

# FCC PART 22H, PART 24E TEST REPORT

For

## **Ezfone Telecommunication Ltd.**

Flat 9, 16th Floor, Lemmi Center, 50 Hoi Yuen Road, Kwun Tong, Kowloon, Hong Kong, China

FCC ID: YLXC01-0724

Report Type: Product Type:
Original Report Mobile phone

obite phone

Simon wang

**Test Engineer:** Simon Wang

Report Number: R1DG130723001-00B

**Report Date:** 2013-08-14

Sula Huang

**Reviewed By:** RF Engineer

**Prepared By:** Bay Area Compliance Laboratories Corp. (Shenzhen)

6/F, the 3rd Phase of WanLi Industrial Building

ShiHua Road, FuTian Free Trade Zone

Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

**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.

Report No.: R1DG130723001-00B

GENERAL INFORMATION	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	
OBJECTIVE	
RELATED SUBMITTAL(S)/GRANT(S)	
TEST FACILITY	
SYSTEM TEST CONFIGURATION	
DESCRIPTION OF TEST CONFIGURATION.	
EQUIPMENT MODIFICATIONS	
SUPPORT EQUIPMENT LIST AND DETAILS	
BLOCK DIAGRAM OF TEST SETUP	
SUMMARY OF TEST RESULTS	
FCC §1.1307 & §2.1093 - RF EXPOSURE	
APPLICABLE STANDARD	
TEST RESULT	
FCC §2.1047 - MODULATION CHARACTERISTIC	
FCC § 2.1046, § 22.913 (A) & § 24.232 (C) - RF OUTPUT POWER	10
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS.	
TEST DATA	
FCC §2.1049, §22.917, §22.905 & §24.238 - BANDWIDTH	13
APPLICABLE STANDARD	13
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	
TEST DATA	
FCC $\S 2.1051$ , $\S 22.917(A)$ & $\S 24.238(A)$ - SPURIOUS EMISSIONS AT ANTENNA TERMINALS	
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	1 1'
FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS	
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST FROCES ONE TEST EQUIPMENT LIST AND DETAILS.	
TEST DATA	2
FCC §22.917(A) & §24.238(A) - BAND EDGES	
APPLICABLE STANDARD	
Test Procedure	
TEST EQUIPMENT LIST AND DETAILS	

**TABLE OF CONTENTS** 

FCC §2,1055, §22.355 & §24.235 - FREQUENCY STABILITY	26
APPLICABLE STANDARD	
Test Procedure	
TEST EQUIPMENT LIST AND DETAILS.	27
Test Data	27

FCC Part 22H/24E Page 3 of 28

#### **GENERAL INFORMATION**

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

The *Ezfone Telecommunication Ltd.*'s product, model number: *C01 (FCC ID: YLXC01-0724)* or the "EUT" in this report was a *Mobile phone*, which was measured approximately: 10.3 cm (L) x 5.0 cm (W) x 1.1 cm (H), rated with input voltage: DC 3.7V Li-ion battery.

Report No.: R1DG130723001-00B

\*All measurement and test data in this report was gathered from production sample serial number: 130723001 (Assigned by the BACL, Shenzhen). The EUT supplied by the applicant was received on 2013-07-23.

#### **Objective**

This test report is prepared on behalf of *Ezfone Telecommunication Ltd.* 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 15B JBP submissions with FCC ID: YLXC01-0724.

#### **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.

Measurement uncertainty with radiated emission is 5.91 dB for 30MHz-1GHz.and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

FCC Part 22H/24E Page 4 of 28

#### **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.

Report No.: R1DG130723001-00B

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.

FCC Part 22H/24E Page 5 of 28

## 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**

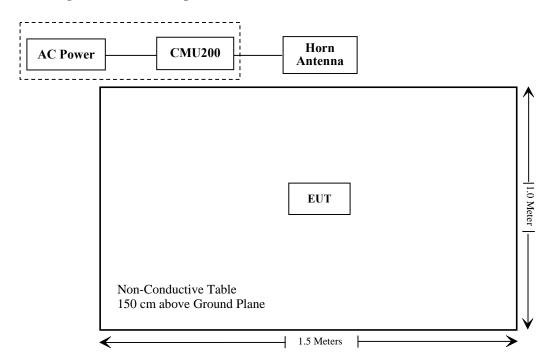
No modification was made to the EUT.

#### **Support Equipment List and Details**

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

Report No.: R1DG130723001-00B

#### **Block Diagram of Test Setup**



FCC Part 22H/24E Page 6 of 28

## **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	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

Report No.: R1DG130723001-00B

Note: \* Please refer to SAR report released by BACL, report number: R1DG130723001-20

FCC Part 22H/24E Page 7 of 28

## FCC §1.1307 & §2.1093 - RF EXPOSURE

Report No.: R1DG130723001-00B

## **Applicable Standard**

FCC§1.1307 and §2.1093.

#### **Test Result**

Compliance, please refer to the SAR report: R1DG130723001-20

FCC Part 22H/24E Page 8 of 28

## FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC  $\S 2.1047(d)$ , Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

Report No.: R1DG130723001-00B

FCC Part 22H/24E Page 9 of 28

## 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.

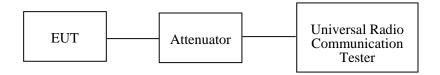
Report No.: R1DG130723001-00B

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	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	2012-11-24	2013-11-23
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
НР	Synthesized Sweeper	HP 8341B	2624A00116	2013-05-09	2014-05-09
COM POWER	Dipole Antenna	AD-100	041000	2013-06-06	2014-06-05
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-12-01	2013-12-01

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

FCC Part 22H/24E Page 10 of 28

#### **Test Data**

#### **Environmental Conditions**

Temperature:	26 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2013-08-01.

#### **Conducted Power**

#### Cellular Band (Part 22H)

Report No.: R1DG130723001-00B

Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
	128	824.2	32.27	38.45
GSM	190	836.6	32.06	38.45
	251	848.8	32.09	38.45

Mode	Channel	Frequency		Limit			
Mode	Chamiei	(MHz)	1 slot	2 slots	3 slots	4 slots	(dBm)
	128	824.2	31.95	30.21	28.30	25.93	38.45
GPRS	190	836.6	32.11	30.39	28.47	26.22	38.45
	251	848.8	32.19	30.53	28.61	26.37	38.45

#### PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
	512	1850.2	29.21	33
GSM	661	1880.0	28.92	33
	810	1909.8	28.68	33

Mode	Channel Frequency Output Power (dBm)					Limit	
	Chamiei	(MHz)	1 slot	2 slots	3 slots	4 slots	(dBm)
	512	1850.2	29.13	27.39	25.79	23.41	33
GPRS	661	1880.0	28.89	27.10	25.53	23.31	33
	810	1909.8	29.07	26.97	25.39	23.40	33

FCC Part 22H/24E Page 11 of 28

#### **Radiated Power**

#### **ERP & EIRP**

#### **GSM Mode:**

Engguenav	Receiver	TurnTable	Rx Ant	Rx Antenna		Substituted		Absolute	FCC Part 22H/24E
Frequency (MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	S.G. Level (dBm)	Cable loss (dB)	Antenna Gain (dB)	Level (dBm)	Limit (dBm)
			ERP f	or Cellu	lar Band,	Low chan	nel		
824.2	88.38	25	1.5	Н	23.2	0.68	0	22.52	38.45
824.2	97.46	123	1.6	V	32.5	0.68	0	31.82	38.45
	EIRP for PCS Band, Low channel								
1850.2	86.15	79	1.5	Н	15.1	1.03	9.4	23.47	33
1850.2	90.78	163	1.7	V	20.6	1.03	9.4	28.97	33

Report No.: R1DG130723001-00B

FCC Part 22H/24E Page 12 of 28

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

#### **Applicable Standard**

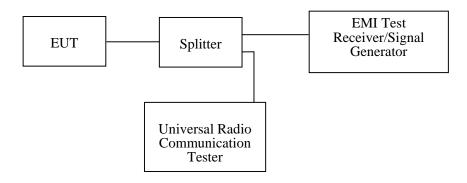
FCC §2.1049, §22.917, §22.905 and §24.238.

#### **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 5 kHz (Cellular /PCS) and the 26 dB & 99% bandwidth was recorded.

Report No.: R1DG130723001-00B



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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-12-01	2013-12-01

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

#### **Test Data**

#### **Environmental Conditions**

Temperature:	26 ℃	
Relative Humidity:	54 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Simon Wang on 2013-08-01.

FCC Part 22H/24E Page 13 of 28

EUT operation mode: Transmitting

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

## Cellular Band (Part 22H)

Report No.: R1DG130723001-00B

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)	
GSM	190	836.6	246.49	322.65	

#### PCS Band (Part 24E)

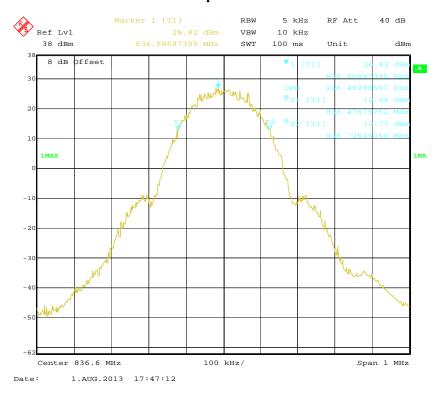
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)	
GSM	661	1880.0	246.49	320.64	

FCC Part 22H/24E Page 14 of 28

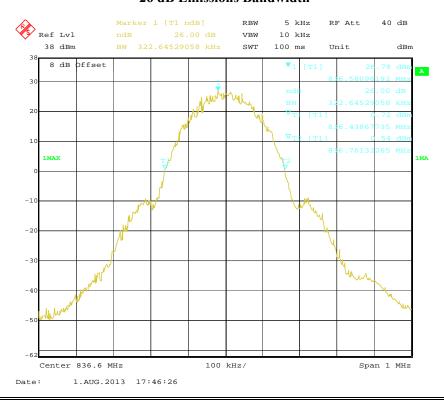
#### Cellular Band (Part 22H)

#### 99% Occupied Bandwidth

Report No.: R1DG130723001-00B



#### 26 dB Emissions Bandwidth

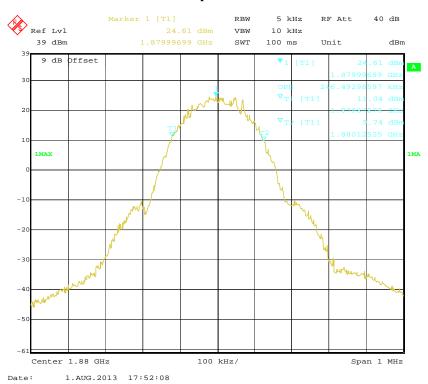


FCC Part 22H/24E Page 15 of 28

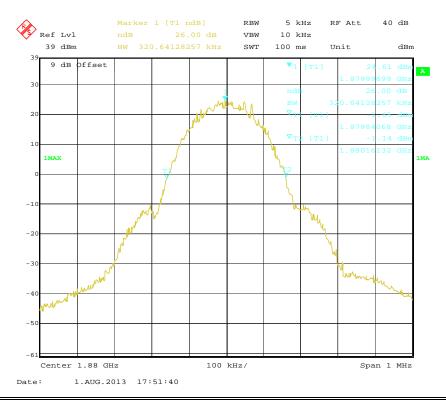
#### PCS Band (Part 24E)

#### 99% Occupied Bandwidth

Report No.: R1DG130723001-00B



#### 26 dB Emissions Bandwidth



FCC Part 22H/24E Page 16 of 28

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

Report No.: R1DG130723001-00B

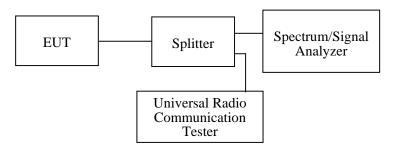
#### **Applicable Standard**

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 10<sup>th</sup> harmonic.



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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-12-01	2013-12-01
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23

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

#### **Test Data**

#### **Environmental Conditions**

Temperature:	26 ℃	
Relative Humidity:	54 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Simon Wang on 2013-08-01.

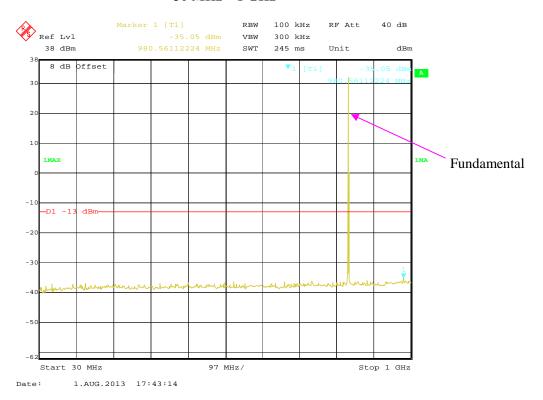
Test result: Compliance, please refer to the following plots.

FCC Part 22H/24E Page 17 of 28

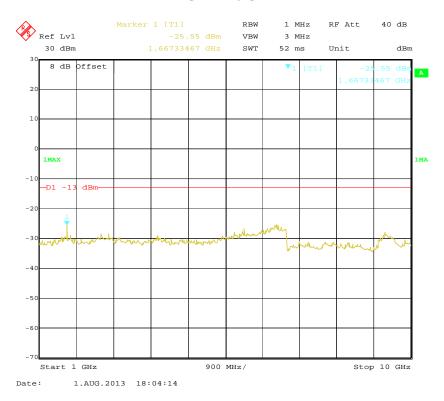
#### Report No.: R1DG130723001-00B

#### Cellular Band (Part 22H)

#### 30 MHz - 1 GHz



#### 1 GHz - 10 GHz

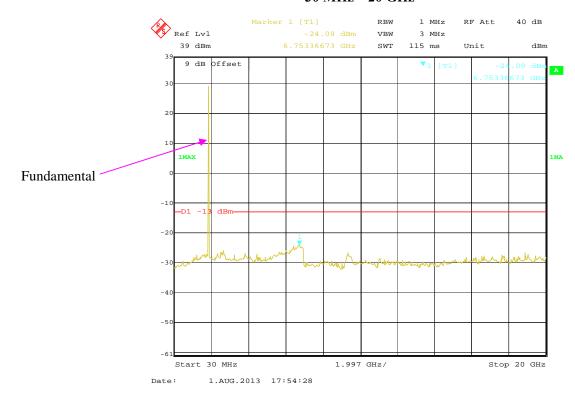


FCC Part 22H/24E Page 18 of 28

#### PCS Band (Part 24E)

#### 30 MHz - 20 GHz

Report No.: R1DG130723001-00B



FCC Part 22H/24E Page 19 of 28

## FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

Report No.: R1DG130723001-00B

#### **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  $dB = 43 + 10 \text{ Log}_{10}$  (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	2014-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
SUPER ULTRA	Amplifier	ZVA-213+	N/A	2012-11-24	2013-11-23
HP	Amplifier	HP8447E	1937A01046	2012-08-09	2013-08-09
HP	Synthesized Sweeper	HP 8341B	2624A00116	2013-05-09	2014-05-09
COM POWER	Dipole Antenna	AD-100	041000	2013-06-06	2014-06-05
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Electro-Mechanics	Horn Antenna	3116	9510-2270	2010-10-14	2013-10-13
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-12-01	2013-12-01

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

FCC Part 22H/24E Page 20 of 28

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25 ℃	
Relative Humidity:	56 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Simon Wang on 2013-08-01.

EUT operation mode: Transmitting (worst case)

#### **30 MHz ~ 10 GHz:**

#### Cellular Band (Part 22H) for GSM mode

Report No.: R1DG130723001-00B

	Receiver	Turntable	Rx An	tenna	\$	Substitut	ed	Absolute	FCC Part 22H	
Frequency (MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
	Low Channel									
1648.2	63.47	112	1.6	V	-38.6	0.95	9.4	-30.15	-13	17.15
1648.2	54.74	53	1.5	Н	-48.8	0.95	9.4	-40.35	-13	27.35
3296.8	44.32	99	1.6	V	-49.2	2.08	10.8	-40.48	-13	27.48
2472.6	45.13	78	1.8	V	-51.2	1.46	10.7	-41.96	-13	28.96
2472.6	49.05	132	1.7	Н	-51.7	1.46	10.7	-42.46	-13	29.46
3296.8	40.77	21	1.9	Н	-53.7	2.08	10.8	-44.98	-13	31.98
512.36	38.46	125	1.7	V	-58.3	0.52	0	-58.82	-13	45.82
512.36	37.52	87	1.6	Н	-59.3	0.52	0	-59.82	-13	46.82

#### 30 MHz ~ 20 GHz:

## PCS Band (Part 24E) for GSM mode

	Receiver	Turntable	Rx An	tenna		Substitut	ed	Absolute	FCC Part 24E	
Frequency (MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
	Low Channel									
3700.4	50.31	141	1.7	V	-46.2	2.59	10.4	-38.39	-13	25.39
3700.4	45.45	97	1.8	Н	-51.8	2.59	10.4	-43.99	-13	30.99
5550.6	37.78	34	1.6	V	-53.4	3.94	11.7	-45.64	-13	32.64
5550.6	38.10	108	1.6	Н	-54.3	3.94	11.7	-46.54	-13	33.54
512.36	38.39	125	1.7	V	-58.4	0.52	0	-58.92	-13	45.92
512.36	37.18	87	1.6	Н	-59.6	0.52	0	-60.12	-13	47.12

Note:

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

FCC Part 22H/24E Page 21 of 28

## 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  $43 + 10 \log(P) dB$ .

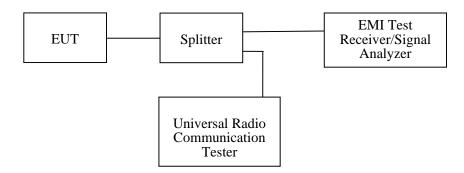
Report No.: R1DG130723001-00B

According to \$24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

#### **Test Procedure**

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-12-01	2013-12-01

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

#### **Test Data**

#### **Environmental Conditions**

Temperature:	26 ℃	
Relative Humidity:	54 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Simon Wang on 2013-08-01.

FCC Part 22H/24E Page 22 of 28

EUT operation mode: Transmitting

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

## Cellular Band (Part 22H)

Report No.: R1DG130723001-00B

Mode	Frequency Band	Emission (dBm)	Limit (dBm)
GSM	Left	-14.15	≤-13
GSW	Right	-14.51	≤-13

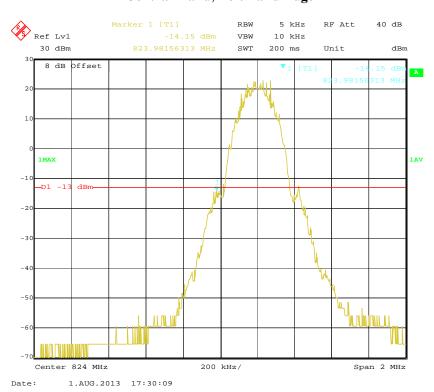
#### PCS Band (Part 24E)

Mode	Frequency Band	Emission (dBm)	Limit (dBm)
GSM	Left	-16.80	≤-13
	Right	-16.89	≤-13

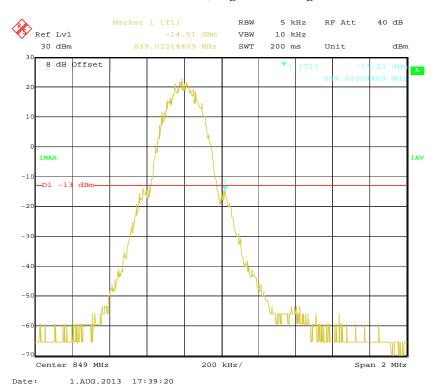
FCC Part 22H/24E Page 23 of 28

#### Cellular Band, Left Band Edge

Report No.: R1DG130723001-00B



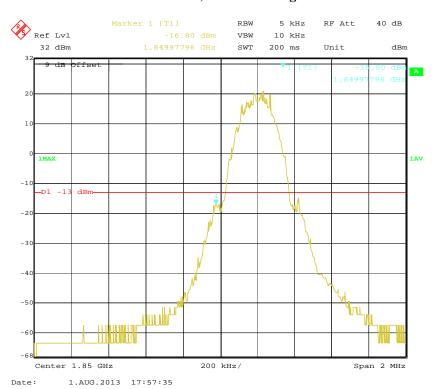
#### Cellular Band, Right Band Edge



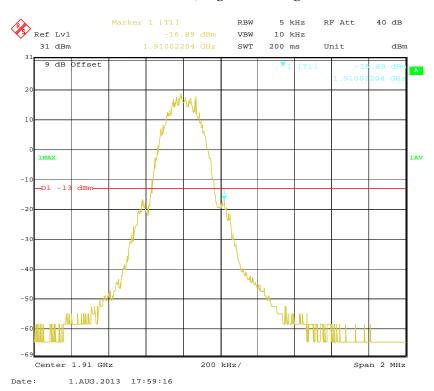
FCC Part 22H/24E Page 24 of 28

#### PCS Band, Left Band Edge

Report No.: R1DG130723001-00B



#### PCS Band, Right Band Edge



FCC Part 22H/24E Page 25 of 28

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

#### **Applicable Standard**

FCC § 2.1055, §22.355, §24.235

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

E T-1	T	· · · · · · · · · · · · · · · · · · ·	! 41 D	1-1: - 1/4-1-:1.	. C:
Frequency Tol	erance for i	ransmillers	III lile Pu	DHC WIODH	Solivices

Report No.: R1DG130723001-00B

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

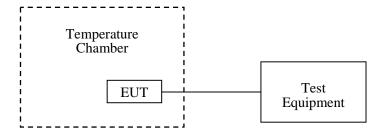
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

#### **Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

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



FCC Part 22H/24E Page 26 of 28

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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2012-11-02	2013-11-01
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	106891	2012-12-01	2013-12-01

Report No.: R1DG130723001-00B

#### **Test Data**

#### **Environmental Conditions**

Temperature:	26 ℃	
Relative Humidity:	54 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Simon Wang on 2013-08-01.

EUT operation mode: Transmitting

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

FCC Part 22H/24E Page 27 of 28

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

#### **GSM** mode:

## Cellular Band (Part 22H)

Report No.: R1DG130723001-00B

Middle Channel, f <sub>o</sub> = 836.6MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50		-8	-0.0096	2.5
40		-9	-0.0108	2.5
30		-7	-0.0084	2.5
20		-5	-0.0060	2.5
10	3.7	-6	-0.0072	2.5
0		-10	-0.0120	2.5
-10		-8	-0.0096	2.5
-20		-11	-0.0132	2.5
-30		-13	-0.0155	2.5
20	V <sub>max.</sub> = 4.2	-6	-0.0072	2.5
20	V <sub>min.</sub> = 3.5	-4	-0.0048	2.5

## PCS Band (Part 24E)

Middle Channel, f <sub>o</sub> = 1880.0 MHz				
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50		-8	-0.0043	Pass
40		-10	-0.0053	Pass
30		-9	-0.0048	Pass
20		-7	-0.0037	Pass
10	3.7	-8	-0.0043	Pass
0		-6	-0.0032	Pass
-10		-12	-0.0064	Pass
-20		-11	-0.0058	Pass
-30		-13	-0.0069	Pass
20	V <sub>max.</sub> = 4.2	-9	-0.0048	Pass
20	V <sub>min.</sub> = 3.5	-8	-0.0043	Pass

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

FCC Part 22H/24E Page 28 of 28