



A D T

FCC TEST REPORT (15.407)

REPORT NO.: RF990211L16-1

MODEL NO.: MC959B

RECEIVED: Mar. 13, 2009

TESTED: Mar. 23 ~ Mar. 30, 2009 (For all tests except
emission tests and band edges measurement)

Mar. 05 ~ Mar. 10, 2010 (For emission tests
and band edges measurement)

ISSUED: Apr. 06, 2010

APPLICANT: Motorola, Inc.

ADDRESS: One Motorola Plaza, Holtsville, NY 11742-1300
USA

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

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou
Hsiang, Taipei Hsien 244, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan,
R.O.C.

This test report consists of 60 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.





TABLE OF CONTENTS

1.	CERTIFICATION	4
2.	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	5
3.	GENERAL INFORMATION.....	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES.....	8
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST	8
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	9
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	11
3.4	DESCRIPTION OF SUPPORT UNITS	11
4.	TEST TYPES AND RESULTS	12
4.1	RADIATED EMISSION MEASUREMENT	12
4.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	12
4.1.2	LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS.....	12
4.1.3	TEST INSTRUMENTS	13
4.1.4	TEST PROCEDURES	14
4.1.5	DEVIATION FROM TEST STANDARD	14
4.1.6	TEST SETUP	15
4.1.7	EUT OPERATING CONDITION	15
4.1.8	TEST RESULTS	16
4.2	CONDUCTED EMISSION MEASUREMENT	28
4.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	28
4.2.2	TEST INSTRUMENTS	28
4.2.3	TEST PROCEDURES	29
4.2.4	DEVIATION FROM TEST STANDARD	29
4.2.5	TEST SETUP	30
4.2.6	EUT OPERATING CONDITIONS	30
4.2.7	TEST RESULTS	31
4.3	MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT	35
4.3.1	LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT	35
4.3.2	TEST INSTRUMENTS	35
4.3.3	TEST PROCEDURES	36
4.3.4	DEVIATION FROM TEST STANDARD	36
4.3.5	TEST SETUP	36
4.3.6	EUT OPERATING CONDITIONS	36
4.3.7	TEST RESULTS	37
4.4	PEAK POWER EXCURSION MEASUREMENT	39
4.4.1	LIMITS OF PEAK POWER EXCURSION MEASUREMENT	39
4.4.2	TEST INSTRUMENTS	39
4.4.3	TEST PROCEDURE	39
4.4.4	DEVIATION FROM TEST STANDARD	40
4.4.5	TEST SETUP	40
4.4.6	EUT OPERATING CONDITIONS	40
4.4.7	TEST RESULTS	41
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT	43
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	43
4.5.2	TEST INSTRUMENTS	43
4.5.3	TEST PROCEDURES	43
4.5.4	DEVIATION FROM TEST STANDARD	44
4.5.5	TEST SETUP	44



A D T

4.5.6 EUT OPERATING CONDITIONS	44
4.5.7 TEST RESULTS	45
4.6 FREQUENCY STABILITY	46
4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	46
4.6.2 TEST INSTRUMENTS	46
4.6.3 TEST PROCEDURE	46
4.6.4 DEVIATION FROM TEST STANDARD	47
4.6.5 TEST SETUP	47
4.6.6 EUT OPERATING CONDITION	47
4.6.7 TEST RESULTS	48
4.7 BAND EDGES MEASUREMENT	49
4.7.1 TEST INSTRUMENTS	49
4.7.2 TEST PROCEDURE	49
4.7.3 EUT OPERATING CONDITION	49
4.7.4 TEST RESULTS	49
5. PHOTOGRAPHS OF THE TEST CONFIGURATION.....	58
6. INFORMATION ON THE TESTING LABORATORIES	59
7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	60



A D T

1. CERTIFICATION

PRODUCT: Mobile Computer

MODEL NO.: MC959B

BRAND: Motorola

APPLICANT: Motorola, Inc.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Mar. 23 ~ Mar. 30, 2009 (For all tests except emission tests and band edges measurement)

Mar. 05 ~ Mar. 10, 2010 (For emission tests and band edges measurement)

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

ANSI C63.4-2003

The above equipment (Model: MC959B) 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 : Pettie Chen , **DATE:** Apr. 06, 2010
Pettie Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Apr. 06, 2010
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Apr. 06, 2010
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 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 -13.98dB at 3.758MHz
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 -1.1dB at 5250.00MHz
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

EUT	Mobile Computer
MODEL NO.	MC959B
FCC ID	UZ7MC959B
POWER SUPPLY	3.7Vdc from rechargeable lithium battery 12Vdc from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, 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 for 802.11a 5500 ~ 5700MHz: 11 for 802.11a
OUTPUT POWER	11.376mW for 5180 ~ 5320MHz 30.832mW for 5500 ~ 5700MHz
ANTENNA TYPE	Main antenna: PIFA antenna with 3.52dBi gain Aux. antenna: PIFA antenna with 4.0dBi gain
DATA CABLE	Refer to NOTE as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery

NOTE:

- This report is issued as a supplementary report to the original BVADT report no.: RF980313L04-1. The differences are changing the model, keypads and mobile phone function. Therefore, we quoted test results except emission tests and band edges measurement from original report and re-tested emission tests and band edges measurement.
- The models identified as below are identical to each other except of the following options:
 - Barcode reader: 1D laser scanner / 2D Imager (2D was the worst case for final test).

BRAND	MODEL	DESCRIPTION
Motorola	MC959B	Calculator Numeric
Motorola	MC959B	Telephony Numeric
Motorola	MC959B	Alpha Primary
Motorola	MC959B	Alpha Numeric Wide
**the worst case had been marked by boldface.		

3. The EUT had two lithium batteries listed as below:

Li-ion battery 1 (WITH LED)		Li-ion battery 2 (WITHOUT LED)	
BRAND:	MOTOROLA	BRAND:	MOTOROLA
MODEL:	82-111636-01	MODEL:	82-111636-01
RATING:	3.7Vdc, 4800mAh, 17.7Wh	RATING:	3.7Vdc, 4800mAh, 17.7Wh

**Battery 1 was chosen as the representative for testing.

4. The EUT is a Mobile Computer. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g	FCC Part 15, Subpart C (Section 15.247)	RF990211L16
WLAN 802.11a (5745~5825 MHz)		
WLAN 802.11a (5180~5320MHz, 5500~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF990211L16-1
WLAN 802.11a (For DFS report) (5260~5320MHz, 5500~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF990211L06-5
BLUETOOTH	FCC Part 15, Subpart C (Section 15.247)	RF990211L16-2
GSM 850/CDMA 850/WCDMA 850	FCC Part 22	RF990211L16-3
PCS 1900/CDMA 1900/WCDMA 1900	FCC Part 24	RF990211L16-4

5. The following accessories are for support units only.

PRODUCT	BRAND	MODEL	P/N	DESCRIPTION
USB charging Y cable	Motorola	-	25-116365-01R	1.8m shielded cable with one core
Headset	Motorola	-	50-11300-050R	0.8m non-shielded cable with one core
Adapter	HIPRO	HP-O2040D43	-	Input: 100-240Vac, 50-60Hz, 1.5A Output: 12Vdc, 3.33A, MAX 40W Power line: AC 1.7m non-shielded cable without core DC1.8m non-shielded cable with one core

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

7. The EUT operates in the 2.4GHz/5GHz frequency spectrum with throughput of up to 54Mbps.

8. 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

Operated in 5180 ~ 5320MHz

8 channels are provided for 802.11a

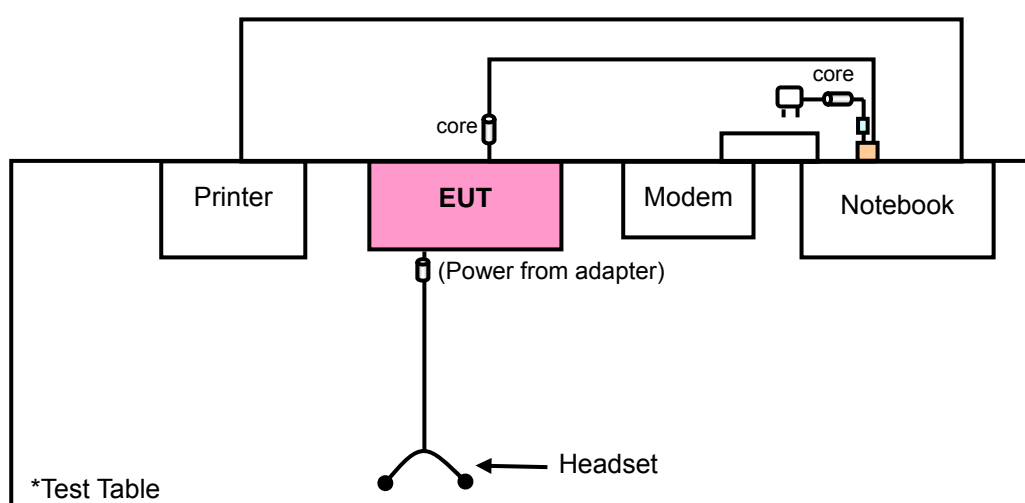
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

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		

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 \geq 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE \geq 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11a	5180-5320	36 to 64	36, 40, 48, 52, 56, 60, 64	OFDM	BPSK	6.0	Z
802.11a	5500-5700	100 to 140	100, 120, 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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11a	5180-5320	36 to 64	60	OFDM	BPSK	6.0	Z
802.11a	5500-5700	100 to 140	120	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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5320	36 to 64	60	OFDM	BPSK	6.0
802.11a	5500-5700	100 to 140	120	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 and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

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

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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0
802.11a	5500-5700	100 to 140	100, 120, 140	OFDM	BPSK	6.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE \geq 1G	23deg. C, 74%RH, 1006 hPa	120Vac, 60Hz	Tim Mie
RE $<$ 1G	26deg. C, 73%RH, 1006 hPa	120Vac, 60Hz	Tim Mie
PLC	24deg. C, 64%RH, 982 hPa	120Vac, 60Hz	Match Tsui
APCM	26deg. C, 74%RH, 1014 hPa	120Vac, 60Hz	Tim Mie

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

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	D531	CN-0XM006-4864 3-81U-2610	QDS-BRCM1020
2	PRINTER	EPSON	B241A	FAPY139300	FCC DoC Approved
3	MODEM	ACEEX	1414V/3	0401008270	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.8m shielded USB cable with one core
2	1.8 m shielded cable, terminated with USB connector, w/o core.
3	1.2m braid shielded wire, DB25 & DB9 connector, w/o core.

NOTE 1: All power cords of the above support units are non shielded (1.8m).

NOTE 2: The 1.8m USB cable was supplied from client and only for test.

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
	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:

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

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 25, 2009	May 24, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 07, 2009	Jul. 06, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2009	Apr. 29, 2010
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Aug. 10, 2009	Aug. 09, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01910	Sep. 11, 2009	Sep. 10, 2010
Preamplifier Agilent	8447D	2944A10638	Dec. 21, 2009	Dec. 20, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 13, 2009	May 12, 2010
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 17, 2009	Aug. 16, 2010
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. 27, 2009	Aug. 26, 2010

- 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 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.

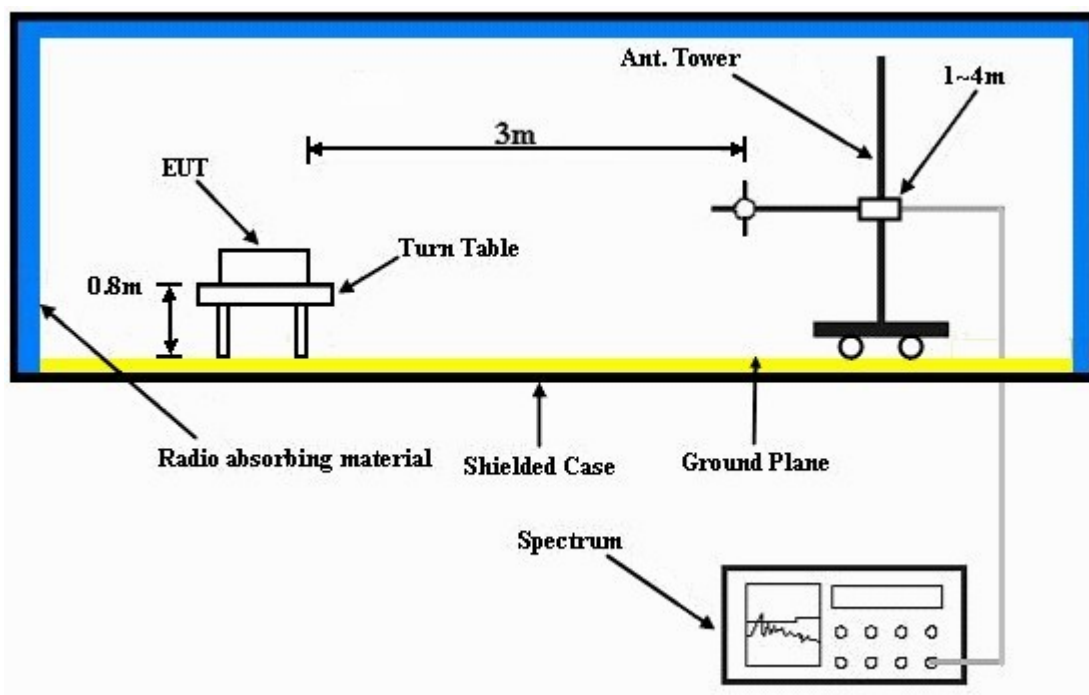
NOTE:

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

- Connected the EUT to a notebook via a USB cable and placed on a testing table.
- The EUT runs a test program (provided by manufacture) to transmit at specific channel.
- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	60.0 PK	74.0	-14.0	1.06 H	317	21.00	39.00
2	5150.00	41.1 AV	54.0	-12.9	1.06 H	317	2.10	39.00
3	*5180.00	104.8 PK			1.25 H	315	65.80	39.00
4	*5180.00	93.5 AV			1.25 H	315	54.50	39.00
5	#10360.00	56.9 PK	68.3	-11.4	1.06 H	73	8.20	48.70
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	63.3 PK	74.0	-10.7	1.04 V	355	24.30	39.00
2	5150.00	44.5 AV	54.0	-9.5	1.04 V	355	5.50	39.00
3	*5180.00	108.9 PK			1.02 V	339	69.90	39.00
4	*5180.00	97.5 AV			1.02 V	339	58.50	39.00
5	#10360.00	56.6 PK	68.3	-11.7	1.12 V	315	7.90	48.70

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	105.0 PK			1.21 H	300	66.00	39.00
2	*5200.00	93.6 AV			1.21 H	300	54.60	39.00
3	#10400.00	56.4 PK	68.3	-11.9	1.03 H	86	7.70	48.70
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	*5200.00	108.6 PK			1.03 V	344	69.60	39.00
2	*5200.00	97.1 AV			1.03 V	344	58.10	39.00
3	#10400.00	57.1 PK	68.3	-11.2	1.10 V	355	8.40	48.70

- 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 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	105.2 PK			1.20 H	300	66.10	39.10
2	*5240.00	93.9 AV			1.20 H	300	54.80	39.10
3	#10480.00	56.2 PK	68.3	-12.1	1.10 H	10	7.30	48.90
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	*5240.00	109.1 PK			1.01 V	350	70.00	39.10
2	*5240.00	97.6 AV			1.01 V	350	58.50	39.10
3	#10480.00	56.9 PK	68.3	-11.4	1.09 V	351	8.00	48.90

- 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.
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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	105.3 PK			1.20 H	293	66.20	39.10
2	*5260.00	93.9 AV			1.20 H	293	54.80	39.10
3	#10520.00	57.3 PK	68.3	-11.0	1.10 H	100	8.30	49.00
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	*5260.00	109.1 PK			1.05 V	320	70.00	39.10
2	*5260.00	97.6 AV			1.05 V	320	58.50	39.10
3	#10520.00	57.3 PK	68.3	-11.0	1.06 V	310	8.30	49.00

- 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 56	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	#5250.00	62.4 PK	68.3	-5.6	1.19 H	340	23.30	39.10
2	*5280.00	105.1 PK			1.19 H	340	65.90	39.20
3	*5280.00	93.6 AV			1.19 H	340	54.40	39.20
4	#10560.00	57.6 PK	68.3	-10.7	1.10 H	10	8.50	49.10
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	#5250.00	67.2 PK	68.3	-1.1	1.01 V	333	28.10	39.10
2	*5280.00	108.9 PK			1.01 V	333	69.70	39.20
3	*5280.00	97.4 AV			1.01 V	333	58.20	39.20
4	#10560.00	57.9 PK	68.3	-10.4	1.01 V	300	8.80	49.10

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	105.5 PK			1.12 H	310	66.30	39.20
2	*5300.00	93.7 AV			1.12 H	310	54.50	39.20
3	10600.00	56.9 PK	74.0	-17.1	1.03 H	10	7.70	49.20
4	10600.00	44.1 AV	54.0	-9.9	1.03 H	10	-5.10	49.20
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	109.4 PK			1.02 V	301	70.20	39.20
2	*5300.00	97.8 AV			1.02 V	301	58.60	39.20
3	10600.00	57.6 PK	74.0	-16.4	1.00 V	360	8.40	49.20
4	10600.00	44.7 AV	54.0	-9.3	1.00 V	360	-4.50	49.20

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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	105.7 PK			1.00 H	284	66.50	39.20
2	*5320.00	94.1 AV			1.00 H	284	54.90	39.20
3	5350.00	60.1 PK	74.0	-13.9	1.12 H	295	20.80	39.30
4	5350.00	41.8 AV	54.0	-12.2	1.12 H	295	2.50	39.30
5	10640.00	56.1 PK	74.0	-17.9	1.12 H	183	6.80	49.30
6	10640.00	43.6 AV	54.0	-10.4	1.12 H	183	-5.70	49.30
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	*5320.00	109.5 PK			1.27 V	324	70.30	39.20
2	*5320.00	97.9 AV			1.27 V	324	58.70	39.20
3	5350.00	64.6 PK	74.0	-9.4	1.00 V	351	25.30	39.30
4	5350.00	46.1 AV	54.0	-7.9	1.00 V	351	6.80	39.30
5	10640.00	57.2 PK	74.0	-16.8	1.00 V	122	7.90	49.30
6	10640.00	43.9 AV	54.0	-10.1	1.00 V	122	-5.40	49.30

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	5459.12	55.5 PK	74.0	-18.5	1.06 H	291	16.10	39.40
2	5459.12	38.8 AV	54.0	-15.2	1.06 H	291	-0.60	39.40
3	#5470.00	56.7 PK	68.3	-11.6	1.00 H	267	17.30	39.40
4	*5500.00	102.9 PK			1.07 H	331	63.40	39.50
5	*5500.00	91.3 AV			1.07 H	331	51.80	39.50
6	11000.00	57.5 PK	74.0	-16.5	1.09 H	297	7.70	49.80
7	11000.00	44.2 AV	54.0	-9.8	1.09 H	297	-5.60	49.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5459.34	58.2 PK	74.0	-15.8	1.14 V	318	18.80	39.40
2	5459.34	40.7 AV	54.0	-13.3	1.14 V	318	1.30	39.40
3	#5470.00	62.6 PK	68.3	-5.7	1.22 V	322	23.20	39.40
4	*5500.00	105.5 PK			1.02 V	324	66.00	39.50
5	*5500.00	94.0 AV			1.02 V	324	54.50	39.50
6	11000.00	57.3 PK	74.0	-16.7	1.11 V	217	7.50	49.80
7	11000.00	44.2 AV	54.0	-9.8	1.11 V	217	-5.60	49.80

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	*5600.00	107.9 PK			1.09 H	333	68.20	39.70
2	*5600.00	96.3 AV			1.09 H	333	56.60	39.70
3	11200.00	57.5 PK	74.0	-16.5	1.07 H	300	7.40	50.10
4	11200.00	44.9 AV	54.0	-9.1	1.07 H	300	-5.20	50.10
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	*5600.00	110.2 PK			1.09 V	350	70.50	39.70
2	*5600.00	98.9 AV			1.09 V	350	59.20	39.70
3	11200.00	57.4 PK	74.0	-16.6	1.05 V	360	7.30	50.10
4	11200.00	44.5 AV	54.0	-9.5	1.05 V	360	-5.60	50.10

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 74%RH 1006 hPa	TESTED BY	Tim Mie

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	101.2 PK			1.11 H	294	61.30	39.90
2	*5700.00	90.1 AV			1.11 H	294	50.20	39.90
3	#5725.00	63.7 PK	68.3	-4.6	1.11 H	294	23.70	40.00
4	11400.00	57.1 PK	74.0	-16.9	1.13 H	297	6.70	50.40
5	11400.00	44.6 AV	54.0	-9.4	1.13 H	297	-5.80	50.40
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	*5700.00	104.2 PK			1.09 V	310	64.30	39.90
2	*5700.00	92.8 AV			1.09 V	310	52.90	39.90
3	#5725.00	66.2 PK	68.3	-2.1	1.09 V	310	26.20	40.00
4	11400.00	57.6 PK	74.0	-16.4	1.09 V	311	7.20	50.40
5	11400.00	44.7 AV	54.0	-9.3	1.09 V	311	-5.70	50.40

- 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 60	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 73%RH 1006 hPa	TESTED BY	Tim Mie

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	136.84	33.0 QP	43.5	-10.5	2.00 H	292	20.50	12.50
2	442.09	31.7 QP	46.0	-14.3	2.00 H	10	14.20	17.50
3	523.75	28.0 QP	46.0	-18.0	1.50 H	109	8.00	20.00
4	729.84	28.5 QP	46.0	-17.5	1.00 H	226	5.00	23.50
5	842.61	29.7 QP	46.0	-16.3	2.00 H	226	4.10	25.60
6	947.60	35.3 QP	46.0	-10.7	1.00 H	13	8.80	26.50
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	84.34	28.8 QP	40.0	-11.2	1.00 V	256	20.20	8.60
2	131.00	33.7 QP	43.5	-9.8	1.00 V	181	21.50	12.20
3	480.97	29.7 QP	46.0	-16.3	1.00 V	142	11.00	18.70
4	718.18	32.9 QP	46.0	-13.1	1.50 V	151	9.70	23.20
5	842.61	29.4 QP	46.0	-16.6	1.50 V	25	3.80	25.60
6	963.16	33.5 QP	54.0	-20.5	1.00 V	100	6.90	26.60

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 120	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 73%RH 1006 hPa	TESTED BY	Tim Mie

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	136.84	33.8 QP	43.5	-9.7	2.00 H	307	21.30	12.50
2	442.09	29.1 QP	46.0	-16.9	2.00 H	40	11.60	17.50
3	568.47	30.2 QP	46.0	-15.8	2.00 H	304	9.00	21.20
4	801.78	35.9 QP	46.0	-10.1	1.50 H	82	10.50	25.40
5	858.17	35.2 QP	46.0	-10.8	1.50 H	163	9.40	25.80
6	947.60	34.6 QP	46.0	-11.4	1.50 H	334	8.10	26.50
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	136.84	33.1 QP	43.5	-10.4	1.00 V	91	20.60	12.50
2	442.09	30.2 QP	46.0	-15.8	1.50 V	19	12.70	17.50
3	529.58	32.3 QP	46.0	-13.7	1.00 V	136	12.10	20.20
4	749.29	34.8 QP	46.0	-11.2	2.00 V	157	10.80	24.00
5	848.45	33.0 QP	46.0	-13.0	1.50 V	343	7.30	25.70
6	947.60	36.0 QP	46.0	-10.0	1.00 V	127	9.50	26.50

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.

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	100288	Sep. 24, 2009	Sep. 23, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Aug. 24, 2009	Aug. 23, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 29, 2009	Jul. 28, 2010
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 2.
3. The VCCI Site Registration No. is C-2047.

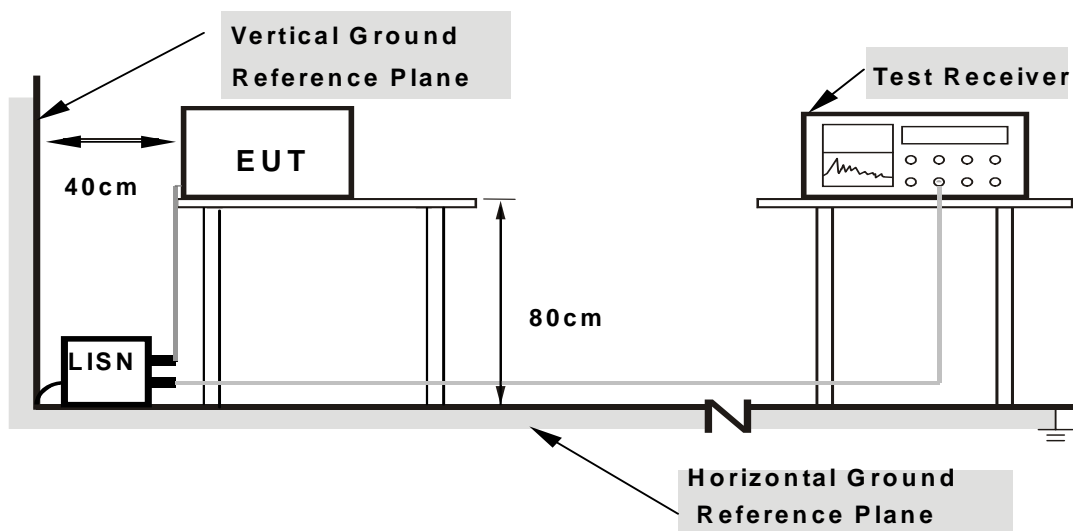
4.2.3 TEST PROCEDURES

- 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.

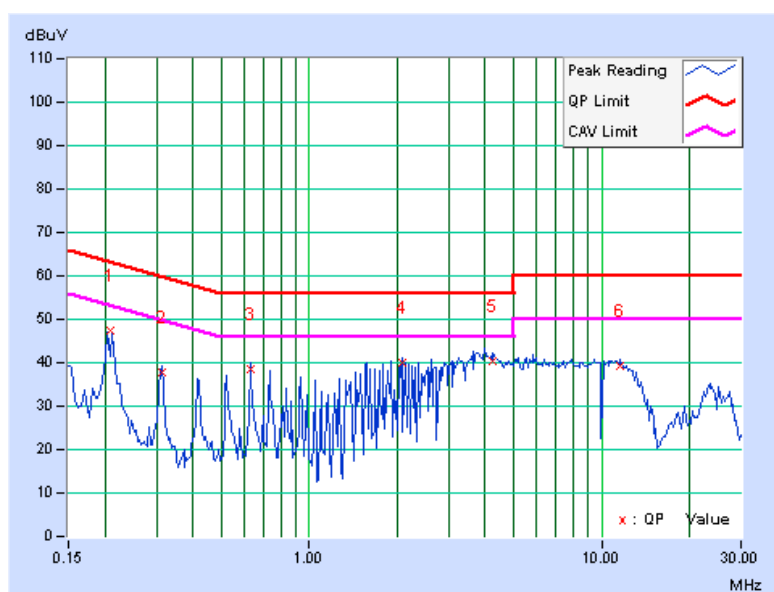
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 982hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.210	0.16	47.28	-	47.44	-	63.21	53.21	-15.77	-
2	0.314	0.17	37.67	-	37.84	-	59.86	49.86	-22.02	-
3	0.627	0.20	38.25	-	38.45	-	56.00	46.00	-17.55	-
4	2.086	0.31	39.53	-	39.84	-	56.00	46.00	-16.16	-
5	4.227	0.35	40.00	-	40.35	-	56.00	46.00	-15.65	-
6	11.576	0.40	38.74	-	39.14	-	60.00	50.00	-20.86	-

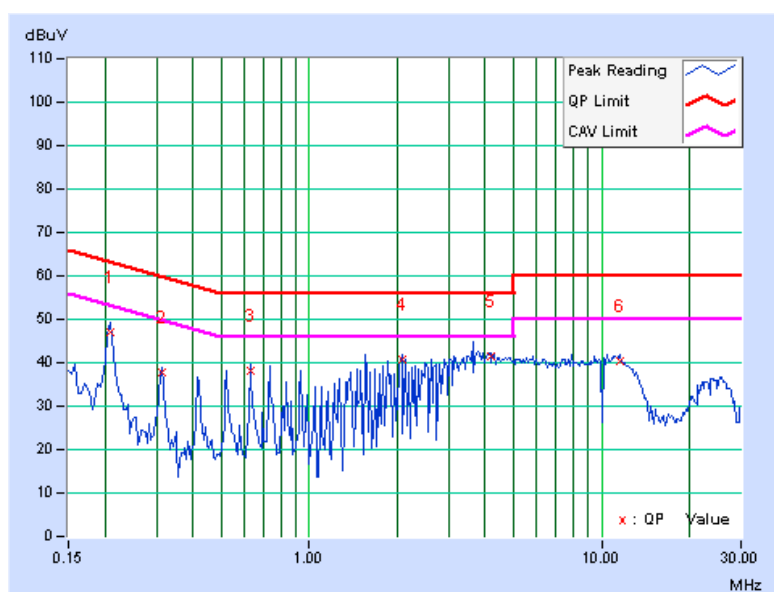
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 982hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.13	47.00	-	47.13	-	63.26	53.26	-16.13	-
2	0.314	0.15	37.57	-	37.72	-	59.86	49.86	-22.15	-
3	0.627	0.18	37.81	-	37.99	-	56.00	46.00	-18.01	-
4	2.086	0.30	40.32	-	40.62	-	56.00	46.00	-15.38	-
5	4.168	0.36	40.96	-	41.32	-	56.00	46.00	-14.68	-
6	11.576	0.51	39.76	-	40.27	-	60.00	50.00	-19.73	-

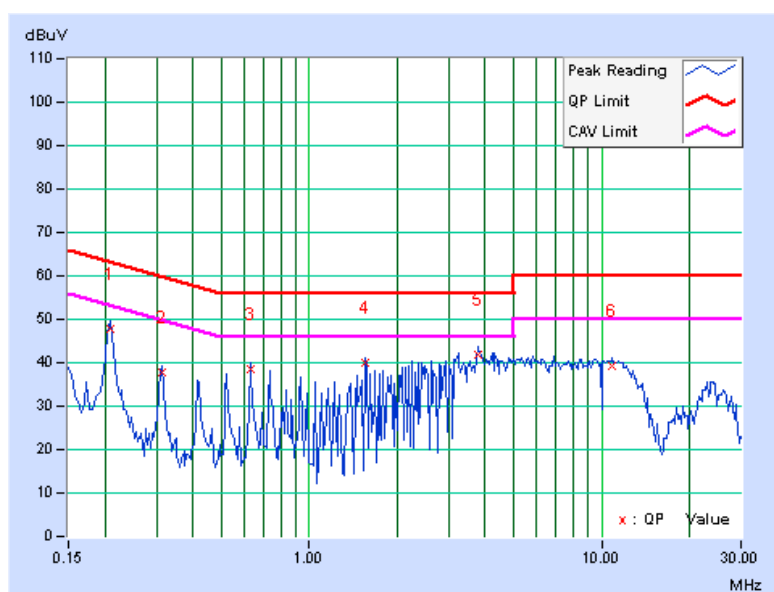
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 982hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.16	47.60	-	47.76	-	63.26	53.26	-15.50	-
2	0.314	0.17	37.61	-	37.78	-	59.86	49.86	-22.08	-
3	0.627	0.20	38.27	-	38.47	-	56.00	46.00	-17.53	-
4	1.563	0.27	39.56	-	39.83	-	56.00	46.00	-16.17	-
5	3.758	0.35	41.67	-	42.02	-	56.00	46.00	-13.98	-
6	10.875	0.38	39.01	-	39.39	-	60.00	50.00	-20.61	-

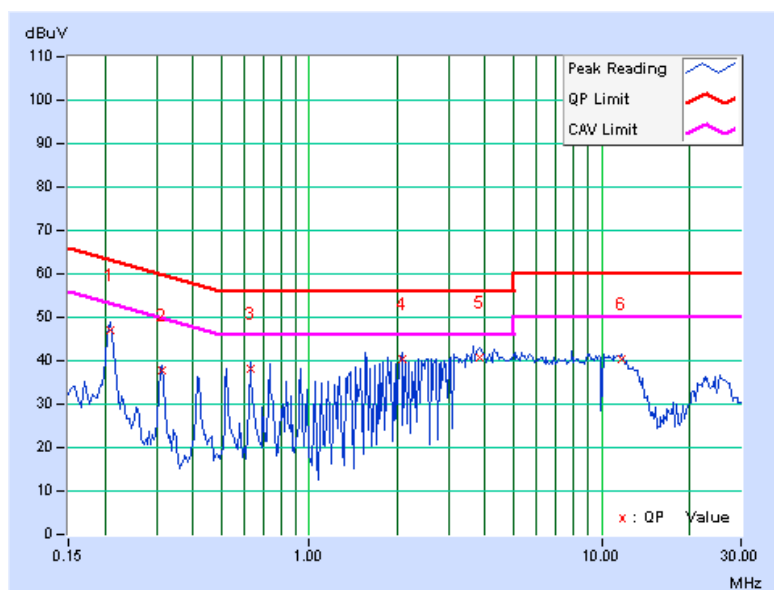
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	6.0Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 982hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.13	46.98	-	47.11	-	63.26	53.26	-16.15	-
2	0.314	0.15	37.53	-	37.68	-	59.86	49.86	-22.19	-
3	0.627	0.18	37.85	-	38.03	-	56.00	46.00	-17.97	-
4	2.086	0.30	40.18	-	40.48	-	56.00	46.00	-15.52	-
5	3.820	0.35	40.53	-	40.88	-	56.00	46.00	-15.12	-
6	11.685	0.51	39.76	-	40.27	-	60.00	50.00	-19.73	-

- 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	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2411B	0738138	Aug. 04, 2008	Aug. 03, 2009

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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.3.3 TEST PROCEDURES

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

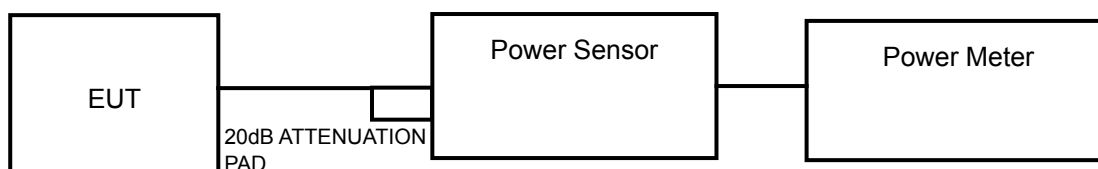
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

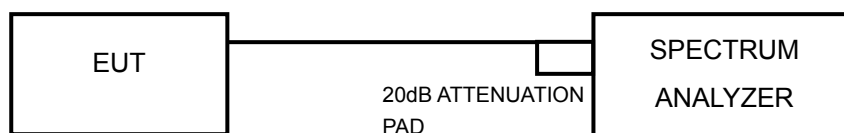
No deviation

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

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	11.272	10.52	17	PASS
40	5200	9.638	9.84	17	PASS
48	5240	9.141	9.61	17	PASS
52	5260	10.046	10.02	24	PASS
60	5300	11.376	10.56	24	PASS
64	5320	10.280	10.12	24	PASS
100	5500	11.588	10.64	24	PASS
120	5600	30.832	14.89	24	PASS
140	5700	7.129	8.53	24	PASS

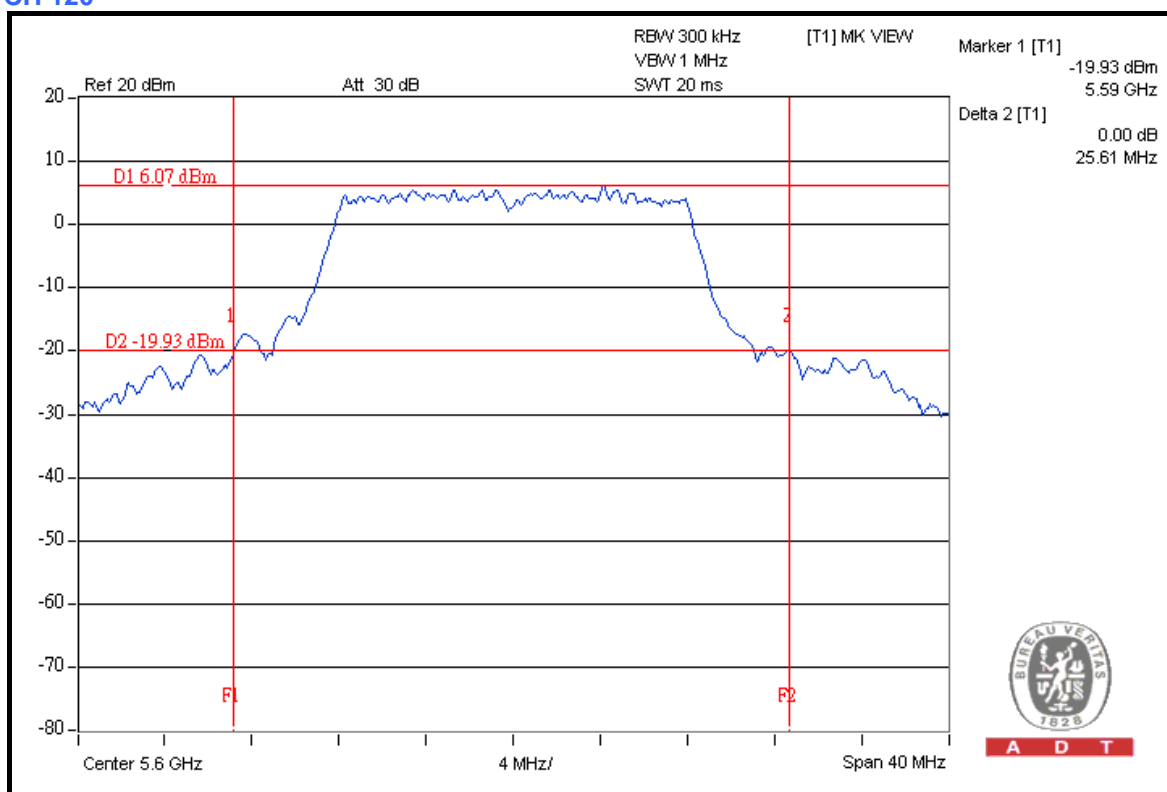


A D T

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	20.87	PASS
40	5200	20.87	PASS
48	5240	21.02	PASS
52	5260	20.97	PASS
60	5300	20.86	PASS
64	5320	20.87	PASS
100	5500	21.19	PASS
120	5600	25.61	PASS
140	5700	20.71	PASS

CH 120



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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.4.3 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 = 300 kHz).
- 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.



A D T

4.4.7 TEST RESULTS

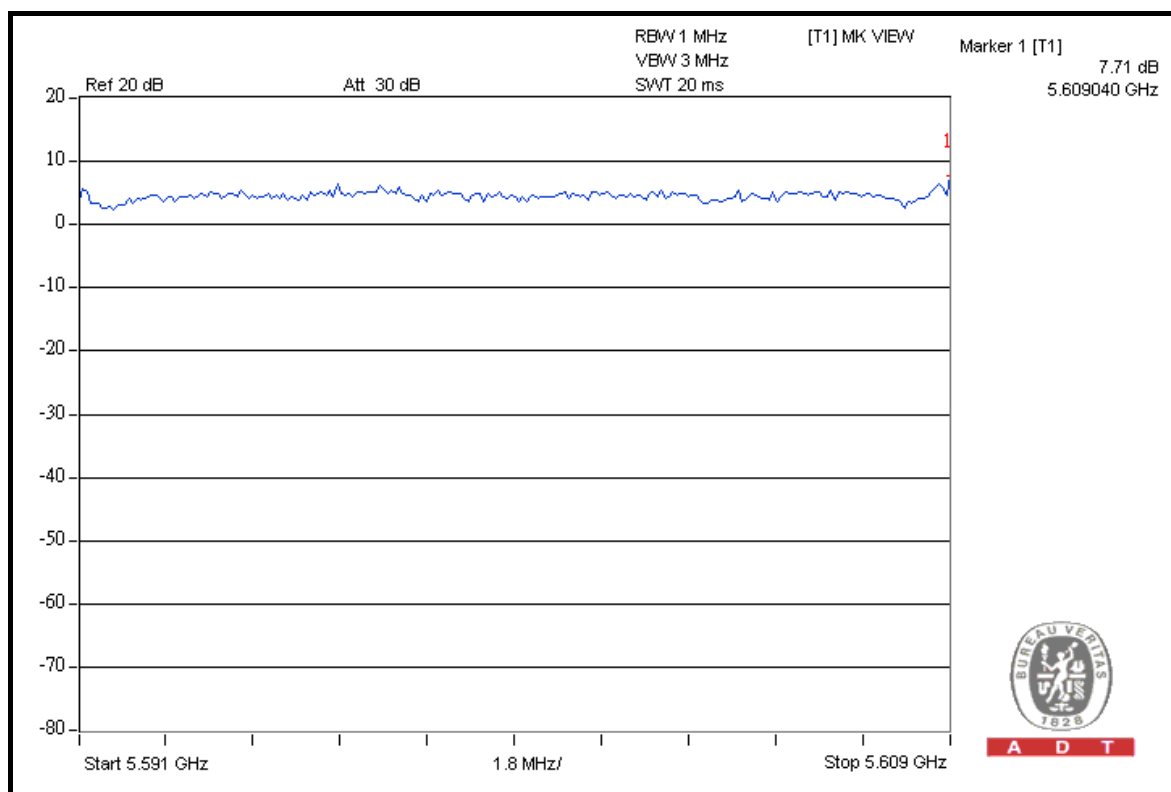
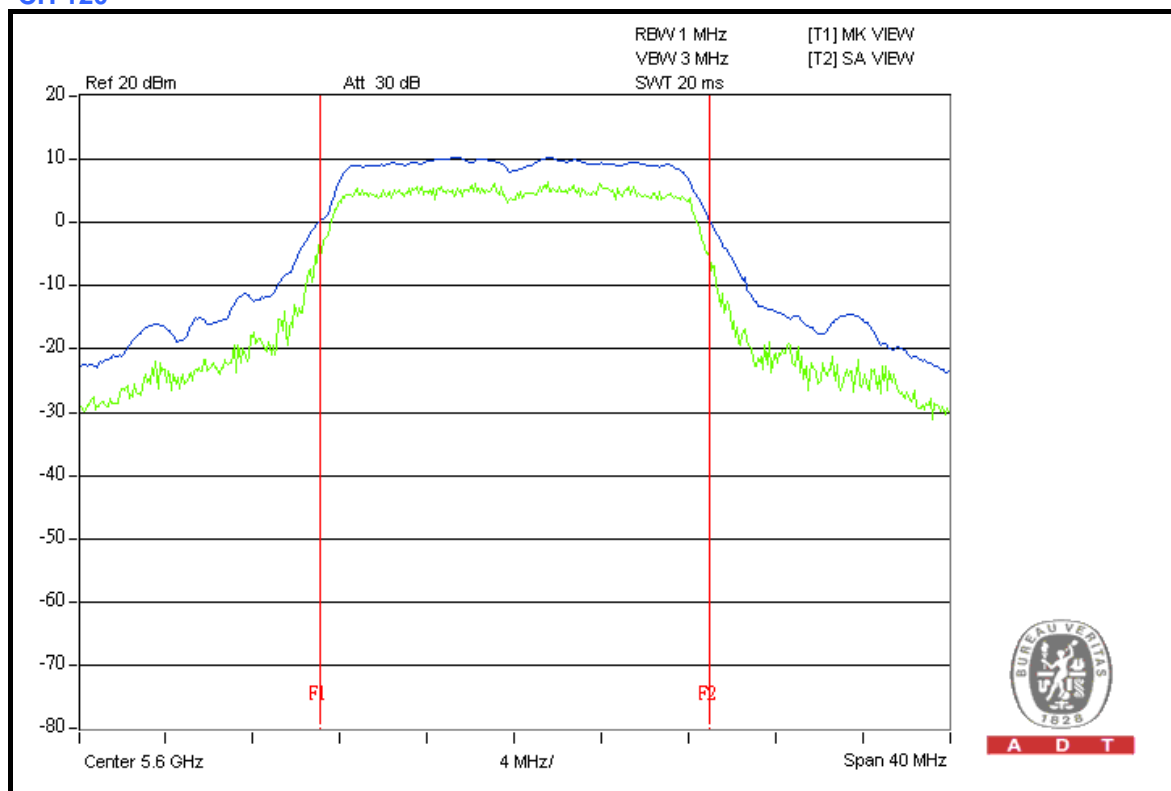
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	6.12	13	PASS
40	5200	7.28	13	PASS
48	5240	6.48	13	PASS
52	5260	7.14	13	PASS
60	5300	7.01	13	PASS
64	5320	7.30	13	PASS
100	5500	7.35	13	PASS
120	5600	7.71	13	PASS
140	5700	6.83	13	PASS



A D T

CH 120



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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.5.3 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



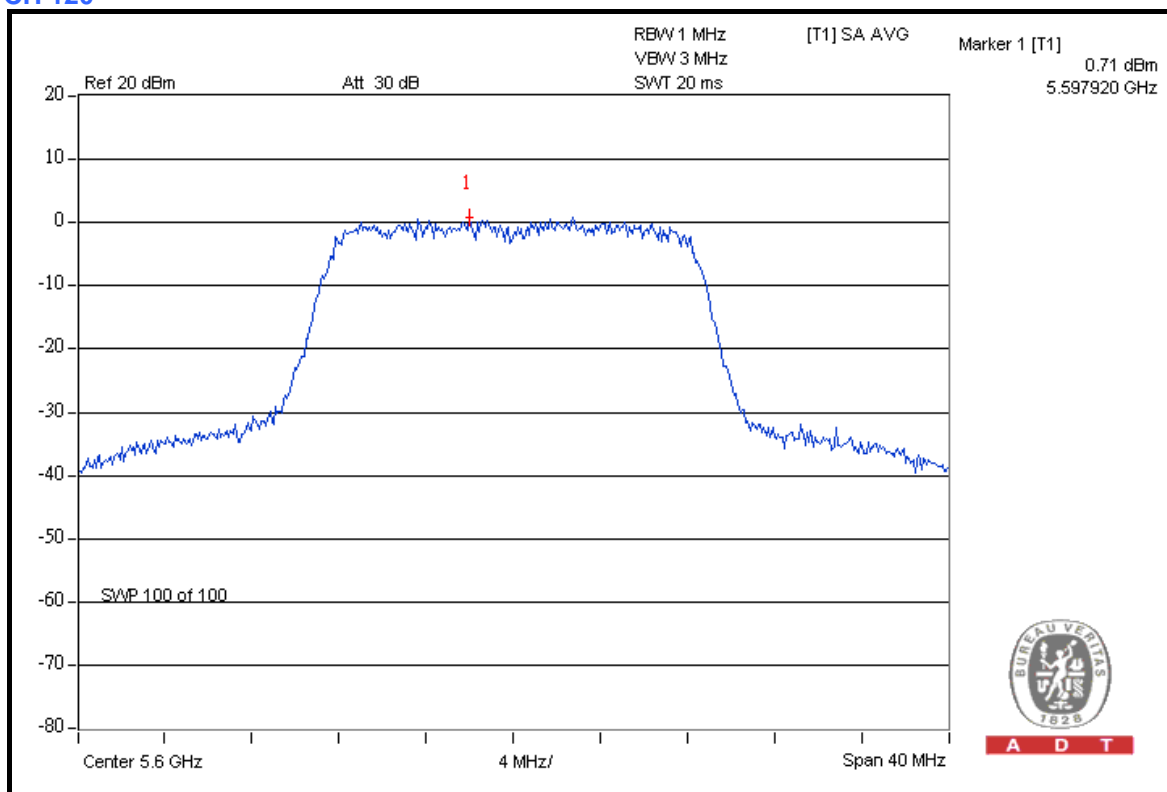
A D T

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	-3.04	4	PASS
40	5200	-3.52	4	PASS
48	5240	-4.07	4	PASS
52	5260	-3.49	11	PASS
60	5300	-3.13	11	PASS
64	5320	-3.47	11	PASS
100	5500	-3.31	11	PASS
120	5600	0.71	11	PASS
140	5700	-5.20	11	PASS

CH 120



A D T

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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 28, 2008	Jun. 27, 2009

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

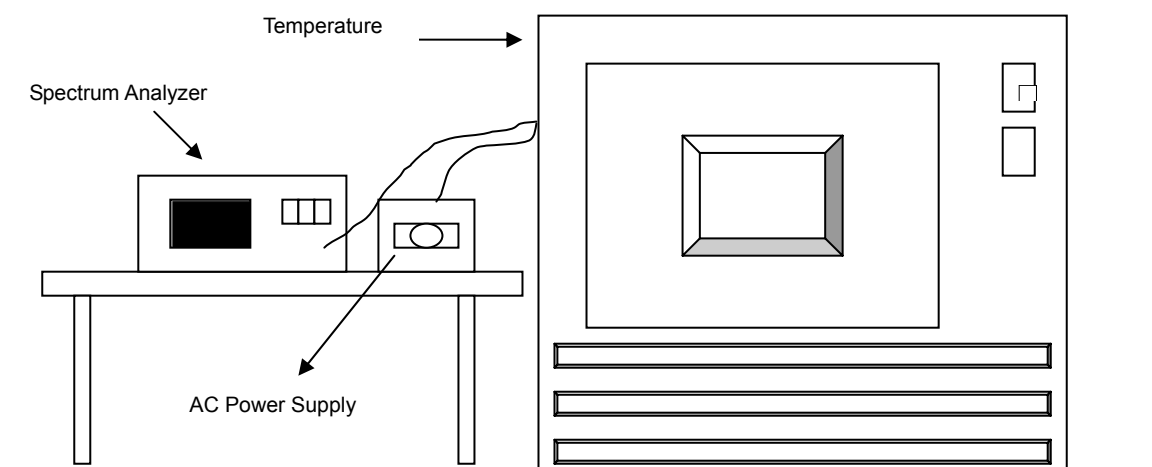
4.6.3 TEST PROCEDURE

- 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 4.1.7

4.6.7 TEST RESULTS

OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5319.999210	-0.0000148	5319.998967	-0.0000194	5319.999087	-0.0000172	5319.999319	-0.0000128
	110.0	5319.983732	-0.0003058	5319.983646	-0.0003074	5319.983729	-0.0003058	5319.983896	-0.0003027
	93.5	5319.987210	-0.0002404	5319.986898	-0.0002463	5319.986951	-0.0002453	5319.987270	-0.0002393
40	126.5	5319.979115	-0.0003926	5319.979010	-0.0003945	5319.979075	-0.0003933	5319.979107	-0.0003927
	110.0	5319.985017	-0.0002816	5319.985372	-0.0002750	5319.985450	-0.0002735	5319.985399	-0.0002745
	93.5	5319.997262	-0.0000515	5319.996965	-0.0000570	5319.996965	-0.0000570	5319.996854	-0.0000591
30	126.5	5319.980139	-0.0003733	5319.980172	-0.0003727	5319.980030	-0.0003754	5319.979954	-0.0003768
	110.0	5319.986146	-0.0002604	5319.986194	-0.0002595	5319.986003	-0.0002631	5319.986221	-0.0002590
	93.5	5320.003963	0.0000745	5320.004285	0.0000805	5320.004060	0.0000763	5320.003931	0.0000739
20	126.5	5319.986715	-0.0002497	5319.986943	-0.0002454	5319.987028	-0.0002438	5319.986923	-0.0002458
	110.0	5319.987194	-0.0002407	5319.987119	-0.0002421	5319.987099	-0.0002425	5319.987287	-0.0002390
	93.5	5320.011772	0.0002213	5320.011409	0.0002145	5320.011196	0.0002105	5320.011400	0.0002143
10	126.5	5319.994867	-0.0000965	5319.995145	-0.0000913	5319.994625	-0.0001010	5319.994691	-0.0000998
	110.0	5320.002805	0.0000527	5320.002931	0.0000551	5320.002675	0.0000503	5320.002824	0.0000531
	93.5	5320.018010	0.0003385	5320.017746	0.0003336	5320.017740	0.0003335	5320.017895	0.0003364
0	126.5	5319.997670	-0.0000438	5319.997367	-0.0000495	5319.997508	-0.0000468	5319.997260	-0.0000515
	110.0	5320.009878	0.0001857	5320.009993	0.0001878	5320.009730	0.0001829	5320.009755	0.0001834
	93.5	5320.024189	0.0004547	5320.024499	0.0004605	5320.024275	0.0004563	5320.024252	0.0004559
-10	126.5	5320.009950	0.0001870	5320.009998	0.0001879	5320.009619	0.0001808	5320.009801	0.0001842
	110.0	5320.016091	0.0003025	5320.015967	0.0003001	5320.016018	0.0003011	5320.016049	0.0003017
	93.5	5320.030354	0.0005706	5320.030672	0.0005765	5320.030285	0.0005693	5320.030532	0.0005739
-20	126.5	5320.015279	0.0002872	5320.015213	0.0002860	5320.015313	0.0002878	5320.015065	0.0002832
	110.0	5320.020241	0.0003805	5320.020202	0.0003797	5320.020255	0.0003807	5320.020527	0.0003858
	93.5	5320.035407	0.0006655	5320.035666	0.0006704	5320.035481	0.0006669	5320.035500	0.0006673
-30	126.5	5320.020795	0.0003909	5320.020671	0.0003886	5320.020719	0.0003895	5320.020665	0.0003884
	110.0	5320.034872	0.0006555	5320.034908	0.0006562	5320.035216	0.0006620	5320.035266	0.0006629
	93.5	5320.037408	0.0007032	5320.037162	0.0006985	5320.037382	0.0007027	5320.037445	0.0007039

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100040	Jul. 07, 2009	Jul. 06, 2010

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

The transmitter output was connected to the spectrum analyzer via a low lose 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 5.18 to 5.32GHz and 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 filed 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)	108.9	41.47	67.43	74.00
5180.00 (AV)	97.5	49.98	47.52	54.00

RESTRICT BAND (5350 ~ 5460 MHz)

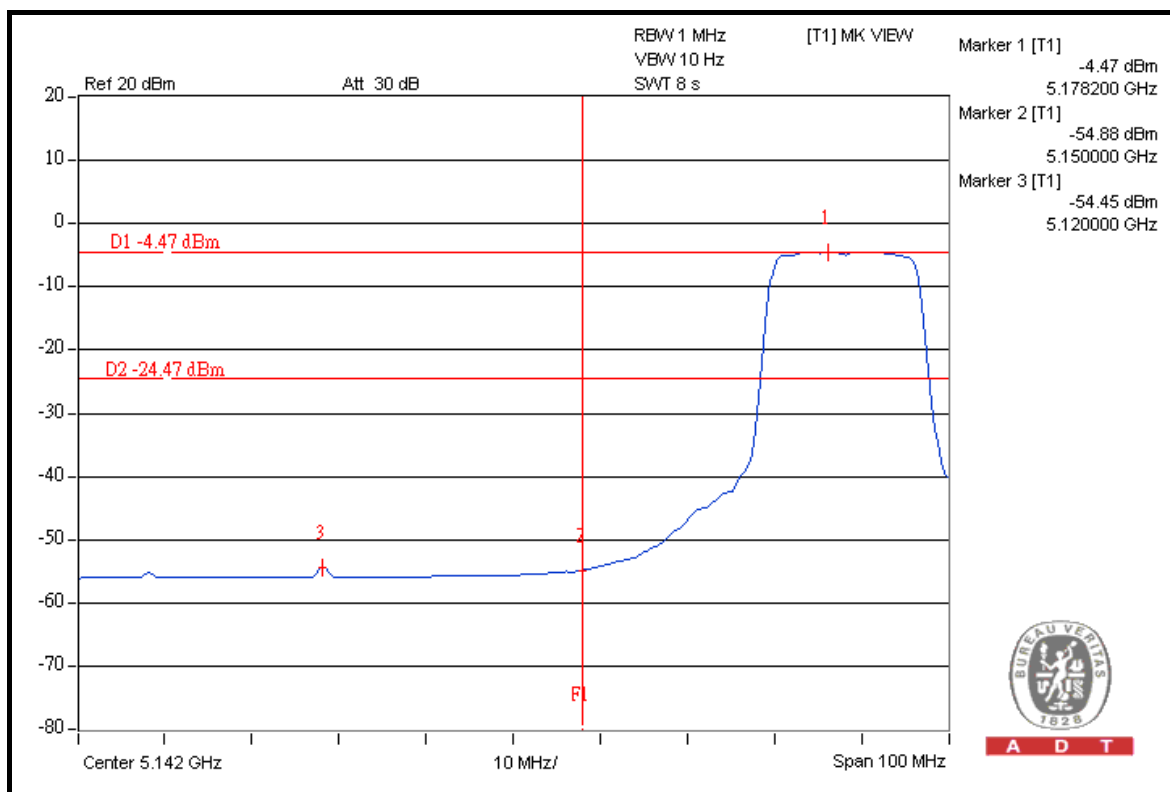
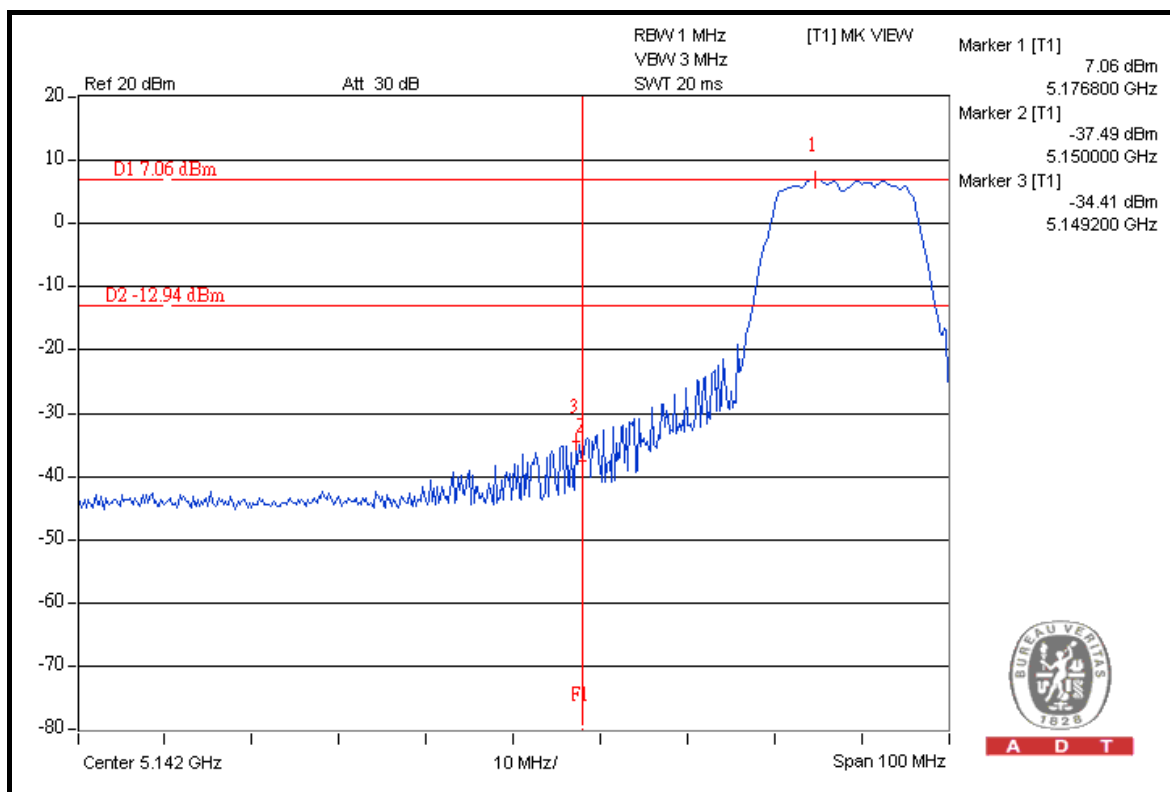
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	109.5	42.12	67.38	74.00
5320.00 (AV)	97.9	49.93	47.97	54.00

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.

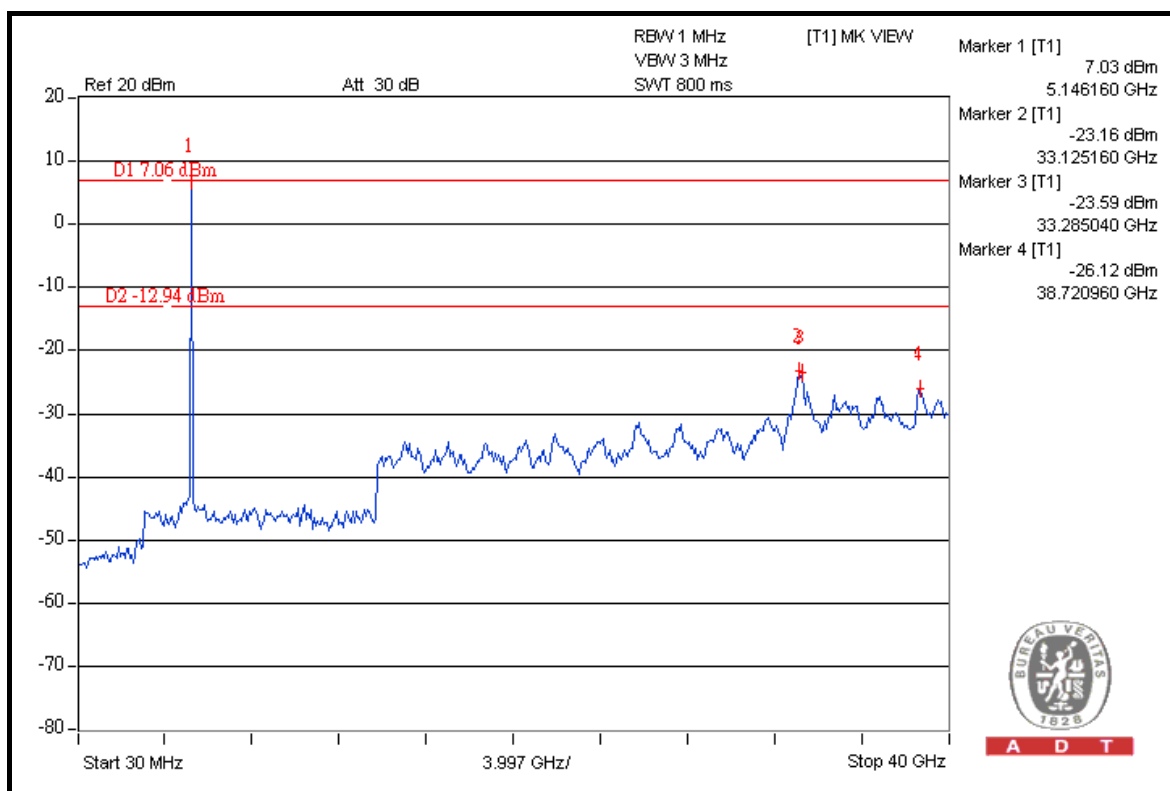


A D T

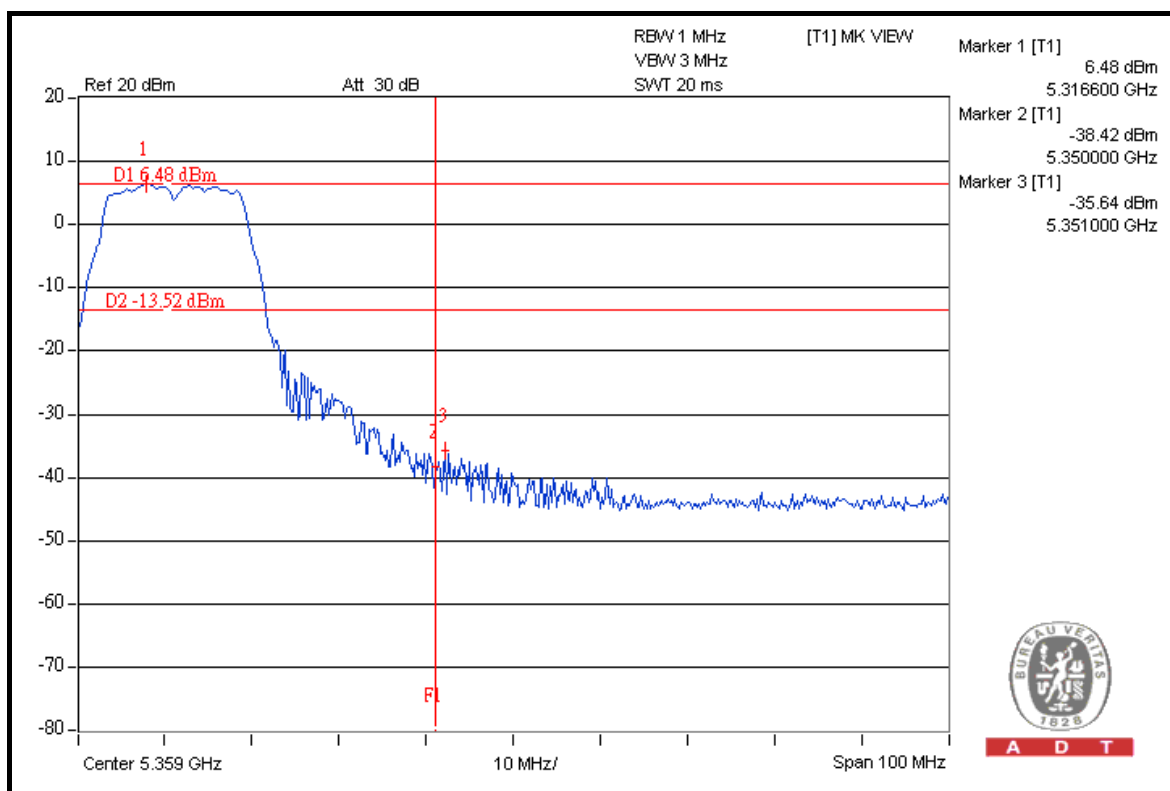




A D T



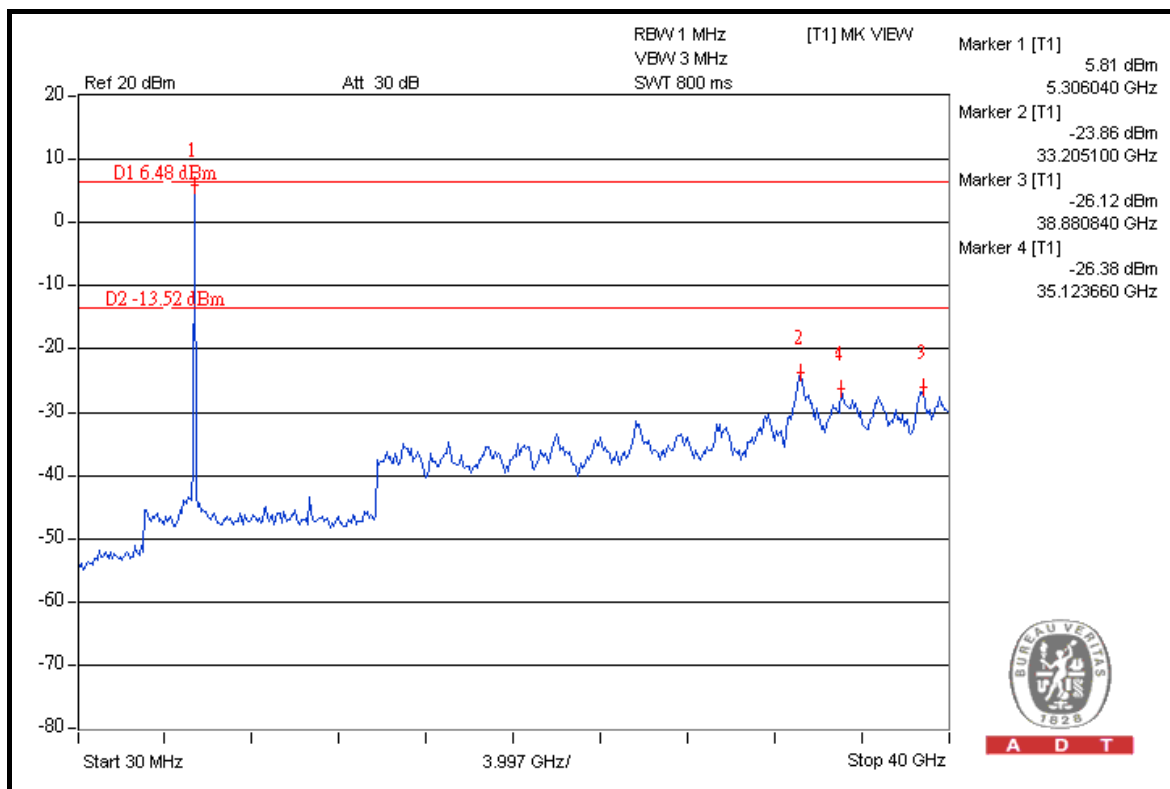
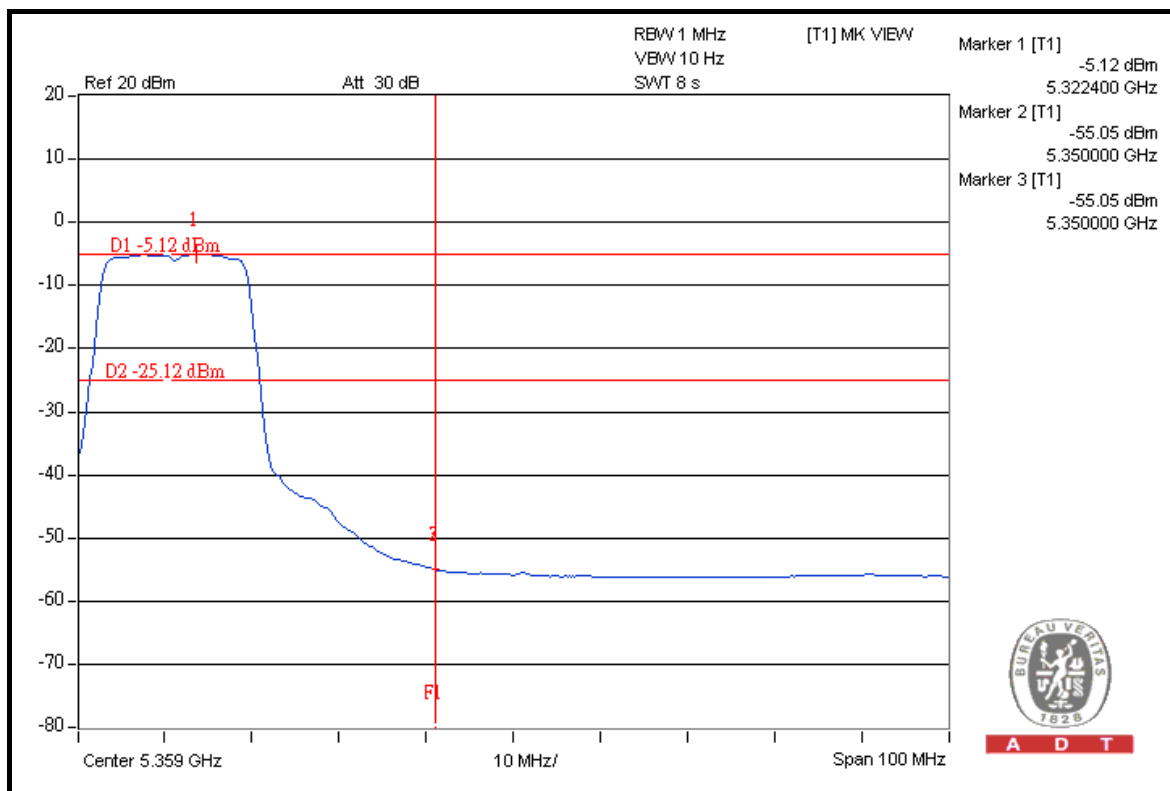
A D T



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)	105.5	47.62	57.88	74.00
5500.00 (AV)	94.0	51.10	42.90	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)	105.5	42.50	63.0	68.30

5700MHz

ABOVE 5725 MHz

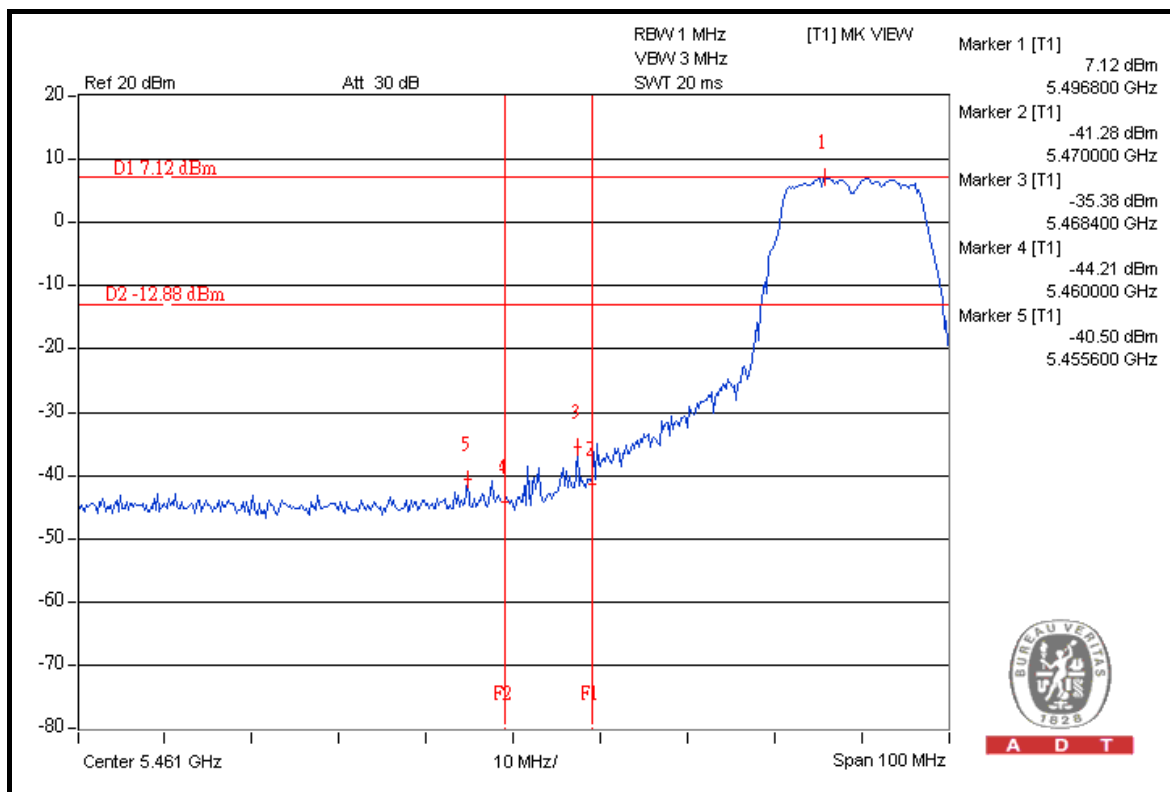
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	104.2	38.45	65.75	68.30

NOTE:

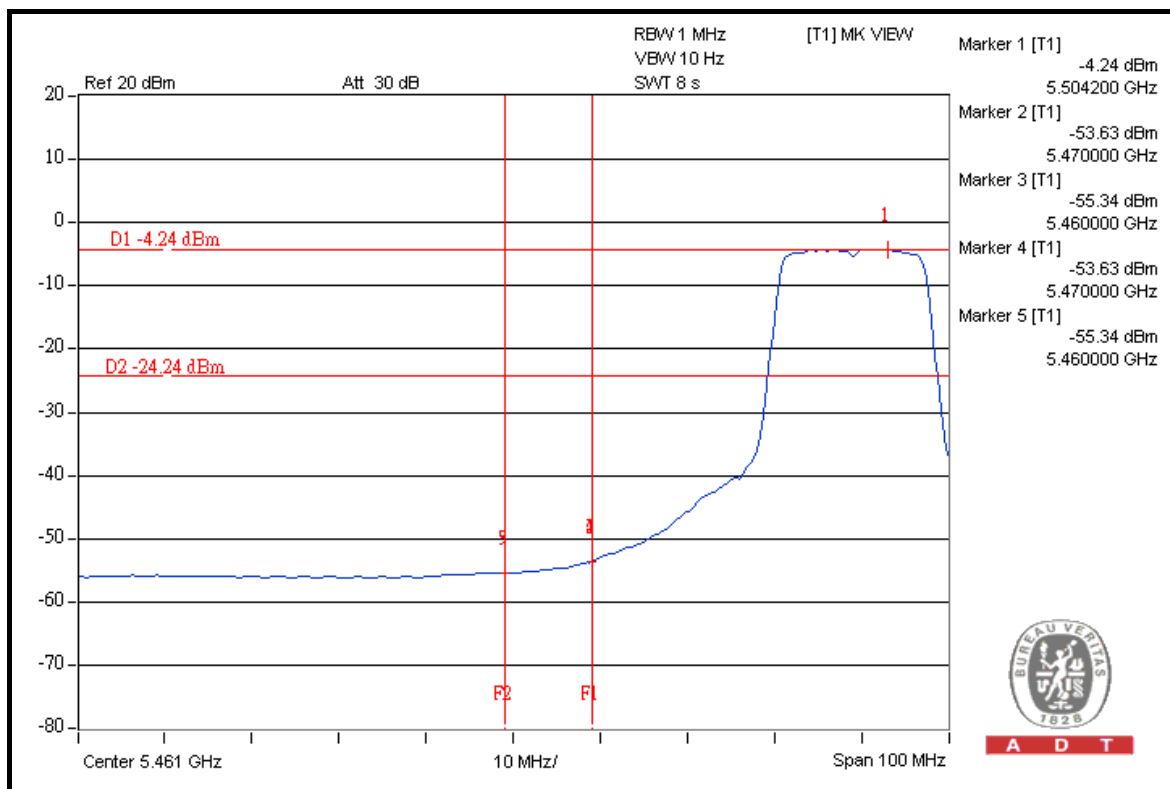
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



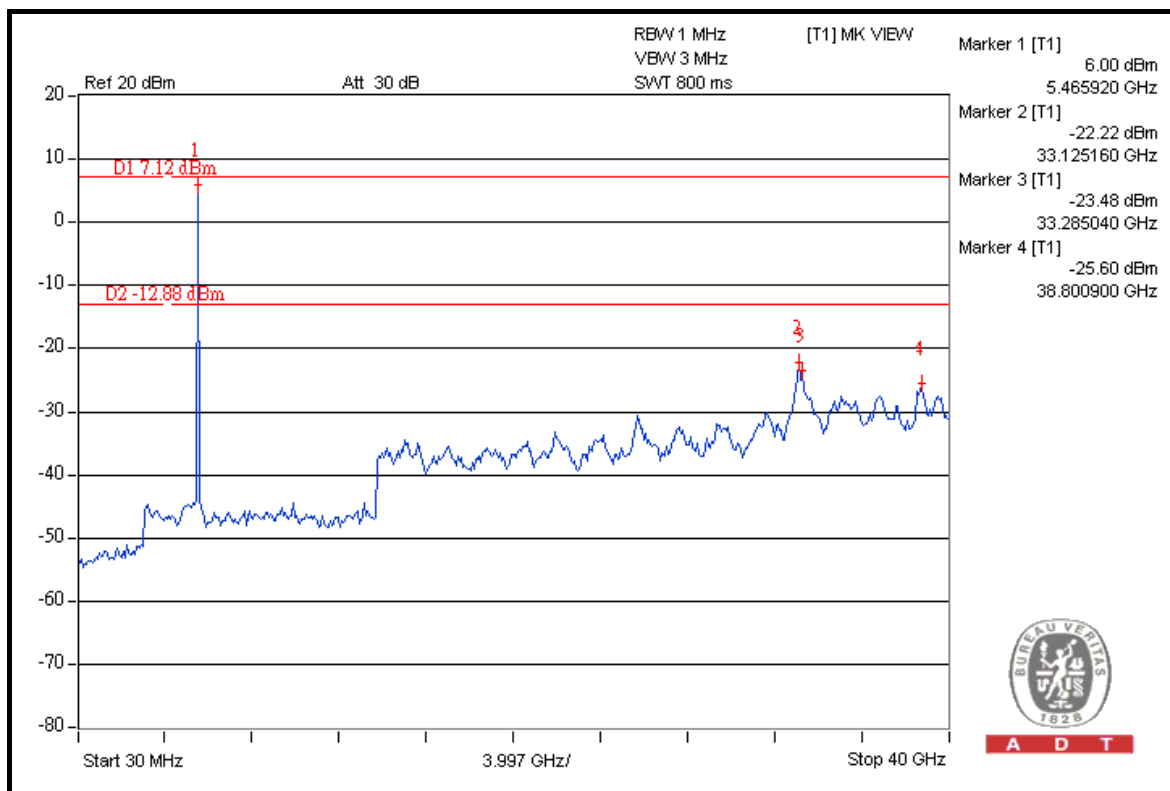
A D T



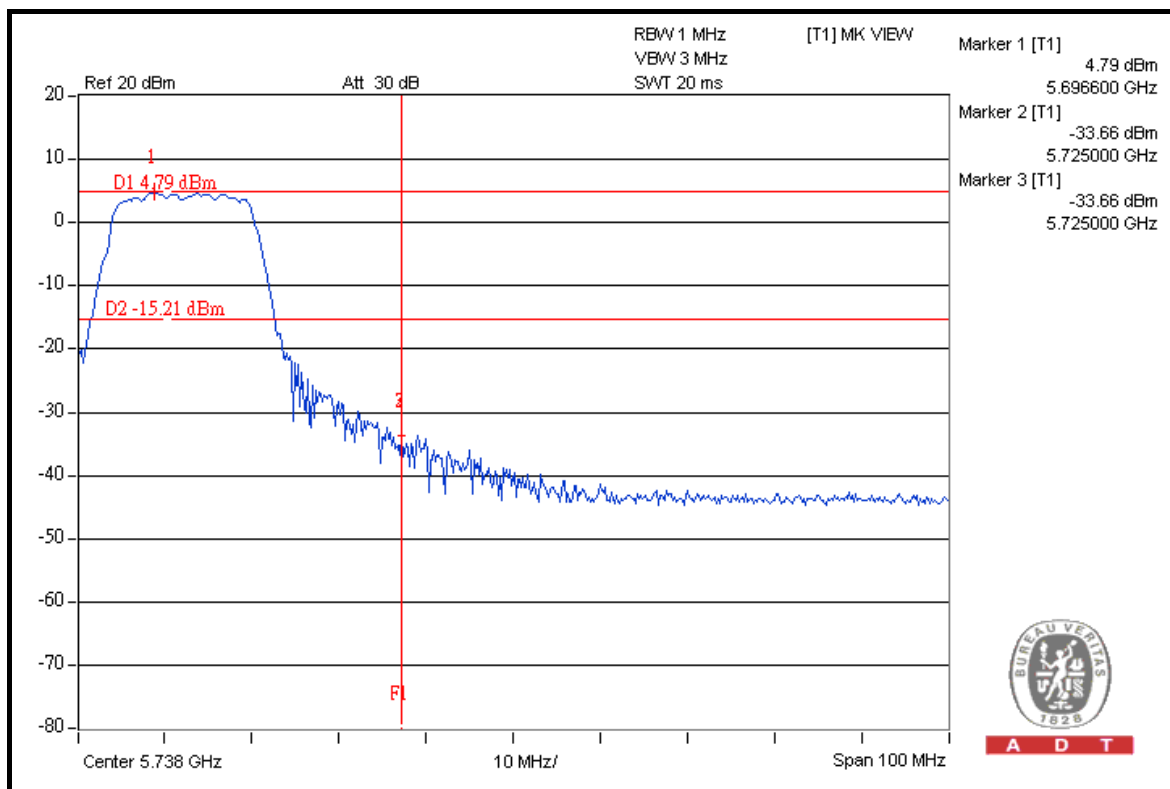
A D T



A D T



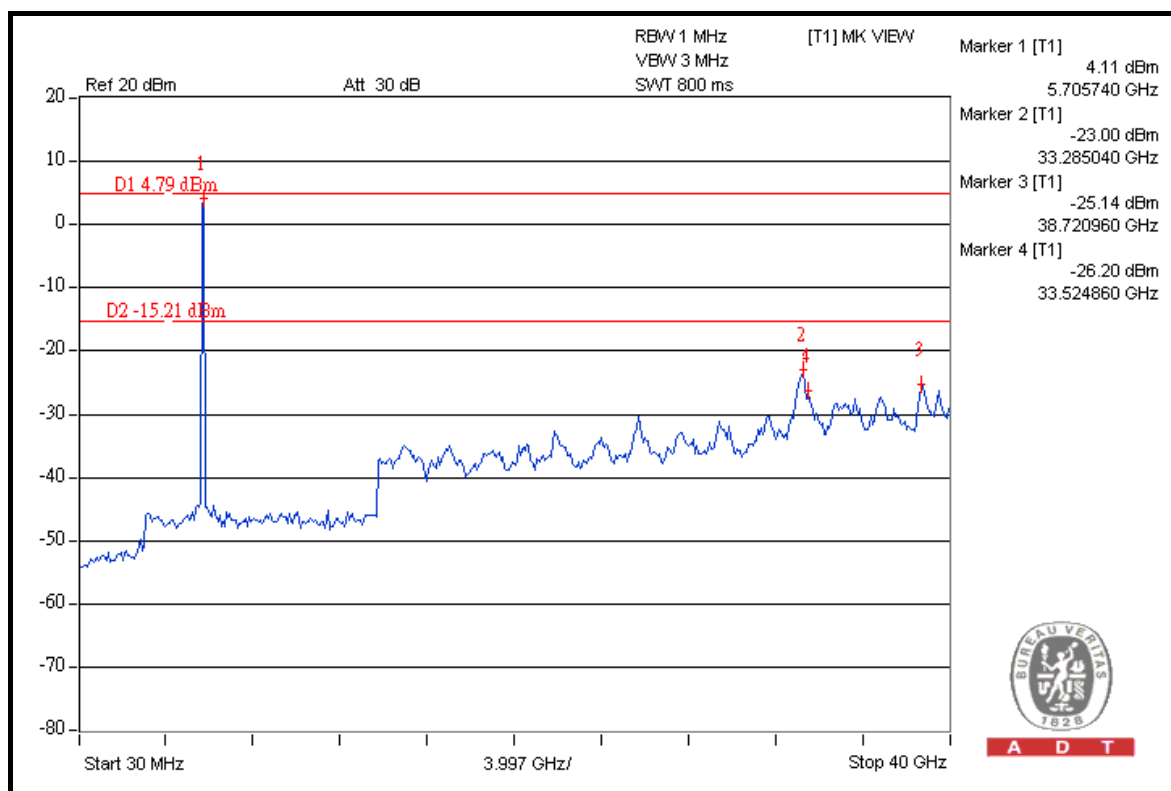
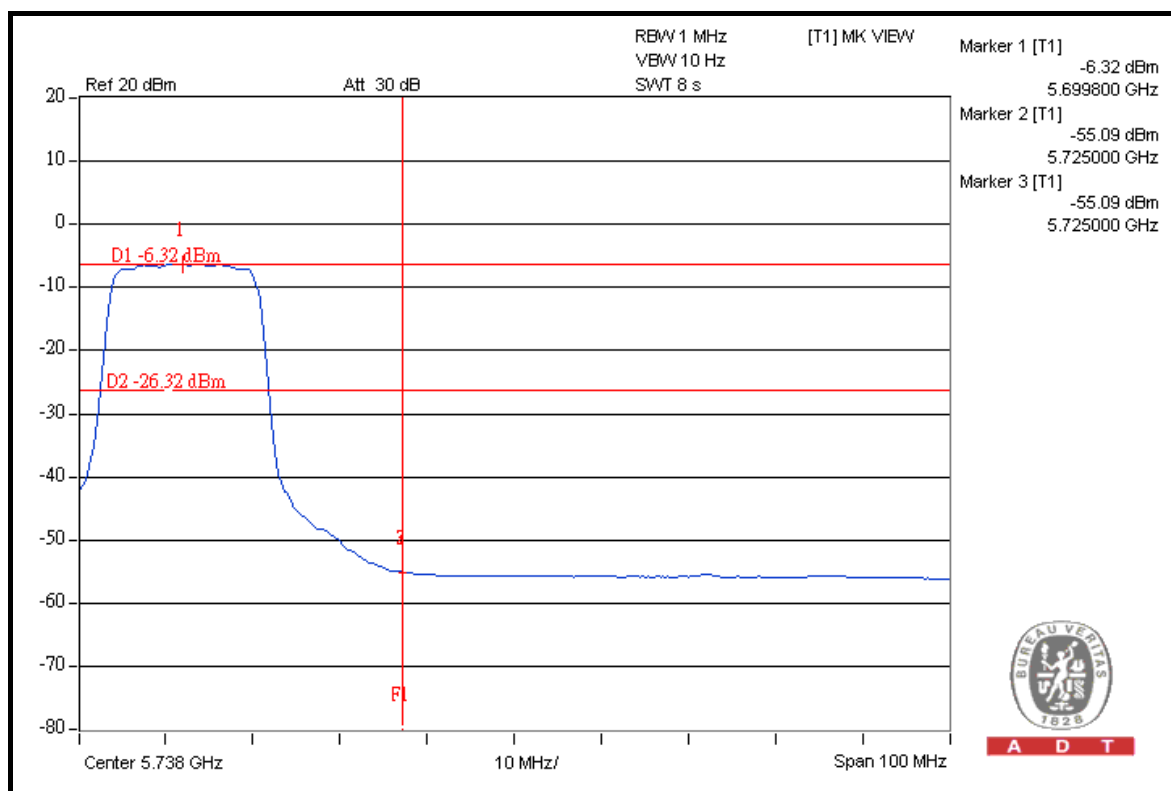
A D T



A D T



A D T



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

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.



A D T

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---