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FCC TEST REPORT (15.407)

REPORT NO.: RF110303C19A-2

MODEL NO.: SC900

(Refer to item 3.1 for more details)

FCC ID: TQ2-SC900PDT-BWG

RECEIVED: Apr. 20, 2011

TESTED: May 13 ~ Sep. 20, 2011

ISSUED: Sep. 27, 2011

APPLICANT: Shin Chuan Computer Co., Ltd.

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Sep. 27, 2011



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1. CERTIFICATION

PRODUCT: Portable Data Terminal

MODEL NO.: SC900 (Refer to item 3.1 for more details)

BRAND: SCC

APPLICANT: Shin Chuan Computer Co., Ltd.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: May 13 ~ Sep. 20, 2011

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: SC900 & M1000) 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 : Ivy Lin , **DATE:** Sep. 27, 2011
Ivy Lin / Specialist

APPROVED BY : Gary Chang , **DATE:** Sep. 27, 2011
Gary Chang / Technical Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.68dB at 3.813MHz.
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.5dB at 10640.00MHz.
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

PRODUCT	Portable Data Terminal
MODEL NO.	SC900 (Refer to Note for more details)
FCC ID	TQ2-SC900PDT-BWG
POWER SUPPLY	3.7Vdc (Li-ion battery) 5.0Vdc (Adapter) 5.0Vdc (Host equipment)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps
OPERATING FREQUENCY	5180 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5320MHz: 8 5500 ~ 5700MHz: 8
OUTPUT POWER	15.8mW for 5180 ~ 5240MHz 14.8mW for 5260 ~ 5320MHz 17.8mW for 5500 ~ 5700MHz
ANTENNA TYPE	5180 ~ 5240MHz: PIFA antenna with -2.8dBi gain 5260 ~ 5320MHz: PIFA antenna with -3.42dBi gain 5500 ~ 5700MHz: PIFA antenna with -3.58dBi gain
ANTENNA CONNECTER	NA
DATA CABLE	1.38m non-shielded USB cable with 2 cores
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery, Adapter, Earphone (1.2m non-shielded cable)

NOTE:

- The following models are provided to the EUT. Difference between SC900 and M1000 is only minor circuitry for non transmitter portions as below table.

BRAND NAME	MODEL NO.	DIFFERENCE	
		USB PORT	EARPHONE PORT
SCC	SC900	With	Without
	M1000	Without	With

- 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	-	√	√	√

- The EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX

- The EUT uses following adapter and battery.

ADAPTER	
Brand	Powertron Electronics Corp.
Model	PA1008-050SI100
Input Power	100-240Vac, 50-60Hz, 0.3A
Output Power	5Vdc, 1.0A, 5W Max.

Li-ion Battery	
Brand	ETI CA
Power Rating	3.7Vdc, 1840mAh/ 6.8Wh

- The above EUT information is 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 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

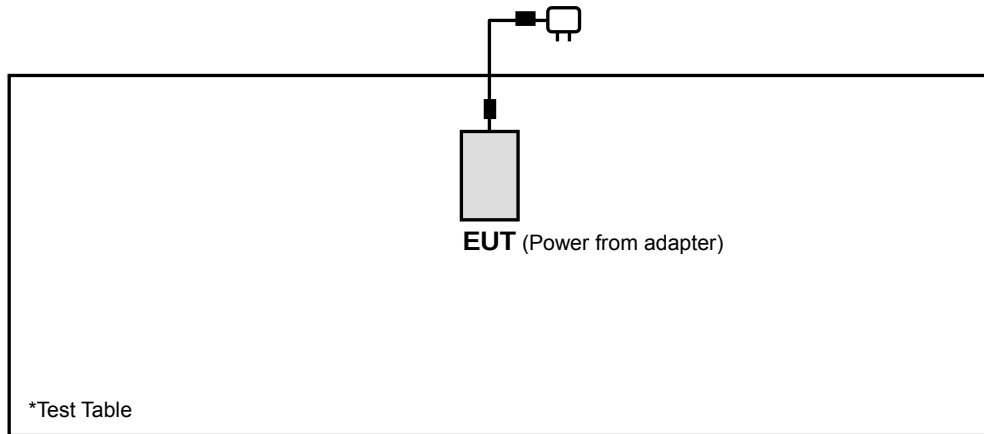
FOR 5500 ~ 5700MHz

8 channels are provided for 802.11a:

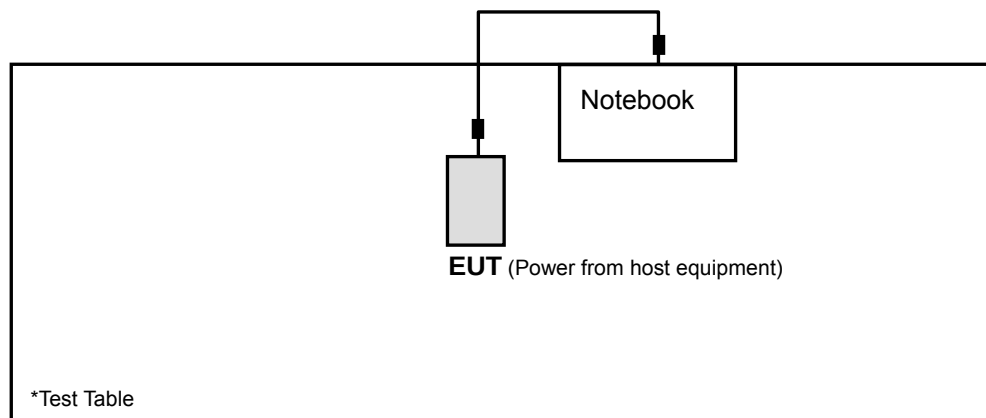
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

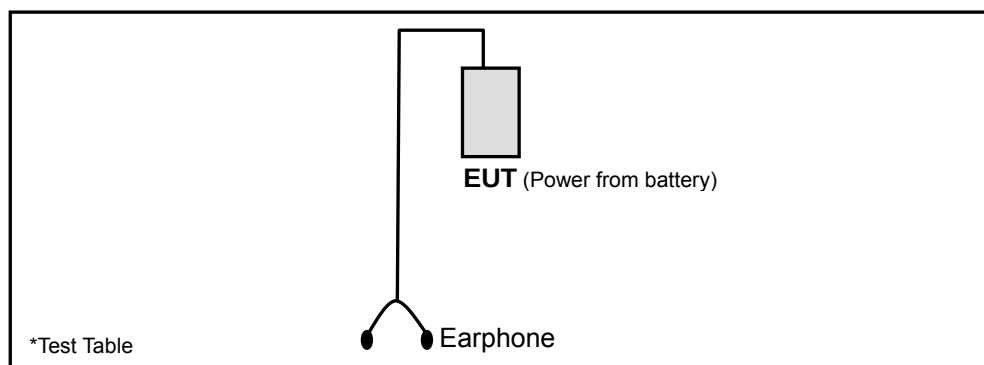
Test Mode A



Test Mode B



Test Mode C



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION	
	RE $\geq$ 1G	RE<1G	PLC	APCM	EUT Model	Power source
A	√	√	√	√	SC900	Power from adapter
B	-	√	√	-		Power from host equipment
C	-	√	-	-	M1000	Power from battery

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission
NOTE: “-” means no effect
RE<1G: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

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, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0	Z
A	802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0	Z

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, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A, B, C	802.11a	5180-5320	36 to 64	60	OFDM	BPSK	6.0	Z
A, B, C	802.11a	5500-5700	100 to 140	116	OFDM	BPSK	6.0	Z

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11a	5180-5320	36 to 64	60	OFDM	BPSK	6.0
A, B	802.11a	5500-5700	100 to 140	116	OFDM	BPSK	6.0

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	5180-5320	36 to 64	36, 48, 52, 64	OFDM	BPSK	6.0	Z
A	802.11a	5500-5700	100 to 140	100, 140	OFDM	BPSK	6.0	Z

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ 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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0
A	802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Brad Wu, Frank Wang
RE<1G	25deg. C, 65%RH, 28deg. C, 67%RH	120Vac, 60Hz	Frank Wang, Sun Lin, Antony Lee
PLC	23deg. C, 58%RH	120Vac, 60Hz	Antony Lee
APCM	22deg. C, 65%RH	120Vac, 60Hz	David Huang

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 E (15.407)

ANSI C63.4-2003

ANSI C63.10-2009

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.

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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	D830	10026042688	NA

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

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

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 (dBuV/m) *NOTE 3
	PK	PK
5150 ~ 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:

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

4.1.3 TEST INSTRUMENTS

For test mode A & B

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2011	Apr. 18, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 06, 2011	Jan. 05, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Aug. 30, 2010	Aug. 29, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01910	Sep. 09, 2010	Sep. 08, 2011
Preamplifier Agilent	8447D	2944A10638	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Sep 03, 2010	Sep 03, 2011
RF signal cable Worken	8D-FB	Cable-HYCH9-0 1	Aug. 20, 2010	Aug. 19, 2011
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 25, 2010	Aug. 24, 2011

- 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 9.
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 215374.
5. The IC Site Registration No. is IC 7450F-9.



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For test mode C

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 27, 2010	Dec. 26, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 06, 2011	Jan. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01961	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8447D	2944A10738	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250792/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 19, 2011	Aug. 18, 2012
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 460141.
5. The IC Site Registration No. is IC 7450F-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 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

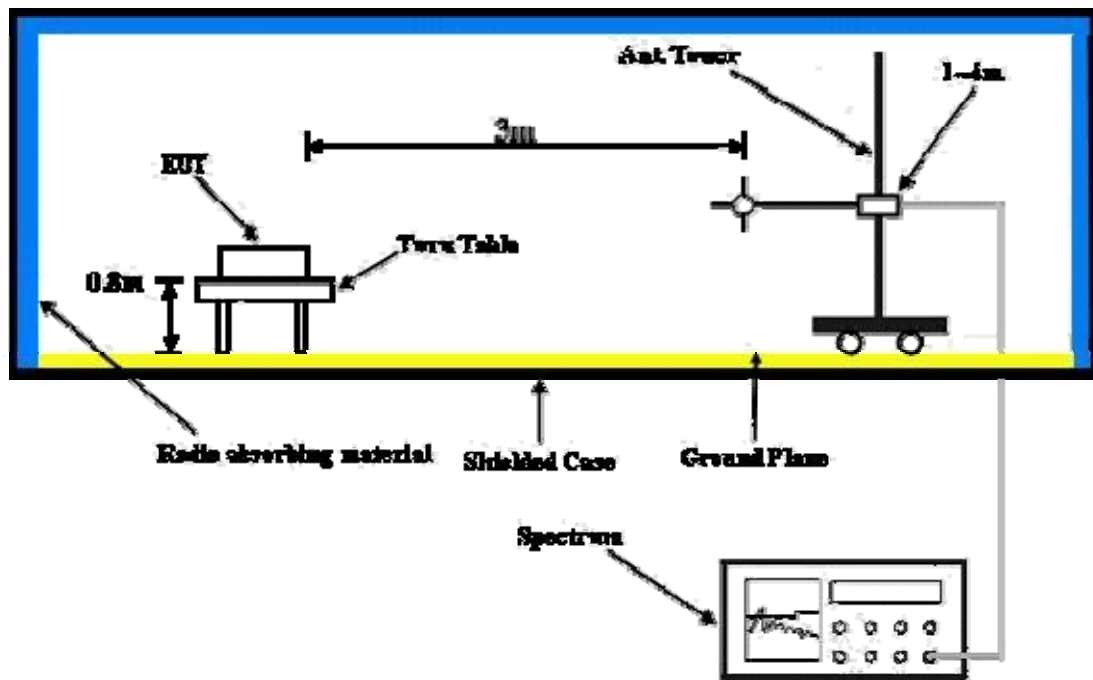
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. 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 CONDITION

TEST MODE A

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

TEST MODE B

- a. Connected the EUT to notebook and placed on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the system in full functions.

TEST MODE C

- a. Use the software to control the EUT under transmission condition continuously at specific channel frequency.
- b. The necessary accessories enable the system in full functions.

4.1.8 TEST RESULTS

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Frank Wang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.0 PK	74.0	-17.0	1.16 H	245	17.80	39.20
2	5150.00	44.3 AV	54.0	-9.7	1.16 H	245	5.10	39.20
3	*5180.00	103.5 PK			1.16 H	245	64.20	39.30
4	*5180.00	93.5 AV			1.16 H	245	54.20	39.30
5	#10360.00	66.2 PK	68.3	-2.1	1.10 H	125	16.50	49.70
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	5150.00	56.2 PK	74.0	-17.8	1.02 V	176	17.00	39.20
2	5150.00	43.6 AV	54.0	-10.4	1.02 V	176	4.40	39.20
3	*5180.00	99.8 PK			1.02 V	176	60.50	39.30
4	*5180.00	89.5 AV			1.02 V	176	50.20	39.30
5	#10360.00	65.1 PK	68.3	-3.2	1.05 V	250	15.40	49.70

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	100.8 PK			1.12 H	260	61.50	39.30
2	*5200.00	90.7 AV			1.12 H	260	51.40	39.30
3	#10400.00	62.1 PK	68.3	-6.2	1.11 H	115	12.30	49.80
4	15600.00	58.7 PK	74.0	-15.3	1.08 H	162	8.20	50.50
5	15600.00	45.8 AV	54.0	-8.2	1.08 H	162	-4.70	50.50
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	*5200.00	96.7 PK			1.13 V	219	57.40	39.30
2	*5200.00	86.4 AV			1.13 V	219	47.10	39.30
3	#10400.00	66.5 PK	68.3	-1.8	1.04 V	192	16.70	49.80
4	15600.00	59.1 PK	74.0	-14.9	1.01 V	6	8.60	50.50
5	15600.00	46.3 AV	54.0	-7.7	1.01 V	6	-4.20	50.50

- 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.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.6 PK			1.13 H	252	64.20	39.40
2	*5240.00	93.4 AV			1.13 H	252	54.00	39.40
3	5350.00	48.8 PK	74.0	-25.2	1.13 H	252	9.30	39.50
4	5350.00	37.2 AV	54.0	-16.8	1.13 H	252	-2.30	39.50
5	#10480.00	62.4 PK	68.3	-5.9	1.10 H	118	12.40	50.00
6	15720.00	58.5 PK	74.0	-15.5	1.10 H	169	8.20	50.30
7	15720.00	46.0 AV	54.0	-8.0	1.10 H	169	-4.30	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	99.3 PK			1.15 V	194	59.90	39.40
2	*5240.00	88.8 AV			1.15 V	194	49.40	39.40
3	5350.00	47.6 PK	74.0	-26.4	1.15 V	194	8.10	39.50
4	5350.00	35.9 AV	54.0	-18.1	1.15 V	194	-3.60	39.50
5	#10480.00	67.2 PK	68.3	-1.1	1.01 V	269	17.20	50.00
6	15720.00	58.8 PK	74.0	-15.2	1.02 V	16	8.50	50.30
7	15720.00	46.4 AV	54.0	-7.6	1.02 V	16	-3.90	50.30

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.
 5. “ * ”: Fundamental frequency.
 6. “ # ”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	47.9 PK	74.0	-26.1	1.11 H	260	8.70	39.20
2	5150.00	36.0 AV	54.0	-18.0	1.11 H	260	-3.20	39.20
3	*5260.00	103.4 PK			1.11 H	260	64.00	39.40
4	*5260.00	93.2 AV			1.11 H	260	53.80	39.40
5	#10520.00	62.9 PK	68.3	-5.4	1.08 H	120	12.90	50.00
6	15780.00	58.3 PK	74.0	-15.7	1.13 H	169	8.00	50.30
7	15780.00	45.8 AV	54.0	-8.2	1.13 H	169	-4.50	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.2 PK	74.0	-27.8	1.01 V	188	7.00	39.20
2	5150.00	34.4 AV	54.0	-19.6	1.01 V	188	-4.80	39.20
3	*5260.00	100.0 PK			1.01 V	188	60.60	39.40
4	*5260.00	89.7 AV			1.01 V	188	50.30	39.40
5	#10520.00	66.4 PK	68.3	-1.9	1.00 V	263	16.40	50.00
6	15780.00	59.6 PK	74.0	-14.4	1.01 V	236	9.30	50.30
7	15780.00	46.5 AV	54.0	-7.5	1.01 V	236	-3.80	50.30

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.
5. “ * ”: Fundamental frequency.
6. “ # ”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.2 PK			1.12 H	248	63.80	39.40
2	*5300.00	92.9 AV			1.12 H	248	53.50	39.40
3	10600.00	66.6 PK	74.0	-7.4	1.00 H	128	16.40	50.20
4	10600.00	52.4 AV	54.0	-1.6	1.00 H	128	2.20	50.20
5	15900.00	59.3 PK	74.0	-14.7	1.00 H	21	9.10	50.20
6	15900.00	46.4 AV	54.0	-7.6	1.00 H	21	-3.80	50.20
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	*5300.00	99.0 PK			1.02 V	191	59.60	39.40
2	*5300.00	88.6 AV			1.02 V	191	49.20	39.40
3	10600.00	66.0 PK	74.0	-8.0	1.04 V	271	15.80	50.20
4	10600.00	51.6 AV	54.0	-2.4	1.04 V	271	1.40	50.20
5	15900.00	58.9 PK	74.0	-15.1	1.00 V	105	8.70	50.20
6	15900.00	46.3 AV	54.0	-7.7	1.00 V	105	-3.90	50.20

- 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.
 5. “ * ”: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.6 PK			1.02 H	240	63.20	39.40
2	*5320.00	92.3 AV			1.02 H	240	52.90	39.40
3	5350.00	52.2 PK	74.0	-21.8	1.02 H	240	12.70	39.50
4	5350.00	39.9 AV	54.0	-14.1	1.02 H	240	0.40	39.50
5	10640.00	66.2 PK	74.0	-7.8	1.00 H	128	16.00	50.20
6	10640.00	52.0 AV	54.0	-2.0	1.00 H	128	1.80	50.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	98.6 PK			1.02 V	192	59.20	39.40
2	*5320.00	88.3 AV			1.02 V	192	48.90	39.40
3	5350.00	48.8 PK	74.0	-25.2	1.02 V	192	9.30	39.50
4	5350.00	36.2 AV	54.0	-17.8	1.02 V	192	-3.30	39.50
5	10640.00	67.4 PK	74.0	-6.6	1.02 V	194	17.20	50.20
6	10640.00	52.5 AV	54.0	-1.5	1.02 V	194	2.30	50.20

- 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.
 5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	51.6 PK	74.0	-22.4	1.00 H	222	11.90	39.70
2	5460.00	39.6 AV	54.0	-14.4	1.00 H	222	-0.10	39.70
3	#5470.00	54.7 PK	68.3	-13.6	1.00 H	222	15.00	39.70
4	*5500.00	103.4 PK			1.00 H	222	63.60	39.80
5	*5500.00	93.8 AV			1.00 H	222	54.00	39.80
6	11000.00	60.5 PK	74.0	-13.5	1.04 H	121	9.40	51.10
7	11000.00	48.1 AV	54.0	-5.9	1.04 H	121	-3.00	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	5460.00	48.7 PK	74.0	-25.3	1.76 V	224	9.00	39.70
2	5460.00	36.3 AV	54.0	-17.7	1.76 V	224	-3.40	39.70
3	#5470.00	49.0 PK	68.3	-19.3	1.76 V	224	9.30	39.70
4	*5500.00	98.9 PK			1.76 V	224	59.10	39.80
5	*5500.00	88.8 AV			1.76 V	224	49.00	39.80
6	11000.00	59.0 PK	74.0	-15.0	1.09 V	145	7.90	51.10
7	11000.00	47.5 AV	54.0	-6.5	1.09 V	145	-3.60	51.10

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.
5. “ * ”: Fundamental frequency.
6. “ # ”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.3 PK			1.00 H	224	63.40	39.90
2	*5580.00	93.5 AV			1.00 H	224	53.60	39.90
3	11160.00	58.5 PK	74.0	-15.5	1.06 H	115	7.40	51.10
4	11160.00	46.2 AV	54.0	-7.8	1.06 H	115	-4.90	51.10
5	#16740.00	62.2 PK	68.3	-6.1	1.03 H	125	9.50	52.70
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	*5580.00	98.6 PK			1.75 V	221	58.70	39.90
2	*5580.00	88.5 AV			1.75 V	221	48.60	39.90
3	11160.00	58.2 PK	74.0	-15.8	1.05 V	113	7.10	51.10
4	11160.00	46.0 AV	54.0	-8.0	1.05 V	113	-5.10	51.10
5	#16740.00	62.0 PK	68.3	-6.3	1.13 V	28	9.30	52.70

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	102.9 PK			1.20 H	233	62.80	40.10
2	*5660.00	93.1 AV			1.20 H	233	53.00	40.10
3	11320.00	60.1 PK	74.0	-13.9	1.02 H	105	8.80	51.30
4	11320.00	46.9 AV	54.0	-7.1	1.02 H	105	-4.40	51.30
5	#16980.00	62.9 PK	68.3	-5.4	1.04 H	121	9.30	53.60
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	*5660.00	98.3 PK			1.76 V	224	58.20	40.10
2	*5660.00	88.2 AV			1.76 V	224	48.10	40.10
3	11320.00	59.8 PK	74.0	-14.2	1.13 V	92	8.50	51.30
4	11320.00	46.5 AV	54.0	-7.5	1.13 V	92	-4.80	51.30
5	#16980.00	62.3 PK	68.3	-6.0	1.13 V	48	8.70	53.60

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	103.6 PK			1.06 H	232	63.50	40.10
2	*5700.00	93.9 AV			1.06 H	232	53.80	40.10
3	#5725.00	56.8 PK	68.3	-11.5	1.07 H	232	16.60	40.20
4	11400.00	60.1 PK	74.0	-13.9	1.06 H	135	8.80	51.30
5	11400.00	47.4 AV	54.0	-6.6	1.06 H	135	-3.90	51.30
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	*5700.00	98.6 PK			1.70 V	219	58.50	40.10
2	*5700.00	88.5 AV			1.70 V	219	48.40	40.10
3	#5725.00	53.2 PK	68.3	-15.1	1.70 V	219	13.00	40.20
4	11400.00	59.6 PK	74.0	-14.4	1.04 V	62	8.30	51.30
5	11400.00	47.0 AV	54.0	-7.0	1.04 V	62	-4.30	51.30

- 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.
 5. “ * ”: Fundamental frequency.
 6. “ # ”: The radiated frequency is out the restricted band.



A D T

BELOW 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH hPa	TESTED BY	Frank Wang
TEST MODE	A		

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	272.94	40.1 QP	46.0	-5.9	1.00 H	232	24.30	15.80
2	350.71	43.8 QP	46.0	-2.2	1.00 H	274	25.50	18.30
3	420.70	34.6 QP	46.0	-11.4	2.00 H	166	14.40	20.20
4	508.19	34.6 QP	46.0	-11.4	1.50 H	169	12.00	22.60
5	585.97	34.1 QP	46.0	-11.9	1.50 H	250	9.40	24.70
6	743.45	35.4 QP	46.0	-10.6	1.00 H	190	8.20	27.20
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	134.89	37.3 QP	43.5	-6.2	1.00 V	289	22.40	14.90
2	272.94	32.7 QP	46.0	-13.3	1.50 V	163	16.90	15.80
3	350.71	38.3 QP	46.0	-7.7	1.50 V	313	20.00	18.30
4	482.92	37.7 QP	46.0	-8.3	2.00 V	208	15.80	21.90
5	585.97	34.9 QP	46.0	-11.1	1.50 V	166	10.20	24.70
6	638.46	35.9 QP	46.0	-10.1	1.50 V	340	10.30	25.60

- 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	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	A		

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	272.94	40.2 QP	46.0	-5.8	1.00 H	238	24.40	15.80
2	350.71	43.9 QP	46.0	-2.1	1.00 H	277	25.60	18.30
3	420.70	34.5 QP	46.0	-11.5	2.00 H	148	14.30	20.20
4	508.19	34.5 QP	46.0	-11.5	1.50 H	232	11.90	22.60
5	585.97	33.6 QP	46.0	-12.4	1.50 H	253	8.90	24.70
6	743.45	35.9 QP	46.0	-10.1	1.00 H	187	8.70	27.20
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	134.89	37.6 QP	43.5	-5.9	1.00 V	43	22.70	14.90
2	272.94	33.1 QP	46.0	-12.9	1.50 V	181	17.30	15.80
3	350.71	38.3 QP	46.0	-7.7	1.50 V	130	20.00	18.30
4	482.92	37.7 QP	46.0	-8.3	2.00 V	202	15.80	21.90
5	585.97	34.5 QP	46.0	-11.5	1.50 V	166	9.80	24.70
6	638.46	36.3 QP	46.0	-9.7	1.50 V	331	10.70	25.60

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	Channel 36	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH	TESTED BY	Frank Wang
TEST MODE	B		

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	220.44	31.2 QP	46.0	-14.8	1.00 H	19	19.60	11.60
2	247.66	31.1 QP	46.0	-14.9	1.00 H	217	18.50	12.60
3	300.16	38.3 QP	46.0	-7.7	1.00 H	100	23.80	14.50
4	430.42	34.8 QP	46.0	-11.2	2.00 H	319	17.20	17.60
5	533.47	31.6 QP	46.0	-14.4	1.25 H	307	11.40	20.20
6	585.97	33.1 QP	46.0	-12.9	1.25 H	313	11.70	21.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.89	26.9 QP	43.5	-16.6	1.25 V	94	17.60	9.30
2	300.16	31.3 QP	46.0	-14.7	1.25 V	202	16.80	14.50
3	350.71	29.8 QP	46.0	-16.2	1.25 V	232	14.20	15.60
4	508.19	34.3 QP	46.0	-11.7	1.00 V	97	14.90	19.40
5	644.30	34.5 QP	46.0	-11.5	1.50 V	232	12.70	21.80
6	836.78	35.2 QP	46.0	-10.8	1.25 V	91	10.50	24.70

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	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH	TESTED BY	Frank Wang
TEST MODE	B		

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	247.66	31.7 QP	46.0	-14.3	1.00 H	217	19.10	12.60
2	300.16	38.5 QP	46.0	-7.5	1.00 H	106	24.00	14.50
3	350.71	32.1 QP	46.0	-13.9	1.00 H	73	16.50	15.60
4	430.42	34.7 QP	46.0	-11.3	2.00 H	322	17.10	17.60
5	508.19	31.4 QP	46.0	-14.6	1.50 H	328	12.00	19.40
6	560.69	33.8 QP	46.0	-12.2	1.25 H	316	12.90	20.90
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	99.89	26.4 QP	43.5	-17.1	1.25 V	106	17.10	9.30
2	300.16	31.2 QP	46.0	-14.8	1.50 V	199	16.70	14.50
3	350.71	29.9 QP	46.0	-16.1	1.25 V	352	14.30	15.60
4	430.42	31.1 QP	46.0	-14.9	1.25 V	277	13.50	17.60
5	508.19	33.9 QP	46.0	-12.1	1.00 V	88	14.50	19.40
6	644.30	34.3 QP	46.0	-11.7	1.50 V	229	12.50	21.80

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	Channel 60	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
TEST MODE	C		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	199.05	41.4 QP	43.5	-2.1	1.00 H	76	29.20	12.20
2	370.15	43.1 QP	46.0	-2.9	1.00 H	58	25.50	17.60
3	430.42	43.4 QP	46.0	-2.6	2.00 H	64	23.90	19.50
4	488.75	41.9 QP	46.0	-4.1	1.50 H	64	20.80	21.10
5	585.97	41.6 QP	46.0	-4.4	1.50 H	100	18.20	23.40
6	850.39	35.2 QP	46.0	-10.8	1.00 H	304	7.10	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	191.28	40.6 QP	43.5	-2.9	1.50 V	190	27.80	12.80
2	370.15	34.9 QP	46.0	-11.1	2.00 V	106	17.30	17.60
3	430.42	37.8 QP	46.0	-8.2	2.00 V	22	18.30	19.50
4	488.75	38.0 QP	46.0	-8.0	2.00 V	148	16.90	21.10
5	585.97	35.1 QP	46.0	-10.9	2.00 V	226	11.70	23.40
6	850.39	42.4 QP	46.0	-3.6	2.00 V	193	14.30	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
TEST MODE	C		

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	191.28	41.0 QP	43.5	-2.5	1.00 H	130	28.20	12.80
2	370.15	43.1 QP	46.0	-2.9	1.00 H	58	25.50	17.60
3	430.42	43.4 QP	46.0	-2.6	2.00 H	58	23.90	19.50
4	488.75	41.9 QP	46.0	-4.1	1.50 H	67	20.80	21.10
5	585.97	41.9 QP	46.0	-4.1	1.50 H	106	18.50	23.40
6	846.50	29.4 QP	46.0	-16.6	1.50 H	46	1.40	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	191.28	32.6 QP	43.5	-10.9	2.00 V	55	19.80	12.80
2	370.15	34.6 QP	46.0	-11.4	2.00 V	103	17.00	17.60
3	430.42	37.6 QP	46.0	-8.4	2.00 V	31	18.10	19.50
4	488.75	38.4 QP	46.0	-7.6	2.00 V	142	17.30	21.10
5	585.97	35.2 QP	46.0	-10.8	2.00 V	232	11.80	23.40
6	871.78	27.0 QP	46.0	-19.0	1.50 V	259	-1.30	28.30

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.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 30, 2010	Nov. 29, 2011
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	835239/001	Feb. 22, 2011	Feb. 21, 2012
Software ADT	ADT_Cond_ V7.3.7	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

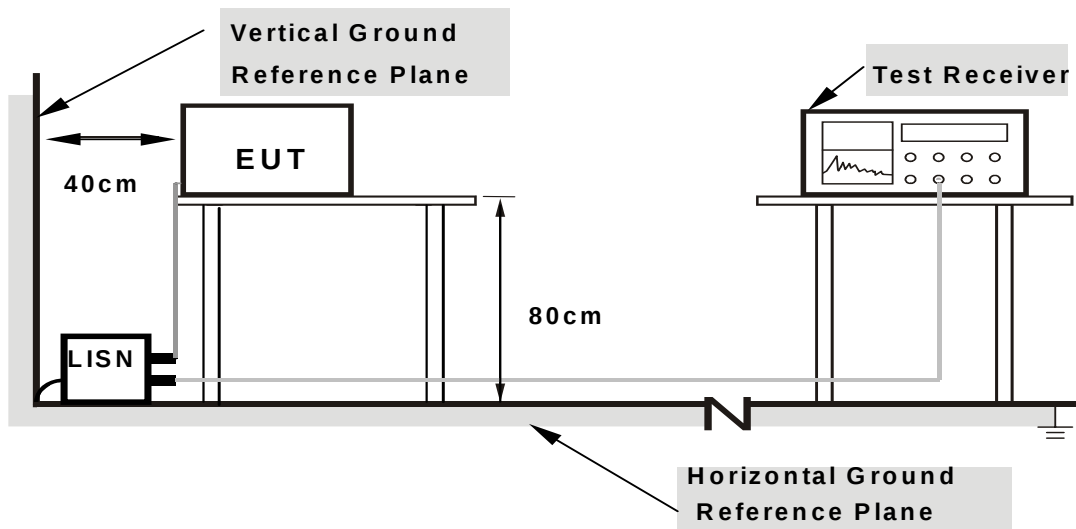
4.2.3 TEST PROCEDURES

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 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 attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

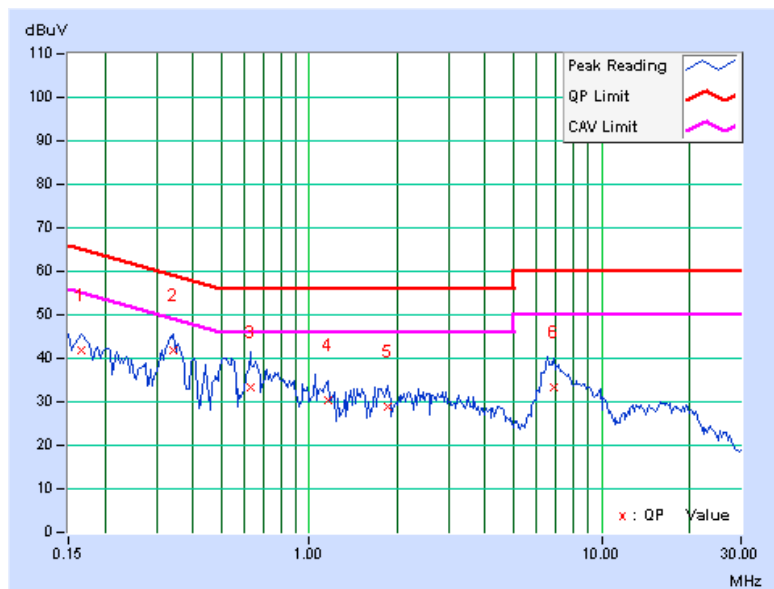
CONDUCTED WORST-CASE DATA :

FOR 5180 ~ 5320MHz: 802.11a

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.09	41.70	-	41.79	-	65.18	55.18	-23.39	-
2	0.341	0.10	41.77	-	41.87	-	59.17	49.17	-17.30	-
3	0.627	0.12	33.04	-	33.16	-	56.00	46.00	-22.84	-
4	1.164	0.16	30.26	-	30.42	-	56.00	46.00	-25.58	-
5	1.855	0.21	28.85	-	29.06	-	56.00	46.00	-26.94	-
6	6.828	0.39	32.87	-	33.26	-	60.00	50.00	-26.74	-

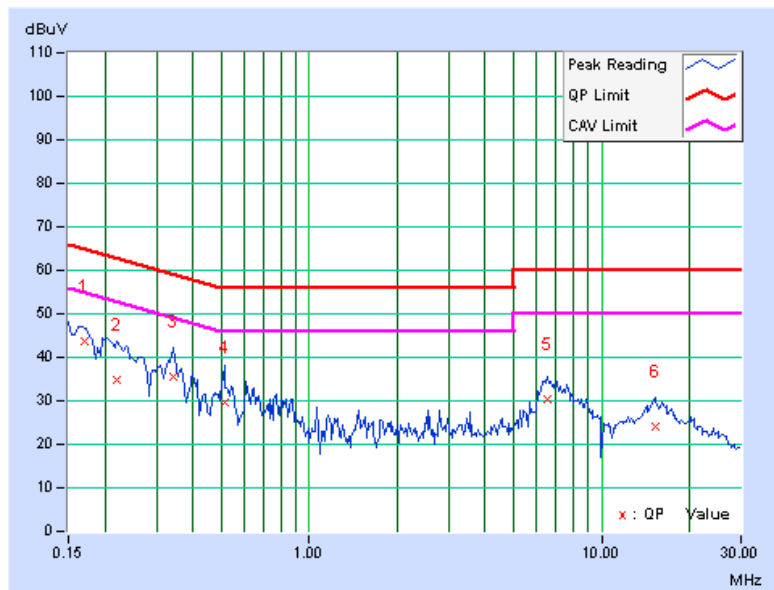
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	43.43	-	43.53	-	64.98	54.98	-21.45	-
2	0.220	0.10	34.73	-	34.83	-	62.81	52.81	-27.98	-
3	0.341	0.11	35.53	-	35.64	-	59.17	49.17	-23.52	-
4	0.513	0.13	29.35	-	29.48	-	56.00	46.00	-26.52	-
5	6.547	0.37	30.00	-	30.37	-	60.00	50.00	-29.63	-
6	15.254	0.68	23.56	-	24.24	-	60.00	50.00	-35.76	-

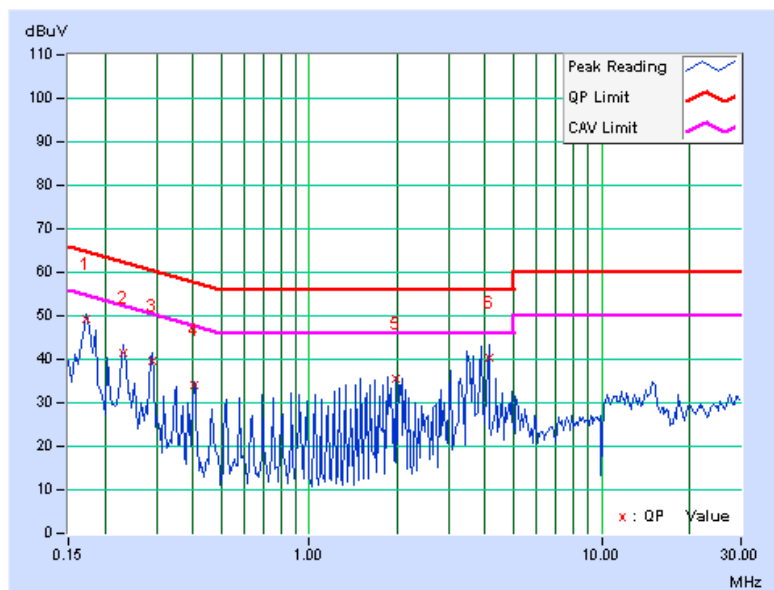
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.09	49.28	-	49.37	-	64.79	54.79	-15.42	-
2	0.232	0.09	41.49	-	41.58	-	62.38	52.38	-20.80	-
3	0.291	0.09	39.41	-	39.50	-	60.51	50.51	-21.00	-
4	0.404	0.10	33.83	-	33.93	-	57.77	47.77	-23.84	-
5	1.969	0.22	35.20	-	35.42	-	56.00	46.00	-20.58	-
6	4.109	0.30	40.13	-	40.43	-	56.00	46.00	-15.57	-

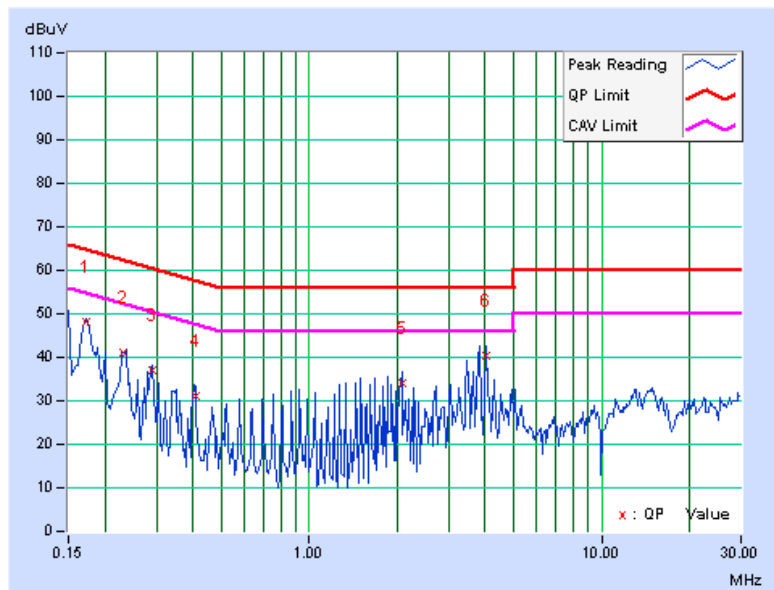
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	47.92	-	48.02	-	64.79	54.79	-16.77	-
2	0.232	0.10	41.14	-	41.24	-	62.38	52.38	-21.13	-
3	0.291	0.11	36.94	-	37.05	-	60.51	50.51	-23.46	-
4	0.408	0.12	30.93	-	31.05	-	57.69	47.69	-26.64	-
5	2.086	0.23	33.82	-	34.05	-	56.00	46.00	-21.95	-
6	4.052	0.31	39.89	-	40.20	-	56.00	46.00	-15.80	-

- 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.

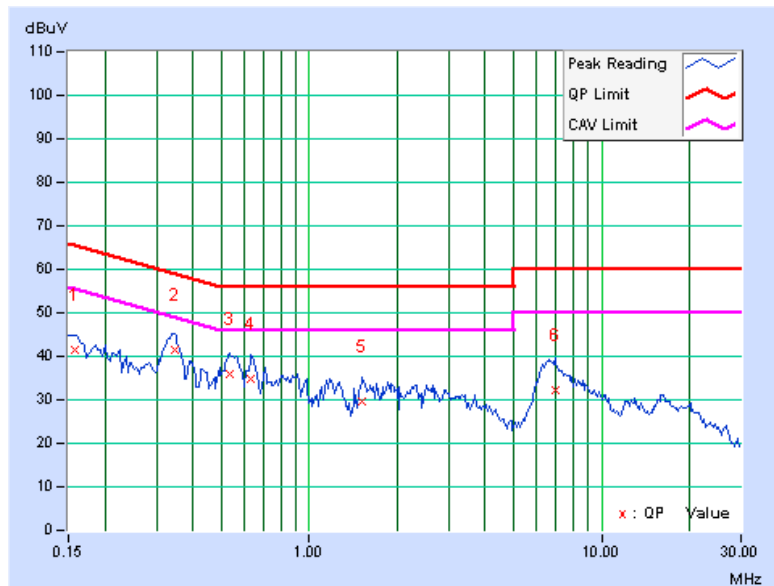


FOR 5500 ~ 5700MHz: 802.11a

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.09	41.38	-	41.47	-	65.58	55.58	-24.11	-
2	0.345	0.10	41.36	-	41.46	-	59.07	49.07	-17.62	-
3	0.533	0.11	35.85	-	35.96	-	56.00	46.00	-20.04	-
4	0.634	0.12	34.81	-	34.93	-	56.00	46.00	-21.07	-
5	1.523	0.19	29.57	-	29.76	-	56.00	46.00	-26.24	-
6	6.918	0.40	31.86	-	32.26	-	60.00	50.00	-27.74	-

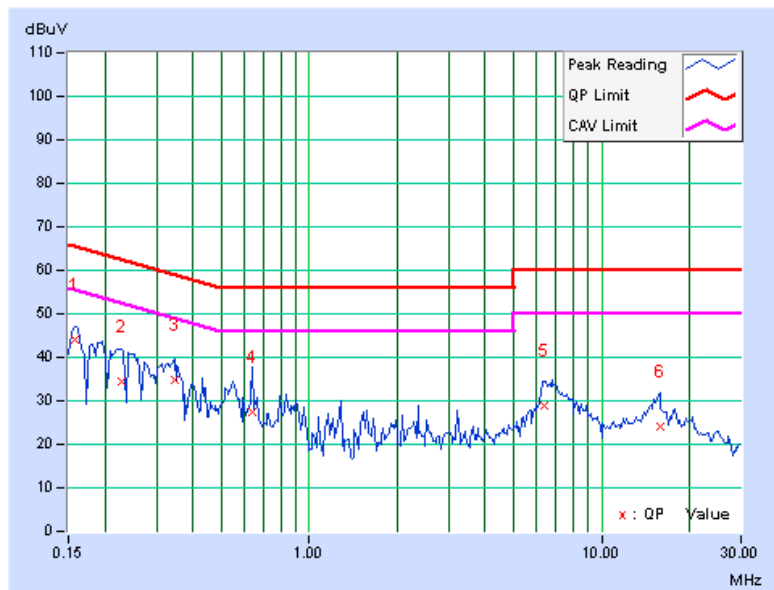
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	43.96	-	44.06	-	65.57	55.57	-21.51	-
2	0.228	0.10	34.45	-	34.55	-	62.52	52.52	-27.97	-
3	0.345	0.11	34.89	-	35.00	-	59.07	49.07	-24.07	-
4	0.638	0.14	27.37	-	27.51	-	56.00	46.00	-28.49	-
5	6.328	0.36	28.54	-	28.90	-	60.00	50.00	-31.10	-
6	15.848	0.71	23.54	-	24.25	-	60.00	50.00	-35.75	-

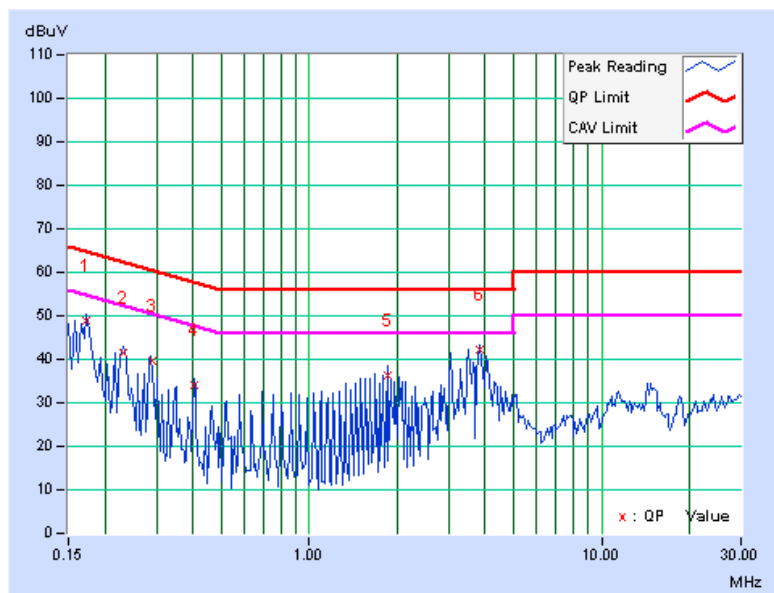
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.09	48.81	-	48.90	-	64.79	54.79	-15.89	-
2	0.232	0.09	41.24	-	41.33	-	62.38	52.38	-21.05	-
3	0.289	0.09	39.56	-	39.65	-	60.55	50.55	-20.89	-
4	0.404	0.10	34.07	-	34.17	-	57.77	47.77	-23.60	-
5	1.848	0.21	36.02	-	36.23	-	56.00	46.00	-19.77	-
6	3.813	0.29	42.03	-	42.32	-	56.00	46.00	-13.68	-

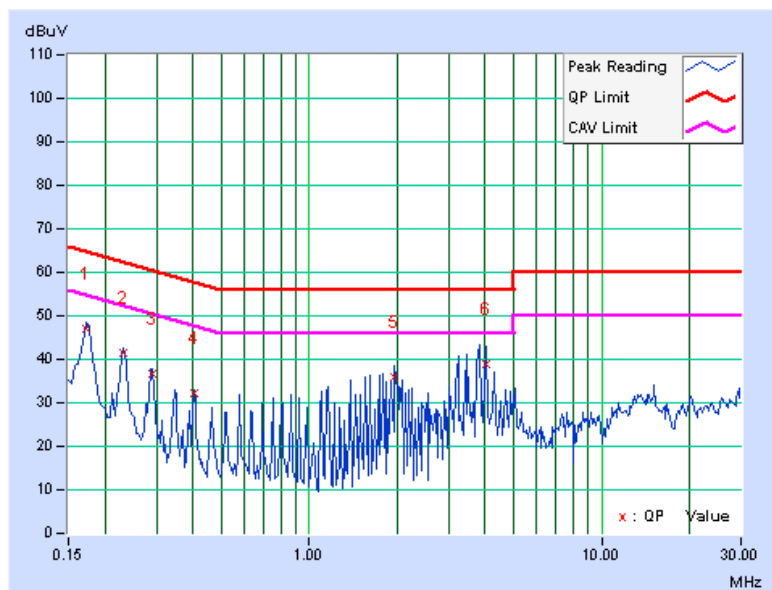
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	47.12	-	47.22	-	64.79	54.79	-17.57	-
2	0.232	0.10	41.28	-	41.38	-	62.38	52.38	-20.99	-
3	0.289	0.11	36.74	-	36.85	-	60.55	50.55	-23.70	-
4	0.404	0.12	31.96	-	32.08	-	57.77	47.77	-25.69	-
5	1.965	0.23	35.77	-	36.00	-	56.00	46.00	-20.00	-
6	4.042	0.31	38.53	-	38.84	-	56.00	46.00	-17.16	-

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



4.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

4.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

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

4.3.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0842014	Apr. 26, 2011	Apr. 25, 2012
Power Sensor	MA2411B	0738404	Apr. 26, 2011	Apr. 25, 2012

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. Measurement Bandwidth of ML2495A is 65MHz greater than 26dB bandwidth of emission.

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012

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

4.3.3 TEST PROCEDURE

FOR POWER OUTPUT MEASUREMENT

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

FOR 26dB OCCUPIED BANDWIDTH

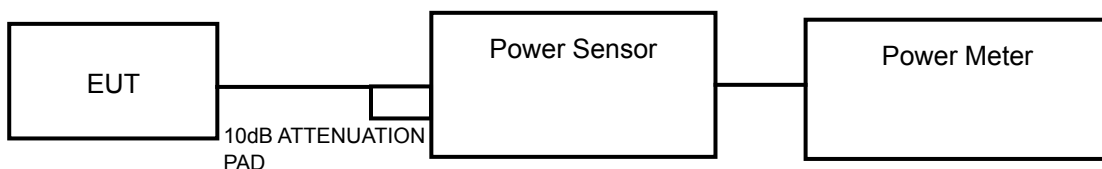
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

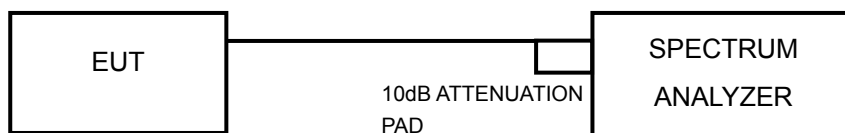
No deviation.

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

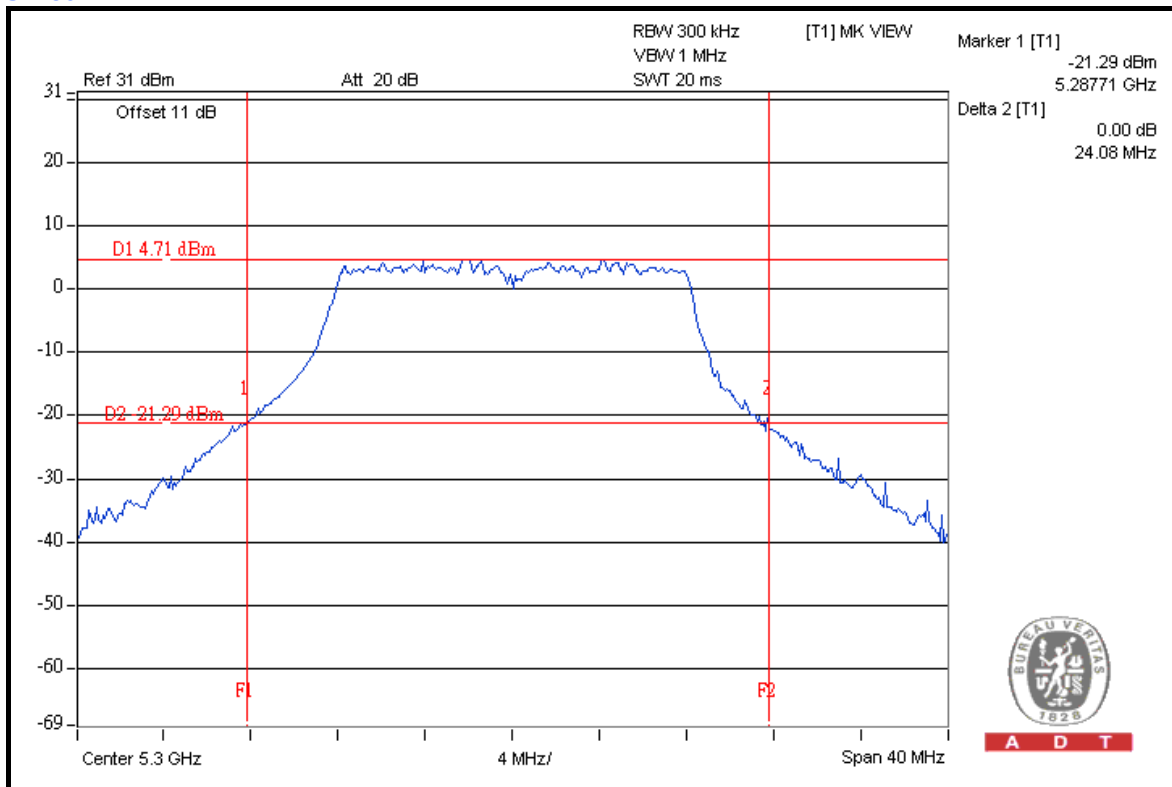
POWER OUTPUT: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
36	5180	15.8	12.0	17	PASS
40	5200	10.5	10.2	17	PASS
48	5240	14.1	11.5	17	PASS
52	5260	13.8	11.4	24	PASS
60	5300	14.8	11.7	24	PASS
64	5320	14.5	11.6	24	PASS
100	5500	14.8	11.7	24	PASS
116	5580	17.8	12.5	24	PASS
132	5660	16.2	12.1	24	PASS
140	5700	17.0	12.3	24	PASS

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	23.79	PASS
40	5200	23.84	PASS
48	5240	23.76	PASS
52	5260	23.29	PASS
60	5300	24.08	PASS
64	5320	23.89	PASS
100	5500	23.84	PASS
116	5580	23.58	PASS
132	5660	23.87	PASS
140	5700	23.89	PASS

CH 60





4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	13dB
5.250 ~ 5.350GHz	13dB
5.470 ~ 5.725GHz	13dB

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012

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

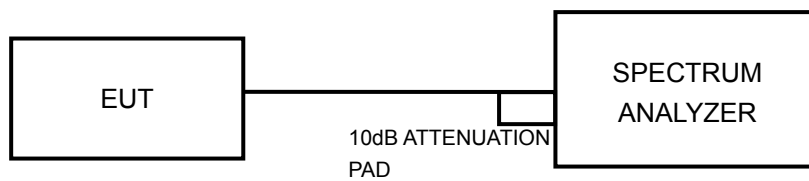
4.4.3 TEST PROCEDURE

- The transmitter output was connected to the spectrum analyzer.
- Set the spectrum bandwidth span to view the entire spectrum.
- Using peak detector and Max-hold function for Trace 1 (RB = 1MHz, VB = 3MHz) and 2 (RB = 1MHz, VB = 300kHz).
- The differences between Trace1 and Trace 2 in any 1MHz band at f1 to f2 range were recorded and showed to another trace.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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

4.4.7 TEST RESULTS

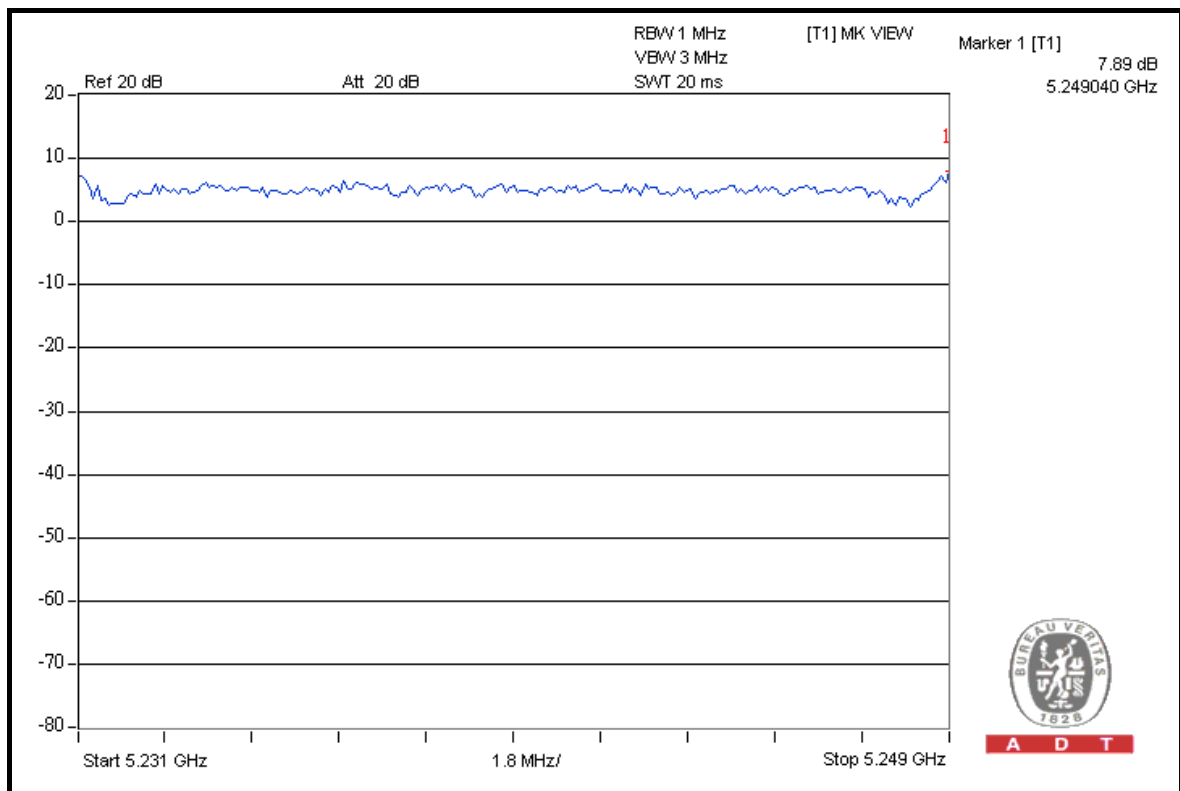
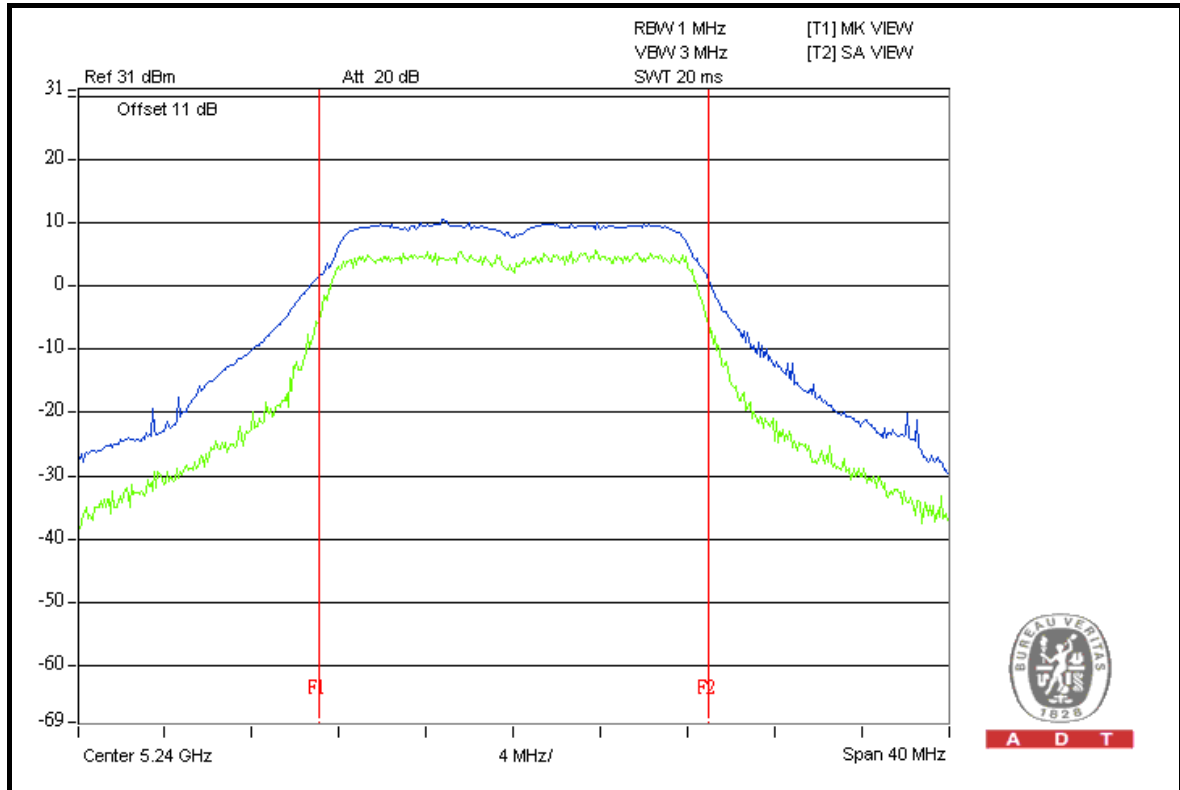
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	7.16	13	PASS
40	5200	7.13	13	PASS
48	5240	7.89	13	PASS
52	5260	6.96	13	PASS
60	5300	7.29	13	PASS
64	5320	6.76	13	PASS
100	5500	7.41	13	PASS
116	5580	7.77	13	PASS
132	5660	7.28	13	PASS
140	5700	7.59	13	PASS



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4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	4dBm
5.250 ~ 5.350GHz	11dBm
5.470 ~ 5.725GHz	11dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012

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

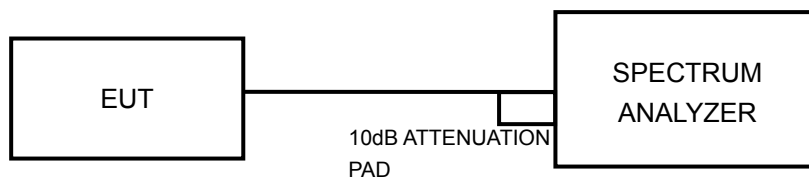
4.5.3 TEST PROCEDURES

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

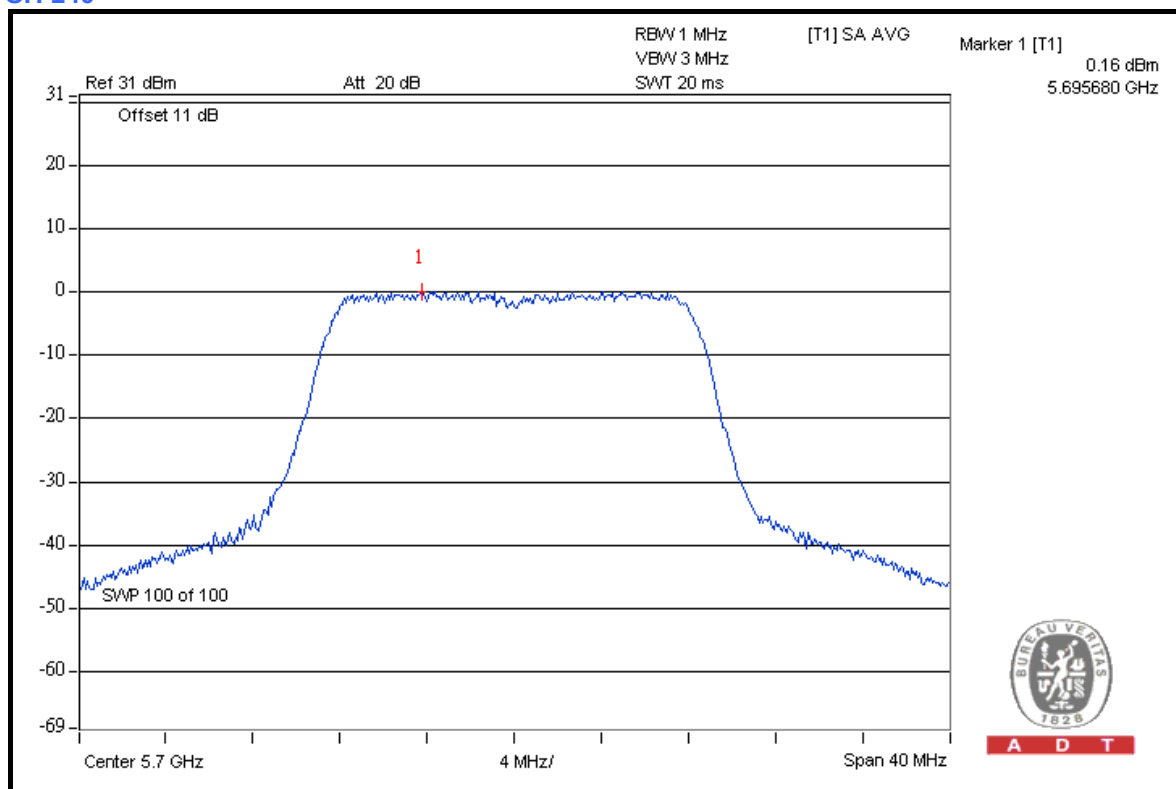
Same as 5.3.6.

4.5.7 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	-0.3	4	PASS
40	5200	-1.6	4	PASS
48	5240	-0.6	4	PASS
52	5260	-0.7	11	PASS
60	5300	-0.5	11	PASS
64	5320	-0.6	11	PASS
100	5500	-0.7	11	PASS
116	5580	-0.5	11	PASS
132	5660	0.0	11	PASS
140	5700	0.2	11	PASS

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4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 15, 2011	Jun. 14, 2012

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

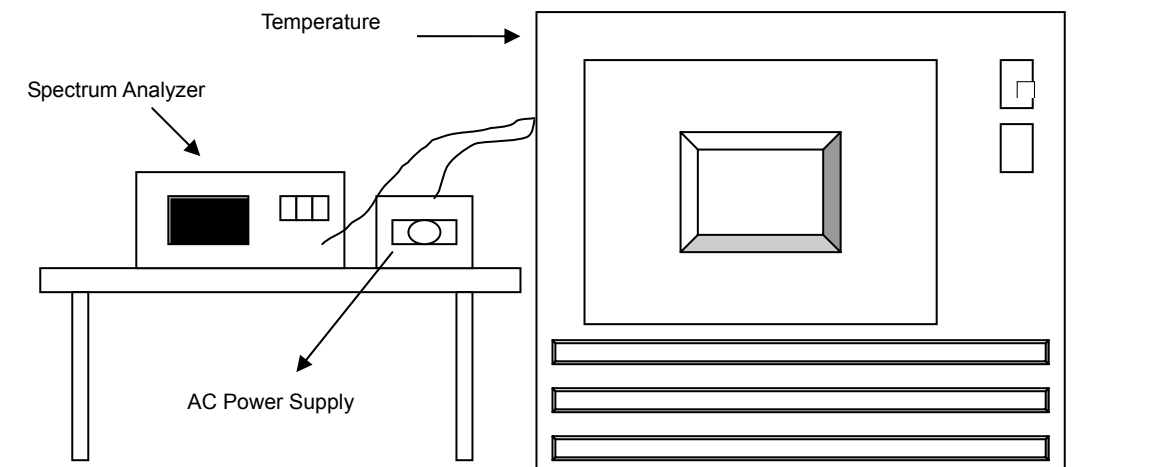
4.6.3 TEST PROCEDURE

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6.



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4.6.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
75	3.7	5320.031600	5.940	5320.031858	5.988	5320.031593	5.939	5320.031600	5.940
70	3.7	5319.999600	-0.075	5319.999582	-0.079	5319.999860	-0.026	5319.999600	-0.075
60	3.7	5319.999680	-0.060	5319.999942	-0.011	5319.999799	-0.038	5319.999680	-0.060
50	3.7	5319.999920	-0.015	5319.999716	-0.053	5319.999926	-0.014	5319.999920	-0.015
40	3.7	5320.000000	0.000	5320.000333	0.063	5320.000092	0.017	5320.000000	0.000
30	3.7	5320.002400	0.451	5320.002773	0.521	5320.002519	0.473	5320.002400	0.451
20	3.7	5320.004400	0.827	5320.004668	0.878	5320.004271	0.803	5320.004400	0.827
10	3.7	5319.998000	-0.376	5319.998009	-0.374	5319.998171	-0.344	5319.998000	-0.376
0	3.7	5319.997600	-0.451	5319.997681	-0.436	5319.997966	-0.382	5319.997600	-0.451
-10	3.7	5320.041200	7.744	5320.041464	7.794	5320.041640	7.827	5320.041200	7.744
-20	3.7	5320.040000	7.519	5320.040134	7.544	5320.040356	7.586	5320.040000	7.519
-30	3.7	5320.036800	6.917	5320.036669	6.893	5320.036880	6.932	5320.036800	6.917

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	3.6	5319.981400	-3.496	5319.981400	-3.496	5319.981683	-3.443	5319.981686	-3.442
	3.7	5319.998000	-0.376	5319.998000	-0.376	5319.998175	-0.343	5319.997761	-0.421
	4.5	5320.011800	2.218	5320.011800	2.218	5320.011995	2.255	5320.011933	2.243

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012

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

4.7.2 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 1MHz and 3MHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

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

4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.32GHz, 5.50 to 5.70GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW = 1MHz, VBW = 3MHz) are attached on the following pages.

FOR 5180-5320MHz BAND:

802.11a

RESTRICT BAND (4500 ~ 5150 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5180.00 (PK)	103.5	47.72	55.78	74.00
5180.00 (AV)	93.5	52.70	40.80	54.00

RESTRICT BAND (5350 ~ 5460 MHz)

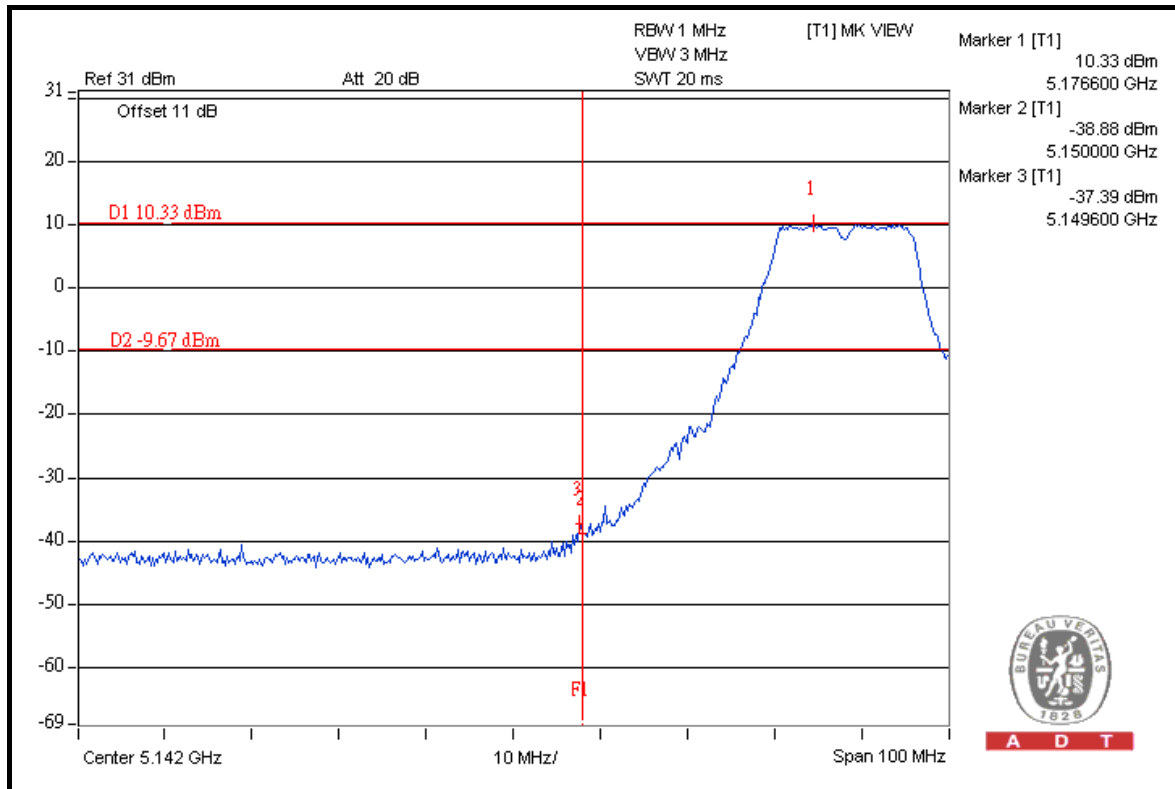
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	102.6	49.36	53.24	74.00
5320.00 (AV)	92.3	52.44	39.86	54.00

NOTE:

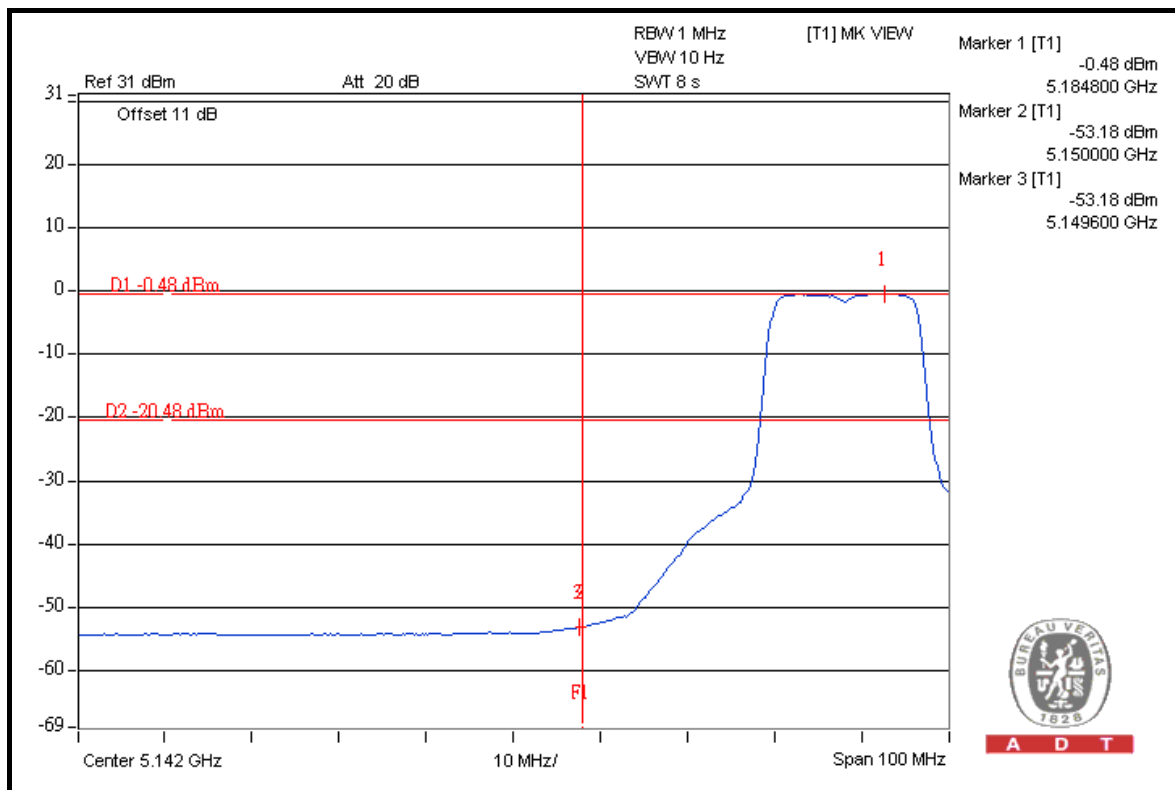
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



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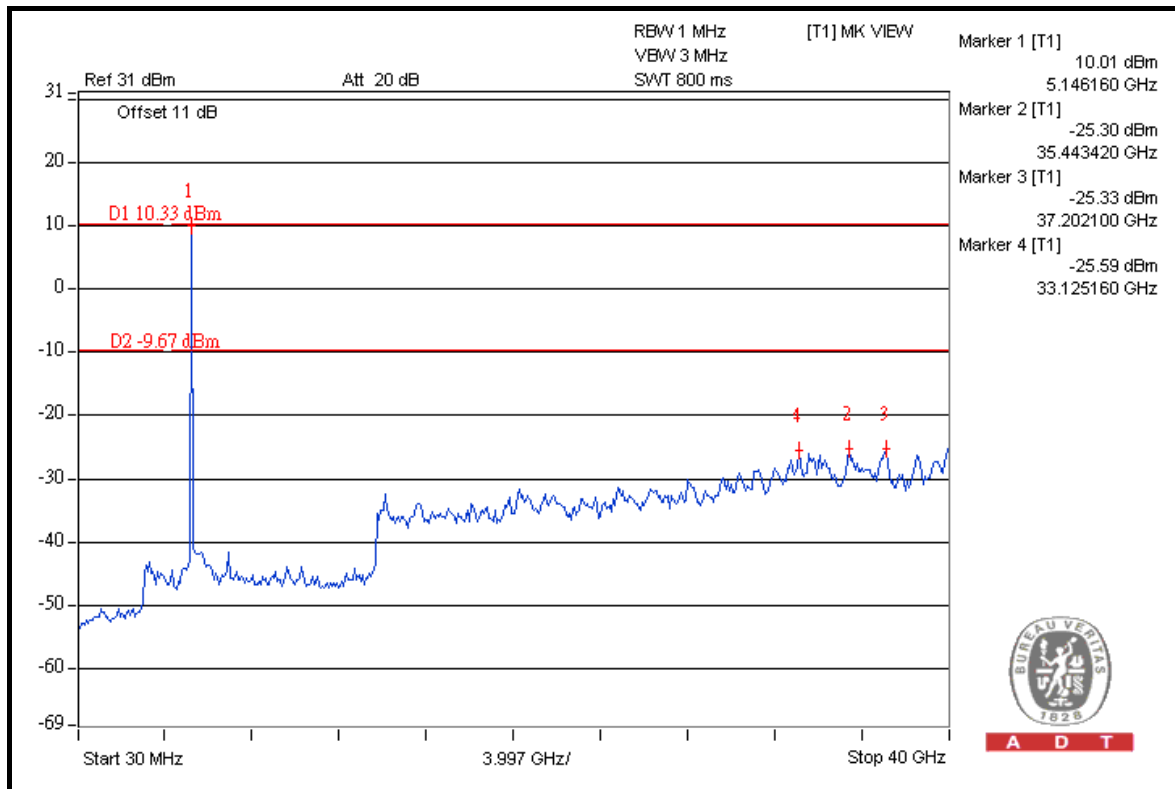
A D T



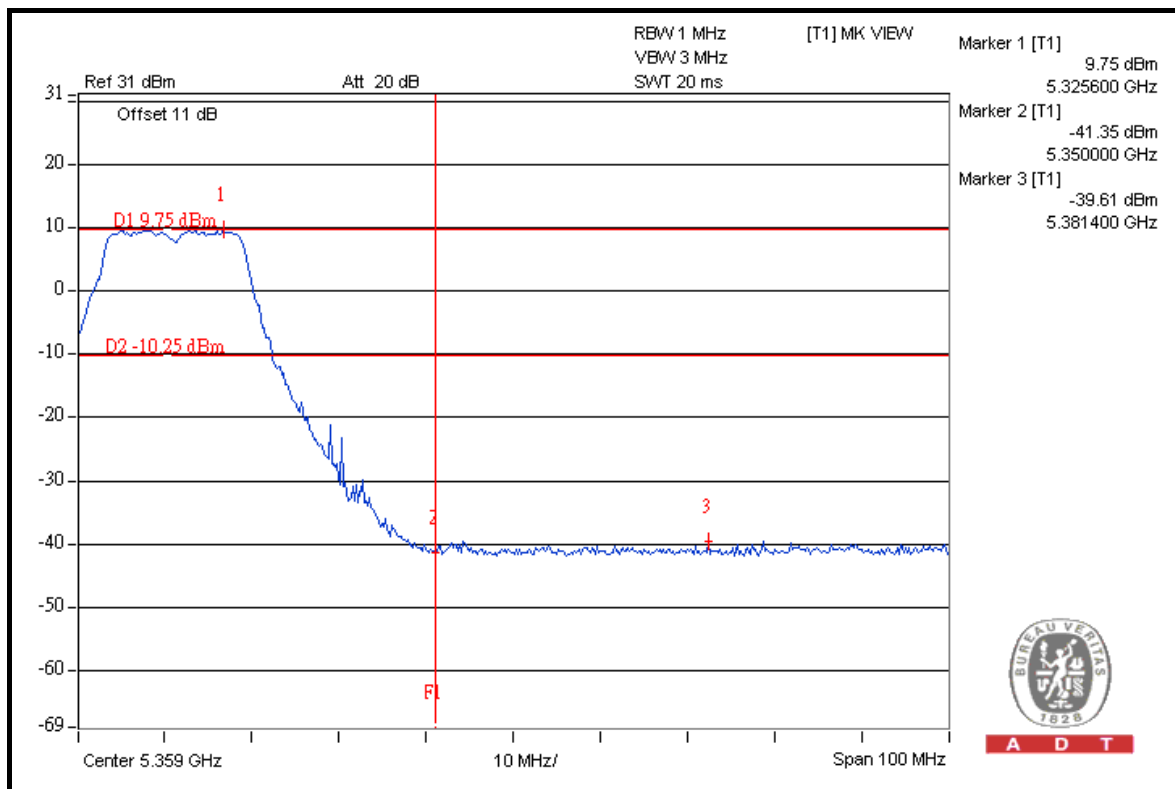
A D T



A D T



A D T



A D T



FOR 5500-5700MHz BAND:
802.11a
5500MHz
RESTRICT BAND (5350 ~ 5460 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	103.4	50.63	52.77	74.00
5500.00 (AV)	93.8	53.02	40.78	54.00

FREQUENCY BAND (5460 ~ 5470 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	103.4	47.91	55.49	68.30

5700MHz
ABOVE 5725 MHz

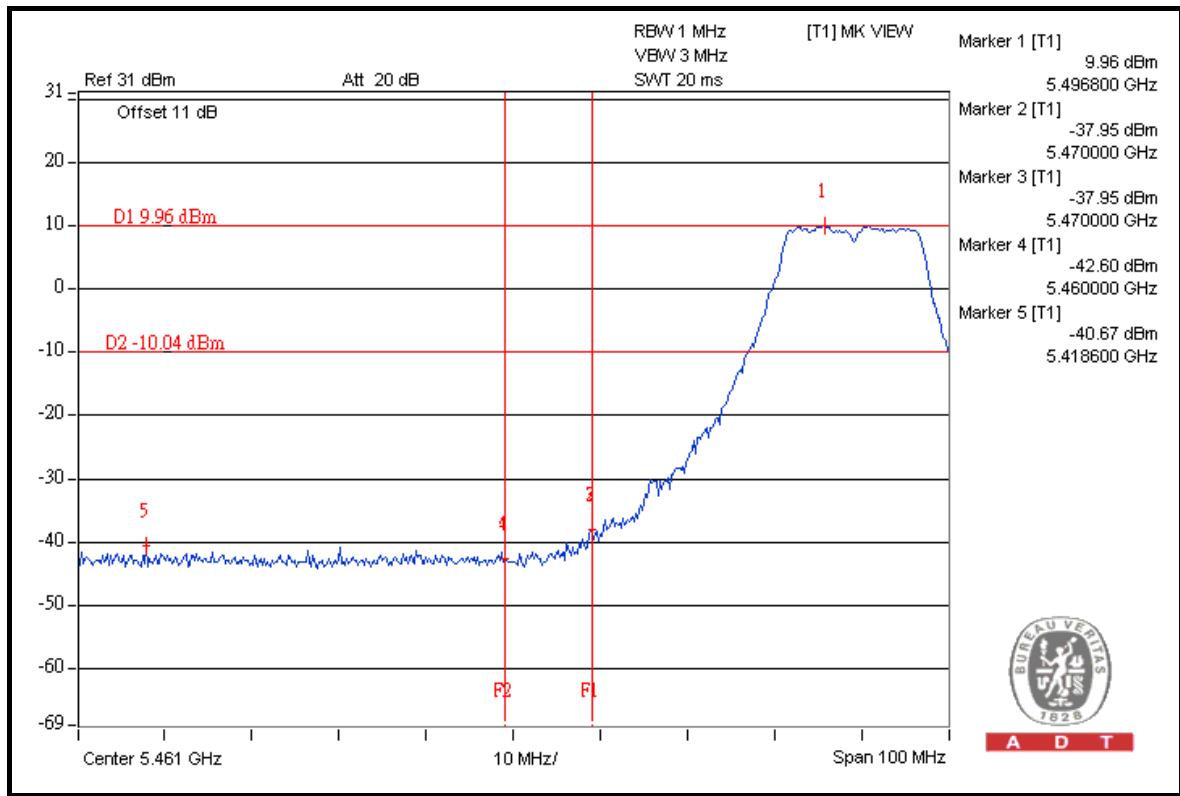
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	103.6	43.39	60.21	68.30

NOTE:

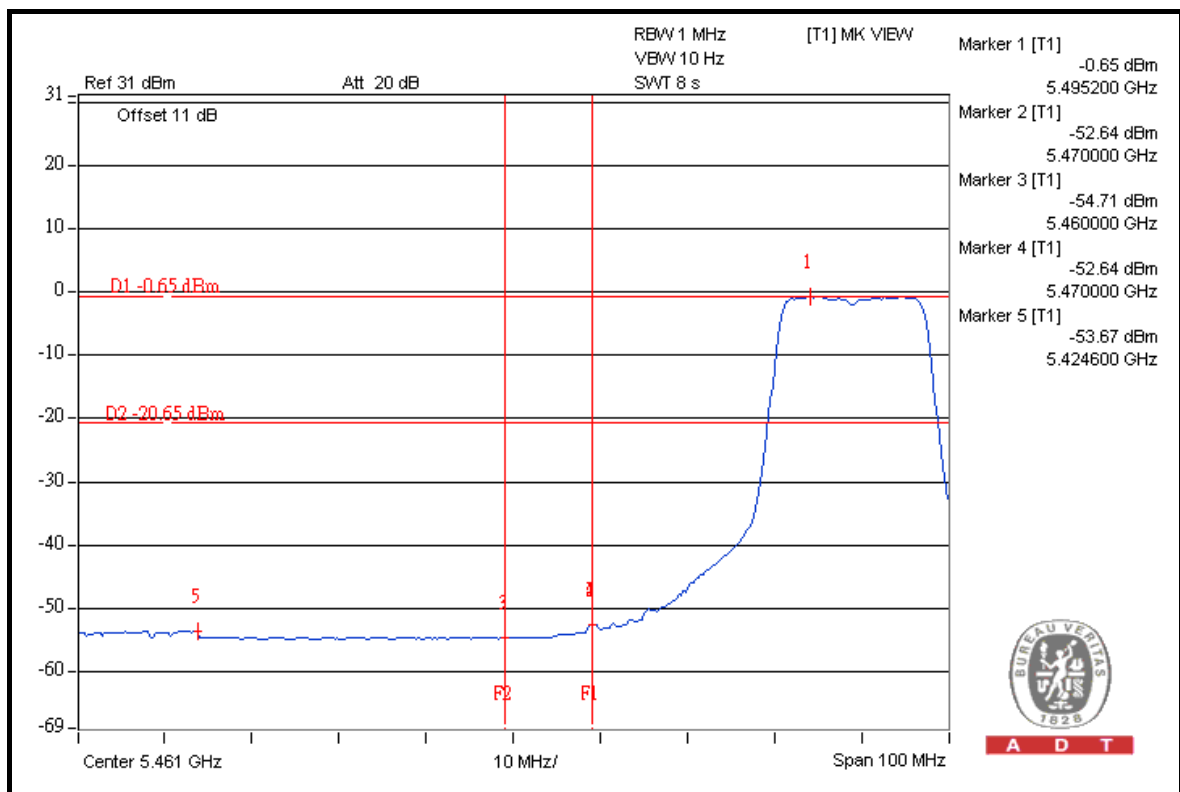
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



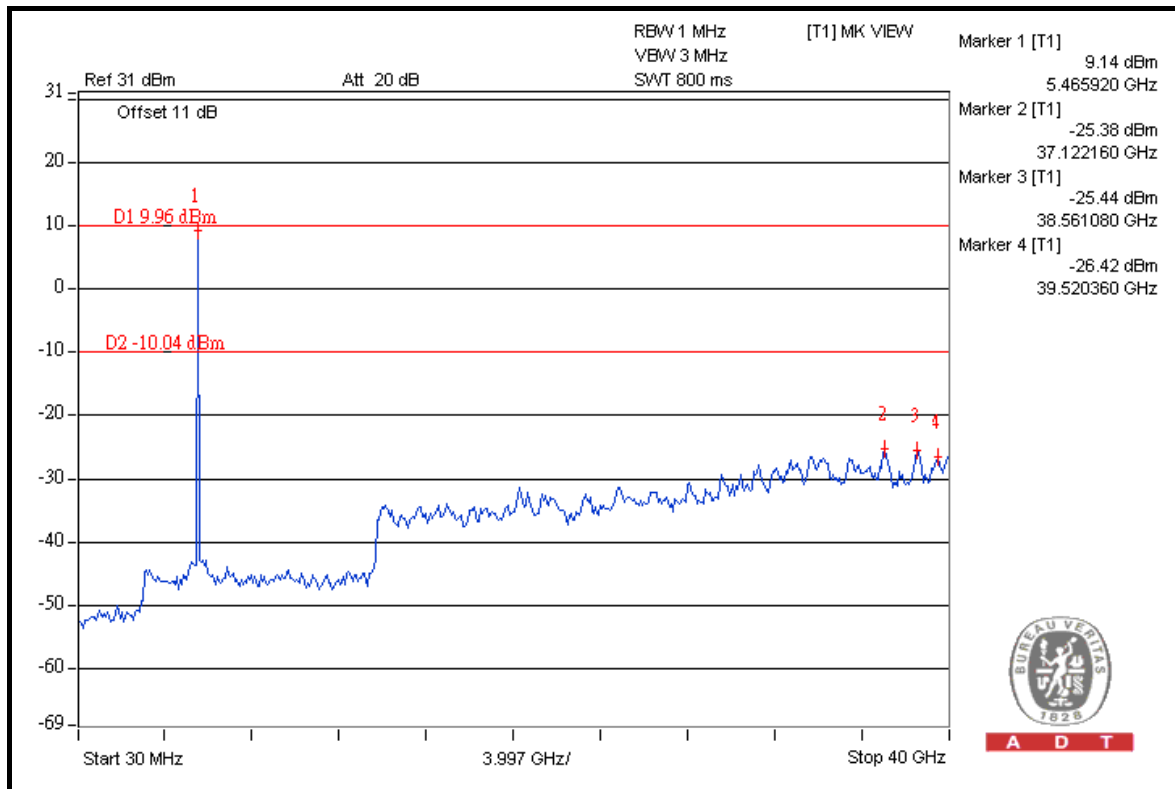
A D T



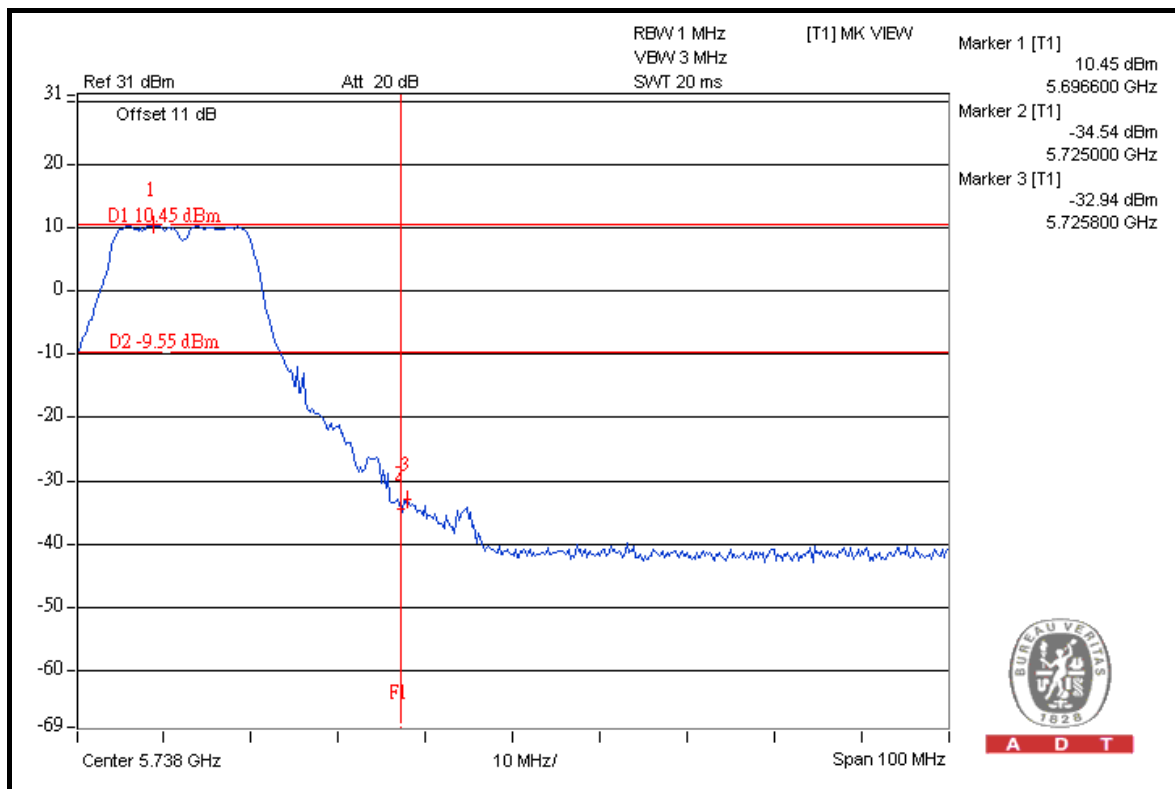
A D T



A D T



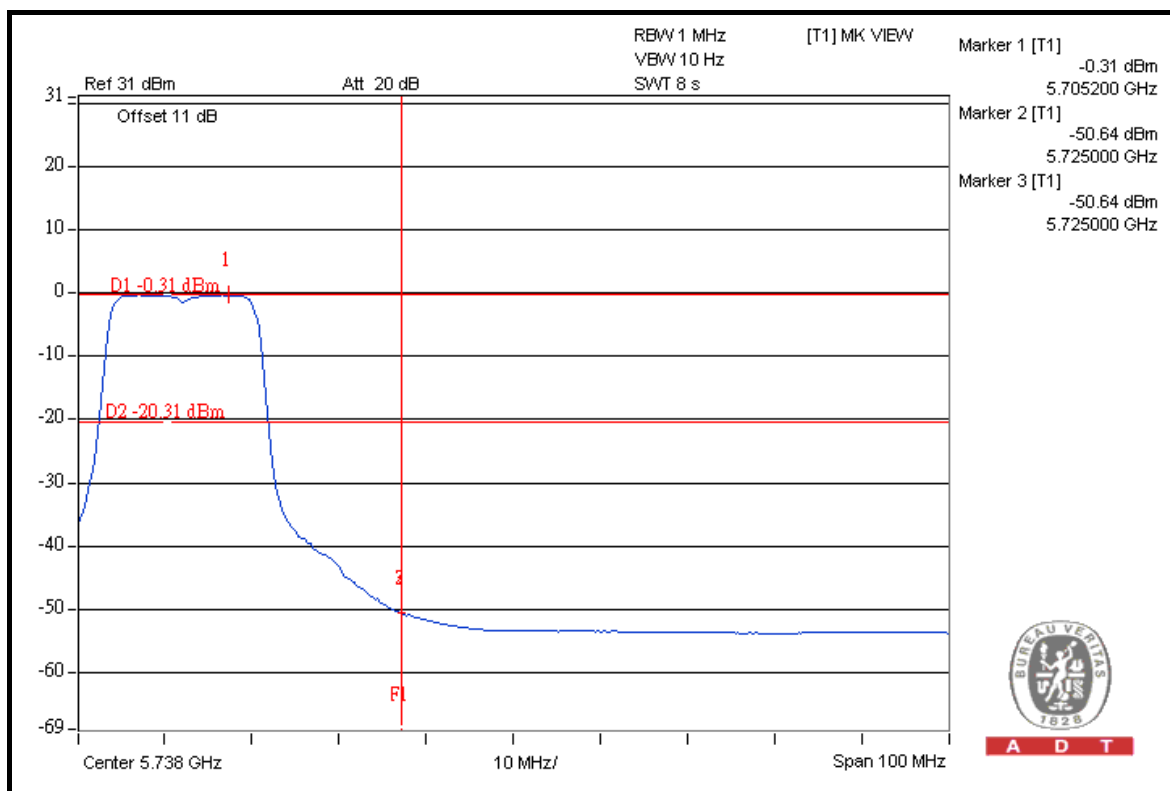
A D T



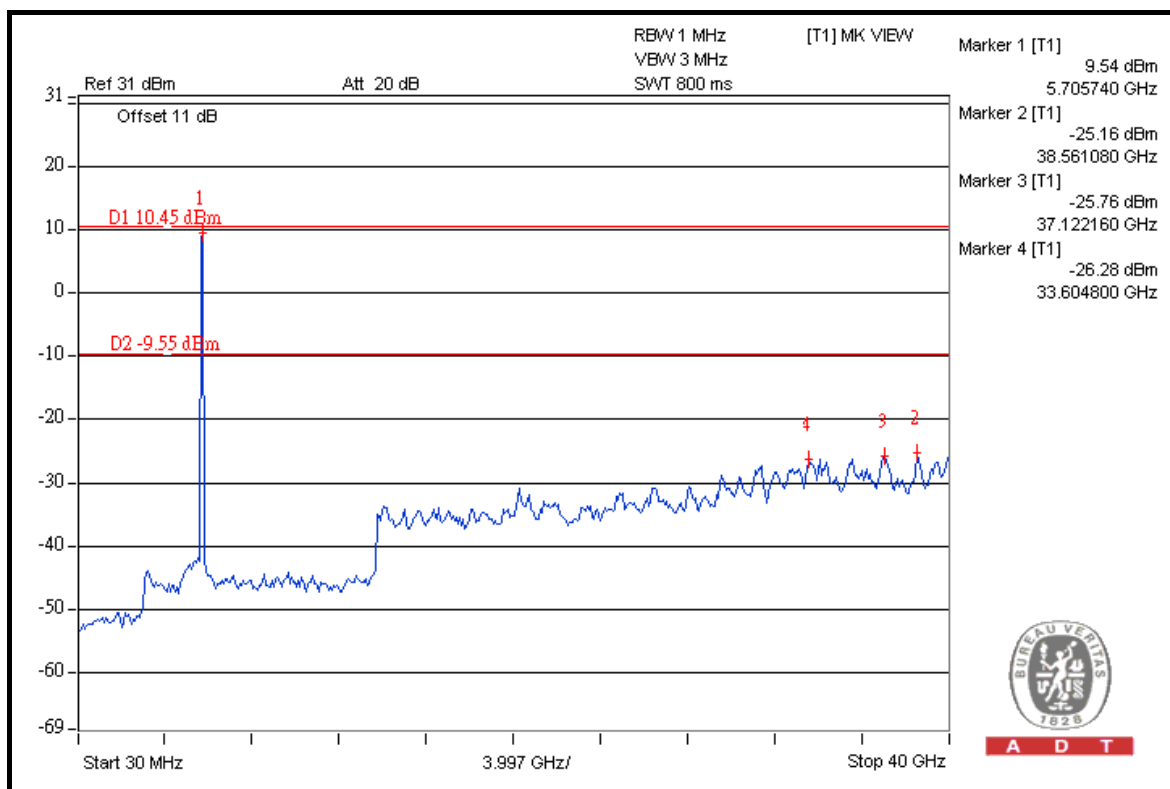
A D T



A D T



A D T



A D T



A D T

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 according to ISO/IEC 17025.

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

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Email: service.adt@tw.bureauveritas.com

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.

---END---