# FCC TEST REPORT

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|---|---|---|
| **CATEGORY** | : | Portable |
| **PRODUCT NAME** | : | Wireless Notebook Adapter 11a/b/g |
| **FCC ID.** | : | RAXWN6301D |
| **FILING TYPE** | : | Certification |
| **BRAND NAME** | : | Philips |
| **MODEL NAME** | : | SNN6500 , SNN6500/00 |
| **APPLICANT** | : | **Arcadyan Technology Corporation**<br>4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan. |
| **MANUFACTURER** | : | Same as applicant |
| **ISSUED BY** | : | **SPORTON INTERNATIONAL INC.**<br>6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien, Taiwan, R.O.C. |

## Statements:

**This report is only for the 802.11a (5150~5350 MHz) part of the test result.**

The test result in this report refers exclusively to the presented test model / sample.
Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

Certificate or Test Report could not be used by the applicant to claim the product endorsement by CNLA, NVLAP or any agency of U.S. government.

The test equipment used to perform the test are calibrated and traceable to NML/ROC or NIST/USA.

Lab Code: 200079-0

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# HISTORY OF THIS TEST REPORT

Original Report Issue Date: Mar. 26, 2005

Report No.: FR510305

■ No additional attachment.

☐ Additional attachment were issued as following record:

| Attachment No. | Issue Date | Description |
|---|---|---|
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# CERTIFICATE OF COMPLIANCE

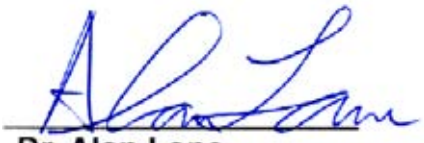
with

## 47 CFR FCC Part 15 Subpart E ( Section 15.407 )

| | | |
|---|---|---|
| **PRODUCT NAME** | : | Wireless Notebook Adapter 11a/b/g |
| **BRAND NAME** | : | Philips |
| **MODEL NAME** | : | SNN6500 , SNN6500/00 |
| **APPLICANT** | : | **Arcadyan Technology Corporation**<br>4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan. |
| **MANUFACTURER** | : | Same as applicant |

I **HEREBY** CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 - 2003 and all test are performed according to 47 CFR FCC Part 15 E. Testing was carried out on Mar. 24, 2005 at SPORTON International Inc. LAB.



**Dr. Alan Lane**
Vice General Manager
Sporton International Inc.

# 1. General Description of Equipment under Test

## 1.1. Applicant

**Arcadyan Technology Corporation**
4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan.

## 1.2. Manufacturer

Same as applicant

## 1.3. Basic Description of Equipment under Test

This product is a wireless Notebook adapter with 802.11a/b/g wireless solution. The technical data has been listed on section " Features of Equipment under Test ".

## 1.4. Features of Equipment under Test

| Items | Description |
|---|---|
| Type of Modulation | OFDM (16QAM / 64QAM / DQPSK / DBPSK ) |
| Number of Channels | 17 |
| Frequency Band | 5150MHz ~ 5250MHz, 5250MHz ~ 5350MHz |
| Carrier Frequency | See section 1.6 for details |
| Data Rate | 54, 48,36, 24,18,12, 6Mbps |
| Channel Bandwidth | 20MHz - OFDM<br>40MHz - 11g Turbo Mode |
| Max. Conducted Output Power | See section 1.7 for details |
| Antenna Type | See section 1.5 for details |
| Communication Type | Half-Duplex |
| Testing Duty Cycle | 100.00% |
| Test Power Source | 120.00V AC (Host) / DC 3.3V (EUT) |
| Temperature Range (Operating) | 0 ~ 55 °C |

## 1.5. Antenna Description

| No. | Antenna Type | Gain (dBi) |
|---|---|---|
| 1 | Printed Antenna | 3.00 |

## 1.6. Table for Carrier Frequencies

**Normal Mode**

| 5150MHz ~ 5250MHz | | 5250MHz ~ 5350MHz | |
|---|---|---|---|
| **Channel** | **Frequency** | **Channel** | **Frequency** |
| 36 | 5180 MHz | 52 | 5260 MHz |
| 40 | 5200 MHz | 56 | 5280 MHz |
| 44 | 5220 MHz | 60 | 5300 MHz |
| 48 | 5240 MHz | 64 | 5320 MHz |

**Turbo Mode**

| 5150MHz ~ 5250MHz | | 5250MHz ~ 5350MHz | |
|---|---|---|---|
| **Channel** | **Frequency** | **Channel** | **Frequency** |
| 42 | 5210 MHz | 58 | 5290 MHz |
| 50 | 5250 MHz | | |

## 1.7. Table for Maximum Conducted Output Power

**Normal Mode**

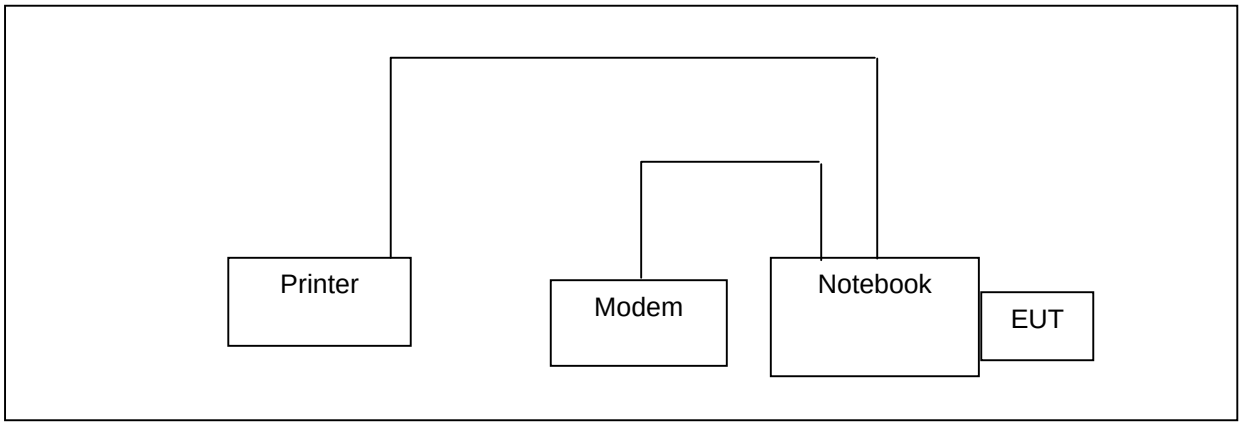
| Maximum Conducted Output Power (dBm) | |
|---|---|
| **Frequency Bands 5150MHz ~ 5250MHz** | **Frequency Bands 5250MHz ~ 5350MHz** |
| 15.88 | 15.79 |

**Turbo Mode**

| Maximum Conducted Output Power (dBm) | |
|---|---|
| **Frequency Bands 5150MHz ~ 5250MHz** | **Frequency Bands 5250MHz ~ 5350MHz** |
| 14.54 | 15.23 |

# 2. Test Configuration of the Equipment under Test

## 2.1. Connection Diagram of Test System




## 2.2. The Test Mode Description

For OFDM modulation, BPSK is the worst case on all test items.

Spurious emission below 1GHz is independent of channel selection, so only channel 36 was worst case tested.

AC conduction emission is independent of channel selection, so only channel 36 was worst case tested.

## 2.3. Description of Test Supporting Units

| Support unit | Brand | Model No. | Serial No. | FCC ID | Data cable (m) |
|---|---|---|---|---|---|
| Notebook | DELL | D505 | DoC | - | Notebook |
| Printer | EPSON | Stylus Color 680 | DoC | 1.35 | Printer |
| Modem | ACEEX | CM141 | Doc | 1.15 | Modem |

# 3. General Information of Test

## 3.1. Test Facility

**Test Site Location** : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.
: TEL 886-3-327-3456
: FAX 886-3-318-0055

**Test Site No** : 03CH01-HY / TH01-HY / CO01-HY

## 3.2. Test Conditions

Normal Voltage : 120.00VAC (Host) / DC 3.3V (EUT)
Normal Temperature : 20°C

## 3.3. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.
**ANSI C63.4-2003**
**47 CFR Part 15 Subpart C ( Section 15.407 )**

## 3.4. DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.

## 3.5. Frequency Range Investigated

Radiated emission test: from 30 MHz to 10th carrier harmonic

## 3.6. Test Distance

The test distance of radiated emission (30MHz~1GHz) test from antenna to EUT is 3 M
The test distance of radiated emission (1GHz~10th carrier harmonic) test from antenna to EUT is 3 M

## 3.7. Test Software

During testing, Channel & Power Controlling Software: This was provided by the manufacturer and is able to let the test engineer select the operating channel as well as the RF output power. The parameters for channel selection is trying to offer the test engineer the ability to fix the operating channel for testing, both normal data and continuously transmitting modes are allowed, and that for RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

# 4. List of Measurements

## 4.1. Summary of the Test Results

| Applied Standard: 47 CFR Part 15 and Part 2 | | | |
|---|---|---|---|
| **Paragraph** | **FCC Rule** | **Description of Test** | **Result** |
| 5.1 | 15.407 | 26dB Spectrum Bandwidth | Pass |
| 5.2 | 15.407 | Maximum Conducted Output Power | Pass |
| 5.3 | 15.407 | Peak Power Spectral Density | Pass |
| 5.4 | 15.407 | Ratio of the Peak Excursion | Pass |
| 5.5 | 15.407 | Band Edges Emission | Pass |
| 5.6 | 15.407 | Test of Frequency Stability | Pass |
| 5.7 | 15.407 | AC Power Line Conducted Emission | Pass |
| 5.8 | 15.209/15.407 | Spurious Radiated Emission | Pass |
| 5.9 | 15.203/15.407 | Antenna Requirement | Pass |

# 5. Test Result

## 5.1. Test of 26dB Spectrum Bandwidth

5.1.1. Measuring Instruments

Item 18 of the table is on section 6.

5.1.2. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 300KHz and VBW to 1000KHz.
3. The spectrum width with level higher than 26dB below the peak level.

5.1.3. Test Setup Layout


5.1.4. Test Result: See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Leo Hung

**Normal Mode**

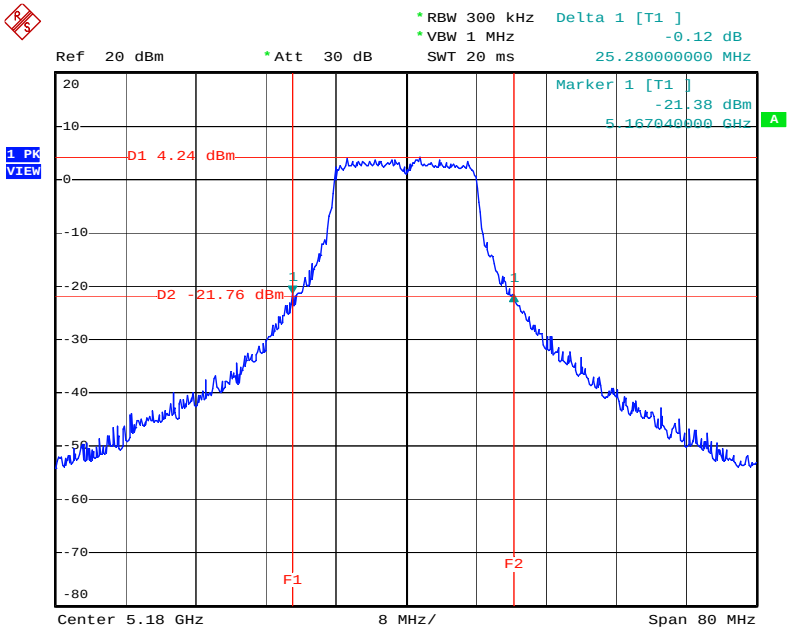
| Channel No. | Frequency (MHz) | 26dB Bandwidth (MHz) | Calculated Power Limit (dBm) | Applied Power Limit (dBm) |
|---|---|---|---|---|
| 36 | 5180 MHz | 25.28 | 18.02 | 17 |
| 52 | 5260 MHz | 25.12 | 25.00 | 24 |
| 64 | 5320 MHz | 26.56 | 25.23 | 24 |

**Turbo Mode**

| Channel No. | Frequency (MHz) | 26dB Bandwidth (MHz) | Calculated Power Limit (dBm) | Applied Power Limit (dBm) |
|---|---|---|---|---|
| 42 | 5210 MHz | 48.2 | 20.83 | 17 |
| 50 | 5250 MHz | 46.2 | 27.64 | 17 |
| 58 | 5290 MHz | 46.0 | 27.62 | 24 |

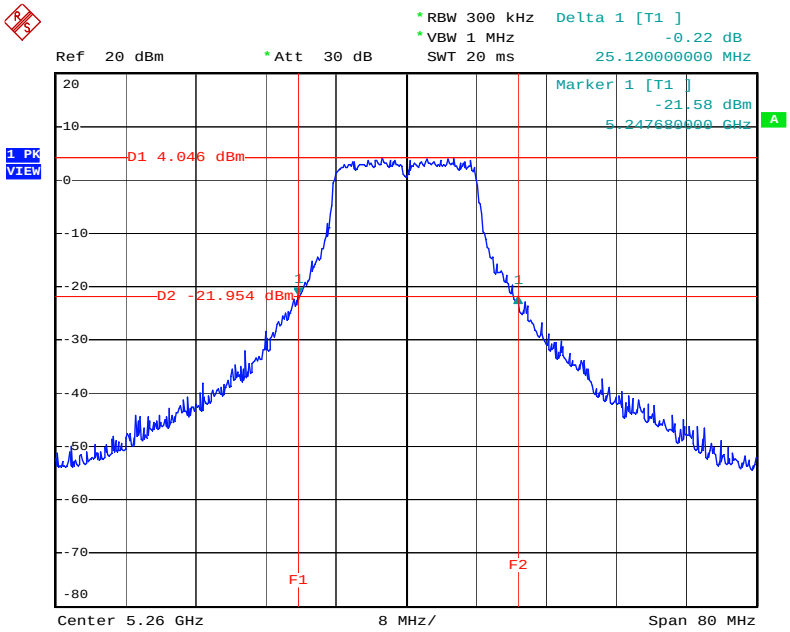
**Normal Mode**

Channel: 36 / 5180 MHz



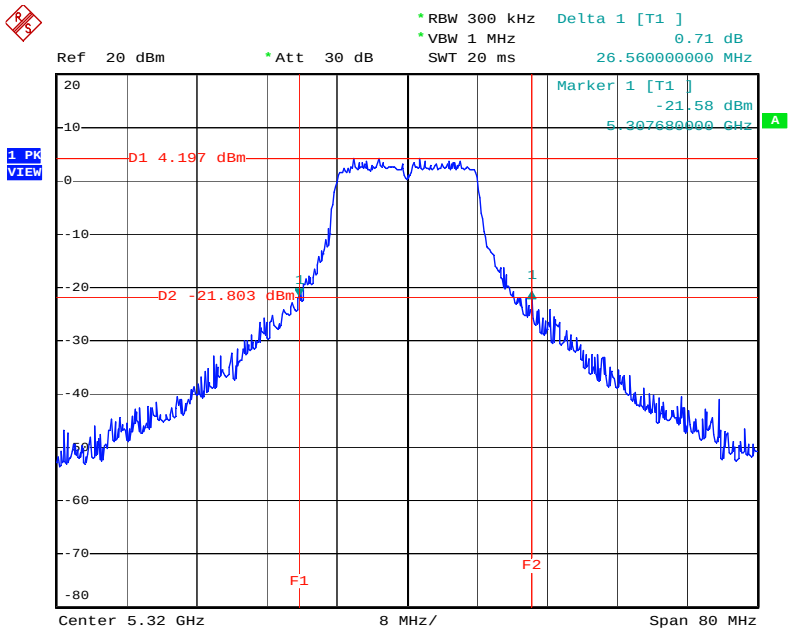

Date: 14.MAR.2005 03:46:30

Channel: 52 / 5260 MHz




Date: 14.MAR.2005 03:50:19

Channel: 64 / 5320 MHz

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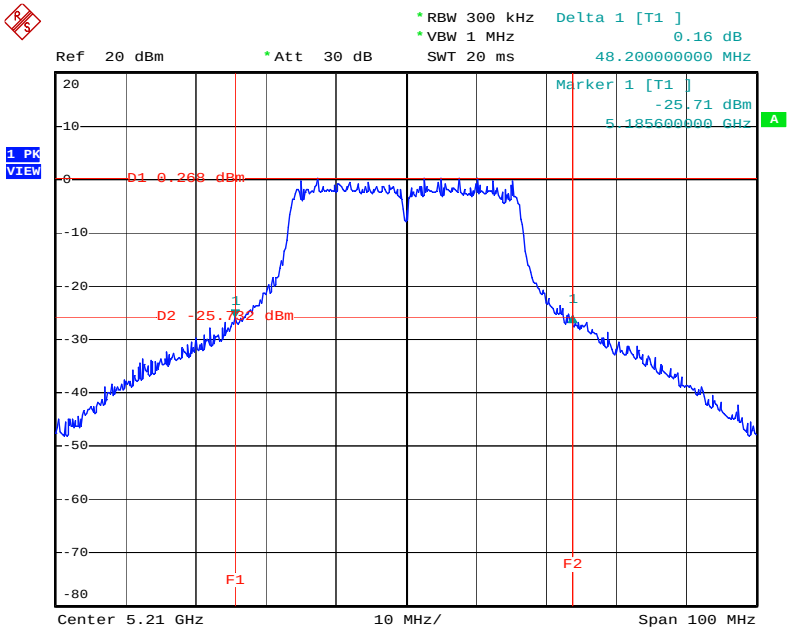
**Turbo Mode**

Channel: 42 / 5210 MHz

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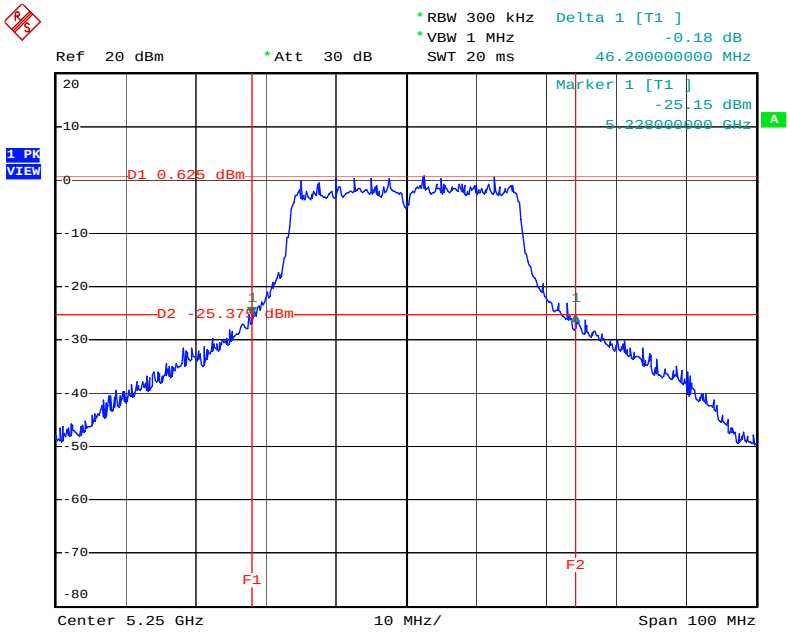
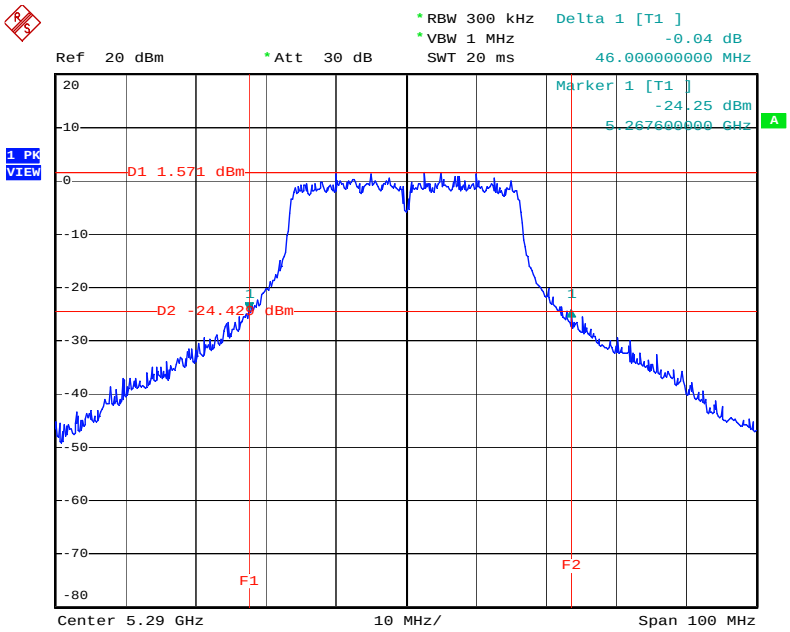
Channel: 50 / 5250 MHz




Date: 16.MAR.2005 12:54:14

Channel: 58 / 5290 MHz

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## 5.2. Test of Maximum Conducted Output Power

5.2.1. Measuring Instruments

Item 18 of the table is on section 6.

5.2.2. Test Procedures

1. According to FCC DA 02-2138 test procedure, EUT was connected to spectrum analyzer. Then used the channel power function of spectrum analyzer and calculated total average power with spectrum range more than 26dB bandwidth.
2. Repeated the 1 for the middle and highest channel of the EUT.

5.2.3. Test Setup Layout


5.2.4. Test Result of Conducted Power

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Leo Hung

**Normal Mode**

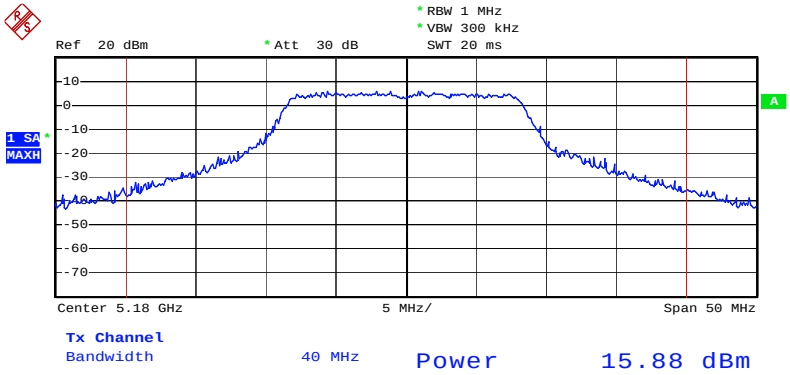
| Channel No. | Frequency (MHz) | Output Power (dBm) | Limits (dBm) |
|---|---|---|---|
| 36 | 5180 MHz | 15.88 | 17 |
| 52 | 5260 MHz | 15.79 | 24 |
| 64 | 5320 MHz | 15.59 | 24 |

**Turbo Mode**

| Channel No. | Frequency (MHz) | Output Power (dBm) | Limits (dBm) |
|---|---|---|---|
| 42 | 5210 MHz | 14.54 | 17 |
| 50 | 5250 MHz | 14.21 | 17 |
| 58 | 5290 MHz | 15.23 | 24 |

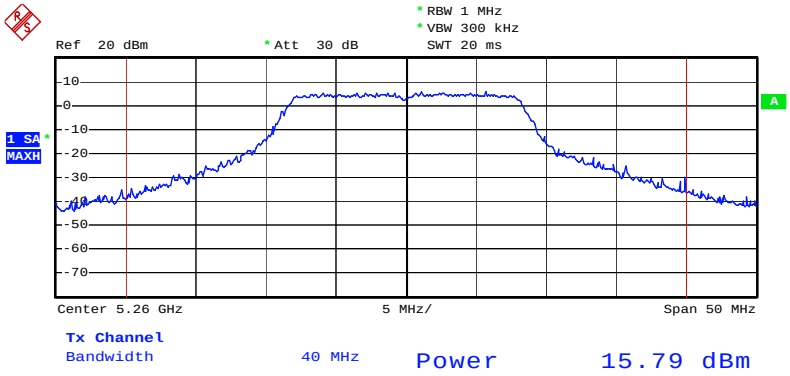
**Normal Mode**

Channel: 36 / 5180 MHz



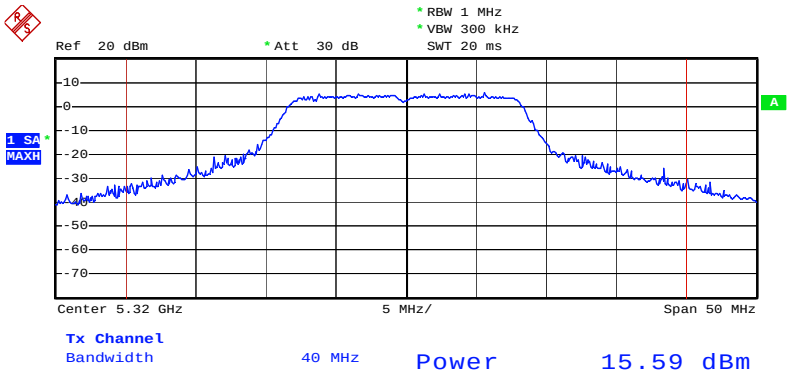

Date: 14.MAR.2005 03:46:54

Channel: 52 / 5260 MHz




Date: 14.MAR.2005 03:50:43

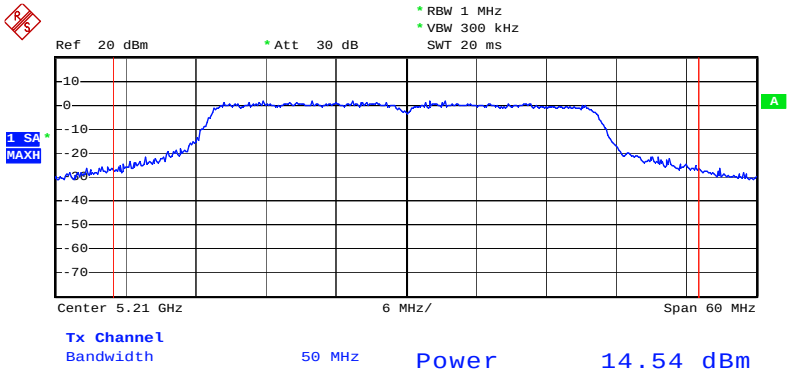
Channel: 64 / 5320 MHz




Date: 14.MAR.2005 03:55:11

**Turbo Mode**

Channel: 42 / 5210 MHz

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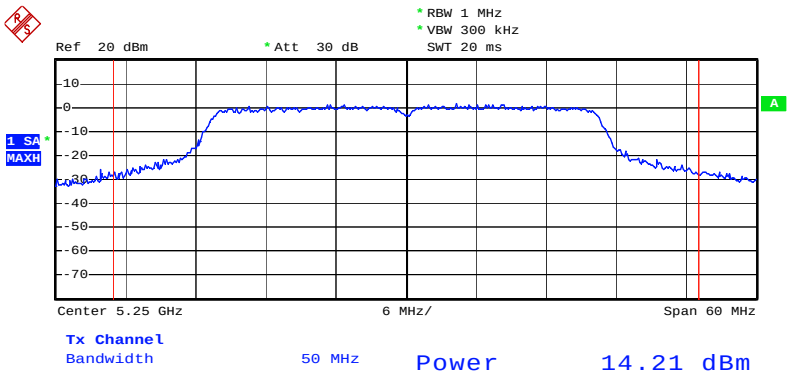
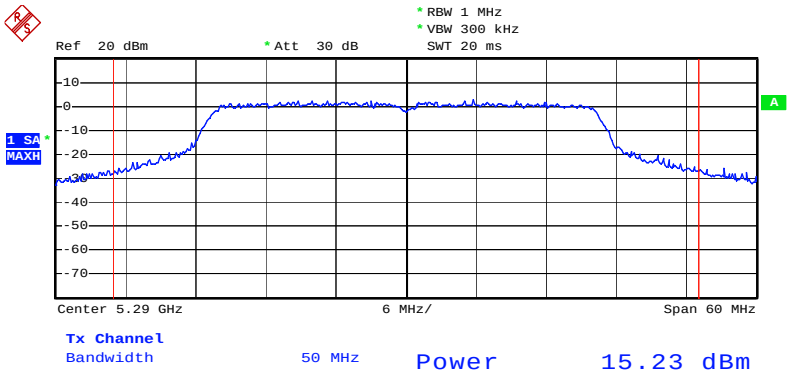
Channel: 50 / 5250 MHz




Date: 16.MAR.2005 12:54:38

Channel: 58 / 5290 MHz




Date: 16.MAR.2005 12:55:47

## 5.3. Test of Peak Power Spectral Density

5.3.1. Measuring Instruments

Item 18 of the table is on section 6.

5.3.2. Test Procedures

1. According to FCC DA 02-2138 test procedure, EUT was connected to the spectrum analyzer. Then used the same setup as that for power measurement.
2. Repeated the 1 for the middle and highest channel of the EUT.

5.3.3. Test Setup Layout


5.3.4. Test Result of conducted peak power spectral density

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Leo Hung

**Normal Mode**

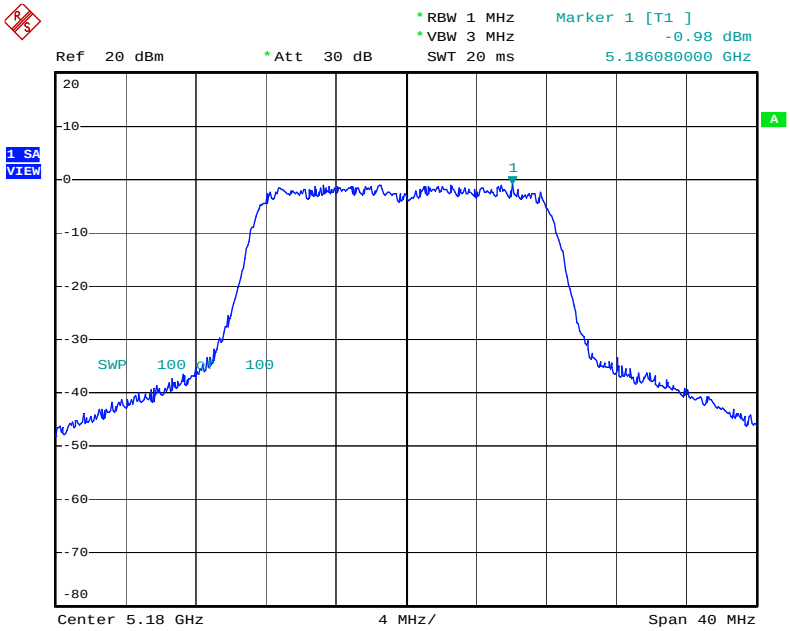
| Channel No. | Frequency (MHz) | Power Density (dBm) | Limits (dBm) |
|---|---|---|---|
| 36 | 5180 MHz | -0.98 | 4 |
| 52 | 5260 MHz | -0.51 | 11 |
| 64 | 5320 MHz | -1.41 | 11 |

**Turbo Mode**

| Channel No. | Frequency (MHz) | Power Density (dBm) | Limits (dBm) |
|---|---|---|---|
| 42 | 5210 MHz | -4.90 | 4 |
| 50 | 5250 MHz | -5.15 | 4 |
| 58 | 5290 MHz | -4.07 | 11 |

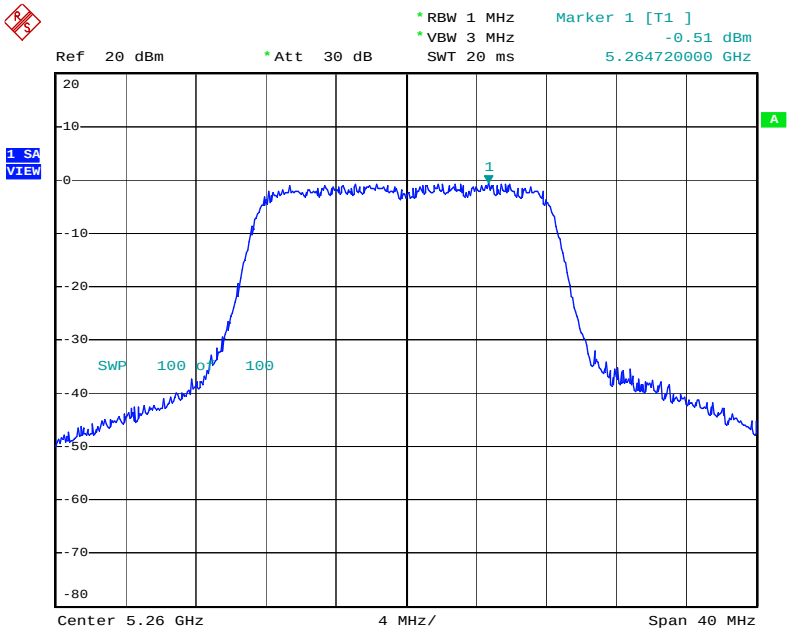
**Normal Mode**

Channel: 36 / 5180 MHz




Date: 14.MAR.2005 03:46:36

Channel: 52 / 5260 MHz

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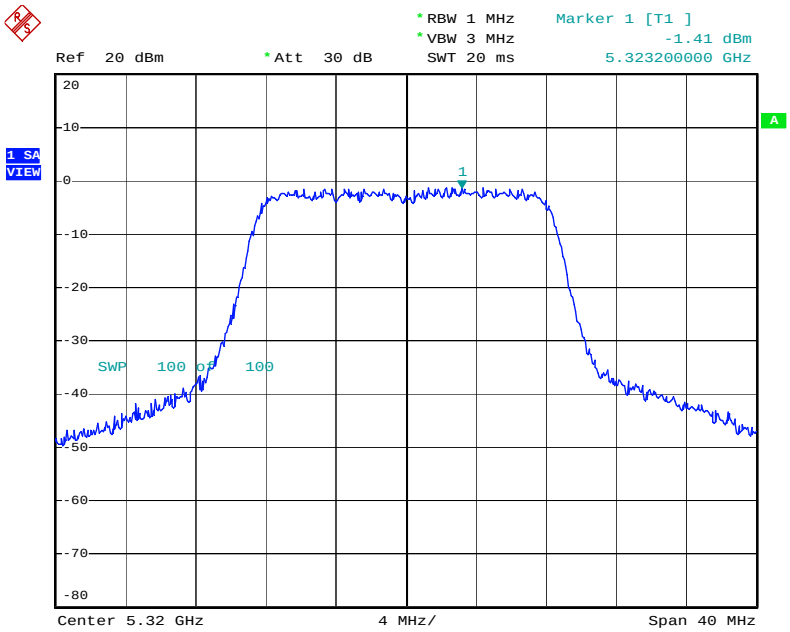
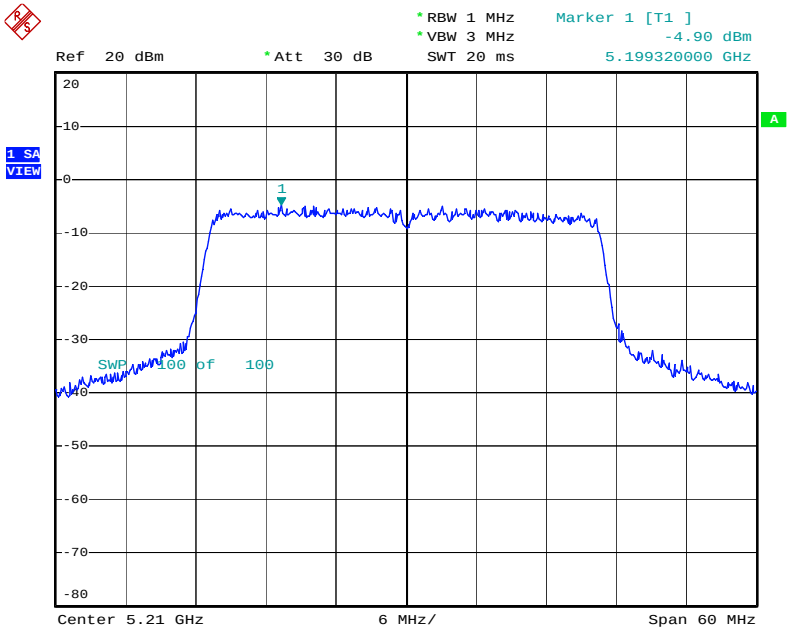
Channel: 64 / 5320 MHz




Date: 14.MAR.2005 03:54:53

**Turbo Mode**

Channel: 42 / 5210 MHz

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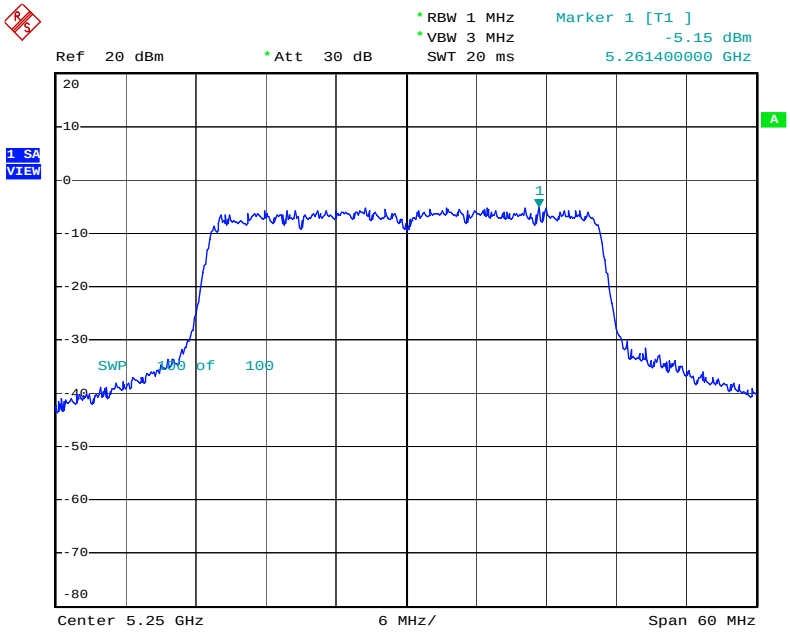
Channel: 50 / 5250 MHz

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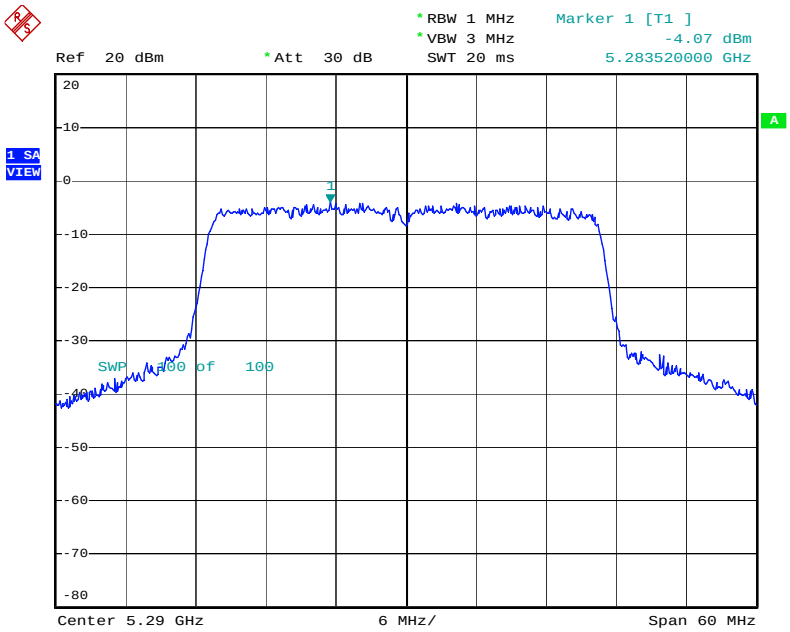
Channel: 58 / 5290 MHz

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## 5.4. Ratio of the Peak Excursion

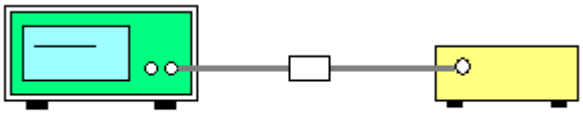
5.4.1. Measuring Instruments

Item 18 of the table is on section 6.

5.4.2. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Trace 1:Set RBW of spectrum analyzer to 1000kHz and VBW to 3000kHz.
3. Use peak detector mode, Max-hold and search the peak of trace 1.
4. Trace 2:Set RBW of spectrum analyzer to 1000kHz and VBW to 300kHz.
5. Use sample detector mode, trace max-hold and search the peak of trace 2
6. The delta limits is 13dB between trace 1 and trace 2 of the peak value.

5.4.3. Test Setup Layout




5.4.4. Test Result of conducted peak power spectral density

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Leo Hung

**Normal Mode**

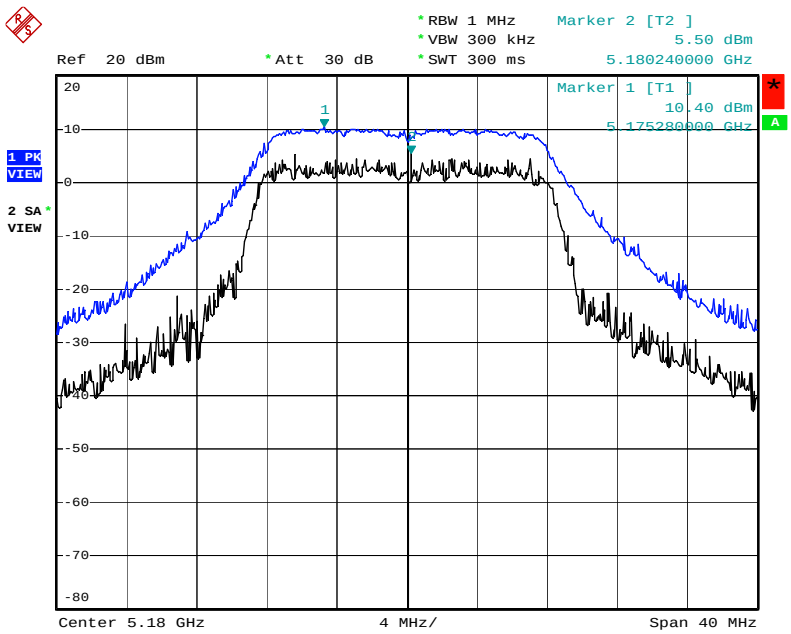
| Channel No. | Frequency (MHz) | Peak Excursion (dB) | Max. Limits (dB) |
|---|---|---|---|
| 36 | 5180 MHz | 4.90 | 13 |
| 52 | 5260 MHz | 5.80 | 13 |
| 64 | 5320 MHz | 5.75 | 13 |

**Turbo Mode**

| Channel No. | Frequency (MHz) | Peak Excursion (dB) | Max. Limits (dB) |
|---|---|---|---|
| 42 | 5210 MHz | 4.06 | 13 |
| 50 | 5250 MHz | 4.86 | 13 |
| 58 | 5290 MHz | 4.95 | 13 |

**Normal Mode**

Channel: 36 / 5180 MHz

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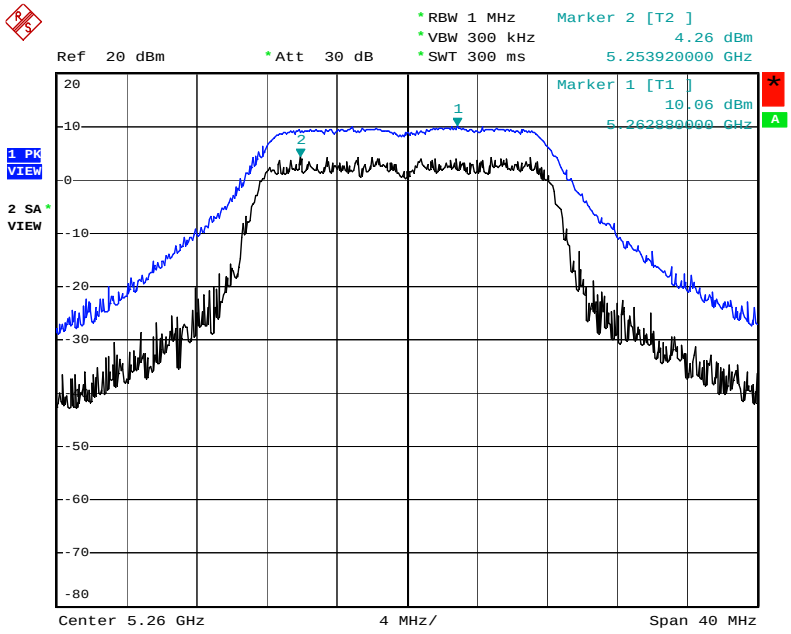
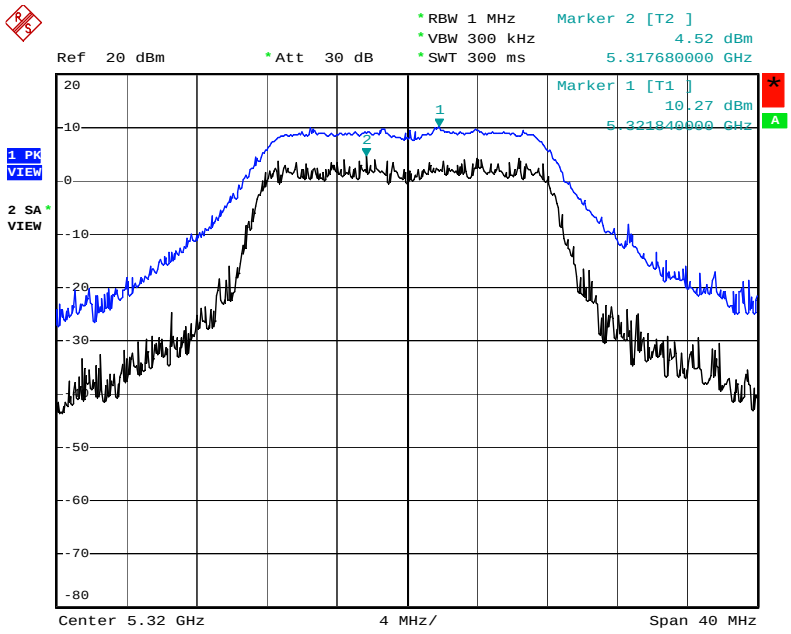
Channel: 52 / 5260 MHz




Date: 14.MAR.2005 03:50:54

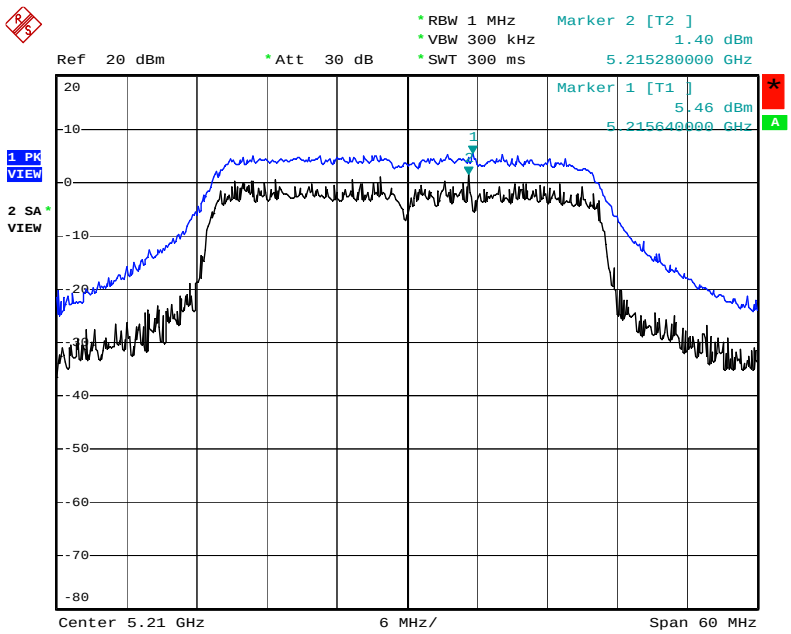
Channel: 64 / 5320 MHz




Date: 14.MAR.2005 03:55:22

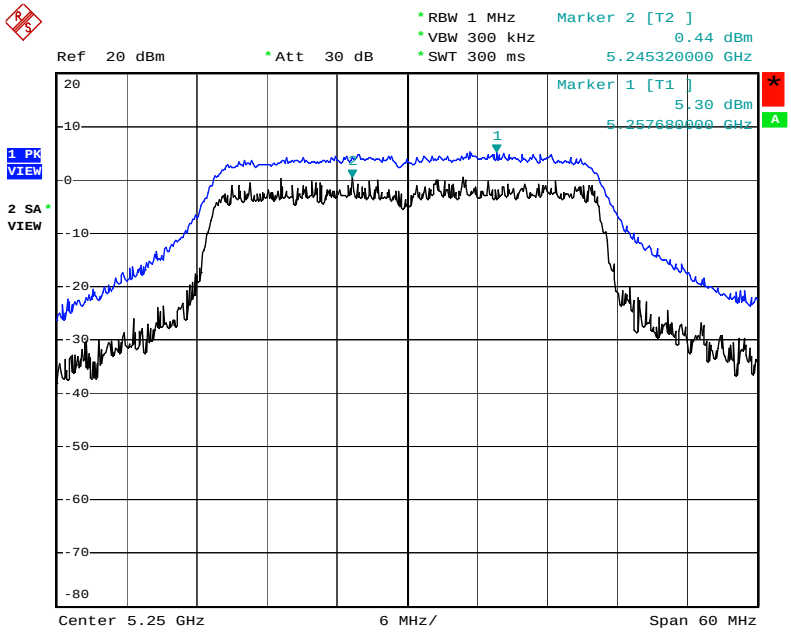
**Turbo Mode**

Channel: 42 / 5210 MHz



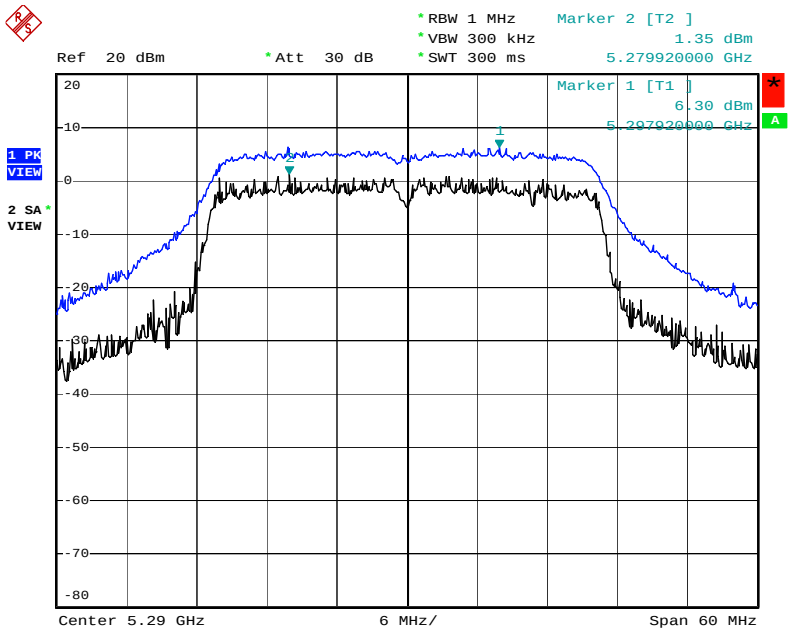

Date: 16.MAR.2005 12:52:44

Channel: 50 / 5250 MHz




Date: 16.MAR.2005 12:54:49

Channel: 58 / 5290 MHz




Date: 16.MAR.2005 12:55:58

## 5.5. Test of Band Edges Emission

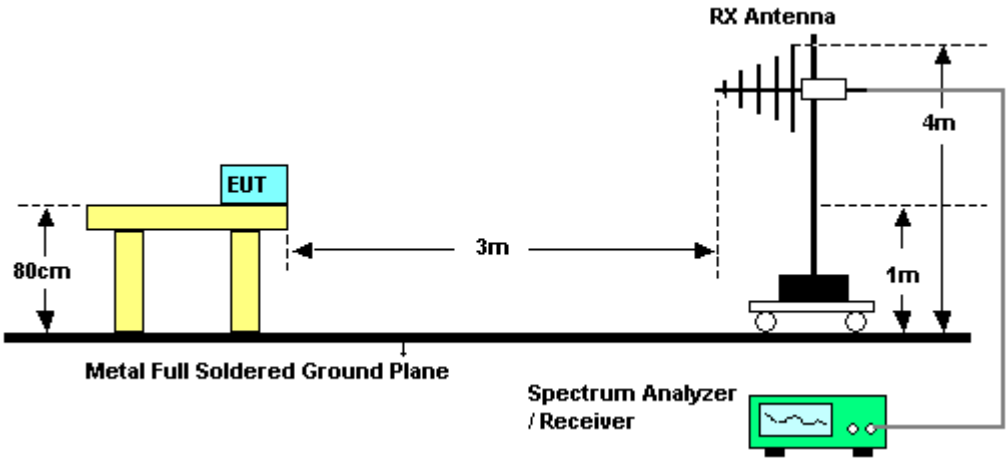
5.5.1. Measuring Instruments

Please reference item 6~17 in chapter 6 for the instruments used for testing.

5.5.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. The transmitter is set to the lowest channel of each band.
5. The turntable was rotated 360 degrees to determine the position of the highest radiation.
6. Set both RBW and VBW of spectrum analyzer to 1MHz with convenient frequency span including 1MHz bandwidth from lower band edge.
7. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization. Record the maximum value of band-edge.
8. Remove the transmitter and replace it with a broadband substitution antenna.
9. With the substitution antennas at maximum polarized and with the signal generator tuned to a particular fundamental frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading (item 6). This should be done carefully repeating the adjustment of the test antenna and generator output.
10. Pd(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi). Pd is the dipole equivalent power and Pg is the generator output power into the substitution antenna.
11. The lowest and highest channels of band edges of each band emission was measured and recorded.

5.5.3. Test Setup Layout



5.5.4. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Leo Hung

**Normal Mode**

| Ant. No. | Gain (dBi) | Test Ch. | Freq. (MHz) | Level* (dBm/MHz) | Margin (dB) | Limit (dBm/MHz) |
|---|---|---|---|---|---|---|
| 1 | 3.00 | 36 | 5148.6 | -35.10 | -8.10 | -27 |
| 1 | 3.00 | 64 | 5351.8 | -30.22 | -3.22 | -27 |

Level*: The max EIRP emission in the band-edge.

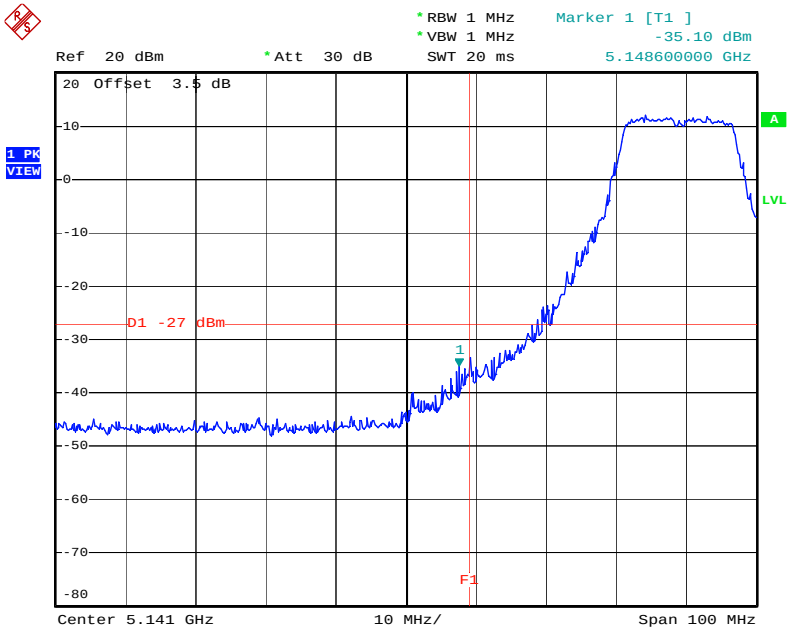
**Turbo Mode**

| Ant. No. | Gain (dBi) | Test Ch. | Freq. (MHz) | Level* (dBm/MHz) | Margin (dB) | Limit (dBm/MHz) |
|---|---|---|---|---|---|---|
| 1 | 3.00 | 42 | 5148.0 | -38.82 | -11.82 | -27 |
| 1 | 3.00 | 58 | 5354.0 | -35.70 | -8.70 | -27 |

Level*: The max EIRP emission in the band-edge.

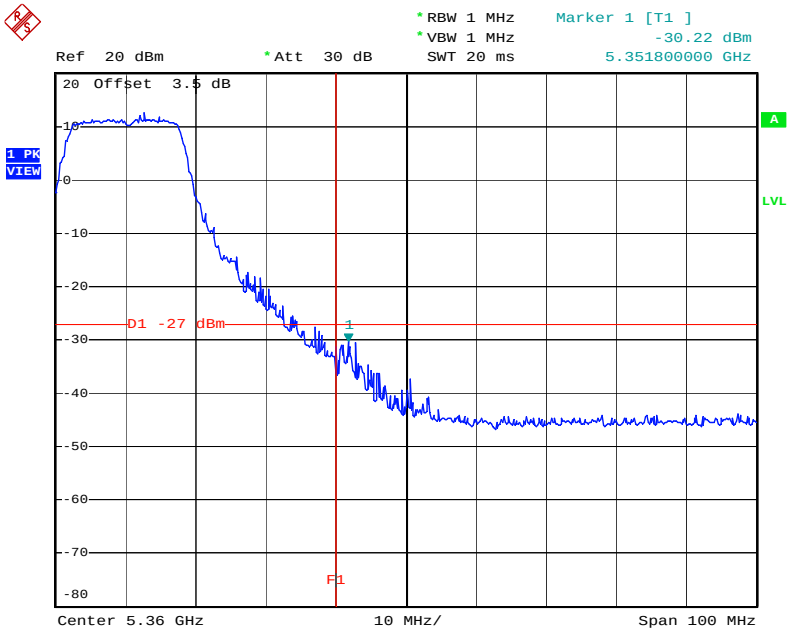
**Normal Mode**

Channel: 36 / 5180 MHz




Date: 14.MAR.2005 06:50:54

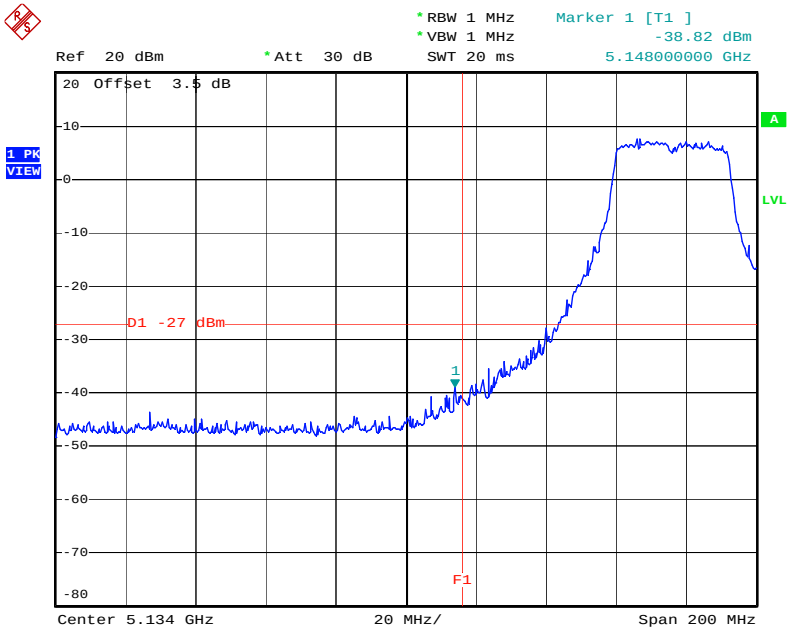
Channel: 64 / 5320 MHz




Date: 14.MAR.2005 06:50:04

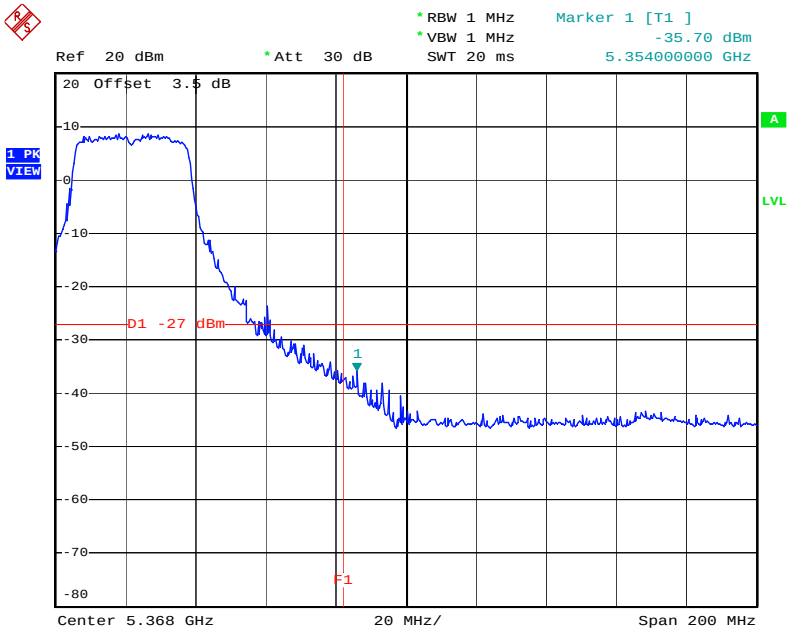
**Turbo Mode**

Channel: 42 / 5210 MHz




Date: 16.MAR.2005 13:18:21

Channel: 58 / 5290 MHz




Date: 16.MAR.2005 13:19:22

## 5.6. Test of Frequency Stability

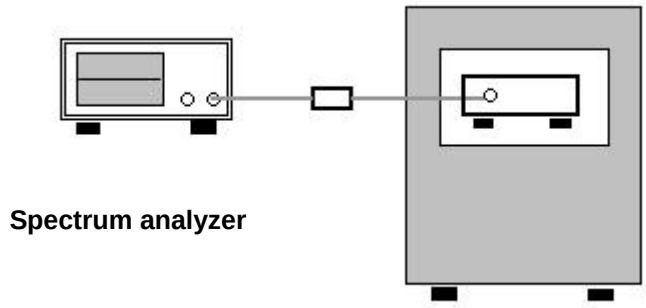
5.6.1. Measuring Instruments

Item 18 of the table is on section 6.

5.6.2. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 10kHz and VBW to 10kHz.
3. Using mark function to read the un-modulation carrier frequency with max power.
4. The test extreme voltage is, according to 2.1055(d)(1), to from 85 to 115 percent of the nominal value.
5. Extreme temperature rule is, according to 2.1055(a)(1), -30°C~50°C.

5.6.3. Test Setup Layout



**Spectrum analyzer**

**Oven**

5.6.4. Test Result

- Modulation Type: Un-Modulated Carrier
- Temperature: 25°C
- Relative Humidity: 62 %
- Duty cycle of the equipment during the test: 100%

**Voltage vs. Frequency Stability**

| Voltage | Measurement Frequency (MHz) |
|---|---|
| **(V)** | **5260.0000** |
| 138 | 5260.0130 |
| 120.00 | 5260.0130 |
| 102 | 5260.0025 |
| Max. Deviation (MHz) | **0.0130** |
| Max. Deviation (ppm) | **2.47** |

**Temperature vs. Frequency Stability**

| Temperature | Measurement Frequency (MHz) |
|---|---|
| (℃) | **5260.0000** |
| -30 | 5260.0130 |
| -20 | 5260.0130 |
| -10 | 5260.0025 |
| 0 | 5260.0130 |
| 10 | 5260.0258 |
| 20 | 5260.0025 |
| 30 | 5260.0130 |
| 40 | 5260.0130 |
| 50 | 5260.0025 |
| Max. Deviation (MHz) | **0.0258** |
| Max. Deviation (ppm) | **4.90** |

## 5.7. Test of AC Power Line Conducted Emission

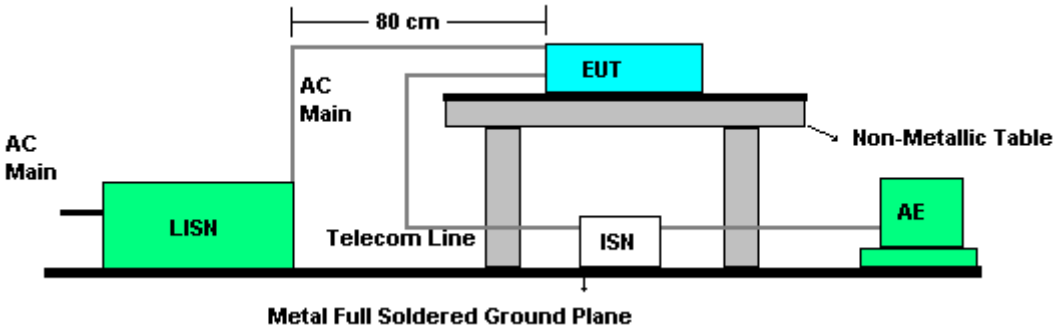
5.7.1. Measuring Instruments

Please reference item 1~5 in chapter 6 for the instruments used for testing.

5.7.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN)
4. All the support units are connected to the other LISNs. The LISN should provides 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Use the Channel & Power Controlling software to make the EUT working on selected channel and expected output power, then use the “H” Patter Generator software to make the supporting equipments stay on working condition.
7. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
8. The measurement has to be done between each power line and ground at the power terminal for each RF channel. Only one RF channel has to be investigated since this test is independent with the RF channel selection.

5.7.3. Test Setup Layout



5.7.4. Test Result of Conducted Emission

- Temperature: 26°C
- Relative Humidity: 64%
- Test Engineer: Sky Wu

***Line to Ground***

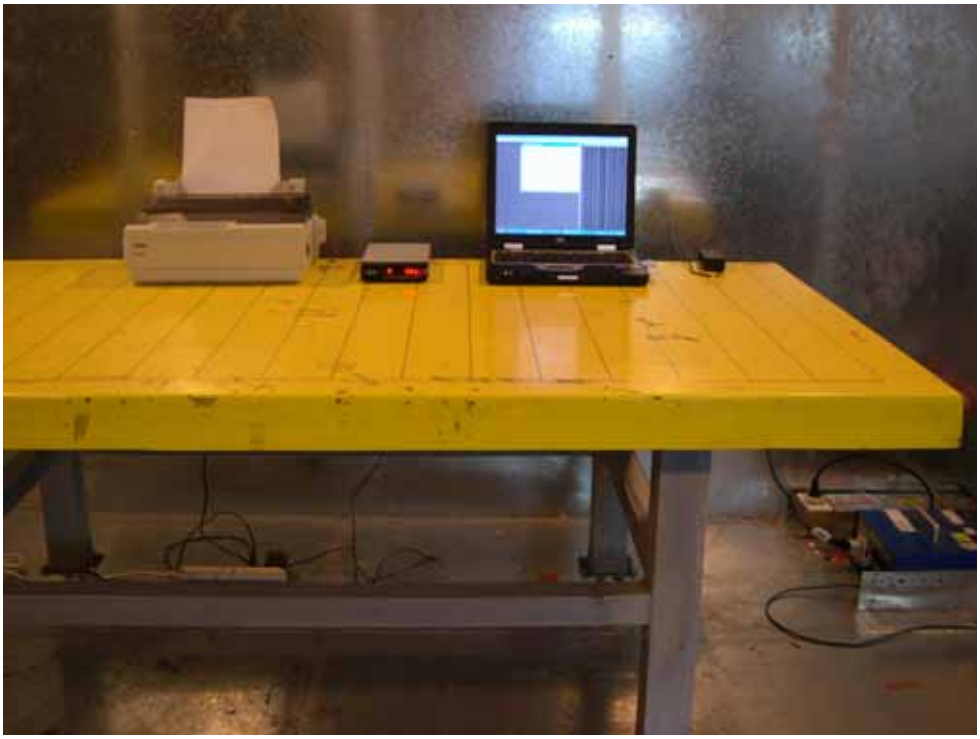
| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | @0.2116700 | 44.61 | -18.53 | 63.14 | 44.49 | 0.10 | 0.02 | QP |
| 2 | 0.2116700 | 31.73 | -21.41 | 53.14 | 31.61 | 0.10 | 0.02 | Average |
| 3 | 0.3129710 | 38.10 | -21.79 | 59.89 | 37.89 | 0.10 | 0.11 | QP |
| 4 | 0.3129710 | 26.13 | -23.76 | 49.89 | 25.92 | 0.10 | 0.11 | Average |
| 5 | 0.8291900 | 30.85 | -25.15 | 56.00 | 30.26 | 0.10 | 0.49 | QP |
| 6 | 0.8291900 | 23.11 | -22.89 | 46.00 | 22.52 | 0.10 | 0.49 | Average |
| 7 | 2.497 | 18.81 | -27.19 | 46.00 | 18.63 | 0.13 | 0.05 | Average |
| 8 | 2.497 | 27.79 | -28.21 | 56.00 | 27.61 | 0.13 | 0.05 | QP |
| 9 | 10.401 | 28.81 | -21.19 | 50.00 | 28.18 | 0.20 | 0.43 | Average |
| 10 | 10.401 | 35.66 | -24.34 | 60.00 | 35.03 | 0.20 | 0.43 | QP |
| 11 | 15.631 | 37.89 | -22.11 | 60.00 | 37.16 | 0.22 | 0.51 | QP |
| 12 | @ 15.631 | 32.79 | -17.21 | 50.00 | 32.06 | 0.22 | 0.51 | Average |

***Neutral to Ground***

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | @0.2180990 | 43.13 | -19.76 | 62.89 | 42.79 | 0.11 | 0.23 | QP |
| 2 | 0.2180990 | 28.25 | -24.64 | 52.89 | 27.91 | 0.11 | 0.23 | Average |
| 3 | 0.3364920 | 30.29 | -29.00 | 59.29 | 29.88 | 0.11 | 0.30 | QP |
| 4 | 0.3364920 | 19.03 | -30.26 | 49.29 | 18.62 | 0.11 | 0.30 | Average |
| 5 | 0.6879780 | 27.31 | -28.69 | 56.00 | 26.38 | 0.23 | 0.70 | QP |
| 6 | 0.6879780 | 18.66 | -27.34 | 46.00 | 17.73 | 0.23 | 0.70 | Average |
| 7 | 5.191 | 23.81 | -36.19 | 60.00 | 23.29 | 0.26 | 0.26 | QP |
| 8 | 5.191 | 11.86 | -38.14 | 50.00 | 11.34 | 0.26 | 0.26 | Average |
| 9 | 11.501 | 29.41 | -20.59 | 50.00 | 28.24 | 0.33 | 0.84 | Average |
| 10 | 11.501 | 35.34 | -24.66 | 60.00 | 34.17 | 0.33 | 0.84 | QP |
| 11 | 15.891 | 37.05 | -22.95 | 60.00 | 36.06 | 0.35 | 0.64 | QP |
| 12 | @ 15.891 | 32.22 | -17.78 | 50.00 | 31.23 | 0.35 | 0.64 | Average |

5.7.5. Photographs of Conducted Emission Test Configuration

FRONT VIEW



REAR VIEW

## 5.8. Test of Spurious Radiated Emission

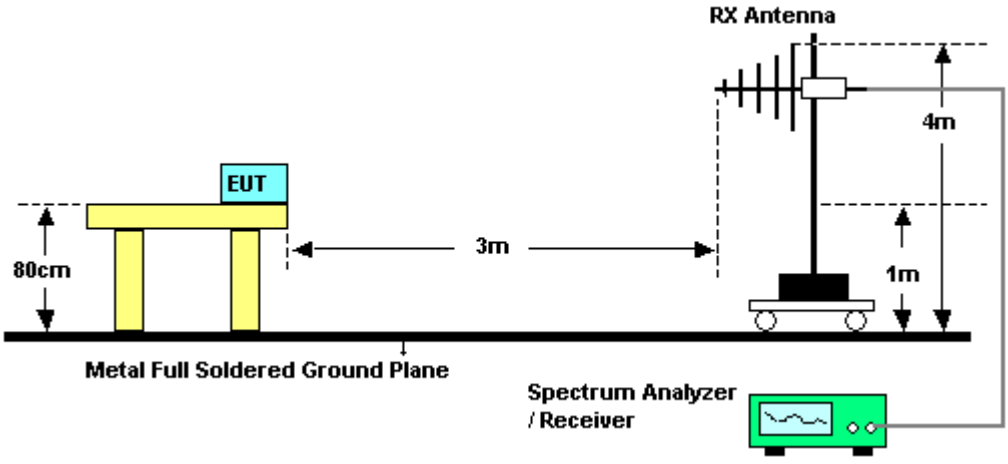
5.8.1. Measuring Instruments

Please reference item 6~17 in chapter 6 for the instruments used for testing.

5.8.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turn table.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10. If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.
11. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.8.3. Test Setup Layout



5.8.4. Test Results for CH 36/ 5180 MHz (for emission below 1GHz)

- **Normal Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 164.830 | 32.87 | -10.63 | 43.50 | 9.35 | 1.02 | 30.19 | 52.69 | HORIZONTAL | Peak |
| 2 | 233.700 | 36.00 | -10.00 | 46.00 | 10.26 | 1.21 | 30.07 | 54.61 | HORIZONTAL | Peak |
| 3 | 299.660 | 29.54 | -16.46 | 46.00 | 13.00 | 1.37 | 30.16 | 45.33 | HORIZONTAL | Peak |
| 4 | 365.620 | 35.68 | -10.32 | 46.00 | 14.83 | 1.51 | 30.55 | 49.89 | HORIZONTAL | Peak |
| 5 | 665.350 | 29.24 | -16.76 | 46.00 | 18.91 | 2.06 | 30.35 | 38.63 | HORIZONTAL | Peak |
| 6 | 766.230 | 26.02 | -19.98 | 46.00 | 19.91 | 2.19 | 30.08 | 34.01 | HORIZONTAL | Peak |

***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 164.830 | 34.65 | -8.85 | 43.50 | 9.35 | 1.02 | 30.19 | 54.46 | VERTICAL | Peak |
| 2 | 230.790 | 26.92 | -19.08 | 46.00 | 9.84 | 1.20 | 30.07 | 45.95 | VERTICAL | Peak |
| 3 | 431.580 | 27.17 | -18.83 | 46.00 | 16.38 | 1.64 | 30.42 | 39.57 | VERTICAL | Peak |
| 4 | 454.860 | 31.84 | -14.16 | 46.00 | 16.50 | 1.69 | 30.47 | 44.12 | VERTICAL | Peak |
| 5 | 564.470 | 25.05 | -20.95 | 46.00 | 18.65 | 1.88 | 30.70 | 35.23 | VERTICAL | Peak |
| 6 | 665.350 | 36.89 | -9.11 | 46.00 | 18.91 | 2.06 | 30.35 | 46.28 | VERTICAL | Peak |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.5. Test Results for CH 36 / 5180 MHz (for emission above 1GHz)

- **Normal Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3453.100 | 49.34 | -24.66 | 74.00 | 31.19 | 2.37 | 36.60 | 52.38 | HORIZONTAL | PEAK |
| 2 @ | 3453.100 | 45.30 | -8.70 | 54.00 | 31.19 | 2.37 | 36.60 | 48.34 | HORIZONTAL | AVERAGE |

***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3453.600 | 51.67 | -22.33 | 74.00 | 31.19 | 2.37 | 36.60 | 54.71 | VERTICAL | PEAK |
| 2 @ | 3453.600 | 48.37 | -5.63 | 54.00 | 31.19 | 2.37 | 36.60 | 51.41 | VERTICAL | AVERAGE |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.6. Test Results for CH 52 / 5260 MHz (for emission above 1GHz)

- **Normal Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3506.400 | 49.31 | -24.69 | 74.00 | 31.30 | 2.44 | 36.60 | 52.17 | HORIZONTAL | PEAK |
| 2 @ | 3506.400 | 45.37 | -8.63 | 54.00 | 31.30 | 2.44 | 36.60 | 48.23 | HORIZONTAL | AVERAGE |

***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3506.000 | 51.31 | -22.69 | 74.00 | 31.30 | 2.44 | 36.60 | 54.17 | VERTICAL | PEAK |
| 2 @ | 3506.000 | 48.00 | -6.00 | 54.00 | 31.30 | 2.44 | 36.60 | 50.86 | VERTICAL | AVERAGE |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.7. Test Results for CH 64 / 5320 MHz (for emission above 1GHz)

- **Normal Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 @ | 3546.680 | 45.81 | -8.19 | 54.00 | 31.44 | 2.48 | 36.63 | 48.51 | HORIZONTAL | AVERAGE |
| 2 | 3546.680 | 49.95 | -24.05 | 74.00 | 31.44 | 2.48 | 36.63 | 52.65 | HORIZONTAL | PEAK |

***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3546.520 | 51.98 | -22.02 | 74.00 | 31.44 | 2.48 | 36.63 | 54.68 | VERTICAL | PEAK |
| 2 @ | 3546.660 | 48.89 | -5.11 | 54.00 | 31.44 | 2.48 | 36.63 | 51.59 | VERTICAL | AVERAGE |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.8. Test Results for CH 42 / 5210 MHz (for emission above 1GHz)

- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3473.000 | 49.00 | -25.00 | 74.00 | 31.22 | 2.37 | 36.60 | 52.00 | HORIZONTAL | PEAK |
| 2 | 3473.000 | 45.00 | -9.00 | 54.00 | 31.22 | 2.37 | 36.60 | 48.00 | HORIZONTAL | AVERAGE |

***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3473.340 | 46.10 | -27.90 | 74.00 | 31.22 | 2.37 | 36.60 | 49.10 | VERTICAL | PEAK |
| 2 | 3473.340 | 42.28 | -11.72 | 54.00 | 31.22 | 2.37 | 36.60 | 45.28 | VERTICAL | AVERAGE |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.9. Test Results for CH 50 / 5250 MHz (for emission above 1GHz)

- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3500.900 | 50.39 | -23.61 | 74.00 | 31.30 | 2.44 | 36.60 | 53.25 | HORIZONTAL | PEAK |
| 2 | 3500.900 | 45.67 | -8.33 | 54.00 | 31.30 | 2.44 | 36.60 | 48.53 | HORIZONTAL | AVERAGE |

***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3500.100 | 48.64 | -25.36 | 74.00 | 31.30 | 2.44 | 36.60 | 51.50 | VERTICAL | PEAK |
| 2 | 3500.100 | 43.97 | -10.03 | 54.00 | 31.30 | 2.44 | 36.60 | 46.83 | VERTICAL | AVERAGE |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.10. Test Results for CH 58 / 5290 MHz (for emission above 1GHz)

- **Turbo Mode**
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ming Ta, Kao

***(A) Polarization: Horizontal***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3526.780 | 49.87 | -24.13 | 74.00 | 31.40 | 2.48 | 36.61 | 52.61 | HORIZONTAL | PEAK |
| 2 | 3526.780 | 44.67 | -9.33 | 54.00 | 31.40 | 2.48 | 36.61 | 47.41 | HORIZONTAL | AVERAGE |

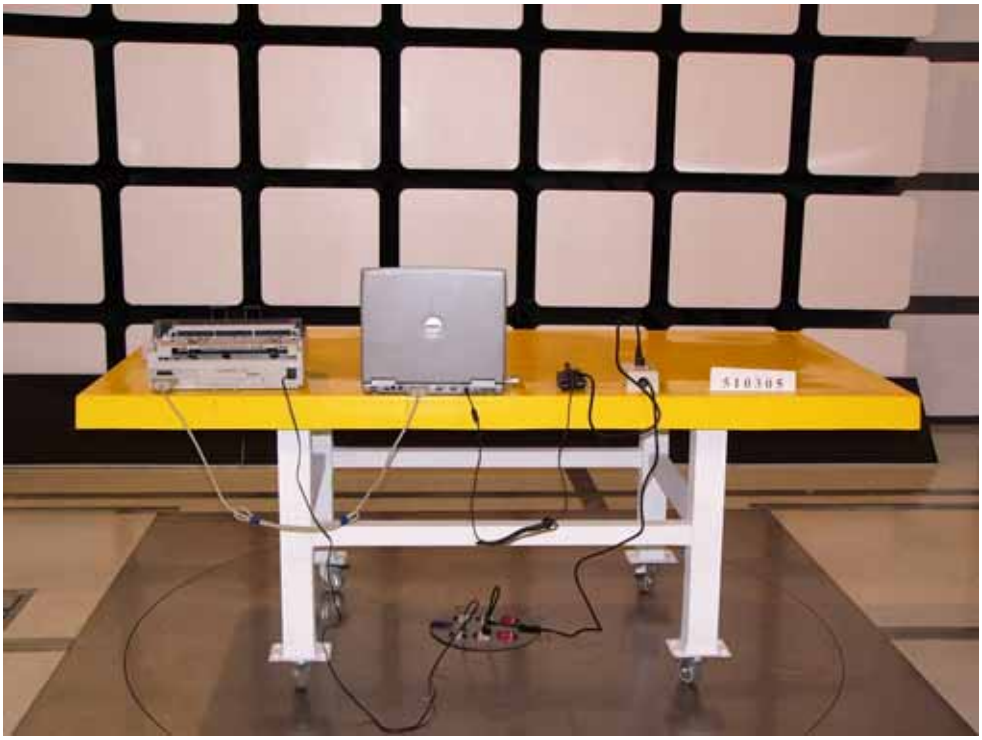
***(B) Polarization: Vertical***

| | Freq | Level | Over Limit | Limit Line | Antenna Factor | Cable Loss | Preamp Factor | Read Level | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dB/m | dB | dB | dBuV | | |
| 1 | 3526.100 | 46.91 | -27.09 | 74.00 | 31.40 | 2.48 | 36.61 | 49.65 | VERTICAL | PEAK |
| 2 | 3526.100 | 42.94 | -11.06 | 54.00 | 31.40 | 2.48 | 36.61 | 45.68 | VERTICAL | AVERAGE |

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.8.11. Photographs of Radiated Emission Test Configuration

FRONT VIEW



REAR VIEW

## 5.9. Antenna Requirements

5.9.1. Standard Applicable

47 CFR Part15 Section 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.

47 CFR Part15 Section 15.407:

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

If the intentional radiator is used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

5.9.2. Antenna Connected Construction

There is no antenna connector for integral printed antenna. The connector for monopole antenna is reversed SMA and standard SMA. But this product is classified as professional use, so there is no need to fulfill the unique antenna connector requirement.

# 6. List of Measuring Equipments Used

| Items | Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|---|---|---|---|---|---|---|---|
| 1 | EMC Receiver | R&S | ESCS 30 | 100132 | 9 KHz – 2.75 GHz | Jun. 23, 2004 | Conduction (CO01-HY) |
| 2 | LISN | MessTec | NNB-2/16Z | 2001/008 | 9 KHz – 30 MHz | May 03, 2004 | Conduction (CO01-HY) |
| 3 | LISN (Support Unit) | MessTec | NNB-2/16Z | 2001/009 | 9 KHz – 30 MHz | Apr. 19, 2004 | Conduction (CO01-HY) |
| 4 | EMI Filter | LINDGREN | LRE-2060 | 1004 | < 450 Hz | N/A | Conduction (CO01-HY) |
| 5 | EMI Filter | LINDGREN | N6006 | 201052 | 0 ~ 60 Hz | N/A | Conduction (CO01-HY) |
| 6 | RF Cable-CON | Suhner Switzerland | RG223/U | CB029 | 9KHz~30MHz | Dec. 23, 2004 | Conduction (CO01-HY) |
| 7 | 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 30MHz~1GHz 3m | Jun. 21, 2004 | Radiation (03CH03-HY) |
| 8 | Spectrum analyzer | R&S | FSP40 | 100004 | 9KHZ~40GHz | Aug. 31, 2004 | Radiation (03CH03-HY) |
| 9 | Amplifier | HP | 8447D | 2944A09072 | 100KHz – 1.3GHz | Nov. 04, 2004 | Radiation (03CH03-HY) |
| 10 | Biconical Antenna | SCHWARZBECK | VHBB 9124 | 301 | 30MHz –200MHz | Jul. 28, 2004 | Radiation (03CH03-HY) |
| 11 | Log Antenna | SCHWARZBECK | VUSLP 9111 | 221 | 200MHz -1GHz | Jul. 28, 2004 | Radiation (03CH03-HY) |
| 12 | RF Cable-R03m | Jye Bao | RG142 | CB021 | 30MHz~1GHz | Dec. 02, 2004 | Radiation (03CH03-HY) |
| 13 | Amplifier | MITEQ | AFS44 | 849984 | 100MHz~26.5GHz | Mar. 26, 2004 | Radiation (03CH03-HY) |
| 14 | Horn Antenna | EMCO | 3115 | 6741 | 1GHz – 18GHz | Apr. 07, 2004 | Radiation (03CH03-HY) |
| 15 | Turn Table | HD | DS 420 | 420/650/00 | 0 ~ 360 degree | N/A | Radiation (03CH03-HY) |
| 16 | Antenna Mast | HD | MA 240 | 240/560/00 | 1 m - 4 m | N/A | Radiation (03CH03-HY) |
| 17 | Horn Antenna | Schwarzbeck | BBHA9170 | 154 | 18GHz~40GHz | Jun. 09, 2004 | Radiation (03CH03-HY) |
| 18 | RF Cable-HIGH | Jye Bao | RG142 | CB030-HIGH | 1GHz~29.5GHz | Dec. 04, 2004 | Radiation (03CH03-HY) |

※ Calibration Interval of instruments listed above is one year.

| Items | Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|---|---|---|---|---|---|---|---|
| 19 | Spectrum analyzer | R&S | FSP7 | 838858/014 | 9KHZ~7GHZ | Sep. 02, 2004 | Conducted (TH01-HY) |
| 20 | Power meter | R&S | NRVS | 100444 | DC~40GHz | Jun. 15, 2004 | Conducted (TH01-HY) |
| 21 | Power sensor | R&S | NRV-Z55 | 100049 | DC~40GHz | Jun. 15, 2004 | Conducted (TH01-HY) |
| 22 | Power Sensor | R&S | NRV-Z32 | 100057 | 30MHz-6GHz | Jun. 15, 2004 | Conducted (TH01-HY) |
| 23 | AC power source | HPC | HPA-500W | HPA-9100024 | AC 0~300V | Jun. 16, 2004 | Conducted (TH01-HY) |
| 24 | AC power source | G.W. | GPC-6030D | C671845 | DC 1V~60V | Nov. 05, 2004 | Conducted (TH01-HY) |
| 25 | Temp. and Humidity Chamber | KSON | THS-C3L | 612 | N/A | Sep. 30, 2004 | Conducted (TH01-HY) |
| 26 | RF CABLE-1m | Jye Bao | RG142 | CB034-1m | 20MHz~7GHz | Jan. 01, 2005 | Conducted (TH01-HY) |
| 27 | RF CABLE-2m | Jye Bao | RG142 | CB035-2m | 20MHz~1GHz | Jan. 01, 2005 | Conducted (TH01-HY) |

※ Calibration Interval of instruments listed above is one year.

# 7. Company Profile

SPORTON Lab. was established in 1986 with one shielded room: the first private EMI test facility, offering local manufacturers an alternative EMI test familial apart from ERSO. In 1988, one 3M and 10M/3M open area test site were setup and also obtained official accreditation from FCC, VCCI and NEMKO. In 1993, a Safety laboratory was founded and obtained accreditation from UL of USA, CSA of Canada and TUV (Rhineland & PS) of Germany. In 1995, one EMC lab, including EMI and EMS test facilities was setup. In 1997, SPORTON Group has provided financial expense to relocate the headquarter to Orient Scientific Park in Taipei Hsien to offer more comprehensive, more qualified and better service to local suppliers and manufactures. In 1999, Safety Group and Component Group were setup. In 2001, SPORTON has established 3M/10M chamber in Hwa Ya Technology Park.

## 7.1. Certificate of Accreditation

| | |
|---|---|
| Taiwan | BSMI, CNLA, DGT |
| USA | FCC, NVLAP, UL |
| EU | Nemko, TUV |
| Japan | VCCI |
| Canada | Industry Canada |

## 7.2. Test Location

| | | |
|---|---|---|
| SHIJR | ADD： | 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. |
| | TEL： | 02-2696-2468 |
| | FAX： | 02-2696-2255 |
| HWA YA | ADD： | No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. |
| | TEL： | 03-327-3456 |
| | FAX： | 03-318-0055 |
| LINKOU | ADD： | No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C |
| | TEL： | 02-2601-1640 |
| | FAX： | 02-2601-1695 |
| DUNGHU | ADD： | No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. |
| | TEL： | 02-2631-4739 |
| | FAX： | 02-2631-9740 |
| JUNGHE | ADD： | 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. |
| | TEL： | 02-8227-2020 |
| | FAX： | 02-8227-2626 |
| NEIHU | ADD： | 4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C. |
| | TEL： | 02-2794-8886 |
| | FAX： | 02-2794-9777 |

# 8. CNLA Certificate of Accreditation

| | | |
|---|---|---|
| Test Lab. | : | Sporton International Inc. |
| Accreditation Number | : | 1190 |
| Originally Accredited | : | 2003/12/15 |
| Effective Period | : | 2003/12/15~2006/12/14 |
| Accredited Scope | : | FCC Part 15C/E (9kHz~40GHz) |

Taiwan Accreditation Foundation
Chinese National Laboratory Accreditation
Certificate of Accreditation

| | |
|---|---|
| Accreditation Criteria: | ISO 17025 |
| Accreditation Number: | 1190 |
| Organization/Laboratory: | EMC & Wireless Communications Laboratory,Sporton International Inc. |
| Originally Accredited: | December 15, 2003 |
| Effective Period: | December 15, 2003 To December 14, 2006 |
| Accredited Scope: | Electrical Testing Field, 7 items, details shown in the following pages. |
| Specific Accreditation Program: | Recognition and Approval of Designated Laboratory for Commodities Inspection |

President, Taiwan Accreditation Foundation
Date:July 19, 2004

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