



FCC TEST REPORT (15.407)

REPORT NO.: RF940728H06

MODEL NO.: BSAP-1500

RECEIVED: July 28, 2005

TESTED: Aug. 4 to 26, 2005

ISSUED: Aug. 31, 2005

APPLICANT: Bluesocket, Inc.

ADDRESS: 10 North Avenue Burlington, MA 01803

ISSUED BY: Advance Data Technology Corporation

TEST LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien, Taiwan, R.O.C.

This test report consists of 66 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, A2LA or any government agencies. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.



0536

ILAC MRA



No. 2177-01



Table of Contents

- 1. CERTIFICATION 5
- 2. SUMMARY OF TEST RESULTS 6
- 3. GENERAL INFORMATION 7
 - 3.1 GENERAL DESCRIPTION OF EUT 7
 - 3.2 DESCRIPTION OF TEST MODES 9
 - 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL: 10
 - 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 12
 - 3.4 DESCRIPTION OF SUPPORT UNITS..... 13
 - 3.5 CONFIGURATION OF SYSTEM UNDER TEST 14
- 4. TEST TYPES AND RESULTS (5150 ~ 5350MHZ BAND) 17
 - 4.1 CONDUCTED EMISSION MEASUREMENT 17
 - 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 17
 - 4.1.2 TEST INSTRUMENTS..... 17
 - 4.1.3 TEST PROCEDURES 18
 - 4.1.4 DEVIATION FROM TEST STANDARD 18
 - 4.1.5 TEST SETUP 19
 - 4.1.6 EUT OPERATING CONDITIONS 19
 - 4.1.7 TEST RESULTS 20
 - 4.2 RADIATED EMISSION MEASUREMENT 24
 - 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 24
 - 4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS..... 25
 - 4.2.3 TEST INSTRUMENTS..... 26
 - 4.2.4 TEST PROCEDURES 27
 - 4.2.5 DEVIATION FROM TEST STANDARD 27
 - 4.2.6 TEST SETUP 28
 - 4.2.7 EUT OPERATING CONDITION 28
 - 4.2.8 TEST RESULTS 29
 - 4.3 PEAK TRANSMIT POWER MEASUREMENT 35
 - 4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT 35
 - 4.3.2 TEST INSTRUMENTS..... 35
 - 4.3.3 TEST PROCEDURE..... 36



- 4.3.4 DEVIATION FROM TEST STANDARD 36
- 4.3.5 TEST SETUP 36
- 4.3.6 EUT OPERATING CONDITIONS 36
- 4.3.7 TEST RESULTS 37
- 4.4 PEAK POWER EXCURSION MEASUREMENT 42
- 4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT 42
- 4.4.2 TEST INSTRUMENTS 42
- 4.4.3 TEST PROCEDURE 43
- 4.4.4 DEVIATION FROM TEST STANDARD 43
- 4.4.5 TEST SETUP 43
- 4.4.6 EUT OPERATING CONDITIONS 43
- 4.4.7 TEST RESULTS 44
- 4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT 47
- 4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT 47
- 4.5.2 TEST INSTRUMENTS 47
- 4.5.3 TEST PROCEDURES 48
- 4.5.4 DEVIATION FROM TEST STANDARD 48
- 4.5.5 TEST SETUP 48
- 4.5.6 EUT OPERATING CONDITIONS 48
- 4.5.7 TEST RESULTS 49
- 4.6 FREQUENCY STABILITY 52
- 4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT 52
- 4.6.2 TEST INSTRUMENTS 52
- 4.6.3 TEST PROCEDURE 52
- 4.6.4 DEVIATION FROM TEST STANDARD 53
- 4.6.5 TEST SETUP 53
- 4.6.6 EUT OPERATING CONDITION 53
- 4.6.7 TEST RESULTS 54
- 4.7 BAND EDGES MEASUREMENT 55
- 4.7.1 TEST INSTRUMENTS 55
- 4.7.2 TEST PROCEDURE 55
- 4.7.3 EUT OPERATING CONDITION 55
- 4.7.4 TEST RESULTS 56
- 4.8 ANTENNA REQUIREMENT 61



4.8.1	STANDARD APPLICABLE.....	61
4.8.2	ANTENNA CONNECTED CONSTRUCTION.....	61
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	62
6.	INFORMATION ON THE TESTING LABORATORIES	66



1. CERTIFICATION

PRODUCT: Access point
BRAND NAME: Bluesocket
MODEL NO.: BSAP-1500
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Aug. 4 to 26, 2005
APPLICANT: Bluesocket, Inc.
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003

The above equipment (Model: BSAP-1500) 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 : Carol Liao , **DATE:** Aug. 31, 2005
(Carol Liao)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Aug. 31, 2005
Responsible for RF (Hank Chung)

APPROVED BY : May Chen , **DATE:** Aug. 31, 2005
(May Chen, 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 -1.01dB at 1.205MHz
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 -1.40dB at 5350.00MHz
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.

NOTE:

1. The EUT was operating in 2.412 ~ 2.462GHz, 5.150 ~ 5.350GHz and 5.725 ~ 5.850GHz frequencies band. This report was recorded the RF parameters including 5.150 ~ 5.350GHz. For the 2.412 ~ 2.462GHz and 5.725 ~ 5.850GHz RF parameters was recorded in another test report.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Access point
MODEL NO.	BSAP-1500
POWER SUPPLY	DC 48V from power adapter or POE (Power over Ethernet)
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 ~ 5.850GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 802.11a: 13
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz for Normal mode
OUTPUT POWER	22.05dBm
DATA CABLE	NA
ANTENNA TYPE	Dual Band Antenna Dipole antenna with 2.0dBi gain (for 2.4GHz) Dipole antenna with 4.0dBi gain (for 5.0GHz)
I/O PORTS	RS232 Port, POE port, DC power Port
ASSOCIATED DEVICES	NA

NOTE:

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

2. The EUT was operated with the following power adapter or POE:

ADAPTER	
BRAND:	PHIHONG
MODEL:	PSA 18U-480C (A1)
INPUT:	AC 90~264V, 0.5A, 50~60Hz 1.8m/ shield/ without core
OUTPUT:	DC 48V, 0.38A , 1.5m/ nonshield/ with one core

POE (for test only)	
BRAND:	3Com
MODEL:	PW130
INPUT:	AC100-250V, 0.5A, 50/60Hz
OUTPUT:	DC 48V, 0.42A

3. 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

Operated in 5150 ~ 5250MHz, 5250MHz ~ 5350MHz bands:

Eight channels are provided to this EUT for normal mode.

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



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
-	X	X	X	X	NA

Where PLC: Power Line Conducted Emission RE<1G RE: Radiated Emission below 1GHz
 RE≥1G: Radiated Emission above 1GHz APCM: Antenna Port Conducted Measurement

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 8	8	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 8	8	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 8	1, 4, 5, 8	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 8	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 8	1, 4, 5, 8	OFDM	BPSK	6



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an Access point. 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.

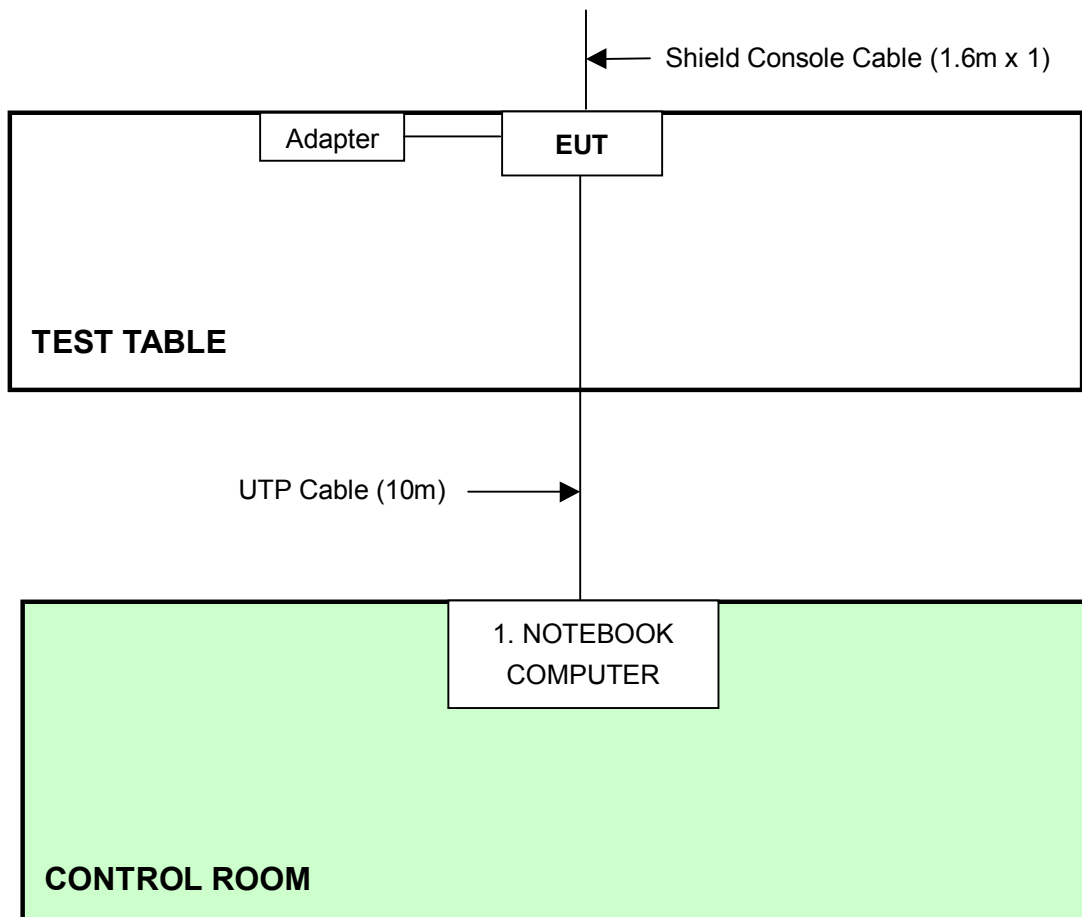
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP01L	TW-09c748- 12800-165-3171	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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

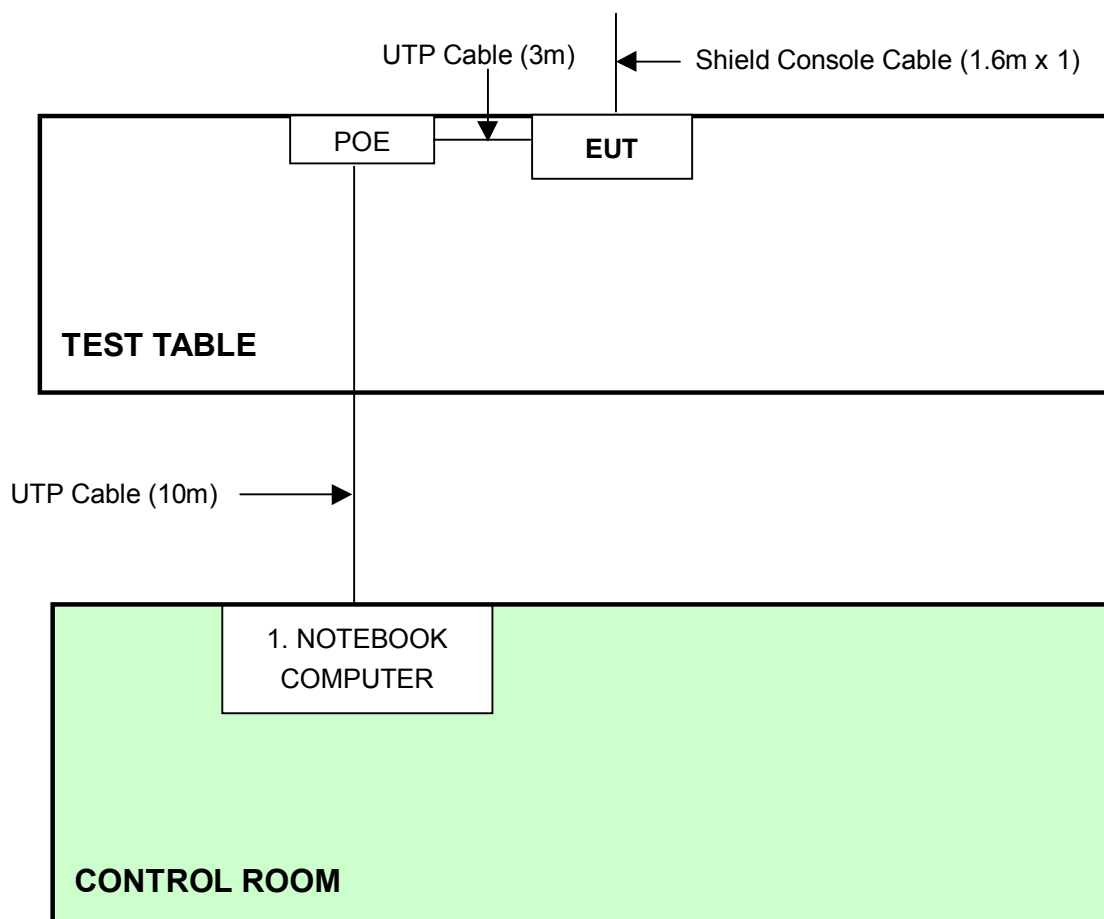
3.5 CONFIGURATION OF SYSTEM UNDER TEST

With ADAPTER



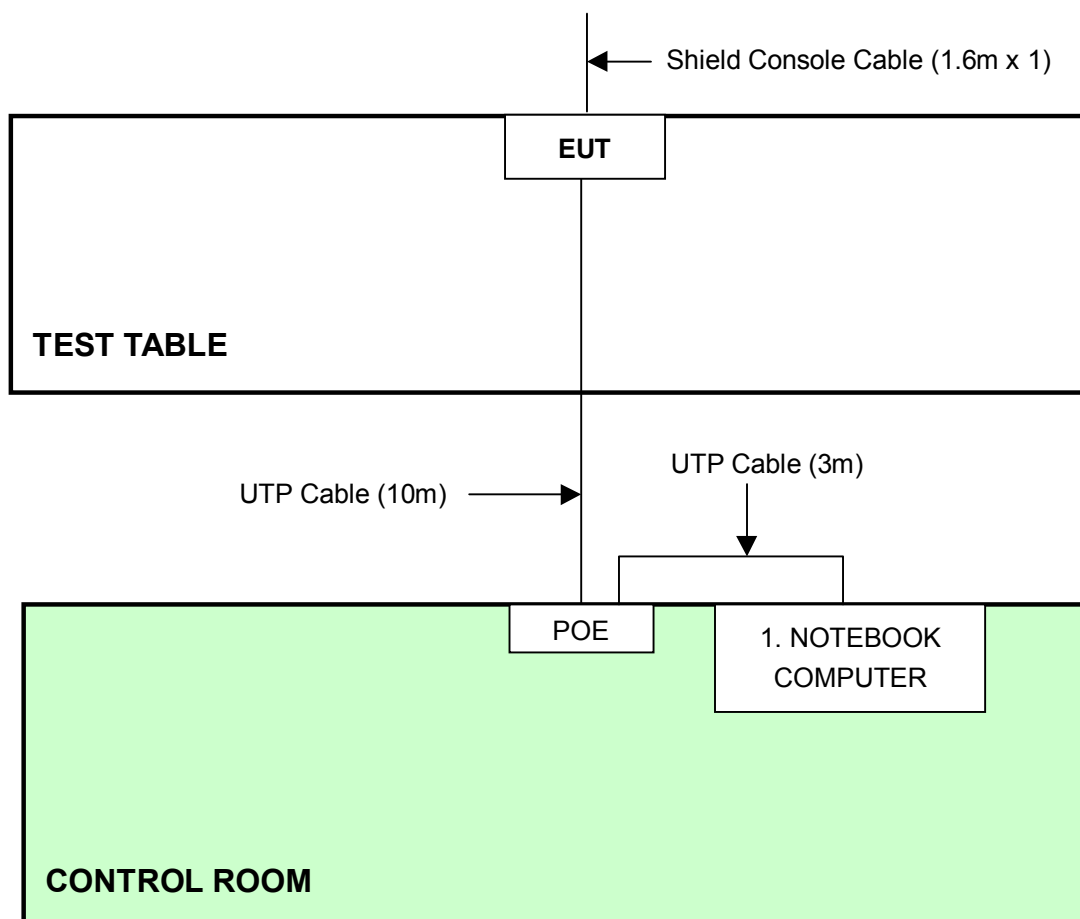
- NOTE:** 1. Support unit 1 was kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 5 also.

With POE (Conducted Emissions)



NOTE: 1. Support unit 1 was kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 5 also.

With POE (Radiated Emission)



- NOTE:**
- 1. Support unit 1 was kept in the control room during the test.
 - 2. Please refer to the photos of test configuration in Item 5 also.

4. TEST TYPES AND RESULTS (5150 ~ 5350MHz Band)

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
ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Dec. 07, 2005
ROHDE & SCHWARZ LISN (for EUT)	ESHS-Z5	848773/004	Nov. 08, 2005
KYORITSU LISN (for peripheral)	KNW-407	8/1395/12	Jul. 19, 2006
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 19, 2006
Terminator(for KYORITSU)	50	3	Oct. 12, 2005
Software	Cond-V2e	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 ADT Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.
4. The measurement uncertainty is 2.53 dB, which is calculated as per the document CISPR 16-4



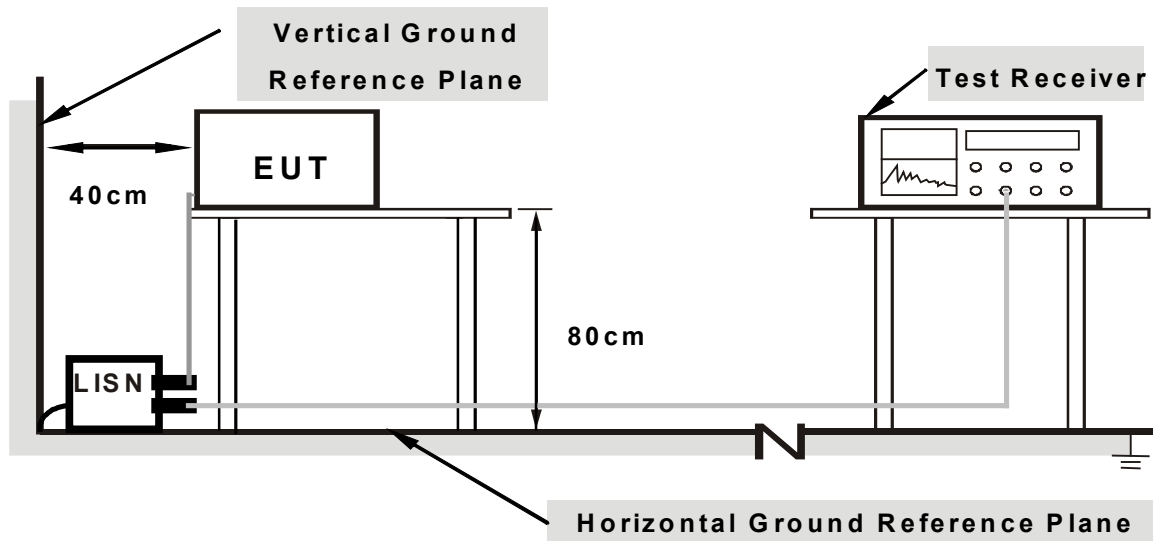
4.1.3 TEST PROCEDURES

- 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) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared another computer system to act as a communication partner and placed it outside of testing area.
- c. The communication partner run test program “Art V48 build16” to enable EUT under transmission/receiving condition continuously at specific channel frequency via UTP cable.



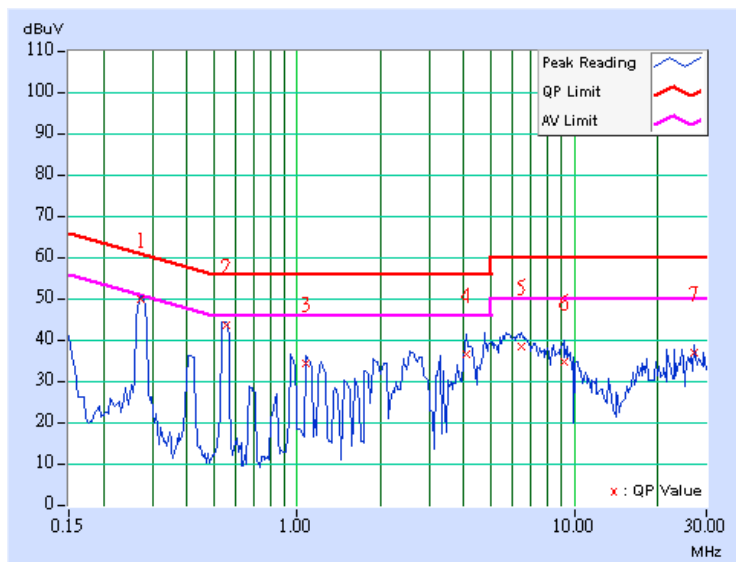
4.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT	Access point	MODEL	BSAP-1500
TEST MODE	With Adapter	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 961hPa	TESTED BY	Rex Huang

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	0.271	0.16	48.51	-	48.67	-	61.08
2	0.552	0.18	42.23	-	42.41	-	56.00	46.00	-13.59	-
3	1.076	0.20	32.91	-	33.11	-	56.00	46.00	-22.89	-
4	4.105	0.46	35.17	-	35.63	-	56.00	46.00	-20.37	-
5	6.465	0.57	37.03	-	37.60	-	60.00	50.00	-22.40	-
6	9.148	0.71	33.48	-	34.19	-	60.00	50.00	-25.81	-
7	27.160	1.48	35.64	-	37.12	-	60.00	50.00	-22.88	-

- 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.

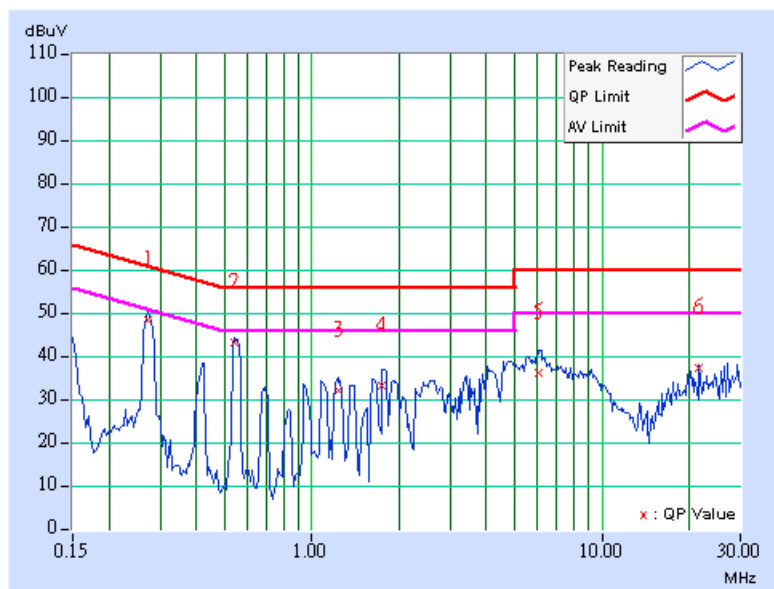




EUT	Access point	MODEL	BSAP-1500
TEST MODE	With Adapter	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 961hPa	TESTED BY	Rex Huang

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	0.271	0.16	47.22	-	47.38	-	61.08
2	0.541	0.18	42.17	-	42.35	-	56.00	46.00	-13.65	-
3	1.232	0.21	31.09	-	31.30	-	56.00	46.00	-24.70	-
4	1.752	0.24	32.10	-	32.34	-	56.00	46.00	-23.66	-
5	6.070	0.52	35.21	-	35.73	-	60.00	50.00	-24.27	-
6	21.660	1.18	36.21	-	37.39	-	60.00	50.00	-22.61	-

- 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.



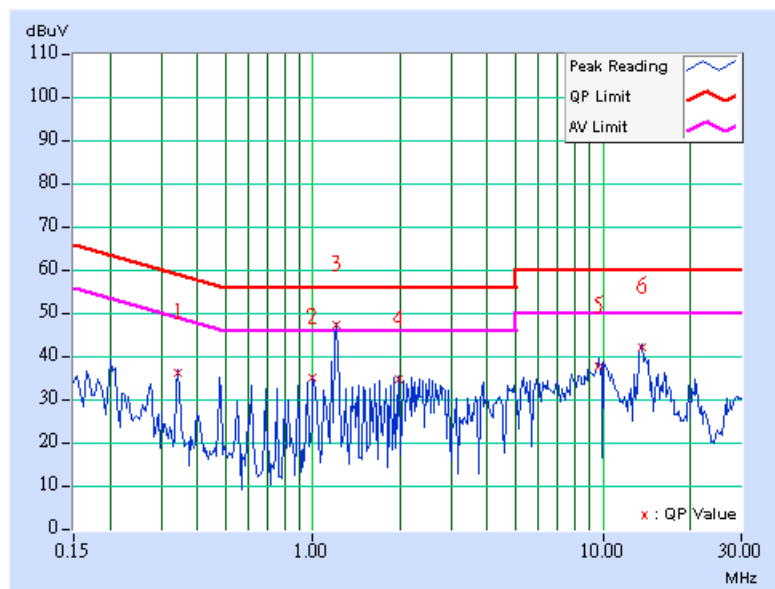


Conducted Worst-Case Data

EUT	Access point	MODEL	BSAP-1500
TEST MODE	With POE	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 961hPa	TESTED BY	Rex Huang

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	0.341	0.16	35.54	-	35.70	-	59.17	49.17	-23.46
2	1.002	0.20	34.21	-	34.41	-	56.00	46.00	-21.59	-
3	1.201	0.21	46.43	44.68	46.64	44.89	56.00	46.00	-9.36	-1.11
4	1.982	0.25	33.73	-	33.98	-	56.00	46.00	-22.02	-
5	9.711	0.74	37.02	-	37.76	-	60.00	50.00	-22.24	-
6	13.602	0.92	41.13	-	42.05	-	60.00	50.00	-17.95	-

- 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.

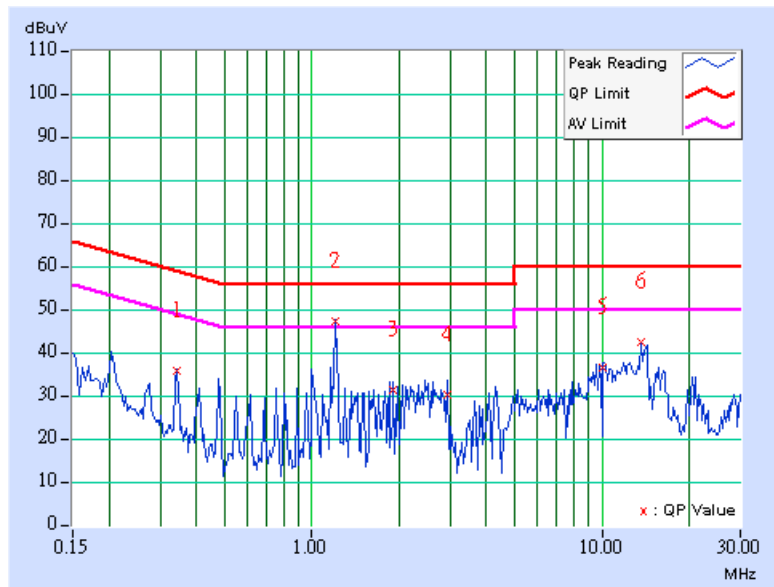




EUT	Access point	MODEL	BSAP-1500
TEST MODE	With POE	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 961hPa	TESTED BY	Rex Huang

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	0.341	0.16	35.00	-	35.16	-	59.17
2	1.205	0.21	46.75	44.78	46.96	44.99	56.00	46.00	-9.04	-1.01
3	1.916	0.25	30.73	-	30.98	-	56.00	46.00	-25.02	-
4	2.943	0.34	29.46	-	29.80	-	56.00	46.00	-26.20	-
5	10.051	0.65	35.92	-	36.57	-	60.00	50.00	-23.43	-
6	13.602	0.82	41.86	-	42.68	-	60.00	50.00	-17.32	-

- 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.





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 (dB μ V/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

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



4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 07, 2006
HP Pre_Amplifier	8449B	3008A01922	Oct. 13, 2005
ROHDE & SCHWARZ Test Receiver	ESCS30	100287	Dec. 08, 2005
CHASE Broadband Antenna	VULB9168	138	Dec. 21, 2005
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 11, 2005
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 30, 2006
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 26, 2006
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 26, 2006
RF Switches (ARNITSU)	CS-201	1565157	NA
RF CABLE (Chaintek) 1GHz-20GHz	SF102	22054-2	Nov. 15. 2005
RF Cable(RICHTEC)	9913-30M	STCCAB-30M- 1GHz-021	Jul. 16, 2006
Software	ADT_Radiated_V 5.14	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

- Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Tunable Periodic Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824-3.
7. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Measurement	Value
Radiated emissions (30MHz-1GHz)	2.98 dB
Radiated emissions (1GHz ~18GHz)	2.21 dB
Radiated emissions (18GHz ~20GHz)	1.88 dB



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.

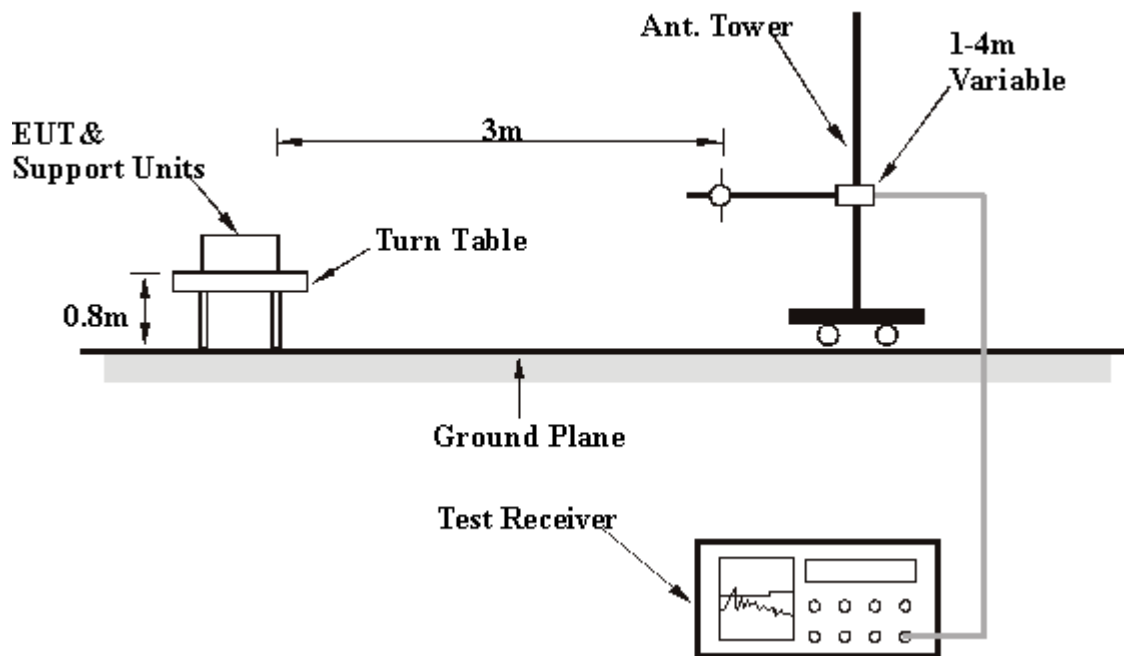
NOTE:

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

EUT	Access point	MODEL	BSAP-1500
TEST MODE	With Adapter	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 57%RH, 961hPa	TESTED BY	Tony Chen

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	250.00	24.00 QP	46.00	-22.00	1.77 H	333	10.70	13.30
2	300.00	23.40 QP	46.00	-22.60	1.26 H	358	7.10	16.30
3	375.00	26.40 QP	46.00	-19.60	1.00 H	208	8.80	17.60
4	500.00	26.30 QP	46.00	-19.70	1.01 H	177	5.40	20.90
5	792.00	36.80 QP	46.00	-9.20	1.01 H	309	10.20	26.60
6	891.00	39.20 QP	46.00	-6.80	1.07 H	269	11.40	27.80
7	924.00	38.10 QP	46.00	-7.90	1.04 H	258	9.70	28.40
8	990.00	40.10 QP	54.00	-13.90	1.00 H	267	11.10	28.90

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	42.98	25.20 QP	40.00	-14.80	1.10 V	254	11.00	14.20
2	250.00	28.70 QP	46.00	-17.30	1.10 V	254	15.40	13.30
3	500.00	26.10 QP	46.00	-19.90	1.22 V	195	5.20	20.90
4	792.00	33.50 QP	46.00	-12.50	1.09 V	107	6.90	26.60
5	858.00	33.80 QP	46.00	-12.20	1.19 V	39	6.20	27.50
6	891.00	38.80 QP	46.00	-7.20	1.20 V	113	11.00	27.80
7	924.00	37.50 QP	46.00	-8.50	1.00 V	1	9.10	28.40
8	990.00	37.80 QP	54.00	-16.20	1.06 V	176	8.90	28.90

- 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**

EUT	Access point	MODEL	BSAP-1500
TEST MODE	With POE	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 57%RH, 961hPa	TESTED BY	Tony Chen

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	250.00	22.50 QP	46.00	-23.50	1.68 H	218	9.20	13.30
2	300.00	24.00 QP	46.00	-22.00	1.09 H	191	7.70	16.30
3	375.00	25.40 QP	46.00	-20.60	1.00 H	193	7.80	17.60
4	500.00	27.30 QP	46.00	-18.70	1.00 H	207	6.40	20.90
5	792.00	35.90 QP	46.00	-10.10	1.26 H	268	9.30	26.60
6	891.00	39.90 QP	46.00	-6.10	1.05 H	272	12.10	27.80
7	924.00	38.50 QP	46.00	-7.50	1.05 H	264	10.20	28.40
8	990.00	39.80 QP	54.00	-14.20	1.00 H	264	10.90	28.90

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	42.10	31.70 QP	40.00	-8.30	1.00 V	339	17.50	14.20
2	250.00	26.00 QP	46.00	-20.00	1.00 V	339	12.70	13.30
3	500.00	25.50 QP	46.00	-20.50	1.21 V	210	4.60	20.90
4	792.00	35.00 QP	46.00	-11.00	1.24 V	314	8.40	26.60
5	858.00	33.10 QP	46.00	-12.90	1.37 V	51	5.60	27.50
6	891.00	37.80 QP	46.00	-8.20	1.14 V	67	10.00	27.80
7	924.00	38.10 QP	46.00	-7.90	1.03 V	1	9.70	28.40
8	990.00	36.70 QP	54.00	-17.30	1.00 V	144	7.80	28.90

- 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**

EUT	Access point	MODEL	BSAP-1500
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	27deg. C, 54%RH, 961hPa	TESTED BY	Rex Huang

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	#5150.00	49.50 PK	74.00	-24.50	1.28 H	120	13.70	35.80
1	#5150.00	37.00 AV	54.00	-17.00	1.28 H	120	1.20	35.80
2	*5180.00	95.00 PK			1.28 H	120	59.20	35.80
2	*5180.00	86.40 AV			1.28 H	120	50.60	35.80
3	10360.00	56.70 PK	68.30	-11.60	1.30 H	26	12.60	44.10
4	#15540.00	56.80 PK	74.00	-17.20	1.24 H	114	7.20	49.60
4	#15540.00	45.30 AV	54.00	-8.70	1.24 H	114	-4.40	49.60

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	#5150.00	60.20 PK	74.00	-13.80	1.25 V	243	24.40	35.80
1	#5150.00	47.60 AV	54.00	-6.40	1.25 V	243	11.80	35.80
2	*5180.00	105.80 PK			1.25 V	243	70.00	35.80
2	*5180.00	97.00 AV			1.25 V	243	61.20	35.80
3	10360.00	56.50 PK	68.30	-11.80	2.09 V	360	12.30	44.10
4	#15540.00	58.70 PK	74.00	-15.30	1.16 V	40	9.00	49.60
4	#15540.00	46.80 AV	54.00	-7.20	1.16 V	40	-2.90	49.60

- 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	Access point	MODEL	BSAP-1500
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	27deg. C, 54%RH, 961hPa	TESTED BY	Rex Huang

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	*5240.00	95.90 PK			1.37 H	96	60.10	35.80
1	*5240.00	87.00 AV			1.37 H	96	51.20	35.80
2	10480.00	59.50 PK	68.30	-8.80	1.32 H	278	15.10	44.40

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	*5240.00	106.20 PK			1.01 V	294	70.40	35.80
1	*5240.00	97.60 AV			1.01 V	294	61.80	35.80
2	10480.00	59.10 PK	68.30	-9.20	1.25 V	173	14.70	44.40

- 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	Access point	MODEL	BSAP-1500
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	27deg. C, 54%RH, 961hPa	TESTED BY	Rex Huang

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	*5260.00	101.00 PK			1.39 H	104	65.20	35.80
1	*5260.00	91.70 AV			1.39 H	104	55.90	35.80
2	10520.00	62.40 PK	68.30	-5.90	1.33 H	215	17.70	44.70

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	*5260.00	111.30 PK			1.01 V	294	75.50	35.80
1	*5260.00	102.80 AV			1.01 V	294	67.00	35.80
2	10520.00	61.50 PK	68.30	-6.80	1.34 V	241	16.80	44.70

- 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	Access point	MODEL	BSAP-1500
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	27deg. C, 54%RH, 961hPa	TESTED BY	Rex Huang

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	*5320.00	98.10 PK			1.23 H	6	62.30	35.80
1	*5320.00	90.00 AV			1.23 H	6	54.20	35.80
2	#5350.00	40.40 PK	74.00	-33.60	1.23 H	6	4.60	35.80
2	#5350.00	42.30 AV	54.00	-11.70	1.23 H	6	6.50	35.80
3	#10640.00	60.40 PK	74.00	-13.60	1.33 H	255	14.60	45.90
3	#10640.00	49.10 AV	54.00	-4.90	1.33 H	255	3.20	45.90
4	#15960.00	61.00 PK	74.00	-13.00	1.09 H	4	14.40	46.70
4	#15960.00	49.70 AV	54.00	-4.30	1.09 H	4	3.10	46.70

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	*5320.00	109.10 PK			1.10 V	66	73.40	35.80
1	*5320.00	100.30 AV			1.10 V	66	64.50	35.80
2	#5350.00	59.50 PK	74.00	-14.50	1.10 V	66	23.70	35.80
2	#5350.00	52.60 AV	54.00	-1.40	1.10 V	66	16.80	35.80
3	#10640.00	59.70 PK	74.00	-14.30	1.36 V	3	13.90	45.90
3	#10640.00	50.10 AV	54.00	-3.90	1.36 V	3	4.20	45.90
4	#15960.00	60.10 PK	74.00	-13.90	1.00 V	263	13.40	46.70
4	#15960.00	49.40 AV	54.00	-4.60	1.00 V	263	2.80	46.70

- 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.

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	FSP40	100036	Nov. 23, 2005

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.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:

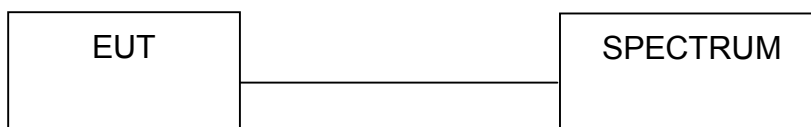
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 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

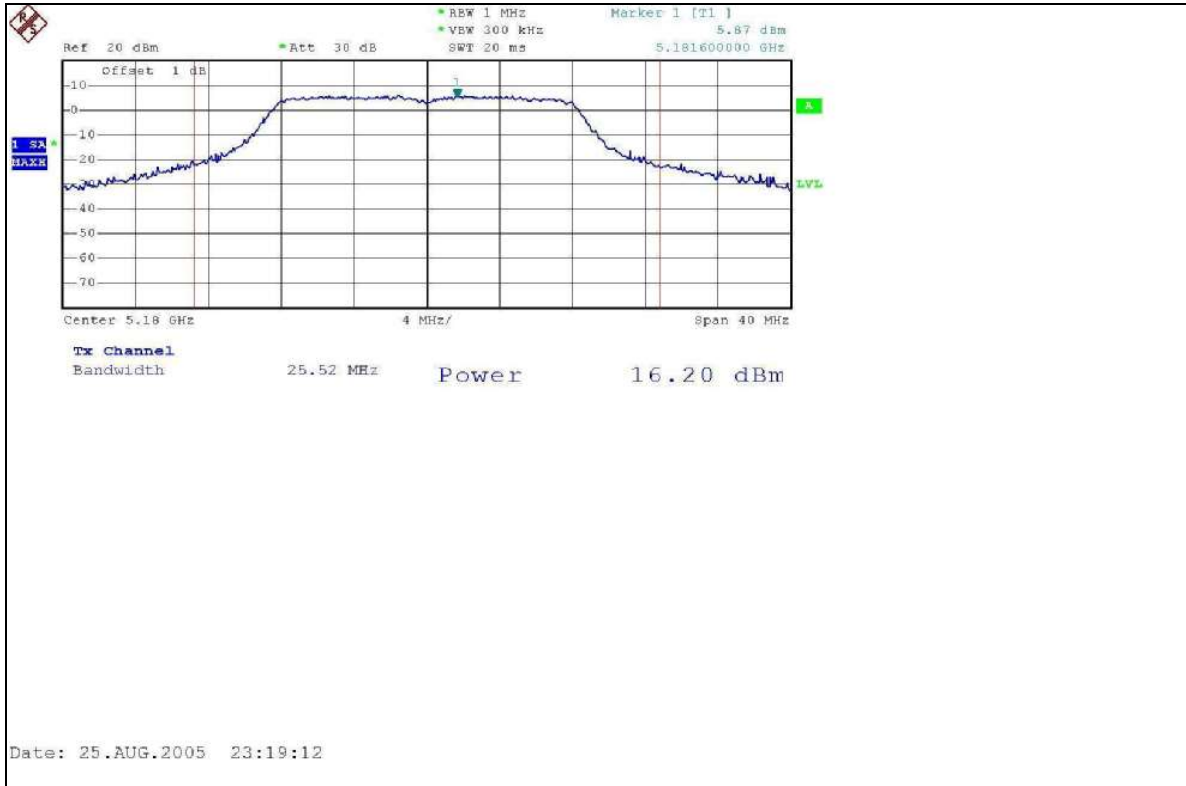
EUT	Access point	MODEL	BSAP-1500
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 64%RH, 961hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	16.20	17	25.52	PASS
4	5240	16.33	17	26.32	PASS
5	5260	22.05	24	33.68	PASS
8	5320	21.93	24	32.72	PASS

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



Peak Power Output: CH1



CH4





CH5

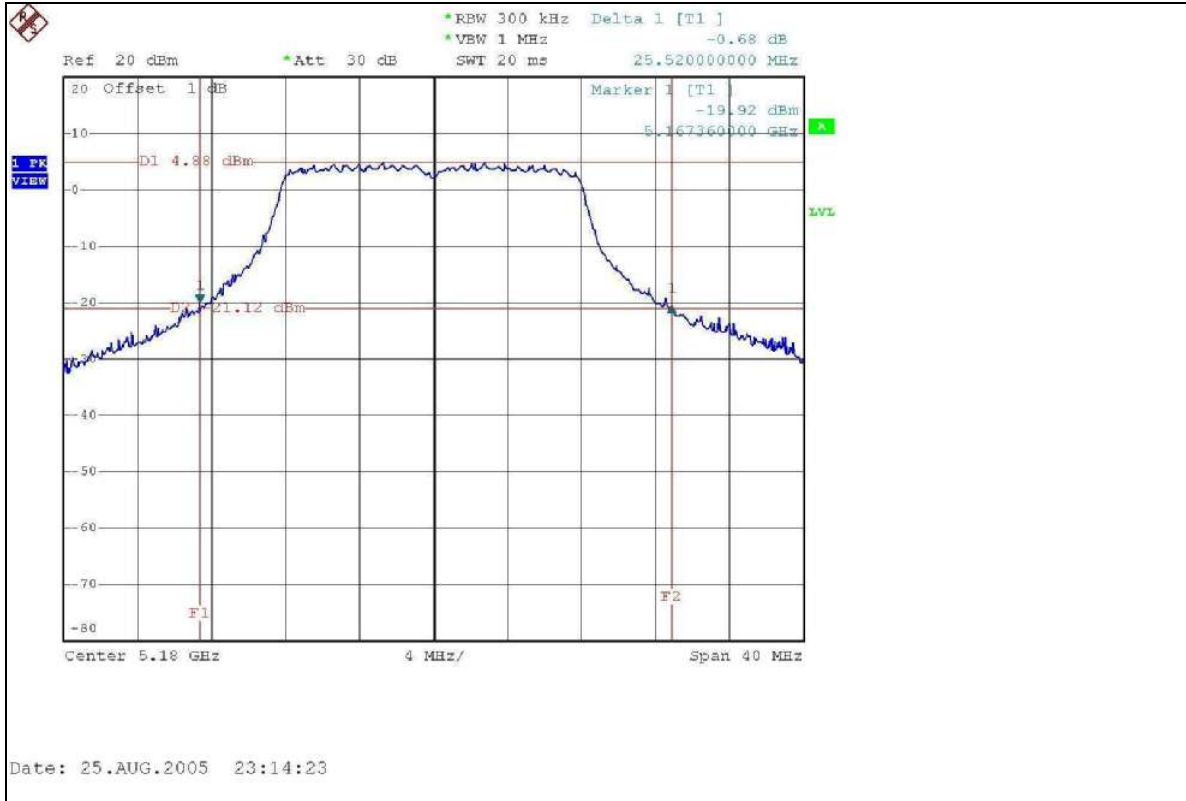


CH8

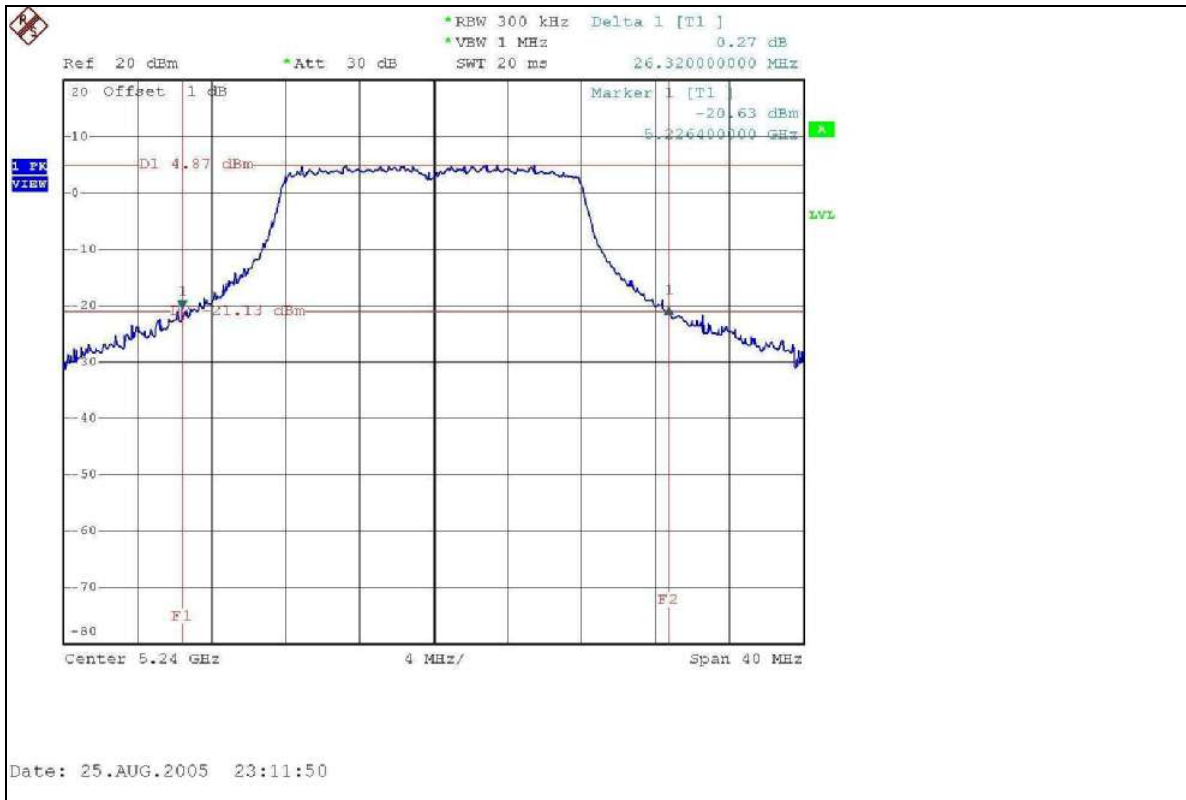




26dB Occupied Bandwidth: CH1

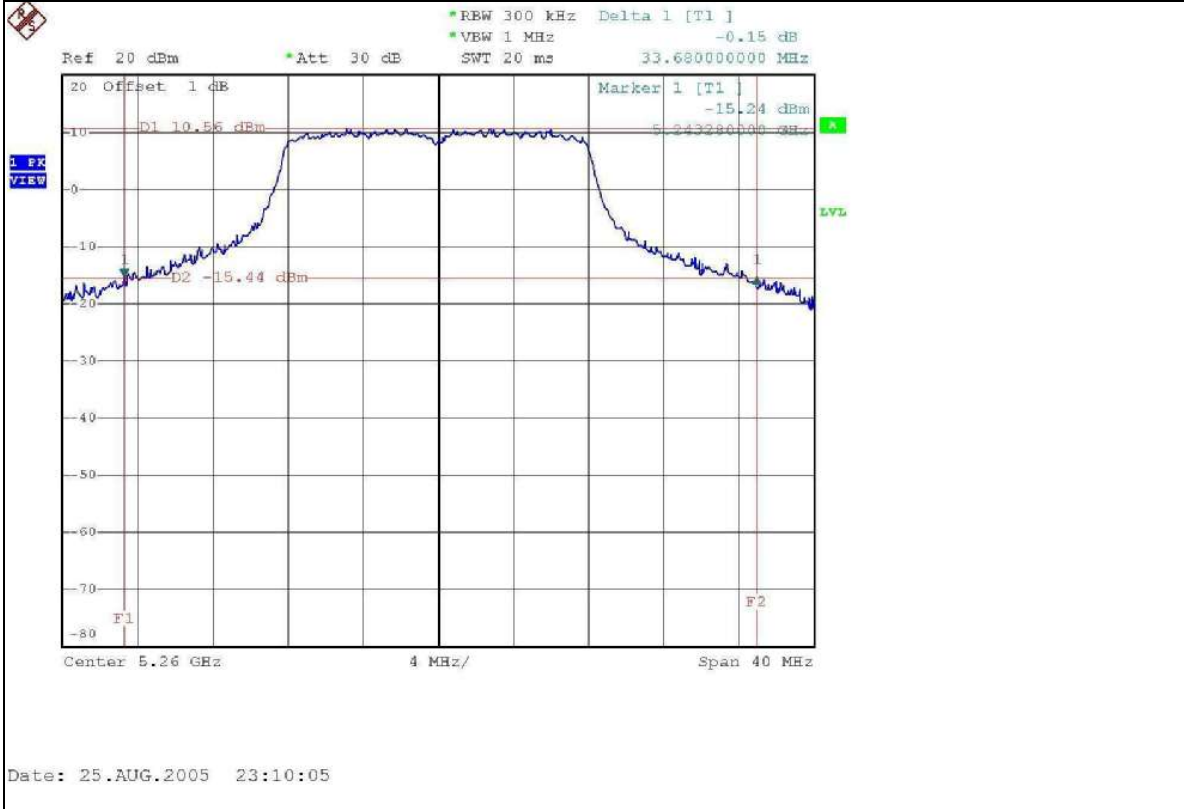


CH4





CH5



CH8



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
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

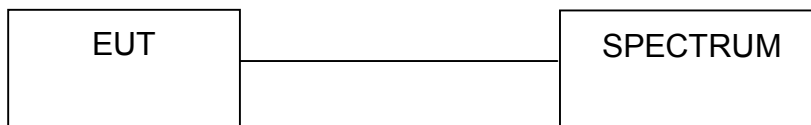
4.4.3 TEST PROCEDURE

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.



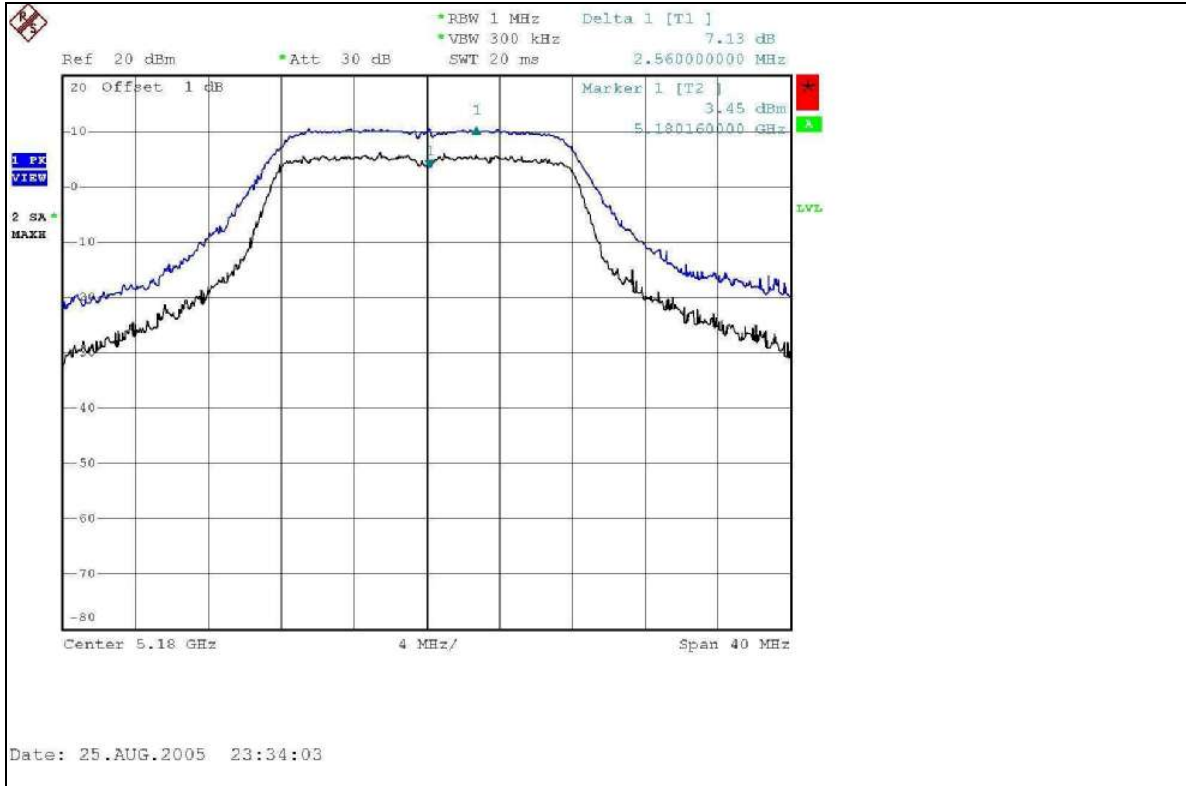
4.4.7 TEST RESULTS

802.11a OFDM modulation

EUT	Access point	MODEL	BSAP-1500
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 64%RH, 961hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	7.13	13	PASS
4	5240	7.29	13	PASS
5	5260	7.17	13	PASS
8	5320	7.07	13	PASS

CH1

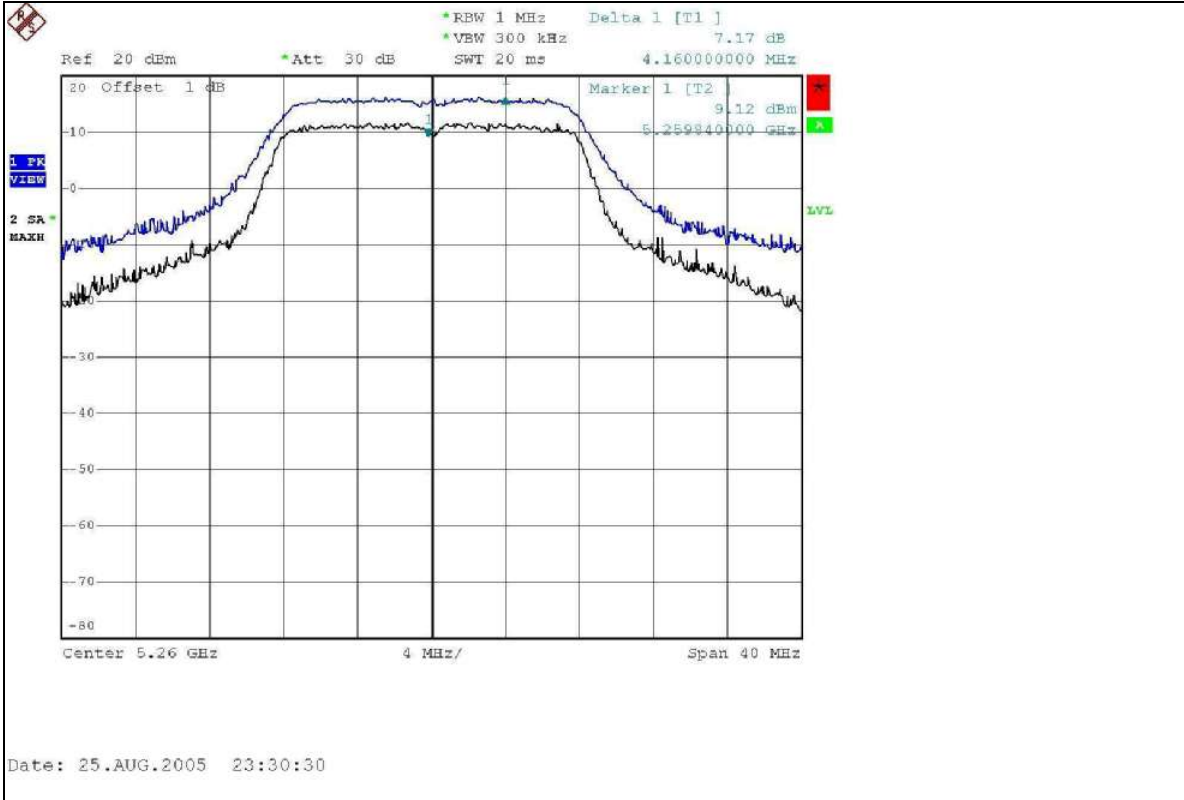




CH4

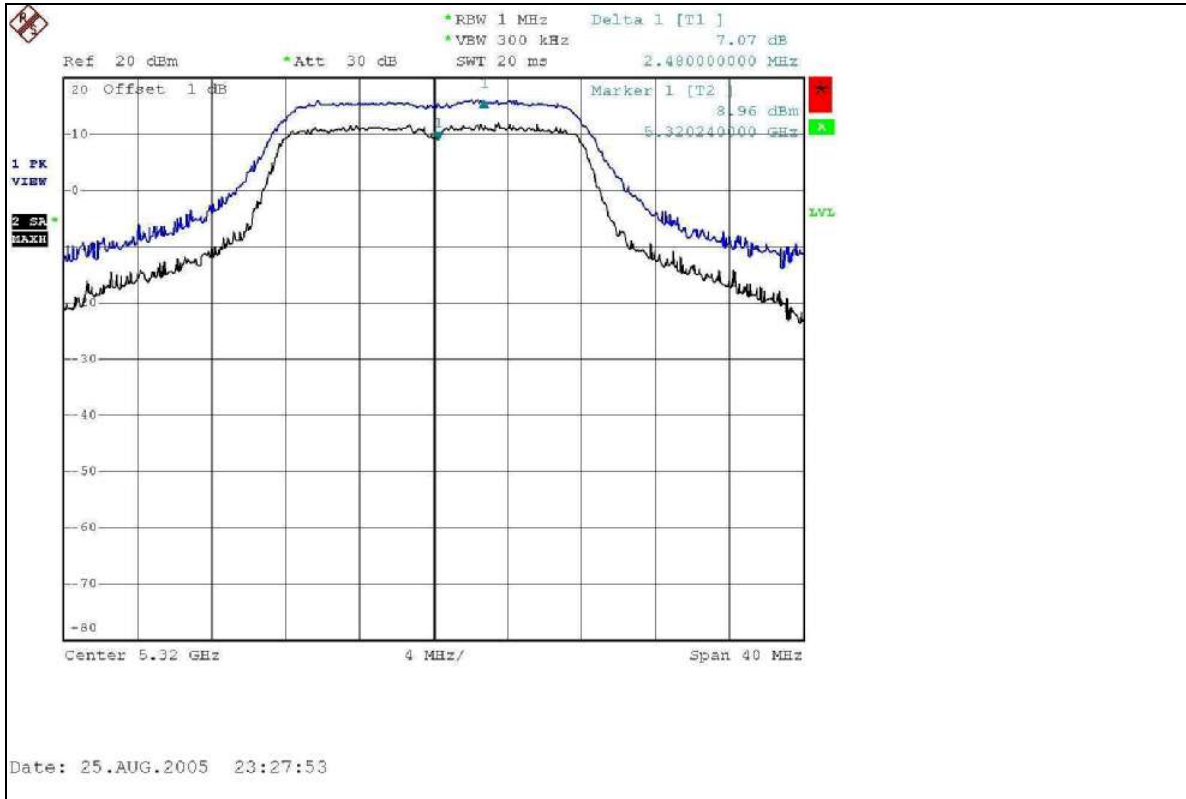


CH5





CH8



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
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.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 4.3.6



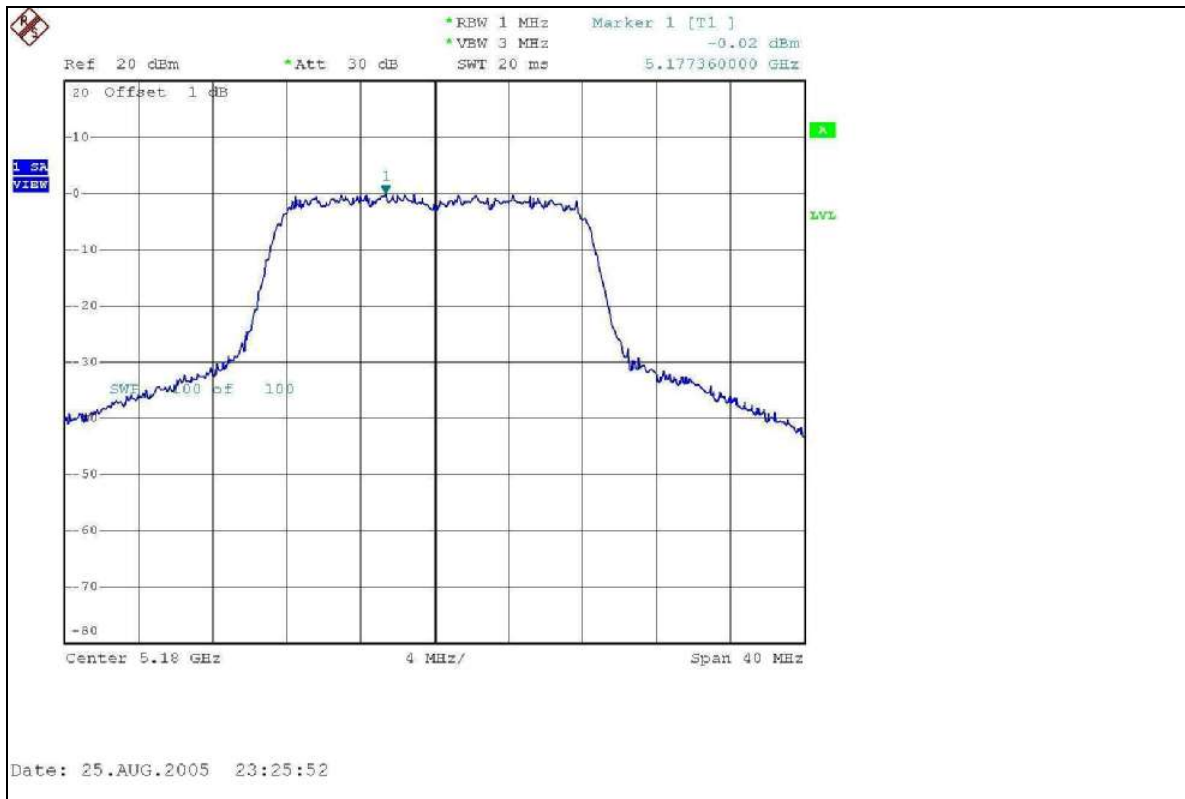
4.5.7 TEST RESULTS

802.11a OFDM modulation

EUT	Access point	MODEL	BSAP-1500
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 64%RH, 961hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	-0.02	4	PASS
4	5240	-0.11	4	PASS
5	5260	5.73	11	PASS
8	5320	5.77	11	PASS

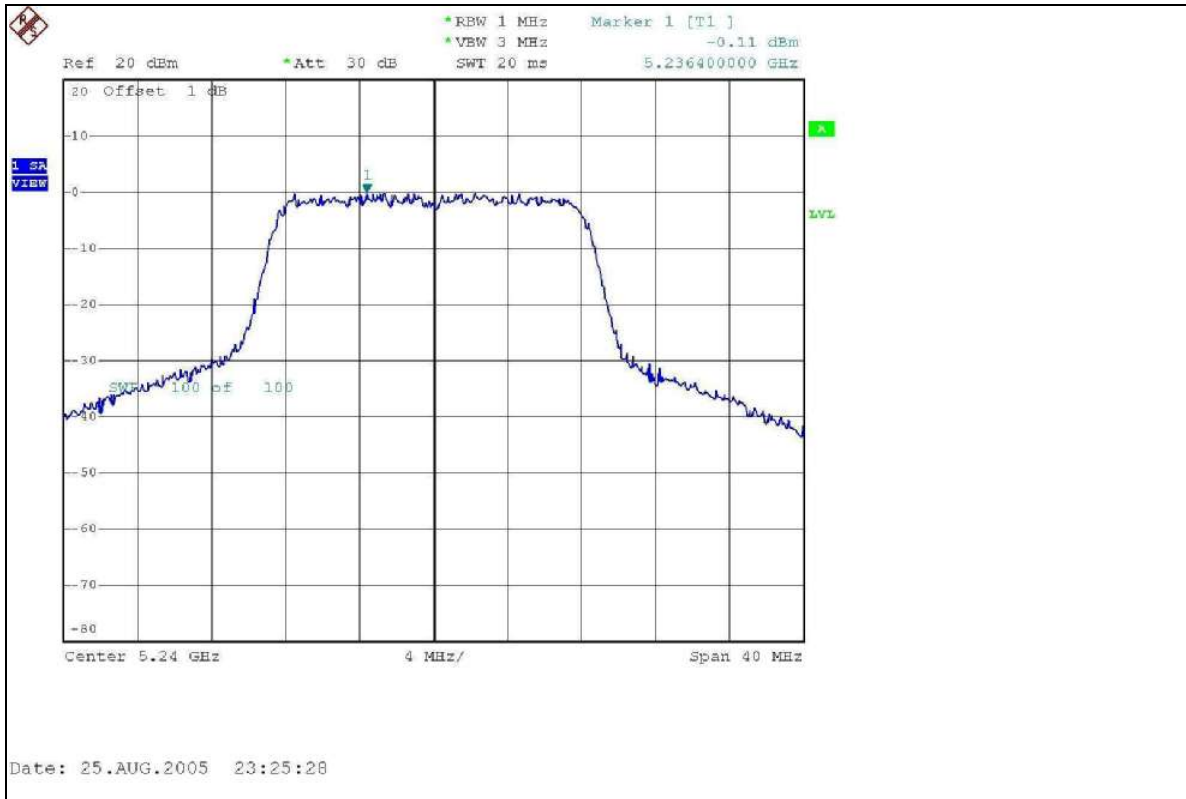
CH1



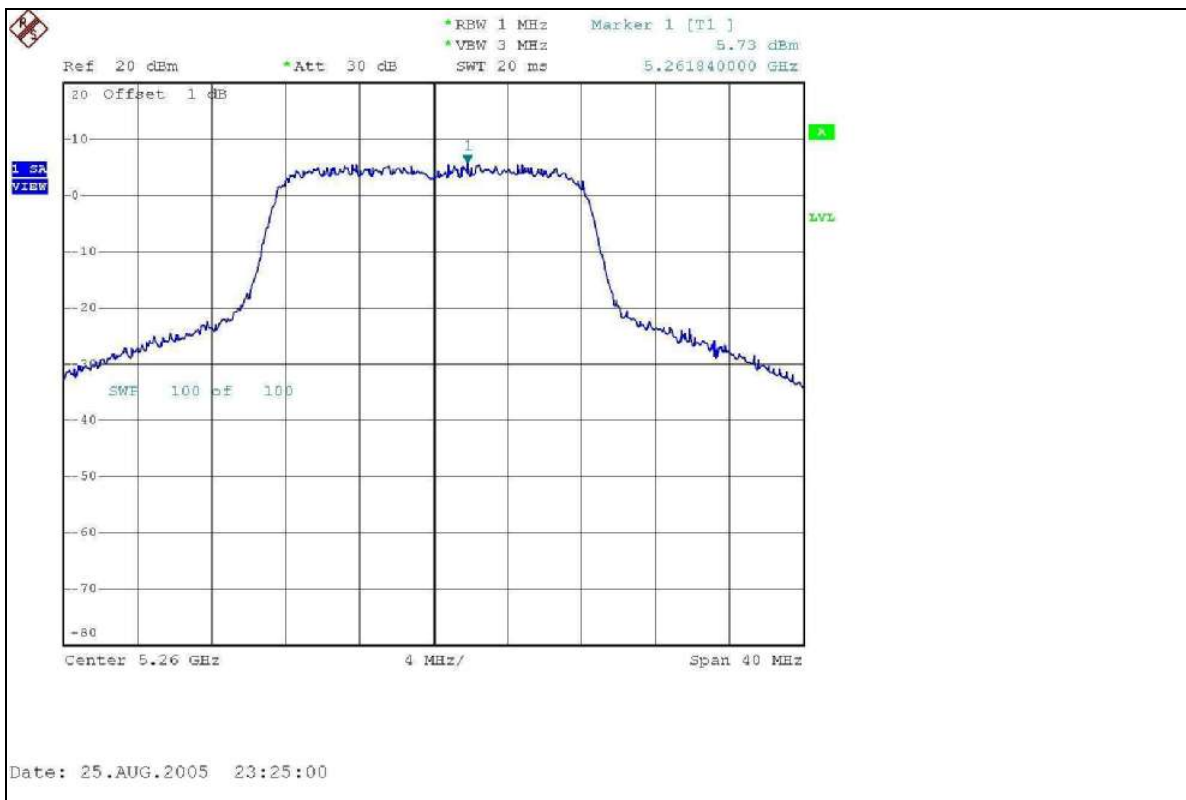
Date: 25.AUG.2005 23:25:52



CH4



CH5





CH8





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
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

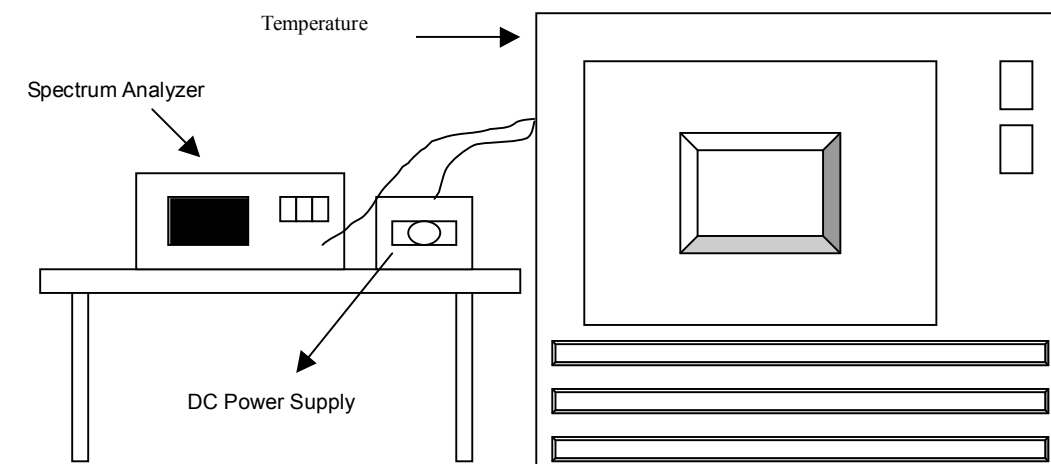
4.6.3 TEST PROCEDURE

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 : ± 0.02%	
Temp. (°C)	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5320.0312	0.000586	5320.0325	0.000611	5320.0321	0.000603
	110	5320.0316	0.000594	5320.0308	0.000579	5320.0304	0.000571
	93.5	5320.0314	0.000590	5320.0324	0.000609	5320.0322	0.000605
40	126.5	5320.0216	0.000406	5320.0226	0.000425	5320.0228	0.000429
	110	5320.0264	0.000496	5320.0266	0.000500	5320.0268	0.000504
	93.5	5320.0266	0.000500	5320.0264	0.000496	5320.0268	0.000504
30	126.5	5319.9894	0.000199	5319.9976	0.000045	5319.9972	0.000053
	110	5319.9886	0.000214	5319.9888	0.000211	5319.9904	0.000180
	93.5	5319.9987	0.000024	5319.9979	0.000039	5319.9974	0.000049
20	126.5	5319.9926	0.000139	5319.9924	0.000143	5319.9918	0.000154
	110	5319.9924	0.000143	5319.9922	0.000147	5319.9916	0.000158
	93.5	5319.992	0.000150	5319.9915	0.000160	5319.9907	0.000175
10	126.5	5320.0174	0.000327	5320.0182	0.000342	5320.0189	0.000355
	110	5320.0154	0.000289	5320.0162	0.000305	5320.0171	0.000321
	93.5	5320.0144	0.000271	5320.0151	0.000284	5320.0168	0.000316
0	126.5	5320.0172	0.000323	5320.0168	0.000316	5320.0265	0.000498
	110	5320.0175	0.000329	5320.0172	0.000323	5320.0269	0.000506
	93.5	5320.0171	0.000321	5320.0168	0.000316	5320.0265	0.000498
-10	126.5	5320.0243	0.000457	5320.0188	0.000353	5320.0162	0.000305
	110	5320.0252	0.000474	5320.0241	0.000453	5320.0239	0.000449
	93.5	5320.0231	0.000434	5320.0184	0.000346	5320.0180	0.000338
-20	126.5	5320.0216	0.000406	5320.0201	0.000378	5320.0198	0.000372
	110	5320.012	0.000226	5320.0112	0.000211	5320.0101	0.000190
	93.5	5320.0164	0.000308	5320.0161	0.000303	5320.0148	0.000278
-30	126.5	5320.0306	0.000575	5320.0292	0.000549	5320.0276	0.000519
	110	5320.0304	0.000571	5320.0314	0.000590	5320.0294	0.000553
	93.5	5320.0298	0.000560	5320.0287	0.000539	5320.0273	0.000513

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.7.2 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 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

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



4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.35GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW=VBW=1MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

**802.11a OFDM modulation****NOTE (Peak):**

The band edge emission plot on the following first page shows 45.57dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 105.8dBuV/m (Peak), so the maximum field strength in restrict band is $105.8 - 45.57 = 60.23$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the following first page shows 49.66dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 is 109.1dBuV/m (Peak), so the maximum field strength in restrict band is $109.1 - 49.66 = 59.44$ dBuV/m which is under 74dBuV/m limit.

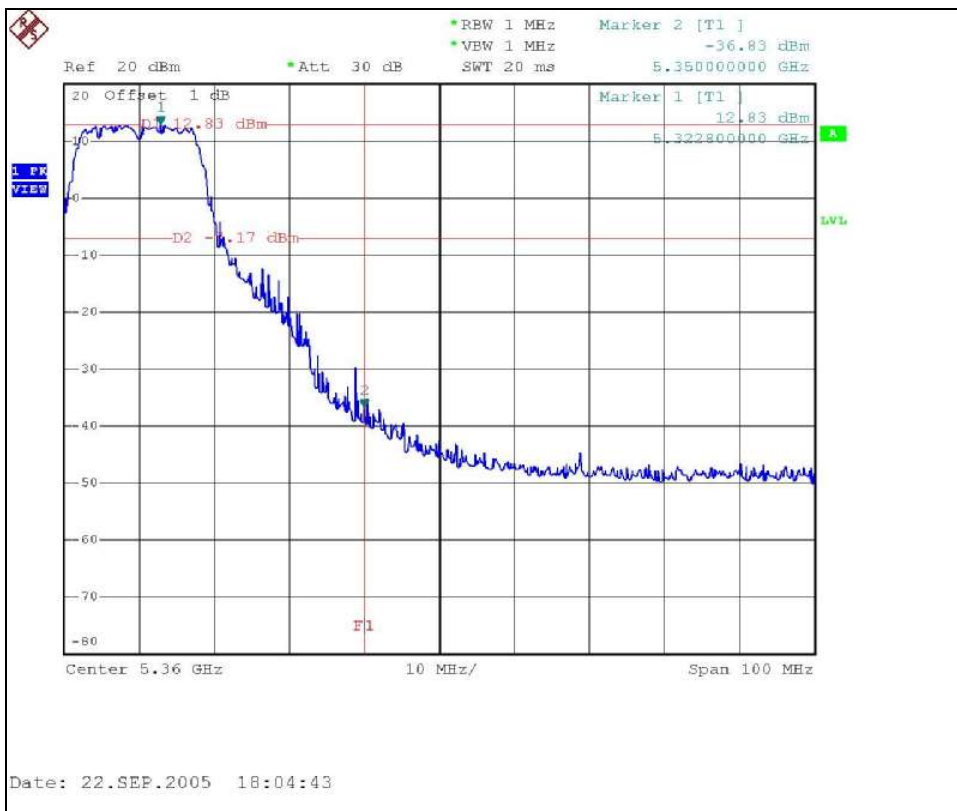
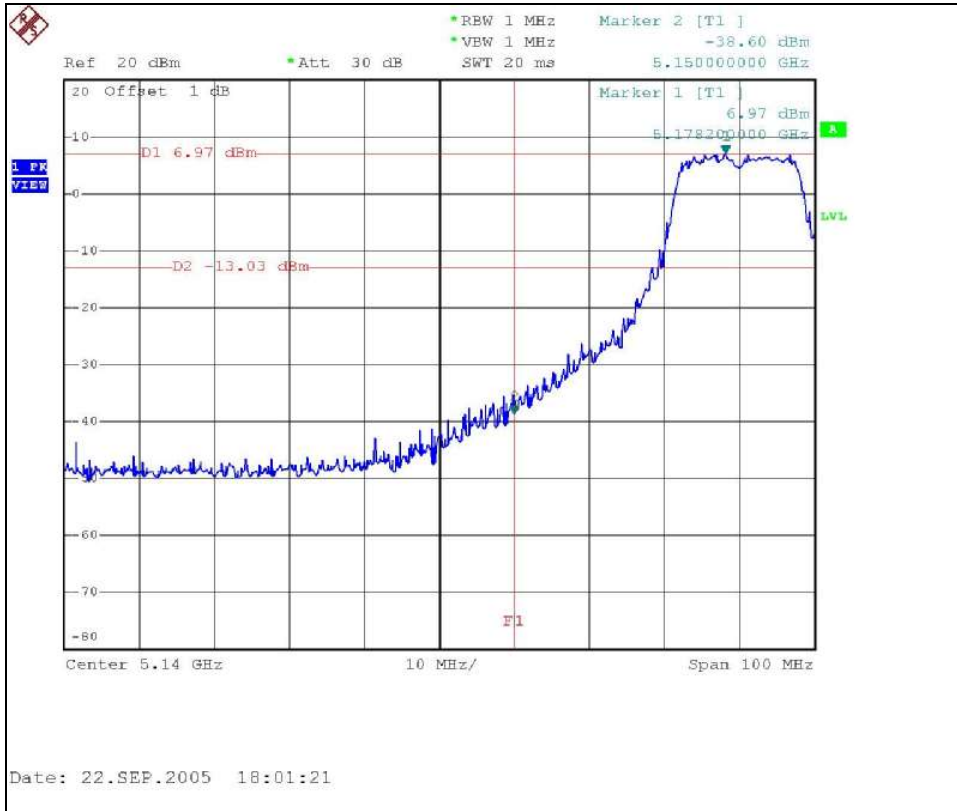
NOTE (Average):

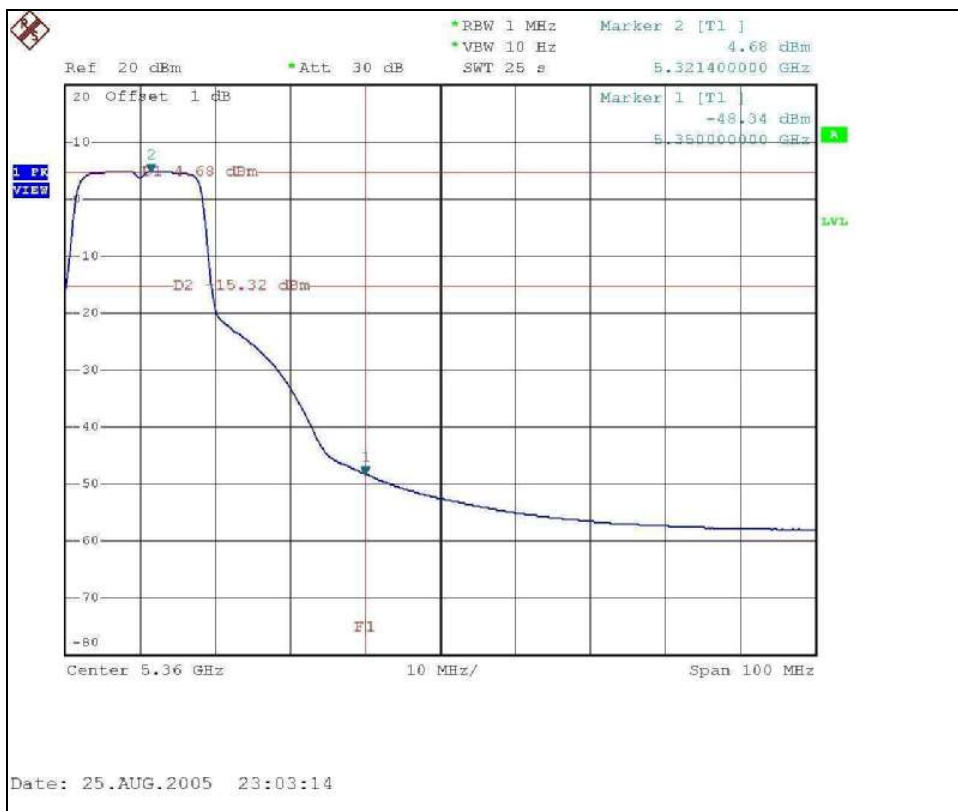
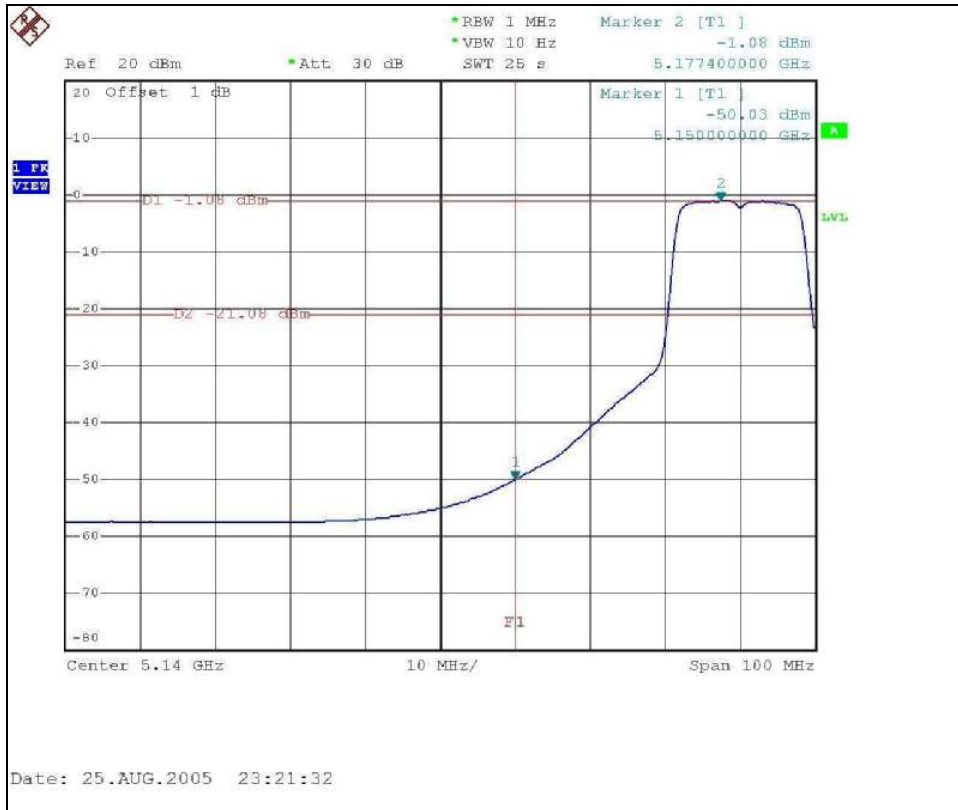
The band edge emission plot on the following second page shows 48.95dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 97.0dBuV/m (Average), so the maximum field strength in restrict band is $97.0 - 48.95 = 48.05$ dBuV/m which is under 54dBuV/m limit.

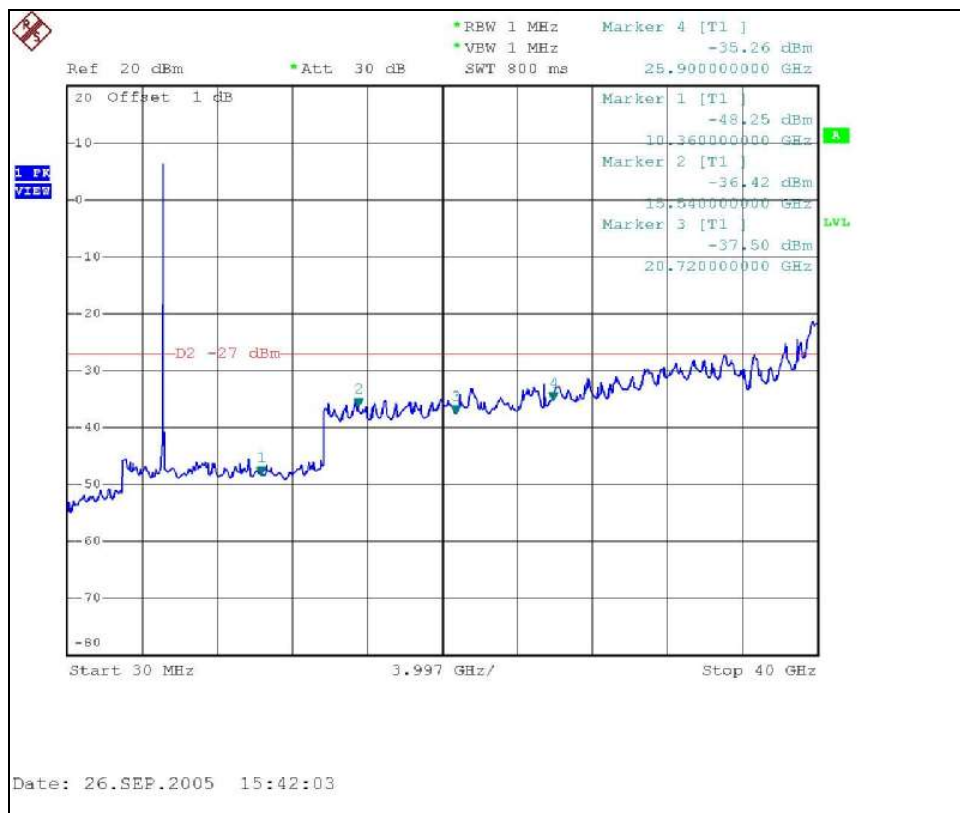
The band edge emission plot on the following second page shows 53.02dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 is 100.3dBuV/m (Average), so the maximum field strength in restrict band is $100.3 - 53.02 = 47.28$ dBuV/m which is under 54dBuV/m limit.



802.11a OFDM modulation









4.8 ANTENNA REQUIREMENT

4.8.1 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 15.407(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.

4.8.2 ANTENNA CONNECTED CONSTRUCTION

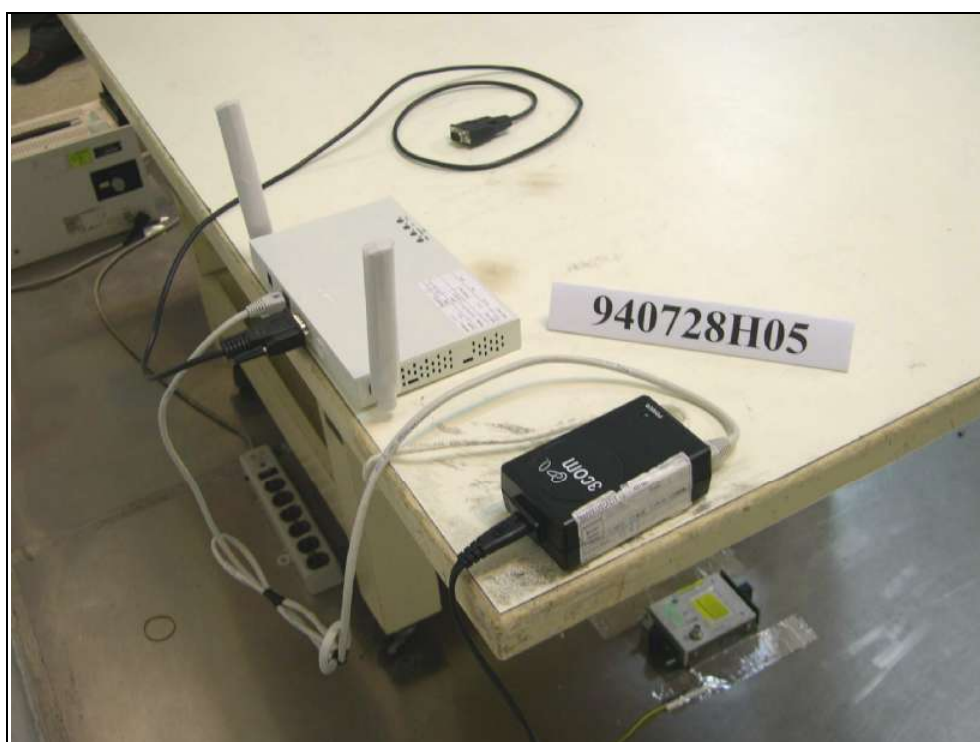
The antenna used in this product is Dipole Antenna with MMCX connector. The maximum Gain of the antenna is 4.0dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST (WITH ADAPTER)



CONDUCTED EMISSION TEST (WITH POE)



RADIATED EMISSION TEST (WITH ADAPTER)



RADIATED EMISSION TEST (WITH POE)





6. 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

Web Site: www.adt.com.tw

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