FCC PART 22H, PART 24E

TEST REPORT

For

COMERCIALIZADORA MILENIO SA DE CV

Vasco De Quiroga 3900 Office 704, Mexico City 05300

FCC ID: 2ABD2PSPC505

Report Type:	Product Type:
Original Report	Cosmo 505 (Mobile Phone)

Test Engineer:	Haiguo Li
Report Number:	RSZ131111001-00D
Report Date:	2013-11-28
Reviewed By:	Jimmy Xiao RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *COMERCIALIZADORA MILENIO SA DE CV*'s product, model number: *PSPC505 (FCC ID: 2ABD2PSPC505)* or the "EUT" in this report was a *Mobile Phone,* named as *Cosmo 505* by applicant, which was measured approximately: 14.9 cm (L) x 7.2 cm (W) x 1.0 cm (H), rated input voltage: DC 3.7 V Li-ion battery.

** All measurement and test data in this report was gathered from production sample serial number: 1311021 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2013-11-11.*

Objective

This test report is prepared on behalf of *COMERCIALIZADORA MILENIO SA DE CV* 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, Part 15.247 DTS and Part 15B JBP submissions with FCC ID: 2ABD2PSPC505.

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-D, 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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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

GSM:
The following tests were conducted according to the test requirements outlines in section 13.3 of the 3GPP TS 51.010-1 specification. The EUT has a nominal maximum output power of 33dBm (+3/-3) for GSM 850, 30dBm (+3/-3) for PCS 1900.

GPRS:
The following tests were conducted according to the test requirements outlines in section 13.16 of the 3GPP TS 51.010-1 specification. The EUT has a nominal maximum output power of 33dBm (+3/-3) for GSM 850, 30dBm (+3/-3) for PCS 1900.

WCDMA-Release 99:

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

WCDMA General Settings	**Loopback Mode**	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc /βd	8/15

WCDMA HSDPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	D_{CQI}	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs= βhs/βc	30/15			

WCDMA HSUPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	Ahs=βhs/βc	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCIs	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	

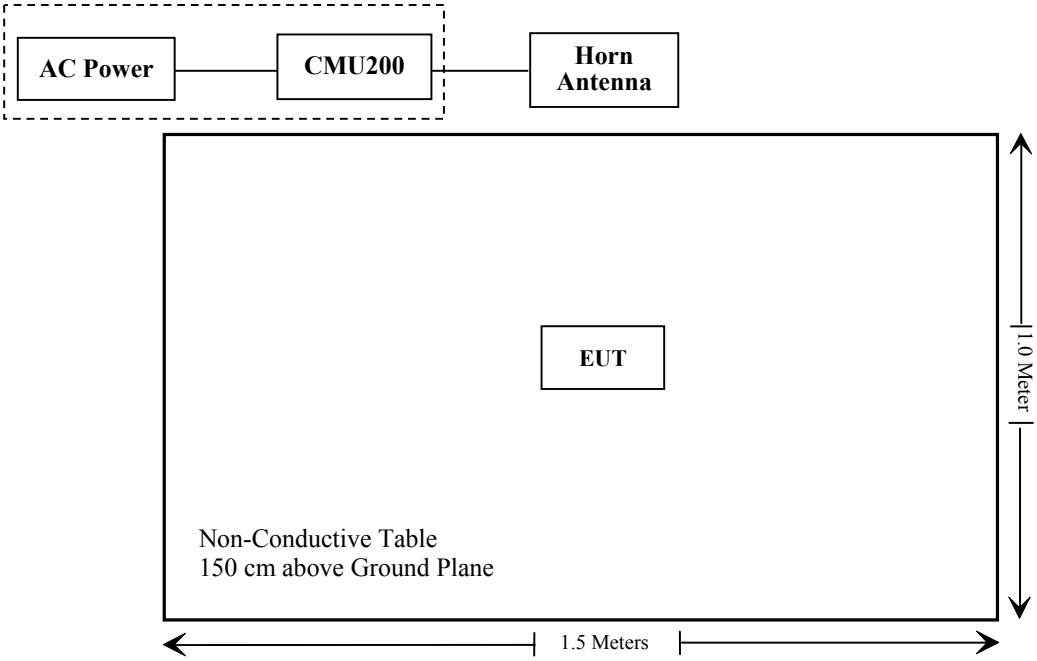
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

Note: * Please refer to SAR report released by BACL, report number: RSZ131111001-20

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ131111001-20

FCC §2.1047 - 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.

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

Applicable Standard

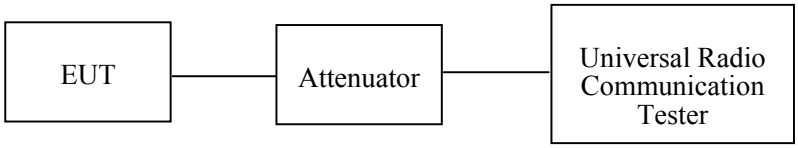
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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-D 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	2012-11-30	2013-11-30
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2012-11-27	2013-11-27
HP	Synthesized Sweeper	8341B	2624A00116	2013-05-09	2014-05-09
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-09-17	2014-09-17
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-11-23	2013-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2013-11-12.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
GSM	128	824.2	31.44	38.45
	190	836.6	31.45	38.45
	251	848.8	31.45	38.45

Mode	Channel	Frequency (MHz)	Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	31.42	28.33	27.25	25.19	38.45
	190	836.6	31.44	28.37	27.27	25.23	38.45
	251	848.8	31.45	28.40	27.29	25.24	38.45

Mode	Test Condition	Test Mode	3GPP Sub Test	Conducted Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		21.81	22.24	21.86
		Rel 5 HSDPA	1	21.75	22.09	21.50
			2	21.68	22.10	21.53
			3	21.49	22.12	21.43
			4	21.76	22.14	21.48
		Rel 6 HSUPA	1	21.21	21.20	20.18
			2	21.19	21.15	20.15
			3	21.23	21.21	20.22
			4	21.17	21.23	20.19
			5	21.08	21.14	20.24

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.18	33
	661	1880.0	29.16	33
	810	1909.8	29.00	33

Mode	Channel	Frequency (MHz)	Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.14	26.04	25.06	23.09	33
	661	1880.0	29.10	26.02	25.05	23.05	33
	810	1909.8	28.94	25.92	24.92	22.95	33

Mode	Test Condition	Test Mode	3GPP Sub Test	Conducted Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		22.85	21.83	22.10
		Rel 5 HSDPA	1	21.58	21.26	21.19
			2	21.62	21.21	21.34
			3	21.54	21.29	21.21
			4	21.66	21.32	21.08
		Rel 6 HSUPA	1	21.45	20.42	20.27
			2	21.41	20.41	20.21
			3	21.52	20.45	20.31
			4	21.49	20.35	20.34
			5	21.56	20.38	20.28

Radiated Power (Measured at Max. conducted power channel)

ERP & EIRP

GSM Mode:

Frequency (MHz)	Receiver Reading (dBμV)	TurnTable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	S.G. Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
GSM850, Middle channel										
836.6	102.14	150	1.6	H	28.3	0.68	0	27.72	38.45	10.83
836.6	103.28	210	1.4	V	30.5	0.68	0	29.82	38.45	8.63
PCS 1900, Low Channel										
1850.2	89.15	250	1.4	H	17.1	1.03	9.40	25.47	33	7.53
1850.2	92.24	150	1.5	V	19.9	1.03	9.40	28.27	33	4.73

WCDMA Mode:

Frequency (MHz)	Receiver Reading (dBμV)	TurnTable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	S.G. Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA 850, Middle channel										
836.6	92.47	270	1.1	H	18.2	0.68	0	17.52	38.45	20.93
836.6	93.65	25	1.2	V	20.4	0.68	0	19.72	38.45	18.73
WCDMA 1900, Low Channel										
1852.4	80.21	75	1.6	H	9.9	1.03	9.40	18.27	33	14.73
1852.4	83.62	160	1.4	V	10.8	1.03	9.40	19.17	33	13.83

Note: all above data were tested with no amplifier.

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

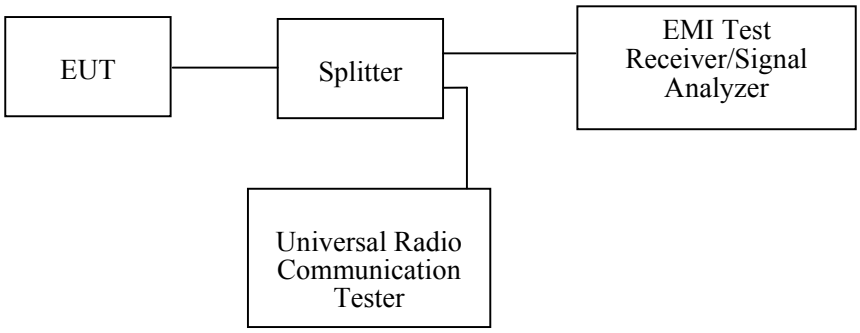
Applicable Standard

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.

The resolution bandwidth of the spectrum analyzer was set at 3 kHz (Cellular /PCS) and the 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2013-11-23	2014-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	24~26 ℃
Relative Humidity:	55~56 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Haiguo Li on 2013-11-16 and 2013-12-02.

EUT operation mode: Transmitting

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

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GMSK	190	836.6	244.5	320.6

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA (Band V)	4183	836.6	4.148	4.709

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
HSUPA (BPSK)	4183	836.6	4.168	4.809

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
HSDPA (16QAM)	4183	836.6	4.168	4.729

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GMSK	661	1880.0	246.5	314.6

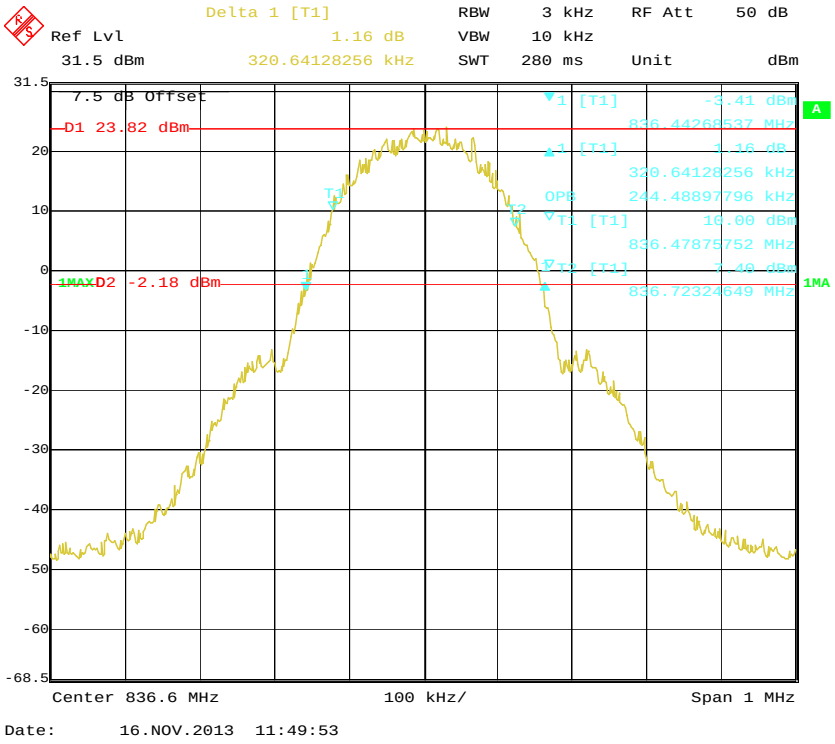
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA (Band II)	9400	1880.0	4.168	4.749

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
HSUPA (BPSK)	9400	1880.0	4.168	4.729

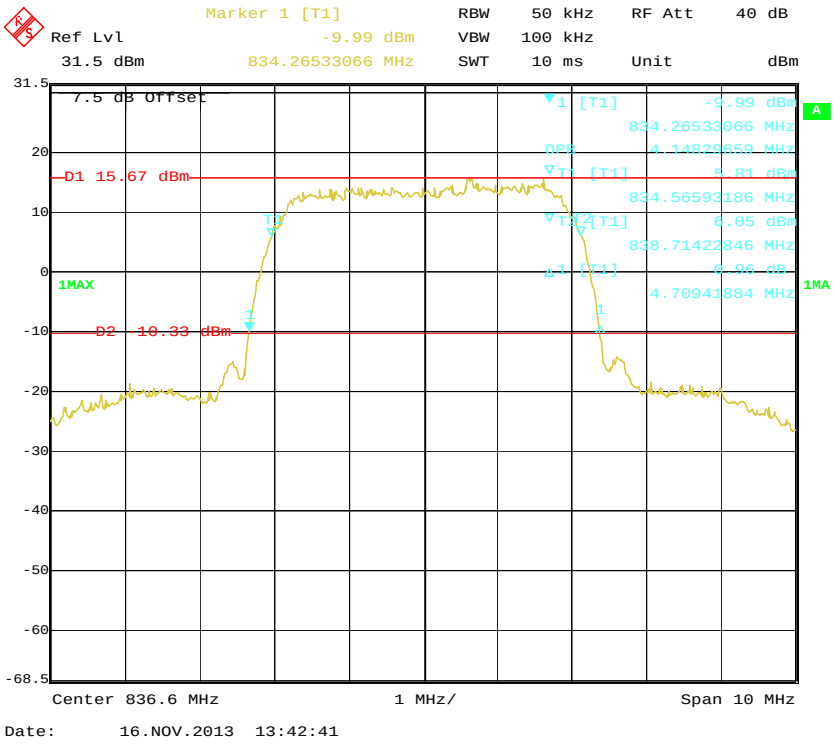
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
HSDPA (16QAM)	9400	1880.0	4.148	4.709

Cellular Band (Part 22H)

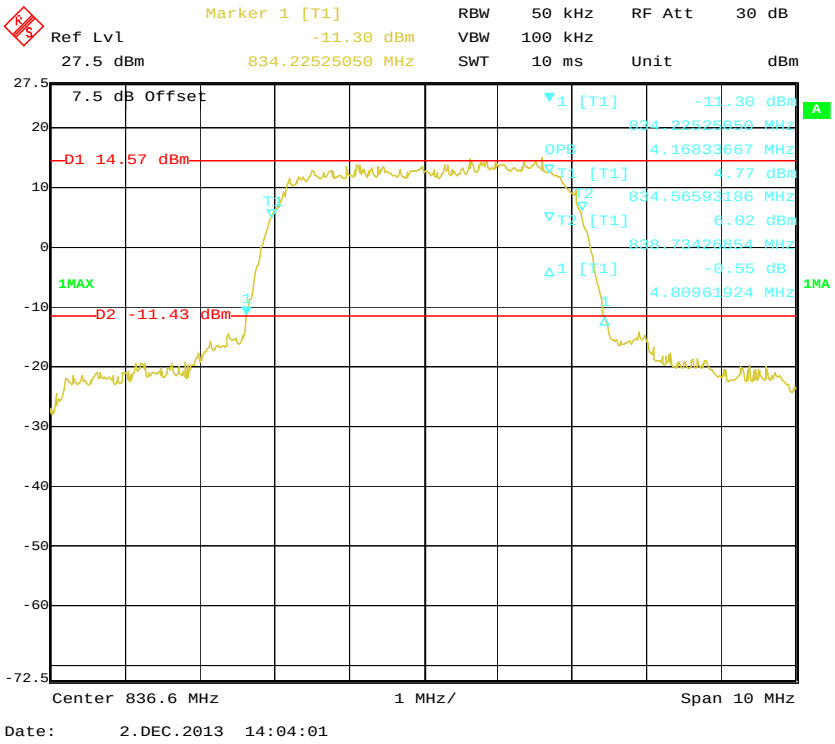
99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) Mode



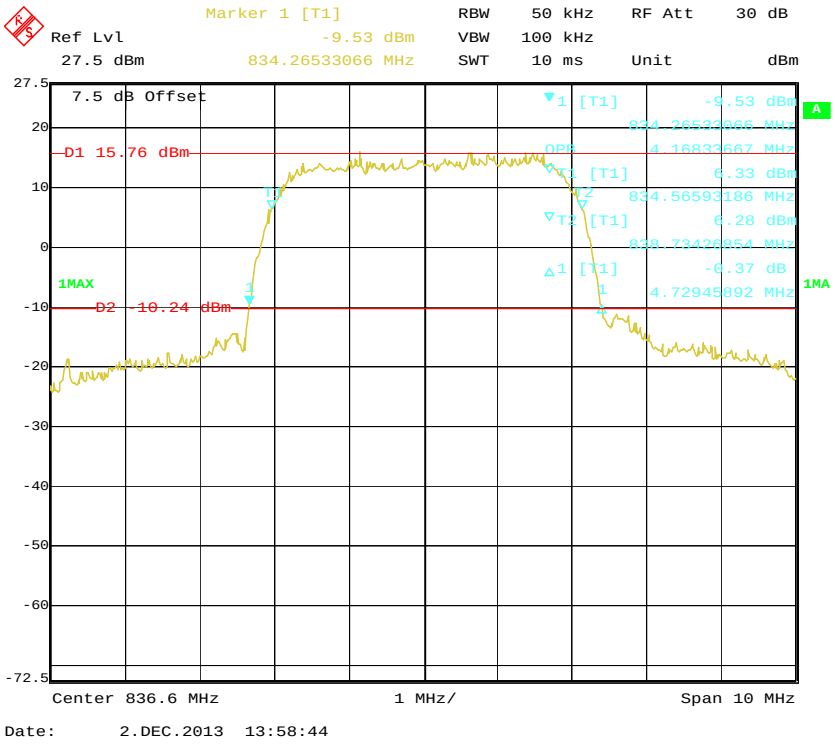
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (BPSK) Mode



99% Occupied & 26 dB Emissions Bandwidth for HSUPA (BPSK) Mode

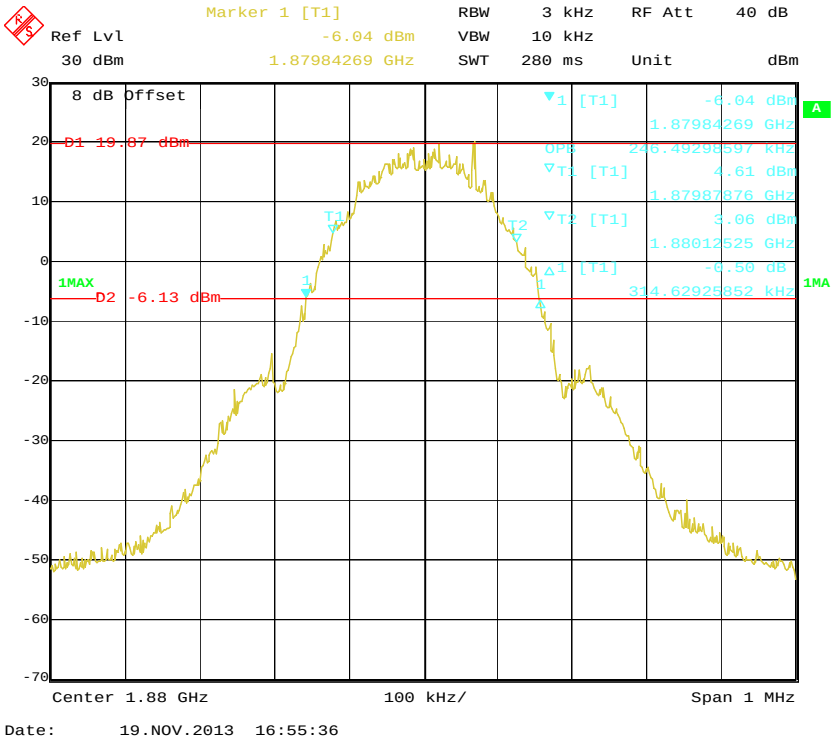


99% Occupied & 26 dB Emissions Bandwidth for HSDPA (16QAM) Mode

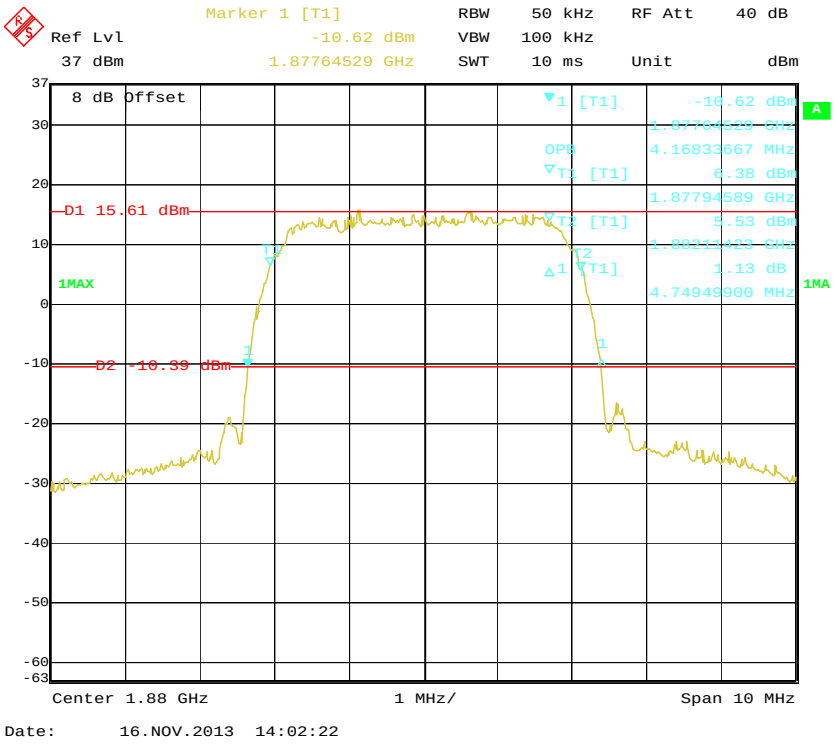


PCS Band (Part 24E)

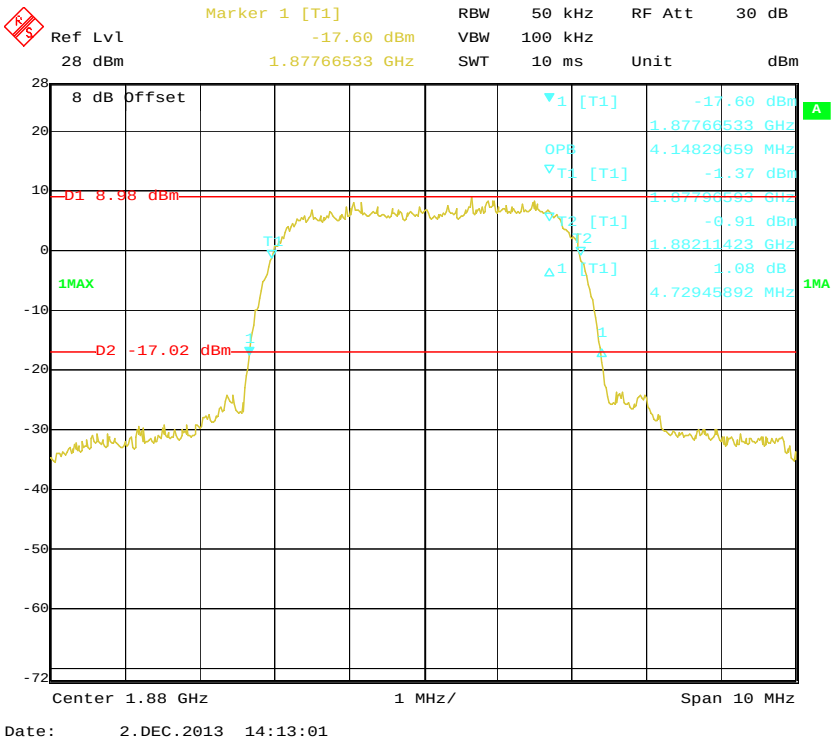
99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) Mode



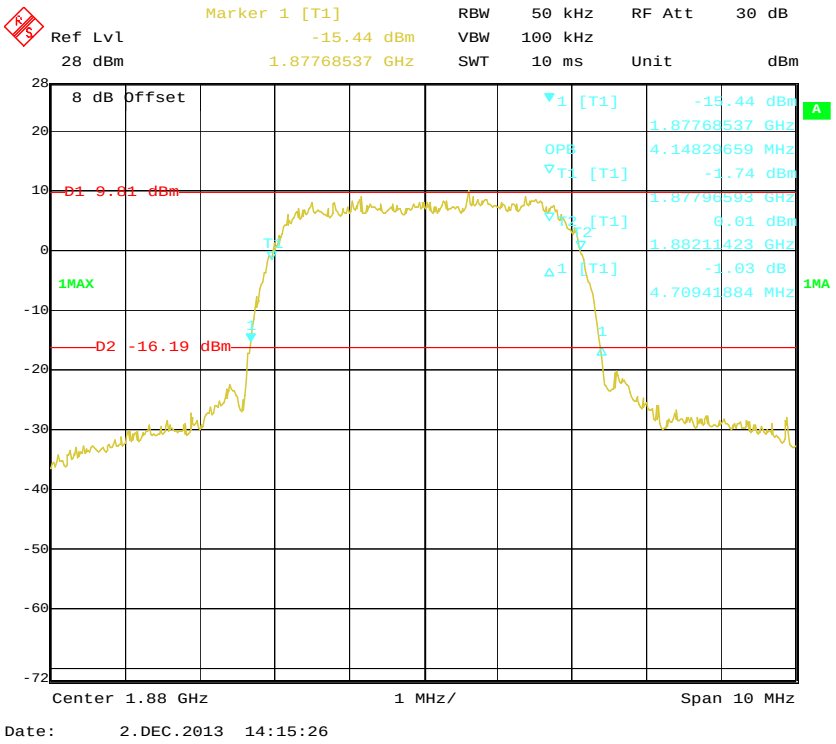
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (BPSK) Mode



99% Occupied & 26 dB Emissions Bandwidth for HSUPA (BPSK) Mode



99% Occupied & 26 dB Emissions Bandwidth for HSDPA (16QAM) Mode



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

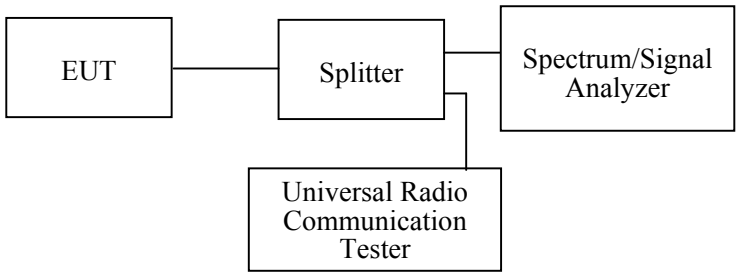
Applicable Standard

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 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-11-23	2013-11-23
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

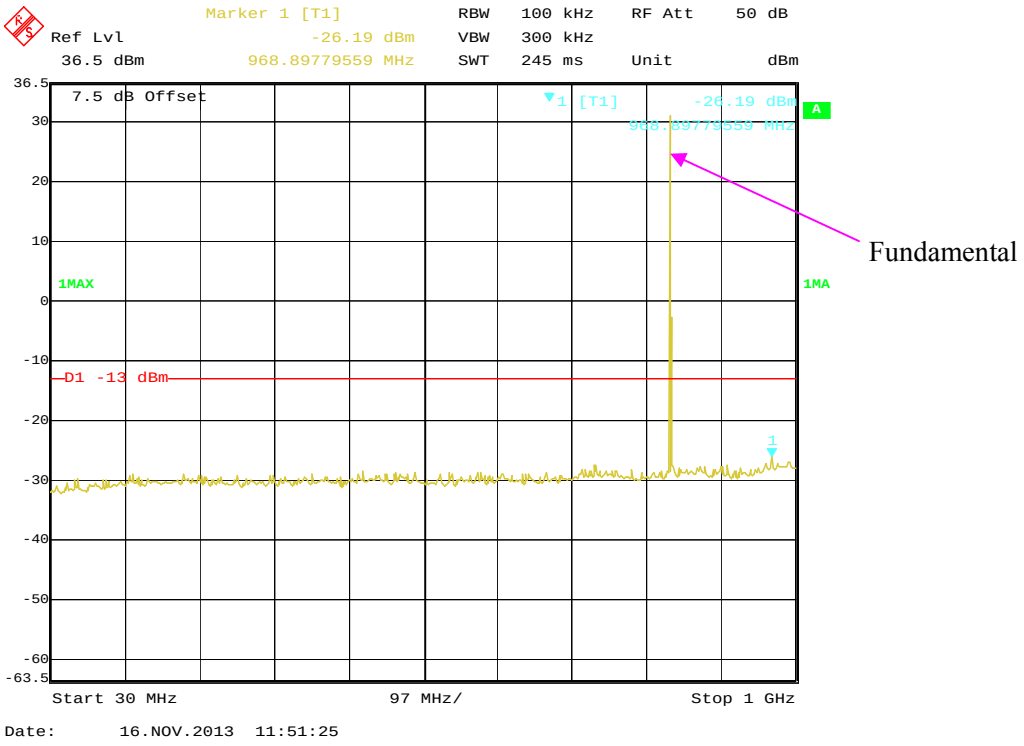
Temperature:	26 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2013-11-16.

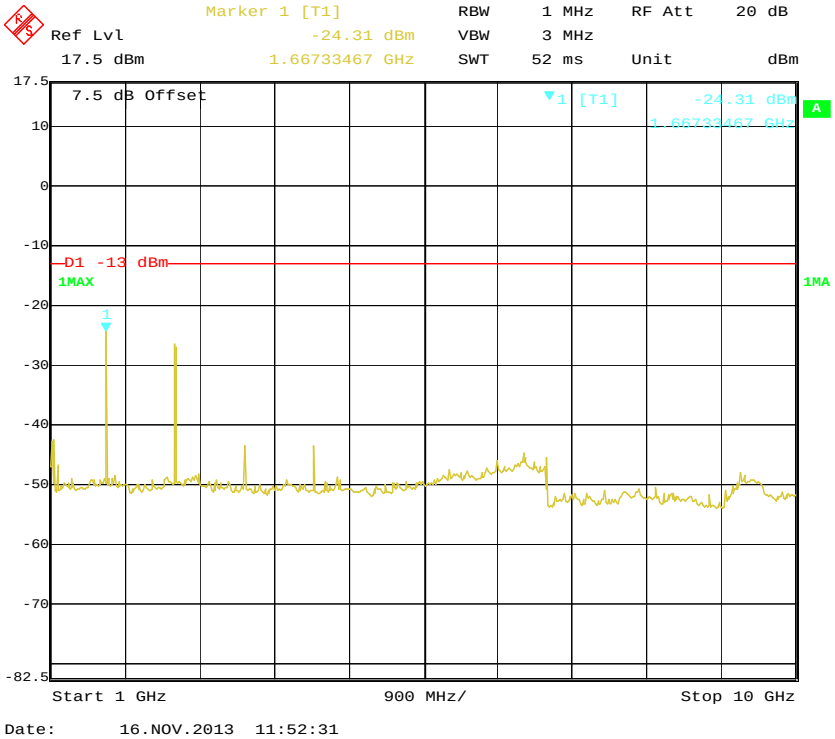
Test result: Compliance, please refer to the following plots.

Cellular Band (Part 22H)

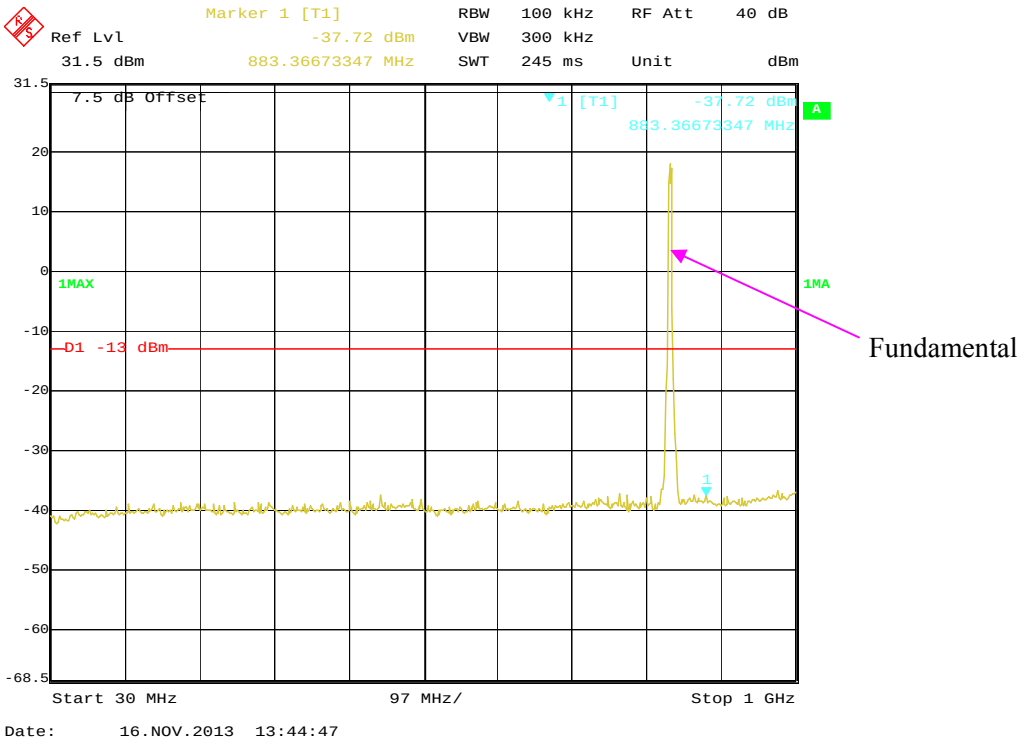
30 MHz – 1 GHz (GSM Mode)



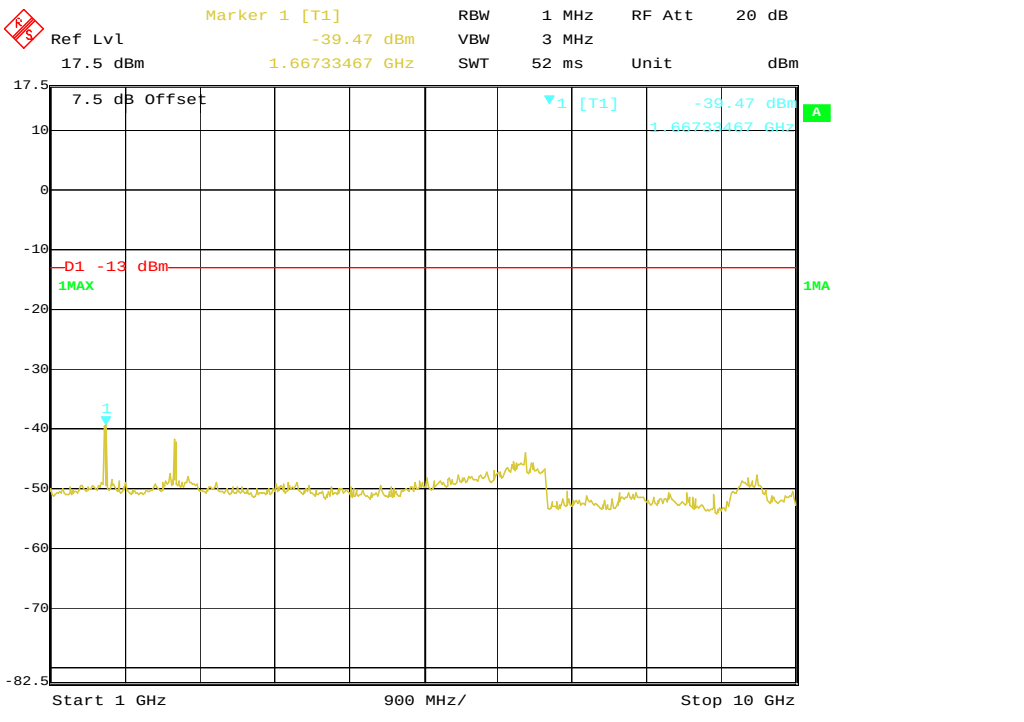
1 GHz – 10 GHz (GSM Mode)



30 MHz – 1 GHz (WCDMA Mode)

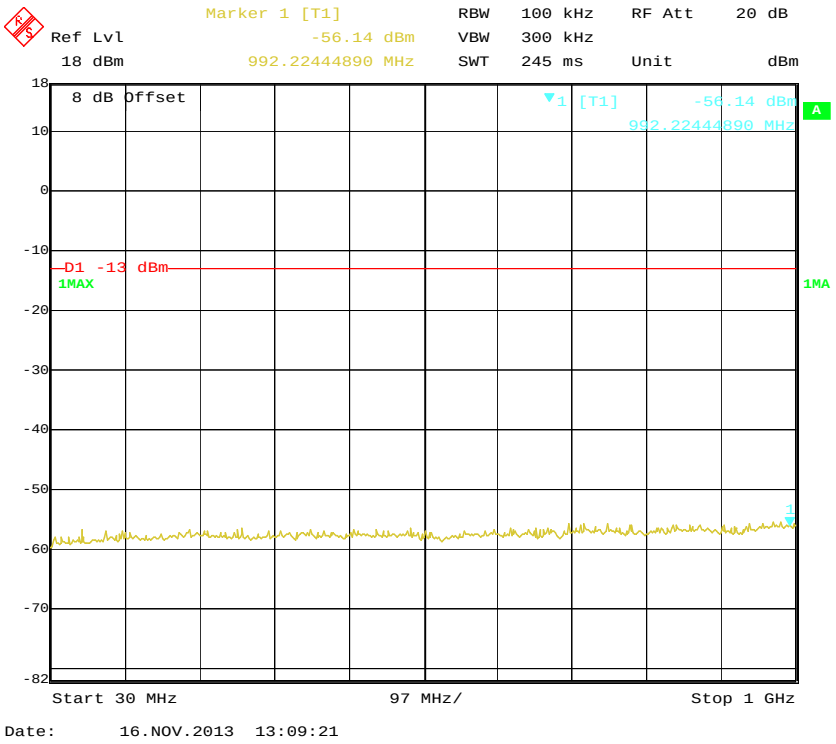


1 GHz – 10 GHz (WCDMA Mode)

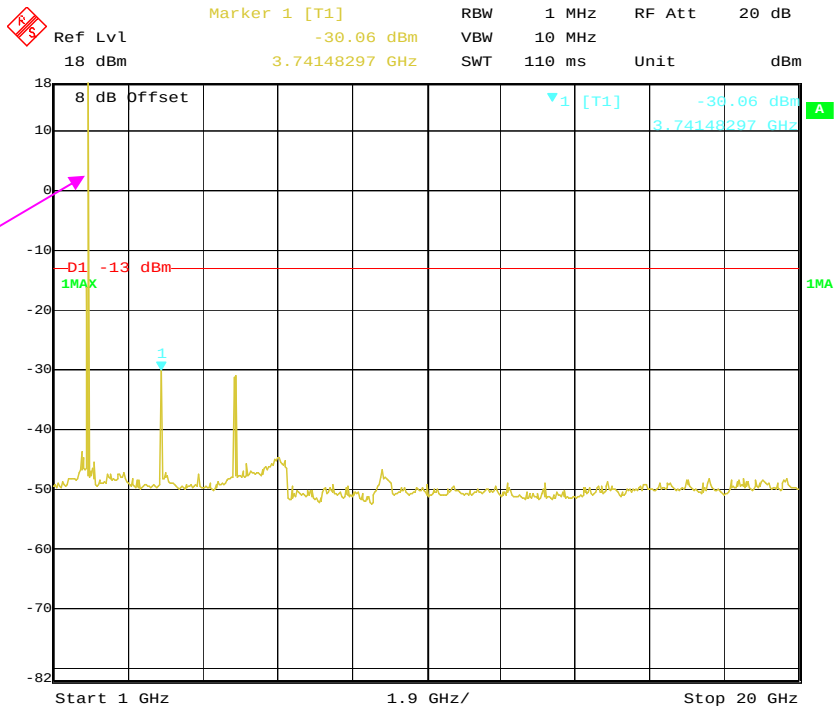


PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)

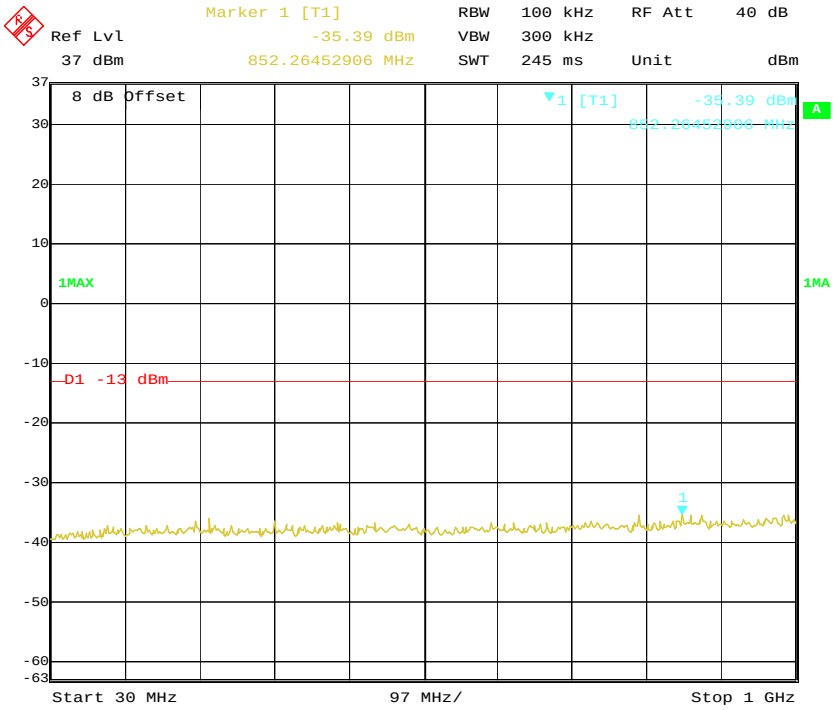


1 GHz – 20 GHz (GSM Mode)

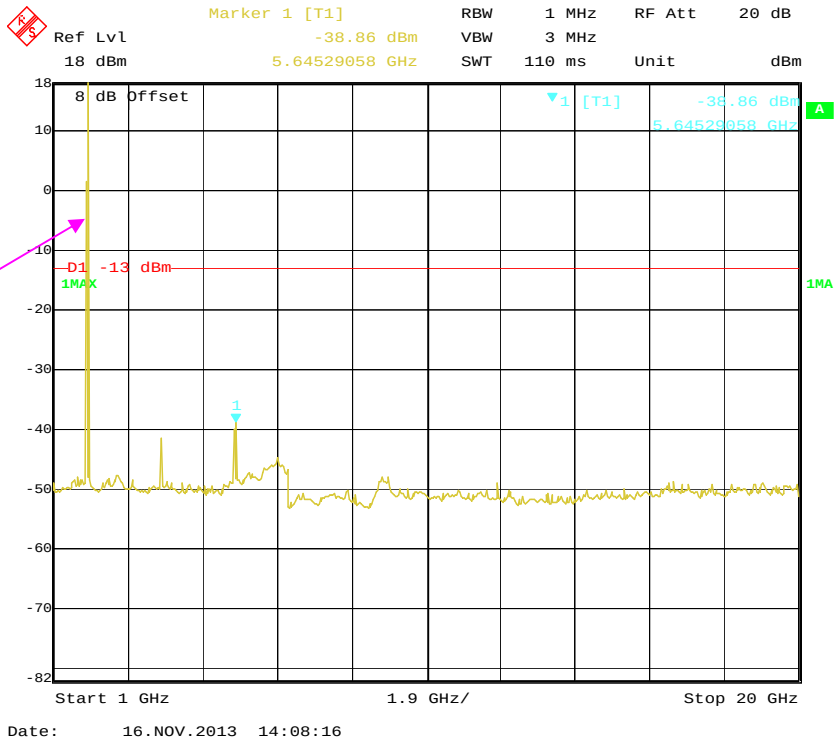


Fundamental

30 MHz – 1 GHz (WCDMA Mode)



1 GHz – 20 GHz (WCDMA Mode)



Fundamental

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_{10} (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	2012-11-30	2013-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
SUPER ULTRA	Amplifier	ZVA-213+	N/A	NCR	NCR
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-09-17	2014-09-17
HP	Amplifier	8447E	1937A01046	2013-09-30	2014-09-30
HP	Synthesized Sweeper	8341B	2624A00116	2013-05-09	2014-05-09
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Electro-Mechanics	Horn Antenna	3116	9510-2270	2013-10-14	2014-10-13
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-11-23	2013-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2013-11-12.

EUT operation mode: Transmitting (worst case)

30 MHz~10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
GSM Mode, Middle Channel										
154.2	29.23	340	1.3	H	-67.8	0.27	0	-68.07	-13	55.07
154.2	30.51	285	1.5	V	-66.5	0.27	0	-66.77	-13	53.77
1673.2	45.38	39	1.2	H	-57.7	0.97	9.40	-49.27	-13	36.27
1673.2	47.00	182	1.5	V	-53.5	0.97	9.40	-45.07	-13	32.07
2509.8	44.59	93	1.3	H	-56.1	1.46	10.70	-46.86	-13	33.86
2509.8	41.40	45	1.4	V	-55.0	1.46	10.70	-45.76	-13	32.76
3346.4	41.54	214	1.4	H	-52.9	2.08	10.80	-44.18	-13	31.18
3346.4	35.05	264	1.4	V	-58.5	2.08	10.80	-49.78	-13	36.78
WCDMA Mode, Middle Channel										
154.2	29.21	214	1.3	H	-67.8	0.27	0	-68.07	-13	55.07
154.2	29.65	295	1.2	V	-67.3	0.27	0	-67.57	-13	54.57
1673.2	34.52	287	1.2	H	-68.5	0.97	9.40	-60.07	-13	47.07
1673.2	35.39	281	1.4	V	-65.1	0.97	9.40	-56.67	-13	43.67
2509.8	34.66	205	1.3	H	-66.1	1.46	10.70	-56.86	-13	43.86
2509.8	35.41	16	1.2	V	-61.0	1.46	10.70	-51.76	-13	38.76
3346.4	34.41	26	1.4	H	-60.0	2.08	10.80	-51.28	-13	38.28
3346.4	35.13	32	1.4	V	-58.4	2.08	10.80	-49.68	-13	36.68

30 MHz~20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
DCS Mode, Low Channel										
154.2	28.86	216	1.3	H	-68.1	0.27	0	-68.37	-13	55.37
154.2	29.12	169	1.4	V	-67.9	0.27	0	-68.17	-13	55.17
3700.4	48.46	252	1.3	H	-47.6	2.91	10.40	-40.11	-13	27.11
3700.4	44.92	28	1.5	V	-49.8	2.91	10.40	-42.31	-13	29.31
WCDMA Mode, Low Channel										
154.2	28.32	265	1.5	H	-68.7	0.27	0	-68.97	-13	55.97
154.2	30.51	99	1.5	V	-66.5	0.27	0	-66.77	-13	53.77
3704.8	41.44	65	1.4	H	-54.7	2.91	10.40	-47.21	-13	34.21
3704.8	39.60	131	1.4	V	-55.1	2.91	10.40	-47.61	-13	34.61

Note:
1) Absolute Level = SG Level - Cable loss + Antenna Gain
2) Margin = Limit- Absolute Level

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

Applicable Standard

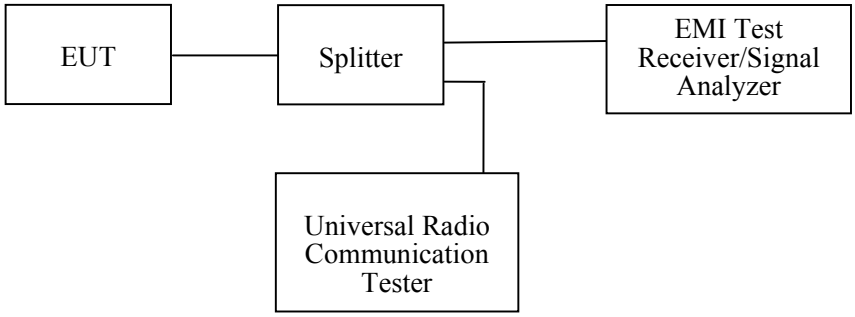
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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	2013-11-12	2014-11-12
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-11-23	2013-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2013-11-16.

EUT operation 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	823.998	-15.39	-13
	849.022	-14.47	-13

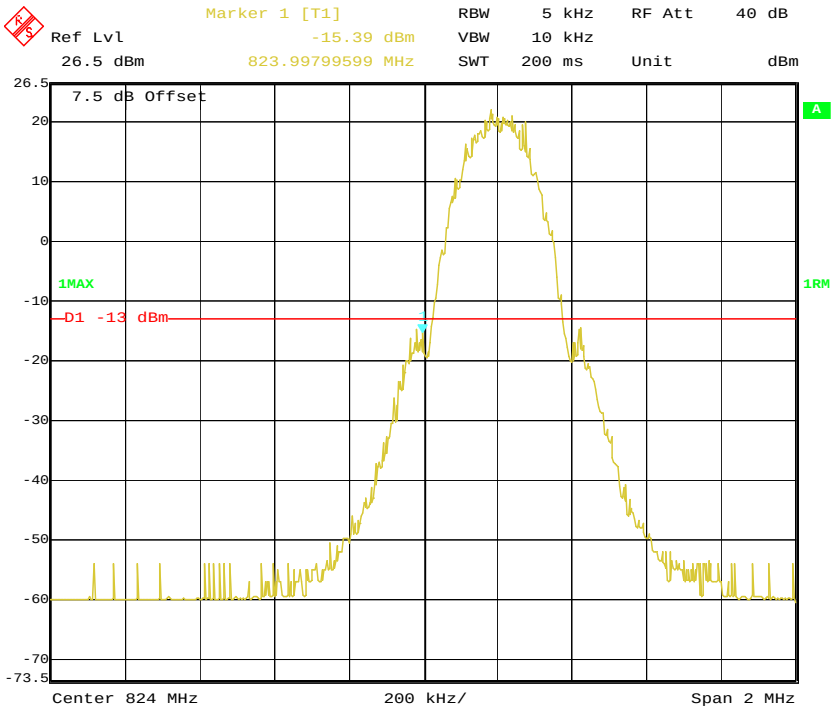
Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
WCDMA	823.820	-19.98	-13
	849.220	-18.54	-13

PCS Band (Part 24E)

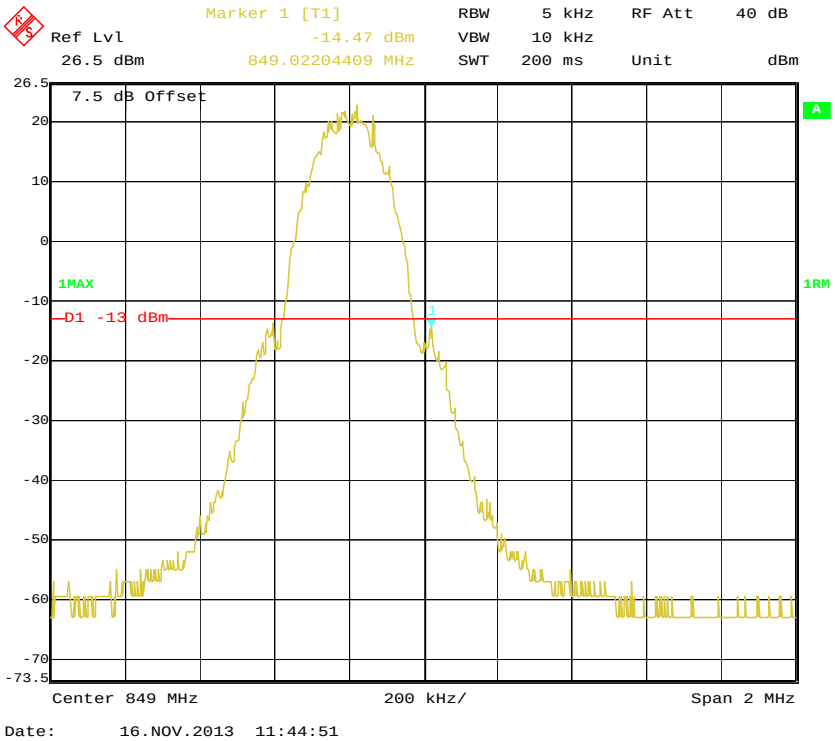
Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
GSM	1849.998	-16.22	-13
	1910.018	-17.81	-13

Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
WCDMA	1849.979	-21.92	-13
	1910.020	-16.15	-13

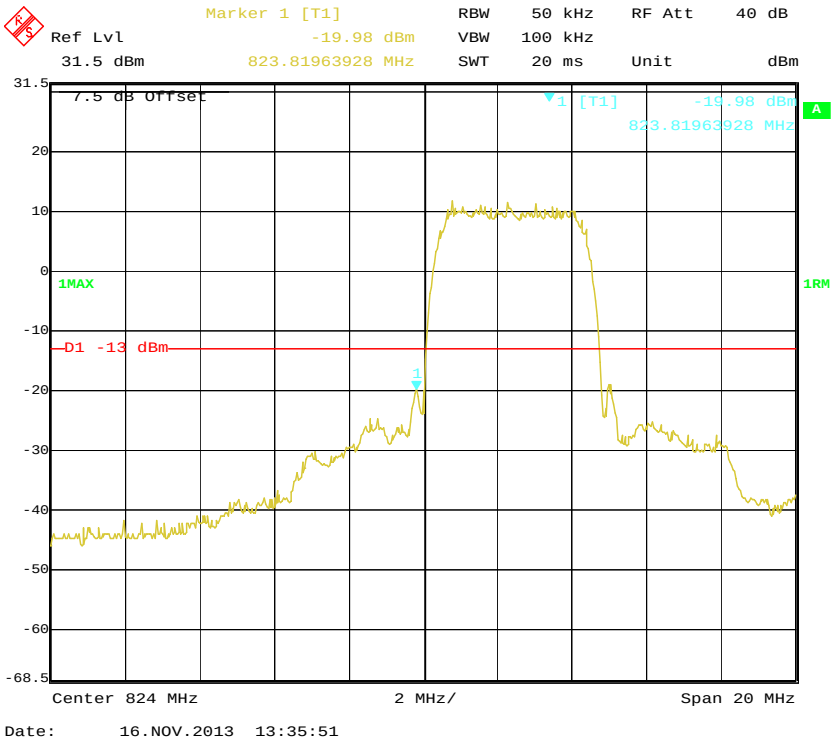
Cellular Band, Left Band Edge for GSM Mode



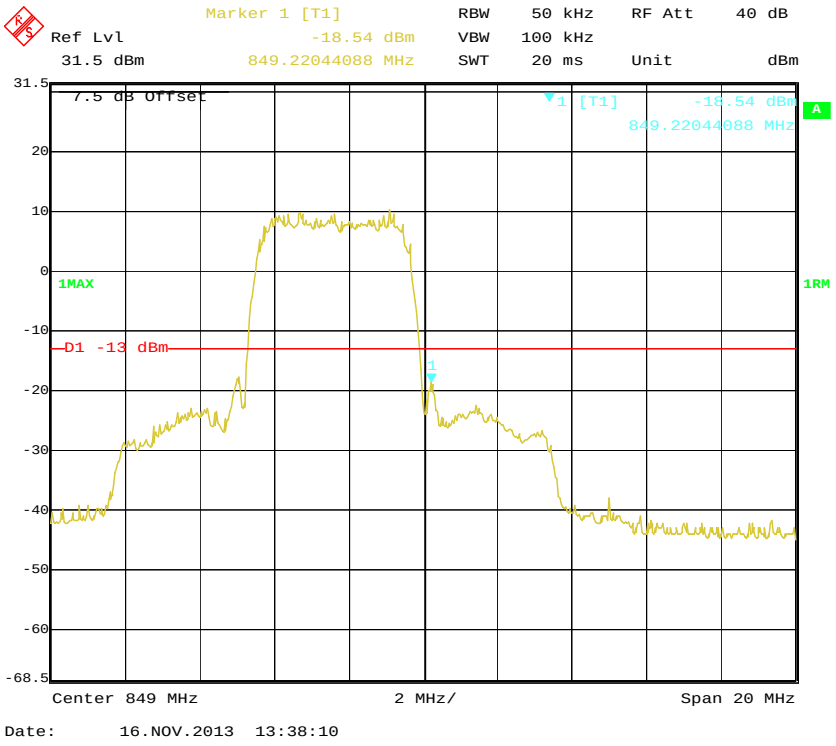
Cellular Band, Right Band Edge for GSM Mode



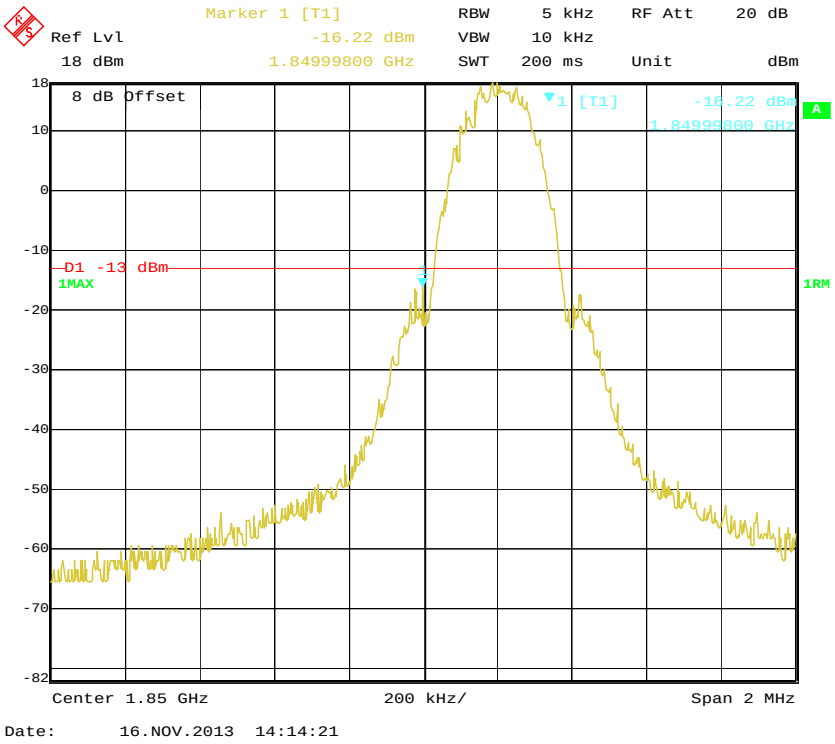
Cellular Band, Left Band Edge for WCDMA Mode



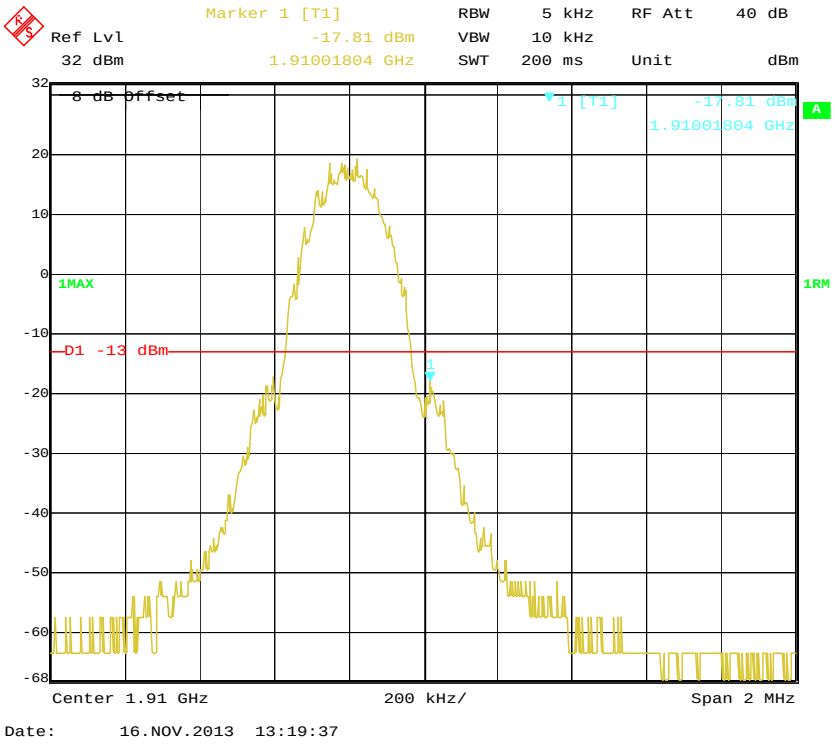
Cellular Band, Right Band Edge for WCDMA Mode



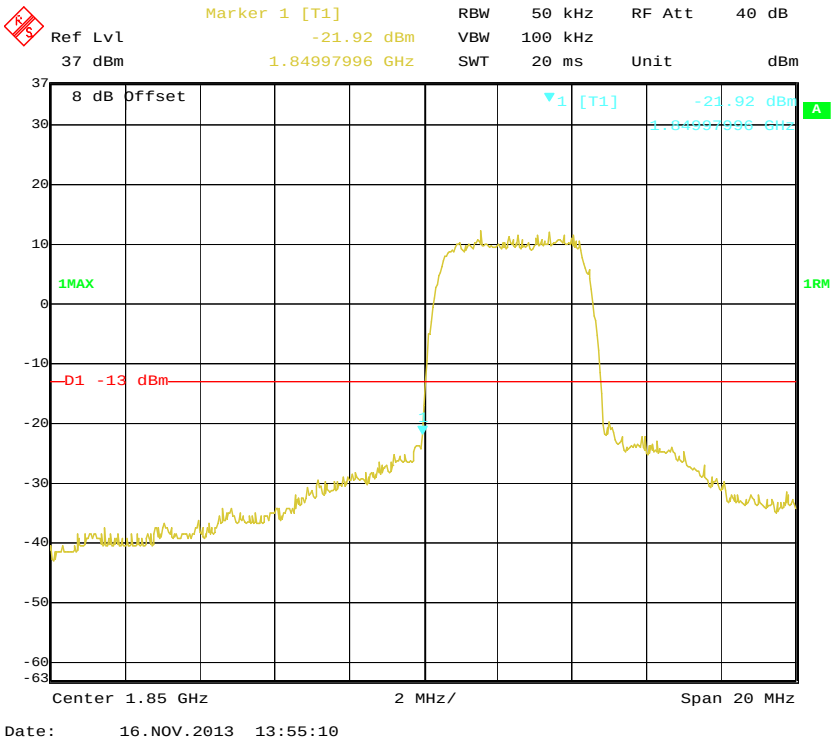
PCS Band, Left Band Edge for GSM Mode



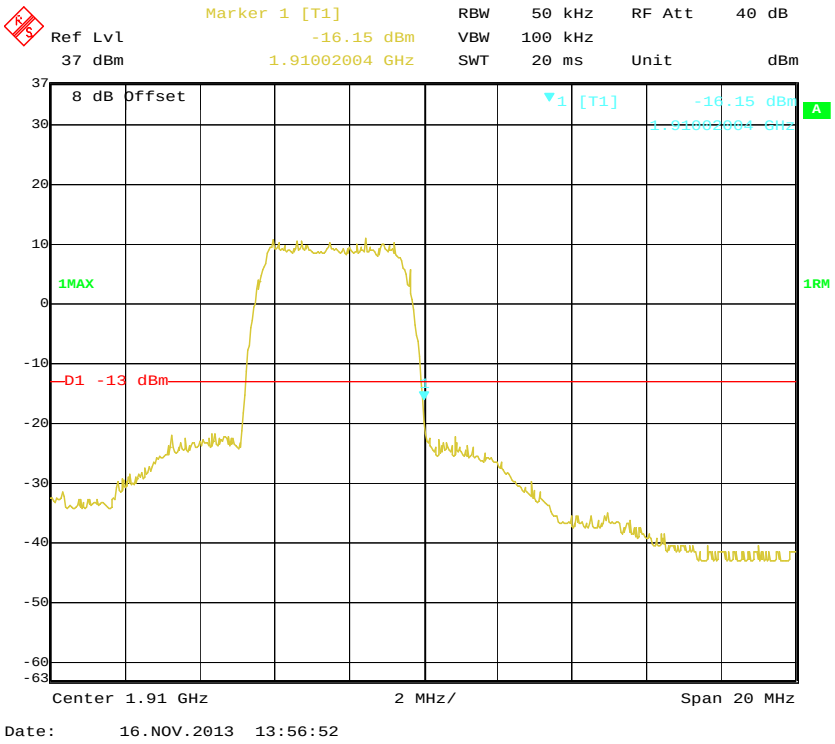
PCS Band, Right Band Edge for GSM Mode



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, §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

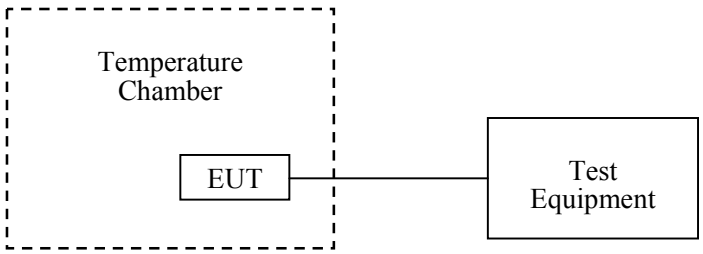
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2013-11-02	2014-11-01
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-11-23	2013-11-23
Wellstar	DC Power Supply	PS-303	9901449	NCR	NCR

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2013-11-16.

EUT operation mode: Transmitting

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

Cellular Band (Part 22H)

GSM Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
50	3.7	6	0.00717	2.5
40		10	0.01195	2.5
30		8	0.00956	2.5
20		11	0.01315	2.5
10		5	0.00598	2.5
0		7	0.00837	2.5
-10		6	0.00717	2.5
-20		4	0.00478	2.5
-30		3	0.00359	2.5
25	$V_{min.}$= 3.5	7	0.00837	2.5
25	$V_{max.}$= 4.2	8	0.00956	2.5

WCDMA Mode

Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
50	3.7	5	0.00598	2.5
40		9	0.01076	2.5
30		10	0.01195	2.5
20		6	0.00717	2.5
10		4	0.00478	2.5
0		3	0.00359	2.5
-10		12	0.01434	2.5
-20		8	0.00956	2.5
-30		6	0.00717	2.5
25	$V_{min.}$= 3.5	7	0.00837	2.5
25	$V_{max.}$= 4.2	4	0.00478	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
50	3.7	29	0.01543	pass
40		25	0.01330	pass
30		22	0.01170	pass
20		22	0.01170	pass
10		21	0.01117	pass
0		18	0.00957	pass
-10		20	0.01064	pass
-20		21	0.01117	pass
-30		17	0.00904	pass
25	$V_{min.}$= 3.5	31	0.01649	pass
25	$V_{max.}$= 4.2	25	0.01330	pass

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
50	3.7	32	0.01702	pass
40		25	0.01330	pass
30		24	0.01277	pass
20		29	0.01543	pass
10		21	0.01117	pass
0		20	0.01064	pass
-10		15	0.00798	pass
-20		21	0.01117	pass
-30		36	0.01915	pass
25	$V_{min.}$= 3.5	25	0.01330	pass
25	$V_{max.}$= 4.2	14	0.00745	pass

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