

FCC TEST REPORT (15.407) (For WLAN)

REPORT NO.: RF991207D25A

MODEL NO.: PCG-41211L, PCG-41212L

FCC ID: AK8PCG41211L

RECEIVED: Dec. 10, 2010

TESTED: Dec. 14 ~ 24, 2010

ISSUED: Dec. 24, 2010

APPLICANT: SONY Corporation

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Dec. 24, 2010

1. CERTIFICATION

PRODUCT: Personal Computer

BRAND NAME: SONY

MODEL: PCG-41211L, PCG-41212L

APPLICANT: SONY Corporation

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Dec. 14 ~ 20, 2010

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

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: PCG-41211L) 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 : Annie Chang , **DATE:** Dec. 24, 2010
(Annie Chang / Senior Specialist)

APPROVED BY : Ken Liu , **DATE:** Dec. 24, 2010
(Ken Liu / 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 -17.10dB at 0.220MHz.
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 -0.2dB at 5470.00MHz.
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	Antenna connector is Hirose U.FL not a standard connector.

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:

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.41 dB
Radiated emissions	30MHz ~ 1GHz	3.67 dB
	Above 1GHz	2.89 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Personal Computer
MODEL NO.	PCG-41211L, PCG-41212L
FCC ID	AK8PCG41211L
NOMINAL VOLTAGE	19.5Vdc from AC adapter or 11.1Vdc from battery
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	5180 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5320MHz: 8 for 802.11a, 802.11n (20MHz) 4 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
OUTPUT POWER	32.4mW for 5180 ~ 5240MHz 33.1mW for 5260 ~ 5320MHz 34.7mW for 5500 ~ 5700MHz
ANTENNA TYPE	Refer to note below
ANTENNA CONNECTOR	Refer to note below
I/O PORTS	Refer to User's manual
DATA CABLE	NA
ACCESSORY DEVICES	Refer to note below

NOTE:

1. The EUT is a Personal Computer. The functions of EUT listed as below:

Function	Test Standard	Reference Report
WLAN IEEE802.11abgn Mini-PCI Card (Brand: Intel, Model: 62205ANHMW)	WLAN 802.11an (5180~5320MHz, 5500~5700MHz) FCC Part 15, Subpart E (Section 15.407)	RF991207D25A
		RF991207D25A-5
	WLAN 802.11a (For DFS report) (5260~5320MHz, 5500~5700MHz) FCC Part 15, Subpart C (Section 15.247)	RF991207D25A-1
		RF991207D25A-2
Bluetooth module (Brand: Foxconn, Model: T77H114)	FCC Part 15, Subpart C (Section 15.247)	RF991207D25A-2
GSM 850 / CDMA 850 / WCDMA 850 (Brand: Qualcomm, Model: Gobi2000)	FCC Part 22	RF991207D25A-3
PCS 1900 / CDMA 1900 / WCDMA 1900 (Brand: Qualcomm, Model: Gobi2000)	FCC Part 24	RF991207D25A-4

2. 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		√	√	√
802.11n (20MHz)	√	√	√	√
802.11n (40MHz)	√	√	√	√

3. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

4. The EUT has several models, which are identical to each other except for the Topcover less of ODD differences only, as the following:

Brand	Model No.	Topcover less of ODD
SONY	PCG-41211L	Without
	PCG-41212L	With

During the test, the **model no.: PCG-41211L** was the worst case and only its test data was recorded in this report.

5. The case of EUT has two kinds of material: MG & CFRP. During the test, the **MG material case** was the worst case and only its test data was recorded in this report.

6. The EUT doesn't operate in 5600 ~ 5650MHz via software controls.

7. The following antennas were applied to the EUT:

Type	Connector	Gain		
		2.4G	5.0G (Band 4)	5.0G (Band 1~3)
PIFA	Hirose U.FL	1.04	-1.04	0.80

8. The EUT consumes power from a power adapter/ battery and there are the following sources could be chosen:

Power Source	Brand	Model No.	Spec.
AC adapter 1	NJRC	VGP-AC19V31	AC Input: 100-240V, 1.5A, 50-60Hz DC Output: 19.5V, 4.7A Non-shielded AC 2Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 2	NJRC	VGP-AC19V32	AC Input: 100-240V, 1.5A, 50-60Hz DC Output: 19.5V, 4.7A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 3	Liteon	VGP-AC19V36	AC Input: 100-240V, 1.5A, 50/60Hz DC Output: 19.5V, 4.7A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 4	Delta	VGP-AC19V42	AC Input: 100-240V, 1.5A 50-60Hz DC Output: 19.5V, 4.7A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 5	Delta	VGP-AC19V51	AC Input: 100-240V, 1.5A, 50/60Hz DC Output 1: 19.5Vdc 4.7A DC Output 2: 5Vdc 1.5A DC Output 3: 5Vdc 1.5A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
Battery	Sony	VGP-BPS24	11.1V, 4400mAh

After pre-tested above AC adapters, the **AC Adapter 3** was the worst case, therefore, only its test data was recorded in this report.

9. 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, 802.11n (20MHz):

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

4 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

Operated in 5500 ~ 5700MHz

8 channels are provided for 802.11a, 802.11n (20MHz):

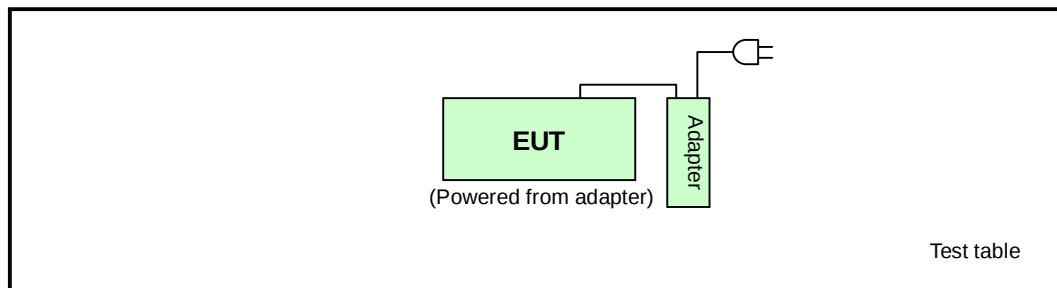
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

3 channels are provided for 802.11n (40MHz):

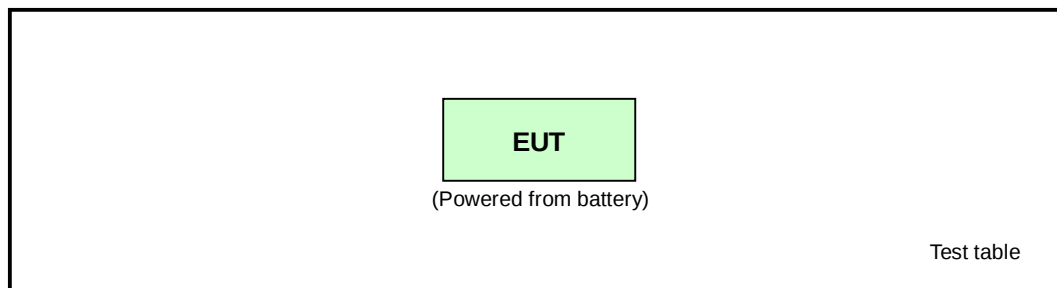
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	134	5670 MHz
110	5550 MHz		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A:



Test Mode B:



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE ³ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT powered from adapter
B	-	√	Note	-	EUT powered from battery

Where **RE³1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement
Note: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations 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	802.11n (20MHz)		36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	13.0
A	802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	27.0
A	802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 116, 132, 140	OFDM	BPSK	13.0
A	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	27.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

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	64	OFDM	BPSK	6.0
A & B	802.11a	5500-5700	100 to 140	140	OFDM	BPSK	6.0

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	802.11a	5180-5320	36 to 64	64	OFDM	BPSK	6.0
A	802.11a	5500-5700	100 to 140	140	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.

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, 48, 52, 64	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 64	36, 48, 52, 64	OFDM	BPSK	13.0
A	802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	27.0
A	802.11a	5500-5700	100 to 140	100, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 140	OFDM	BPSK	13.0
A	802.11n (40MHz)		102 to 134	102, 134	OFDM	BPSK	27.0

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.

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	802.11n (20MHz)		36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.5
A	802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	13.5
A	802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0
A	802.11n (20MHz)		100 to 140	100, 116, 132, 140	OFDM	BPSK	6.5
A	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	EUT CONFIGURE MODE	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	A	20deg. C, 76%RH, 1017hPa	120Vac, 60Hz	Nick Chen
RE <1G	A	20deg. C, 76%RH, 1018hPa	120Vac, 60Hz	Nick Chen
	B	20deg. C, 76%RH, 1018hPa	11.1Vdc	Nick Chen
PLC	A	20deg. C, 78%RH, 1018hPa	120Vac, 60Hz	Jamison Chan
APCM	A	13deg. C, 78%RH, 11019Pa	120Vac, 60Hz	Jun Wu

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.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with its adapter or battery.

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100276	Dec. 15, 2010	Dec. 14, 2011
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100219	Nov. 24, 2010	Nov. 23, 2011
LISN With Adapter (for EUT)	AD10	C10Ada-001	Nov. 24, 2010	Nov. 23, 2011
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 24, 2010	Nov. 23, 2011
Software	ADT_Conf_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	Feb. 23, 2010	Feb. 22, 2011
SUHNTER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Feb. 23, 2010	Feb. 22, 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 Shielded Room No. 10.
3. The VCCI Site Registration No. C-1852.

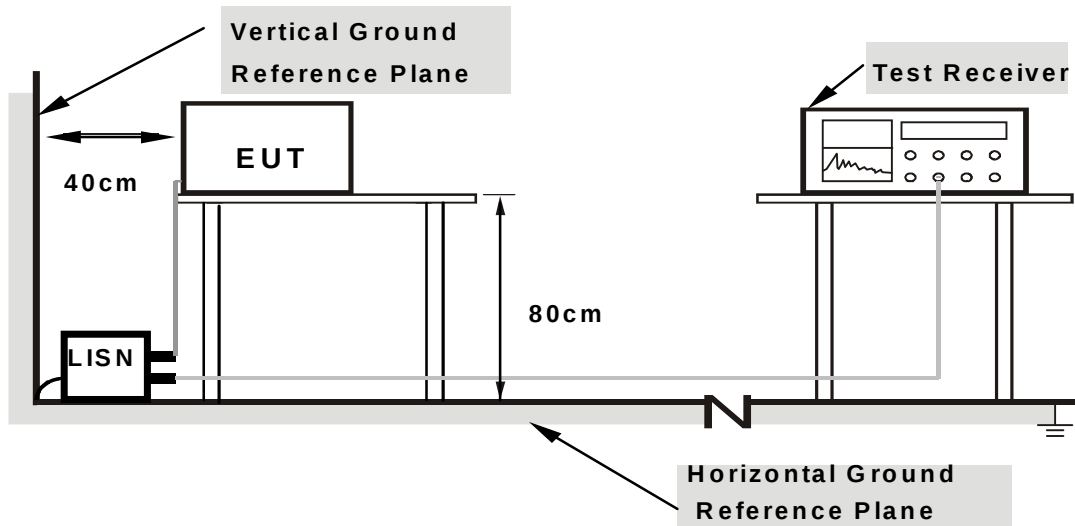
4.1.3 TEST PROCEDURES

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

- a. Turn on the power of all equipment.
- b. EUT ran a test program (provided by manufacture) to enable it under transmitting condition at specific channel continuously.

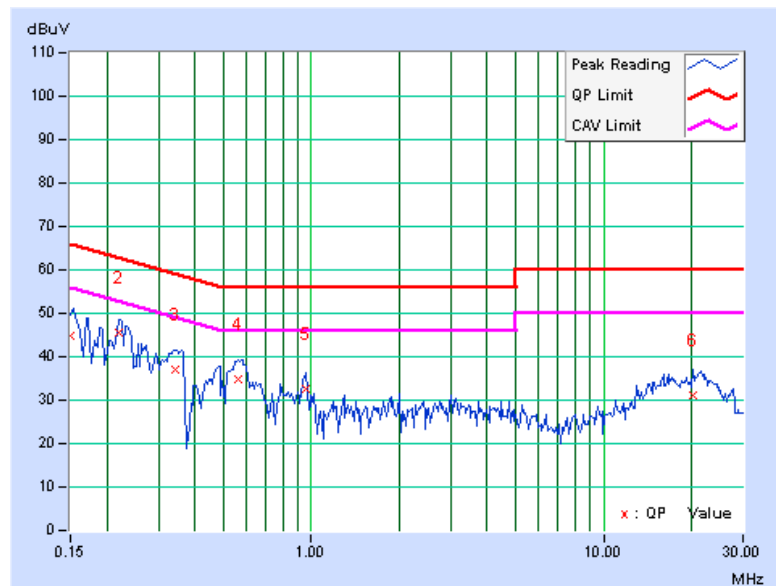
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11a

TEST MODE	A	6dB BANDWIDTH	9kHz
CHANNEL	Channel 64	PHASE	Line 1

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	0.150	0.19	44.74	-	44.93	-	66.00	56.00	-21.07	-
2	0.220	0.20	45.51	-	45.71	-	62.81	52.81	-17.10	-
3	0.341	0.27	36.67	-	36.94	-	59.17	49.17	-22.23	-
4	0.560	0.30	34.41	-	34.71	-	56.00	46.00	-21.29	-
5	0.959	0.31	32.28	-	32.59	-	56.00	46.00	-23.41	-
6	20.270	1.26	29.89	-	31.15	-	60.00	50.00	-28.85	-

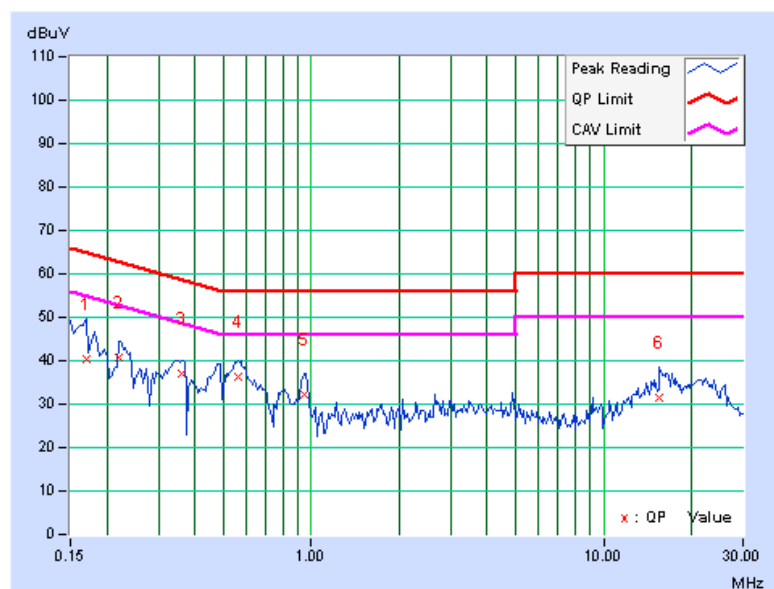
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	A	6dB BANDWIDTH	9kHz
CHANNEL	Channel 64	PHASE	Line 2

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	0.170	0.29	40.20	-	40.49	-	64.98	54.98	-24.50	-
2	0.220	0.29	40.59	-	40.88	-	62.81	52.81	-21.93	-
3	0.361	0.36	36.58	-	36.94	-	58.71	48.71	-21.77	-
4	0.564	0.38	35.74	-	36.12	-	56.00	46.00	-19.88	-
5	0.943	0.39	31.98	-	32.37	-	56.00	46.00	-23.63	-
6	15.504	0.94	30.38	-	31.32	-	60.00	50.00	-28.68	-

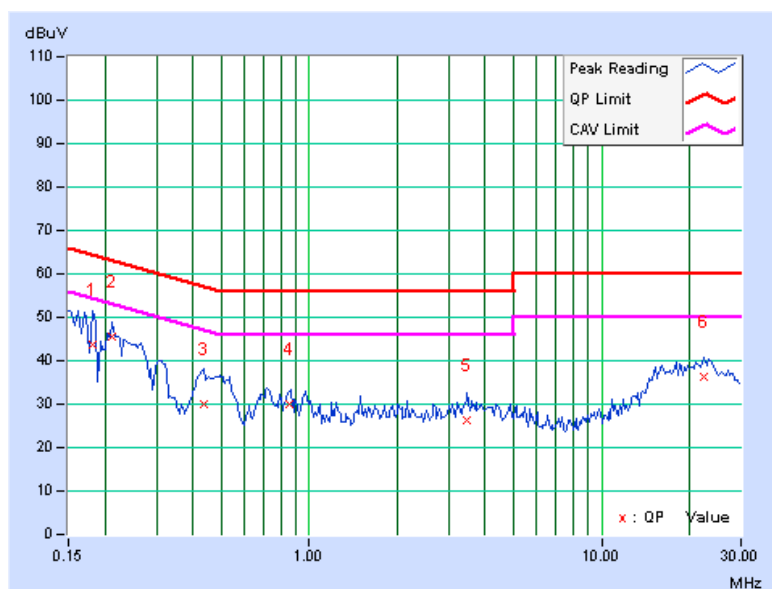
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	A	6dB BANDWIDTH	9kHz
CHANNEL	Channel 140	PHASE	Line 1

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	0.181	0.19	43.58	-	43.77	-	64.43	54.43	-20.66	-
2	0.213	0.20	45.36	-	45.56	-	63.11	53.11	-17.55	-
3	0.437	0.30	29.53	-	29.83	-	57.13	47.13	-27.30	-
4	0.860	0.31	29.79	-	30.10	-	56.00	46.00	-25.90	-
5	3.473	0.45	25.82	-	26.27	-	56.00	46.00	-29.73	-
6	22.414	1.30	34.86	-	36.16	-	60.00	50.00	-23.84	-

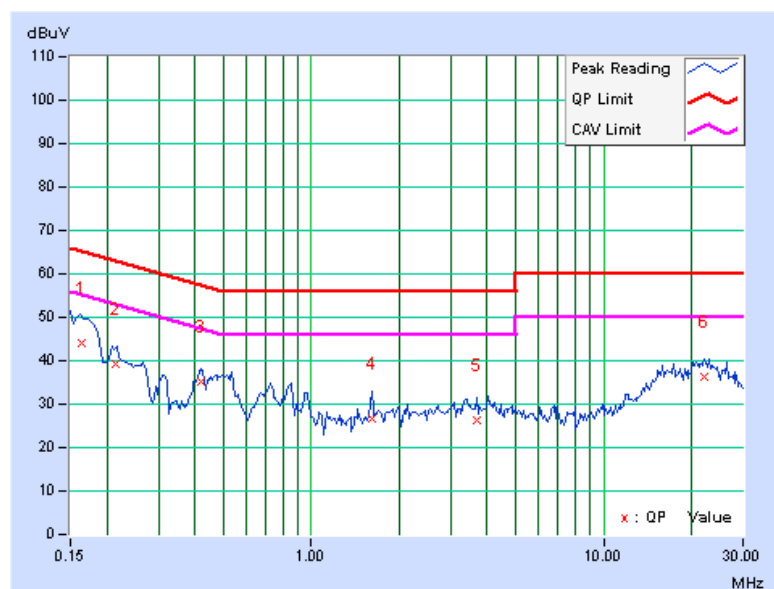
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	A	6dB BANDWIDTH	9kHz
CHANNEL	Channel 140	PHASE	Line 2

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	0.163	0.29	43.96	-	44.25	-	65.31	55.31	-21.06	-
2	0.215	0.29	39.14	-	39.43	-	63.00	53.00	-23.58	-
3	0.420	0.38	34.69	-	35.07	-	57.46	47.46	-22.39	-
4	1.605	0.40	26.22	-	26.62	-	56.00	46.00	-29.38	-
5	3.695	0.53	25.92	-	26.45	-	56.00	46.00	-29.55	-
6	21.977	1.06	35.10	-	36.16	-	60.00	50.00	-23.84	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

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

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/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:

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

4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	May 06, 2010	May 05, 2011
HP Preamplifier	8449B	3008A01924	Jul. 14, 2010	Jul. 13, 2011
HP Preamplifier	8449B	3008A01292	Jul. 14, 2010	Jul. 13, 2011
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2010	Jun. 09, 2011
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Antenna	VHBA 9123	480	Apr. 29, 2010	Apr. 28, 2011
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 20, 2010	Aug. 19, 2011
EMCO Horn Antenna	3115	6714	Oct. 26, 2010	Oct. 25, 2011
EMCO Horn Antenna	3115	9312-4192	Apr. 23, 2010	Apr. 22, 2011
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

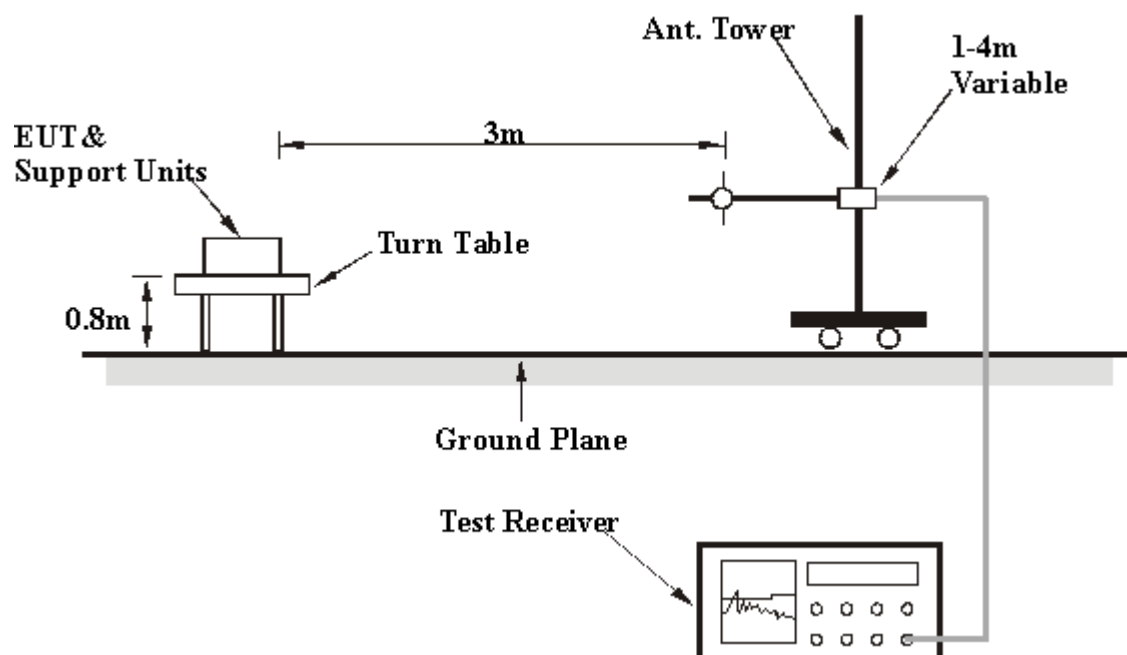
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth 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.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation.

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as item 4.1.6.

4.2.8 TEST RESULTS

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5150.00	68.4 PK	74.0	-5.6	1.00 H	213	28.02	40.40
2	5150.00	47.8 AV	54.0	-6.2	1.00 H	213	7.36	40.40
3	*5180.00	111.3 PK			1.00 H	213	70.96	40.38
4	*5180.00	101.5 AV			1.00 H	213	61.14	40.38
5	#10360.00	58.4 PK	68.3	-9.9	1.00 H	226	8.54	49.88
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	62.8 PK	74.0	-11.2	1.00 V	264	22.37	40.40
2	5150.00	44.4 AV	54.0	-9.6	1.00 V	264	3.98	40.40
3	*5180.00	108.4 PK			1.00 V	264	68.03	40.38
4	*5180.00	97.4 AV			1.00 V	264	57.00	40.38
5	#10360.00	58.0 PK	68.3	-10.3	1.00 V	301	8.11	49.88

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5200.00	112.0 PK			1.00 H	219	71.66	40.37
2	*5200.00	101.3 AV			1.00 H	219	60.97	40.37
3	#10400.00	58.3 PK	68.3	-10.0	1.00 H	255	8.42	49.90
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	*5200.00	107.9 PK			1.00 V	284	67.56	40.37
2	*5200.00	97.9 AV			1.00 V	284	57.48	40.37
3	#10400.00	57.5 PK	68.3	-10.8	1.00 V	291	7.62	49.90

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5240.00	112.5 PK			1.00 H	223	72.11	40.35
2	*5240.00	102.2 AV			1.00 H	223	61.82	40.35
3	5350.00	53.0 PK	74.0	-21.0	1.00 H	223	12.73	40.29
4	5350.00	40.1 AV	54.0	-13.9	1.00 H	223	-0.21	40.29
5	#10480.00	58.4 PK	68.3	-9.9	1.00 H	250	8.39	49.99
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	109.2 PK			1.00 V	284	68.80	40.35
2	*5240.00	99.5 AV			1.00 V	284	59.13	40.35
3	5350.00	51.3 PK	74.0	-22.7	1.00 V	284	11.04	40.29
4	5350.00	38.9 AV	54.0	-15.1	1.00 V	284	-1.40	40.29
5	#10480.00	58.0 PK	68.3	-10.3	1.00 V	291	7.97	49.99

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5150.00	50.8 PK	74.0	-23.2	1.00 H	243	10.43	40.40
2	5150.00	38.7 AV	54.0	-15.3	1.00 H	243	-1.69	40.40
3	*5260.00	112.2 PK			1.00 H	243	71.87	40.34
4	*5260.00	101.8 AV			1.00 H	243	61.45	40.34
5	#10520.00	58.4 PK	68.3	-9.9	1.00 H	231	8.35	50.03
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	48.9 PK	74.0	-25.1	1.00 V	268	8.53	40.40
2	5150.00	36.1 AV	54.0	-17.9	1.00 V	268	-4.34	40.40
3	*5260.00	109.5 PK			1.00 V	268	69.18	40.34
4	*5260.00	99.9 AV			1.00 V	268	59.59	40.34
5	#10520.00	57.6 PK	68.3	-10.7	1.00 V	293	7.60	50.03

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5300.00	113.1 PK			1.00 H	299	72.75	40.32
2	*5300.00	103.4 AV			1.00 H	299	63.06	40.32
3	10600.00	58.4 PK	74.0	-15.6	1.00 H	238	8.32	50.10
4	10600.00	45.2 AV	54.0	-8.8	1.00 H	238	-4.92	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	*5300.00	110.4 PK			1.00 V	277	70.03	40.32
2	*5300.00	100.0 AV			1.00 V	277	59.68	40.32
3	10600.00	57.8 PK	74.0	-16.2	1.00 V	289	7.73	50.10
4	10600.00	44.6 AV	54.0	-9.4	1.00 V	289	-5.49	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 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5320.00	112.3 PK			1.00 H	298	71.97	40.31
2	*5320.00	102.5 AV			1.00 H	298	62.18	40.31
3	5350.00	71.7 PK	74.0	-2.3	1.00 H	298	31.40	40.29
4	5350.00	48.2 AV	54.0	-5.9	1.00 H	298	7.86	40.29
5	10640.00	58.3 PK	74.0	-15.7	1.00 H	222	8.18	50.10
6	10640.00	45.1 AV	54.0	-8.9	1.00 H	222	-4.99	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	*5320.00	109.3 PK			1.00 V	254	68.97	40.31
2	*5320.00	100.0 AV			1.00 V	254	59.65	40.31
3	5350.00	68.9 PK	74.0	-5.1	1.00 V	254	28.59	40.29
4	5350.00	45.2 AV	54.0	-8.8	1.00 V	254	4.92	40.29
5	10640.00	57.9 PK	74.0	-16.1	1.00 V	290	7.83	50.10
6	10640.00	44.8 AV	54.0	-9.3	1.00 V	290	-5.35	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 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5460.00	60.8 PK	74.0	-13.2	1.00 H	243	20.50	40.33
2	5460.00	40.5 AV	54.0	-13.5	1.00 H	243	0.19	40.33
3	#5470.00	68.1 PK	68.3	-0.2	1.00 H	243	27.74	40.34
4	*5500.00	111.2 PK			1.00 H	243	70.85	40.38
5	*5500.00	102.0 AV			1.00 H	243	61.58	40.38
6	11000.00	58.4 PK	74.0	-15.6	1.00 H	258	8.05	50.37
7	11000.00	45.5 AV	54.0	-8.5	1.00 H	258	-4.91	50.37
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	60.7 PK	74.0	-13.3	1.00 V	311	20.39	40.33
2	5460.00	40.0 AV	54.0	-14.0	1.00 V	311	-0.32	40.33
3	#5470.00	66.6 PK	68.3	-1.7	1.00 V	311	26.24	40.34
4	*5500.00	110.1 PK			1.00 V	311	69.70	40.38
5	*5500.00	100.6 AV			1.00 V	311	60.24	40.38
6	11000.00	57.9 PK	74.0	-16.1	1.00 V	328	7.57	50.37
7	11000.00	44.9 AV	54.0	-9.1	1.00 V	328	-5.50	50.37

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5580.00	110.4 PK			1.00 H	233	69.84	40.59
2	*5580.00	100.3 AV			1.00 H	233	59.69	40.59
3	11160.00	58.0 PK	74.0	-16.0	1.00 H	229	7.77	50.26
4	11160.00	45.0 AV	54.0	-9.0	1.00 H	229	-5.30	50.26
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	107.2 PK			1.00 V	333	66.65	40.59
2	*5580.00	97.0 AV			1.00 V	333	56.36	40.59
3	11160.00	57.9 PK	74.0	-16.1	1.00 V	356	7.63	50.26
4	11160.00	44.6 AV	54.0	-9.4	1.00 V	356	-5.69	50.26

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 136	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5660.00	110.1 PK			1.00 H	216	69.33	40.78
2	*5660.00	100.0 AV			1.00 H	216	59.25	40.78
3	11320.00	58.5 PK	74.0	-15.5	1.00 H	236	8.18	50.30
4	11320.00	45.2 AV	54.0	-8.8	1.00 H	236	-5.07	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	*5660.00	107.4 PK			1.00 V	339	66.60	40.78
2	*5660.00	97.1 AV			1.00 V	339	56.34	40.78
3	11320.00	58.1 PK	74.0	-16.0	1.00 V	341	7.75	50.30
4	11320.00	44.9 AV	54.0	-9.1	1.00 V	341	-5.44	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5700.00	108.3 PK			1.00 H	189	67.47	40.87
2	*5700.00	98.5 AV			1.00 H	189	57.66	40.87
3	#5725.00	67.9 PK	68.3	-15.2	1.00 H	189	27.00	40.93
4	11400.00	58.1 PK	74.0	-15.9	1.00 H	201	7.86	50.26
5	11400.00	45.1 AV	54.0	-8.9	1.00 H	201	-5.20	50.26
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	103.1 PK			1.00 V	296	62.21	40.87
2	*5700.00	92.6 AV			1.00 V	296	51.76	40.87
3	#5725.00	65.3 PK	68.3	-3.0	1.00 V	296	24.38	40.93
4	11400.00	57.7 PK	74.0	-16.3	1.00 V	238	7.47	50.26
5	11400.00	44.5 AV	54.0	-9.5	1.00 V	238	-5.78	50.26

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5150.00	58.4 PK	74.0	-15.6	1.00 H	224	17.96	40.40
2	5150.00	42.0 AV	54.0	-12.0	1.00 H	224	1.61	40.40
3	*5180.00	109.9 PK			1.00 H	224	69.54	40.38
4	*5180.00	97.5 AV			1.00 H	224	57.13	40.38
5	#10360.00	58.0 PK	68.3	-10.3	1.00 H	253	8.14	49.88
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	56.5 PK	74.0	-17.5	1.00 V	264	16.08	40.40
2	5150.00	41.4 AV	54.0	-12.6	1.00 V	264	1.01	40.40
3	*5180.00	107.3 PK			1.00 V	264	66.93	40.38
4	*5180.00	96.2 AV			1.00 V	264	55.85	40.38
5	#10360.00	57.3 PK	68.3	-11.0	1.00 V	211	7.46	49.88

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5200.00	110.4 PK			1.00 H	223	70.05	40.37
2	*5200.00	98.5 AV			1.00 H	223	58.14	40.37
3	#10400.00	57.9 PK	68.3	-10.4	1.00 H	196	8.04	49.90
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	*5200.00	108.4 PK			1.00 V	261	68.06	40.37
2	*5200.00	97.6 AV			1.00 V	261	57.19	40.37
3	#10400.00	57.3 PK	68.3	-11.0	1.00 V	281	7.41	49.90

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5240.00	111.6 PK			1.00 H	308	71.28	40.35
2	*5240.00	99.8 AV			1.00 H	308	59.46	40.35
3	5350.00	52.6 PK	74.0	-21.4	1.00 H	308	12.27	40.29
4	5350.00	39.5 AV	54.0	-14.5	1.00 H	308	-0.80	40.29
5	#10480.00	57.9 PK	68.3	-10.4	1.00 H	273	7.93	49.99
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	107.9 PK			1.00 V	269	67.51	40.35
2	*5240.00	97.1 AV			1.00 V	269	56.76	40.35
3	5350.00	50.4 PK	74.0	-23.6	1.00 V	269	10.13	40.29
4	5350.00	38.3 AV	54.0	-15.7	1.00 V	269	-1.95	40.29
5	#10480.00	57.6 PK	68.3	-10.7	1.00 V	252	7.64	49.99

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5150.00	48.9 PK	74.0	-25.1	1.00 H	294	8.48	40.40
2	5150.00	37.1 AV	54.0	-16.9	1.00 H	294	-3.27	40.40
3	*5260.00	111.4 PK			1.00 H	294	71.02	40.34
4	*5260.00	100.5 AV			1.00 H	294	60.18	40.34
5	#10520.00	58.0 PK	68.3	-10.3	1.00 H	236	7.98	50.03
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	50.0 PK	74.0	-24.0	1.00 V	302	9.56	40.40
2	5150.00	36.8 AV	54.0	-17.2	1.00 V	302	-3.64	40.40
3	*5260.00	109.5 PK			1.00 V	302	69.18	40.34
4	*5260.00	98.7 AV			1.00 V	302	58.31	40.34
5	#10520.00	57.7 PK	68.3	-10.6	1.00 V	238	7.65	50.03

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5300.00	112.6 PK			1.00 H	293	72.26	40.32
2	*5300.00	100.5 AV			1.00 H	293	60.14	40.32
3	10600.00	58.1 PK	74.0	-15.9	1.00 H	273	8.01	50.10
4	10600.00	44.9 AV	54.0	-9.1	1.00 H	273	-5.18	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	*5300.00	110.9 PK			1.00 V	321	70.53	40.32
2	*5300.00	99.7 AV			1.00 V	321	59.36	40.32
3	10600.00	57.5 PK	74.0	-16.5	1.00 V	282	7.42	50.10
4	10600.00	45.0 AV	54.0	-9.0	1.00 V	282	-5.09	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5320.00	113.5 PK			1.00 H	182	73.18	40.31
2	*5320.00	101.9 AV			1.00 H	182	61.61	40.31
3	5350.00	57.4 PK	74.0	-16.6	1.00 H	182	17.13	40.29
4	5350.00	43.5 AV	54.0	-10.5	1.00 H	182	3.17	40.29
5	10640.00	58.2 PK	74.0	-15.8	1.00 H	231	8.07	50.10
6	10640.00	45.0 AV	54.0	-9.0	1.00 H	231	-5.07	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	*5320.00	110.7 PK			1.00 V	187	70.38	40.31
2	*5320.00	99.4 AV			1.00 V	187	59.11	40.31
3	5350.00	56.2 PK	74.0	-17.8	1.00 V	187	15.88	40.29
4	5350.00	43.4 AV	54.0	-10.6	1.00 V	187	3.14	40.29
5	10640.00	57.8 PK	74.0	-16.3	1.00 V	159	7.65	50.10
6	10640.00	44.5 AV	54.0	-9.5	1.00 V	159	-5.59	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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5460.00	58.9 PK	74.0	-15.1	1.00 H	188	18.60	40.33
2	5460.00	39.4 AV	54.0	-14.6	1.00 H	188	-0.95	40.33
3	#5470.00	59.8 PK	68.3	-8.6	1.00 H	188	19.41	40.34
4	*5500.00	111.1 PK			1.00 H	188	70.67	40.38
5	*5500.00	99.8 AV			1.00 H	188	59.40	40.38
6	11000.00	58.0 PK	74.0	-16.0	1.00 H	204	7.64	50.37
7	11000.00	45.0 AV	54.0	-9.0	1.00 H	204	-5.41	50.37
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	58.3 PK	74.0	-15.7	1.00 V	199	17.95	40.33
2	5460.00	38.6 AV	54.0	-15.4	1.00 V	199	-1.71	40.33
3	#5470.00	61.2 PK	68.3	-7.1	1.00 V	199	20.88	40.34
4	*5500.00	109.8 PK			1.00 V	199	69.45	40.38
5	*5500.00	98.9 AV			1.00 V	199	58.51	40.38
6	11000.00	57.7 PK	74.0	-16.3	1.00 V	168	7.31	50.37
7	11000.00	44.5 AV	54.0	-9.5	1.00 V	168	-5.85	50.37

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5580.00	110.0 PK			1.00 H	196	69.43	40.59
2	*5580.00	98.5 AV			1.00 H	196	57.93	40.59
3	11160.00	58.2 PK	74.0	-15.8	1.00 H	175	7.91	50.26
4	11160.00	45.1 AV	54.0	-8.9	1.00 H	175	-5.13	50.26
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	108.6 PK			1.00 V	198	68.05	40.59
2	*5580.00	97.1 AV			1.00 V	198	56.52	40.59
3	11160.00	57.6 PK	74.0	-16.4	1.00 V	226	7.37	50.26
4	11160.00	44.5 AV	54.0	-9.5	1.00 V	226	-5.74	50.26

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 136	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5660.00	109.9 PK			1.00 H	194	69.08	40.78
2	*5660.00	98.4 AV			1.00 H	194	57.64	40.78
3	11320.00	58.1 PK	74.0	-15.9	1.00 H	202	7.79	50.30
4	11320.00	45.3 AV	54.0	-8.8	1.00 H	202	-5.05	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	*5660.00	108.2 PK			1.00 V	218	67.38	40.78
2	*5660.00	96.8 AV			1.00 V	218	56.05	40.78
3	11320.00	57.5 PK	74.0	-16.5	1.00 V	224	7.23	50.30
4	11320.00	44.4 AV	54.0	-9.6	1.00 V	224	-5.88	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5700.00	109.0 PK			1.00 H	186	68.09	40.87
2	*5700.00	97.5 AV			1.00 H	186	56.65	40.87
3	#5725.00	59.9 PK	68.3	-8.4	1.00 H	186	18.96	40.93
4	11400.00	57.9 PK	74.0	-16.1	1.00 H	179	7.65	50.26
5	11400.00	45.0 AV	54.0	-9.0	1.00 H	179	-5.29	50.26
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	108.8 PK			1.00 V	192	67.94	40.87
2	*5700.00	97.7 AV			1.00 V	192	56.78	40.87
3	#5725.00	58.3 PK	68.3	-10.0	1.00 V	192	17.40	40.93
4	11400.00	57.8 PK	74.0	-16.2	1.00 V	202	7.57	50.26
5	11400.00	44.9 AV	54.0	-9.1	1.00 V	202	-5.34	50.26

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5150.00	68.5 PK	74.0	-5.5	1.00 H	213	28.12	40.40
2	5150.00	53.1 AV	54.0	-0.9	1.00 H	213	12.72	40.40
3	*5190.00	108.3 PK			1.00 H	213	67.93	40.38
4	*5190.00	96.4 AV			1.00 H	213	56.06	40.38
5	#10380.00	58.0 PK	68.3	-10.3	1.00 H	252	8.07	49.89
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	66.1 PK	74.0	-8.0	1.00 V	294	25.65	40.40
2	5150.00	52.1 AV	54.0	-1.9	1.00 V	294	11.68	40.40
3	*5190.00	106.6 PK			1.00 V	294	66.23	40.38
4	*5190.00	94.8 AV			1.00 V	294	54.45	40.38
5	#10380.00	57.8 PK	68.3	-10.5	1.00 V	263	7.88	49.89

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5230.00	108.4 PK			1.00 H	298	68.06	40.36
2	*5230.00	97.2 AV			1.00 H	298	56.80	40.36
3	5350.00	51.0 PK	74.0	-23.0	1.00 H	298	10.73	40.29
4	5350.00	39.5 AV	54.0	-14.6	1.00 H	298	-0.84	40.29
5	#10460.00	58.0 PK	68.3	-10.3	1.00 H	263	7.99	49.97
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	*5230.00	105.8 PK			1.00 V	283	65.44	40.36
2	*5230.00	94.9 AV			1.00 V	283	54.50	40.36
3	5350.00	51.0 PK	74.0	-23.0	1.00 V	283	10.73	40.29
4	5350.00	39.1 AV	54.0	-15.0	1.00 V	283	-1.24	40.29
5	#10460.00	57.7 PK	68.3	-10.6	1.00 V	244	7.76	49.97

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 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5150.00	49.4 PK	74.0	-24.6	1.00 H	299	9.02	40.40
2	5150.00	37.7 AV	54.0	-16.3	1.00 H	299	-2.72	40.40
3	*5270.00	109.3 PK			1.00 H	299	68.94	40.34
4	*5270.00	97.3 AV			1.00 H	299	57.01	40.34
5	#10540.00	58.0 PK	68.3	-10.3	1.00 H	313	7.98	50.05
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	48.0 PK	74.0	-26.0	1.00 V	301	7.63	40.40
2	5150.00	36.3 AV	54.0	-17.7	1.00 V	301	-4.09	40.40
3	*5270.00	106.5 PK			1.00 V	301	66.19	40.34
4	*5270.00	95.8 AV			1.00 V	301	55.43	40.34
5	#10540.00	57.8 PK	68.3	-10.5	1.00 V	202	7.78	50.05

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 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5310.00	110.0 PK			1.00 H	311	69.71	40.31
2	*5310.00	99.1 AV			1.00 H	311	58.75	40.31
3	5350.00	70.4 PK	74.0	-3.6	1.00 H	311	30.09	40.29
4	5350.00	53.7 AV	54.0	-0.3	1.00 H	311	13.40	40.29
5	10620.00	58.4 PK	74.0	-15.6	1.00 H	196	8.28	50.10
6	10620.00	45.2 AV	54.0	-8.8	1.00 H	196	-4.93	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	*5310.00	108.6 PK			1.00 V	322	68.31	40.31
2	*5310.00	96.6 AV			1.00 V	322	56.33	40.31
3	5350.00	68.5 PK	74.0	-5.5	1.00 V	322	28.19	40.29
4	5350.00	53.3 AV	54.0	-0.7	1.00 V	322	12.97	40.29
5	10620.00	47.8 PK	74.0	-26.2	1.00 V	274	-2.27	50.10
6	10620.00	44.5 AV	54.0	-9.5	1.00 V	274	-5.62	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	5460.00	62.7 PK	74.0	-11.3	1.00 H	268	22.40	40.33
2	5460.00	46.8 AV	54.0	-7.2	1.00 H	268	6.45	40.33
3	#5470.00	67.8 PK	68.3	-0.5	1.00 H	268	27.44	40.34
4	*5510.00	107.1 PK			1.00 H	268	66.70	40.41
5	*5510.00	95.7 AV			1.00 H	268	55.28	40.41
6	11020.00	58.2 PK	74.0	-15.8	1.00 H	199	7.81	50.36
7	11020.00	45.1 AV	54.0	-8.9	1.00 H	199	-5.30	50.36
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	60.2 PK	74.0	-13.8	1.00 V	323	19.90	40.33
2	5460.00	45.5 AV	54.0	-8.5	1.00 V	323	5.19	40.33
3	#5470.00	67.6 PK	68.3	-0.7	1.00 V	323	27.22	40.34
4	*5510.00	106.1 PK			1.00 V	323	65.70	40.41
5	*5510.00	94.4 AV			1.00 V	323	53.94	40.41
6	11020.00	57.6 PK	74.0	-16.4	1.00 V	284	7.28	50.36
7	11020.00	44.7 AV	54.0	-9.3	1.00 V	284	-5.68	50.36

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5550.00	105.3 PK			1.00 H	221	64.80	40.51
2	*5550.00	95.1 AV			1.00 H	221	54.62	40.51
3	11100.00	58.0 PK	74.0	-16.0	1.00 H	211	7.72	50.31
4	11100.00	45.0 AV	54.0	-9.0	1.00 H	211	-5.33	50.31
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	*5550.00	104.5 PK			1.00 V	311	64.02	40.51
2	*5550.00	93.9 AV			1.00 V	311	53.34	40.51
3	11100.00	57.7 PK	74.0	-16.3	1.00 V	297	7.36	50.31
4	11100.00	44.9 AV	54.0	-9.1	1.00 V	297	-5.43	50.31

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 73% RH 1016hPa	TESTED BY	Jamison Chan
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	*5670.00	105.0 PK			1.00 H	256	64.19	40.80
2	*5670.00	92.3 AV			1.00 H	256	51.52	40.80
3	#5725.00	54.7 PK	68.3	-13.6	1.00 H	256	13.73	40.93
4	11340.00	58.0 PK	74.0	-16.0	1.00 H	222	7.67	50.29
5	11340.00	45.0 AV	54.0	-9.0	1.00 H	222	-5.27	50.29
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	*5670.00	102.1 PK			1.00 V	329	61.28	40.80
2	*5670.00	91.0 AV			1.00 V	329	50.23	40.80
3	#5725.00	50.9 PK	68.3	-17.4	1.00 V	329	10.00	40.93
4	11340.00	57.7 PK	74.0	-16.3	1.00 V	213	7.37	50.29
5	11340.00	44.7 AV	54.0	-9.3	1.00 V	213	-5.57	50.29

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.

BELOW 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 58% RH 1016hPa	TESTED BY	Jun Wu
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	31.55	34.1 QP	40.0	-5.9	1.48 H	184	21.90	12.24
2	65.75	31.3 QP	40.0	-8.7	1.40 H	10	18.52	12.81
3	333.12	34.1 QP	46.0	-11.9	1.32 H	199	17.49	16.65
4	451.27	36.6 QP	46.0	-9.4	1.27 H	157	17.30	19.29
5	460.59	36.5 QP	46.0	-9.5	1.24 H	358	16.90	19.59
6	521.22	38.2 QP	46.0	-7.8	1.20 H	151	16.79	21.40
7	664.23	34.3 QP	46.0	-11.7	1.15 H	196	10.01	24.30
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	121.71	37.1 QP	43.5	-6.4	1.00 V	217	24.65	12.46
2	165.24	34.3 QP	43.5	-9.2	1.00 V	181	20.00	14.26
3	253.85	37.4 QP	46.0	-8.6	1.00 V	172	23.57	13.85
4	270.95	38.7 QP	46.0	-7.3	1.00 V	172	24.10	14.57
5	392.20	33.5 QP	46.0	-12.6	1.00 V	67	15.25	18.20
6	454.37	37.8 QP	46.0	-8.2	1.00 V	139	18.40	19.39
7	667.34	35.7 QP	46.0	-10.3	1.06 V	10	11.35	24.35

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 58% RH 1016hPa	TESTED BY	Jun Wu
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	31.55	33.9 QP	40.0	-6.1	1.36 H	214	21.62	12.24
2	65.75	31.0 QP	40.0	-9.0	1.30 H	10	18.20	12.81
3	302.04	33.2 QP	46.0	-12.8	1.27 H	124	17.41	15.83
4	337.79	34.1 QP	46.0	-12.0	1.25 H	208	17.28	16.77
5	407.74	36.8 QP	46.0	-9.2	1.28 H	145	18.26	18.54
6	449.71	36.1 QP	46.0	-9.9	1.24 H	10	16.86	19.25
7	583.40	35.6 QP	46.0	-10.4	1.15 H	163	12.69	22.91
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	176.12	37.8 QP	43.5	-5.7	1.00 V	178	25.19	12.65
2	224.31	32.8 QP	46.0	-13.2	1.00 V	178	20.54	12.28
3	378.21	32.8 QP	46.0	-13.2	1.00 V	70	14.96	17.83
4	389.09	34.2 QP	46.0	-11.9	1.00 V	82	16.02	18.12
5	457.48	35.2 QP	46.0	-10.8	1.00 V	97	15.72	19.49
6	664.23	33.0 QP	46.0	-13.0	1.09 V	319	8.72	24.30

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	11.1Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 58% RH 1016hPa	TESTED BY	Jun Wu
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	31.55	32.2 QP	40.0	-7.8	1.39 H	307	20.00	12.24
2	65.75	29.8 QP	40.0	-10.2	1.40 H	10	16.99	12.81
3	132.60	29.6 QP	43.5	-13.9	1.34 H	265	15.94	13.66
4	258.51	31.1 QP	46.0	-14.9	1.27 H	61	17.09	14.04
5	325.35	34.9 QP	46.0	-11.1	1.31 H	208	18.49	16.44
6	667.34	34.7 QP	46.0	-11.3	1.15 H	295	10.34	24.35
7	745.06	32.6 QP	46.0	-13.4	1.07 H	304	7.11	25.46
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	31.55	32.1 QP	40.0	-7.9	1.00 V	283	19.90	12.24
2	65.75	29.1 QP	40.0	-10.9	1.00 V	253	16.26	12.81
3	118.61	31.5 QP	43.5	-12.0	1.00 V	10	19.42	12.05
4	140.37	29.8 QP	43.5	-13.8	1.00 V	175	15.30	14.45
5	483.91	30.7 QP	46.0	-15.3	1.00 V	292	10.32	20.34
6	667.34	30.2 QP	46.0	-15.8	1.03 V	352	5.83	24.35
7	745.06	31.8 QP	46.0	-14.2	1.15 V	187	6.37	25.46

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	11.1Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 58% RH 1016 Pa	TESTED BY	Jun Wu
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	31.55	32.2 QP	40.0	-7.8	1.45 H	220	19.95	12.24
2	65.75	31.9 QP	40.0	-8.2	1.34 H	10	19.04	12.81
3	120.16	28.4 QP	43.5	-15.1	1.27 H	196	16.10	12.29
4	253.85	31.8 QP	46.0	-14.3	1.24 H	91	17.90	13.85
5	320.69	33.4 QP	46.0	-12.6	1.18 H	211	17.06	16.32
6	334.68	34.0 QP	46.0	-12.0	1.15 H	208	17.30	16.69
7	745.06	32.6 QP	46.0	-13.4	1.10 H	313	7.10	25.46
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	65.75	31.6 QP	40.0	-8.4	1.00 V	10	18.82	12.81
2	120.16	29.7 QP	43.5	-13.8	1.00 V	175	17.39	12.29
3	609.82	30.8 QP	46.0	-15.3	1.07 V	244	7.30	23.45
4	625.37	31.7 QP	46.0	-14.4	1.14 V	217	7.95	23.70
5	745.06	31.0 QP	46.0	-15.0	1.21 V	193	5.56	25.46
6	911.39	31.9 QP	46.0	-14.1	1.06 V	217	3.87	28.06
7	942.48	31.5 QP	46.0	-14.5	1.23 V	181	3.06	28.48

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.

4.3 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	CALIBRATED UNTIL
Anritsu Power Sensor	MA2411B	0738404	Apr. 21, 2010	Apr. 20, 2011
Anritsu Power Meter	ML2495A	0842014	Apr. 21, 2010	Apr. 20, 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. 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	100036	Apr. 27, 2010	Apr. 26, 2011

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

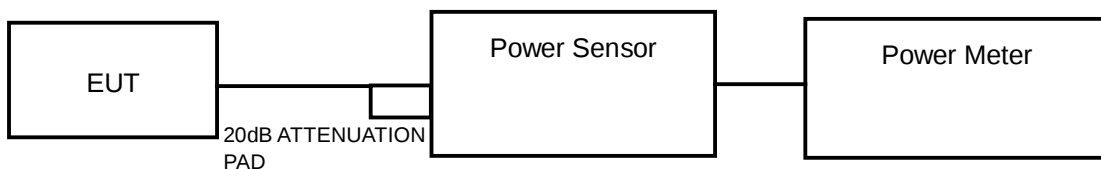
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

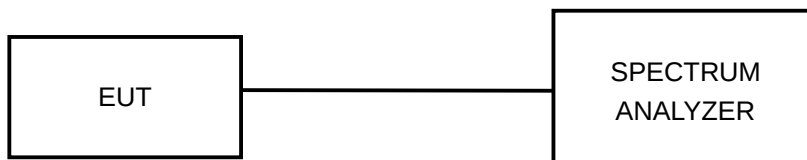
No deviation.

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	32.4	15.1	17	PASS
40	5200	31.6	15.0	17	PASS
48	5240	31.6	15.0	17	PASS
52	5260	33.1	15.2	24	PASS
60	5300	33.1	15.2	24	PASS
64	5320	32.4	15.1	24	PASS
100	5500	31.6	15.0	24	PASS
116	5580	33.1	15.2	24	PASS
132	5660	34.7	15.4	24	PASS
140	5700	25.1	14.0	24	PASS

Note: Directional gain = $0.80\text{dBi} + 10\log(2) = 3.81\text{dBi}$ which meet the requirement of antenna gain, so the conducted power limit is not reduced.

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.9	11.8	27.4	14.4	17	PASS
40	5200	11.0	12.0	28.4	14.5	17	PASS
48	5240	11.2	12.2	29.8	14.7	17	PASS
52	5260	11.4	12.4	31.2	14.9	24	PASS
60	5300	11.5	12.4	31.5	15.0	24	PASS
64	5320	11.5	12.5	31.9	15.0	24	PASS
100	5500	11.4	12.5	31.6	15.0	24	PASS
116	5580	11.4	12.3	30.8	14.9	24	PASS
132	5660	11.4	12.1	30.0	14.8	24	PASS
140	5700	11.4	12.3	30.8	14.9	24	PASS

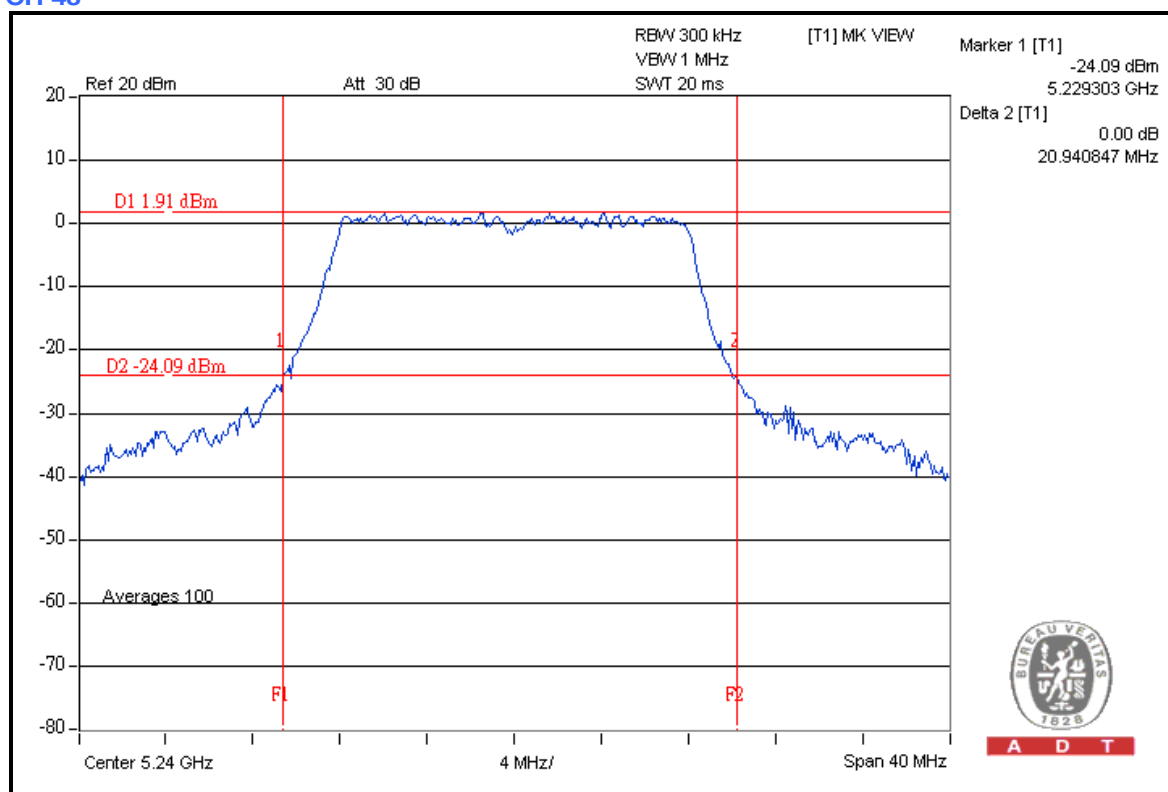
802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	11.7	12.3	31.8	15.0	17	PASS
46	5230	11.8	12.3	32.1	15.1	17	PASS
54	5270	11.8	12.4	32.5	15.1	24	PASS
62	5310	11.3	12.2	30.1	14.8	24	PASS
102	5510	11.8	12.3	32.1	15.1	24	PASS
110	5550	11.8	12.3	32.1	15.1	24	PASS
134	5670	11.6	12.1	30.7	14.9	24	PASS

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
36	5180	20.79
40	5200	20.79
48	5240	20.94
52	5260	20.66
60	5300	20.69
64	5320	20.60
100	5500	19.82
116	5580	19.83
132	5660	19.68
140	5700	19.91

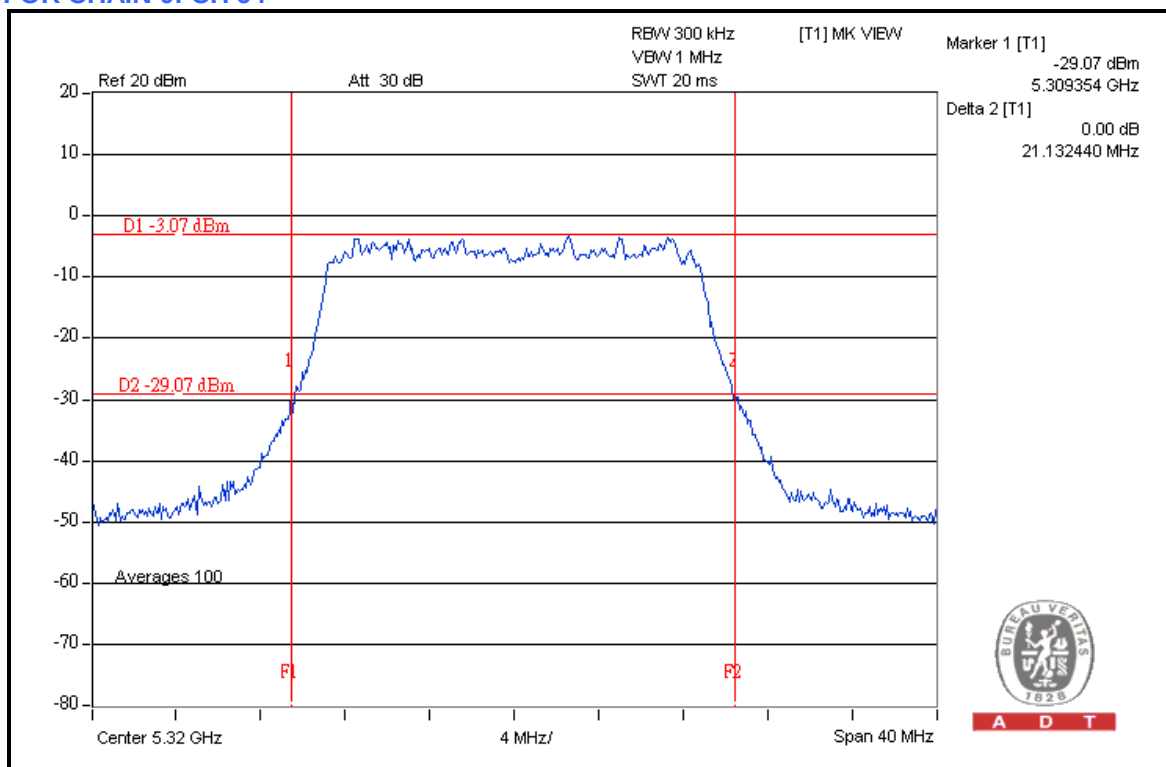
CH 48



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	20.84	20.95
40	5200	20.88	20.85
48	5240	20.75	20.92
52	5260	20.86	20.83
60	5300	20.93	21.08
64	5320	21.13	20.87
100	5500	20.32	20.43
116	5580	20.38	20.42
132	5660	20.52	20.46
140	5700	20.27	20.48

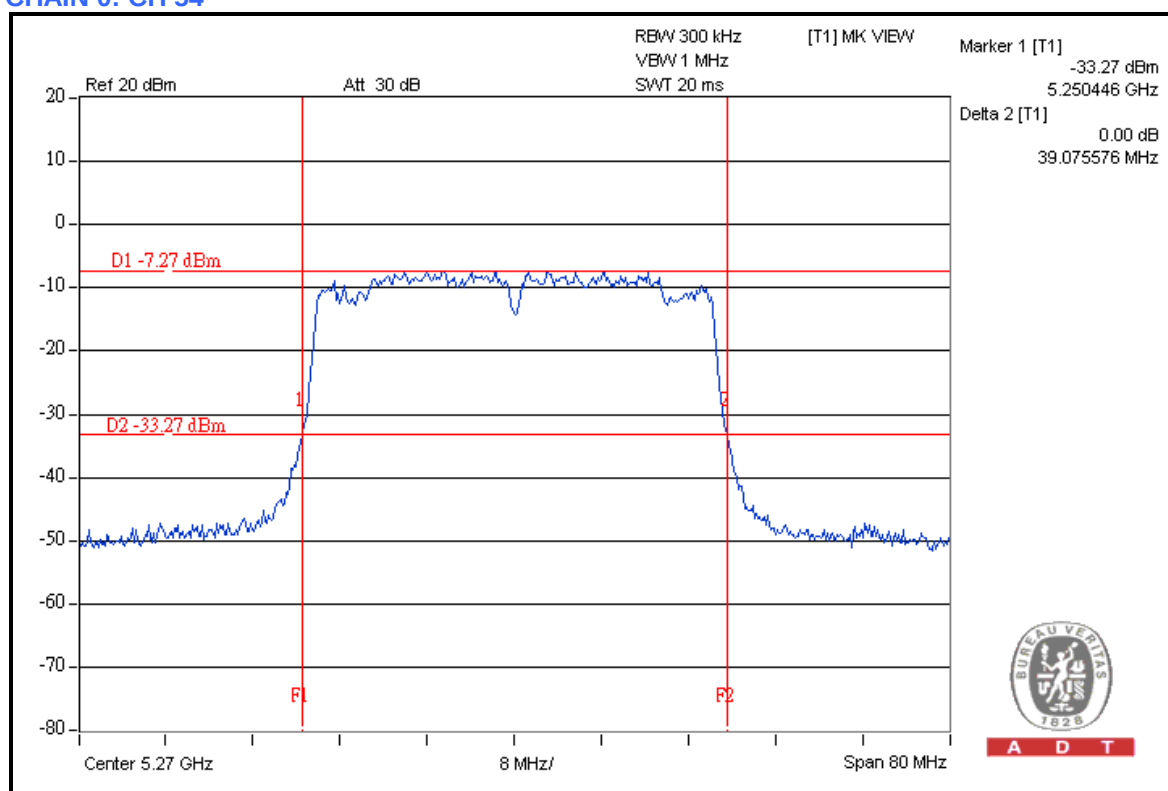
FOR CHAIN 0: CH 64



802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	39.02	38.96
46	5230	38.83	38.98
54	5270	39.08	39.04
62	5310	38.95	39.06
102	5510	39.06	38.92
110	5550	38.78	38.92
134	5670	38.83	38.94

CHAIN 0: CH 54



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	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

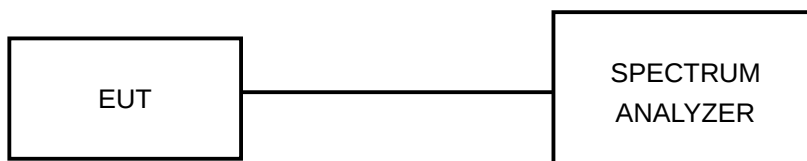
4.4.3 TEST PROCEDURE

- 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

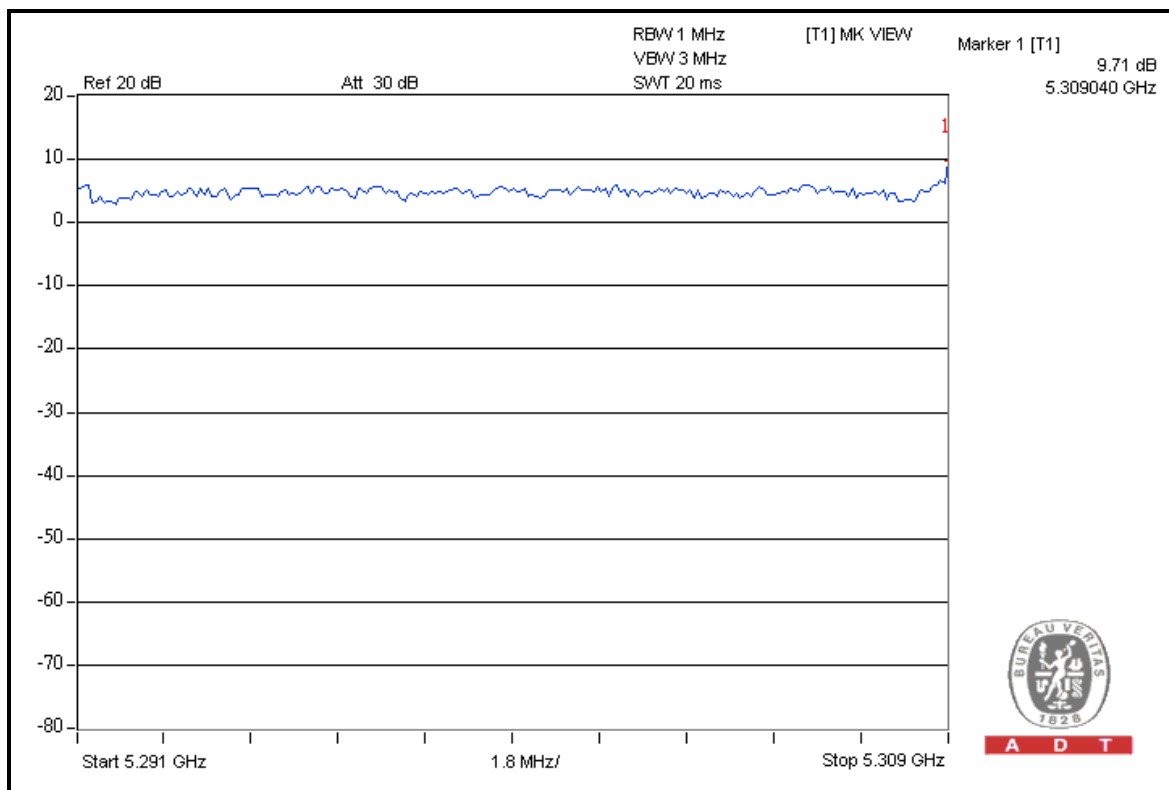
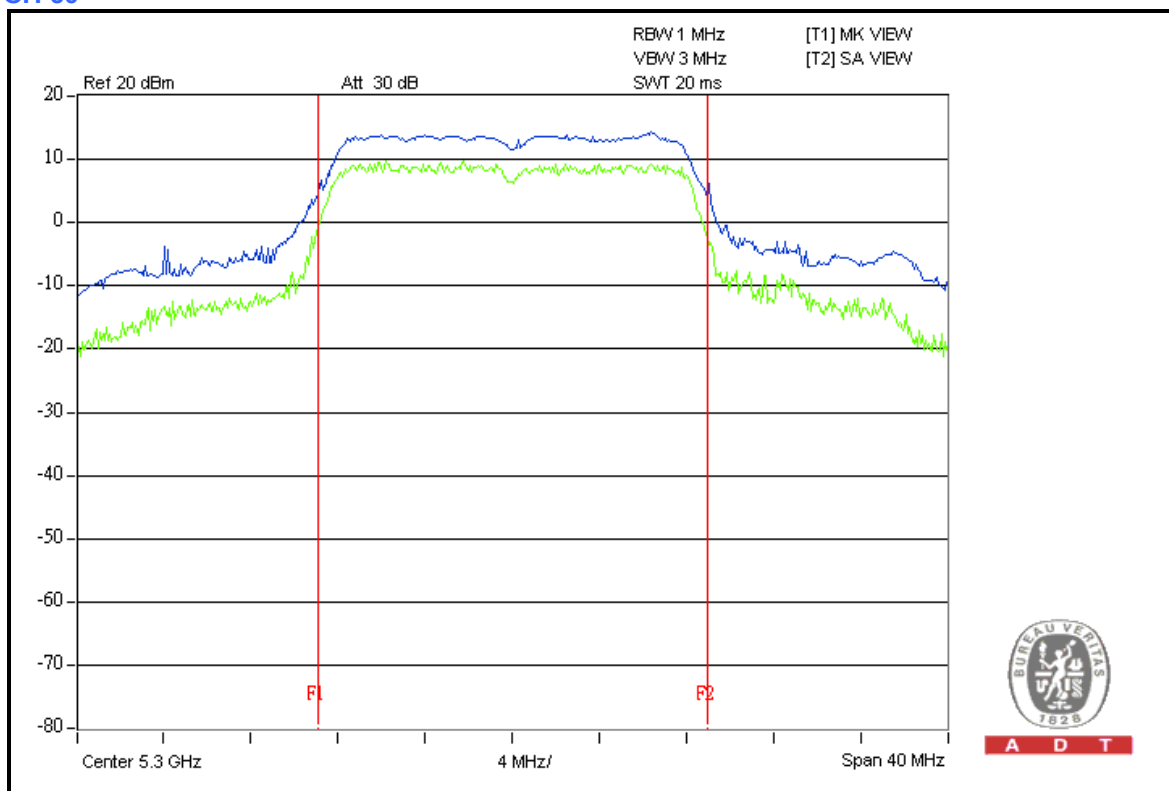
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	6.76	13	PASS
40	5200	6.27	13	PASS
48	5240	6.86	13	PASS
52	5260	7.45	13	PASS
60	5300	9.71	13	PASS
64	5320	7.82	13	PASS
100	5500	8.58	13	PASS
116	5580	6.84	13	PASS
132	5660	6.83	13	PASS
140	5700	6.90	13	PASS



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CH 60



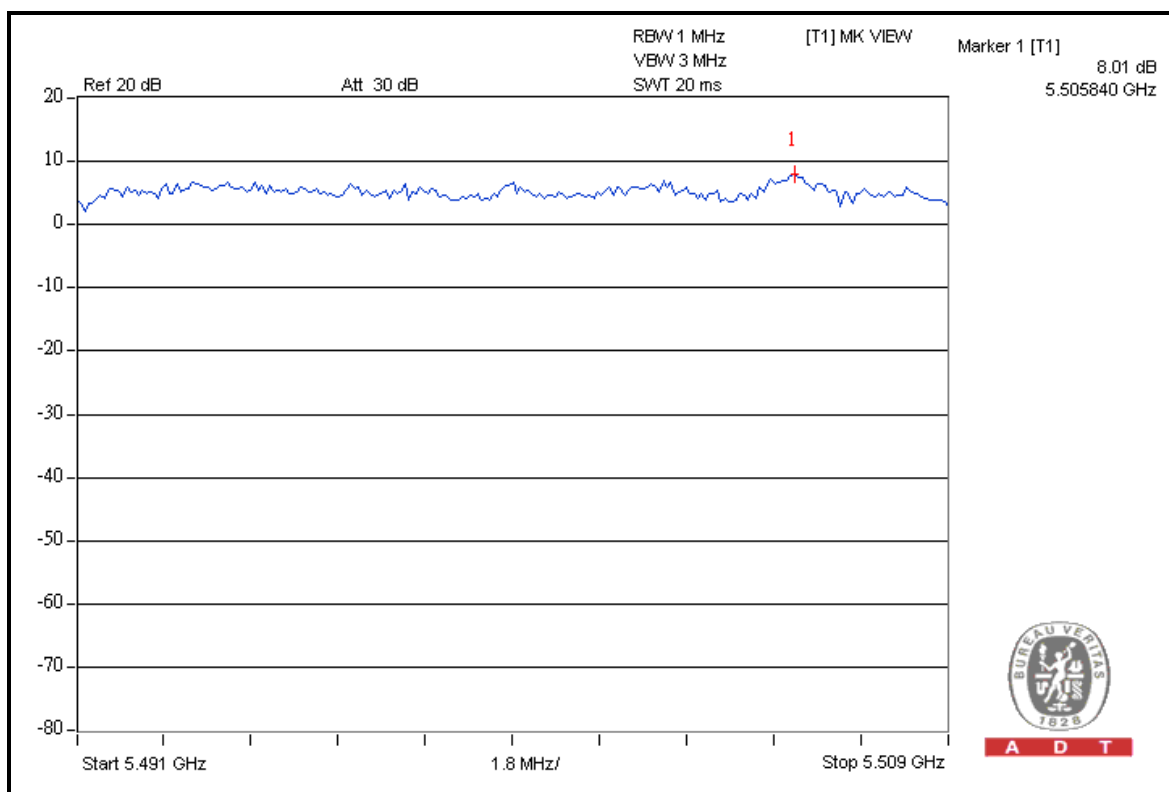
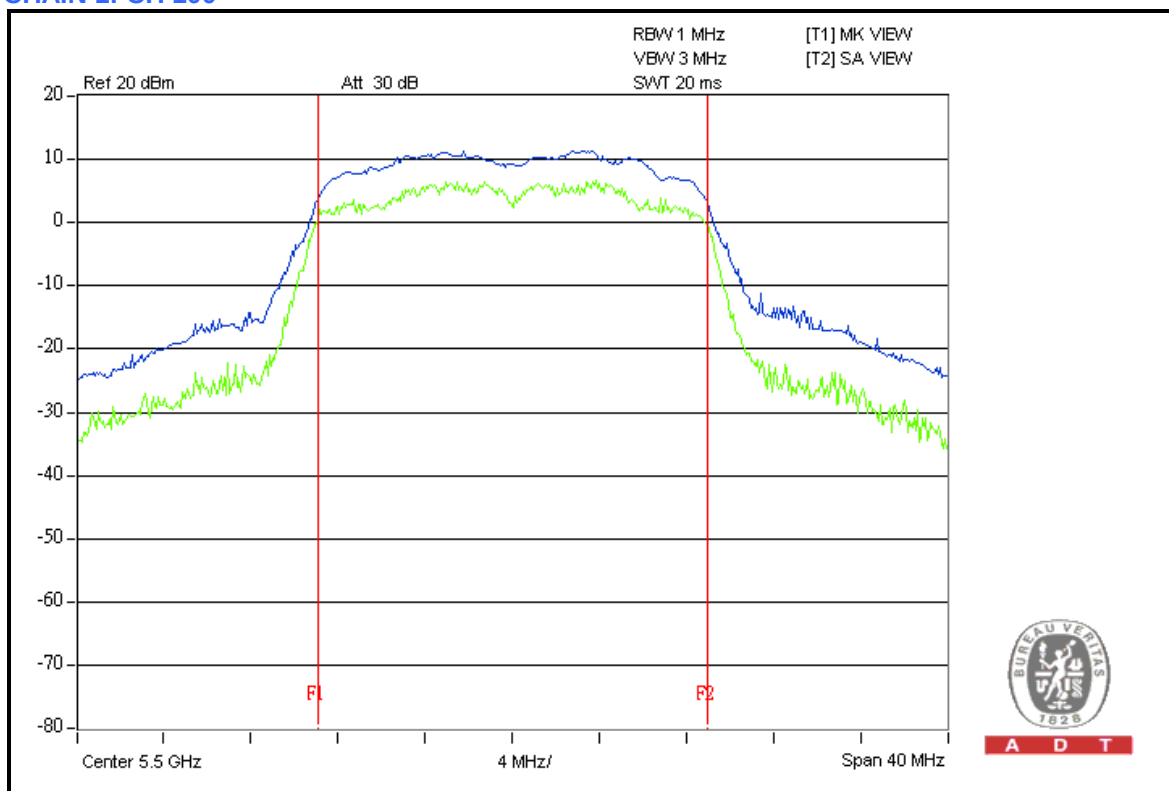
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	5.99	7.14	13	PASS
40	5200	7.12	6.99	13	PASS
48	5240	6.55	7.49	13	PASS
52	5260	6.76	7.57	13	PASS
60	5300	6.43	7.64	13	PASS
64	5320	6.82	7.15	13	PASS
100	5500	6.99	8.01	13	PASS
116	5580	6.61	7.78	13	PASS
132	5660	6.62	7.84	13	PASS
140	5700	7.22	7.51	13	PASS



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CHAIN 1: CH 100

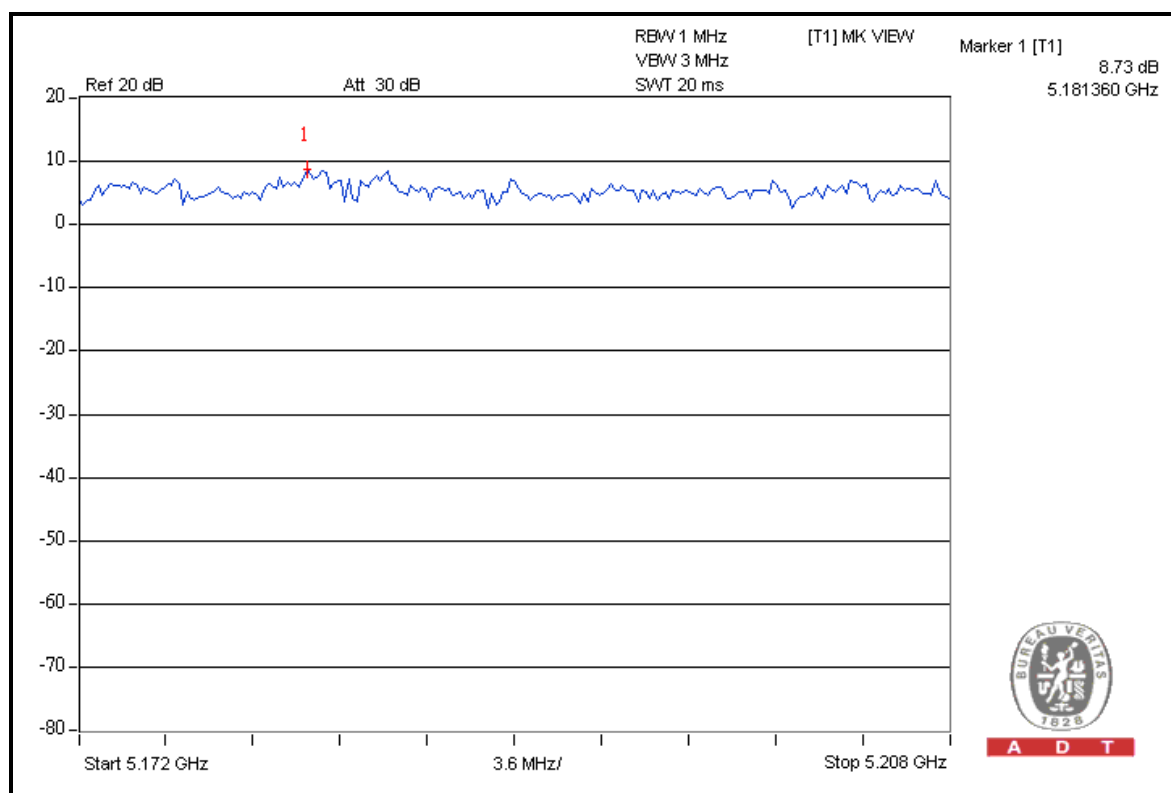
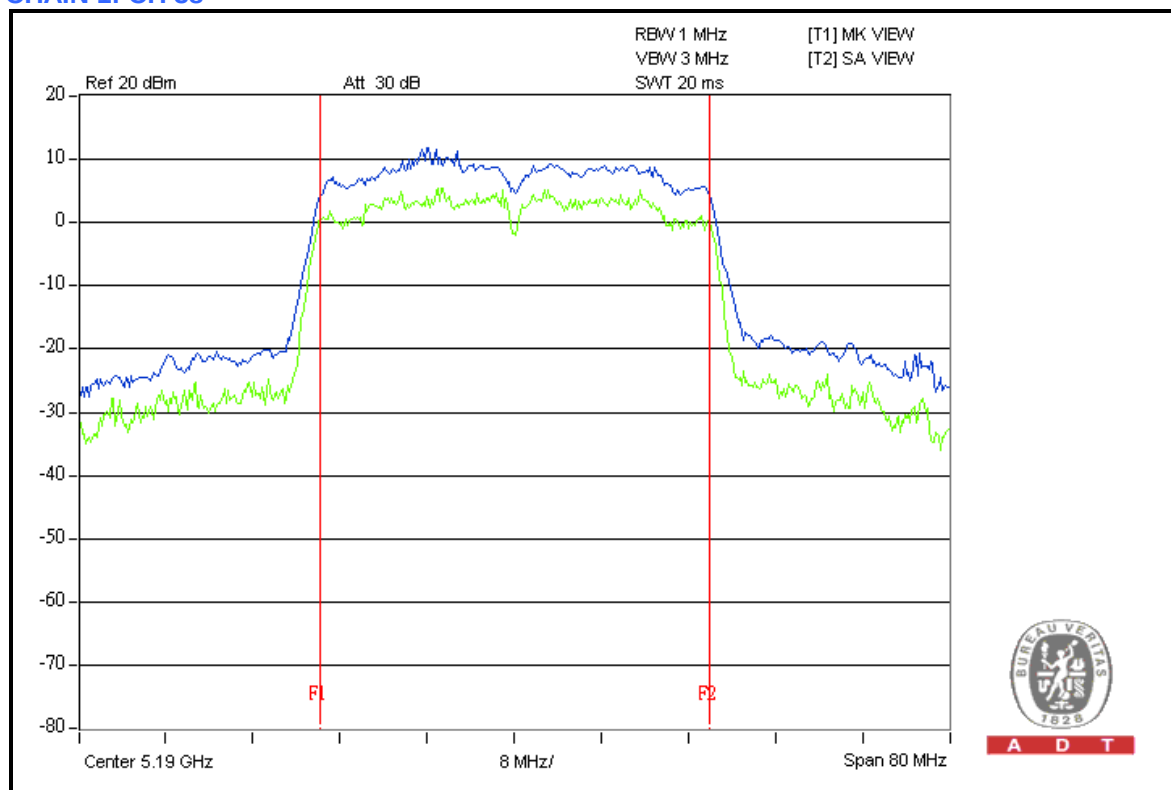




802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	7.93	8.73	13	PASS
46	5230	7.10	7.31	13	PASS
54	5270	6.98	7.56	13	PASS
62	5310	6.73	7.78	13	PASS
102	5510	6.54	7.23	13	PASS
110	5550	7.77	7.88	13	PASS
134	5670	6.80	7.10	13	PASS

CHAIN 1: CH 38



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	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011

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

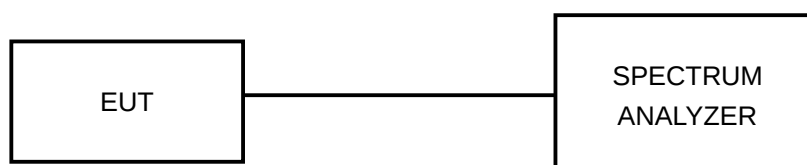
4.5.3 TEST PROCEDURES

- 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.

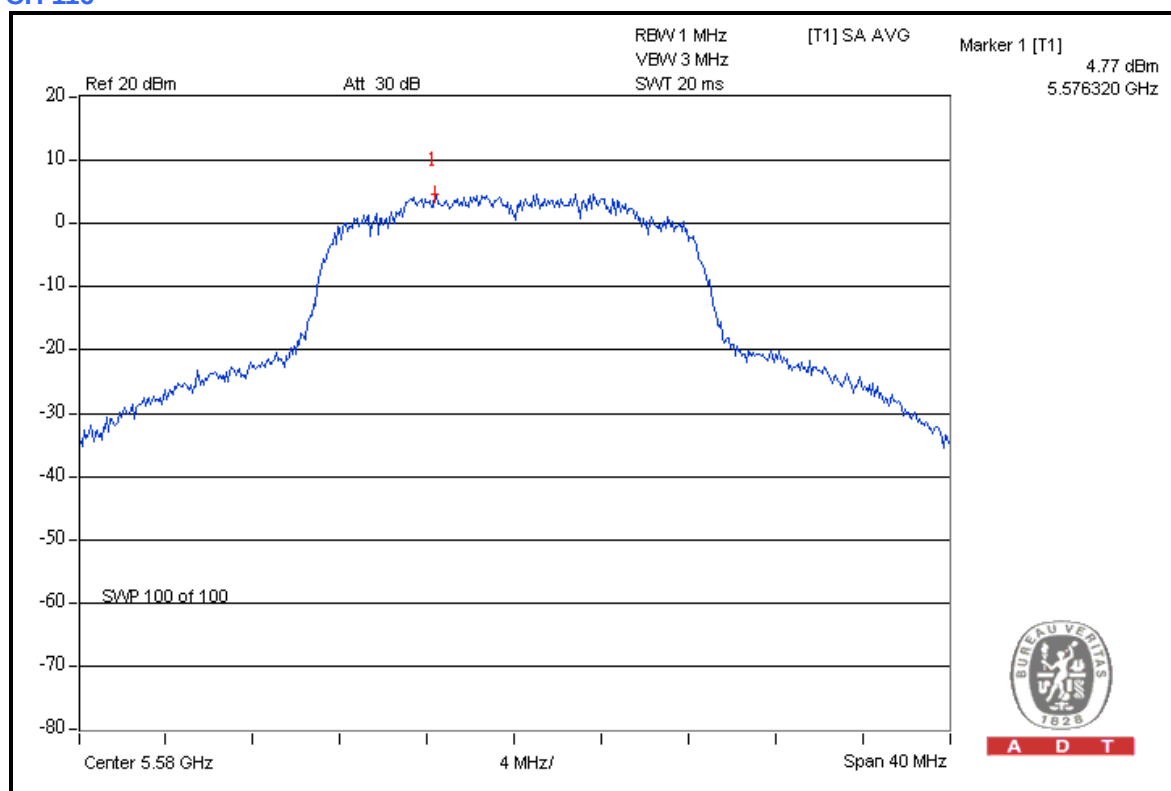
4.5.7 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	3.8	4	PASS
40	5200	3.7	4	PASS
48	5240	3.6	4	PASS
52	5260	3.7	11	PASS
60	5300	3.4	11	PASS
64	5320	3.9	11	PASS
100	5500	3.0	11	PASS
116	5580	4.8	11	PASS
132	5660	4.2	11	PASS
140	5700	3.7	11	PASS

Note: Directional gain = $0.80\text{dBi} + 10\log(2) = 3.81\text{dBi}$ which meet the requirement of antenna gain, so the power density limit is not reduced.

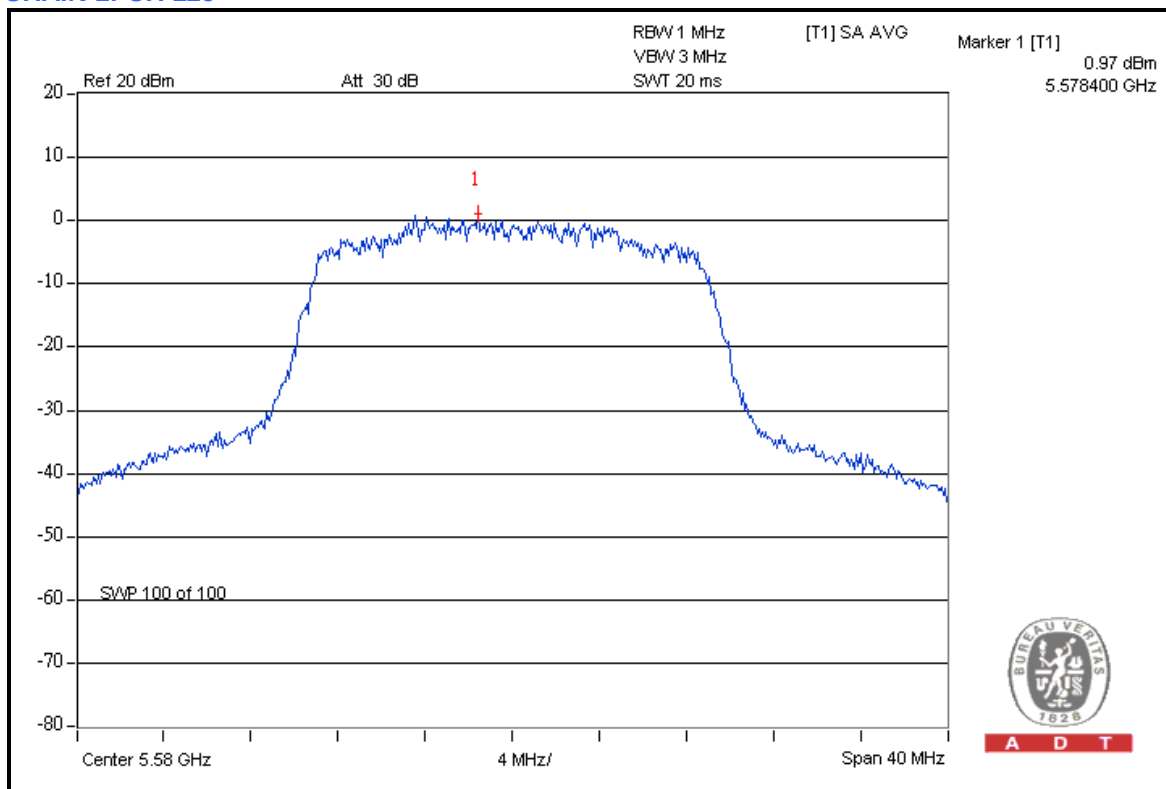
CH 116



802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	-1.7	-0.6	1.5	1.9	4	PASS
40	5200	-1.0	0.1	1.8	2.6	4	PASS
48	5240	-1.2	-0.3	1.7	2.3	4	PASS
52	5260	-1.7	-1.1	1.5	1.6	11	PASS
60	5300	-1.0	-0.5	1.7	2.3	11	PASS
64	5320	-0.4	-0.2	1.9	2.7	11	PASS
100	5500	-1.5	-0.5	1.6	2.0	11	PASS
116	5580	-0.1	1.0	2.2	3.5	11	PASS
132	5660	0.2	0.7	2.2	3.5	11	PASS
140	5700	-1.1	1.0	2.0	3.1	11	PASS

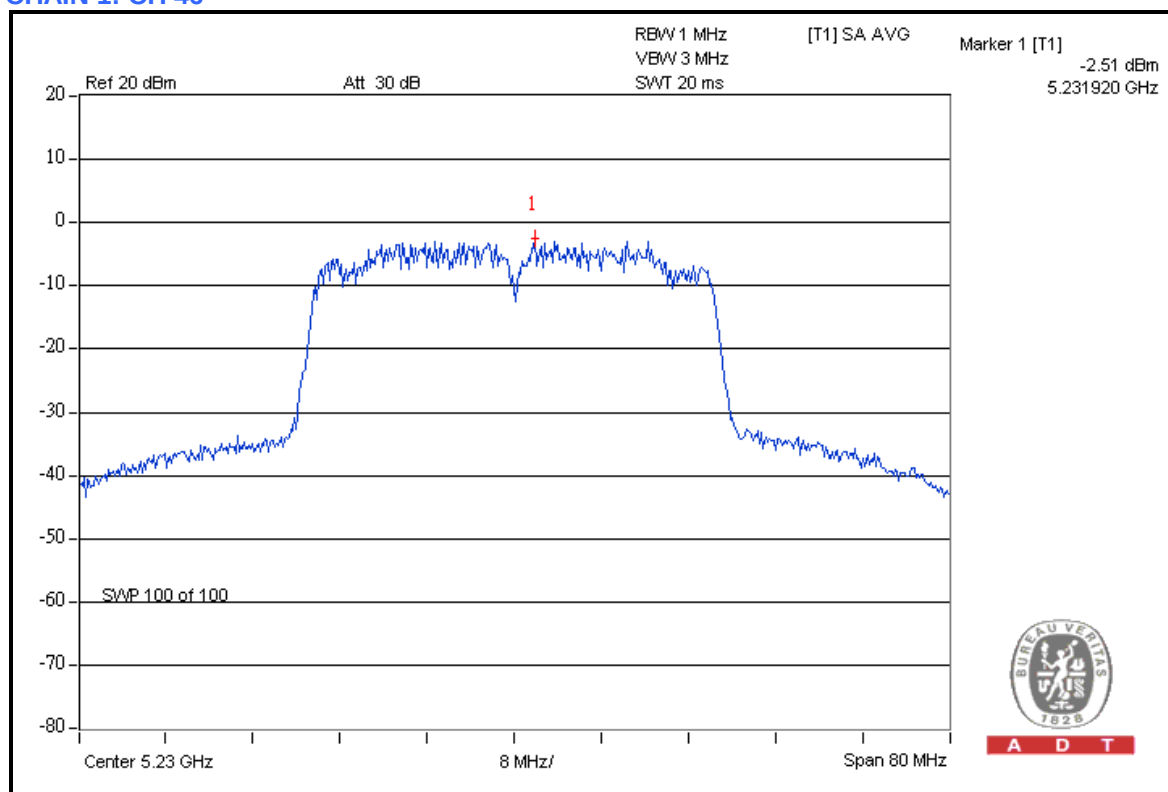
CHAIN 1: CH 116



802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	-3.2	-2.7	1.0	0.1	4	PASS
46	5230	-4.1	-2.5	1.0	-0.2	4	PASS
54	5270	-5.0	-4.4	0.7	-1.7	11	PASS
62	5310	-5.5	-4.4	0.6	-1.9	11	PASS
102	5510	-5.6	-5.5	0.6	-2.5	11	PASS
110	5550	-4.5	-4.0	0.8	-1.2	11	PASS
134	5670	-4.5	-4.3	0.7	-1.4	11	PASS

CHAIN 1: CH 46



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 –20 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	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 24, 2010	Jun. 23, 2011

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

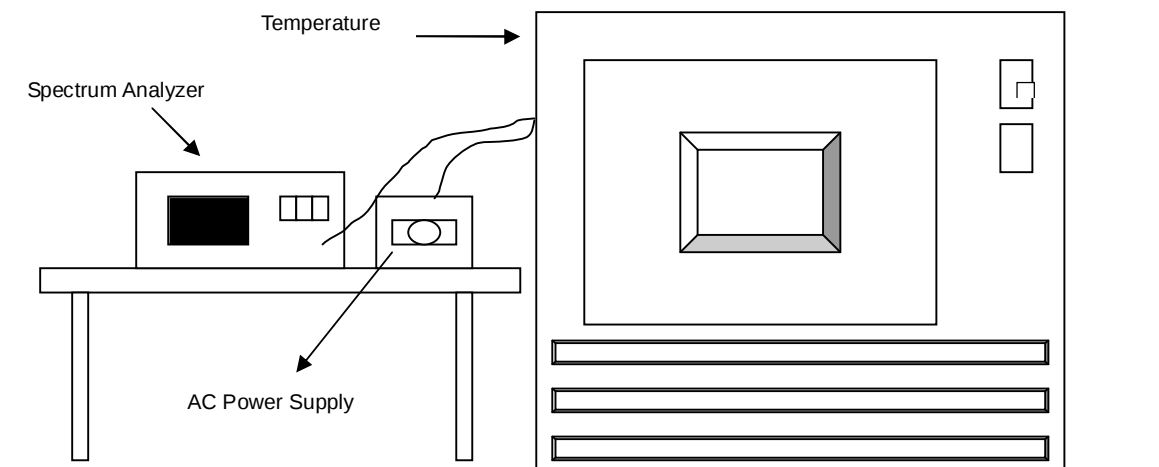
4.6.3 TEST PROCEDURE

- 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.

4.6.7 TEST RESULTS

TEST MODE A:

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 (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120.0	5319.968024	-0.0006011	5319.967855	-0.0006042	5319.967973	-0.0006020	5319.967992	-0.0006017
40	120.0	5319.968	-0.0006015	5319.968285	-0.0005961	5319.967656	-0.0006080	5319.968108	-0.0005995
30	120.0	5319.967751	-0.0006062	5319.968208	-0.0005976	5319.967059	-0.0006192	5319.968035	-0.0006009
20	120.0	5319.967502	-0.0006109	5319.968132	-0.0005990	5319.966462	-0.0006304	5319.967961	-0.0006022
10	120.0	5319.967253	-0.0006155	5319.968055	-0.0006005	5319.965865	-0.0006416	5319.967888	-0.0006036
0	120.0	5319.967004	-0.0006202	5319.967979	-0.0006019	5319.965268	-0.0006529	5319.967814	-0.0006050
-10	120.0	5319.966755	-0.0006249	5319.967902	-0.0006033	5319.964671	-0.0006641	5319.967741	-0.0006064
-20	120.0	5319.966506	-0.0006296	5319.967826	-0.0006048	5319.964074	-0.0006753	5319.967667	-0.0006078

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 (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138.0	5319.967585	-0.0006093	5319.968157	-0.0005985	5319.966661	-0.0006267	5319.967986	-0.0006018
	120.0	5319.967502	-0.0006109	5319.968132	-0.0005990	5319.966462	-0.0006304	5319.967961	-0.0006022
	102.0	5319.967419	-0.0006124	5319.968106	-0.0005995	5319.966263	-0.0006342	5319.967937	-0.0006027

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
FOR CONDUCTED MEASUREMENT:				
R&S SPECTRUM ANALYZER	FSP40	100036	Apr. 27, 2010	Apr. 26, 2011
FOR RADIATED MEASUREMENT:				
HP Preamplifier	8447D	2432A03504	May 06, 2010	May 05, 2011
HP Preamplifier	8449B	3008A01924	Jul. 14, 2010	Jul. 13, 2011
HP Preamplifier	8449B	3008A01292	Jul. 14, 2010	Jul. 13, 2011
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2010	Jun. 09, 2011
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Antenna	VHBA 9123	480	Apr. 29, 2010	Apr. 28, 2011
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF102	CABLE-CH6	Aug. 20, 2010	Aug. 19, 2011
EMCO Horn Antenna	3115	6714	Oct. 26, 2010	Oct. 25, 2011
EMCO Horn Antenna	3115	9312-4192	Apr. 23, 2010	Apr. 22, 2011
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

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.

FOR RADIATED MEASUREMENT:

- 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. 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.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz

4.7.3 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 5.25GHz 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.

TEST MODE A: 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)	111.3	39.6	71.7	74.00
5180.00 (AV)	101.5	50.1	51.4	54.00

RESTRICT BAND (5350 ~ 5460 MHz)

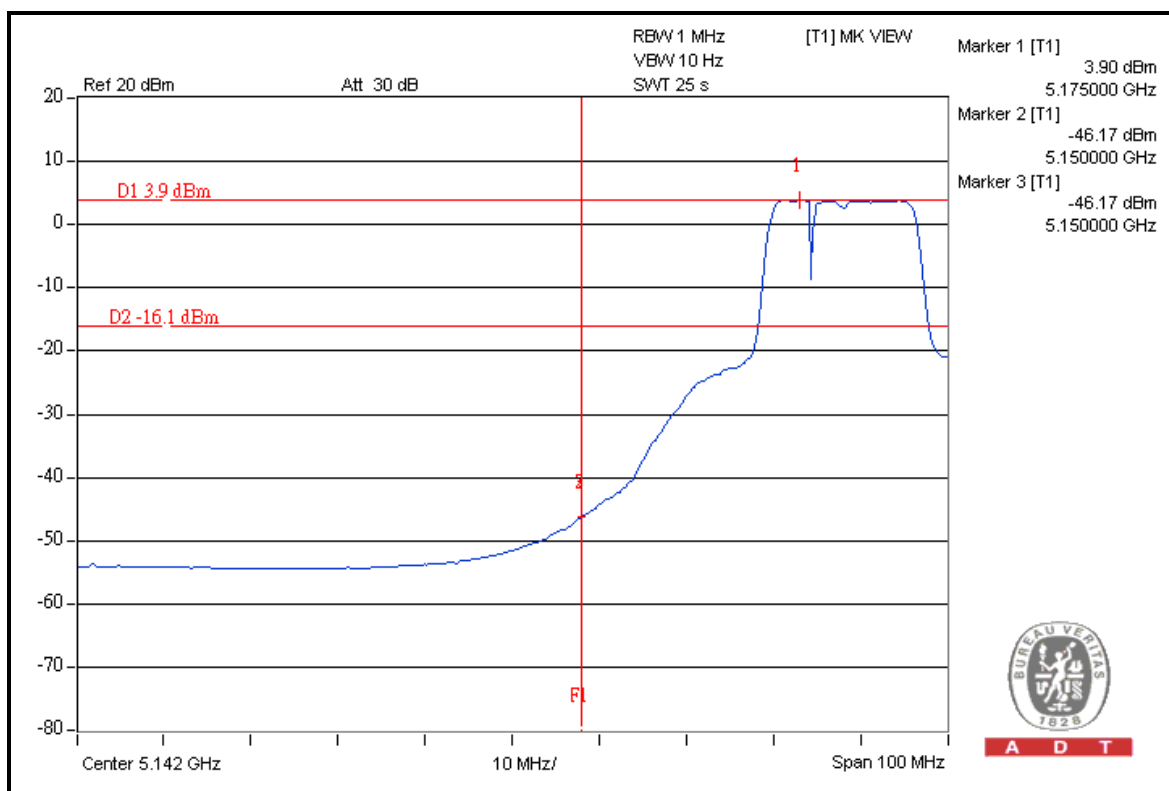
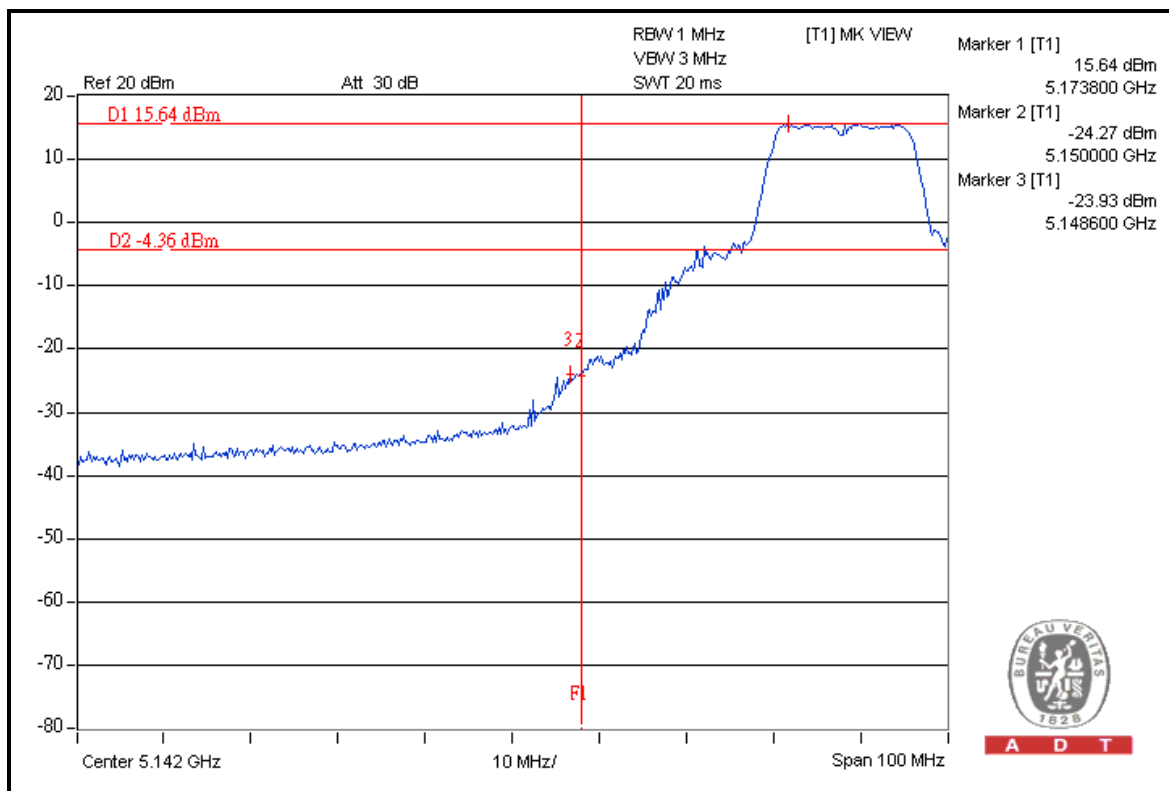
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	112.3	38.6	73.7	74.00
5320.00 (AV)	102.5	52.2	50.3	54.00

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.

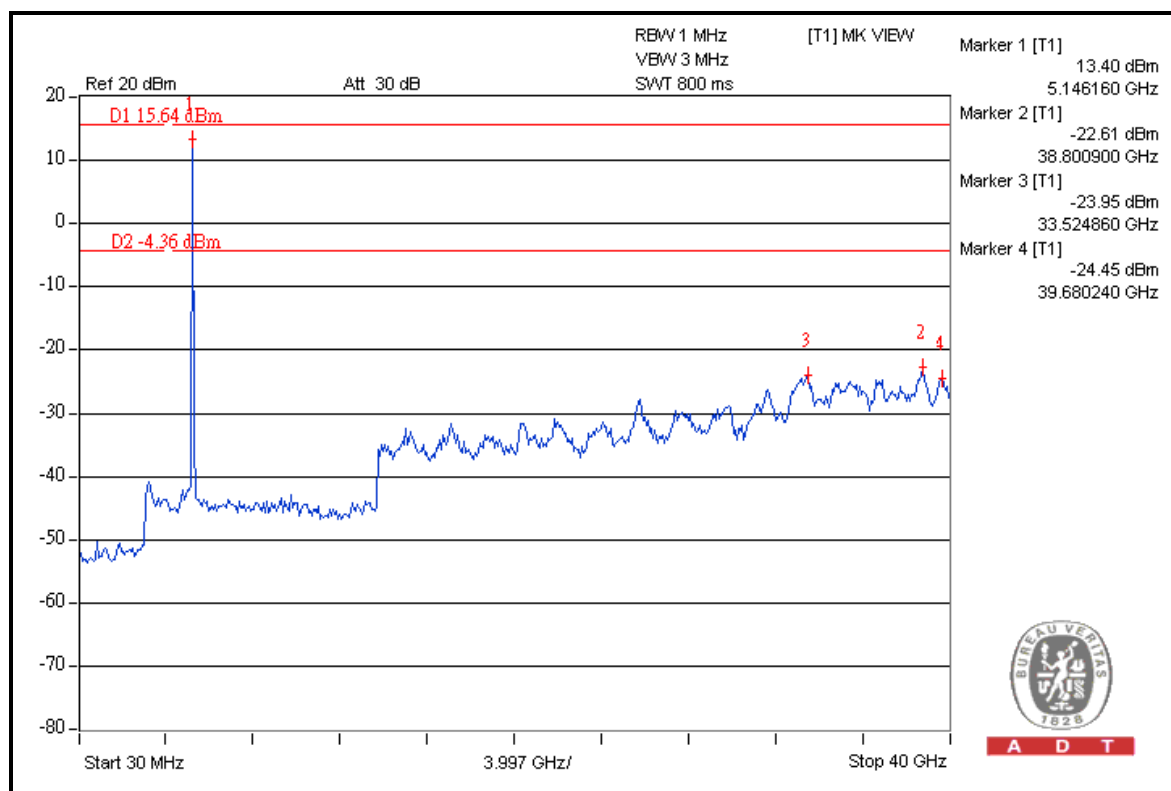


A D T

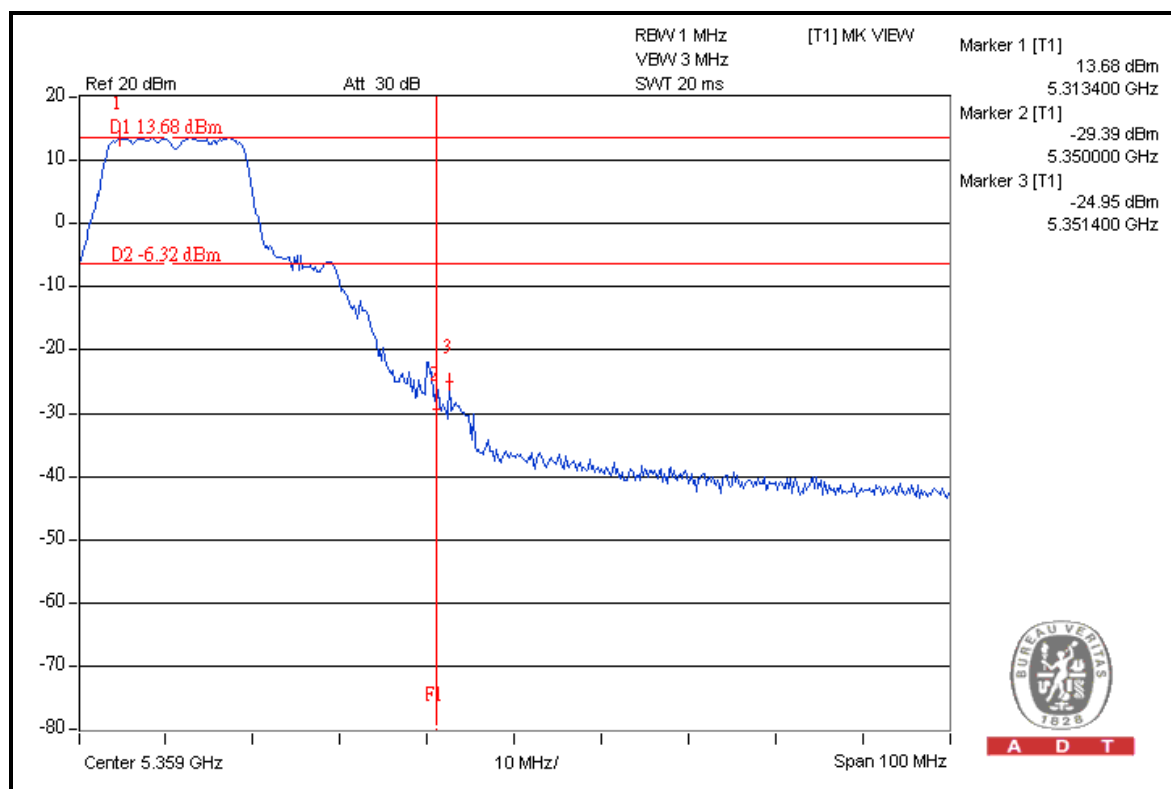




A D T



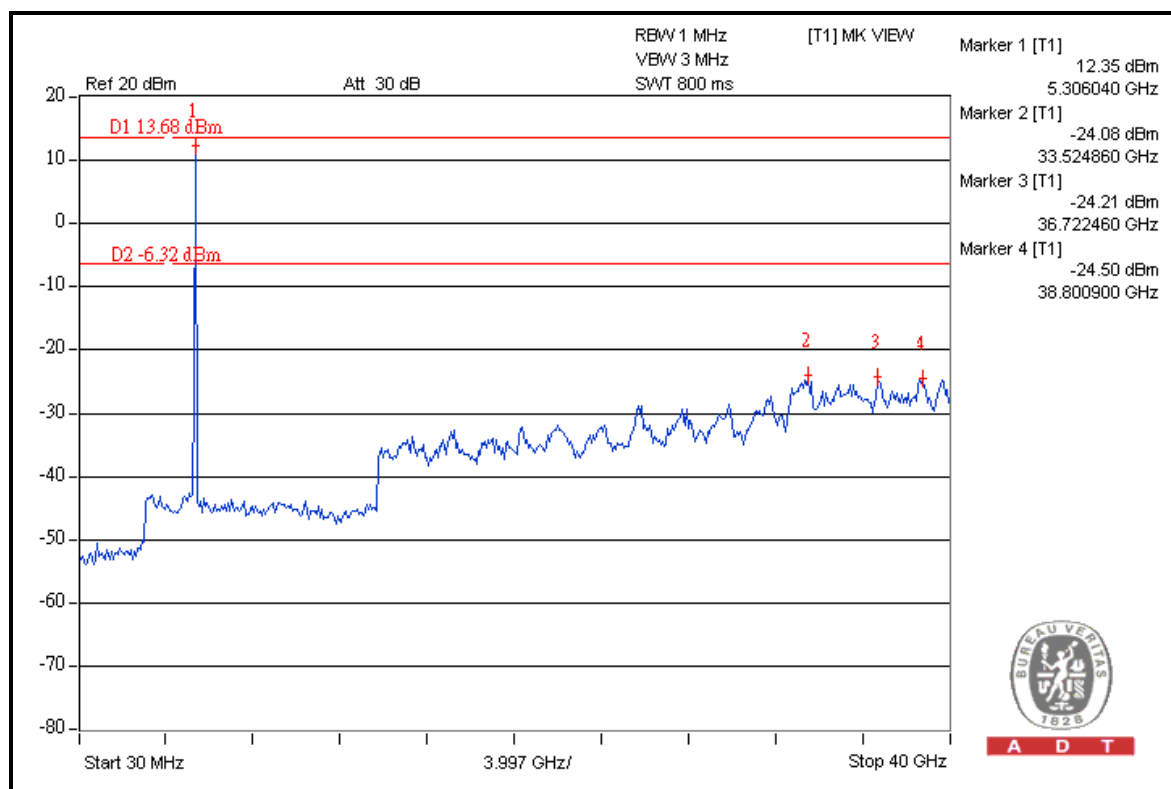
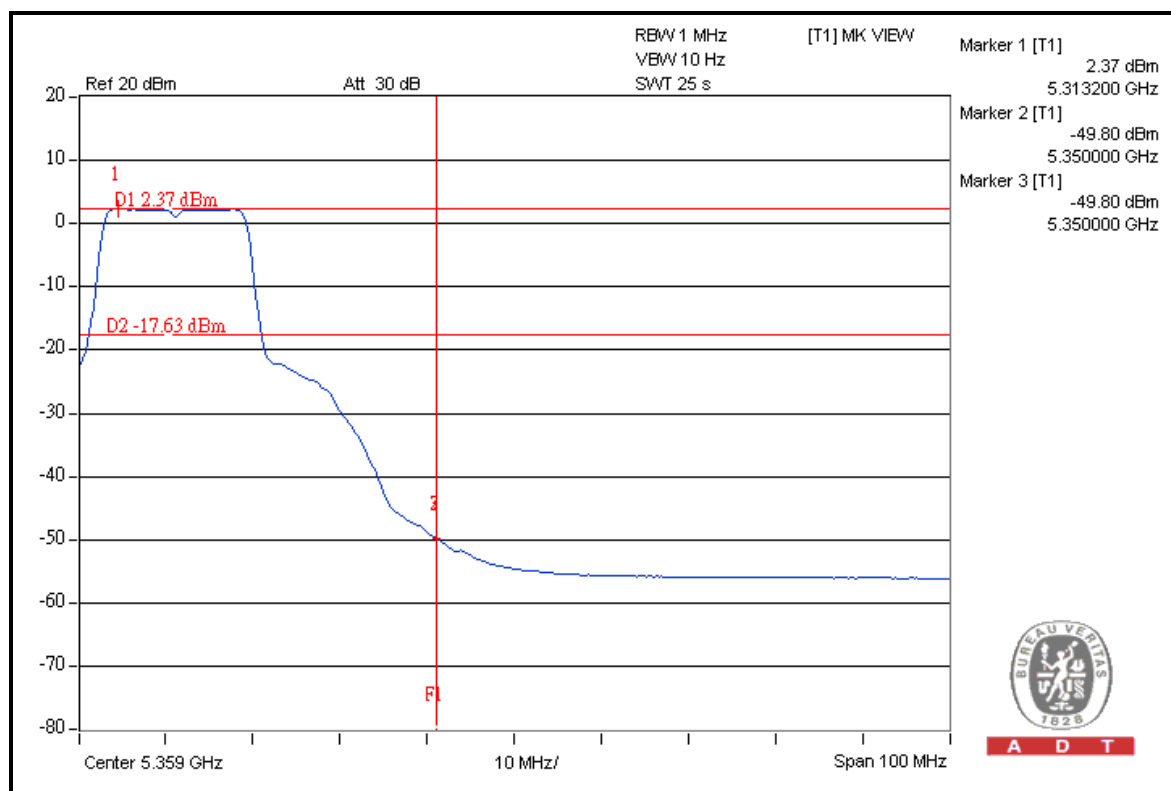
A D T



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)	111.2	49.1	62.1	74.00
5500.00 (AV)	102.0	58.5	43.5	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)	111.2	44.0	67.2	68.30

5700MHz

ABOVE 5725 MHz

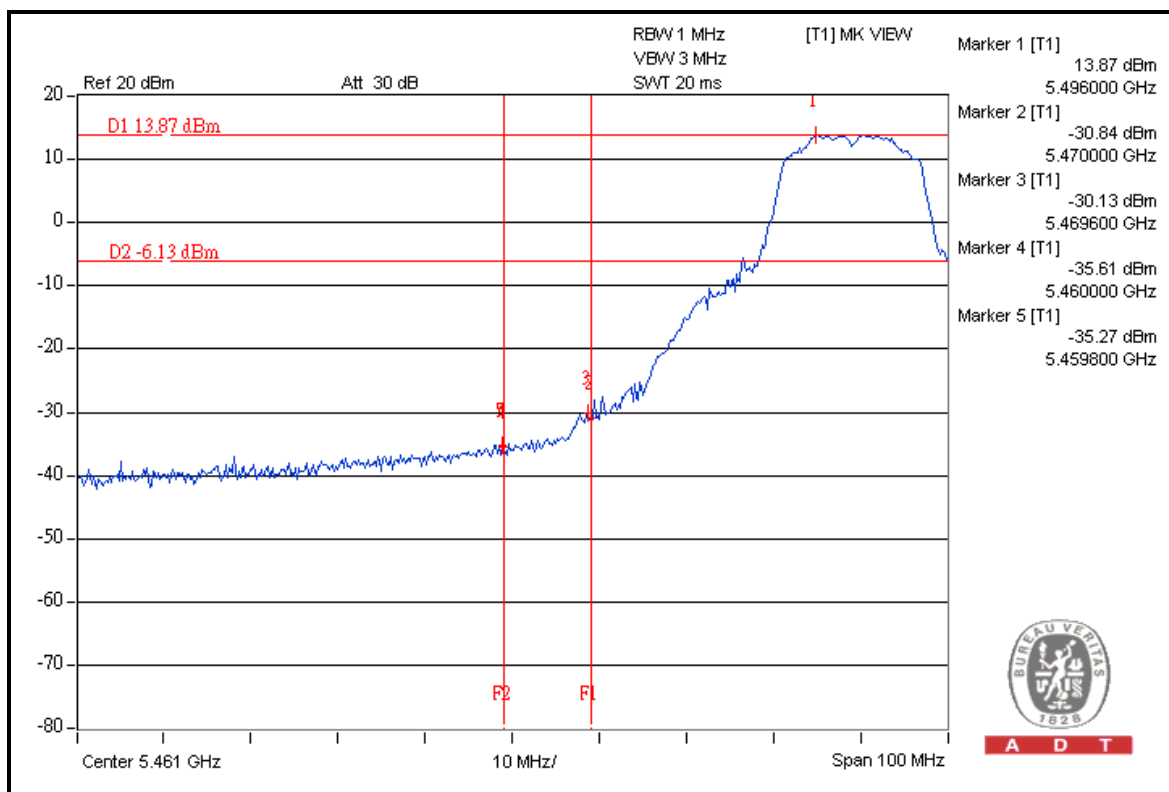
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	108.3	42.9	65.4	68.30

NOTE:

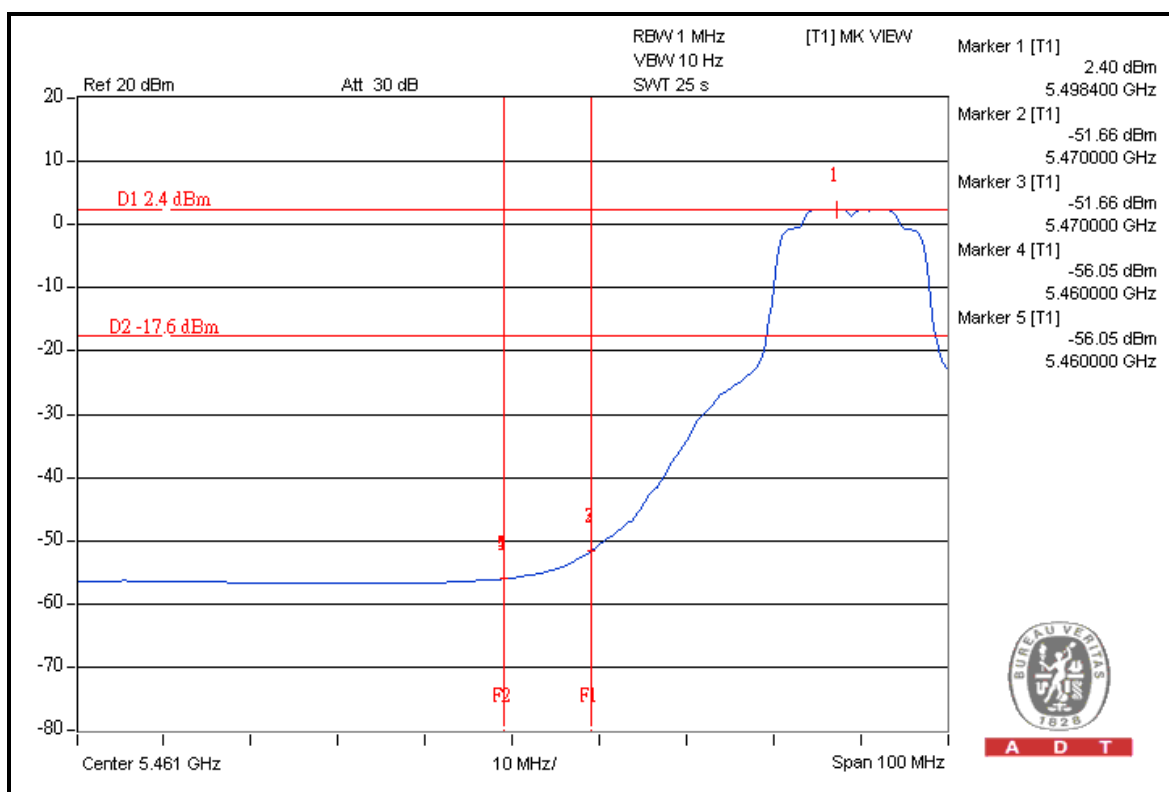
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



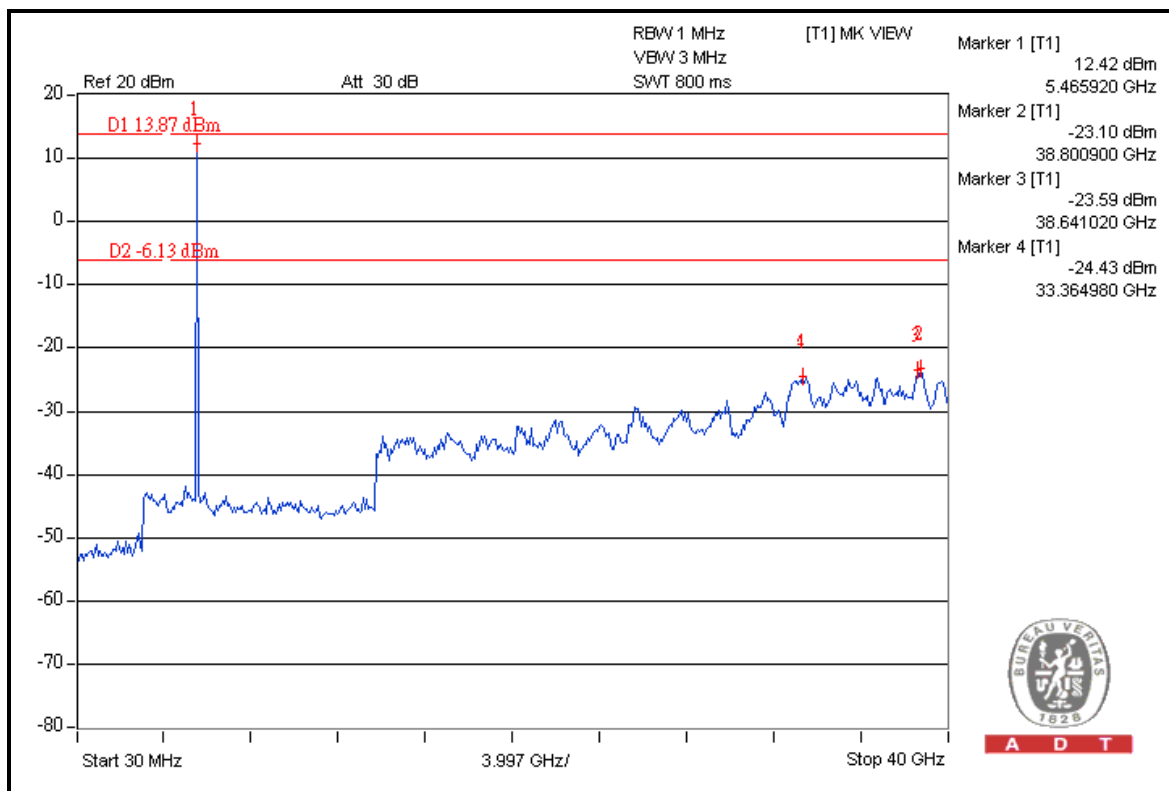
A D T



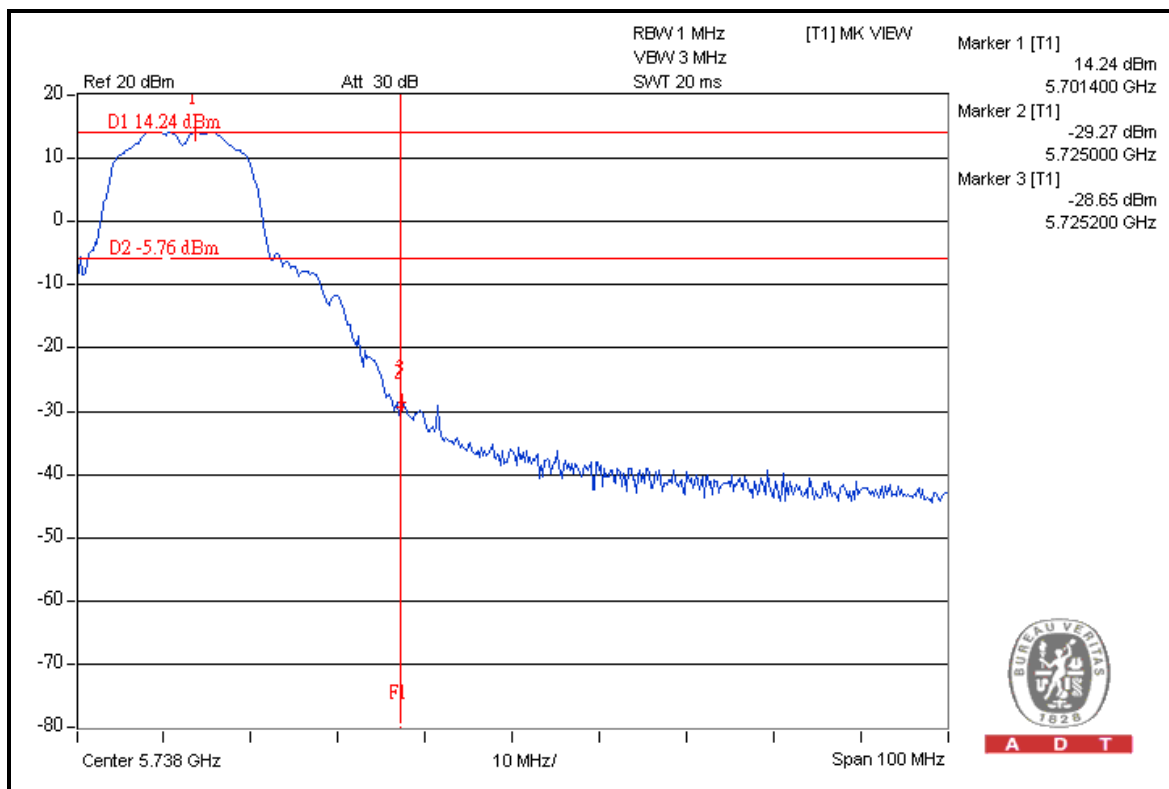
A D T



A D T



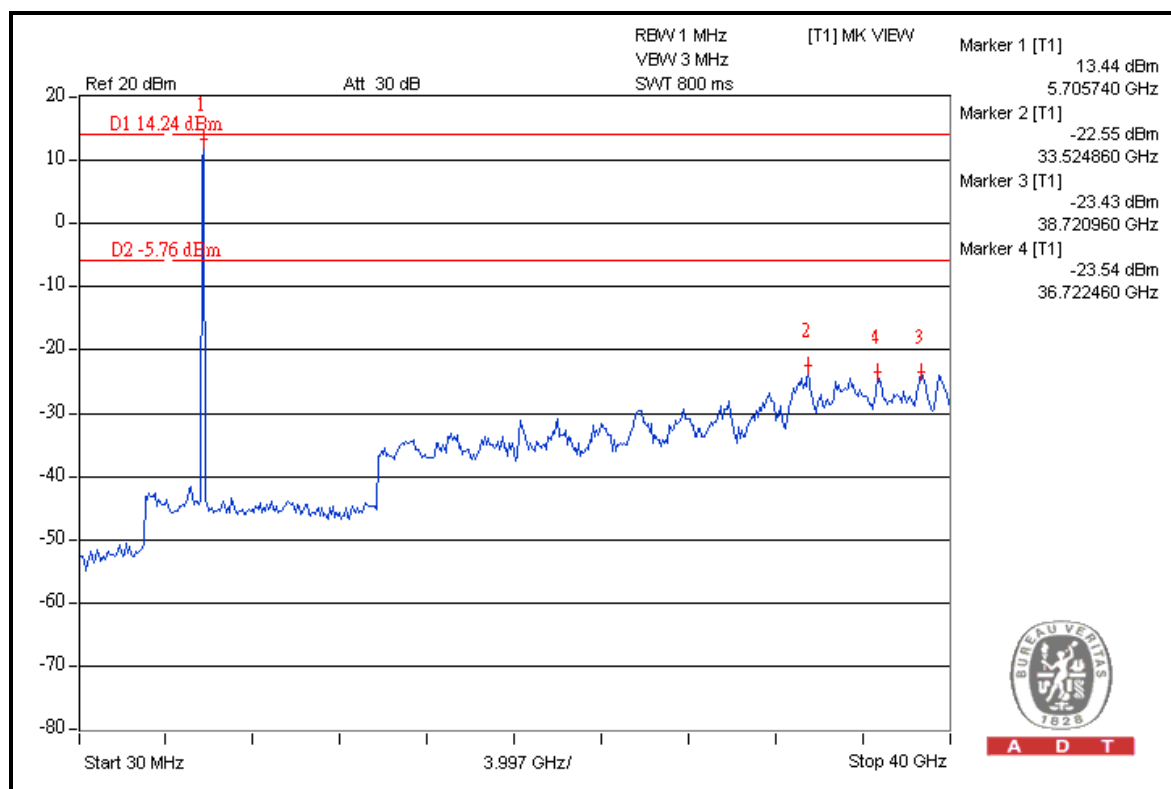
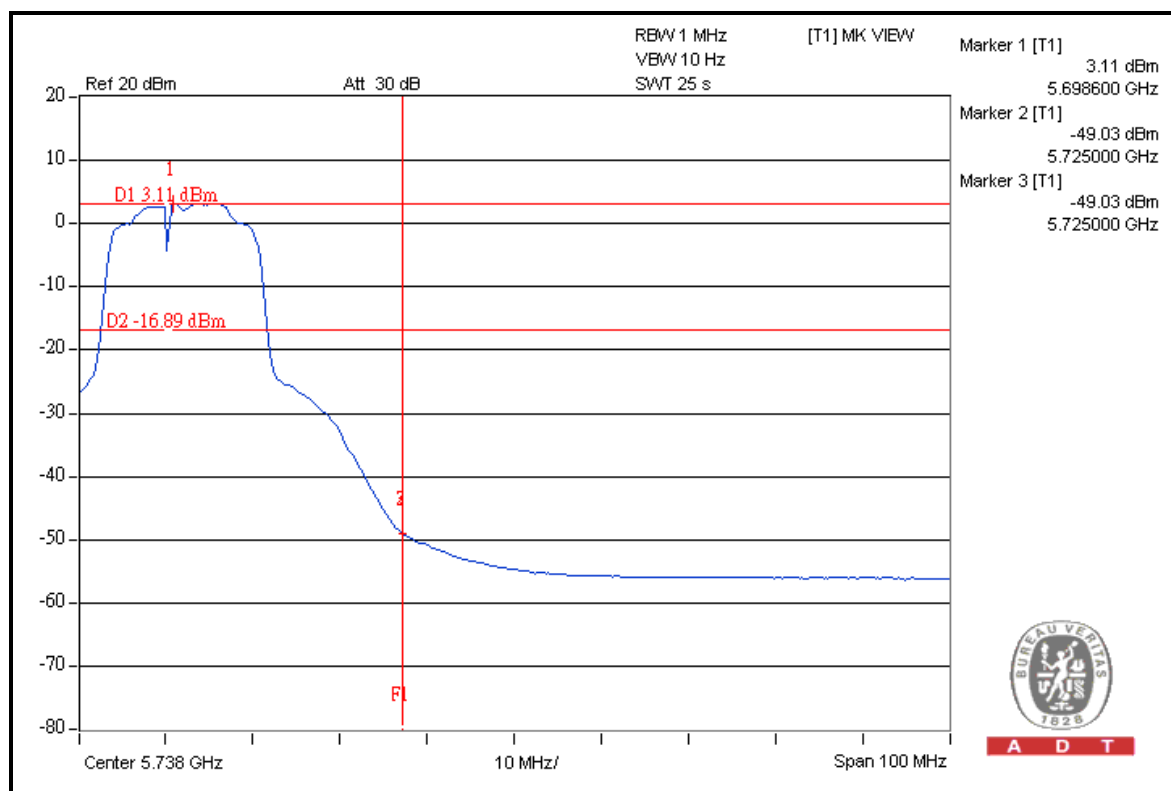
A D T



A D T



A D T



FOR 5180-5320MHz BAND:

802.11n (20MHz)

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)	109.9	46.4	63.5	74.00
5180.00 (AV)	97.5	48.9	48.6	54.00

RESTRICT BAND (5350 ~ 5460 MHz)

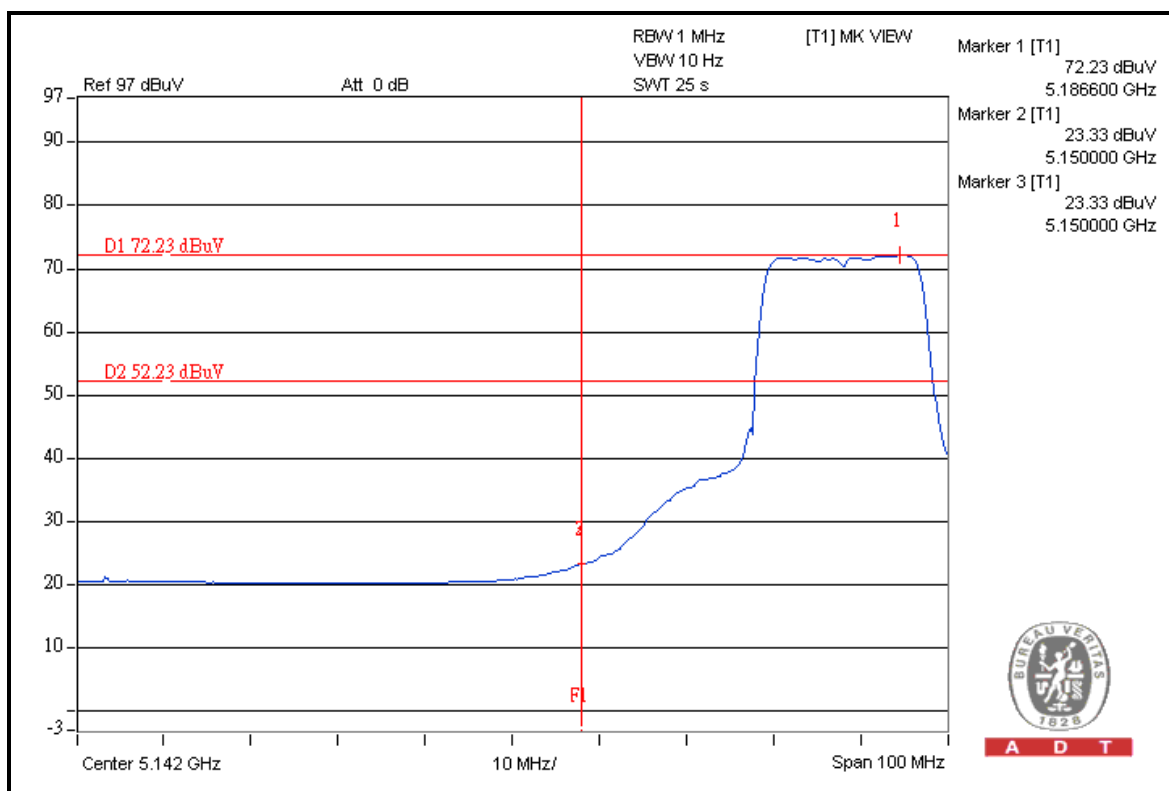
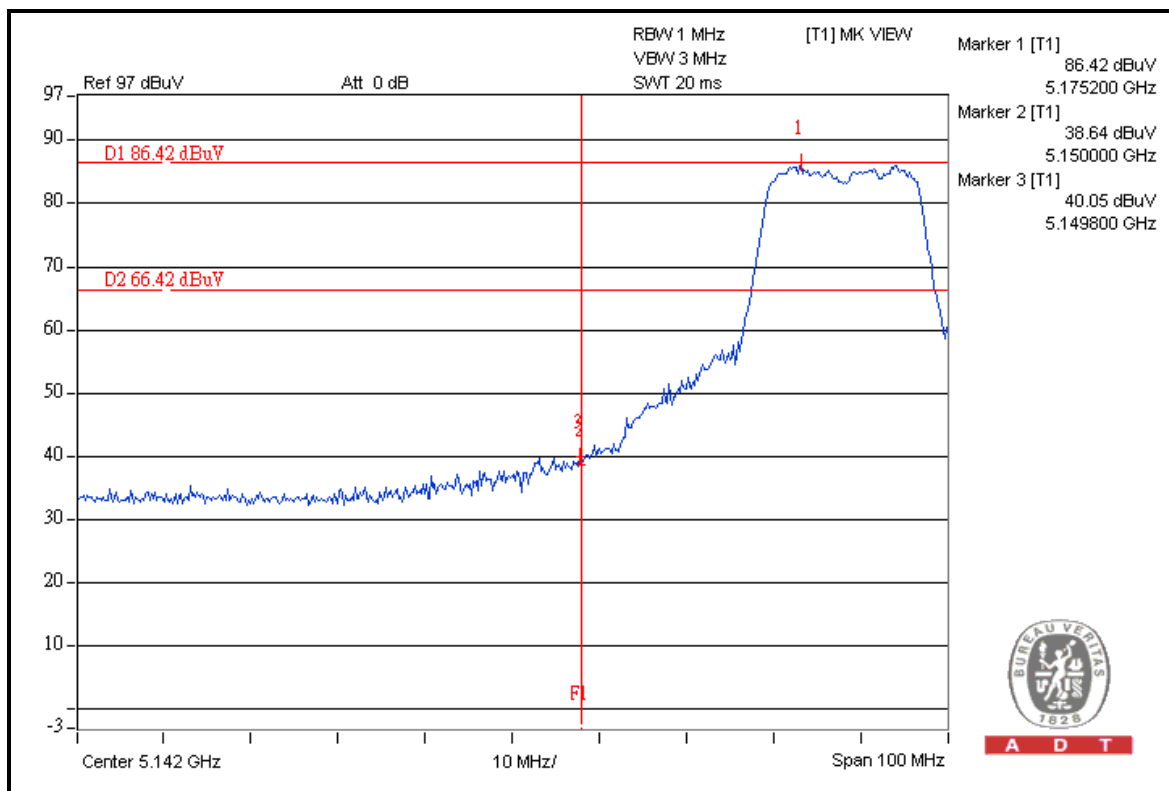
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	113.5	49.6	63.9	74.00
5320.00 (AV)	101.9	51.4	50.5	54.00

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.

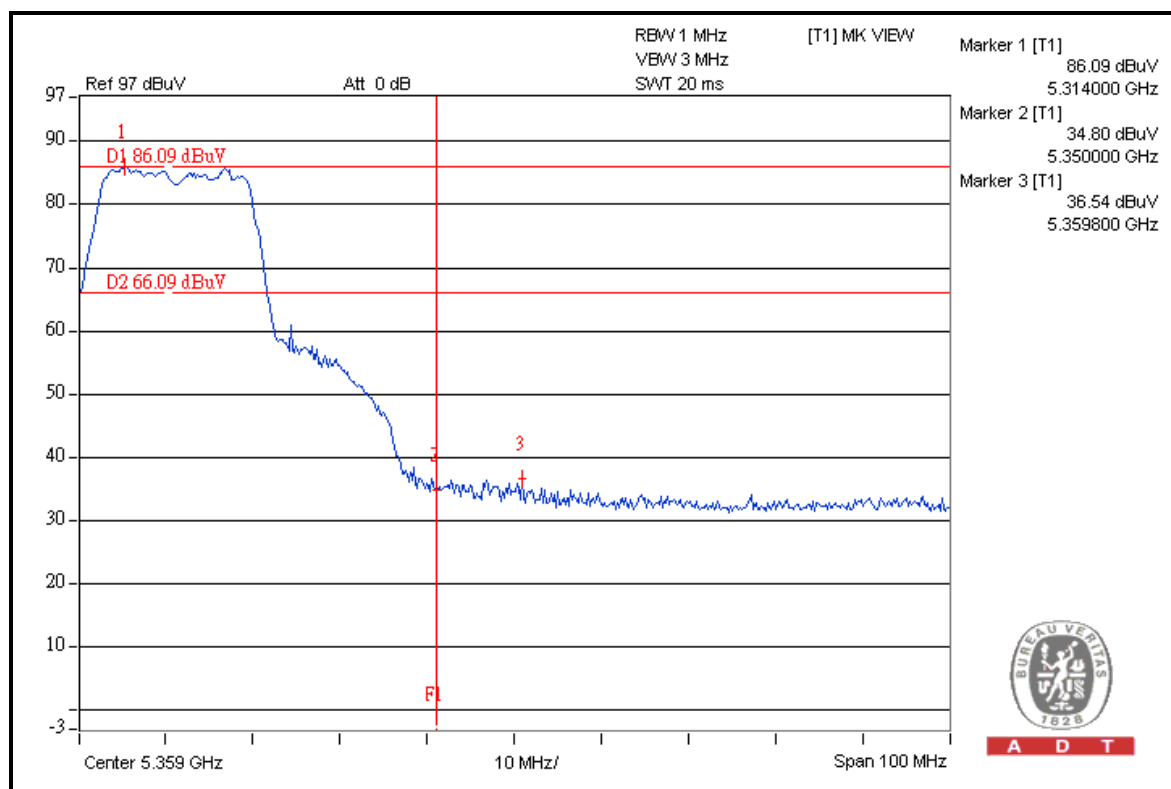
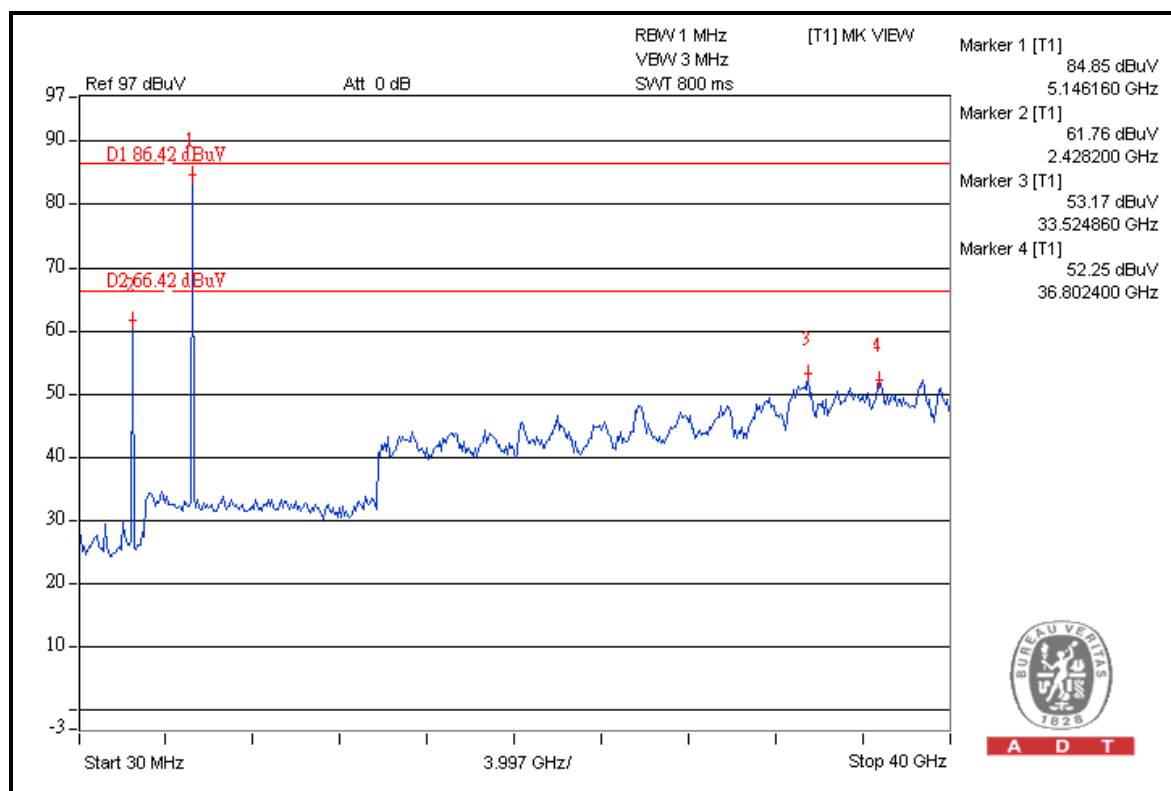


A D T



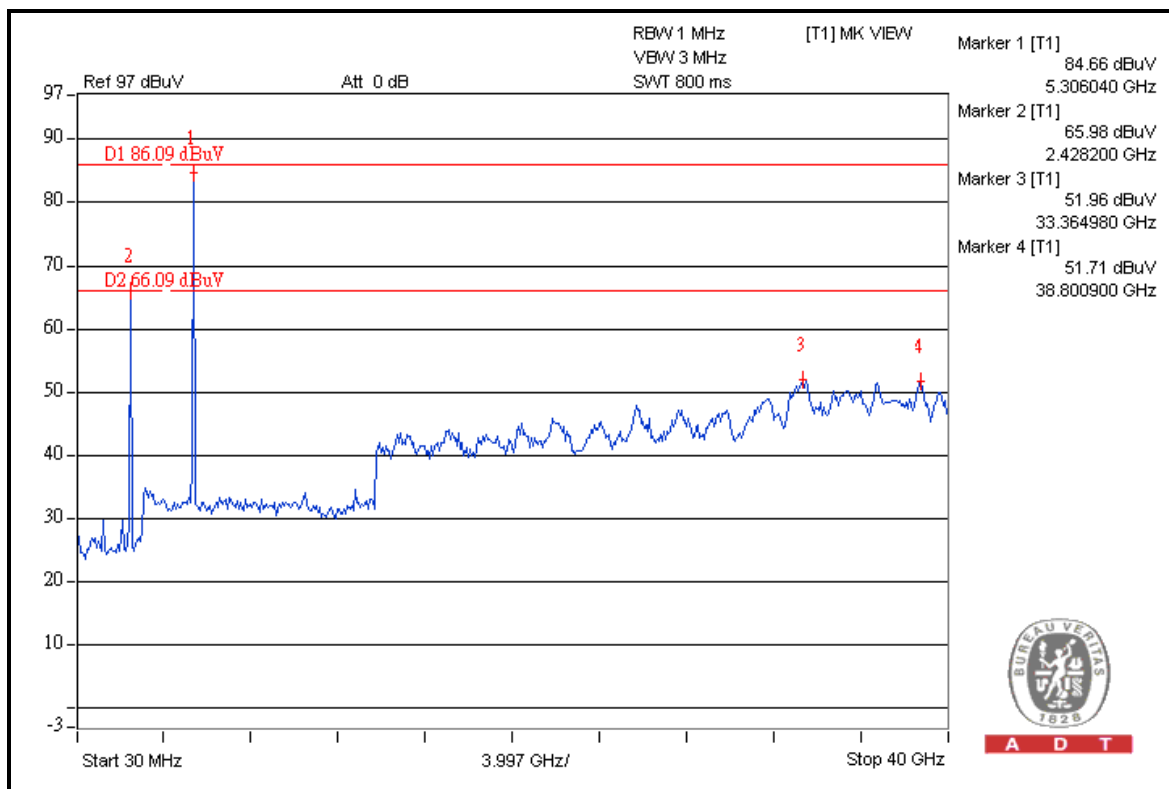
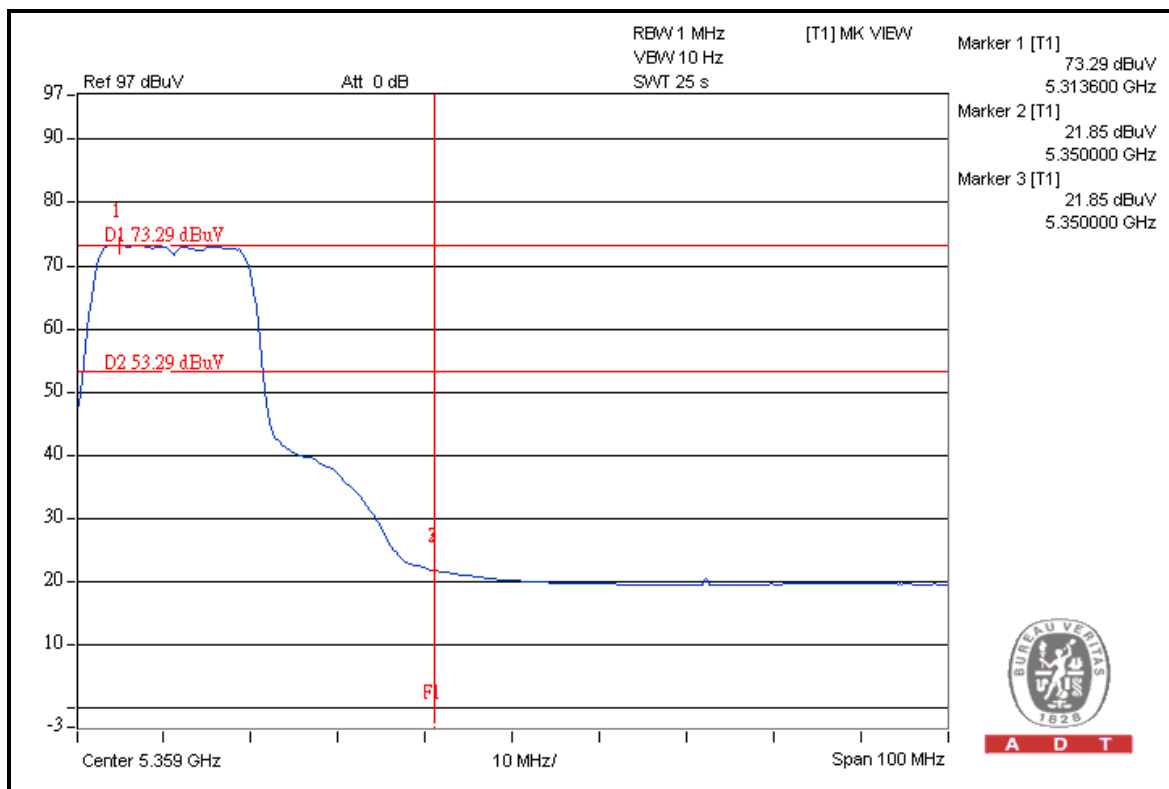


A D T





A D T



FOR 5500-5700MHz BAND:

802.11n (20MHz)

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)	111.1	49.1	62.0	74.00
5500.00 (AV)	99.8	51.4	48.4	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)	111.1	47.5	63.6	68.30

5700MHz

ABOVE 5725 MHz

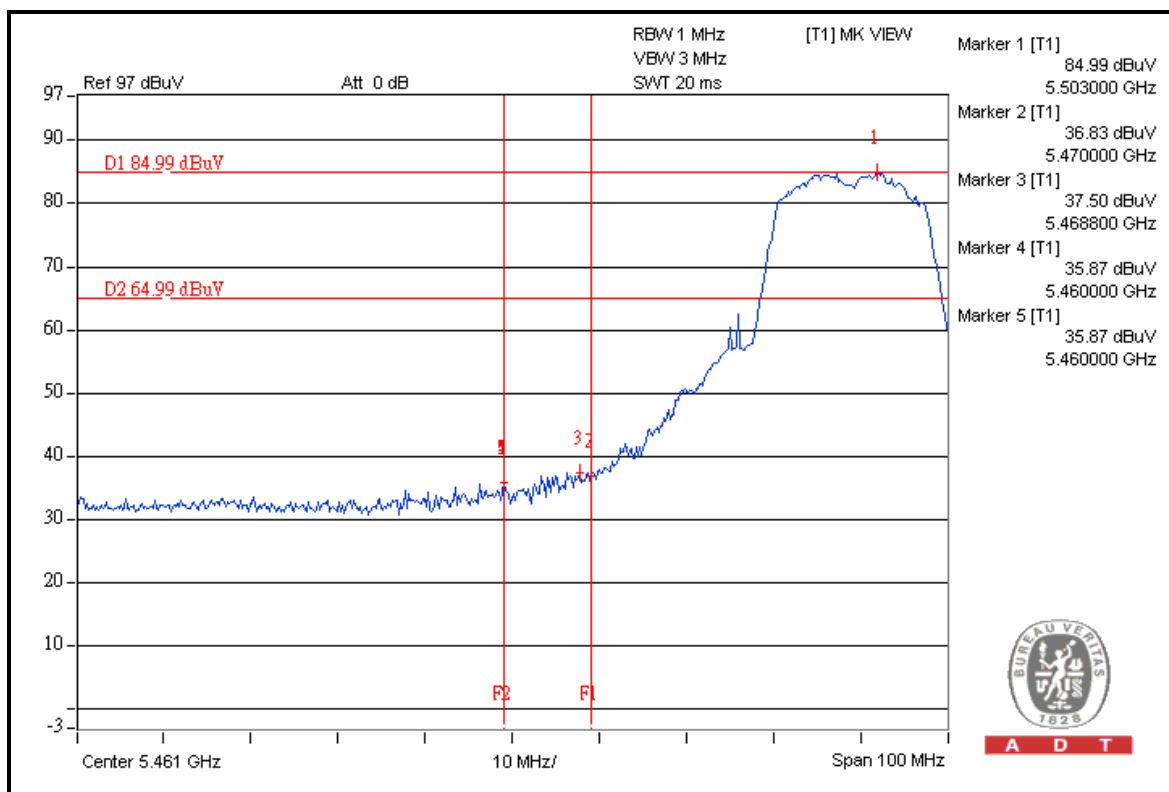
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	109.0	45.8	63.2	68.30

NOTE:

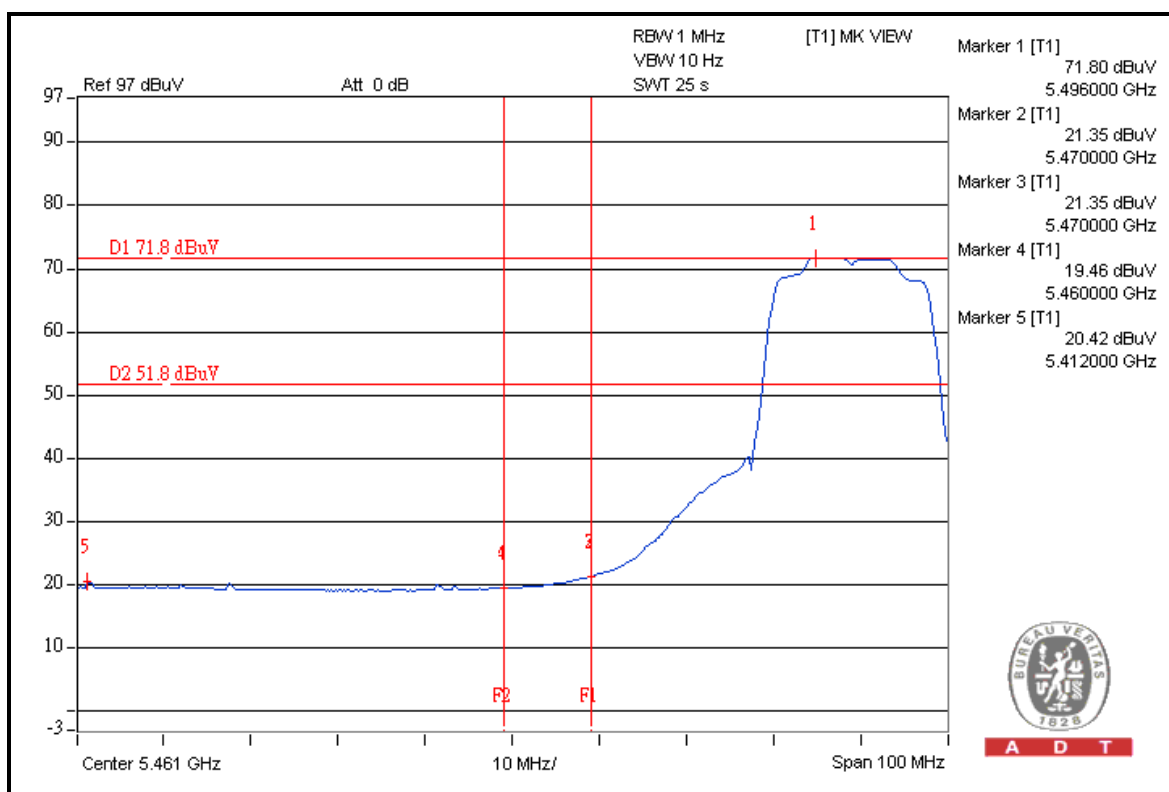
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



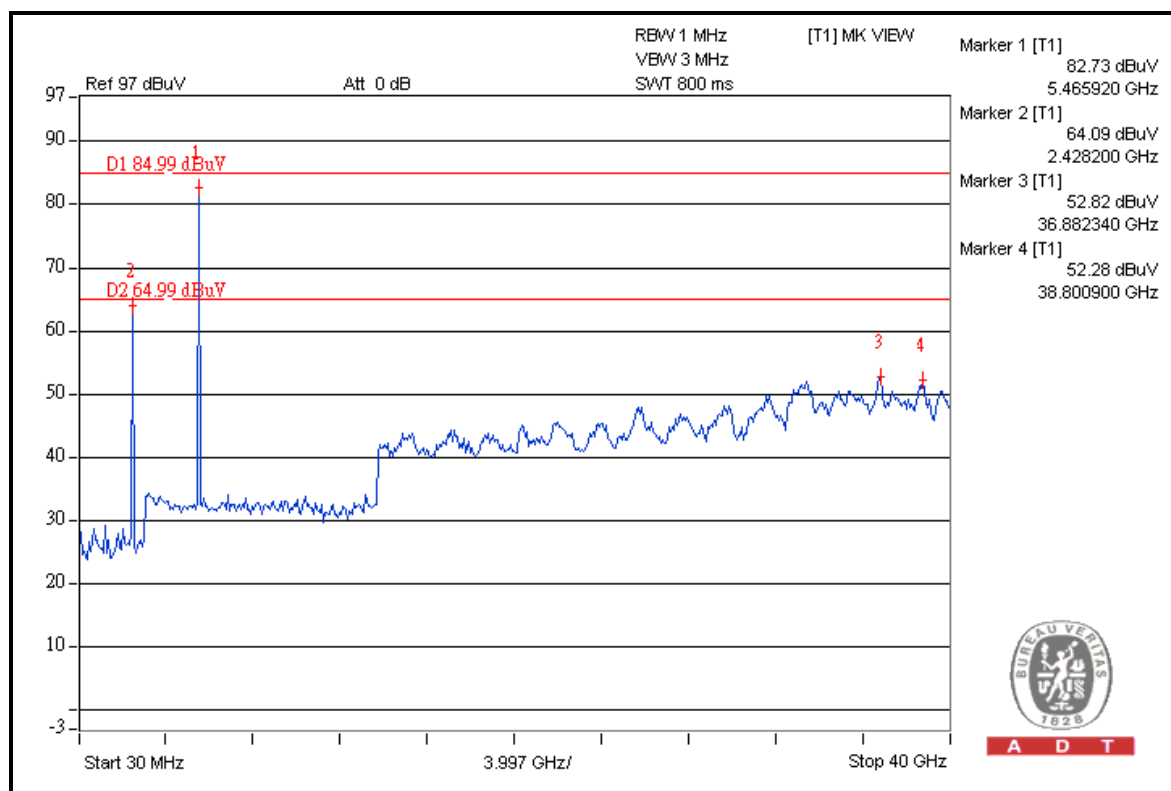
A D T



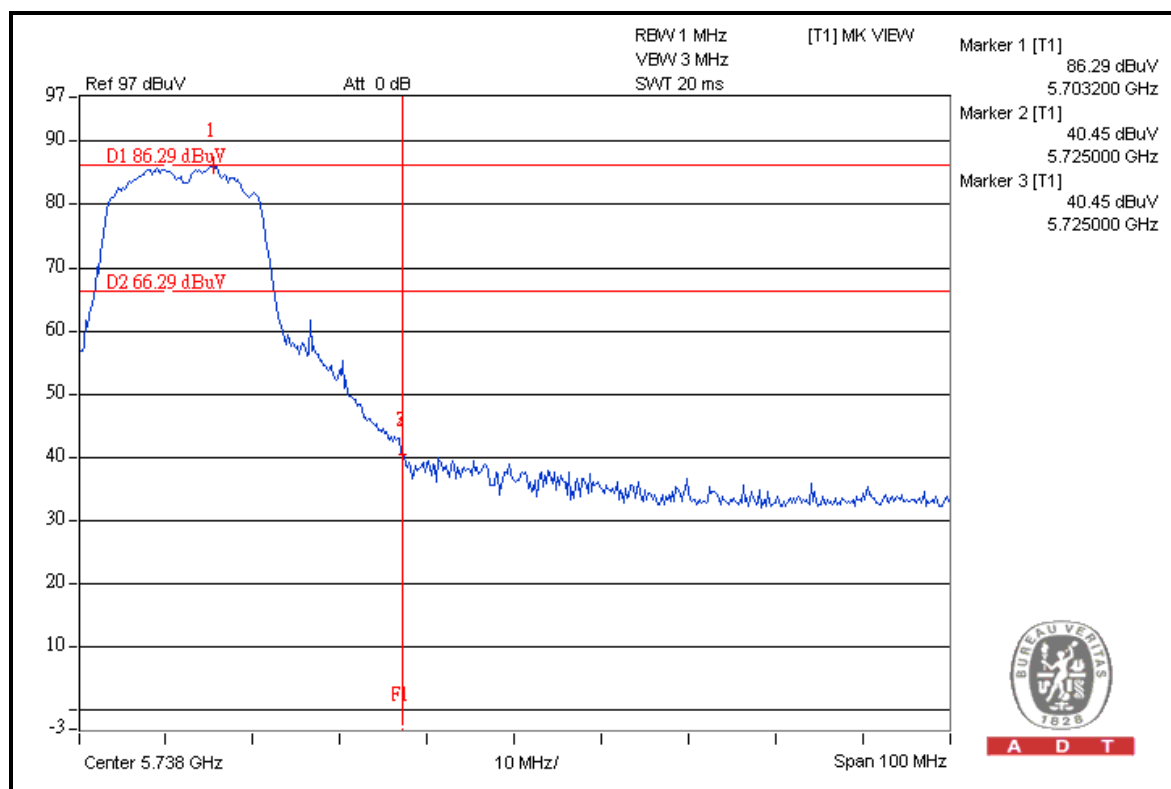
A D T



A D T



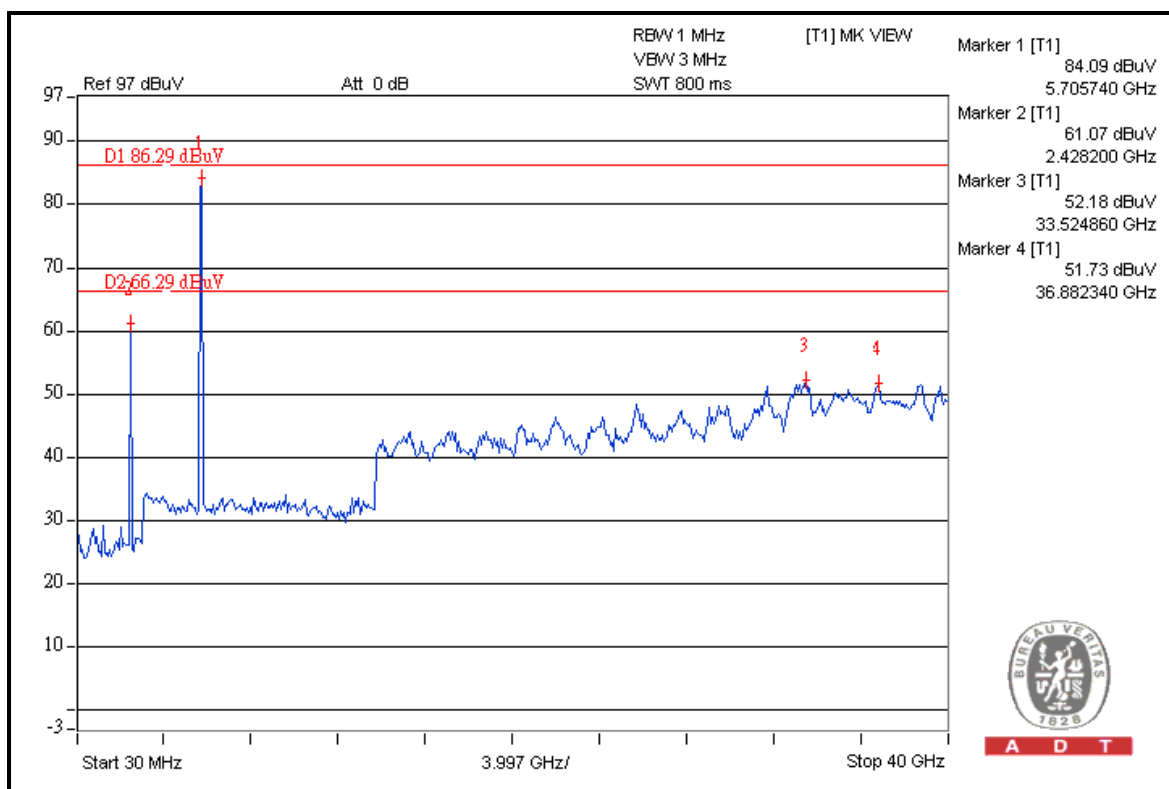
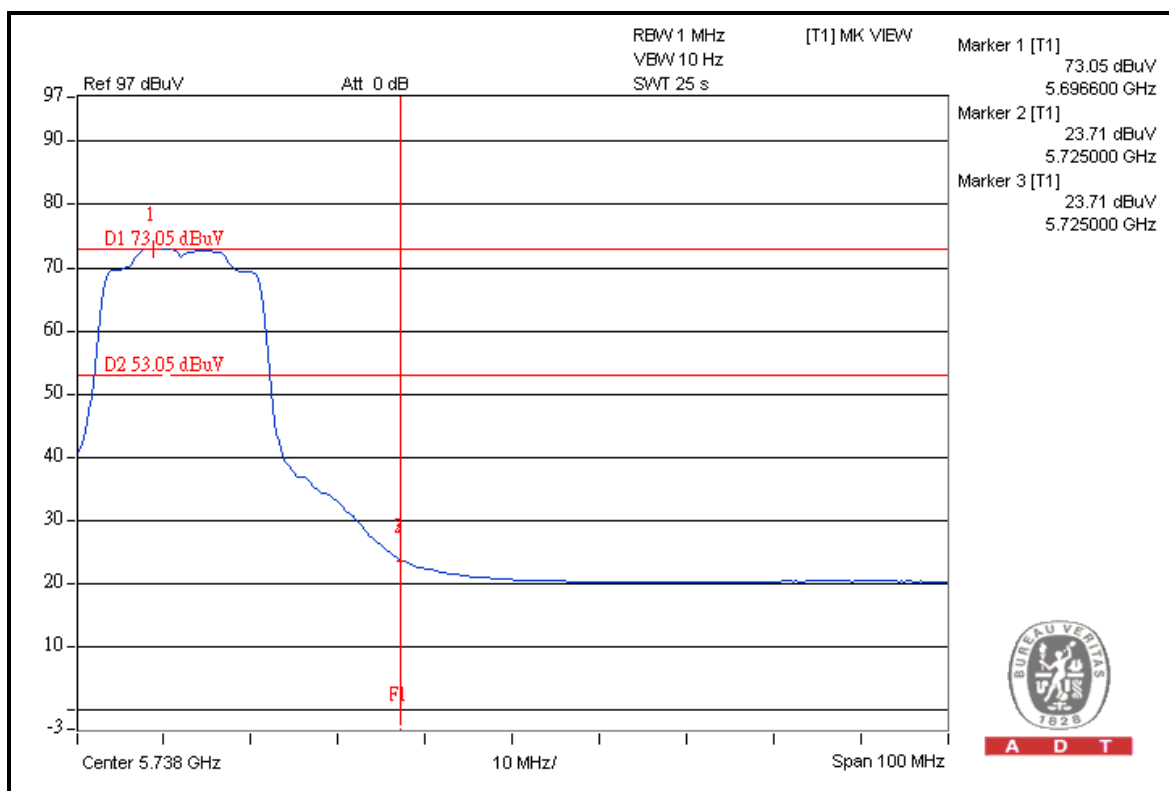
A D T



A D T



A D T



FOR 5180-5320MHz BAND:

802.11n (40MHz)

RESTRICT BAND (4500 ~ 5150 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5190.00 (PK)	108.3	37.7	70.6	74.00
5190.00 (AV)	96.4	46.0	50.4	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)
5310.00 (PK)	110.0	37.1	72.9	74.00
5310.00 (AV)	99.1	45.3	53.8	54.00

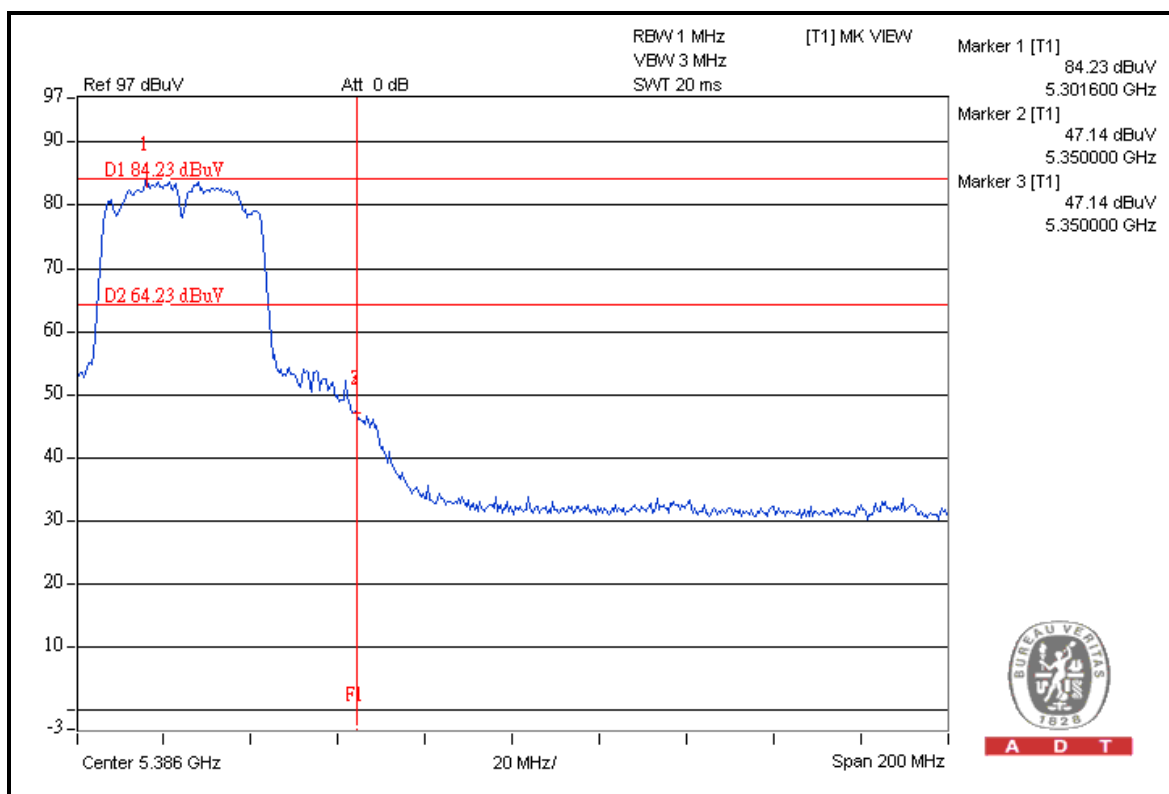
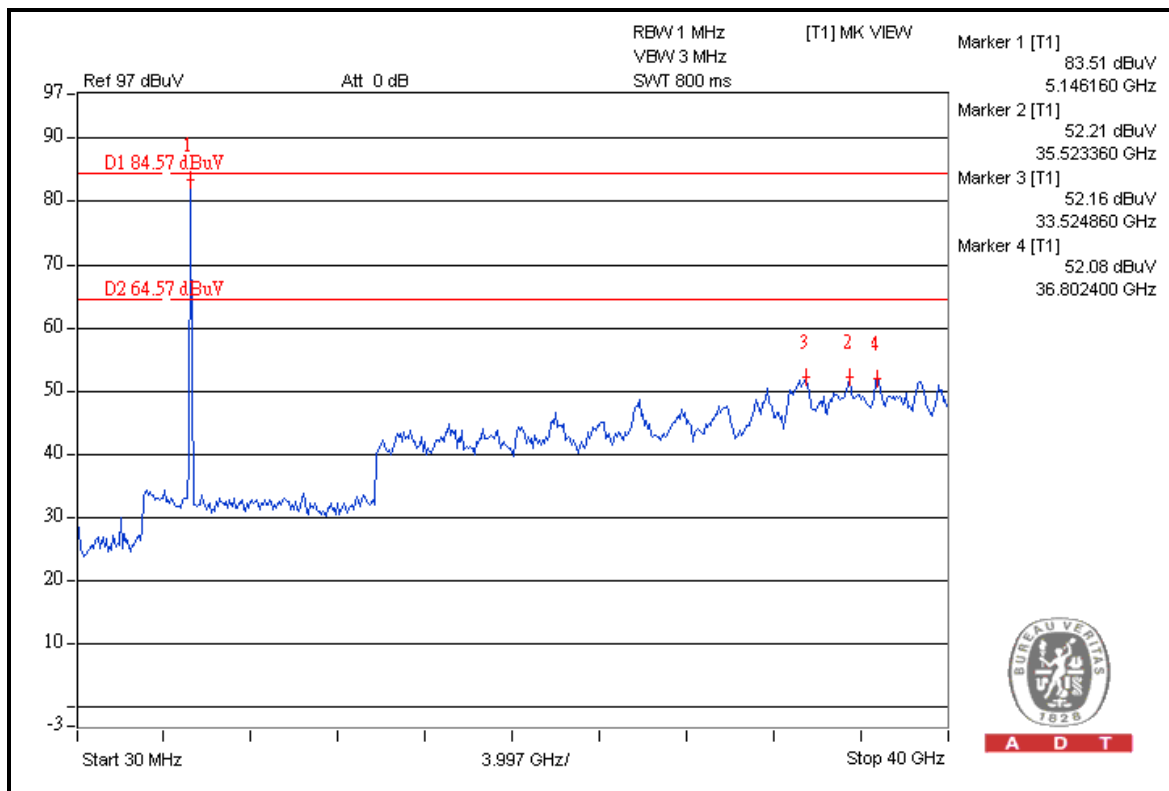
NOTE:

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.



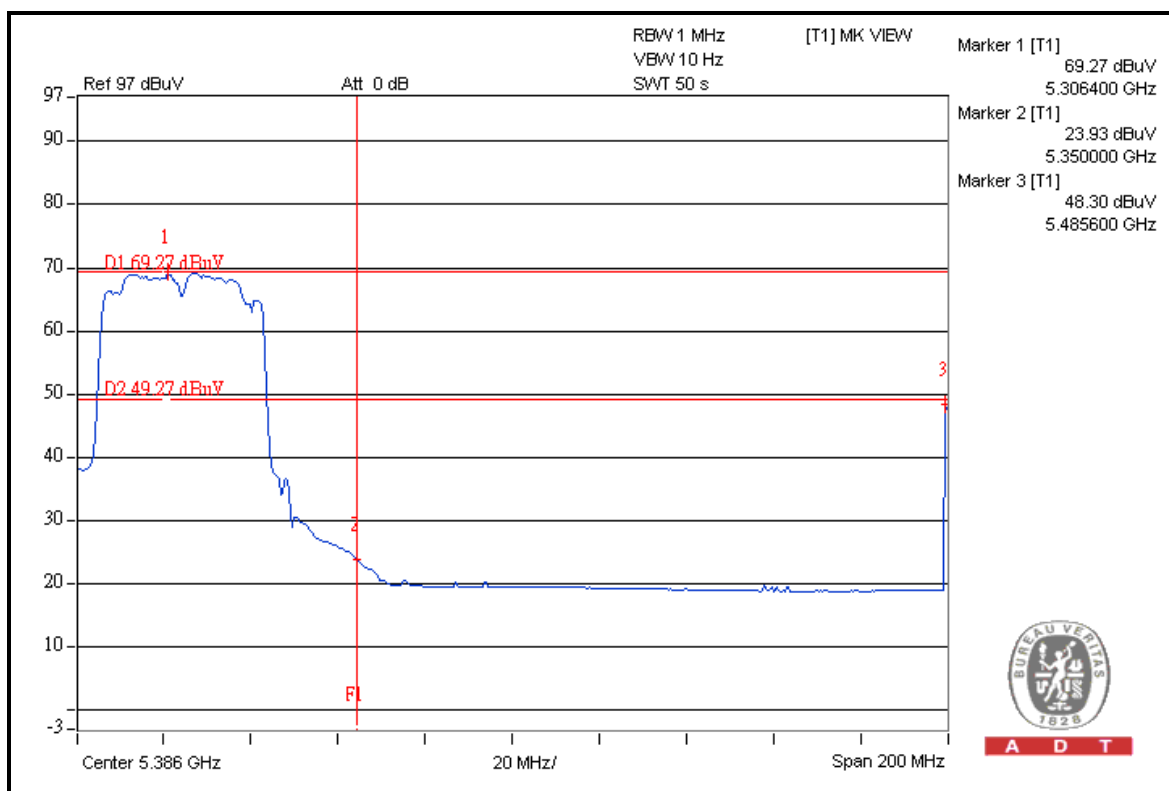


A D T

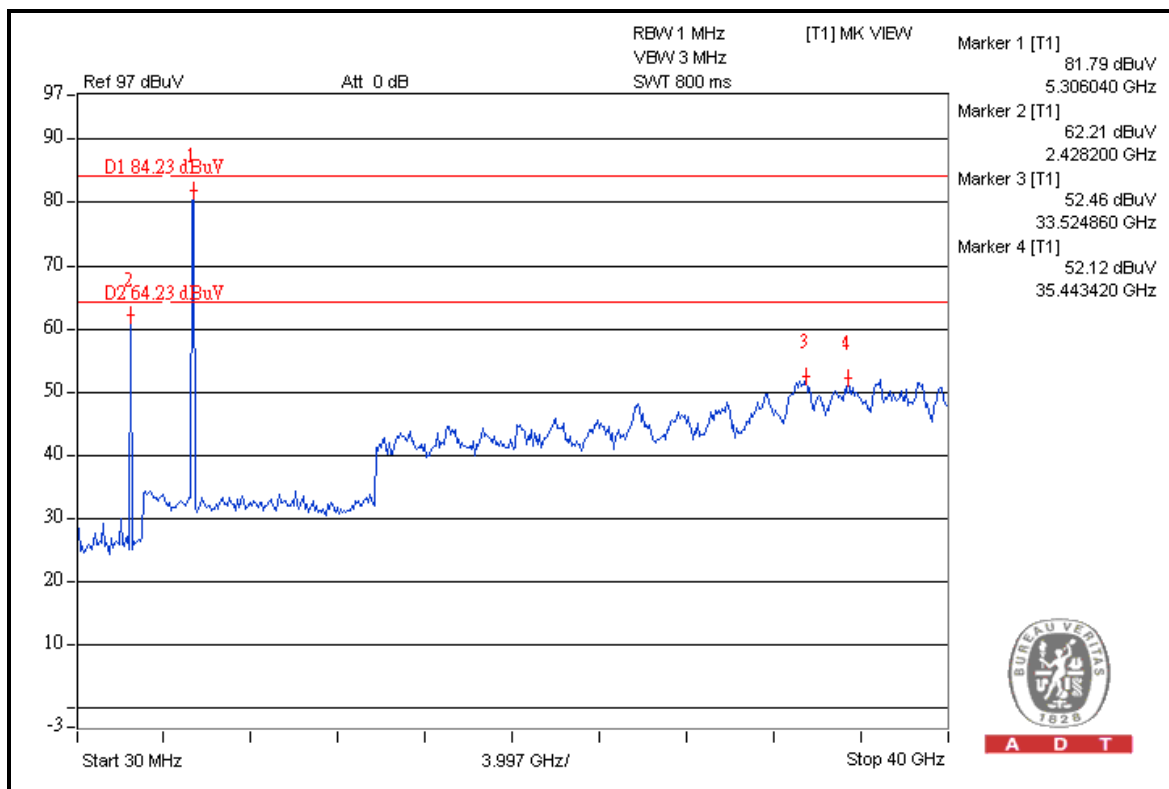




A D T



A D T



A D T

FOR 5500-5700MHz BAND:

802.11n (40MHz)

5510MHz

RESTRICT BAND (5350 ~ 5460 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5510.00 (PK)	107.1	45.2	61.9	74.00
5510.00 (AV)	95.7	45.1	50.6	54.00

FREQUENCY BAND (5460 ~ 5470 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5510.00 (PK)	107.1	39.7	67.4	68.30

5670MHz

ABOVE 5725 MHz

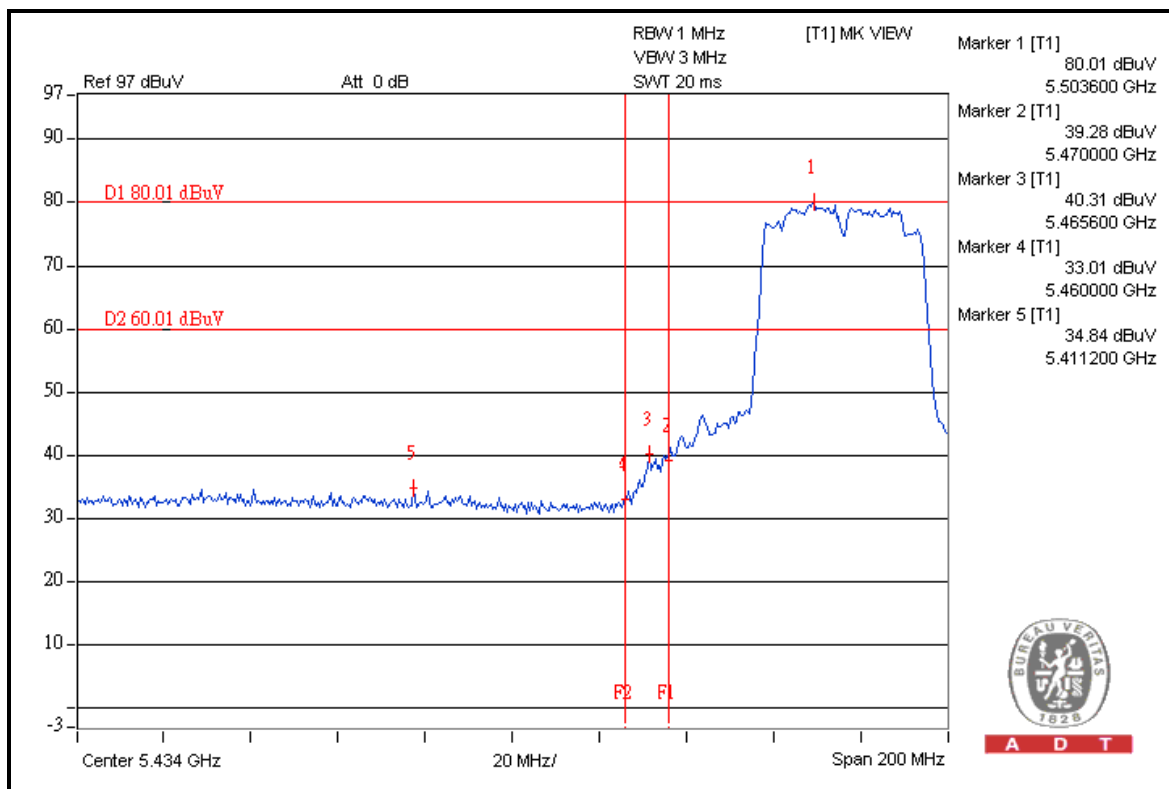
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5670.00 (PK)	105.0	44.5	60.5	68.30

NOTE:

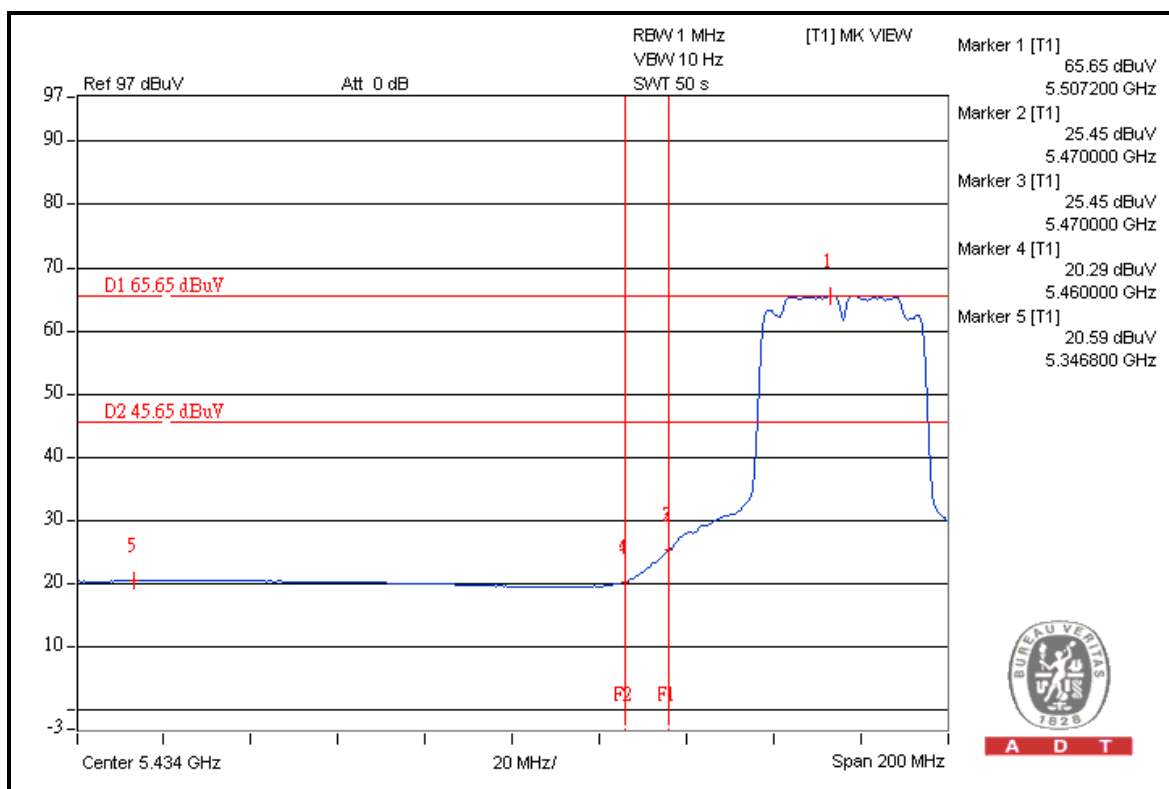
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



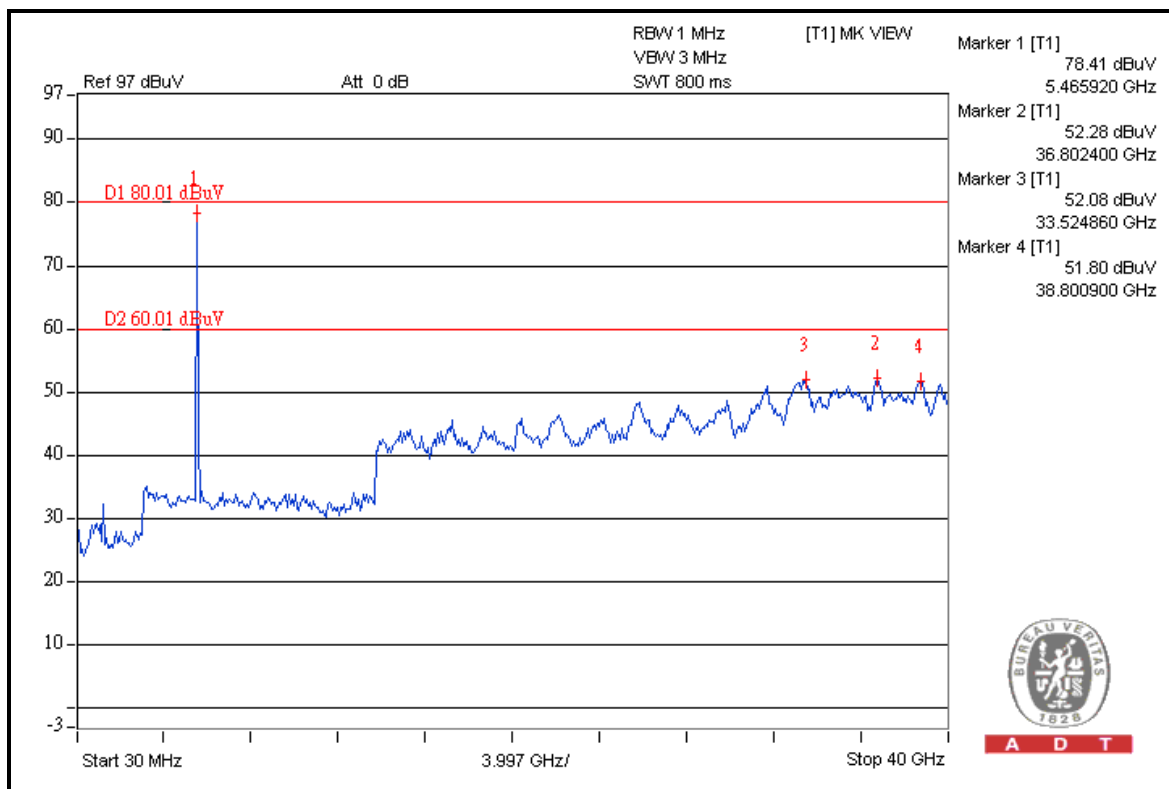
A D T



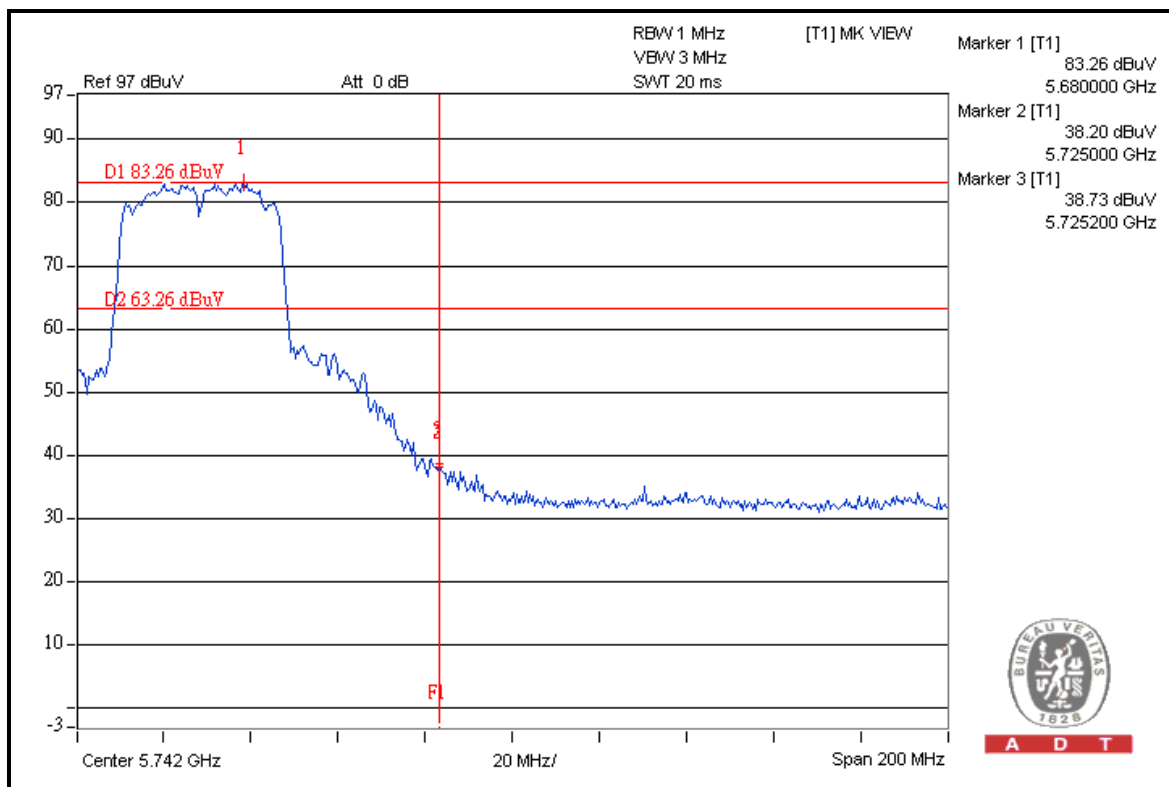
A D T



A D T



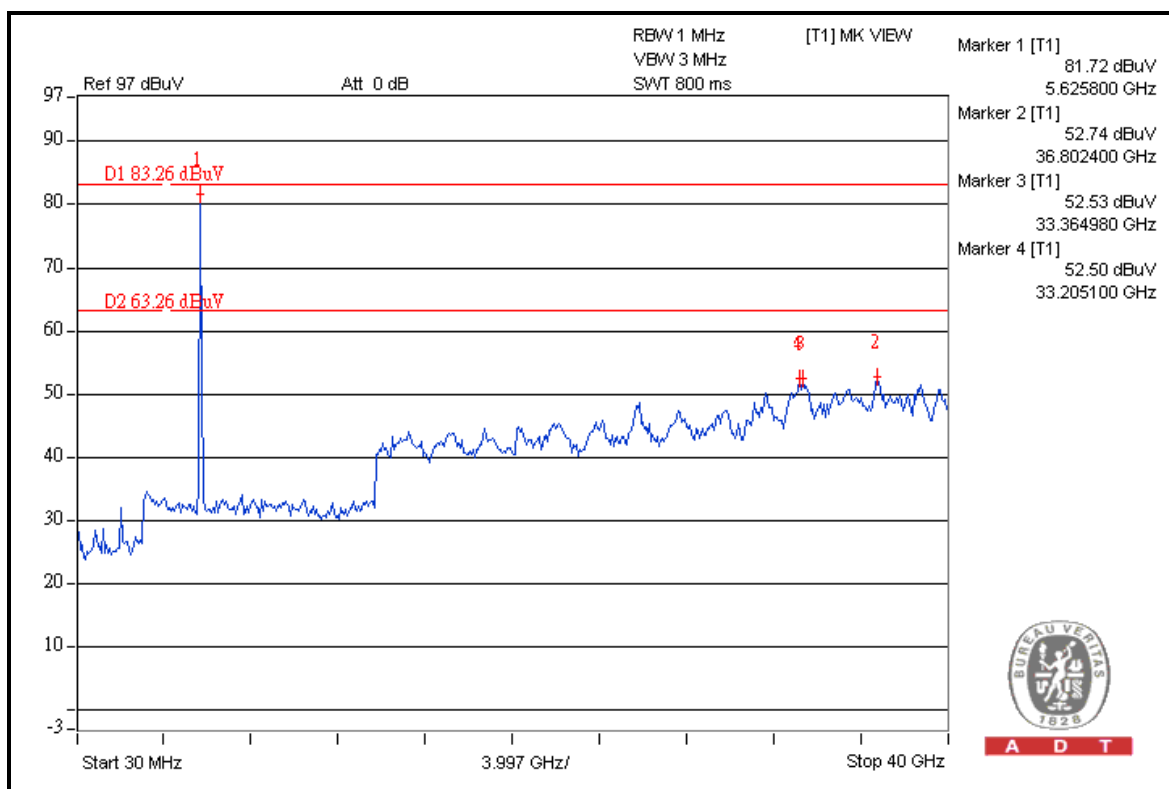
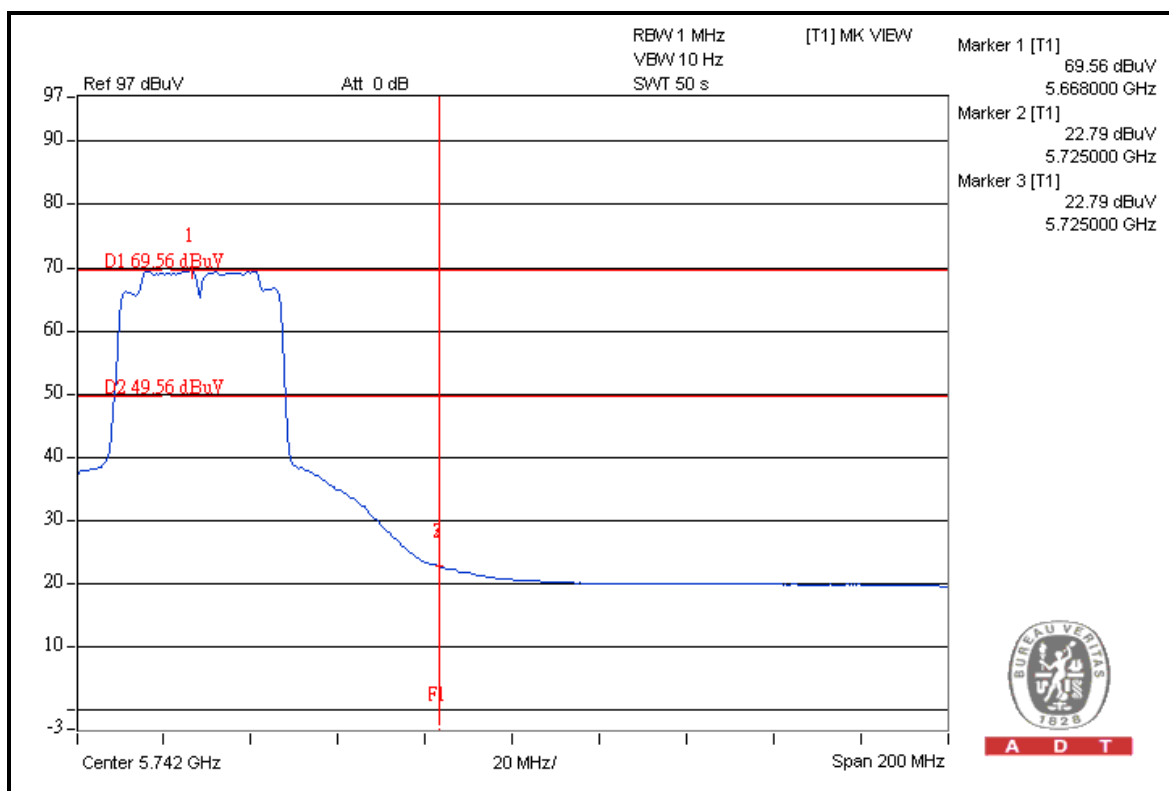
A D T



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

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

7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

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