

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

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

The spectrum plots (Peak RBW=VBW=100kHz ; Average RBW=1MHz, VBW=1kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

The spectrum plots are attached on the following 12 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS modulation

Antenna: SAA05-22063A

NOTE 1: The band edge emission plot on page 92 shows 50.60dBc between carrier maximum power and local maximum emission in restrict band (2.3520GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.10 is 114.60dBuV/m (Peak), so the maximum field strength in restrict band is $114.60 - 50.60 = 64.00$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on page 92 shows 55.09dBc between carrier maximum power and local maximum emission in restrict band (2.3198GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.10 is 106.37dBuV/m (Average), so the maximum field strength in restrict band is $106.37 - 55.09 = 51.28$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 93 shows 50.49dBc between carrier maximum power and local maximum emission in restrict band (2.4899GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.10 is 114.29dBuV/m (Peak), so the maximum field strength in restrict band is $114.29 - 50.49 = 63.80$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 94 shows 57.77dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.10 is 105.92dBuV/m (Average), so the maximum field strength in restrict band is $105.92 - 57.77 = 48.15$ dBuV/m which is under 54dBuV/m limit.



802.11b DSSS modulation

Antenna: SDW0939A1

NOTE 1: The band edge emission plot on page 92 shows 50.60dBc between carrier maximum power and local maximum emission in restrict band (2.3520GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.11 is 112.43dBuV/m (Peak), so the maximum field strength in restrict band is $112.43 - 50.60 = 61.83$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on page 92 shows 55.09dBc between carrier maximum power and local maximum emission in restrict band (2.3198GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.11 is 104.20dBuV/m (Average), so the maximum field strength in restrict band is $104.20 - 55.09 = 49.11$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 93 shows 50.49dBc between carrier maximum power and local maximum emission in restrict band (2.4899GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.11 is 112.35dBuV/m (Peak), so the maximum field strength in restrict band is $112.35 - 50.49 = 61.86$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 94 shows 57.77dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.11 is 104.22dBuV/m (Average), so the maximum field strength in restrict band is $104.22 - 57.77 = 46.45$ dBuV/m which is under 54dBuV/m limit.

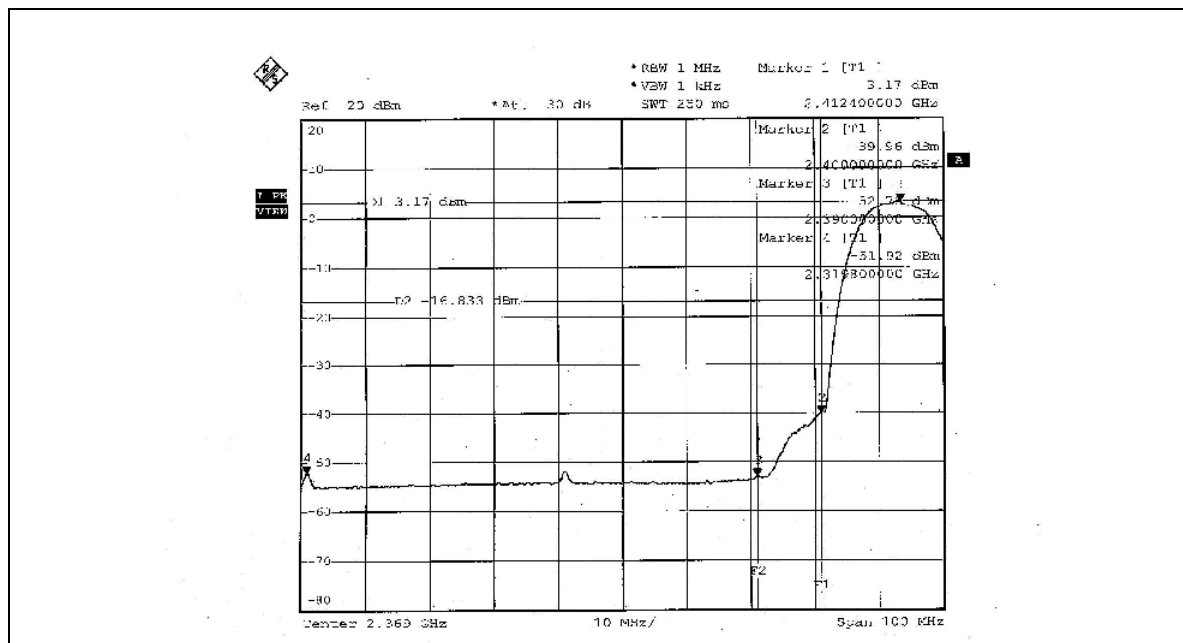
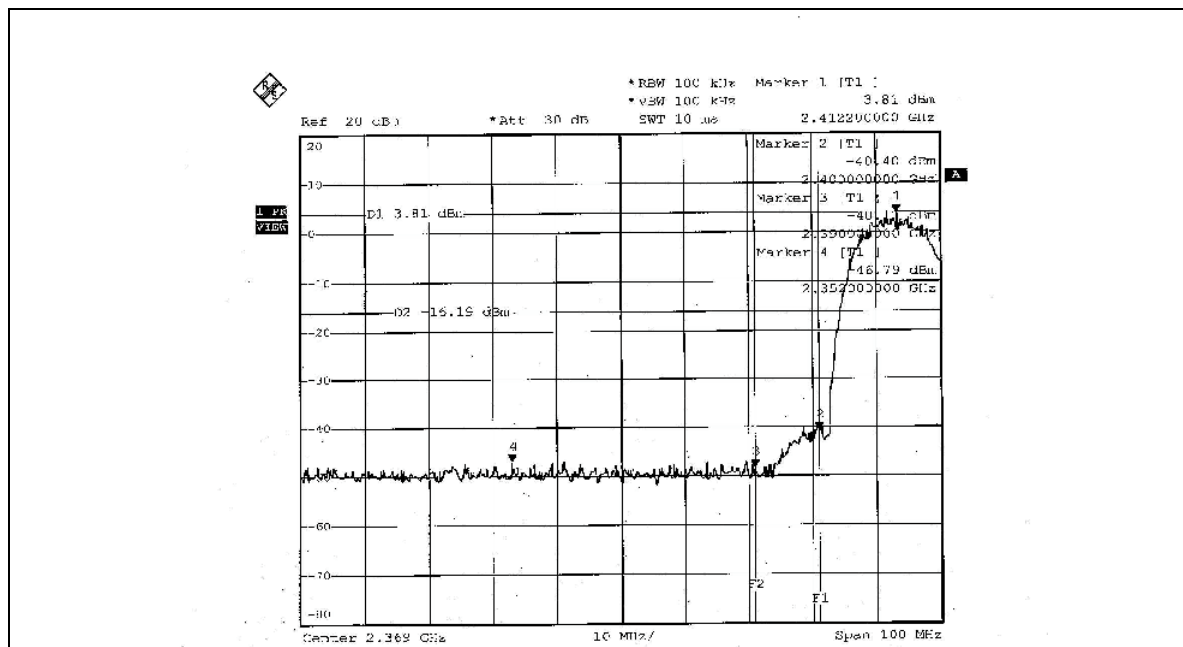
**802.11b DSSS modulation****Antenna: SAA05-22056A**

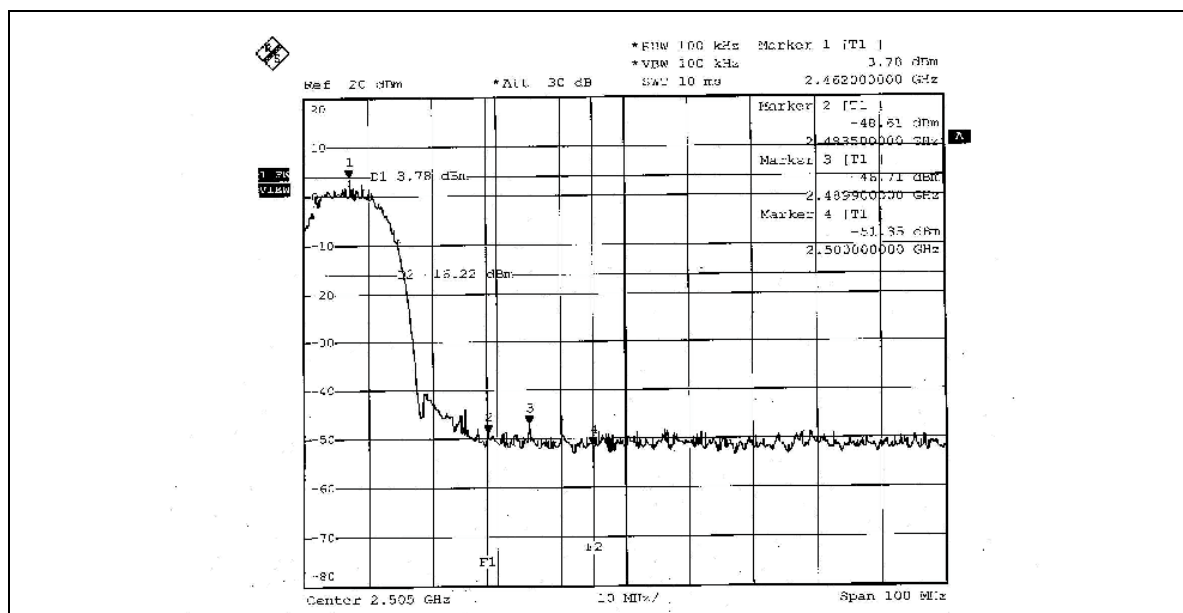
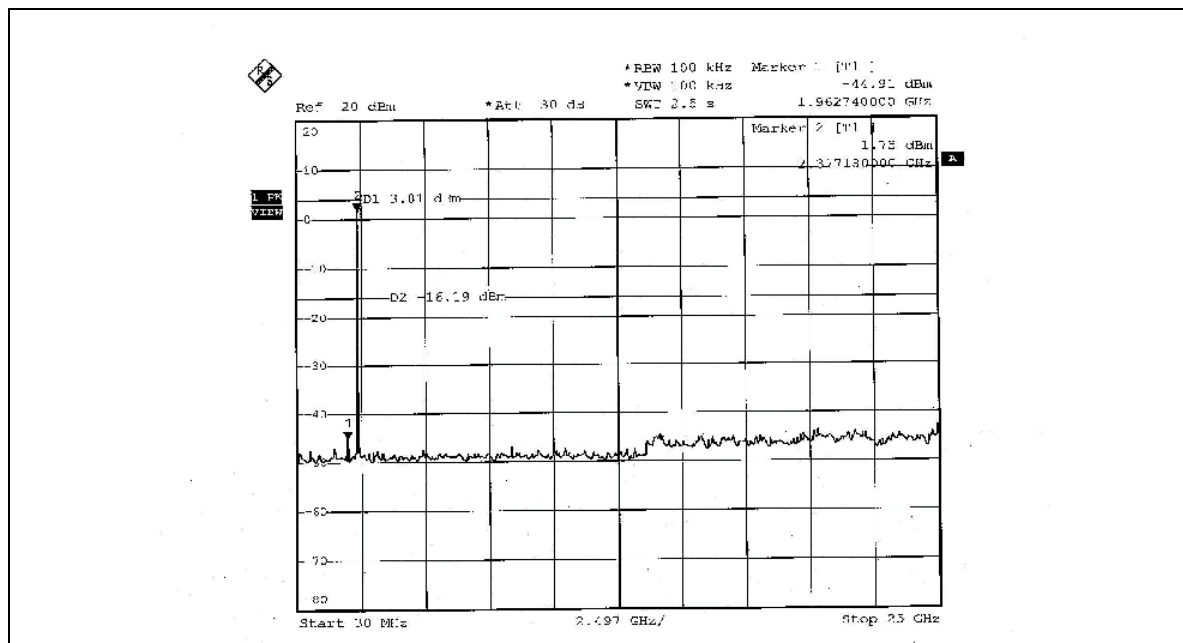
NOTE 1: The band edge emission plot on page 92 shows 50.60dBc between carrier maximum power and local maximum emission in restrict band (2.3520GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.12 is 115.52dBuV/m (Peak), so the maximum field strength in restrict band is $115.52 - 50.60 = 64.92$ dBuV/m which is under 74dBuV/m limit.

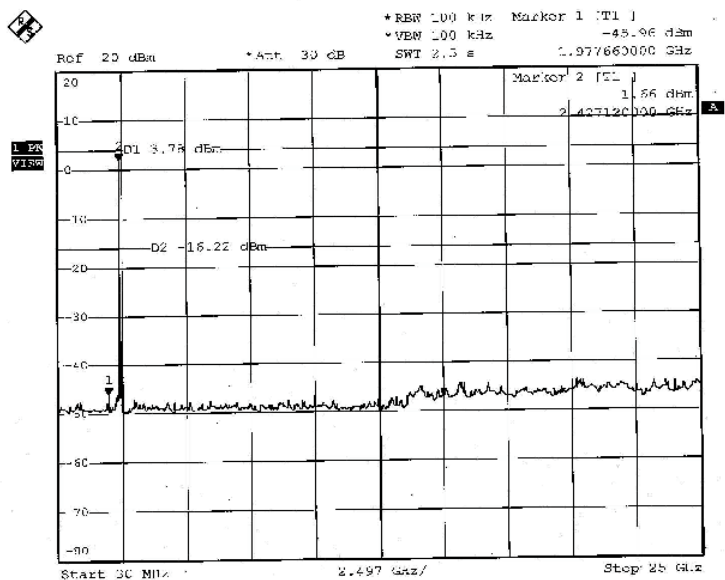
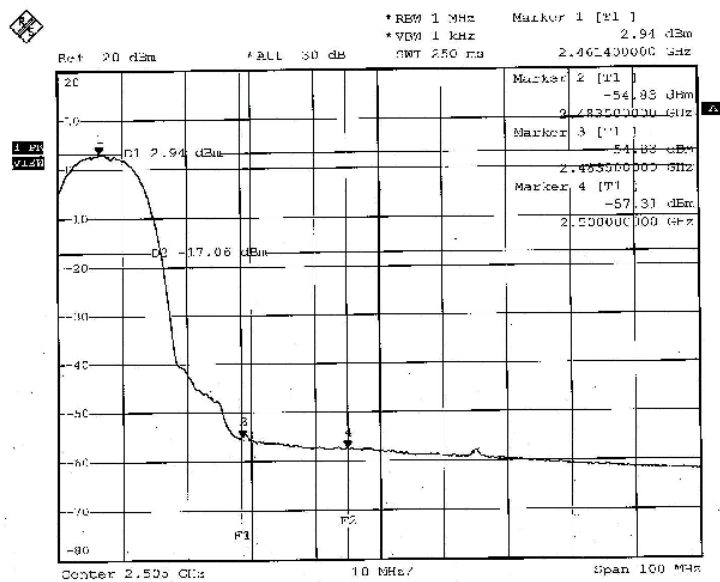
The band edge emission plot of on page 92 shows 55.09dBc between carrier maximum power and local maximum emission in restrict band (2.3198GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.12 is 107.34dBuV/m (Average), so the maximum field strength in restrict band is $107.34 - 55.09 = 52.25$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 93 shows 50.49dBc between carrier maximum power and local maximum emission in restrict band (2.4899GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.12 is 115.76dBuV/m (Peak), so the maximum field strength in restrict band is $115.76 - 50.49 = 65.27$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 94 shows 57.77dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.9 is 107.50dBuV/m (Average), so the maximum field strength in restrict band is $107.50 - 57.77 = 49.73$ dBuV/m which is under 54dBuV/m limit.









802.11g OFDM modulation

Antenna: SAA05-22063A

NOTE 1: The band edge emission plot on page 96 shows 42.78dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.16dBuV/m (Peak), so the maximum field strength in restrict band is $107.16 - 42.78 = 64.38$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on page 96 shows 46.56dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 97.13dBuV/m (Average), so the maximum field strength in restrict band is $97.13 - 46.56 = 50.57$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 97 shows 45.79dBc between carrier maximum power and local maximum emission in restrict band (2.4859GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 106.11dBuV/m (Peak), so the maximum field strength in restrict band is $106.11 - 45.79 = 60.32$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 98 shows 51.65dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 96.32dBuV/m (Average), so the maximum field strength in restrict band is $96.32 - 51.65 = 44.67$ dBuV/m which is under 54dBuV/m limit.



802.11g OFDM modulation

Antenna: SDW0939A1

NOTE 1: The band edge emission plot on page 96 shows 42.78dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.8 is 105.19dBuV/m (Peak), so the maximum field strength in restrict band is $105.19 - 42.78 = 62.41$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on page 96 shows 46.56dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.8 is 95.22dBuV/m (Average), so the maximum field strength in restrict band is $95.22 - 46.56 = 48.66$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 97 shows 45.79dBc between carrier maximum power and local maximum emission in restrict band (2.4859GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.8 is 104.77dBuV/m (Peak), so the maximum field strength in restrict band is $104.77 - 45.79 = 58.98$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 98 shows 51.65dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.8 is 94.86dBuV/m (Average), so the maximum field strength in restrict band is $94.86 - 51.65 = 43.21$ dBuV/m which is under 54dBuV/m limit.



802.11g OFDM modulation

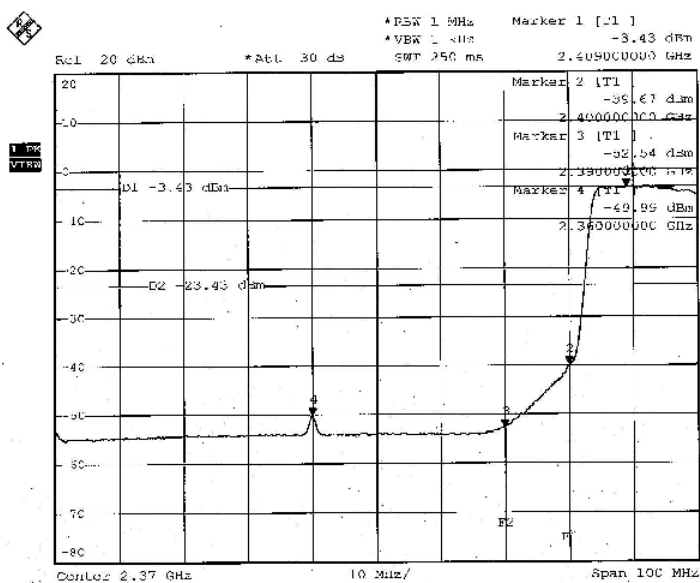
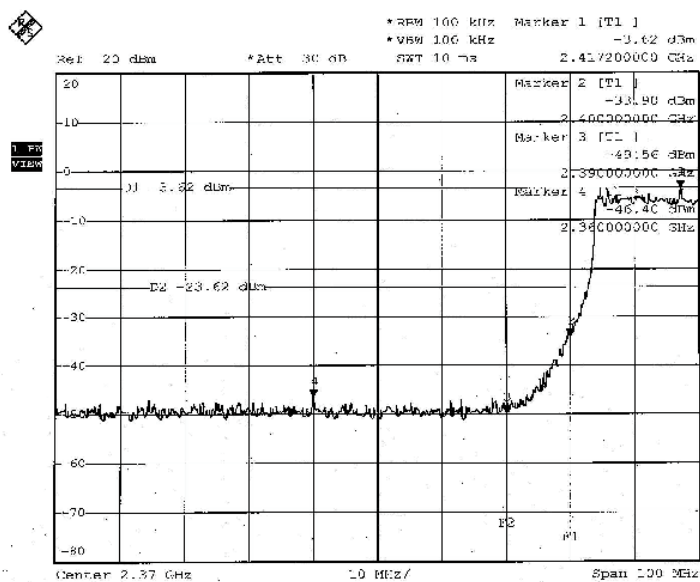
Antenna: SAA05-22056A

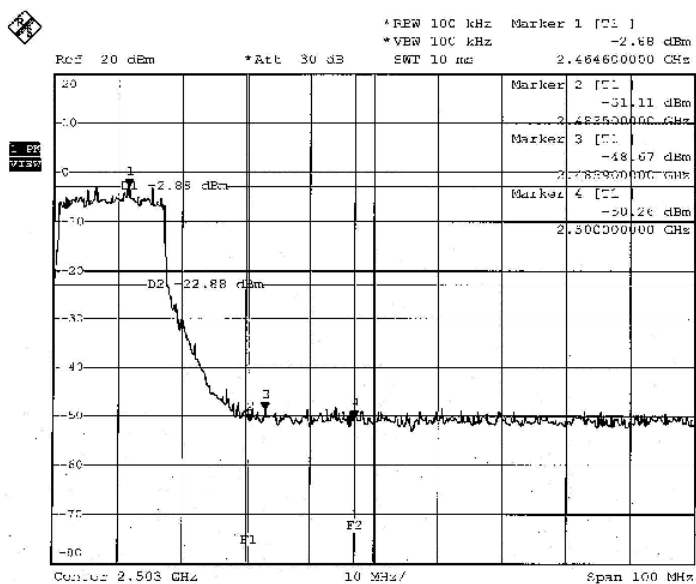
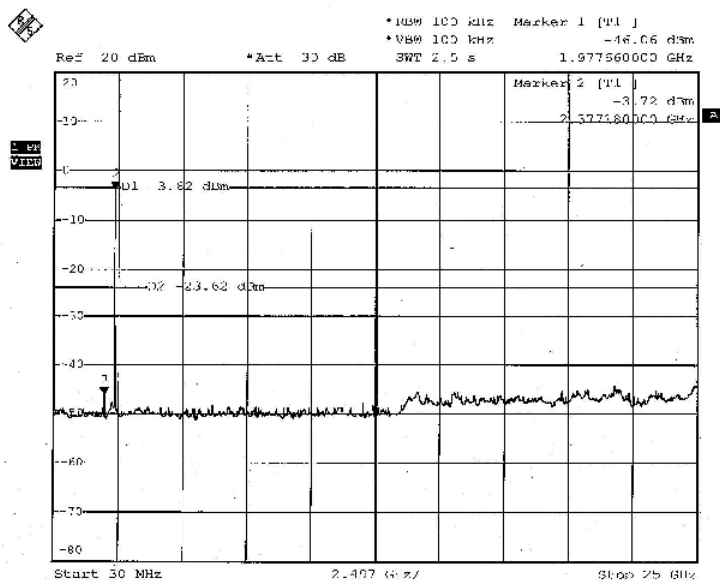
NOTE 1: The band edge emission plot on page 96 shows 42.78dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.9 is 108.76dBuV/m (Peak), so the maximum field strength in restrict band is $108.76 - 42.78 = 65.98$ dBuV/m which is under 74dBuV/m limit.

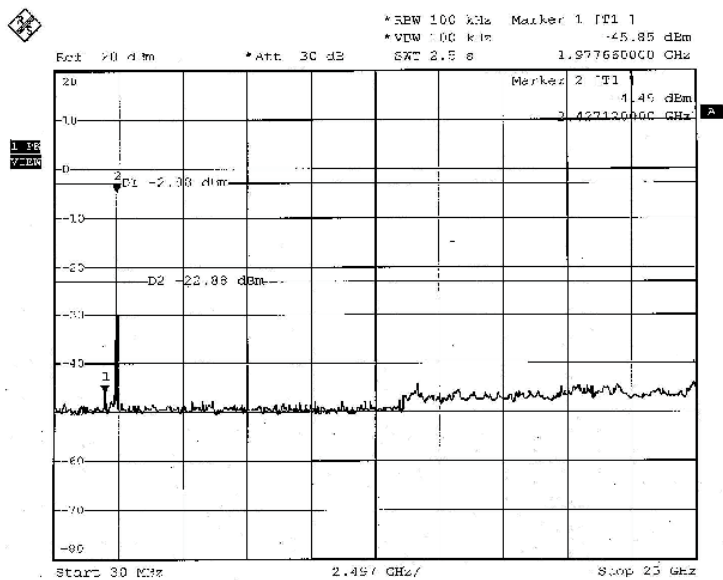
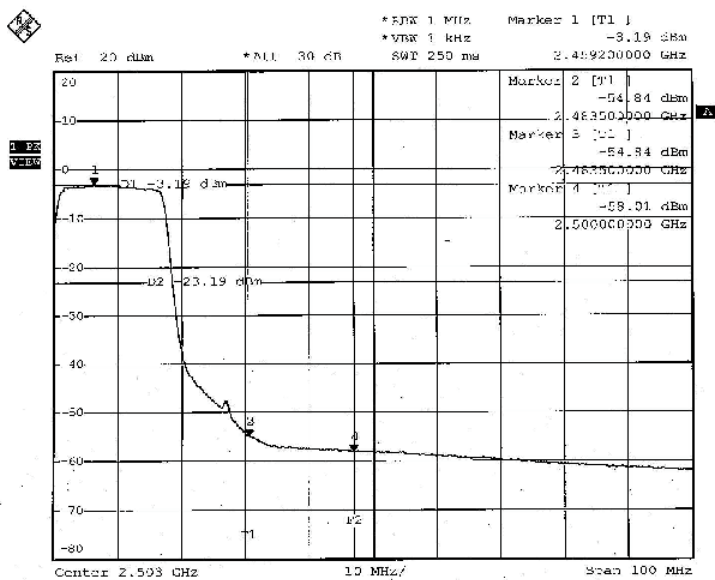
The band edge emission plot of on page 96 shows 46.56dBc between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.9 is 98.86dBuV/m (Average), so the maximum field strength in restrict band is $98.86 - 46.56 = 52.30$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 97 shows 45.79dBc between carrier maximum power and local maximum emission in restrict band (2.4859GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.9 is 108.59dBuV/m (Peak), so the maximum field strength in restrict band is $108.59 - 45.79 = 62.80$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 98 shows 51.65dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.9 is 98.47dBuV/m (Average), so the maximum field strength in restrict band is $98.47 - 51.65 = 46.82$ dBuV/m which is under 54dBuV/m limit.









4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are Omni-Directional and Dipole antenna with RP TNC connector. The maximum Gain of the antenna is 6dBi.

5. TEST TYPES AND RESULTS (802.11a 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
- The lower limit shall apply at the transition frequencies.
 - The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 - All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 06, 2005
RF signal cable Woken	5D-FB	Cable-HyC02-01	Jan. 09, 2006
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 20, 2006
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 20, 2006
Software ADT	ADT_Cond_V3	NA	NA

- NOTE:**
- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 - The test was performed in HwaYa Shielded Room 3.
 - The VCCI Site Registration No. is C-2047.



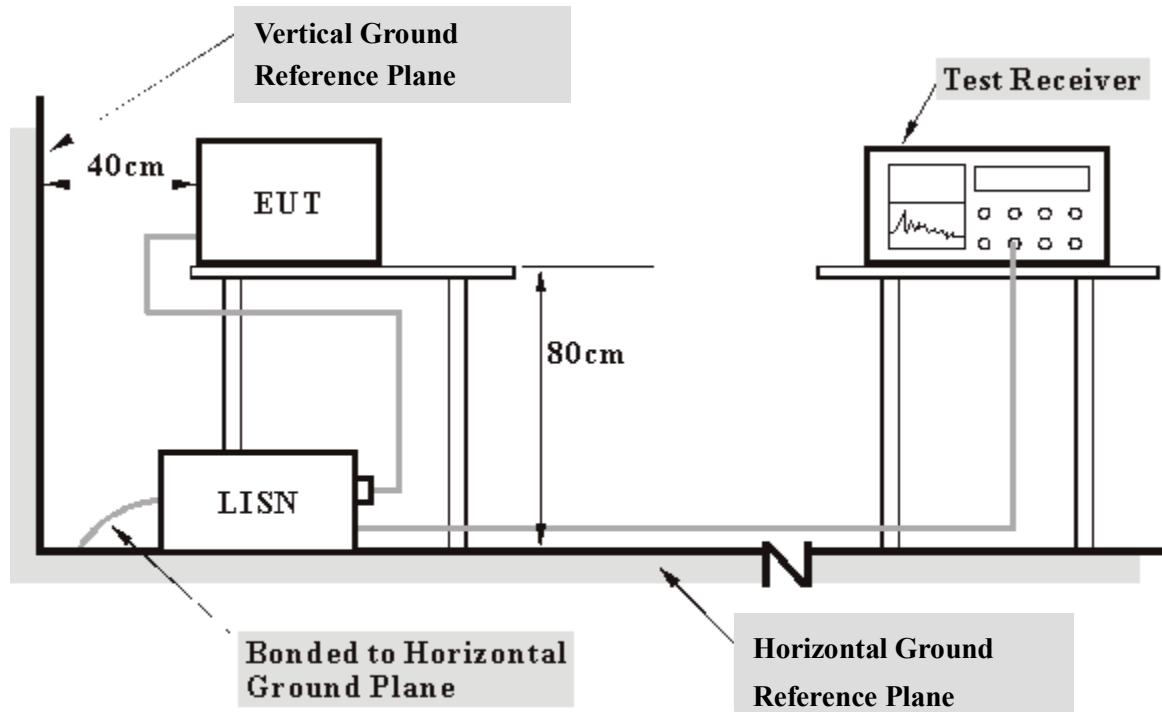
5.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) was not recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6

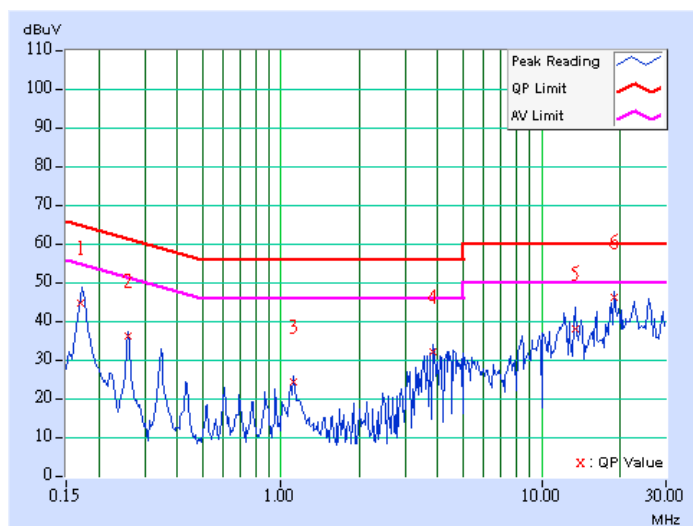
5.1.7 TEST RESULTS

Conducted Worst-Case Data (Power from POE)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	PHASE	Line 1
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	A3	TESTED BY	William Chien

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.11	43.98	-	44.09	-	64.98	54.98	-20.90	-
2	0.259	0.11	35.33	-	35.44	-	61.45	51.45	-26.01	-
3	1.121	0.23	23.69	-	23.92	-	56.00	46.00	-32.08	-
4	3.809	0.29	31.32	-	31.61	-	56.00	46.00	-24.39	-
5	13.418	0.52	37.24	-	37.76	-	60.00	50.00	-22.24	-
6	18.914	0.89	45.50	-	46.39	-	60.00	50.00	-13.61	-

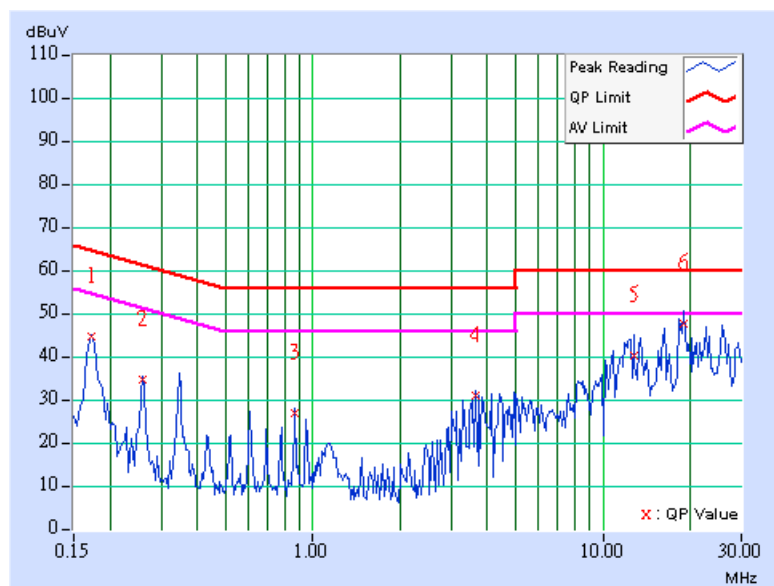
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	PHASE	Line 2
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	A3	TESTED BY	William Chien

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.11	44.04	-	44.15	-	64.79	54.79	-20.65	-
2	0.259	0.11	33.91	-	34.02	-	61.45	51.45	-27.43	-
3	0.865	0.21	26.27	-	26.48	-	56.00	46.00	-29.52	-
4	3.637	0.28	30.27	-	30.55	-	56.00	46.00	-25.45	-
5	12.746	0.60	39.57	-	40.17	-	60.00	50.00	-19.83	-
6	18.918	0.91	46.83	-	47.74	-	60.00	50.00	-12.26	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

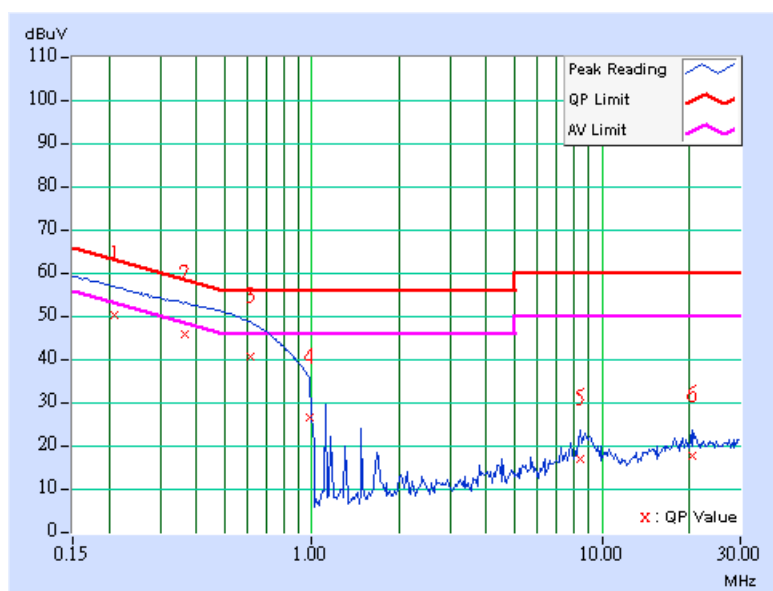


Conducted Worst-Case Data (Power from AC adapter_57-12-1500)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	PHASE	Line 1
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	B3	TESTED BY	William Chien

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.10	49.63	-	49.73	-	63.26	53.26	-13.53	-
2	0.365	0.10	45.14	-	45.24	-	58.62	48.62	-13.38	-
3	0.611	0.14	39.96	-	40.10	-	56.00	46.00	-15.90	-
4	0.986	0.20	25.96	-	26.16	-	56.00	46.00	-29.84	-
5	8.465	0.27	16.18	-	16.45	-	60.00	50.00	-43.55	-
6	20.406	0.82	16.87	-	17.69	-	60.00	50.00	-42.31	-

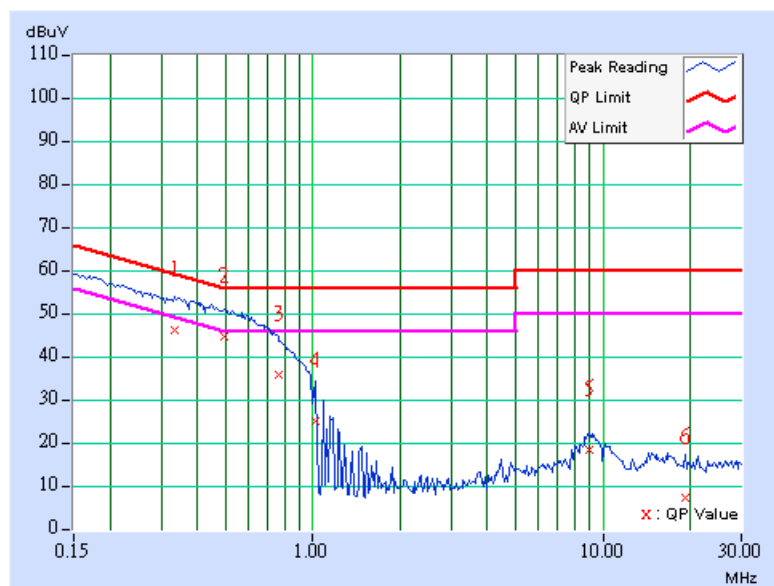
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	PHASE	Line 2
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	B3	TESTED BY	William Chien

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.334	0.10	45.69	-	45.79	-	59.36	49.36	-13.57	-
2	0.498	0.12	44.03	-	44.15	-	56.04	46.04	-11.89	-
3	0.767	0.16	35.35	-	35.51	-	56.00	46.00	-20.49	-
4	1.020	0.20	24.44	-	24.64	-	56.00	46.00	-31.36	-
5	8.938	0.36	17.78	-	18.14	-	60.00	50.00	-41.86	-
6	19.340	0.76	6.73	-	7.49	-	60.00	50.00	-52.51	-

- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

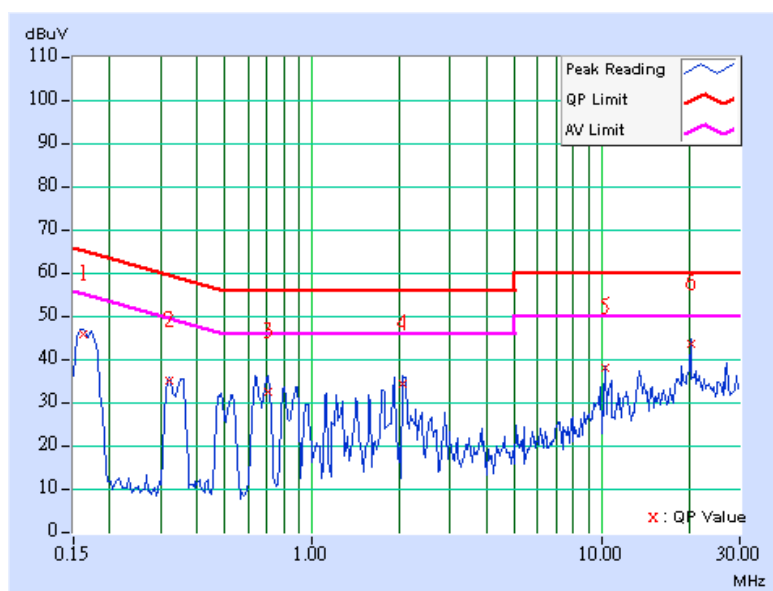


Conducted Worst-Case Data (Power from AC adapter_VE20-120)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	PHASE	Line 1
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C3	TESTED BY	William Chien

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.11	44.87	-	44.98	-	65.38	55.38	-20.40	-
2	0.322	0.12	34.18	-	34.30	-	59.66	49.66	-25.36	-
3	0.705	0.18	31.75	-	31.93	-	56.00	46.00	-24.07	-
4	2.059	0.25	33.58	-	33.83	-	56.00	46.00	-22.17	-
5	10.242	0.45	37.05	-	37.50	-	60.00	50.00	-22.50	-
6	20.258	1.00	42.66	-	43.66	-	60.00	50.00	-16.34	-

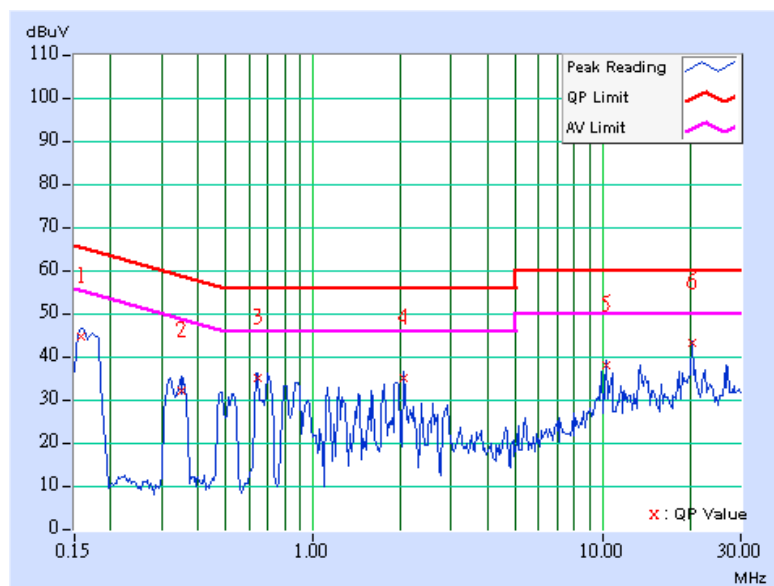
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	PHASE	Line 2
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C3	TESTED BY	William Chien

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.11	43.95	-	44.06	-	65.58	55.58	-21.52	-
2	0.349	0.12	31.34	-	31.46	-	58.98	48.98	-27.52	-
3	0.642	0.16	34.14	-	34.30	-	56.00	46.00	-21.70	-
4	2.066	0.25	34.19	-	34.44	-	56.00	46.00	-21.56	-
5	10.242	0.55	37.24	-	37.79	-	60.00	50.00	-22.21	-
6	20.258	0.99	42.36	-	43.35	-	60.00	50.00	-16.65	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Jan. 07, 2006
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Nov. 29, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 22, 2006
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Jan. 05, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170242	Jan. 23, 2006
Preamplifier Agilent	8447D	2944A10631	Nov. 17, 2005
Preamplifier Agilent	8449B	3008A01960	Nov. 14, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219272/4	Jan. 26, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219275/4	Jan. 26, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 3.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The IC Site Registration No. is IC4924-4.

5.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

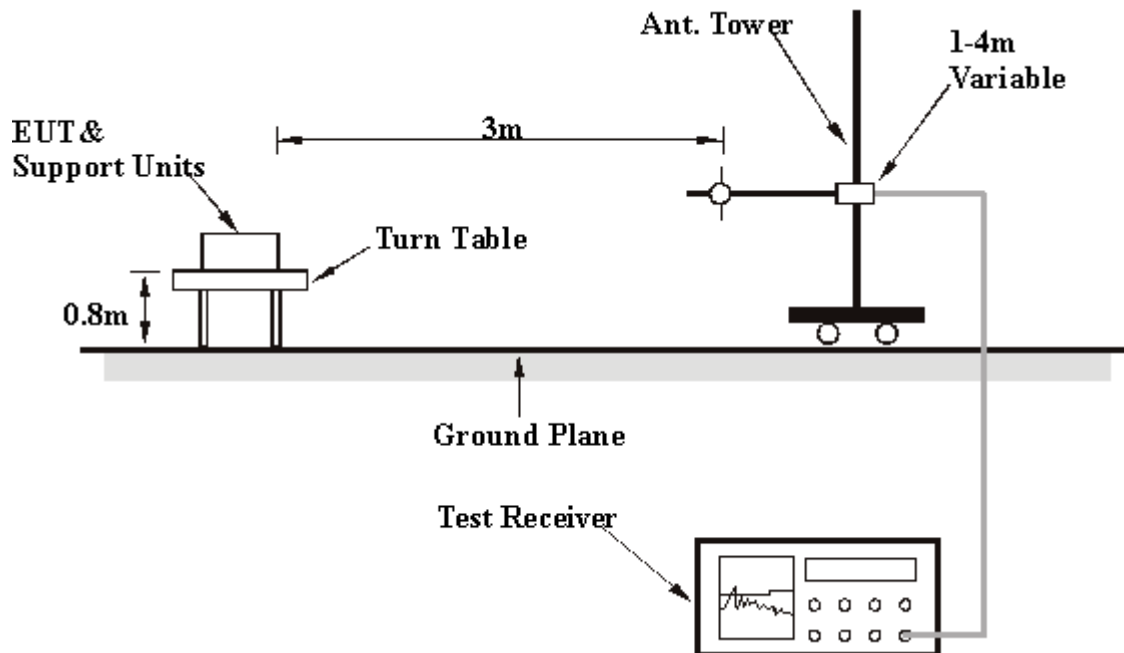
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.2.7 TEST RESULTS_ ANTENNA SAA05-22063A (BELOW 1GHz TEST)

Below 1GHz Worst-Case Data (Power from POE)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	A1	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	199.12	34.66 QP	43.50	-8.84	1.50 H	235	23.31	11.34
2	232.16	36.67 QP	46.00	-9.33	1.00 H	97	24.20	12.48
3	399.34	40.04 QP	46.00	-5.96	1.00 H	106	23.32	16.71
4	667.60	44.47 QP	46.00	-1.53	2.00 H	184	22.81	21.66
5	799.78	37.00 QP	46.00	-9.00	1.00 H	235	13.54	23.46
6	933.91	40.91 QP	46.00	-5.09	1.00 H	103	15.74	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	36.96 QP	40.00	-3.04	1.00 V	325	22.00	14.96
2	199.12	36.12 QP	43.50	-7.38	1.00 V	292	24.78	11.34
3	399.34	37.84 QP	46.00	-8.16	2.00 V	232	21.13	16.71
4	533.47	40.96 QP	46.00	-5.04	1.00 V	205	21.80	19.17
5	667.60	44.24 QP	46.00	-1.76	1.25 V	199	22.58	21.66
6	933.91	39.98 QP	46.00	-6.02	1.00 V	115	14.82	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

Below 1GHz Worst-Case Data (Power from AC adapter_57-12-1500)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	B1	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	300.20	37.77 QP	46.00	-8.23	1.50 H	115	23.36	14.41
2	399.34	37.91 QP	46.00	-8.09	1.00 H	208	21.20	16.71
3	467.37	43.61 QP	46.00	-2.39	2.00 H	163	25.42	18.20
4	667.60	44.13 QP	46.00	-1.87	2.00 H	196	22.47	21.66
5	799.78	38.81 QP	46.00	-7.19	1.00 H	166	15.35	23.46
6	933.91	40.78 QP	46.00	-5.22	2.00 H	181	15.62	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.94	38.74 QP	40.00	-1.26	1.00 V	271	24.73	14.01
2	199.12	35.70 QP	43.50	-7.80	1.50 V	316	24.36	11.34
3	399.34	41.79 QP	46.00	-4.21	1.00 V	229	25.08	16.71
4	533.47	41.03 QP	46.00	-4.97	1.25 V	190	21.86	19.17
5	667.60	44.35 QP	46.00	-1.65	1.00 V	199	22.69	21.66
6	933.91	39.34 QP	46.00	-6.66	1.00 V	193	14.18	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

Below 1GHz Worst-Case Data (Power from AC adapter_VE20-120)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C1	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	199.12	34.76 QP	43.50	-8.74	1.00 H	244	23.41	11.34
2	232.16	36.44 QP	46.00	-9.56	1.25 H	94	23.97	12.48
3	399.34	40.60 QP	46.00	-5.40	1.00 H	94	23.88	16.71
4	667.60	43.30 QP	46.00	-2.70	1.00 H	154	21.64	21.66
5	799.78	36.91 QP	46.00	-9.09	1.00 H	235	13.45	23.46
6	933.91	41.08 QP	46.00	-4.92	2.00 H	226	15.92	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	38.64 QP	40.00	-1.36	1.50 V	154	23.68	14.96
2	199.12	35.94 QP	43.50	-7.56	1.00 V	256	24.60	11.34
3	399.34	37.97 QP	46.00	-8.03	1.00 V	226	21.26	16.71
4	533.47	41.03 QP	46.00	-4.97	1.00 V	199	21.87	19.17
5	667.60	44.52 QP	46.00	-1.48	1.50 V	184	22.86	21.66
6	933.91	39.94 QP	46.00	-6.06	1.00 V	100	14.78	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

5.2.8 TEST RESULTS_ ANTENNA SDW0939A1 (BELOW 1GHz TEST)

Below 1GHz Worst-Case Data (Power from POE)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	A2	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	199.12	34.50 QP	43.50	-9.00	1.00 H	241	23.16	11.34
2	232.16	36.66 QP	46.00	-9.34	1.50 H	106	24.18	12.48
3	399.34	40.30 QP	46.00	-5.70	1.00 H	94	23.59	16.71
4	667.60	43.10 QP	46.00	-2.90	1.00 H	151	21.44	21.66
5	799.78	36.68 QP	46.00	-9.32	1.00 H	229	13.22	23.46
6	933.91	41.08 QP	46.00	-4.92	2.00 H	217	15.91	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	37.65 QP	40.00	-2.35	1.00 V	301	22.69	14.96
2	199.12	35.71 QP	43.50	-7.79	1.00 V	280	24.37	11.34
3	399.34	37.86 QP	46.00	-8.14	1.50 V	238	21.15	16.71
4	533.47	41.20 QP	46.00	-4.80	1.00 V	196	22.04	19.17
5	667.60	44.29 QP	46.00	-1.71	1.00 V	187	22.63	21.66
6	933.91	40.08 QP	46.00	-5.92	1.25 V	106	14.92	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

Below 1GHz Worst-Case Data (Power from AC adapter_57-12-1500)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	B2	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	166.07	34.26 QP	43.50	-9.24	1.50 H	91	19.94	14.32
2	399.34	38.71 QP	46.00	-7.29	1.00 H	208	21.99	16.71
3	533.47	39.84 QP	46.00	-6.16	1.50 H	247	20.67	19.17
4	667.60	44.34 QP	46.00	-1.66	2.00 H	199	22.68	21.66
5	799.78	39.58 QP	46.00	-6.42	1.00 H	154	16.12	23.46
6	933.91	42.01 QP	46.00	-3.99	1.50 H	181	16.85	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.94	38.53 QP	40.00	-1.47	1.00 V	217	24.52	14.01
2	399.34	40.67 QP	46.00	-5.33	1.50 V	244	23.95	16.71
3	533.47	42.45 QP	46.00	-3.55	1.00 V	226	23.28	19.17
4	667.60	44.75 QP	46.00	-1.25	1.00 V	265	23.09	21.66
5	799.78	38.96 QP	46.00	-7.04	2.00 V	109	15.50	23.46
6	933.91	40.02 QP	46.00	-5.98	1.00 V	232	14.86	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

Below 1GHz Worst-Case Data (Power from AC adapter_VE20-120)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C2	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	199.12	35.07 QP	43.50	-8.43	1.00 H	232	23.73	11.34
2	232.16	36.71 QP	46.00	-9.29	1.50 H	100	24.23	12.48
3	399.34	40.26 QP	46.00	-5.74	1.00 H	94	23.55	16.71
4	667.60	43.27 QP	46.00	-2.73	1.00 H	151	21.61	21.66
5	799.78	36.84 QP	46.00	-9.16	1.50 H	232	13.39	23.46
6	933.91	41.19 QP	46.00	-4.81	1.00 H	223	16.03	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	37.31 QP	40.00	-2.69	1.00 V	181	22.34	14.96
2	166.07	35.47 QP	43.50	-8.03	1.00 V	166	21.15	14.32
3	199.12	35.96 QP	43.50	-7.54	1.25 V	262	24.62	11.34
4	533.47	40.95 QP	46.00	-5.05	1.00 V	208	21.79	19.17
5	667.60	44.08 QP	46.00	-1.92	1.00 V	196	22.42	21.66
6	933.91	39.93 QP	46.00	-6.07	1.50 V	112	14.77	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

5.2.9 TEST RESULTS_ANTENNA SAA05-22056A (BELOW 1GHz TEST)

Below 1GHz Worst-Case Data (Power from POE)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	A3	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	39.72	31.57 QP	40.00	-8.43	1.25 H	154	16.31	15.26
2	199.12	35.22 QP	43.50	-8.28	1.00 H	256	23.88	11.34
3	399.34	40.09 QP	46.00	-5.91	1.00 H	91	23.37	16.71
4	667.60	44.28 QP	46.00	-1.72	2.00 H	187	22.62	21.66
5	799.78	37.03 QP	46.00	-8.97	1.00 H	235	13.57	23.46
6	933.91	41.13 QP	46.00	-4.87	1.00 H	229	15.97	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	37.68 QP	40.00	-2.32	1.00 V	82	22.72	14.96
2	199.12	36.14 QP	43.50	-7.36	2.00 V	277	24.80	11.34
3	399.34	38.36 QP	46.00	-7.64	1.00 V	241	21.65	16.71
4	533.47	40.95 QP	46.00	-5.05	1.00 V	205	21.78	19.17
5	667.60	44.62 QP	46.00	-1.38	1.00 V	274	22.96	21.66
6	933.91	40.03 QP	46.00	-5.97	1.50 V	115	14.87	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

Below 1GHz Worst-Case Data (Power from AC adapter_57-12-1500)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	B3	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	300.20	37.48 QP	46.00	-8.52	1.00 H	139	23.06	14.41
2	399.34	39.07 QP	46.00	-6.93	1.00 H	211	22.35	16.71
3	533.47	38.79 QP	46.00	-7.21	1.25 H	13	19.63	19.17
4	667.60	44.61 QP	46.00	-1.39	2.00 H	202	22.95	21.66
5	799.78	39.76 QP	46.00	-6.24	1.00 H	244	16.31	23.46
6	933.91	40.09 QP	46.00	-5.91	2.00 H	211	14.93	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.94	38.29 QP	40.00	-1.71	1.50 V	241	24.28	14.01
2	199.12	35.87 QP	43.50	-7.63	1.00 V	340	24.53	11.34
3	399.34	41.25 QP	46.00	-4.75	1.00 V	259	24.54	16.71
4	533.47	38.26 QP	46.00	-7.74	1.00 V	211	19.09	19.17
5	667.60	44.38 QP	46.00	-1.62	1.25 V	274	22.72	21.66
6	933.91	37.91 QP	46.00	-8.09	1.50 V	103	12.74	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

Below 1GHz Worst-Case Data (Power from AC adapter_VE20-120)

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 985hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C3	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	39.72	31.09 QP	40.00	-8.91	1.00 H	145	15.83	15.26
2	166.07	35.28 QP	43.50	-8.22	2.00 H	253	20.96	14.32
3	399.34	40.51 QP	46.00	-5.49	1.00 H	94	23.80	16.71
4	533.47	37.71 QP	46.00	-8.29	2.00 H	244	18.55	19.17
5	667.60	44.51 QP	46.00	-1.49	2.00 H	166	22.85	21.66
6	933.91	40.78 QP	46.00	-5.22	2.00 H	175	15.61	25.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	37.93 QP	40.00	-2.07	1.25 V	178	22.96	14.96
2	199.12	35.78 QP	43.50	-7.72	1.00 V	265	24.44	11.34
3	399.34	38.44 QP	46.00	-7.56	1.00 V	244	21.72	16.71
4	533.47	41.21 QP	46.00	-4.79	1.00 V	202	22.05	19.17
5	667.60	44.12 QP	46.00	-1.88	1.50 V	274	22.46	21.66
6	933.91	39.69 QP	46.00	-6.31	1.00 V	115	14.52	25.16

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value

5.2.10 TEST RESULTS_ ANTENNA SAA05-22063A (ABOVE 1GHz TEST)

802.11a OFDM modulation

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C1	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	44.58 PK	74.00	-29.42	1.12 H	53	17.03	27.55
2	2133.00	46.18 PK	78.83	-32.65	1.00 H	21	15.33	30.85
3	5725.00	68.98 PK	78.83	-8.85	1.35 H	274	29.53	39.45
3	5725.00	57.40 AV	68.09	-10.69	1.35 H	274	17.95	39.45
4	*5745.00	98.83 PK			1.35 H	274	59.35	39.48
4	*5745.00	88.09 AV			1.35 H	274	48.61	39.48
5	#11490.00	59.06 PK	74.00	-14.94	1.11 H	130	8.35	50.71
5	#11490.00	47.28 AV	54.00	-6.72	1.11 H	130	-3.43	50.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.21 PK	74.00	-28.79	1.30 V	258	17.66	27.55
2	2133.00	46.31 PK	91.19	-44.88	1.25 V	137	15.46	30.85
3	5725.00	81.62 PK	91.19	-9.57	1.00 V	10	42.17	39.45
3	5725.00	63.65 AV	81.12	-17.47	1.00 V	10	24.20	39.45
4	*5745.00	111.19 PK			1.00 V	10	71.71	39.48
4	*5745.00	101.12 AV			1.00 V	10	61.64	39.48
5	#11490.00	59.62 PK	74.00	-14.38	1.02 V	345	8.91	50.71
5	#11490.00	47.11 AV	54.00	-6.89	1.02 V	345	-3.60	50.71

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C1	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	44.86 PK	74.00	-29.14	1.02 H	51	17.31	27.55
2	2133.00	46.37 PK	78.76	-32.39	1.02 H	29	15.52	30.85
3	*5785.00	98.76 PK			1.34 H	277	59.21	39.55
3	*5785.00	87.92 AV			1.34 H	277	48.37	39.55
4	#11570.00	59.27 PK	74.00	-14.73	1.10 H	132	8.62	50.65
4	#11570.00	47.56 AV	54.00	-6.44	1.10 H	132	-3.09	50.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.53 PK	74.00	-28.47	1.31 V	254	17.98	27.55
2	2133.00	46.52 PK	91.07	-44.55	1.24 V	136	15.67	30.85
3	*5785.00	111.07 PK			1.00 V	12	71.52	39.55
3	*5785.00	101.01 AV			1.00 V	12	61.46	39.55
4	#11570.00	59.87 PK	74.00	-14.13	1.01 V	341	9.22	50.65
4	#11570.00	47.35 AV	54.00	-6.65	1.01 V	341	-3.30	50.65

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 5	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C1	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	44.92 PK	74.00	-29.08	1.03 H	251	17.37	27.55
2	2133.00	46.67 PK	78.26	-31.59	1.02 H	34	15.82	30.85
3	*5825.00	98.26 PK			1.30 H	275	58.68	39.58
3	*5825.00	88.23 AV			1.30 H	275	48.65	39.58
4	5850.00	67.95 PK	78.26	-10.31	1.30 H	275	28.36	39.59
4	5850.00	56.63 AV	68.23	-11.60	1.30 H	275	17.04	39.59
5	#11650.00	59.86 PK	74.00	-14.14	1.09 H	131	9.27	50.59
5	#11650.00	47.93 AV	54.00	-6.07	1.09 H	131	-2.66	50.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.68 PK	74.00	-28.32	1.31 V	259	18.13	27.55
2	2133.00	46.61 PK	91.25	-44.64	1.24 V	136	15.76	30.85
3	*5825.00	111.25 PK			1.00 V	11	71.67	39.58
3	*5825.00	101.20 AV			1.00 V	11	61.62	39.58
4	5850.00	69.98 PK	91.25	-21.27	1.00 V	11	30.39	39.59
4	5850.00	57.43 AV	81.20	-23.77	1.00 V	11	17.84	39.59
5	#11650.00	60.68 PK	74.00	-13.32	1.07 V	180	10.09	50.59
5	#11650.00	48.25 AV	54.00	-5.75	1.07 V	180	-2.34	50.59

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. “*” : Fundamental frequency
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

5.2.11 TEST RESULTS_ ANTENNA SDW0939A1 (ABOVE 1GHz TEST)

802.11a OFDM modulation

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C2	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.63 PK	74.00	-28.37	1.25 H	74	18.08	27.55
2	2133.00	47.82 PK	77.37	-29.55	1.27 H	276	16.97	30.85
3	5725.00	67.97 PK	77.37	-9.40	1.23 H	178	28.52	39.45
3	5725.00	57.06 AV	66.82	-9.76	1.23 H	178	17.61	39.45
4	*5745.00	97.37 PK			1.23 H	178	57.89	39.48
4	*5745.00	86.82 AV			1.23 H	178	47.34	39.48
5	#11490.00	58.86 PK	74.00	-15.14	1.00 H	144	8.15	50.71
5	#11490.00	45.91 AV	54.00	-8.09	1.00 H	144	-4.80	50.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	46.87 PK	74.00	-27.13	1.45 V	213	19.32	27.55
2	2133.00	48.69 PK	90.08	-41.39	1.40 V	195	17.84	30.85
3	5725.00	75.35 PK	90.08	-14.73	1.08 V	169	35.90	39.45
3	5725.00	60.30 AV	79.55	-19.25	1.08 V	169	20.85	39.45
4	*5745.00	110.08 PK			1.08 V	169	70.60	39.48
4	*5745.00	99.55 AV			1.08 V	169	60.07	39.48
5	#11490.00	59.76 PK	74.00	-14.24	1.02 V	145	9.05	50.71
5	#11490.00	47.17 AV	54.00	-6.83	1.02 V	145	-3.54	50.71

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. “*” : Fundamental frequency
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C2	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	46.35 PK	74.00	-27.65	1.21 H	82	18.80	27.55
2	2133.00	47.95 PK	76.49	-28.54	1.21 H	249	17.10	30.85
3	*5785.00	96.49 PK			1.21 H	176	56.94	39.55
3	*5785.00	85.93 AV			1.21 H	176	46.38	39.55
4	#11570.00	59.46 PK	74.00	-14.54	1.02 H	165	8.81	50.65
4	#11570.00	46.83 AV	54.00	-7.17	1.02 H	165	-3.82	50.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	46.68 PK	74.00	-27.32	1.41 V	225	19.13	27.55
2	2133.00	48.72 PK	89.23	-40.51	1.37 V	203	17.87	30.85
3	*5785.00	109.23 PK			1.07 V	170	69.68	39.55
3	*5785.00	98.57 AV			1.07 V	170	59.02	39.55
4	#11570.00	60.25 PK	74.00	-13.75	1.37 V	203	9.60	50.65
4	#11570.00	47.85 AV	54.00	-6.15	1.37 V	203	-2.80	50.65

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 5	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C2	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	46.35 PK	74.00	-27.65	1.20 H	239	18.80	27.55
2	2133.00	47.21 PK	75.34	-28.13	1.16 H	193	16.36	30.85
3	*5825.00	95.34 PK			1.00 H	174	55.76	39.58
3	*5825.00	85.29 AV			1.00 H	174	45.71	39.58
4	5850.00	67.28 PK	75.34	-8.06	1.00 H	174	27.69	39.59
4	5850.00	56.48 AV	65.29	-8.81	1.00 H	174	16.89	39.59
5	#11650.00	59.61 PK	74.00	-14.39	1.15 H	213	9.02	50.59
5	#11650.00	46.89 AV	54.00	-7.11	1.15 H	213	-3.70	50.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	46.53 PK	74.00	-27.47	1.40 V	231	18.98	27.55
2	2133.00	47.85 PK	88.11	-40.26	1.32 V	226	17.00	30.85
3	*5825.00	108.11 PK			1.16 V	170	68.53	39.58
3	*5825.00	97.98 AV			1.16 V	170	58.40	39.58
4	5850.00	68.86 PK	88.11	-19.25	1.16 V	170	29.27	39.59
4	5850.00	56.75 AV	77.98	-21.23	1.16 V	170	17.16	39.59
5	#11650.00	60.53 PK	74.00	-13.47	1.16 V	171	9.94	50.59
5	#11650.00	47.97 AV	54.00	-6.03	1.16 V	171	-2.62	50.59

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. “*” : Fundamental frequency
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

5.2.12 TEST RESULTS_ANTENNA SAA05-22056A (ABOVE 1GHz TEST)

802.11a OFDM modulation

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C3	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	44.27 PK	74.00	-29.73	1.09 H	162	16.72	27.55
2	2133.00	45.91 PK	79.31	-33.40	1.00 H	17	15.06	30.85
3	5725.00	69.38 PK	79.31	-9.93	1.19 H	351	29.93	39.45
3	5725.00	57.26 AV	69.70	-12.44	1.19 H	351	17.81	39.45
4	*5745.00	99.31 PK			1.19 H	351	59.83	39.48
4	*5745.00	89.70 AV			1.19 H	351	50.22	39.48
5	#11490.00	58.71 PK	74.00	-15.29	1.04 H	213	8.00	50.71
5	#11490.00	46.35 AV	54.00	-7.65	1.04 H	213	-4.36	50.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.86 PK	74.00	-28.14	1.39 V	338	18.31	27.55
2	2133.00	46.38 PK	94.17	-47.79	1.06 V	234	15.53	30.85
3	5725.00	83.75 PK	94.17	-10.42	1.05 V	355	44.30	39.45
3	5725.00	65.07 AV	83.58	-18.51	1.05 V	355	25.62	39.45
4	*5745.00	114.17 PK			1.05 V	355	74.69	39.48
4	*5745.00	103.58 AV			1.05 V	355	64.10	39.48
5	#11490.00	59.83 PK	74.00	-14.17	1.01 V	153	9.12	50.71
5	#11490.00	47.31 AV	54.00	-6.69	1.01 V	153	-3.40	50.71

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. “*” : Fundamental frequency
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C3	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	44.27 PK	74.00	-29.73	1.03 H	331	16.72	27.55
2	2133.00	45.52 PK	78.26	-32.74	1.07 H	251	14.67	30.85
3	*5785.00	98.26 PK			1.20 H	352	58.71	39.55
3	*5785.00	88.57 AV			1.20 H	352	49.02	39.55
4	#11570.00	59.72 PK	74.00	-14.28	1.10 H	104	9.07	50.65
4	#11570.00	47.11 AV	54.00	-6.89	1.10 H	104	-3.54	50.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.17 PK	74.00	-28.83	1.20 V	164	17.62	27.55
2	2133.00	46.72 PK	92.55	-45.83	1.30 V	214	15.87	30.85
3	*5785.00	112.55 PK			1.03 V	355	73.00	39.55
3	*5785.00	102.60 AV			1.03 V	355	63.05	39.55
4	#11570.00	60.61 PK	74.00	-13.39	1.09 V	237	9.96	50.65
4	#11570.00	47.94 AV	54.00	-6.06	1.09 V	237	-2.71	50.65

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	AirMagnet SmartEdge Sensor	MEASUREMENT DETAIL	
MODEL	A5020	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 5	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	C3	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.51 PK	74.00	-28.49	1.10 H	177	17.96	27.55
2	2133.00	46.27 PK	79.47	-33.20	1.06 H	217	15.42	30.85
3	*5825.00	99.47 PK			1.18 H	233	59.89	39.58
3	*5825.00	88.99 AV			1.18 H	233	49.41	39.58
4	5850.00	67.43 PK	79.47	-12.04	1.18 H	233	27.84	39.59
4	5850.00	56.61 AV	68.99	-12.38	1.18 H	233	17.02	39.59
5	#11650.00	59.27 PK	74.00	-14.73	1.01 H	179	8.68	50.59
5	#11650.00	46.52 AV	54.00	-7.48	1.01 H	179	-4.07	50.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#1066.00	45.27 PK	74.00	-28.73	1.13 V	215	17.72	27.55
2	2133.00	46.27 PK	92.61	-46.34	1.02 V	259	15.42	30.85
3	*5825.00	112.61 PK			1.03 V	357	73.03	39.58
3	*5825.00	102.49 AV			1.03 V	357	62.91	39.58
4	5850.00	70.97 PK	92.61	-21.64	1.03 V	357	31.38	39.59
4	5850.00	57.70 AV	82.49	-24.79	1.03 V	357	18.11	39.59
5	#11650.00	60.57 PK	74.00	-13.43	1.09 V	182	9.98	50.59
5	#11650.00	48.11 AV	54.00	-5.89	1.09 V	182	-2.48	50.59

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. “*” : Fundamental frequency
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247



5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

NOTES: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

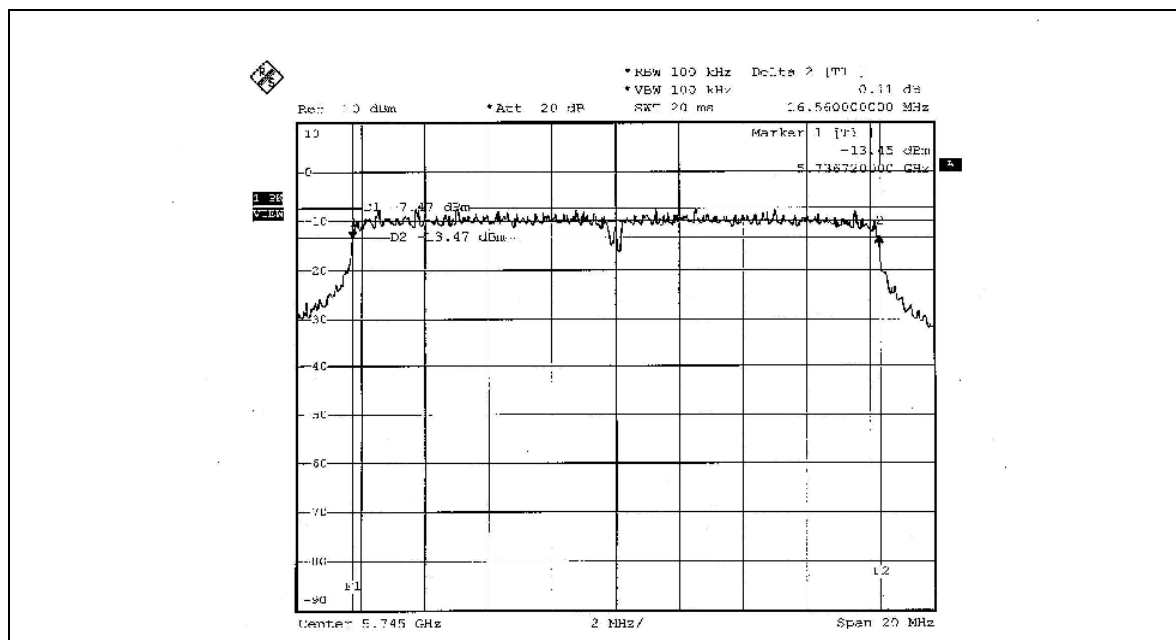
5.3.7 TEST RESULTS

802.11a OFDM modulation

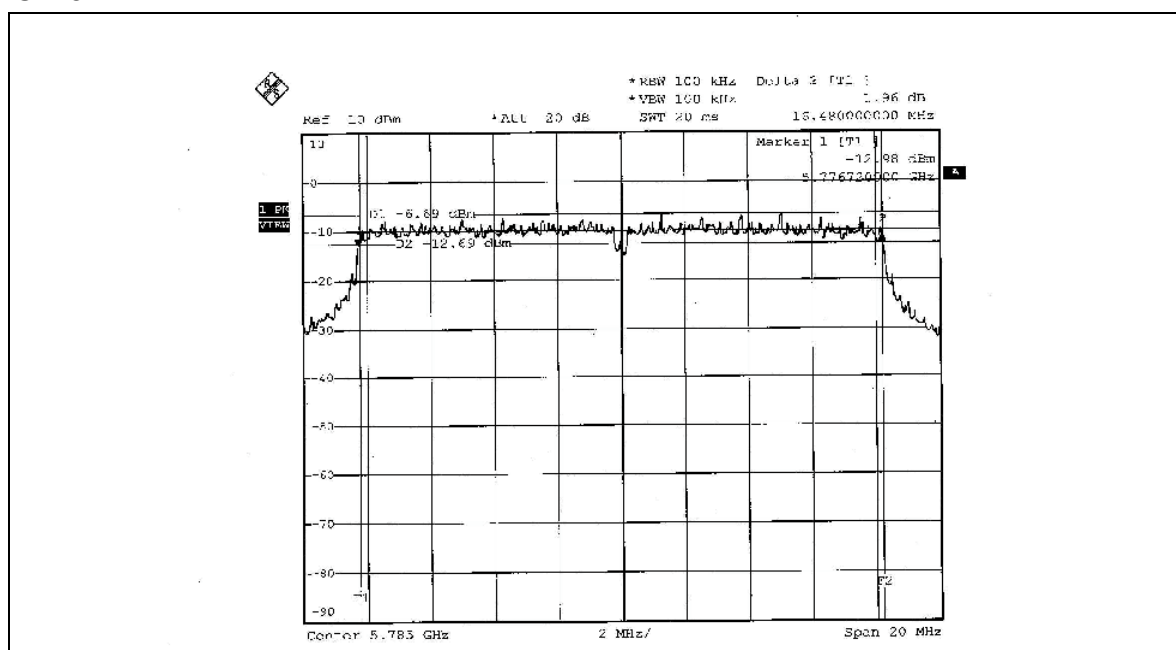
EUT	AirMagnet SmartEdge Sensor	MODEL	A5020
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 60%RH, 991hPa
TESTED BY	Gary Chang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	16.56	0.5	PASS
3	5785	16.48	0.5	PASS
5	5825	16.44	0.5	PASS

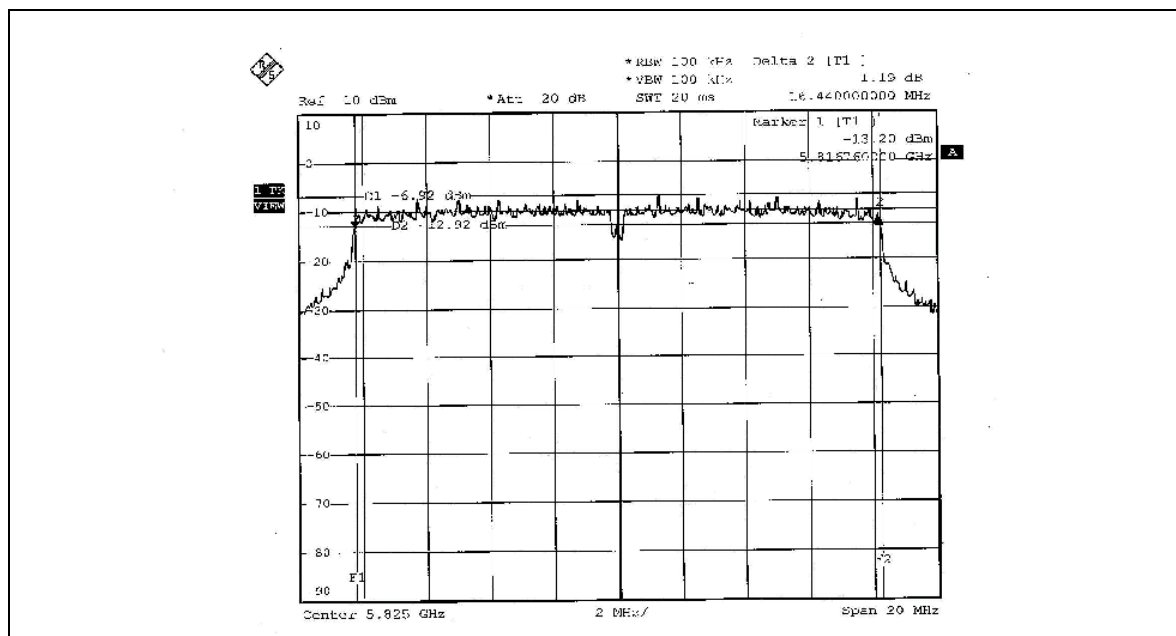
CH 1



CH 3



CH 5



5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2005
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Feb. 01, 2006
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA..

5.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator . The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

EUT	AirMagnet SmartEdge Sensor	MODEL	A5020
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 60%RH, 991hPa
TESTED BY	Gary Chang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	31.769	15.02	28	PASS
3	5785	31.989	15.05	28	PASS
5	5825	32.137	15.07	28	PASS

NOTE: According to 15.247 (4), the maximum antenna gain 8dBi is higher than 6dBi, so the limit of peak power shall be reduced by 2dB.

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

NOTES:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.5.3 TEST PROCEDURE

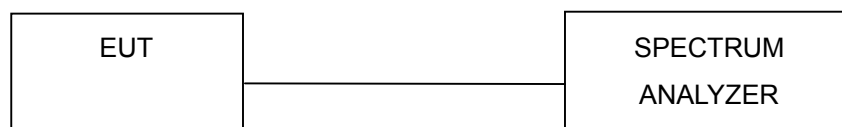
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6

5.5.7 TEST RESULTS

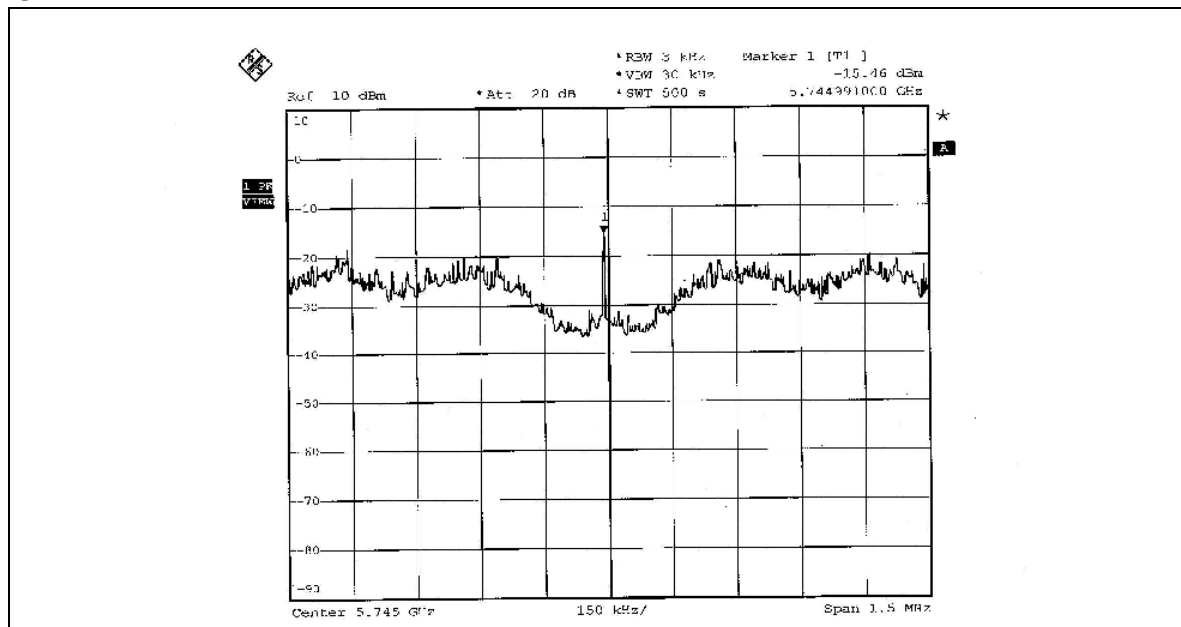
802.11a OFDM modulation

EUT	AirMagnet SmartEdge Sensor	MODEL	A5020
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 60%RH, 991hPa
TESTED BY	Gary Chang		

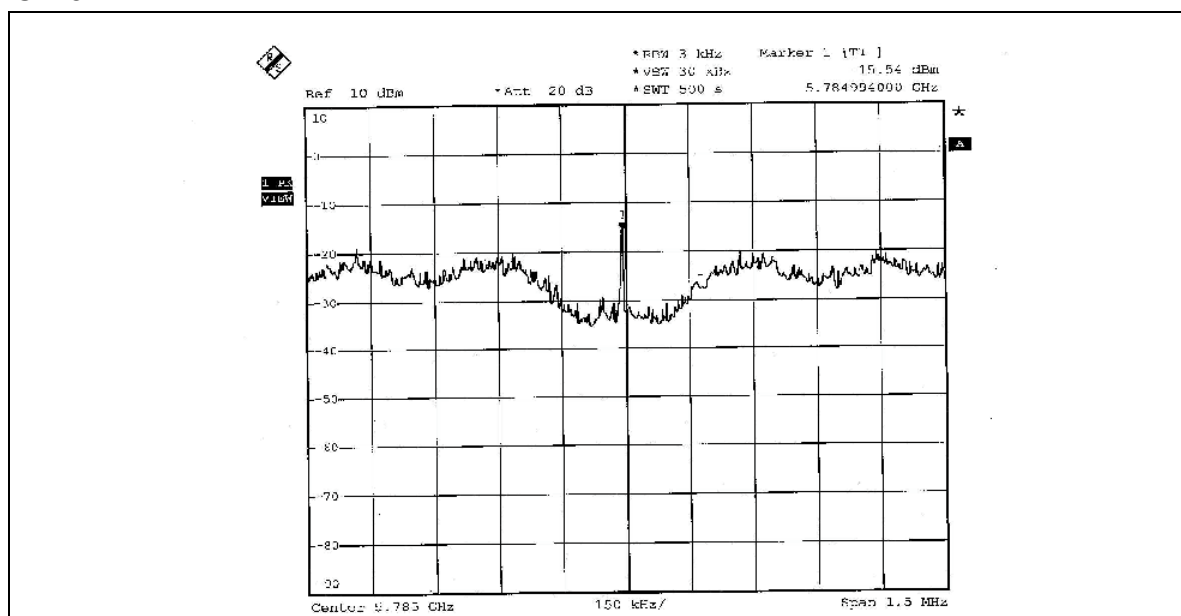
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	-15.46	6	PASS
3	5785	-15.54	6	PASS
5	5825	-15.92	6	PASS

NOTE: According to 15.247 (4), the maximum antenna gain 8dBi is higher than 6dBi, so the limit of peak power shall be reduced by 2dB.

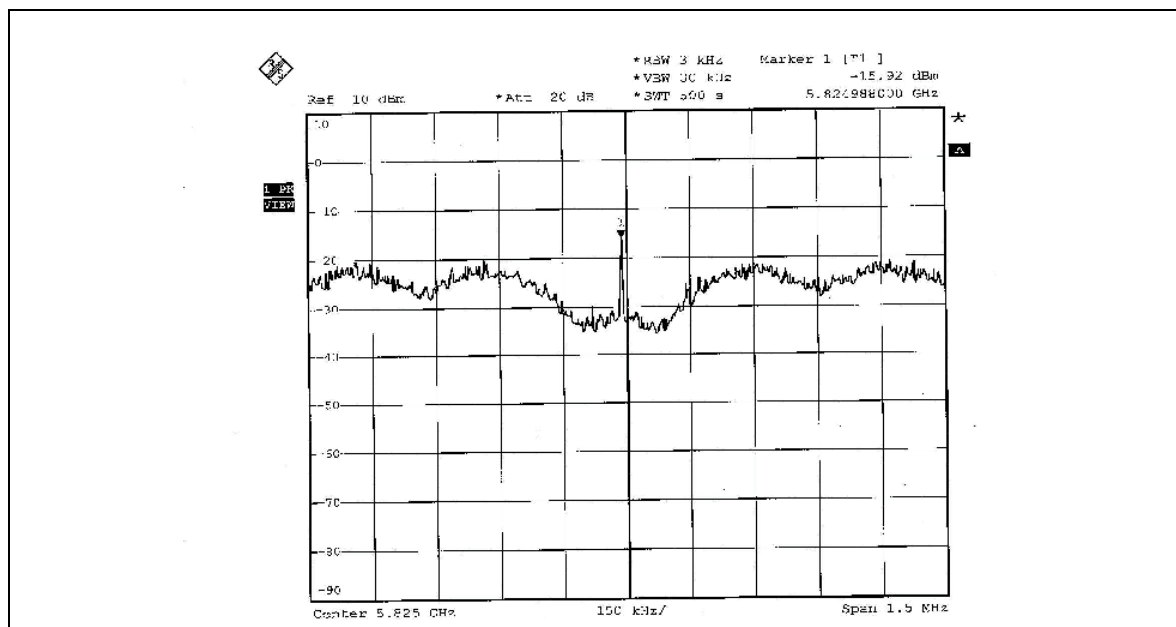
CH 1



CH 3



CH 5



5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

NOTES:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges were measured and recorded.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation



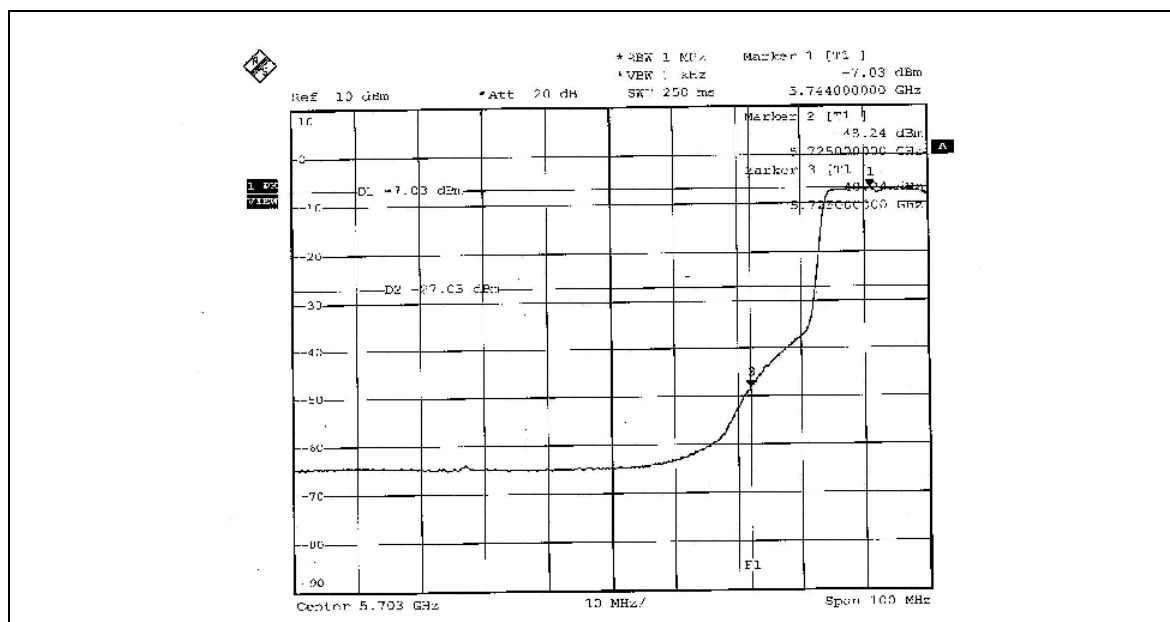
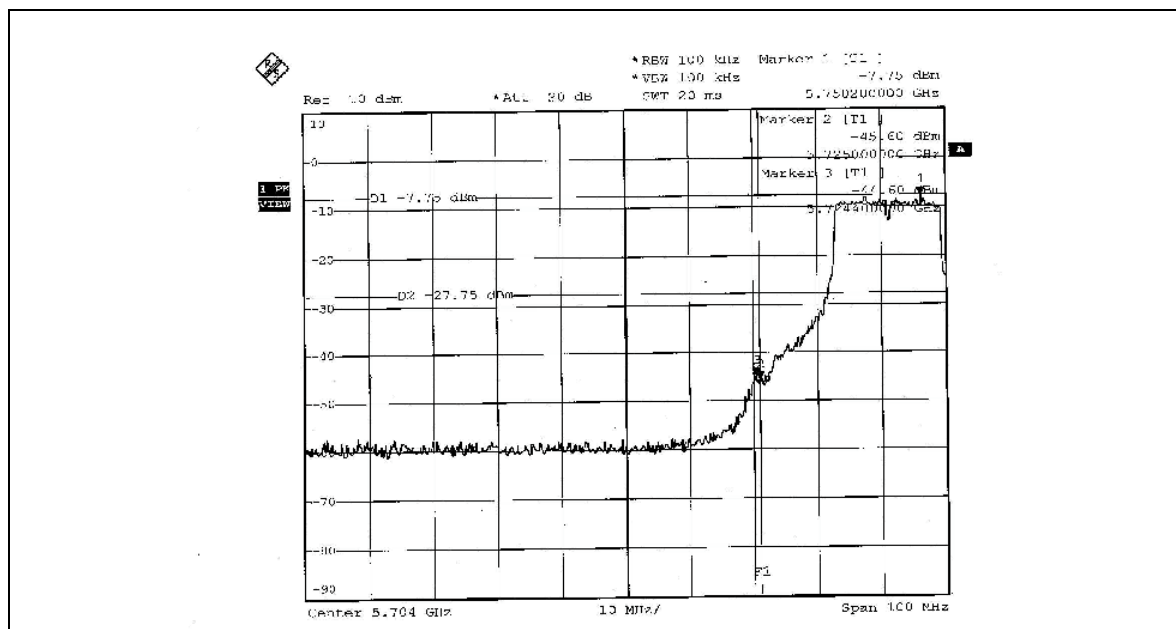
5.6.5 EUT OPERATING CONDITION

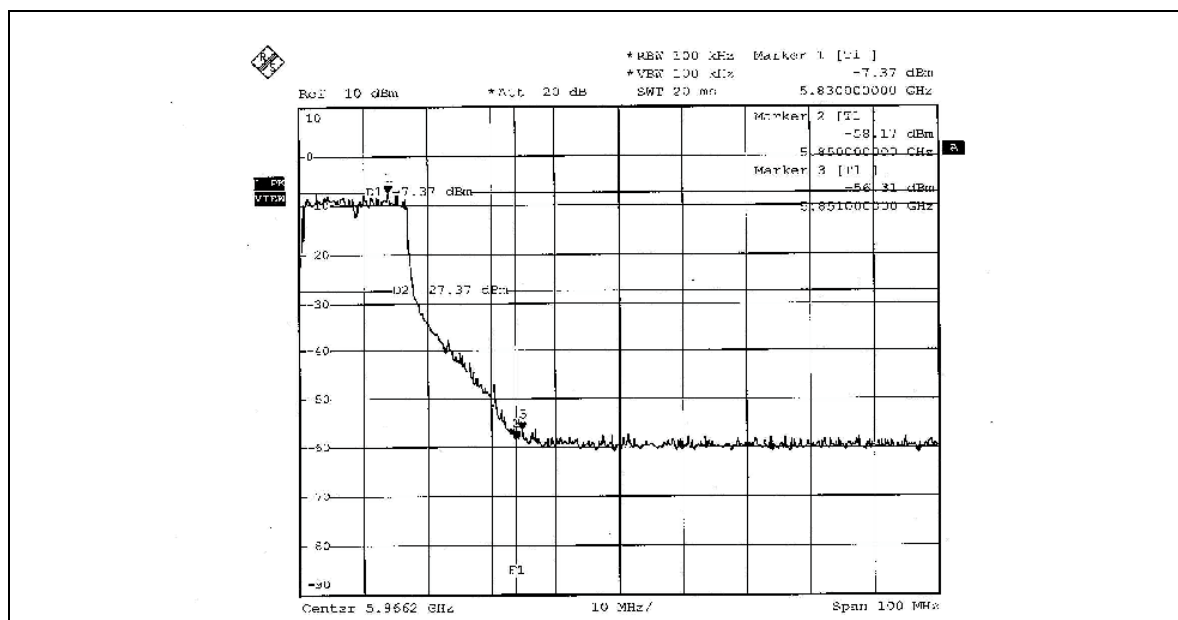
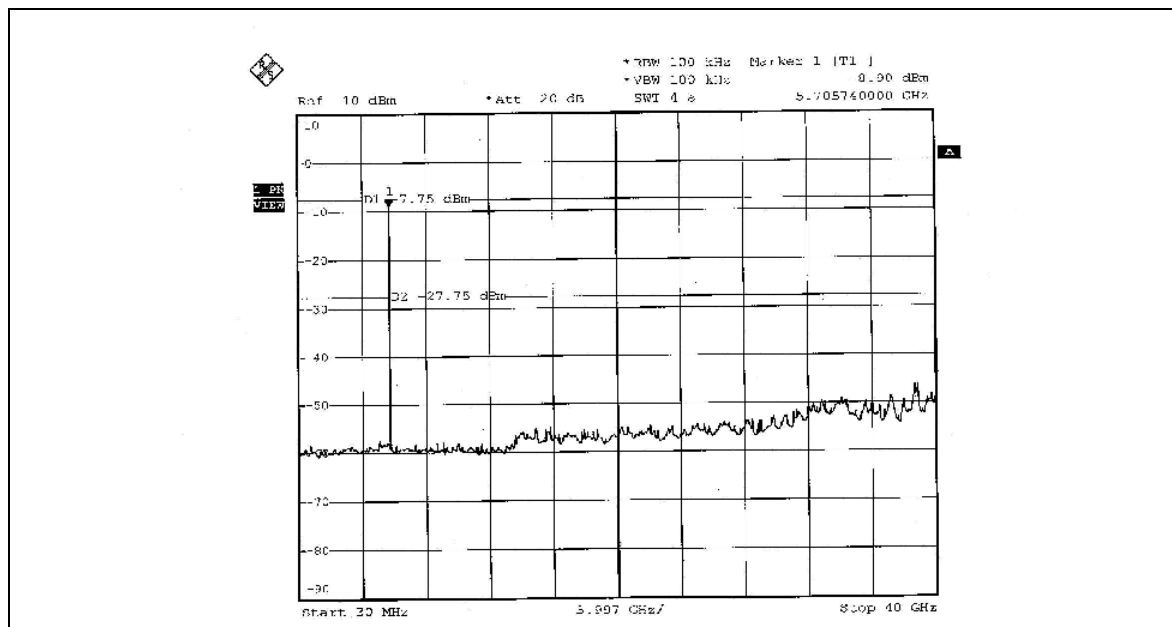
Same as Item 5.9.6

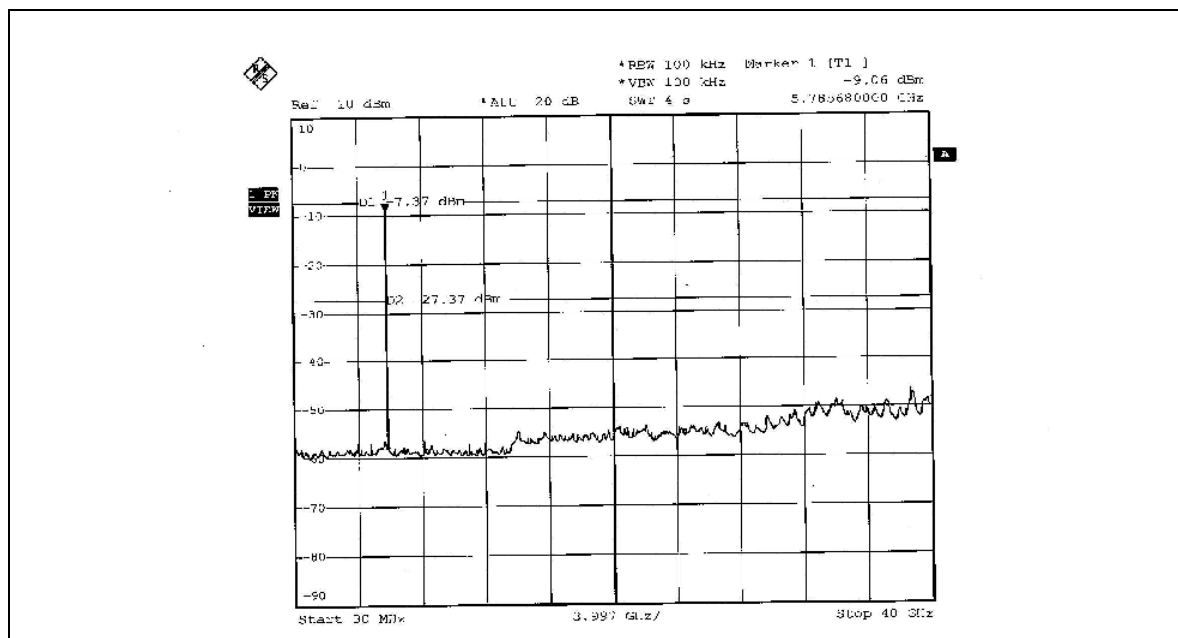
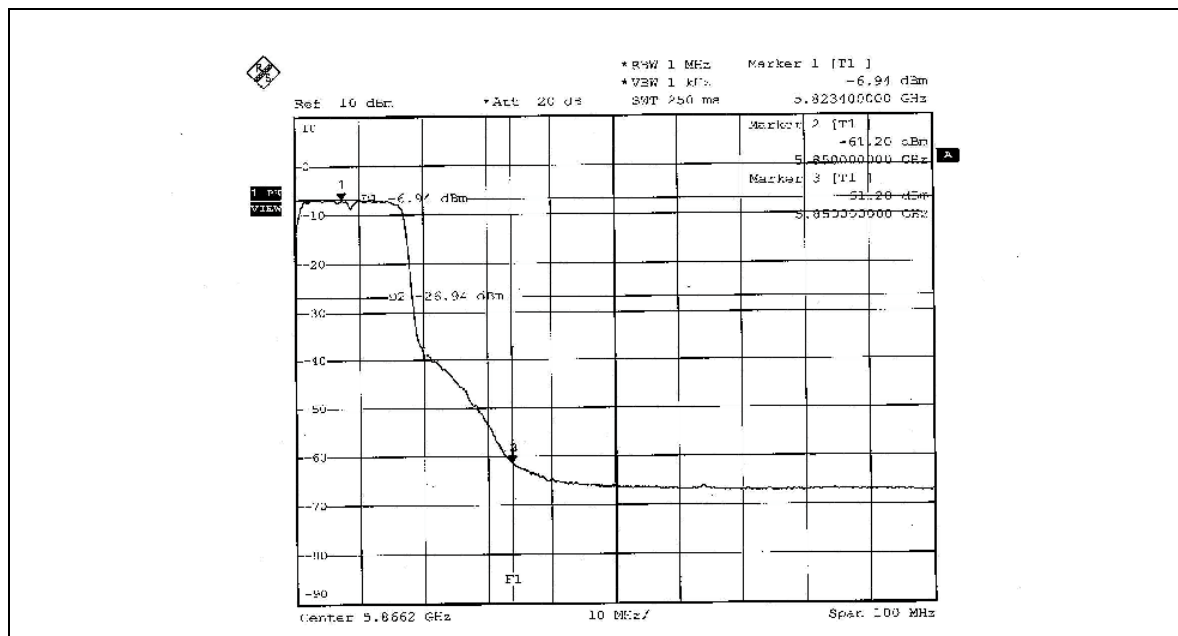
5.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation









5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.7.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are Omni-Directional and Dipole antenna with RP TNC connector. The maximum Gain of the antenna is 8dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

Test Mode A1



Test Mode A2



Test Mode A3



Test Mode B1



Test Mode B2



Test Mode B3



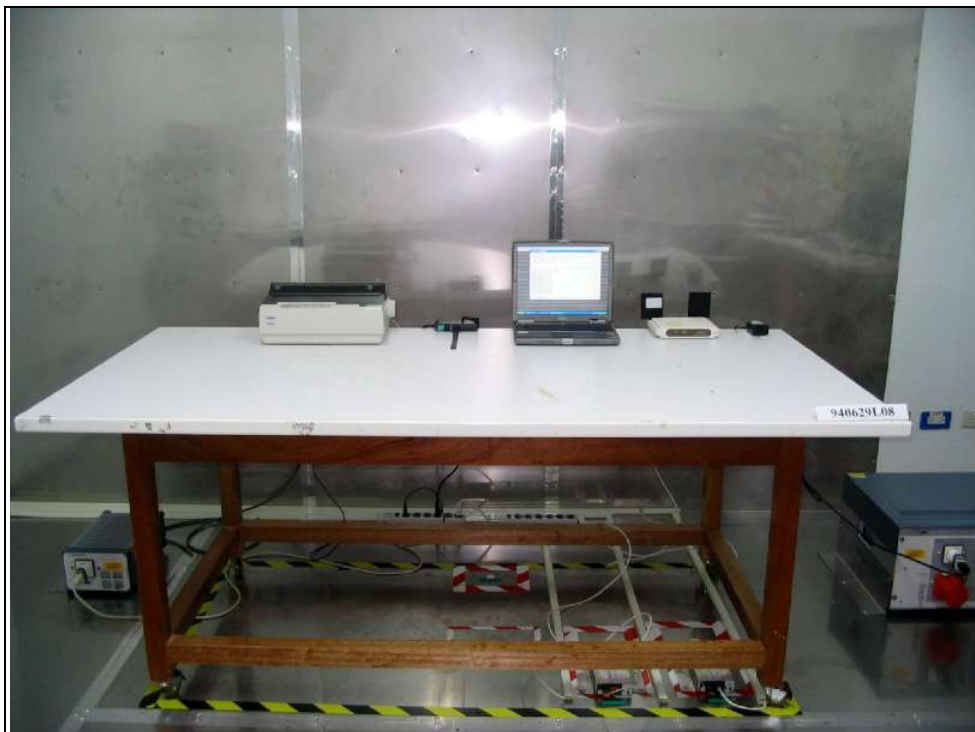
Test Mode C1



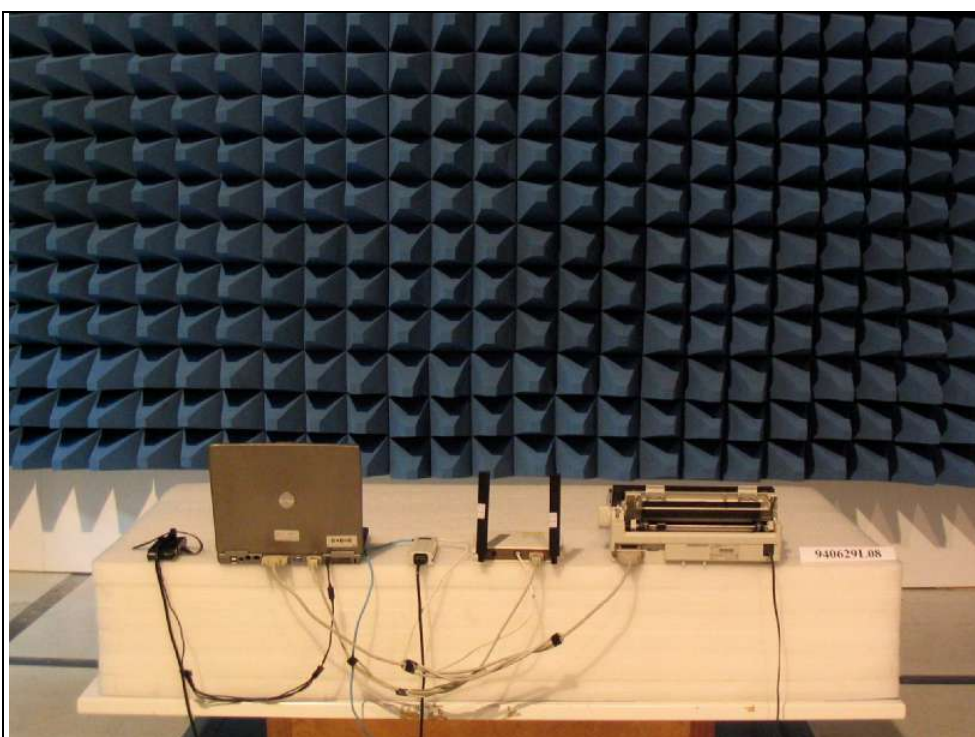
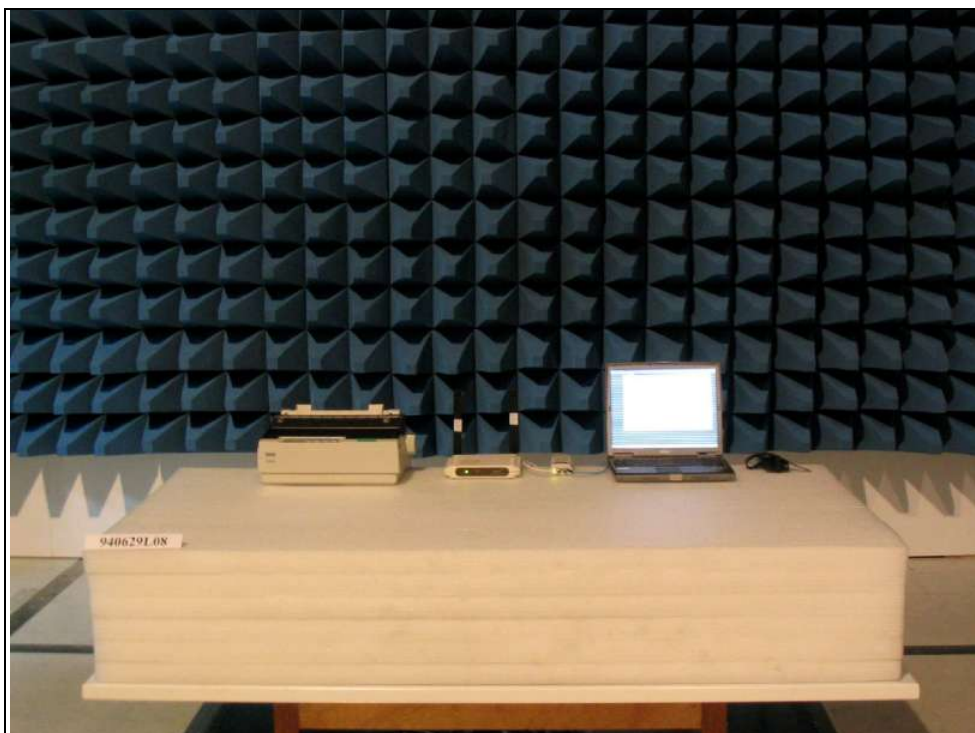
Test Mode C2



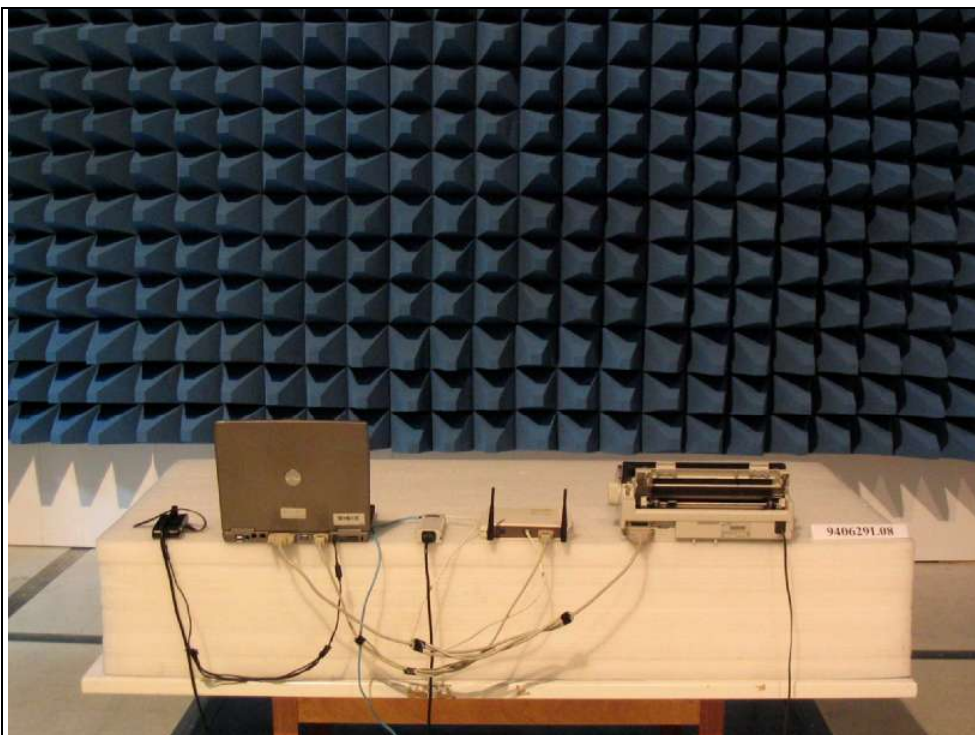
Test Mode C3



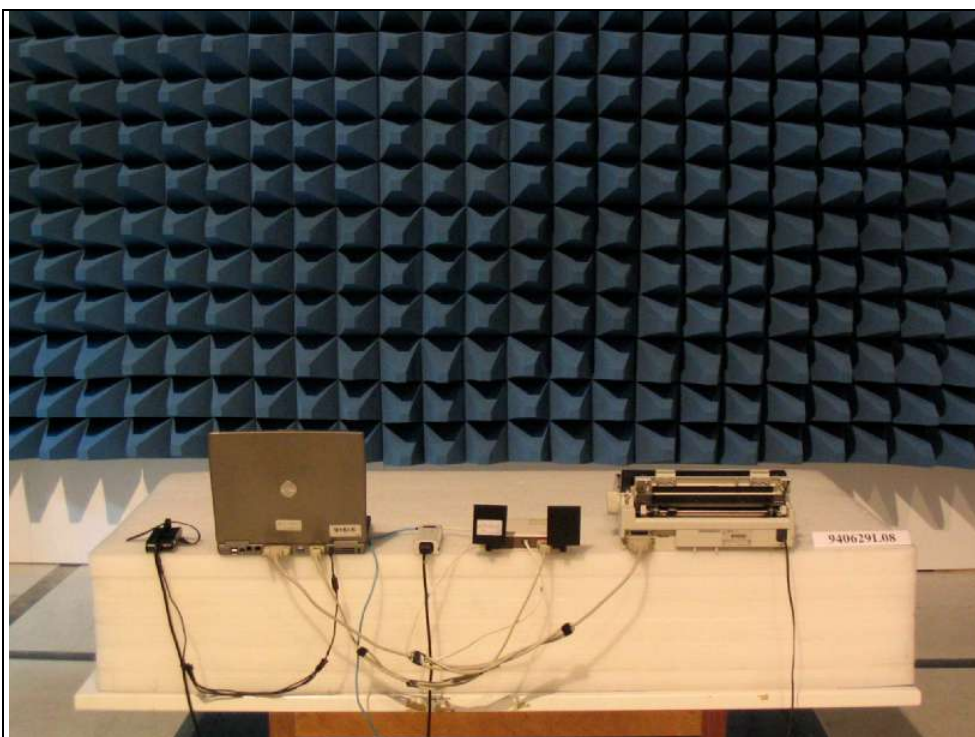
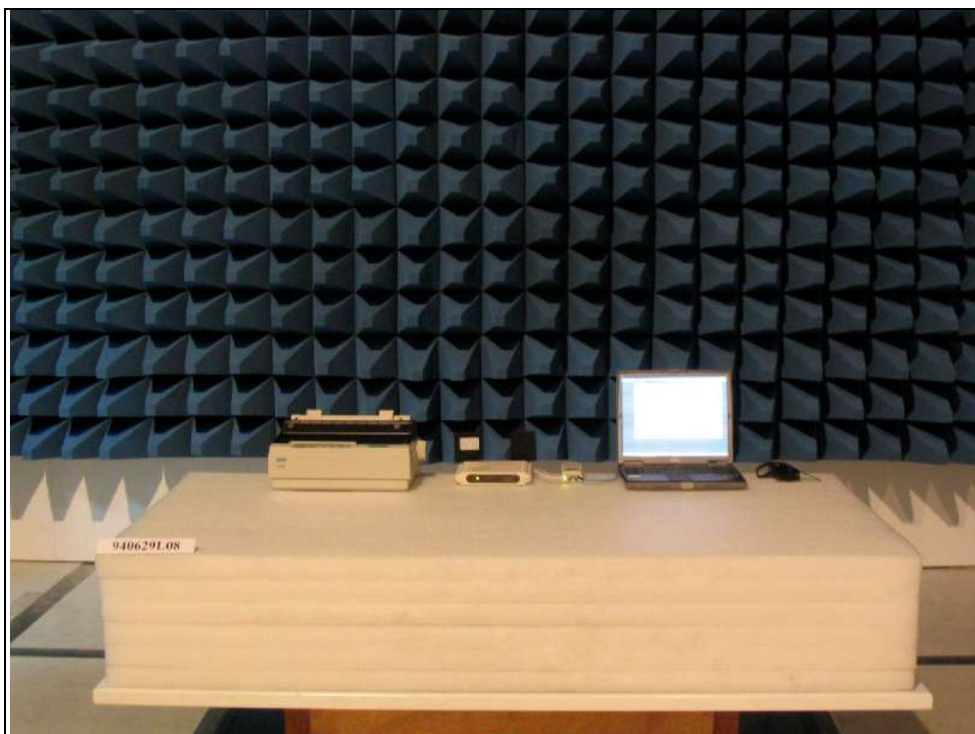
RADIATED EMISSION TEST Test Mode A1



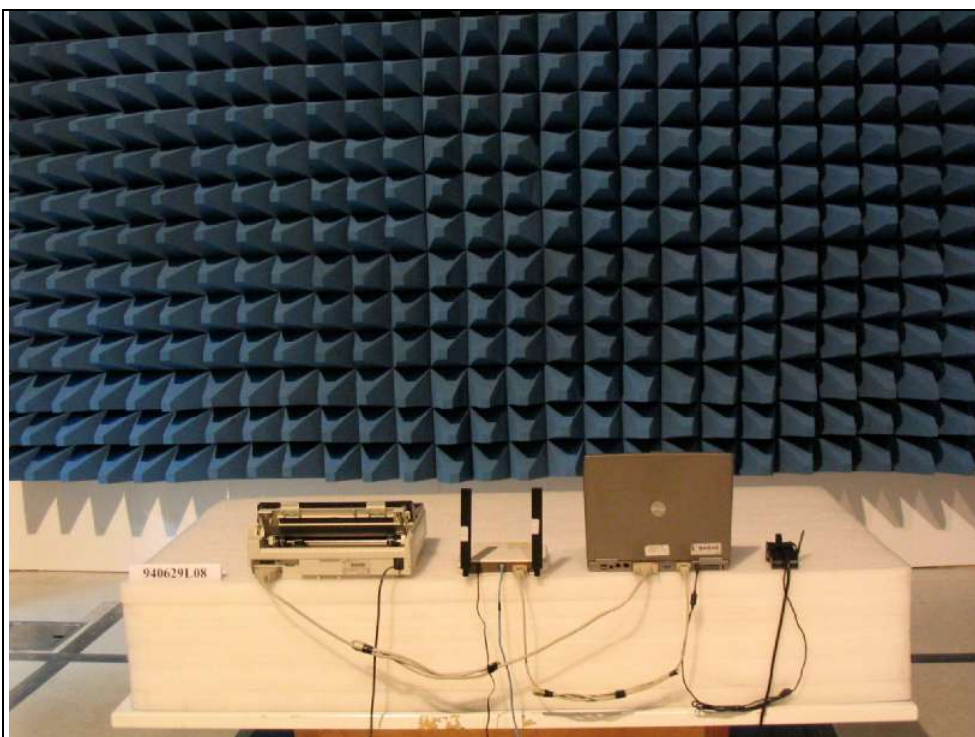
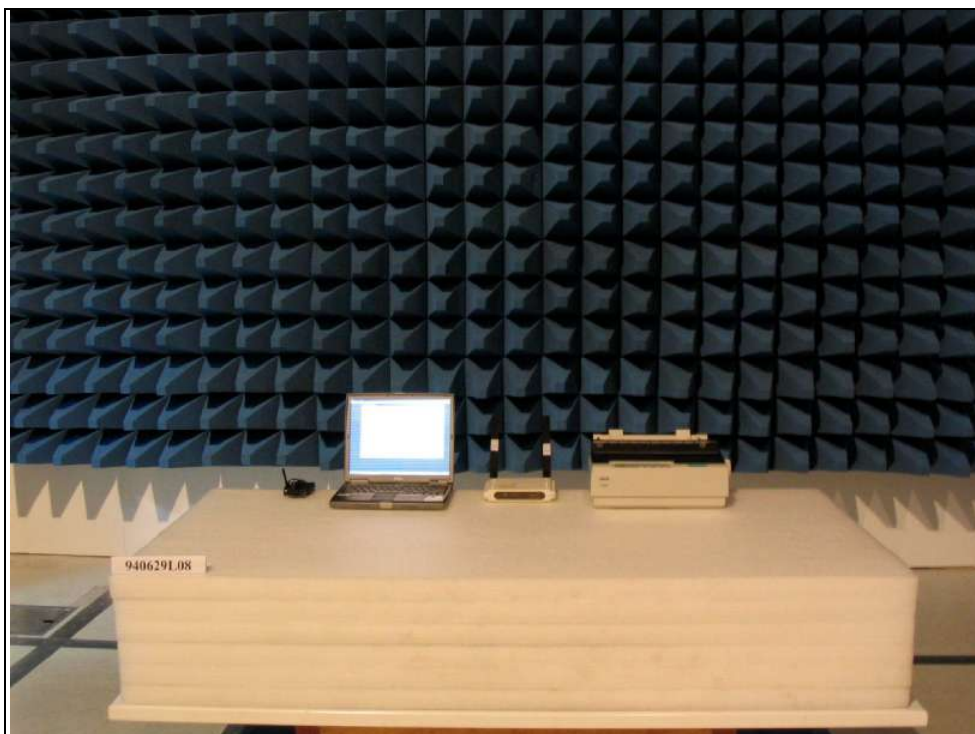
Test Mode A2



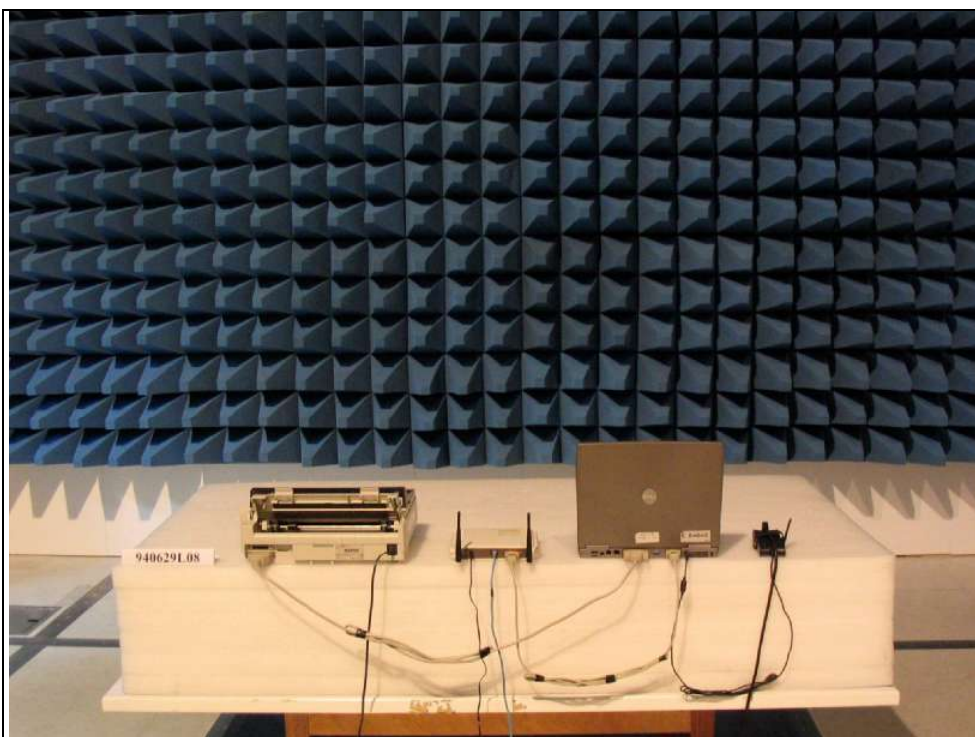
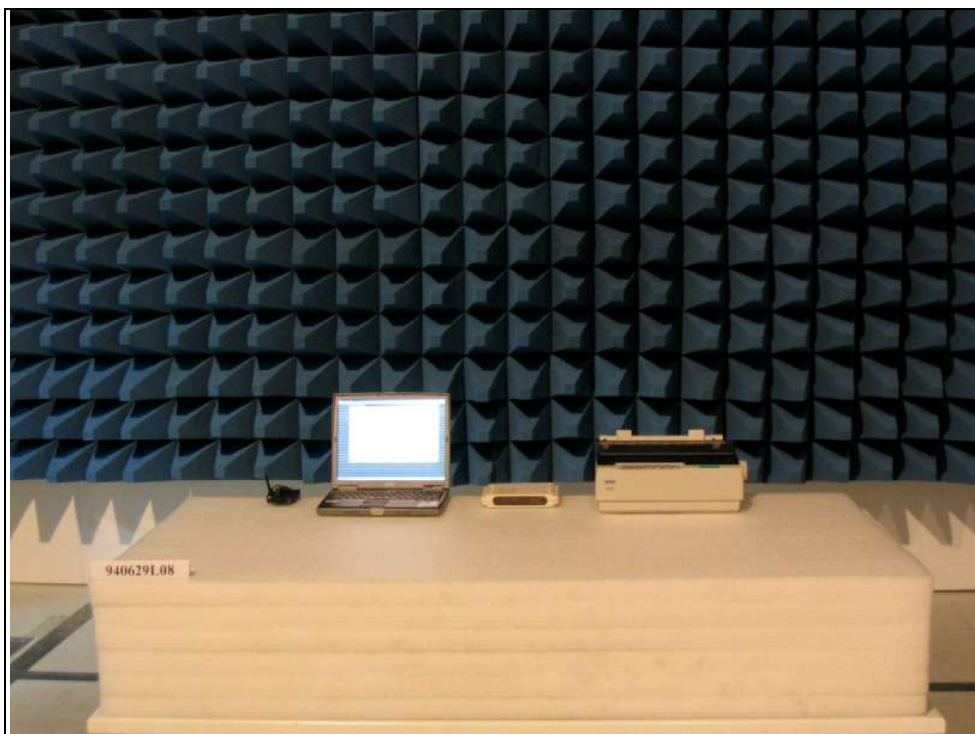
Test Mode A3



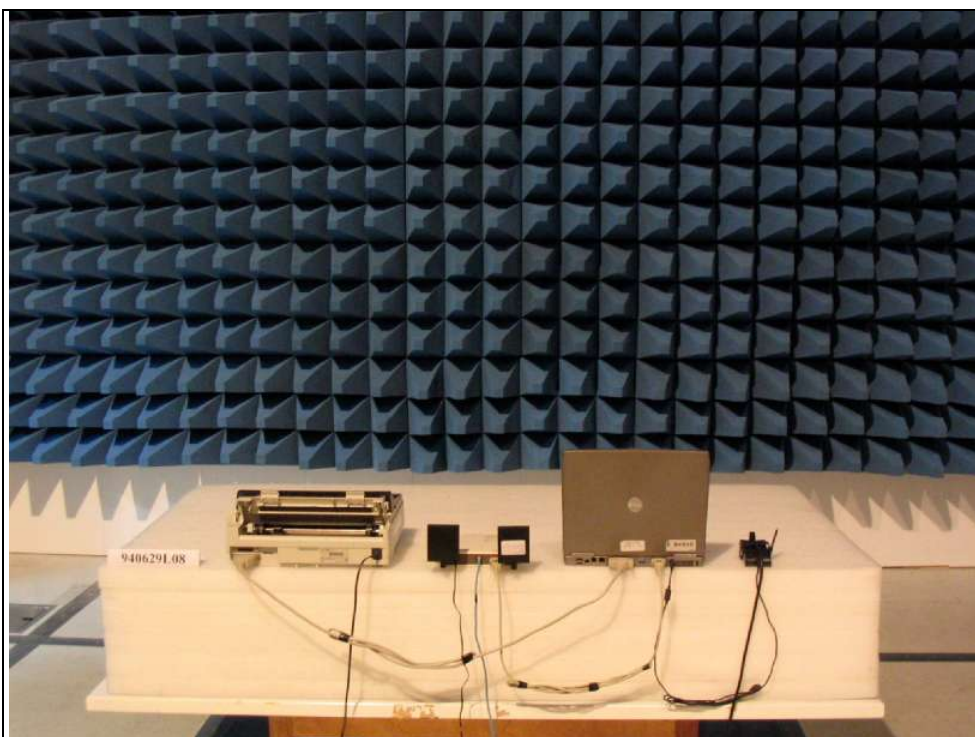
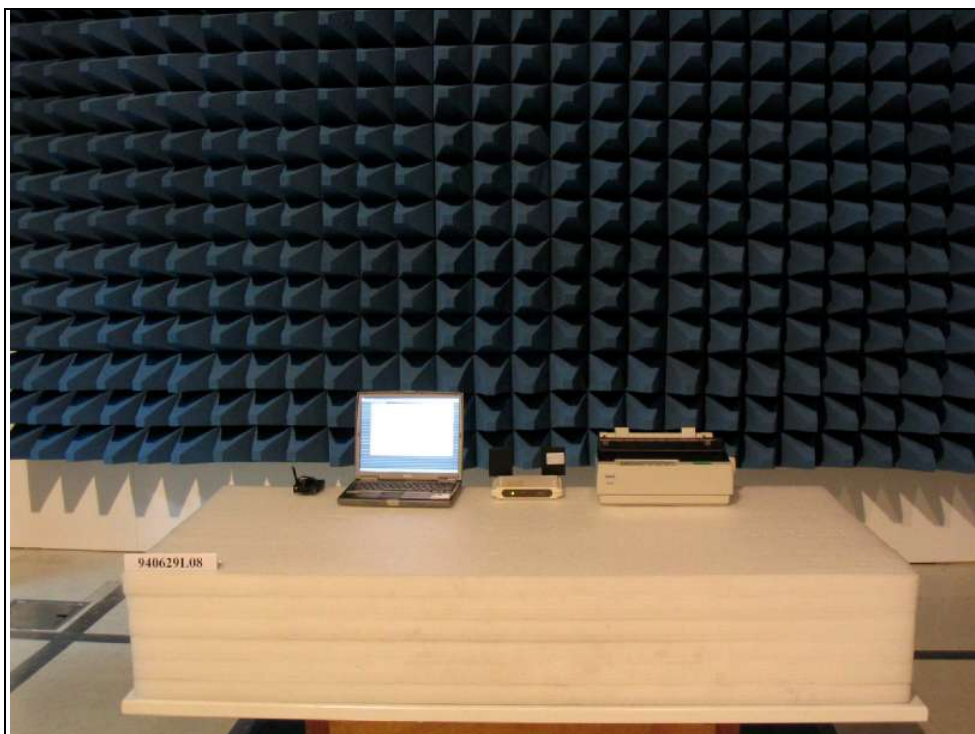
Test Mode B1



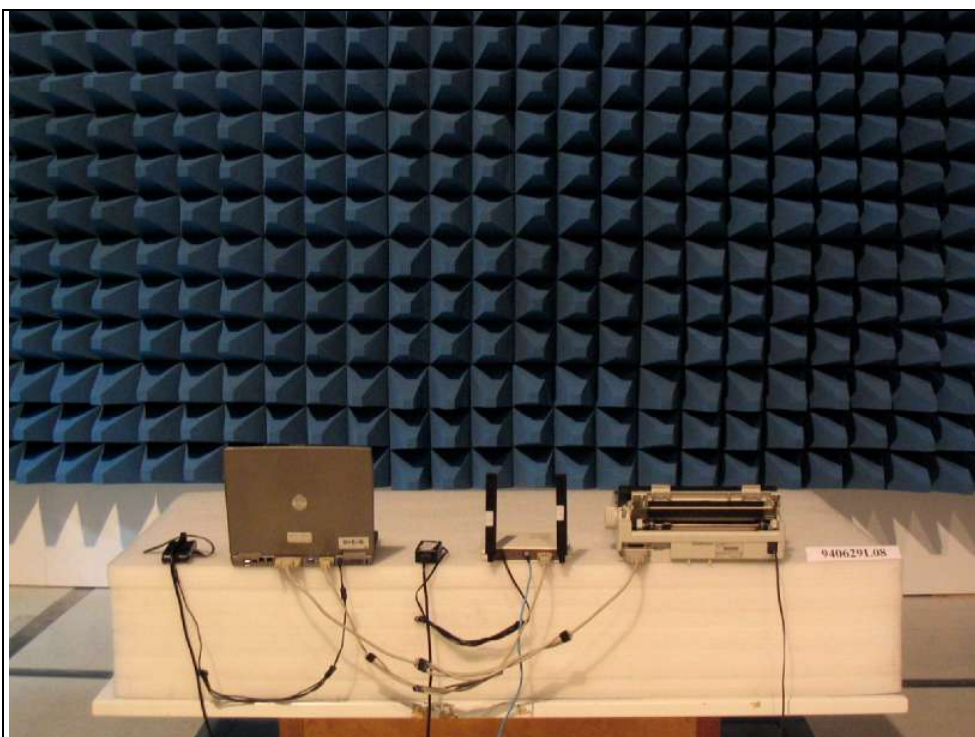
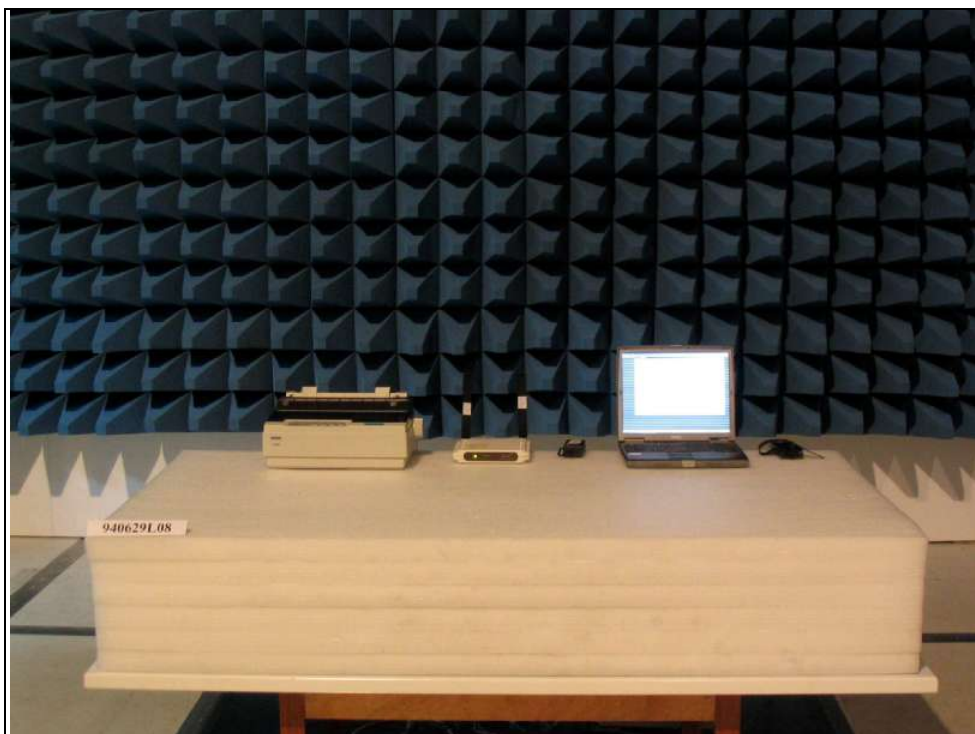
Test Mode B2



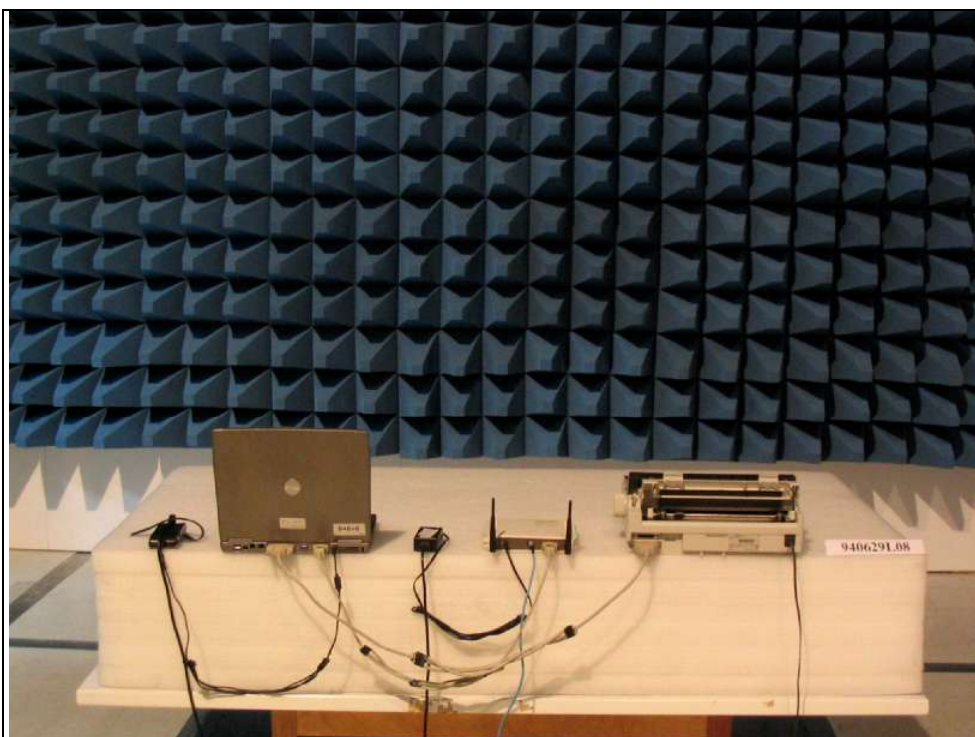
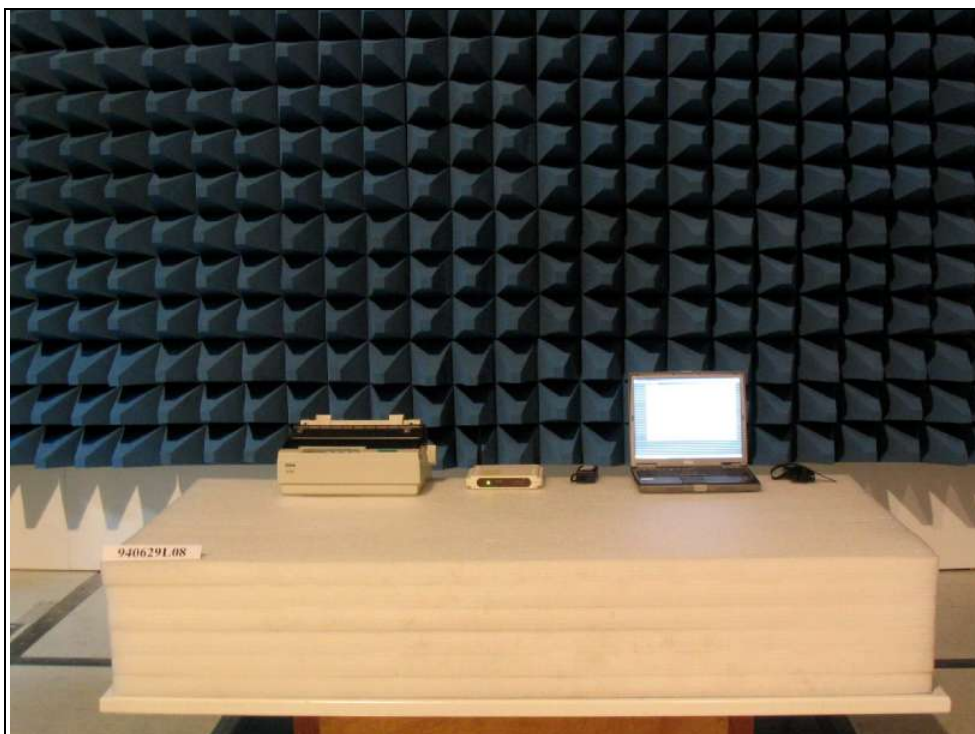
Test Mode B3



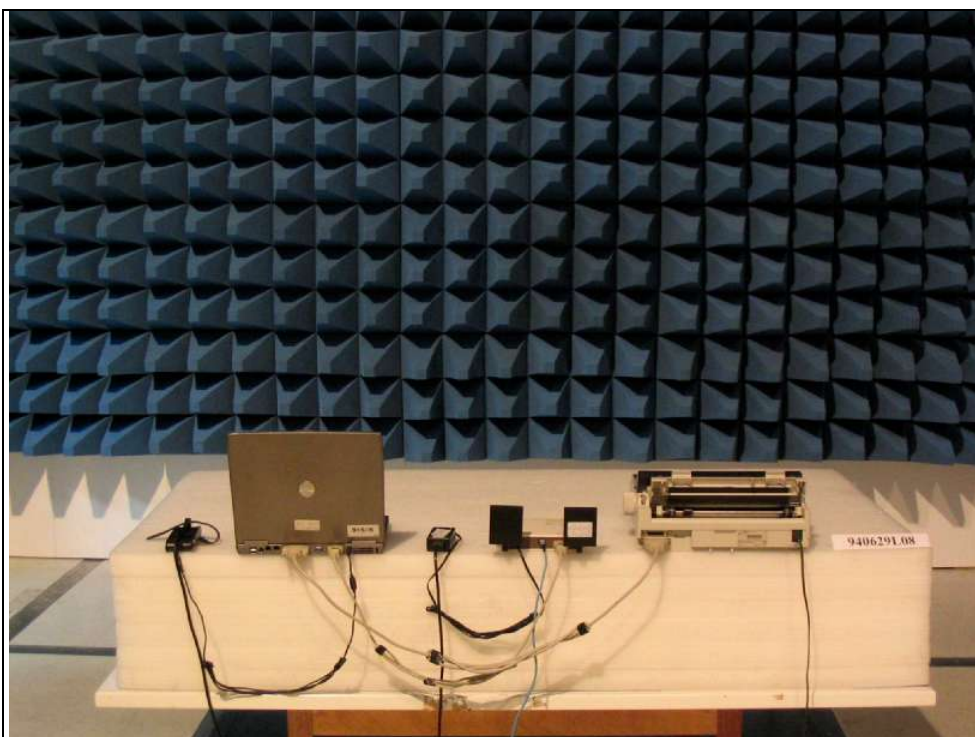
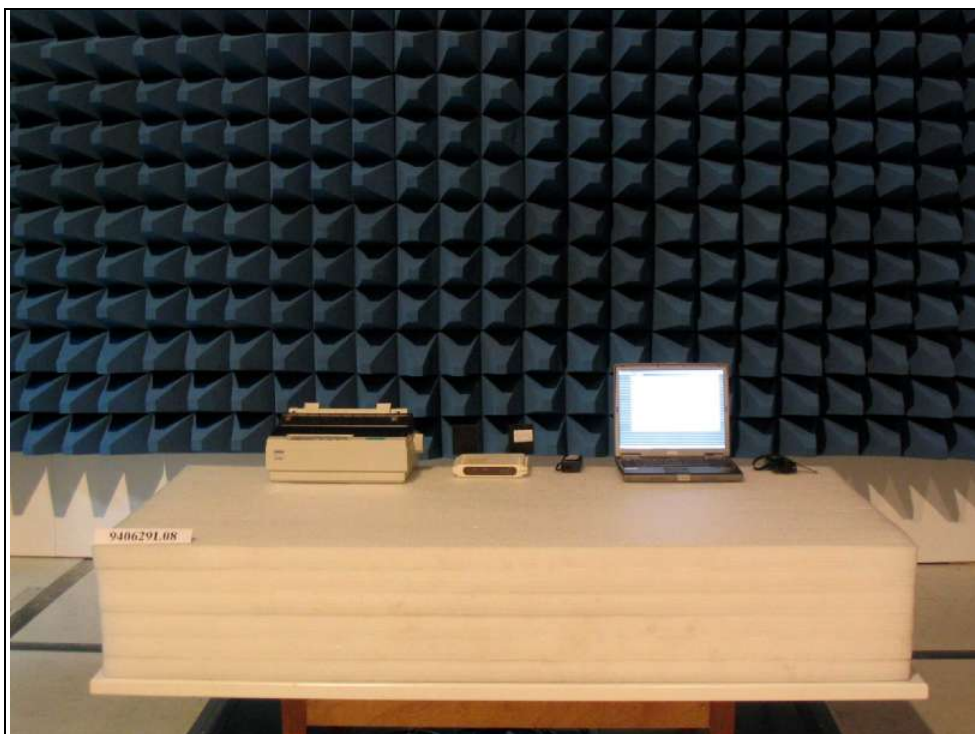
Test Mode C1



Test Mode C2



Test Mode C3



7. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Linko RF Lab.

Tel: 886-3-3270910

Fax: 886-3-3270892

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also