Lab Code: 200707-0

FCC PART 22H, PART 24E

TEST REPORT

For

VeryKool USA INC

4350 Executive Dr. #100, San Diego, CA 92121, USA

FCC ID: WA6I315N

Report Type:	Product Type:
Original Report	Mobile Phone

Test Engineer:	Tiger Ye
Report Number:	RSZ120802003-00B
Report Date:	2012-08-21
Reviewed By:	Alvin Huang RF Leader
Test Laboratory:	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

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)

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *VeryKool USA INC*'s product, model number: *i315N (FCC ID: WA6I315N)* or the "EUT" in this report was a *Mobile Phone*, which was measured approximately: 134.7 mm (L) x 3.7.7 mm (W) x 20.6 mm (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: 1208006 (Assigned by Shenzhen BACL). The EUT was received on 2012-08-02.*

Objective

This test report is prepared on behalf of *VeryKool USA INC* 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: WA6I315N

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.

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

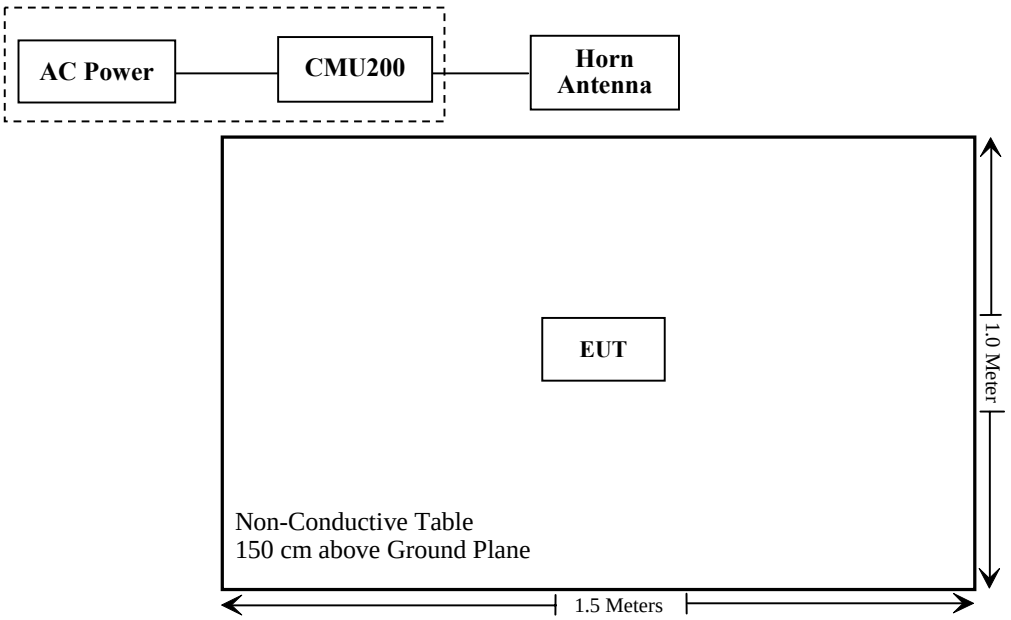
The EUT was configured for testing according to TIA/EIA-603-D.

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

FCC Rules	Description of Test	Result
§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: RSZ120802003-20.

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ120802003-20.

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

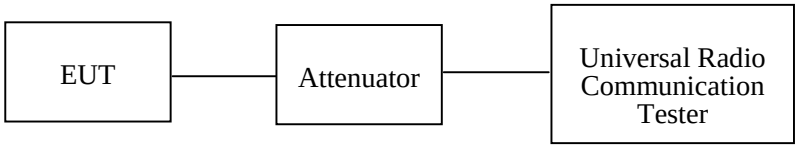
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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	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	8657A	3217A04699	2011-12-19	2012-12-18
HP	Synthesized Sweeper	8341B	2624A00116	2012-05-17	2013-05-16
COM POWER	Dipole Antenna	AD-100	041000	N/A	N/A
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

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Tiger Ye on 2012-08-12.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.51	38.45
	190	836.6	32.54	38.45
	251	848.8	32.53	38.45

Mode	Frequency (MHz)	Output Power (dBm)				Limit (dBm)
		Slot 1	Slot 2	Slot 3	Slot 4	
GPRS	824.2	32.52	31.09	No support		38.45
	836.6	32.53	31.16			38.45
	848.8	32.51	31.24			38.45

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	512	29.90	29.90	33
	661	30.34	30.34	33
	810	29.96	29.96	33

Mode	Frequency (MHz)	Output Power (dBm)				Limit (dBm)
		Slot 1	Slot 2	Slot 3	Slot 4	
GPRS	1850.2	29.95	28.74	No support		33
	1880.0	30.39	29.34			33
	1909.8	30.03	28.77			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)				
Middle Channel											
836.6	85.91	244	1.8	H	836.6	18.1	H	0.0	0.69	17.41	38.45
836.6	96.84	53	1.7	V	836.6	29.5	V	0.0	0.69	28.81	38.45

EIRP for PCS Band (Part 24E)

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)				
Middle Channel											
1880.0	87.03	85	1.6	H	1880.0	13.0	H	9.40	1.03	21.37	33
1880.0	91.36	207	1.7	V	1880.0	20.5	V	9.40	1.03	28.87	33

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

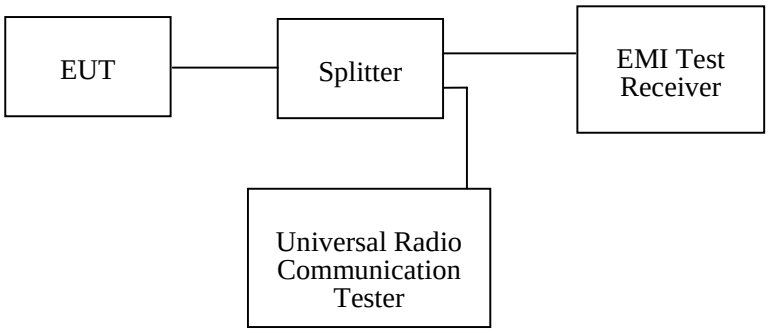
Applicable Standard

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	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 ℃
Relative Humidity:	56%
ATM Pressure:	100.0kPa

The testing was performed by Tiger Ye on 2012-08-15.

Test Mode: Transmitting

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

GMSK Modulation:

Cellular Band (Part 22H)

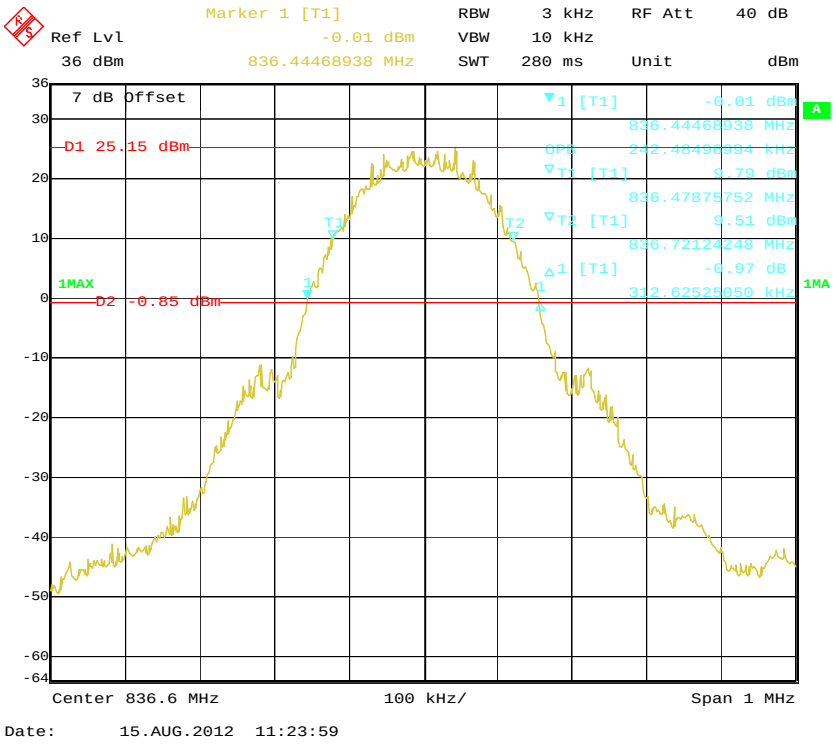
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
GSM	190	836.6	242	313

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
GSM	661	1880.0	242	313

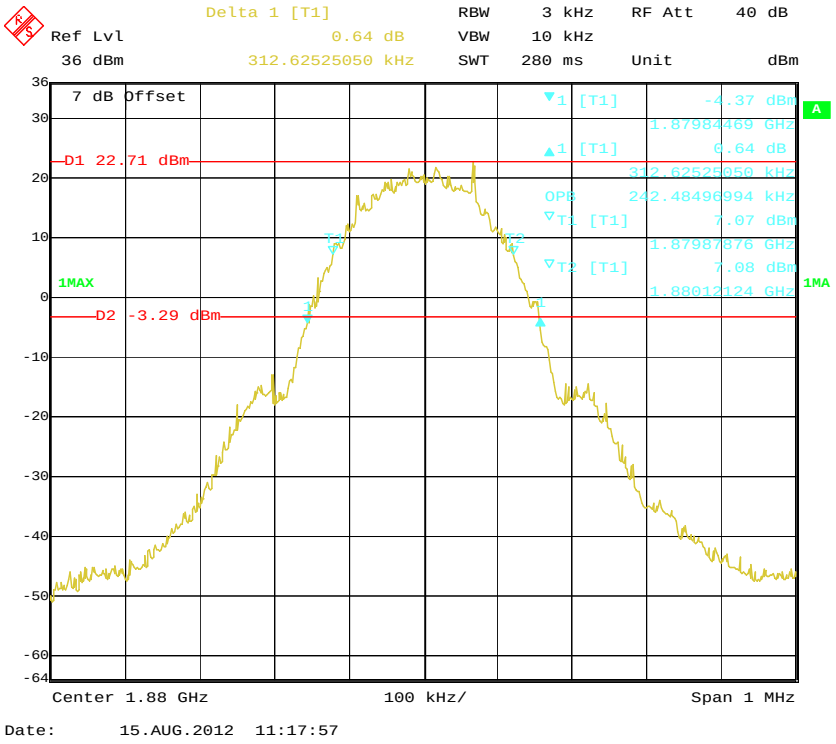
Cellular Band (Part 22H)

99% Occupied & 26 dB Bandwidth



PCS Band (Part 24E)

99% Occupied & 26 dB Bandwidth



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

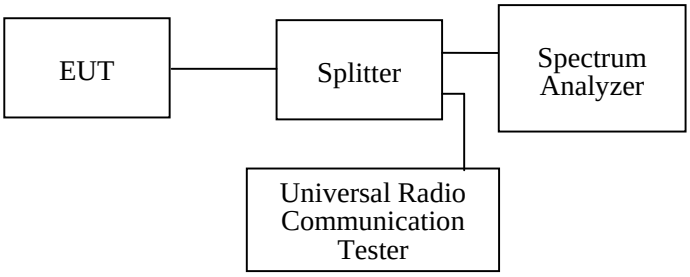
Applicable Standard

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	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

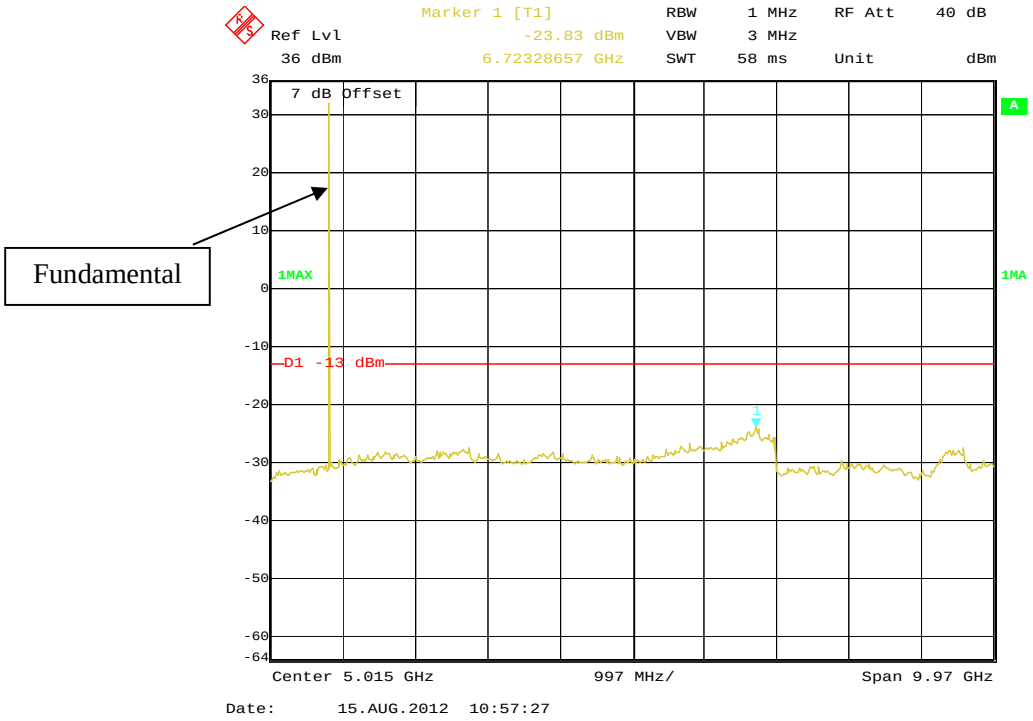
Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Tiger Ye on 2012-08-15.

Please refer to the following plots.

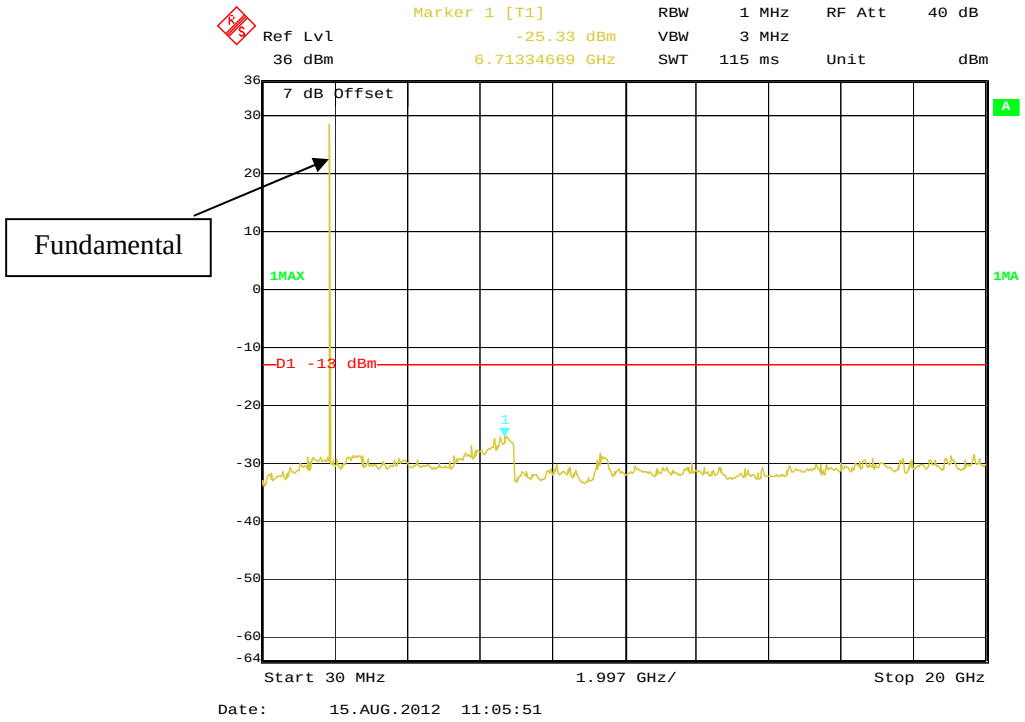
Cellular Band (Part 22H)

30 MHz – 10 GHz, Middle Channel



PCS Band (Part 24E)

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_{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	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	8657A	3217A04699	2011-12-19	2012-12-18
HP	Amplifier	8447E	1937A01046	2011-11-24	2012-11-23
HP	Synthesized Sweeper	8341B	2624A00116	2012-05-17	2013-05-16
COM POWER	Dipole Antenna	AD-100	041000	N/A	N/A
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	2012-11-13
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

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Tiger Ye on 2012-08-09.

Test mode: Transmitting

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table 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)
Middle Channel										
1697.6	57.02	44	1.8	V	-43.4	0.97	9.4	-34.97	-13	21.97
2546.4	42.67	13	1.7	V	-53.7	1.46	10.7	-44.46	-13	31.46
1697.6	50.17	12	1.8	H	-52.9	0.97	9.4	-44.47	-13	31.47
2546.4	43.16	73	1.7	H	-57.6	1.46	10.7	-48.36	-13	35.36
3395.2	37.89	114	1.8	H	-59.0	2.22	10.8	-50.42	-13	37.42
3395.2	36.81	37	1.7	V	-59.1	2.22	10.8	-50.52	-13	37.52
317.3	40.27	43	1.8	V	-57.0	0.42	0.0	-57.42	-13	44.42

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table 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)
Middle Channel										
5640.0	48.98	54	1.5	H	-43.4	3.94	11.7	-35.64	-13	22.64
5640.0	47.39	82	1.7	V	-43.8	3.94	11.7	-36.04	-13	23.04
7520.0	39.63	116	1.7	H	-48.6	3.07	12.0	-39.67	-13	26.67
3760.0	48.13	53	1.7	V	-48.0	2.96	10.4	-40.56	-13	27.56
3760.0	48.21	64	1.5	H	-48.7	2.96	10.4	-41.26	-13	28.26
7520.0	38.51	204	1.5	V	-50.9	3.07	12.0	-41.97	-13	28.97
317.3	39.65	44	1.4	V	-57.6	0.42	0.0	-58.02	-13	45.02

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

Applicable Standard

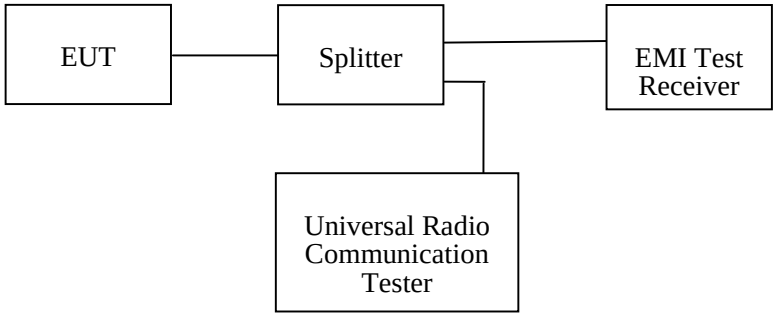
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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, RBW set to 3 kHz.



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 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Tiger Ye on 2012-08-15 and 2012-08-16.

Test Mode: Transmitting

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

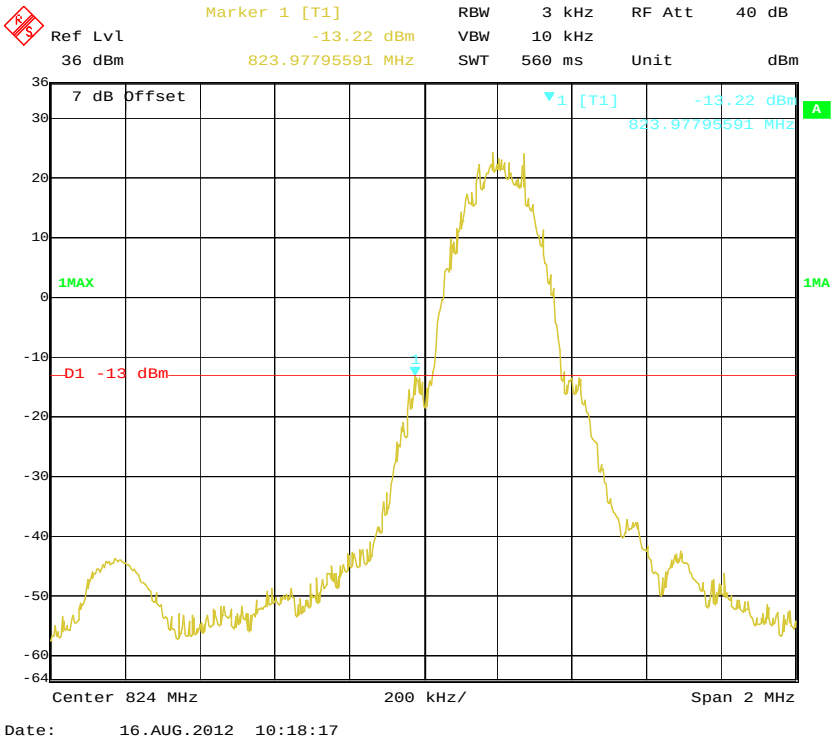
Cellular Band (Part 22H)

Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
GSM	823.978	-13.22	⩽-13
	849.022	-13.77	⩽-13

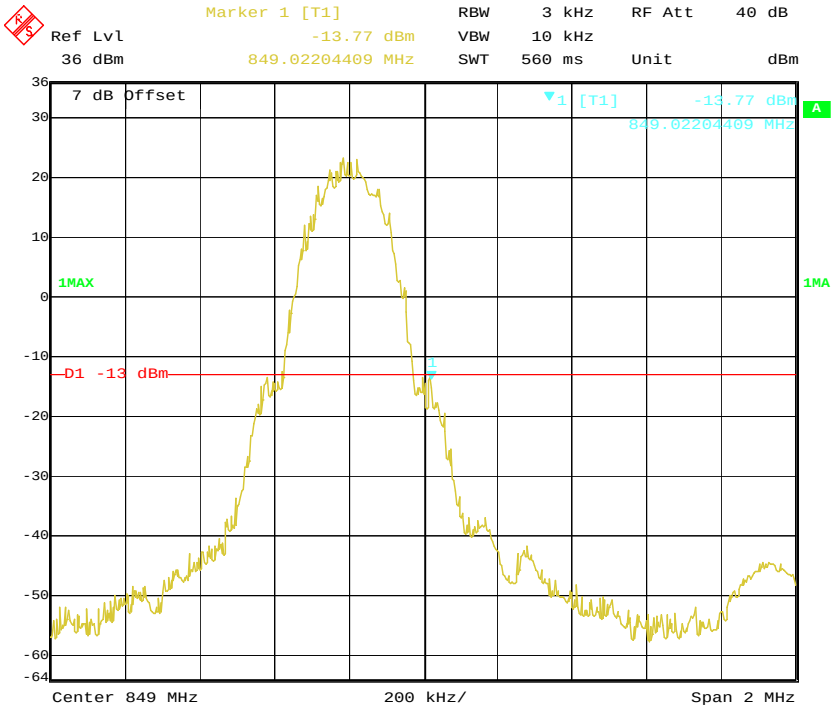
PCS Band (Part 24E)

Mode	Frequency (MHz)	Emission (dBm)	Limit (dBm)
GSM	1849.978	-15.81	⩽-13
	1910.018	-16.78	⩽-13

Cellular Band, Left Band Edge



Cellular Band, Right Band Edge



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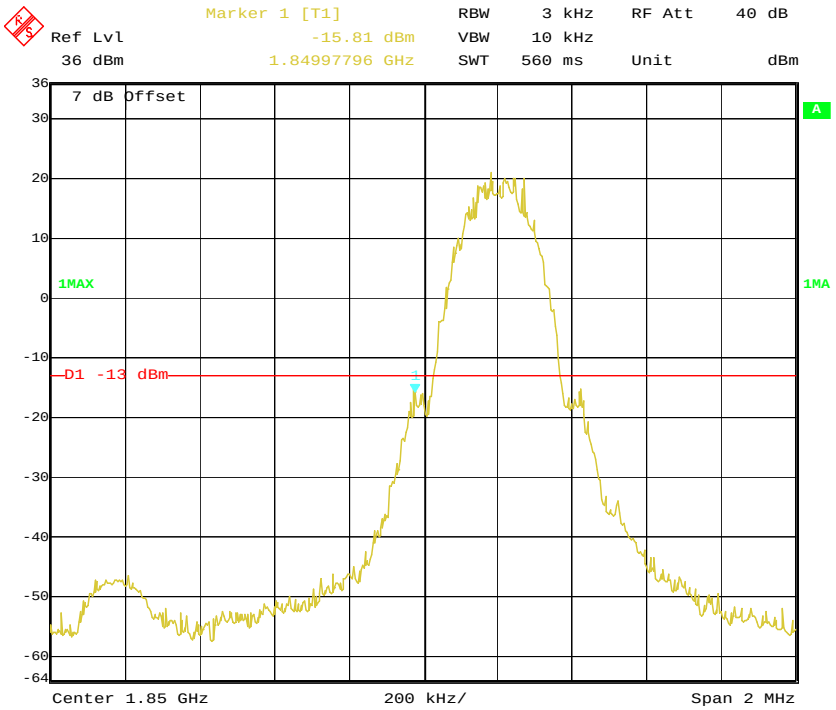
PCS Band, Left Band Edge



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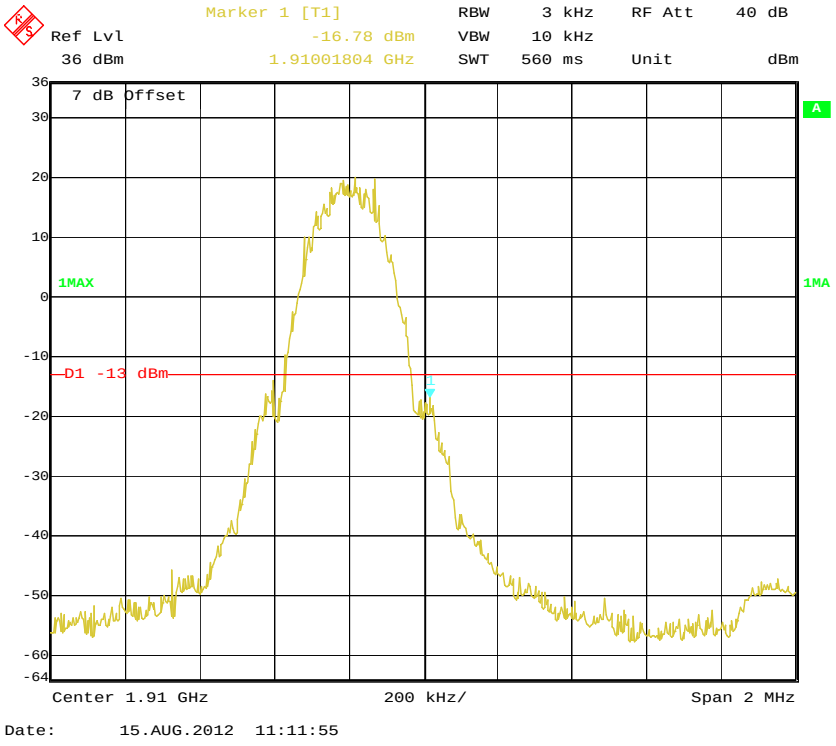
PCS Band, Right Band Edge



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

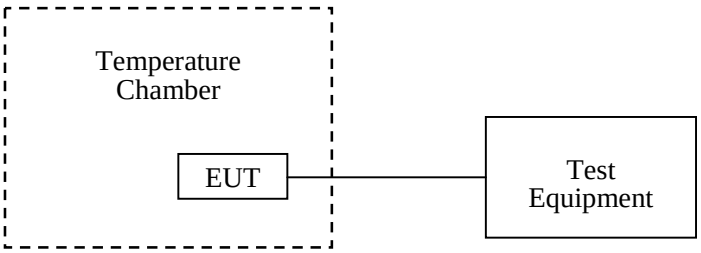
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Tiger Ye on 2012-08-15.

Test Mode: Transmitting

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

Cellular Band (Part 22H)

Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.7	28	0.0334688	2.5
-20		27	0.0322735	2.5
-10		23	0.0274922	2.5
0		25	0.0298829	2.5
10		31	0.0370547	2.5
20		29	0.0346641	2.5
30		33	0.0394454	2.5
40		26	0.0310782	2.5
50		30	0.0358594	2.5
25	3.5	29	0.0346641	2.5
	3.7	31	0.0370547	2.5
	4.2	27	0.0322735	2.5

PCS Band (Part 24E)

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.7	44	0.0231579	Pass
-20		42	0.0221053	Pass
-10		44	0.0231579	Pass
0		38	0.0200000	Pass
10		42	0.0221053	Pass
20		39	0.0205263	Pass
30		40	0.0210526	Pass
40		45	0.0236842	Pass
50		46	0.0242105	Pass
25	3.5	40	0.0210526	Pass
	3.7	42	0.0221053	Pass
	4.2	44	0.0231579	Pass

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