

## FCC PART 15D

## MEASUREMENT AND TEST REPORT

For

**Xingtel Xiamen Electronics Co., Ltd.**

Xingtel Building, Chungxin Road, Torch Hi-tech Industrial District,

Xiamen 361006, China

**FCC ID: QMH-A300PP**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Amplified DECT 6.0 Cordless (Handset)
<b>Test Engineer:</b> <u>Bruce Zhang</u>	<i>Bruce Zhang</i>
<b>Report Number:</b> <u>RSZ08063010</u>	
<b>Report Date:</b> <u>2008-11-06</u>	
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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. (Shenzhen). This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, NIST, or any agency of the Federal Government.

\* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "\*" encl

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## GENERAL INFORMATION

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

The *Xingtel Xiamen Electronics Co., Ltd.*'s product, model number: *A300, CL-3361* or the "EUT" as referred to in this report is a *Amplified DECT 6.0 Cordless (Handset)*, which measures approximately: 16.8 cm L x 5.8 cm W x 3.7 cm H, input voltage: 3.6(1.2×3)V battery.

\*Note: The series products, model *A300, CL-3361*, we select *A300* to test, the all model have same circuit diagram, PCB, only appearance have difference, which was explained in the attached Declaration Letter.

\* *All measurement and test data in this report was gathered from production sample serial number: 0806078 (Assigned by BAEL, Shenzhen). The EUT was received on 2008-06-30.*

### Objective

This document is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.17 - 2006, and ANSI C64.3 2003.

The tests were performed in order to determine compliance with FCC Part 15, Subpart D, and section 15.203, 15.315, 15.317, 15.319 and 15.323 rules.

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

No Related Submittals

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.17 -2006 and ANSI C63.4-2003 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was 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 November 04, 2004. 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.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at  
<http://ts.nist.gov/Standards/scopes/2007070.htm>

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## SYSTEM TEST CONFIGURATION

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### Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

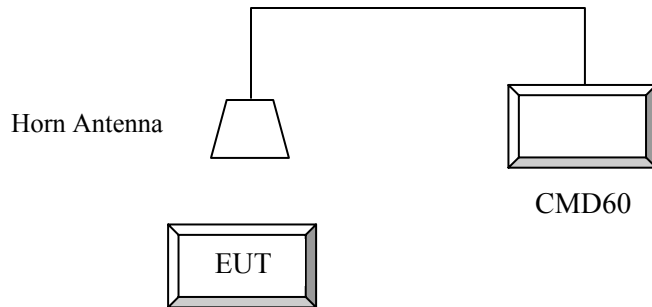
### Equipment Modifications

No modification was made to the unit tested.

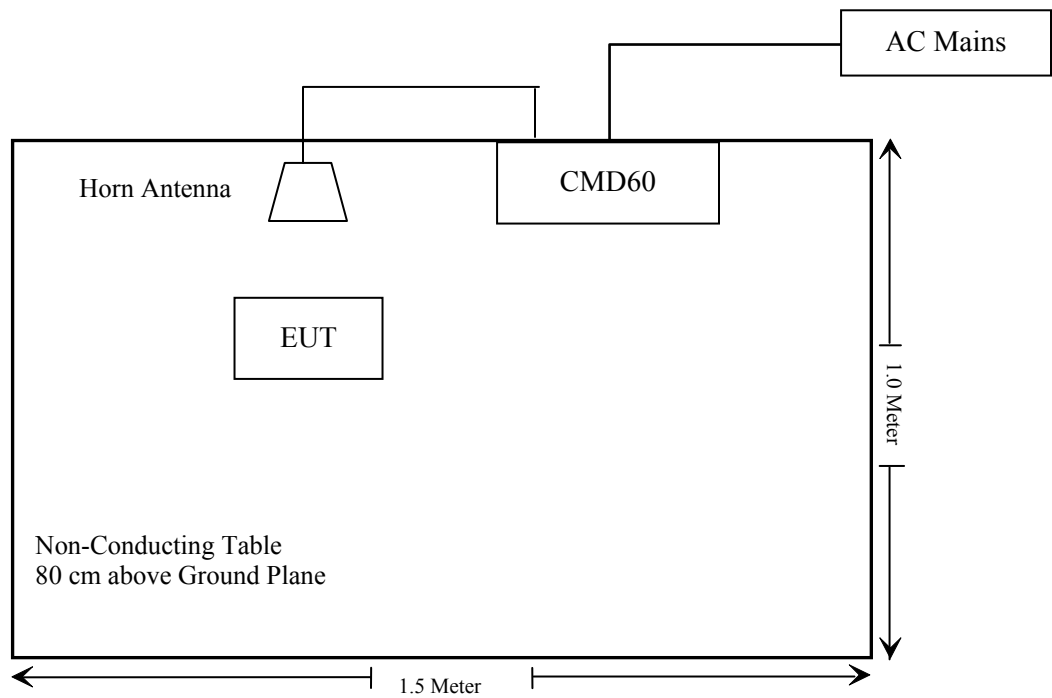
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
R & S	Digital Radio-Communication Tester	CMD60	8299061026	DoC

### Configuration of Test Setup



### Block Diagram of Test Setup



## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 15.319 (i); §2.1093	RF Radiation Exposure (SAR)	Compliant *
§ 15.317 § 15.203	Antenna Requirement	Compliant
§ 15.315 § 15.207	Conducted Emission	N/A
§ 15.319 (g)	Radiated Emission	Compliant
§ 15.323 (a)	Emission Bandwidth	Compliant
§ 15.319 (c)	Peak Transmit Power	Compliant
§ 15.319 (d)	Power Spectral Density	Compliant
§ 15.323 (d)	Emission Inside and Outside the sub-band	Compliant
§ 15.323 (f)	Frequency Stability Base	Compliant
§ 15.323 (c)(e) § 15.319 (f)	Specific Requirements for UPCS	Compliant

**Note:** \* Please refer to SAR report (Report No.: R08070210-SAR)



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**§15.319 (i) & §2.1093 - RF EXPOSURE**

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**Standard Applicable**

According to FCC Part 15.319 (i), Unlicensed PCS devices are subject to the radiofrequency radiation exposure requirements specified in §§1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a “general population/uncontrolled” environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

**Result:**

Please refer to SAR test report.

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## **§15.317&§15.203 - ANTENNA REQUIREMENT**

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### **Standard Applicable**

According to CFR47 § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### **Antenna Connector Construction**

The EUT has an integral antenna on PCB. The maximum gain is 1.5 dBi, please refer to the EUT internal photos.

**Result:** Compliant.

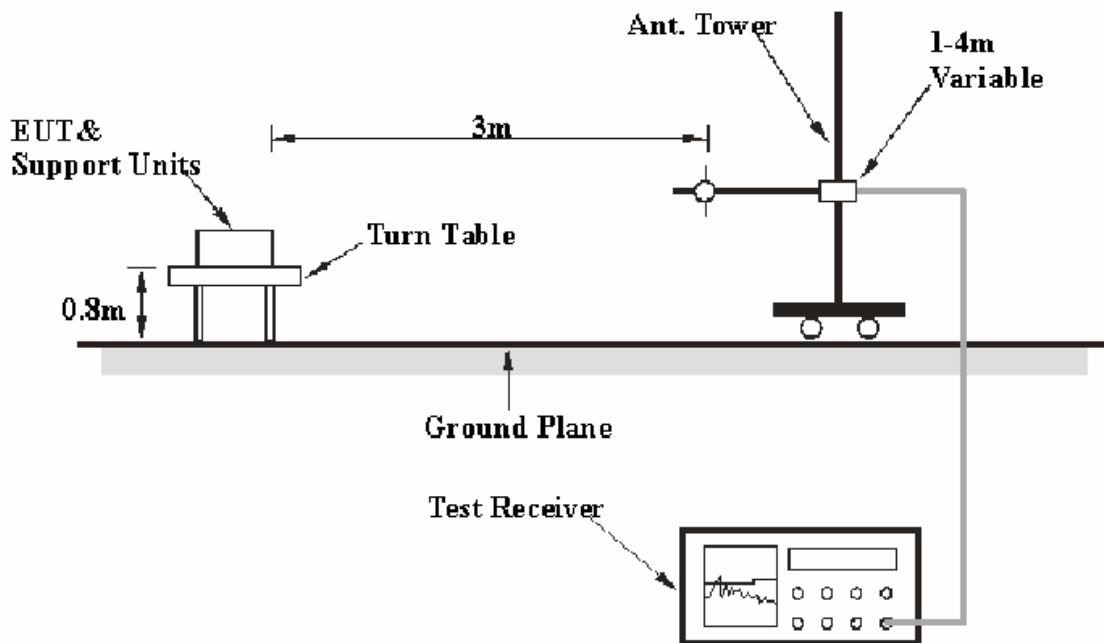
## §15.319 (g) - RADIATED EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 4.0$  dB.

### EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.17 - 2006. The specification used was the FCC 15.209 and FCC 15.319(g) limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>
30MHz – 1000 MHz	100 kHz	300 kHz
Above 1 GHz	1 MHz	3 MHz

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2007-11-15	2008-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-10-16	2009-10-16
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2008-03-11	2009-03-11
HP	Amplifier	8449B	3008A00277	2008-09-29	2009-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-05-09	2009-05-09

\* **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 Procedure

For the radiated emissions test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30MHz-1GHz and peak and Average detection modes for frequencies above 1GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC 15.209 and 15.319 (e), with the worst margin reading of:

### Transmitting mode (30 – 1000 MHz):

**Low Channel:** 7.6 dB at 511.479475 MHz in the Horizontal polarization

**High Channel:** 8.8 dB at 511.653250 MHz in the Horizontal polarization

### Transmitting mode (Above 1 GHz):

**Low Channel:** 7.94 dB at 3843.072 MHz in the Vertical polarization

**High Channel:** 25.1 dB at 5785.344 MHz in the Vertical polarization

## Test Data

### Environmental Conditions

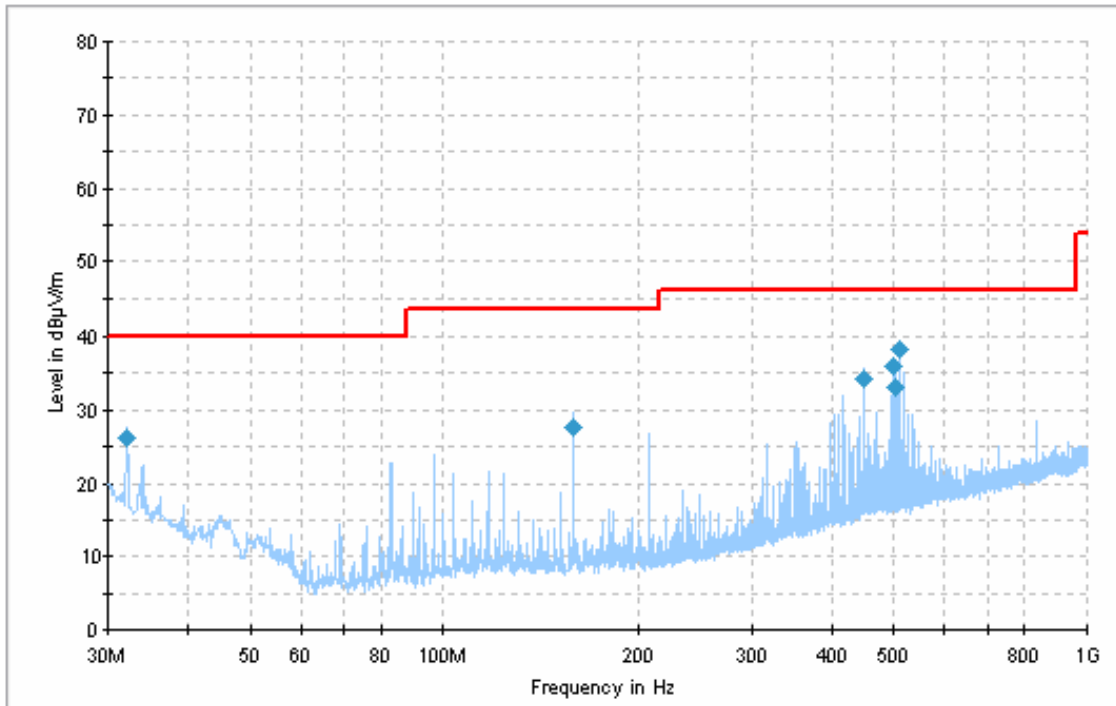
<b>Temperature:</b>	25 ° C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.9 kPa

*The testing was performed by Bruce Zhang on 2008-10-29.*

Test Mode: Transmitting

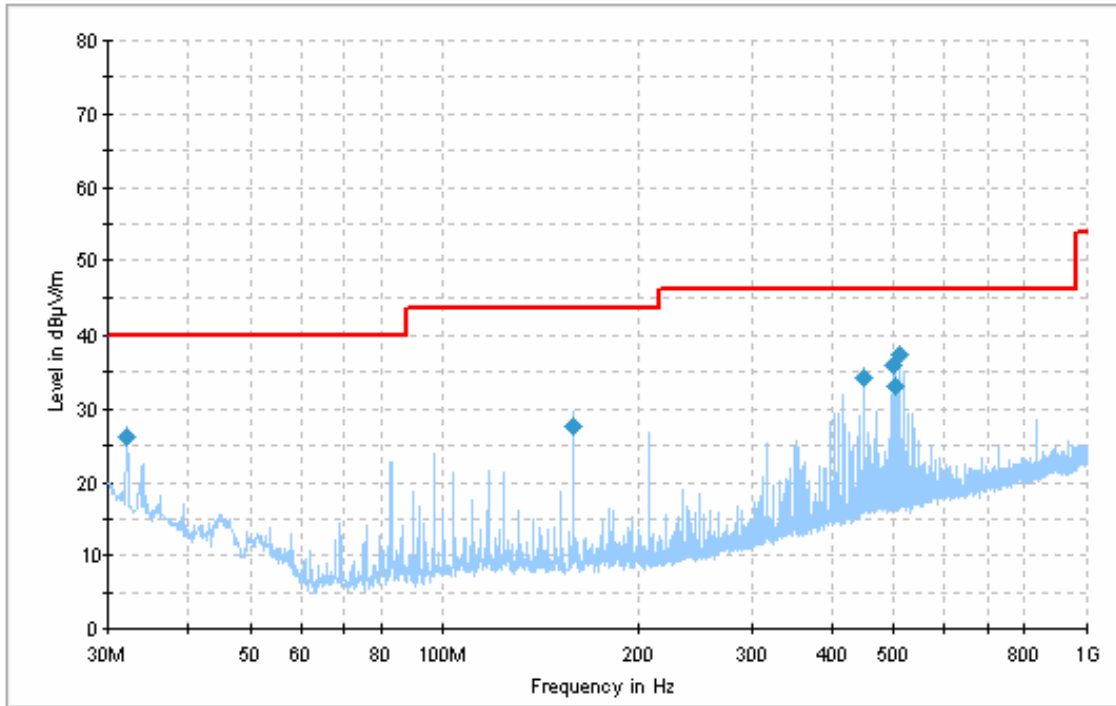
30 – 1000 MHz:

Low Channel:



Frequency (MHz)	Corrected Amp. (dBµV/m)	Antenna Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
511.479475	38.4	100.0	H	97.0	-19.9	46.0	7.6
497.652475	36.1	100.0	H	106.0	-20.5	46.0	9.9
449.981725	34.2	100.0	H	86.0	-21.0	46.0	11.8
504.582250	33.2	180.0	H	8.0	-20.2	46.0	12.8
32.182500	26.1	279.0	V	9.0	-9.3	40.0	13.9
158.525000	27.5	351.0	V	257.0	-9.4	43.5	16.0

High Channel:



Frequency (MHz)	Corrected Amp. (dBµV/m)	Antenna Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
511.653250	37.2	100.0	H	97.0	-19.9	46.0	8.8
496.952475	36.4	100.0	H	106.0	-20.5	46.0	9.6
450.122725	34.1	100.0	H	86.0	-21.0	46.0	11.9
503.842250	33.5	180.0	H	8.0	-20.2	46.0	12.5
32.361700	26.4	279.0	V	9.0	-9.3	40.0	13.6
158.714000	27.6	351.0	V	257.0	-9.4	43.5	15.9

**Above 1GHz:**

Freq. (MHz)	Meter Reading (dBμV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre- Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.319/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Remarks
<b>Low Channel</b>												
3843.072	63.34	PK	360	1.0	V	32.1	4.32	33.7	66.06	74	7.94	Harmonic
3843.072	59.31	PK	240	2.0	H	32.1	4.32	33.7	62.03	74	11.97	Harmonic
5764.608	50.73	PK	100	1.0	H	34.5	6.50	33.6	58.13	74	15.87	Harmonic
3843.072	35.30	AV	360	1.0	V	32.1	4.32	33.7	38.02	54	15.98	Harmonic
5764.608	47.04	PK	280	1.0	V	34.5	6.50	33.6	54.44	74	19.56	Harmonic
3843.072	31.27	AV	240	2.0	H	32.1	4.32	33.7	33.99	54	20.01	Harmonic
5764.608	22.69	AV	100	1.0	H	34.5	6.50	33.6	30.09	54	23.91	Harmonic
5764.608	19.0	AV	280	1.0	V	34.5	6.50	33.6	26.4	54	27.60	Harmonic
<b>High Channel</b>												
5785.344	21.50	AV	210	1.4	V	34.5	6.50	33.6	28.9	54	25.10	Harmonic
5785.344	20.0	AV	270	1.0	H	34.5	6.50	33.6	27.4	54	26.60	Harmonic
3856.896	63.76	PK	140	1.0	V	32.1	4.32	33.7	66.48	74	7.52	Harmonic
3856.896	59.83	PK	60	1.5	H	32.1	4.32	33.7	62.55	74	11.45	Harmonic
3856.896	35.72	AV	140	1.0	V	32.1	4.32	33.7	38.44	54	15.56	Harmonic
5785.344	49.54	PK	210	1.4	V	34.5	6.50	33.6	56.94	74	17.06	Harmonic
5785.344	48.04	PK	270	1.0	H	34.5	6.50	33.6	55.44	74	18.56	Harmonic
3856.896	31.79	AV	60	1.5	H	32.1	4.32	33.7	34.51	54	19.49	Harmonic

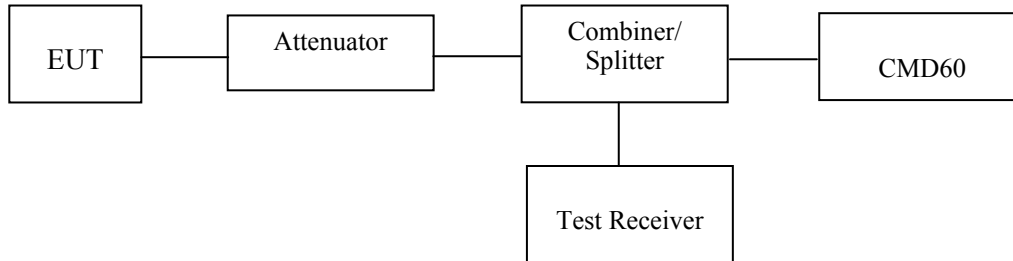


## §15.323 (a) - EMISSION BANDWIDTH

### Standard Applicable

The emission bandwidth is measured in accordance with ANSI C63.17 sub-clause 6.1.3 using the setup below

Test Setup:



The width, in Hz, of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that is 26 dB down relative to the maximum level of the modulated carrier. It is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1% of the emission band-width of the device under measurement. [Extraction from 47 CFR 15, subpart D, 15.303 (C)].

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2008-08-25	2009-08-25

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

### Test Procedure

Using the manufacturer's information on occupied bandwidth set the spectrum analyzer as follows:

Resolution bandwidth	1.0% of the emission bandwidth (as close as possible)
Video bandwidth	>3 times the resolution bandwidth
Number of sweeps	sufficient to stabilize the trace
Detection mode	peak detection with maximum hold

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.8 kPa

The testing was performed by Bruce Zhang on 2008-11-01, 2008-11-06.

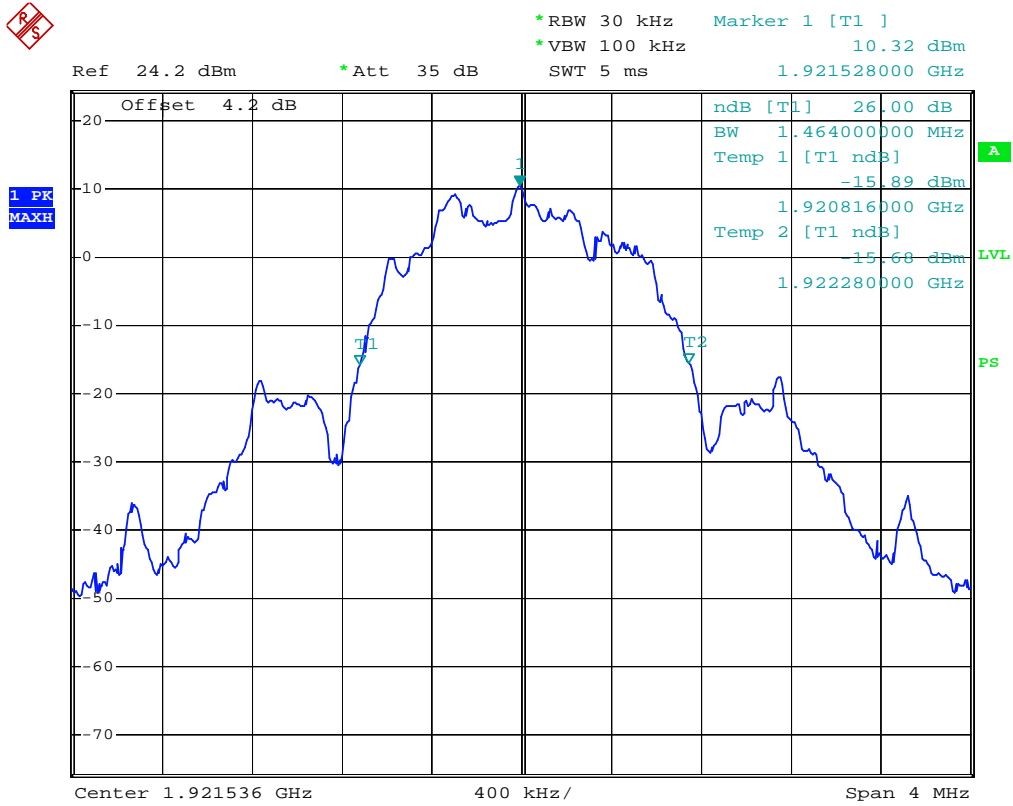
*Test Mode: Transmitting*

<b>Channel</b>	<b>Center Frequency (MHz)</b>	<b>26dB Bandwidth (MHz)</b>	<b>Limit</b>
Low	1921.536	1.464	50kHz < OBW <2.5MHz
Middle	1924.992	1.464	50kHz < OBW <2.5MHz
High	1928.448	1.464	50kHz < OBW <2.5MHz

**Test Result:** Pass

Refer to the attached plots.

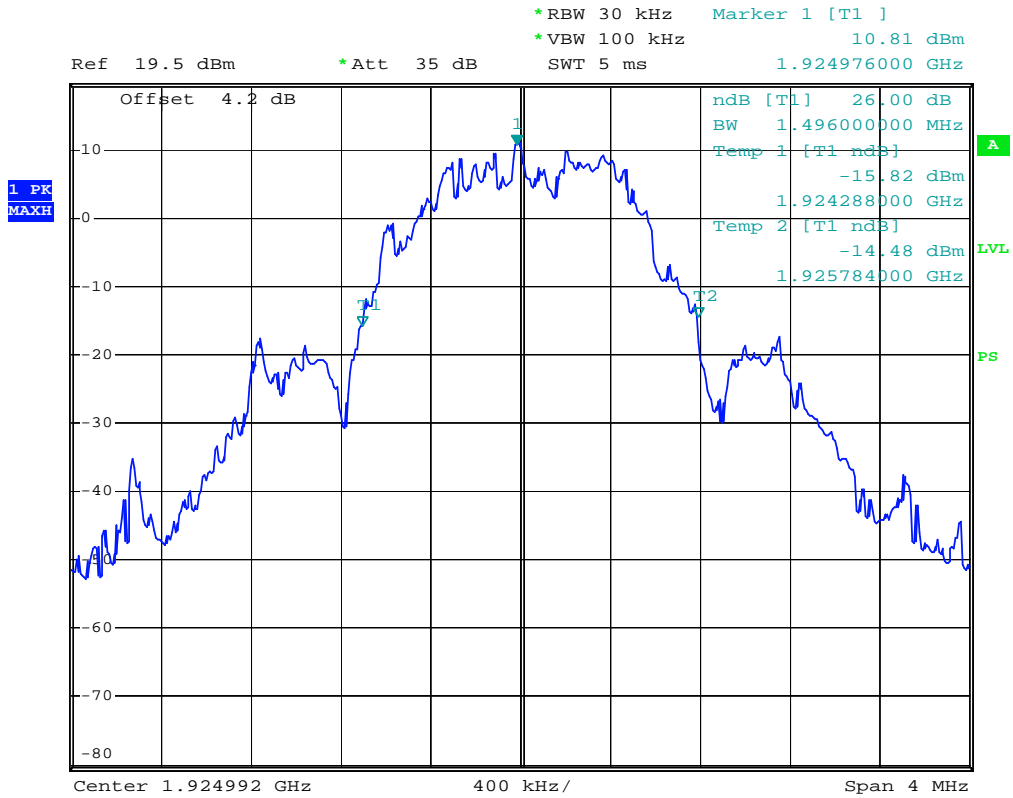
### Low Channel



26dB Emission Bandwidth

Date: 1.NOV.2008 13:38:35

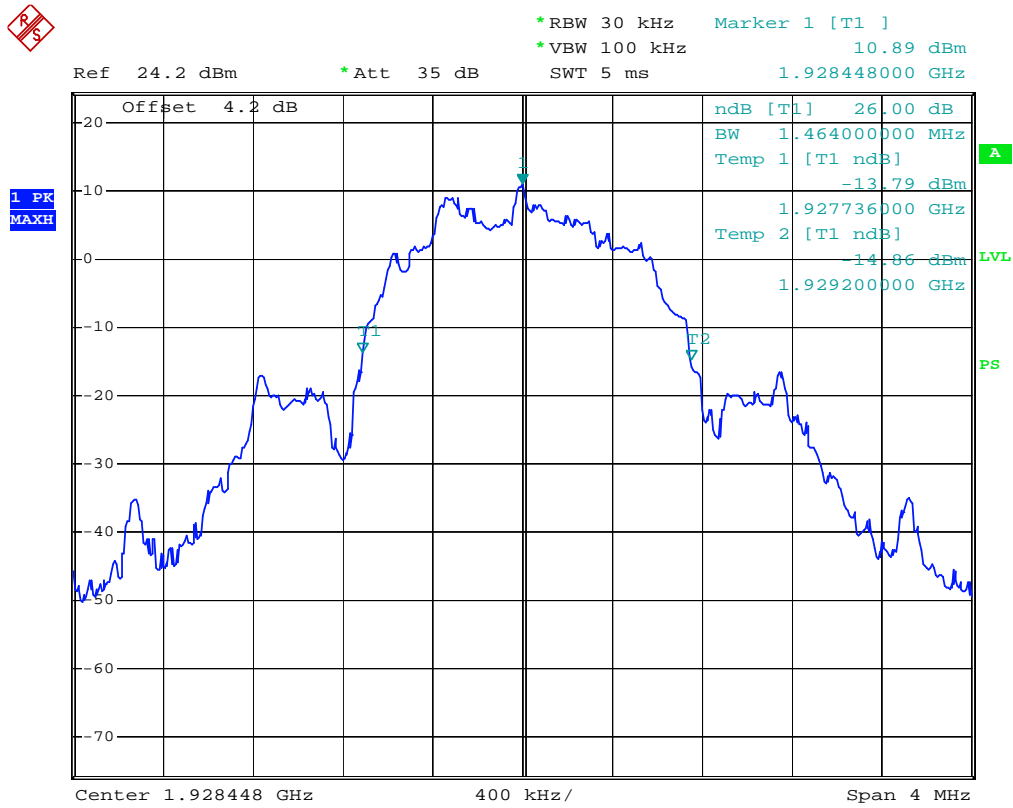
### Middle Channel



26dB Emission Bandwidth

Date: 6.NOV.2008 12:44:35

### High Channel



26dB Emission Bandwidth

Date: 1.NOV.2008 13:41:21

## §15.319 (c) - peak transmit power

### Standard Applicable

The peak power output as measured over an interval of time equal to the transmission-burst duration of the device under all conditions of modulation. [47 CFR 15, subpart D, 15.303 (f)].

### Part 15.323(a) & Part 15.319(c) Peak Transmit Power:

The limit for Peak Transmit Power (PTP) is calculated using the following formula:

$$PTP = 100 \mu W \times (EBW)^{1/2}$$

EBW is the transmit emission bandwidth in Hz determined in the other test item:

$$EBW = 1484000\text{Hz}$$

$$PTP = 100 \mu W \times (1484000)^{1/2}$$

$$PTP = 20.87\text{dBm}$$

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2008-08-25	2009-08-25

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

### Test Procedure

Using the manufacturer's information on occupied bandwidth set the spectrum analyzer as follows:

Resolution bandwidth	Greater than the occupied bandwidth
Video bandwidth	same as the resolution bandwidth
Frequency span	20 MHz
Detection mode	peak detection

### Test Data

#### Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.8 kPa

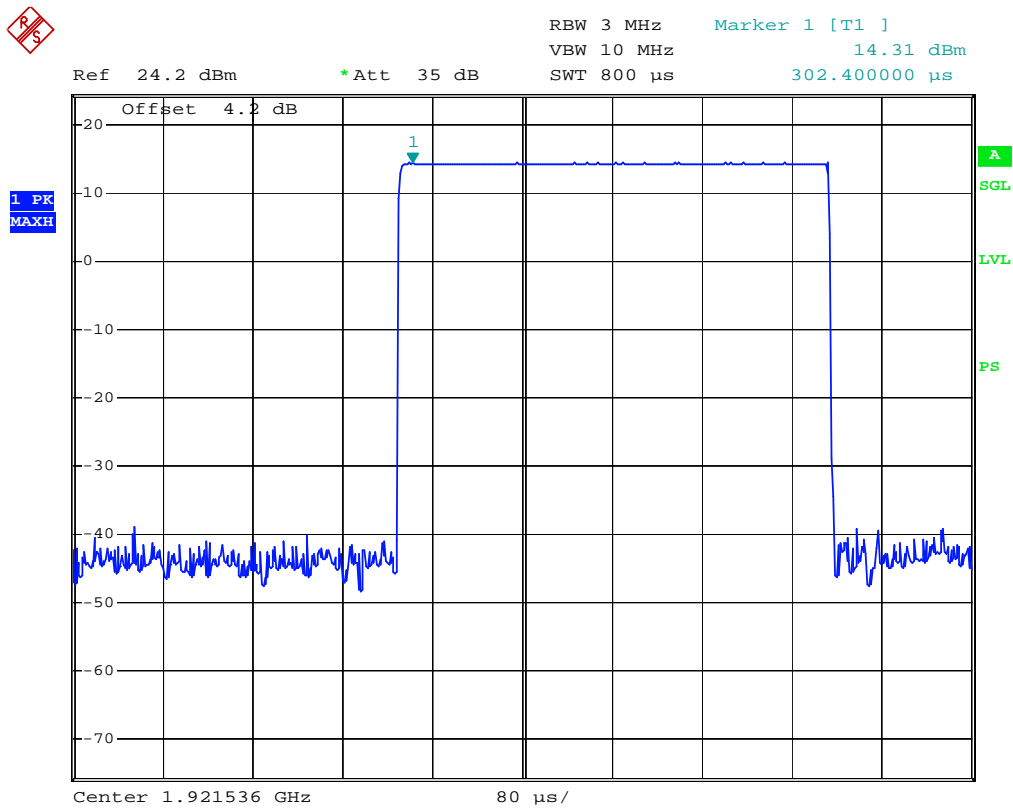
The testing was performed by Bruce Zhang on 2008-11-0, 2008-11-06.

**Test Result:** Pass

Refer to the attached plots.

Frequency (MHz)	Peak Transmit Power (dBm)	Limit (dBm)
1921.536	14.31	20.87
1924.992	14.80	20.87
1928.448	14.59	20.87

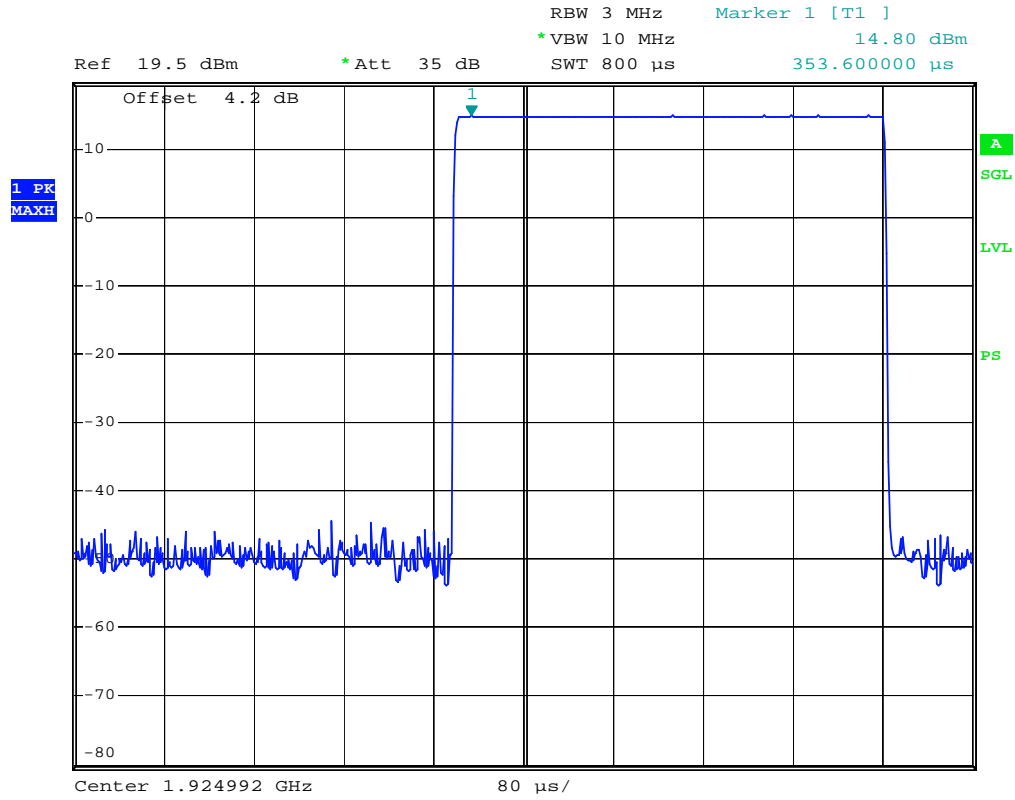
Low Channel



Peak Transmit Power

Date: 1.NOV.2008 13:27:13

### Middle Channel



Peak Transmit Power

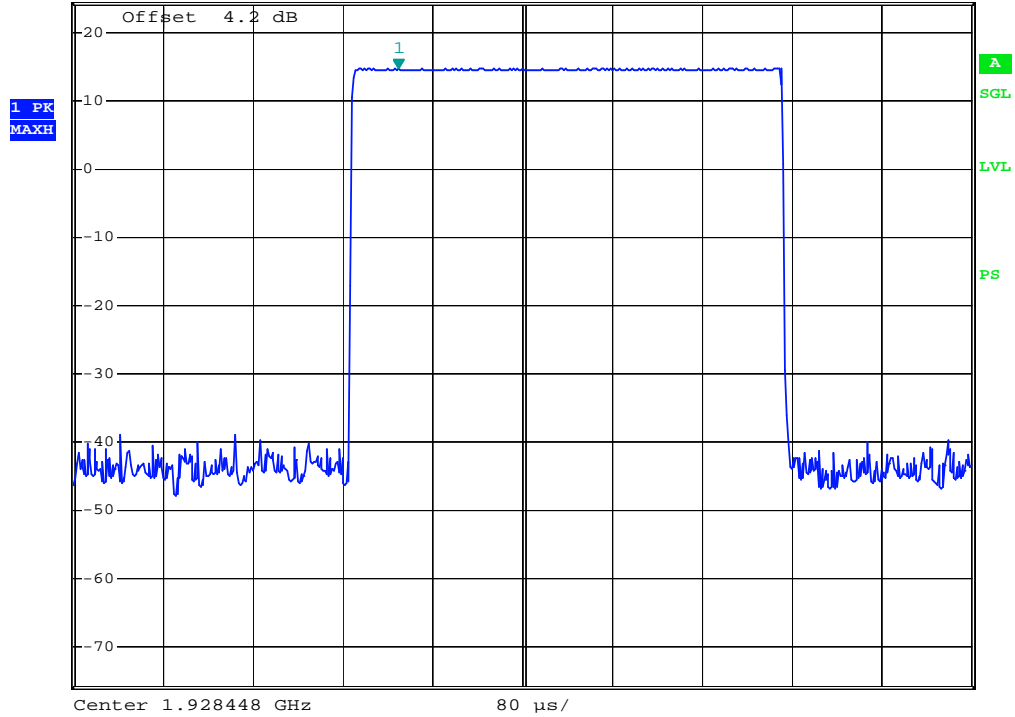
Date: 6.NOV.2008 10:58:38



### High Channel



Ref 24.2 dBm      \*Att 35 dB      RBW 3 MHz      Marker 1 [T1 ]  
VBW 10 MHz      14.59 dBm  
SWT 800  $\mu$ s      289.600000  $\mu$ s



Peak Transmit Power

Date: 1.NOV.2008 13:25:46

## §15.319 (d) - POWER SPECTRAL DENSITY

### Standard Applicable

The average pulse energy in a 3 kHz bandwidth divided by the pulse duration.

The power spectral density shall not exceed 3mW in any 3kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3kHz.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2008-08-25	2009-08-25

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

### Test Procedure

Using the manufacturer's information on occupied bandwidth set the spectrum analyzer as follows:

Resolution bandwidth =3 kHz  
 Video bandwidth =3 kHz  
 Number of sweeps =1 kHz  
 Detection mode peak detection

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.8 kPa

The testing was performed by Bruce Zhang on 2008-11-01, 2008-11-06.

*Test Mode: Transmitting*

**Test Result:** Compliant.

Please refer to following tables and plots

Frequency (MHz)	Power Spectral Density		Limit (mW/3kHz)	Result
	(dBm/3kHz)	(mW/3kHz)		
1921.536	1.06	1.28	3	Pass
1924.992	0.31	1.07	3	Pass
1928.448	1.60	1.45	3	Pass

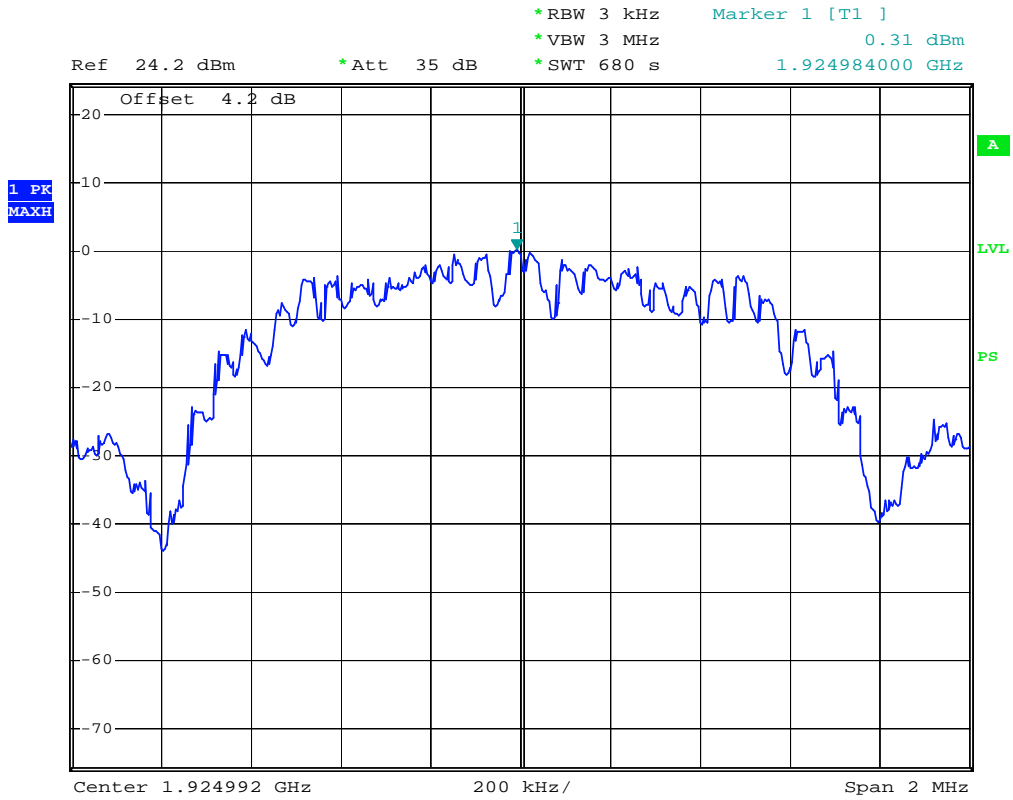
Low Channel



Power Spectral Density

Date: 1.NOV.2008 15:09:28

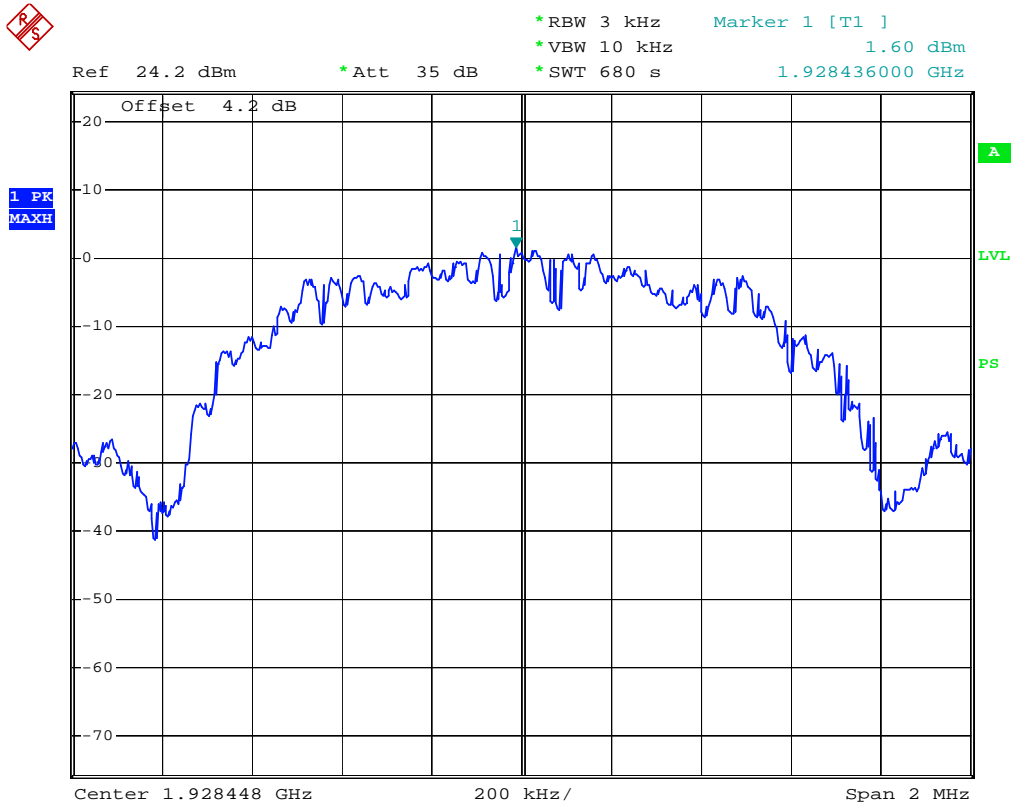
### Middle Channel



Power Spectral Density

Date: 6.NOV.2008 15:00:09

### High Channel



Power Spectral Density

Date: 1.NOV.2008 14:08:34

## §15.323 (d) - EMISSION INSIDE AND OUTSIDE THE SUB-BAND

### Standard Applicable

Emissions inside the sub-band must comply with the following emission mask:

1. In the bands between 1B and 2B measured from the center of the emission bandwidth the total power emitted by the device shall be at least 30 dB below the transmit power permitted for that device;
2. in the bands between 2B and 3B measured from the center of the emission bandwidth the total power emitted by an intentional radiator shall be at least 50 dB below the transmit power permitted for that radiator;
3. in the bands between 3B and the sub-band edge the total power emitted by an intentional radiator in the measurement bandwidth shall be at least 60 dB below the transmit power permitted for that radiator.

Where B = emission bandwidth

Emission Outside the sub-band shall be attenuated below a reference power of 112 mw (20.5 dBm) as follows:

1. 30 dB between the sub-band and 1.25 MHz above or below the sub-band;
2. 50 dB between 1.25 and 2.5 MHz above or below the sub-band;
3. 60 dB at 2.5 MHz or greater above or below the sub-band.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2008-08-25	2009-08-25

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

### Test Data

#### Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.8 kPa

The testing was performed by Bruce Zhang on 2008-11-01, 2008-11-06.

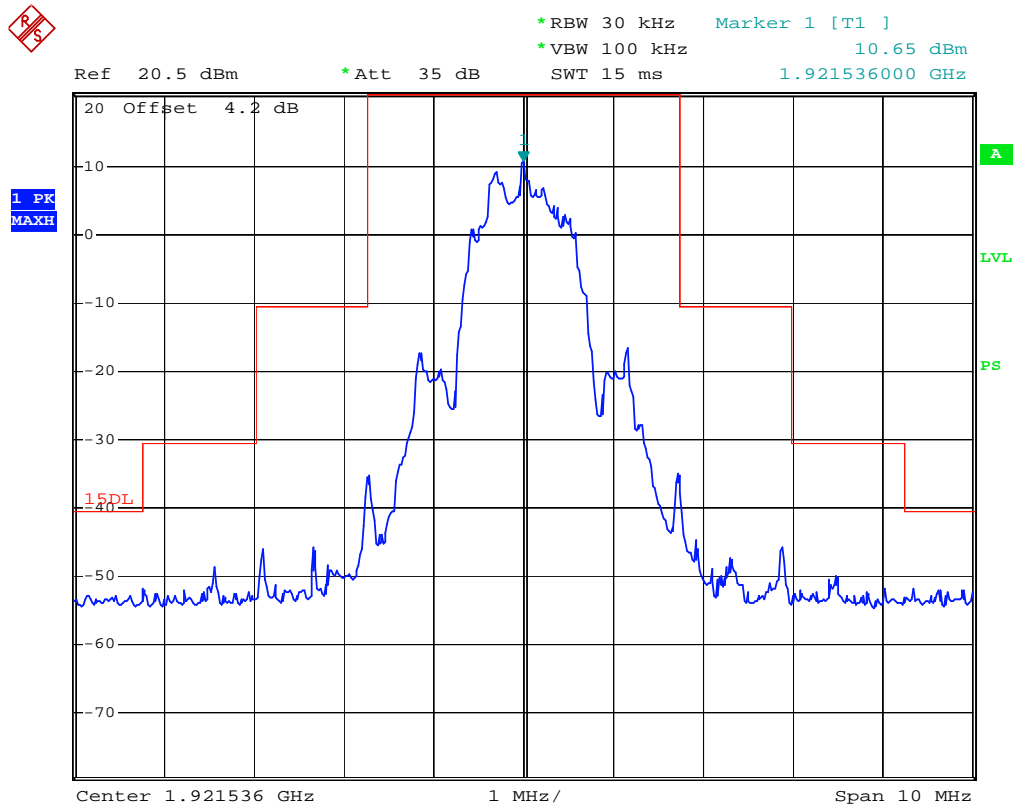
Test Mode: Transmitting

**Test Result:** Compliant.

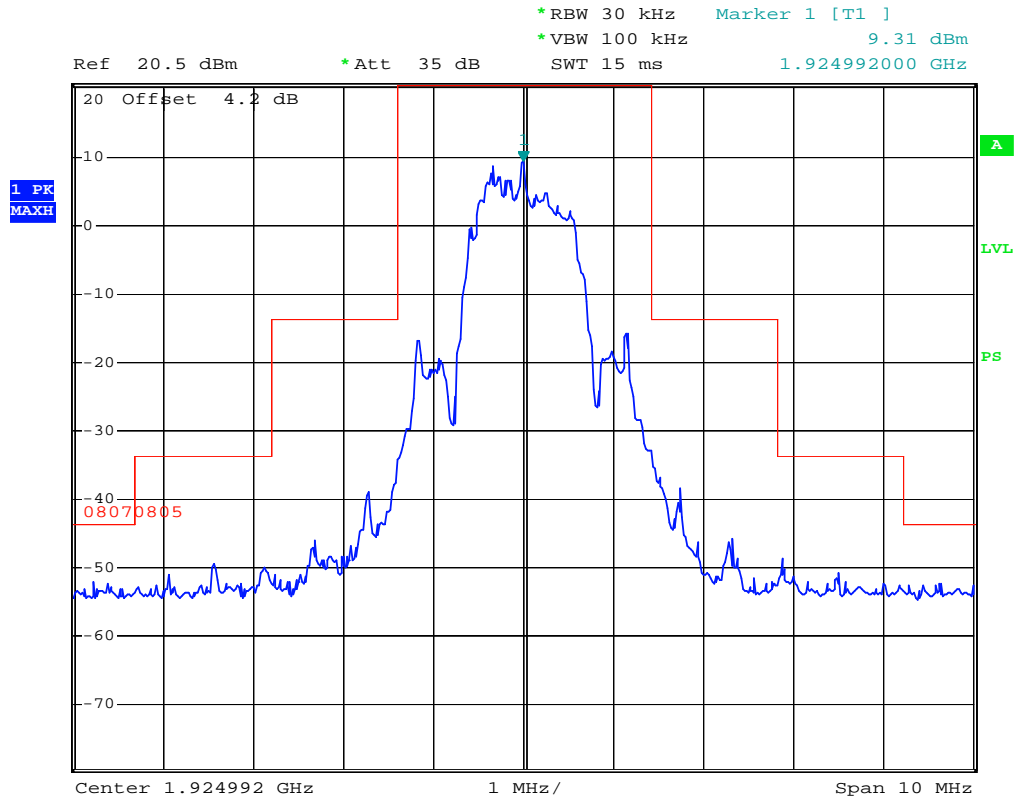
Please refer to following tables and plots

### Unwanted Emission inside the Sub-band

#### Low Channel



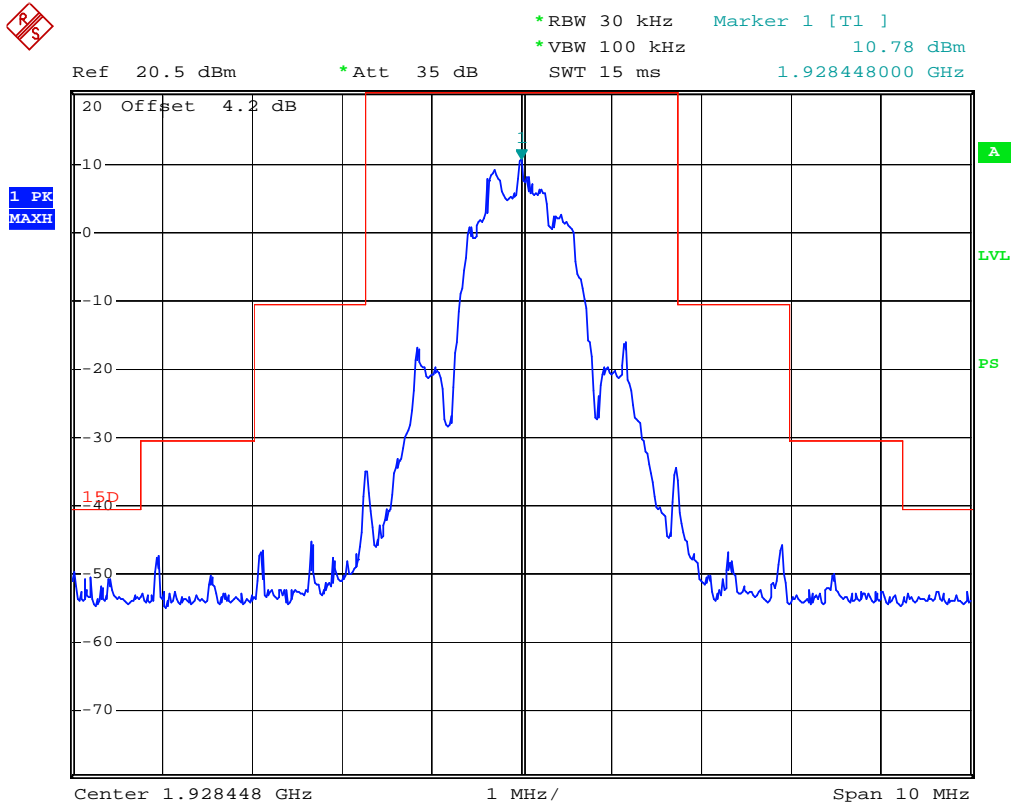
### Middle Channel



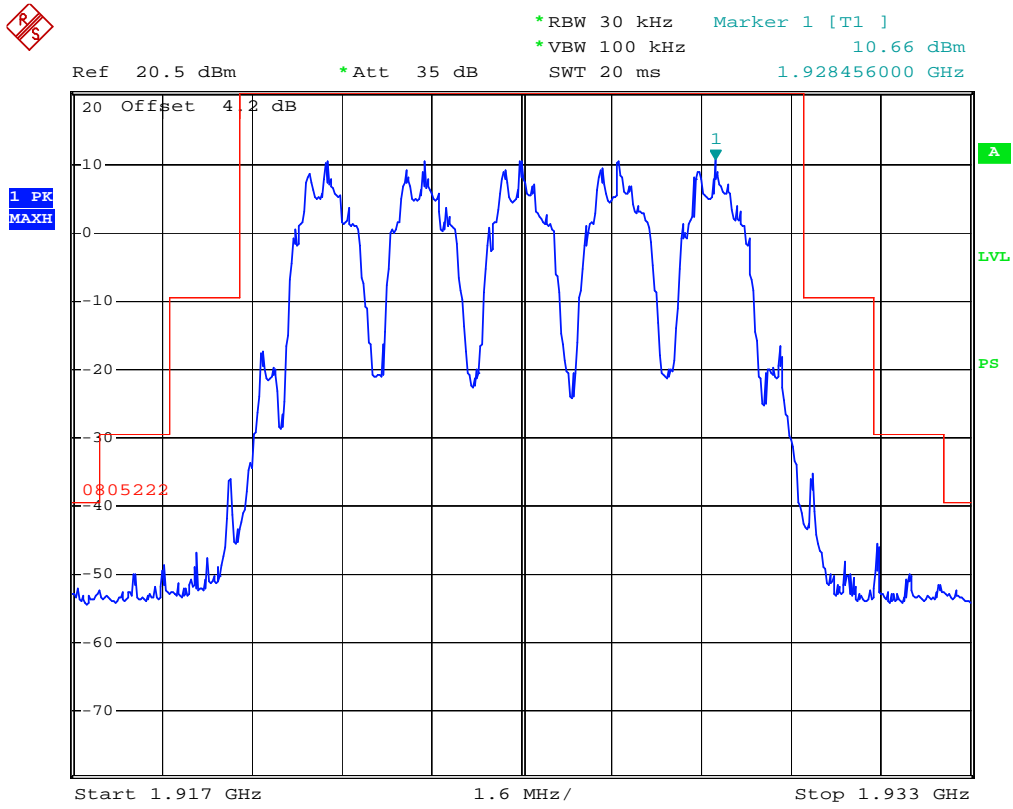
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### High Channel



### Unwanted Emission outside the Sub-band



## §15.323 (f) - FREQUENCY STABILITY

### Standard Applicable

Per §15.323(f), the frequency stability of the carrier frequency of the intentional radiator shall be maintained within  $\pm 10$  ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of  $-20^{\circ}$  to  $+50^{\circ}$  °C at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of  $20^{\circ}$  °C. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

### Test Procedure

This procedure should be carried out for each of the following test cases:

Temperature	Supply Voltage
20°C	85-115% of declared nominal voltage
-20°C	Normal
+50°C	Normal

<sup>a</sup> Use the lowest temperature at which the EUT is specified to operate if it is above  $-20^{\circ}$  °C.

Using the mean carrier frequency at  $20^{\circ}$  °C and at nominal supply voltage as the reference, the mean carrier frequency shall be maintained within  $\pm 10$  ppm at the two extreme temperatures (or as declared by the manufacturer) and at normal temperature (typically  $20^{\circ}$  °C) at the two extreme supply voltages.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	N/A	N/A
R & S	Digital Radio-Communication Tester	CMD60	8281461029	2008-9-26	2009-9-25

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

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.8 kPa

*The testing was performed by Bruce Zhang on 2008-11-03*

*Test Mode: Transmitting*

**Test Result:** Compliant.

Temperature (°C)	Voltage (Vac)	Channel Frequency (MHz)	Measured Frequency Offset		Limit (ppm)
			(kHz)	(ppm)	
20	3.6	1924.992	5.7	2.96	±10
0	3.6	1924.992	7.6	3.95	±10
40	3.6	1924.992	8.2	4.26	±10

## §15.323 (c) (e) & §15.319(f) – SPECIFIC REQUIREMENTS FOR UPCS DEVICE

### Automatic Discontinuation of Transmission, FCC Part 15.319(f)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. The provisions in this section are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Test Procedure:

The following tests simulate the reaction of EUT in case of either absence of information to transmit or operational failure after a connection of its companion device is established.

Test Result:

Part	Transmits Control and Signaling Information	Equipment Under Test
Handset		X

Number	Test	Reaction of EUT	Pass/Fail
1	Power removed from EUT	C	Pass
2	EUT powered down	C	Pass
3	Battery charger connected to PCB	B	Pass
4	Power/Signal cable removed counter part	B	Pass
5	On Hook on EUT Side	C	Pass
6	On Hook on counterpart side	B	Pass

A – Connection breakdown, Cease of all transmissions.

B – Connection breakdown, EUT transmits control and signaling information.

C – Connection breakdown, Counterpart transmits control and signaling information.

N/A – Not Applicable

**Lower Monitoring Threshold Part15.323 (c)(2);(c) (5); (c) (9)**

According FCC Part15.323(c) (2), the monitoring threshold must not be more than 30 dB above the thermal noise power for a bandwidth equivalent to the emission bandwidth used by the device.

According FCC Part15.323(c) (5), If access to spectrum is not available as determined by the (c)(2), and a minimum of 40 duplex system access channels are defined for the system, the time and spectrum windows with the lowest power level below a monitoring threshold of 50 dB above the thermal noise power determined for the emission bandwidth may be accessed.

According to FCC Part15.323 (c) (9), Devices that have a power output lower than the maximum permitted under this subpart may increase their monitoring detection threshold by one decibel for each one decibel that the transmitter power is below the maximum permitted.

Calculation of monitoring threshold limits for isochroous devices:

Low threshold:  $T_L = -174 + 10\log_{10}B + M_u + P_{MAX} - P_{EUT}$  (dBm)

Upper threshold:  $T_U = -174 + 10\log_{10}B + M_u + P_{MAX} - P_{EUT}$  (dBm)

Where: B=Emission bandwidth (Hz)  
 $M_u$  =dBs the threshold may exceed thermal noise (30 for  $T_L$  & 50 for  $T_U$ )  
 $P_{MAX} = 5\log_{10}B - 10$  (dBm)  
 $P_{EUT}$  =Transmitted power (dBm)

Handset:

Monitor Threshold	B (MHz)	$M_u$ (dB)	$P_{MAX}$ (dBm)	$P_{EUT}$ (dBm)	Threshold (dBm)
$T_L$	1.464	30	20.83	14.30	-75.81
$T_U$	1.464	50	20.83	14.30	-53.81

Limits

The EUT must not transmit until the interference level is less than or equal to:  
 Measured Threshold Level  $\leq T_U$

Where:  $T_U$  =Upper threshold level

Test Results

Monitor threshold (dBm)	Measured Threshold Level	Limit (dBm)
Lower Threshold(dBm)	N/A	-75.81
Upper Threshold(dBm)	-68.5	-55.81

**Maximum Transmit Period FCC Part15.323 (c) (3)**

If no signal above the threshold level is detected, transmission may commence and continue with the same emission bandwidth in the monitored time and spectrum windows without further monitoring. However, occupation of the same combined time and spectrum windows by a device or group of cooperating devices continuously over a period of time longer than 8 hours is not permitted without repeating the access criteria.

EUT established a communication channel with its companion device, the centre frequency of spectrum analyzer was set to the carrier frequency and SPAN was set to ZERO, the spectrum analyzer was used for monitoring the time and spectrum of the communication channel.

Test Result:

Repetition of Access Criteria	Measured Maximum Transmission Time (Seconds)	Limit (Seconds)	Results
First	8400	28,800	Pass
Second	7800	28,800	Pass

**System Acknowledgement, FCC Part15.323 (c) (4)**

Once access to specific combined time and spectrum windows is obtained an acknowledgment from a system participant must be received by the initiating transmitter within one second or transmission must cease. Periodic acknowledgments must be received at least every 30 seconds or transmission must cease. Channels used exclusively for control and signaling information may transmit continuously for 30 seconds without receiving an acknowledgment, at which time the access criteria must be repeated.

Measurement are made in accordance with ANSI C63.17 sub-clause 8.1.1 and 8.2.1

Test Result:

Test	Time taken (second)	Limit (second)	Result
Initiating transmitter time	0.22	1	Pass
Channel used for control and signaling information	5.75	30	Pass
Transmission cease time	0.33	30	Pass

**Least Interfered Channel (LIC) Selection, FCC Part15.323 (c) (5)**

If access to spectrum is not available as determined by the above, and a minimum of 40 duplex system access channels are defined for the system, the time and spectrum windows with the lowest power level below a monitoring threshold of 50 dB above the thermal noise power determined for the emission bandwidth may be accessed.

**Least interfered Channel**

As this system has less than 40 channels the least interfered channel relating to the lower monitoring threshold shall be assessed. This test was carried out in accordance with ANSI C63.17 sub-clause 7.3.3 using test setup 2. The EUT was frequency administered to operating on two frequencies only, f1 and f2.

f1 = 1924.992 MHz

f2 = 1923.264 MHz

**Test a)**

Interference on f1 was set at TL + 7dB and at TL on f2. Initiate communication. The EUT should transmit on f2. Repeat 5 times. If the EUT transmits on f1 the test is failed.

**Test b)**

Interference on f1 was set at TL and at TL + 7dB on f2. Initiate communication. The EUT should transmit on f1. Repeat 5 times. If the EUT transmits on f2 the test is failed.

**Test c)**

Interference on f1 was set at TL + 1dB and at TL - 6dB on f2. Initiate communication. The EUT should transmit on f2. Repeat 5 times. If the EUT transmits on f1 the test is failed.

**Test d)**

Interference on f1 was set at TL - 6dB and at TL + 7dB on f2. Initiate communication. The EUT should transmit on f1. Repeat 5 times. If the EUT transmits on f2 the test is failed.

**Test Result:**

<b>Test</b>	<b>Transmit on f1</b>	<b>Transmit on f2</b>	<b>Wanted Transmit Channel</b>	<b>Pass/Fail</b>
a	No	Yes	f2	Pass
b	Yes	No	f1	Pass
c	No	Yes	f2	Pass
d	Yes	No	f1	Pass

*Note: all tests were repeated 5 times.*



**Least Interfered Channel (LIC) Confirmation, FCC Part15.323 (c) (5)**

A device utilizing the provisions of FCC Part15.323 (c) (5) must have monitored all access channels defined for its system within the last 10 seconds and must verify, within the 20 milliseconds (40 milliseconds for devices designed to use a 20 milliseconds frame period) immediately preceding actual channel access that the detected power of the selected time and spectrum windows is no higher than the previously detected value.

This test was carried out in accordance with ANSI C63.17 sub-clause 7.3.4 using test setup 2(page 12).

The test is to ensure the EUT monitors the time/spectrum window immediately prior to transmission. The EUT was frequency administered to operating on two frequencies only, f1 and f2.

f1 = 1924.992 MHz

f2 = 1923.264 MHz

Test a)

Interference is applied on f1 at a level of  $T_U$  , verifies a connection is established on f2. The connection is terminated.

Test b)

Interference is applied on f2 at a level of  $T_U$  and immediately removed from f1 and the EUT is immediately caused to attempt transmission. In this case the EUT should transmit on f1

Test Result:

Test	Transmit on f1	Transmit on f2	Wanted Transmit Channel	Pass/Fail
a	No	Yes	f2	Pass
b	Yes	No	f1	Pass

Power Accuracy

The power measurement resolution for the previous comparison must be accurate to within 6dB. The monitoring threshold test covered in Part 15.323 (c) (2) automatically proves that this requirement is met.

**Monitoring Bandwidth, FCC Part 15.323 (c) (7)**

The monitoring system bandwidth must be equal to or greater than the emission bandwidth of the intended transmission and have a maximum reaction time less than  $50 \times \text{SQRT}(1.25/\text{emission bandwidth in MHz})$  microseconds for signals at the applicable threshold level but shall not be required to be less than 50 microseconds

Test Result:

Test Equation ( $\mu\text{s}$ )	Bandwidth B (MHz)	Pulse Width ( $\mu\text{s}$ )	Results
$50 (1.25/B)^{1/2}$	1.464	50	Pass
$35 (1.25/B)^{1/2}$	1.464	35	Pass

### Monitoring Antenna, FCC Part15.323 (c) (8)

The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.

Test Result:

The antenna of the EUT handset used for transmitting is the same interior antenna that is used for monitoring.

### Duplex Connections, FCC Part15.323 (c) (10)

An initiating device may attempt to establish a duplex connection by monitoring both its intended transmit and receive time and spectrum windows. If both the intended transmit and receive time and spectrum windows meet the access criteria, then the initiating device can initiate a transmission in the intended transmit time and spectrum window. If the power detected by the responding device can be decoded as a

duplex connection signal from the initiating device, then the responding device may immediately begin transmitting on the receive time and spectrum window monitored by the initiating device.

The tests laid out in this section verify that the access criteria are met by two devices communicating over a duplex connection. The EUT is the initiating device and the companion is the responding device.

These tests are carried out in accordance with ANSI C63.17 sub-clause 8.3.1 using test setup 2. Before all tests are carried out any connection is terminated.

Test a)

The system is restricted to operation on one frequency (1924.992 MHz) using administration. Verify that a connection between the EUT and its companion device can be made.

Test b) & c)

Apply interference at a level TL to all transmit time slots and to all but one receive time slots.

The EUT should not establish a connection.

Test d & e)

Apply interference at a level TL to all receive time slots and to all but one transmit time slots.

The EUT should not establish a connection.

Test Result:

Test	Connection Made	Correct Time Slot	Required Slot	Result
a	Yes	N/A	Any	Pass
b & c	No	N/A	N/A	Pass
d & e	No	N/A	N/A	Pass

#### **Alternative monitoring interval for co-located devices, FCC Part 15.323 (c) (11)**

An initiating device that is prevented from monitoring during its intended transmit window due to monitoring system blocking from the transmissions of a co-located (within one meter) transmitter of the same system, may monitor the portions of the time and spectrum windows in which they intend to receive over a period of at least 10 milliseconds. The monitored time and spectrum window must total at least 50 percent of the 10 millisecond frame interval and the monitored spectrum must be within 1.25 MHz of the center frequency of channel(s) already occupied by that device or co-located co-operating devices. If the access criteria is met for the intended receive time and spectrum window under the above conditions, then transmission in the intended transmit window by the initiating device may commence.

This test is carried out in accordance with ANSI C63.17 sub-clause 8.4.

Test Result:

N/A. The manufacturer declares that this provision is not utilized by the EUT.

#### **Fair Access, FCC Part 15.323 (c) (12)**

The provisions of FCC Part 15.323(c)(10) or (c)(11) shall not be used to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum to other devices.

Test Result:

The manufacturer declares that this device does not use any mechanisms as provided by Part 15.323 (c) (10) or (c) (11) to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum to other device.

#### **Frame Repetition Stability, Part 15.323 (e)**

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in these sub-bands shall be 20 milliseconds or 10 milliseconds/X where X is a positive whole number.

Measurements are made in accordance with ANSI C63.17 sub-clause 6.2.2 and 6.2.3

Test Result:

Frame Repetition Stability:

Frame Repetition Stability (ppm)	Limit (ppm)	Result
0.12	10	pass

Frame Period and Jitter:

Max. Positive jitter (us)	Max. Negative jitter (us)	Frame Period (μs)	Limit	
			Frame Period (ms)	Jitter (μs)
0.002	-0.01	10.00000	2or10/X	25us

#### Directional Gain of the Antenna, FCC Part 15.319(e)

The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

Test Result:

Maximum Antenna Gain	Result
1.5dBi	Pass

## PRODUCT SIMILAR DECLARATION LETTER

**xingtel**

XINGTEL XIAMEN ELECTRONICS CO., LTD.  
Xingtel Building, Chuangxin Road, Torch Hi-Tech Industrial  
District, Xiamen 361006, PR China  
E-mail: [info@xingtel.com](mailto:info@xingtel.com) Website: <http://www.xingtel.com>

Tel: +86-592-582-5929  
+86-592-803-6442  
Fax: +86-592-803-7860

To: Bay Area Compliance Laboratories Corp

### Declaration of Similarity

To whom it may concern,

We,  
Xingtel Xiamen Electronics Co., Ltd.  
Address: Xingtel Building, Chuangxin Road, Torch Hi-tech Industrial District, Xiamen, 361006,  
China

Hereby declare that

Product Name: Amplified DECT 6.0 Cordless  
Model No. A300

belong to Clearsounds Communications Inc with the trade name is ClearSounds &HITEC, it is exactly same with the telephone model no. CL-3381, and belong to XINGTEL. These two models are electrically and mechanically identical, The only difference between them is the model name!

Regards,  
Xingtel Xiamen Electronics Co., Ltd.



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Simon Liu  
Director  
July 2, 2008

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