

FCC PART 15.323  
EMI MEASUREMENT AND TEST REPORT

For

**American Telecom Services, Inc.**

2466, Peck Road, City of Industry, CA 90601, U.S.A

**FCC ID: UGX-X10001X**

September 18, 2006

|                                                                                                                                                                                                                                                     |                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| <b>This Report Concerns:</b><br><input checked="" type="checkbox"/> Original Report                                                                                                                                                                 | <b>Equipment Type:</b><br>1.9GHZ CORDLESS VOIP PHONE |
| <b>Test Engineer:</b> Merry Zhao <i>Merry Zhao</i>                                                                                                                                                                                                  |                                                      |
| <b>Report No.:</b> RSH06082201                                                                                                                                                                                                                      |                                                      |
| <b>Test Date:</b> August 31, 2006-September 2, 2006                                                                                                                                                                                                 |                                                      |
| <b>Reviewed By:</b> EMC Manager: Boni Baniqued <i>Boni Baniqued</i>                                                                                                                                                                                 |                                                      |
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## GENERAL INFORMATION

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

The American Telecom Services, Inc.'s product, model: X10001X (Remark: 1. Master = X10001X where the X at the end (far right) will change based on who the service provider is that is supported by the phone ) or the "EUT" as referred to in this report is a transmitter of 1.9G CORDLESS VOIP PHONE which measures approximately 15.0 cm L x 5.0 cm W x 9.5 cm H, rated input voltage: DC 12 V adapter.

Adapter Manufacturer: COMING DATA, Model: CP1210  
Input: 100-240 VAC, 50/60 Hz, 0.5A  
Output: DC+12V/1A.

\* The test data gathered are from production sample, serial number:0607028, provided by the manufacturer, we receive the EUT on 2006-8-22.

### 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 - 1998.

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 - 1998, 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 Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

### Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect radiated and conducted emission measurement data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab 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 C63.17 - 1998.

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 Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>

### Host System Configuration List and Details

| Manufacturer | Description | Model             | Serial Number            | FCC ID |
|--------------|-------------|-------------------|--------------------------|--------|
| DELL         | PC          | DELL 170L         | CN-0TC670-70821-560-F4WQ | DoC    |
| DELL         | Keyboard    | SK-8110           | CN07N244-71616-561-1100  | DoC    |
| DELL         | Mouse       | M071KC            | 519046820                | DoC    |
| DELL         | LCD Monitor | 1505FP            | Y4287-7168-574-GBSH      | DoC    |
| Intel        | CPU         | Celeron D-2533    | N/A                      | DoC    |
| ProMOS       | Memory      | V826632K24SATG-C0 | 0525-K1933700            | DoC    |
| HP           | Laser Jet5L | C3941A            | JPTVOB2337               | DoC    |
| ECOM         | Modem       | EM-56DEV          | 6588D51200013            | DoC    |

### Local Support Equipment List and Details

| Manufacturer | Description | Model         | Serial Number            | FCC ID |
|--------------|-------------|---------------|--------------------------|--------|
| DELL         | Motherboard | OWC297        | CN-OWC297-70821-566-02BR | DoC    |
| DELL         | Power       | NPS-250KB D   | CN-0H2678-17972-56E8NBM  | DoC    |
| Seagate      | Hard Disk   | ST340014A     | 5JXK3NAD                 | DoC    |
| DELL         | 3.5' Floppy | N/A           | CN-0N8893-69802-54Q-02OZ | DoC    |
| Lite-ON      | CD-Rom      | LTN-489S      | N/A                      | DoC    |
| Intel        | Ethernet    | PRO 10/100 VE | N/A                      | DoC    |

### External I/O Cable

| Cable Description                 | Length (M) | From/Port            | To          |
|-----------------------------------|------------|----------------------|-------------|
| Shielded Detachable K/B Cable     | 1.5        | K/B Port / Host      | K/B         |
| Shielded Detachable Mouse Cable   | 1.5        | Mouse Port / Host    | Mouse       |
| Shielded Detachable Printer Cable | 1.2        | Parallel Port / Host | Printer     |
| Shielded Detachable Serial Cable  | 1.2        | Serial Port / Host   | Modem       |
| Shielded Detachable VGA Cable     | 1.5        | VGA Port / Host      | Monitor     |
| Shielded Detachable Coaxial Cable | 1.8        | Video Port / Host    | Color TV PG |

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## **SYSTEM TEST CONFIGURATION**

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### **Justification**

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

### **EUT Exercise Software**

N/A.

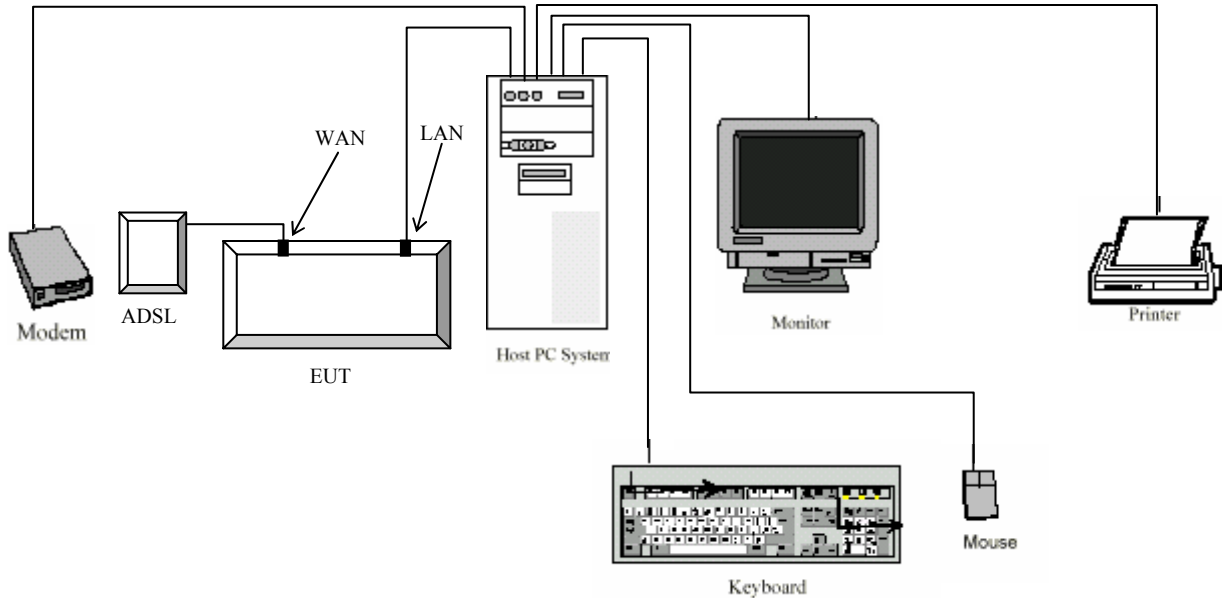
### **Special Accessories**

The special accessories were supplied by Bay Area Compliance Lab Corp. (ShenZhen).

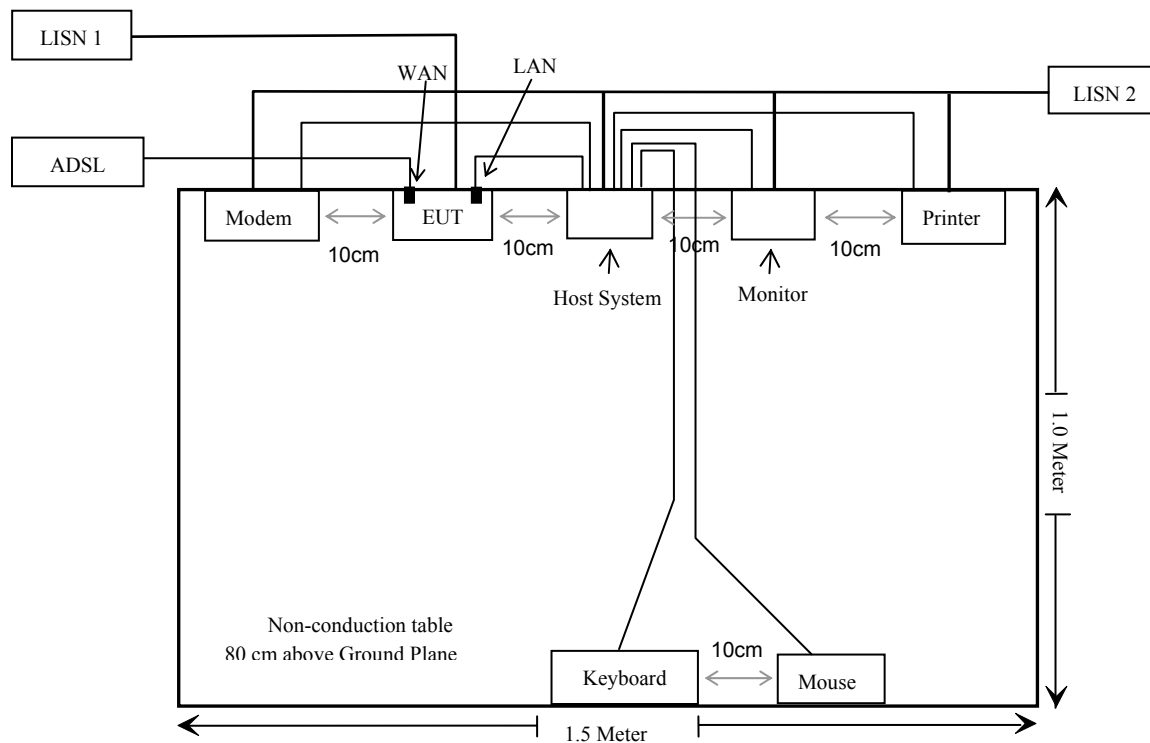
### **Equipment Modifications**

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

## Configuration of Test Setup



## Block Diagram of Test Setup



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**SUMMARY OF TEST RESULTS**

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| <b>RULES</b>                    | <b>DESCRIPTION OF TEST</b>               | <b>RESULT</b> |
|---------------------------------|------------------------------------------|---------------|
| § 15.317<br>§ 15.203            | Antenna Requirement                      | Compliant     |
| § 15.315<br>§ 15.207            | Conducted Emission                       | Compliant     |
| § 15.319 (g)                    | Radiated Emission                        | Compliant*    |
| § 15.319 (i)                    | RF Radiation Exposure                    | 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)<br>§ 15.319 (f) | Verification of Access Protocols         | Compliant     |

\* Within measurement uncertainty.

**§15.317&15.203 - ANTENNA REQUIREMENT**

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**Standard Applicable**

§15.317, an unlicensed PCS device must meet the antenna requirement of §15.203.

§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.

This product has an integrated antenna arrangement, fulfill the requirement of this section.

**Result:** Compliance.

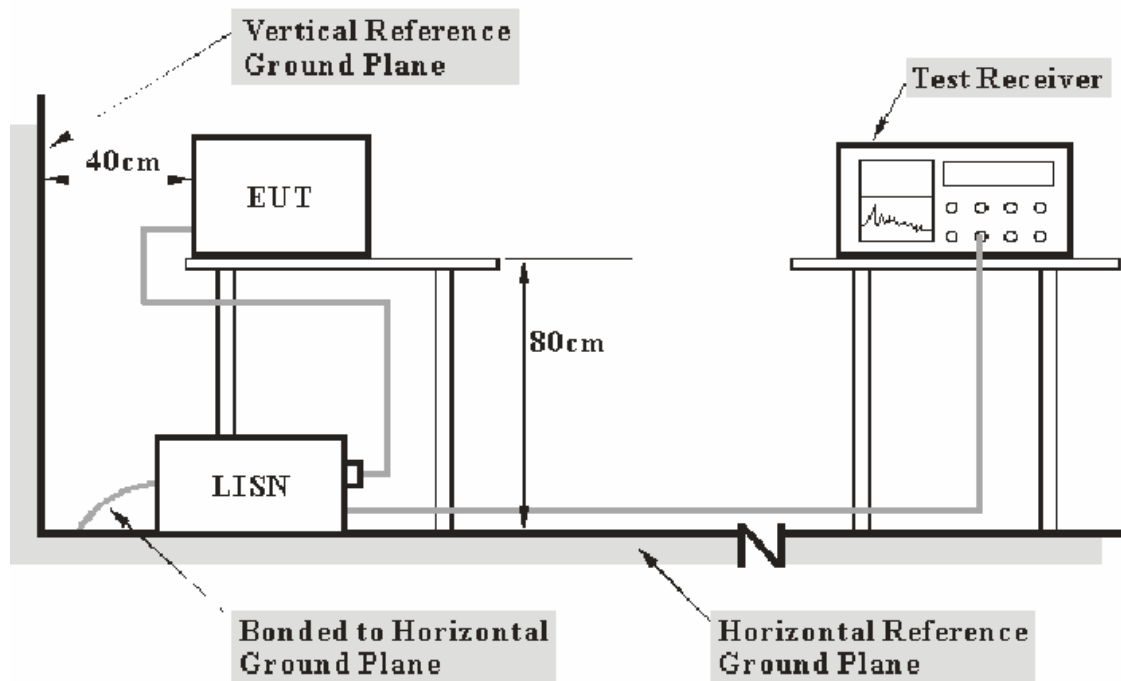
## §15.315&15.207 - CONDUCTED EMISSION

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is  $\pm 2.4$  dB.

### EUT Setup



- Note:**
1. Support units were connected to second LISN.
  2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.17 - 1998 measurement procedure. The specification used was with the FCC Part 15.207 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 of the EUT was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| <i><b>Frequency Range</b></i> | <i><b>IFBW</b></i> |
|-------------------------------|--------------------|
| 150 kHz – 30 MHz              | 9 kHz              |

## Test Equipment List and Details

| <b>Manufacturer</b> | <b>Description</b> | <b>Model</b> | <b>Serial Number</b>  | <b>Calibration Date</b> | <b>Calibration Due Date</b> |
|---------------------|--------------------|--------------|-----------------------|-------------------------|-----------------------------|
| Com-Power           | L.I.S.N.           | LI-200       | 12005                 | N/A                     | N/A                         |
| Com-Power           | L.I.S.N.           | LI-200       | 12008                 | N/A                     | N/A                         |
| Rohde & Schwarz     | EMI Test Receiver  | ESCS30       | DE25330 or 830245/006 | 2006-1-26               | 2007-1-26                   |
| Rohde & Schwarz     | L.I.S.N.           | ESH2-Z5      | 892107/021            | 2006-3-1                | 2007-3-1                    |

\* Com-Power's LISN were used as the supporting equipment.

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

## Test Procedure

During the conducted emission test, the adapter of the EUT was connected to the outlet of the first LISN, and all other support equipment power cords were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

**-4.14 dB at 0.190 MHz in the Neutral conductor mode.**

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

|                    |          |
|--------------------|----------|
| Temperature:       | 25 ° C   |
| Relative Humidity: | 55%      |
| ATM Pressure:      | 1000mbar |

*The testing was performed by Merry Zhao on 2006-8-31.*

*Test Mode: Operating*

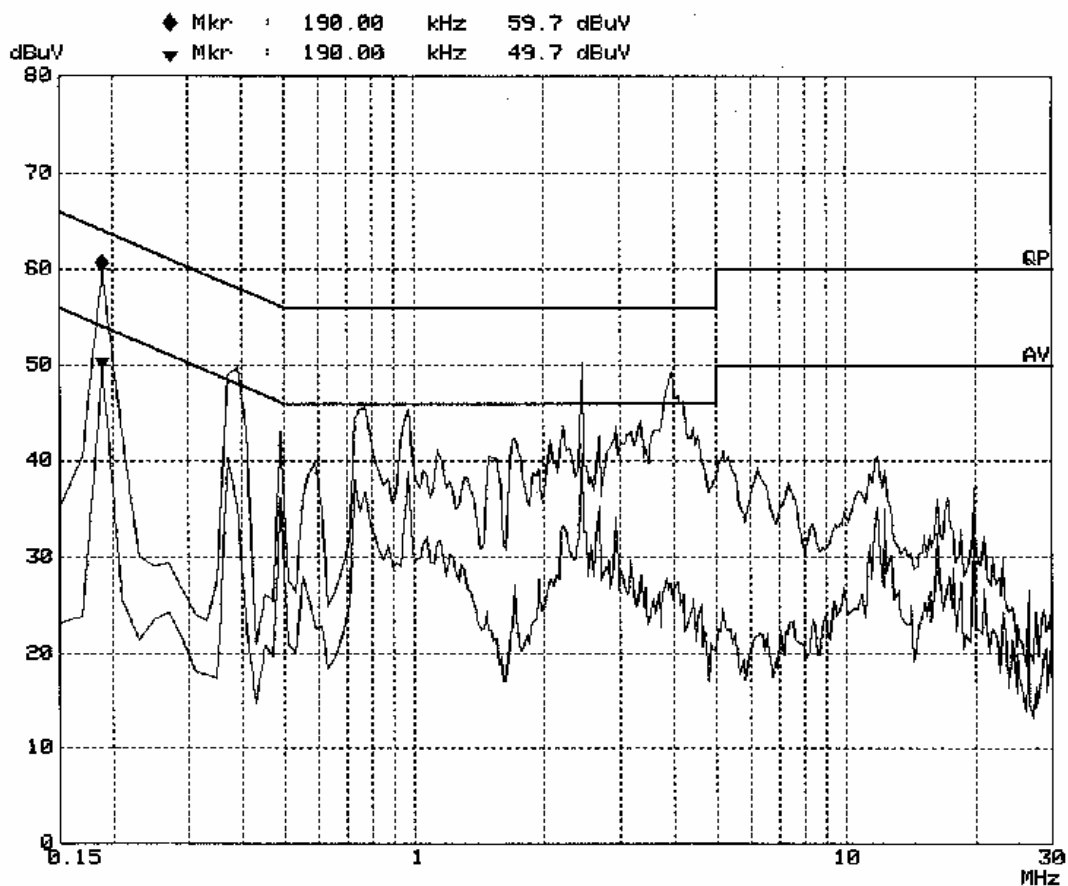
| AC LINE CONDUCTED EMISSIONS |                  |                  |                    | FCC PART 15.207 |             |
|-----------------------------|------------------|------------------|--------------------|-----------------|-------------|
| Frequency (MHz)             | Amplitude (dBμV) | Detector (QP/AV) | Phase Live/Neutral | Limit (dBμV)    | Margin (dB) |
| 0.190                       | 59.90            | QP               | Neutral            | 64.04           | -4.14       |
| 0.190                       | 59.80            | QP               | Live               | 64.04           | -4.24       |
| 0.190                       | 49.80            | AV               | Live               | 54.04           | -4.24       |
| 0.190                       | 49.60            | AV               | Neutral            | 54.04           | -4.44       |
| 0.970                       | 40.80            | AV               | Neutral            | 46.00           | -5.20       |
| 2.450                       | 40.70            | AV               | Live               | 46.00           | -5.30       |
| 2.450                       | 50.20            | QP               | Live               | 56.00           | -5.80       |
| 2.450                       | 50.10            | QP               | Neutral            | 56.00           | -5.90       |
| 2.450                       | 39.70            | AV               | Neutral            | 46.00           | -6.30       |
| 3.950                       | 49.20            | QP               | Live               | 56.00           | -6.80       |
| 3.970                       | 48.70            | QP               | Neutral            | 56.00           | -7.30       |
| 0.390                       | 49.70            | QP               | Live               | 58.06           | -8.36       |
| 0.770                       | 36.80            | AV               | Live               | 46.00           | -9.20       |
| 0.970                       | 46.40            | QP               | Neutral            | 56.00           | -9.60       |
| 0.390                       | 48.40            | QP               | Neutral            | 58.06           | -9.66       |
| 0.490                       | 36.10            | AV               | Live               | 46.17           | -10.07      |
| 0.750                       | 45.70            | QP               | Neutral            | 56.00           | -10.30      |
| 0.770                       | 45.50            | QP               | Live               | 56.00           | -10.50      |
| 0.750                       | 33.70            | AV               | Neutral            | 46.00           | -12.30      |
| 0.390                       | 35.40            | AV               | Live               | 48.06           | -12.66      |
| 0.490                       | 43.00            | QP               | Live               | 56.17           | -13.17      |
| 0.390                       | 34.30            | AV               | Neutral            | 48.06           | -13.76      |
| 3.950                       | 25.60            | AV               | Live               | 46.00           | -20.40      |
| 3.970                       | 25.50            | AV               | Neutral            | 46.00           | -20.50      |

**Test Plots**

Plot(s) of Test Data is presented hereinafter as reference.

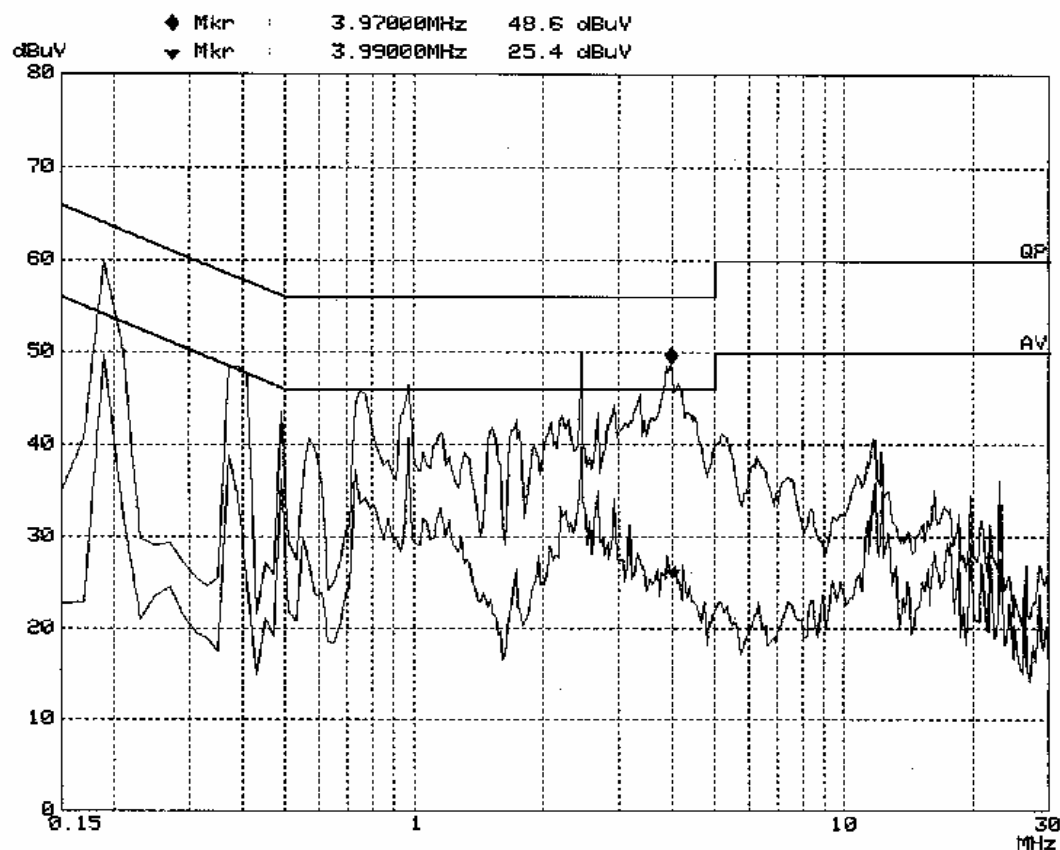
# CONDUCTION EMISSION FCC Part 15

EUT: 1.9G Cordless VOIP Phone, M/N: X1001X  
Manuf: American Telecom  
Op Cond: Operating  
Operator: Merry  
Test Spec: AC 120V/60Hz L  
Comment: Temp: 25 Humi: 55%  
Date: 31. Aug 06 11:14



# CONDUCTION EMISSION FCC Part 15

EUT: 1.9G Cordless VOIP Phone,M/N:X1001X  
Manuf: American Telecom  
Op Cond: Operating  
Operator: Merry  
Test Spec: AC 120V/60Hz N  
Comment: Temp:25 Humi:55%  
Date: 31. Aug 06 11:20



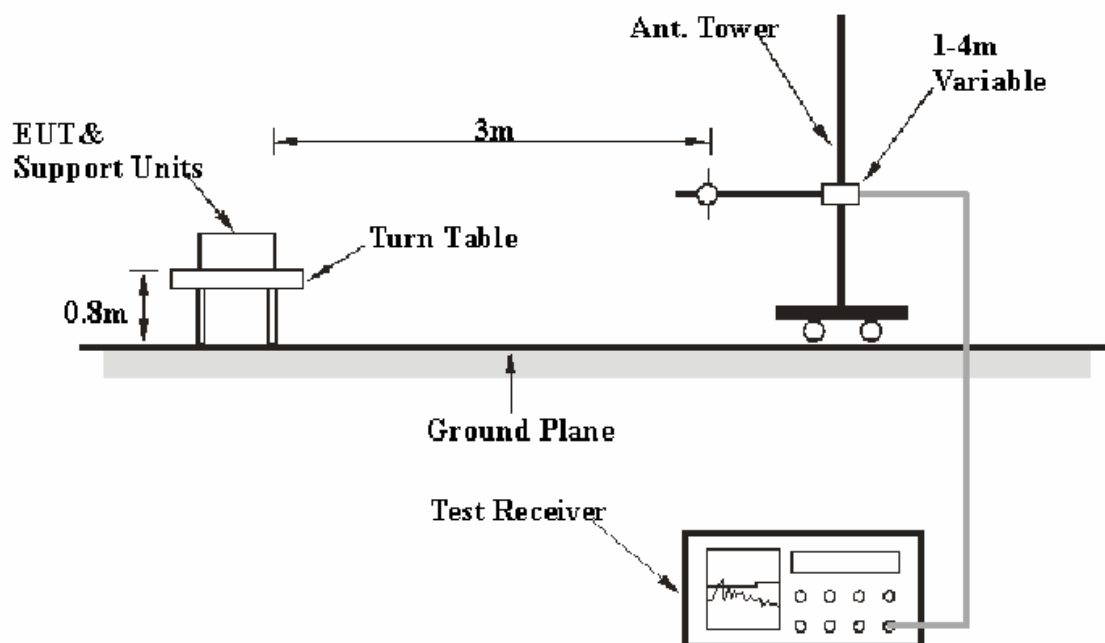
## §15.319 (g) - RADIATED EMISSION

### 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 Lab 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 - 1998. The specification used was the FCC 15 § 15.319(e).

### EMI Test Receiver Setup

The system was investigated from 30 MHz to 5 GHz.

During the radiated emission test, the test receiver was set with the following configurations:

| <i><b>Frequency Range</b></i> | <i><b>RBW</b></i> | <i><b>VBW</b></i> |
|-------------------------------|-------------------|-------------------|
| 30 – 1000 MHz                 | 100 kHz           | 300 kHz           |
| 1000 MHz – 5 GHz              | 1 MHz             | 3 MHz             |

## Test Equipment List and Details

| Manufacturer    | Description       | Model   | Serial Number         | Calibration Date | Calibration Due Date |
|-----------------|-------------------|---------|-----------------------|------------------|----------------------|
| Agilent         | Spectrum Analyzer | 8564E   | 3943A01781            | 2005-12-8        | 2006-12-8            |
| HP              | Amplifier         | 8449B   | 3008A00277            | 2006-8-17        | 2007-8-17            |
| Sunol Sciences  | Horn Antenna      | DRH-118 | A052604               | 2006-7-20        | 2007-7-20            |
| Rohde & Schwarz | EMI Test Receiver | ESCS30  | DE25330 or 830245/006 | 2006-1-26        | 2007-1-26            |
| HP              | Amplifier         | HP8447E | 1937A01046            | 2006-8-17        | 2007-8-17            |
| Sunol Sciences  | Broadband Antenna | JB1     | A040904-2             | 2006-4-28        | 2007-4-28            |

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

## Test Procedure

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

All data was recorded in the Peak and Average detection mode.

## Corrected Amplitude & Margin Calculation

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

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -5.8dB means the emission is 5.8dB below the limit for Class C. The equation for margin calculation is as follows:

$$\begin{aligned}\text{Margin} &= \text{Corr. Ampl.} - \text{Limit} \\ \text{Margin} &= \text{Limit} - \text{Corr. Ampl.}\end{aligned}$$

## Test Results Summary

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

### 30MHz-1000MHz:

**High Channel: -2.8 dB at 61.225375 MHz in the Horizontal polarization.**  
**Low Channel: -1.2 dB at 897.123450 MHz in the Horizontal polarization.**

### Above 1GHz:

**High Channel: -12.68 dB at 3856.896 MHz in the Vertical polarization.**  
**Low Channel: -11.68 dB at 3843.072 MHz in the Vertical polarization.**

## Test Data

### Environmental Conditions

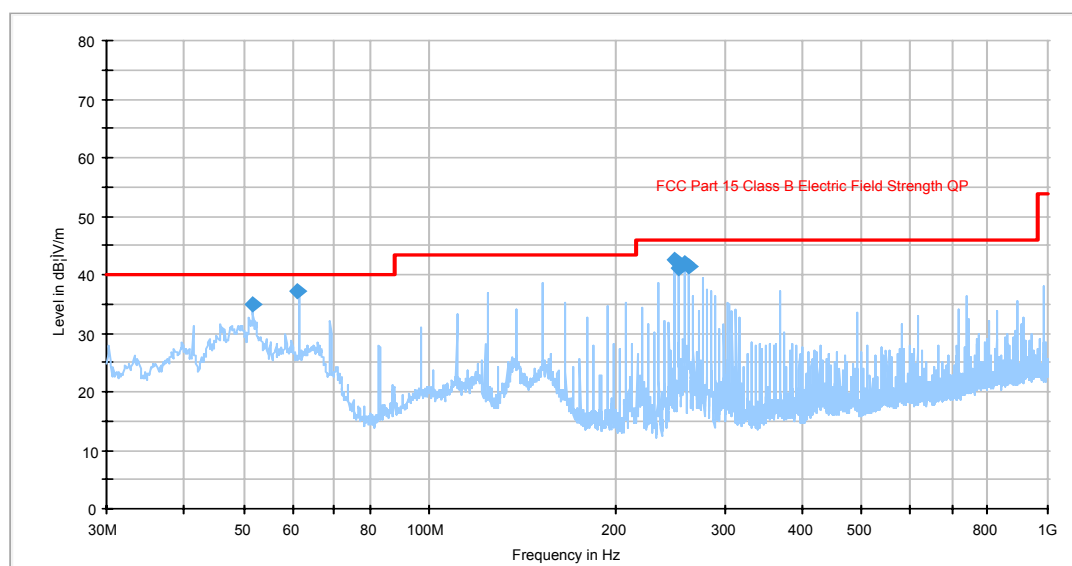
|                    |          |
|--------------------|----------|
| Temperature:       | 25 ° C   |
| Relative Humidity: | 56%      |
| ATM Pressure:      | 1002mbar |

The testing was performed by Merry Zhao on 2006-8-31.

Test Mode: Operating

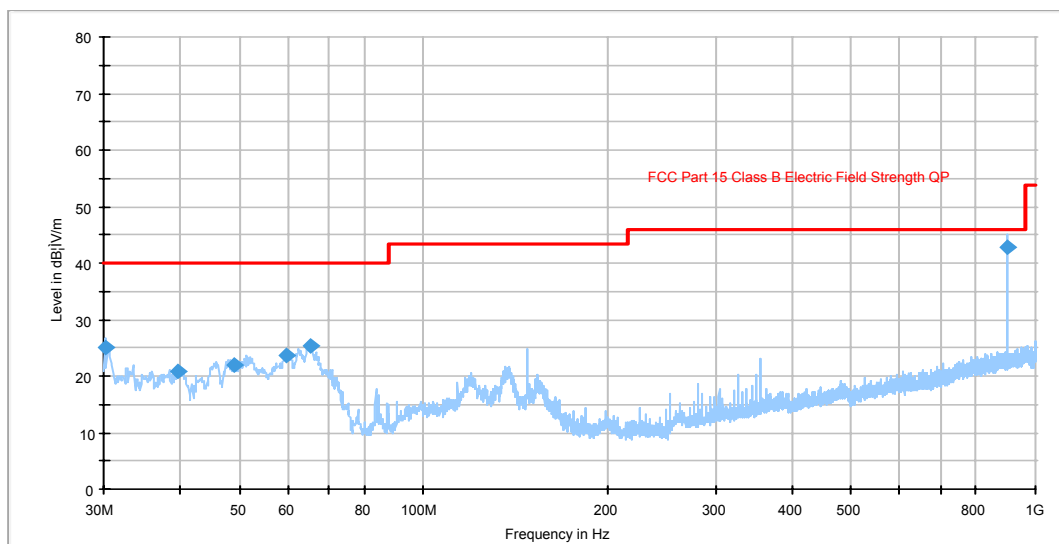
### 30MHz-1000MHz

### High Channel



| Frequency (MHz) | Quasi Peak (dB $\mu$ V/m) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dB $\mu$ V/m) |
|-----------------|---------------------------|---------------------|----------|--------------------------|------------|-------------|----------------------|
| 61.225375       | 37.2                      | 135.0               | H        | 91.0                     | -20.1      | 2.8*        | 40.0                 |
| 248.825975      | 42.4                      | 134.0               | H        | 46.0                     | -13.9      | 3.6*        | 46.0                 |
| 258.044700      | 41.8                      | 99.0                | H        | 50.0                     | -11.7      | 4.2         | 46.0                 |
| 262.660375      | 41.5                      | 100.0               | H        | 59.0                     | -11.4      | 4.5         | 46.0                 |
| 253.429700      | 41.3                      | 100.0               | H        | 53.0                     | -12.9      | 4.7         | 46.0                 |
| 51.729250       | 34.8                      | 100.0               | V        | 71.0                     | -19.5      | 5.2         | 40.0                 |

\* Within measurement uncertainty.

**Low Channel**

| Frequency (MHz) | Quasi Peak (dB $\mu$ V/m) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dB $\mu$ V/m) |
|-----------------|---------------------------|---------------------|----------|--------------------------|------------|-------------|----------------------|
| 897.123450      | 42.9                      | 114.0               | H        | 41.0                     | -2.7       | 1.2*        | 46.0                 |
| 65.582100       | 25.4                      | 100.0               | V        | 0.0                      | -19.9      | 14.6        | 40.0                 |
| 30.332472       | 25.0                      | 113.0               | V        | 134.0                    | -6.3       | 15.0        | 40.0                 |
| 59.791825       | 23.7                      | 114.0               | V        | 25.0                     | -20.2      | 16.3        | 40.0                 |
| 48.982925       | 22.0                      | 100.0               | V        | 0.0                      | -18.7      | 18.0        | 40.0                 |
| 39.671550       | 20.8                      | 401.0               | V        | 2.0                      | -13.1      | 19.2        | 40.0                 |

\* Within measurement uncertainty.

**Above 1GHz**

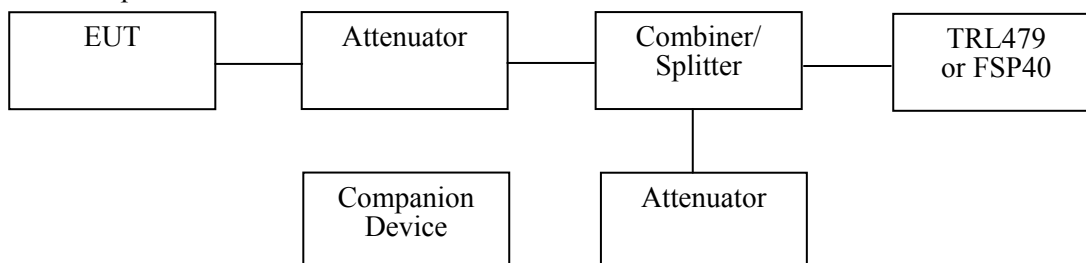
| Frequency<br>MHz | Meter<br>Reading<br>dBuV/m | Detector<br>PK/QP/AV | Direction<br>Degree | Height<br>Meter | Polar<br>H / V | Antenna<br>Loss<br>dB | Cable<br>loss<br>dB | Amplifier<br>Gain<br>dB | Corr.<br>Ampl.<br>dBuV/m | FCC Part 15.319(g) |              |             |
|------------------|----------------------------|----------------------|---------------------|-----------------|----------------|-----------------------|---------------------|-------------------------|--------------------------|--------------------|--------------|-------------|
|                  |                            |                      |                     |                 |                |                       |                     |                         |                          | Limit<br>dBuV/m    | Margin<br>dB |             |
| High Channel     |                            |                      |                     |                 |                |                       |                     |                         |                          |                    |              |             |
| 3856.896         | 58.83                      | PK                   | 270                 | 1.0             | V              | 31.2                  | 3.79                | 32.5                    | 61.32                    | 74                 | -12.68       | Harmonic    |
| 5785.344         | 30.67                      | AV                   | 180                 | 1.2             | H              | 32.4                  | 4.70                | 34.4                    | 33.37                    | 54                 | -20.63       | Harmonic    |
| 3856.896         | 29.67                      | AV                   | 60                  | 1.0             | H              | 31.2                  | 3.79                | 32.5                    | 32.16                    | 54                 | -21.84       | Harmonic    |
| 3856.896         | 29.67                      | AV                   | 45                  | 1.2             | V              | 31.2                  | 3.79                | 32.5                    | 32.16                    | 54                 | -21.84       | Harmonic    |
| 3856.896         | 49.17                      | PK                   | 45                  | 1.0             | H              | 31.2                  | 3.79                | 32.5                    | 51.66                    | 74                 | -22.34       | Harmonic    |
| 5785.344         | 47.83                      | PK                   | 45                  | 1.2             | H              | 32.4                  | 4.70                | 34.4                    | 50.53                    | 74                 | -23.47       | Harmonic    |
| 1928.448         | 74.17                      | PK                   | 45                  | 1.0             | H              | 27.4                  | 3.09                | 0                       | 104.66                   |                    |              | Fundamental |
| 1928.448         | 19.00                      | AV                   | 180                 | 1.2             | H              | 27.4                  | 3.09                | 0                       | 49.49                    |                    |              | Fundamental |
| 1928.448         | 76.50                      | PK                   | 45                  | 1.0             | V              | 27.4                  | 3.09                | 0                       | 106.99                   |                    |              | Fundamental |
| 1928.448         | 19.83                      | AV                   | 60                  | 1.2             | V              | 27.4                  | 3.09                | 0                       | 50.32                    |                    |              | Fundamental |
| Low Channel      |                            |                      |                     |                 |                |                       |                     |                         |                          |                    |              |             |
| 3843.072         | 59.83                      | PK                   | 270                 | 1.0             | V              | 31.2                  | 3.79                | 32.5                    | 62.32                    | 74                 | -11.68       | Harmonic    |
| 3843.072         | 35.17                      | AV                   | 45                  | 1.2             | V              | 31.2                  | 3.79                | 32.5                    | 37.66                    | 54                 | -16.34       | Harmonic    |
| 3843.072         | 35.00                      | AV                   | 60                  | 1.0             | H              | 31.2                  | 3.79                | 32.5                    | 37.49                    | 54                 | -16.51       | Harmonic    |
| 3843.072         | 54.83                      | PK                   | 45                  | 1.0             | H              | 31.2                  | 3.79                | 32.5                    | 57.32                    | 74                 | -16.68       | Harmonic    |
| 5764.608         | 34.50                      | AV                   | 180                 | 1.2             | H              | 32.4                  | 4.70                | 34.4                    | 37.20                    | 54                 | -16.8        | Harmonic    |
| 5764.608         | 34.33                      | AV                   | 180                 | 1.2             | V              | 32.4                  | 4.70                | 34.4                    | 37.03                    | 54                 | -16.97       | Harmonic    |
| 3713.000         | 32.83                      | AV                   | 60                  | 1.2             | V              | 31.2                  | 3.79                | 32.5                    | 35.32                    | 54                 | -18.68       | Harmonic    |
| 3713.000         | 51.83                      | PK                   | 45                  | 1.0             | V              | 31.2                  | 3.79                | 32.5                    | 54.32                    | 74                 | -19.68       | Harmonic    |
| 5764.608         | 51.17                      | PK                   | 45                  | 1.2             | H              | 32.4                  | 4.70                | 34.4                    | 53.87                    | 74                 | -20.13       | Harmonic    |
| 5764.608         | 50.83                      | PK                   | 90                  | 1.2             | V              | 32.4                  | 4.70                | 34.4                    | 53.53                    | 74                 | -20.47       | Harmonic    |
| 1921.536         | 76.00                      | PK                   | 45                  | 1.0             | H              | 27.4                  | 3.09                | 0                       | 106.49                   |                    |              | Fundamental |
| 1921.536         | 33.33                      | AV                   | 180                 | 1.2             | H              | 27.4                  | 3.09                | 0                       | 63.82                    |                    |              | Fundamental |
| 1921.536         | 81.33                      | PK                   | 45                  | 1.0             | V              | 27.4                  | 3.09                | 0                       | 111.82                   |                    |              | Fundamental |
| 1921.536         | 33.50                      | AV                   | 60                  | 1.2             | V              | 27.4                  | 3.09                | 0                       | 63.99                    |                    |              | Fundamental |

## §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 1:



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 VFR 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 | DE25330 or 830245/006 | 2006-1-26        | 2007-1-26            |

\* **Statement of Traceability:** Bay Area Compliance Lab 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: | 50%      |
| ATM Pressure:      | 1009mbar |

*The testing was performed by Merry Zhao on 2006-8-31.*

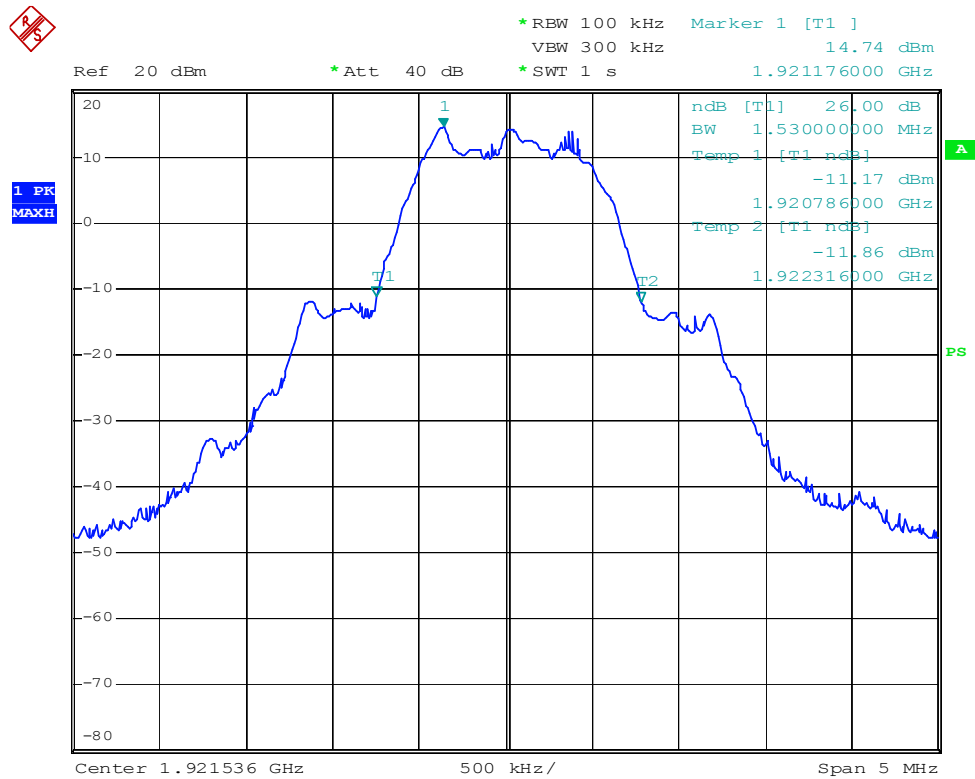
*Test Mode: Operating*

| Channel        | Center frequency (MHz) | 26dB bandwidth (MHz) | Limit           |
|----------------|------------------------|----------------------|-----------------|
| Low Channel    | 1921.536               | 1.53                 | 50kHz<BW<2.5MHz |
| Middle Channel | 1924.992               | 1.52                 | 50kHz<BW<2.5MHz |
| High Channel   | 1928.448               | 1.54                 | 50kHz<BW<2.5MHz |

**Test Result:** Pass

Refer to the attached plots.

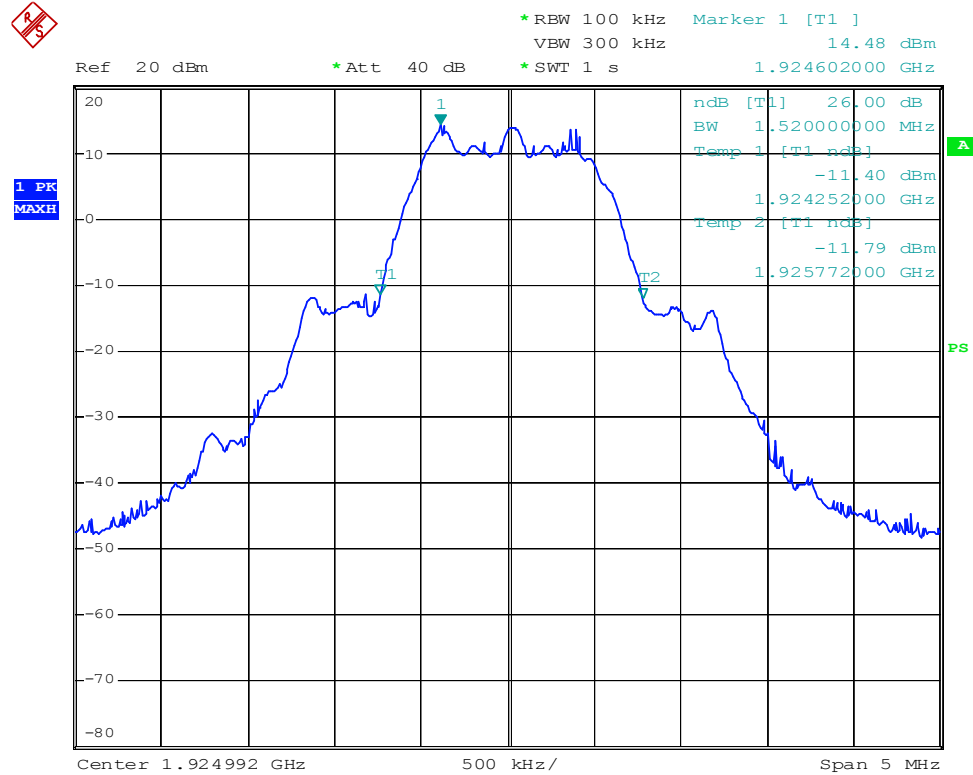
### Low channel



American Telecom X1001 26dB bandwidth low channel

Date: 31.AUG.2006 16:47:20

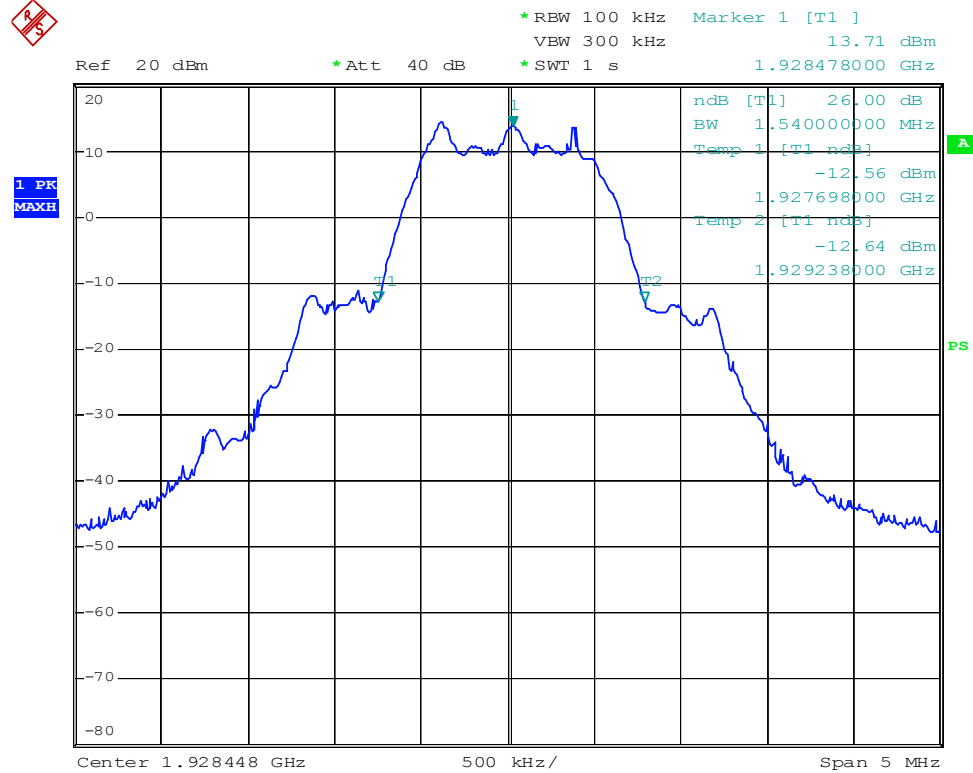
## Middle channel



American Telecom X1001 26dB bandwidth middle channel

Date: 31.AUG.2006 16:49:26

## High channel



American Telecom X1001 26dB bandwidth highc channel

Date: 31.AUG.2006 16:43:27

## §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:

$$EBW = 1540000\text{Hz}$$

$$PTP = 100 \mu W \times (1540000)^{1/2}$$

$$PTP = 20.94\text{dBm}$$

### Test Equipment List and Details

| Manufacturer    | Description       | Model  | Serial Number         | Calibration Date | Calibration Due Date |
|-----------------|-------------------|--------|-----------------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCS30 | DE25330 or 830245/006 | 2006-1-26        | 2007-1-26            |

\* **Statement of Traceability:** Bay Area Compliance Lab 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: | 50%      |
| ATM Pressure:      | 1009mbar |

*The testing was performed by Merry Zhao on 2006-8-31.*

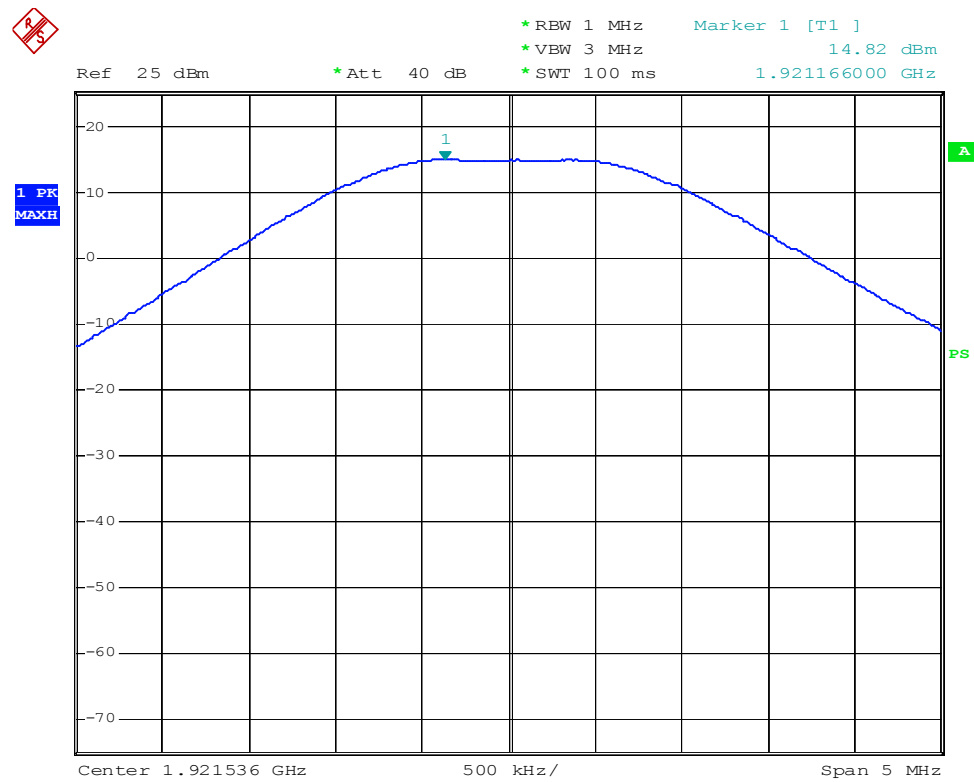
*Test Mode: Operating*

**Test Result:** Pass

| Frequency (MHz) | Peak Transmit Power (dBm) | Limit (dBm) |
|-----------------|---------------------------|-------------|
| 1921.536        | 14.62                     | 20.94       |
| 1924.992        | 14.35                     | 20.94       |
| 1928.448        | 14.35                     | 20.94       |

Please refer to the attached plots.

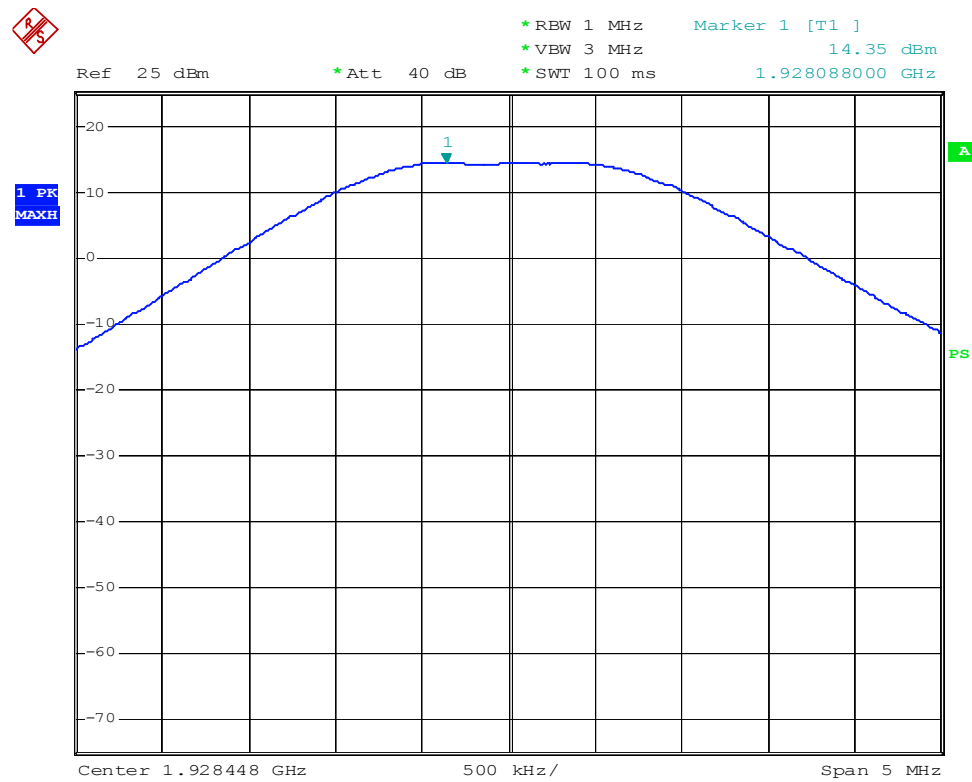
## Low channel



American Telecom X1001 peak transmit power low channel

Date: 31.AUG.2006 17:57:14

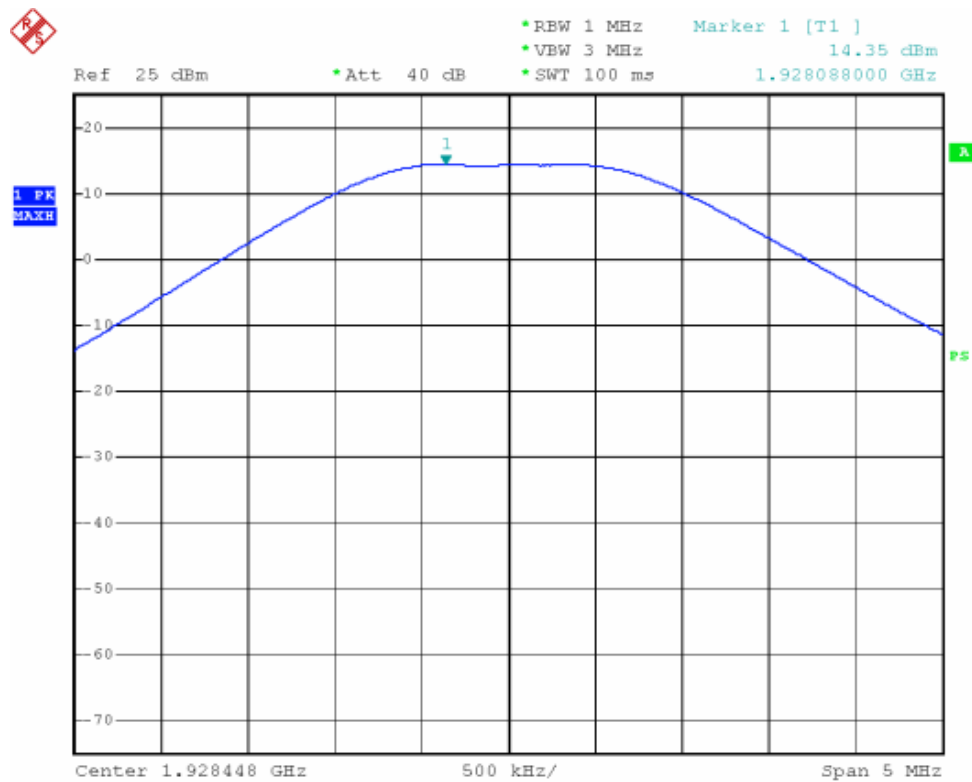
## Middle channel:



American Telecom X1001 peak transmit power high channel

Date: 31.AUG.2006 17:55:18

High channel:



American Telecom X1001 peak transmit power high channel

Date: 31.AUG.2006 17:55:18

## §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 | DE25330 or 830245/006 | 2006-1-26        | 2007-1-26            |

\* **Statement of Traceability:** Bay Area Compliance Lab 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: | 50%      |
| ATM Pressure:      | 1009mbar |

*The testing was performed by Merry Zhao on 2006-8-31.*

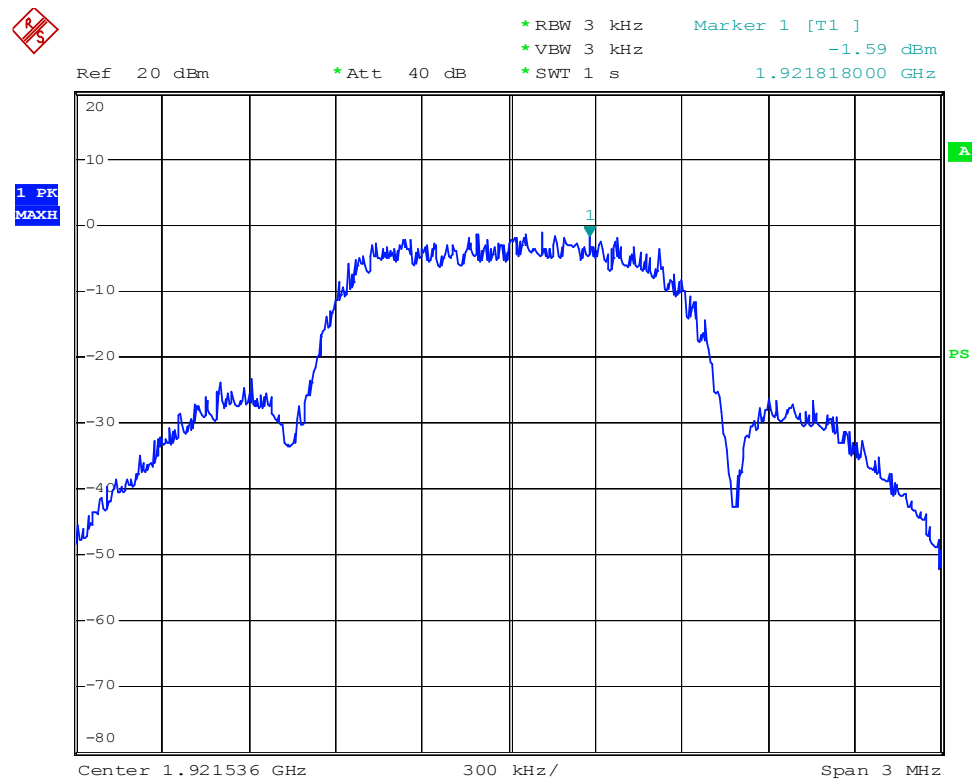
*Test Mode: Operating*

**Test Result:** Pass

| Frequency (MHz) | Power Spectral Density |         | Limit (mW/3kHz) | Result |
|-----------------|------------------------|---------|-----------------|--------|
|                 | dBm/3kHz               | mW/3kHz |                 |        |
| 1921.536        | -1.59                  | 0.69    | 3               | Pass   |
| 1924.992        | -3.49                  | 0.45    | 3               | Pass   |
| 1928.448        | -4.32                  | 0.37    | 3               | Pass   |

Please refer to the attached plots.

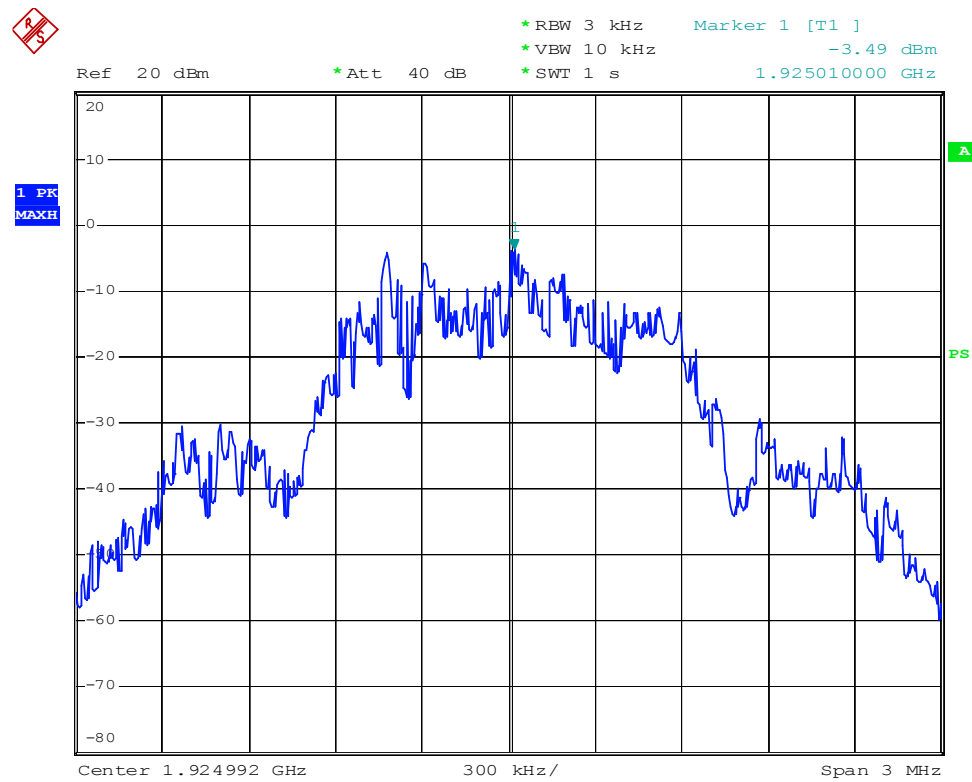
## Low channel



American Telecom X1001 power spectral density low channel

Date: 31.AUG.2006 17:10:18

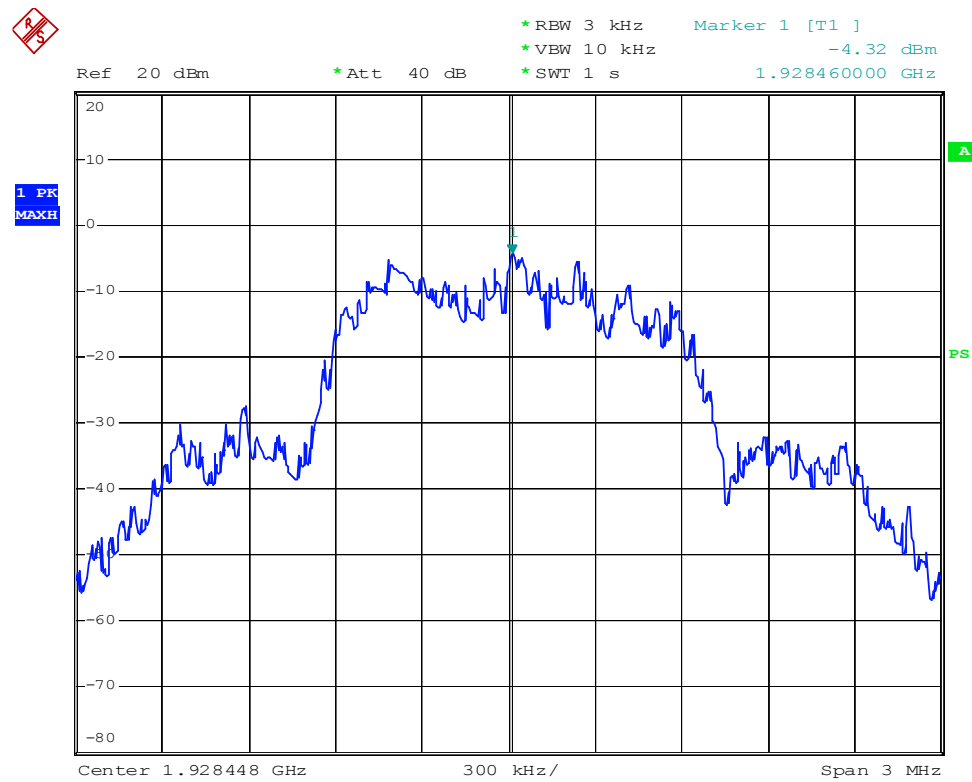
## Middle channel



American Telecom X1001 power spectral density middle channel

Date: 31.AUG.2006 17:26:21

## High channel



American Telecom X1001 power spectral density high channel

Date: 31.AUG.2006 17:32:35

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

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**Standard Applicable**

The spectrum allocated for isochronous or asynchronous transmission. [47 CFR 15, Subpart D, 15.303(i)]

**Test Equipment List and Details**

| Manufacturer    | Description       | Model  | Serial Number         | Calibration Date | Calibration Due Date |
|-----------------|-------------------|--------|-----------------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCS30 | DE25330 or 830245/006 | 2006-1-26        | 2007-1-26            |

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

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

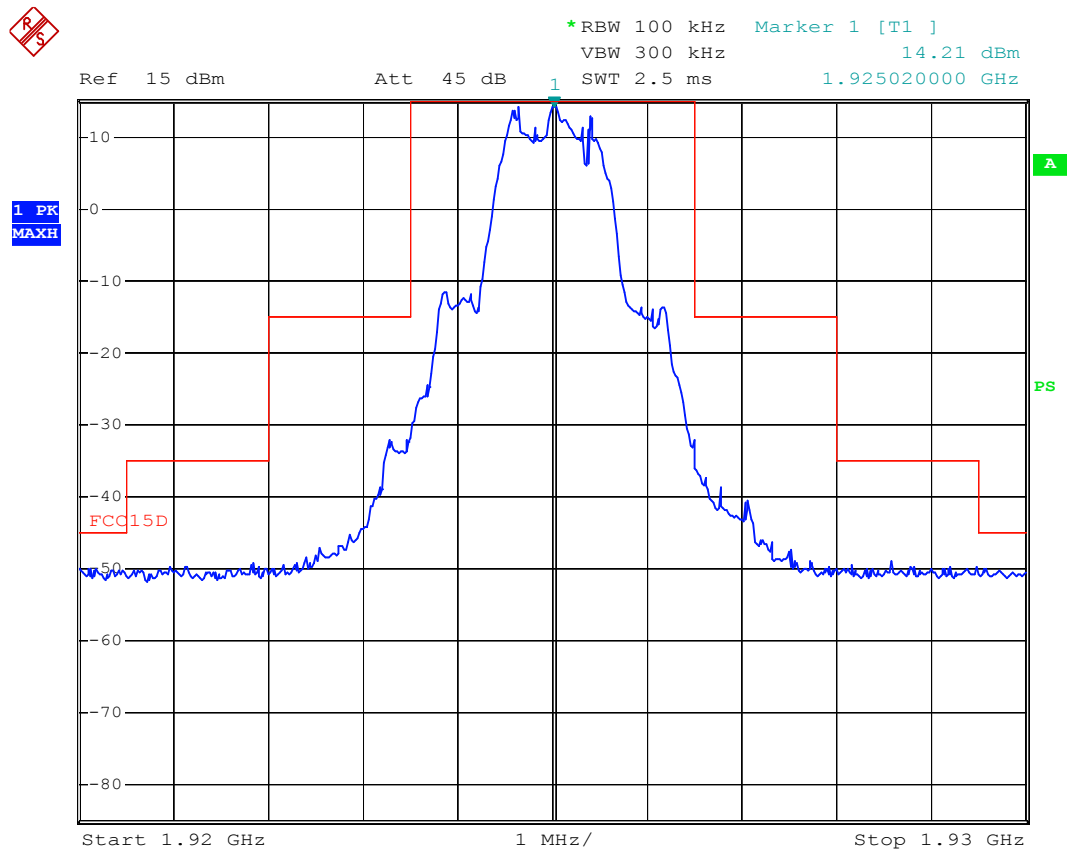
|                    |          |
|--------------------|----------|
| Temperature:       | 25 ° C   |
| Relative Humidity: | 50%      |
| ATM Pressure:      | 1009mbar |

*The testing was performed by Merry Zhao on 2006-9-1.*

*Test Mode: Operating*

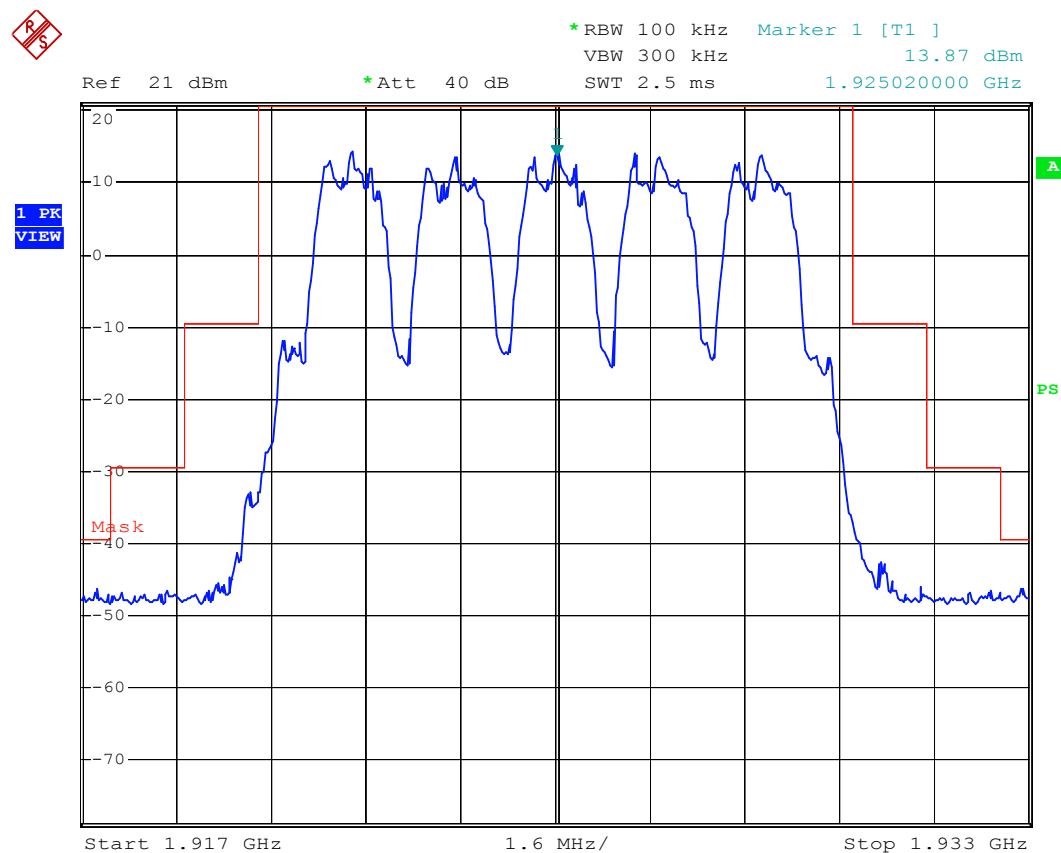
**Test Result:** Pass

Refer to the attached plots.



Emission mask -inside the sub-band

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Emission mask -outside the sub-band

Date: 1.SEP.2006 14:56:19

## §15.323 (f) - FREQUENCY STABILITY

### Standard Applicable

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

| Temperature        | Supply Voltage           |
|--------------------|--------------------------|
| 20°C               | 85-115% or new batteries |
| -20°C <sup>a</sup> | Normal                   |
| +50°C              | Normal                   |

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

Using the mean carrier frequency at 20°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°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      | 2006-1-2         | 2007-1-2             |
| Rohde & Schwarz | Digital Radio Tester           | CTS60  | 1005.7        | 2006-3-5         | 2007-3-5             |

\* **Statement of Traceability:** Bay Area Compliance Lab 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: | 50%      |
| ATM Pressure:      | 1009mbar |

The testing was performed by Merry Zhao on 2006-8-31.

Test Mode: Operating

Test Result: Pass

| Temperature (°C) | Voltage (Vdc) | Channel Frequency (MHz) | Offset (kHz) | Offset (ppm) | Limit (ppm) |
|------------------|---------------|-------------------------|--------------|--------------|-------------|
| 20               | 10.2          | 1924.992                | 0.325        | 0.169        | $\pm 10$    |
|                  | 12            | 1924.992                | 0.327        | 0.170        | $\pm 10$    |
|                  | 13.8          | 1924.992                | 0.327        | 0.170        | $\pm 10$    |
| -20              | 10.2          | 1924.992                | -3.388       | -1.76        | $\pm 10$    |
|                  | 12            | 1924.992                | -3.369       | -1.75        | $\pm 10$    |
|                  | 13.8          | 1924.992                | -3.272       | -1.70        | $\pm 10$    |
| +50              | 10.2          | 1924.992                | 3.080        | 1.60         | $\pm 10$    |
|                  | 12            | 1924.992                | 3.157        | 1.64         | $\pm 10$    |
|                  | 13.8          | 1924.992                | 3.176        | 1.65         | $\pm 10$    |

## §15.323 (c) (e) & §15.319(f)-VERIFICATION OF ACCESS PROTOCOLS

### 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.

Result:

| Part    | Transmits Control and Signaling Information | Equipment Under Test |
|---------|---------------------------------------------|----------------------|
| Base    | X                                           |                      |
| 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        | C               | Pass      |
| 4      | Power/Signal cable removed counter part | A               | Pass      |
| 5      | Power removed from Base part            | A               | Pass      |
| 6      | Base part powered down                  | A               | Pass      |

A – Connection breakdown, Cease of all transmissions.

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

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

### Part 15.323 (c) (2); (c)(9)

(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.

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

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

Where:

B=Emission bandwidth(Hz)

$M_u$  =dBs the threshold may exceed thermal noise (30 for  $T_L$  & 50 for  $T_U$ )

$P_{MAX}$  =Output Power Limit(dBm)

$P_{EUT}$  =Transmitted power(dBm)

BASE:

| Monitor Threshold | B (MHz) | $M_u$ (dB) | $P_{MAX}$ (dBm) | $P_{EUT}$ (dBm) | Threshold (dBm) |
|-------------------|---------|------------|-----------------|-----------------|-----------------|
| $T_L$             | 1.54    | 30         | 20.94           | 14.62           | -75.81          |
| $T_U$             | 1.54    | 50         | 20.94           | 14.62           | -55.81          |

Note: 1.The upper threshold( $T_U$ ) is only applicable for systems with a minimum of 40 channels.

Limits

The EUT must not transmit until the interference level is less than or equal to:

Measured Threshold Level  $\leq T_L + U_M$

Where:

$T_L$  =Lower threshold level

$U_M$ =Margin of uncertainty in threshold measurements (6dB)

Results:

| Monitor threshold    | Measured Threshold Level | Limit(dBm) |
|----------------------|--------------------------|------------|
| Lower Threshold(dBm) | -72.5                    | -69.81     |
| Upper Threshold(dBm) | N/A                      | N/A        |

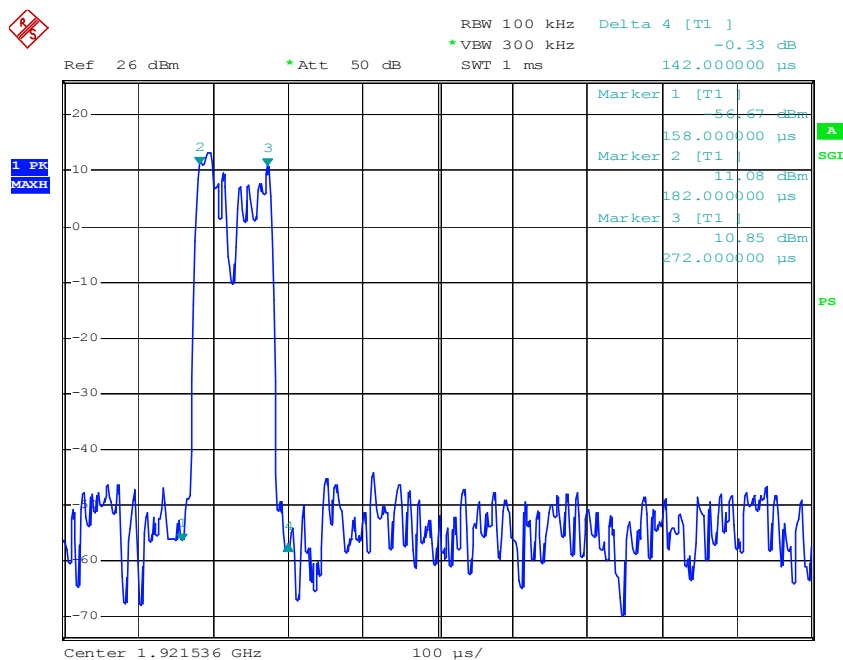
### Part 15.323 (c) (3) Duration of the transmission

Result:

| Repetition of Access Criteria | Maximum Transmission Time | Maximum Transmission Time |
|-------------------------------|---------------------------|---------------------------|
| First                         | <4.0                      | < 8 hours                 |
| Second                        | <4.0                      | < 8 hours                 |

### Part 15.323 (c) (4) System Acknowledgment time

| Test                                               | Time taken (second) | Limit (second) | Result |
|----------------------------------------------------|---------------------|----------------|--------|
| Initiating transmitter time                        | 0.000024            | 1              | Pass   |
| Channel used for control and signaling information | 0.000090            | 30             | Pass   |
| Transmission cease time                            | 0.000028            | 30             | Pass   |



base keep channel time  
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**Part 15.323 (c) (5) at less 40 duplex channels and access the defined channel time**

Result:

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 b)

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

Test c)

Interference on f1 was set at TL + UM and at TL + UM + 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 d)

Interference on f1 was set at TL + UM + 1dB and at TL + UM - 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 e)

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

Result:

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

Note: 1. All tests were repeated 5 times.

**Selected Channel Confirmation**

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 TL + UM, verify a connection is established on f2.

The connection is terminated.

Test b)

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

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.

**Segment Occupancy**

This section is not applicable as no units will be located within 1 meter of each other.

Part 15.323 (c) (7) The emission bandwidth of the intended transmission and maximum reaction time

Result:

| Test Equation ( $\mu$ s ) | B (bandwidth)(MHz) | Pulse width ( $\mu$ s ) | Result (pass/ fail) |
|---------------------------|--------------------|-------------------------|---------------------|
| 50 (1.25/B)1/2            | 1.54               | 50                      | Pass                |
| 35 (1.25/B)1/2            | 1.12               | 35                      | Pass                |

Part 15.323 (c) (8) Antenna of the monitoring system:

Result:

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

Part 15.323 (c) (10) duplex connect:

Result:

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 b)

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 c) & d)

Apply interference at a level TL + UM to all transmit time slots and to all but one receive time slots. The EUT should not establish a connection.

Test e) & f)

Apply interference at a level TL + UM to all receive time slots and to all but one transmit time slots. The EUT should not establish a connection.

Result:

| Test  | Connection Made | Correct Time Slot | Required Slot | Pass/Fail |
|-------|-----------------|-------------------|---------------|-----------|
| b     | Yes             | N/A               | Any           | Pass      |
| c & d | No              | N/A               | N/A           | Pass      |
| e & f | No              | N/A               | N/A           | Pass      |

Part 15.323 (c) (11) Alternative monitoring interval for co-located devices:

Result:

This test is carried out in accordance with ANSI C63.17 sub-clause 8.4. The manufacturer declares that this provision is not utilized by the EUT.

Part 15.323 (c) 12 Fair access to spectrum related to (c) (10)& (c) (11)

Result:

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

The manufacturer declares that this device does not work in mode, which denies fair access to the spectrum to others.

Part 15.323 (e) Frame Period

Equipment Settings: CMD60

HANDSET:

Frame Repetition Stability:

| Frame Repetition Stability (ppm) | Limit (ppm) | Result (Pass/Fail) |
|----------------------------------|-------------|--------------------|
| 0.01                             | 10          | Pass               |

## Frame Period and Jitter:

| Max.pos.jitter<br>(us) | Max.neg.jitter<br>(us) | Frame period | Limit                |                |
|------------------------|------------------------|--------------|----------------------|----------------|
|                        |                        |              | Frame Period<br>(ms) | Jitter<br>(μs) |
| 0.00                   | -0.01                  | 10.00001     | 2or10/X              | 25us           |

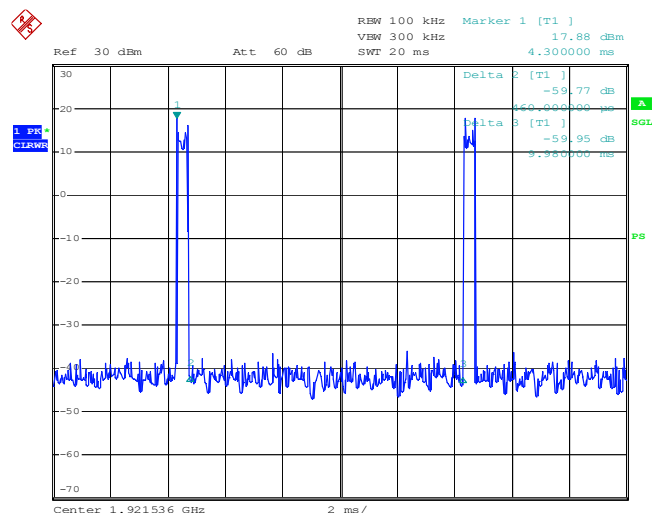
BASE:

## Frame Repetition Stability:

| Frame Repetition Stability (ppm) | Limit (ppm) | Result (Pass/Fail) |
|----------------------------------|-------------|--------------------|
| 0.00                             | 10          | Pass               |

## Frame Period and Jitter:

| Max.pos.jitter<br>(us) | Max.neg.jitter<br>(us) | Frame period | Limit                |                |
|------------------------|------------------------|--------------|----------------------|----------------|
|                        |                        |              | Frame Period<br>(ms) | Jitter<br>(μs) |
| 0.00                   | -0.01                  | 10.00001     | 2or10/X              | 25us           |



Frame period handset

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## 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.

Result:

| Maximum Antenna Gain | Exceeds 3dBi by |
|----------------------|-----------------|
| 0dBi                 | N/A             |