



| Product Name | ROS Home Center |
|--------------|-----------------|
| Model No. | ROS-2000 |
| FCC ID. | BJM-ROS2000 |

| Applicant | TATUNG CO. |
|-----------|--|
| Address | 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C. |

| Date of Receipt | Jul. 23, 2008 |
|-----------------|--------------------|
| Issued Date | Aug. 11, 2008 |
| Report No. | 087373R-RFUSP07V01 |
| Version | V1.0 |

The Test Results relate only to the samples tested.

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Test Report Certification

Issued Date: Aug. 11, 2008

Report No.: 087373R-RFUSP07V01



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| Applicant | TATUNG CO. |
| Address | 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C. |
| Manufacturer | TATUNG CO. |
| Model No. | ROS-2000 |
| FCC ID. | BJM-ROS2000 |
| Rated Voltage | 120V/60Hz |
| Working Voltage | 120V/60Hz |
| Trade Name | PRODEA |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2007 |
| | ANSI C63.4: 2003 |
| Test Result | Complied NVLAP Lab Code: 200533-0 |

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Documented By:

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Genie Chang

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Tested By

(Assistant Engineer / Johnson Liao)

Approved By

Min S

(Manager / Vincent Lin)





0914



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1. GENERAL INFORMATION

1.1. EUT Description

| Product Name | ROS Home Center | |
|--|---|--|
| Trade Name | PRODEA | |
| FCC ID. | BJM-ROS2000 | |
| Model No. | ROS-2000 | |
| Frequency Range | 908MHz | |
| Type of Modulation | FSK | |
| Number of Channels | 1 | |
| Channel Control | Auto | |
| Antenna Type | PIFA | |
| Antenna Gain | Refer to the table "Antenna List" | |
| Power Adapter MFR: HIPRO, M/N: HP-02040D43 | | |
| | Cable out: No-Shielded, 1.5m with two ferrite cores bonded. | |
| | Power Cord: Shielded, 1.8m | |

Antenna List

| N | No. Manufacturer | | Part No. | Peak Gain | |
|---|------------------|-----------|------------|--------------------|--|
| 1 | | FAVORTRON | E773700182 | 1.61dBi for 908MHz | |

Center Frequency of Each Channel:

Channel Frequency Channel Frequency Channel Frequency Channel 1: 908 MHz

- 1. The EUT is a ROS Home Center with a built-in Z-Wave transceiver module.
- 2. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.249.
- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

| EMI Test Mode | Mode 1: Transmitter |
|---------------|---------------------|
|---------------|---------------------|



1.2. Operation Description

The EUT is a ROS Home Center with a built-in Z-Wave transceiver module. The EUT operation frequency is 908MHz. The signals modulated by FSK are transmitted from the PIFA Antenna of the EUT.

Together with the patented Z-Wave Protocol the Z-Wave Module delivers a complete highly reliable RF communication solution. The Z-Wave Protocol uses Frame Acknowledgement, Retransmission, Collision Avoidance, Frame Checksum Check and sophisticated Routing to assure reliable full home coverage.



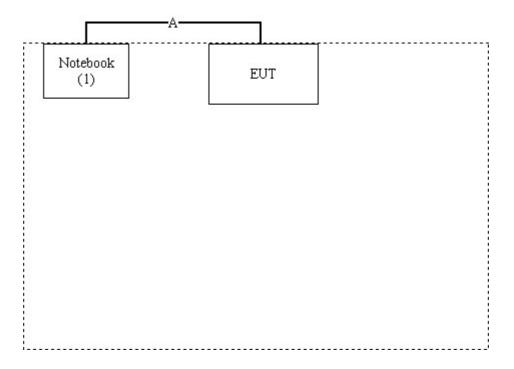
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product | | Manufacturer | Model No. | Serial No. | Power Cord |
|---------|-------------|--------------|-----------|------------|--------------------|
| (1) | Notebook PC | DELL | PP04X | 2D2ZM1S | Non-Shielded, 0.8m |

| Sig | nal Cable Type | Signal cable Description | | |
|--------------|----------------|--------------------------|--|--|
| A. LAN Cable | | Non-Shielded, 3.0m | | |

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4.
- (2) Open the EUT power.
- (3) Start the continuous transmit.
- (4) Verify that the EUT works correctly.



1.6. Test Facility

Ambient conditions in the laboratory:

| Items | Required (IEC 68-1) | Actual | |
|----------------------------|---------------------|----------|--|
| Temperature (°C) | 15-35 | 20-35 | |
| Humidity (%RH) | 25-75 | 50-65 | |
| Barometric pressure (mbar) | 860-1060 | 950-1000 | |

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site: http://tw.quietek.com/modules/myalbum/
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site: http://www.quietek.com/

Site Description: File on

Federal Communications Commission

FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046 Registration Number: 92195

Accreditation on NVLAP NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,

Lin-Kou Shiang, Taipei,

Taiwan, R.O.C.

TEL: 886-2-8601-3788 / FAX: 886-2-8601-3789

E-Mail: service@quietek.com

FCC Accreditation Number: TW1014











2. Conducted Emission

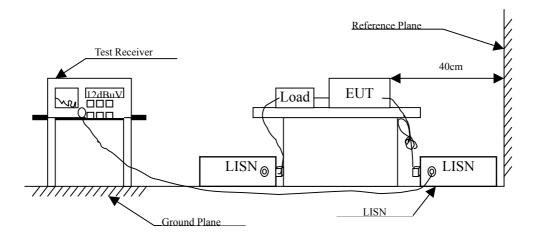
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

| | | | _ | | |
|------|-------------------|--------------|--------------------|-----------|-------------|
| Item | Instrument | Manufacturer | Type No./Serial No | Last Cal. | Remark |
| 1 | Test Receiver | R & S | ESCS 30/825442/17 | May, 2008 | |
| 2 | L.I.S.N. | R & S | ESH3-Z5/825016/6 | May, 2008 | EUT |
| 3 | L.I.S.N. | Kyoritsu | KNW-407/8-1420-3 | May, 2008 | Peripherals |
| 4 | Pulse Limiter | R & S | ESH3-Z2 | May, 2008 | |
| 5 | No.1 Shielded Roo | m | | N/A | |

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit | | | | | |
|---|--------|-------|--|--|--|
| Frequency | Limits | | | | |
| MHz | QP | AV | | | |
| 0.15 - 0.50 | 66-56 | 56-46 | | | |
| 0.50-5.0 | 56 | 46 | | | |
| 5.0 - 30 | 60 | 50 | | | |

Remarks: In the above table, the tighter limit applies at the band edges.



2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

 \pm 2.26 dB



2.6. Test Result of Conducted Emission

Product : ROS Home Center

Test Item : Conducted Emission Test

Power Line : Line 1

Test Mode : Mode 1: Transmitter (908MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV | dB | dBuV |
| LINE 1 | | | | | _ |
| Quasi-Peak | | | | | |
| 0.189 | 9.820 | 26.103 | 35.923 | -28.963 | 64.886 |
| 0.209 | 9.827 | 27.110 | 36.937 | -27.377 | 64.314 |
| 0.302 | 9.830 | 33.010 | 42.840 | -18.817 | 61.657 |
| 0.400 | 9.820 | 25.140 | 34.960 | -23.897 | 58.857 |
| 0.502 | 9.820 | 21.131 | 30.951 | -25.049 | 56.000 |
| 4.713 | 9.870 | 14.410 | 24.280 | -31.720 | 56.000 |
| | | | | | |
| Average | | | | | |
| 0.189 | 9.820 | 4.911 | 14.731 | -40.155 | 54.886 |
| 0.209 | 9.827 | 14.43 | 24.257 | -30.057 | 54.314 |
| 0.302 | 9.830 | 22.65 | 32.480 | -19.177 | 51.657 |
| 0.400 | 9.820 | 16.75 | 26.570 | -22.287 | 48.857 |
| 0.502 | 9.820 | 11.390 | 21.210 | -24.790 | 46.000 |
| 4.713 | 9.870 | 10.703 | 20.573 | -25.427 | 46.000 |

^{1.} All Reading Levels are Quasi-Peak and average value.

^{2. &}quot; " means the worst emission level.

^{3.} Measurement Level = Reading Level + Correct Factor



Test Item : Conducted Emission Test

Power Line : Line 2

Test Mode : Mode 1: Transmitter (908MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV | dB | dBuV |
| LINE 2 | | | | | |
| Quasi-Peak | | | | | |
| 0.201 | 9.860 | 42.590 | 52.450 | -12.093 | 64.543 |
| 0.306 | 9.850 | 27.220 | 37.070 | -24.473 | 61.543 |
| 0.603 | 9.830 | 17.113 | 26.943 | -29.057 | 56.000 |
| 1.103 | 9.830 | 13.390 | 23.220 | -32.780 | 56.000 |
| 4.318 | 9.870 | 16.630 | 26.500 | -29.500 | 56.000 |
| 22.181 | 10.043 | 22.811 | 32.854 | -27.146 | 60.000 |
| | | | | | |
| Average | | | | | |
| 0.201 | 9.860 | 32.13 | 41.990 | -12.553 | 54.543 |
| 0.306 | 9.850 | 17.033 | 26.883 | -24.660 | 51.543 |
| 0.603 | 9.830 | 12.120 | 21.950 | -24.050 | 46.000 |
| 1.103 | 9.830 | 9.641 | 19.471 | -26.529 | 46.000 |
| 4.318 | 9.870 | 10.711 | 20.581 | -25.419 | 46.000 |
| 22.181 | 10.043 | 16.699 | 26.742 | -23.258 | 50.000 |

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. " means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



3. Radiated Emission

3.1. Test Equipment

The following test equipment are used during the radiated emission test:

| Test Site | | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----------|---|-------------------|--------------|------------------------|------------|
| ☐Site # 1 | | Test Receiver | R & S | ESVS 10 / 834468/003 | May, 2008 |
| | | Spectrum Analyzer | Advantest | R3162/ 00803480 | May, 2008 |
| | | Pre-Amplifier | Advantest | BB525C/ 3307A01812 | May, 2008 |
| | | Bilog Antenna | SCHAFFNER | CBL6112B / 2697 | Sep., 2007 |
| ☐Site # 2 | | Test Receiver | R & S | ESCS 30 / 836858 / 022 | May, 2008 |
| | | Spectrum Analyzer | Advantest | R3162 / 100803466 | May, 2008 |
| | | Pre-Amplifier | Advantest | BB525C/3307A01814 | May, 2008 |
| | | Bilog Antenna | SCHAFFNER | CBL6112B / 2705 | May, 2008 |
| | | Horn Antenna | ETS | 3115 / 0005-6160 | Sep., 2007 |
| | | Pre-Amplifier | QTK | QTK-AMP-01/0001 | May, 2008 |
| ⊠Site # 3 | X | Test Receiver | R & S | ESI 26 / 838786/004 | May, 2008 |
| | X | Spectrum Analyzer | Agilent | E4407B / US39440758 | May, 2008 |
| | X | Bilog Antenna | SCHAFFNER | CBL6112B / 2697 | May, 2008 |
| | X | Horn Antenna | Schwarzbeck | BBHA9120D / 305, 306 | July, 2008 |
| | X | Horn Antenna | Schwarzbeck | BBHA9170 / 208, 209 | July, 2008 |
| | X | Pre-Amplifier | QTK | QTK-AMP-01 / 0001 | July, 2008 |
| | X | Pre-Amplifier | QTK | QTK-AMP-03 / 0003 | May, 2008 |
| | X | Pre-Amplifier | HP | 8449B / 3008A01123 | July, 2008 |

Note: 1. All equipments are calibrated every one year.

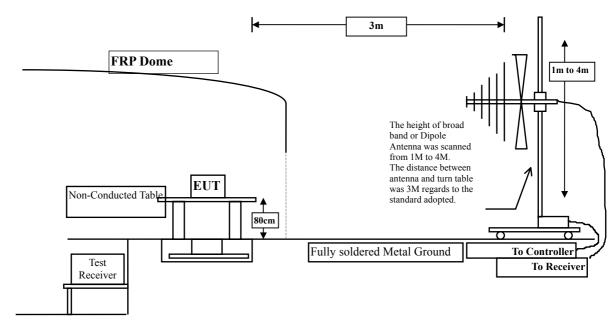
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^{2.} Test equipments marked by "X" are used to measure the final test results.

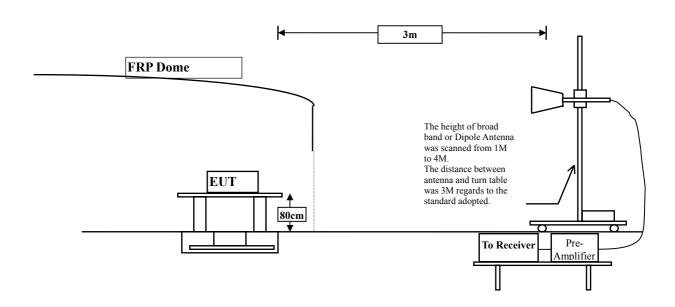


3.2. Test Setup

Below 1GHz



Above 1GHz





3.3. Limits

> Fundamental and Harmonics Emission Limits

| FCC Part 15 Subpart C Paragraph 15.249 Limits | | | | | | | |
|---|-------------------------------|--------------|----------------------------|--------------|--|--|--|
| Frequency | Field Strength of Fundamental | | Field Strength of Harmonic | | | | |
| MHz | (mV/m @3m) | (dBuV/m @3m) | (uV/m @3m) | (dBuV/m @3m) | | | |
| 902-928 | 50 | 94 | 500 | 54 | | | |
| 2400-2483.5 | 50 | 94 | 500 | 54 | | | |
| 5725-5875 | 50 | 94 | 500 | 54 | | | |

Remarks: 1. RF Voltage $(dBuV/m) = 20 \log RF \text{ Voltage } (uV/m)$

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209 Limits | | | | | |
|---|----------|-----------|--|--|--|
| Frequency MHz | uV/m @3m | dBuV/m@3m | | | |
| 30-88 | 100 | 40 | | | |
| 88-216 | 150 | 43.5 | | | |
| 216-960 | 200 | 46 | | | |
| Above 960 | 500 | 54 | | | |

Remarks: 1. RF Voltage $(dBuV/m) = 20 \log RF Voltage (uV/m)$

- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.



3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The frequency range from 30MHz to 10th harminics is checked.

3.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz



3.6. Test Result of Radiated Emission

Product : ROS Home Center

Test Item : Fundamental Radiated Emission

Test Site : No.3OATS

Test Mode : Mode 1: Transmitter

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|------------------------------|---------|---------|-------------|---------|---------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | _ |
| Peak Detector: | | | | | |
| 908.400 | 4.234 | 46.110 | 50.344 | -63.656 | 114.000 |
| Horizontal Average Detector: | | | | | |
| 908.400 | 4.234 | 45.650 | 49.884 | -44.116 | 94.000 |

Note:

- 1. Measurement Level = Reading Level + Correct Factor.
- 2. Correct Factor = Antenna Factor + Cable Loss PreAMP.

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Test Item : Fundamental Radiated Emission

Test Site : No.3OATS

Test Mode : Mode 1: Transmitter

| Frequency | Correct Factor | Reading Level | Measurement Level | Margin | Limit |
|--------------------------|-------------------|------------------|----------------------|---------|---------|
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 908.400 | 5.344 | 44.413 | 49.757 | -64.243 | 114.000 |
| | | | | | |
| Vertical | | | | | |
| Average Detector: | | | | | |
| 908.400 | 5.344 | 43.890 | 49.234 | -44.766 | 94.000 |

- 1. Measurement Level = Reading Level + Correct Factor.
- 2. Correct Factor = Antenna Factor + Cable Loss PreAMP.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmitter (908MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|------------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| Peak Detector: | | | | | |
| 1990.000 | -4.196 | 47.044 | 42.848 | -31.122 | 74.000 |
| 2152.000 | -3.476 | 42.298 | 38.822 | -35.148 | 74.000 |
| 2494.000 | -1.904 | 40.065 | 38.161 | -35.809 | 74.000 |
| 2998.000 | -0.816 | 45.749 | 44.933 | -29.037 | 74.000 |
| 4006.000 | 1.292 | 44.018 | 45.311 | -28.659 | 74.000 |
| 4492.000 | 2.679 | 43.918 | 46.596 | -27.374 | 74.000 |
| Average | | | | | |
| Detector: | | | | | |
| 1990.000 | -4.196 | 39.190 | 34.994 | -18.976 | 54.000 |
| 2152.000 | -3.476 | 35.730 | 32.254 | -21.716 | 54.000 |
| 2494.000 | -1.904 | 31.160 | 29.256 | -24.714 | 54.000 |
| 2998.000 | -0.816 | 37.680 | 36.864 | -17.106 | 54.000 |
| 4006.000 | 1.292 | 32.450 | 33.743 | -20.227 | 54.000 |
| 4492.000 | 2.679 | 33.370 | 36.048 | -17.922 | 54.000 |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the too weak instrument of signal is unable to test.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmitter (908MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|-----------------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Vertical | | | | | |
| Peak Detector: | | | | | |
| 1108.000 | -6.587 | 44.645 | 38.058 | -35.912 | 74.000 |
| 1324.000 | -5.842 | 44.486 | 38.644 | -35.326 | 74.000 |
| 1486.000 | -5.568 | 44.128 | 38.560 | -35.410 | 74.000 |
| 1990.000 | -4.196 | 49.416 | 45.220 | -28.750 | 74.000 |
| 2656.000 | -1.632 | 40.820 | 39.188 | -34.782 | 74.000 |
| 2998.000 | -0.816 | 46.169 | 45.353 | -28.617 | 74.000 |
| Average | | | | | |
| Detector: | | | | | |
| 1108.000 | -6.587 | 33.720 | 27.133 | -26.837 | 54.000 |
| 1324.000 | -5.842 | 38.750 | 32.908 | -21.062 | 54.000 |
| 1486.000 | -5.568 | 33.550 | 27.982 | -25.988 | 54.000 |
| 1990.000 | -4.196 | 42.910 | 38.714 | -15.256 | 54.000 |
| 2656.000 | -1.632 | 32.100 | 30.468 | -23.502 | 54.000 |
| 2998.000 | -0.816 | 37.470 | 36.654 | -17.316 | 54.000 |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the too weak instrument of signal is unable to test.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Item : General Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmitter (908 MHz)

| Frequency | Correct | Reading | Measurement | Margin | Limit |
|------------|---------|---------|-------------|---------|--------|
| | Factor | Level | Level | | |
| MHz | dB | dBuV | dBuV/m | dB | dBuV/m |
| Horizontal | | | | | |
| 300.690 | 15.184 | 14.121 | 29.305 | -16.695 | 46.000 |
| 418.778 | 21.707 | 2.791 | 24.498 | -21.502 | 46.000 |
| 599.559 | 26.981 | 1.340 | 28.321 | -17.679 | 46.000 |
| 700.641 | 25.594 | 8.740 | 34.334 | -11.666 | 46.000 |
| 751.182 | 26.423 | 15.744 | 42.167 | -3.833 | 46.000 |
| 850.321 | 27.043 | 11.175 | 38.218 | -7.782 | 46.000 |
| | | | | | |
| Vertical | | | | | |
| 274.930 | 16.984 | 22.240 | 39.224 | -6.776 | 46.000 |
| 650.100 | 23.780 | 8.576 | 32.356 | -13.644 | 46.000 |
| 667.595 | 23.827 | 9.431 | 33.258 | -12.742 | 46.000 |
| 751.182 | 24.633 | 11.144 | 35.777 | -10.223 | 46.000 |
| 834.770 | 26.270 | 14.631 | 40.901 | -5.099 | 46.000 |
| 900.862 | 28.042 | 12.969 | 41.011 | -4.989 | 46.000 |

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " " means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



4. Band Edge

4.1. Test Equipment

The following test equipments are used during the band edge tests:

| | Equipment | Manufacturer | Model No./Serial No. | Last Cal. |
|-----|-------------------|--------------|----------------------|------------|
| X | Test Receiver | R & S | ESI 26 / 838786/004 | May, 2008 |
| X | Spectrum Analyzer | Agilent | E4407B / US39440758 | May, 2008 |
| X | Bilog Antenna | SCHAFFNER | CBL6112B / 2697 | May, 2008 |
| X | Horn Antenna | Schwarzbeck | BBHA9120D / 305, 306 | July, 2008 |
| X | Horn Antenna | Schwarzbeck | BBHA9170 / 208, 209 | July, 2008 |
| X | Pre-Amplifier | QTK | QTK-AMP-01 / 0001 | July, 2008 |
| X | Pre-Amplifier | QTK | QTK-AMP-03 / 0003 | May, 2008 |
| X | Pre-Amplifier | HP | 8449B / 3008A01123 | July, 2008 |
| OAT | S No 3 | | | |

OATS No.3

Note: 1. All equipments are calibrated every one year.

2. The test equipments marked by "X" are used to measure the final test results.

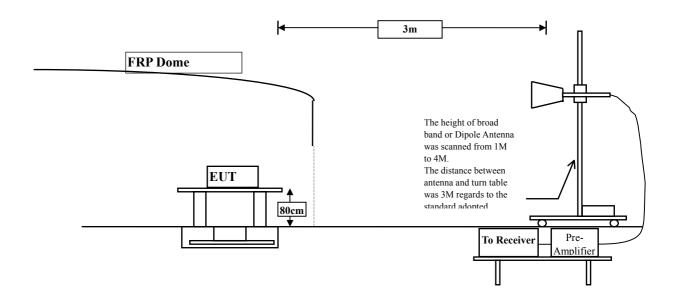
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4.2. Test Setup

RF Radiated Measurement:

Above 1GHz



4.3. Limit

Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).



4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

4.5. Uncertainty

Conducted is \pm 1.27 dB

Radiated is \pm 3.9 dB.



4.6. Test Result of Band Edge

Product : ROS Home Center
Test Item : Band Edge Data
Test Site : No.3 OATS

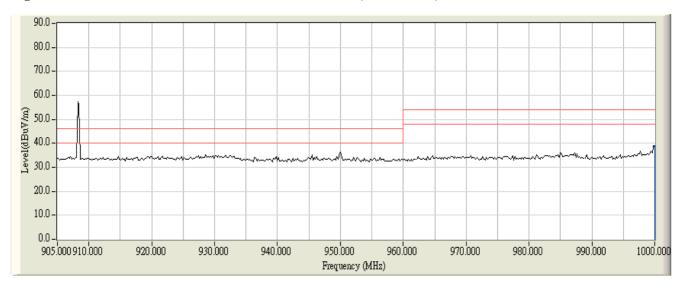
Test Mode : Mode 1: Transmitter (908MHz)

RF Radiated Measurement (Horizontal):

| | Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Quasi-Peak Limit (dBuV/m) | Result |
|---|---------------|-----------------|---------------------|-------------------------|----------------------------|---------------------------------|--------|
| 0 | 1(Quasi-Peak) | 1000.000 | 8.637 | 30.077 | 38.714 | 54.000 | Pass |

Figure Channel 01:

Horizontal (Quasi-Peak)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product : ROS Home Center
Test Item : Band Edge Data
Test Site : No.3 OATS

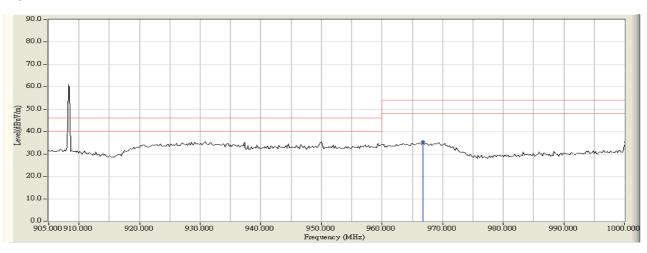
Test Mode : Mode 1: Transmitter (908MHz)

RF Radiated Measurement (Vertical):

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Emission Level (dBuV/m) | Quasi-Peak Limit (dBuV/m) | Result |
|----------------|-----------------|---------------------|----------------------|-------------------------|---------------------------------|--------|
| 01(Quasi-Peak) | 966.750 | 7.521 | 29.152 | 36.673 | 54.000 | Pass |

Figure Channel 01:

Vertical (Quasi-Peak)



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

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