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FCC TEST REPORT

REPORT NO.: RF980320L04-3

MODEL NO.: AT-TQ2403

RECEIVED: Mar. 19, 2009

TESTED: Jul. 03 ~ Jul. 04, 2009

ISSUED: Jul. 06, 2009

APPLICANT: Delta Networks, Inc.

ADDRESS: 252, Shang Ying Road, Kuei San, Taoyuan
Shien 333, Taiwan, R.O.C.

ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou
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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan,
R.O.C.

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1. CERTIFICATION

PRODUCT: Enterprise Wlan AP

MODEL: AT-TQ2403

BRAND: ATI

APPLICANT: Delta Networks, Inc.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Jul. 03 ~ Jul. 04, 2009

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

FCC Part 15, Subpart E (Section 15.407)

ANSI C63.4-2003

The above equipment (Model: AT-TQ2403) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, 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 : Polly Chien , **DATE** : Jul. 06, 2009
Polly Chien / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE** : Jul. 06, 2009
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE** : Jul. 06, 2009
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.31dB at 2322.00MHz.
15.407(b)/1/2 /3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz		

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	30MHz ~ 200MHz	2.93dB
	200MHz ~1000MHz	2.95dB
	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Enterprise Wlan AP
MODEL NO.	AT-TQ2403
FCC ID	PD5TQ2403
POWER SUPPLY	5 Vdc from adapter 56 Vdc from POE
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 (*Turbo mode: up to 108Mbps)
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g 5.0GHz: 5180 ~ 5320MHz: 8 for 802.11a 5500 ~ 5700MHz: 11 for 802.11a 802.11a: 1 for turbo mode 5745 ~ 5825MHz: 5 for 802.11a 802.11a: 2 for turbo mode
OUTPUT POWER	224.905mW for 2412 ~ 2462MHz 44.978mW for 5180 ~ 5320MHz 40.365mW for 5500 ~ 5700MHz 102.329mW for 5745 ~ 5825MHz
ANTENNA TYPE	Dipole Antenna with 2.43dBi gain for 2.4GHz band Dipole Antenna with 2.26dBi gain for 5.0GHz band
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	Adapter

NOTE:

1. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5320	5500~5700	5745~5825
802.11b	√			
802.11g	√			
802.11a		√	√	√

2. The EUT was powered by the following adapter.

BRAND:	LEADER ELECTRONICS INC.
MODEL:	MU18-2050280-A1
INPUT:	100-240Vac, 50/60Hz, 0.6A
OUTPUT:	5Vdc, 2.8A
POWER LINE:	1.5 m non-shielded cable without core

3. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.
4. The EUT operates in the 2.4GHz/5GHz frequency spectrum with throughput of up to 54Mbps.
5. This EUT is capable of providing data rates of up to 108Mbps in Turbo Mode depending upon reception quality.
6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g:

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

For 802.11g: One channel is provided to this EUT for turbo mode:

CHANNEL	FREQUENCY
6	2437 MHz

Operated in 5180 ~ 5320MHz

8 channels are provided for 802.11a

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

For 802.11a: One channel is provided to this EUT for turbo mode:

CHANNEL	FREQUENCY
42	5210 MHz

Operated in 5500 ~ 5700MHz

11 channels are provided for 802.11a

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

Operated in 5745 ~ 5825MHz

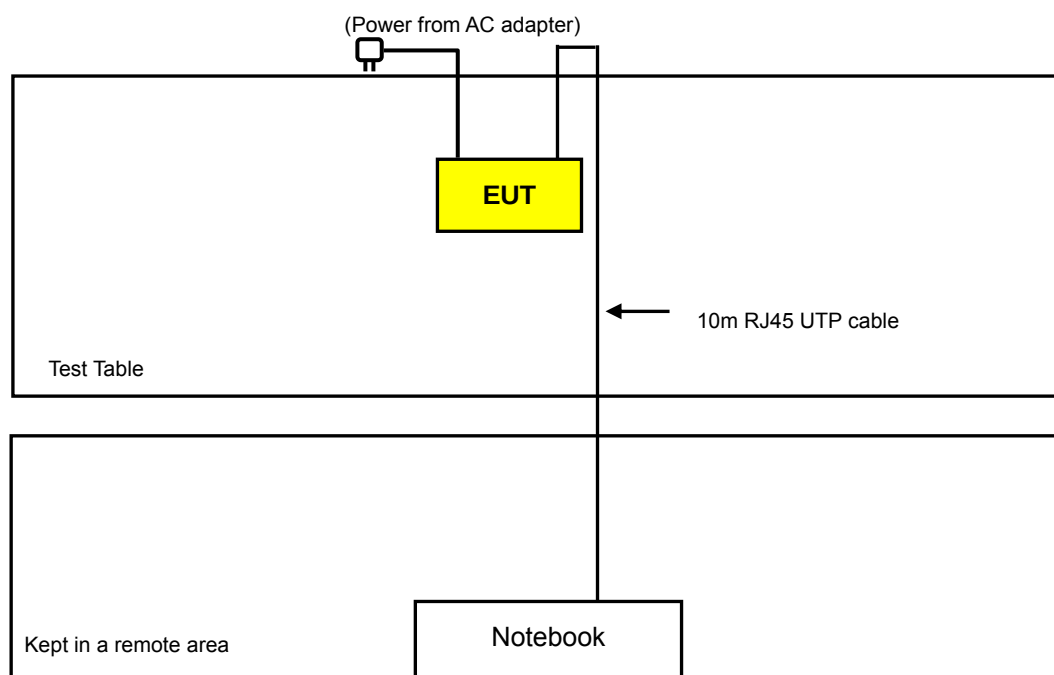
5 channels are provided for 802.11a:

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

For 802.11a: Two channels are provided to this EUT for turbo mode:

CHANNEL	FREQUENCY
152	5760 MHz
160	5800 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE≥1G	RE<1G	CE	
-	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
CE: Conducted Emission Measurement

NOTE: Test modes as below are composed of the max output power channel of each band.

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ 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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b +802.11a	2412~2462 5180-5320	1 to 11 36 to 64	6 + 64	DSSS OFDM	DBPSK BPSK	1.0 6.0	X
802.11g +802.11a	2412~2462 5180-5320	1 to 11 36 to 64	6 + 64	OFDM OFDM	BPSK BPSK	6.0 6.0	X
802.11b +802.11a	2412~2462 5500-5700	1 to 11 100 to 140	6 + 100	DSSS OFDM	DBPSK BPSK	1.0 6.0	X
802.11g +802.11a	2412~2462 5500-5700	1 to 11 100 to 140	6 + 100	OFDM OFDM	BPSK BPSK	6.0 6.0	X
802.11b +802.11a	2412~2462 5745~5825	1 to 11 149 to 165	6 + 157	DSSS OFDM	DBPSK BPSK	1.0 6.0	X
802.11g +802.11a	2412~2462 5745~5825	1 to 11 149 to 165	6 + 157	OFDM OFDM	BPSK BPSK	6.0 6.0	X

RADIATED EMISSION TEST (BELOW 1GHz):

- ☒ 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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b +802.11a	2412~2462 5180-5320	1 to 11 36 to 64	6 + 64	DSSS OFDM	DBPSK BPSK	1.0 6.0	X
802.11g +802.11a	2412~2462 5180-5320	1 to 11 36 to 64	6 + 64	OFDM OFDM	BPSK BPSK	6.0 6.0	X
802.11b +802.11a	2412~2462 5500-5700	1 to 11 100 to 140	6 + 100	DSSS OFDM	DBPSK BPSK	1.0 6.0	X
802.11g +802.11a	2412~2462 5500-5700	1 to 11 100 to 140	6 + 100	OFDM OFDM	BPSK BPSK	6.0 6.0	X
802.11b +802.11a	2412~2462 5745~5825	1 to 11 149 to 165	6 + 157	DSSS OFDM	DBPSK BPSK	1.0 6.0	X
802.11g +802.11a	2412~2462 5745~5825	1 to 11 149 to 165	6 + 157	OFDM OFDM	BPSK BPSK	6.0 6.0	X

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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b +802.11a	2412~2462 5180-5320	1 to 11 36 to 64	6 + 64	DSSS OFDM	DBPSK BPSK	1.0 6.0
802.11g +802.11a	2412~2462 5180-5320	1 to 11 36 to 64	6 + 64	OFDM OFDM	BPSK BPSK	6.0 6.0
802.11b +802.11a	2412~2462 5500-5700	1 to 11 100 to 140	6 + 100	DSSS OFDM	DBPSK BPSK	1.0 6.0
802.11g +802.11a	2412~2462 5500-5700	1 to 11 100 to 140	6 + 100	OFDM OFDM	BPSK BPSK	6.0 6.0
802.11b +802.11a	2412~2462 5745~5825	1 to 11 149 to 165	6 + 157	DSSS OFDM	DBPSK BPSK	1.0 6.0
802.11g +802.11a	2412~2462 5745~5825	1 to 11 149 to 165	6 + 157	OFDM OFDM	BPSK BPSK	6.0 6.0

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (Section 15.247)

FCC Part 15, Subpart E (Section 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	DELL	PP05L	25191592336	E2K24CLNS

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 cable.

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 acted as a communication partner to transfer data.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 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.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m) *NOTE 3
	PK	PK
5150 ~ 5250	-27	68.3
5250 ~ 5350	-27	68.3
5470 ~ 5725	-27	68.3

NOTE:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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



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4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2008	Dec. 28, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 08, 2008	Dec. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 30, 2008	Apr. 28, 2010
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Dec. 29, 2008	Dec. 28, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01960	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8447D	2944A10631	Nov. 03, 2008	Nov. 02, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2008	Aug. 20, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2008	Aug. 20, 2009
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 988962.
 5. The IC Site Registration No. is IC7450F-4.

4.1.4 TEST PROCEDURES

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

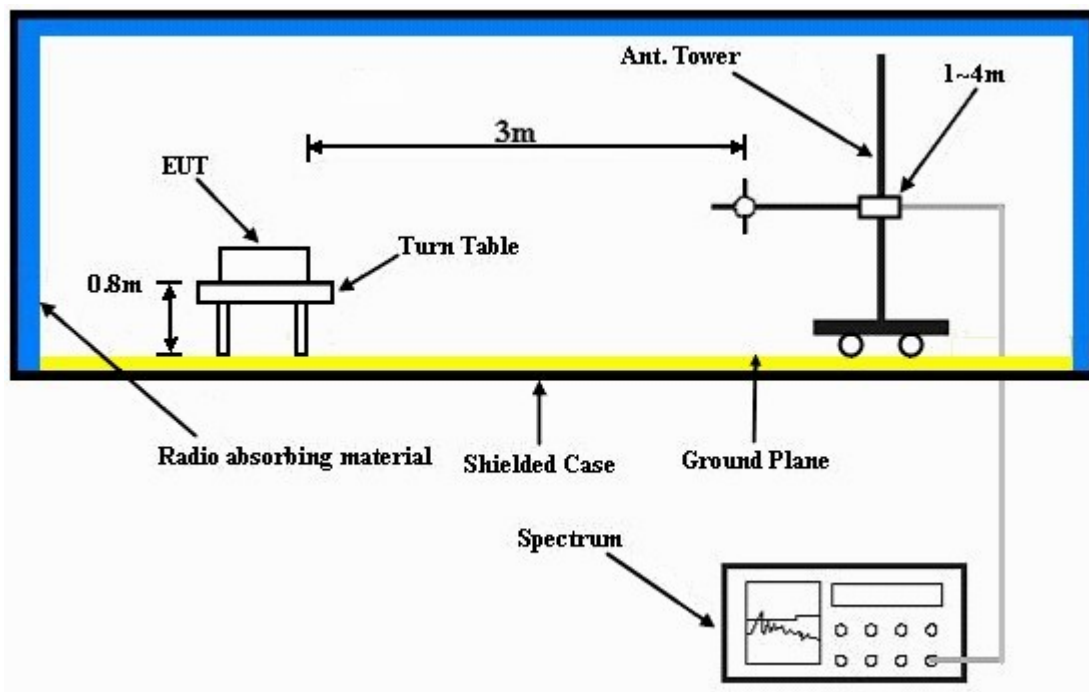
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

No deviation

4.1.6 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.7 EUT OPERATING CONDITIONS

- Placed the EUT on the testing table.
- The necessary accessories enable the system in full functions.
- Prepared the other notebook outside of testing area to act as a communication partner.
- The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.



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4.1.8 TEST RESULTS

802.11b DSSS MODULATION + 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 64	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	56.81 PK	74.00	-17.19	1.25 H	271	24.79	32.02
2	2322.00	48.93 AV	54.00	-5.07	1.25 H	271	16.91	32.02
3	*2437.00	108.02 PK			1.28 H	73	75.54	32.48
4	*2437.00	103.19 AV			1.28 H	73	70.71	32.48
5	4874.00	49.48 PK	74.00	-24.52	1.12 H	205	10.81	38.67
6	4874.00	41.64 AV	54.00	-12.36	1.12 H	205	2.97	38.67
7	*5320.00	100.31 PK			1.42 H	107	60.95	39.36
8	*5320.00	88.55 AV			1.42 H	107	49.19	39.36
9	5350.00	55.01 PK	74.00	-18.99	1.36 H	305	15.61	39.40
10	5350.00	39.03 AV	54.00	-14.97	1.36 H	305	-0.37	39.40
11	10640.00	60.43 PK	74.00	-13.57	1.31 H	68	10.16	50.27
12	10640.00	47.92 AV	54.00	-6.08	1.31 H	68	-2.35	50.27

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 6. The limit value is defined as per 15.407.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 64	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	64.14 PK	74.00	-9.86	1.15 V	331	32.12	32.02
2	2322.00	52.58 AV	54.00	-1.42	1.15 V	331	20.56	32.02
3	*2437.00	111.13 PK			1.18 V	305	78.65	32.48
4	*2437.00	106.07 AV			1.18 V	305	73.59	32.48
5	4874.00	50.15 PK	74.00	-23.85	1.08 V	133	11.48	38.67
6	4874.00	44.46 AV	54.00	-9.54	1.08 V	133	5.79	38.67
7	*5320.00	110.02 PK			1.17 V	29	70.66	39.36
8	*5320.00	98.59 AV			1.17 V	29	59.23	39.36
9	5350.00	64.54 PK	74.00	-9.46	1.35 V	297	25.15	39.40
10	5350.00	46.75 AV	54.00	-7.25	1.35 V	297	7.35	39.40
11	10640.00	65.71 PK	74.00	-8.29	1.32 V	286	15.44	50.27
12	10640.00	52.53 AV	54.00	-1.47	1.32 V	286	2.26	50.27

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.407.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 100	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	56.72 PK	74.00	-17.28	1.25 H	272	24.70	32.02
2	2322.00	48.87 AV	54.00	-5.13	1.25 H	272	16.85	32.02
3	*2437.00	107.91 PK			1.28 H	75	75.43	32.48
4	*2437.00	103.02 AV			1.28 H	75	70.54	32.48
5	4874.00	49.43 PK	74.00	-24.57	1.12 H	202	10.76	38.67
6	4874.00	41.59 AV	54.00	-12.41	1.12 H	202	2.92	38.67
7	5460.00	51.05 PK	74.00	-22.95	1.49 H	306	11.52	39.53
8	5460.00	36.84 AV	54.00	-17.16	1.49 H	306	-2.69	39.53
9	#5470.00	55.42 PK	68.30	-12.88	1.49 H	306	15.88	39.54
10	*5500.00	101.03 PK			1.58 H	121	61.45	39.58
11	*5500.00	89.69 AV			1.58 H	121	50.11	39.58
12	11000.00	58.64 PK	74.00	-15.36	1.03 H	109	7.58	51.06
13	11000.00	46.18 AV	54.00	-7.82	1.03 H	109	-4.88	51.06

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.407.
 7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 100	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	64.02 PK	74.00	-9.98	1.15 V	330	32.00	32.02
2	2322.00	52.42 AV	54.00	-1.58	1.15 V	331	20.40	32.02
3	*2437.00	111.02 PK			1.18 V	303	78.54	32.48
4	*2437.00	105.96 AV			1.18 V	303	73.48	32.48
5	4874.00	50.08 PK	74.00	-23.92	1.08 V	131	11.41	38.67
6	4874.00	44.34 AV	54.00	-9.66	1.08 V	133	5.67	38.67
7	5460.00	58.23 PK	74.00	-15.77	1.38 V	315	18.70	39.53
8	5460.00	42.74 AV	54.00	-11.26	1.38 V	315	3.21	39.53
9	#5470.00	66.89 PK	68.30	-1.41	1.38 V	315	27.35	39.54
10	*5500.00	109.95 PK			1.23 V	125	70.37	39.58
11	*5500.00	98.74 AV			1.23 V	125	59.16	39.58
12	11000.00	62.56 PK	74.00	-11.44	1.45 V	211	11.50	51.06
13	11000.00	49.24 AV	54.00	-4.76	1.45 V	211	-1.82	51.06

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.407.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 157	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	56.98 PK	74.00	-17.02	1.23 H	274	24.96	32.02
2	2322.00	49.05 AV	54.00	-4.95	1.23 H	274	17.03	32.02
3	*2437.00	108.24 PK			1.25 H	76	75.76	32.48
4	*2437.00	103.32 AV			1.25 H	76	70.84	32.48
5	4874.00	49.61 PK	74.00	-24.39	1.14 H	209	10.94	38.67
6	4874.00	41.83 AV	54.00	-12.17	1.14 H	209	3.16	38.67
7	*5785.00	98.06 PK			1.37 H	265	57.90	40.16
8	*5785.00	87.24 AV			1.37 H	265	47.08	40.16
9	11570.00	59.61 PK	74.00	-14.39	1.33 H	149	8.58	51.03
10	11570.00	47.63 AV	54.00	-6.37	1.33 H	149	-3.40	51.03

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 157	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	64.26 PK	74.00	-9.74	1.15 V	334	32.24	32.02
2	2322.00	52.69 AV	54.00	-1.31	1.15 V	334	20.67	32.02
3	*2437.00	111.28 PK			1.18 V	305	78.80	32.48
4	*2437.00	106.21 AV			1.18 V	305	73.73	32.48
5	4874.00	50.31 PK	74.00	-23.69	1.08 V	138	11.64	38.67
6	4874.00	44.57 AV	54.00	-9.43	1.08 V	133	5.90	38.67
7	*5785.00	108.37 PK			1.51 V	267	68.21	40.16
8	*5785.00	96.46 AV			1.51 V	267	56.30	40.16
9	11570.00	62.68 PK	74.00	-11.32	1.46 V	132	11.65	51.03
10	11570.00	49.05 AV	54.00	-4.95	1.46 V	132	-1.98	51.03

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



A D T

802.11g OFDM MODULATION + 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 64	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	61.03 PK	74.00	-12.97	1.47 H	41	29.01	32.02
2	2322.00	49.56 AV	54.00	-4.44	1.47 H	41	17.54	32.02
3	*2437.00	111.54 PK			1.32 H	61	79.06	32.48
4	*2437.00	99.95 AV			1.32 H	61	67.47	32.48
5	4874.00	46.59 PK	74.00	-27.41	1.03 H	52	7.92	38.67
6	4874.00	35.48 AV	54.00	-18.52	1.03 H	52	-3.19	38.67
7	*5320.00	100.46 PK			1.41 H	109	61.10	39.36
8	*5320.00	88.72 AV			1.41 H	109	49.36	39.36
9	5350.00	55.23 PK	74.00	-18.77	1.33 H	307	15.83	39.40
10	5350.00	39.21 AV	54.00	-14.79	1.33 H	305	-0.19	39.40
11	10640.00	60.57 PK	74.00	-13.43	1.34 H	69	10.30	50.27
12	10640.00	48.07 AV	54.00	-5.93	1.34 H	69	-2.20	50.27

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.407.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 64	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	62.89 PK	74.00	-11.11	1.13 V	334	30.87	32.02
2	2322.00	52.12 AV	54.00	-1.88	1.13 V	334	20.10	32.02
3	*2437.00	112.15 PK			1.16 V	341	79.67	32.48
4	*2437.00	100.86 AV			1.16 V	341	68.38	32.48
5	4874.00	49.35 PK	74.00	-24.65	1.14 V	142	10.68	38.67
6	4874.00	37.49 AV	54.00	-16.51	1.14 V	142	-1.18	38.67
7	*5320.00	110.15 PK			1.16 V	31	70.79	39.36
8	*5320.00	98.72 AV			1.16 V	31	59.36	39.36
9	5350.00	64.67 PK	74.00	-9.33	1.31 V	292	25.27	39.40
10	5350.00	46.93 AV	54.00	-7.07	1.31 V	292	7.53	39.40
11	10640.00	65.83 PK	74.00	-8.17	1.30 V	289	15.56	50.27
12	10640.00	52.68 AV	54.00	-1.32	1.30 V	289	2.41	50.27

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.407.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 100	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	61.21 PK	74.00	-12.79	1.45 H	43	29.19	32.02
2	2322.00	49.73 AV	54.00	-4.27	1.45 H	43	17.71	32.02
3	*2437.00	111.67 PK			1.26 H	77	79.19	32.48
4	*2437.00	100.09 AV			1.26 H	77	67.61	32.48
5	4874.00	46.72 PK	74.00	-27.28	1.16 H	209	8.05	38.67
6	4874.00	35.67 AV	54.00	-18.33	1.16 H	209	-3.00	38.67
7	5460.00	51.17 PK	74.00	-22.83	1.51 H	305	11.64	39.53
8	5460.00	36.95 AV	54.00	-17.05	1.51 H	305	-2.58	39.53
9	#5470.00	55.68 PK	68.30	-12.62	1.51 H	305	16.14	39.54
10	*5500.00	101.21 PK			1.56 H	123	61.63	39.58
11	*5500.00	89.84 AV			1.56 H	123	50.26	39.58
12	11000.00	58.89 PK	74.00	-15.11	1.05 H	102	7.83	51.06
13	11000.00	46.35 AV	54.00	-7.65	1.05 H	102	-4.71	51.06

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.407.
 7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 100	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	63.02 PK	74.00	-10.98	1.11 V	336	31.00	32.02
2	2322.00	52.29 AV	54.00	-1.71	1.11 V	336	20.27	32.02
3	*2437.00	112.34 PK			1.13 V	306	79.86	32.48
4	*2437.00	100.98 AV			1.13 V	306	68.50	32.48
5	4874.00	49.47 PK	74.00	-24.53	1.05 V	137	10.80	38.67
6	4874.00	37.64 AV	54.00	-16.36	1.05 V	137	-1.03	38.67
7	5460.00	58.11 PK	74.00	-15.89	1.36 V	314	18.58	39.53
8	5460.00	42.65 AV	54.00	-11.35	1.36 V	314	3.12	39.53
9	#5470.00	67.03 PK	68.30	-1.27	1.32 V	317	27.49	39.54
10	*5500.00	110.13 PK			1.21 V	122	70.55	39.58
11	*5500.00	98.91 AV			1.21 V	122	59.33	39.58
12	11000.00	62.72 PK	74.00	-11.28	1.43 V	214	11.66	51.06
13	11000.00	49.37 AV	54.00	-4.63	1.43 V	214	-1.69	51.06

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.407.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 157	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	60.89 PK	74.00	-13.11	1.45 H	39	28.87	32.02
2	2322.00	49.41 AV	54.00	-4.59	1.45 H	39	17.39	32.02
3	*2437.00	111.42 PK			1.31 H	64	78.94	32.48
4	*2437.00	99.78 AV			1.31 H	64	67.30	32.48
5	4874.00	46.48 PK	74.00	-27.52	1.05 H	57	7.81	38.67
6	4874.00	35.34 AV	54.00	-18.66	1.05 H	57	-3.33	38.67
7	*5785.00	97.98 PK			1.37 H	263	57.82	40.16
8	*5785.00	87.12 AV			1.37 H	263	46.96	40.16
9	11570.00	59.48 PK	74.00	-14.52	1.33 H	151	8.45	51.03
10	11570.00	47.54 AV	54.00	-6.46	1.33 H	151	-3.49	51.03

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 157	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Mark Liao

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	2322.00	62.76 PK	74.00	-11.24	1.12 V	336	30.74	32.02
2	2322.00	52.01 AV	54.00	-1.99	1.12 V	334	19.99	32.02
3	*2437.00	111.98 PK			1.18 V	342	79.50	32.48
4	*2437.00	100.74 AV			1.18 V	342	68.26	32.48
5	4874.00	49.29 PK	74.00	-24.71	1.13 V	140	10.62	38.67
6	4874.00	37.42 AV	54.00	-16.58	1.13 V	140	-1.25	38.67
7	*5785.00	108.28 PK			1.49 V	265	68.12	40.16
8	*5785.00	96.35 AV			1.49 V	265	56.19	40.16
9	11570.00	62.57 PK	74.00	-11.43	1.43 V	131	11.54	51.03
10	11570.00	48.94 AV	54.00	-5.06	1.43 V	131	-2.09	51.03

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

BELOW 1GHz WORST-CASE DATA :

802.11b DSSS MODULATION + 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 999 hPa	TESTED BY	Sun Lin

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	109.62	34.70 QP	43.50	-8.80	1.50 H	82	24.30	10.40
2	216.00	26.72 QP	43.50	-16.78	1.50 H	286	14.67	12.05
3	249.60	37.74 QP	46.00	-8.26	1.25 H	292	24.55	13.18
4	440.14	36.03 QP	46.00	-9.97	1.00 H	205	16.89	19.14
5	550.97	37.36 QP	46.00	-8.64	1.50 H	7	15.33	22.03
6	881.50	43.82 QP	46.00	-2.18	1.00 H	166	15.92	27.90
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	30.00	34.93 QP	40.00	-5.07	1.00 V	259	22.12	12.81
2	109.62	36.57 QP	43.50	-6.93	1.00 V	124	26.16	10.40
3	249.60	34.63 QP	46.00	-11.37	1.50 V	19	21.44	13.18
4	329.32	32.85 QP	46.00	-13.15	1.50 V	325	16.60	16.25
5	550.97	36.42 QP	46.00	-9.58	1.00 V	121	14.40	22.03
6	881.50	39.95 QP	46.00	-6.05	1.25 V	52	12.05	27.90

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 100	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 999 hPa	TESTED BY	Sun Lin

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	249.60	37.63 QP	46.00	-8.37	1.50 H	286	24.45	13.18
2	440.14	36.45 QP	46.00	-9.55	1.00 H	196	17.31	19.14
3	550.97	40.40 QP	46.00	-5.60	1.50 H	352	18.37	22.03
4	770.67	38.68 QP	46.00	-7.32	1.00 H	124	12.83	25.84
5	834.84	42.04 QP	46.00	-3.96	1.00 H	223	14.97	27.06
6	881.50	43.44 QP	46.00	-2.56	1.00 H	163	15.54	27.90
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	30.00	34.47 QP	40.00	-5.53	1.25 V	331	21.66	12.81
2	109.62	36.57 QP	43.50	-6.93	1.00 V	133	26.17	10.40
3	249.60	34.81 QP	46.00	-11.19	2.00 V	19	21.62	13.18
4	329.32	32.80 QP	46.00	-13.20	1.25 V	316	16.55	16.25
5	834.76	41.18 QP	46.00	-4.82	1.44 V	263	14.12	27.06
6	881.50	39.90 QP	46.00	-6.10	1.25 V	259	12.00	27.90

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 157	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 999 hPa	TESTED BY	Sun Lin

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	109.62	34.65 QP	43.50	-8.85	1.25 H	94	24.25	10.40
2	220.44	33.19 QP	46.00	-12.81	1.25 H	277	20.99	12.20
3	249.60	37.96 QP	46.00	-8.04	1.00 H	316	24.78	13.18
4	440.14	36.20 QP	46.00	-9.80	1.00 H	199	17.06	19.14
5	770.67	37.41 QP	46.00	-8.59	1.00 H	46	11.57	25.84
6	881.50	43.06 QP	46.00	-2.94	1.00 H	154	15.16	27.90
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	37.68	34.57 QP	40.00	-5.43	1.00 V	232	21.27	13.31
2	109.62	36.25 QP	43.50	-7.25	1.00 V	85	25.84	10.40
3	249.60	33.85 QP	46.00	-12.15	1.25 V	28	20.66	13.18
4	329.32	33.28 QP	46.00	-12.72	1.25 V	301	17.03	16.25
5	550.97	35.19 QP	46.00	-10.81	1.00 V	121	13.16	22.03
6	881.50	40.80 QP	46.00	-5.20	1.25 V	301	12.89	27.90

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.

802.11g OFDM MODULATION + 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 999 hPa	TESTED BY	Sun Lin

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	109.62	36.25 QP	43.50	-7.25	1.50 H	91	25.84	10.40
2	249.60	37.92 QP	46.00	-8.08	1.25 H	307	24.73	13.18
3	440.14	35.93 QP	46.00	-10.07	2.00 H	172	16.79	19.14
4	550.97	37.72 QP	46.00	-8.28	1.50 H	184	15.70	22.03
5	770.67	38.88 QP	46.00	-7.12	2.00 H	229	13.04	25.84
6	881.50	43.30 QP	46.00	-2.70	1.00 H	172	15.40	27.90
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	30.00	34.57 QP	40.00	-5.43	1.00 V	253	21.76	12.81
2	109.62	35.01 QP	43.50	-8.49	1.00 V	106	24.61	10.40
3	249.60	35.71 QP	46.00	-10.29	1.50 V	37	22.52	13.18
4	424.59	35.89 QP	46.00	-10.11	1.50 V	31	17.21	18.68
5	550.97	35.79 QP	46.00	-10.21	1.00 V	118	13.76	22.03
6	881.50	40.31 QP	46.00	-5.69	1.25 V	64	12.41	27.90

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 100	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 999 hPa	TESTED BY	Sun Lin

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	109.62	35.72 QP	43.50	-7.78	1.25 H	88	25.31	10.40
2	249.60	37.26 QP	46.00	-8.74	1.25 H	292	24.07	13.18
3	440.14	36.04 QP	46.00	-9.96	1.00 H	214	16.90	19.14
4	500.42	37.93 QP	46.00	-8.07	1.50 H	70	17.18	20.75
5	550.97	36.76 QP	46.00	-9.24	1.50 H	346	14.73	22.03
6	881.50	43.12 QP	46.00	-2.88	1.00 H	172	15.22	27.90
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	30.00	35.38 QP	40.00	-4.62	1.00 V	313	22.57	12.81
2	109.62	35.79 QP	43.50	-7.71	1.00 V	157	25.39	10.40
3	249.60	35.87 QP	46.00	-10.13	1.50 V	43	22.68	13.18
4	500.42	33.68 QP	46.00	-12.32	1.00 V	346	12.93	20.75
5	770.67	36.48 QP	46.00	-9.52	1.50 V	61	10.64	25.84
6	881.50	40.79 QP	46.00	-5.21	1.25 V	61	12.89	27.90

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	CH 6 + CH 157	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 999 hPa	TESTED BY	Sun Lin

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	109.62	36.57 QP	43.50	-6.93	1.50 H	97	26.16	10.40
2	249.60	38.11 QP	46.00	-7.89	1.00 H	319	24.92	13.18
3	440.14	35.86 QP	46.00	-10.14	1.00 H	193	16.72	19.14
4	550.97	36.75 QP	46.00	-9.25	1.50 H	238	14.72	22.03
5	770.67	38.95 QP	46.00	-7.05	1.00 H	46	13.11	25.84
6	881.50	43.39 QP	46.00	-2.61	1.00 H	166	15.49	27.90
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	37.68	34.67 QP	40.00	-5.33	1.00 V	229	21.36	13.31
2	109.62	36.06 QP	43.50	-7.44	1.00 V	130	25.65	10.40
3	249.60	33.57 QP	46.00	-12.43	1.25 V	31	20.38	13.18
4	550.97	34.91 QP	46.00	-11.09	1.00 V	121	12.88	22.03
5	770.67	36.88 QP	46.00	-9.12	1.00 V	109	11.04	25.84
6	881.50	41.14 QP	46.00	-4.86	1.25 V	64	13.24	27.90

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.



4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100040	Jul. 04, 2008	Jul. 03, 2009

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

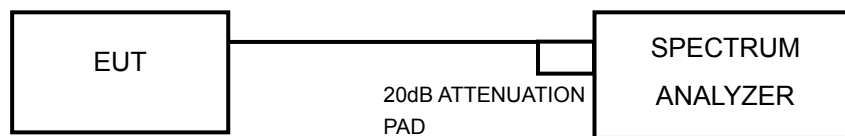
4.2.2 TEST PROCEDURE

- The transmitter output was connected to the spectrum analyzer via a low loss cable.
- Set RBW and VBW of spectrum analyzer to 1MHz and 3MHz.
- Set scan range from 30MHz ~ 40GHz. to measure spurious emissions from antenna port.

4.2.3 DEVIATION FROM TEST STANDARD

No deviation

4.2.4 TEST SETUP



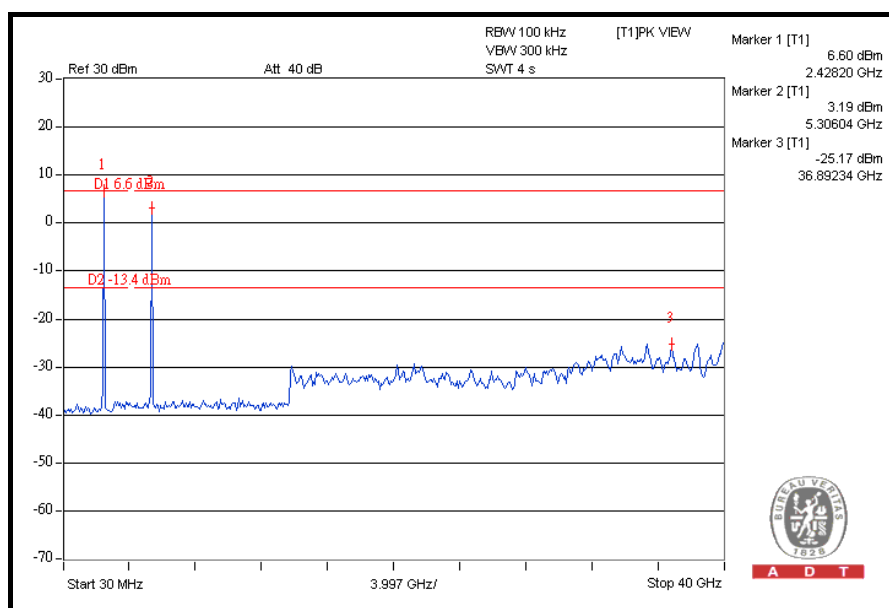
4.2.5 EUT OPERATING CONDITIONS

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

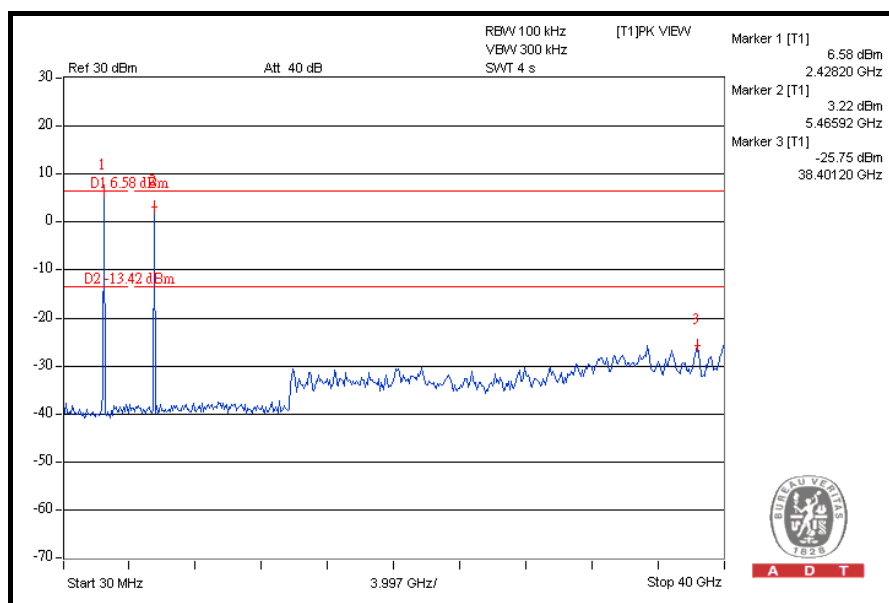
4.2.6 TEST RESULTS

802.11b DSSS MODULATION + 802.11a OFDM MODULATION

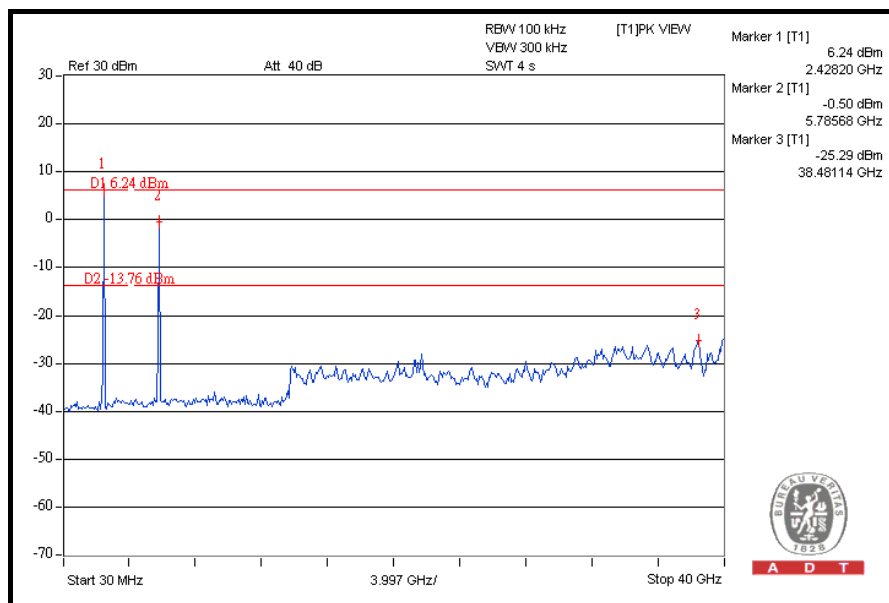
CH 6 + CH 64



CH 6 + CH 100

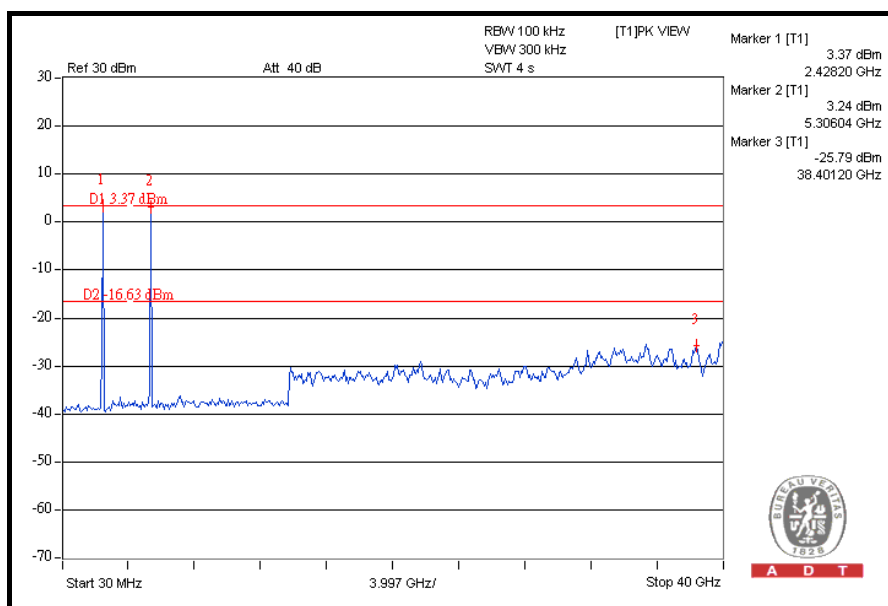


CH 6 + CH 157

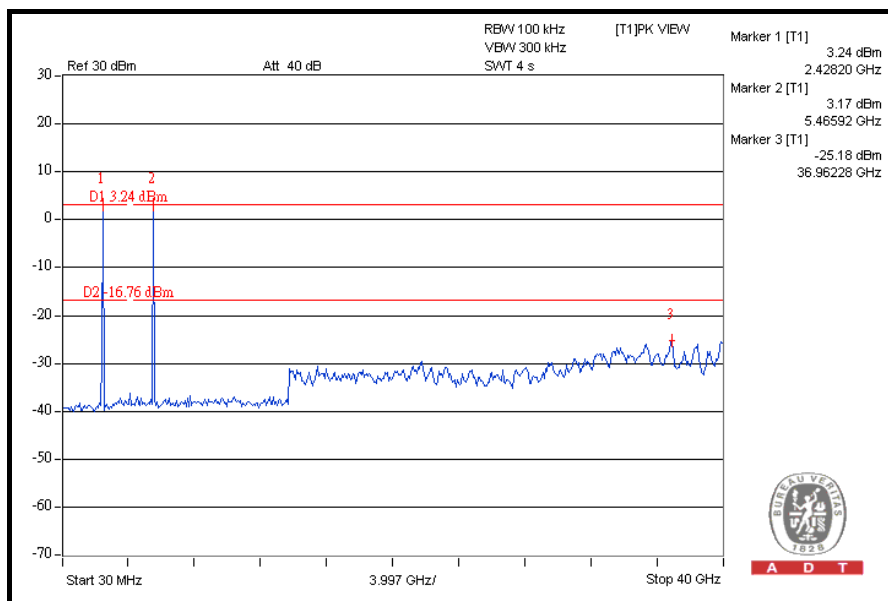


802.11g OFDM MODULATION + 802.11a OFDM MODULATION

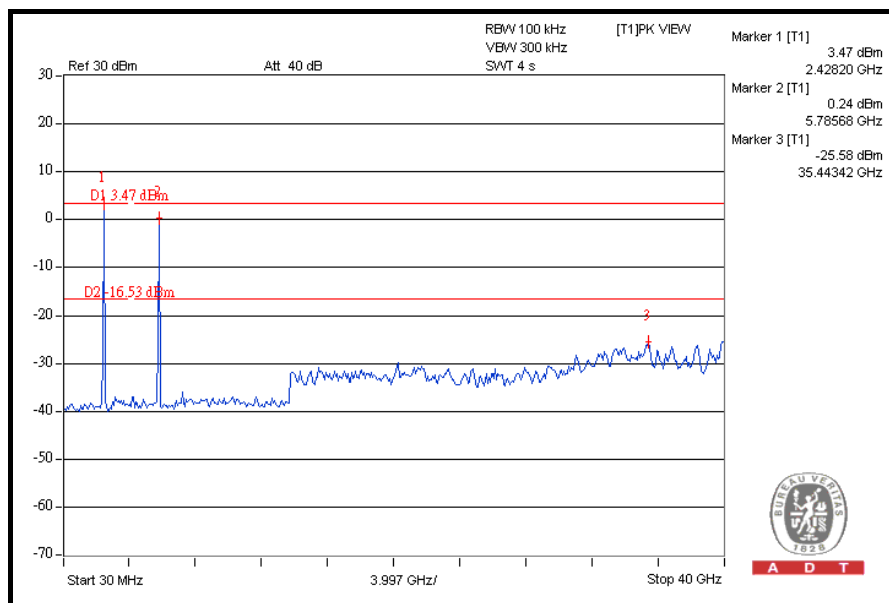
CH 6 + CH 64



CH 6 + CH 100



CH 6 + CH 157



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, 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
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	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: 886-2-26051924

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.



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7. 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.

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