

FCC PART 27
MEASUREMENT AND TEST REPORT

For

Sky Phone LLC

1348 Washington Av. Suite 350, Miami Beach

FCC ID: 2ABOSGC181469

Report Type: Original Report	Product Type: Mobile Phone
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Report Number: RSZ140213002-00E	
Report Date: 2014-02-28	
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Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Sky Phone LLC*'s product, model number: *SKY 4.0 (FCC ID:2ABOSGC181469)* or the "EUT" as referred to in this report is a *Mobile Phone*, which measures approximately: 12.48 cm (L) x 6.35 cm (W) x 1.07 cm (H), rated with input voltage: DC 3.7 V rechargeable Li-ion battery.

**All measurement and test data in this report was gathered from production sample serial number: 1401146 (Assigned by applicant). The EUT supplied by applicant was received on 2014-02-13.*

Objective

This type approval report is prepared on behalf of *Sky Phone LLC* in accordance with Part 2, Part 27 of the Federal Communication Commissions rules.

The objective is to determine the compliance of EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and 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 and Part 22H&24E PCE submissions with FCC ID: 2ABOSGC181469.

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 27 – Miscellaneous wireless communications services

Applicable Standards: TIA-1037, TIA/EIA 603-D.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. (Shenzhen). 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 in 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 C63.4-2003.

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

Justification

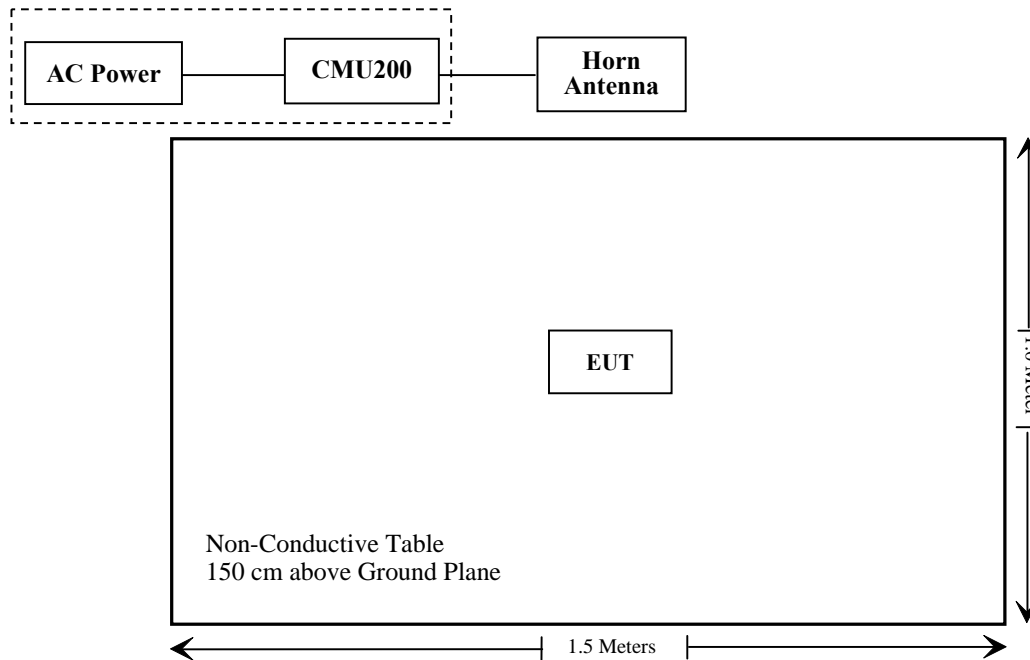
The EUT was configured for testing according to TIA/EIA-603-D.

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

Equipment Modifications

No modifications were made to the EUT.

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307(b); §27.52 ; §2.1093	RF Exposure (SAR)	Compliance*
§ 2.1046; § 27.50	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§2.1049; §27.53	Bandwidth	Compliance
§2.1051; §27.53	Spurious Emissions at Antenna Terminal	Compliance
§2.1053; §27.53	Field Strength of Spurious Radiation	Compliance
§27.53	Out of band emission, Band Edge	Compliance
§2.1055; §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: * Please refer to SAR report released by BACL, report number: RSZ140213002-20.

FCC §1.1307(b) & §27.52 & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ140213002-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046 & § 27.50 - RF OUTPUT POWER

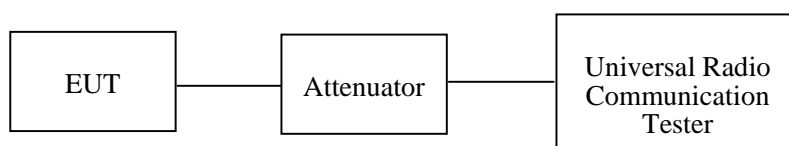
Applicable Standards

According to §27.50, the maximum EIRP must not exceed 1Watts (30 dBm).

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:

TIA603-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	2014-11-30
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
HP	Signal Generator	8341B	2624A00116	2013-05-09	2014-05-09
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
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, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	19 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2014-02-15.

Conducted Power:

Maximum Output Power

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band IV)	Normal	RMC12.2k		22.12	21.96	21.75
		Rel 6 HSDPA	1	20.87	20.76	21.61
			2	20.80	20.72	21.53
			3	20.98	20.86	21.72
			4	20.82	20.70	21.51
		Rel 6 HSUPA	1	20.95	20.65	21.55
			2	20.83	20.56	21.50
			3	21.01	20.69	21.66
			4	20.90	20.57	21.50
			5	21.07	20.71	21.68

Radiated Power:

Frequency (MHz)	Receiver Reading (dBµV)	Turn table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)
WCDMA 1700 Low channel									
1712.4	81.47	87	2.2	H	8.7	0.97	9.40	17.13	33
1712.4	82.77	45	1.0	V	10.5	0.97	9.40	18.87	33

FCC §2.1049 & §27.53 - OCCUPIED BANDWIDTH

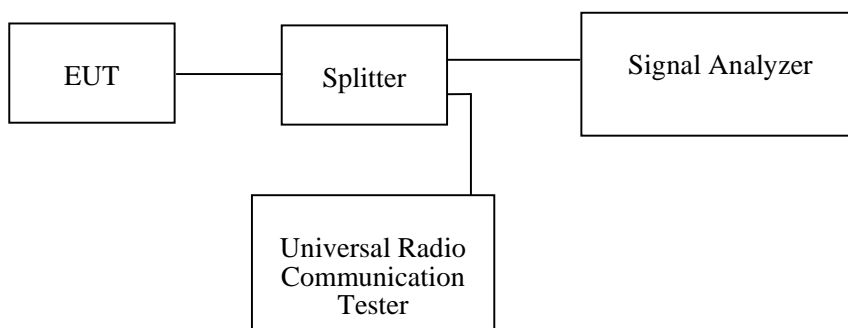
Applicable Standards

FCC 47 §2.1049 and §27.53.

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 to appropriate bandwidth 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

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

Test Data

Environmental Conditions

Temperature:	19~54 °C
Relative Humidity:	50~53 %
ATM Pressure:	101.0 kPa

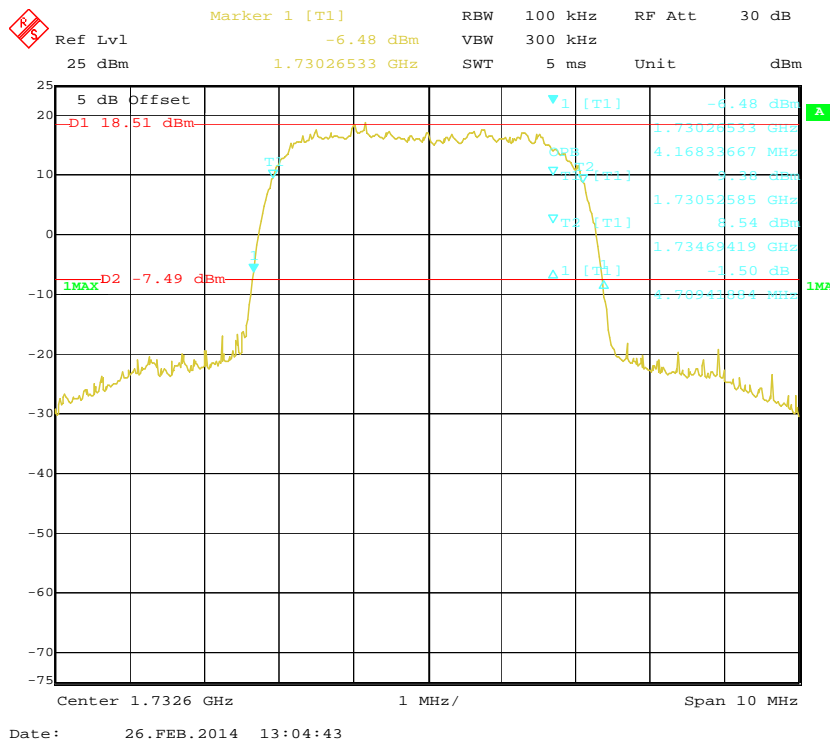
The testing was performed by Haiguo Li on 2014-02-20 to 2014-02-26.

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA (BPSK)	1732.6	4.168	4.709

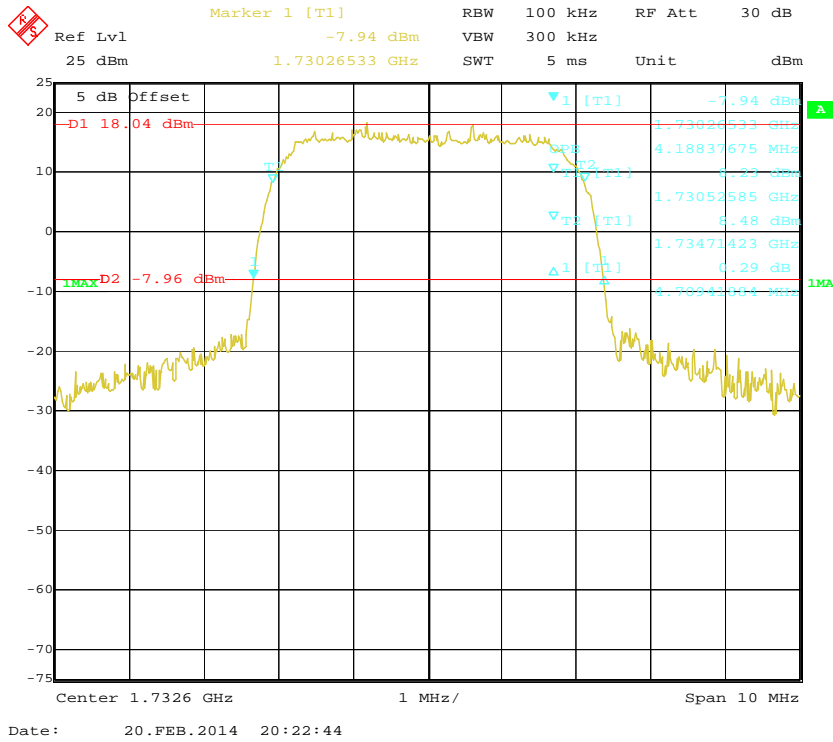
Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
HSUPA (BPSK)	1732.6	4.188	4.709

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
HSDPA (16QAM)	1732.6	4.168	4.729

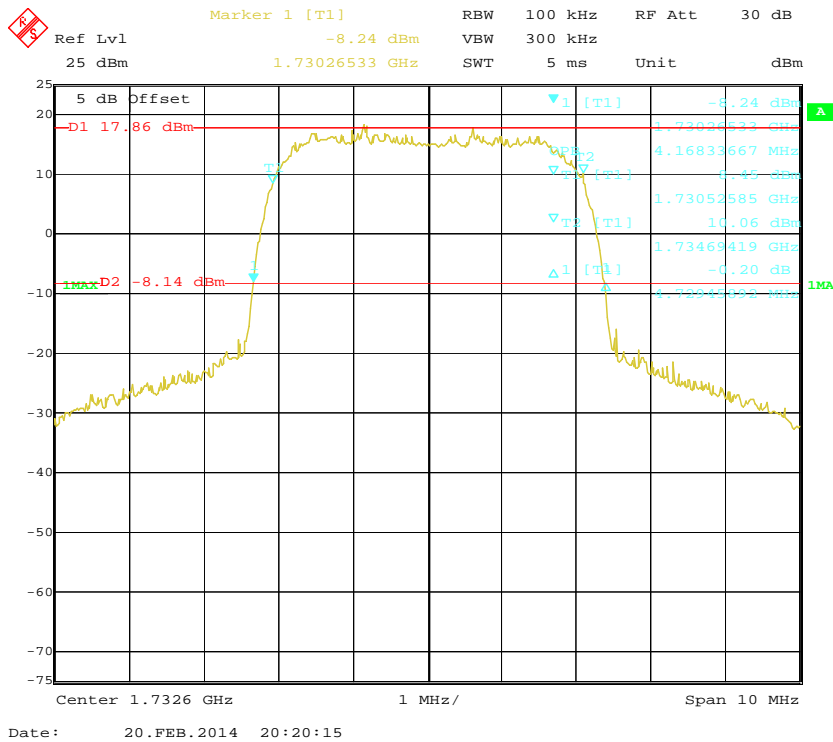
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (BPSK) Mode



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



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



FCC §2.1051 & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

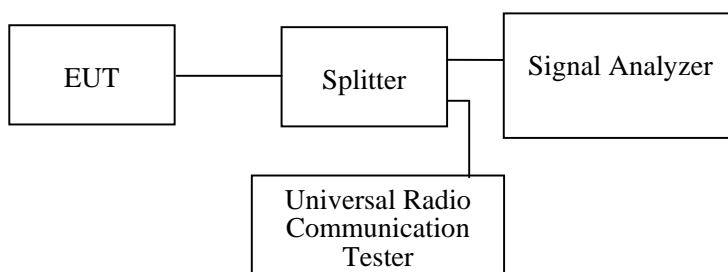
Applicable Standards

FCC §2.1051 and §27.53.

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 to appropriate bandwidth. 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	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, traceable to National Primary Standards and International System of Units (SI).

Test Data

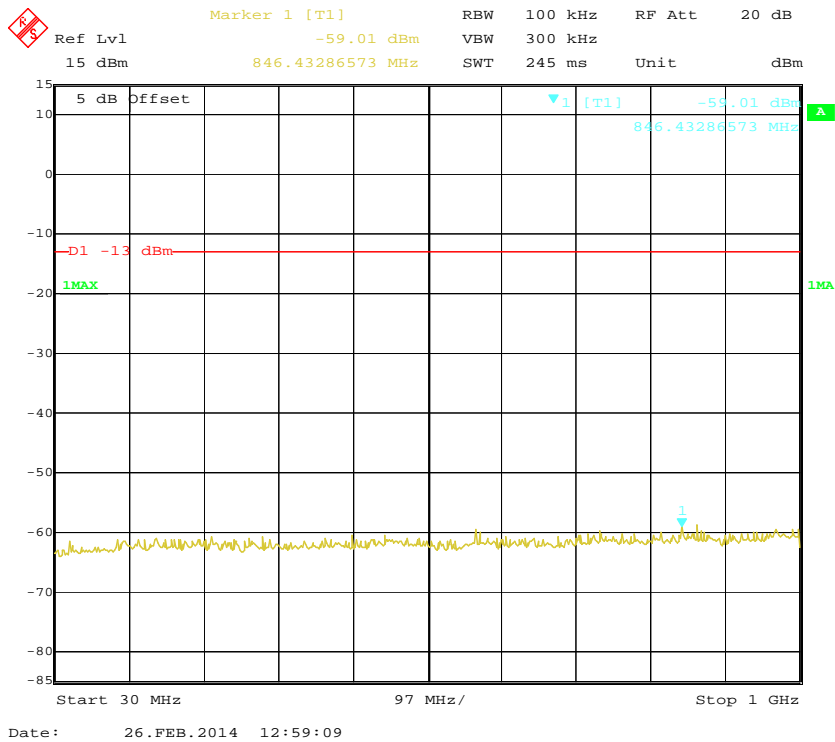
Environmental Conditions

Temperature:	21 °C
Relative Humidity:	53 %
ATM Pressure:	101.0 kPa

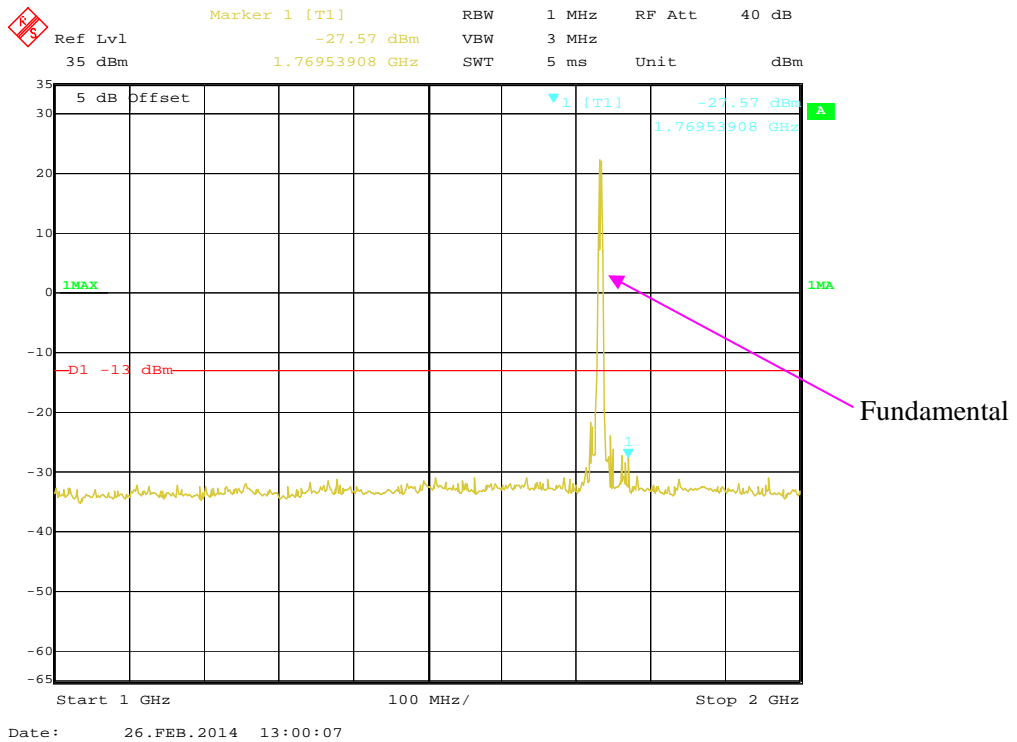
The testing was performed by Haiguo Li on 2014-02-26.

Please refer to the following plots.

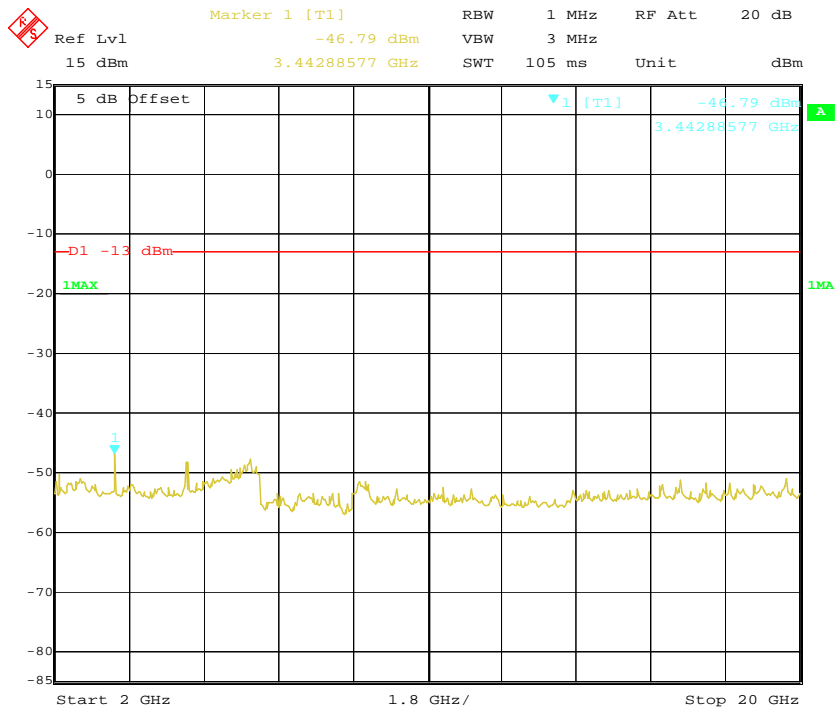
30 MHz – 1 GHz (WCDMA Mode)



1 GHz – 2 GHz (WCDMA Mode)



2 GHz – 20 GHz (WCDMA Mode)



Date: 26.FEB.2014 13:00:41

FCC §2.1053 & §27.53 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053 and § 27.53.

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 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 (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log₁₀ (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	2014-11-30
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
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-09-17	2014-09-17
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2013-04-03	2014-04-03
HP	Amplifier	8447E	1937A01046	2013-09-30	2014-09-30
HP	Signal Generator	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	2016-10-13
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, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	51 %
ATM Pressure:	100.1 kPa

The testing was performed by Haiguo Li on 2014-02-17.

Test mode: Transmitting

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA Mode, Low Channel										
181.3	26.86	328	1.7	H	-70.1	0.28	0	-70.38	-13	57.38
181.3	27.20	268	1.4	V	-69.8	0.28	0	-70.08	-13	57.08
5137.2	48.05	26	1.8	H	-45.6	2.22	11.60	-36.22	-13	23.22
5137.2	44.87	2	2.0	V	-47.1	2.22	11.60	-37.72	-13	24.72

Note:

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

FCC §27.53 - BAND EDGES

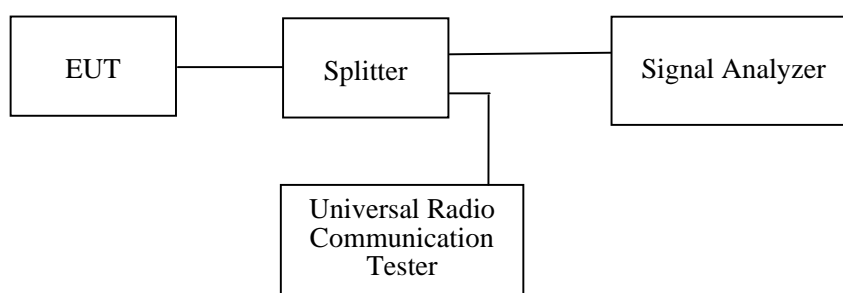
Applicable Standards

According to FCC §27.53, the power of any emission 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	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, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

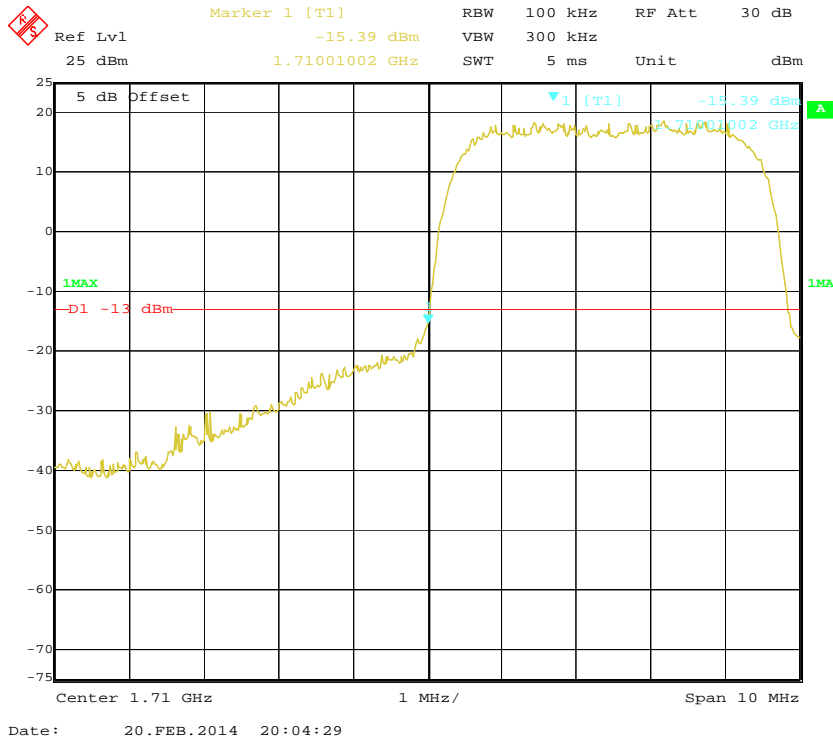
Temperature:	19 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2014-02-20.

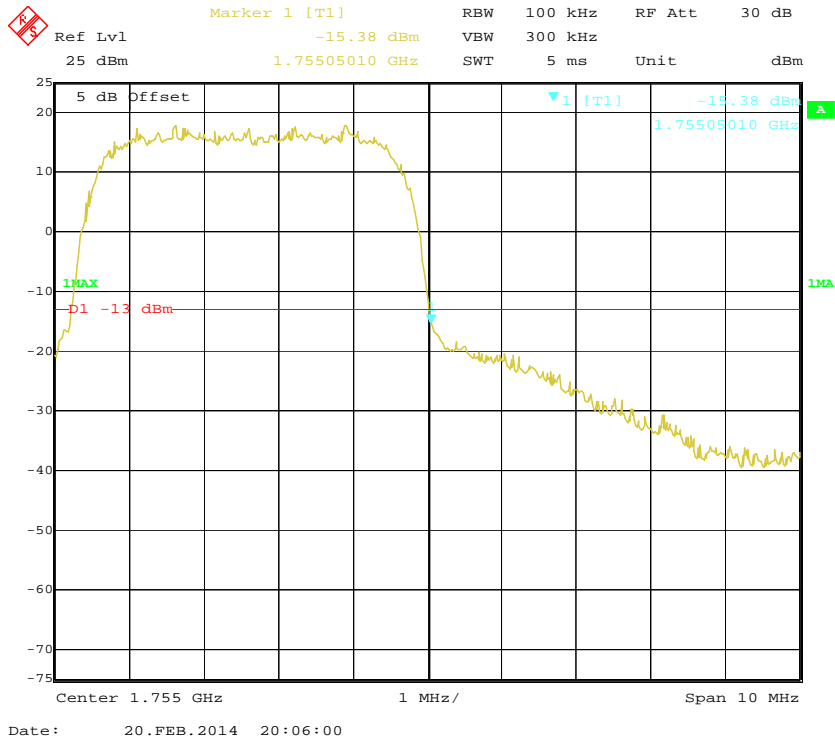
Test Result: Compliance. Please refer to the following tables and plots.

Mode	Band Edge	Emission (dBm)	Limit (dBm)
WCDMA (BPSK)	Left Band	-15.39	≤-13
	Right Band	-15.38	≤-13

Cellular Band, Left Band Edge for WCDMA (BPSK) Mode



Cellular Band, Right Band Edge for WCDMA (BPSK) Mode



FCC §2.1055 & §27.54 - FREQUENCY STABILITY

Applicable Standards

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Procedure

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2013-11-01	2014-11-01
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2013-11-23	2014-11-23

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Test Data

Environmental Conditions

Temperature:	22 °C
Relative Humidity:	51 %
ATM Pressure:	100.1 kPa

The testing was performed by Haiguo Li on 2014-02-17.

WCDMA Mode

Middle Channel, $f_0 = 1732.6$ MHz				
Temperature (°C)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7	10	0.00577	Pass
-20		12	0.00693	Pass
-10		12	0.00693	Pass
0		9	0.00519	Pass
10		7	0.00404	Pass
20		12	0.00693	Pass
30		8	0.00462	Pass
40		12	0.00693	Pass
50		15	0.00866	Pass
25		$V_{min.} = 3.5$	13	0.00750
25	$V_{max.} = 4.2$	15	0.00866	Pass

HSDPA Mode

Middle Channel, $f_0 = 1732.6$ MHz				
Temperature (°C)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7	12	0.00693	Pass
-20		14	0.00808	Pass
-10		12	0.00693	Pass
0		16	0.00923	Pass
10		7	0.00404	Pass
20		13	0.00750	Pass
30		9	0.00519	Pass
40		12	0.00693	Pass
50		19	0.01097	Pass
25		$V_{min.} = 3.5$	13	0.00750
25	$V_{max.} = 4.2$	18	0.01039	Pass

HSUPA Mode

Middle Channel, $f_0 = 1732.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7	15	0.00866	Pass
-20		14	0.00808	Pass
-10		12	0.00693	Pass
0		10	0.00577	Pass
10		17	0.00981	Pass
20		16	0.00923	Pass
30		9	0.00519	Pass
40		12	0.00693	Pass
50		10	0.00577	Pass
25		V _{min.} = 3.5	13	0.00750
25	V _{max.} = 4.2	13	0.00750	Pass

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