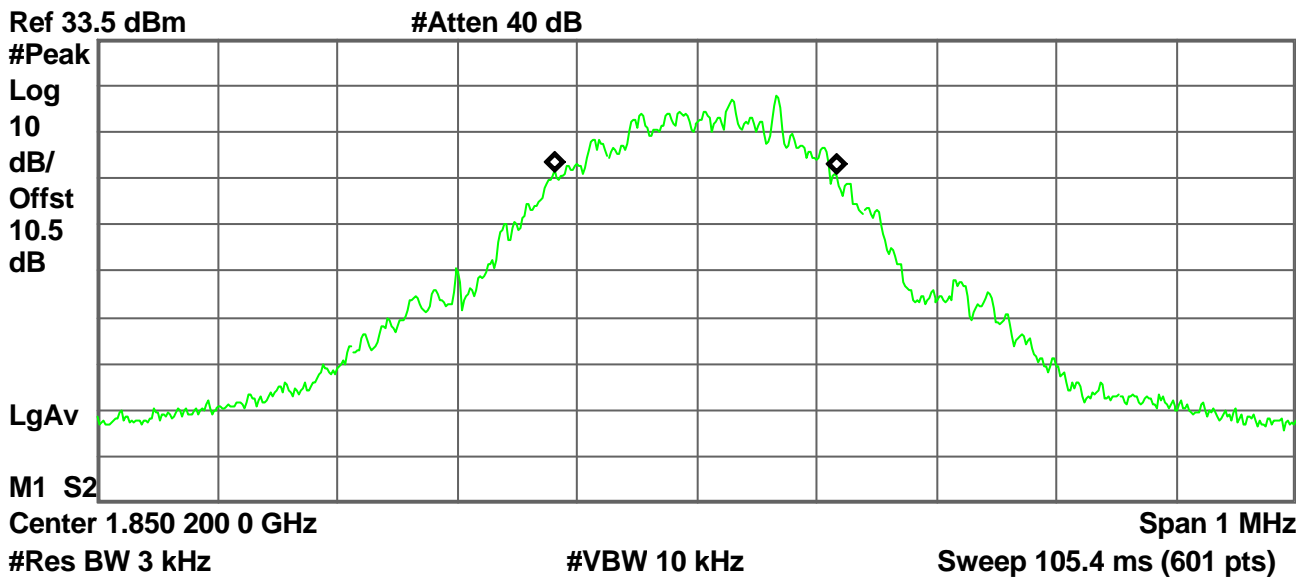
Condition: RF Conducted
 EUT: Sweep Time: 1054.4ms Att.: 40dB
 Model: G1 RBW: 3 KHz VBW: 10 KHz
 Test Mode:
 Note: GSM 1900 CH810 / BANDWIDTH

No.	Frequency(MHz)	Level(dBm)
1	1909.6533	-7.71
2	1909.8666	22.30
3	1909.9516	-5.39

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	0.2983	2.32



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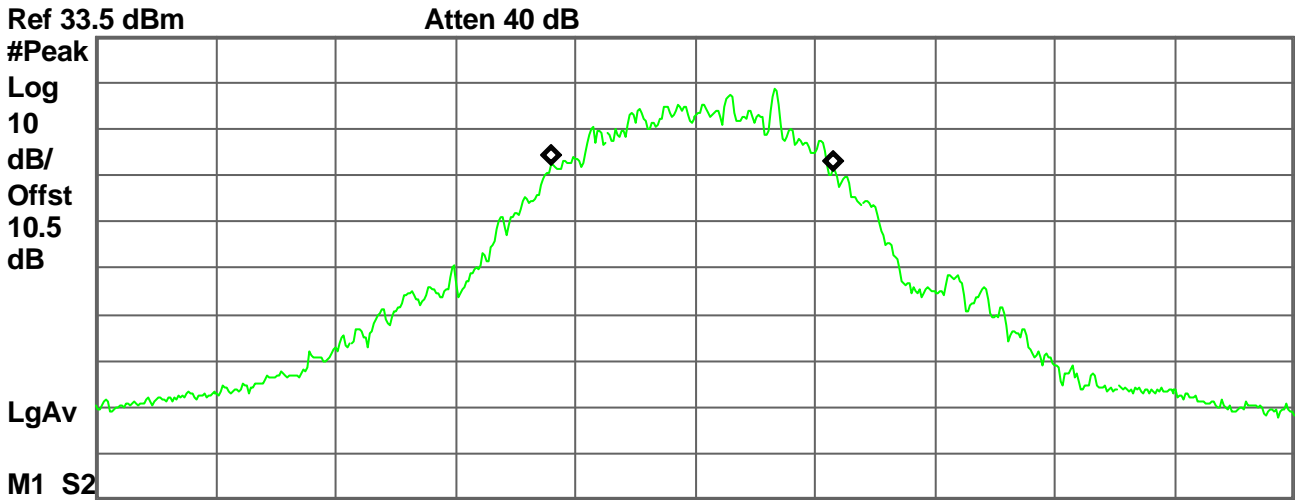
Occupied Bandwidth
238.0089 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -1.140 kHz
x dB Bandwidth 299.361 kHz

Agilent

T



Ref 33.5 dBm

Atten 40 dB

#Peak
Log
10
dB/
Offst
10.5
dB
LgAv
M1 S2

Center 1.880 000 0 GHz

Span 1 MHz

#Res BW 3 kHz

#VBW 10 kHz

Sweep 105.4 ms (601 pts)

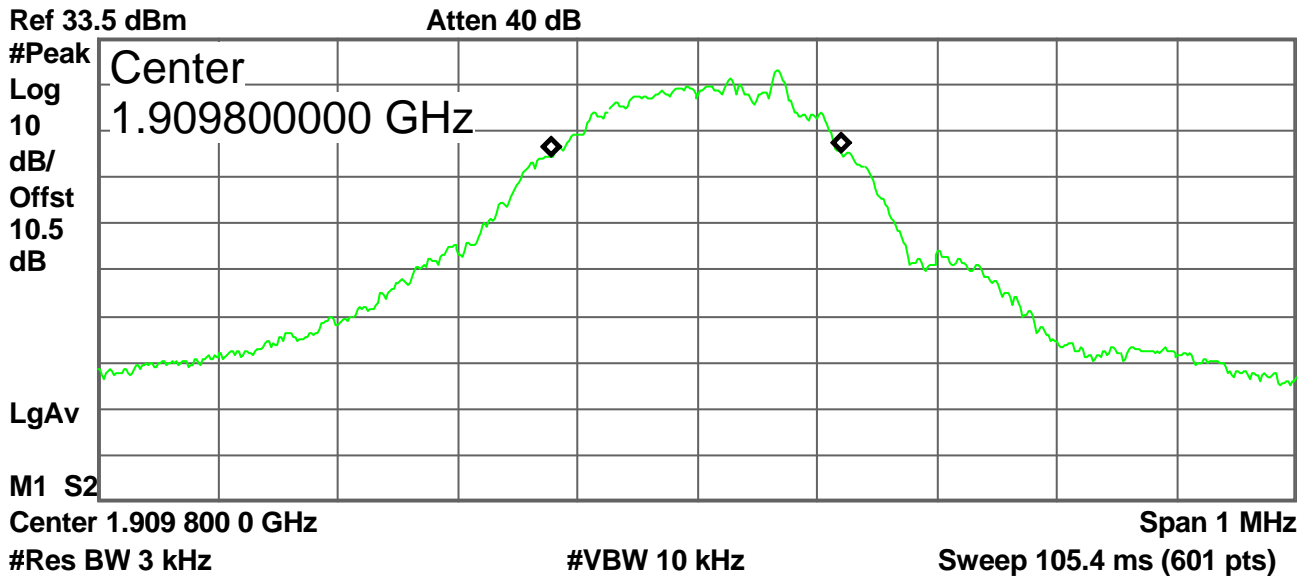
Occupied Bandwidth
237.7561 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -1.757 kHz
x dB Bandwidth 298.910 kHz



T



Occupied Bandwidth
245.1580 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -630.242 Hz
x dB Bandwidth 305.432 kHz

6. OUT OF BAND EMISSION AT ANTENNA TERMINALS

6.1 Standard Applicable

According to FCC §2.1051, FCC §22.917(f), FCC §24.238(a).

Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log P$ dB.

Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed -80 dBm at the transmit antenna connector.

Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission.

6.2 Measurement Procedure

The setup of the EUT as shown in figure 1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW=1MHz, Start=30MHz, Stop= 10th harmonic. Limit = -13 dBm

Band Edge Requirements (824 MHz and 849 MHz / 1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band emissions. Limit = -13dBm.

6.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2013
Directional Coupler	AR	DC7420	09/12/2013
Universal Digital Radiocommunication Tester	R&S	CMU200	04/22/2013

6.4 Test Result

Test Date : 09/18/2012

Temperature : 26°C

Humidity : 54%

850 Band

Test Mode	Channel	Frequency Range	Note	Chart
GSM850	128	823MHz-825MHz	Lower Band Edge	Page 30, 35
	251	848MHz-850MHz	Upper Band Edge	Page 31, 36
	128	30MHz-10GHz	All Band Edge	Page 32
	190	30MHz-10GHz	All Band Edge	Page 33
	251	30MHz-10GHz	All Band Edge	Page 34

Note: Please refer to page 30 to page 36 for chart

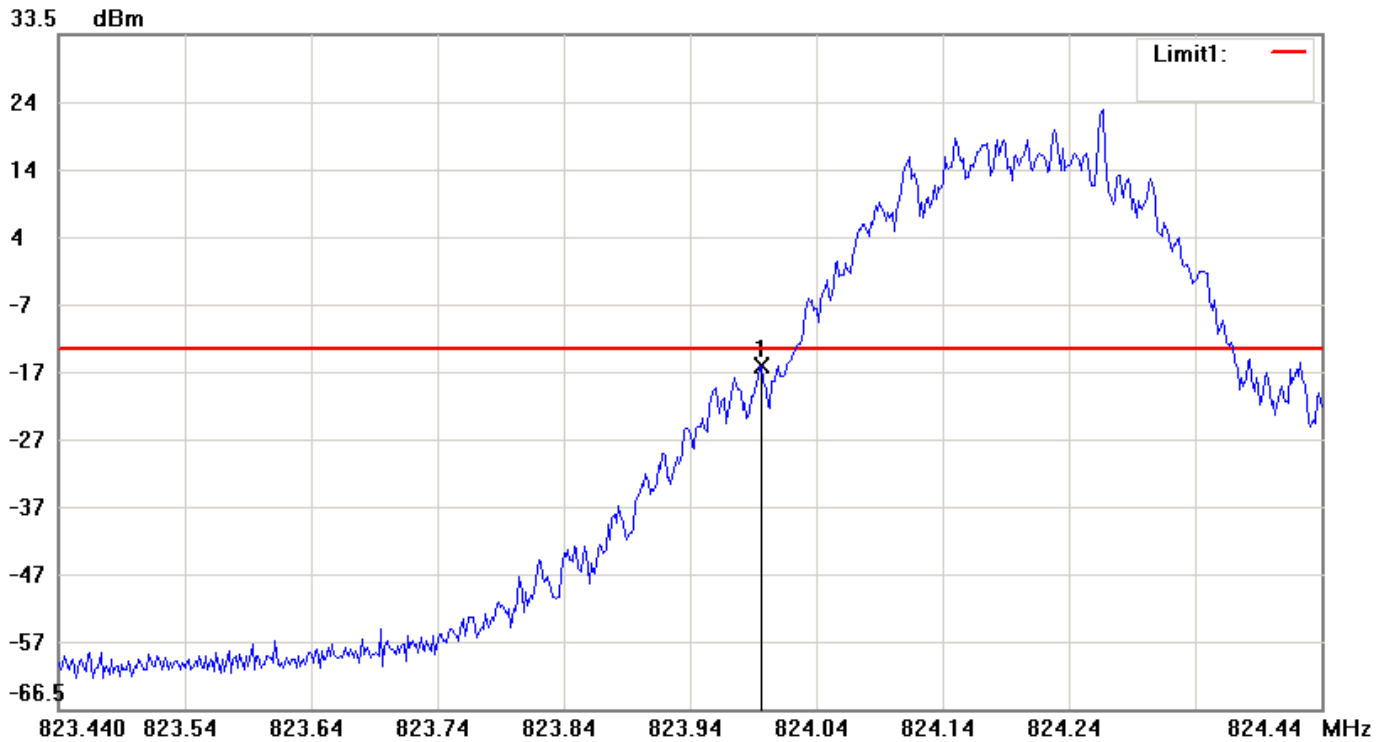
File: 12-08-盟訊 FCC- Data: #22
 2

Date: 2012/9/26

Temperature: 26 °C

Time: PM 01:54:32

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 333.44ms Att.: 40dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 850 CH128 / LOWER BAND EDGE

No.	Frequency(MHz)	Level(dBm)
1	823.9966	-15.55

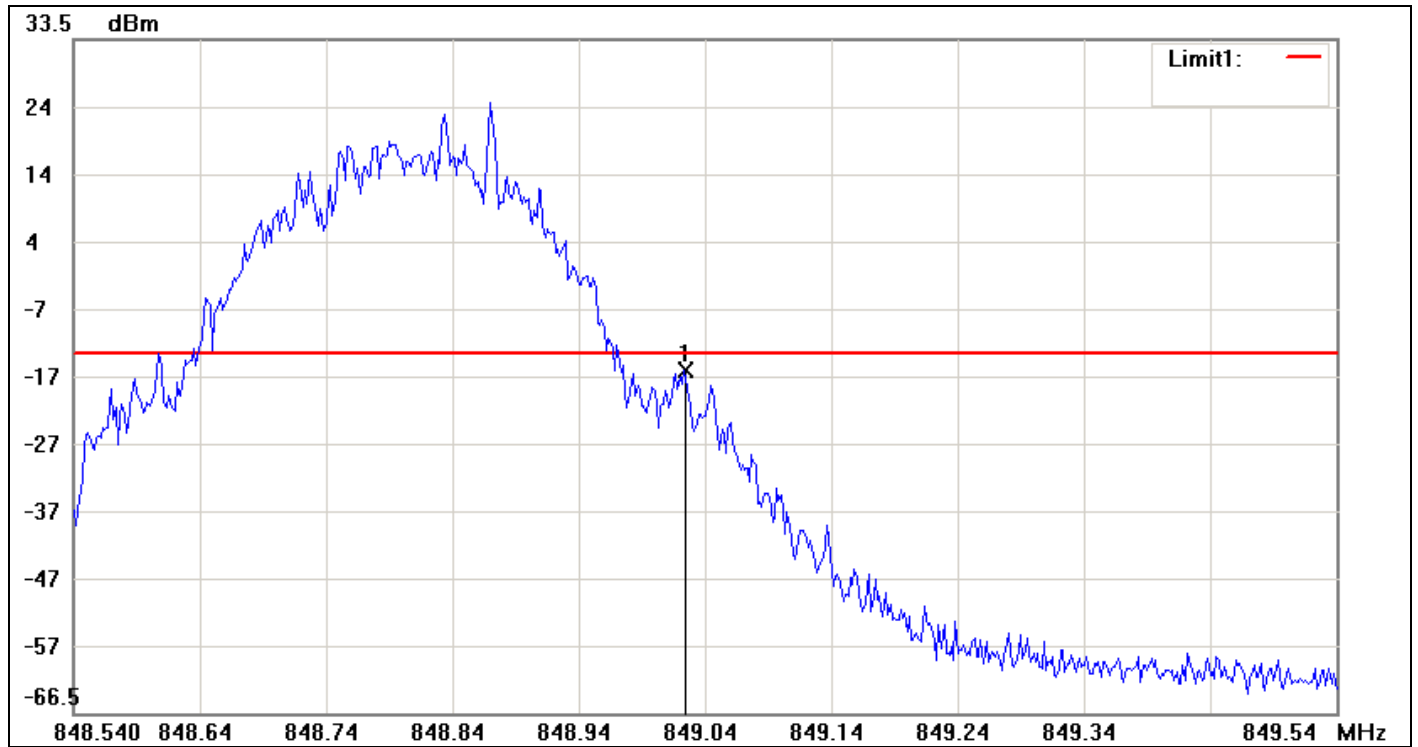
File: 12-08-盟訊 FCC- Data: #19
 2

Date: 2012/9/26

Temperature: 26 °C

Time: PM 01:33:37

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 333.44ms Att.: 40dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 850 CH251 / UPPER BAND EDGE

No.	Frequency(MHz)	Level(dBm)
1	849.0233	-15.54

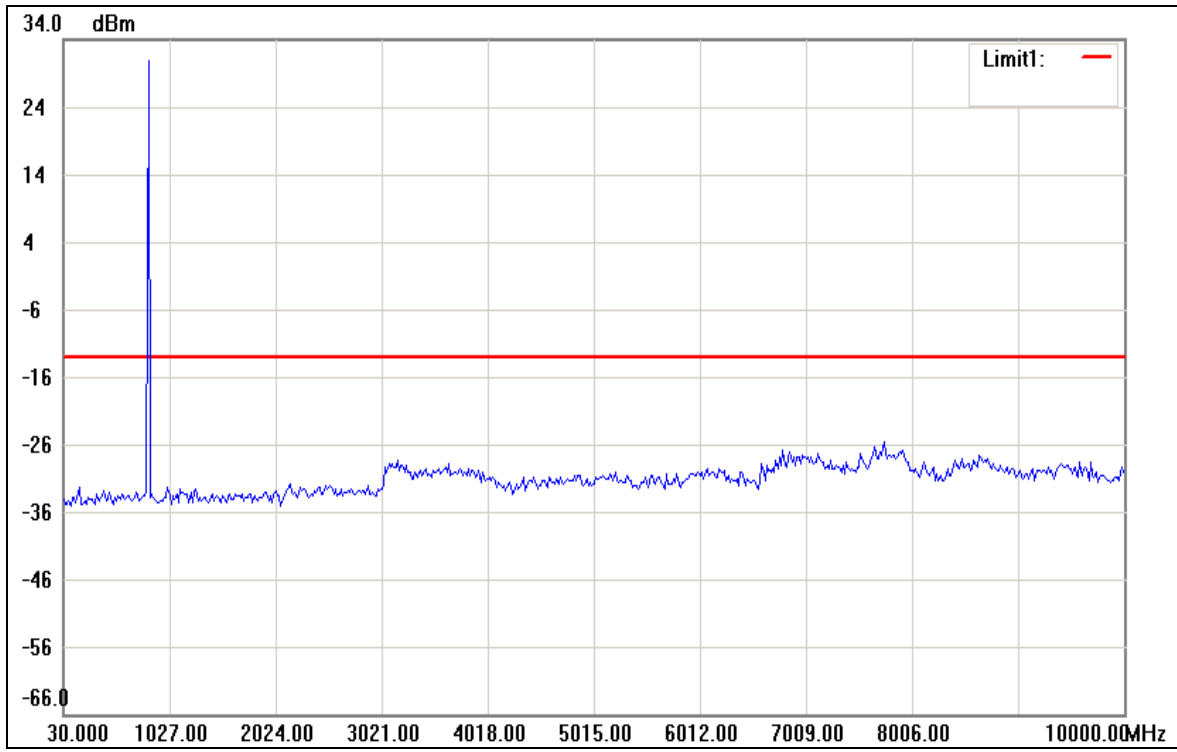
File: 12-08-盟訊 FCC Data: #19

Date: 2012/9/18

Temperature: 26 °C

Time: AM 11:05:39

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 16.64ms Att.: 40dB

Model: G1

RBW: 1000 KHz VBW: 1000 KHz

Test Mode:

Note: GSM 850 CH128 / BAND EDGE ALL

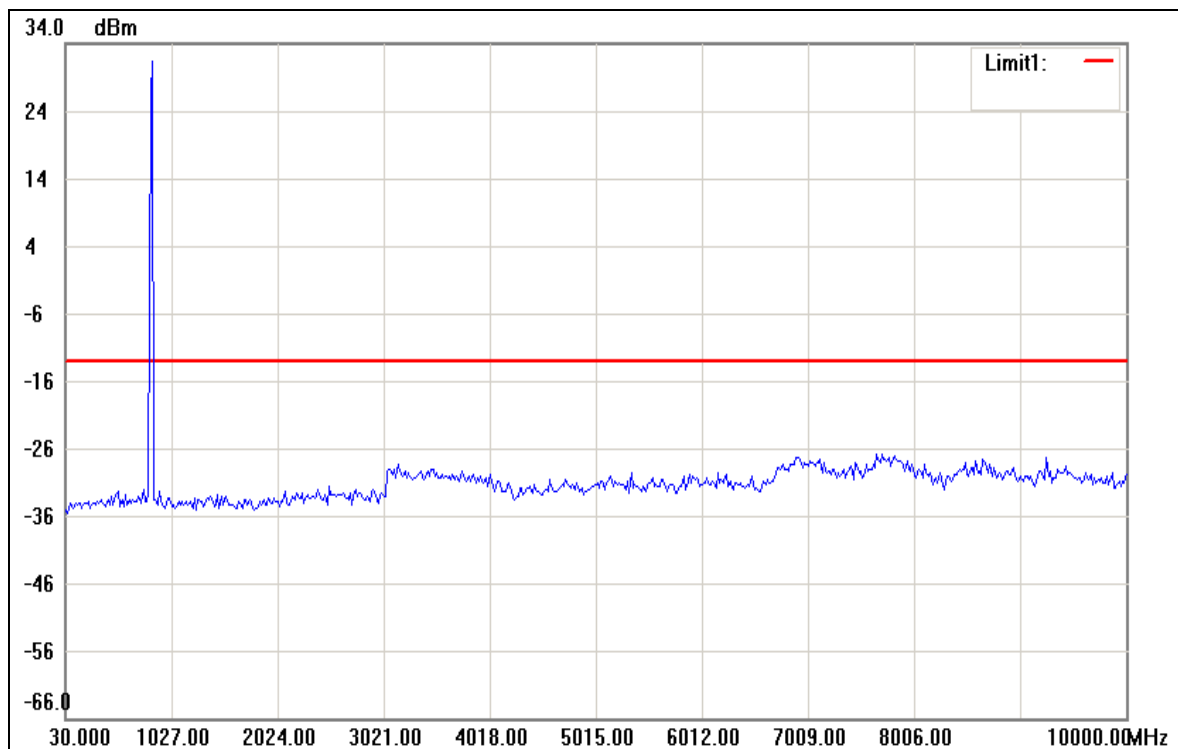
File: 12-08-盟訊 FCC Data: #20

Date: 2012/9/18

Temperature: 26 °C

Time: AM 11:06:53

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 16.64ms Att.: 40dB

Model: G1

RBW: 1000 KHz VBW: 1000 KHz

Test Mode:

Note: GSM 850 CH190 / BAND EDGE ALL

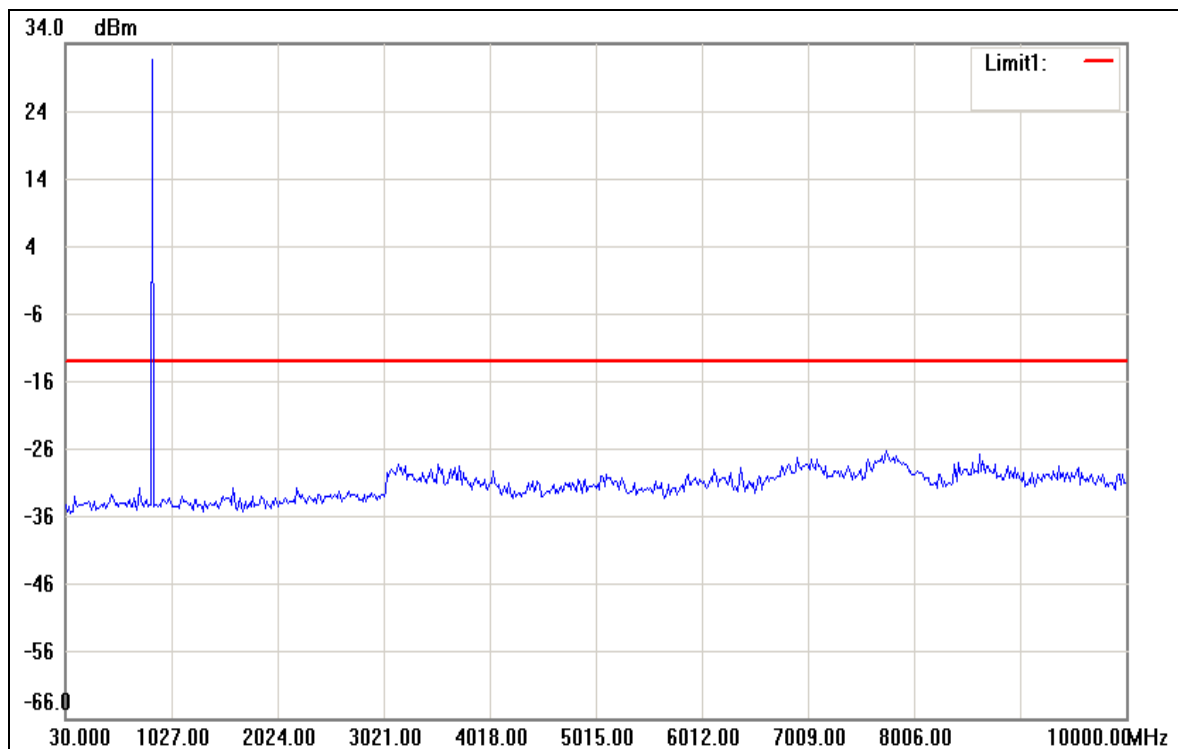
File: 12-08-盟訊 FCC Data: #21

Date: 2012/9/18

Temperature: 26 °C

Time: AM 11:07:56

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 16.64ms Att.: 40dB

Model: G1

RBW: 1000 KHz VBW: 1000 KHz

Test Mode:

Note: GSM 850 CH251 / BAND EDGE ALL

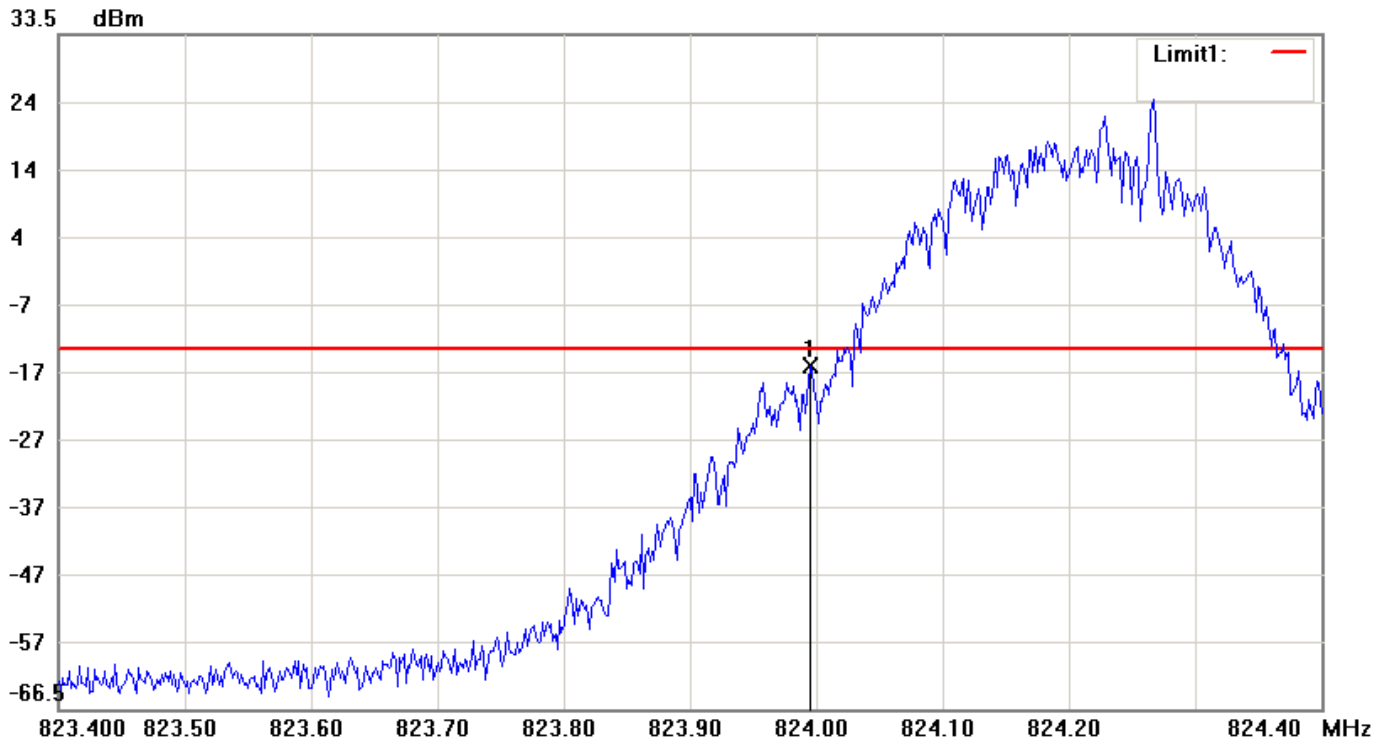
File: 12-08-盟訊 FCC- Data: #21
 2

Date: 2012/9/26

Temperature: 26 °C

Time: PM 01:41:30

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 333.44ms Att.: 40dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 850 CH128 / OUT OF BAND EMISSIONS

No.	Frequency(MHz)	Level(dBm)
1	823.9950	-15.73

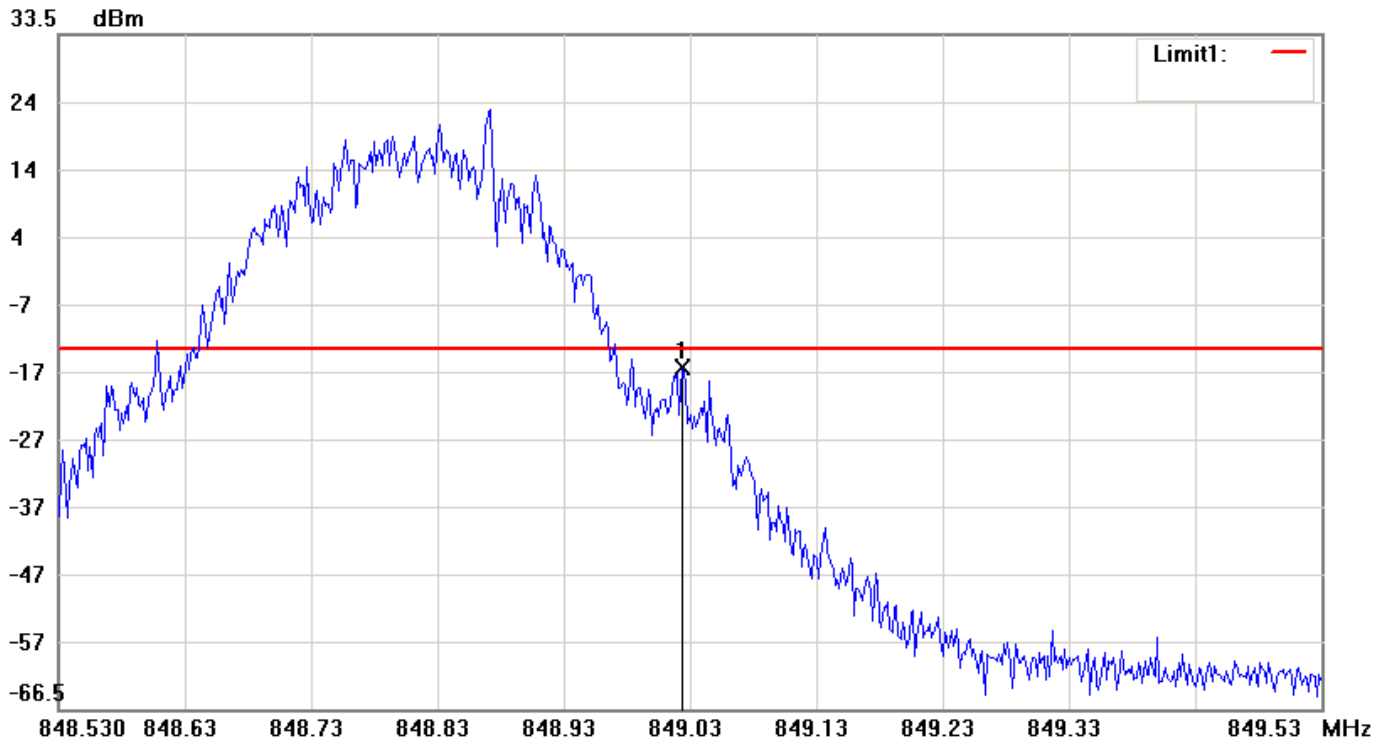
File: 12-08-盟訊 FCC- Data: #20
 2

Date: 2012/9/26

Temperature: 26 °C

Time: PM 01:38:30

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 333.44ms Att.: 40dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 850 CH251 / OUT OF BAND EMISSIONS

No.	Frequency(MHz)	Level(dBm)
1	849.0233	-15.85

1900 Band

Test Mode	Channel	Frequency Range	Note	Chart
PCS1900	512	1849MHz-1851MHz	Lower Band Edge	Page 38, 43
	810	1909MHz-1911MHz	Upper Band Edge	Page 39, 44
	512	30MHz-20GHz	All Band Edge	Page 40
	661	30MHz-20GHz	All Band Edge	Page 41
	810	30MHz-20GHz	All Band Edge	Page 42

Note: Please refer to page 38 to page 42 for chart

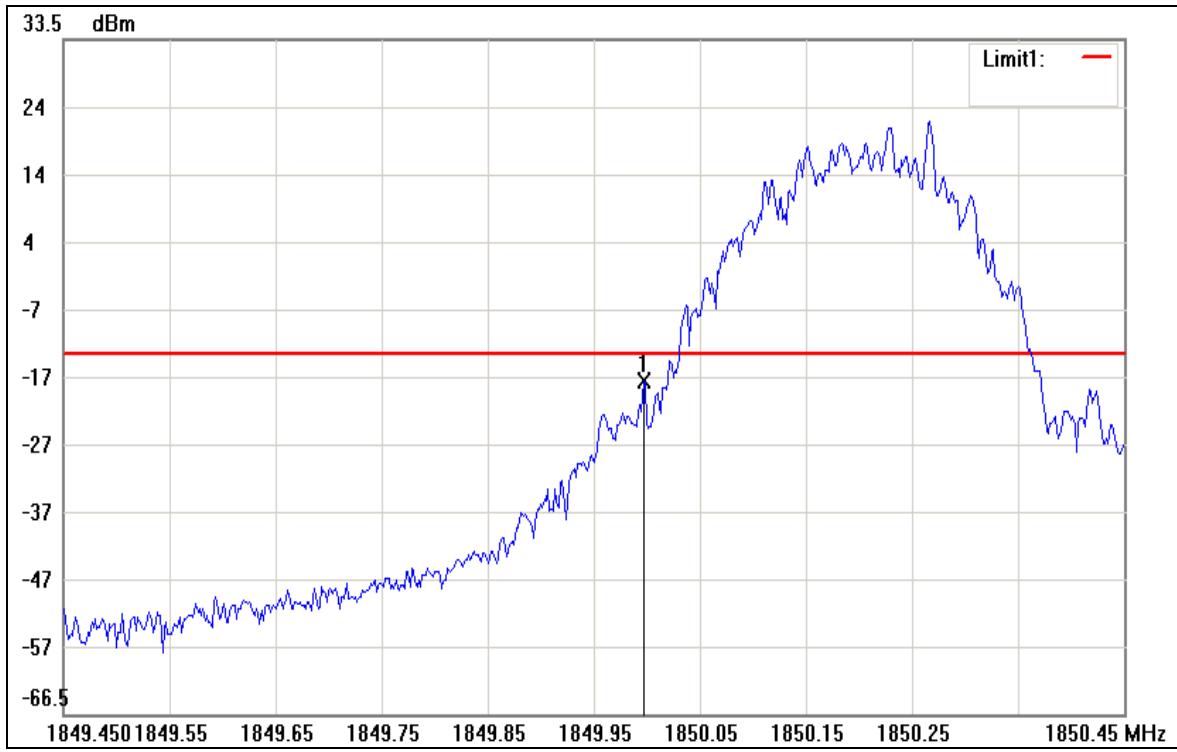
File: 12-08-盟訊 FCC Data: #5

Date: 2012/9/17

Temperature: 26 °C

Time: PM 05:24:54

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 105.44ms Att.: 40dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 1900 CH512 / LOWER BAND EDGE

No.	Frequency(MHz)	Level(dBm)
1	1849.965	-17.01

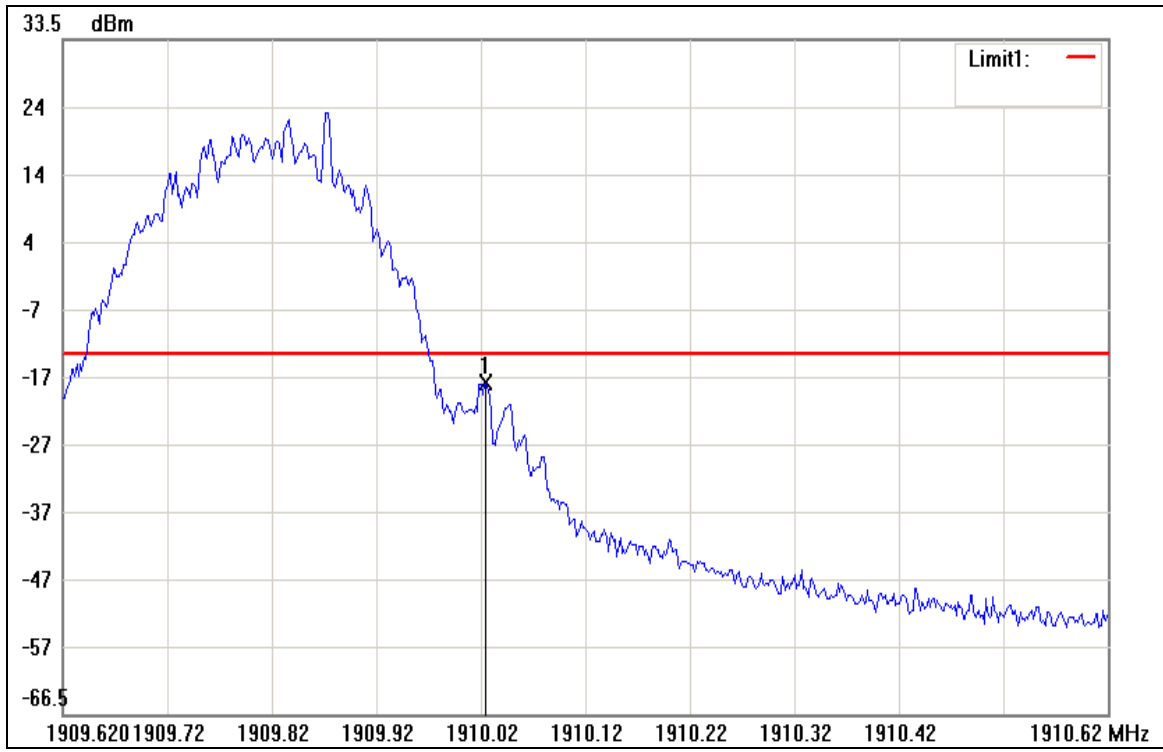
File: 12-08-盟訊 FCC Data: #6

Date: 2012/9/17

Temperature: 26 °C

Time: PM 05:32:31

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 105.44ms Att.: 40dB

Model: G1

RBW: 3 KHz

VBW: 10 KHz

Test Mode:

Note: GSM 1900 CH810 / UPPER BAND EDGE

No.	Frequency(MHz)	Level(dBm)
1	1910.0250	-17.41

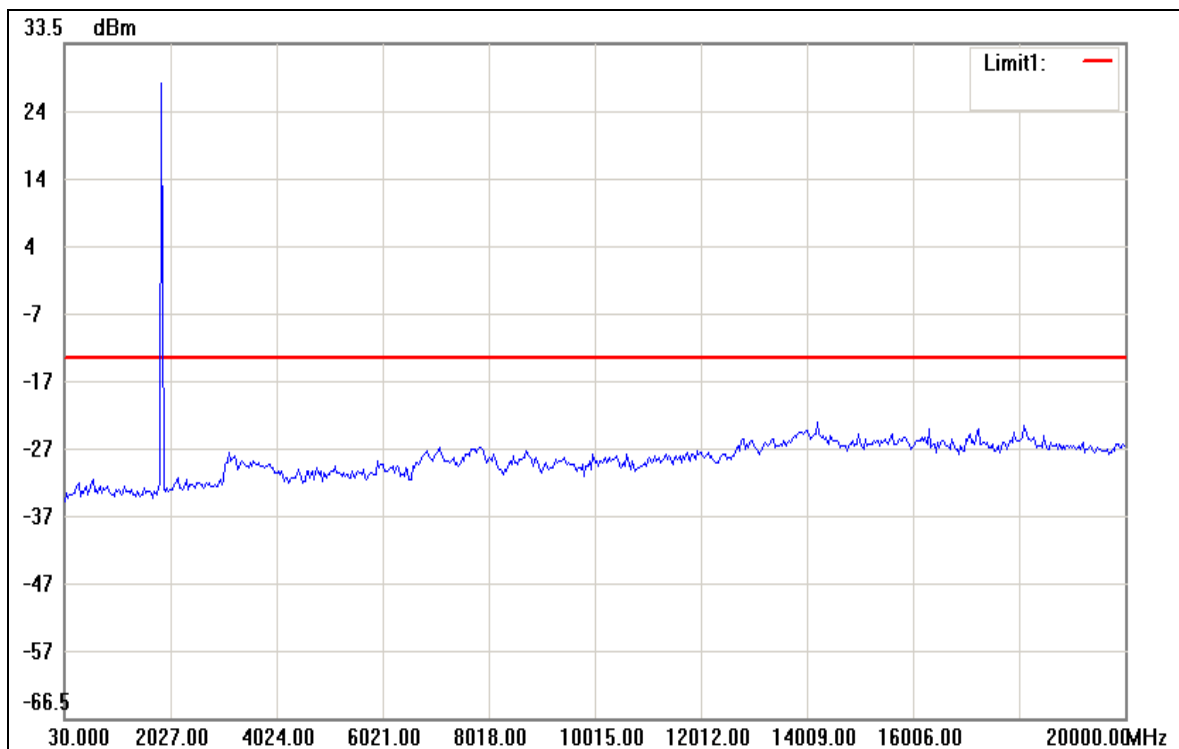
File: 12-08-盟訊 FCC Data: #7

Date: 2012/9/17

Temperature: 26 °C

Time: PM 05:35:21

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 99.88ms Att.: 40dB

Model: G1

RBW: 1000 KHz VBW: 1000 KHz

Test Mode:

Note: GSM 1900 CH512 / BAND EDGE ALL

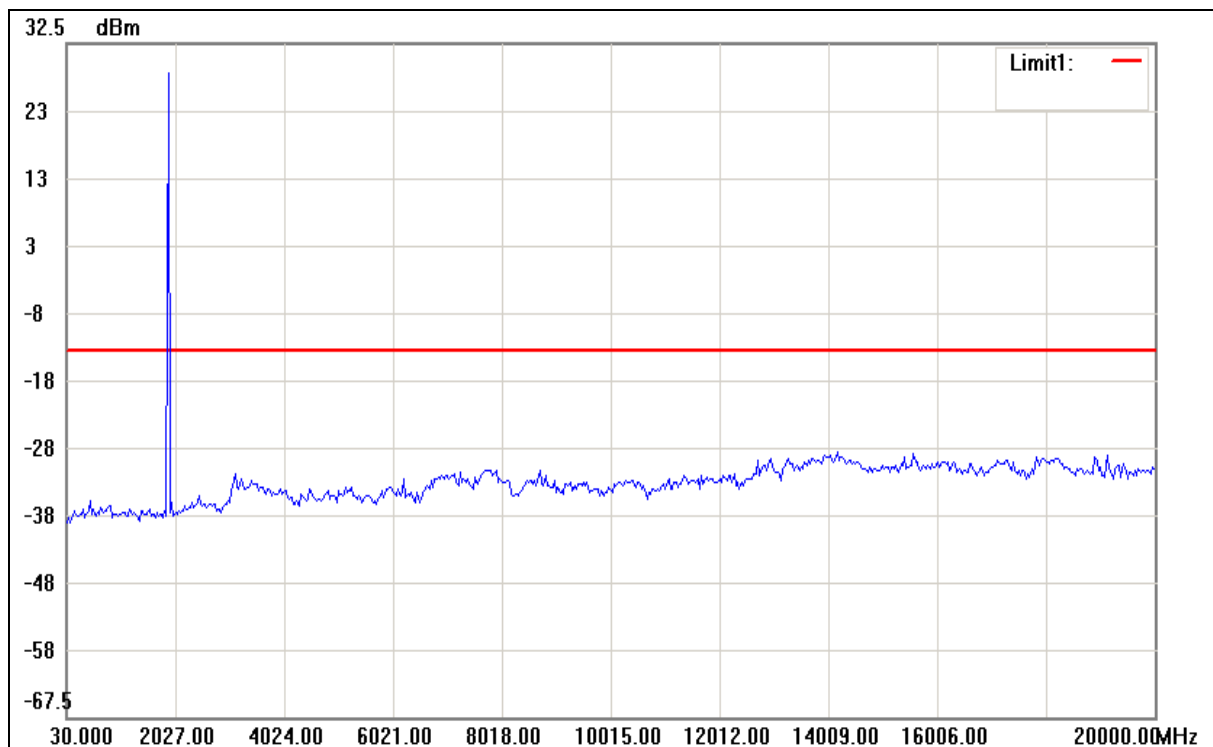
File: 12-08-盟訊 FCC Data: #8

Date: 2012/9/18

Temperature: 26 °C

Time: AM 09:54:59

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 99.88ms Att.: 36dB

Model: G1

RBW: 1000 KHz VBW: 1000 KHz

Test Mode:

Note: GSM 1900 CH661 / BAND EDGE ALL

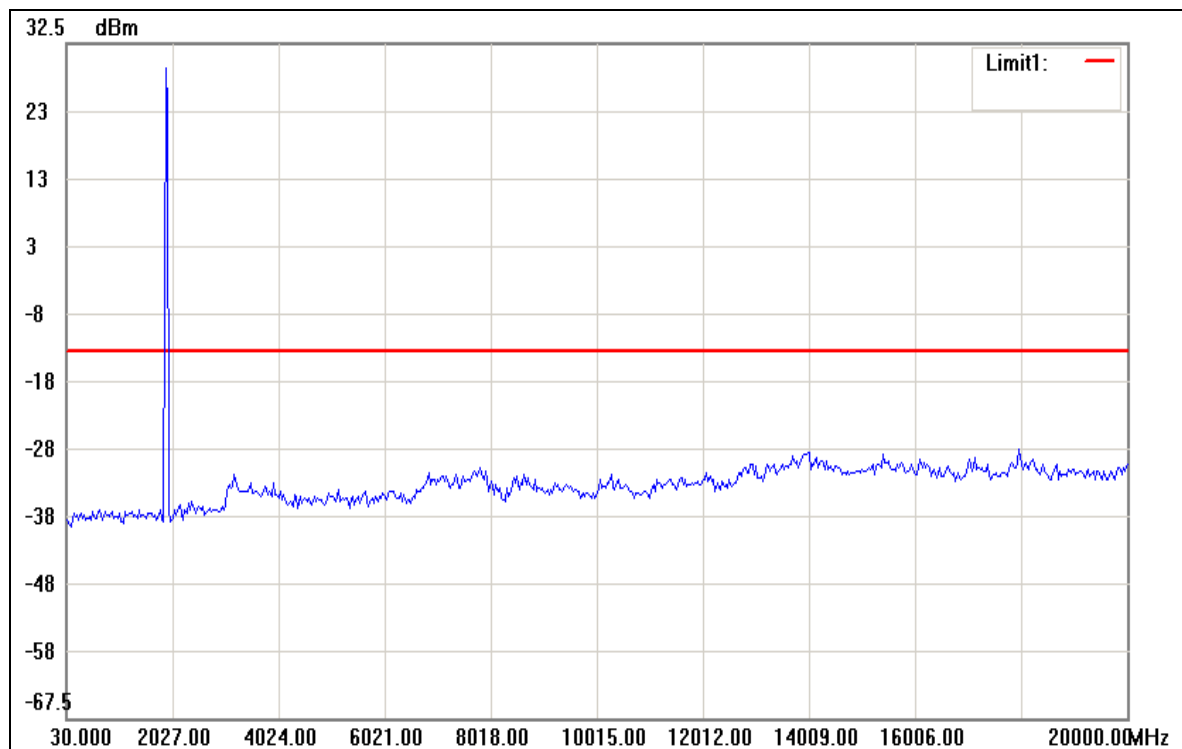
File: 12-08-盟訊 FCC Data: #9

Date: 2012/9/18

Temperature: 26 °C

Time: AM 09:55:24

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 99.88ms Att.: 36dB

Model: G1

RBW: 1000 KHz VBW: 1000 KHz

Test Mode:

Note: GSM 1900 CH810 / BAND EDGE ALL

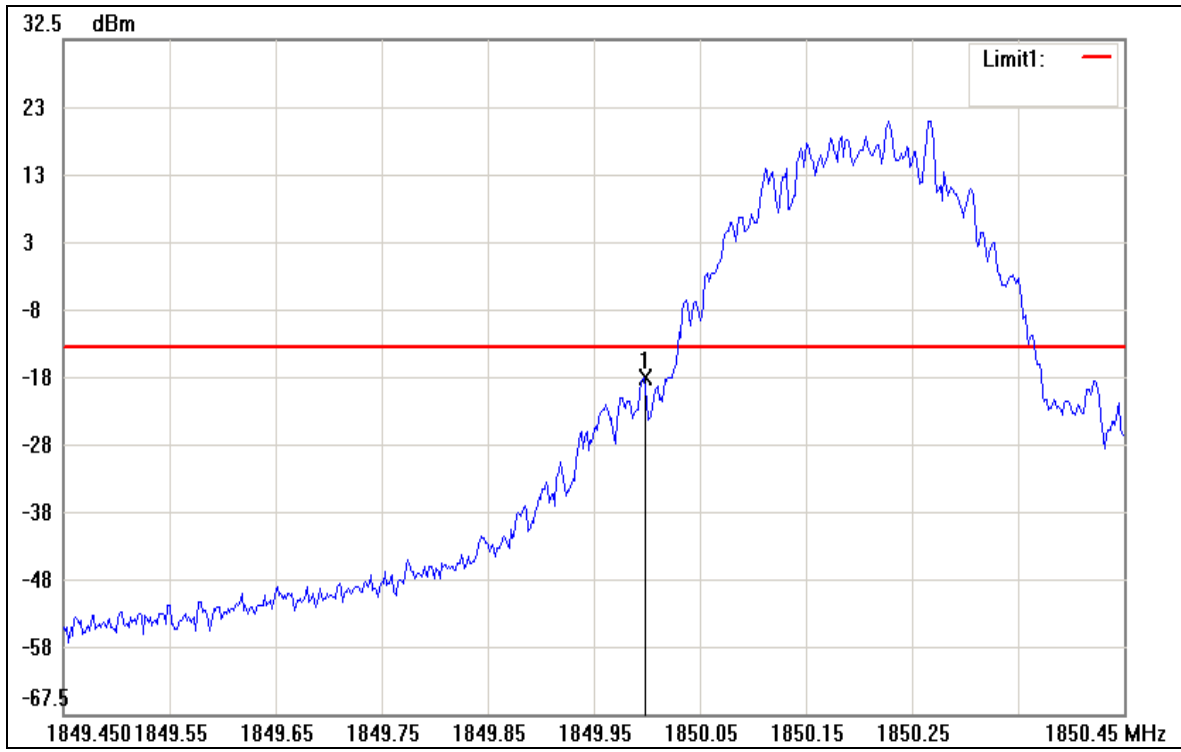
File: 12-08-盟訊 FCC Data: #10

Date: 2012/9/18

Temperature: 26 °C

Time: AM 09:56:58

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 105.44ms Att.: 36dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 1900 CH512 / OUT OF BAND EMISSIONS

No.	Frequency(MHz)	Level(dBm)
1	1849.967	-17.69

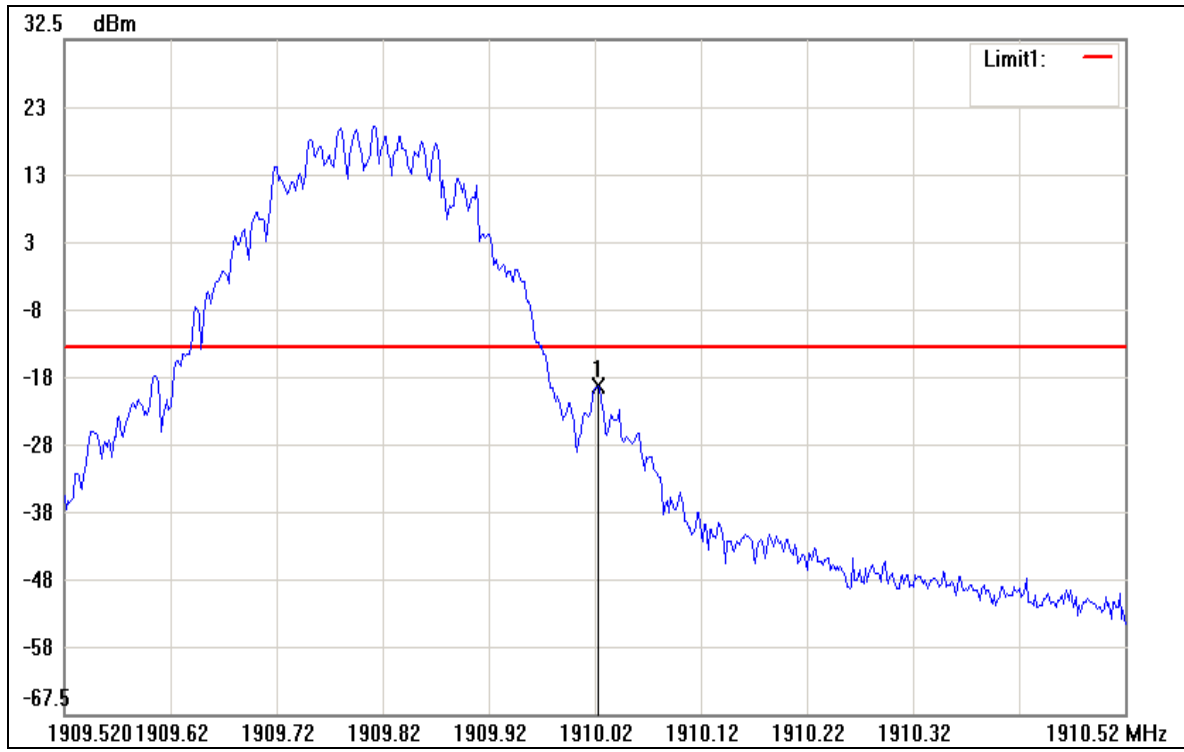
File: 12-08-盟訊 FCC Data: #11

Date: 2012/9/18

Temperature: 26 °C

Time: AM 09:59:24

Humidity: 54 %



Condition: FCC Part22 24- -13dBm

RF Conducted

EUT:

Sweep Time: 105.44ms Att.: 36dB

Model: G1

RBW: 3 KHz VBW: 10 KHz

Test Mode:

Note: GSM 1900 CH810 / OUT OF BAND EMISSIONS

No.	Frequency(MHz)	Level(dBm)
1	1910.0233	-18.95

7. SPURIOUS RADIATION MEASUREMENT

7.1 Standard Applicable

According to FCC §2.1053

7.2 Measurement Procedure

The setup of the EUT as shown in figure 2 and figure 3. 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.

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	R&S	ESIB7	07/10/2013
Spectrum Analyzer	Rohde & Schwarz	FSU46	01/08/2013
Horn Antenna	EMCO	3115	07/17/2013
BiLog Antenna	ETC	MCTD2986	11/24/2012
Horn Antenna	EMCO	3116	07/17/2013
Preamplifier	Hewlett-Packard	8449B	10/03/2012
SYNESIZED SWEEPER	AGILENT	83640B	10/03/2012
DIPOLE ANTENNA	SCHWRZBECK	1166;1167	09/07/2014
DIPOLE ANTENNA	SCHWRZBECK	897;898	09/07/2014

7.4 Test Result

Test Date : 09/18/2012

Temperature : 26°C

Humidity : 54%

Operated mode : GSM850/CH128

Frequency (MHz)	Antenna Pol.	Result (dBm)	Limit (dBm)
782.2846	V	-70.45	-13.0
801.7234	V	-70.69	-13.0
877.5351	H	-71.31	-13.0
877.5351	V	-68.36	-13.0
937.7956	H	-70.37	-13.0
998.0561	H	-69.93	-13.0

Operated mode : GSM850/CH190

Frequency (MHz)	Antenna Pol.	Result (dBm)	Limit (dBm)
793.9480	H	-73.88	-13.0
793.9480	V	-70.44	-13.0
813.3867	V	-70.84	-13.0
877.5351	V	-68.35	-13.0
937.7956	H	-70.89	-13.0
998.0561	H	-71.15	-13.0

Operated mode : GSM850/CH251

Frequency (MHz)	Antenna Pol.	Result (dBm)	Limit (dBm)
725.9118	H	-74.40	-13.0
807.5551	V	-74.13	-13.0
937.7956	V	-71.42	-13.0
943.6273	H	-74.27	-13.0
986.3928	H	-72.71	-13.0
998.0561	V	-70.12	-13.0

Operated mode : PCS1900/CH512

Frequency (MHz)	Antenna Pol.	Result (dBm)	Limit (dBm)
725.9118	V	-74.40	-13.0
858.0962	H	-73.62	-13.0
937.7956	H	-69.64	-13.0
943.6273	V	-74.27	-13.0
986.3928	V	-72.71	-13.0
998.0561	H	-69.93	-13.0

Operated mode : PCS1900/CH661

Frequency (MHz)	Antenna Pol.	Result (dBm)	Limit (dBm)
780.3407	V	-74.74	-13.0
858.0961	H	-73.00	-13.0
858.0962	V	-72.93	-13.0
937.7956	H	-71.85	-13.0
949.4590	V	-73.03	-13.0
998.0561	H	-70.92	-13.0

Operated mode : PCS900/CH810

Frequency (MHz)	Antenna Pol.	Result (dBm)	Limit (dBm)
780.3407	H	-74.14	-13.0
799.7795	V	-75.96	-13.0
852.2644	V	-75.29	-13.0
937.7956	H	-69.92	-13.0
961.1222	V	-73.35	-13.0
998.0561	H	-69.58	-13.0

8. FREQUENCY STABILITY MEASUREMENT

8.1 Standard Applicable

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

8.2 Measurement Procedure

Frequency Error V.S. Temperature:

The setup of the EUT as shown in figure 4. The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Error V.S. Voltage:

Set chamber temperature to 20°C. Use a variable DC (AC) power supply to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation (15%) and endpoint, record the maximum frequency change.

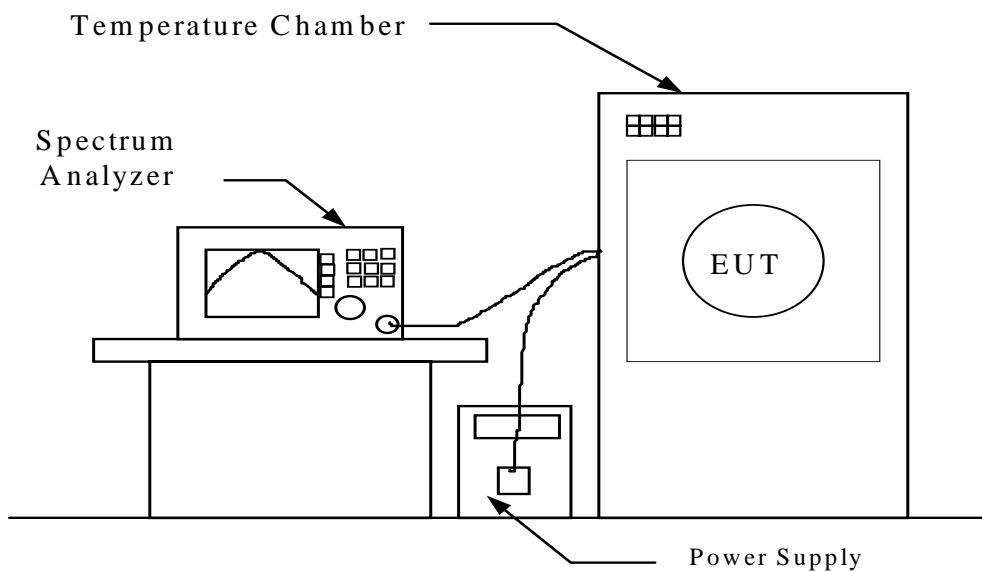


Figure 4: Frequency stability measurement configuration.

8.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSU46	01/08/2013
Temperature Chamber	YEOW LONG	MHP-3-L	06/21/2013
DC Power Supply	GW	GPC-3030D	N/A
Digital Multi Meter	HILA	DM-3000	07/26/2013

8.4 Test Result

Test Date : 09/18/2012

Temperature : 26°C

Humidity : 54%

Reference Frequency: GSM850 Low Channel 824.2 MHz @ 20°C				
Limit: ± 2.5 ppm = 2060.5 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (MHz)	Delta (Hz)	Limit (Hz)
4.1	50	824.199664	-337	2060.5
	40	824.199488	-513	
	30	824.199750	-250	
	20	824.199250	-750	
	10	824.200033	33	
	0	824.200783	783	
	-10	824.199400	-600	
	-20	824.201717	1717	
	-30	824.201400	1400	

Reference Frequency: GSM850 Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091.5 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (MHz)	Delta (Hz)	Limit (Hz)
4.1	50	836.600954	954	2091.5
	40	836.601045	1045	
	30	836.601330	1330	
	20	836.601854	1854	
	10	836.602000	2000	
	0	836.601150	1150	
	-10	836.601833	1833	
	-20	836.601900	1900	
	-30	836.601070	1070	

Reference Frequency: GSM850 High Channel 848.8 MHz @ 20°C				
Limit: ± 2.5 ppm = 2122 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (MHz)	Delta (Hz)	Limit (Hz)
4.1	50	848.799468	-532	2122
	40	848.799157	-843	
	30	848.799090	-910	
	20	848.799270	-730	
	10	848.802000	2000	
	0	848.801983	1983	
	-10	848.800430	430	
	-20	848.800350	350	
	-30	848.801270	1270	

Reference Frequency: PCS1900 Low Channel 1850.2 MHz @ 20°C				
Limit: ± 2.5 ppm = 4625.5 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (MHz)	Delta (Hz)	Limit (Hz)
4.1	50	1850.198543	-1457	4625.5
	40	1850.198152	-1848	
	30	1850.198364	-1636	
	20	1850.198513	-1487	
	10	1850.198167	-1833	
	0	1850.198821	-1179	
	-10	1850.198964	-1036	
	-20	1850.198125	-1875	
	-30	1850.198834	-1166	

Reference Frequency: PCS1900 Mid Channel 1880.0 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (MHz)	Delta (Hz)	Limit (Hz)
4.1	50	1879.998364	-1636	4700
	40	1879.998156	-1844	
	30	1879.998946	-1054	
	20	1879.998534	-1466	
	10	1879.998320	-1680	
	0	1879.998961	-1039	
	-10	1879.998430	-1570	
	-20	1879.997631	-2369	
	-30	1879.997460	-2540	

Reference Frequency: PCS1900 High Channel 1909.8 MHz @ 20°C				
Limit: ± 2.5 ppm = 4774.5 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (MHz)	Delta (Hz)	Limit (Hz)
4.1	50	1909.798734	-1266	4774.5
	40	1909.797562	-2438	
	30	1909.797891	-2109	
	20	1909.798347	-1653	
	10	1909.798364	-1636	
	0	1909.798463	-1537	
	-10	1909.798954	-1046	
	-20	1909.798524	-1476	
	-30	1909.798336	-1664	

9. POWERLINE CONDUCTED EMISSIONS

9.1 Standard Applicable

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

9.2 Measurement Procedure

1. Setup the configuration per figure 5.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

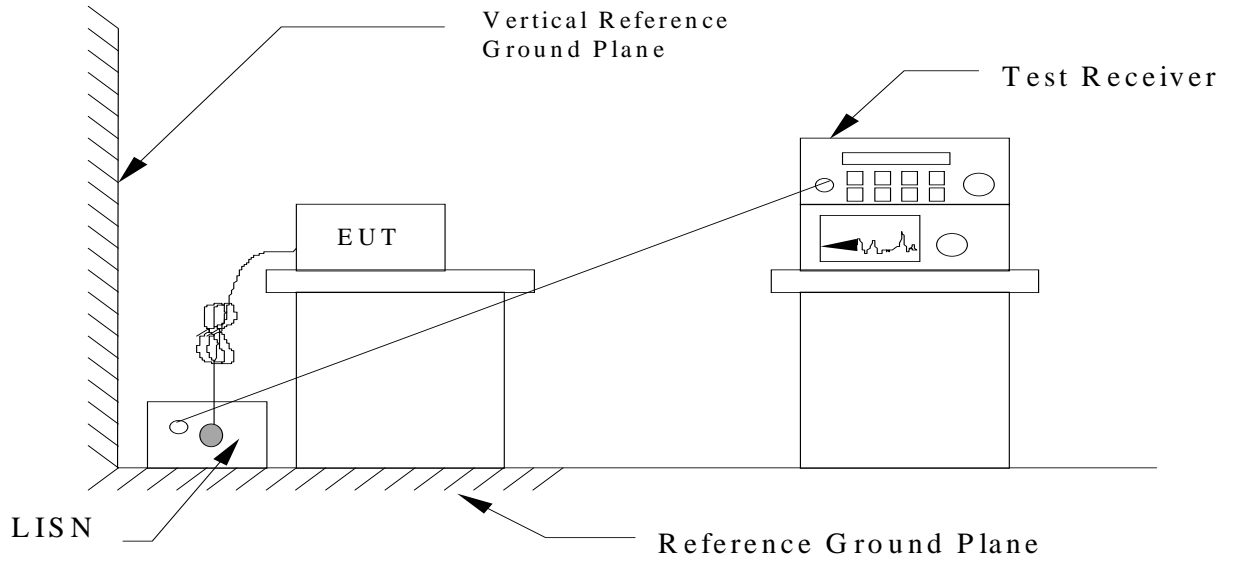


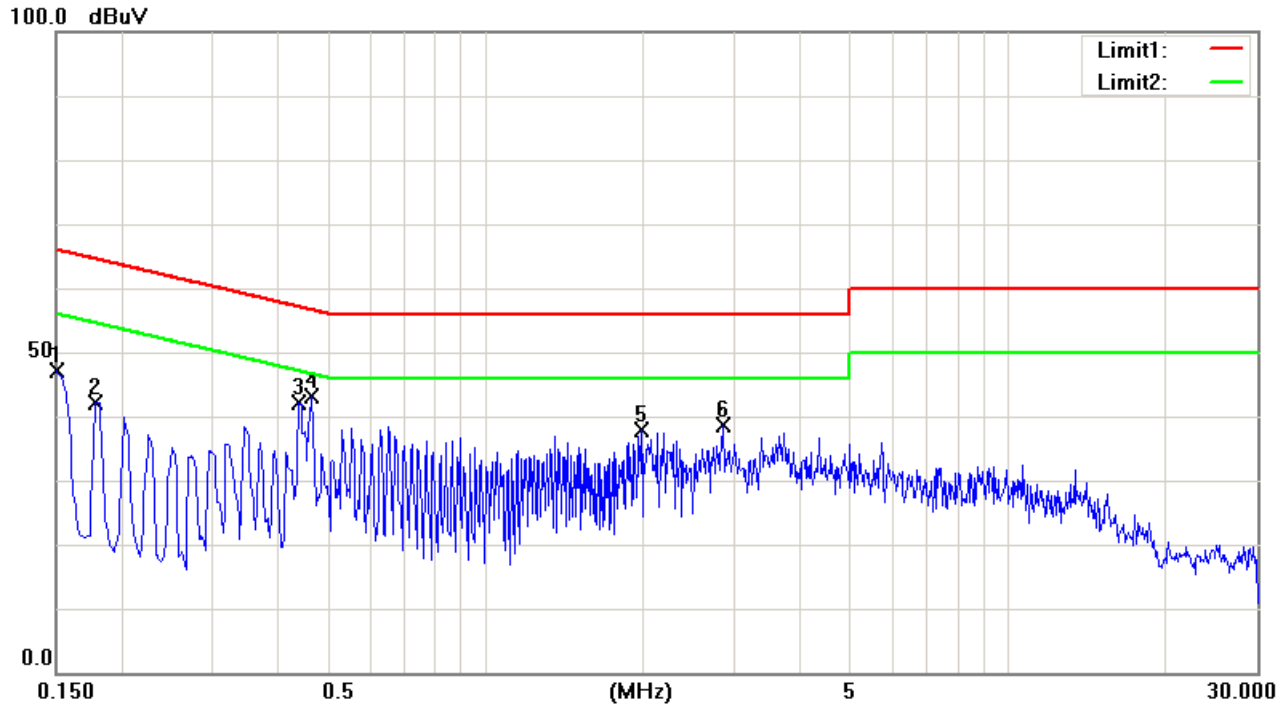
Figure 5 : Conducted emissions measurement configuration

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Test Receiver	R&S	ESCS30	09/15/2013
Line Impedance Stabilization network	EMCO	3825/2	04/19/2013

9.4 Test Result

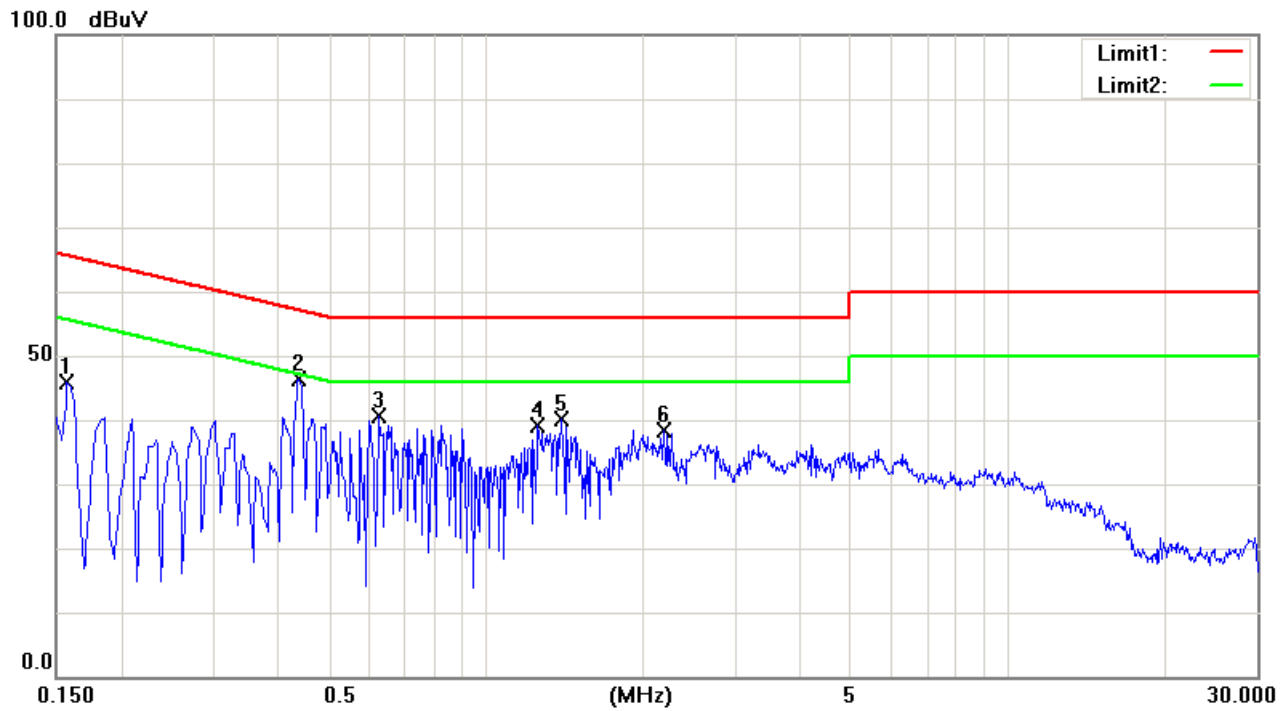
File: Data: #1 Date: 2012/9/19 Temperature: 25 °C
 Time: AM 09:08:00 Humidity: 59 %



Condition: Phase:
 EUT:
 Model:
 Test Mode:

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected dB	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1500	46.98	peak	0.07	47.05	66.00	-18.95
2	0.1780	42.11	peak	0.06	42.17	64.58	-22.41
3	0.4380	42.03	peak	0.07	42.10	57.10	-15.00
4	0.4620	43.03	peak	0.07	43.10	56.66	-13.56
5	1.9820	37.88	peak	0.12	38.00	56.00	-18.00
6	2.8500	38.45	peak	0.15	38.60	56.00	-17.40

File: Data: #2 Date: 2012/9/19 Temperature: 25 °C
 Time: AM 09:09:20 Humidity: 59 %



Condition: Phase:

EUT:

Model:

Test Mode:

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected dB	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1580	45.77	peak	0.06	45.83	65.57	-19.74
2	0.4380	46.29	peak	0.07	46.36	57.10	-10.74
3	0.6260	40.47	peak	0.07	40.54	56.00	-15.46
4	1.2580	38.99	peak	0.10	39.09	56.00	-16.91
5	1.3940	40.11	peak	0.10	40.21	56.00	-15.79
6	2.1940	38.16	peak	0.12	38.28	56.00	-17.72

Note:

1. Place of measurement: EMC LAB. of the ETC.
2. The full frequency range scanning test data is shown in next two pages.
3. “***” means the value was too low to be measured.
4. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
5. The estimated measurement uncertainty of the result measurement is ± 2.5 dB.