FCC Part 15

TEST REPORT

For

Zigbee Module

Model Name: MZG-9162

Brand Name: Microlink

FCC ID: XZPMZG-9162

Report No.: AGC10270911SZ06E6

Date of Issue: Dec.02, 2009

Prepared For

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Report No.:AGC10270911SZ06E6 Page 1 of 38

VERIFICATION OF COMPLIANCE

| Applicant: | MICROLINK COMMUNICATIONS INC. | | | |
|----------------------|---|--|--|--|
| Address | B BLOCK, 5th Floor, Building 2, Cyber-Tech Zone, GaoXinAve.7.S, Nanshan District, Shenzhen, GuangDong | | | |
| Product Description: | Zigbee Module | | | |
| Brand Name: | Microlink | | | |
| Model Number: | MZG-9162 | | | |
| FCC ID | XZPMZG-9162 | | | |
| Report Number: | AGC10270911SZ06E6 | | | |
| Date of Test: | Nov.26, 2009-Dec.02, 2009 | | | |

WE HEREBY CERTIFY THAT:

The above equipment was tested by Shenzhen Attestation of Global Compliance Science & Technology Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Checked By:

Jekey Zhang

Jekey Zhang

Dec.02, 2009

Authorized By

King Zhang Dec.02, 2009

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GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

The EUT is a short range, lower power; **Zigbee Module** designed as an "Communication Device". It is designed by way of utilizing the DSSS technology to achieve the system operation.

A major technical description of EUT is described as following:

| Operation Frequency | 2.405 GHz to 2.480GHz |
|---------------------|----------------------------------|
| Rated Output Power | 17.82 dBm |
| Modulation | DSSS |
| Number of channels | 16 |
| Channel separation | 5MHz |
| Antenna Designation | PCB Antenna and External Antenna |
| Power Supply | DC 2.1-3.6V |

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **XZPMZG-9162** filling to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

1.3 TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 TEST FACILITY

All measurement facilities used to collect the measurement data are located at World Standardization Certification & Testing Co., Ltd. 1-2/F, Dachong Keji Building, No.28 of Tonggu Road, Nanshan District, Shenzhen, China

FCC Registration Number: 276008

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

1.5 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

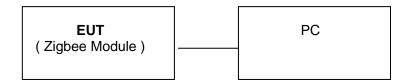
1.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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1. SYSTEM TEST CONFIGURATION

2.1 CONFIGURATION OF TESTED SYSTEM



2.2 EQUIPMENT USED IN TESTED SYSTEM

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID |
|------|---------------|-----------|----------------|-------------|
| 1 | Zigbee Module | Microlink | MZG-9162 | XZPMZG-9162 |
| 2 | PC | | | |

3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST | RESULT |
|-----------|-----------------------------|-----------|
| §15.207 | Conduction Emission | Compliant |
| §15.209 | Radiated Emission | Compliant |
| §15.247 | Maximum Output Power | Compliant |
| §15.247 | 6 dB Emission Bandwidth | Compliant |
| §15.247 | Band Edges | Compliant |
| §15.247 | Spurious Emission | Compliant |
| §15.247 | Number of Hopping Frequency | N/A |
| §15.247 | Time of Occupancy | N/A |
| §15.247 | Peak Power Density | Compliant |

4. DESCRIPTION OF TEST MODES

- 1. The EUT has been set to operate continuously on the lowest, the middle and the highest operation frequency individually.
- 2. The EUT stays in continuous transmitting mode on the operation frequency being set.

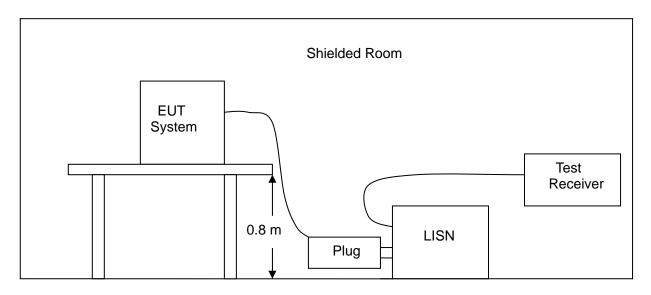
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5. CONDUCTION EMISSIONS

5.1 MEASUREMENT PROCEDURE:

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
- 2. Support equipment, if needed, was placed as per ANSI C63.4.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4. The EUT received DC5V power from USB through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5. All support equipments received AC power from a second LISN, if any.
- 6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.

5.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



5.3 MEASUREMENT EQUIPMENT USED:

| CONDUCTED EMISSION TEST SITE | | | | | | | |
|--|-----|------------------|--------------------------|---------|----------|--|--|
| EQUIPMENT MFR MODEL SERIAL LATER NUMBER NUMBER C | | | | | CAL DUE. | | |
| EMI TEST RECEIVER | HP | 8546A/8546 0A | 3625A00349 3448A00325 | 2009/10 | 2010/09 | | |
| LISN | AFJ | LS16 | 16010222119 | 2009/04 | 2010/04 | | |

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5.4 LIMITS AND MEASUREMENT RESULT:

LIMITS OF LINE CONDUCTED EMISSION TEST

| Fraguency | Maximum RF | Maximum RF Line Voltage | | | | |
|---------------|-------------|-------------------------|--|--|--|--|
| Frequency | Q.P.(dBuV) | Average(dBuV) | | | | |
| 150kHz~500kHz | 66-56 | 56-46 | | | | |
| 500kHz~5MHz | 56 | 46 | | | | |
| 5MHz~30MHz | 60 | 50 | | | | |

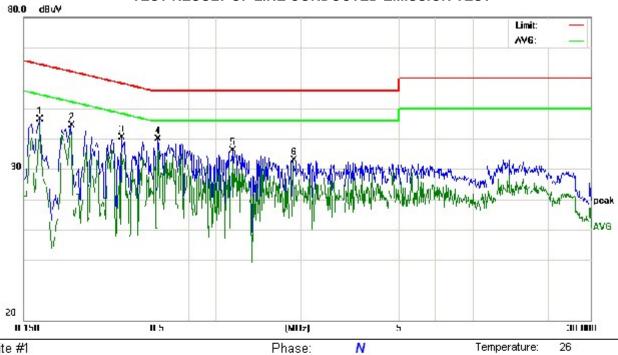
^{1**}Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

Humidity:

60 %

TEST RESULT OF LINE CONDUCTED EMISSION TEST



AC 230V/50Hz

Site site #1

Limit: FCC Part 15 B(QP)

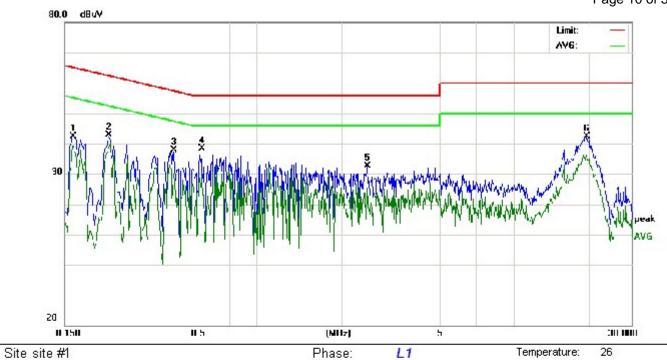
EUT: M/N: Mode: Note:

| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | | |
|---------|--------|------------------|-------------------|------------------|-------|--------|----------|---------|--|
| | MHz | dBu∀ | dB | dBu∀ | dBu∀ | dB | Detector | Comment | |
| 1 | 0.1740 | 46.34 | 0.00 | 46.34 | 64.77 | -18.43 | peak | | |
| 2 | 0.2340 | 44.50 | 0.00 | 44.50 | 62.31 | -17.81 | peak | | |
| 3 | 0.3740 | 40.34 | 0.00 | 40.34 | 58.41 | -18.07 | peak | | |
| 4 * | 0.5260 | 39.84 | 0.00 | 39.84 | 56.00 | -16.16 | peak | | |
| 5 | 1.0580 | 36.21 | 0.00 | 36.21 | 56.00 | -19.79 | peak | | |
| 6 | 1.8620 | 33.00 | 0.00 | 33.00 | 56.00 | -23.00 | peak | | |

Power:

Humidity:

60 %



AC 230V/50Hz

Oile site mi

Limit: FCC Part 15 B(QP)

EUT: M/N: Mode: Note:

| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | | |
|---------|---------|------------------|-------------------|------------------|-------|--------|----------|---------|--|
| | MHz | dBu∀ | dB | dBu∀ | dBu∀ | dΒ | Detector | Comment | |
| 1 | 0.1620 | 42.48 | 0.00 | 42.48 | 65.36 | -22.88 | peak | | |
| 2 | 0.2260 | 42.90 | 0.00 | 42.90 | 62.60 | -19.70 | peak | | |
| 3 | 0.4140 | 37.92 | 0.00 | 37.92 | 57.57 | -19.65 | peak | | |
| 4 | 0.5380 | 38.26 | 0.00 | 38.26 | 56.00 | -17.74 | peak | | |
| 5 | 2.5300 | 32.61 | 0.00 | 32.61 | 56.00 | -23.39 | peak | | |
| 6 * | 19.5420 | 42.40 | 0.00 | 42.40 | 60.00 | -17.60 | peak | | |

Power:

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6. MAXIMUM OUTPUT POWER

6.1 MEASUREMENT PROCEDURE:

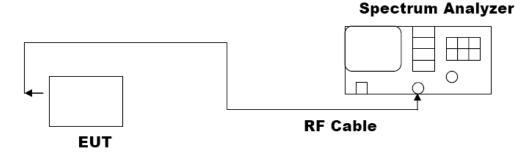
CONDUCTED METHOD

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 4. Set SPA Centre Frequency = Operation Frequency, RBW= 1 MHz, VBW= 1 MHz.
- 5. Set SPA Trace 1 Max hold, then View.

RADIATED METHOD According to ANSI C63.4:2003

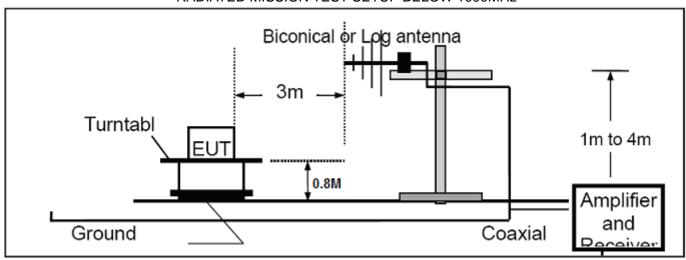
6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

CONDUCTED METHOD

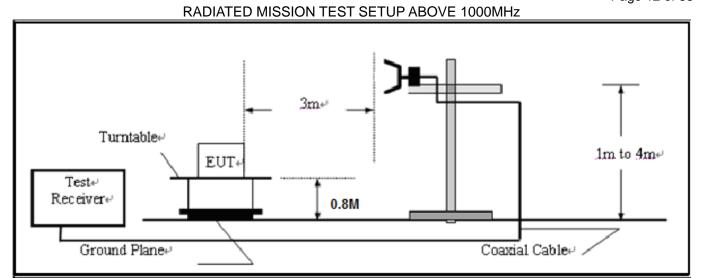


RADIATED EMISSION TEST SETUP

RADIATED MISSION TEST SETUP BELOW 1000MHz

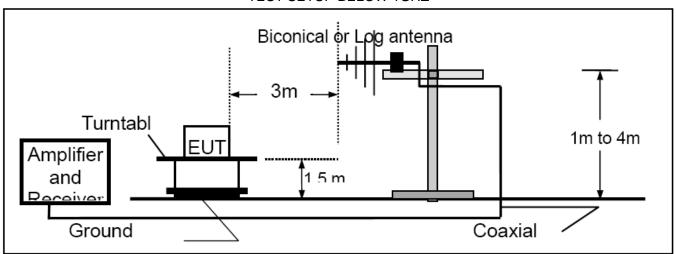


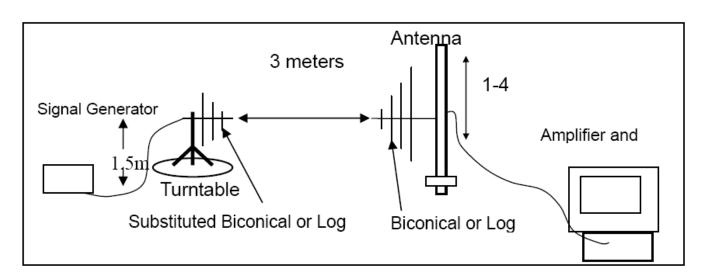
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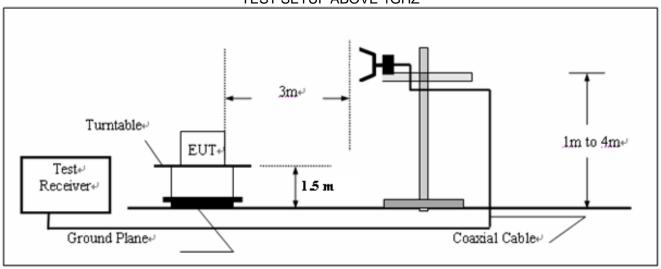
EIRP TEST SETUP

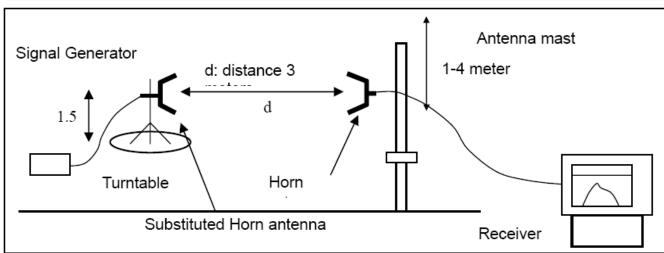
TEST SETUP BELOW 1GHZ





TEST SETUP ABOVE 1GHZ





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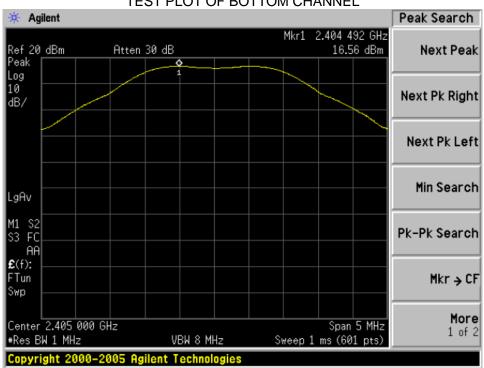
6.3 MEASUREMENT EQUIPMENT USED:

| 3M ANECHOIC CHAMBER RADIATION TEST SITE | | | | | | | | |
|---|-------------------------|-----------------|------------------|--------------|------------|--|--|--|
| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. | | | |
| EMI Test Receiver | R&S | ESCS30 | 100343 | 04/16/2009 | 04/15/2010 | | | |
| AMPLIFIER | HP | HP8447E | 2945A02715 | 04/16/2009 | 04/15/2010 | | | |
| ANTENNA | Sunol Sciences Corp. | JB3 | A021907 | 04/16/2009 | 04/15/2010 | | | |
| ANTENNA | Sunol Sciences Corp. | JB3 | A021907 | 04/16/2009 | 04/15/2010 | | | |
| Spectrum Analyzer | Agilent | E4440A | US41421290 | 04/16/2009 | 04/15/2010 | | | |

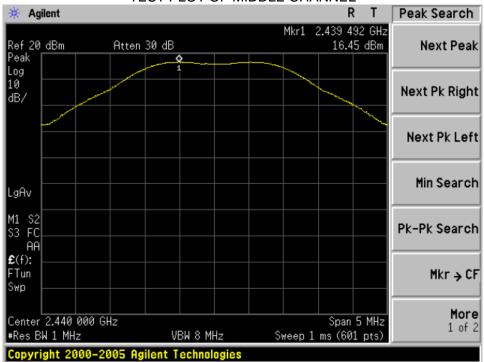
6.4 LIMITS AND MEASUREMENT RESULT:

| LIMITS AND MEASUREMENT RESULT | | | | | | | |
|-------------------------------|-----------|------------|-----------------|----------|--|--|--|
| Applicable | Fraguanay | | Measurement Res | sult | | | |
| Limits | Frequency | EIRP (dBm) | Conducted (dBm) | Criteria | | | |
| 30 dBm | 2.405GHz | 17.82 | 16.56 | PASS | | | |
| 30 dBm | 2.440GHz | 17.68 | 16.45 | PASS | | | |
| 30 dBm | 2.480GHz | 17.49 | 16.05 | PASS | | | |

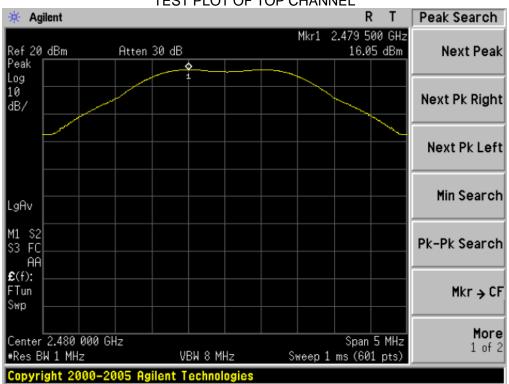
TEST PLOT OF BOTTOM CHANNEL



TEST PLOT OF MIDDLE CHANNEL



TEST PLOT OF TOP CHANNEL



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7. 6 DB EMISSION BANDWIDTH

7.1 MEASUREMENT PROCEDURE

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100KHz, VBW= 100KHz.
- 4. Set SPA Trace 1 Max hold, then View.

7.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The Same as described in Section 6.2

7.3 MEASUREMENT EQUIPMENT USED:

The same as described in Section 6.3

7.4 LIMITS AND MEASUREMENT RESULTS:

| LIMITS AND MEASUREMENT RESULT | | | | | | |
|-------------------------------|----------------|--------------------|------|--|--|--|
| Applicable Limite | | Measurement Result | | | | |
| Applicable Limits | Test Da | Criteria | | | | |
| | Bottom Channel | 1.600 | PASS | | | |
| 500KHz | Middle Channel | 1.612 | PASS | | | |
| | Top Channel | 1.574 | PASS | | | |

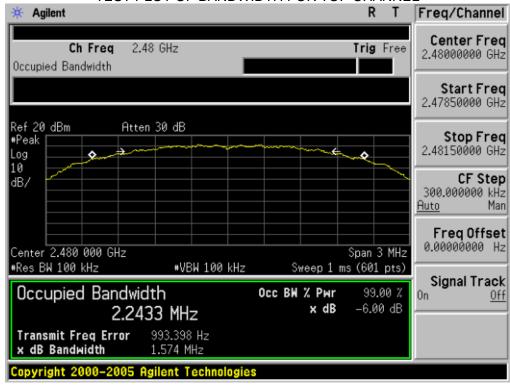
TEST PLOT OF BANDWIDTH FOR BOTTOM CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR TOP CHANNEL



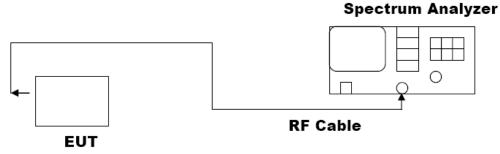
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8. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

8.1 MEASUREMENT PROCEDURE:

- (1). The EUT was placed on a turn table which is 0.8m above ground plane.
- (2). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (3), Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (4). Set SPA Centre Frequency = Operation Frequency, RBW= 3 KHz, VBW= 10 KHz., Sweep time= Auto
- (5). Set SPA Trace 1 Max hold, then View.

8.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



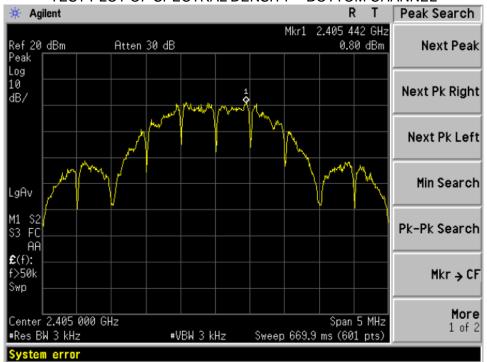
8.3 MEASUREMENT EQUIPMENT USED:

| SHIELDING ROOM | | | | | | | |
|-------------------|---------|-----------------|------------------|--------------|------------|--|--|
| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. | | |
| Spectrum Analyzer | Agilent | E4440A | US41421290 | 04/16/2009 | 04/15/2010 | | |

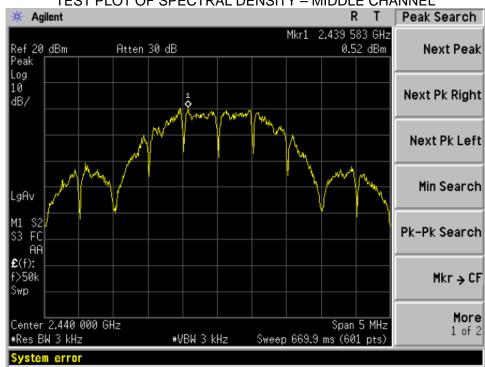
8.4 LIMITS AND MEASUREMENT RESULT:

| LIMITS AND MEASUREMENT RESULT | | | | | | |
|-------------------------------|----------------|-----------------|------|--|--|--|
| Applicable Limite | | Measurement Res | sult | | | |
| Applicable Limits | Test Data (d | Criteria | | | | |
| | Bottom Channel | 0.80 | PASS | | | |
| 8 dBm / 3KHz | Middle Channel | 0.52 | PASS | | | |
| | Top Channel | 0.05 | PASS | | | |

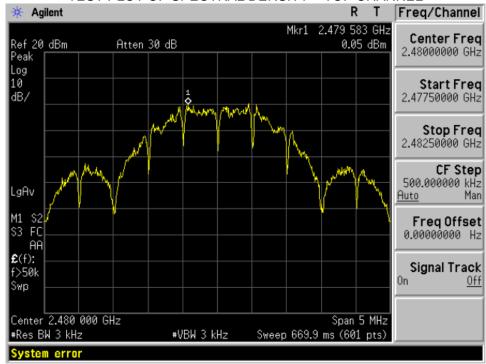
TEST PLOT OF SPECTRAL DENSITY - BOTTOM CHANNEL



TEST PLOT OF SPECTRAL DENSITY - MIDDLE CHANNEL



TEST PLOT OF SPECTRAL DENSITY - TOP CHANNEL



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9. OUT OF BAND EMISSION

9.1 MEASUREMENT PROCEDURE:

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW= 100 KHz.
- 4. Set SPA Trace 1 Max hold, then View.

9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The Same as described in section 6.2

- 1. Conducted test setup
- 2. Radiated Emission test Setup below 1Ghz and Above 1GHz

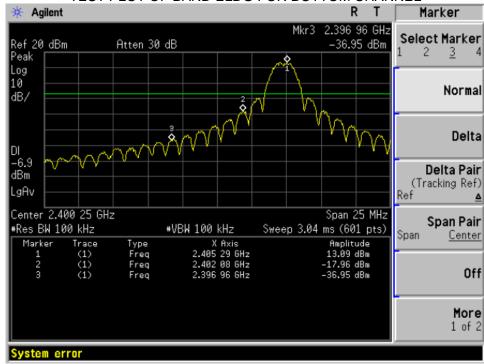
9.3 MEASUREMENT EQUIPMENT USED:

The Same as described in section 6.3

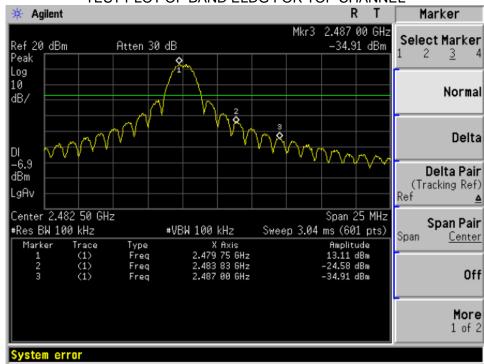
9.4 LIMITS AND MEASUREMENT RESULT:

| LIMITS AND MEASUREMENT RESULT | | | | | | |
|--|--|----------|--|--|--|--|
| Applicable Limite | Measurement Result | | | | | |
| Applicable Limits | Test Data | Criteria | | | | |
| In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest | At least -20dBc than the limit Specified on the BOTTOM Channel | PASS | | | | |
| level of the desired power. In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a)) | At least -20dBc than the limit Specified on the TOP Channel | PASS | | | | |

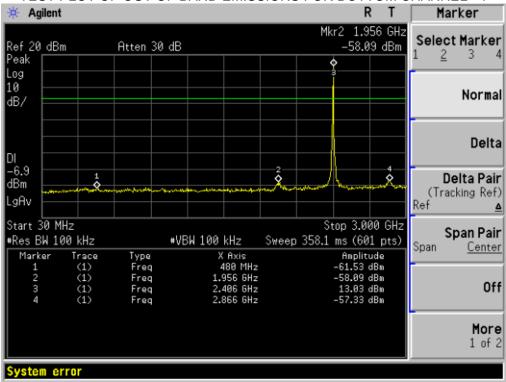




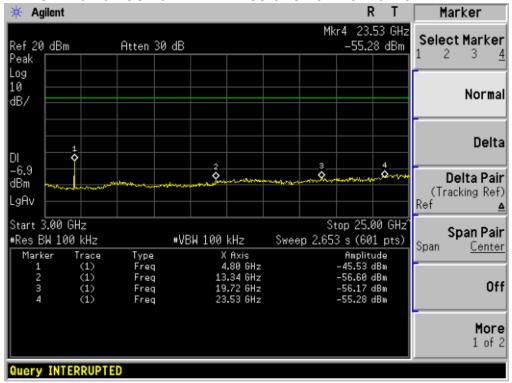
TEST PLOT OF BAND ELDG FOR TOP CHANNEL



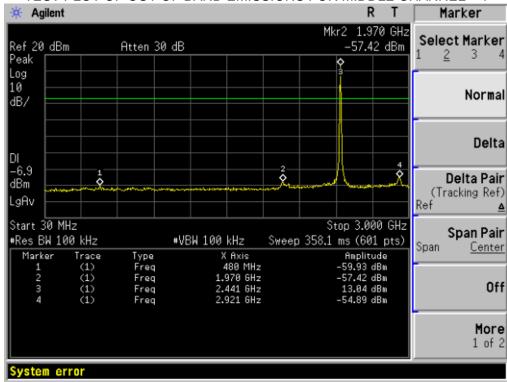
TEST PLOT OF OUT OF BAND EMISSIONS FOR BOTTOM CHANNEL - 1



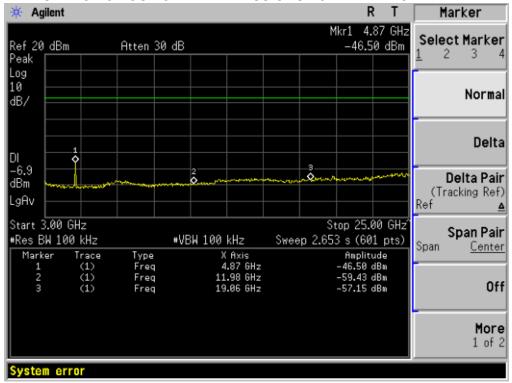
TEST PLOT OF OUT OF BAND EMISSIONS FOR BOTTOM CHANNEL - 2



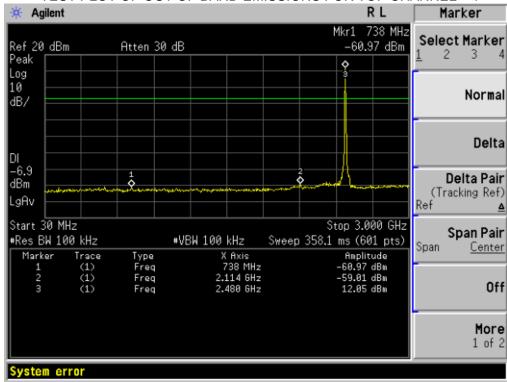
TEST PLOT OF OUT OF BAND EMISSIONS FOR MIDDLE CHANNEL - 1



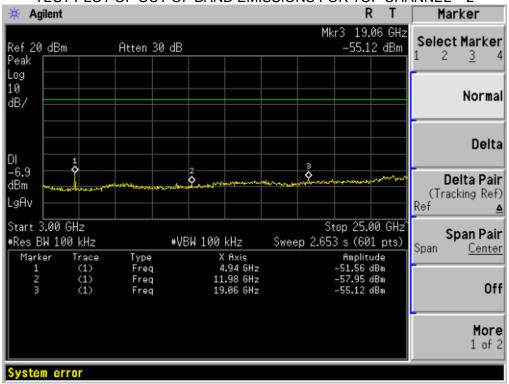
TEST PLOT OF OUT OF BAND EMISSIONS FOR MIDDLE CHANNEL - 2



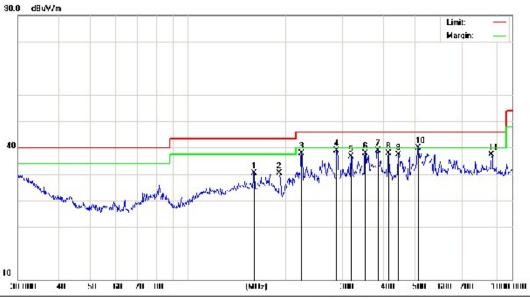
TEST PLOT OF OUT OF BAND EMISSIONS FOR TOP CHANNEL - 1



TEST PLOT OF OUT OF BAND EMISSIONS FOR TOP CHANNEL - 2



RADIATED EMISSION BELOW 1GHZ



Site 966 Chamber #1

Limit: FCC Part15 RE-Class B_30-1000MHz

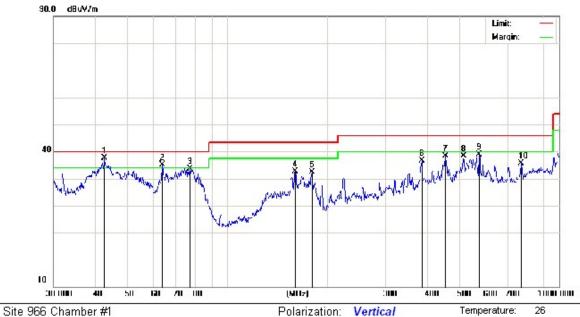
EUT:

M/N: Mode: Note:

| Polariza | tion: Horizontal | Temperatur | e: 26 |
|----------|------------------|------------|-------|
| Power: | AC 230V/50Hz | Humidity: | 60 % |

Distance: 3m

| No. | Mk | . Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | Antenna Height | Table Degree | |
|-----|----|----------|------------------|-------------------|------------------|--------|--------|----------|-------------------|-----------------|---------|
| | | MHz | dBu∀ | dB | dBu∀/m | dBuV/m | dΒ | Detector | cm | degree | Comment |
| 1 | | 160.3457 | 36.66 | -6.21 | 30.45 | 43.50 | -13.05 | peak | | | |
| 2 | | 191.7450 | 37.42 | -7.03 | 30.39 | 43.50 | -13.11 | peak | | | |
| 3 | | 224.5193 | 43.74 | -5.80 | 37.94 | 46.00 | -8.06 | peak | | | |
| 4 | | 287.9904 | 41.61 | -2.84 | 38.77 | 46.00 | -7.23 | peak | | | |
| 5 | | 318.8170 | 39.17 | -2.43 | 36.74 | 46.00 | -9.26 | peak | | | |
| 6 | | 352.9434 | 40.71 | -2.80 | 37.91 | 46.00 | -8.09 | peak | | | |
| 7 | | 386.6338 | 41.95 | -2.99 | 38.96 | 46.00 | -7.04 | peak | | | |
| 8 | | 416.1791 | 41.85 | -3.95 | 37.90 | 46.00 | -8.10 | peak | | | |
| 9 | | 446.4141 | 40.73 | -3.40 | 37.33 | 46.00 | -8.67 | peak | | | |
| 10 | * | 513.6331 | 38.92 | 0.88 | 39.80 | 46.00 | -6.20 | peak | | | |
| 11 | | 863.0562 | 32.63 | 4.71 | 37.34 | 46.00 | -8.66 | peak | | | |



Distance: 3m

Limit: FCC Part15 RE-Class B_30-1000MHz

AC 230V/50Hz Power:

Humidity: 60 %

EUT:

M/N: Mode: Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | Antenna Height | Table Degree | |
|-----|-----|----------|------------------|-------------------|------------------|--------|--------|----------|-------------------|-----------------|---------|
| | | MHz | dBu∀ | dB | dBu∀/m | dBu∀/m | dB | Detector | cm | degree | Comment |
| 1 | * | 42.7496 | 42.60 | -5.04 | 37.56 | 40.00 | -2.44 | peak | | | |
| 2 | ! | 63.7588 | 46.58 | -11.39 | 35.19 | 40.00 | -4.81 | peak | | | |
| 3 | | 77.3212 | 45.32 | -11.71 | 33.61 | 40.00 | -6.39 | peak | | | |
| 4 | | 160.3457 | 38.31 | -5.65 | 32.66 | 43.50 | -10.84 | peak | | | |
| 5 | | 180.0165 | 40.21 | -7.79 | 32.42 | 43.50 | -11.08 | peak | | | |
| 6 | | 385.2805 | 36.25 | 0.26 | 36.51 | 46.00 | -9.49 | peak | | | |
| 7 | | 454.3100 | 38.57 | -0.31 | 38.26 | 46.00 | -7.74 | peak | | | |
| 8 | | 515.4374 | 37.66 | 0.71 | 38.37 | 46.00 | -7.63 | peak | | | |
| 9 | | 574.6258 | 38.52 | 0.31 | 38.83 | 46.00 | -7.17 | peak | | | |
| 10 | į | 766.0572 | 31.05 | 4.46 | 35.51 | 46.00 | -10.49 | peak | | | |

Note1: Test data with external antenna was presented, and it was the worst-case data Note2: This EUT was tested in 3 orthogonal positions and the worst-case data was presented.

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Band Edge Emission with PCB Antenna

| | Band Edge Emission for Bottom Channel with PCB Antenna | | | | | | | | | |
|-----------|--|----------------|----------------|------------|------------|------|--|--|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Momo | | | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | | | | |
| 2.386 | Н | 56.43 | 46.58 | 74 | 54 | * | | | | |
| 2.400 | Н | 70.60 | 50.62 | 74 | 54 | * | | | | |
| 2.386 | V | 50.81 | 40.07 | 74 | 54 | * | | | | |
| 2.400 | V | 66.89 | 49.46 | 74 | 54 | * | | | | |

| | Band Edge Emission for Top Channel PCB Antenna | | | | | | | | |
|-----------|--|----------------|----------------|------------|------------|------|--|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Momo | | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | | | |
| 2.483 | Н | 71.26 | 50.12 | 74 | 54 | * | | | |
| 2.484 | Н | 69.79 | 48.31 | 74 | 54 | * | | | |
| 2.496 | Н | 50.92 | 41.03 | 74 | 54 | * | | | |
| 2.483 | V | 70.51 | 49.33 | 74 | 54 | * | | | |
| 2.484 | V | 68.24 | 47.76 | 74 | 54 | * | | | |
| 2.496 | V | 50.28 | 40.08 | 74 | 54 | * | | | |

Band Edge Emission with External Antenna

| | Band Edge Emission for Bottom Channel with External Antenna | | | | | | | | |
|-----------|---|----------------|----------------|------------|------------|----------|--|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Memo | | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | IVIEITIO | | | |
| 2.386 | Н | 60.21 | 47.62 | 74 | 54 | * | | | |
| 2.400 | Н | 72.21 | 52.32 | 74 | 54 | * | | | |
| 2.386 | V | 58.80 | 42.09 | 74 | 54 | * | | | |
| 2.400 | V | 69.99 | 50.41 | 74 | 54 | * | | | |

| | Band Edge Emission for Top Channel with External Antenna | | | | | | | | | |
|-----------|--|----------------|----------------|------------|------------|----------|--|--|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Memo | | | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | IVIEITIO | | | | |
| 2.483 | Н | 72.87 | 52.35 | 74 | 54 | * | | | | |
| 2.484 | Н | 70.48 | 49.32 | 74 | 54 | * | | | | |
| 2.496 | Н | 53.03 | 43.32 | 74 | 54 | * | | | | |
| 2.483 | V | 71.32 | 51.08 | 74 | 54 | * | | | | |
| 2.484 | V | 69.24 | 48.60 | 74 | 54 | * | | | | |
| 2.496 | V | 52.67 | 42.29 | 74 | 54 | * | | | | |

Restricted Band Emission with PCB Antenna

| | Restricted Band Emission for Bottom Channel | | | | | | | | | |
|-----------|---|----------------|----------------|------------|------------|--------|--|--|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Memo | | | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | iviemo | | | | |
| 4.81 | Н | 58.47 | 47.29 | 74 | 54 | * | | | | |
| 4.81 | V | 57.56 | 44.20 | 74 | 54 | * | | | | |
| Above | Н | | | 74 | 54 | * | | | | |
| 4.81 GHz | V | | | 74 | 54 | * | | | | |

| Restricted Band Emission for Middle Channel | | | | | | | |
|---|--------------|---|-------------|--------|--------|------|--|
| Frequency | Antenna Pol. | ntenna Pol. Field Strength Field Strength Limit (PK) Limit (AV) | | | | Mama | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | |
| 4.88 | Н | 58.49 | 45.70 | 74 | 54 | * | |
| 4.88 | V | 55.69 | 42.51 | 74 | 54 | * | |
| Above 4.88 GHz | Н | | | 74 | 54 | * | |
| | V | | | 74 | 54 | * | |

| Restricted Band Emission for Top Channel | | | | | | | |
|--|--------------|----------------|---|--------|--------|------|--|
| Frequency | Antenna Pol. | Field Strength | d Strength Field Strength Limit (PK) Limit (AV) | | | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | |
| 4.95 | Н | 54.52 | 46.08 | 74 | 54 | * | |
| 4.95 | V | 52.21 | 45.19 | 74 | 54 | * | |
| Above 4.95GHz | Н | | | 74 | 54 | * | |
| | V | | | 74 | 54 | * | |

Restricted Band Emission with External Antenna

| Restricted Band Emission for Bottom Channel | | | | | | | |
|---|--|-------------|-------------|--------|--------|------|--|
| Frequency | y Antenna Pol. Field Strength Field Strength Limit (PK) Limit (AV) | | | | | Mama | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | |
| 4.81 | Н | 60.31 | 48.57 | 74 | 54 | * | |
| 4.81 | V | 59.03 | 46.34 | 74 | 54 | * | |
| Above 4.81 GHz | Н | | | 74 | 54 | * | |
| | V | | | 74 | 54 | * | |

| Restricted Band Emission for Middle Channel | | | | | | | | |
|---|--------------|----------------|----------------|------------|------------|------|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Mama | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | | |
| 4.88 | Н | 60.60 | 47.91 | 74 | 54 | * | | |
| 4.88 | V | 57.46 | 44.58 | 74 | 54 | * | | |
| Above 4.88 GHz | Н | | | 74 | 54 | * | | |
| | V | | | 74 | 54 | * | | |

| Restricted Band Emission for Top Channel | | | | | | | | |
|--|--------------|----------------|----------------|------------|------------|------|--|--|
| Frequency | Antenna Pol. | Field Strength | Field Strength | Limit (PK) | Limit (AV) | Momo | | |
| GHz | H/V | dBuV/m (PK) | dBuV/m (AV) | dBuV/m | dBuV/m | Memo | | |
| 4.95 | Н | 57.91 | 46.70 | 74 | 54 | * | | |
| 4.95 | V | 53.70 | 45.90 | 74 | 54 | * | | |
| Above 4.95GHz | Н | | | 74 | 54 | * | | |
| | V | | | 74 | 54 | * | | |

[&]quot;--" Indicated the test value is much lower to limit.

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10. NUMBER OF HOPPING FREQUENCY(N/A)

10.1 MEASUREMENT PROCEDURE

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer Start = 2.4GHz Stop = 2.4835GHz, Sweep = Auto
- 4. Set the Spectrum Analyzer as RBW = VBW = 1MHz

10.2 TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 6.2

1. Conducted Method.

10.3 MEASUREMENT EQUIPMENT USED

The Same as described in section 6.3

10.4 LIMITS AND MEASUREMENT RESULT:

| TOTAL NO. OF | LIMIT (NO. OF CH) | MEASUREMENT (NO. OF CH) | RESULT |
|-----------------|-------------------|----------------------------|--------|
| HOPPING CHANNEL | >=15 | | 1 |

TEST PLOT FOR NO. OF TOTAL CHANNELS -1

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11. TIME OF OCCUPANCY (DWELL TIME) (N/A)

11.1 MEASUREMENT PROCEDURE

- 1. Place the EUT on the table and set it in transmitting mode
- 2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer
- 3. Set center frequency of spectrum analyzer = Operating frequency
- 4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0 Hz,

11.2 TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

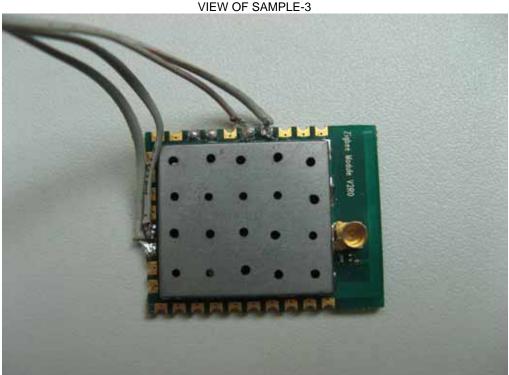
Same as described in section 6.2 Conducted Method

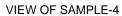
11.3 MEASUREMENT EQUIPMENT USED

The same as described in section 6.3

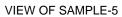
11.4 LIMITS AND MEASUREMENT RESULT

APPENDIX I PHOTOGRAPHS OF THE EUT VIEW OF SAMPLE-3















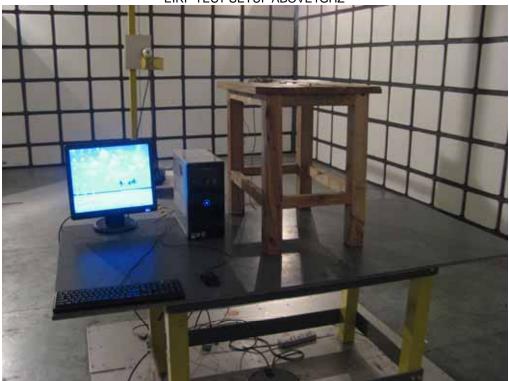


PPENDIX II
PHOTOGRAPHS OF THE TEST SETUP
CONDUCTED EMISSION TEST

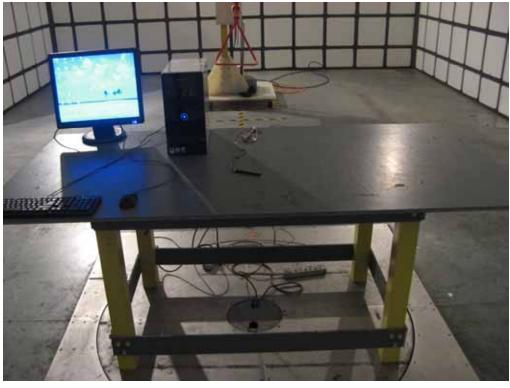








RADIATED EMISSION TEST SETUP



----END OF REPORT----