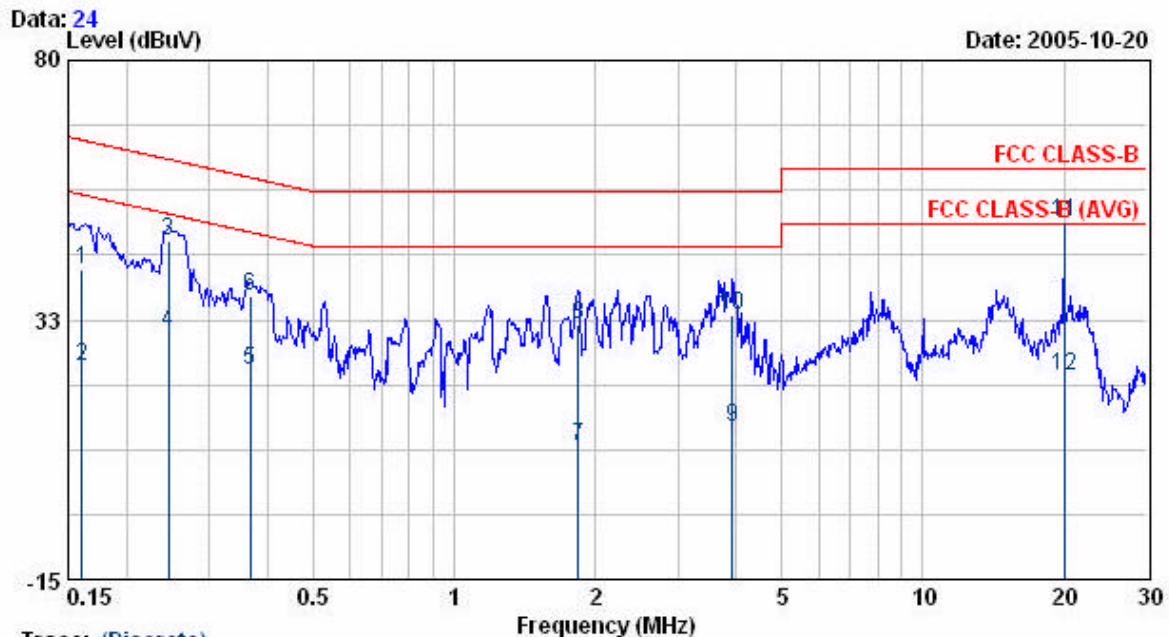


EUT : WAG102  
 Power : AC 120V  
 Test Mode : 802.11a CH11  
 Memo : DSA-0131F-12

Pol/Phase : LINE  
 Temperature : 25 °C  
 Humidity : 57 %



Trace: (Discrete)

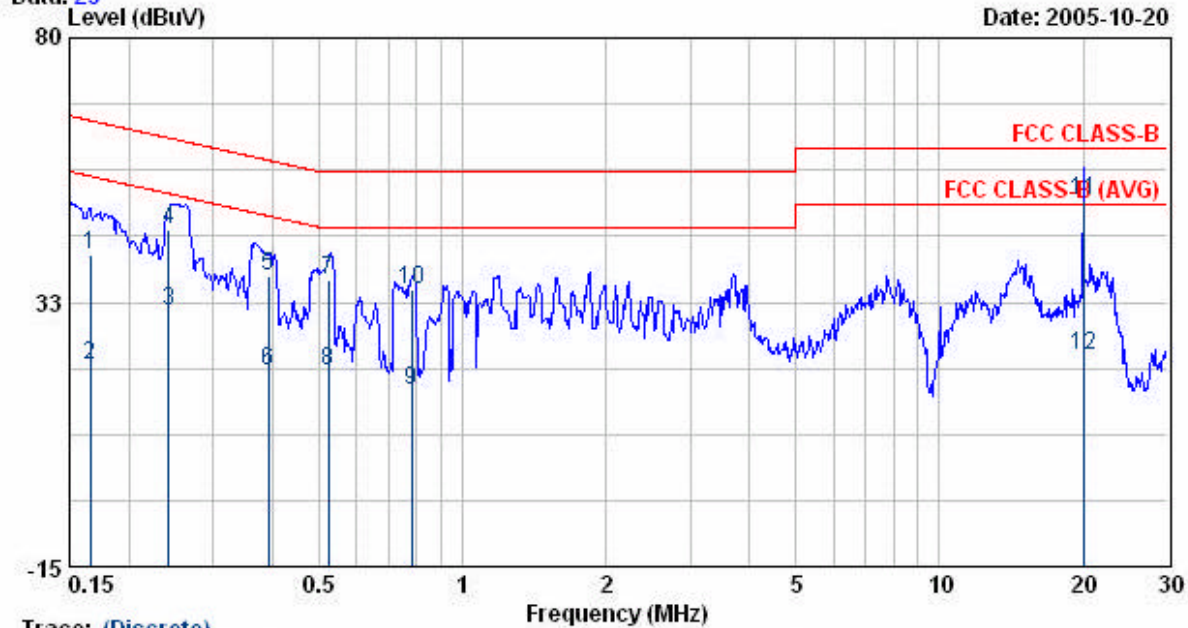
| Freq  | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|-------|------------|--------|-------|-------|------------|---------|
| MHz   | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.16  | 41.44      | 0.36   | 41.80 | 65.44 | -23.64     | QP      |
| 0.16  | 23.64      | 0.36   | 24.00 | 55.44 | -31.44     | AVERAGE |
| 0.25  | 46.63      | 0.39   | 47.02 | 61.91 | -14.89     | QP      |
| 0.25  | 29.95      | 0.39   | 30.34 | 51.91 | -21.57     | AVERAGE |
| 0.37  | 22.76      | 0.56   | 23.32 | 48.58 | -25.26     | AVERAGE |
| 0.37  | 36.44      | 0.56   | 37.00 | 58.58 | -21.58     | QP      |
| 1.84  | 8.55       | 0.68   | 9.23  | 46.00 | -36.77     | AVERAGE |
| 1.84  | 31.04      | 0.68   | 31.72 | 56.00 | -24.28     | QP      |
| 3.93  | 12.12      | 0.70   | 12.82 | 46.00 | -33.18     | AVERAGE |
| 3.93  | 32.63      | 0.70   | 33.33 | 56.00 | -22.67     | QP      |
| 20.00 | 49.99      | 0.60   | 50.59 | 60.00 | -9.41      | QP      |
| 20.00 | 21.66      | 0.60   | 22.26 | 50.00 | -27.74     | AVERAGE |

Remarks: 1. Level = Read Level + Factor  
 2. Factor = LISN(ISN) Factor + Cable Loss

EUT : WAG102  
 Power : AC 120V  
 Test Mode : 802.11a CH13  
 Memo : DSA-0131F-12

Pol/Phase : NEUTRAL  
 Temperature : 25 °C  
 Humidity : 57 %

Data: 25



Trace: (Discrete)

| Freq  | Read Level | Factor | Level | Limit | Over Limit | Remark  |
|-------|------------|--------|-------|-------|------------|---------|
| MHz   | dBuV       | dB     | dBuV  | dBuV  | dBuV       |         |
| 0.17  | 40.63      | 0.28   | 40.91 | 65.18 | -24.27     | QP      |
| 0.17  | 20.99      | 0.28   | 21.27 | 55.18 | -33.91     | AVERAGE |
| 0.24  | 30.61      | 0.28   | 30.89 | 52.02 | -21.13     | AVERAGE |
| 0.24  | 45.34      | 0.28   | 45.62 | 62.02 | -16.40     | QP      |
| 0.39  | 36.73      | 0.49   | 37.22 | 58.01 | -20.78     | QP      |
| 0.39  | 19.61      | 0.49   | 20.10 | 48.01 | -27.90     | AVERAGE |
| 0.52  | 35.91      | 0.50   | 36.41 | 56.00 | -19.59     | QP      |
| 0.52  | 19.55      | 0.50   | 20.05 | 46.00 | -25.95     | AVERAGE |
| 0.78  | 16.23      | 0.50   | 16.73 | 46.00 | -29.27     | AVERAGE |
| 0.78  | 34.14      | 0.50   | 34.64 | 56.00 | -21.36     | QP      |
| 20.00 | 50.01      | 0.80   | 50.81 | 60.00 | -9.19      | QP      |
| 20.00 | 22.19      | 0.80   | 22.99 | 50.00 | -27.01     | AVERAGE |

Remarks: 1. Level = Read Level + Factor  
 2. Factor = LISN(ISN) Factor + Cable Loss

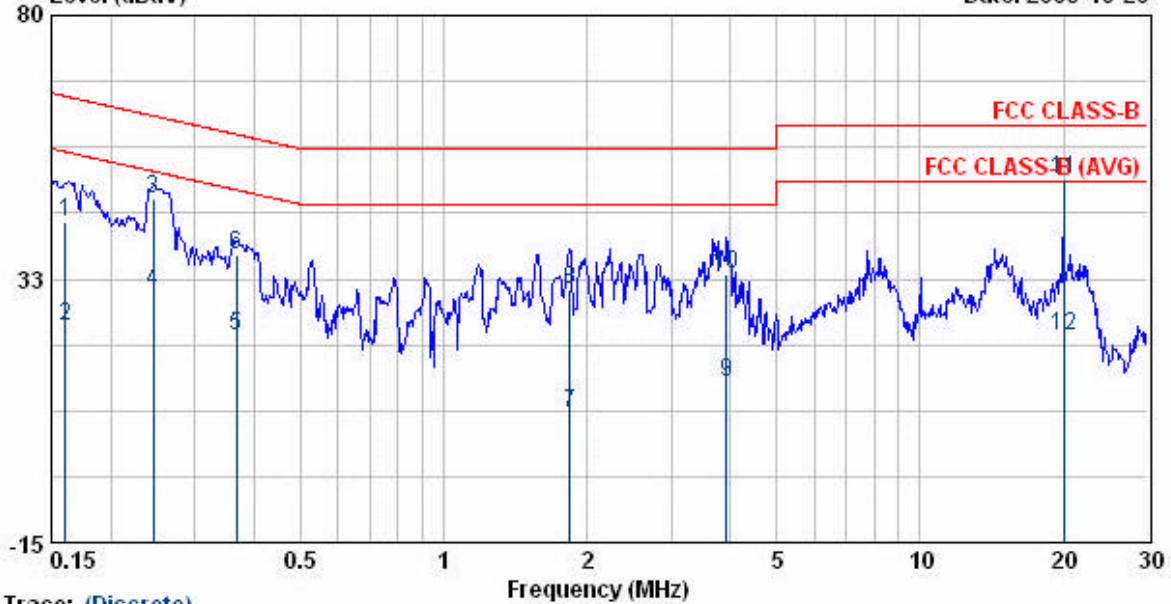
EUT : WAG102  
 Power : AC 120V  
 Test Mode : 802.11a CH13  
 Memo : DSA-0131F-12

Pol/Phase : LINE  
 Temperature : 25 °C  
 Humidity : 57 %

Data: 26

Level (dBuV)

Date: 2005-10-20



Trace: (Discrete)

| Freq  | Read  | Factor | Level | Limit | Over   | Remark  |
|-------|-------|--------|-------|-------|--------|---------|
| MHz   | dBuV  | dB     | dBuV  | dBuV  | dBuV   |         |
| 0.16  | 42.44 | 0.36   | 42.80 | 65.44 | -22.64 | QP      |
| 0.16  | 23.64 | 0.36   | 24.00 | 55.44 | -31.44 | AVERAGE |
| 0.25  | 46.63 | 0.39   | 47.02 | 61.91 | -14.89 | QP      |
| 0.25  | 29.95 | 0.39   | 30.34 | 51.91 | -21.57 | AVERAGE |
| 0.37  | 21.76 | 0.56   | 22.32 | 48.58 | -26.26 | AVERAGE |
| 0.37  | 36.44 | 0.56   | 37.00 | 58.58 | -21.58 | QP      |
| 1.84  | 7.55  | 0.68   | 8.23  | 46.00 | -37.77 | AVERAGE |
| 1.84  | 30.04 | 0.68   | 30.72 | 56.00 | -25.28 | QP      |
| 3.93  | 13.12 | 0.70   | 13.82 | 46.00 | -32.18 | AVERAGE |
| 3.93  | 32.63 | 0.70   | 33.33 | 56.00 | -22.67 | QP      |
| 20.00 | 49.99 | 0.60   | 50.59 | 60.00 | -9.41  | QP      |
| 20.00 | 21.66 | 0.60   | 22.26 | 50.00 | -27.74 | AVERAGE |

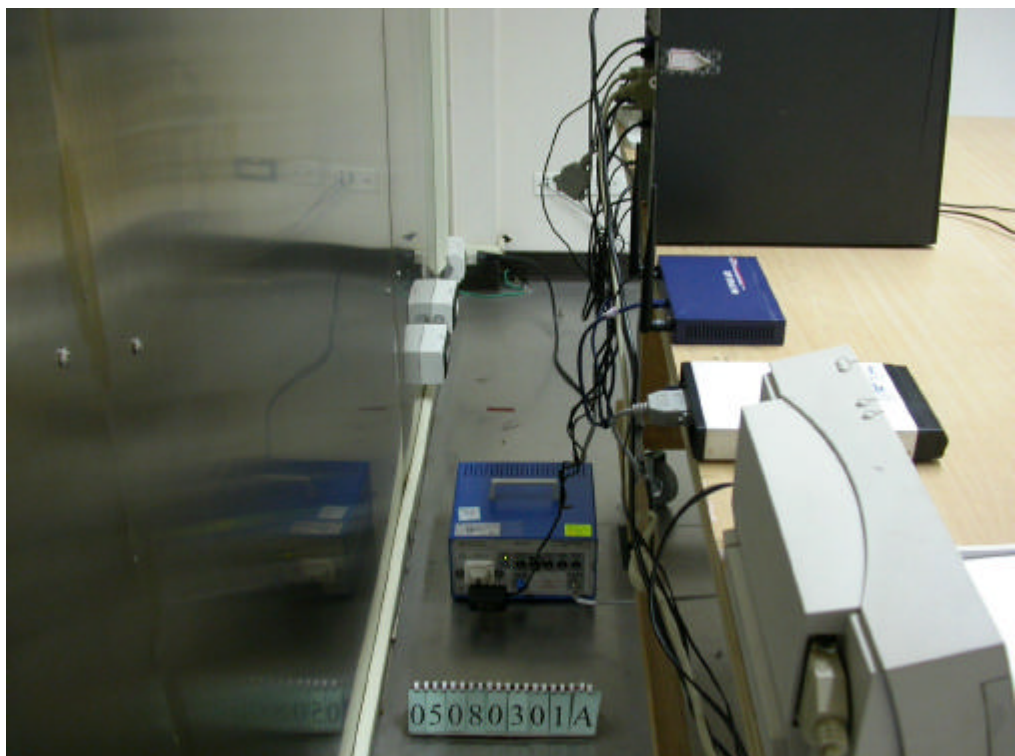
Remarks: 1. Level = Read Level + Factor  
 2. Factor = LISN(ISN) Factor + Cable Loss

10.5.1 Photographs of Conducted Emission Test

Front View



Rear View



## 11. Test of Radiated Emission (For 802.11a device)

### 11.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSIC63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions  
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency<br>(MHz) | Distance<br>Meters | Radiated<br>( $\mu$ V / M) | Radiated<br>(dB $\mu$ V / M) |
|--------------------|--------------------|----------------------------|------------------------------|
| 30-88              | 3                  | 100                        | 40.0                         |
| 88-216             | 3                  | 150                        | 43.5                         |
| 216-960            | 3                  | 200                        | 46.0                         |
| Above 960          | 3                  | 500                        | 54.0                         |

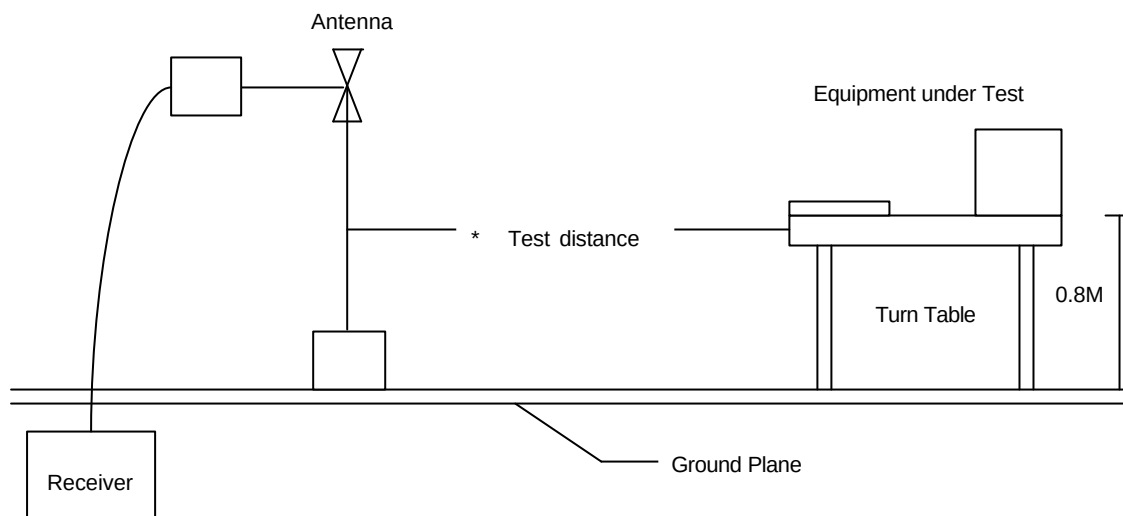
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

| Frequency<br>(MHz) | Distance<br>Meters | Radiated<br>(dB $\mu$ V / M) |
|--------------------|--------------------|------------------------------|
| 30-230             | 10                 | 30                           |
| 230-1000           | 10                 | 37                           |

## **11.2 Test Procedures**

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the 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 and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower 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.

### 11.3 Typical Test Setup



### 11.4 Measurement equipment

| Instrument/Ancillary | Type     | Manufacturer | Valid Date |
|----------------------|----------|--------------|------------|
| EMI Receiver         | 8546A    | HP           | 2006/04/13 |
| Spectrum Analyzer    | FSP40    | R&S          | 2005/12/28 |
| Horn Antenna         | 3115     | EMCO         | 2006/02/21 |
| Horn Antenna         | 3116     | EMCO         | 2006/02/21 |
| Bilog Antenna        | CBL6112B | Schaffner    | 2006/04/12 |
| Amplifier            | 8447D    | Agilent      | 2006/02/14 |
| Amplifier            | 8447D    | Agilent      | 2006/02/22 |

### 11.5 Test Result and Data

Test Model 1: Adapter: DSA-0131F-12

Emission frequencies below 1 GHz Channel 01

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBUV) | Corrected Factor (dB) | Result@3m (dBUV/m) | Limit@3m (dBUV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 143.30          | H           | 52.72                | -14.44                | 38.28              | 43.5              | -5.22       | Q.P    | 75         | 1.1          |
| 150.73          | H           | 49.13                | -14.53                | 34.60              | 43.5              | -8.90       | Peak   | 75         | 1.1          |
| 200.23          | H           | 49.88                | -17.09                | 32.78              | 43.5              | -10.71      | Peak   | 0          | 1.1          |
| 232.80          | H           | 52.17                | -10.91                | 41.26              | 46.0              | -4.74       | Q.P    | 20         | 1.1          |
| 248.30          | H           | 52.60                | -10.47                | 42.13              | 46.0              | -3.87       | Q.P    | 100        | 1.1          |
| 249.18          | H           | 56.10                | -13.47                | 42.63              | 46.0              | -3.37       | Q.P    | 0          | 1.1          |
| 598.90          | H           | 46.77                | -4.55                 | 42.22              | 46.0              | -3.87       | Q.P    | 100        | 1.1          |
| 997.90          | H           | 45.88                | 2.78                  | 48.66              | 54.0              | -5.34       | Q.P    | 0          | 1.1          |
| 148.11          | V           | 55.50                | -14.43                | 41.07              | 43.5              | -2.43       | Q.P    | 0          | 1.0          |
| 170.80          | V           | 51.84                | -16.83                | 35.01              | 43.5              | -8.49       | Peak   | 0          | 1.0          |
| 194.73          | V           | 52.75                | -17.06                | 35.69              | 43.5              | -7.81       | Peak   | 215        | 1.0          |
| 249.73          | V           | 57.22                | -13.36                | 43.86              | 46.0              | -2.14       | Q.P    | 200        | 1.0          |
| 323.80          | V           | 53.41                | -10.91                | 42.50              | 46.0              | -3.50       | Q.P    | 0          | 1.0          |
| 348.30          | V           | 54.45                | -10.47                | 43.98              | 46.0              | -2.02       | Q.P    | 215        | 1.0          |
| 449.80          | V           | 51.33                | -8.81                 | 42.52              | 46.0              | -3.48       | Q.P    | 30         | 1.0          |
| 498.80          | V           | 50.70                | -7.05                 | 43.65              | 46.0              | -2.35       | Q.P    | 30         | 1.0          |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.

Emission frequencies 1~40 GHz

Test Mode: Normal, Channel 09, Transmit Rate: 54Mbps

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 11490.00        | H           | ---                  | 16.85                 | ---                | 54.0              | ---         | Peak   | ---        | ---          |
| 17235.00        | H           | ---                  | 22.41                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 22980.00        | H           | ---                  | 31.49                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28725.00        | H           | ---                  | 33.65                 | ---                | 68.3              | ---         | Peak   | --         | --           |
| 11491.30        | V           | 40.55                | 16.54                 | 57.09              | 74.0              | -16.91      | Peak   | 350        | 1.0          |
| 17235.00        | V           | ---                  | 21.99                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 22980.00        | V           | ---                  | 31.49                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28725.00        | V           | ---                  | 33.65                 | ---                | 68.3              | ---         | Peak   | ---        | --           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

Emission frequencies 1~40 GHz

Test Mode: Normal, Channel 11, Transmit Rate: 54Mbps

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 11570.00        | H           | ---                  | 16.72                 | ---                | 54.0              | ---         | Peak   | ---        | ---          |
| 17355.00        | H           | ---                  | 23.04                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23140.00        | H           | ---                  | 31.62                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28925.00        | H           | ---                  | 33.61                 | ---                | 68.3              | ---         | Peak   | --         | --           |
| 11571.80        | V           | 40.92                | 16.49                 | 57.41              | 74.0              | -16.59      | Peak   | 350        | 1.0          |
| 17355.00        | V           | ---                  | 22.77                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23140.00        | V           | ---                  | 31.62                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28925.00        | V           | ---                  | 33.61                 | ---                | 68.3              | ---         | Peak   | ---        | --           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

Emission frequencies 1~40 GHz

Test Mode: Normal, Channel 13, Transmit Rate: 54Mbps

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 11650.00        | H           | ---                  | 16.56                 | ---                | 54.0              | ---         | Peak   | ---        | ---          |
| 17475.00        | H           | ---                  | 23.67                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23300.00        | H           | ---                  | 31.83                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 29125.00        | H           | ---                  | 33.66                 | ---                | 68.3              | ---         | Peak   | --         | --           |
| 11651.50        | V           | 40.83                | 16.41                 | 57.24              | 74.0              | -16.76      | Peak   | 350        | 1.0          |
| 17475.00        | V           | ---                  | 23.54                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23300.00        | V           | ---                  | 31.83                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 29125.00        | V           | ---                  | 33.66                 | ---                | 68.3              | ---         | Peak   | ---        | --           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

Test Model 2: POE mode

Emission frequencies below 1 GHz Channel 01

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 124.60          | H           | 47.72                | -16.01                | 31.71              | 43.5              | -11.79      | Peak   | 75         | 1.1          |
| 136.98          | H           | 51.16                | -14.69                | 36.347             | 43.5              | -7.03       | Peak   | 75         | 1.1          |
| 141.65          | H           | 47.44                | -14.46                | 32.98              | 43.5              | -10.52      | Peak   | 75         | 1.1          |
| 268.43          | H           | 53.08                | -12.06                | 41.02              | 46.0              | -4.98       | Q.P    | 0          | 1.1          |
| 325.00          | H           | 54.48                | -10.88                | 43.60              | 46.0              | -2.40       | Q.P    | 20         | 1.1          |
| 348.30          | H           | 54.02                | -10.47                | 43.55              | 46.0              | -2.45       | Q.P    | 100        | 1.1          |
| 449.80          | H           | 46.72                | -8.81                 | 37.91              | 46.0              | -8.09       | Peak   | 0          | 1.1          |
| 997.90          | H           | 45.85                | 2.78                  | 48.63              | 54.0              | -5.37       | Q.P    | 0          | 1.1          |
| 51.73           | V           | 52.26                | -15.88                | 36.38              | 40.0              | -3.62       | Q.P    | 40         | 1.0          |
| 138.63          | V           | 47.82                | -14.57                | 33.25              | 43.5              | -10.25      | Peak   | 0          | 1.0          |
| 249.73          | V           | 56.98                | -13.36                | 43.62              | 46.0              | -2.38       | Q.P    | 200        | 1.0          |
| 268.98          | V           | 55.50                | -12.02                | 43.48              | 46.0              | -2.52       | Q.P    | 200        | 1.0          |
| 348.30          | V           | 53.50                | -10.47                | 43.03              | 46.0              | -2.97       | Q.P    | 215        | 1.0          |
| 400.80          | V           | 49.75                | -8.87                 | 40.88              | 46.0              | -5.12       | Q.P    | 30         | 1.0          |
| 498.80          | V           | 50.90                | -7.05                 | 43.85              | 46.0              | -2.15       | Q.P    | 30         | 1.0          |
| 747.30          | V           | 44.67                | -1.52                 | 43.15              | 46.0              | -2.85       | Q.P    | 0          | 1.0          |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

Emission frequencies 1~40 GHz

Test Mode: Normal, Channel 09, Transmit Rate: 54Mbps

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 11490.00        | H           | ---                  | 16.85                 | ---                | 54.0              | ---         | Peak   | ---        | ---          |
| 17235.00        | H           | ---                  | 22.41                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 22980.00        | H           | ---                  | 31.49                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28725.00        | H           | ---                  | 33.65                 | ---                | 68.3              | ---         | Peak   | --         | --           |
| 11491.30        | V           | 40.70                | 16.54                 | 57.24              | 74.0              | -16.91      | Peak   | 350        | 1.0          |
| 17235.00        | V           | ---                  | 21.99                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 22980.00        | V           | ---                  | 31.49                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28725.00        | V           | ---                  | 33.65                 | ---                | 68.3              | ---         | Peak   | ---        | --           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

Emission frequencies 1~40 GHz

Test Mode: Normal, Channel 11, Transmit Rate: 54Mbps

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 11570.00        | H           | ---                  | 16.72                 | ---                | 54.0              | ---         | Peak   | ---        | ---          |
| 17355.00        | H           | ---                  | 23.04                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23140.00        | H           | ---                  | 31.62                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28925.00        | H           | ---                  | 33.61                 | ---                | 68.3              | ---         | Peak   | --         | --           |
| 11571.80        | V           | 41.14                | 16.49                 | 57.63              | 74.0              | -16.37      | Peak   | 350        | 1.0          |
| 17355.00        | V           | ---                  | 22.77                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23140.00        | V           | ---                  | 31.62                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 28925.00        | V           | ---                  | 33.61                 | ---                | 68.3              | ---         | Peak   | ---        | --           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

Emission frequencies 1~40 GHz

Test Mode: Normal, Channel 13, Transmit Rate: 54Mbps

Test Date: Oct. 20, 2005 Temperature: 22°C Humidity: 70% Atmospheric pressure: 1020mmHg

| Frequency (MHz) | Ant-Pol H/V | Meter Reading (dBuV) | Corrected Factor (dB) | Result@3m (dBuV/m) | Limit@3m (dBuV/m) | Margin (dB) | Remark | Table Deg. | Ant High (m) |
|-----------------|-------------|----------------------|-----------------------|--------------------|-------------------|-------------|--------|------------|--------------|
| 11650.00        | H           | ---                  | 16.56                 | ---                | 54.0              | ---         | Peak   | ---        | ---          |
| 17475.00        | H           | ---                  | 23.67                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23300.00        | H           | ---                  | 31.83                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 29125.00        | H           | ---                  | 33.66                 | ---                | 68.3              | ---         | Peak   | --         | --           |
| 11651.50        | V           | 40.76                | 16.41                 | 57.17              | 74.0              | -16.83      | Peak   | 350        | 1.0          |
| 17475.00        | V           | ---                  | 23.54                 | ---                | 68.3              | ---         | Ave    | ---        | ---          |
| 23300.00        | V           | ---                  | 31.83                 | ---                | 54.0              | ---         | Ave    | ---        | ---          |
| 29125.00        | V           | ---                  | 33.66                 | ---                | 68.3              | ---         | Peak   | ---        | --           |

Notes:

1. Result = Meter Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120 kHz and video bandwidth is 300 kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too below to be measured.

### 11.5.1 Photographs of Radiated Emission Test

#### Test Model 1

Front View



Rear View



Test Model 2

Front View



Rear View



## 12. 6dB Bandwidth Measurement Data (For 802.11a device)

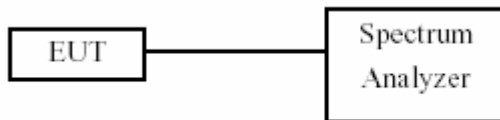
### 12.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 12.2 Test Procedures

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.
3. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

### 12.3 Test Setup Layout



### 12.4 Measurement equipment

| Instrument/Ancillary | Type  | Manufacturer | Serial No. | Valid Date. |
|----------------------|-------|--------------|------------|-------------|
| Spectrum Analyzer    | FSP40 | R&S          | 100047     | 2005/12/28  |

### 12.5 Test Result and Data

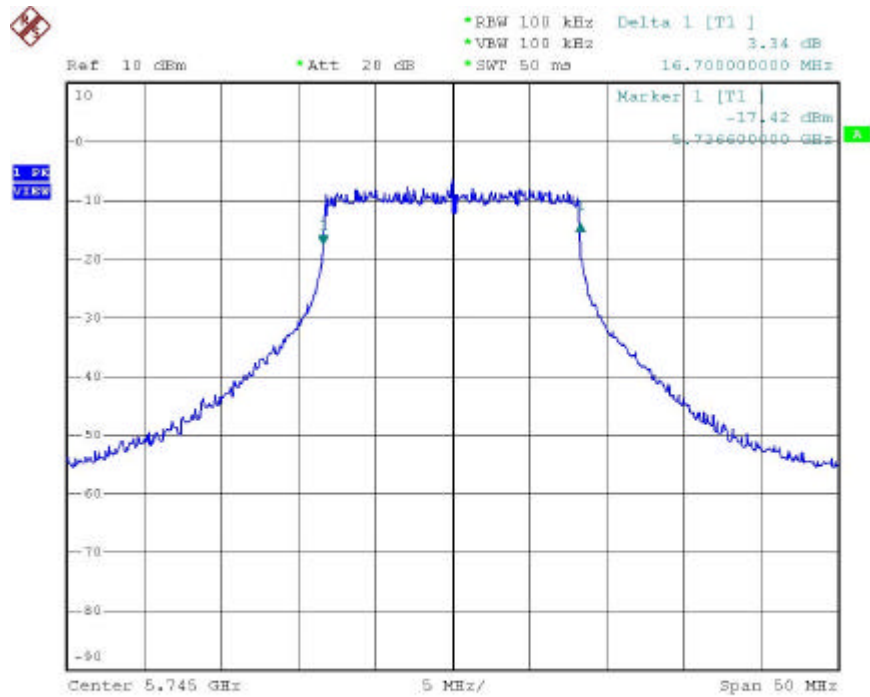
(1) Modulation Standard: IEEE 802.11a (54Mbps)

Test Date: Oct. 20, 2005 Temperature: 25°C Humidity: 64% Atmospheric pressure: 1023mmHg

| Channel | Frequency<br>(MHz) | 6dB Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| 9       | 5745               | 16.70                  |
| 11      | 5785               | 16.70                  |
| 13      | 5825               | 16.60                  |

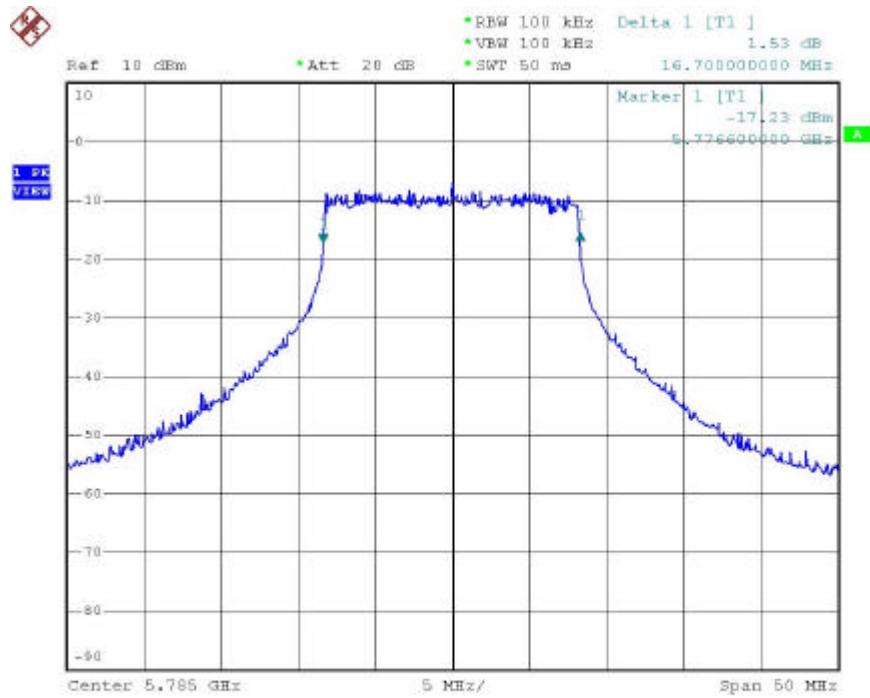
Modulation Standard: 802.11a (54Mbps)

Channel: 09



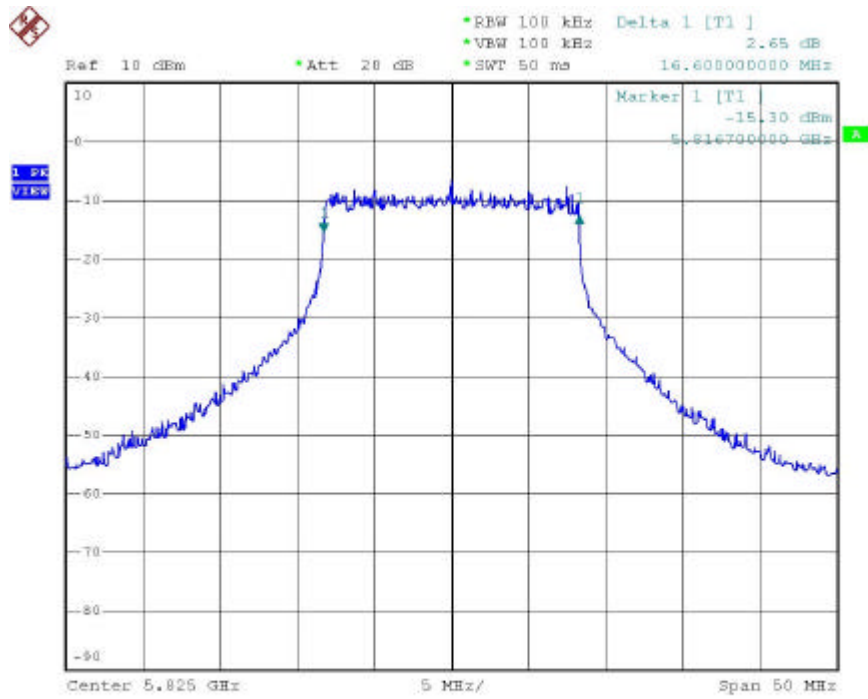
Date: 20.OCT.2005 12:12:16

Channel:11



Date: 20.OCT.2005 12:14:17

Channel: 13



Date: 20.OCT.2005 12:15:27

### 13. Maximum Peak Output Power (For 802.11a device)

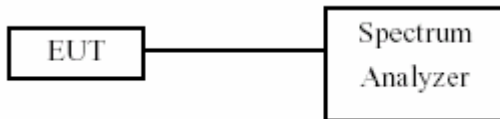
#### 13.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

#### 13.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

#### 13.3 Test Setup Layout



#### 13.4 List of Measuring Equipment Used

| Instrument/Ancillary | Type  | Manufacturer | Serial No. | Valid Date. |
|----------------------|-------|--------------|------------|-------------|
| Spectrum Analyzer    | FSP40 | R&S          | 100047     | 2005/12/28  |

#### 13.5 Test Result and Data

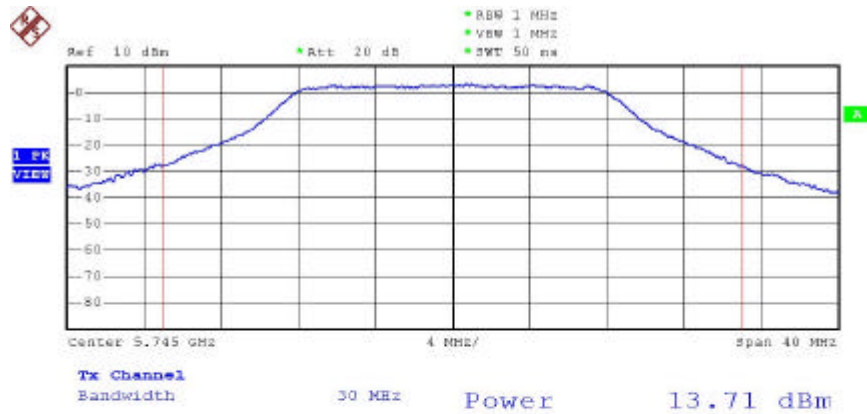
(1) Modulation Standard: IEEE 802.11a (54Mbps)

Test Date: Oct. 19, 2005 Temperature: 24°C Humidity: 64% Atmospheric pressure: 1021mmHg

| Channel | Frequency (MHz) | Peak Power Output (dBm) | Peak Power Output (mW) |
|---------|-----------------|-------------------------|------------------------|
| 9       | 5745            | 13.71                   | 23.496                 |
| 11      | 5785            | 13.87                   | 24.378                 |
| 13      | 5825            | 13.75                   | 23.714                 |

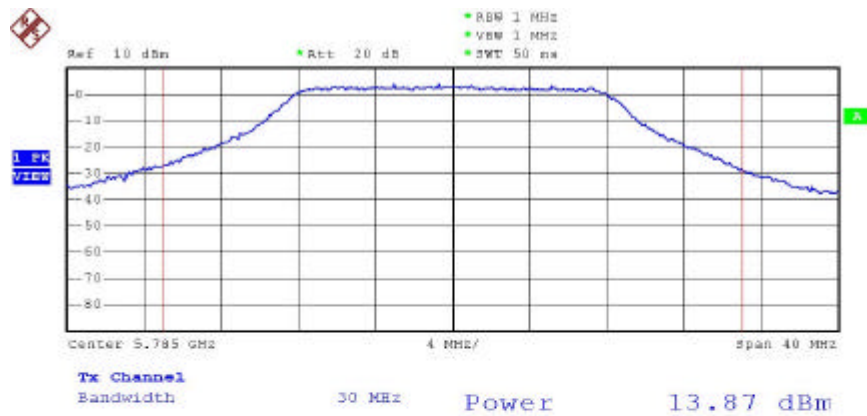
Modulation Standard: 802.11a (54Mbps)

Channel: 09



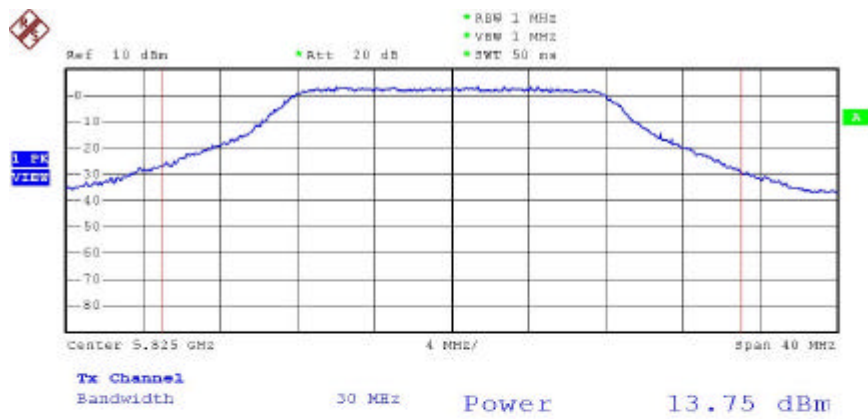
Date: 19.OCT.2005 17:59:51

Channel:11



Date: 19.OCT.2005 17:57:38

Channel: 13



Date: 19.OCT.2005 17:55:34

## 14. Band Edges Measurement (For 802.11a device)

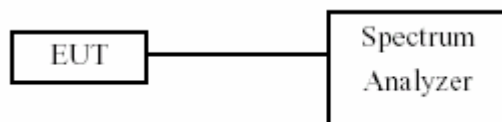
### 14.1 Test Limit

Below -20dB of the highest emission level of operating band  
(in 100kHz Resolution Bandwidth).

### 14.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

### 14.3 Test Setup Layout



### 14.4 List of Measuring Equipment Used

| Instrument/Ancillary | Type  | Manufacturer | Serial No. | Valid Date. |
|----------------------|-------|--------------|------------|-------------|
| Spectrum Analyzer    | FSP40 | R&S          | 100047     | 2005/12/28  |

### 14.5 Test Result and Data

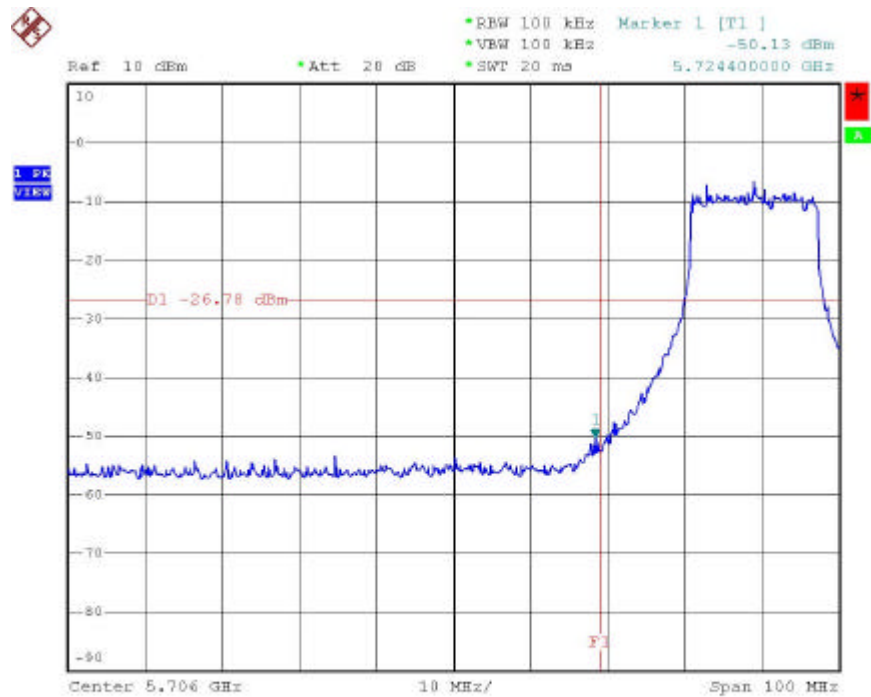
(1) Modulation Standard: IEEE 802.11a (54Mbps)

Test Date: Oct. 25, 2005 Temperature: 25°C Humidity: 68% Atmospheric pressure: 1028 mmHg

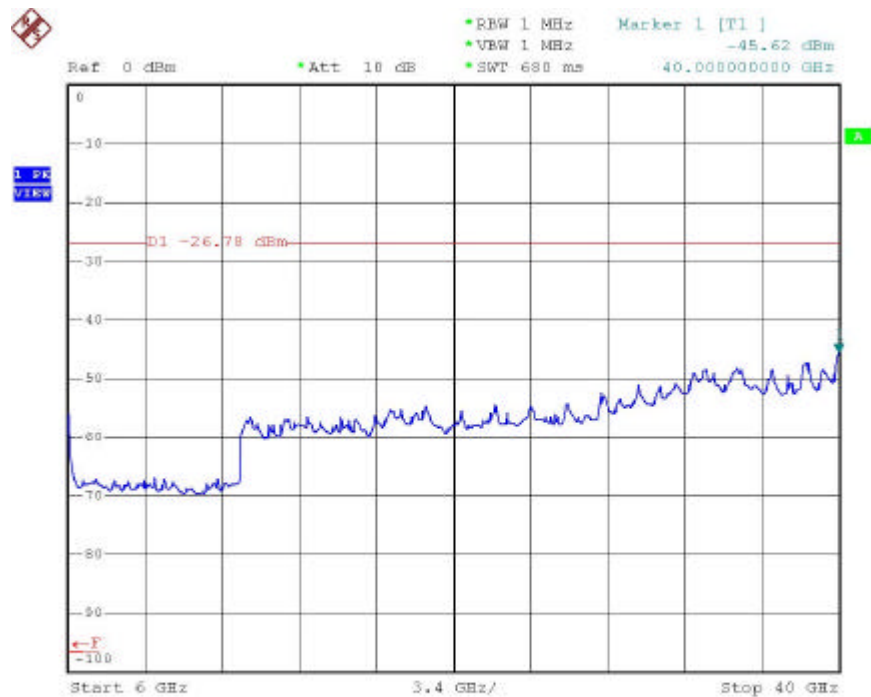
| Channel | Frequency | maximum value in frequency<br>(MHz) | maximum value is<br>(dBm) |
|---------|-----------|-------------------------------------|---------------------------|
| 9       | 5745      | 40000.00                            | -45.62                    |
| 13      | 5825      | 40000.00                            | -45.41                    |

Modulation Standard: 802.11a (54Mbps)

Channel: 09

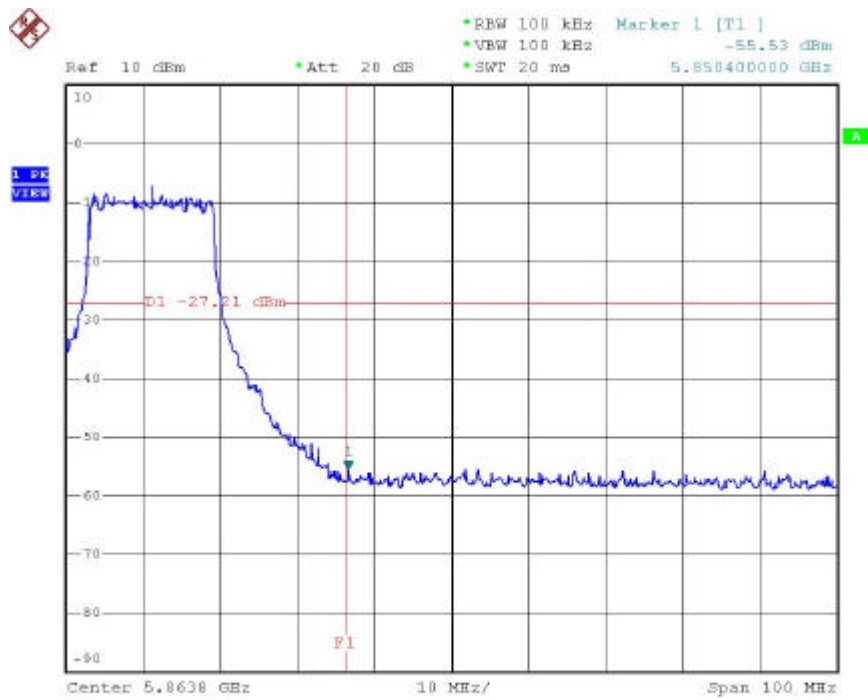


Date: 19.OCT.2005 18:13:03

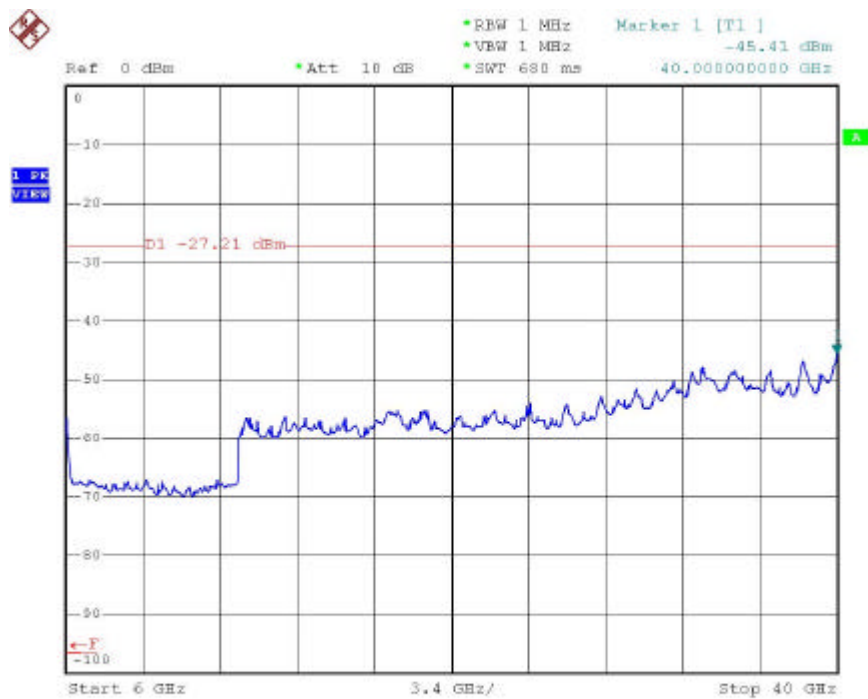


Date: 19.OCT.2005 18:14:25

Channel: 13



Date: 19.OCT.2005 18:18:01



Date: 19.OCT.2005 18:18:56

## 15. Power Spectral Density (For 802.11a device)

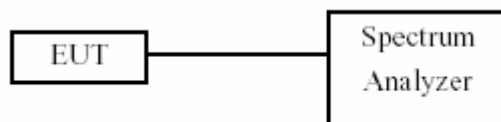
### 15.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

### 15.2 Test Procedures

- 1.The transmitter output was connected to spectrum analyzer.
- 2.The spectrum analyzer' s resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
- 3.The power spectral density was measured and recorded.
- 4.The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

### 15.3 Test Setup Layout :



### 15.4 List of Measuring Equipment Used

| Instrument/Ancillary | Type  | Manufacturer | Serial No. | Valid Date. |
|----------------------|-------|--------------|------------|-------------|
| Spectrum Analyzer    | FSP40 | R&S          | 100047     | 2005/12/28  |

### 15.5 Test Result and Data

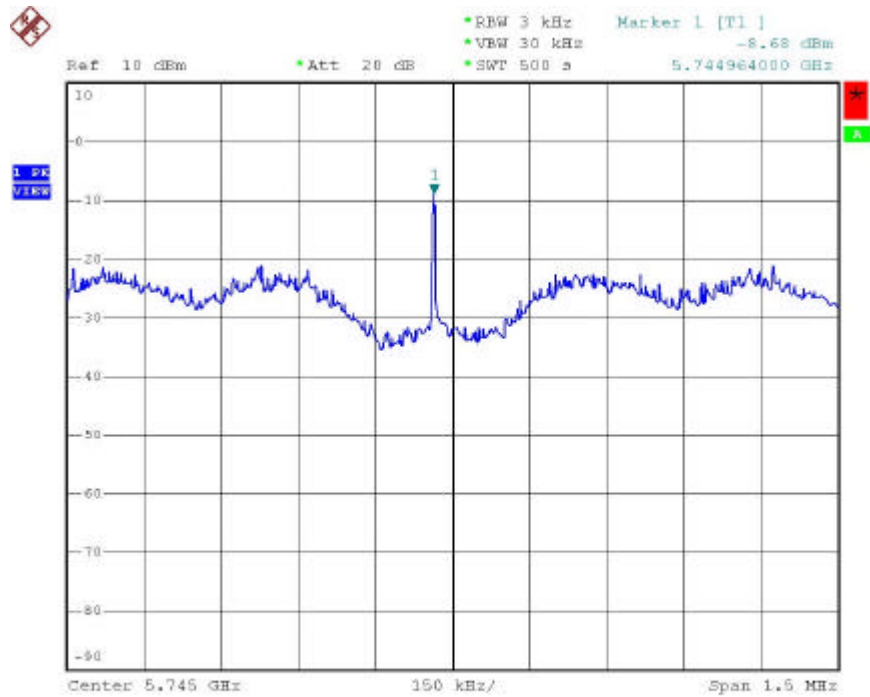
(1) Modulation Standard: IEEE 802.11b (11Mbps)

Test Date: Oct. 25, 2005 Temperature: 25°C Humidity: 68% Atmospheric pressure: 1028 mmHg

| Channel | Frequency | Maximum Power Density of 3 kHz Bandwidth |
|---------|-----------|------------------------------------------|
| 09      | 5745      | (dBm)<br>-8.68                           |
| 11      | 5785      | -8.80                                    |
| 13      | 5825      | -9.12                                    |

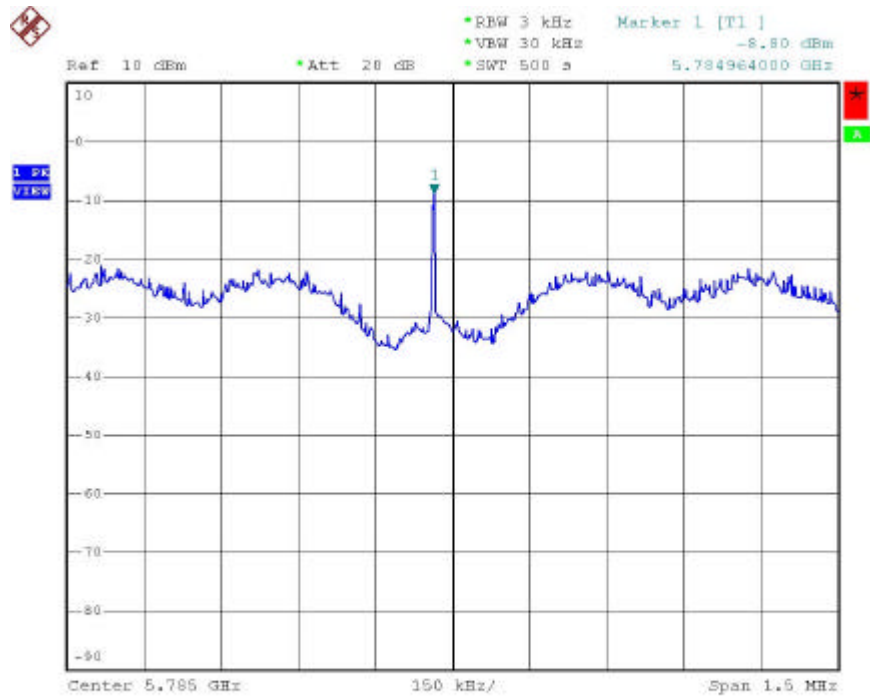
Modulation Standard: 802.11a (54Mbps)

Channel: 09



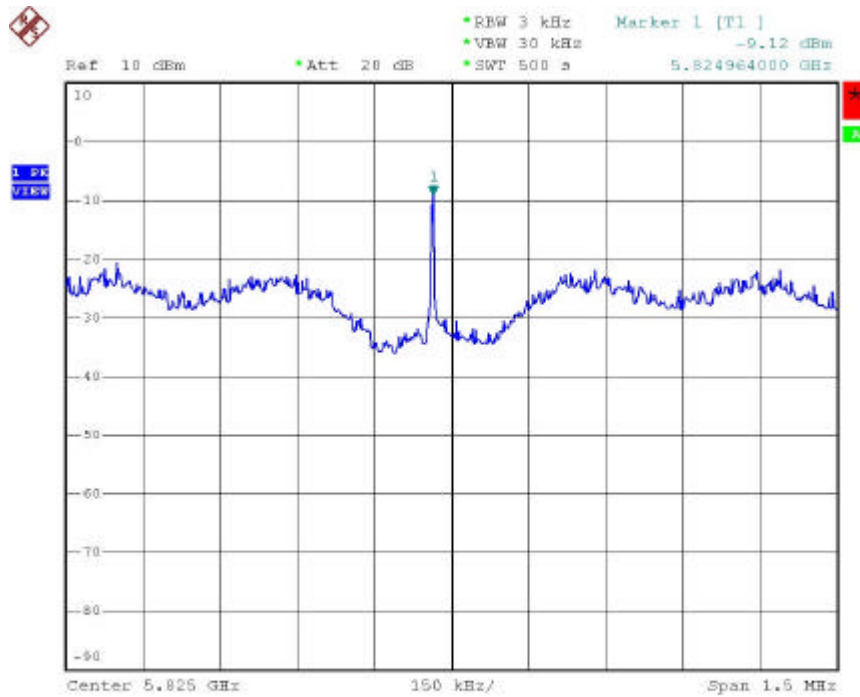
Date: 19.OCT.2005 18:01:44

Channel:11



Date: 19.OCT.2005 18:02:52

Channel: 13



Date: 19.OCT.2005 18:04:05

## 16. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                 | MHz                   | MHz             | GHz             |
|---------------------|-----------------------|-----------------|-----------------|
| 0.09000 – 0.11000   | 16.42000 – 16.42300   | 399.9 – 410.0   | 4.500 – 5.250   |
| 0.49500 – 0.505**   | 16.69475 – 16.69525   | 608.0 – 614.0   | 5.350 – 5.460   |
| 2.17350 – 2.19050   | 16.80425 – 16.80475   | 960.0 – 1240.0  | 7.250 – 7.750   |
| 4.12500 – 4.12800   | 25.50000 – 25.67000   | 1300.0 – 1427.0 | 8.025 – 8.500   |
| 4.17725 – 4.17775   | 37.50000 – 38.25000   | 1435.0 – 1626.5 | 9.000 – 9.200   |
| 4.20725 – 4.20775   | 73.00000 – 74.60000   | 1645.5 – 1646.5 | 9.300 – 9.500   |
| 6.21500 – 6.21800   | 74.80000 – 75.20000   | 1660.0 – 1710.0 | 10.600 – 12.700 |
| 6.26775 – 6.26825   | 108.00000 – 121.94000 | 1718.8 – 1722.2 | 13.250 – 13.400 |
| 6.31175 – 6.31225   | 123.00000 – 138.00000 | 2200.0 – 2300.0 | 14.470 – 14.500 |
| 8.29100 – 8.29400   | 149.90000 – 150.05000 | 2310.0 – 2390.0 | 15.350 – 16.200 |
| 8.36200 – 8.36600   | 156.52475 – 156.52525 | 2483.5 – 2500.0 | 17.700 – 21.400 |
| 8.37625 – 8.38675   | 156.70000 – 156.90000 | 2655.0 – 2900.0 | 22.010 – 23.120 |
| 8.41425 – 8.41475   | 162.01250 – 167.17000 | 3260.0 – 3267.0 | 23.600 – 24.000 |
| 12.29000 – 12.29300 | 167.72000 – 173.20000 | 3332.0 – 3339.0 | 31.200 – 31.800 |
| 12.51975 – 12.52025 | 240.00000 – 285.00000 | 3345.8 – 3358.0 | 36.430 – 36.500 |
| 12.57675 – 12.57725 | 322.00000 – 335.40000 | 3600.0 – 4400.0 | Above 38.6      |
| 13.36000 – 13.41000 |                       |                 |                 |

\*\* : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

### 16.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.