

FCC TEST REPORT (15.407)

REPORT NO.: RF931215L08

MODEL NO.: AM-5012-11AG

RECEIVED: Dec. 08, 2004

TESTED: Dec. 08, 2004 ~ Jan. 28, 2005

ISSUED: Jan. 31, 2005

APPLICANT: AirMagnet, Inc

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0528
ILAC MRA



No. 2177-01

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1. CERTIFICATION

PRODUCT: 802.11a/b/g wireless sensor
BRAND NAME: Airmagnet
MODEL NO.: AM-5012-11AG
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Dec. 08, 2004 ~ Jan. 28, 2005
APPLICANT: AirMagnet, Inc.
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003

The above equipment has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Candice Chen, **DATE:** Jan. 31, 2005
(Candice Chen)

TECHNICAL
ACCEPTANCE : Gary Chang, **DATE:** Jan. 31, 2005
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang, **DATE:** Jan. 31, 2005
(Cody Chang, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(B)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.08dB at 0.502MHz
15.407(b/1/2/3)(b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.23dB at 350.74MHz
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.55 dB
	200MHz ~1000MHz	3.58 dB
	1GHz ~ 18GHz	1.10 dB
	18GHz ~ 40GHz	0.91 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	802.11a/b/g wireless sensor
MODEL NO.	AM-5012-11AG
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.15 ~ 5.35GHz and 5.725 ~ 5.825GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 802.11a: 13
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz
OUTPUT POWER	7.980mW for 802.11b 10.069mW for 802.11g 17.140mW for 5.150 ~ 5.350GHz 15.922mW for 5.725 ~ 5.825GHz
DATA CABLE	NA
ANTENNA TYPE	Please refer to Note 2 below
I/O PORTS	RJ45, RS232
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT was tested with the following adapter:

BRAND :	FAIRWAY
MODEL :	VE20-120
INPUT :	100-240Vac, 50-60Hz
OUTPUT :	12Vdc, 1.66A
POWER LINE :	AC 1.8m shielded cable without core DC 1.6m shielded cable with one core



2. The EUT have two combinations of antenna type. Please refer to following table.

Combination	Antenna type	P/N	Manufacturer	Description	Gain (dBi)
1	Dipole	T614AT-2.4/5.x-S	Joymax	Single band antenna for 2.4GHz band	4.5
	Dipole	WTS2450-RPSMA	Centurion Wireless	Single band antenna for 5GHz band	6
2	Dipole	IG2450-RT36	Centurion Wireless	Single band antenna for 2.4GHz band	6
	Patch	IO5250-RT36	Centurion	Single band antenna for 5GHz band	5

3. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.

4. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

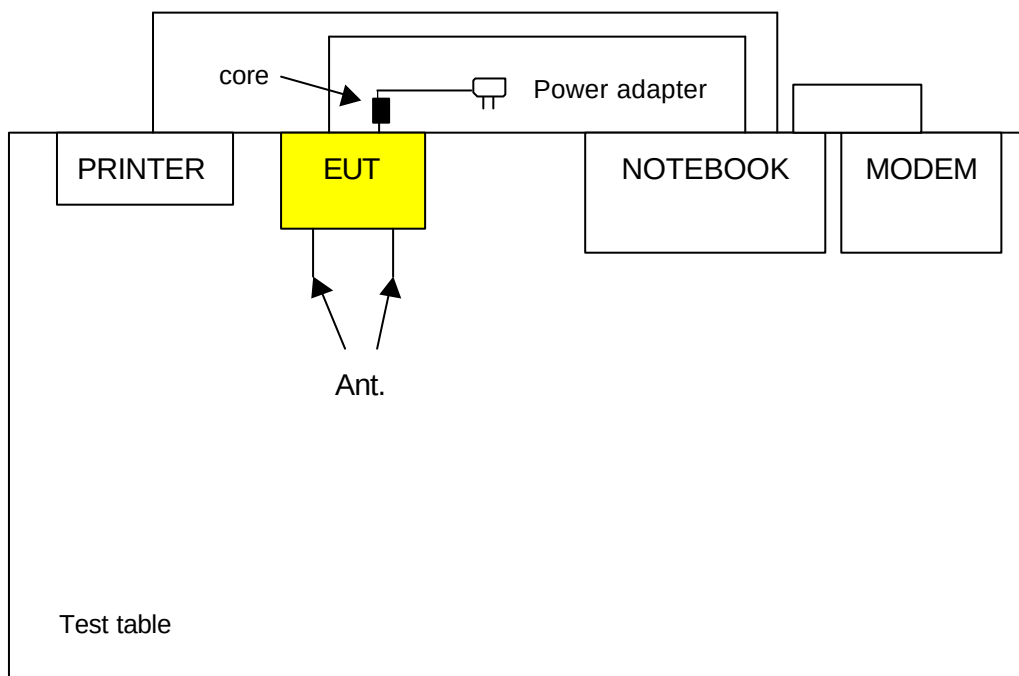
3.2 DESCRIPTION OF TEST MODES

Twelve channels are provided to this EUT.

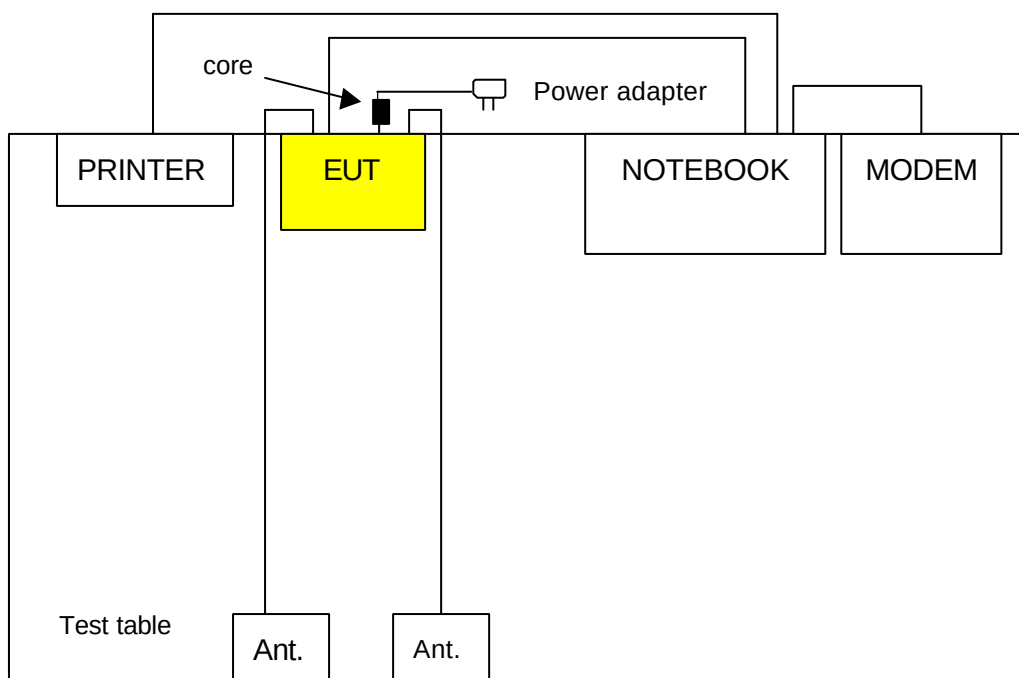
Channel	Frequency
1	5180 MHz
2	5200 MHz
3	5220 MHz
4	5240 MHz
5	5260 MHz
6	5280 MHz
7	5300 MHz
8	5320 MHz
9	5745 MHz
10	5765 MHz
11	5785 MHz
12	5805 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode 1 (ANTENNA COMBINATION 1)



Test Mode 2 (ANTENNA COMBINATION 2)





3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAL:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE ³ 1G	APCM	
1	Note 1	X	X	X	antenna combination 1 (refer to Note 2 of section 3.1)
2	Note 1	X	X	X	antenna combination 2 (refer to Note 2 of section 3.1)

Where PLC: Power Line Conducted Emission

RE<1G RE: Radiated Emission below 1GHz

RE³1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

Note 1: Power Line Conducted Emission only recorded antenna combination 1, 2 for worst case in the report.

Power Line Conducted Emission Test:

☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	1 to 12	5	OFDM	BPSK	6

Radiated Emission Test (Below 1 GHz):

☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	1 to 12	5	OFDM	BPSK	6

Radiated Emission Test (Above 1 GHz):

☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	1 to 12	1, 4, 5, 8, 9, 12	OFDM	BPSK	6

**Bandedge Measurement:**

- ☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	1 to 12	1, 8	OFDM	BPSK	6

Antenna Port Conducted Measurement:

- ☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	1 to 12	1, 4, 5, 8, 9, 12	OFDM	BPSK	6



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 802.11a/b/g wireless sensor. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	20838027664	E2K24CLNS
2	MODEM	ACEEX	1414V/3	0401008248	IFAXDM1414
3	PRINTER	EPSON	LQ-300+	DCGY047265	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2 shielded cable without core
3	1.2 shielded cable without core

NOTE: All power cords of the above support units are non shielded (1.8m).

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 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:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 16, 2005
RF signal cable Woken	5D-FB	Cable-HYC01-01	Mar. 02, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Mar. 03, 2005
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Mar. 02, 2005
Software ADT	ADT_Conc_V3	NA	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 Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.



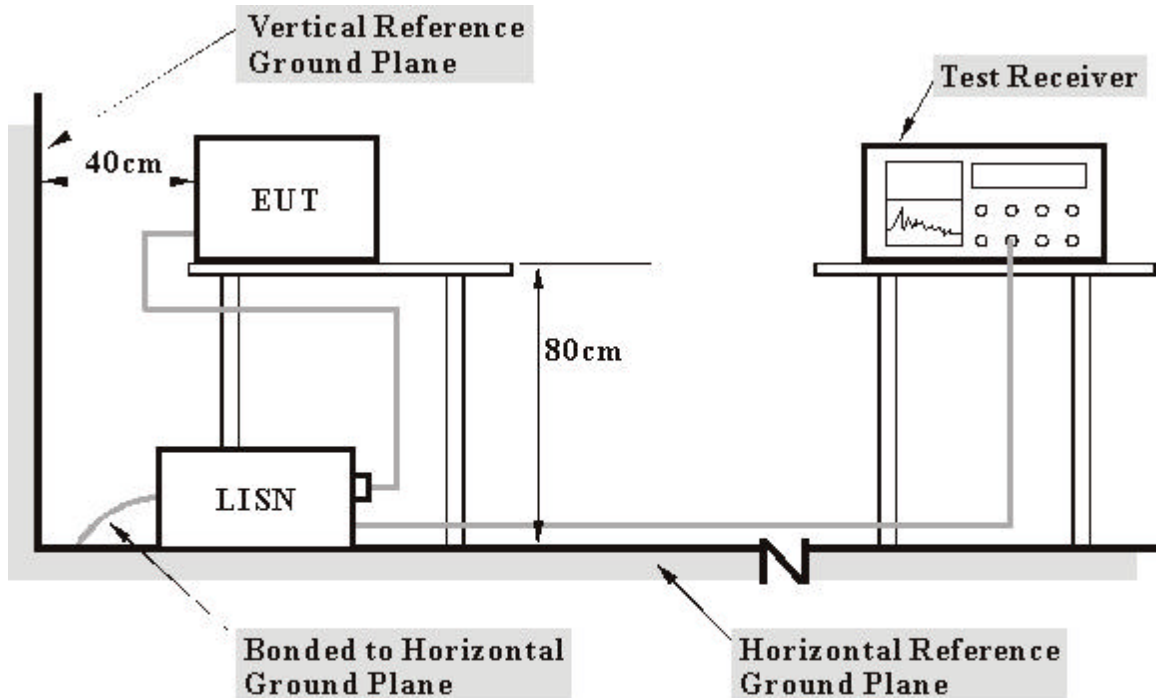
4.1.3 TEST PROCEDURES

- 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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 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.

4.1.6 EUT OPERATING CONDITIONS

- a. Connected the EUT to a notebook system placed on a testing table.
- b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- c. The notebook system sent "H" messages to its screen.
- d. The notebook system sent "H" messages to modem.
- e. The notebook system sent "H" messages to printer, and the printer printed them on paper.
- f. Steps c ~ e were repeated.

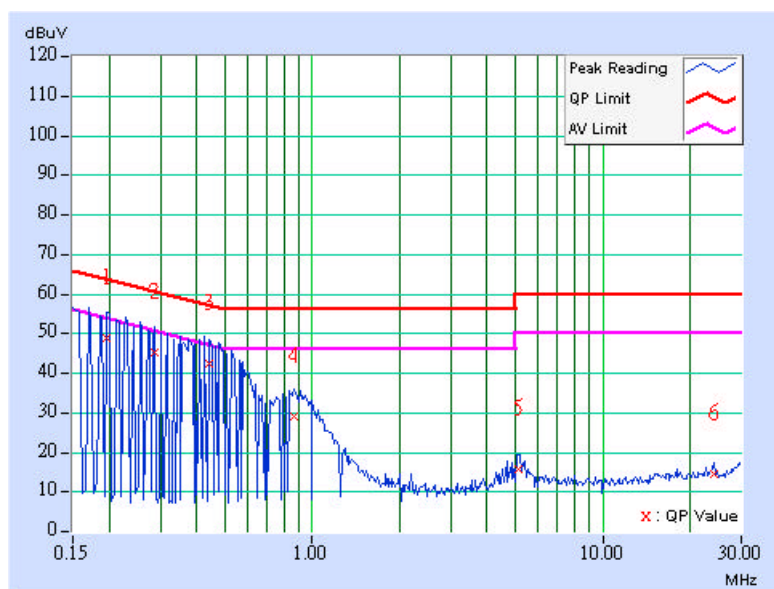
4.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20deg. C, 70%RH, 991hPa	TESTED BY	Kent Chen

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	0.197	0.12	47.89	-	48.01	-	63.74	53.74	-15.73	-
2	0.287	0.12	44.01	-	44.13	-	60.62	50.62	-16.49	-
3	0.443	0.13	41.37	-	41.50	-	57.01	47.01	-15.51	-
4	0.869	0.14	27.86	-	28.00	-	56.00	46.00	-28.00	-
5	5.152	0.24	14.54	-	14.78	-	60.00	50.00	-45.22	-
6	24.020	1.13	13.55	-	14.68	-	60.00	50.00	-45.32	-

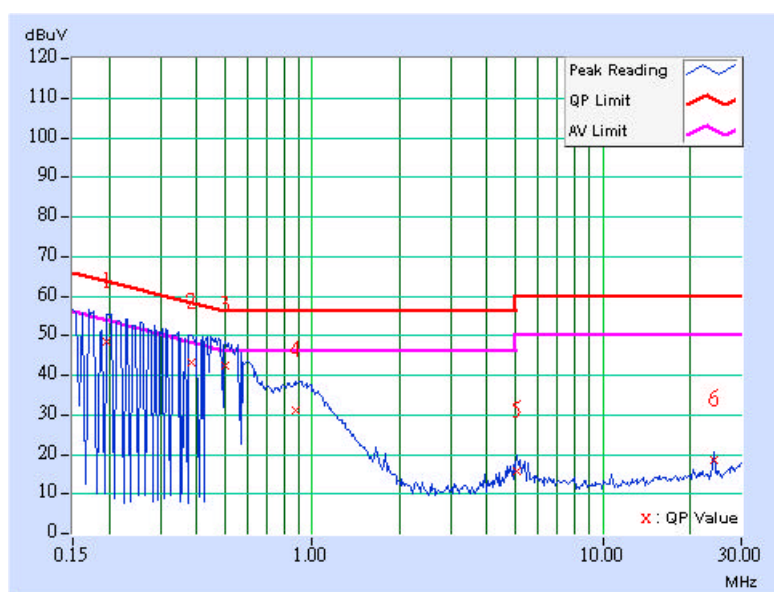
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg. C, 70%RH, 991hPa	TESTED BY	Kent Chen

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.197	0.11	47.91	-	48.02	-	63.74	53.74	-15.72	-
2	0.384	0.12	42.51	-	42.63	-	58.18	48.18	-15.56	-
3	0.502	0.12	41.80	-	41.92	-	56.00	46.00	-14.08	-
4	0.873	0.14	30.59	-	30.73	-	56.00	46.00	-25.27	-
5	5.043	0.22	15.04	-	15.26	-	60.00	50.00	-44.74	-
6	24.020	0.68	17.96	-	18.64	-	60.00	50.00	-41.36	-

- 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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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.

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where } P \text{ is the eirp (Watts)}$$

4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jun. 08, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jun. 03, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Feb. 03, 2005
HORN Antenna SCHWARZBECK	9120D	9120D-408	Jan. 17, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170243	Feb. 23, 2005
Preamplifier Agilent	8447D	2944A10633	Nov. 09, 2005
Preamplifier Agilent	8449B	3008A01964	Nov. 06, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218183/4	Mar. 05, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218195/4	Mar. 05, 2005
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA
Turn Table ADT.	TT100.	TT93021703	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 2.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The VCCI Site Registration No. is R-237.
5. The IC Site Registration No. is IC4924-3.

4.2.4 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

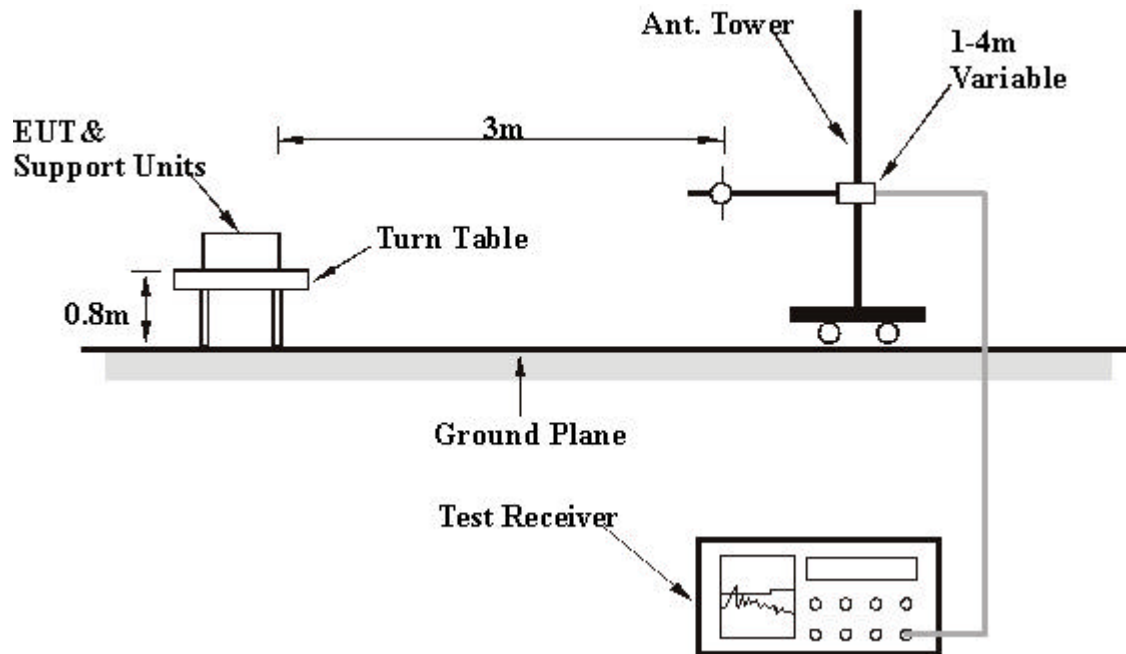
NOTE:

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 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

4.2.8 TEST RESULTS

Below 1GHz Worst-Case Data (Antenna combination 1)

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui
TEST MODE	1 (Antenna combination 1)		

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	57.21	30.10 QP	40.00	-9.90	1.75 H	46	16.11	13.99
2	107.76	41.18 QP	43.50	-2.32	1.50 H	280	29.41	11.77
3	144.69	32.84 QP	43.50	-10.66	1.25 H	67	18.31	14.53
4	224.39	37.54 QP	46.00	-8.46	1.25 H	73	25.43	12.11
5	249.66	40.30 QP	46.00	-5.70	1.00 H	82	27.08	13.22
6	395.45	34.79 QP	46.00	-11.21	1.00 H	64	18.14	16.65
7	420.72	32.11 QP	46.00	-13.89	1.00 H	280	14.81	17.30
8	494.59	37.63 QP	46.00	-8.37	1.75 H	40	18.97	18.66
9	593.73	39.62 QP	46.00	-6.38	1.25 H	19	18.78	20.84
10	669.54	35.98 QP	46.00	-10.02	1.00 H	25	14.06	21.92
11	692.87	43.36 QP	46.00	-2.64	1.00 H	268	21.14	22.21
12	758.96	35.96 QP	46.00	-10.04	1.00 H	298	12.38	23.58
13	792.00	40.38 QP	46.00	-5.62	1.00 H	301	16.60	23.77
14	825.05	32.75 QP	46.00	-13.25	1.00 H	295	8.75	24.01
15	891.14	33.72 QP	46.00	-12.28	1.50 H	10	8.77	24.95

- 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



EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY	Match Tsui
TEST MODE	1 (Antenna combination 1)		

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	60.26	38.73 QP	40.00	-1.27	1.00 V	175	25.05	13.68
2	107.76	41.36 QP	43.50	-2.14	1.75 V	28	29.58	11.77
3	144.69	36.15 QP	43.50	-7.35	1.00 V	211	21.62	14.53
4	224.39	29.13 QP	46.00	-16.87	1.25 V	340	17.02	12.11
5	249.66	32.68 QP	46.00	-13.32	1.25 V	235	19.47	13.22
6	288.54	32.92 QP	46.00	-13.08	1.50 V	358	18.60	14.32
7	319.64	34.49 QP	46.00	-11.51	1.50 V	10	19.54	14.95
8	350.74	44.77 QP	46.00	-1.23	1.25 V	46	29.11	15.67
9	395.45	35.16 QP	46.00	-10.84	1.00 V	340	18.51	16.65
10	512.08	33.81 QP	46.00	-12.19	1.00 V	175	14.85	18.96
11	593.73	38.34 QP	46.00	-7.66	1.00 V	205	17.49	20.84
12	640.38	35.24 QP	46.00	-10.76	1.25 V	175	13.69	21.55
13	692.87	40.88 QP	46.00	-5.12	1.00 V	208	18.67	22.21
14	758.96	36.04 QP	46.00	-9.96	1.25 V	268	12.45	23.58
15	792.00	39.17 QP	46.00	-6.83	1.75 V	139	15.40	23.77
16	891.14	38.83 QP	46.00	-7.17	1.00 V	313	13.88	24.95

- 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 (Antenna combination 2)**

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 61%RH, 991hPa	TESTED BY	Match Tsui
TEST MODE	2 (Antenna combination 2)		

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	64.00	38.67 QP	40.00	-1.33	3.00 H	344	25.12	13.55
2	158.30	37.07 QP	43.50	-6.43	1.50 H	259	22.39	14.68
3	191.34	41.39 QP	43.50	-2.11	1.25 H	88	29.27	12.12
4	249.66	43.53 QP	46.00	-2.47	1.25 H	181	30.12	13.41
5	692.87	40.14 QP	46.00	-5.86	1.00 H	232	17.71	22.43
6	792.00	39.51 QP	46.00	-6.49	1.00 H	235	15.76	23.76

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	30.00	38.19 QP	40.00	-1.81	1.00 V	190	23.99	14.20
2	63.05	32.75 QP	40.00	-7.25	2.50 V	13	19.11	13.64
3	142.75	33.63 QP	43.50	-9.87	1.00 V	286	19.43	14.20
4	191.34	33.67 QP	43.50	-9.83	2.00 V	64	21.55	12.12
5	593.73	35.85 QP	46.00	-10.15	1.00 V	313	14.78	21.07
6	692.87	39.63 QP	46.00	-6.37	1.25 V	178	17.20	22.43
7	792.00	36.62 QP	46.00	-9.38	1.00 V	151	12.87	23.76

- 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.

802.11a OFDM modulation (Antenna combination 1)

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	1 (Antenna combination 1)		

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	3453.00	46.24 PK	68.30	-22.06	1.08 H	225	9.26	36.98
2	5120.00	46.46 PK	74.00	-27.54	1.09 H	347	5.73	40.73
3	*5180.00	96.33 PK			1.09 H	347	55.49	40.84
3	*5180.00	86.38 AV			1.09 H	347	45.54	40.84
4	10360.00	56.96 PK	68.30	-11.34	1.16 H	12	8.39	48.57

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	3453.00	46.86 PK	68.30	-21.44	1.10 V	0	9.88	36.98
2	5120.00	54.06 PK	74.00	-19.94	1.00 V	333	13.33	40.73
3	*5180.00	103.93 PK			1.00 V	333	63.09	40.84
3	*5180.00	94.28 AV			1.00 V	333	53.44	40.84
4	10360.00	60.21 PK	68.30	-8.09	1.00 V	332	11.64	48.57

- 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.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	1 (Antenna combination 1)		

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	3493.00	46.17 PK	68.30	-22.13	1.09 H	326	9.07	37.10
2	*5240.00	99.19 PK			1.09 H	347	58.26	40.93
2	*5240.00	88.97 AV			1.09 H	347	48.04	40.93
3	10480.00	58.48 PK	68.30	-9.82	1.02 H	6	9.86	48.62

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	3493.00	46.46 PK	68.30	-21.84	1.10 V	184	9.36	37.10
2	*5240.00	106.75 PK			1.05 V	174	65.82	40.93
2	*5240.00	96.83 AV			1.05 V	174	55.90	40.93
3	10480.00	65.09 PK	68.30	-3.21	1.10 V	29	16.47	48.62

- 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.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	1 (Antenna combination 1)		

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	3506.00	46.42 PK	68.30	-21.88	1.05 H	82	9.28	37.14
2	*5260.00	100.90 PK			1.07 H	351	59.95	40.95
2	*5260.00	91.13 AV			1.07 H	351	50.18	40.95
3	10520.00	60.31 PK	68.30	-7.99	1.00 H	8	11.68	48.63

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	3504.00	46.05 PK	68.30	-22.25	1.11 V	2	8.91	37.14
2	*5260.00	106.65 PK			1.08 V	87	65.70	40.95
2	*5260.00	97.27 AV			1.08 V	87	56.32	40.95
3	10520.00	66.18 PK	68.30	-2.12	1.04 V	319	17.55	48.63

- 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.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 8	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	1 (Antenna combination 1)		

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	3546.00	47.06 PK	68.30	-21.24	1.07 H	343	9.76	37.30
2	*5320.00	100.32 PK			1.07 H	351	59.28	41.04
2	*5320.00	90.69 AV			1.07 H	351	49.65	41.04
3	#5350.00	47.67 PK	74.00	-26.33	1.07 H	351	6.59	41.09
3	#5350.00	38.04 AV	54.00	-15.96	1.07 H	351	-3.05	41.09
4	#10640.00	57.79 PK	74.00	-16.21	1.09 H	307	9.09	48.71
4	#10640.00	45.64 AV	54.00	-8.36	1.09 H	307	-3.06	48.71

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	3546.00	46.64 PK	68.30	-21.66	1.05 V	12	9.34	37.30
2	*5320.00	106.07 PK			1.10 V	32	65.03	41.04
2	*5320.00	96.79 AV			1.10 V	32	55.75	41.04
3	#5350.00	53.42 PK	74.00	-20.58	1.10 V	32	12.34	41.09
3	#5350.00	44.14 AV	54.00	-9.86	1.10 V	32	3.05	41.09
4	#10640.00	62.25 PK	74.00	-11.75	1.00 V	0	13.55	48.71
4	#10640.00	49.34 AV	54.00	-4.66	1.00 V	0	0.64	48.71

- 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.



EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	1 (Antenna combination 1)		

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	1052.00	43.96 PK	74.00	-30.04	1.41 H	138	16.43	27.52
2	4956.00	47.03 PK	74.00	-26.97	1.00 H	29	8.76	38.27
3	5715.00	59.10 PK	68.30	-9.20	1.75 H	130	19.53	39.57
4	5725.00	68.49 PK	78.30	-9.81	1.75 H	130	28.91	39.58
5	*5745.00	95.70 PK			1.75 H	130	56.08	39.62
5	*5745.00	85.48 AV			1.75 H	130	45.86	39.62
6	#11490.00	60.85 PK	74.00	-13.15	1.00 H	20	10.39	50.47
6	#11490.00	48.20 AV	54.00	-5.80	1.00 H	20	-2.26	50.47

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	1052.00	41.70 PK	74.00	-32.30	1.38 V	133	14.18	27.52
2	4956.00	49.38 PK	74.00	-24.62	1.33 V	138	11.11	38.27
3	5715.00	66.50 PK	68.30	-1.80	1.12 V	314	26.93	39.57
4	5725.00	76.67 PK	78.30	-1.63	1.12 V	314	37.09	39.58
5	*5745.00	106.85 PK			1.12 V	314	67.23	39.62
5	*5745.00	96.50 AV			1.12 V	314	56.88	39.62
6	#11490.00	62.10 PK	74.00	-11.90	1.00 V	320	11.63	50.47
6	#11490.00	49.32 AV	54.00	-4.68	1.00 V	320	-1.15	50.47

- 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. "*" : Fundamental frequency
 6. "#" The radiated frequency falling in the restricted band.



EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	1 (Antenna combination 1)		

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	1052.00	46.51 PK	74.00	-27.49	1.15 H	125	18.99	27.52
2	4644.00	47.22 PK	74.00	-26.78	1.00 H	210	9.68	37.54
3	*5805.00	93.39 PK			1.42 H	258	53.67	39.72
3	*5805.00	83.70 AV			1.42 H	258	43.98	39.72
4	5825.00	67.96 PK	78.30	-10.34	1.42 H	258	28.21	39.75
5	5835.00	58.10 PK	68.30	-10.20	1.42 H	258	18.34	39.76
6	#11610.00	59.93 PK	74.00	-14.07	1.00 H	11	9.58	50.36
6	#11610.00	47.56 AV	54.00	-6.44	1.00 H	11	-2.79	50.36

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	1052.00	44.83 PK	74.00	-29.17	1.16 V	327	17.31	27.52
2	4644.00	48.31 PK	74.00	-25.69	1.06 V	287	10.77	37.54
3	*5805.00	106.77 PK			1.50 V	152	67.05	39.72
3	*5805.00	96.47 AV			1.50 V	152	56.75	39.72
4	5825.00	71.24 PK	78.30	-7.06	1.50 V	152	31.50	39.75
5	5835.00	61.30 PK	68.30	-7.00	1.50 V	152	21.54	39.76
6	#11610.00	64.16 PK	74.00	-9.84	1.24 V	334	13.80	50.36
6	#11610.00	51.02 AV	54.00	-2.98	1.24 V	334	0.66	50.36

- 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. "*" : Fundamental frequency
 6. "#" The radiated frequency falling in the restricted band.

802.11a OFDM modulation (Antenna combination 2)

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 64%RH, 991hPa	TESTED BY	Brad Wu
TEST MODE	2 (Antenna combination 2)		

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	1052.00	51.80 PK	74.00	-22.20	1.03 H	211	24.06	27.74
2	4144.00	46.60 PK	74.00	-27.40	1.08 H	21	10.52	36.08
3	#5150.00	52.83 PK	74.00	-21.17	1.12 H	18	14.39	38.44
3	#5150.00	42.30 AV	54.00	-11.70	1.12 H	18	3.86	38.44
4	*5180.00	102.43 PK			1.12 H	18	63.86	38.57
4	*5180.00	92.40 AV			1.12 H	18	53.83	38.57
5	10360.00	60.11 PK	68.30	-8.19	1.03 H	60	10.43	49.68

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	1052.00	47.22 PK	74.00	-26.78	1.00 V	23	19.48	27.74
2	4144.00	48.70 PK	74.00	-25.30	1.00 V	156	12.62	36.08
3	#5150.00	49.75 PK	74.00	-24.25	1.90 V	330	11.31	38.44
3	#5150.00	39.01 AV	54.00	-14.99	1.90 V	330	0.57	38.44
4	*5180.00	99.85 PK			1.90 V	330	61.28	38.57
4	*5180.00	89.11 AV			1.90 V	330	50.54	38.57
5	10360.00	62.21 PK	68.30	-6.09	1.04 V	55	12.53	49.68

- 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.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	2 (Antenna combination 2)		

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	3453.00	46.21 PK	68.30	-22.09	1.01 H	349	9.23	36.98
2	*5240.00	105.48 PK			1.00 H	313	64.55	40.93
2	*5240.00	96.06 AV			1.00 H	313	55.13	40.93
3	10480.00	61.34 PK	68.30	-6.96	1.10 H	340	12.72	48.62

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	3493.00	46.31 PK	68.30	-21.99	1.11 V	264	9.21	37.10
2	*5240.00	102.23 PK			1.03 V	334	61.30	40.93
2	*5240.00	92.34 AV			1.03 V	334	51.41	40.93
3	10480.00	65.86 PK	68.30	-2.44	1.11 V	335	17.24	48.62

- 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.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	2 (Antenna combination 2)		

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	3506.00	46.90 PK	68.30	-21.40	1.14 H	280	9.76	37.14
2	*5260.00	105.36 PK			1.09 H	4	64.41	40.95
2	*5260.00	95.85 AV			1.09 H	4	54.90	40.95
3	10520.00	59.71 PK	68.30	-8.59	1.09 H	329	11.08	48.63

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	3506.00	46.22 PK	68.30	-22.08	1.16 V	9	9.08	37.14
2	*5260.00	102.17 PK			1.01 V	339	61.22	40.95
2	*5260.00	92.39 AV			1.01 V	339	51.44	40.95
3	10520.00	65.51 PK	68.30	-2.79	1.74 V	334	16.88	48.63

- 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.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 8	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	2 (Antenna combination 2)		

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	1052.00	51.70 PK	74.00	-22.30	1.03 H	241	23.96	27.74
2	4256.00	46.70 PK	74.00	-27.30	1.05 H	42	10.28	36.42
3	*5320.00	105.23 PK			1.07 H	18	66.67	38.56
3	*5320.00	94.49 AV			1.07 H	18	55.93	38.56
4	#10640.00	60.21 PK	74.00	-13.79	1.00 H	63	10.88	49.33
4	#10640.00	48.29 AV	54.00	-5.71	1.00 H	63	-1.04	49.33

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	1052.00	47.00 PK	74.00	-27.00	1.00 V	150	19.26	27.74
2	4256.00	48.09 PK	74.00	-25.91	1.00 V	150	11.67	36.42
3	*5320.00	99.05 PK			1.92 V	336	60.49	38.56
3	*5320.00	88.53 AV			1.92 V	336	49.97	38.56
4	#10640.00	64.49 PK	74.00	-9.51	1.40 V	338	15.16	49.33
4	#10640.00	50.82 AV	54.00	-3.18	1.40 V	338	1.49	49.33

- 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.



EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	2 (Antenna combination 2)		

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	1052.00	51.83 PK	74.00	-22.17	1.00 H	222	24.08	27.74
2	4596.00	46.57 PK	74.00	-27.43	1.00 H	55	9.42	37.15
3	5715.00	64.12 PK	68.30	-4.18	1.00 H	16	25.08	39.04
4	5725.00	74.55 PK	78.30	-3.75	1.00 H	16	35.46	39.09
5	*5745.00	105.27 PK			1.00 H	16	66.07	39.20
5	*5745.00	94.99 AV			1.00 H	16	55.79	39.20
6	#11490.00	59.53 PK	74.00	-14.47	1.02 H	22	9.78	49.75
6	#11490.00	47.24 AV	54.00	-6.76	1.02 H	22	-2.51	49.75

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	1052.00	47.03 PK	74.00	-26.97	1.22 V	206	19.28	27.74
2	4596.00	48.60 PK	74.00	-25.40	1.22 V	206	11.45	37.15
3	5715.00	63.10 PK	68.30	-5.20	1.02 V	0	24.06	39.04
4	5725.00	73.50 PK	78.30	-4.80	1.02 V	0	34.41	39.09
5	*5745.00	102.90 PK			1.02 V	0	63.70	39.20
5	*5745.00	92.73 AV			1.02 V	0	53.53	39.20
6	#11490.00	60.18 PK	74.00	-13.82	1.05 V	58	10.43	49.75
6	#11490.00	48.14 AV	54.00	-5.86	1.05 V	58	-1.61	49.75

- 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. "*" : Fundamental frequency
 6. "#" The radiated frequency falling in the restricted band.

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
CHANNEL	Channel 12	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 65%RH, 991hPa	TESTED BY	Rush Kao
TEST MODE	2 (Antenna combination 2)		

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	1052.00	48.20 PK	74.00	-25.80	1.11 H	300	20.46	27.74
2	4644.00	47.50 PK	74.00	-26.50	1.24 H	222	10.23	37.27
3	*5805.00	105.60 PK			1.00 H	15	66.11	39.49
3	*5805.00	96.40 AV			1.00 H	15	56.91	39.49
4	5825.00	72.62 PK	78.30	-5.67	1.00 H	15	33.14	39.48
5	5835.00	61.98 PK	68.30	-6.32	1.00 H	15	22.50	39.48
6	#11650.00	58.75 PK	74.00	-15.25	1.00 H	15	9.04	49.71
6	#11650.00	46.65 AV	54.00	-7.35	1.00 H	15	-3.06	49.71

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	1052.00	46.11 PK	74.00	-27.89	1.16 V	323	18.37	27.74
2	4644.00	48.95 PK	74.00	-25.05	1.04 V	224	11.68	37.27
3	*5805.00	102.73 PK			1.00 V	0	63.25	39.49
3	*5805.00	93.38 AV			1.00 V	0	53.90	39.49
4	5825.00	72.35 PK	78.30	-5.95	1.00 V	0	32.87	39.48
5	5835.00	61.87 PK	68.30	-6.43	1.00 V	0	22.39	39.48
6	#11650.00	61.41 PK	74.00	-12.59	1.03 V	0	11.70	49.71
6	#11650.00	48.34 AV	54.00	-5.66	1.03 V	0	-1.37	49.71

- 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. "*" : Fundamental frequency
 6. "#" The radiated frequency falling in the restricted band.

4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

4.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

NOTE:

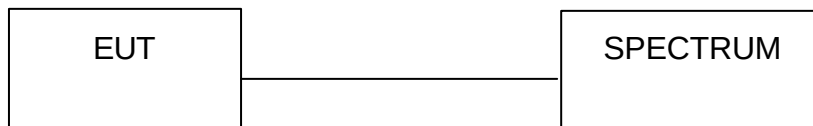
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 3 is used.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.3.7 TEST RESULTS

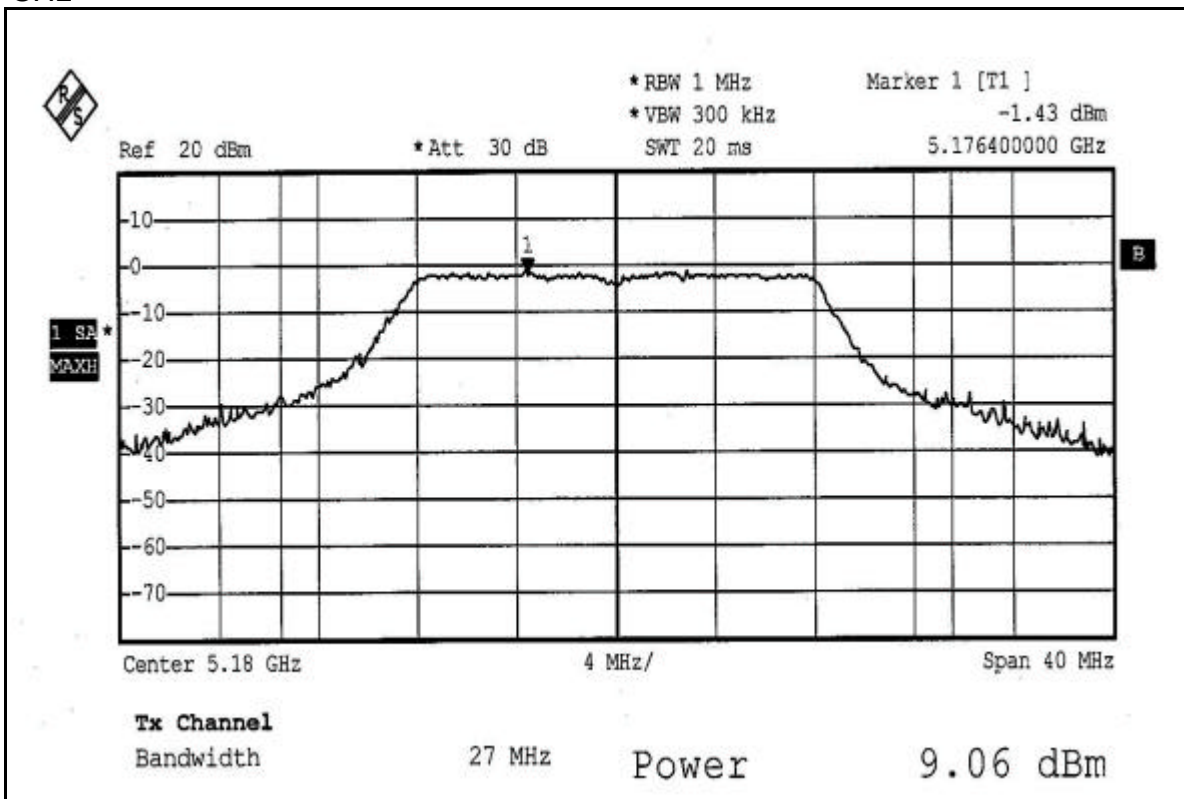
802.11a OFDM modulation

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg. C, 50%RH, 991hPa
TESTED BY	Rush Kao		

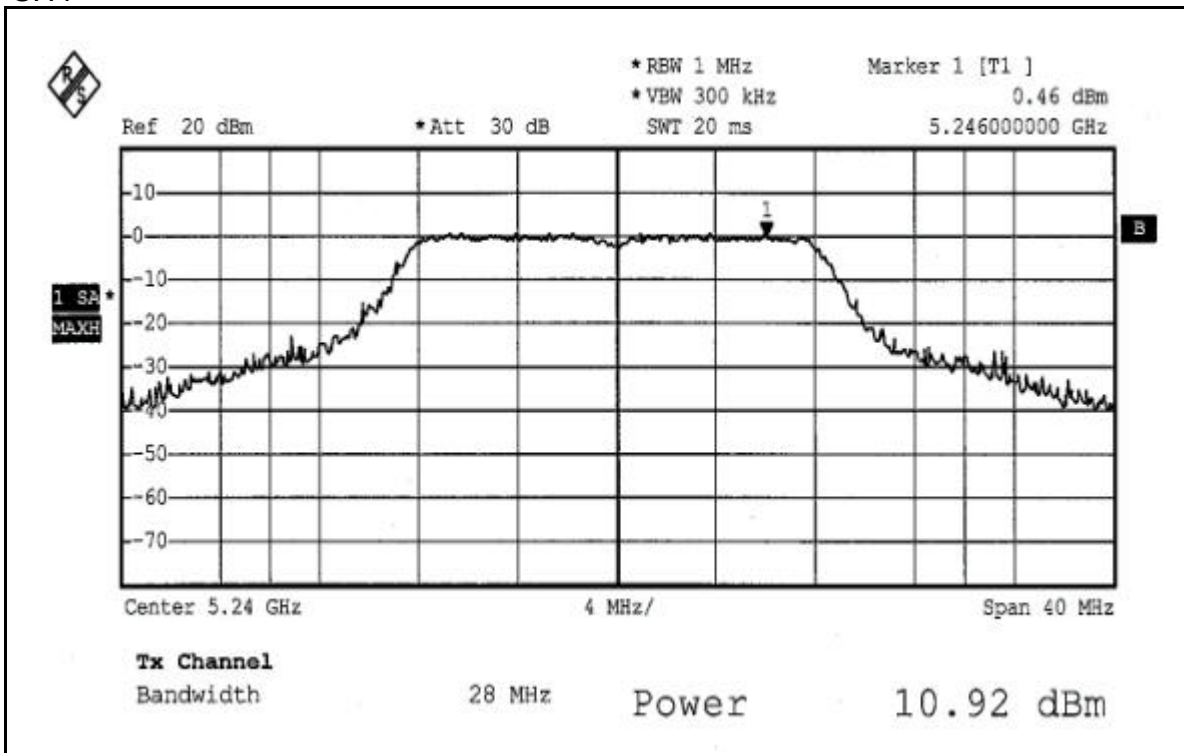
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	8.054	9.06	17.00	26.95	PASS
4	5240	12.359	10.92	17.00	27.51	PASS
5	5260	17.140	12.34	24.00	27.37	PASS
8	5320	10.023	10.01	24.00	27.86	PASS
9	5745	15.922	12.02	30.00	25.06	PASS
12	5805	14.825	11.71	30.00	25.13	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

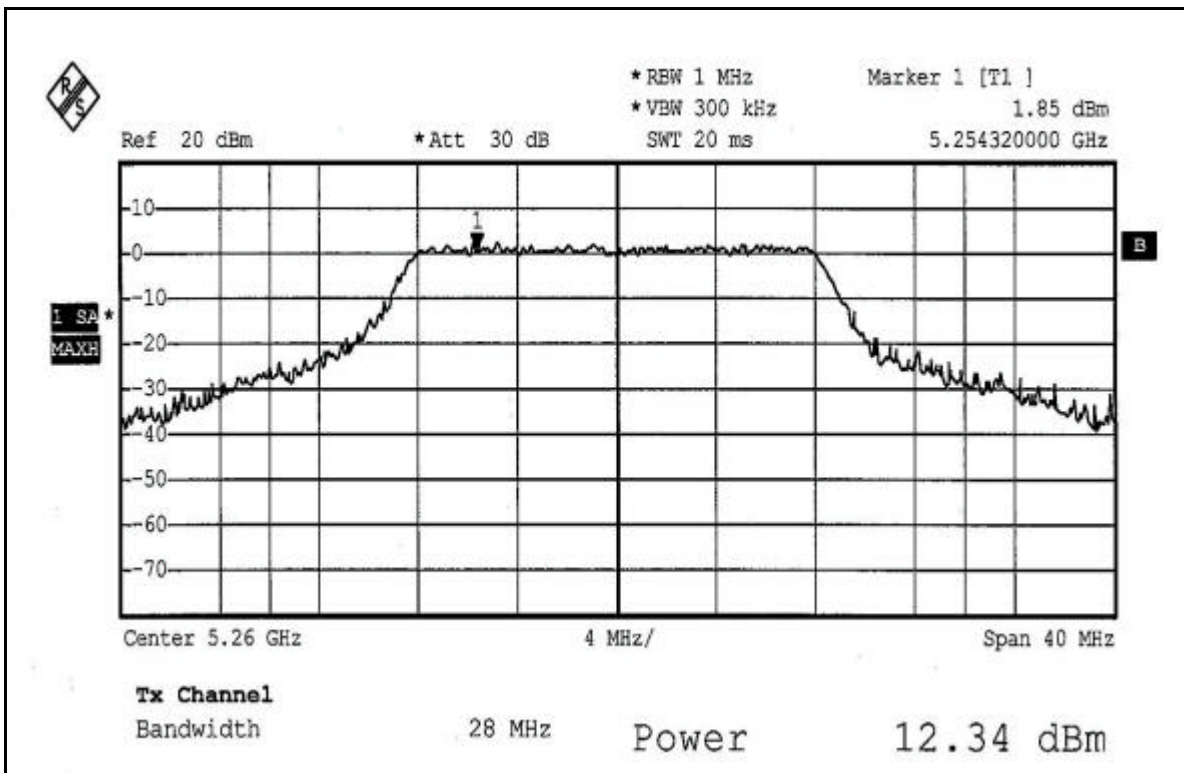
Peak Power Output:
CH1



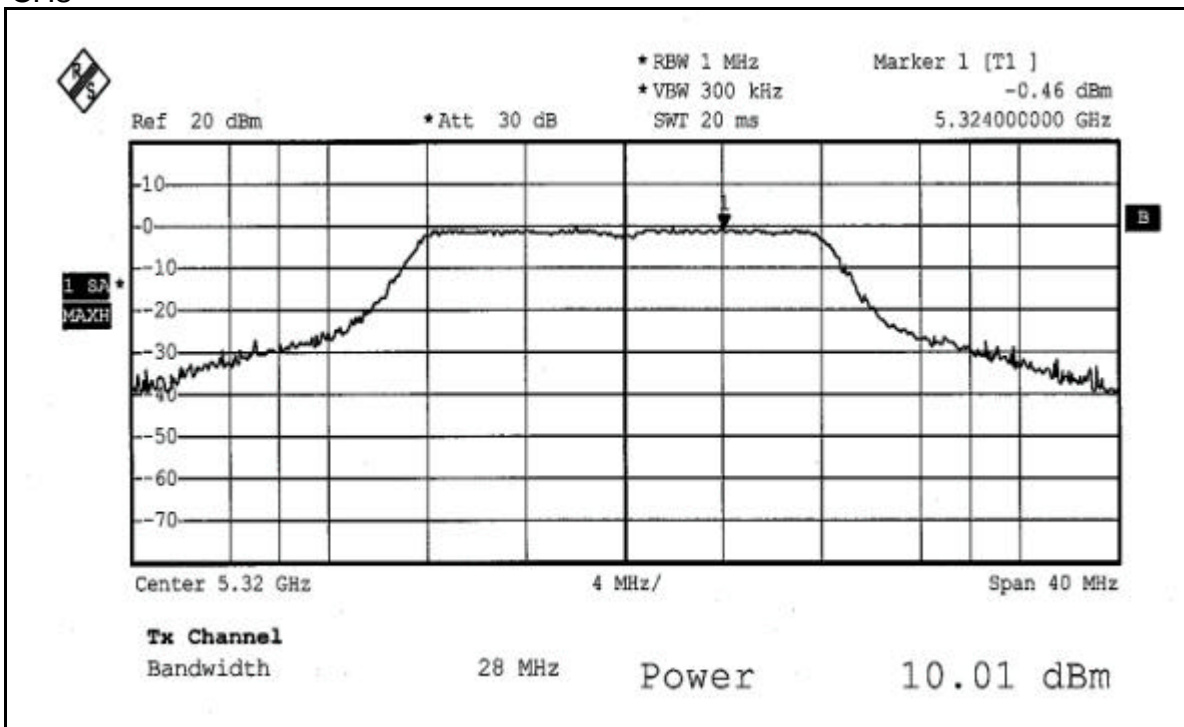
CH4



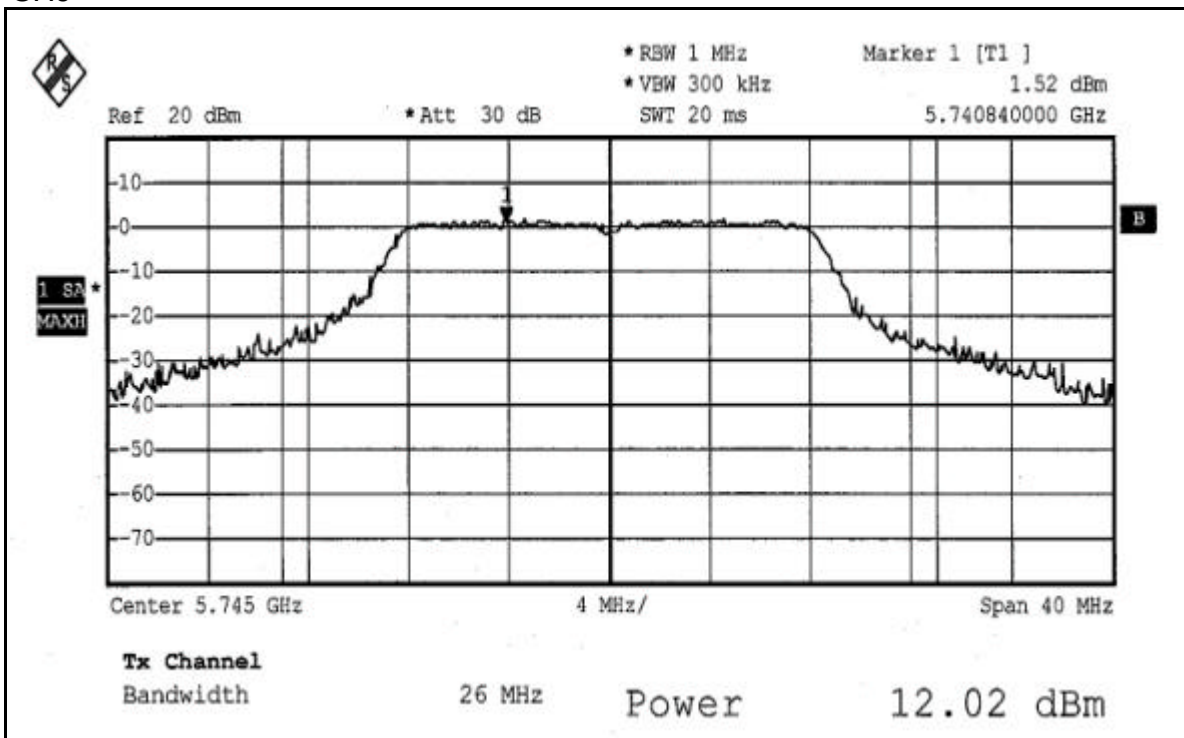
CH5



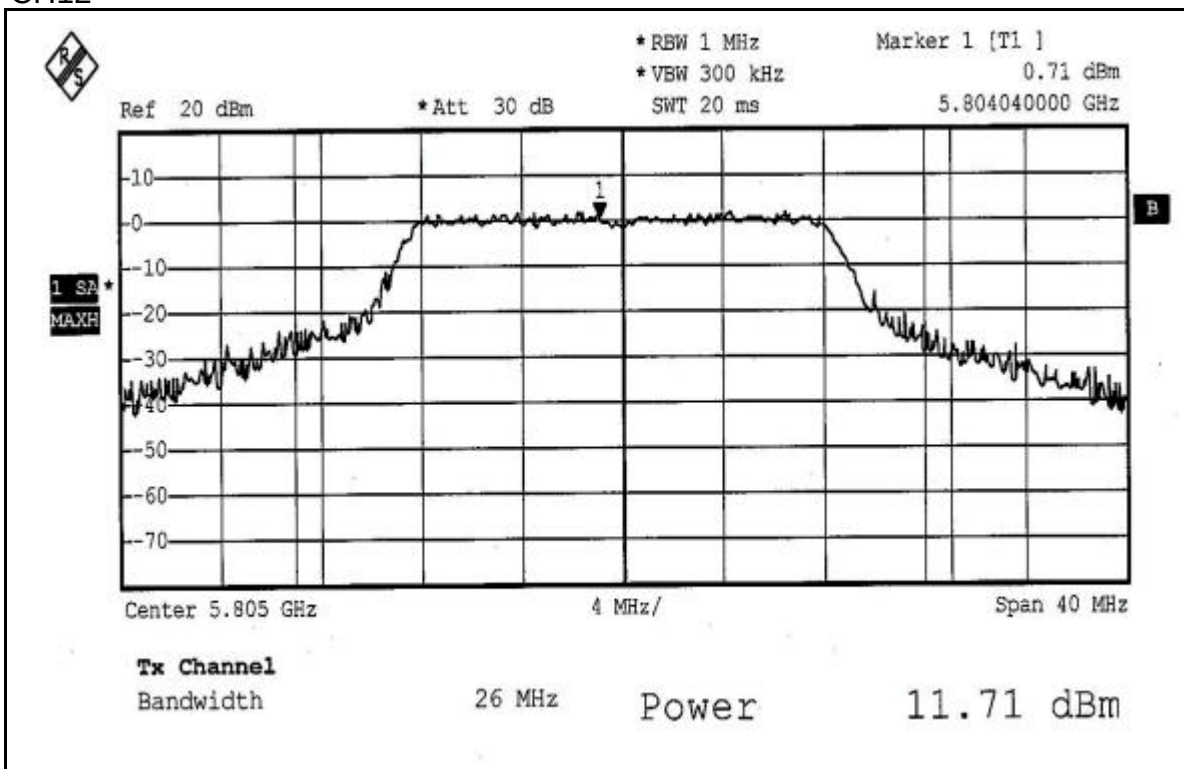
CH8



CH9

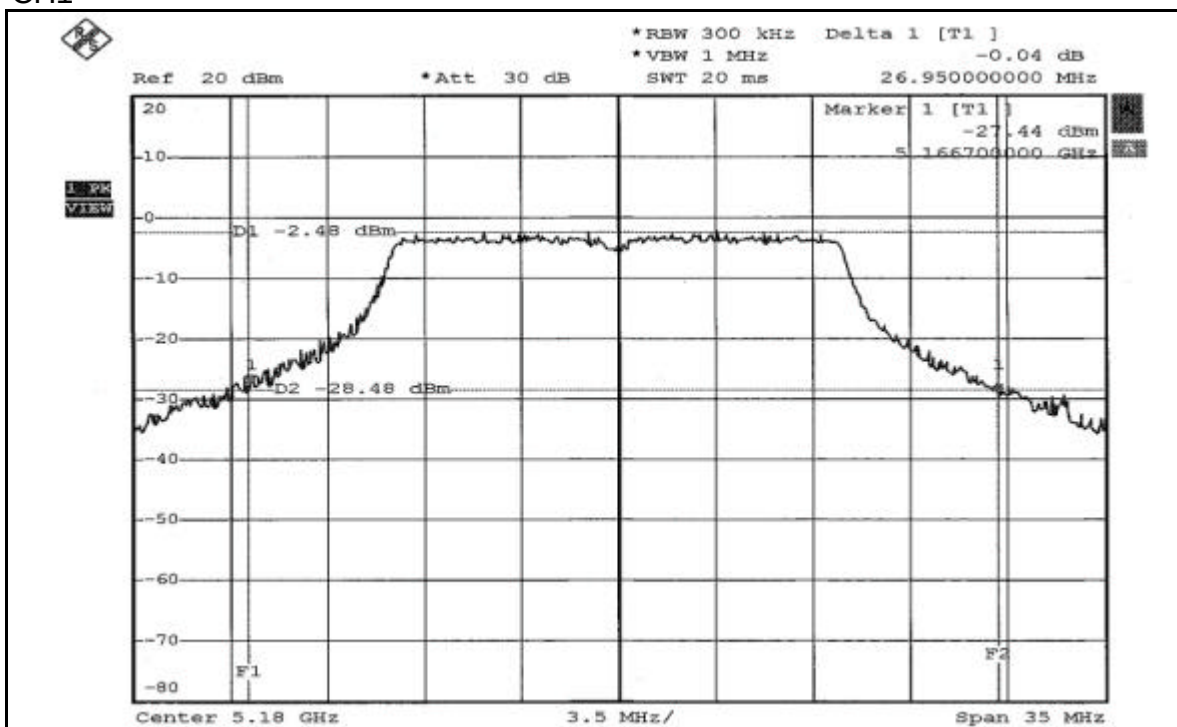


CH12

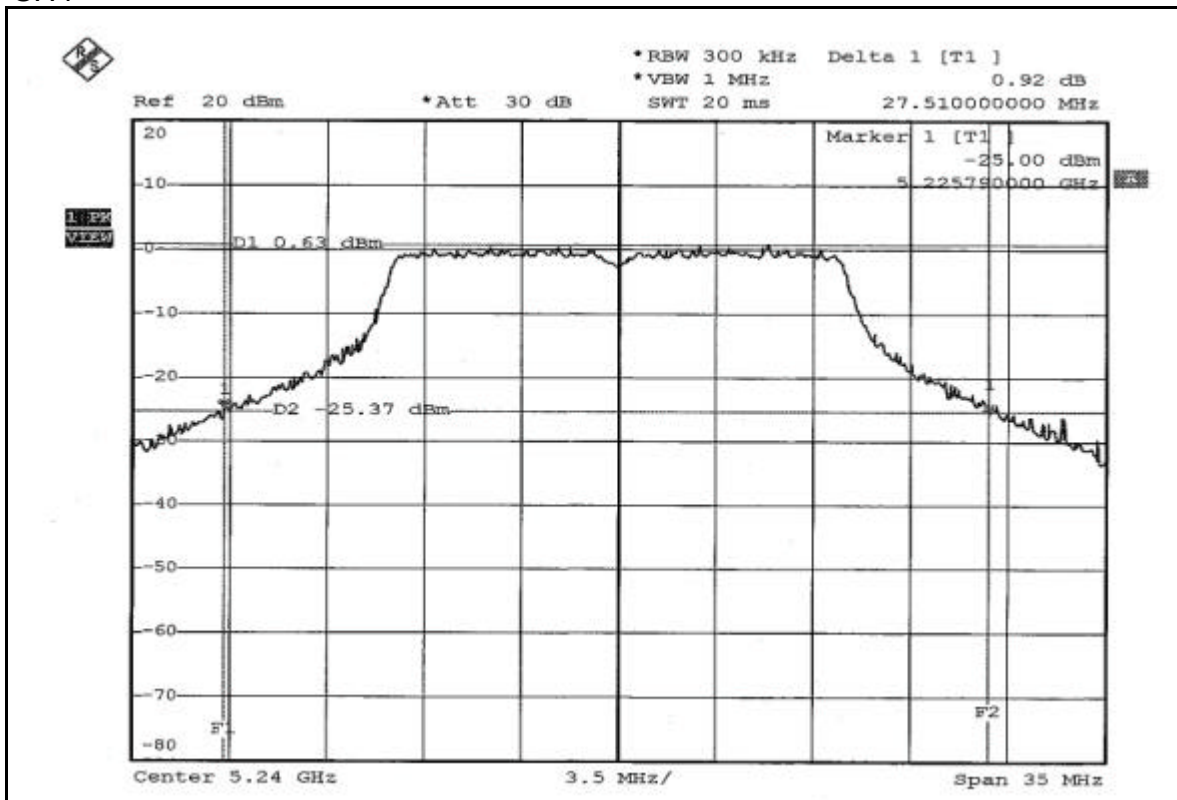


26dB Occupied Bandwidth:

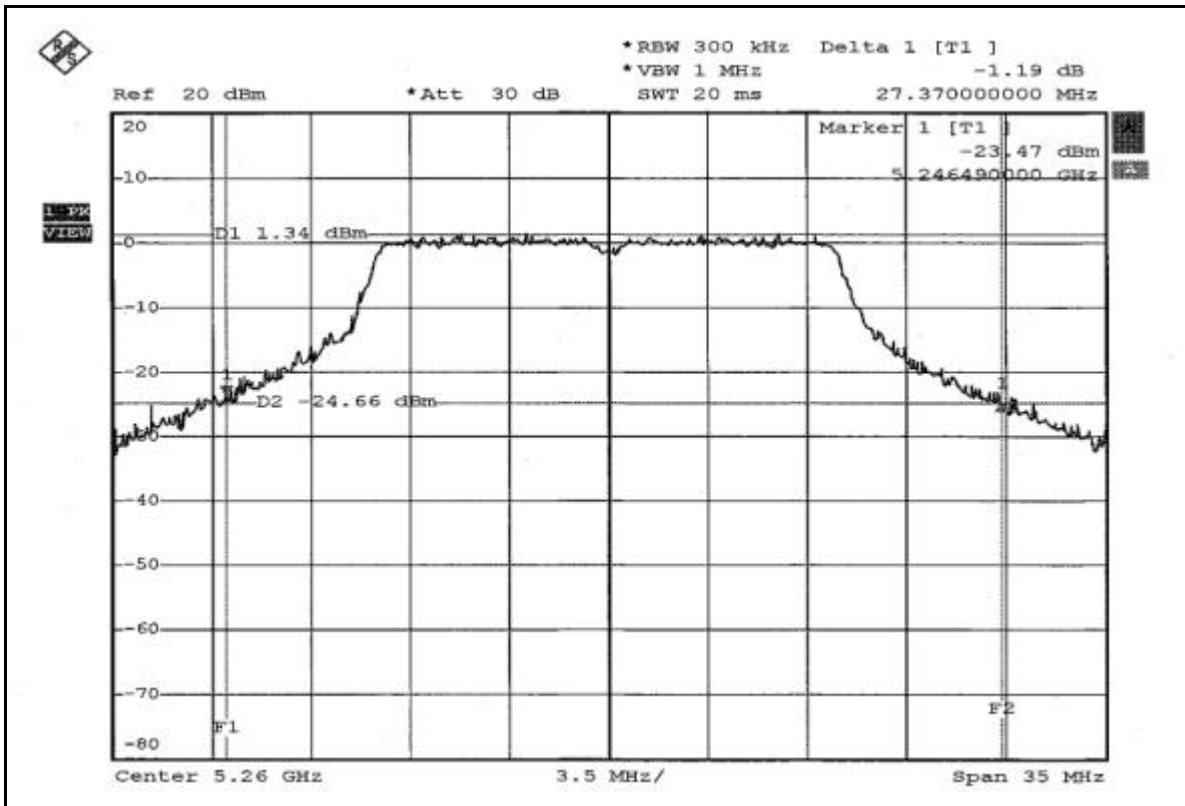
CH1



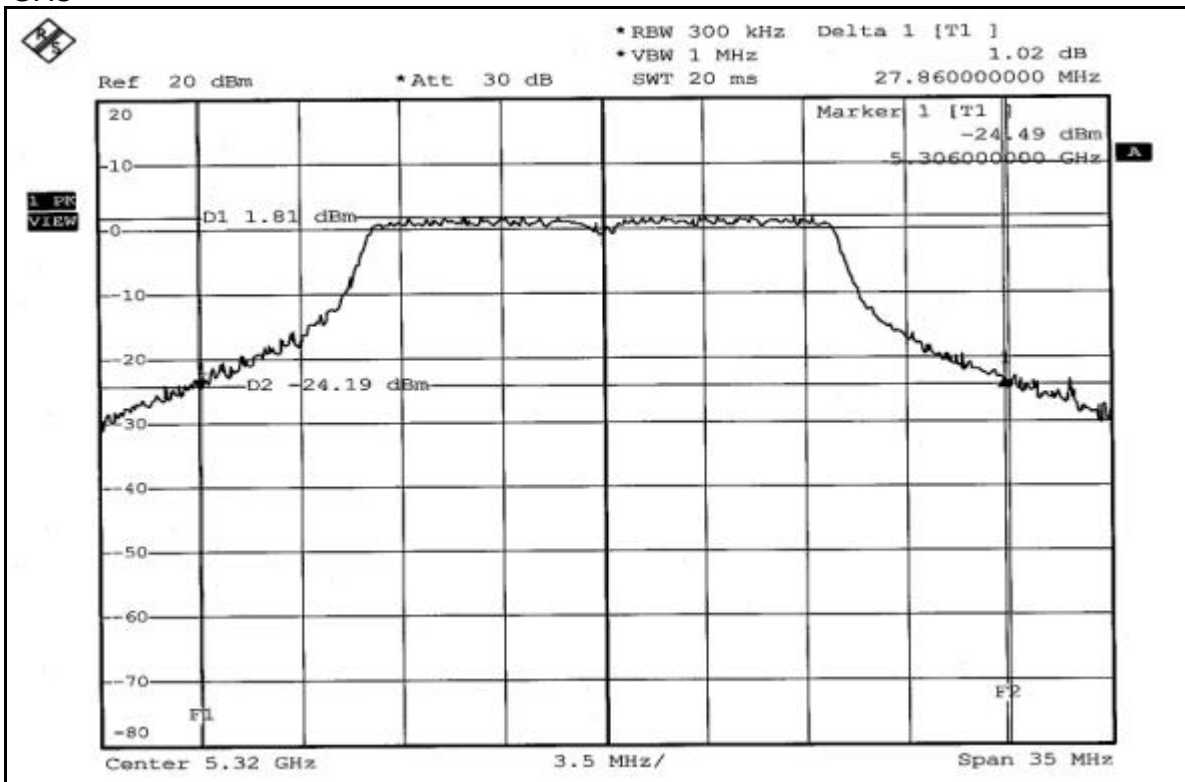
CH4



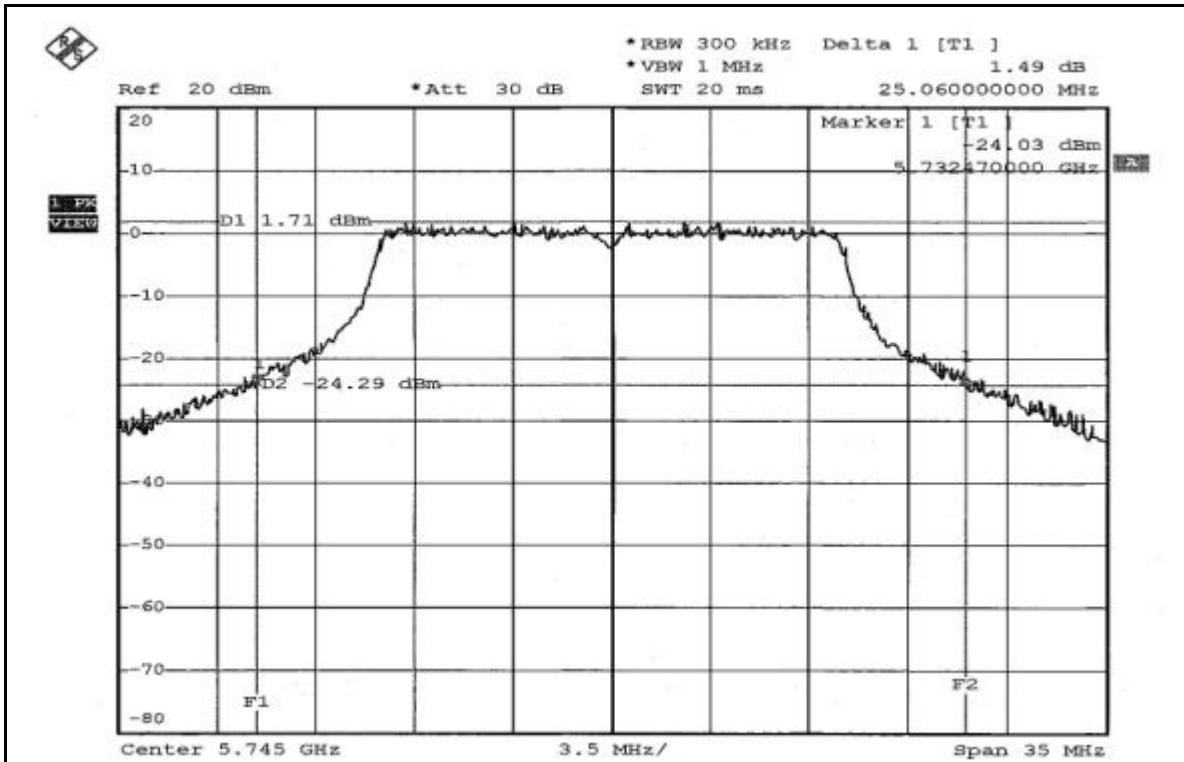
CH5



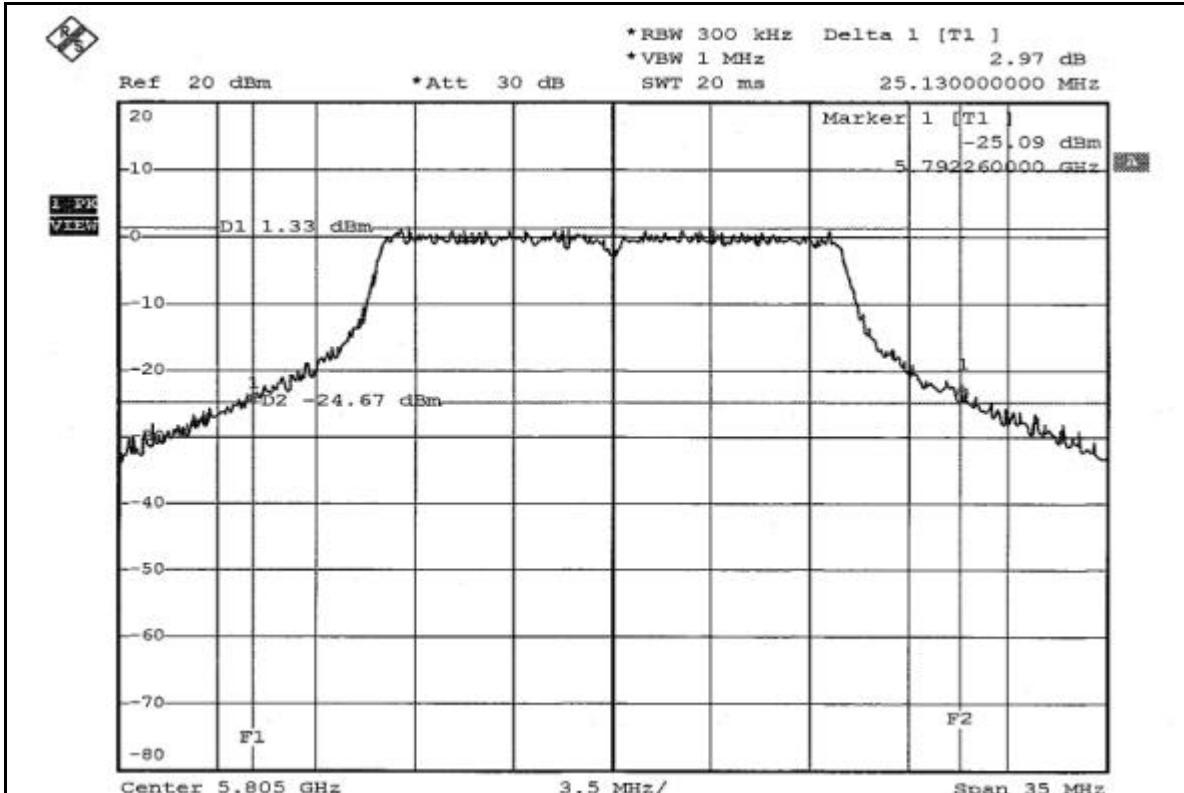
CH8



CH9



CH12



4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.725 – 5.825 GHz	13dB

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

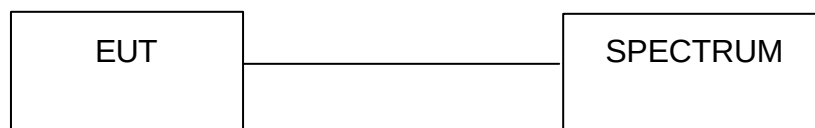
4.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



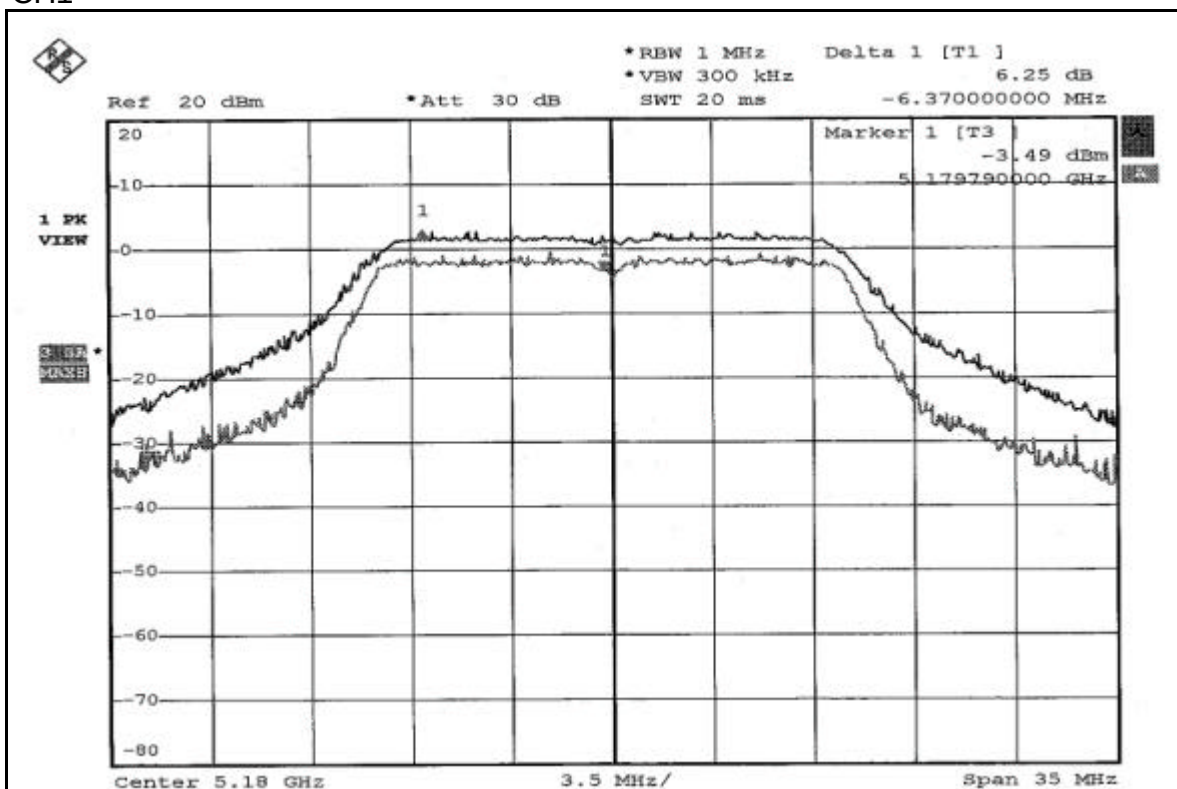
4.4.7 TEST RESULTS

802.11a OFDM modulation

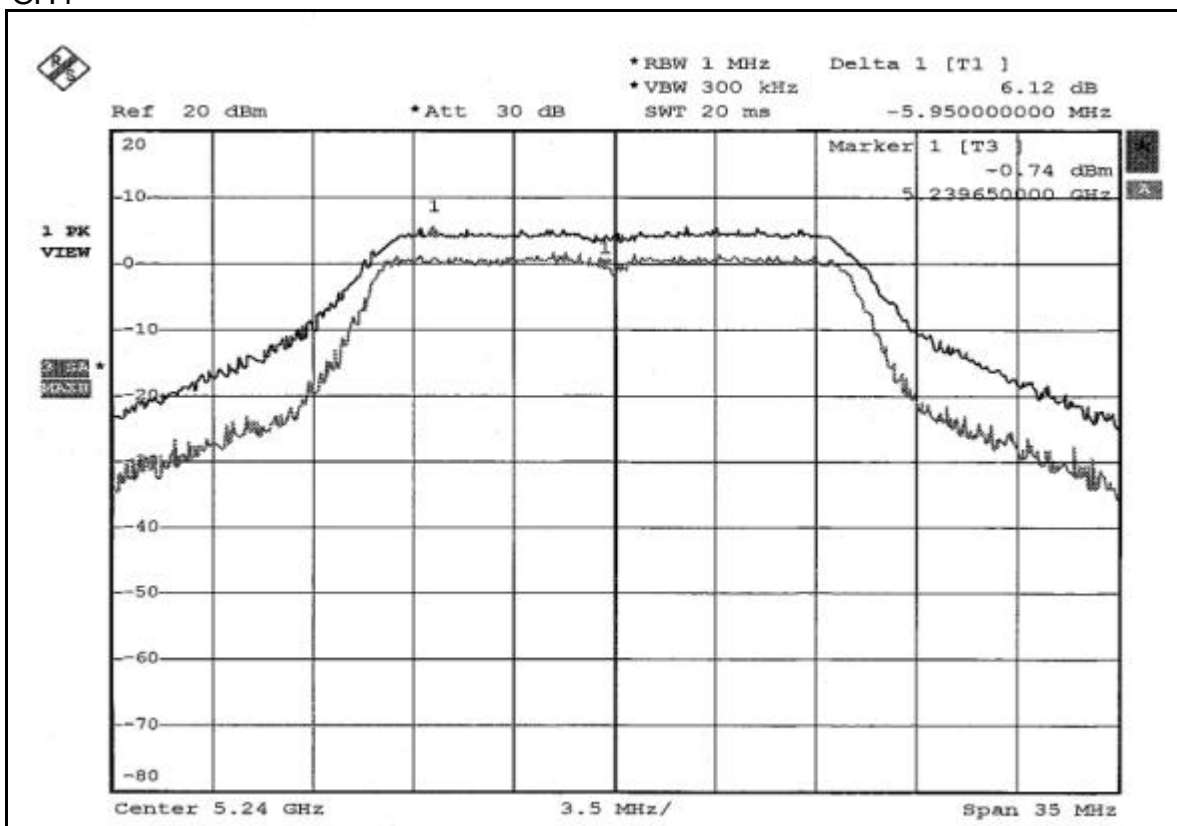
EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg. C, 51%RH, 991hPa
TESTED BY	Rush Kao		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	6.25	13	PASS
4	5240	6.12	13	PASS
5	5260	4.45	13	PASS
8	5320	7.19	13	PASS
9	5745	8.98	13	PASS
12	5805	6.98	13	PASS

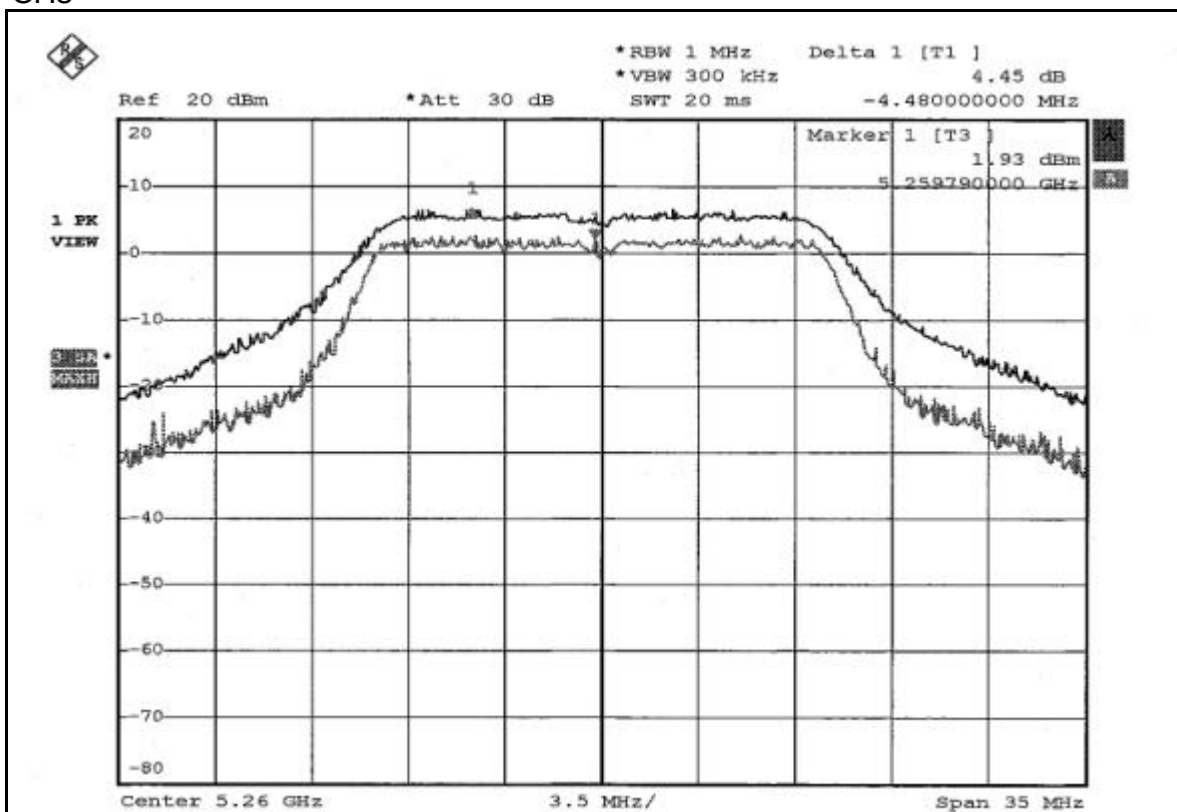
CH1



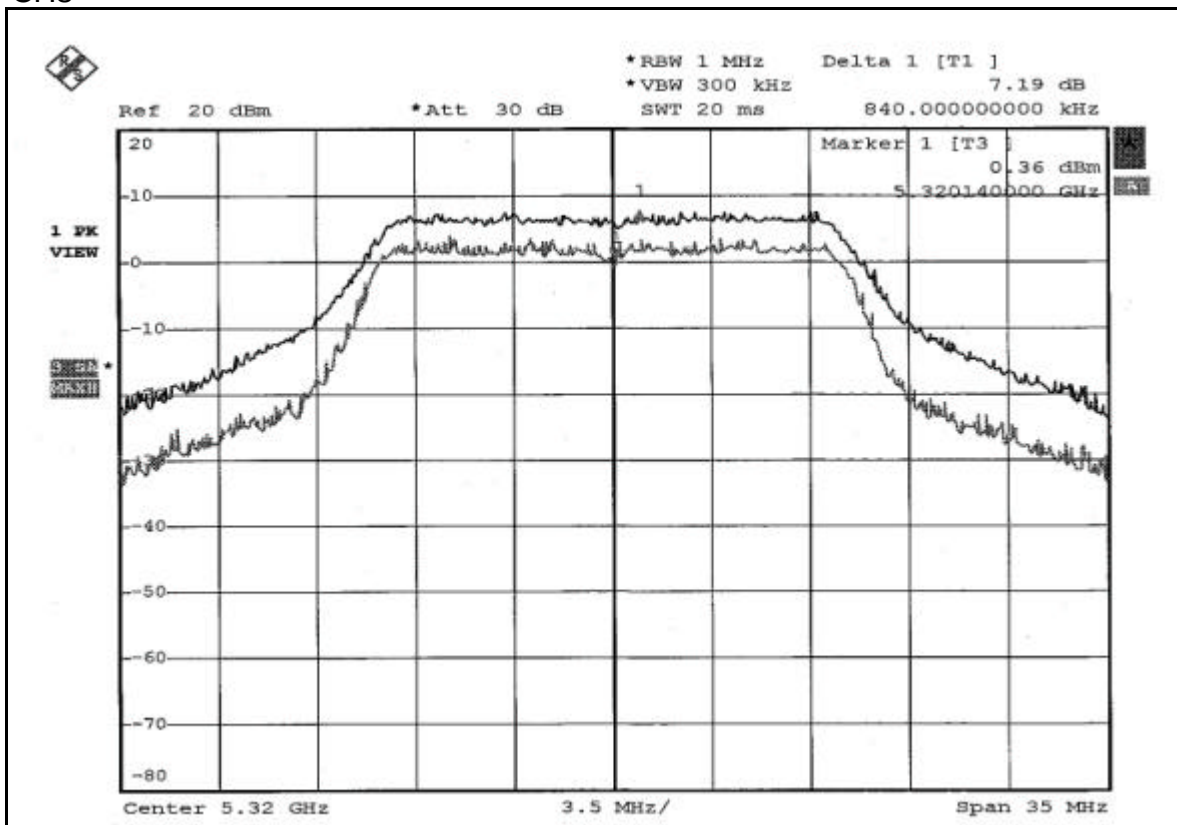
CH4



CH5

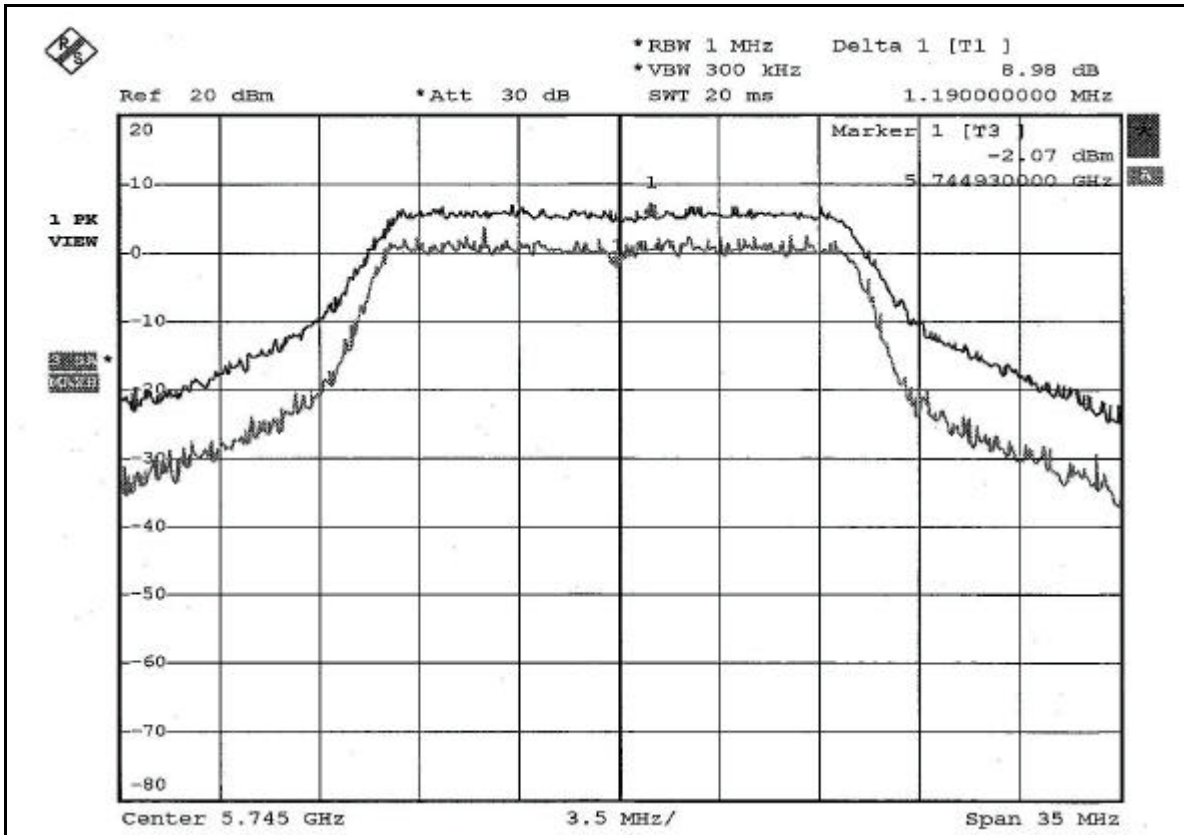


CH8

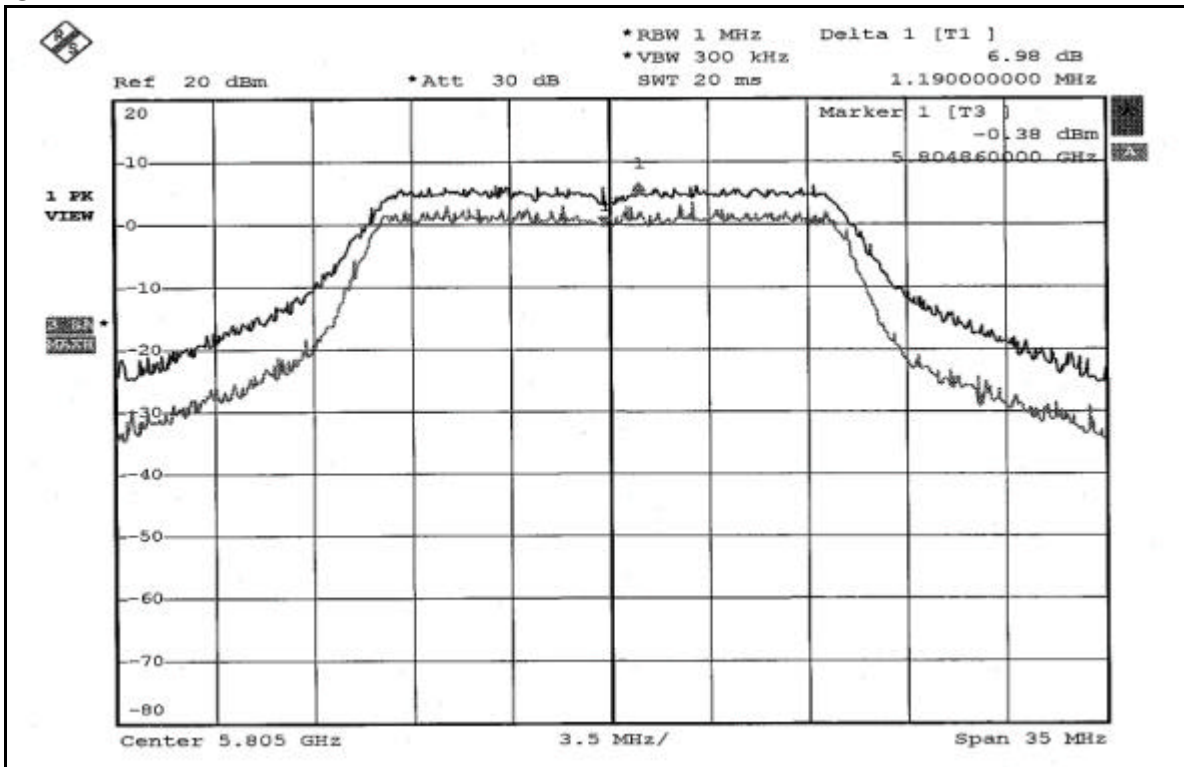




CH9



CH12



4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

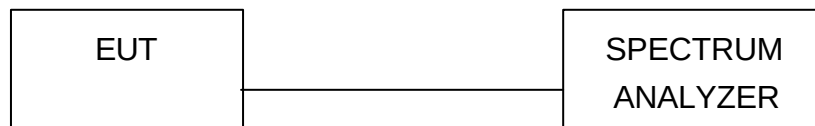
4.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6

4.5.7 TEST RESULTS

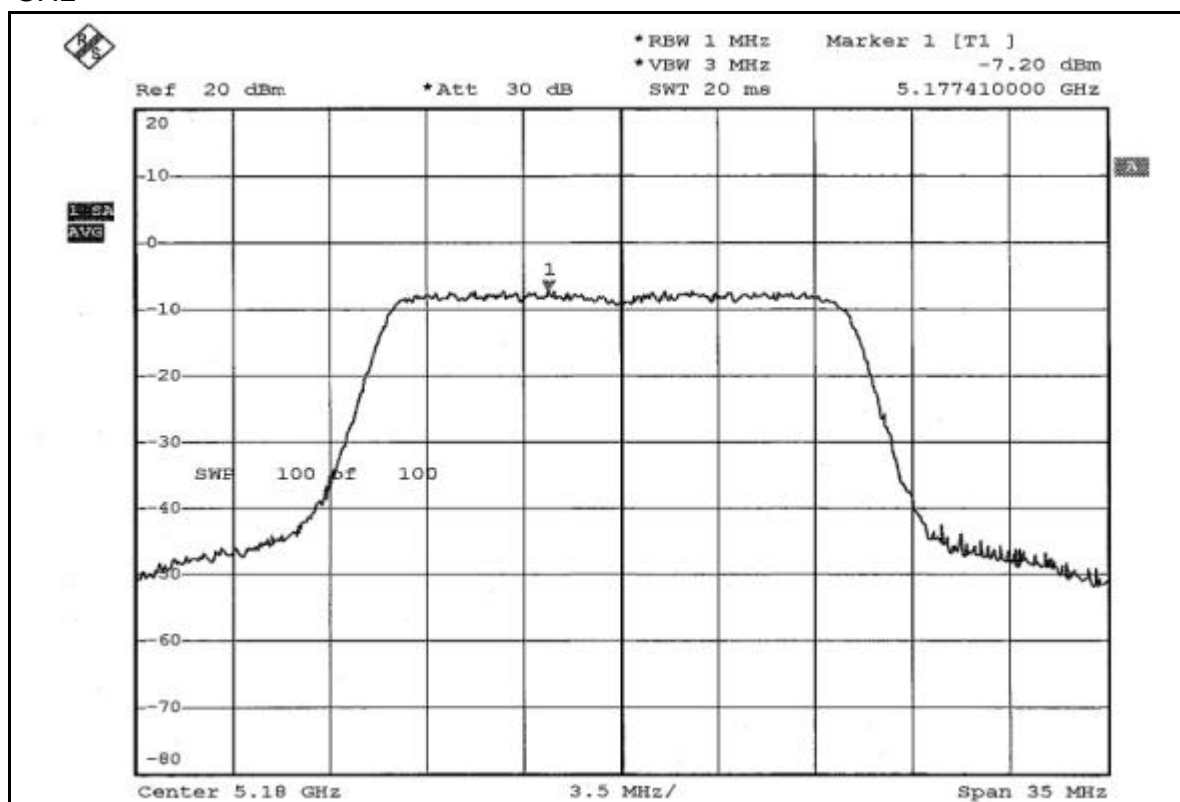
802.11a OFDM modulation

EUT	802.11a/b/g wireless sensor	MODEL	AM-5012-11AG
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg. C, 51%RH, 991hPa
TESTED BY	Rush Kao		

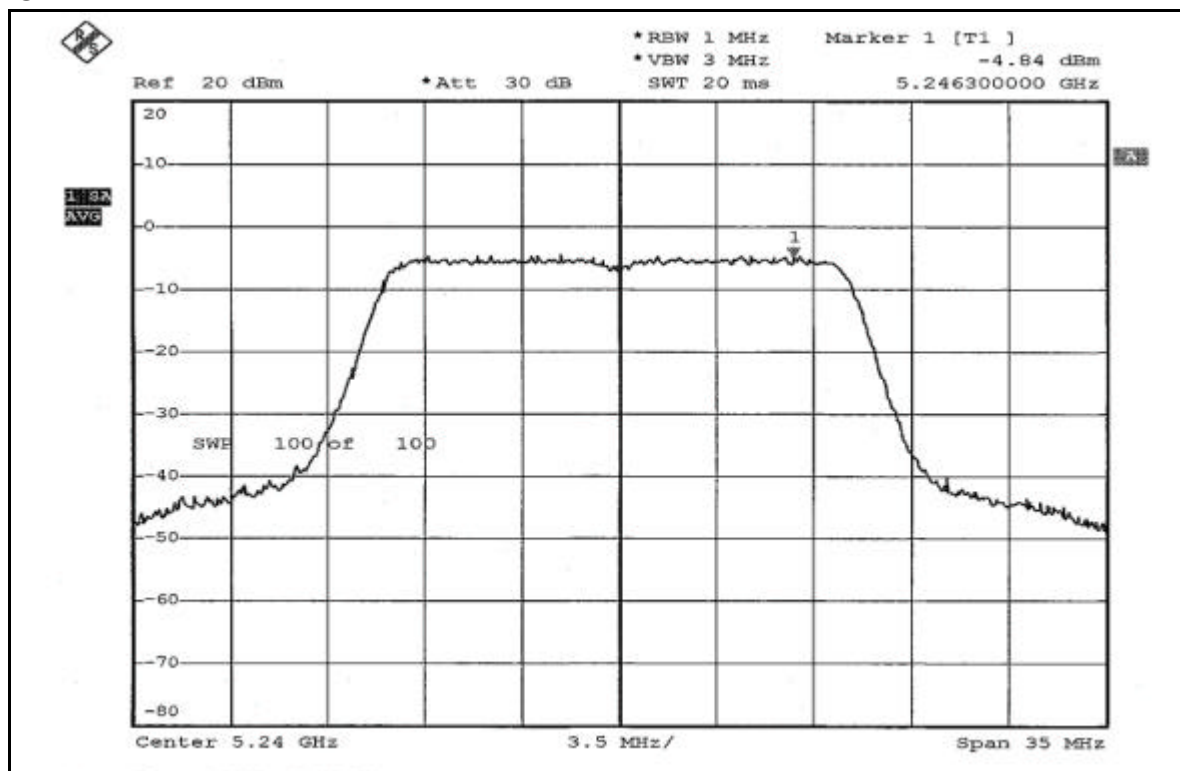
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	-7.20	4	PASS
4	5240	-4.84	4	PASS
5	5260	-3.82	11	PASS
8	5320	-3.81	11	PASS
9	5745	-4.70	17	PASS
12	5805	-4.99	17	PASS



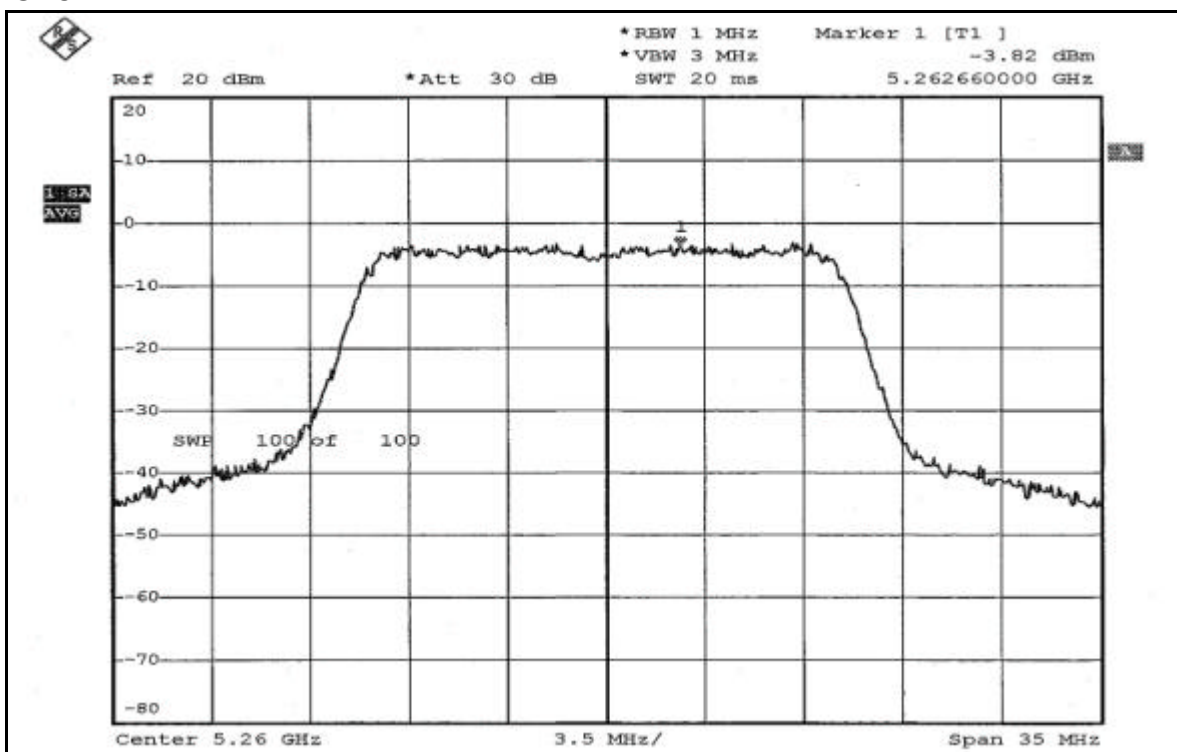
CH1



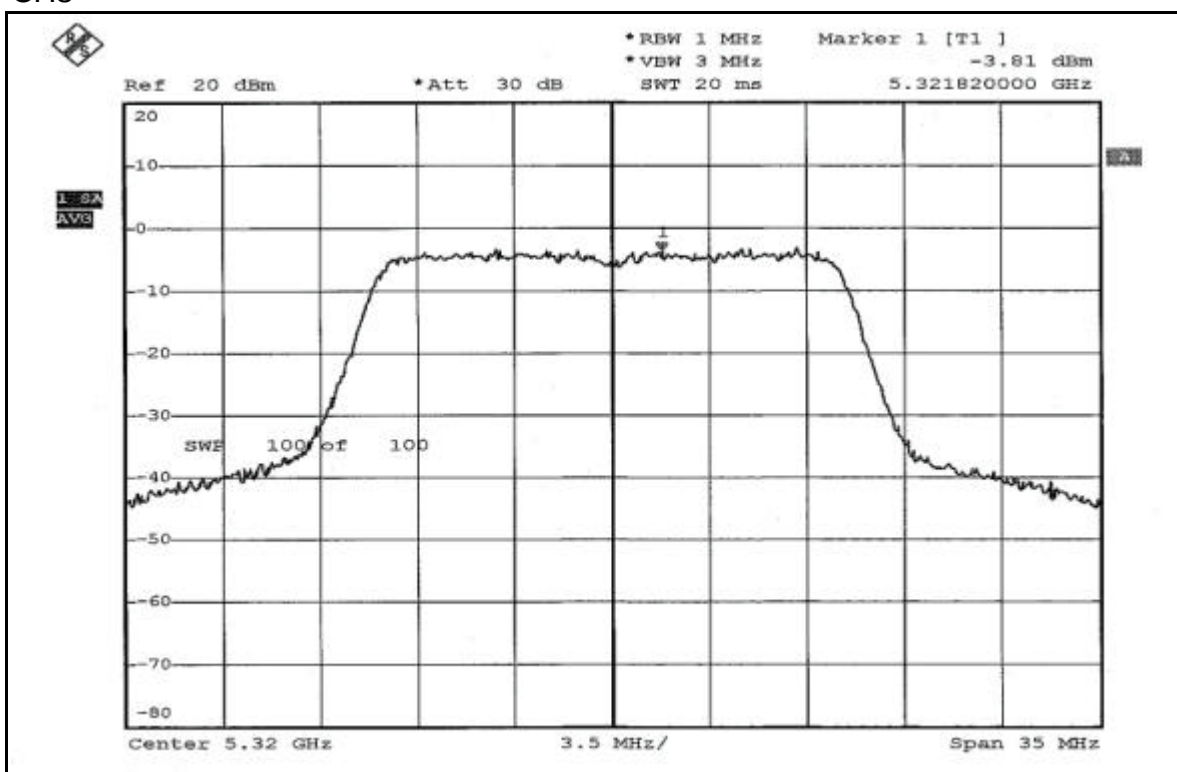
CH4



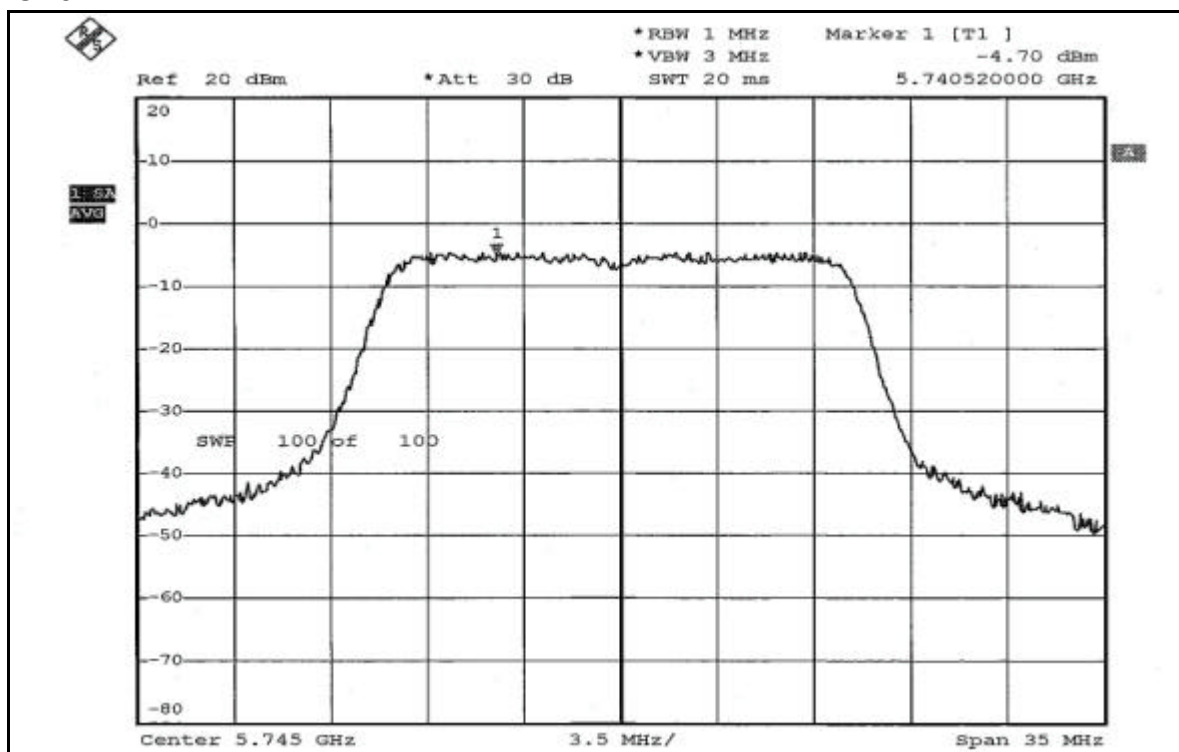
CH5



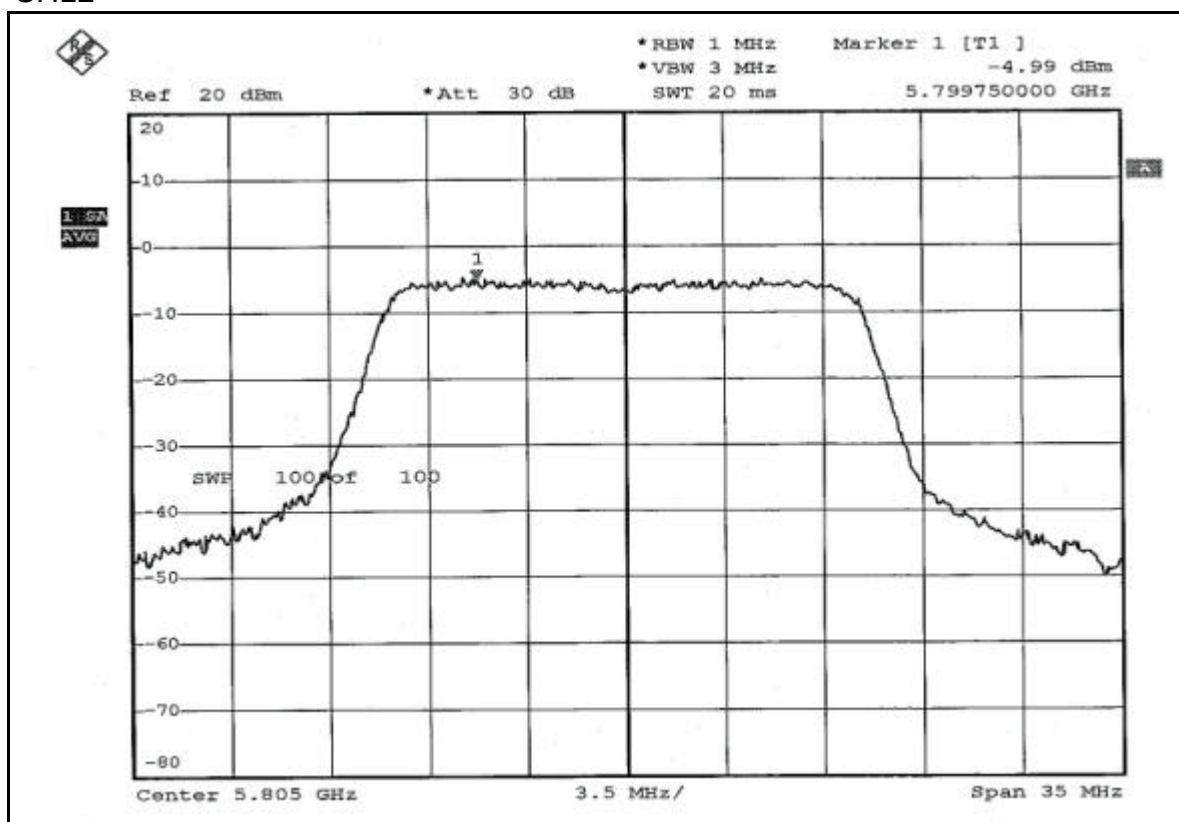
CH8



CH9



CH12



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Aug. 12, 2005
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W901030	Aug. 12, 2005

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

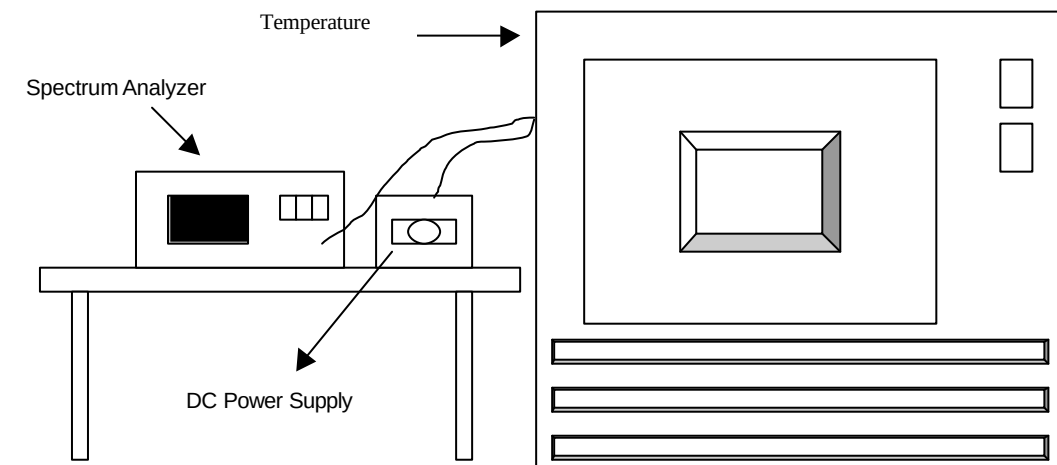
4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.6.7 TEST RESULTS

Operating frequency: 5320MHz				Limit : $\pm 0.015\%$			
Temp. (°C)	Power supply (Vac)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	138.0	5319.9874	-0.0002368	5319.9864	-0.0002556	5319.9860	-0.0002632
	120.0	5319.9872	-0.0002406	5319.9864	-0.0002556	5319.9860	-0.0002632
	102.0	5319.9876	-0.0002331	5319.9862	-0.0002594	5319.9860	-0.0002632
40	138.0	5319.9842	-0.0002970	5319.9830	-0.0003195	5319.9826	-0.0003271
	120.0	5319.9854	-0.0002744	5319.9838	-0.0003045	5319.9830	-0.0003195
	102.0	5319.9854	-0.0002744	5319.9828	-0.0003233	5319.9832	-0.0003158
30	138.0	5319.9818	-0.0003421	5319.9818	-0.0003421	5319.9814	-0.0003496
	120.0	5319.9820	-0.0003383	5319.9818	-0.0003421	5319.9816	-0.0003459
	102.0	5319.9818	-0.0003421	5319.9818	-0.0003421	5319.9814	-0.0003496
20	138.0	5319.9804	-0.0003684	5319.9806	-0.0003647	5319.9808	-0.0003609
	120.0	5319.9800	-0.0003759	5319.9806	-0.0003647	5319.9808	-0.0003609
	102.0	5319.9802	-0.0003722	5319.9806	-0.0003647	5319.9806	-0.0003647
10	138.0	5319.9817	-0.0003440	5319.9822	-0.0003346	5319.9828	-0.0003233
	120.0	5319.9816	-0.0003459	5319.9820	-0.0003383	5319.9826	-0.0003271
	102.0	5319.9820	-0.0003383	5319.9824	-0.0003308	5319.9830	-0.0003195
0	138.0	5319.9848	-0.0002857	5319.9852	-0.0002782	5319.9864	-0.0002556
	120.0	5319.9846	-0.0002895	5319.9854	-0.0002744	5319.9864	-0.0002556
	102.0	5319.9850	-0.0002820	5319.9854	-0.0002744	5319.9864	-0.0002556
-10	138.0	5319.9884	-0.0002180	5319.9888	-0.0002105	5319.9898	-0.0001917
	120.0	5319.9882	-0.0002218	5319.9888	-0.0002105	5319.9896	-0.0001955
	102.0	5319.9882	-0.0002218	5319.9888	-0.0002105	5319.9896	-0.0001955
-20	138.0	5319.9926	-0.0001391	5319.9930	-0.0001316	5319.9930	-0.0001316
	120.0	5319.9928	-0.0001353	5319.9932	-0.0001278	5319.9928	-0.0001353
	102.0	5319.9928	-0.0001353	5319.9932	-0.0001278	5319.9932	-0.0001278
-30	138.0	5319.9948	-0.0000977	5319.9956	-0.0000827	5319.9968	-0.0000602
	120.0	5319.9944	-0.0001053	5319.9952	-0.0000902	5319.9964	-0.0000677
	102.0	5319.9946	-0.0001015	5319.9948	-0.0000977	5319.9966	-0.0000639