

FCC PART 22H, PART 24E  
TEST REPORT

For

**B Mobile HK Limited**

G/F., 144 UN CHAU STREET, SHAM SHUI PO, KOWLOON, HONG KONG

**FCC ID: ZSW-QW130**

<b>Report Type:</b> Original Report	<b>Product Type:</b> GSM mobile phone
<b>Test Engineer:</b> Henry Ding	<i>Henry Ding</i>
<b>Report Number:</b> RSZ120629003-00C	
<b>Report Date:</b> 2012-07-24	
<b>Reviewed By:</b> Alvin Huang RF Leader	<i>Alvin Huang</i>
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, or any agency of the Federal Government.

\* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

## TABLE OF CONTENTS

<b>GENERAL INFORMATION.....</b>	<b>3</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
OBJECTIVE .....	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY .....	3
TEST FACILITY .....	4
<b>SYSTEM TEST CONFIGURATION.....</b>	<b>5</b>
DESCRIPTION OF TEST CONFIGURATION .....	5
EQUIPMENT MODIFICATIONS .....	5
BLOCK DIAGRAM OF TEST SETUP .....	5
<b>SUMMARY OF TEST RESULTS .....</b>	<b>6</b>
<b>FCC §1.1307 &amp; §2.1093 - RF EXPOSURE.....</b>	<b>7</b>
APPLICABLE STANDARD .....	7
TEST RESULT .....	7
<b>FCC §2.1047 - MODULATION CHARACTERISTIC .....</b>	<b>8</b>
<b>FCC § 2.1046, § 22.913 (A) &amp;§ 24.232 (C) - RF OUTPUT POWER.....</b>	<b>9</b>
APPLICABLE STANDARD .....	9
TEST PROCEDURE .....	9
TEST EQUIPMENT LIST AND DETAILS.....	9
TEST DATA .....	10
<b>FCC §2.1049, §22.917, §22.905&amp;§24.238 - BANDWIDTH .....</b>	<b>14</b>
APPLICABLE STANDARD .....	14
TEST PROCEDURE .....	14
TEST EQUIPMENT LIST AND DETAILS.....	14
TEST DATA .....	14
<b>FCC §2.1051, §22.917(A) &amp; §24.238(A) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS .....</b>	<b>20</b>
APPLICABLE STANDARD .....	20
TEST PROCEDURE .....	20
TEST EQUIPMENT LIST AND DETAILS.....	20
TEST DATA .....	20
<b>FCC §2.1053, §22.917 &amp; §24.238 - SPURIOUS RADIATED EMISSIONS .....</b>	<b>23</b>
APPLICABLE STANDARD .....	23
TEST PROCEDURE .....	23
TEST EQUIPMENT LIST AND DETAILS.....	23
TEST DATA .....	24
<b>FCC §22.917(A) &amp; §24.238(A) - BAND EDGES.....</b>	<b>26</b>
APPLICABLE STANDARD .....	26
TEST PROCEDURE .....	26
TEST EQUIPMENT LIST AND DETAILS.....	26
TEST DATA .....	26
<b>FCC §2.1055, §22.355 &amp;§24.235 - FREQUENCY STABILITY.....</b>	<b>32</b>
APPLICABLE STANDARD .....	32
TEST PROCEDURE .....	32
TEST EQUIPMENT LIST AND DETAILS.....	33
TEST DATA .....	33

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *B Mobile HK Limited*'s product, model number: *QW130* (FCC ID: *ZSW-QW130*) or the "EUT" in this report was a *GSM mobile phone*, which was measured approximately: 11.0 cm (L) x 6.0 cm (W) x 1.5 cm (H), rated input voltage: DC 3.7 V from battery.

*\* All measurement and test data in this report was gathered from production sample serial number: 1206138 (Assigned by Shenzhen BACL). The EUT was received on 2012-06-29.*

### Objective

This test report is prepared on behalf of B Mobile HK Limited 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 the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

### Related Submittal(s)/Grant(s)

FCC part 15.247 DSS and part 15B JBP submissions with FCC ID: ZSW-QW130

### Test Methodology

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

Part 22 Subpart H - Public Mobile Services  
Part 24 Subpart E - Personal Communication Services

Applicable Standards: TIA/EIA 603-C, ANSI C63.4-2009.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

**Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

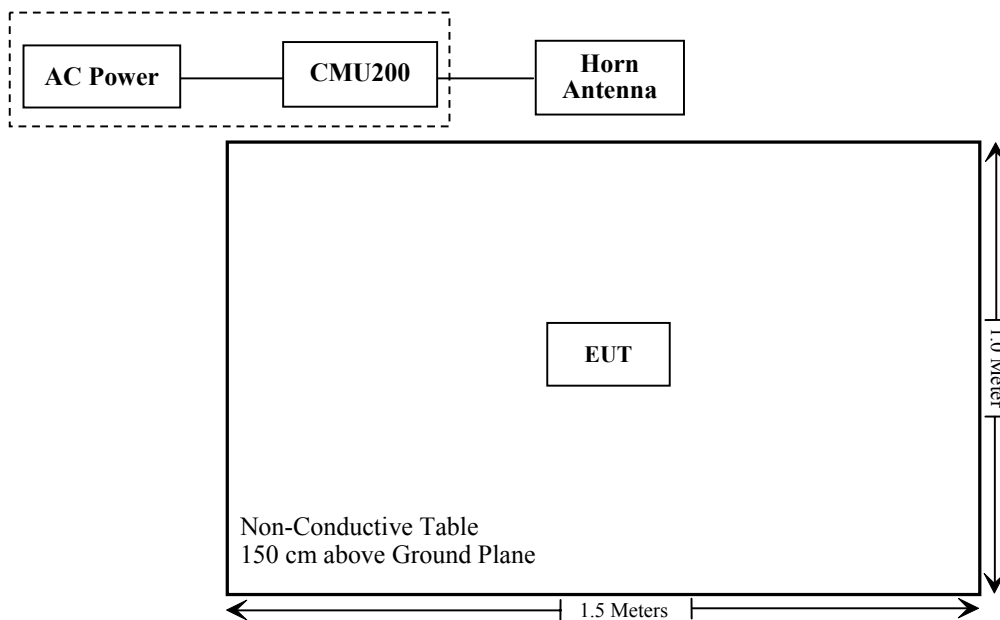
The EUT was configured for testing according to TIA/EIA-603-C.

The final qualification test was performed with the EUT operating at normal mode.

### Equipment Modifications

No modification was made to the EUT.

### Block Diagram of Test Setup



## **SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
§1.1307, §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238	Occupied Bandwidth	Compliance
§ 2.1051, § 22.917 (a); § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053 § 22.917 (a); § 24.238 (a)	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a)	Out of band emission, Band Edge	Compliance
§ 2.1055 § 22.355; § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: \* Please refer to SAR report released by BACL, report number: RSZ120629003-20.

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## **FCC §1.1307 & §2.1093 - RF EXPOSURE**

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### **Applicable Standard**

FCC§1.1307 and §2.1093.

### **Test Result**

Compliance, please refer to the SAR report: RSZ120629003-20.

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## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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



## FCC § 2.1046, § 22.913 (a) & § 24.232 (c) - RF OUTPUT POWER

### Applicable Standard

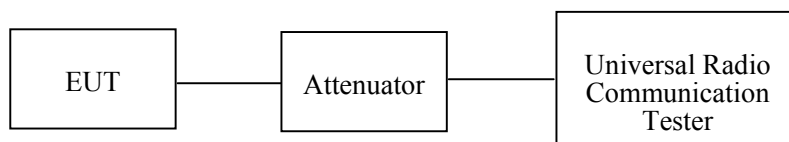
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications..

### Test Procedure

#### Conducted method:

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



#### Radiated method:

TIA 603-C section 2.2.17

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2012-11-30
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27
HP	Signal Generator	HP8657A	2849U00982	2011-10-21	2012-10-20
HP	Synthesized Sweeper	8341B	2624A00116	2012-04-11	2013-04-10
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2013-02-10
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements.

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	25°C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

The testing was performed by Henry Ding on 2012-07-11.

**Conducted Power**

**Cellular Band (Part 22H)**

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.60	38.45
	190	836.6	32.61	38.45
	251	848.8	32.60	38.45

Mode	Frequency (MHz)	Output Power (dBm)				Limit (dBm)
		Slot 1	Slot 2	Slot 3	Slot 4	
GPRS	824.2	31.16	31.17	Not supported		38.45
	836.6	31.26	31.25	Not supported		38.45
	848.8	31.11	31.12	Not supported		38.45

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
WCDMA850 (RMC 12.2kbps)	4132	826.4	22.32	38.45
	4183	836.6	21.99	38.45
	4233	846.6	22.07	38.45

**PCS Band (Part 24E)**

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	28.97	33
	661	1880.0	29.08	33
	810	1909.8	29.16	33

Mode	Frequency (MHz)	Output Power (dBm)				Limit (dBm)
		Slot 1	Slot 2	Slot 3	Slot 4	
GPRS	1850.2	28.47	28.53	Not supported		33
	1880.0	28.50	28.59	Not supported		33
	1909.8	28.64	28.60	Not supported		33

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
WCDMA1900 (RMC 12.2kbps)	9262	1852.4	21.95	33
	9400	1880.0	21.51	33
	9538	1907.6	22.05	33

**Radiated Power**

**ERP & EIRP**

**GSM Mode:**

**ERP for Cellular Band (Part 22H)**

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBd)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H Limit (dBm)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				
Low Channel											
824.2	92.39	48	1.8	H	824.2	21.6	H	0.00	0.69	20.91	38.45
824.2	101.82	6	1.8	V	824.2	31.5	V	0.00	0.69	30.81	38.45
Middle Channel											
836.6	92.07	13	1.8	H	836.6	21.2	H	0.00	0.69	20.51	38.45
836.6	102.01	135	1.7	V	836.6	31.7	V	0.00	0.69	31.01	38.45
High Channel											
848.8	92.33	52	1.7	H	848.8	21.5	H	0.00	0.69	23.81	38.45
848.8	101.67	5	1.8	V	848.8	31.4	V	0.00	0.69	31.71	38.45

**EIRP for PCS Band (Part 24E)**

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H Limit (dBm)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				
Low Channel											
1850.2	90.39	38	1.8	H	1850.2	16.3	H	9.40	1.03	24.67	33.00
1850.2	90.83	44	1.7	V	1850.2	19.9	V	9.40	1.03	28.27	33.00
Middle Channel											
1880.0	90.47	133	1.8	H	1880.0	16.4	H	9.40	1.03	24.77	33.00
1880.0	90.24	83	1.8	V	1880.0	19.3	V	9.40	1.03	27.67	33.00
High Channel											
1909.8	89.19	143	1.7	H	1909.8	15.1	H	9.40	1.03	23.47	33.00
1909.8	89.39	13	1.7	V	1909.8	18.5	V	9.40	1.03	26.87	33.00

**WCDMA Mode:**

**ERP for Cellular Band (Part 22H)**

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBd)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H Limit (dBm)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				
Low Channel											
826.4	80.69	80.69	6	1.8	826.4	9.6	H	0.00	0.69	8.91	38.45
826.4	90.62	90.62	123	1.7	826.4	20.1	V	0.00	0.69	19.41	38.45
Middle Channel											
836.6	80.79	80.79	13	1.8	836.6	9.8	H	0.00	0.69	9.11	38.45
836.6	89.96	89.96	63	1.5	836.6	19.3	V	0.00	0.69	18.61	38.45
High Channel											
846.6	81.23	81.23	55	1.8	846.6	10.1	H	0.00	0.69	9.41	38.45
846.6	90.37	90.37	22	1.7	846.6	19.8	V	0.00	0.69	19.11	38.45

**EIRP for PCS Band (Part 24E)**

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H Limit (dBm)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				
Low Channel											
1852.4	85.39	85.39	38	1.7	1852.4	11.3	H	9.40	1.03	19.67	33.00
1852.4	86.23	86.23	43	1.9	1852.4	13.3	V	9.40	1.03	21.67	33.00
Middle Channel											
1880.0	86.61	86.61	111	1.7	1880.0	12.6	H	9.40	1.03	20.97	33.00
1880.0	86.79	86.79	38	1.7	1880.0	13.6	V	9.40	1.03	21.97	33.00
High Channel											
1907.6	86.03	86.03	88	1.8	1907.6	12.0	H	9.40	1.03	20.37	33.00
1907.6	87.96	87.96	41	1.8	1907.6	14.2	V	9.40	1.03	22.57	33.00

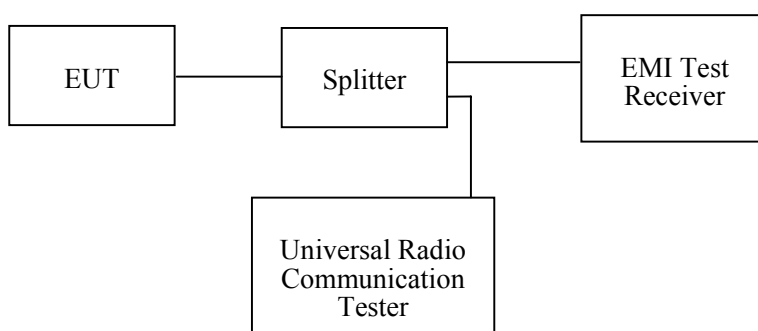
**FCC §2.1049, §22.917, §22.905&§24.238 - BANDWIDTH**

**Applicable Standard**

FCC §2.1049, §22.917, §22.905 and §24.238

**Test Procedure**

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



**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements.

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	25°C
<b>Relative Humidity:</b>	56%
<b>ATM Pressure:</b>	100.0kPa

*The testing was performed by Henry Ding on 2012-07-06.*

*Test Mode: Transmitting*

*Test Result: Compliance. Please refer to the following tables and plots.*

**GMSK Modulation:**

Cellular Band (Part 22H)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
GSM	836.6	246.5	316.6

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
WCDMA (RMC 12.2kbps)	836.6	4.128	4.649

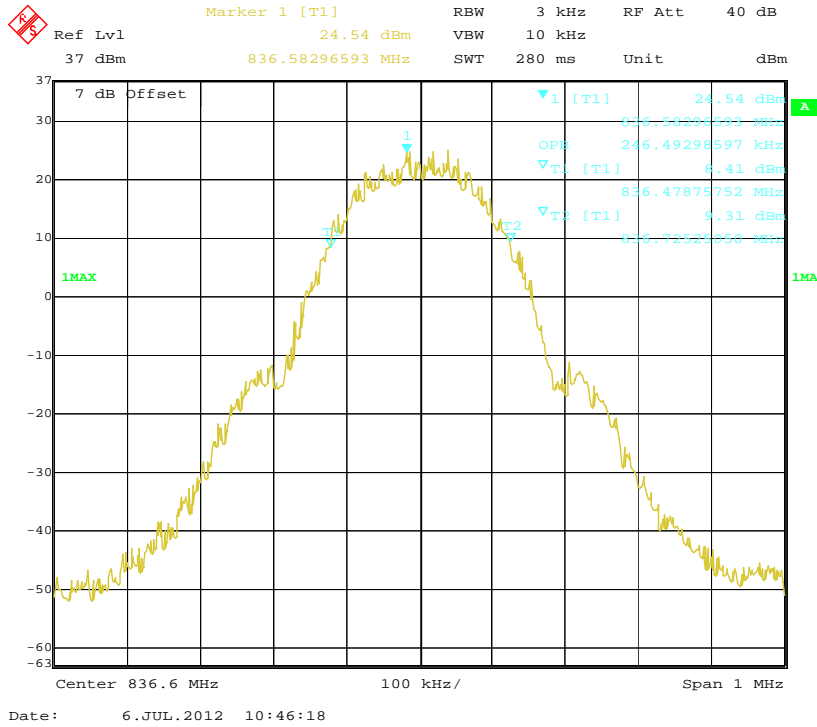
PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
GSM	1880.0	248.5	316.6

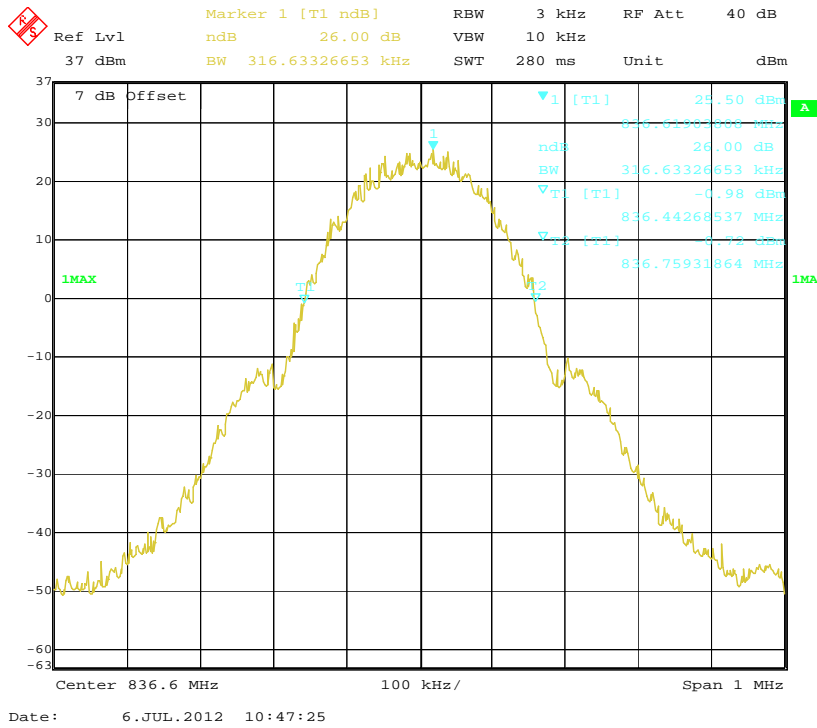
Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
WCDMA (RMC 12.2kbps)	1880.0	4.188	4.669

Cellular Band (Part 22H)

99% Occupied Bandwidth for GSM Mode

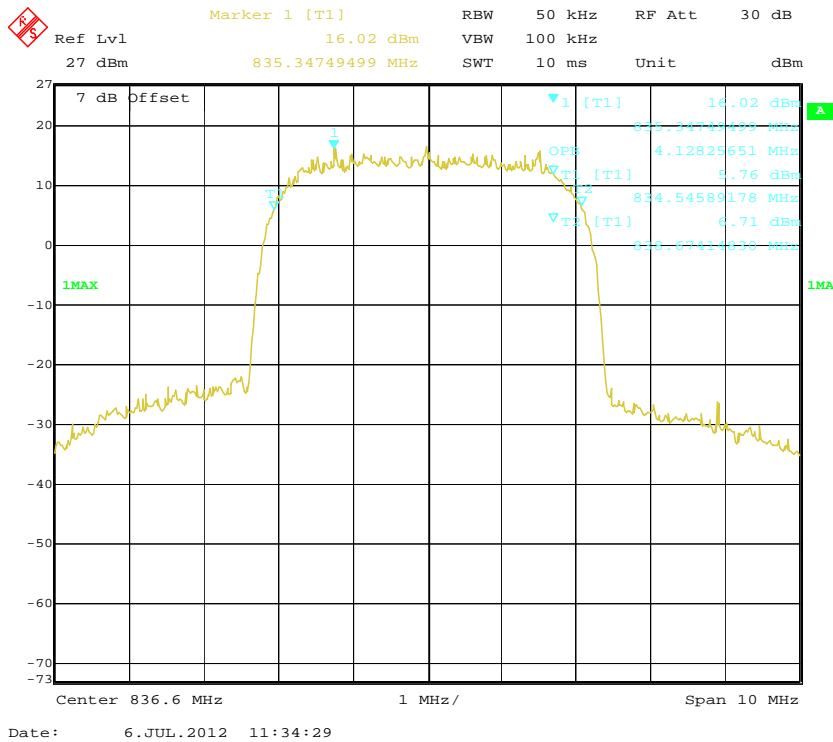


26 dB Bandwidth for GSM Mode

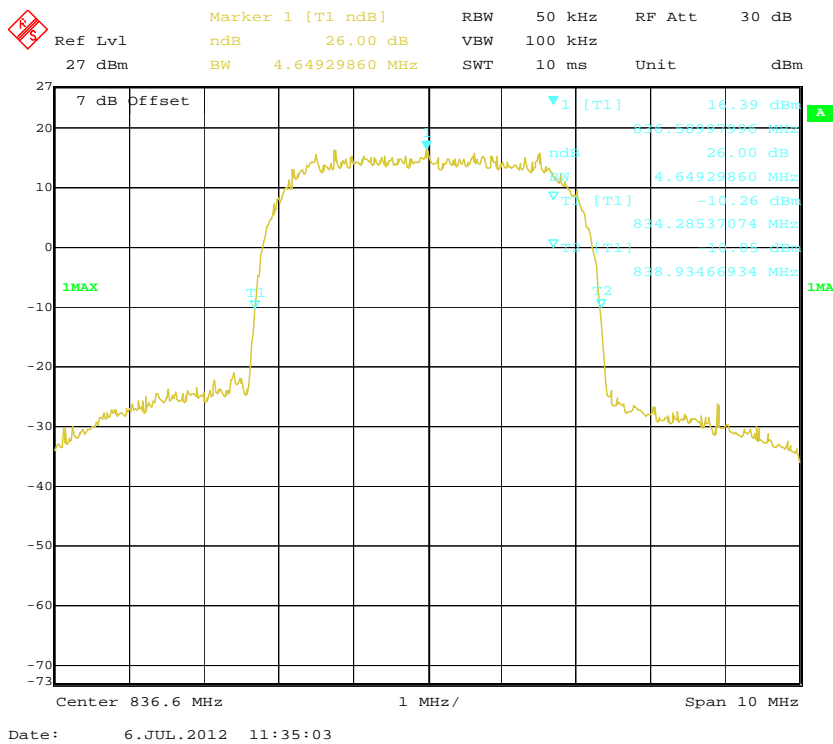




### 99% Occupied Bandwidth for WCDMA Mode

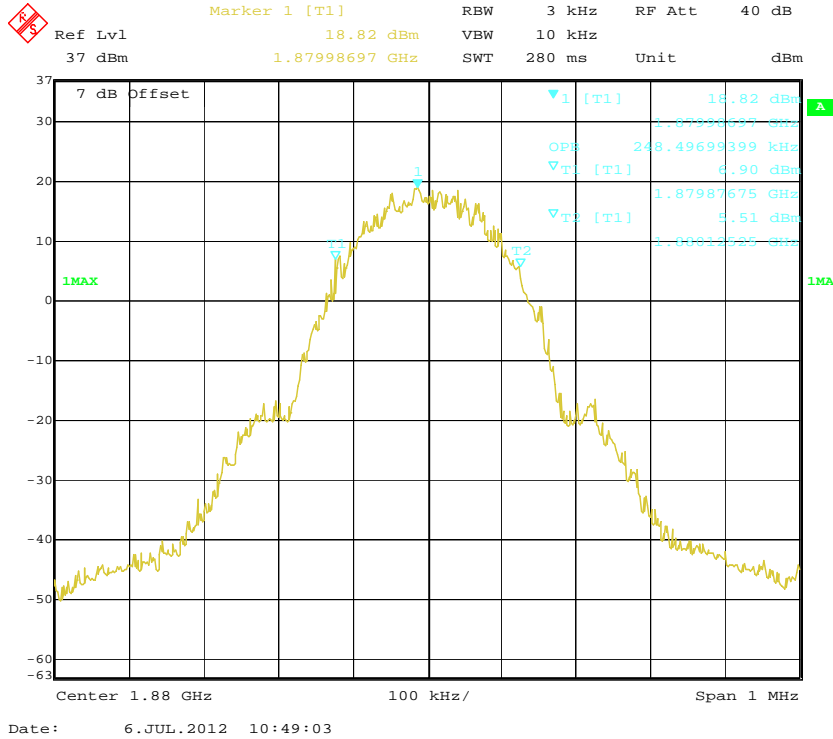


### 26 dB Bandwidth for WCDMA Mode

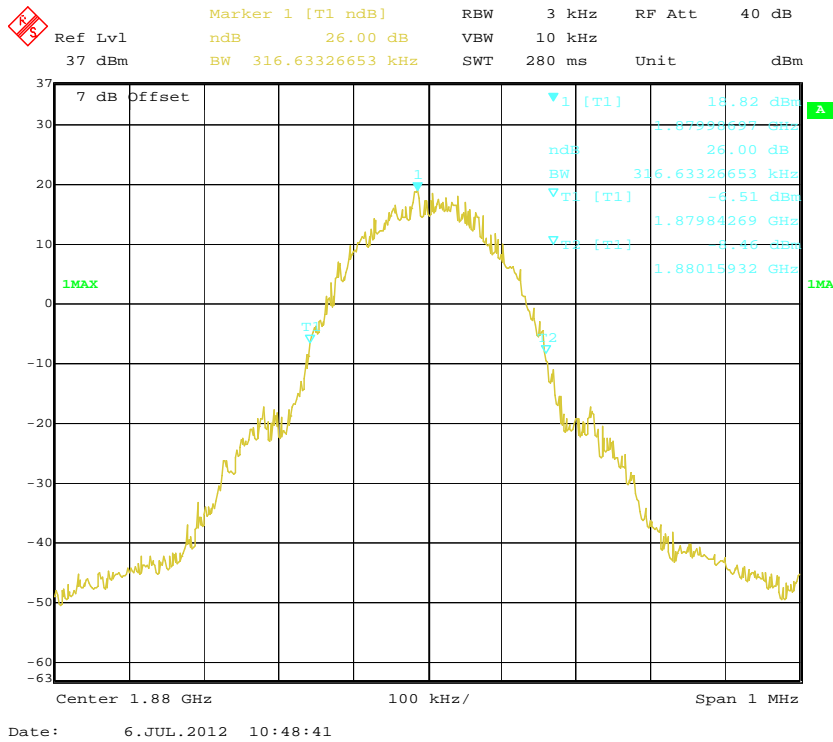


PCS Band (Part 24E)

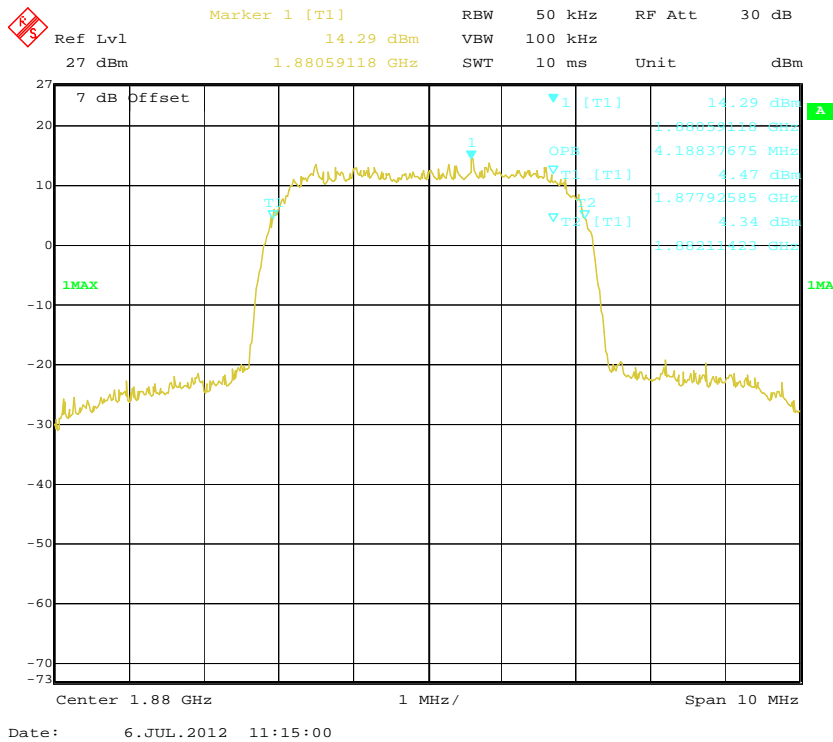
99% Occupied Bandwidth for GSM Mode



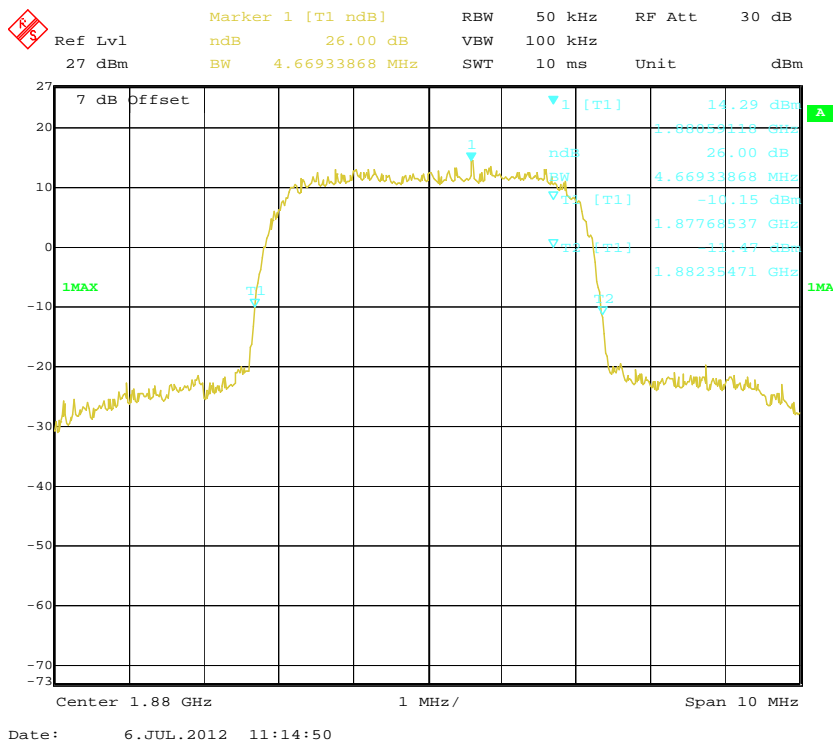
26 dB Bandwidth for GSM Mode



### 99% Occupied Bandwidth for WCDMA Mode



### 26 dB Bandwidth for WCDMA Mode



## FCC §2.1051, §22.917(a) & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

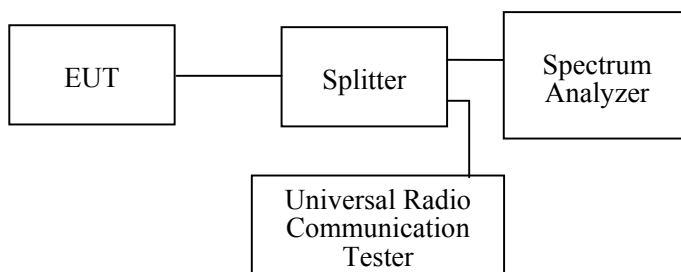
### Applicable Standard

FCC §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.

### 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 1 MHz. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.



### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements.

### Test Data

#### Environmental Conditions

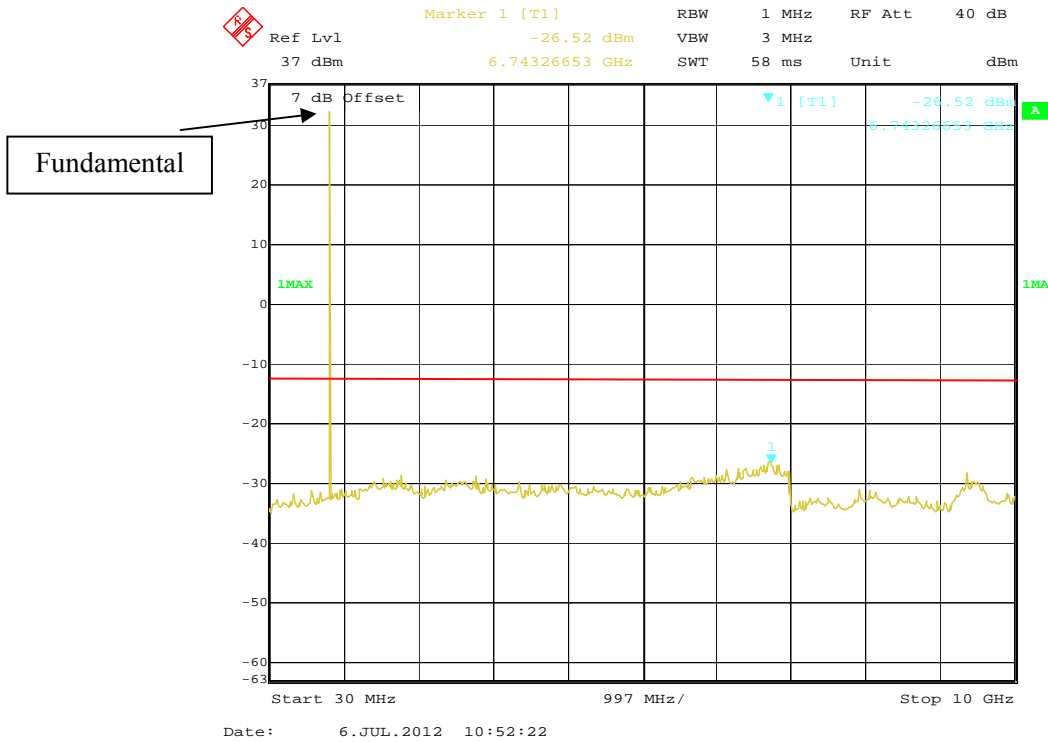
Temperature:	25°C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

*The testing was performed by Henry Ding on 2012-07-06.*

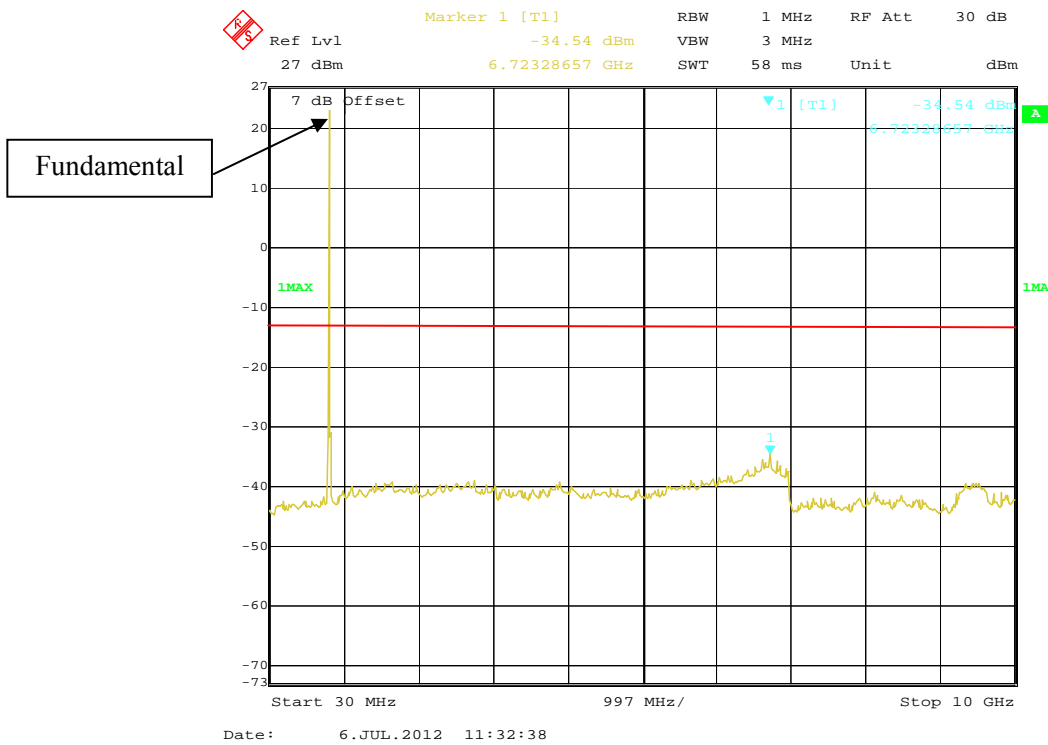
Please refer to the following plots.

Cellular Band (Part 22H)

GSM Mode: 30 MHz – 10 GHz - Middle Channel

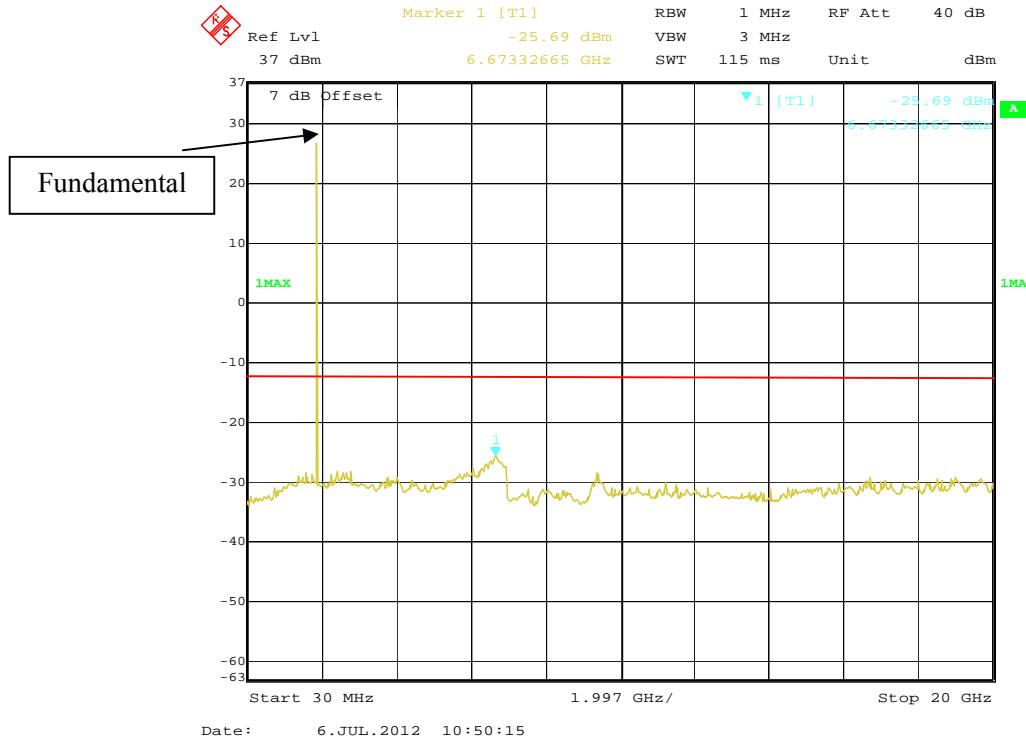


WCDMA Mode: 30 MHz – 10 GHz - Middle Channel

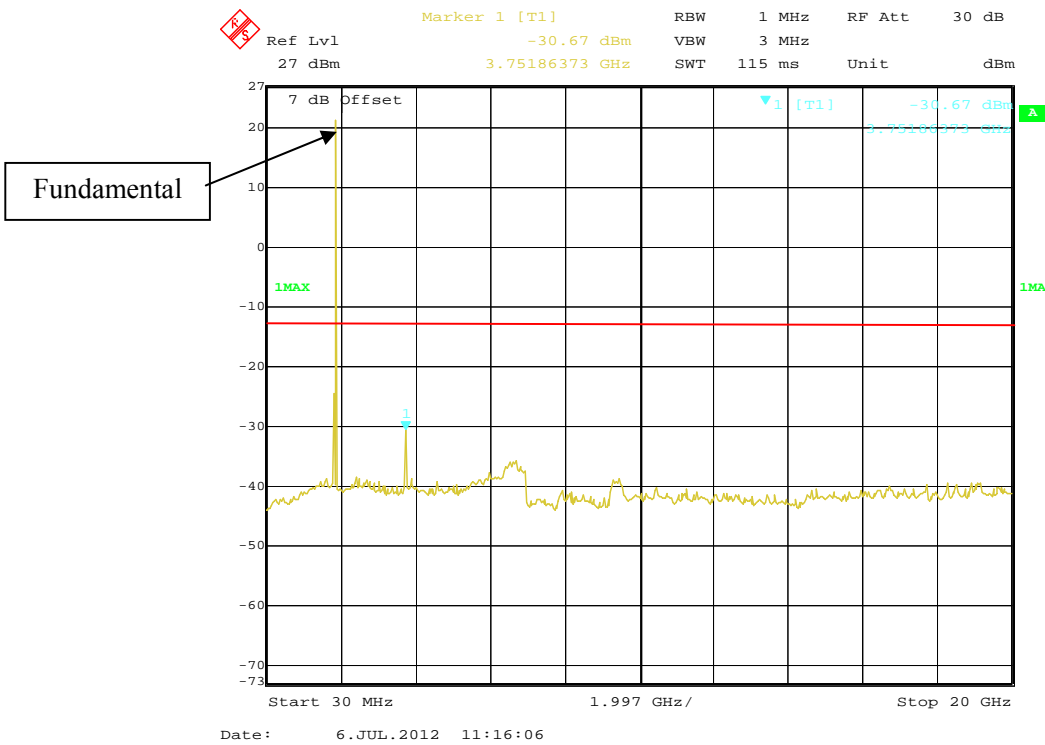


PCS Band (Part 24E)

GSM Mode: 30 MHz – 20 GHz - Middle Channel



WCDMA Mode: 30 MHz – 20 GHz - Middle Channel



## FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

### Applicable Standard

FCC § 2.1053, §22.917 and § 24.238.

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log<sub>10</sub> (power out in Watts)

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2012-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23
SUPER ULTRA	Amplifier	ZVA-213+	N/A	2011-11-24	2012-11-23
HP	Signal Generator	HP8657A	2849U00982	2011-10-21	2012-10-20
HP	Amplifier	HP8447D	2944A09795	2011-11-24	2012-11-23
HP	Synthesized Sweeper	8341B	2624A00116	2012-04-11	2013-04-10
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2013-02-10
Electro-Mechanics	Horn Antenna	3116	9510-2270	2011-10-14	2012-10-13
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25°C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

The testing was performed by Henry Ding on 2012-07-06.

Test mode: Transmitting

**30 MHz ~ 10 GHz:**

**Cellular Band (Part 22H) for GSM mode**

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dB)	Cable Loss (dB)			
Middle Channel											
2509.8	48.74	23	1.9	V	2509.8	-47.6	10.2	1.46	-38.86	-13	25.86
2509.8	52.25	23	1.7	H	2509.8	-48.5	10.2	1.46	-39.76	-13	26.76
3346.4	41.82	86	1.8	V	3346.4	-51.7	11.5	2.08	-42.28	-13	29.28
3346.4	38.36	8	1.7	H	3346.4	-56.1	11.5	2.08	-46.68	-13	33.68
1673.2	44.02	55	1.8	V	1673.2	-56.4	9.0	0.97	-48.37	-13	35.37
1673.2	44.09	296	1.9	H	1673.2	-58.9	9.0	0.97	-50.87	-13	37.87

**Cellular Band (Part 22H) for WCDMA mode**

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dB)	Cable Loss (dB)			
Middle Channel											
2509.8	49.87	55	1.7	V	2509.8	-46.5	10.2	1.46	-37.76	-13	24.76
1673.2	55.76	132	1.8	H	1673.2	-47.3	9.0	0.97	-39.27	-13	26.27
2509.8	49.13	42	1.7	H	2509.8	-51.6	10.2	1.46	-42.86	-13	29.86
3346.4	40.76	77	1.7	V	3346.4	-52.8	11.5	2.08	-43.38	-13	30.38
1673.2	48.33	46	1.9	V	1673.2	-52.1	9.0	0.97	-44.07	-13	31.07
3346.4	39.66	47	1.8	H	3346.4	-54.8	11.5	2.08	-45.38	-13	32.38



**30 MHz ~ 20 GHz:**

**PCS Band (Part 24E) for GSM mode**

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dB)	Cable Loss (dB)			
Middle Channel											
3760.0	49.19	46	1.7	V	3760.0	-47.0	12.0	2.96	-37.96	-13	24.96
5640.0	42.66	66	1.5	V	5640.0	-48.5	12.4	3.94	-40.04	-13	27.04
3760.0	47.74	68	1.9	H	3760.0	-49.2	12.0	2.96	-40.16	-13	27.16
5640.0	42.67	4	1.9	H	5640.0	-49.7	12.4	3.94	-41.24	-13	28.24
7520.0	39.23	53	1.8	H	7520.0	-49.0	10.5	3.07	-41.57	-13	28.57
7520.0	37.58	33	1.7	V	7520.0	-51.8	10.5	3.07	-44.37	-13	31.37

**PCS Band (Part 24E) for WCDMA mode**

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBμV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dB)	Cable Loss (dB)			
Middle Channel											
3760.0	57.64	43	1.7	V	3760.0	-38.5	12.0	2.96	-29.46	-13	16.46
3760.0	57.08	38	1.7	H	3760.0	-39.9	12.0	2.96	-30.86	-13	17.86
7520.0	42.88	46	1.9	V	7520.0	-46.5	10.5	3.07	-39.07	-13	26.07
7520.0	41.63	2	1.7	H	7520.0	-46.6	10.5	3.07	-39.17	-13	26.17
5640.0	39.98	34	1.9	H	5640.0	-52.4	12.4	3.94	-43.94	-13	30.94
5640.0	38.52	33	1.7	V	5640.0	-52.6	12.4	3.94	-44.14	-13	31.14

## FCC §22.917(a) & §24.238(a) - BAND EDGES

### Applicable Standard

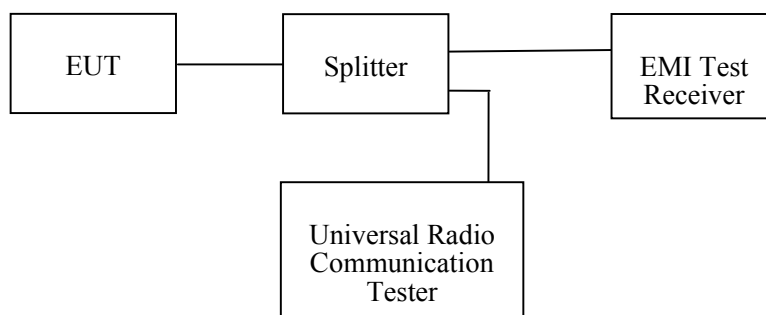
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

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.

### 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.



### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements.

### Test Data

#### Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

*The testing was performed by Henry Ding on 2012-07-03.*

*Test Mode: Transmitting*

*Test Result: Compliance. Please refer to the following tables and plots.*

**Cellular Band (Part 22H)**

Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
GSM	823.976	-14.20	≤-13
	849.020	-13.29	≤-13

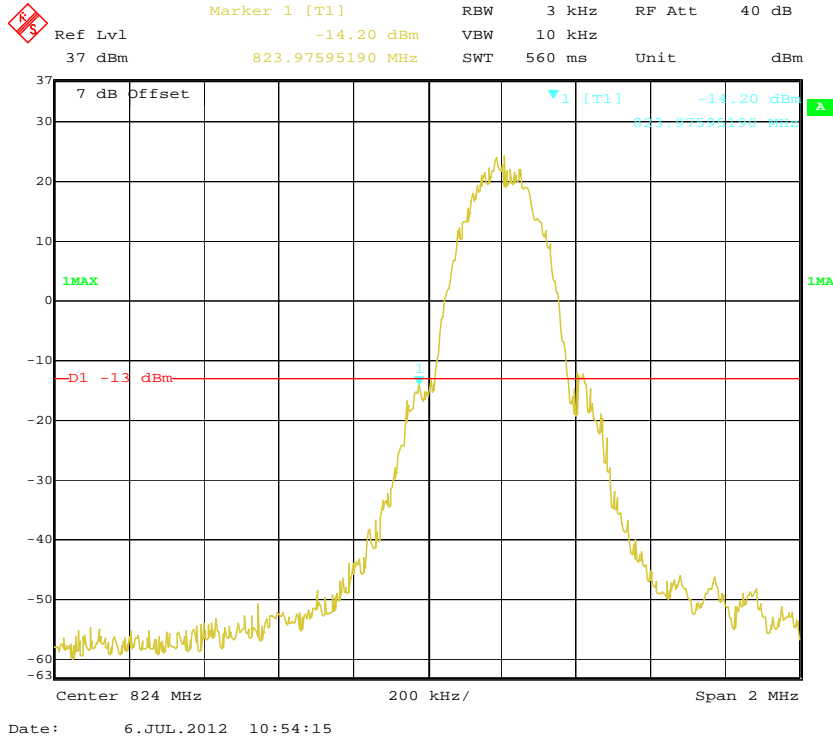
Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
WCDMA	824.000	-22.81	≤-13
	849.000	-13.17	≤-13

**PCS Band (Part 24E)**

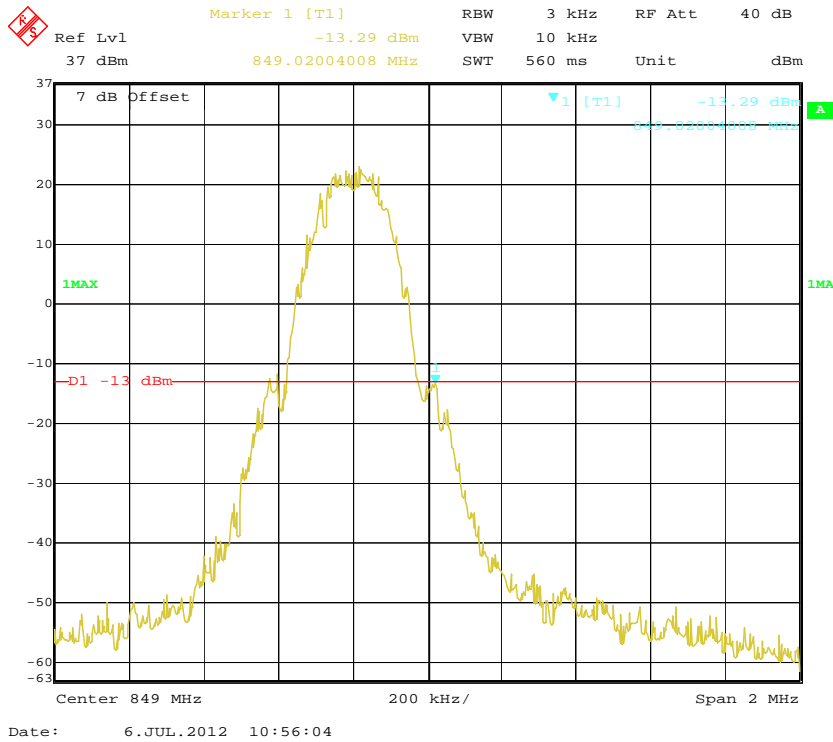
Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
GSM	1849.980	-18.38	≤-13
	1910.020	-17.36	≤-13

Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
WCDMA	1850.000	-22.79	≤-13
	1910.000	-13.24	≤-13

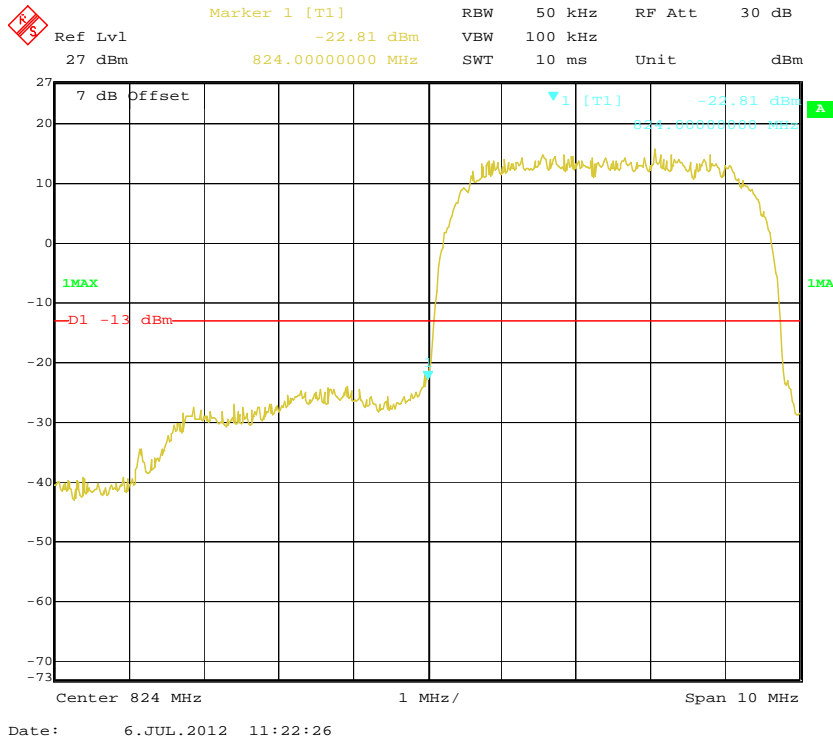
### Cellular Band, Left Band Edge for GSM Mode



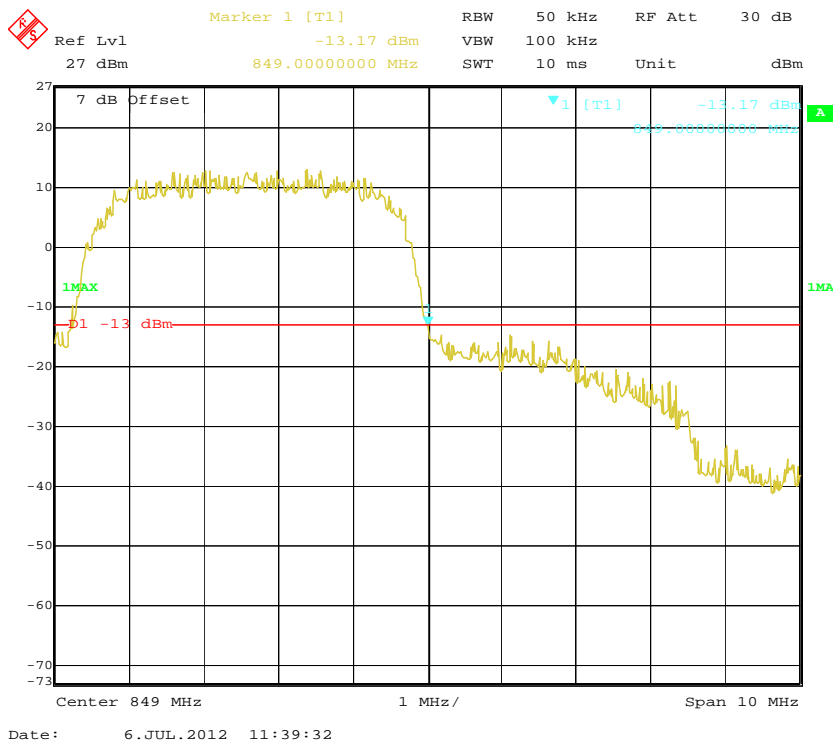
### Cellular Band, Right Band Edge for GSM Mode



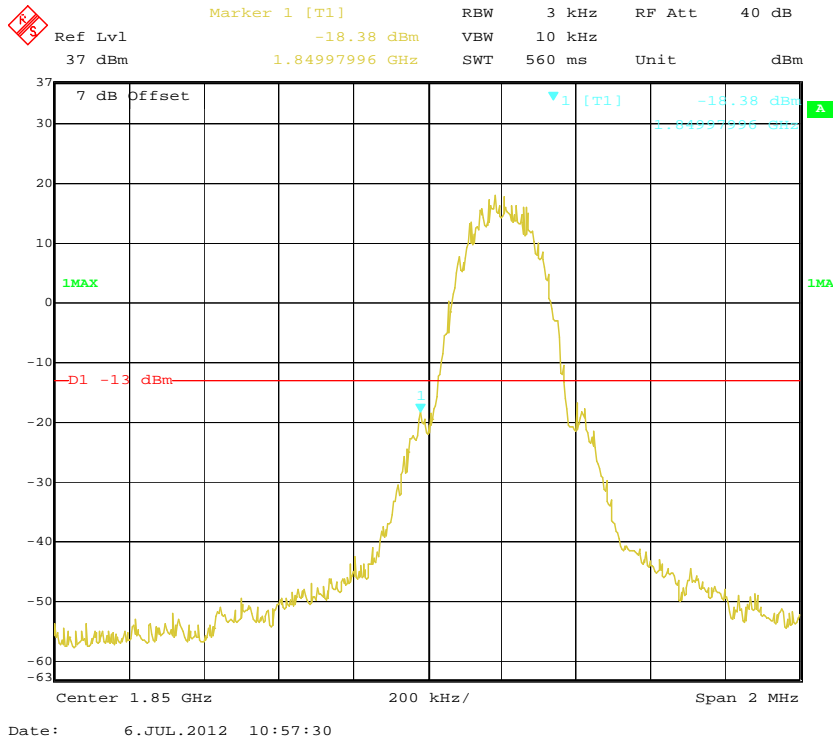
**Cellular Band, Left Band Edge for WCDMA Mode**



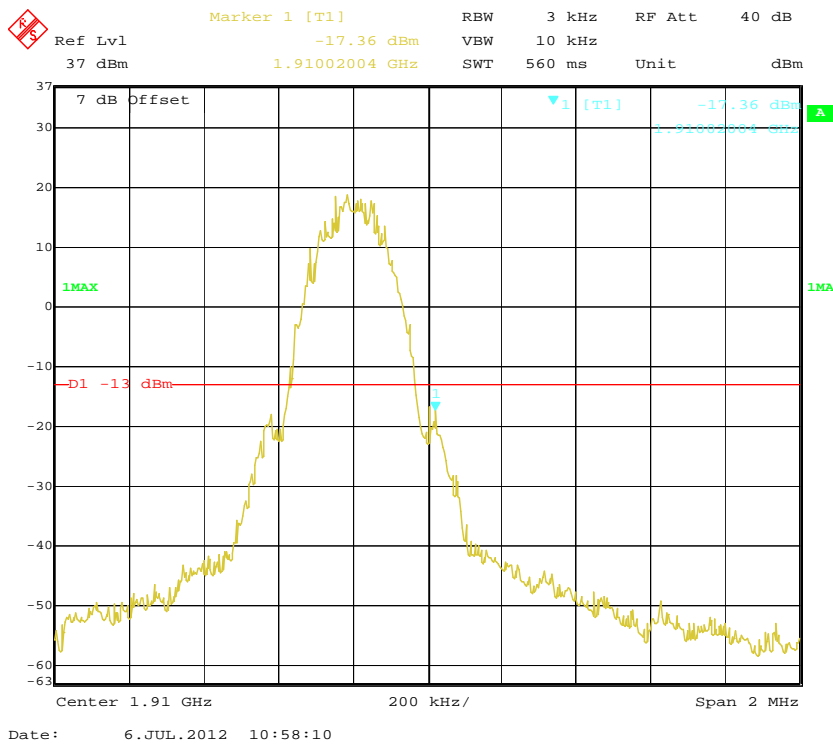
**Cellular Band, Right Band Edge for WCDMA Mode**



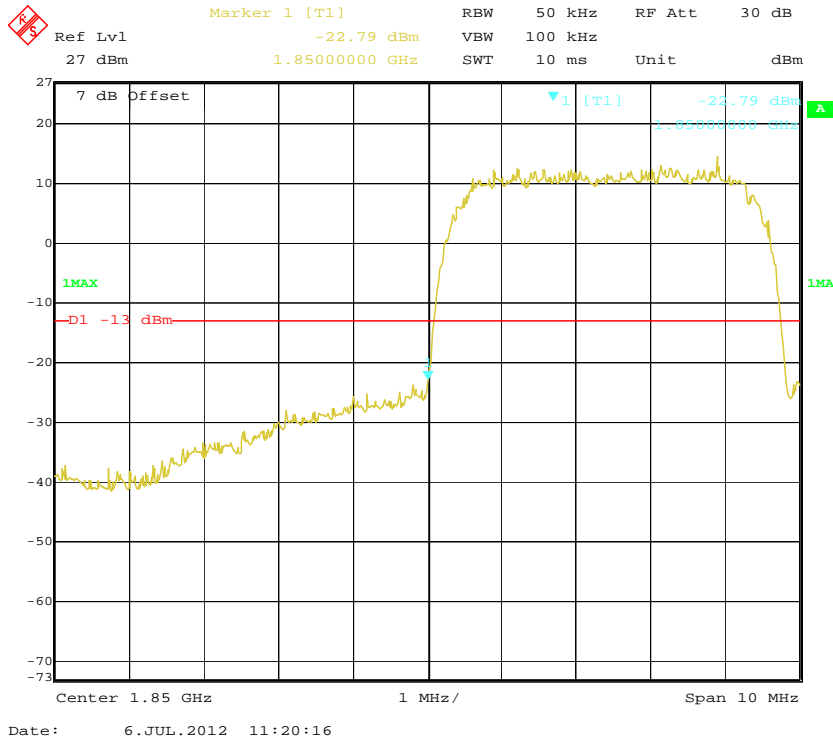
### PCS Band, Left Band Edge for GSM Mode



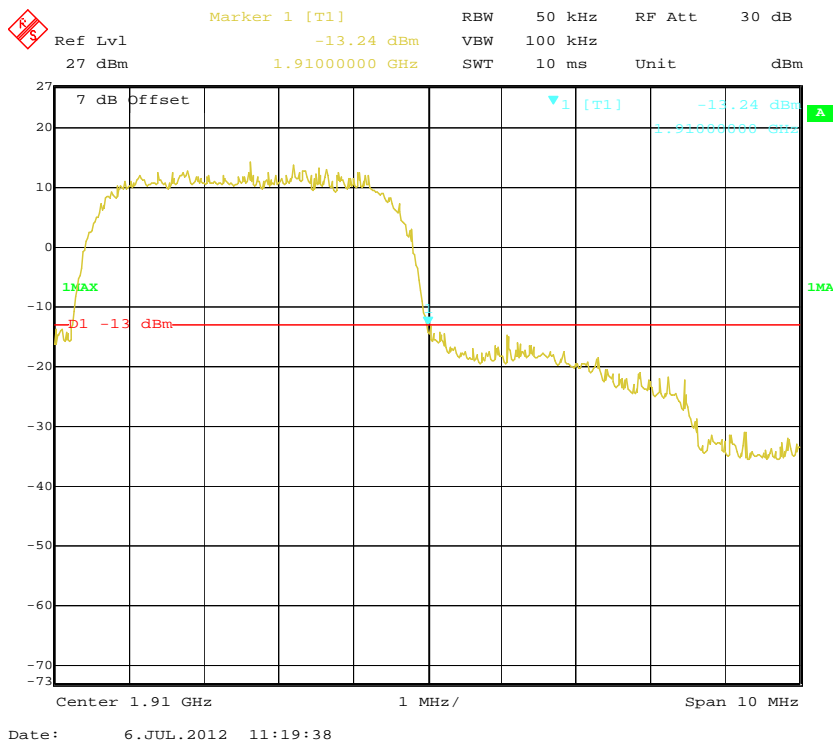
### PCS Band, Right Band Edge for GSM Mode



**PCS Band, Left Band Edge for WCDMA Mode**



**PCS Band, Right Band Edge for WCDMA Mode**



**FCC §2.1055, §22.355 & §24.235 - FREQUENCY STABILITY**

**Applicable Standard**

FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235&§ 27.54

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

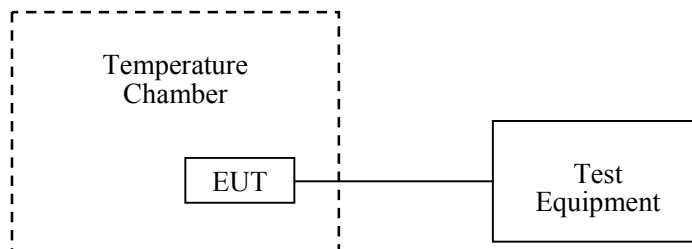
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

**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 20 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.





**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2011-11-24	2012-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements.

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	25°C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

The testing was performed by Henry Ding on 2012-07-06.

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following tables.

**Cellular Band (Part 22H)**

**GSM mode**

Middle Channel, $f_0 = 836.6$ MHz					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	
50	3.7	-14	-0.0167	2.5	
40		-18	-0.0215	2.5	
30		-16	-0.0191	2.5	
20		-23	-0.0275	2.5	
10		-21	-0.0251	2.5	
0		-28	-0.0335	2.5	
-10		-9	-0.0108	2.5	
-20		-6	-0.0072	2.5	
-30		-7	-0.0084	2.5	
25		V <sub>max.</sub> = 4.2	-5	-0.0060	2.5
25		V <sub>min.</sub> = 3.5	-13	-0.0155	2.5

**WCDMA mode**

<b>Middle Channel, <math>f_0=836.6\text{MHz}</math></b>				
<b>Temperature (°C)</b>	<b>Power Supplied (V<sub>DC</sub>)</b>	<b>Frequency Error (Hz)</b>	<b>Frequency Error (ppm)</b>	<b>Limit (ppm)</b>
50	3.7	-18	-0.0215	2.5
40		-20	-0.0239	2.5
30		-26	-0.0311	2.5
20		-30	-0.0359	2.5
10		-26	-0.0311	2.5
0		-28	-0.0335	2.5
-10		-11	-0.0131	2.5
-20		-13	-0.0155	2.5
-30		-14	-0.0167	2.5
25		V <sub>max.</sub> =4.2	-8	-0.0096
25	V <sub>min.</sub> = 3.5	-15	-0.0179	2.5

**PCS Band (Part 24E)**

**GSM mode**

<b>Middle Channel, <math>f_0=1880.0\text{ MHz}</math></b>				
<b>Temperature (°C)</b>	<b>Power Supplied (V<sub>DC</sub>)</b>	<b>Frequency Error (Hz)</b>	<b>Frequency Error (ppm)</b>	<b>Result</b>
50	3.7	-6	-0.0032	Pass
40		-8	-0.0043	Pass
30		-7	-0.0037	Pass
20		-12	-0.0064	Pass
10		-9	-0.0048	Pass
0		-11	-0.0059	Pass
-10		-10	-0.0053	Pass
-20		-12	-0.0064	Pass
-30		-15	-0.0080	Pass
25		V <sub>max.</sub> =4.2	-7	-0.0037
25	V <sub>min.</sub> = 3.5	-9	-0.0048	Pass

**WCDMA mode**

Middle Channel, $f_o=1880.0$ MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Result
50	3.7	-16	-0.0085	Pass
40		-18	-0.0096	Pass
30		-17	-0.0090	Pass
20		-22	-0.0117	Pass
10		-24	-0.0128	Pass
0		-18	-0.0096	Pass
-10		-19	-0.0101	Pass
-20		-14	-0.0074	Pass
-30		-15	-0.0080	Pass
25		V <sub>max</sub> =4.2	-9	-0.0048
25	V <sub>min</sub> = 3.5	-14	-0.0074	Pass

**\*\*\*\*\* END OF REPORT \*\*\*\*\***