Lab Code: 200707-0

FCC PART 22H, PART 24E

TEST REPORT

For

Imobiile Technology, L.L.C

8227 NW 68 ST., MIAMI, FLORIDA 33166, USA

FCC ID: ZOTKOOL

Report Type:	Product Type:
Original Report	Mobile Phone

Test Engineer:	Eric Lee
Report Number:	RSZ120109001-00A
Report Date:	2012-02-28
Reviewed By:	Alvin Huang EMC Engineer
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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Imobiile Technology, L.L.C*'s product, model number: *KOOL (FCC ID: ZOTKOOL)* or the "EUT" in this report was a *Mobile Phone*, which was measured approximately: 10.38 cm (L) x 5.5 cm (W) x 1.345 cm (H), rated input voltage: DC 3.7 V battery.

** All measurement and test data in this report was gathered from production sample serial number: 1201015 (Assigned by BACL, Shenzhen). The EUT was received on 2012-01-09.*

Objective

This test report is prepared on behalf of *Imobiile Technology, L.L.C* 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, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, band edge and radiated margin.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS and Part 15B JBP submission with FCC ID: ZOTKOOL

Test Methodology

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

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

Applicable Standards: 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.

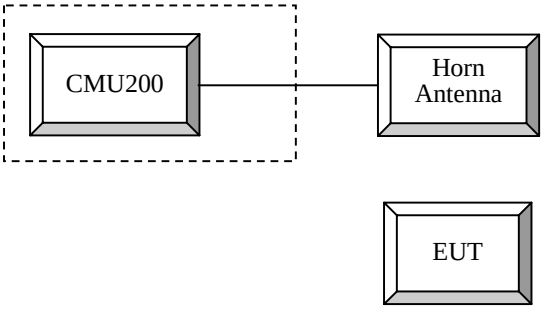
The GSM/PCS item test was performed with the EUT operating at normal mode.

The GPRS item test was performed with the EUT operating at testing mode.

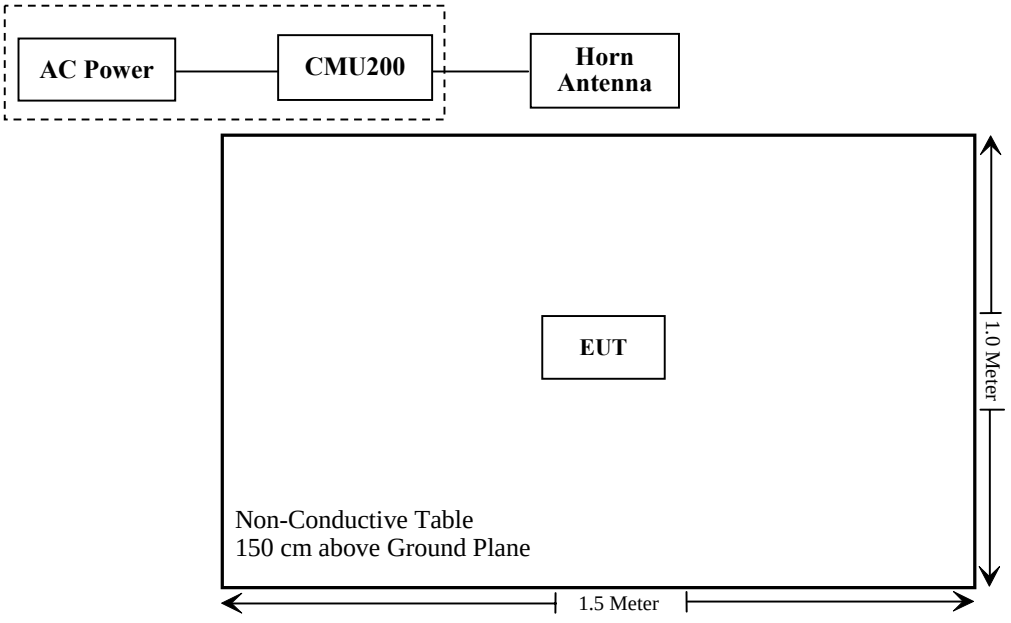
Equipment Modifications

No modifications were made to the EUT.

Configuration of Test Setup



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	N/A
§ 2.1049; § 22.905 § 22.917; § 24.238	26 dB 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: RSZ120109001-20

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ120109001-20

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

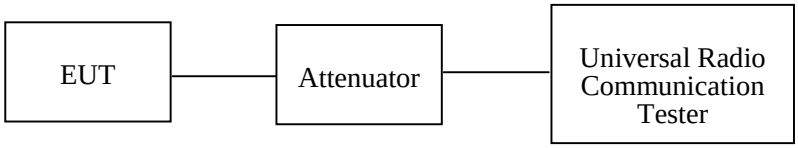
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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-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	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
HP	Signal Generator	HP8657A	2849U00982	2011-10-28	2012-10-27
HP	Synthesized Sweeper	8341B	2624A00116	2011-11-07	2012-11-06
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2011-10-28	2012-10-27

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

Test Data

Environmental Conditions

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

The testing was performed by Eric Lee on 2012-01-31

Conducted Power

GSM

Band	Frequency (MHz)	Conducted Output Power	
		GSM (dBm)	GSM (W)
Cellular	824.2	31.71	1.483
	836.6	31.69	1.476
	848.8	31.64	1.459
PCS	1850.2	29.11	0.815
	1880.0	29.10	0.813
	1909.8	29.12	0.817

GPRS

Band	Channel No.	Frequency (MHz)	RF Output Power (dBm)			
			1 slot	2 slot	3 slots	4 slots
Cellular	128	824.2	31.59	30.72	29.02	28.20
	190	836.6	31.43	30.69	29.04	28.12
	251	848.8	31.44	30.84	29.07	28.00
PCS	512	1850.2	29.12	28.79	27.85	27.08
	661	1880.0	29.09	28.43	27.52	26.77
	810	1909.8	29.04	28.17	27.23	26.51

Radiated Power:

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	86.28	139	1.9	H	824.2	21.6	H	0	0.9	20.7	38.45
824.2	94.86	140	1.9	V	824.2	30.1	V	0	0.9	29.2	38.45
Middle Channel											
836.6	85.48	139	1.9	H	836.6	20.8	H	0	0.9	19.9	38.45
836.6	94.21	140	1.9	V	836.6	29.6	V	0	0.9	28.7	38.45
High Channel											
848.8	85.74	139	1.9	H	848.8	21.0	H	0	0.9	20.1	38.45
848.8	94.06	140	1.9	V	848.8	29.8	V	0	0.9	28.9	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 24E 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	86.64	161	2.5	H	1850.2	13.9	H	6.2	1.1	19.0	33
1850.2	94.43	304	1.0	V	1850.2	23.8	V	6.2	1.1	28.9	33
Middle Channel											
1880	88.66	106	2.5	H	1880	15.9	H	6.2	1.1	21.0	33
1880	93.94	314	1.0	V	1880	23.3	V	6.2	1.1	28.4	33
High Channel											
1909.8	85.18	263	2.5	H	1909.8	12.5	H	6.2	1.1	17.6	33
1909.8	93.78	254	1.0	V	1909.8	23.2	V	6.2	1.1	28.3	33

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

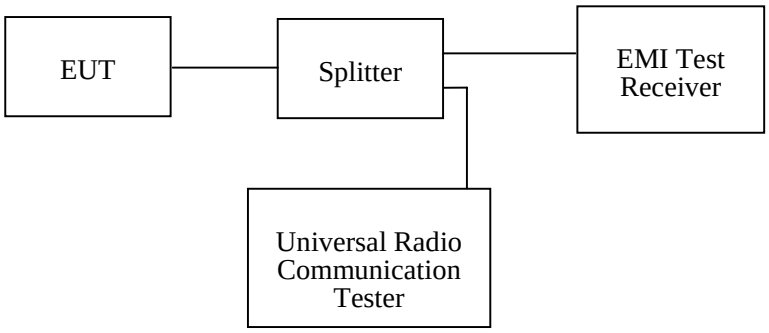
Applicable Standard

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	Spectrum Analyzer	ESCI	100035	2011-11-11	2012-11-11
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2011-10-28	2012-10-27

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

Test Data

Environmental Conditions

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

The testing was performed by Eric Lee on 2012-01-31

GMSK Modulation:

Cellular Band (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
190	836.6	244	312

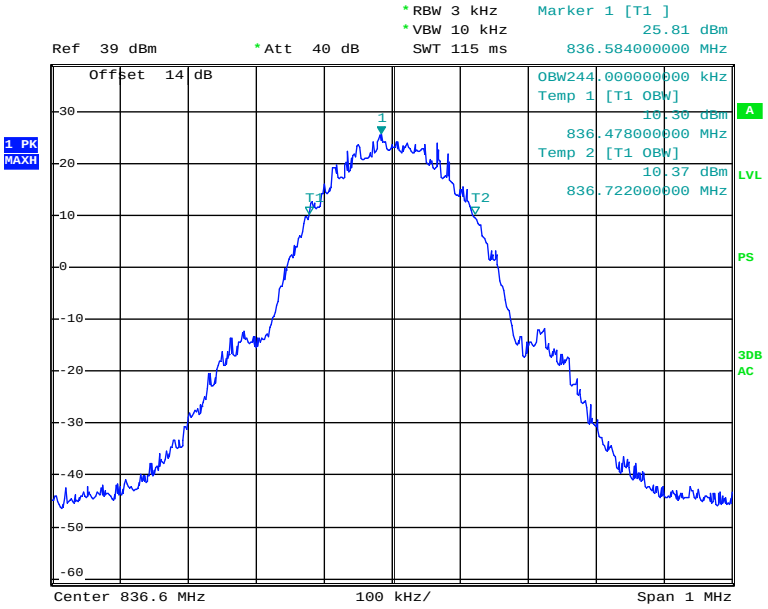
PCS Band (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
661	1880.0	244	318

Please refer to the following plots.

Cellular Band (Part 22H)

99% Occupied Bandwidth



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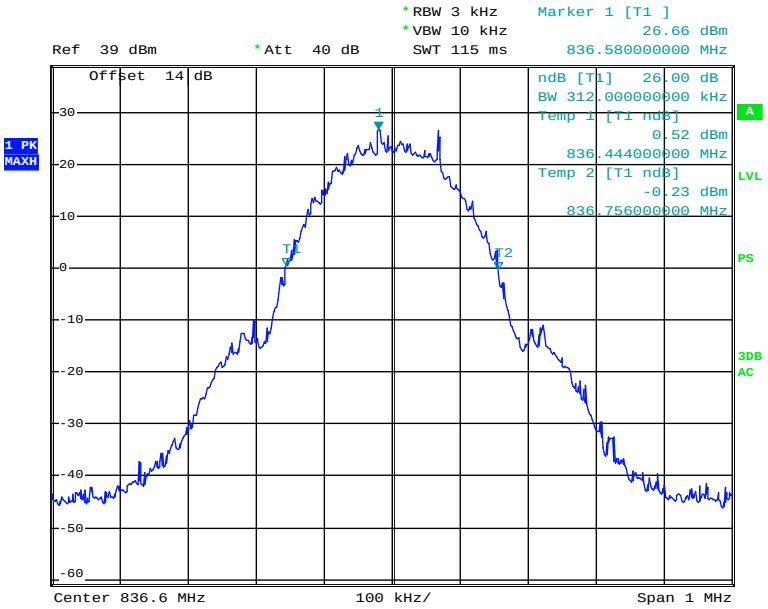
26 dB Occupied Bandwidth



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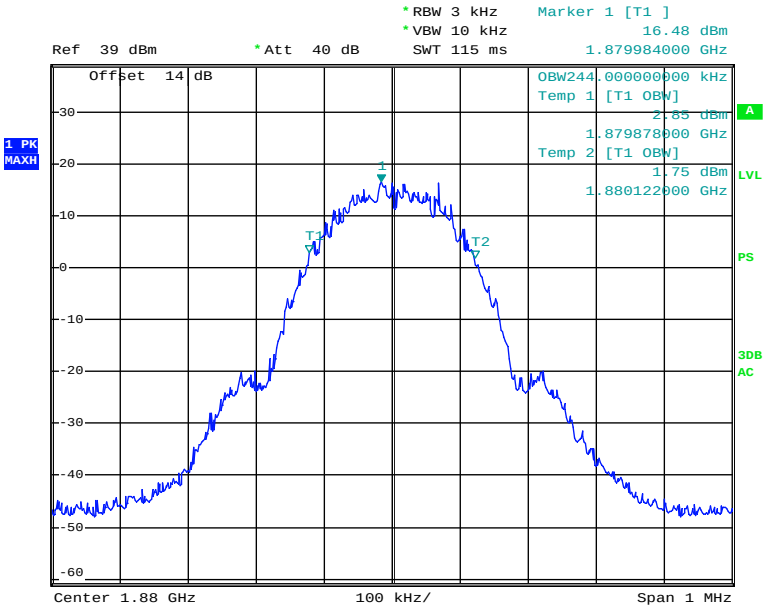
PCS Band (Part 24E)

99% Occupied Bandwidth



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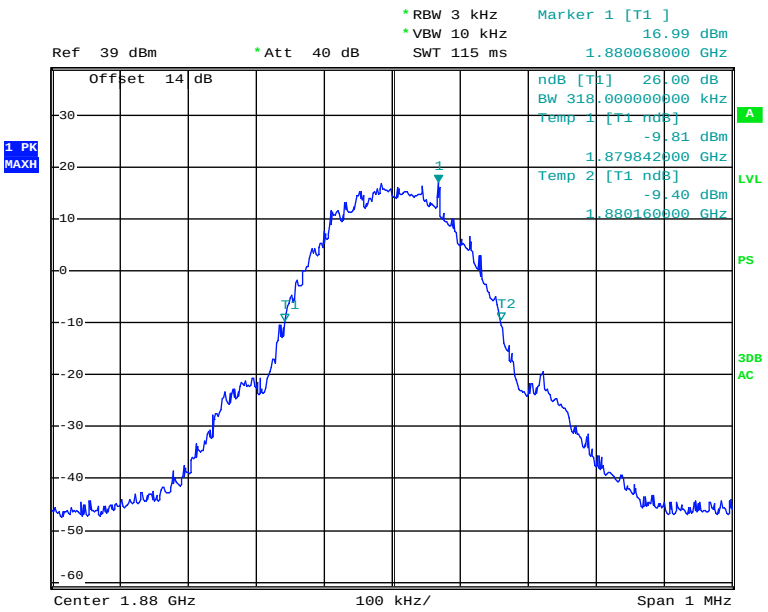
26 dB Occupied Bandwidth



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

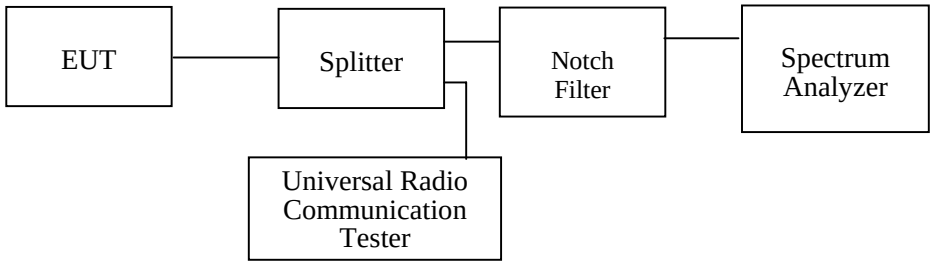
Applicable Standard

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 100 kHz. 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	2011-10-28	2012-10-27
Wainwright Germany	Band Reject Filter	WRCG1850/1910-1835/1925-40/8SS	22	2011-02-28	2012-02-28
Wainwright Germany	Band Reject Filter	WRCG823/850-813/860-40/8SS	7	2011-02-28	2012-02-28
Rohde & Schwarz	Spectrum Analyzer	FSIQ26	849720/019	2011-07-08	2012-07-07

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

Test Data

Environmental Conditions

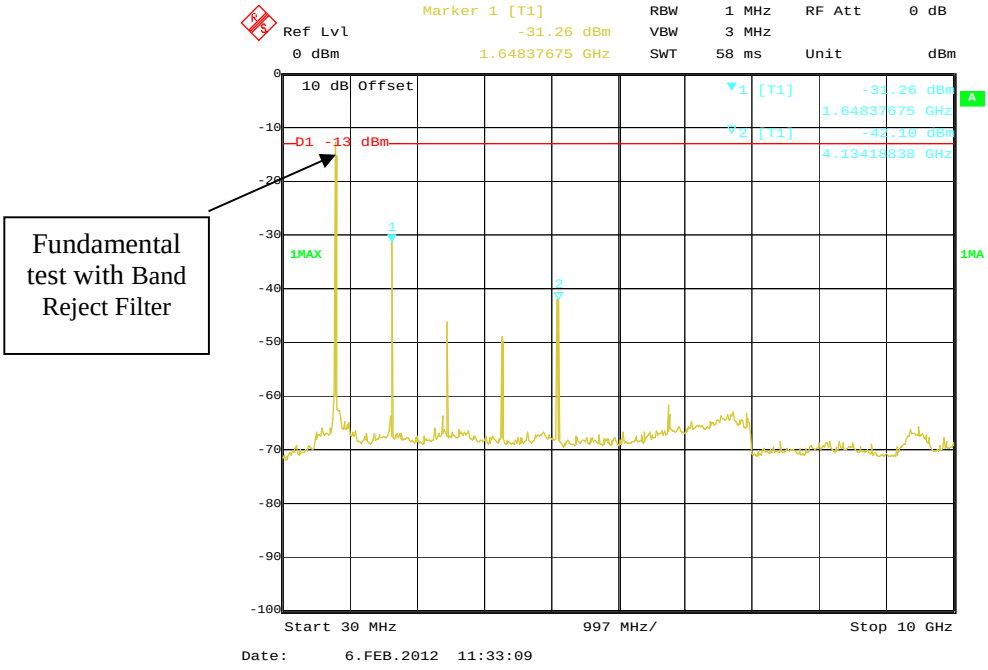
Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Eric Lee on 2012-02-06.

Please refer to the following plots.

Cellular Band (Part 22H)

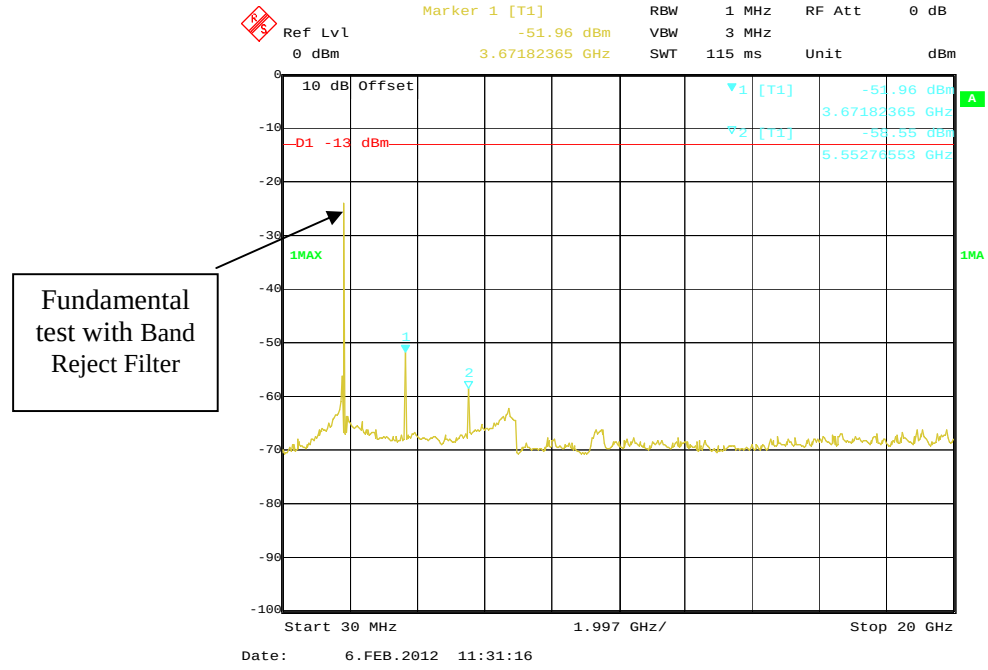
30 MHz – 10 GHz - Middle Channel



Fundamental test with Band Reject Filter

PCS Band (Part 24E)

30 MHz – 20 GHz - Middle Channel



Fundamental test with Band Reject Filter

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	A052604	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2011-10-28	2012-10-27
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2011-11-07	2012-11-06
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17
Electro-Mechanics	Horn antenna	3116	9510-2270	2011-10-11	2012-11-10
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2011-10-28	2012-10-27

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

Test Data

Environmental Conditions

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

The testing was performed by Eric Lee on 2012-01-31

Test mode: Transmitting (worst case)

30 MHz ~10 GHz:

Cellular Band (Part 22H)

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)			
Low Channel											
1648.4	61.79	136	1.4	V	1648.4	-39.7	6.2	0.95	-34.45	-13	21.45
2472.6	56.80	61	1.4	V	2472.6	-40.9	7.4	1.16	-34.66	-13	21.66
1648.4	61.33	152	1.6	H	1648.4	-43.0	6.2	0.95	-37.75	-13	24.75
2472.6	55.03	68	1.7	H	2472.6	-46.3	7.4	1.16	-40.06	-13	27.06
3296.8	42.08	235	1.6	V	3296.8	-53.7	6.9	1.35	-48.15	-13	35.15
3296.8	40.89	205	1.5	H	3296.8	-56.6	6.9	1.35	-51.05	-13	38.05

30 MHz ~20 GHz:

PCS Band (Part 24E)

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)			
Low Channel											
7400.8	43.52	58	1.5	H	7400.8	-46.1	7.80	2.07	-40.37	-13	27.37
5550.6	44.23	202	1.4	V	5550.6	-47.4	8.30	1.77	-40.87	-13	27.87
7400.8	42.96	185	1.7	V	7400.8	-47.4	7.80	2.07	-41.67	-13	28.67
5550.6	43.92	321	1.5	H	5550.6	-49.4	8.30	1.77	-42.87	-13	29.87
3700.4	38.58	132	1.5	V	3700.4	-52.4	7.10	1.44	-46.74	-13	33.74
3700.4	39.39	125	1.2	H	3700.4	-55.9	7.10	1.44	-50.24	-13	37.24

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

Applicable Standard

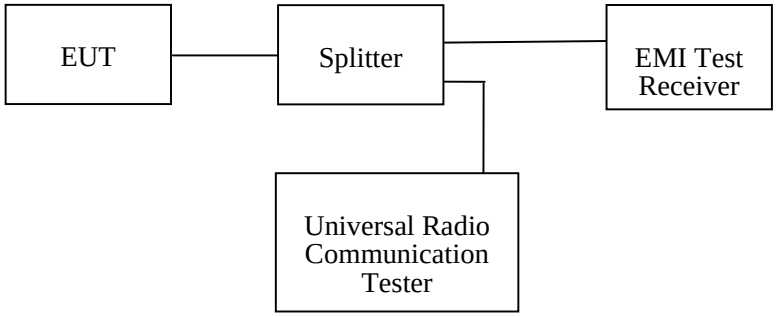
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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 10 kHz.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	ESCI	100035	2011-11-11	2012-11-11
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2011-10-28	2012-10-27

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

Test Data

Environmental Conditions

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

The testing was performed by Eric Lee on 2012-01-31

Please refer to the following tables and plots.

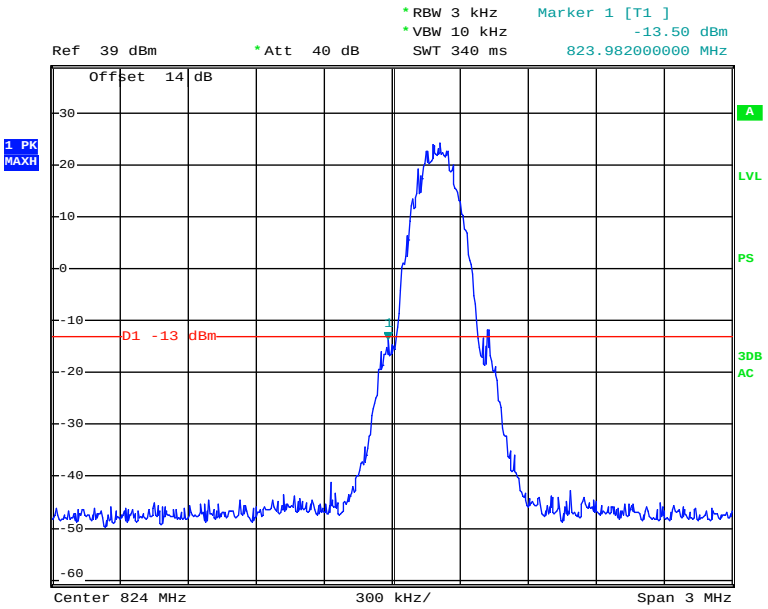
Cellular Band (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.982	-13.50	＜-13
849.010	-14.62	＜-13

PCS Band (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1850.000	-14.94	＜-13
1910.024	-20.71	＜-13

Cellular Band, Left Band Edge



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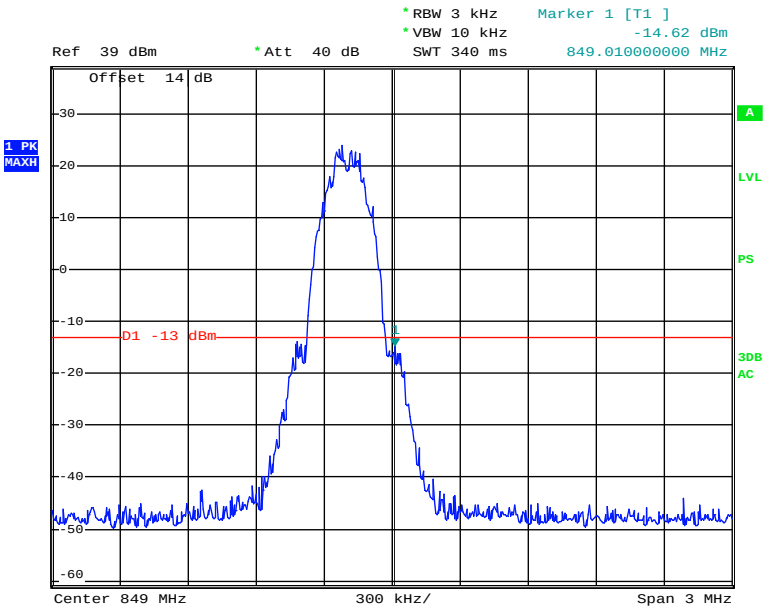
Cellular Band, Right Band Edge



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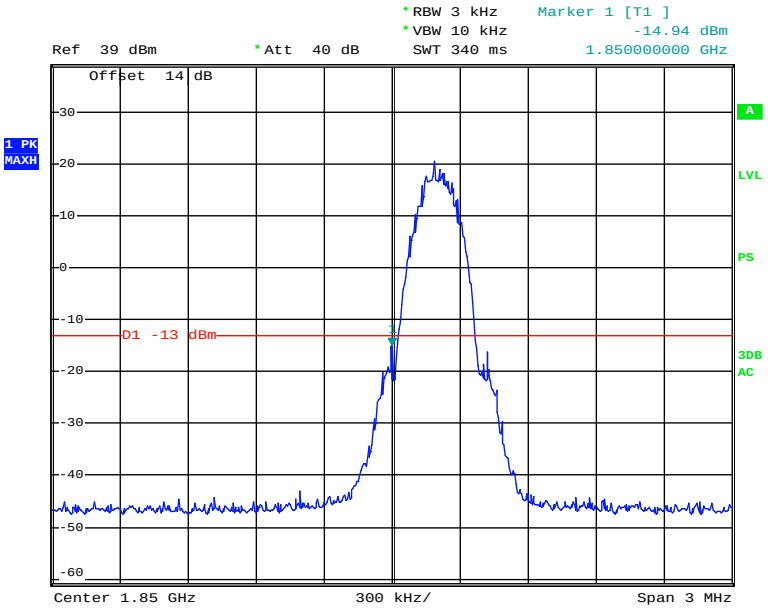
PCS Band, Left Band Edge



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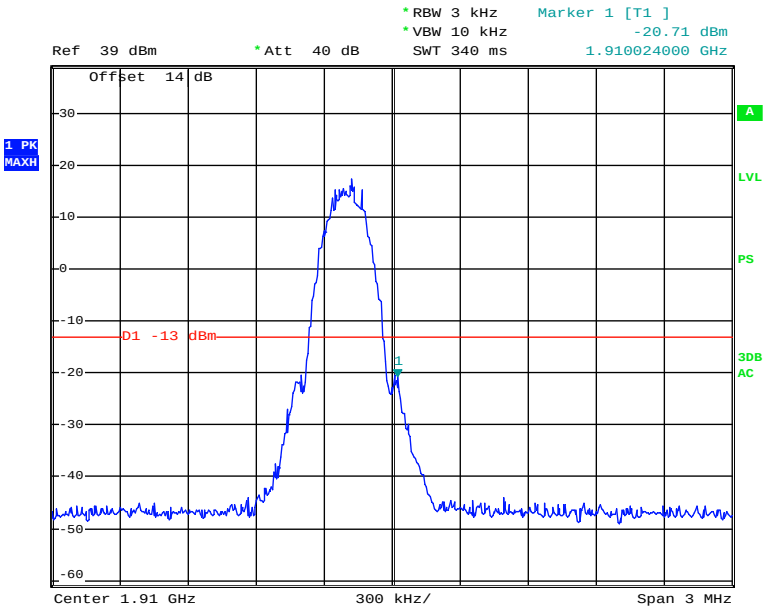
PCS Band, Right Band Edge



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

Applicable Standard

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

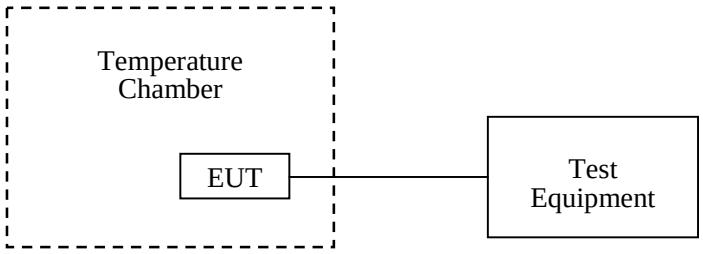
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	2011-06-04	2012-06-03
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2011-10-28	2012-10-27

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

Test Data

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Eric Lee on 2012-01-31

Cellular Band (Part 22H)

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
50	3.7	-9	-0.01076	2.5
40		-3	-0.00359	2.5
30		-9	-0.01076	2.5
20		-7	-0.00837	2.5
10		-6	-0.00717	2.5
0		-11	-0.01315	2.5
-10		-9	-0.01076	2.5
-20		-8	-0.00956	2.5
-30		-9	-0.01076	2.5
20	3.6	-9	-0.01076	2.5
20	3.5	-8	-0.00956	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**
50	3.7	-12	-0.00638	Pass
40		-13	-0.00691	Pass
30		-13	-0.00691	Pass
20		-12	-0.00638	Pass
10		-11	-0.00585	Pass
0		-9	-0.00479	Pass
-10		-13	-0.00691	Pass
-20		-5	-0.00266	Pass
-30		-11	-0.00585	Pass
20	3.6	-13	-0.00691	Pass
20	3.5	-7	-0.00372	Pass

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