



# FCC PART 22H, PART 24E

# MEASUREMENT AND TEST REPORT

For

# **Nexpro International Limitada**

San Jose-Goicoechea, Guadalupe, Barrio Tournon, Frente Al Hotel Villas Tournon,

Oficinas Del Bufete Facio Y Canas, Costa Rica

# FCC ID: ZYPE580

<b>Report Type:</b> Original Report		<b>Product Type:</b> GSM Mobile Phone				
Test Engineer:	Walt Kang	Walt kang				
<b>Report Number:</b>	RSZ1109160	001-00B				
<b>Report Date:</b>	2011-11-08					
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, or any agency of the Federal Government. \* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

Bay Area Compliance Laboratories Corp. (Shenzhen)

Report No.: RDG110916001-00B

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# **GENERAL INFORMATION**

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

The *Nexpro International Limitada*'s product, model number: *E580 (FCC ID: ZYPE580)* (the "EUT") in this report was a *GSM Mobile Phone*, which was measured approximately: 7.0 cm (L) x 7.0 cm (W) x 1.8 cm (H), rated input voltage: DC 3.7V battery.

Frequency Range:

Cellular Band: 824-849 MHz (Tx), 869-894 MHz (Rx) PCS Band: 1850-1910 MHz (Tx), 1930-1990 MHz (Rx) Bluetooth: 2402-2480 MHz (Tx/Rx)

Modulation Mode: GMSK (Cellular/PCS); GFSK (Bluetooth)

Transmitter Output Power: Cellular Band: 33 dBm, PCS Band: 30 dBm Bluetooth: 8 dBm

\* All measurement and test data in this report was gathered from production sample serial number: 1108065 (Assigned by BACL, Shenzhen). The EUT was received on 2011-09-16.

### Objective

This report is prepared on behalf of *Nexpro International Limitada* 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 compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, spurious emission at antenna terminal, field strength of spurious radiation, frequency stability and band edge.

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

FCC Part 15B JBP and Part 15.247 DSS submissions with FCC ID: ZYPE580.

### **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.

The uncertainty of any RF tests which use conducted method measurement is  $\pm 0.96$  dB, the uncertainty of any radiation on emissions measurement is  $\pm 4.0$  dB

### **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

### Justification

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.

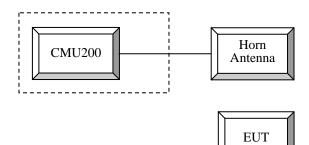
### **Equipment Modifications**

No modification was made to the EUT.

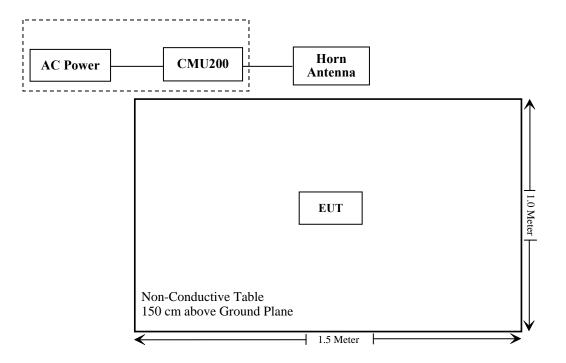
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R & S	Universal Radio Communication Tester	CMU200	109038

### **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: RSZ110916001-20

# FCC §1.1307 & §2.1093 - RF EXPOSURE

### **Applicable Standard**

FCC §1.1307 and §2.1093.

## **Test Result**

Compliance, please refer to the SAR report: RSZ110916001-20

# 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	escription 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
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2010-11-07	2011-11-06
COM POWER	Dipole Antenna	AD-100	041000	2010-09-25	2011-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17

\* **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 56 %			
<b>Relative Humidity:</b>	56 %			
ATM Pressure:	100.0kPa			

The testing was performed by Walt Kang on 2011-09-22.

### **Conducted Power:**

### Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
	128	824.2	31.72	38.45
GSM	190	836.6	31.83	38.45
	251	848.8	31.89	38.45

Mode	Channel	Frequency	Output Power (dBm)				
	Channel	(MHz)	1 slot	2 slots	3 slots	4 slots	
	128	824.2	31.59	30.78	Not Supported		
GPRS	190	836.6	31.67	30.86			
	251	848.8	31.73	30.93			

### PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
	512	1850.2	28.45	33
GSM	661	1880.0	28.72	33
	810	1909.8	28.95	33

Mode	Channel	Frequency	Output Power (dBm)				
	Channel	(MHz)	1 slot	2 slots	3 slots	4 slots	
	512	1850.2	28.27	27.54	Not Supported		
GPRS	661	1880.0	28.50	27.80			
	810	1909.8	28.67	27.76			

### Bay Area Compliance Laboratories Corp. (Shenzhen)

### ERP & EIRP:

Indic	ated	Table	Test A	ntenna	Substituted				Antenna	Cable	Absolute	Part 22H
Frequency (MHz)	S.A. Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)	Gain Correction (dBd)	Loss (dB)	Level (dBm)	Limit (dBm)	
	High Channel											
848.8	91.16	180	1.5	Н	848.8	19.0	Η	0	0.68	18.32	38.45	
848.8	104.42	210	2.1	V	848.8	31.3	V	0	0.68	30.62	38.45	

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

EIRP for PCS Band (Part 24E)

Indicated		ated	Table	Table Test Antenna		Su	Substituted			Cable	Absolute	Part 24E
]	Frequenc y (MHz)	S.A. Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)		S.G. Level (dBm)	Ant. Polar (H/V)	Gain Correction (dBi)	LOSE	Level (dBm)	Limit (dBm)
						High (	Channel					
	1909.8	86.15	330	1.8	Н	1909.8	14.3	Н	6.2	1.1	19.40	38.45
	1909.8	89.63	158	2.1	V	1909.8	21.9	V	6.2	1.1	27.00	38.45

Note: all above data were tested with no amplifier.

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

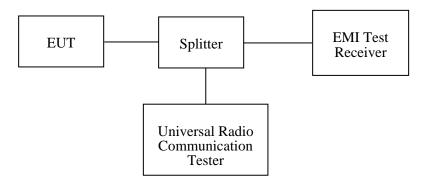
### **Applicable Standard**

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 bandwidth was recorded.



### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10	

\* 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
<b>Relative Humidity:</b>	56%
ATM Pressure:	100.0kPa

The testing was performed by Walt Kang on 2011-10-12.

### GMSK:

Channel	Frequency (MHz)	26 dB Bandwidth (kHz)
190	836.6	314

### Cellular Band (Part 22H)

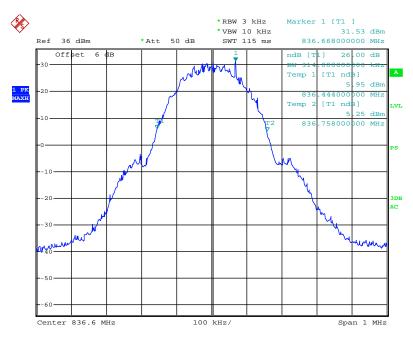
### PCS Band (Part 24E)

Channel	Frequency (MHz)	26 dB Bandwidth (kHz)
661	1880.0	316

Please refer to the following plots.

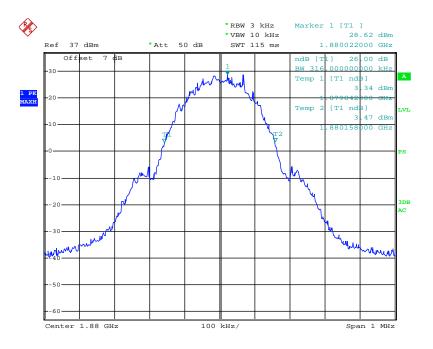
Cellular Band (Part 22H)





Date: 12.0CT.2011 20:11:32

### PCS Band (Part 24E)



### 26 dB Emission Bandwidth

Date: 12.0CT.2011 20:00:05

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

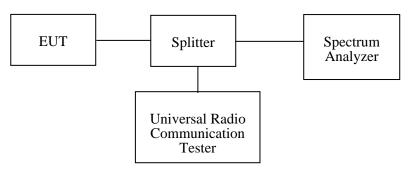
### **Applicable Standard**

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  $10^{th}$  harmonic.



### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10	

\* **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**

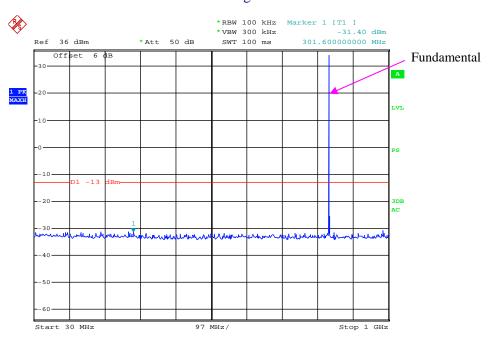
#### **Environmental Conditions**

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

The testing was performed by Walt Kang from 2011-09-18 to 2011-11-08.

Please refer to the following plots.

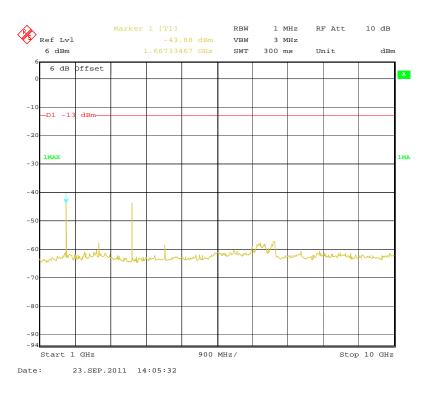
### **Cellular Band (Part 22H)**



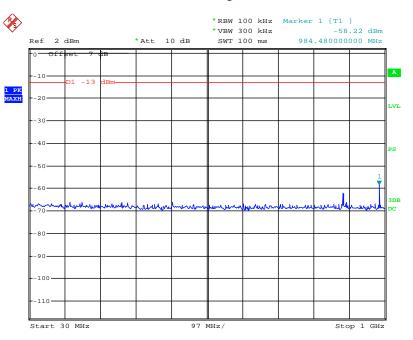
30 – 1000 MHz - High Channel

Date: 8.NOV.2011 16:00:37

### 1 – 10 GHz - High Channel



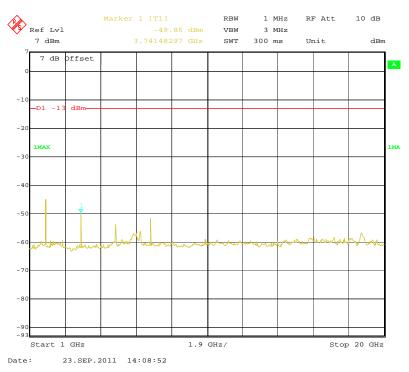
### PCS Band (Part 24E)



30 - 1000 MHz - High Channel

Date: 18.SEP.2011 21:10:09

### 1 - 20 GHz - High 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 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  $dB = 43 + 10 \text{ Log}_{10}$  (power out in Watts)

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	2010-10-28	2011-10-27	
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-02	
HP	Synthesized Sweeper	8341B	2624A00116	2010-11-07	2011-11-06	
COM POWER	M POWER Dipole Antenna		041000	2010-09-25	2011-09-25	
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17	

### **Test Equipment List and Details**

\* **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
<b>Relative Humidity:</b>	56 %
ATM Pressure:	100.0kPa

The testing was performed by Walt Kang on 2011-09-25.

EUT Operation Mode: Transmitting

## Cellular Band (Part 22H)

### Below 1 GHz

Indica	Indicated		Test Antenna		Substituted						
Frequency (MHz)	S.A. Reading (dBµV)	Table Angle Degree	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain Correction (dBd)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					High Cha	nnel					
889.35	39.65	335	1.4	Н	889.35	-55.1	0	0.69	-55.79	-13	42.79
752.65	38.47	210	1.8	V	752.65	-57.3	0	0.64	-57.94	-13	44.94
483.65	36.54	250	1.9	V	483.65	-58.4	0	0.49	-58.89	-13	45.89
812.36	37.69	180	1.5	Н	812.36	-59.6	0	0.67	-60.27	-13	47.27

Above 1 GHz

Indica	ted	Table	Test Aı	ntenna		Substitu	ted		Absolute		
Frequency (MHz)	S.A. Reading (dBµV)	Angle	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
	High Channel										
2546.4	46.47	180	2.3	V	2546.4	-51.34	7.3	1.19	-45.23	-13	32.23
1697.6	48.17	160	2.1	V	1697.6	-51.44	6.2	0.94	-46.18	-13	33.18
2546.4	41.78	110	2.5	Н	2546.4	-56.18	7.3	1.19	-50.07	-13	37.07
3395.2	37.61	320	1.8	V	3395.2	-56.4	6.7	1.39	-51.09	-13	38.09
3395.2	36.86	360	1.4	Н	3395.2	-57.1	6.7	1.39	-51.79	-13	38.79
1697.6	39.55	180	1.5	Н	1697.6	-61.41	6.2	0.94	-56.15	-13	43.15

## PCS Band (Part 24E)

Below 1 GHz

Indica	Indicated Table		Test Antenna		Substituted				Absolute		
Frequency (MHz)	S.A. Reading (dBµV)	Angle	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
					High Cha	nnel					
687.39	41.23	130	2.1	Н	687.39	-53.6	0	0.60	-54.2	-13	41.20
425.36	39.65	180	1.8	V	425.36	-57.1	0	0.45	-57.55	-13	44.55
245.65	37.45	250	1.4	V	245.65	-59.3	0	0.30	-59.6	-13	46.60
812.54	35.62	210	1.0	Н	812.54	-60.2	0	0.67	-60.87	-13	47.87

Above 1 GHz

Indica	Indicated Table		Test Antenna		Substituted			Absolute			
Frequency (MHz)	S.A. Reading (dBµV)	Angle	Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)	Level (dBm)	Limit M (dBm)	Margin (dB)
	High Channel										
5729.4	47.12	180	2.1	Н	5729.4	-45.9	8.3	1.76	-39.36	-13	26.36
5729.4	45.81	150	2.3	V	5729.4	-45.2	8.3	1.76	-38.66	-13	25.66
7639.2	41.26	270	2.6	V	7639.2	-47.7	7.6	2.1	-42.20	-13	29.20
7639.2	39.73	310	1.4	Н	7639.2	-49.3	7.6	2.1	-43.80	-13	30.80
3819.6	35.64	300	1.7	V	3819.6	-58.4	6.9	1.47	-52.97	-13	39.97
3819.6	35.77	250	1.5	Н	3819.6	-58.2	6.9	1.47	-52.77	-13	39.77

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

### **Applicable Standard**

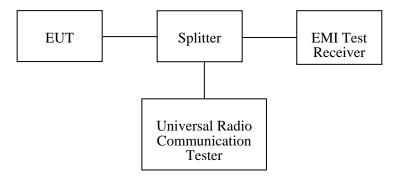
According to FCC 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P) dB$ .

According to FCC 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	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10

\* **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
<b>Relative Humidity:</b>	56 %
ATM Pressure:	100.0kPa

The testing was performed by Walt Kang on 2011-09-18.

Please refer to the following tables and plots.

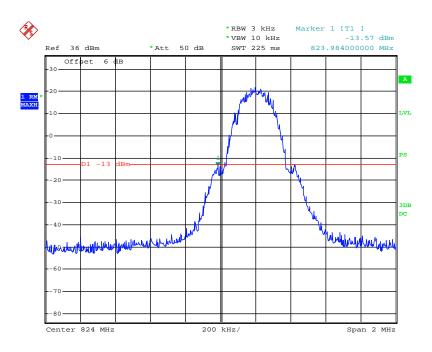
Cellular Band (P	art 22H)
------------------	----------

Frequency (MHz)	Emission (dBm)	Limit (dBm)
823.984	-13.57	-13
849.024	-16.06	-13

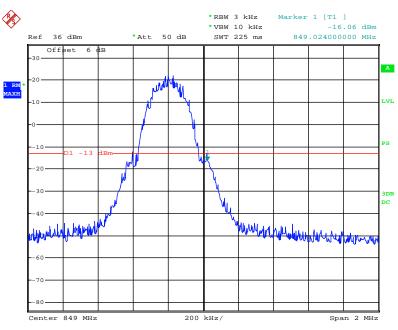
PCS Band (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1849.984	-15.62	-13
1910.020	-14.52	-13

### Cellular Band, Left Band Edge

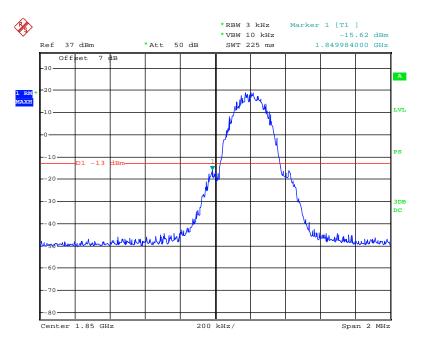


Date: 18.SEP.2011 21:56:10



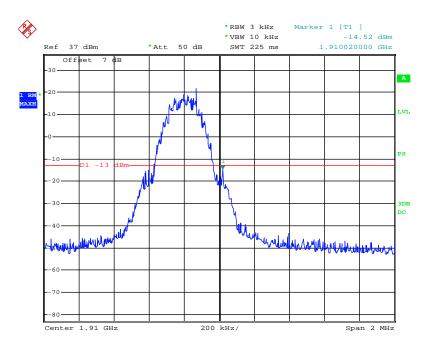
### Cellular Band, Right Band Edge

Date: 18.SEP.2011 21:57:33



### PCS Band, Left Band Edge

Date: 18.SEP.2011 22:59:01



### PCS Band, Right Band Edge

Date: 18.SEP.2011 22:59:54

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

### **Applicable Standard**

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

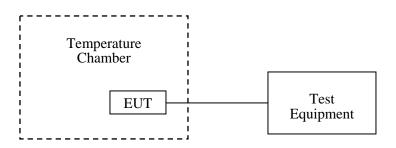
According to FCC §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

### **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	2011-04-11	2012-04-10

\* **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
<b>Relative Humidity:</b>	56 %
ATM Pressure:	100.0kPa

The testing was performed by Walt Kang on 2011-09-21.

Middle Channel, f <sub>o</sub> =836.6 MHz						
Temperature ( <sup>O</sup> C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)		
-30		-9	-0.0107	2.5		
-20		-11	-0.0131	2.5		
-10		-10	-0.0119	2.5		
0		-10	-0.0119	2.5		
10	3.7	-11	-0.0131	2.5		
20		-8	-0.0095	2.5		
30		-9	-0.0107	2.5		
40		-12	-0.0143	2.5		
50		-10	-0.0119	2.5		
25	V max.=4.2	-9	-0.0107	2.5		
	V min.= 3.5	-11	-0.0131	2.5		

### Cellular Band (Part 22H)

Middle Channel, f <sub>o</sub> =1880.0 MHz						
Temperature ( <sup>O</sup> C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Result		
-30		-27	-0.0144	pass		
-20		-25	-0.0133	pass		
-10		-26	-0.0138	pass		
0		-28	-0.0149	pass		
10	3.7	-25	-0.0133	pass		
20		-26	-0.0138	pass		
30		-25	-0.0133	pass		
40		-26	-0.0138	pass		
50		-25	-0.0133	pass		
25	V max.=4.2	-29	-0.0154	pass		
	V min.= 3.5	-26	-0.0138	pass		

PCS	Band	(Part	24E)
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# \*\*\*\*\* END OF REPORT \*\*\*\*\*