



<b>EUT</b>	802.11a/b/g AP
<b>Frequency band (Operating)</b>	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input checked="" type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	IEEE 802.11a Base mode: 19.63 dBm (91.83mW) IEEE 802.11a Turbo mode: 19.72 dBm (93.76mW)
<b>Antenna gain (Max)</b>	3.0 dBi (Numeric gain: 2.00)
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

**Remark:**

1. The maximum output power is 19.72dBm (93.76mW) at 5800MHz (with 2.00 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is  $1.0 \text{ mW/cm}^2$  even if the calculation indicates that the power density would be larger.

## **TEST RESULTS**

No non-compliance noted.

**Calculation**

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{3770}$$

Where  $E$  = Field strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P (\text{mW}) = P (\text{W}) / 1000 \text{ and}$$

$$d (\text{cm}) = d(\text{m}) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>

**Maximum Permissible Exposure**

EUT output power = 93.76mW

Numeric Antenna gain = 2.00

Substituting the MPE safe distance using  $d = 20$  cm into Equation 1:

Yields

$$S = 0.000199 \times P \times G$$

Where  $P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>

$$\rightarrow \text{Power density} = 0.03732 \text{ mW / cm}^2$$

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm<sup>2</sup> even if the calculation indicates that the power density would be larger.)

**Omnidirectional antenna / 6.0 dBi for 5 GHz**

<b>EUT</b>	802.11a/b/g AP
<b>Frequency band (Operating)</b>	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input checked="" type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	IEEE 802.11a Base mode: 19.63 dBm (91.83mW) IEEE 802.11a Turbo mode: 19.72 dBm (93.76mW)
<b>Antenna gain (Max)</b>	6.0 dBi (Numeric gain: 3.98)
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

**Remark:**

1. The maximum output power is 19.72dBm (93.76mW) at 5800MHz (with 3.98 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm<sup>2</sup> even if the calculation indicates that the power density would be larger.

**TEST RESULTS**

No non-compliance noted.

**Calculation**

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{3770}$$

Where  $E$  = Field strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P (\text{mW}) = P (\text{W}) / 1000 \text{ and}$$

$$d (\text{cm}) = d(\text{m}) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>

**Maximum Permissible Exposure**

EUT output power = 93.76mW

Numeric Antenna gain = 3.98

Substituting the MPE safe distance using  $d = 20$  cm into Equation 1:

Yields

$$S = 0.000199 \times P \times G$$

Where  $P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>

$$\rightarrow \text{Power density} = 0.07426 \text{ mW / cm}^2$$

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm<sup>2</sup> even if the calculation indicates that the power density would be larger.)

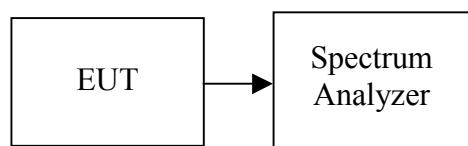
## 7.6 SPURIOUS EMISSIONS

### 7.6.1 Conducted Measurement

#### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

#### Test Configuration



#### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

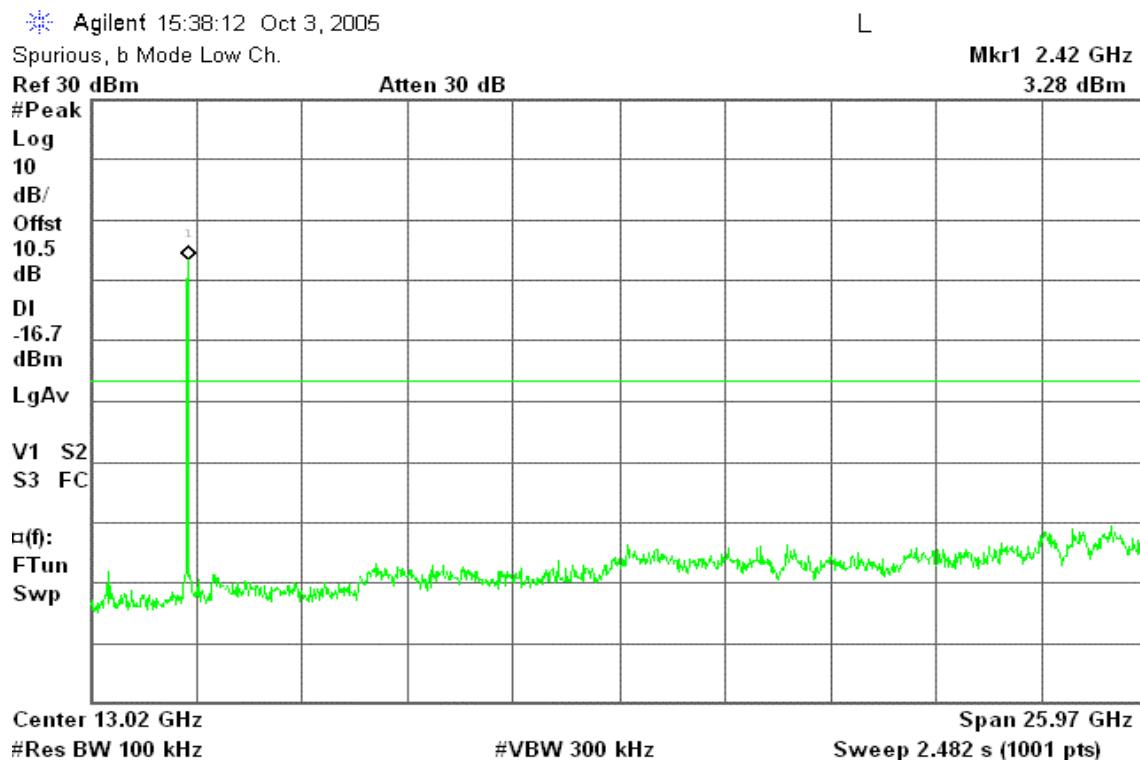
Measurements are made over the 30MHz to 26GHz range for IEEE802.11b/g, 30MHz to 40GHz range for IEEE802.11a with the transmitter set to the lowest, middle, and highest channels.

#### TEST RESULTS

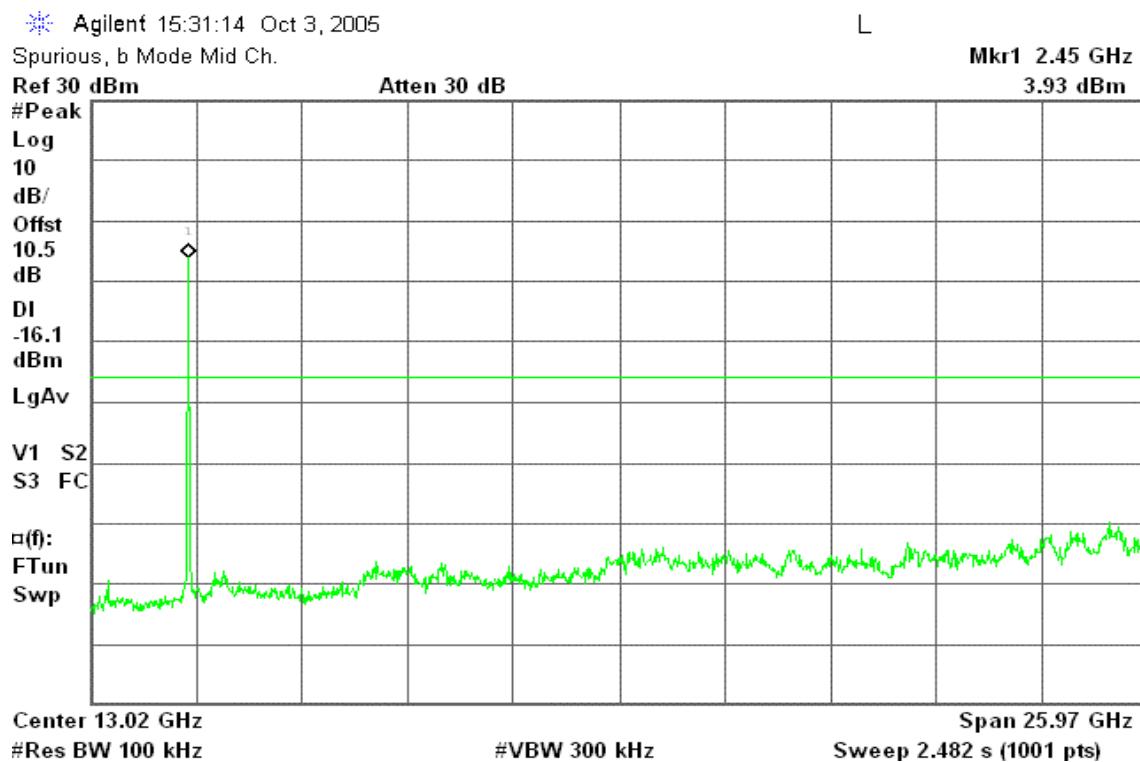
*No non-compliance noted.*

**Test Plot****Omnidirectional antenna / 12.0 dBi for 2.4 GHz****IEEE 802.11b Base mode / CH Low**

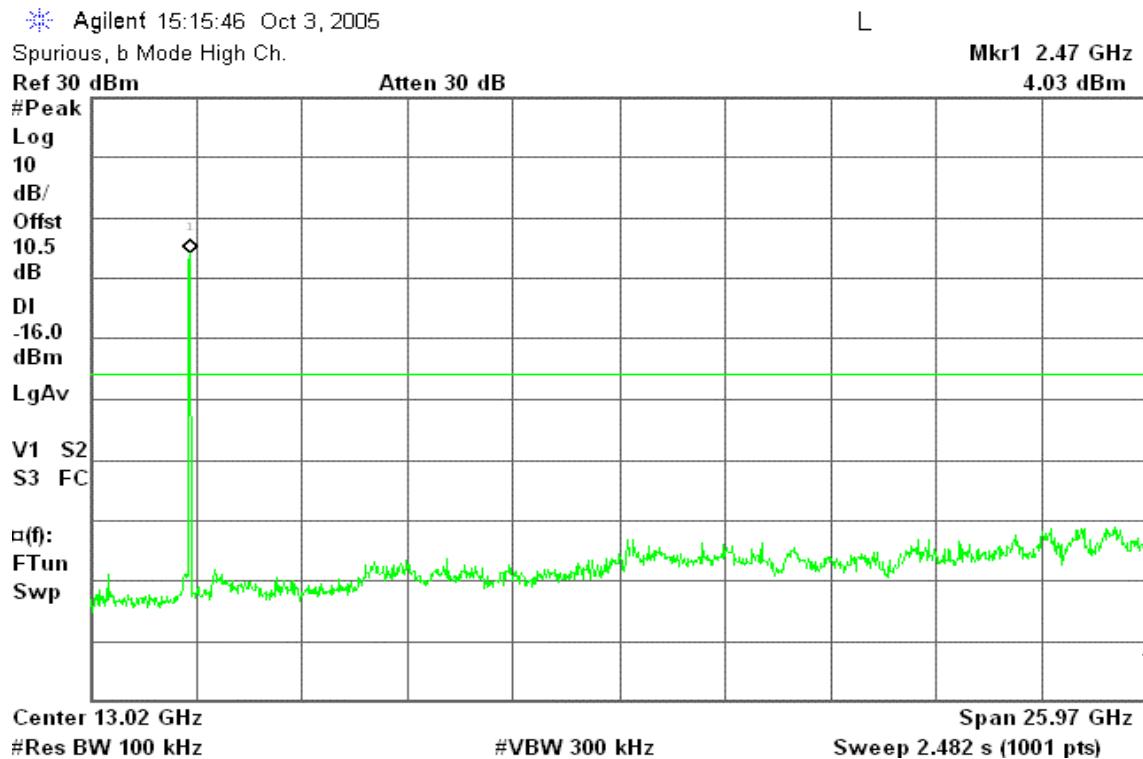
30MHz ~ 26GHz

**IEEE 802.11b Base mode / CH Mid**

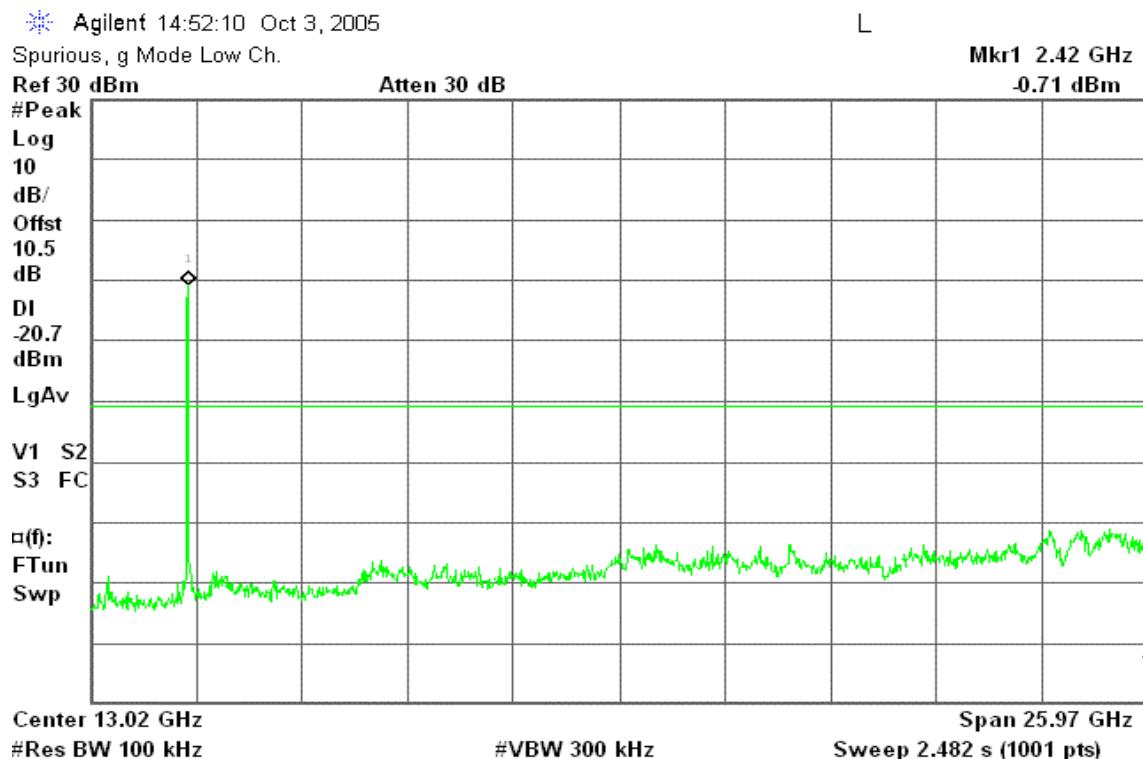
30MHz ~ 26GHz



**IEEE 802.11b Base mode / CH High**  
**30MHz ~ 26GHz**



**IEEE 802.11g Base mode / CH Low**  
**30MHz ~ 26GHz**



**IEEE 802.11g Base mode / CH Mid**  
**30MHz ~ 26GHz**

Agilent 15:00:23 Oct 3, 2005

Spurious, g Mode Mid Ch.

Ref 30 dBm

Atten 30 dB

Mkr1 2.45 GHz  
-3.42 dBm

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-23.4

dBm

LgAv

V1 S2

S3 FC

□(f):

FTun

Swp

Center 13.02 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 25.97 GHz

Sweep 2.482 s (1001 pts)

**IEEE 802.11g Base mode / CH High**  
**30MHz ~ 26GHz**

Agilent 15:06:28 Oct 3, 2005

Spurious, g Mode High Ch.

Ref 30 dBm

Atten 30 dB

Mkr1 2.47 GHz  
-4.09 dBm

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-24.1

dBm

LgAv

V1 S2

S3 FC

□(f):

FTun

Swp

Center 13.02 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 25.97 GHz

Sweep 2.482 s (1001 pts)

**IEEE 802.11g Turbo mode / CH Mid**  
**30MHz ~ 26GHz**

Agilent 14:42:28 Oct 3, 2005

Spurious, g turbo Mode Mid Ch.

Ref 30 dBm

Atten 30 dB

L

Mkr1 2.42 GHz

-3.62 dBm

#Peak

Log

10

dB/

Offst

10.5

dB

DI

-23.6

dBm

LgAv

V1 S2

S3 FC

□(f):

FTun

Swp

Center 13.02 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 25.97 GHz

Sweep 2.482 s (1001 pts)



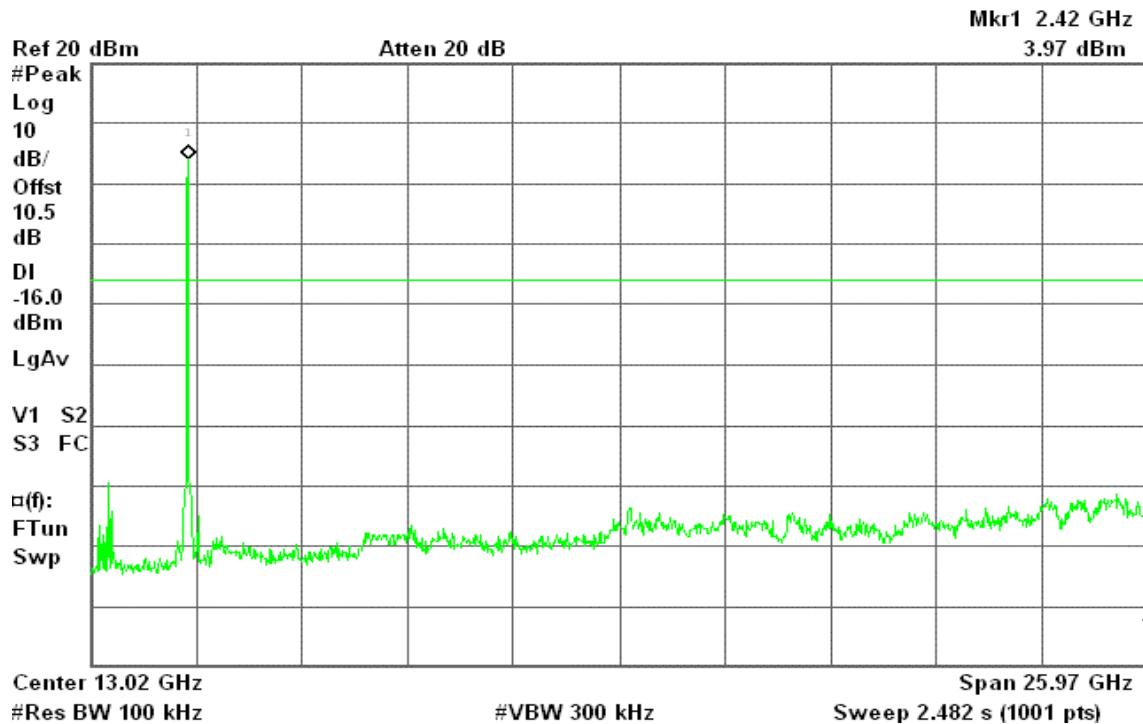
## Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz

## IEEE 802.11b Base mode / CH Low

**30MHz ~ 26GHz**

\* Agilent 10:52:33 Oct 3, 2005

L



## **IEEE 802.11b Base mode / CH Mid**

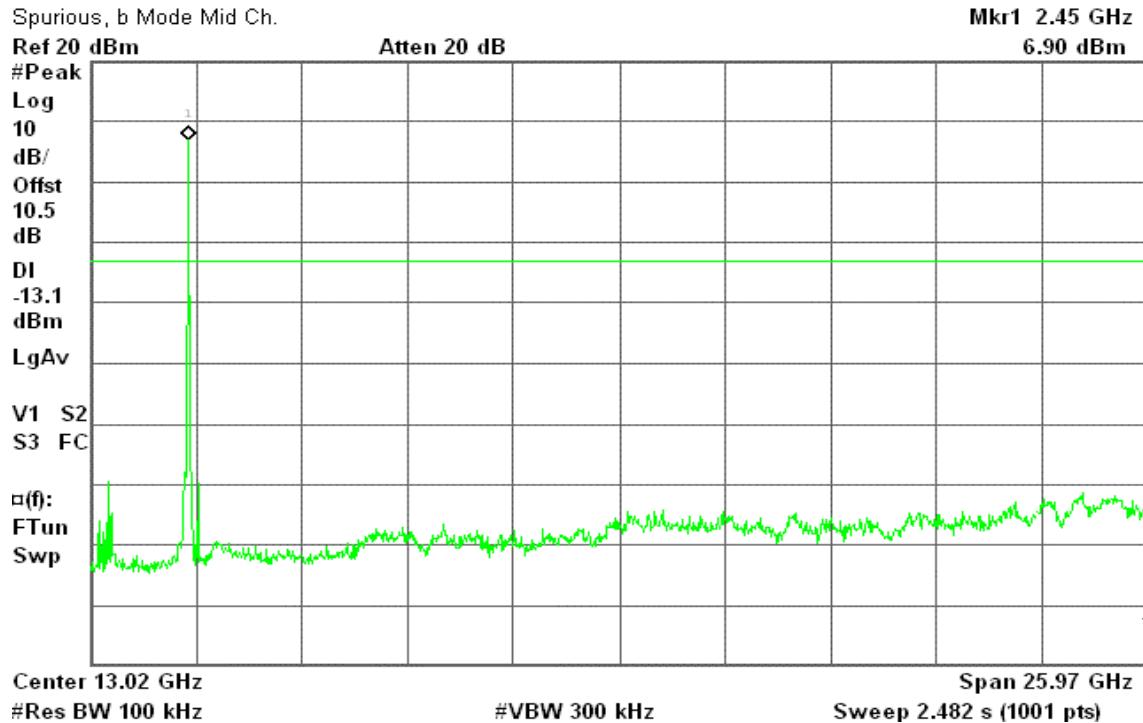
**30MHz ~ 26GHz**

\* Agilent 11:01:40 Oct 3, 2005

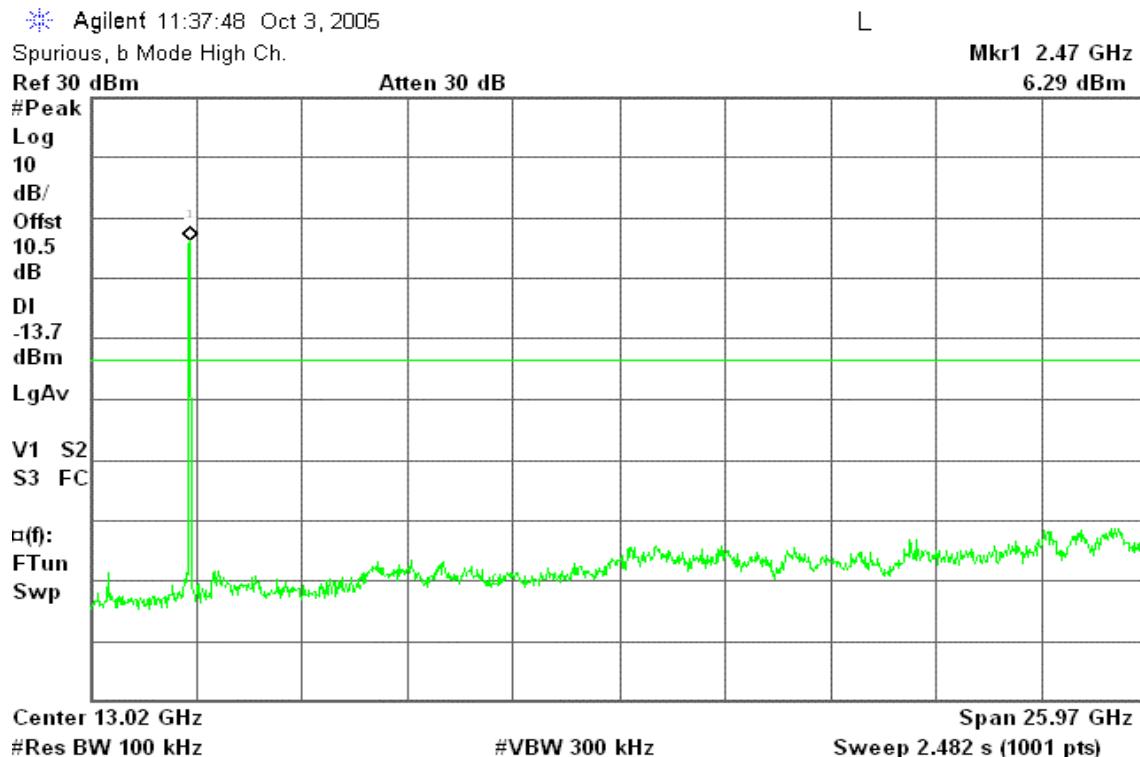
R T

### Mkr1 2.45 GHz

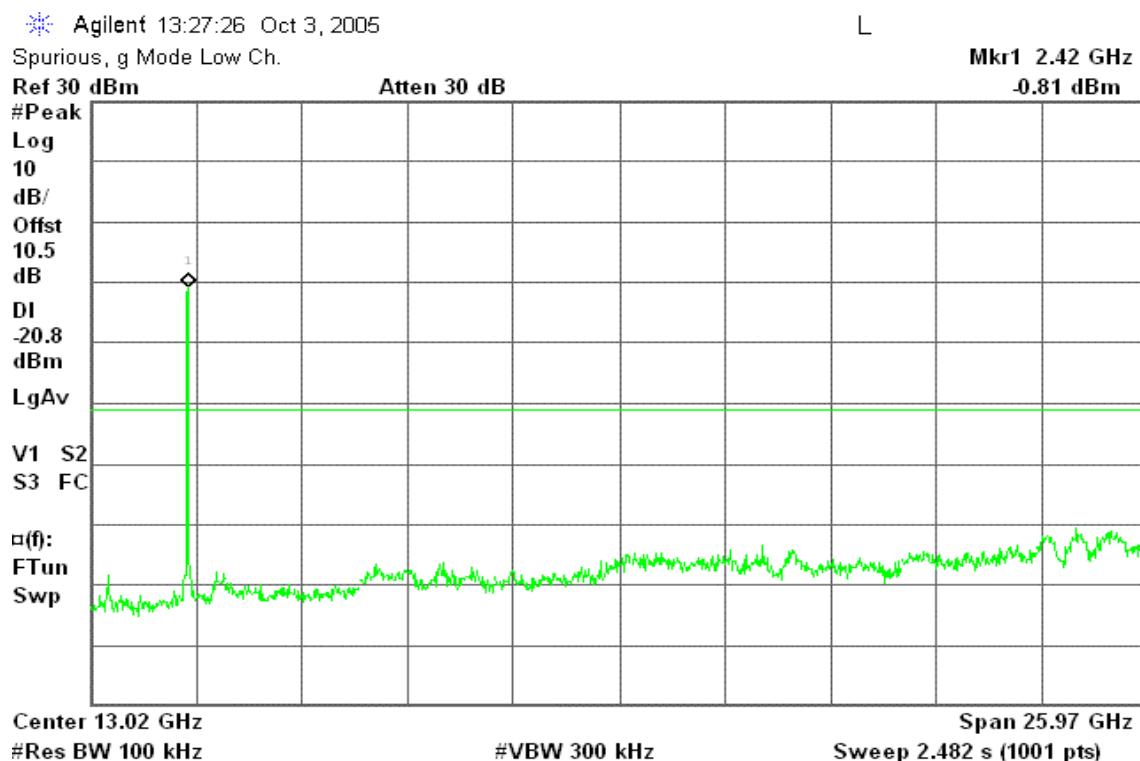
6.90 dBm



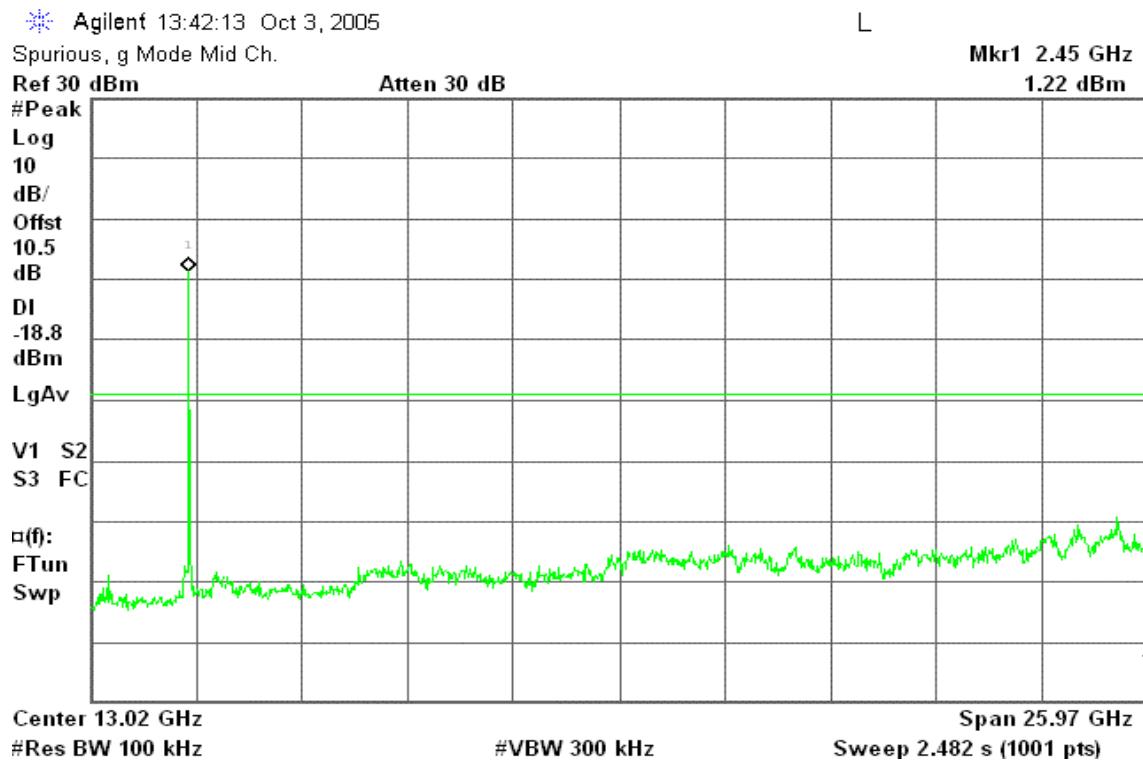
**IEEE 802.11b Base mode / CH High**  
**30MHz ~ 26GHz**



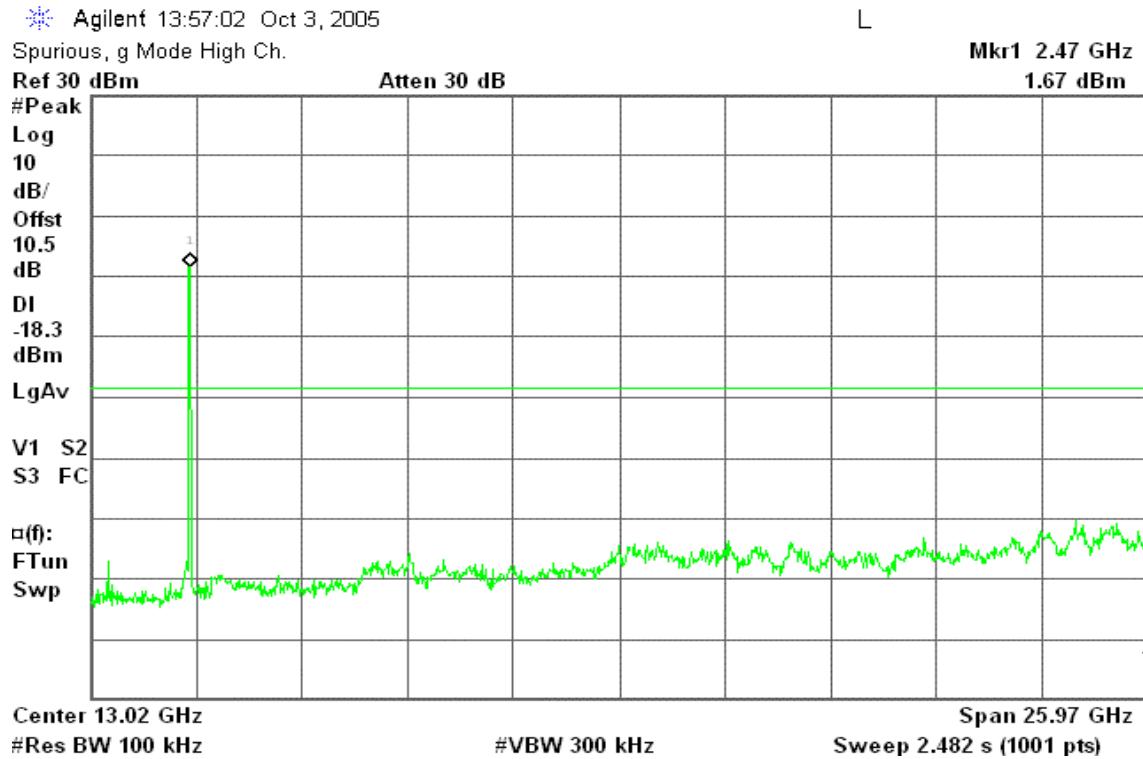
**IEEE 802.11g Base mode / CH Low**  
**30MHz ~ 26GHz**



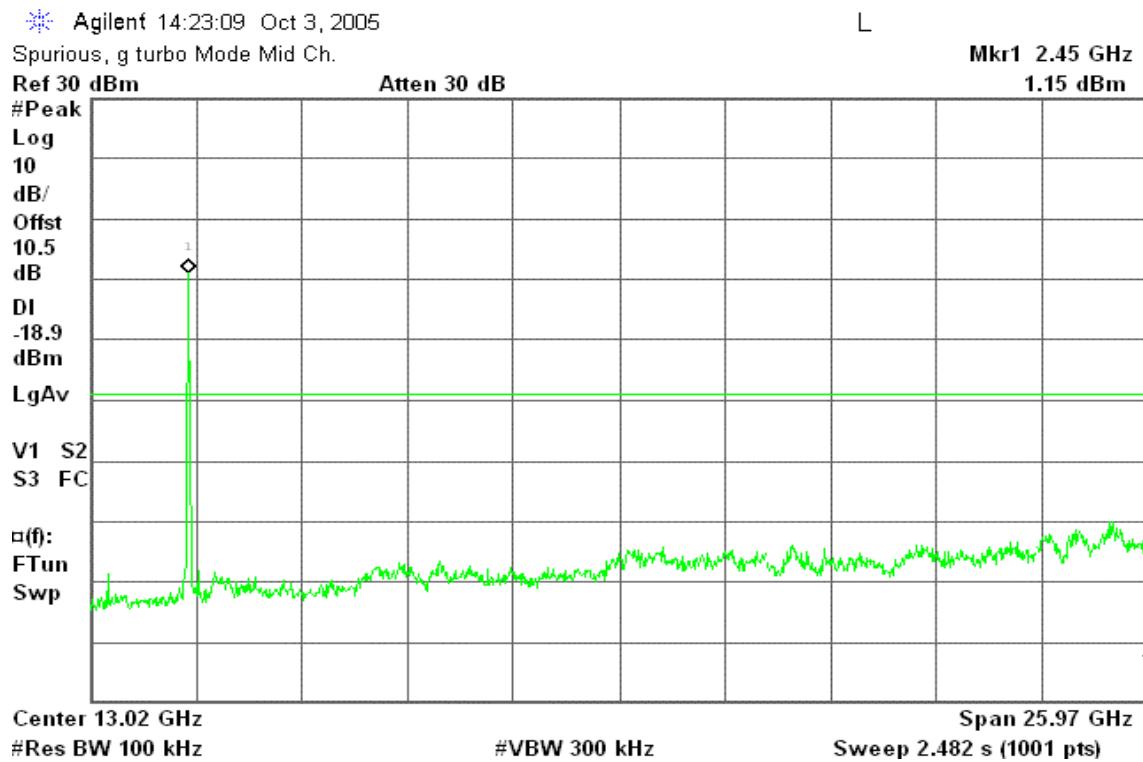
**IEEE 802.11g Base mode / CH Mid**  
**30MHz ~ 26GHz**



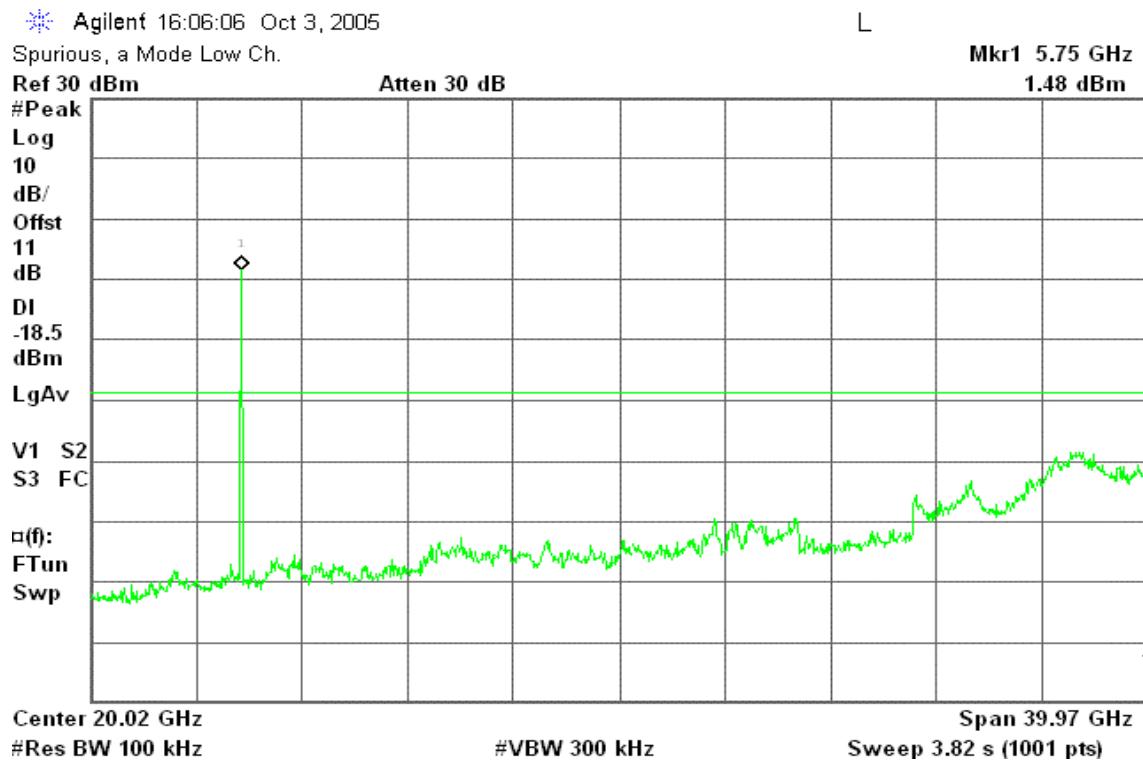
**IEEE 802.11g Base mode / CH High**  
**30MHz ~ 26GHz**



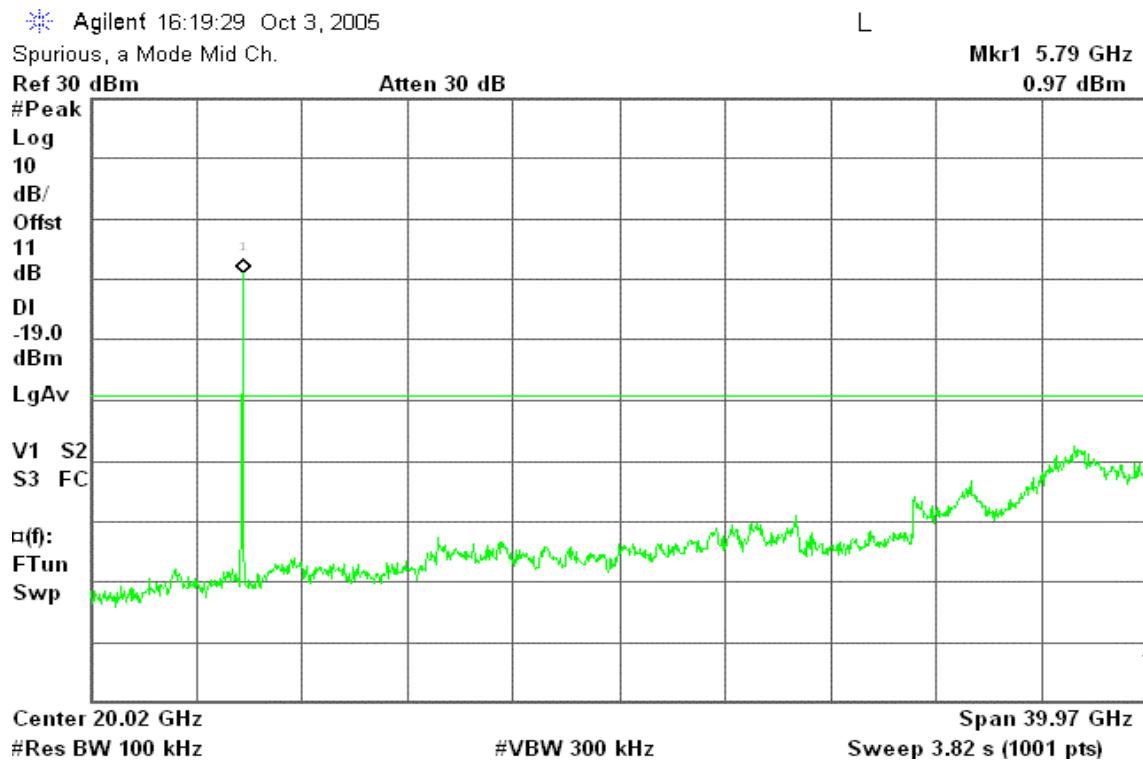
**IEEE 802.11g Turbo mode / CH Mid**  
**30MHz ~ 26GHz**



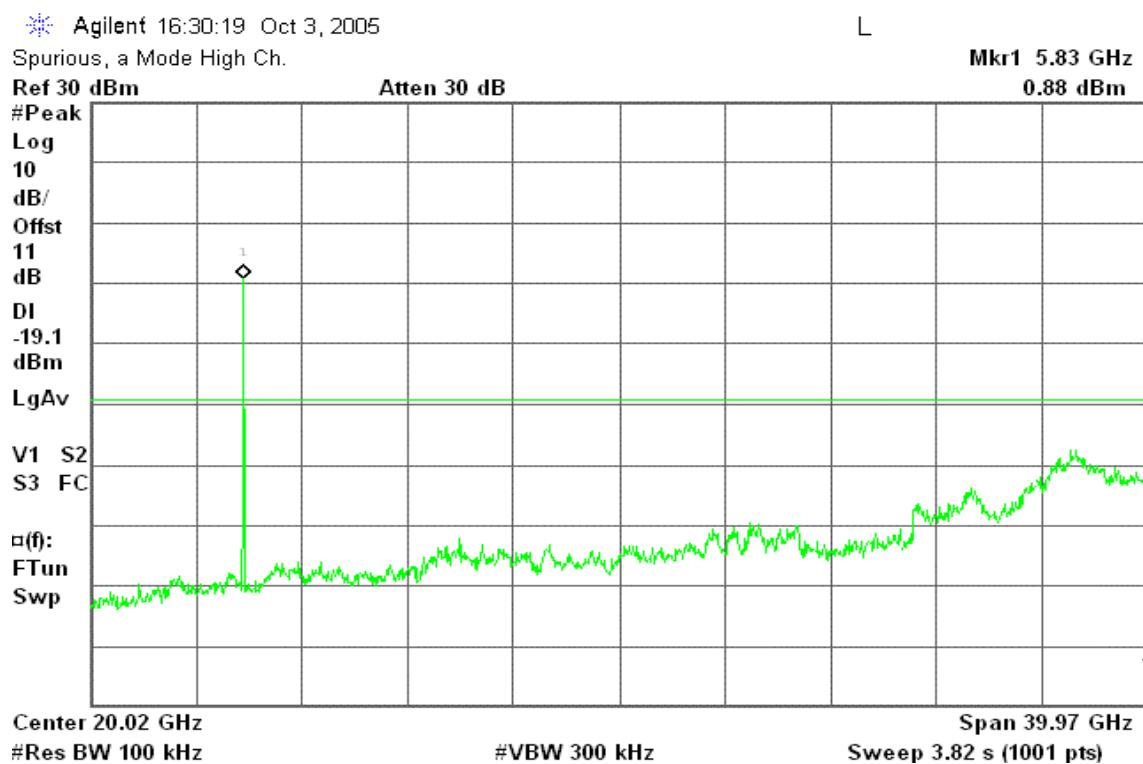
**IEEE 802.11a Base mode / CH Low**  
**30MHz ~ 40GHz**



**IEEE 802.11a Base mode / CH Mid**  
**30MHz ~ 40GHz**



**IEEE 802.11a Base mode / CH High**  
**30MHz ~ 40GHz**



**IEEE 802.11a Turbo mode / CH Low**  
**30MHz ~ 40GHz**

\* Agilent 16:55:04 Oct 3, 2005

Spurious, a turbo Mode Low Ch.

Ref 30 dBm

Atten 30 dB

L  
Mkr1 5.75 GHz  
-0.29 dBm

#Peak

Log

10

dB/

Offst

11

dB

DI

-20.3

dBm

LgAv

V1 S2

S3 FC

□(f):

FTun

Swp

Center 20.02 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 39.97 GHz

Sweep 3.82 s (1001 pts)

**IEEE 802.11a Turbo mode / CH High**  
**30MHz ~ 40GHz**

\* Agilent 16:47:22 Oct 3, 2005

Spurious, a turbo Mode High Ch.

L  
Mkr1 5.79 GHz  
2.49 dBm

Ref 30 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

11

dB

DI

-17.5

dBm

LgAv

V1 S2

S3 FC

□(f):

FTun

Swp

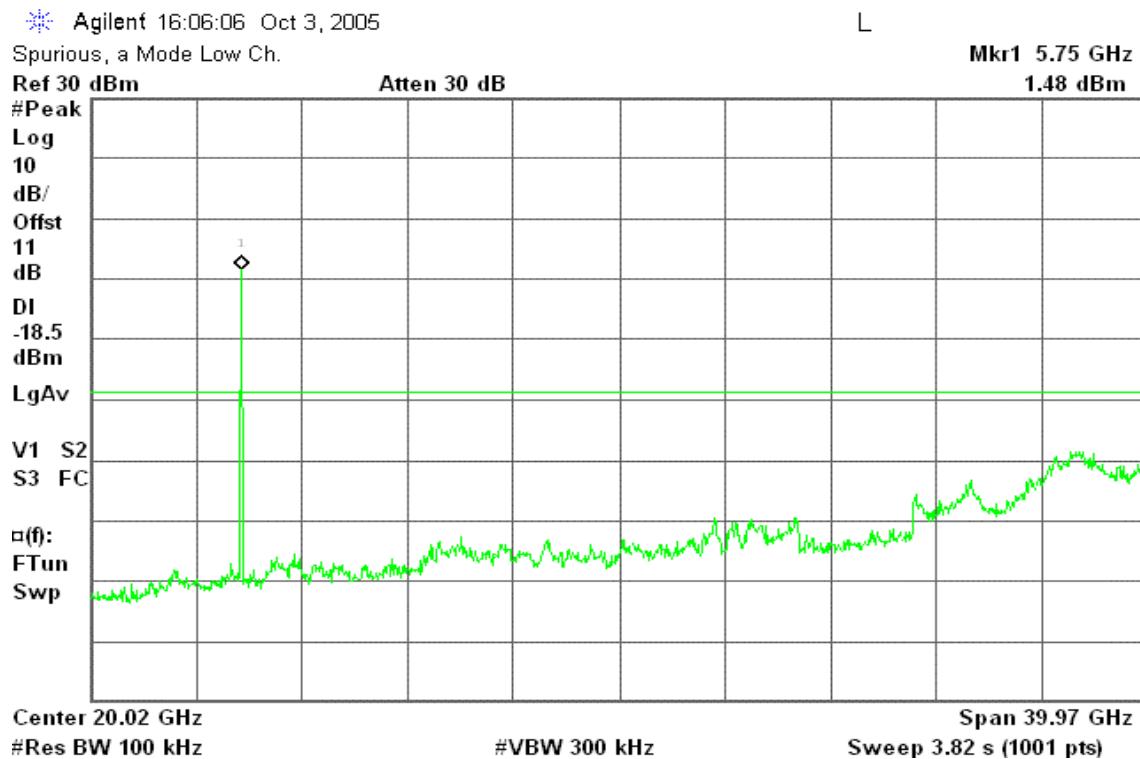
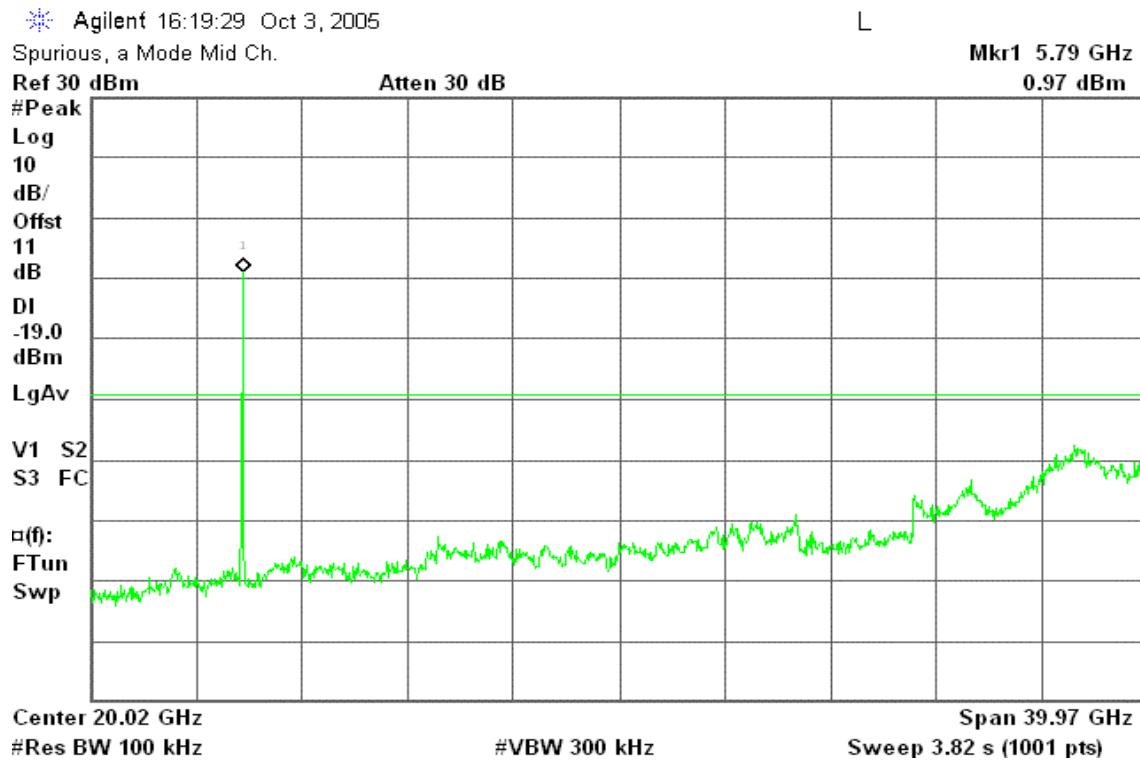
Center 20.02 GHz

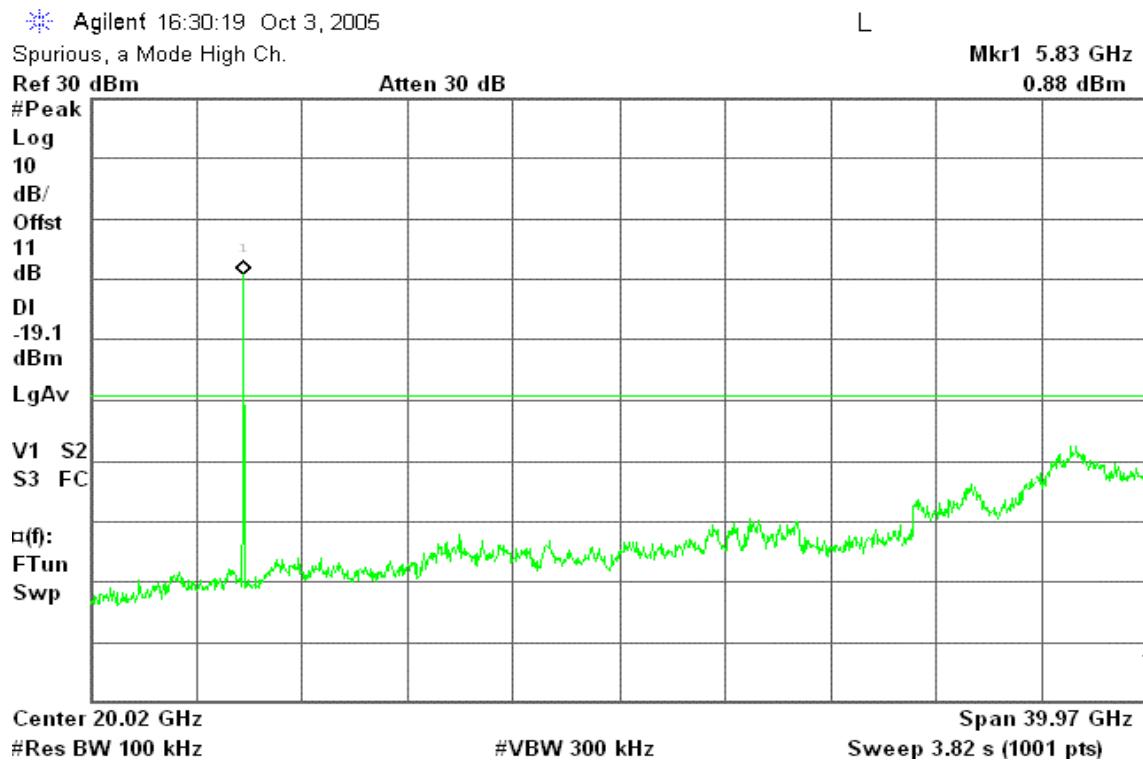
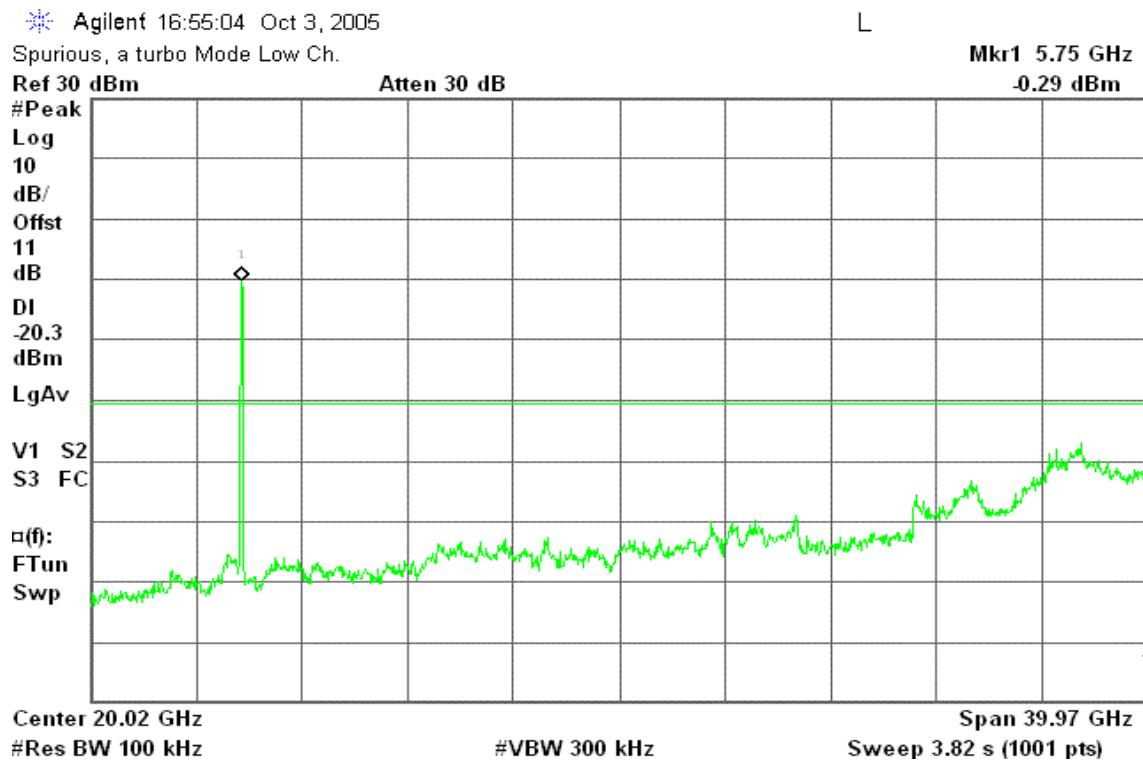
#Res BW 100 kHz

#VBW 300 kHz

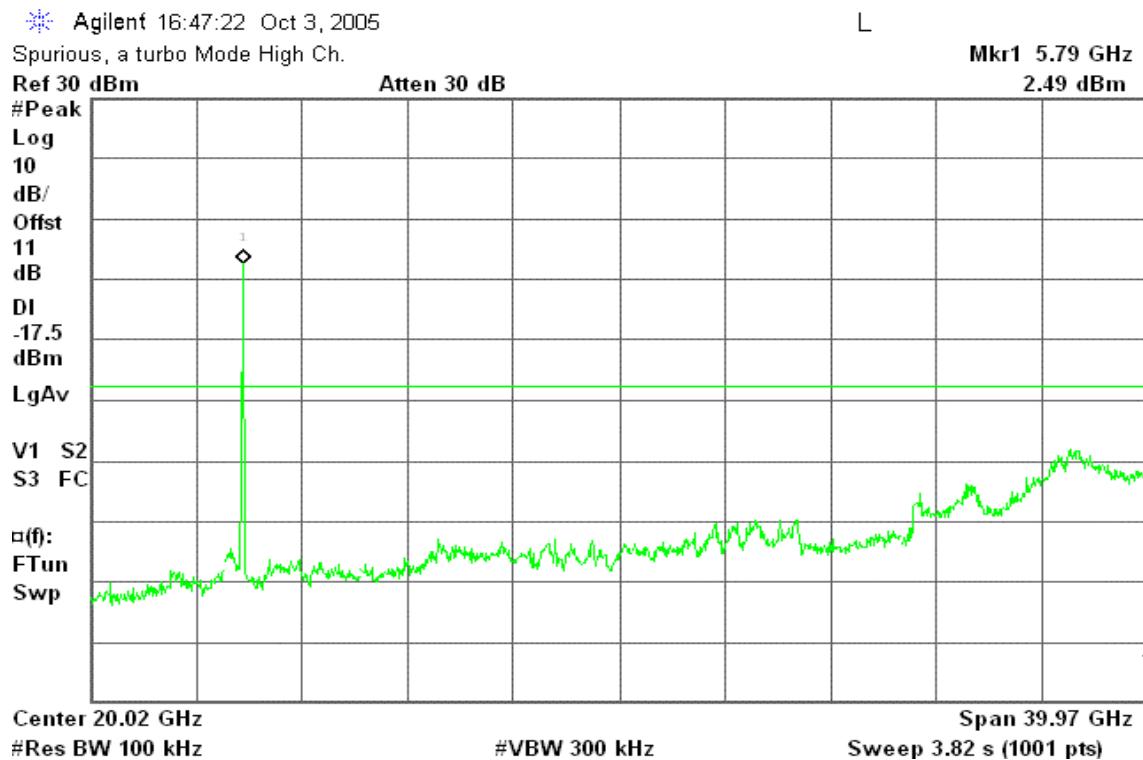
Span 39.97 GHz

Sweep 3.82 s (1001 pts)

**Omnidirectional antenna / 6.0 dBi for 5 GHz****IEEE 802.11a Base mode / CH Low**  
**30MHz ~ 40GHz****IEEE 802.11a Base mode / CH Mid**  
**30MHz ~ 40GHz**

**IEEE 802.11a Base mode / CH High****30MHz ~ 40GHz****IEEE 802.11a Turbo mode / CH Low****30MHz ~ 40GHz**

**IEEE 802.11a Turbo mode / CH High  
30MHz ~ 40GHz**





## 7.6.2 Radiated Emissions

### LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

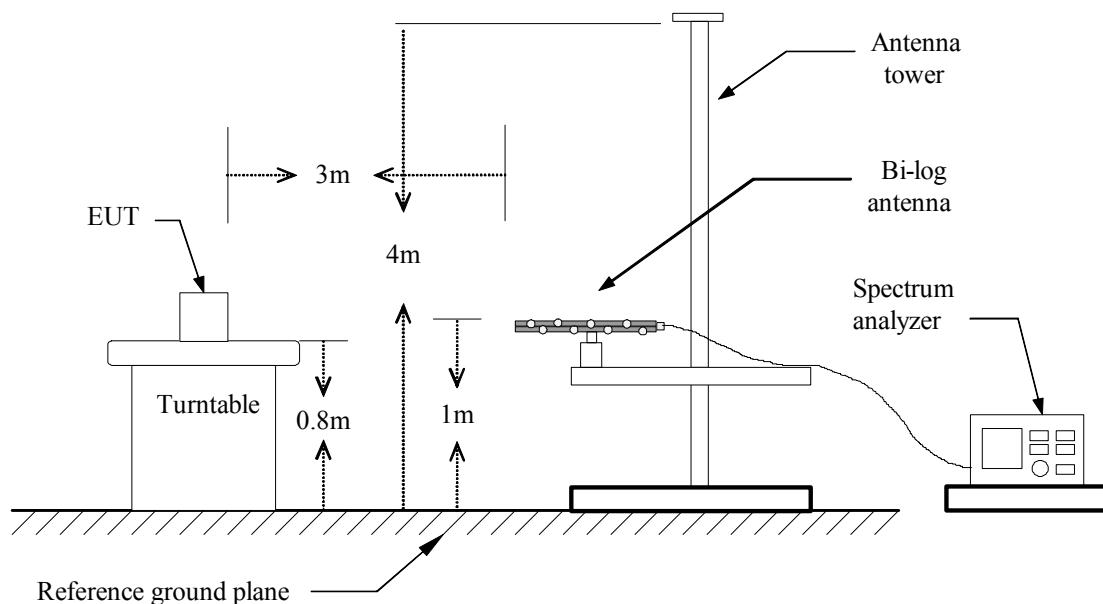
*Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the above emission table, the tighter limit applies at the band edges.

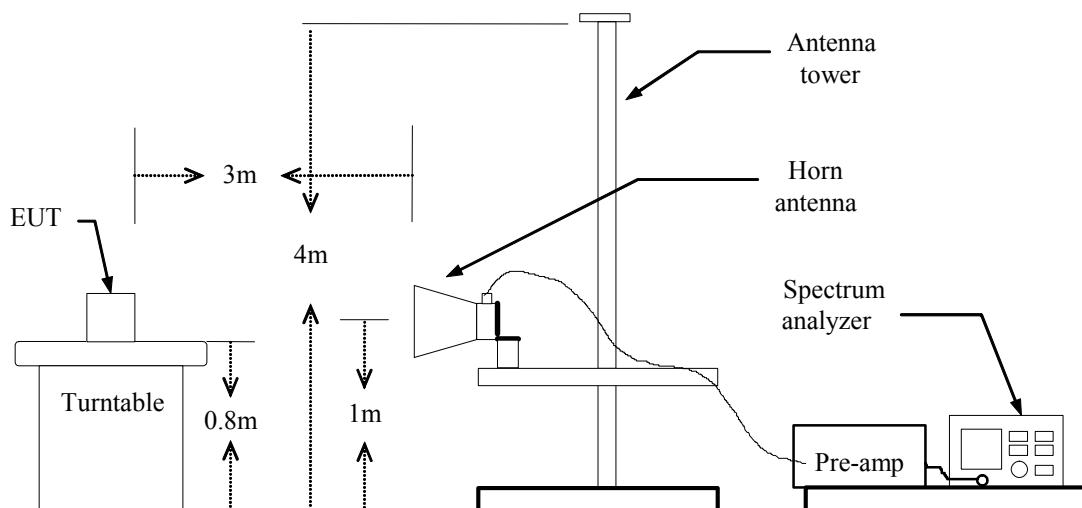
Frequency (MHz)	Field Strength ( $\mu$ V/m at 3-meter)	Field Strength (dB $\mu$ V/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

## Test Configuration

### Below 1 GHz



### Above 1 GHz





## **TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.



## TEST RESULTS

### Below 1 GHz

#### Omnidirectional antenna / 12.0 dBi for 2.4 GHz

**Operation Mode:** Normal Link

**Test Date:** October 7, 2005

**Temperature:** 25°C

**Tested by:** Bruce Chen

**Humidity:** 58% RH

**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
151.25	V	Peak	56.08	-20.50	35.58	43.50	-7.92
440.31	V	Peak	50.24	-14.88	35.36	46.00	-10.64
480.08	V	Peak	54.10	-13.76	40.34	46.00	-5.66
770.11	V	Peak	47.59	-9.82	37.77	46.00	-8.23
N/A							
151.25	H	Peak	57.43	-20.50	36.93	43.50	-6.57
440.31	H	Peak	55.76	-14.88	40.88	46.00	-5.12
480.08	H	Peak	54.34	-13.76	40.59	46.00	-5.41
559.62	H	Peak	48.38	-12.54	35.85	46.00	-10.15
770.11	H	Peak	49.50	-9.82	39.68	46.00	-6.32
N/A							

**Remark:**

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/Quasi-peak detector mode.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Normal Link**Test Date:** October 7, 2005**Temperature:** 25°C**Tested by:** Bruce Chen**Humidity:** 58% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
82.38	V	Peak	62.27	-25.63	36.65	40.00	-3.35
151.25	V	Peak	55.14	-20.50	34.64	43.50	-8.86
440.31	V	Peak	52.33	-14.88	37.45	46.00	-8.55
480.08	V	Peak	51.41	-13.76	37.65	46.00	-8.35
770.11	V	Peak	47.63	-9.82	37.81	46.00	-8.19
N/A							
151.25	H	Peak	58.54	-20.50	38.03	43.50	-5.47
399.57	H	Peak	49.09	-16.07	33.02	46.00	-12.98
440.31	H	Peak	52.34	-14.88	37.47	46.00	-8.53
480.08	H	Peak	53.64	-13.76	39.88	46.00	-6.12
559.62	H	Peak	49.33	-12.54	36.79	46.00	-9.21
770.11	H	Peak	53.85	-9.82	44.03	46.00	-1.97

**Remark:**

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/Quasi-peak detector mode.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Normal Link**Test Date:** October 7, 2005**Temperature:** 25°C**Tested by:** Bruce Chen**Humidity:** 58% RH**Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
82.38	V	Peak	62.71	-25.63	37.08	40.00	-2.92
151.25	V	Peak	59.72	-20.50	39.22	43.50	-4.28
440.31	V	Peak	54.15	-14.88	39.27	46.00	-6.73
480.08	V	Peak	52.40	-13.76	38.64	46.00	-7.36
770.11	V	Peak	48.64	-9.82	38.83	46.00	-7.17
N/A							
151.25	H	Peak	55.40	-20.50	34.90	43.50	-8.60
440.31	H	Peak	53.24	-14.88	38.36	46.00	-7.64
480.08	H	Peak	53.58	-13.76	39.82	46.00	-6.18
559.62	H	Peak	48.75	-12.54	36.21	46.00	-9.79
770.11	H	Peak	53.36	-9.82	43.54	46.00	-2.46
879.72	H	Peak	44.32	-8.50	35.82	46.00	-10.18

**Remark:**

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/Quasi-peak detector mode.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

**Above 1 GHz****Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11b Base mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
4755.000	V	36.14	10.14	46.28	54.00	-7.72	Peak
N/A							
1664.000	H	37.58	11.07	48.65	54.00	-5.35	Peak
5985.000	H	37.04	11.88	48.91	54.00	-5.09	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11b Base mode / CH Mid    **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
4650.000	V	35.98	10.04	46.02	54.00	-7.98	Peak
N/A							
4470.000	H	35.77	9.83	45.60	54.00	-8.40	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11b Base mode / CH High **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1912.000	V	37.58	13.54	51.12	54.00	-2.88	Peak
2240.000	V	38.12	15.08	53.20	54.00	-0.80	Peak
4665.000	V	36.25	10.05	46.30	54.00	-7.70	Peak
N/A							
5055.000	H	36.94	10.53	47.46	54.00	-6.54	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11g Base mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1910.000	V	37.67	13.52	51.19	54.00	-2.81	Peak
1962.000	V	37.66	14.04	51.70	54.00	-2.30	Peak
4590.000	V	35.90	9.98	45.88	54.00	-8.12	Peak
N/A							
1820.000	H	37.01	12.62	49.64	54.00	-4.36	Peak
2324.000	H	37.04	15.31	52.35	54.00	-1.65	Peak
4140.000	H	36.23	9.20	45.43	54.00	-8.57	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11g Base mode / CH Mid    **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
4515.000	V	35.43	9.90	45.33	54.00	-8.67	Peak
N/A							
4335.000	H	36.11	9.57	45.69	54.00	-8.31	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11g Base mode / CH High **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
2360.000	V	41.00	15.41	56.41	54.00	-17.59	Peak
2360.000	V	41.00	15.41	51.69	54.00	-2.31	Peak
3930.000	V	36.36	8.71	45.08	54.00	-8.92	Peak
N/A							
3885.000	H	36.10	8.58	44.67	54.00	-9.33	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 12.0 dBi for 2.4 GHz****Operation Mode:** Tx / IEEE 802.11g Turbo mode / CH Mid **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
4065.000	V	36.26	9.05	45.31	54.00	-8.69	Peak
N/A							
1626.000	H	37.79	10.69	48.48	54.00	-5.52	Peak
1984.000	H	37.05	14.26	51.31	54.00	-2.69	Peak
3915.000	H	35.91	8.67	44.58	54.00	-9.42	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11b Base mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1100.00	V	43.58	-3.67	39.91	54.00	-14.09	Peak
N/A							
1100.00	H	44.23	-3.67	40.56	54.00	-13.44	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11b Base mode / CH Mid **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1100.00	V	44.23	-3.67	40.57	54.00	-13.43	Peak
2436.00	V	38.65	2.95	41.60	54.00	-12.40	Peak
N/A							
1052.00	H	42.57	-3.87	38.70	54.00	-15.30	Peak
1100.00	H	46.56	-3.67	42.89	54.00	-11.11	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11b Base mode / CH High **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1100.00	V	44.67	-3.67	41.00	54.00	-13.00	Peak
N/A							
1052.00	H	43.24	-3.87	39.38	54.00	-14.62	Peak
1100.00	H	45.32	-3.67	41.65	54.00	-12.35	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11g Base mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1100.00	V	43.12	-3.67	39.45	54.00	-14.55	Peak
N/A							
1006.00	H	41.68	-4.06	37.62	54.00	-16.38	Peak
1052.00	H	43.71	-3.87	39.84	54.00	-14.16	Peak
1100.00	H	45.56	-3.67	41.89	54.00	-12.11	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11g Base mode / CH Mid **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1100.00	V	45.78	-3.67	42.11	54.00	-11.89	Peak
N/A							
1052.00	H	44.00	-3.87	40.13	54.00	-13.87	Peak
1100.00	H	46.47	-3.67	42.80	54.00	-11.20	Peak
1540.00	H	41.19	-1.72	39.47	54.00	-14.53	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11g Base mode / CH High **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1052.00	V	40.37	-3.87	36.50	54.00	-17.50	Peak
1100.00	V	44.37	-3.67	40.71	54.00	-13.29	Peak
N/A							
1100.00	H	47.11	-3.67	43.44	54.00	-10.56	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11g Turbo mode / CH Mid **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1100.00	V	41.94	-3.67	38.28	54.00	-15.72	Peak
N/A							
1052.00	H	43.72	-3.87	39.85	54.00	-14.15	Peak
1100.00	H	46.25	-3.67	42.58	54.00	-11.42	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11a Base mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1091.00	V	40.81	-3.71	37.10	54.00	-16.90	Peak
5515.00	V	46.55	8.29	54.84	54.00	0.84	Peak
5515.00	V	40.59	8.29	48.88	54.00	-5.12	Average
5739.00	V	40.78	8.27	49.05	54.00	-4.95	Peak
N/A							
1098.00	H	45.00	-3.68	41.32	54.00	-12.68	Peak
5263.00	H	49.58	7.65	57.23	54.00	3.23	Peak
5263.00	H	43.20	7.65	50.85	54.00	-3.15	Average
5739.00	H	41.60	8.27	49.87	54.00	-4.13	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11a Base mode / CH Mid    **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1098.00	V	43.12	-3.68	39.44	54.00	-14.56	Peak
5053.00	V	46.13	7.09	53.23	54.00	-0.77	Peak
5494.00	V	46.70	8.27	54.97	54.00	0.97	Peak
5494.00	V	41.02	8.27	49.29	54.00	-4.71	Average
N/A							
1098.00	H	45.83	-3.68	42.16	54.00	-11.84	Peak
5326.00	H	48.24	7.82	56.06	54.00	2.06	Peak
5326.00	H	41.28	7.82	49.10	54.00	-4.9	Average
5788.00	H	37.10	8.27	45.36	54.00	-8.64	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11a Base mode / CH High **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1098.00	V	39.37	-3.68	35.70	54.00	-18.30	Peak
4997.00	V	45.10	6.95	52.05	54.00	-1.95	Peak
5529.00	V	46.45	8.29	54.74	54.00	0.74	Peak
5529.00	V	40.09	8.29	48.38	54.00	-5.62	Average
N/A							
1098.00	H	43.60	-3.68	39.92	54.00	-14.08	Peak
5333.00	H	46.91	7.84	54.75	54.00	0.75	Peak
5333.00	H	40.60	7.84	48.44	54.00	-5.56	Average
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11a Turbo mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1098.00	V	40.68	-3.68	37.00	54.00	-17.00	Peak
5459.00	V	44.00	8.18	52.18	54.00	-1.82	Peak
N/A							
1098.00	H	43.76	-3.68	40.08	54.00	-13.92	Peak
5277.00	H	47.10	7.69	54.79	54.00	0.79	Peak
5277.00	H	41.91	7.69	49.60	54.00	-4.4	Average
5746.00	H	38.12	8.27	46.39	54.00	-7.61	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Tx / IEEE 802.11a Turbo mode / CH High    **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
1098.00	V	41.67	-3.68	37.99	54.00	-16.01	Peak
5116.00	V	43.27	7.26	50.53	54.00	-3.47	Peak
5459.00	V	45.79	8.18	53.97	54.00	-0.03	Peak
N/A							
1098.00	H	44.01	-3.68	40.33	54.00	-13.67	Peak
5326.00	H	45.89	7.82	53.72	54.00	-0.28	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Tx / IEEE 802.11a Base mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
11490.000	V	70.78	-36.11	34.67	54.00	-19.33	Peak
N/A							
2386.000	H	41.46	6.84	48.30	54.00	-5.70	Peak
11490.000	H	69.88	-36.11	33.77	54.00	-20.23	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Tx / IEEE 802.11a Base mode / CH Mid    **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
3317.000	V	40.07	8.27	48.34	54.00	-5.66	Peak
11570.000	V	70.77	-35.75	35.02	54.00	-18.98	Peak
N/A							
2344.000	H	41.46	6.74	48.19	54.00	-5.81	Peak
11570.000	H	69.56	-35.75	33.81	54.00	-20.19	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Tx / IEEE 802.11a Base mode / CH High **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
3548.000	V	40.12	8.42	48.54	54.00	-5.46	Peak
11650.000	V	70.14	-35.30	34.84	54.00	-19.16	Peak
N/A							
3429.000	H	40.86	8.24	49.10	54.00	-4.90	Peak
11650.000	H	71.38	-35.30	36.09	54.00	-17.91	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Tx / IEEE 802.11a Turbo mode / CH Low **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
3821.000	V	41.23	9.50	50.73	54.00	-3.27	Peak
11520.000	V	71.69	-36.04	35.65	54.00	-18.35	Peak
N/A							
2050.000	H	41.90	6.01	47.91	54.00	-6.09	Peak
11520.000	H	69.76	-36.04	33.73	54.00	-20.27	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).

**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Tx / IEEE 802.11a Turbo mode / CH High    **Test Date:** September 21, 2005**Temperature:** 25°C**Tested by:** James Yu**Humidity:** 55% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. H/V	Reading (dBuV)	Corr. (dB/m)	Result (Peak/ Average) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark (Peak/ Average)
2589.000	V	40.74	7.34	48.08	54.00	-5.92	Peak
11600.000	V	69.55	-35.58	33.97	54.00	-20.03	Peak
N/A							
3905.000	H	41.44	9.83	51.28	54.00	-2.72	Peak
11600.000	H	68.48	-35.58	32.90	54.00	-21.10	Peak
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Average test would be performed if the peak result were greater than the average limit, but not more than 20dB.  
Peak limit (74dBuV/m) = Average Limit (54dBuV/m)+20dB
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak/Average detector mode of the emission shown in Remark column.
5. Margin (dB) = Result (Remark) – Limit (Average) (dBuV/m).



## 7.7 POWERLINE CONDUCTED EMISSIONS

### LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

\* Decreases with the logarithm of the frequency.

### Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

## TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.



## **TEST RESULTS**

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

### **Test Data**

#### **Omnidirectional antenna / 12.0 dBi for 2.4 GHz**

**Operation Mode:** Normal Link      **Test Date:** October 7, 2005  
**Temperature:** 25°C      **Tested by:** Mark Chen  
**Humidity:** 55% RH

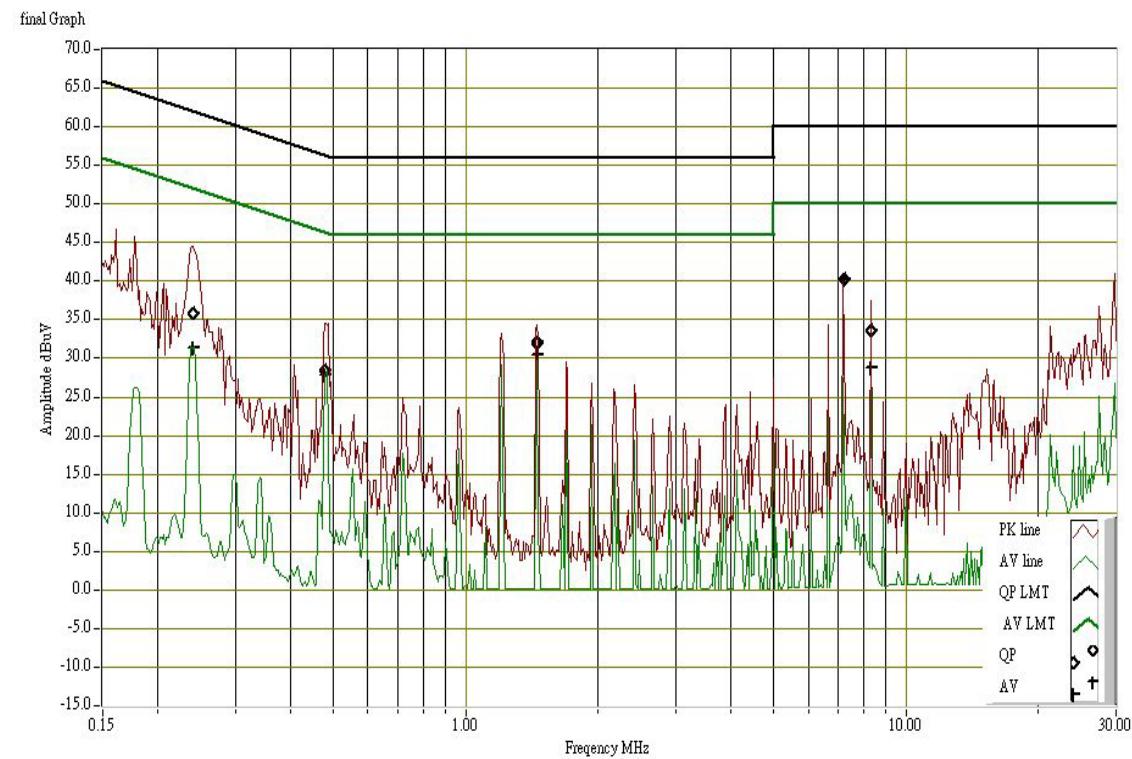
Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.240	35.750	31.310	0.100	35.850	31.410	62.096	52.096	-26.246	-20.686	L1
0.480	28.470	27.870	0.100	28.570	27.970	56.339	46.339	-27.769	-18.369	L1
1.450	31.980	30.510	0.100	32.080	30.610	56.000	46.000	-23.920	-15.390	L1
1.453	32.120	30.370	0.100	32.220	30.470	56.000	46.000	-23.780	-15.530	L1
7.221	40.160	40.290	0.422	40.582	40.712	60.000	50.000	-19.418	-9.288	L1
8.321	33.660	28.760	0.532	34.192	29.292	60.000	50.000	-25.808	-20.708	L1
0.240	35.690	34.000	0.100	35.790	34.100	62.096	52.096	-26.306	-17.996	L2
0.484	26.950	26.310	0.100	27.050	26.410	56.270	46.270	-29.220	-19.860	L2
1.210	31.330	26.120	0.100	31.430	26.220	56.000	46.000	-24.570	-19.780	L2
1.453	29.610	22.370	0.100	29.710	22.470	56.000	46.000	-26.290	-23.530	L2
7.220	40.030	40.010	0.422	40.452	40.432	60.000	50.000	-19.548	-9.568	L2
8.331	34.960	34.870	0.533	35.493	35.403	60.000	50.000	-24.507	-14.597	L2

#### ***Remark:***

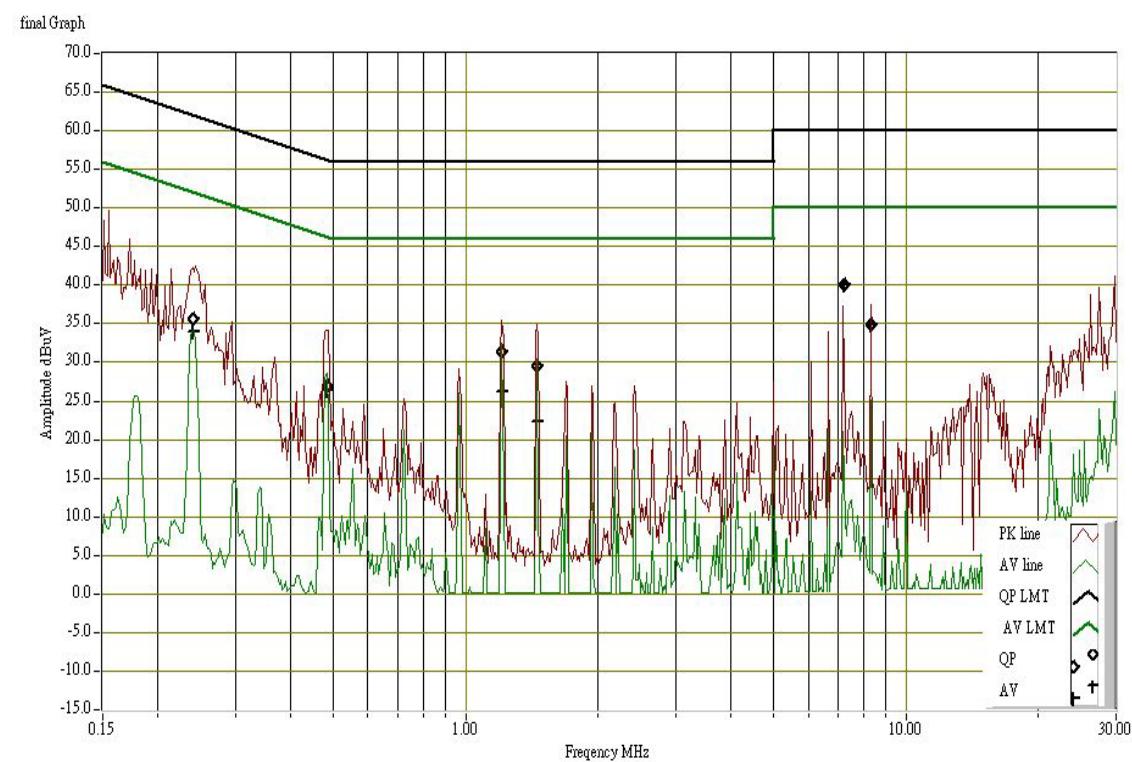
1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

## Test Plots

### Conducted emissions (Line 1)



### Conducted emissions (Line 2)



**Omnidirectional Panel antenna / 3.0 dBi for 2.4 GHz and 5 GHz****Operation Mode:** Normal Link**Test Date:** October 5, 2005**Temperature:** 25°C**Tested by:** Mark Chen**Humidity:** 55% RH

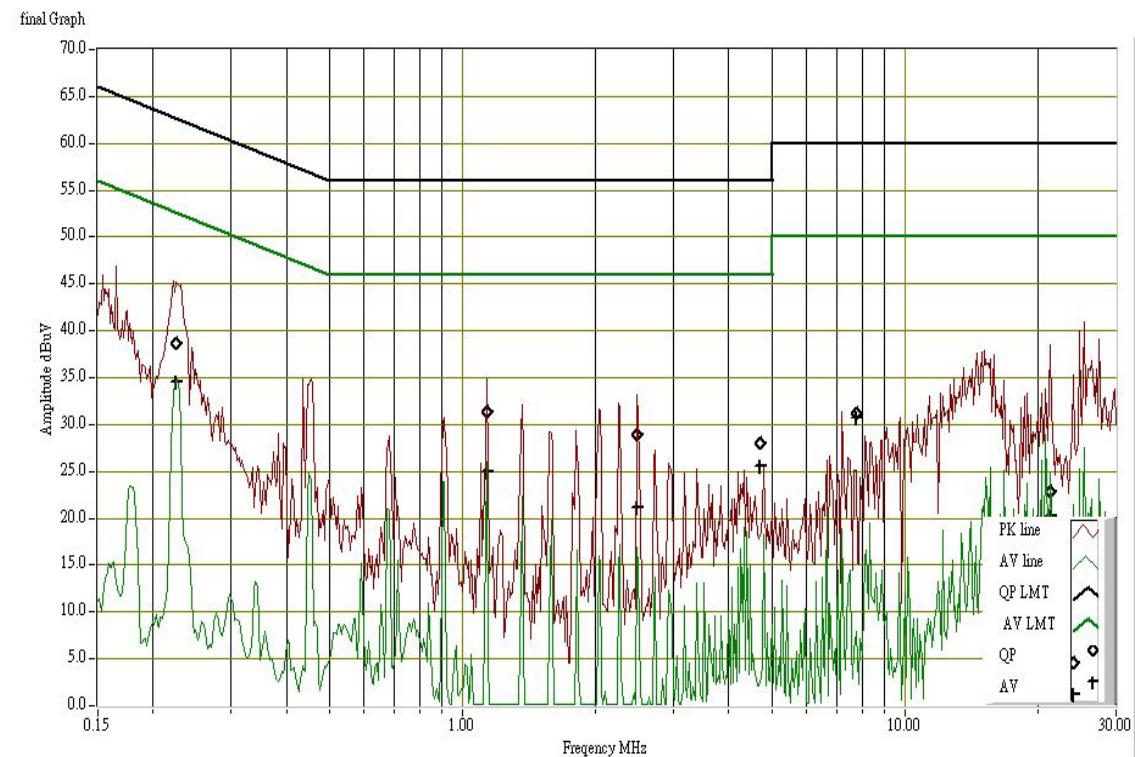
Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.225	38.670	34.500	0.100	38.770	34.600	62.632	52.632	-23.862	-18.032	L1
4.710	28.030	25.520	0.171	28.201	25.691	56.000	46.000	-27.799	-20.309	L1
1.135	31.350	24.970	0.100	31.450	25.070	56.000	46.000	-24.550	-20.930	L1
2.479	28.850	21.200	0.100	28.950	21.300	56.000	46.000	-27.050	-24.700	L1
7.777	31.240	30.740	0.478	31.718	31.218	60.000	50.000	-28.282	-18.782	L1
21.308	22.860	20.290	1.200	24.060	21.490	60.000	50.000	-35.940	-28.510	L1
0.227	39.930	31.430	0.100	40.030	31.530	62.559	52.559	-22.529	-21.029	L2
0.454	27.970	26.480	0.100	28.070	26.580	56.802	46.802	-28.732	-20.222	L2
1.135	33.590	28.940	0.100	33.690	29.040	56.000	46.000	-22.310	-16.960	L2
7.770	31.390	31.250	0.477	31.867	31.727	60.000	50.000	-28.133	-18.273	L2
20.805	28.780	27.720	1.200	29.980	28.920	60.000	50.000	-30.020	-21.080	L2
25.391	29.210	26.690	1.216	30.426	27.906	60.000	50.000	-29.574	-22.094	L2

**Remark:**

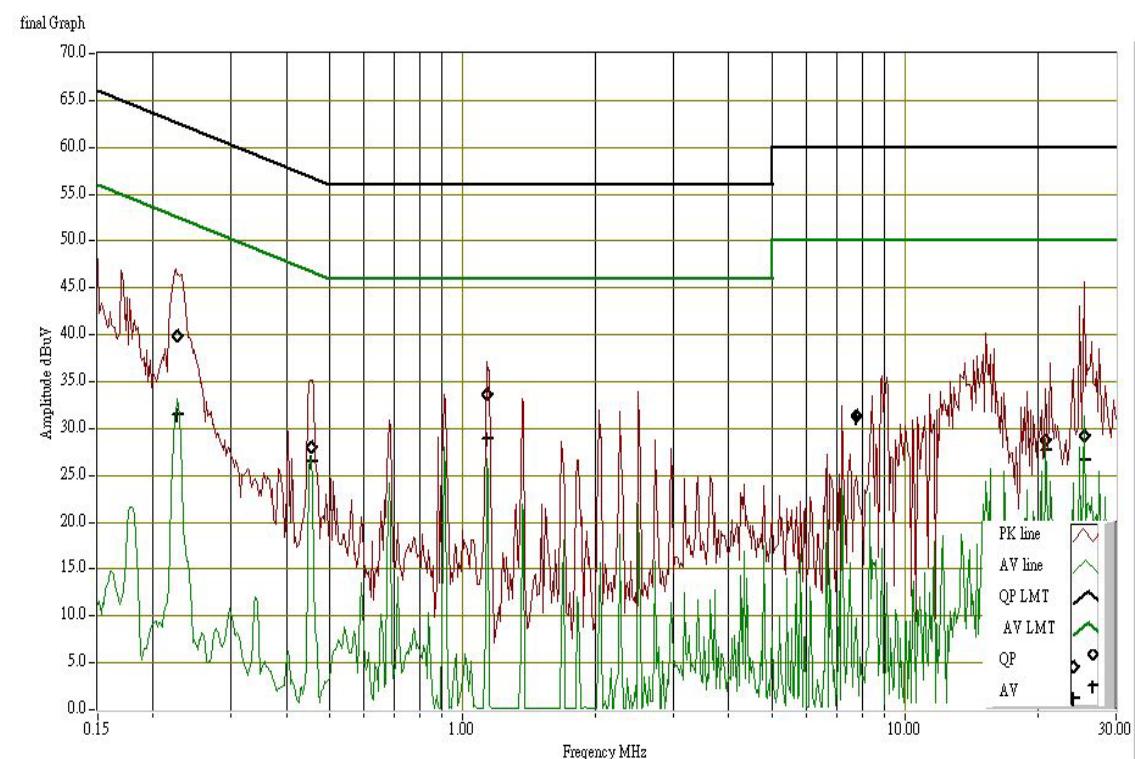
1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

## Test Plots

### Conducted emissions (Line 1)



### Conducted emissions (Line 2)



**Omnidirectional antenna / 6.0 dBi for 5 GHz****Operation Mode:** Normal Link**Test Date:** October 7, 2005**Temperature:** 25°C**Tested by:** Mark Chen**Humidity:** 55% RH

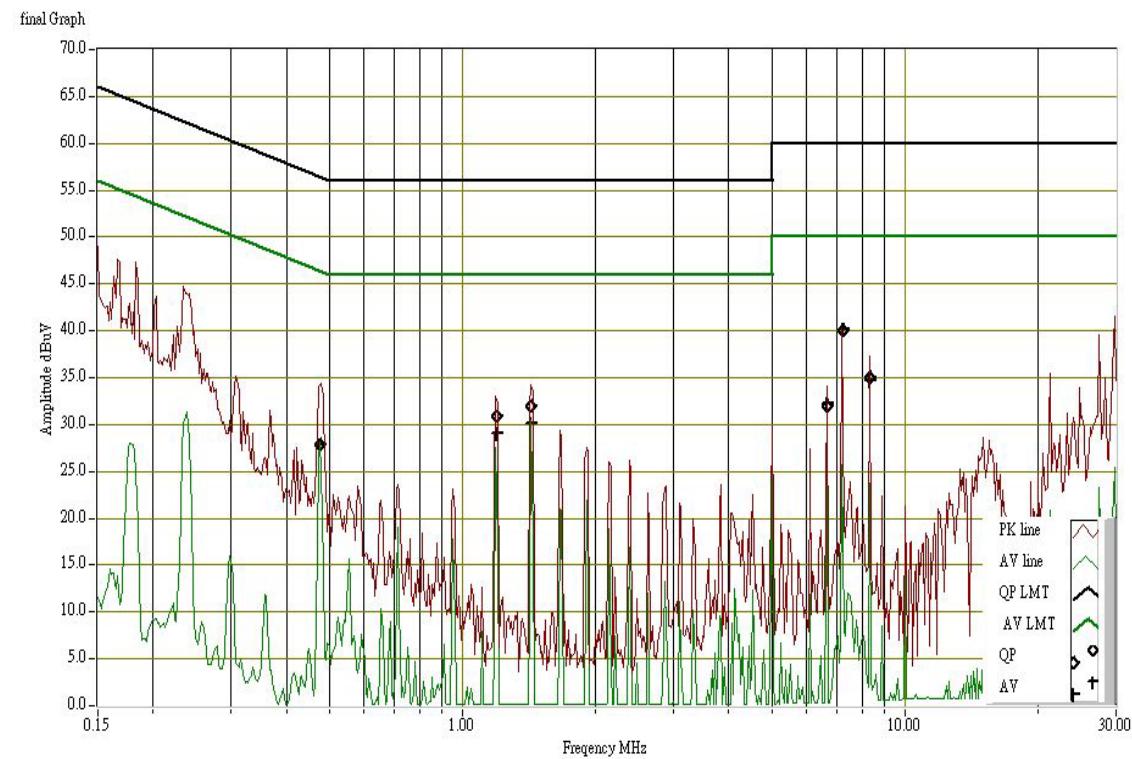
Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.476	27.910	27.870	0.100	28.010	27.970	56.409	46.409	-28.399	-18.439	L1
1.191	30.890	29.100	0.100	30.990	29.200	56.000	46.000	-25.010	-16.800	L1
1.430	31.980	30.150	0.100	32.080	30.250	56.000	46.000	-23.920	-15.750	L1
6.667	32.000	32.260	0.367	32.367	32.627	60.000	50.000	-27.633	-17.373	L1
7.220	40.010	40.150	0.422	40.432	40.572	60.000	50.000	-19.568	-9.428	L1
8.329	34.970	34.680	0.533	35.503	35.213	60.000	50.000	-24.497	-14.787	L1
0.240	35.520	33.760	0.100	35.620	33.860	62.096	52.096	-26.476	-18.236	L2
0.480	26.390	24.410	0.100	26.490	24.510	56.339	46.339	-29.849	-21.829	L2
1.200	29.240	21.360	0.100	29.340	21.460	56.000	46.000	-26.660	-24.540	L2
1.432	32.350	29.950	0.100	32.450	30.050	56.000	46.000	-23.550	-15.950	L2
7.220	40.030	40.150	0.422	40.452	40.572	60.000	50.000	-19.548	-9.428	L2
8.331	34.930	34.680	0.533	35.463	35.213	60.000	50.000	-24.537	-14.787	L2

**Remark:**

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

## Test Plots

### Conducted emissions (Line 1)



### Conducted emissions (Line 2)

