4.6.11 TEST RESULTS (ANTENNA 4 – DSSS)

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

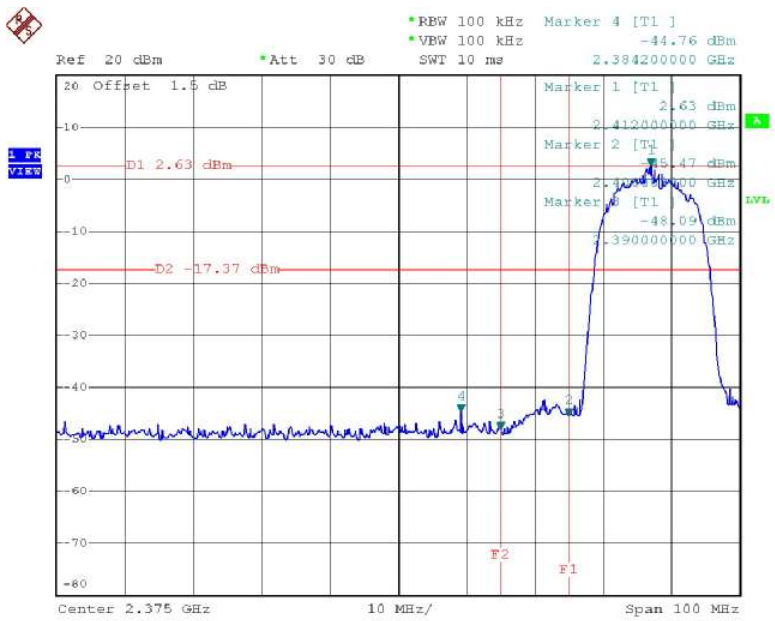
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

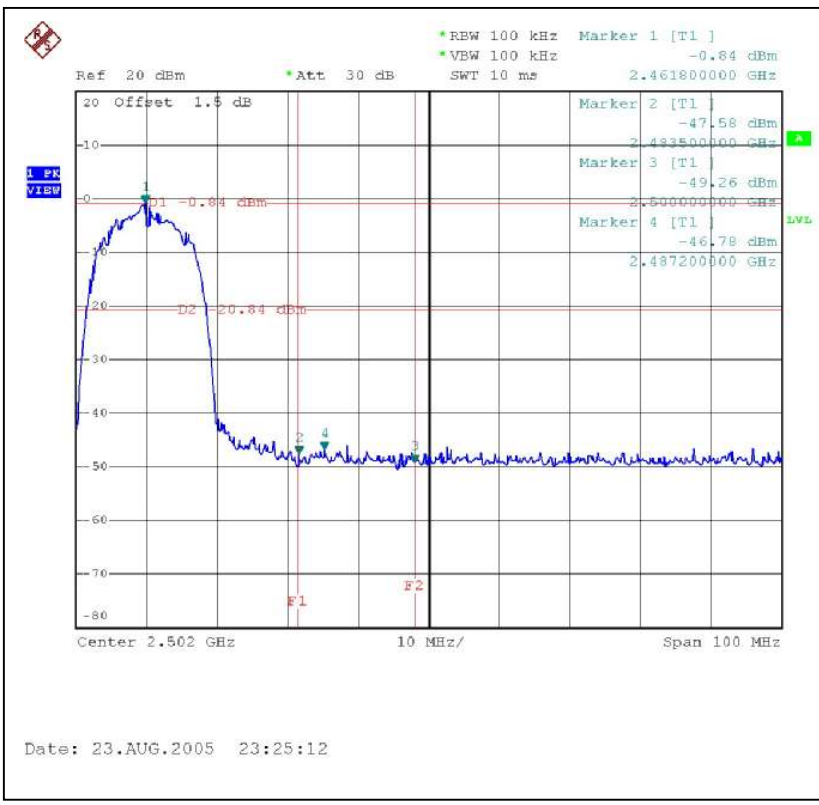
NOTE (Peak):
The band edge emission plot of DSSS technique on the following first page show 50.72dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 112.0dBuV/m, so the maximum field strength in restrict band is 112.0-50.72=61.28dBuV/m which is under 74 dBuV/m limit.

The band edge emission plot of DSSS technique on the following first page shows 46.74dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 110.9dBuV/m, so the maximum field strength in restrict band is 110.9-46.74=64.16dBuV/m which is under 74 dBuV/m limit.

NOTE (Average):
The band edge emission plot of DSSS technique on the following second page shows 53.48dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 105.1dBuV/m, so the maximum field strength in restrict band is 105.1-53.48=51.62dBuV/m which is under 54 dBuV/m limit.

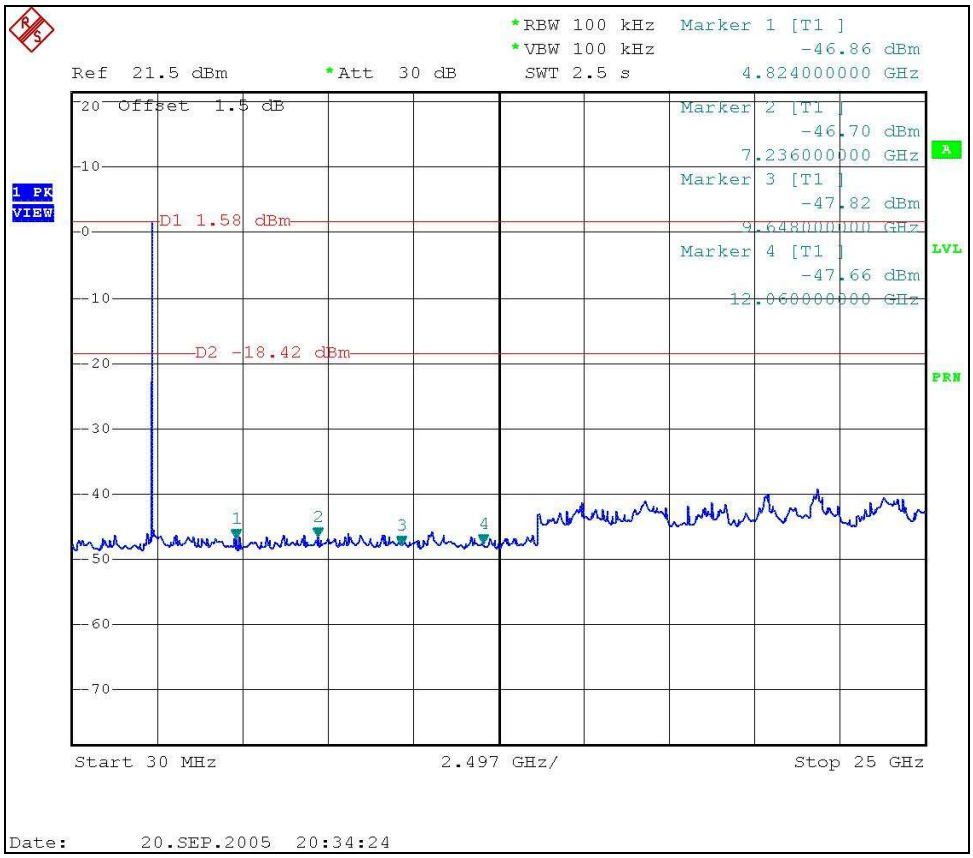
The band edge emission plot of DSSS technique on the following second page shows 51.46dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 103.4dBuV/m, so the maximum field strength in restrict band is 103.4-51.46=51.94dBuV/m which is under 54 dBuV/m limit.

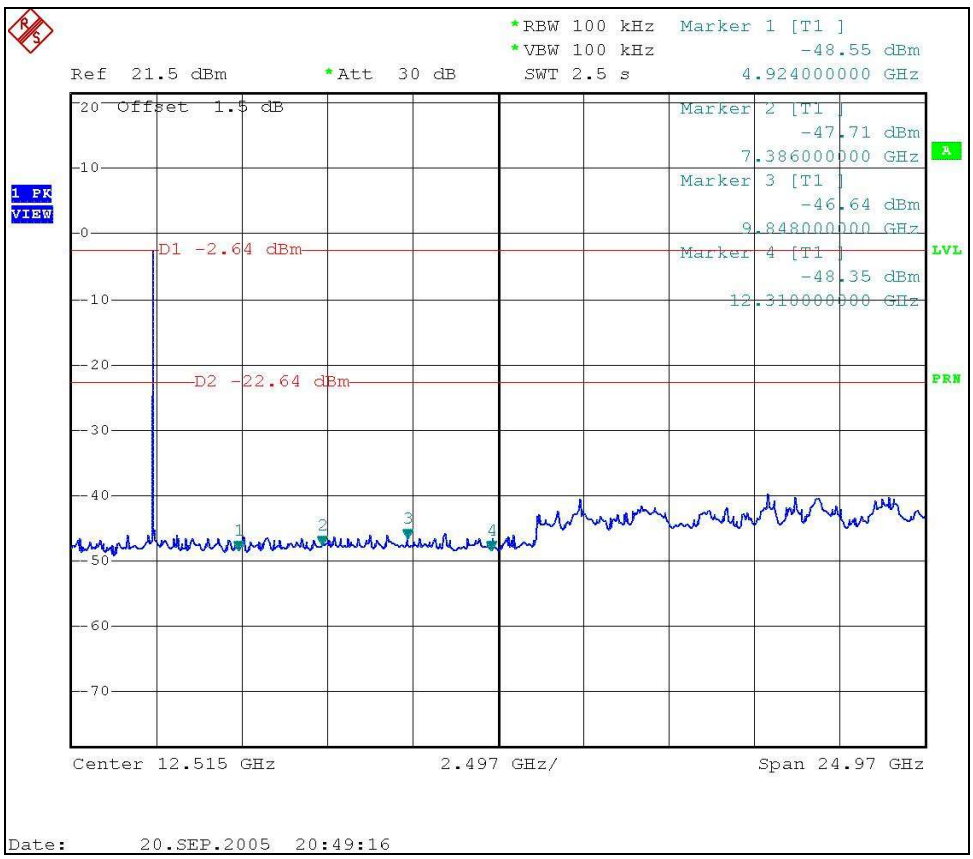

*RBW 100 kHz
*VBW 100 kHz
Marker 4 [T1]
-44.76 dBm
Ref 20 dBm
*Att 30 dB
SWT 10 ms
2.384200000 GHz
20 Offset 1.5 dB
Marker 1 [T1]
2.63 dBm
2.412000000 GHz
Marker 2 [T1]
-5.47 dBm
Marker 3 [T1]
-48.09 dBm
2.390000000 GHz
D1 2.63 dBm
D2 -17.37 dBm
F2
F1
Center 2.375 GHz
10 MHz/
Span 100 MHz
Date: 22.AUG.2005 11:08:06


*RBW 100 kHz
*VBW 100 kHz
Marker 1 [T1]
-0.84 dBm
Ref 20 dBm
*Att 30 dB
SWT 10 ms
2.461800000 GHz
20 Offset 1.5 dB
Marker 2 [T1]
-47.58 dBm
2.483500000 GHz
Marker 3 [T1]
-49.26 dBm
2.500000000 GHz
Marker 4 [T1]
-46.78 dBm
2.487200000 GHz
D1 -0.84 dBm
D2 -20.84 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Date: 23.AUG.2005 23:25:12


RBW 1 MHz
VBW 10 Hz
SWT 25 s
Marker 4 [T1]
-51.09 dBm
2.387000000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1.5 dB
Marker 1 [T1]
1.77 dBm
2.412800000 GHz
Marker 2 [T1]
-46.1 dBm
2.400000000 GHz
Marker 3 [T1]
-51.71 dBm
2.390000000 GHz
D1 1.77 dBm
D2 -18.23 dBm
1 PK VIEW
A
LVL
F2
F1
Center 2.37 GHz
10 MHz/
Span 100 MHz
Date: 19.AUG.2005 20:39:16


RBW 1 MHz
VBW 10 Hz
SWT 25 s
Marker 4 [T1]
-54.00 dBm
2.487600000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1.5 dB
Marker 1 [T1]
-2.85 dBm
2.462600000 GHz
Marker 2 [T1]
-54.31 dBm
2.483500000 GHz
Marker 3 [T1]
-54.73 dBm
2.500000000 GHz
D1 -2.85 dBm
D2 -12.85 dBm
1 PK VIEW
A
LVL
F1
F2
Center 2.5 GHz
10 MHz/
Span 100 MHz
Date: 22.AUG.2005 11:28:00


*RBW 100 kHz
*VBW 100 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 2.5 s
Marker 1 [T1]
-46.86 dBm
4.824000000 GHz
Offset 1.5 dB
Marker 2 [T1]
-46.70 dBm
7.236000000 GHz
Marker 3 [T1]
-47.82 dBm
9.648000000 GHz
Marker 4 [T1]
-47.66 dBm
12.060000000 GHz
1 PK
VIEW
D1 1.58 dBm
D2 -18.42 dBm
LVL
PRN
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Date: 20.SEP.2005 20:34:24


*RBW 100 kHz
*VBW 100 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 2.5 s
Marker 1 [T1]
-48.55 dBm
4.924000000 GHz
Offset 1.5 dB
Marker 2 [T1]
-47.71 dBm
7.386000000 GHz
Marker 3 [T1]
-46.64 dBm
9.848000000 GHz
Marker 4 [T1]
-48.35 dBm
12.310000000 GHz
1 PK
VIEW
D1 -2.64 dBm
D2 -22.64 dBm
LVL
PRN
Center 12.515 GHz
2.497 GHz/
Span 24.97 GHz
Date: 20.SEP.2005 20:49:16

4.6.12 TEST RESULTS (ANTENNA 4 – OFDM)

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

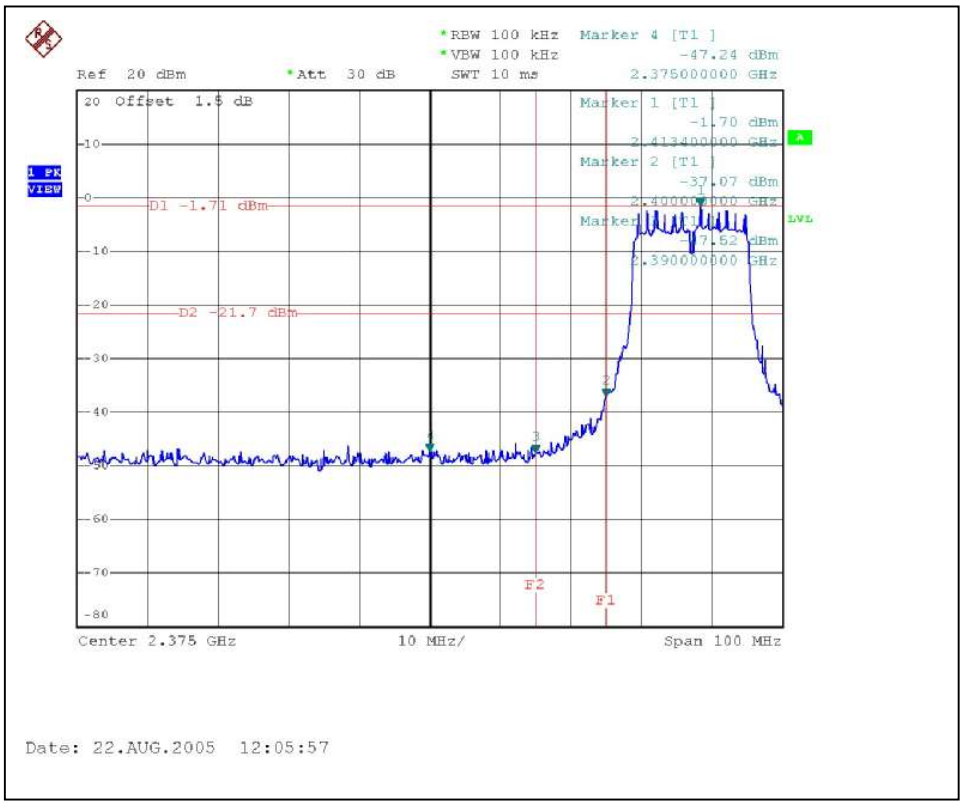
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

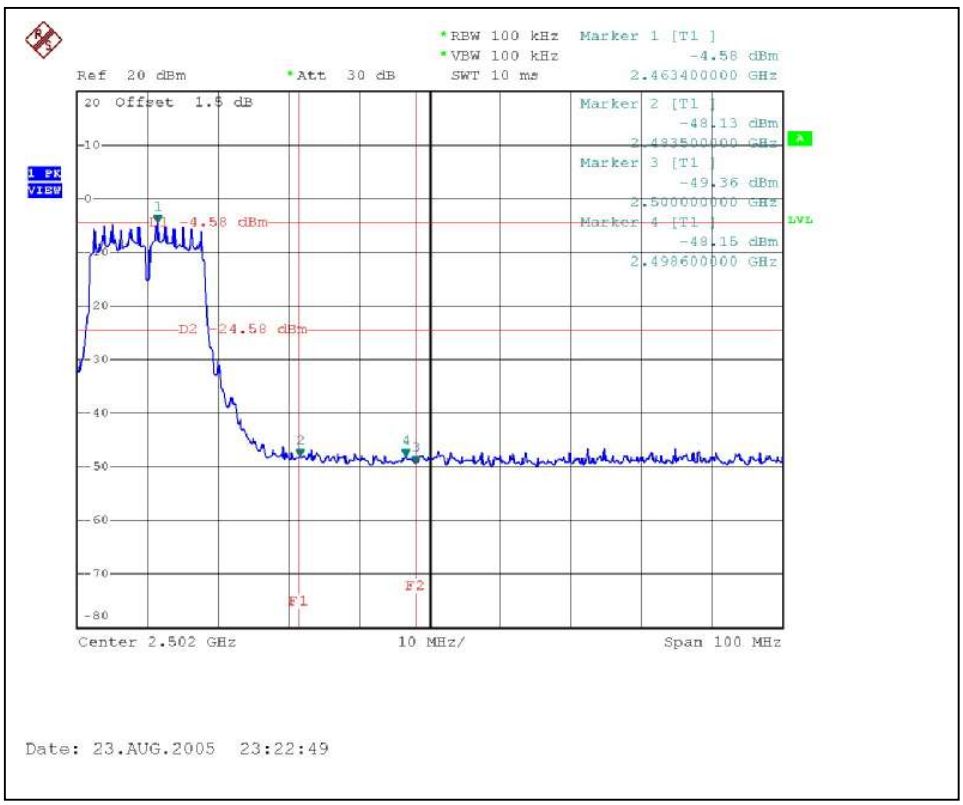
NOTE (Peak) :
The band edge emission plot of OFDM technique on the following first page show 45.81dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 108.9dBuV/m, so the maximum field strength in restrict band is 108.9-45.81=63.09dBuV/m which is under 74 dBuV/m limit.

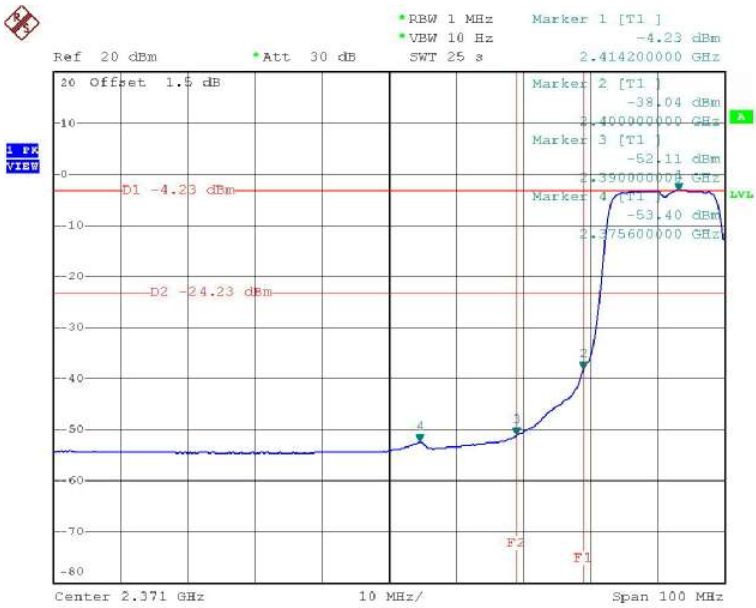
The band edge emission plot of OFDM technique on the following first page shows 43.55dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 108.0dBuV/m, so the maximum field strength in restrict band is 108.0-43.55=64.45dBuV/m which is under 74 dBuV/m limit.

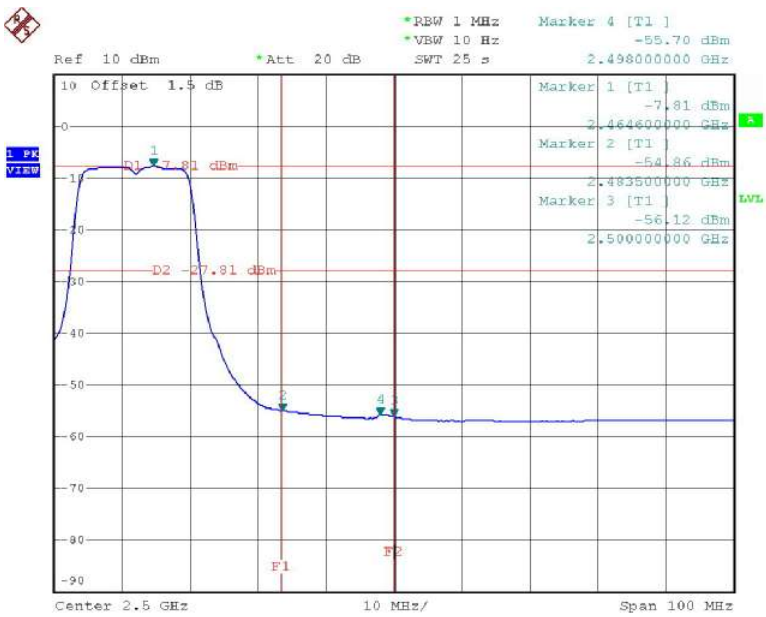
NOTE (Average):
The band edge emission plot of OFDM technique on the following second page shows 47.88dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 100.1dBuV/m, so the maximum field strength in restrict band is 100.1-47.88=52.22dBuV/m which is under 54 dBuV/m limit.

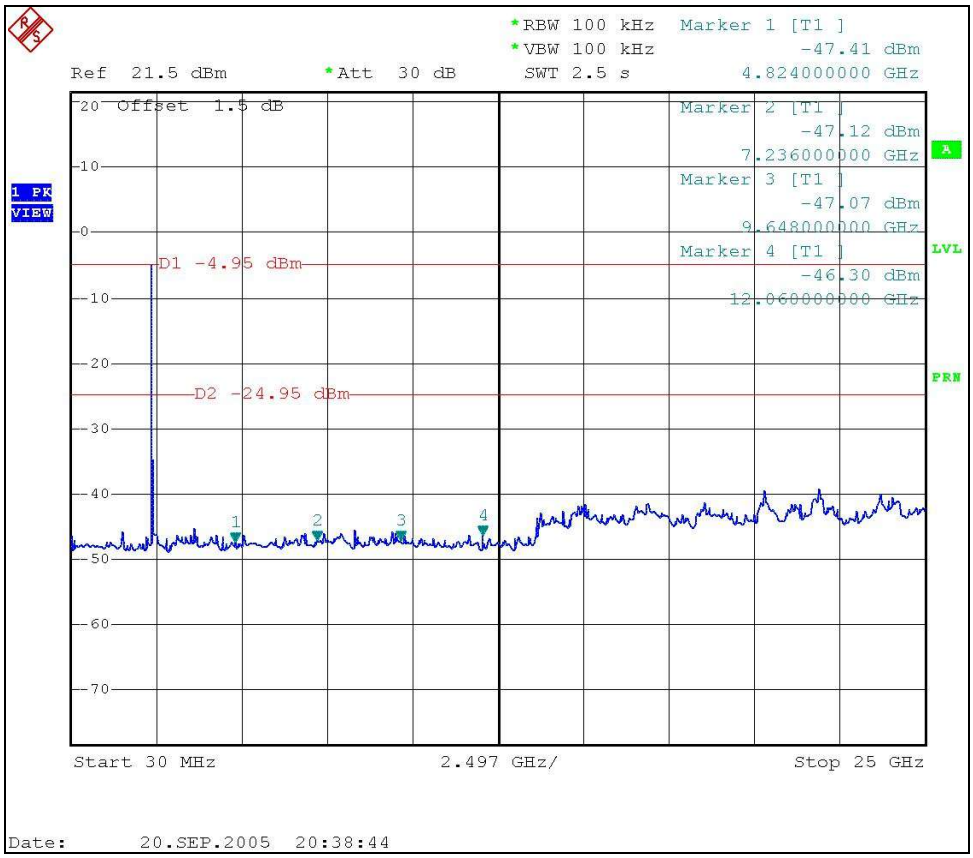
The band edge emission plot of OFDM technique on the following second page shows 47.05dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 99.1dBuV/m, so the maximum field strength in restrict band is 99.1-47.05=52.05dBuV/m which is under 54 dBuV/m limit.

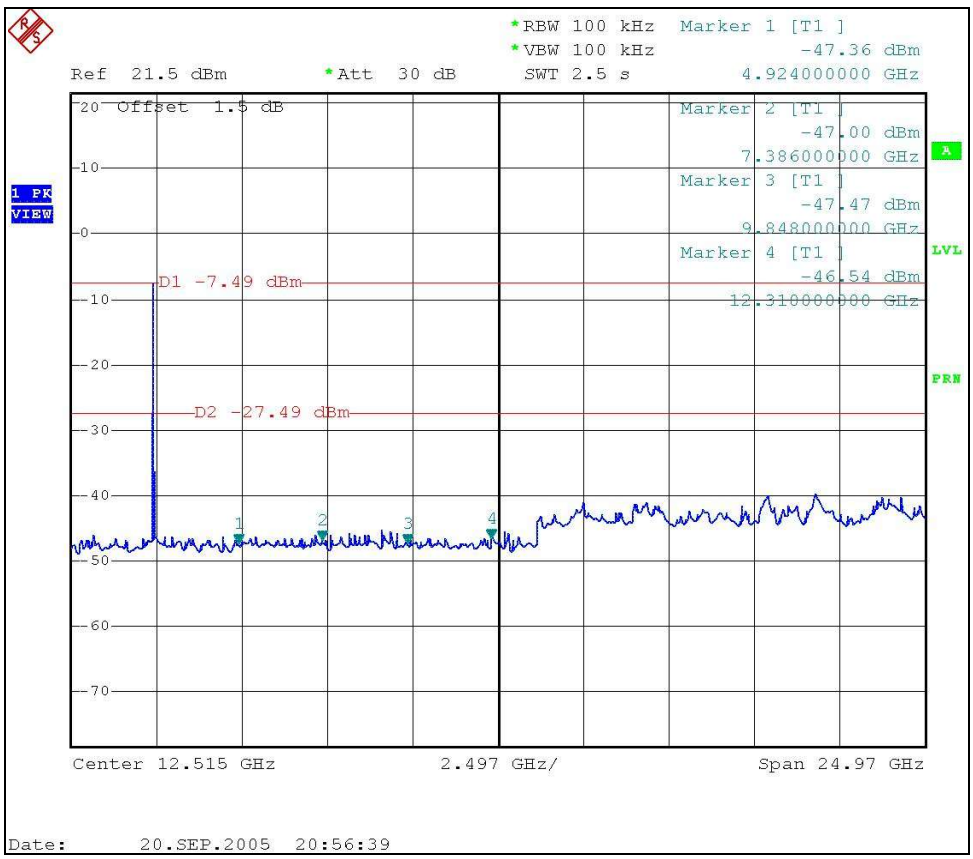

*RBW 100 kHz
*VBW 100 kHz
Ref 20 dBm
*Att 30 dB
SWT 10 ms
Marker 4 [T1]
-47.24 dBm
2.375000000 GHz
20 Offset 1.5 dB
Marker 1 [T1]
-1.70 dBm
2.413400000 GHz
Marker 2 [T1]
-37.07 dBm
2.400000000 GHz
Marker 3 [T1]
-47.62 dBm
2.390000000 GHz
D1 -1.71 dBm
D2 -21.7 dBm
F2
F1
Center 2.375 GHz
10 MHz/
Span 100 MHz
Date: 22.AUG.2005 12:05:57


*RBW 100 kHz
*VBW 100 kHz
Ref 20 dBm
*Att 30 dB
SWT 10 ms
Marker 1 [T1]
-4.58 dBm
2.463400000 GHz
20 Offset 1.5 dB
Marker 2 [T1]
-48.13 dBm
2.483500000 GHz
Marker 3 [T1]
-49.36 dBm
2.500000000 GHz
Marker 4 [T1]
-48.15 dBm
2.498600000 GHz
D1 -4.58 dBm
D2 -24.58 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Date: 23.AUG.2005 23:22:49


*RBW 1 MHz
*VBW 10 Hz
Ref 20 dBm
*Att 30 dB
SWT 25 s
Marker 1 [T1]
-4.23 dBm
2.414200000 GHz
Marker 2 [T1]
-38.04 dBm
2.400000000 GHz
Marker 3 [T1]
-52.11 dBm
2.390000000 GHz
Marker 4 [T1]
-53.40 dBm
2.375600000 GHz
20 Offset 1.5 dB
D1 -4.23 dBm
D2 -24.23 dBm
Center 2.371 GHz
10 MHz/
Span 100 MHz
Date: 19.AUG.2005 17:40:31


*RBW 1 MHz
*VBW 10 Hz
Ref 10 dBm
*Att 20 dB
SWT 25 s
Marker 4 [T1]
-55.70 dBm
2.498000000 GHz
Marker 1 [T1]
-7.81 dBm
2.464600000 GHz
Marker 2 [T1]
-54.86 dBm
2.483500000 GHz
Marker 3 [T1]
-56.12 dBm
2.500000000 GHz
10 Offset 1.5 dB
D1 -7.81 dBm
D2 -27.81 dBm
Center 2.5 GHz
10 MHz/
Span 100 MHz
Date: 22.AUG.2005 13:00:44


*RBW 100 kHz
*VBW 100 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 2.5 s
Marker 1 [T1]
-47.41 dBm
4.824000000 GHz
Offset 1.5 dB
Marker 2 [T1]
-47.12 dBm
7.236000000 GHz
Marker 3 [T1]
-47.07 dBm
9.648000000 GHz
Marker 4 [T1]
-46.30 dBm
12.060000000 GHz
1 PK
VIEW
D1 -4.95 dBm
D2 -24.95 dBm
LVL
PRN
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Date: 20.SEP.2005 20:38:44


*RBW 100 kHz
*VBW 100 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 2.5 s
Marker 1 [T1]
-47.36 dBm
4.924000000 GHz
Offset 1.5 dB
Marker 2 [T1]
-47.00 dBm
7.386000000 GHz
Marker 3 [T1]
-47.47 dBm
9.848000000 GHz
Marker 4 [T1]
-46.54 dBm
12.310000000 GHz
1 PK
VIEW
D1 -7.49 dBm
D2 -27.49 dBm
LVL
PRN
Center 12.515 GHz
2.497 GHz/
Span 24.97 GHz
Date: 20.SEP.2005 20:56:39

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

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

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are as following:

No.	Symbol P/N	Gain (dBi)	Cable Loss (dB)	Net Gain (dB)	Antenna Type	Connector	Remark
1	ML-2452-APA2-01	3.0	0	3.0	Dipole	RP SMA	Omni
2	ML-2499-11PNA2-01	11.2	2.7	8.5	Panel	Reverse BNC	Directional
3	ML-2499-HPA3-01	4.6	1.3	3.3	Dipole	Reverse BNC	Omni
4	ML-2499-BYGA2-01	14.2	0.3	13.9	Yagi	RP SMA	Directional

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

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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.

5.1.2 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 This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

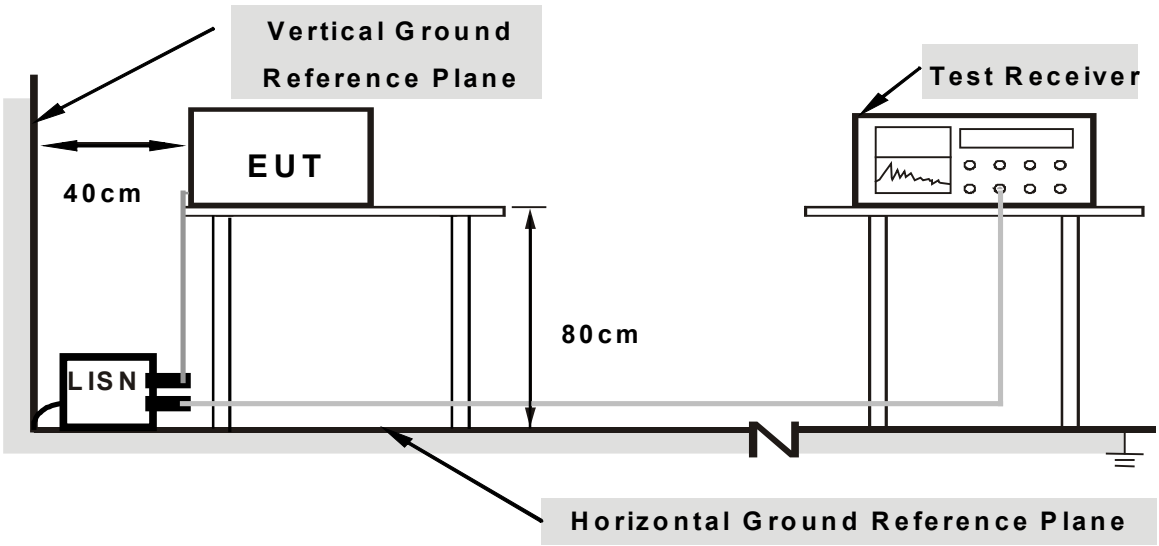
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) 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.

5.1.6 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 “Wintrion V00.02” to enable EUT under transmission/receiving condition continuously at specific channel frequency via UTP cable.

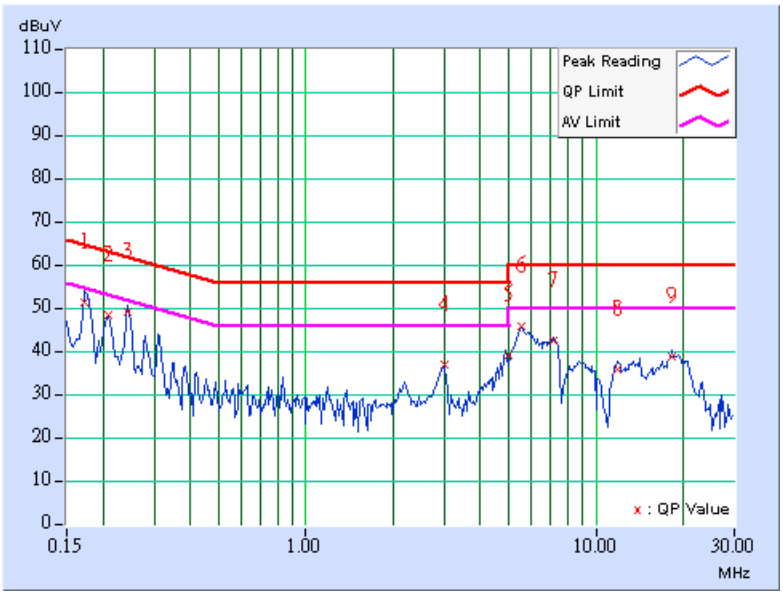
5.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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	26deg. C, 63%RH, 961hPa	**TESTED BY**	Phoenix Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.14	50.41	-	50.55	-	64.79	54.79	-14.24	-
2	0.209	0.15	47.15	-	47.30	-	63.26	53.26	-15.96	-
3	0.244	0.15	47.90	-	48.05	-	61.97	51.97	-13.91	-
4	2.992	0.35	35.79	-	36.14	-	56.00	46.00	-19.86	-
5	4.976	0.50	37.89	-	38.39	-	56.00	46.00	-17.61	-
6	5.530	0.53	44.74	-	45.27	-	60.00	50.00	-14.73	-
7	7.165	0.61	41.21	-	41.82	-	60.00	50.00	-18.18	-
8	11.901	0.84	34.70	-	35.54	-	60.00	50.00	-24.46	-
9	18.243	1.21	37.83	-	39.04	-	60.00	50.00	-20.96	-

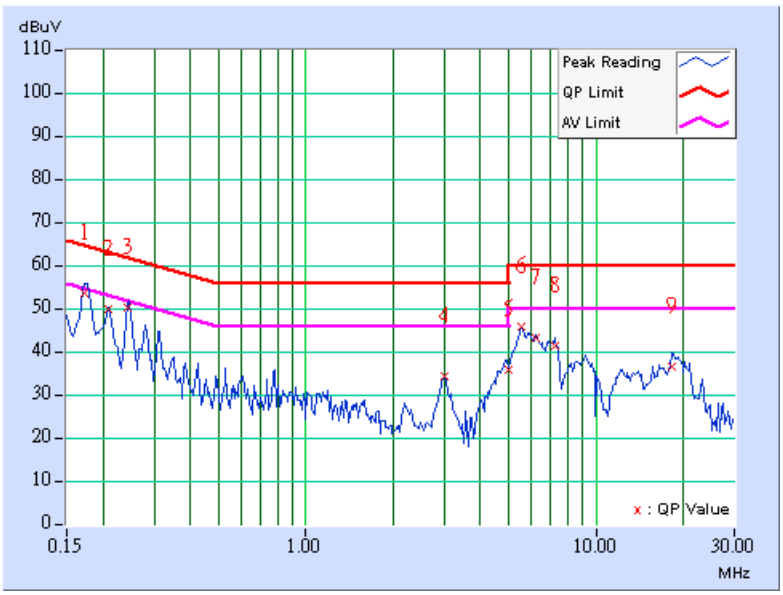
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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	26deg. C, 63%RH, 961hPa	**TESTED BY**	Phoenix Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.14	52.51	-	52.65	-	64.79	54.79	-12.14	-
2	0.209	0.15	48.87	-	49.02	-	63.26	53.26	-14.24	-
3	0.244	0.15	49.32	-	49.47	-	61.96	51.96	-12.49	-
4	2.998	0.35	33.39	-	33.74	-	56.00	46.00	-22.26	-
5	4.983	0.48	34.99	-	35.47	-	56.00	46.00	-20.53	-
6	5.543	0.50	44.84	-	45.34	-	60.00	50.00	-14.66	-
7	6.207	0.52	42.42	-	42.94	-	60.00	50.00	-17.06	-
8	7.215	0.56	40.50	-	41.06	-	60.00	50.00	-18.94	-
9	18.367	1.05	35.54	-	36.59	-	60.00	50.00	-23.41	-

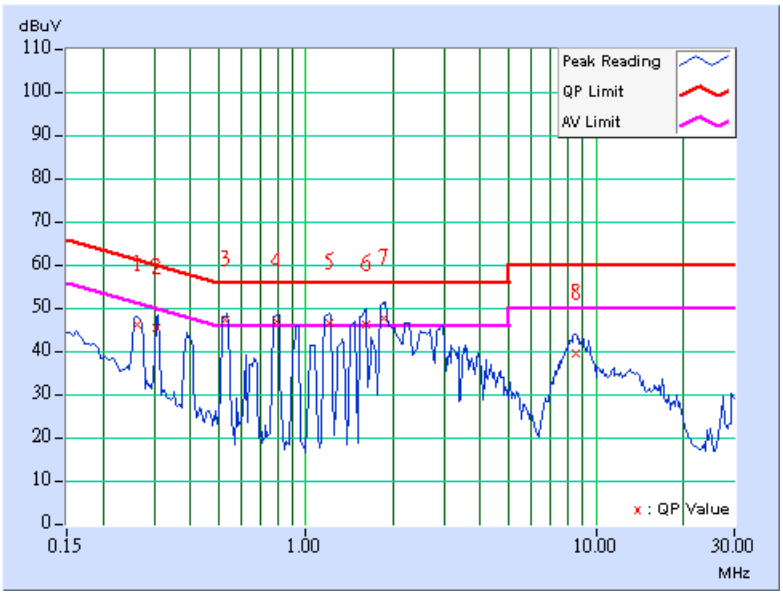
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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	26deg. C, 63%RH, 961hPa	**TESTED BY**	Phoenix Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.262	0.16	45.65	-	45.81	-	61.37	51.37	-15.56	-
2	0.306	0.16	44.92	-	45.08	-	60.07	50.07	-14.99	-
3	**0.529**	**0.18**	**46.81**	**38.52**	**46.99**	**38.70**	**56.00**	**46.00**	**-9.01**	**-7.30**
4	0.788	0.19	46.54	35.48	46.73	35.67	56.00	46.00	-9.27	-10.33
5	1.199	0.21	46.02	31.64	46.23	31.85	56.00	46.00	-9.77	-14.15
6	1.608	0.23	45.64	-	45.87	-	56.00	46.00	-10.13	-
7	1.861	0.24	47.18	29.05	47.42	29.29	56.00	46.00	-8.58	-16.71
8	8.514	0.68	39.09	-	39.77	-	60.00	50.00	-20.23	-

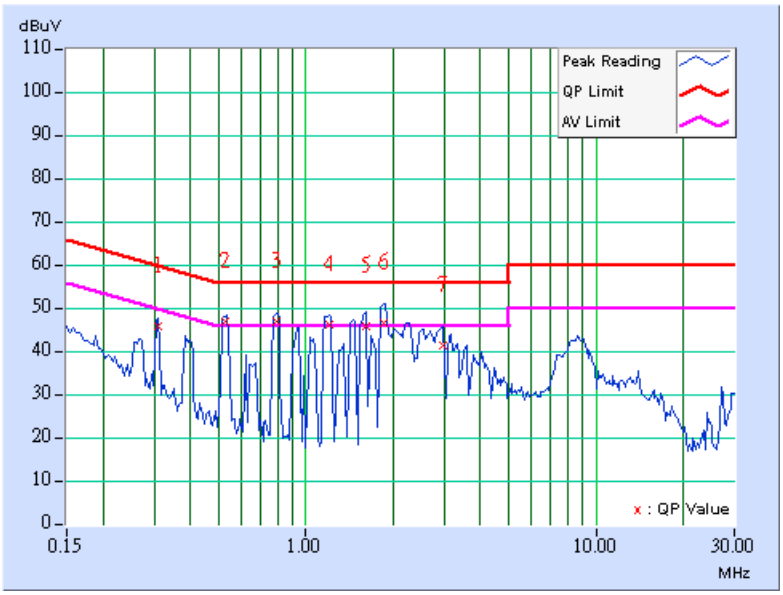
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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	26deg. C, 63%RH, 961hPa	**TESTED BY**	Phoenix Huang

No	Freq.	Corr. Factor	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	0.309	0.16	45.56	-	45.72	-	60.00	50.00	-14.28	-
2	0.526	0.18	46.67	38.43	46.85	38.61	56.00	46.00	-9.15	-7.39
3	0.797	0.19	46.52	35.13	46.71	35.32	56.00	46.00	-9.29	-10.68
4	1.200	0.21	45.88	31.55	46.09	31.76	56.00	46.00	-9.91	-14.24
5	1.610	0.23	45.42	-	45.65	-	56.00	46.00	-10.35	-
6	1.848	0.24	46.48	28.96	46.72	29.20	56.00	46.00	-9.28	-16.80
7	2.963	0.35	40.98	-	41.33	-	56.00	46.00	-14.67	-

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



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
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. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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

5.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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.

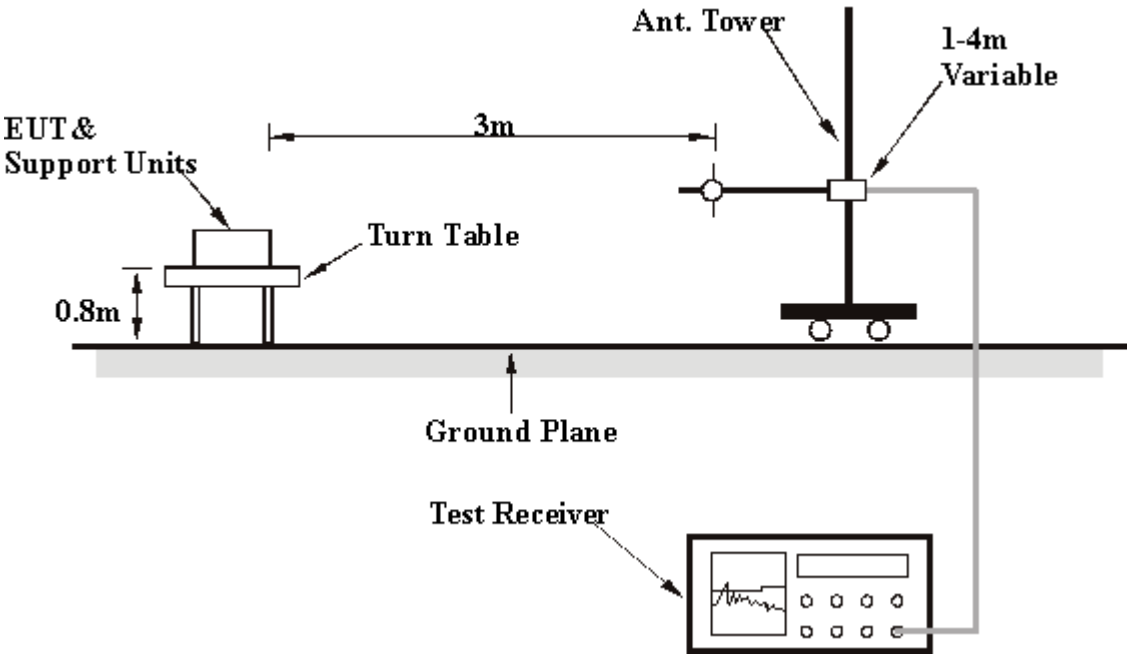
NOTE:

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.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.2.7 TEST RESULTS (ANTENNA 1)

Below 1GHz Worst-Case Data

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 70%RH, 961hPa	**TESTED BY**	Jerry Fan

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	155.43	27.50 QP	43.50	-16.00	1.93 H	191	15.60	11.90
2	189.28	27.90 QP	43.50	-15.60	1.80 H	132	17.20	10.70
3	264.73	31.60 QP	46.00	-14.40	1.66 H	186	16.10	15.40
4	335.70	34.40 QP	46.00	-11.60	1.52 H	256	17.50	16.90
5	419.93	35.30 QP	46.00	-10.70	1.40 H	230	15.70	19.50
6	522.10	33.30 QP	46.00	-12.70	1.26 H	155	11.30	22.00
7	689.00	33.50 QP	46.00	-12.50	1.21 H	246	9.20	24.20
8	747.98	32.40 QP	46.00	-13.60	1.00 H	263	6.00	26.30
9	853.22	36.60 QP	46.00	-9.40	1.00 H	213	8.50	28.10
10	925.40	35.20 QP	46.00	-10.80	1.00 H	145	6.60	28.60

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	117.83	29.30 QP	43.50	-14.20	1.00 V	97	17.30	12.00
2	189.03	27.40 QP	43.50	-16.10	1.00 V	130	16.80	10.70
3	218.43	29.60 QP	46.00	-16.40	1.00 V	151	17.40	12.20
4	336.70	33.40 QP	46.00	-12.60	1.06 V	204	16.50	16.90
5	452.00	36.20 QP	46.00	-9.80	1.00 V	162	16.40	19.80
6	510.23	34.30 QP	46.00	-11.70	1.71 V	158	12.70	21.70
7	632.13	34.30 QP	46.00	-11.70	1.55 V	241	10.30	23.90
8	716.45	32.50 QP	46.00	-13.50	1.46 V	306	7.60	25.00
9	858.05	34.60 QP	46.00	-11.40	1.34 V	230	6.50	28.10
10	923.20	36.50 QP	46.00	-9.50	1.25 V	146	8.00	28.50

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	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 70%RH, 961hPa	**TESTED BY**	Jerry Fan

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	62.18	25.80 QP	40.00	-14.20	1.93 H	225	18.10	7.60
2	118.00	28.20 QP	43.50	-15.30	1.84 H	98	16.20	12.00
3	262.70	32.70 QP	46.00	-13.30	1.70 H	177	17.20	15.50
4	365.80	34.10 QP	46.00	-11.90	1.62 H	238	16.30	17.90
5	447.25	35.00 QP	46.00	-11.00	1.52 H	169	15.30	19.70
6	526.60	36.30 QP	46.00	-9.70	1.40 H	88	14.20	22.10
7	638.35	34.10 QP	46.00	-11.90	1.22 H	44	10.10	24.00
8	719.00	33.30 QP	46.00	-12.70	1.10 H	118	8.20	25.10
9	848.80	36.40 QP	46.00	-9.60	1.00 H	185	8.20	28.10
10	984.50	41.20 QP	54.00	-12.80	1.00 H	237	12.40	28.80

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	122.15	31.00 QP	43.50	-12.50	1.00 V	296	18.80	12.20
2	189.25	30.60 QP	43.50	-12.90	1.00 V	212	19.90	10.70
3	220.45	33.20 QP	46.00	-12.80	1.00 V	138	20.90	12.30
4	370.93	36.60 QP	46.00	-9.40	1.16 V	49	18.40	18.10
5	491.48	35.60 QP	46.00	-10.40	1.27 V	153	14.50	21.20
6	520.95	36.00 QP	46.00	-10.00	1.44 V	218	14.10	21.90
7	633.90	33.20 QP	46.00	-12.80	1.64 V	259	9.30	24.00
8	714.75	35.90 QP	46.00	-10.10	1.61 V	133	11.00	24.90
9	853.82	35.40 QP	46.00	-10.60	1.77 V	136	7.20	28.10
10	962.62	42.20 QP	54.00	-11.80	1.92 V	205	13.00	29.30

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	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 53%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	*5745.00	98.30 PK			1.69 H	296	61.90	36.40
1	*5745.00	89.60 AV			1.69 H	296	53.20	36.40
2	#11490.00	57.90 PK	74.00	-16.10	1.42 H	273	6.80	51.10
2	#11490.00	46.70 AV	54.00	-7.30	1.42 H	273	-4.40	51.10

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	*5745.00	108.50 PK			1.19 V	17	72.10	36.40
1	*5745.00	100.10 AV			1.19 V	17	63.70	36.40
2	#11490.00	58.50 PK	74.00	-15.50	1.18 V	4	7.40	51.10
2	#11490.00	47.30 AV	54.00	-6.70	1.18 V	4	-3.80	51.10

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

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
CHANNEL	Channel 3	**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, 53%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	*5785.00	100.00 PK			1.55 H	302	63.50	36.50
1	*5785.00	91.10 AV			1.55 H	302	54.60	36.50
2	#11570.00	56.80 PK	74.00	-17.20	1.37 H	94	5.90	50.90
2	#11570.00	45.90 AV	54.00	-8.10	1.37 H	94	-5.00	50.90

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	*5785.00	109.10 PK			1.03 V	319	72.60	36.50
1	*5785.00	100.50 AV			1.03 V	319	64.00	36.50
2	#11570.00	57.50 PK	74.00	-16.50	1.21 V	343	6.60	50.90
2	#11570.00	46.50 AV	54.00	-7.50	1.21 V	343	-4.40	50.90

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

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 53%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	*5825.00	97.70 PK			1.53 H	301	61.10	36.60
1	*5825.00	89.00 AV			1.53 H	301	52.40	36.60
2	#11650.00	56.60 PK	74.00	-17.40	1.33 H	85	6.00	50.60
2	#11650.00	45.80 AV	54.00	-8.20	1.33 H	85	-4.80	50.60

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	*5825.00	108.00 PK			1.14 V	318	71.40	36.60
1	*5825.00	100.40 AV			1.14 V	318	63.80	36.60
2	#11650.00	57.40 PK	74.00	-16.60	1.23 V	352	6.80	50.60
2	#11650.00	46.50 AV	54.00	-7.50	1.23 V	352	-4.10	50.60

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.
7. The limit value is defined as per 15.247

5.2.8 TEST RESULTS (ANTENNA 2)

Below 1GHz Worst-Case Data

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 70%RH, 961hPa	**TESTED BY**	Jerry Fan

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	73.28	24.90 QP	40.00	-15.10	1.79 H	181	16.60	8.30
2	149.93	28.90 QP	43.50	-14.60	1.74 H	109	16.50	12.40
3	206.33	27.60 QP	43.50	-15.90	1.68 H	176	16.20	11.40
4	326.50	37.00 QP	46.00	-9.00	1.56 H	257	20.20	16.70
5	420.20	35.50 QP	46.00	-10.50	1.44 H	320	16.00	19.50
6	531.40	34.00 QP	46.00	-12.00	1.28 H	249	11.80	22.20
7	631.73	34.10 QP	46.00	-11.90	1.18 H	197	10.20	23.90
8	756.98	36.40 QP	46.00	-9.60	1.04 H	276	10.00	26.40
9	821.30	33.50 QP	46.00	-12.50	1.08 H	337	6.40	27.20
10	909.20	36.20 QP	46.00	-9.80	1.00 H	291	8.20	28.00

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	135.50	28.50 QP	43.50	-15.00	1.00 V	100	15.50	13.00
2	185.80	31.50 QP	43.50	-12.00	1.00 V	48	20.90	10.60
3	231.78	32.60 QP	46.00	-13.40	1.00 V	181	19.60	13.00
4	327.18	36.10 QP	46.00	-9.90	1.13 V	129	19.30	16.80
5	479.85	35.50 QP	46.00	-10.50	1.08 V	70	14.70	20.80
6	520.05	34.20 QP	46.00	-11.80	1.69 V	273	12.30	21.90
7	678.50	35.00 QP	46.00	-11.00	1.48 V	347	10.70	24.20
8	743.85	33.20 QP	46.00	-12.80	1.31 V	250	7.00	26.20
9	823.70	32.80 QP	46.00	-13.20	1.21 V	190	5.60	27.20
10	977.90	43.00 QP	54.00	-11.00	1.19 V	135	14.10	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	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 70%RH, 961hPa	**TESTED BY**	Jerry Fan

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	110.00	28.30 QP	43.50	-15.20	1.83 H	269	16.50	11.80
2	164.00	30.10 QP	43.50	-13.40	1.69 H	286	18.80	11.30
3	235.70	35.50 QP	46.00	-10.50	1.61 H	234	22.20	13.30
4	318.85	32.40 QP	46.00	-13.60	1.50 H	157	15.80	16.60
5	430.80	35.90 QP	46.00	-10.10	1.38 H	88	16.30	19.60
6	527.70	35.00 QP	46.00	-11.00	1.28 H	145	12.90	22.10
7	676.05	31.20 QP	46.00	-14.80	1.20 H	177	6.90	24.20
8	719.63	34.40 QP	46.00	-11.60	1.04 H	94	9.30	25.10
9	882.40	35.30 QP	46.00	-10.70	1.00 H	227	7.40	27.90
10	936.45	35.00 QP	46.00	-11.00	1.00 H	147	5.90	29.00

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	129.55	29.20 QP	43.50	-14.30	1.02 V	121	16.50	12.70
2	189.13	29.60 QP	43.50	-13.90	1.00 V	166	19.00	10.70
3	232.93	31.90 QP	46.00	-14.10	1.00 V	230	18.80	13.10
4	351.00	31.90 QP	46.00	-14.10	1.00 V	292	14.60	17.30
5	485.58	34.00 QP	46.00	-12.00	1.00 V	253	13.10	21.00
6	552.63	37.00 QP	46.00	-9.00	1.13 V	192	14.40	22.60
7	635.60	35.50 QP	46.00	-10.50	1.69 V	99	11.50	24.00
8	747.83	33.10 QP	46.00	-12.90	1.54 V	118	6.80	26.30
9	810.22	31.10 QP	46.00	-14.90	1.39 V	32	4.40	26.80
10	931.57	36.50 QP	46.00	-9.50	1.26 V	106	7.70	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	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 53%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	*5745.00	102.70 PK			1.00 H	345	66.30	36.40
1	*5745.00	94.00 AV			1.00 H	345	57.60	36.40
2	#11490.00	58.00 PK	74.00	-16.00	1.34 H	39	6.90	51.10
2	#11490.00	47.00 AV	54.00	-7.00	1.34 H	39	-4.10	51.10

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	*5745.00	115.70 PK			1.20 V	3	79.30	36.40
1	*5745.00	107.00 AV			1.20 V	3	70.60	36.40
2	#11490.00	58.20 PK	74.00	-15.80	1.24 V	18	7.10	51.10
2	#11490.00	47.30 AV	54.00	-6.70	1.24 V	18	-3.80	51.10

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

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
CHANNEL	Channel 3	**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, 53%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	*5785.00	102.40 PK			1.00 H	347	65.90	36.50
1	*5785.00	93.50 AV			1.00 H	347	57.00	36.50
2	#11570.00	58.10 PK	74.00	-15.90	1.38 H	38	7.20	50.90
2	#11570.00	47.20 AV	54.00	-6.80	1.38 H	38	-3.70	50.90

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	*5785.00	115.30 PK			1.20 V	357	78.80	36.50
1	*5785.00	106.70 AV			1.20 V	357	70.20	36.50
2	#11570.00	58.30 PK	74.00	-15.70	1.16 V	21	7.40	50.90
2	#11570.00	47.30 AV	54.00	-6.70	1.16 V	21	-3.60	50.90

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

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 53%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	*5825.00	102.20 PK			1.00 H	345	65.60	36.60
1	*5825.00	93.20 AV			1.00 H	345	56.60	36.60
2	#11650.00	57.40 PK	74.00	-16.60	1.37 H	47	6.80	50.60
2	#11650.00	46.20 AV	54.00	-7.80	1.37 H	47	-4.40	50.60

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	*5825.00	114.90 PK			1.24 V	2	78.30	36.60
1	*5825.00	106.10 AV			1.24 V	2	69.50	36.60
2	#11650.00	57.70 PK	74.00	-16.30	1.15 V	17	7.10	50.60
2	#11650.00	46.60 AV	54.00	-7.40	1.15 V	17	-4.00	50.60

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.
7. The limit value is defined as per 15.247

5.2.9 TEST RESULTS (ANTENNA 3)

Below 1GHz Worst-Case Data

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 70%RH, 961hPa	**TESTED BY**	Jerry Fan

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	121.10	29.50 QP	43.50	-14.00	1.84 H	157	17.30	12.20
2	175.99	29.70 QP	43.50	-13.80	1.74 H	230	19.10	10.60
3	249.46	31.60 QP	46.00	-14.40	1.63 H	306	17.50	14.20
4	330.66	32.80 QP	46.00	-13.20	1.52 H	232	16.00	16.80
5	417.82	35.90 QP	46.00	-10.10	1.37 H	163	16.40	19.50
6	529.29	32.40 QP	46.00	-13.60	1.28 H	223	10.30	22.10
7	633.20	35.20 QP	46.00	-10.80	1.15 H	244	11.30	24.00
8	740.11	32.40 QP	46.00	-13.60	1.05 H	191	6.40	26.00
9	855.05	34.10 QP	46.00	-11.90	1.00 H	221	6.00	28.10
10	926.42	35.00 QP	46.00	-11.00	1.07 H	347	6.40	28.70

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	79.21	27.00 QP	40.00	-13.00	1.03 V	288	17.50	9.50
2	151.64	29.40 QP	43.50	-14.10	1.05 V	217	17.10	12.30
3	211.49	28.50 QP	43.50	-15.00	1.00 V	146	16.80	11.70
4	322.36	34.80 QP	46.00	-11.20	1.00 V	79	18.20	16.70
5	455.84	36.00 QP	46.00	-10.00	1.05 V	108	16.10	19.90
6	523.30	32.60 QP	46.00	-13.40	1.77 V	122	10.60	22.00
7	609.52	32.50 QP	46.00	-13.50	1.64 V	174	8.90	23.60
8	716.70	34.60 QP	46.00	-11.40	1.52 V	214	9.70	25.00
9	819.65	33.00 QP	46.00	-13.00	1.39 V	265	5.90	27.10
10	966.08	38.50 QP	54.00	-15.50	1.25 V	195	9.30	29.20

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	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 70%RH, 961hPa	**TESTED BY**	Jerry Fan

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	133.00	33.20 QP	43.50	-10.20	1.80 H	97	20.40	12.90
2	193.00	29.70 QP	43.50	-13.80	1.73 H	168	18.90	10.80
3	229.00	29.10 QP	46.00	-16.90	1.66 H	261	16.20	12.90
4	328.00	33.00 QP	46.00	-13.00	1.56 H	229	16.30	16.80
5	418.00	35.20 QP	46.00	-10.80	1.49 H	300	15.70	19.50
6	528.00	33.40 QP	46.00	-12.60	1.36 H	11	11.30	22.10
7	607.30	36.20 QP	46.00	-9.80	1.21 H	249	12.60	23.60
8	720.38	36.90 QP	46.00	-9.10	1.08 H	186	11.80	25.10
9	822.27	34.40 QP	46.00	-11.60	1.00 H	124	7.20	27.20
10	910.72	35.00 QP	46.00	-11.00	1.00 H	138	6.90	28.10

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	127.38	31.00 QP	43.50	-12.50	1.04 V	93	18.50	12.50
2	168.60	30.40 QP	43.50	-13.10	1.08 V	151	19.40	11.00
3	243.33	35.30 QP	46.00	-10.70	1.00 V	91	21.50	13.80
4	370.48	33.80 QP	46.00	-12.20	1.00 V	122	15.70	18.10
5	450.60	35.50 QP	46.00	-10.50	1.12 V	204	15.70	19.80
6	553.15	36.00 QP	46.00	-10.00	1.83 V	143	13.40	22.60
7	633.50	33.40 QP	46.00	-12.60	1.68 V	205	9.50	24.00
8	726.20	32.70 QP	46.00	-13.30	1.53 V	289	7.30	25.40
9	817.40	36.00 QP	46.00	-10.00	1.41 V	191	9.00	27.00
10	912.20	35.20 QP	46.00	-10.80	1.26 V	190	7.10	28.10

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	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 53%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	*5745.00	99.20 PK			1.10 H	49	62.80	36.40
1	*5745.00	90.90 AV			1.10 H	49	54.50	36.40
2	#11490.00	58.10 PK	74.00	-15.90	1.31 H	267	7.00	51.10
2	#11490.00	47.30 AV	54.00	-6.70	1.31 H	267	-3.80	51.10

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	*5745.00	112.40 PK			1.26 V	15	76.00	36.40
1	*5745.00	103.60 AV			1.26 V	15	67.20	36.40
2	#11490.00	58.80 PK	74.00	-15.20	1.35 V	74	7.70	51.10
2	**#11490.00**	**47.70 AV**	**54.00**	**-6.30**	**1.35 V**	**74**	**-3.40**	**51.10**

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

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
CHANNEL	Channel 3	**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, 53%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	*5785.00	99.60 PK			1.11 H	53	63.10	36.50
1	*5785.00	91.40 AV			1.11 H	53	54.90	36.50
2	#11570.00	57.60 PK	74.00	-16.40	1.27 H	288	6.70	50.90
2	#11570.00	46.70 AV	54.00	-7.30	1.27 H	288	-4.20	50.90

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	*5785.00	112.70 PK			1.22 V	12	76.20	36.50
1	*5785.00	104.00 AV			1.22 V	12	67.50	36.50
2	#11570.00	58.20 PK	74.00	-15.80	1.36 V	83	7.30	50.90
2	#11570.00	47.20 AV	54.00	-6.80	1.36 V	83	-3.70	50.90

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

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
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, 53%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	*5825.00	99.50 PK			1.09 H	52	62.90	36.60
1	*5825.00	91.30 AV			1.09 H	52	54.70	36.60
2	#11650.00	57.20 PK	74.00	-16.80	1.34 H	279	6.60	50.60
2	#11650.00	46.20 AV	54.00	-7.80	1.34 H	279	-4.40	50.60

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	*5825.00	112.50 PK			1.05 V	20	75.90	36.60
1	*5825.00	105.80 AV			1.05 V	20	69.20	36.60
2	#11650.00	57.80 PK	74.00	-16.20	1.42 V	62	7.20	50.60
2	#11650.00	47.00 AV	54.00	-7.00	1.42 V	62	-3.60	50.60

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.
7. The limit value is defined as per 15.247

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

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

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.3.3 TEST PROCEDURE

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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP

5.3.6 EUT OPERATING CONDITIONS

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

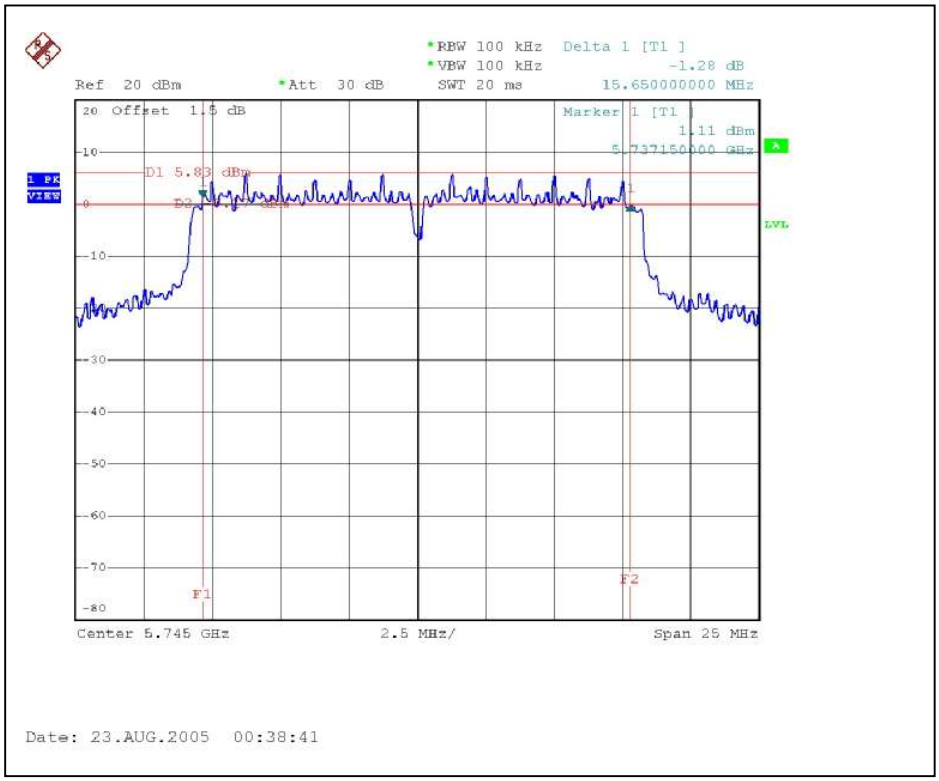
5.3.7 TEST RESULTS

802.11a OFDM modulation

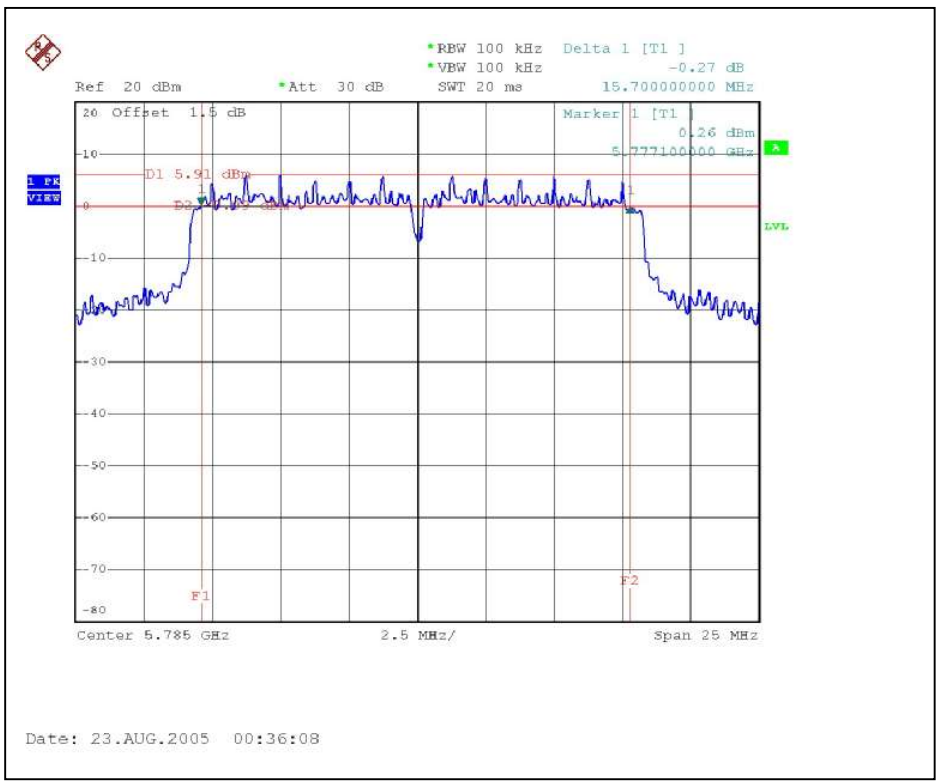
EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	15.65	0.5	PASS
3	5785	15.7	0.5	PASS
5	5825	15.65	0.5	PASS

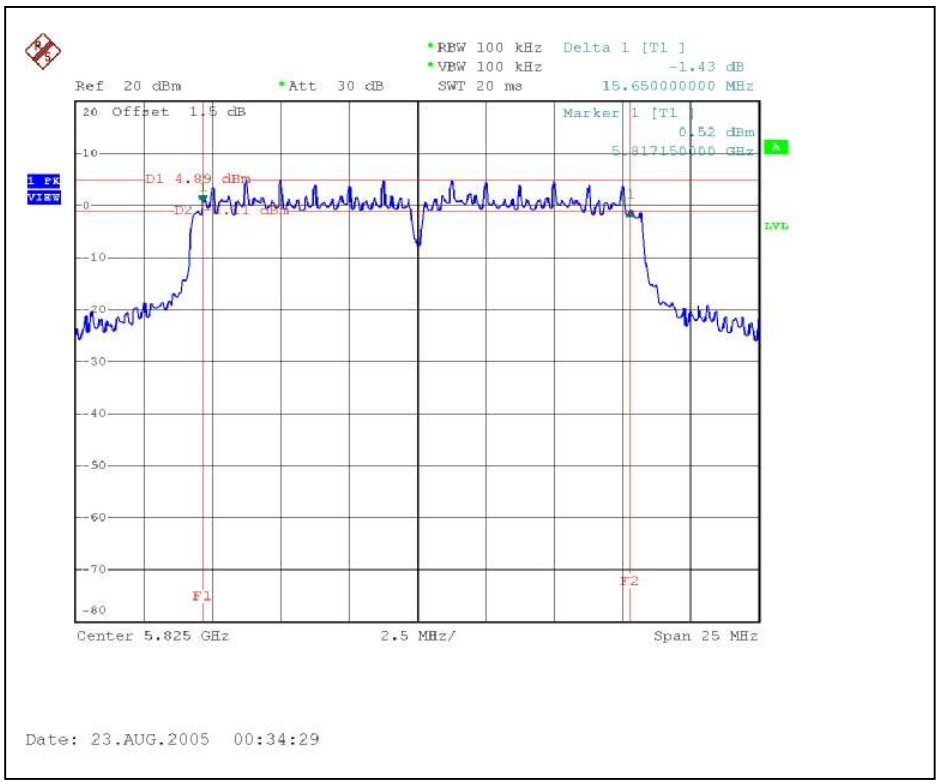
CH1


RBW 100 kHz
VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
-1.28 dB
15.650000000 MHz
Ref 20 dBm
Att 30 dB
Offset 1.5 dB
Marker 1 [T1
1.11 dBm
5.737150000 GHz
D1 5.83 dBm
LVL
F1
F2
Center 5.745 GHz
2.5 MHz/
Span 25 MHz
Date: 23.AUG.2005 00:38:41

CH3


RBW 100 kHz
VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
-0.27 dB
15.700000000 MHz
Ref 20 dBm
Att 30 dB
Offset 1.5 dB
Marker 1 [T1
0.26 dBm
5.777100000 GHz
D1 5.91 dBm
LVL
F1
F2
Center 5.785 GHz
2.5 MHz/
Span 25 MHz
Date: 23.AUG.2005 00:36:08

CH5


RBW 100 kHz
VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
-1.43 dB
15.650000000 MHz
Ref 20 dBm
Att 30 dB
Offset 1.5 dB
Marker 1 [T1
0.52 dBm
5.817150000 GHz
D1 4.89 dBm
D2 -1.1 dBm
1 PK VIEW
LVL
F1
F2
Center 5.825 GHz
2.5 MHz/
Span 25 MHz
Date: 23.AUG.2005 00:34:29

5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2005
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	Jun. 22, 2006
NARDA DETECTOR	4503A	FSCM99899	NA

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

5.4.3 TEST PROCEDURES

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

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
TESTED BY	Rex Huang		

Antenna 1 (Gain : 4.0 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	18.9	30	PASS
3	5785	18.93	30	PASS
5	5825	18.24	30	PASS

Antenna 2 (Gain : 14.2 dBi) +Cable loss (1.2dB)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	18.90	23	PASS
3	5785	18.93	23	PASS
5	5825	18.24	23	PASS

Antenna 3 (Gain : 5.9 dBi) +Cable loss (0.84dB)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	18.90	30	PASS
3	5785	18.93	30	PASS
5	5825	18.24	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

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

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

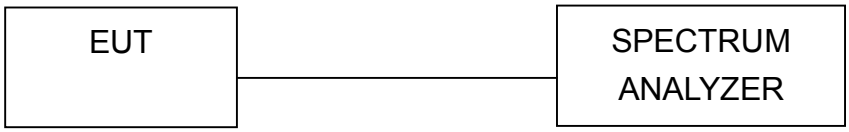
5.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

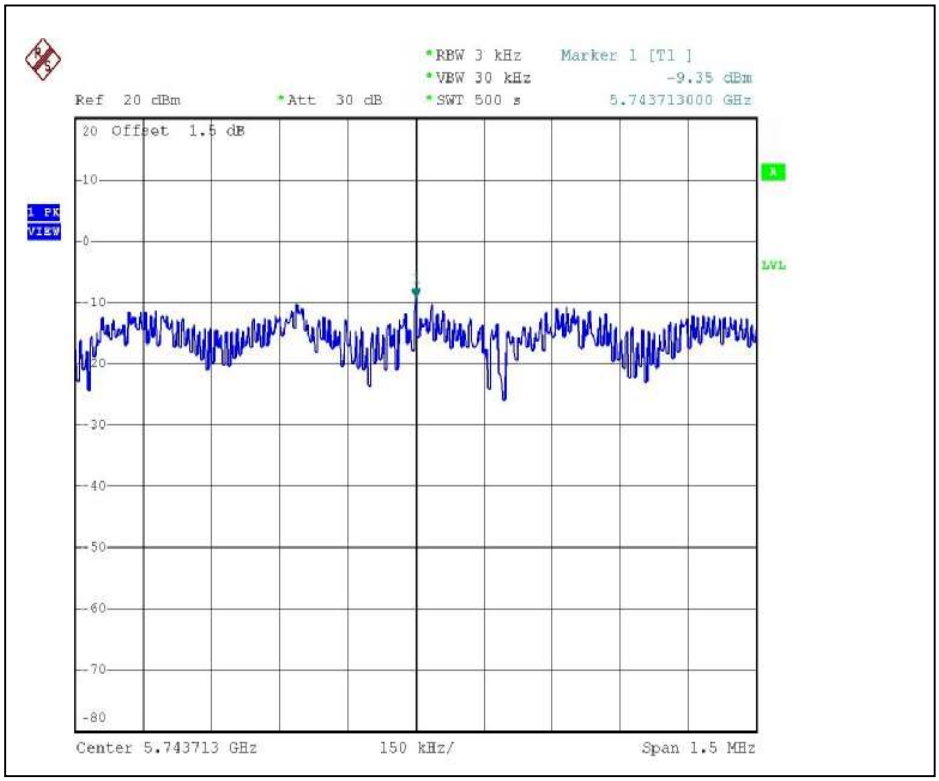
5.5.7 TEST RESULTS

802.11a OFDM modulation

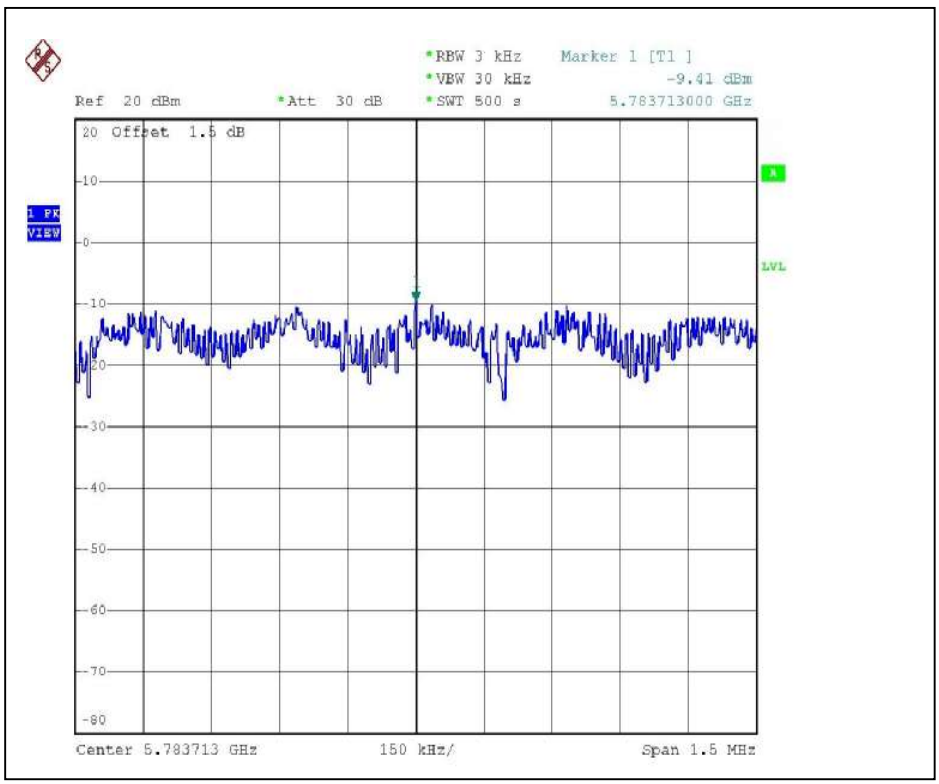
EUT	Symbol WLAN 802.11abg Access Point	**MODEL**	AP-5131
MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	-9.35	8	PASS
3	5785	-9.41	8	PASS
5	5825	-10.16	8	PASS

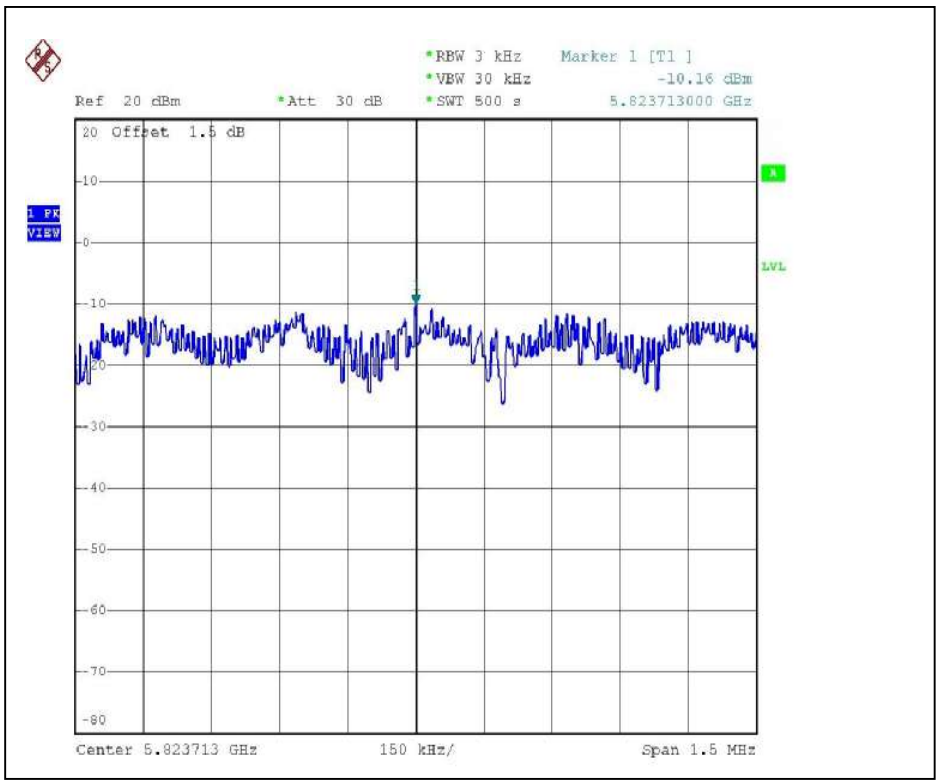
CH1


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-9.35 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.743713000 GHz
20 Offset 1.5 dB
1 PK VIEW
LVL
Center 5.743713 GHz
150 kHz/
Span 1.5 MHz

CH3


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-9.41 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.783713000 GHz
20 Offset 1.5 dB
1 PK VIEW
LVL
Center 5.783713 GHz
150 kHz/
Span 1.5 MHz

CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-10.16 dBm
5.823713000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 1.5 dB
1 PK
VIEW
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.823713 GHz
150 kHz/
Span 1.5 MHz

5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	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.

5.6.3 TEST PROCEDURE

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

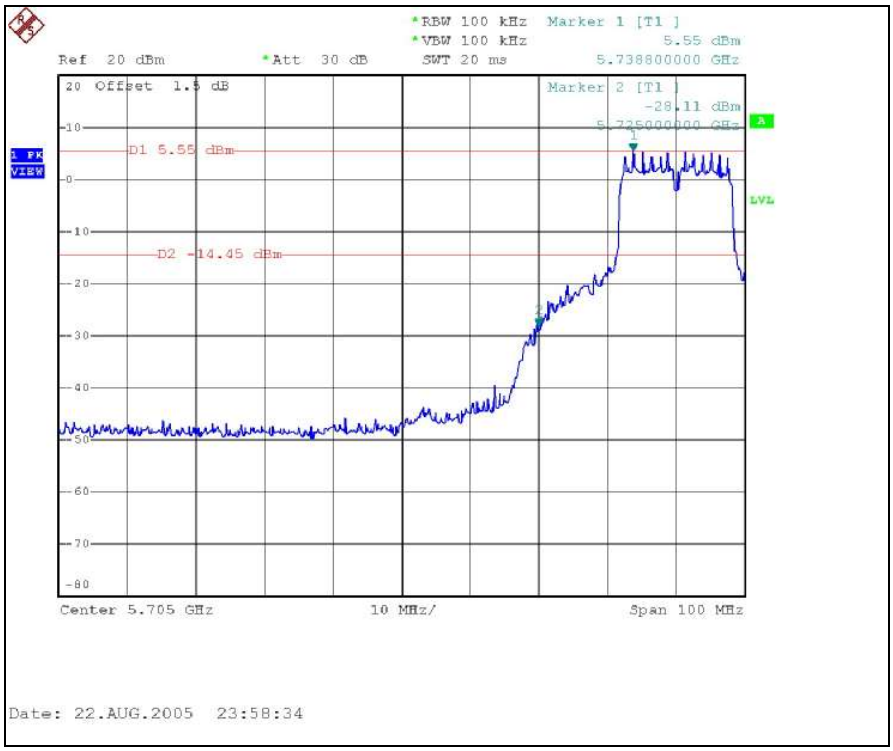
5.6.5 EUT OPERATING CONDITION

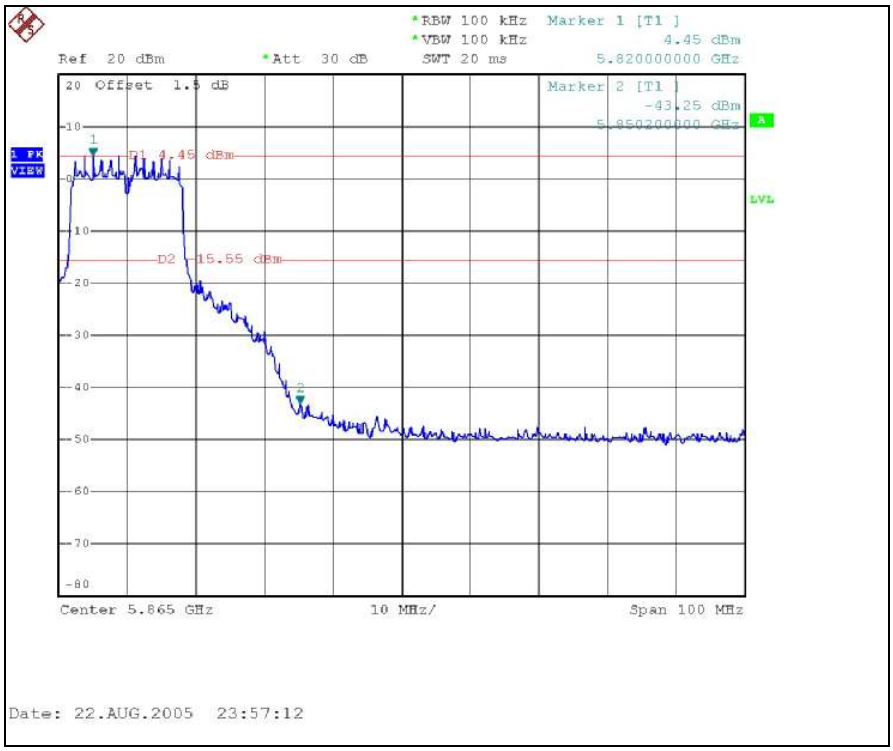
Same as Item 4.3.6

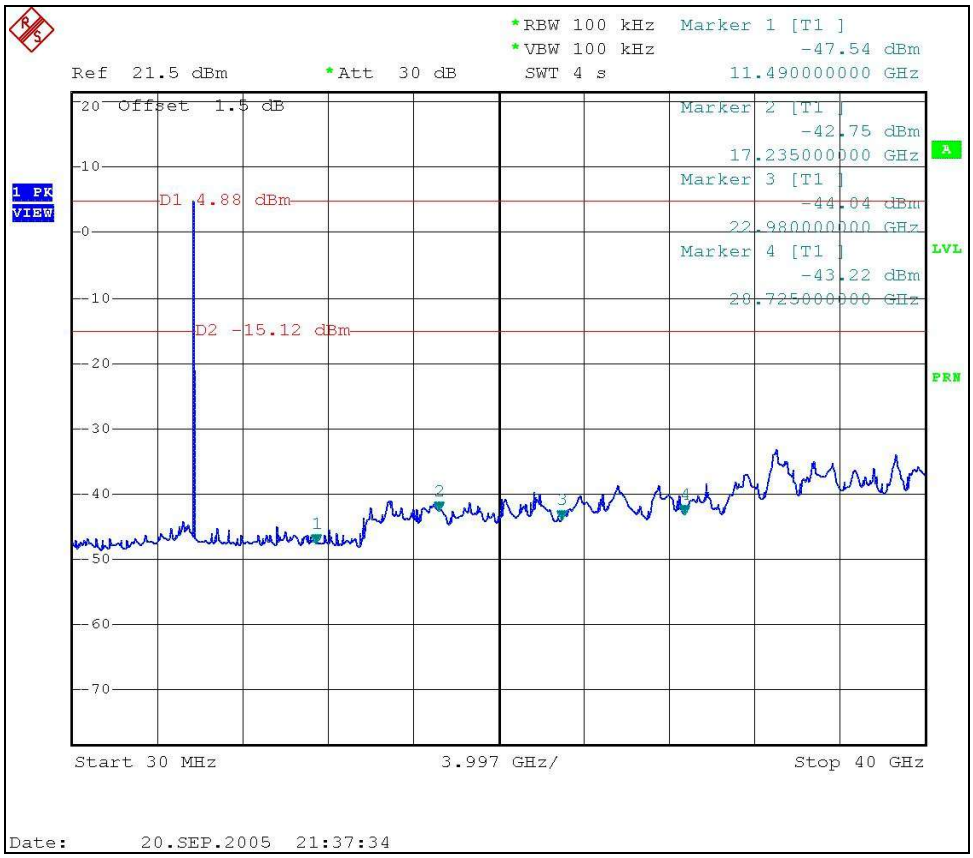
5.6.6 TEST RESULTS

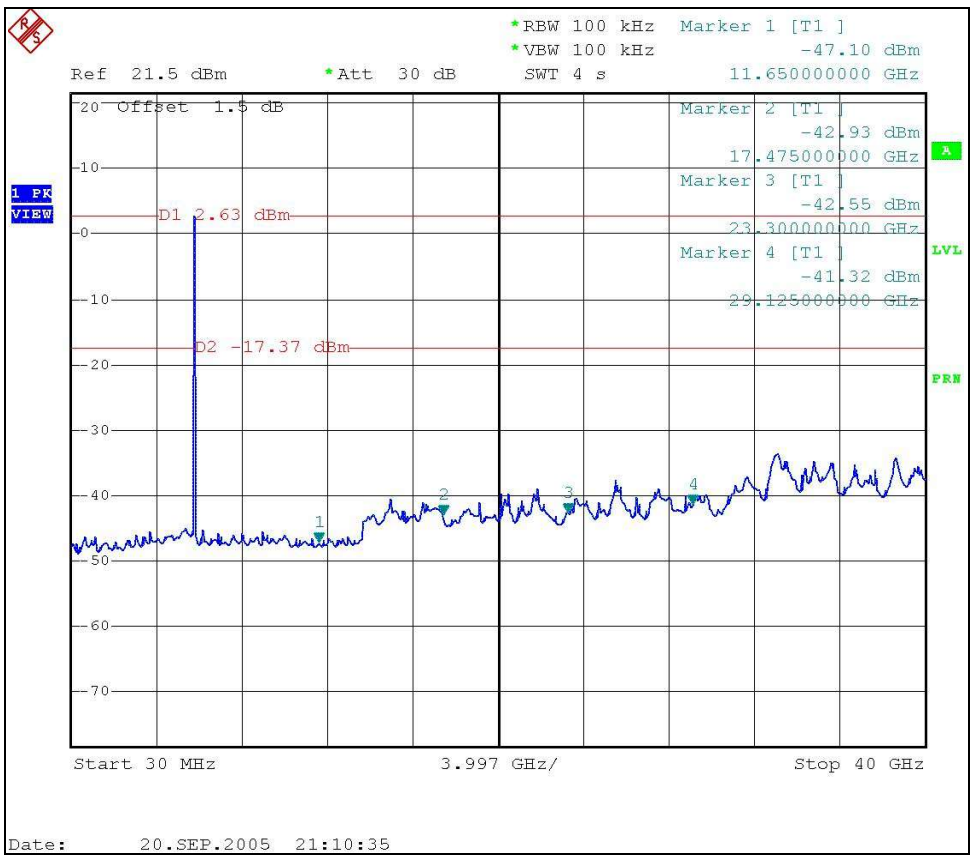
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation






*RBW 100 kHz
*VBW 100 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 4 s
Marker 1 [T1]
-47.54 dBm
11.490000000 GHz
Marker 2 [T1]
-42.75 dBm
17.235000000 GHz
Marker 3 [T1]
-44.04 dBm
22.980000000 GHz
Marker 4 [T1]
-43.22 dBm
20.725000000 GHz
20 Offset 1.5 dB
D1 4.88 dBm
D2 -15.12 dBm
1 PK
VIEW
A
LVL
PRN
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Date: 20.SEP.2005 21:37:34


*RBW 100 kHz
*VBW 100 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 4 s
Marker 1 [T1]
-47.10 dBm
11.650000000 GHz
Marker 2 [T1]
-42.93 dBm
17.475000000 GHz
Marker 3 [T1]
-42.55 dBm
23.300000000 GHz
Marker 4 [T1]
-41.32 dBm
29.125000000 GHz
20 Offset 1.5 dB
D1 2.63 dBm
D2 -17.37 dBm
1 PK
VIEW
A
LVL
PRN
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Date: 20.SEP.2005 21:10:35

5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

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

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

5.7.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are as following:

No.	Symbol P/N	Gain (dBi)	Cable Loss (dB)	Net Gain (dB)	Antenna Type	Connector	Remark
1	ML-2452-APA2-01	4.0	0	4.0	Dipole	RP SMA	Omni
2	ML-5299-WPNA1-01	14.2	1.2	13.0	Patch	RP SMA	Directional
3	ML-5299-HPA1-01	5.9	0.84	5.0	Omni	RP SMA	Omni

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

APPENDIX-A

MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.