



# FCC TEST REPORT (15.407) (For WLAN)

**REPORT NO.:** RF110617D07

**MODEL NO.:** PCG-4121DL, PCG-4121EL

**FCC ID:** AK8PCG4121DL

**RECEIVED:** Jun. 17, 2011

**TESTED:** Jun. 24 ~ Jul. 16, 2011

**ISSUED:** Jul. 22, 2011

**APPLICANT:** SONY Corporation

**ADDRESS:** 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

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

**LAB LOCATION:** No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou  
Hsiang, Taipei Hsien, 244 Taiwan

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110617D07	Original release	Jul. 22, 2011



## 1. CERTIFICATION

**PRODUCT:** Personal Computer

**BRAND NAME:** SONY

**MODEL:** PCG-4121DL, PCG-4121EL

**APPLICANT:** SONY Corporation

**TEST SAMPLE:** ENGINEERING SAMPLE

**TESTED:** Jun. 24 ~ Jul. 16, 2011

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

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: PCG-4121DL) 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: Jul. 22, 2011  
( Annie Chang / Senior Specialist )

APPROVED BY : Ken Liu , DATE: Jul. 22, 2011  
( 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 -21.59dB at 1.022MHz.
15.407(b)(1/2/3)(b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.7dB at 10640.00MHz.
15.407(a)(1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	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	3.87 dB
	Above 1GHz	3.36 dB



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	Personal Computer
<b>MODEL NO.</b>	PCG-4121DL, PCG-4121EL
<b>FCC ID</b>	AK8PCG4121DL
<b>NOMINAL VOLTAGE</b>	19.5Vdc from AC adapter or 11.1Vdc from battery
<b>MODULATION TYPE</b>	64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	OFDM
<b>TRANSFER RATE</b>	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
<b>OPERATING FREQUENCY</b>	5180 ~ 5320MHz & 5500 ~ 5700MHz
<b>NUMBER OF CHANNEL</b>	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)
<b>OUTPUT POWER</b>	33.9mW for 5180 ~ 5240MHz 31.6mW for 5260 ~ 5320MHz 27.5mW for 5500 ~ 5700MHz
<b>ANTENNA TYPE</b>	Refer to note below
<b>ANTENNA CONNECTOR</b>	Refer to note below
<b>I/O PORTS</b>	Refer to User's manual
<b>DATA CABLE</b>	NA
<b>ACCESSORY DEVICES</b>	Refer to note below

**NOTE:**

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

Function		Test Standard	Reference Report
<b>WLAN IEEE802.11abgn Mini-PCI Card + Bluetooth module</b>  (Brand: Intel, Model: 62230ANHMW)	<b>WLAN 802.11an</b> (5180~5320MHz, 5500~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF110617D07
	<b>WLAN 802.11a</b> (For DFS report) (5260~5320MHz, 5500~5700MHz)		RF110617D07-5
	<b>WLAN 802.11an</b> (5745~5825 MHz)	FCC Part 15, Subpart C (Section 15.247)	RF110617D07-1
	<b>WLAN 802.11bgn</b>		
	<b>Bluetooth</b>	FCC Part 15, Subpart C (Section 15.247)	RF110617D07-2
	<b>CO-Located Report</b>	FCC Part 15, Subpart C (Section 15.247) FCC Part 15, Subpart E (Section 15.407)	RF110617D07-7
<b>GSM 850 / CDMA 850 / WCDMA 850</b> (Brand: Huawei, Model: Gobi3000)		FCC Part 22	RF110617D07-3
<b>PCS 1900 / CDMA 1900 / WCDMA 1900</b> (Brand: Huawei, Model: Gobi3000)		FCC Part 24	RF110617D07-4

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-4121DL	Without
	PCG-4121EL	With

During the test, the **model no.: PCG-4121DL** was the worst case and only its test data was recorded in this report.

5. The EUT doesn't operate in 5600 ~ 5650MHz via software controls.
6. 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.
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	0.59	-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):

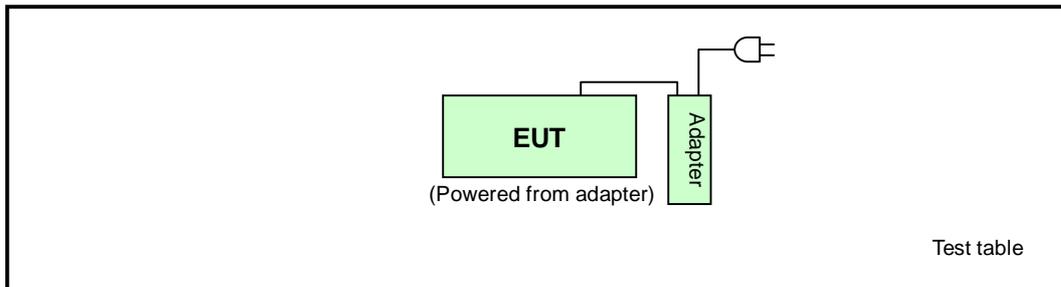
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

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

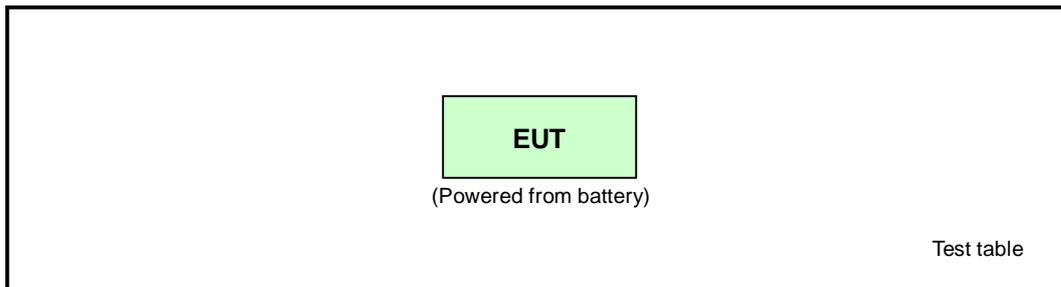
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	134	5670 MHz
110	5550 MHz		

### 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 <sup>≥</sup> 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT powered from adapter
B	-	√	Note 1	-	EUT powered from battery

Where **RE<sup>≥</sup>1G**: Radiated Emission above 1GHz      **RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission      **APCM**: Antenna Port Conducted Measurement

**Note:** 1. No need to concern of Conducted Emission due to the EUT is powered by battery.  
2. Speed mode worst enable during the test

#### 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 <sup>3</sup> 1G	A	21deg. C, 74%RH,1006hPa	120Vac, 60Hz	Nick Chen
RE <1G	A	26deg. C, 79%RH, 1006hPa	120Vac, 60Hz	Nick Chen
	B	26deg. C, 79%RH, 1006hPa	11.1Vdc	Nick Chen
PLC	A	21deg. C, 73%RH, 1011hPa	120Vac, 60Hz	Nick Chen
APCM	A	25deg. C, 78%RH, 11008Pa	120Vac, 60Hz	Chad Lee

### **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 $\mu$ 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. 31, 2010	Dec. 30, 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_Cond_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYBAO)	5D-FB	Cable-C10.01	Feb. 22, 2011	Feb. 21, 2012
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Feb. 26, 2011	Feb. 25, 2012

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
 2. The test was performed in Shielded Room No. 10.  
 3. The VCCI Site Registration No. C-1852.

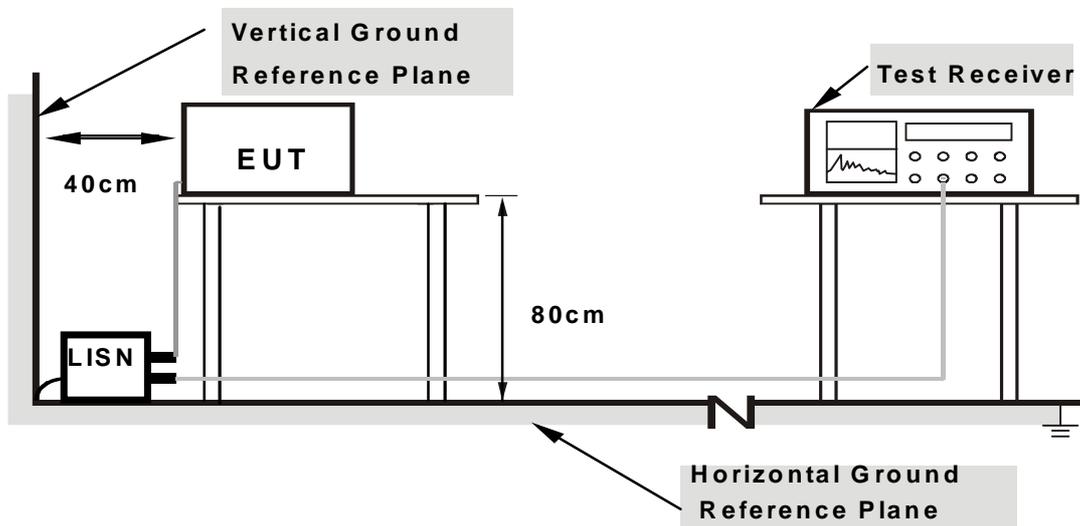
### 4.1.3 TEST PROCEDURES

- 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.

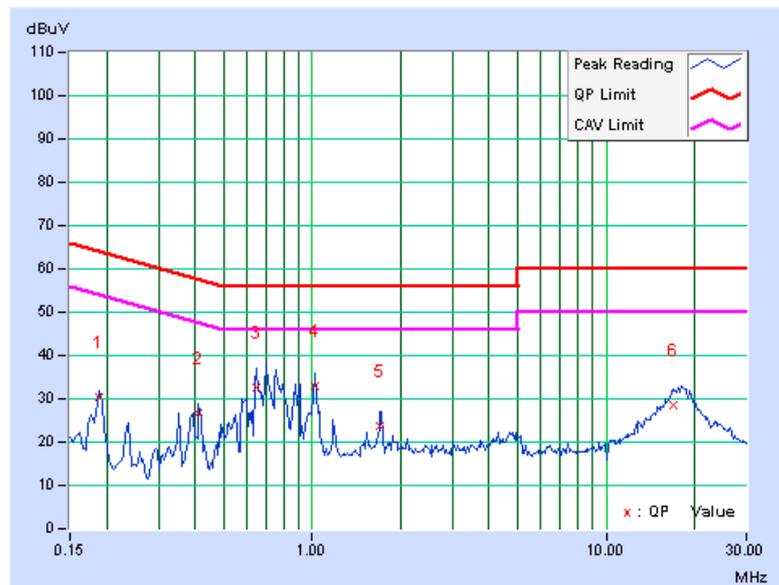
### 4.1.7 TEST RESULTS

#### CONDUCTED WORST-CASE DATA : 802.11a

<b>TEST MODE</b>	A	<b>6dB BANDWIDTH</b>	9kHz
<b>CHANNEL</b>	Channel 64	<b>PHASE</b>	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	0.189	0.17	30.04	-	30.21	-	64.08	54.08	-33.87	-
2	0.412	0.24	26.25	-	26.49	-	57.61	47.61	-31.12	-
3	0.650	0.25	32.26	-	32.51	-	56.00	46.00	-23.49	-
4	1.020	0.27	32.61	-	32.88	-	56.00	46.00	-23.12	-
5	1.707	0.31	23.43	-	23.74	-	56.00	46.00	-32.26	-
6	16.961	1.19	27.41	-	28.60	-	60.00	50.00	-31.40	-

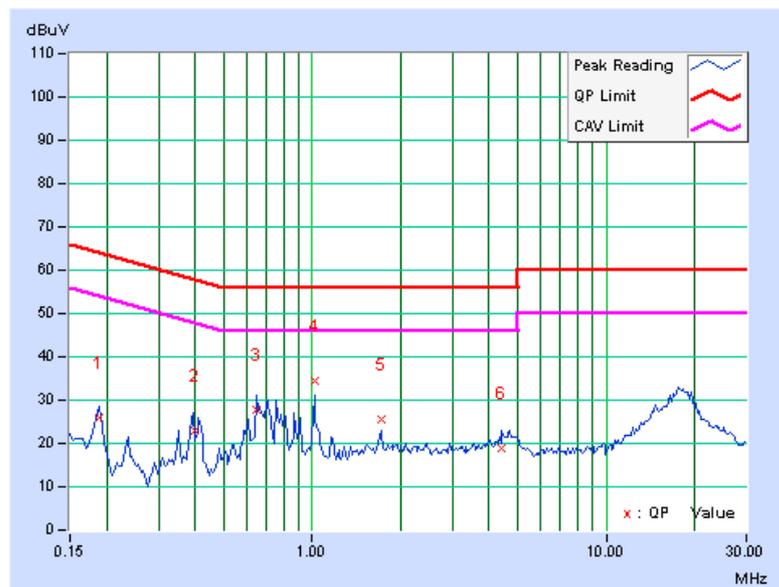
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



<b>TEST MODE</b>	A	<b>6dB BANDWIDTH</b>	9kHz
<b>CHANNEL</b>	Channel 64	<b>PHASE</b>	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	0.189	0.18	25.79	-	25.97	-	64.09	54.09	-38.12	-
2	0.399	0.25	22.62	-	22.87	-	57.88	47.88	-35.01	-
3	0.650	0.26	27.70	-	27.96	-	56.00	46.00	-28.04	-
<b>4</b>	<b>1.022</b>	<b>0.28</b>	<b>34.13</b>	-	<b>34.41</b>	-	<b>56.00</b>	<b>46.00</b>	<b>-21.59</b>	-
5	1.715	0.32	25.36	-	25.68	-	56.00	46.00	-30.32	-
6	4.409	0.48	18.24	-	18.72	-	56.00	46.00	-37.28	-

- 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.



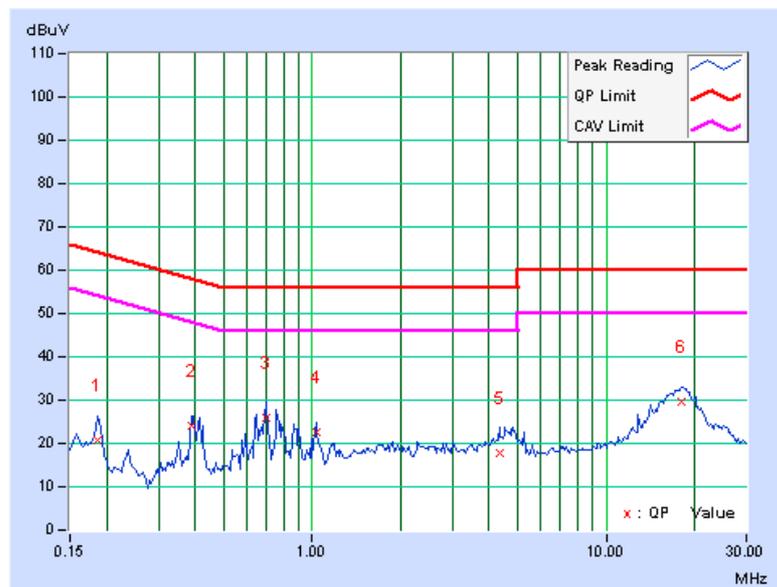


A D T

<b>TEST MODE</b>	A	<b>6dB BANDWIDTH</b>	9kHz
<b>CHANNEL</b>	Channel 140	<b>PHASE</b>	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	0.185	0.17	20.58	-	20.75	-	64.25	54.25	-43.50	-
2	0.388	0.24	23.74	-	23.98	-	58.10	48.10	-34.12	-
3	0.701	0.26	25.77	-	26.03	-	56.00	46.00	-29.97	-
4	1.031	0.27	22.35	-	22.62	-	56.00	46.00	-33.38	-
5	4.324	0.51	17.45	-	17.96	-	56.00	46.00	-38.04	-
6	18.047	1.25	28.30	-	29.55	-	60.00	50.00	-30.45	-

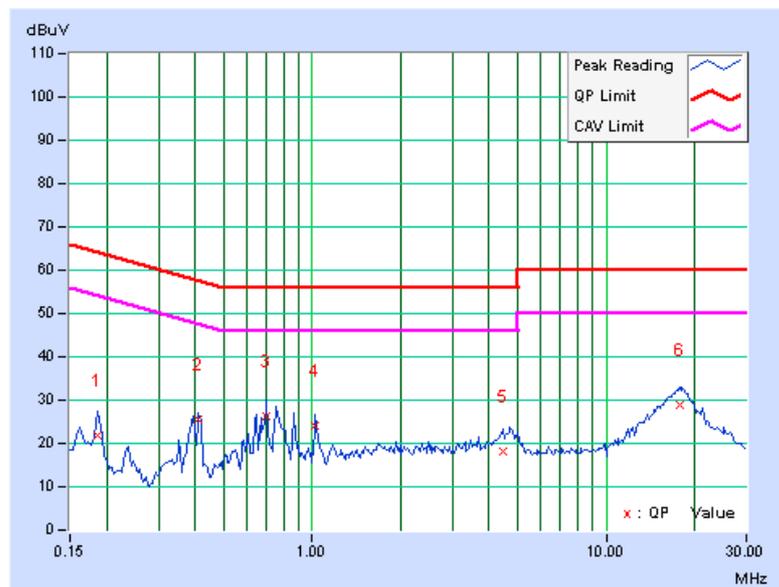
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



<b>TEST MODE</b>	A	<b>6dB BANDWIDTH</b>	9kHz
<b>CHANNEL</b>	Channel 140	<b>PHASE</b>	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	0.186	0.18	21.77	-	21.95	-	64.19	54.19	-42.25	-
2	0.412	0.25	25.49	-	25.74	-	57.61	47.61	-31.87	-
3	0.701	0.27	25.95	-	26.22	-	56.00	46.00	-29.78	-
4	1.027	0.28	23.91	-	24.19	-	56.00	46.00	-31.81	-
5	4.433	0.48	17.57	-	18.05	-	56.00	46.00	-37.95	-
6	17.891	0.94	28.00	-	28.94	-	60.00	50.00	-31.06	-

- 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	Mar. 04, 2011	Mar. 03, 2012
HP Preamplifier	8449B	3008A01924	Mar. 04, 2011	Mar. 03, 2012
HP Preamplifier	8449B	3008A01292	Mar. 04, 2011	Mar. 03, 2012
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2011	Jun. 09, 2012
Schwarzbeck Antenna	VULB 9168	137	Apr. 12, 2011	Apr. 11, 2012
Schwarzbeck Antenna	VHBA 9123	480	May 06, 2011	May 05, 2012
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. 22, 2011	Apr. 21, 2012
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.

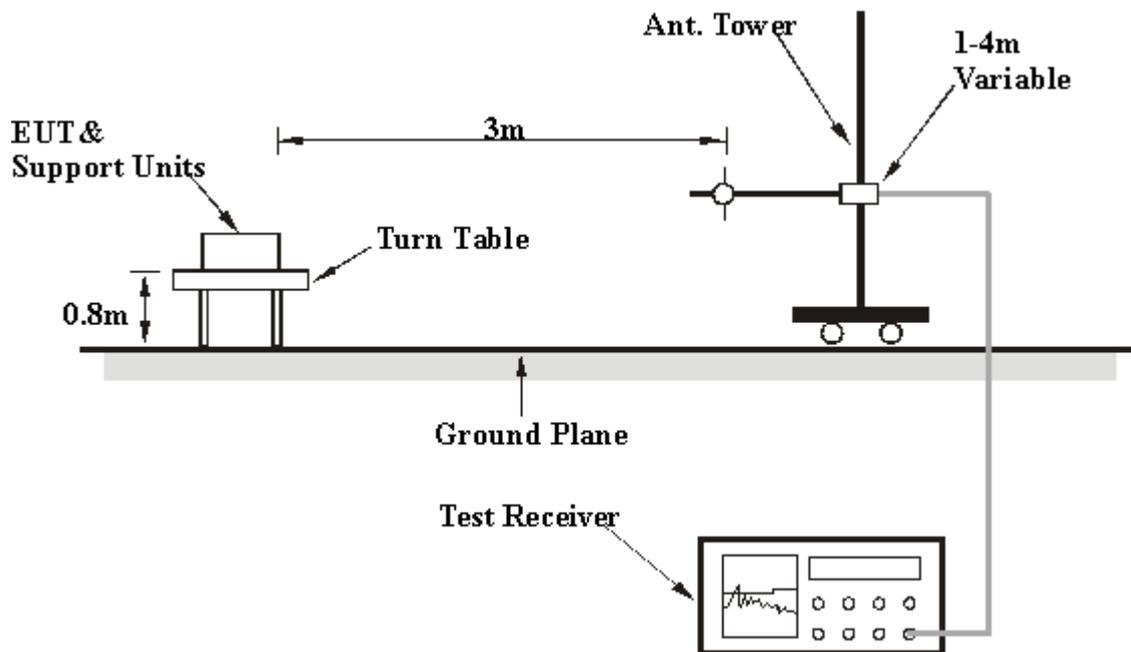
### NOTE:

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	66.9 PK	74.0	-7.1	1.00 H	304	27.62	39.27
2	5150.00	49.7 AV	54.0	-4.3	1.00 H	304	10.40	39.27
3	*5180.00	107.3 PK			1.00 H	304	68.00	39.31
4	*5180.00	97.4 AV			1.00 H	304	58.13	39.31
5	#10360.00	59.5 PK	68.3	-8.9	1.02 H	294	10.09	49.36
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	5150.00	58.5 PK	74.0	-15.5	1.39 V	300	19.20	39.27
2	5150.00	44.9 AV	54.0	-9.1	1.39 V	300	5.64	39.27
3	*5180.00	102.2 PK			1.39 V	300	62.86	39.31
4	*5180.00	93.8 AV			1.39 V	300	54.52	39.31
5	#10360.00	58.7 PK	68.3	-9.6	1.00 V	31	9.35	49.36

- 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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	106.9 PK			1.00 H	305	67.55	39.33
2	*5200.00	97.5 AV			1.00 H	305	58.15	39.33
3	#10400.00	58.9 PK	68.3	-9.4	1.08 H	281	9.53	49.38
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	104.8 PK			1.38 V	306	65.50	39.33
2	*5200.00	95.9 AV			1.38 V	306	56.52	39.33
3	#10400.00	58.8 PK	68.3	-9.5	1.00 V	54	9.41	49.38

- 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 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	107.7 PK			1.00 H	304	68.27	39.38
2	*5240.00	97.9 AV			1.00 H	304	58.53	39.38
3	5350.00	45.5 PK	74.0	-28.5	1.00 H	304	6.01	39.52
4	5350.00	34.3 AV	54.0	-19.7	1.00 H	304	-5.24	39.52
5	#10480.00	59.2 PK	68.3	-9.2	1.00 H	281	9.67	49.48
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	105.8 PK			1.38 V	303	66.39	39.38
2	*5240.00	96.3 AV			1.38 V	303	56.92	39.38
3	5350.00	45.9 PK	74.0	-28.1	1.38 V	303	6.36	39.52
4	5350.00	34.8 AV	54.0	-19.2	1.38 V	303	-4.71	39.52
5	#10480.00	58.8 PK	68.3	-9.5	1.00 V	69	9.35	49.48

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



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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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	45.7 PK	74.0	-28.4	1.04 H	302	6.38	39.27
2	5150.00	34.8 AV	54.0	-19.2	1.04 H	302	-4.46	39.27
3	*5260.00	107.3 PK			1.04 H	302	67.88	39.41
4	*5260.00	98.1 AV			1.04 H	302	58.72	39.41
5	#10520.00	59.3 PK	68.3	-9.0	1.12 H	281	9.77	49.55

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	46.0 PK	74.0	-28.0	1.35 V	305	6.71	39.27
2	5150.00	34.9 AV	54.0	-19.1	1.35 V	305	-4.34	39.27
3	*5260.00	104.6 PK			1.35 V	305	65.17	39.41
4	*5260.00	96.5 AV			1.35 V	305	57.04	39.41
5	#10520.00	59.3 PK	68.3	-9.1	1.00 V	82	9.70	49.55

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	107.2 PK			1.05 H	303	67.78	39.46
2	*5300.00	99.3 AV			1.05 H	303	59.80	39.46
3	10600.00	59.3 PK	74.0	-14.7	1.00 H	272	9.58	49.70
4	10600.00	52.2 AV	54.0	-1.8	1.00 H	272	2.52	49.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	105.6 PK			1.36 V	306	66.09	39.46
2	*5300.00	97.3 AV			1.36 V	306	57.85	39.46
3	10600.00	59.7 PK	74.0	-14.3	1.00 V	55	10.03	49.70
4	10600.00	51.4 AV	54.0	-2.6	1.00 V	55	1.66	49.70

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



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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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	106.7 PK			1.04 H	306	67.20	39.48
2	*5320.00	98.3 AV			1.04 H	306	58.78	39.48
3	5350.00	62.4 PK	74.0	-11.6	1.04 H	306	22.87	39.52
4	5350.00	42.5 AV	54.0	-11.5	1.04 H	306	3.01	39.52
5	10640.00	59.4 PK	74.0	-14.6	1.09 H	280	9.63	49.74
6	10640.00	49.4 AV	54.0	-4.6	1.09 H	280	0.34	49.74
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	106.0 PK			1.37 V	269	66.54	39.48
2	*5320.00	97.3 AV			1.37 V	269	57.78	39.48
3	5350.00	58.6 PK	74.0	-15.4	1.37 V	269	19.09	39.52
4	5350.00	40.4 AV	54.0	-13.6	1.37 V	269	0.87	39.52
5	10640.00	58.9 PK	74.0	-15.1	1.00 V	91	9.20	49.74
6	10640.00	52.4 AV	54.0	-1.7	1.00 V	91	2.61	49.74

- 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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	56.5 PK	74.0	-17.5	1.00 H	304	16.74	39.76
2	5460.00	39.1 AV	54.0	-14.9	1.00 H	304	-0.69	39.76
3	#5470.00	62.8 PK	68.3	-5.5	1.00 H	304	23.00	39.79
4	*5500.00	105.2 PK			1.00 H	304	65.36	39.88
5	*5500.00	93.5 AV			1.00 H	304	53.61	39.88
6	11000.00	59.2 PK	74.0	-14.8	1.00 H	288	8.83	50.37
7	11000.00	51.7 AV	54.0	-2.3	1.00 H	288	1.37	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	49.9 PK	74.0	-24.1	1.30 V	315	10.17	39.76
2	5460.00	38.1 AV	54.0	-15.9	1.30 V	315	-1.69	39.76
3	#5470.00	57.7 PK	68.3	-10.6	1.30 V	315	17.89	39.79
4	*5500.00	103.3 PK			1.30 V	315	63.41	39.88
5	*5500.00	95.2 AV			1.30 V	315	55.32	39.88
6	11000.00	58.8 PK	74.0	-15.2	1.00 V	56	8.41	50.37
7	11000.00	49.8 AV	54.0	-4.2	1.00 V	56	-0.54	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	107.8 PK			1.00 H	304	67.74	40.01
2	*5580.00	98.3 AV			1.00 H	304	58.27	40.01
3	11160.00	59.2 PK	74.0	-14.8	1.00 H	290	8.90	50.26
4	11160.00	50.4 AV	54.0	-3.6	1.00 H	290	0.11	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	106.6 PK			1.30 V	280	66.63	40.01
2	*5580.00	97.5 AV			1.30 V	280	57.46	40.01
3	11160.00	58.7 PK	74.0	-15.3	1.06 V	101	8.41	50.26
4	11160.00	49.9 AV	54.0	-4.1	1.06 V	101	-0.39	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	107.2 PK			1.00 H	298	67.09	40.12
2	*5660.00	97.5 AV			1.00 H	298	57.41	40.12
3	11320.00	59.1 PK	74.0	-14.9	1.06 H	283	8.81	50.30
4	11320.00	50.4 AV	54.0	-3.6	1.06 H	283	0.12	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	107.3 PK			1.34 V	296	67.22	40.12
2	*5660.00	97.6 AV			1.34 V	296	57.49	40.12
3	11320.00	58.8 PK	74.0	-15.2	1.01 V	69	8.48	50.30
4	11320.00	50.6 AV	54.0	-3.4	1.01 V	69	0.33	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	103.7 PK			1.00 H	301	63.53	40.17
2	*5700.00	95.6 AV			1.00 H	301	55.43	40.17
3	#5725.00	66.1 PK	68.3	-22.2	1.00 H	301	25.86	40.21
4	11400.00	58.9 PK	74.0	-15.1	1.02 H	198	8.67	50.26
5	11400.00	49.6 AV	54.0	-4.4	1.02 H	198	-0.63	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	105.0 PK			1.33 V	303	64.83	40.17
2	*5700.00	96.0 AV			1.33 V	303	55.84	40.17
3	#5725.00	65.8 PK	68.3	-2.5	1.33 V	303	25.62	40.21
4	11400.00	59.8 PK	74.0	-14.2	1.00 V	51	9.52	50.26
5	11400.00	50.8 AV	54.0	-3.2	1.00 V	51	0.51	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	57.0 PK	74.0	-17.0	1.35 H	352	17.74	39.27
2	5150.00	45.8 AV	54.0	-8.2	1.35 H	352	6.54	39.27
3	*5180.00	105.4 PK			1.35 H	352	66.05	39.31
4	*5180.00	94.8 AV			1.35 H	352	55.50	39.31
5	#10360.00	59.9 PK	68.3	-8.4	1.29 H	311	10.51	49.36
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	5150.00	57.0 PK	74.0	-17.1	1.04 V	300	17.68	39.27
2	5150.00	43.1 AV	54.0	-11.0	1.04 V	300	3.78	39.27
3	*5180.00	104.7 PK			1.04 V	300	65.34	39.31
4	*5180.00	94.2 AV			1.04 V	300	54.84	39.31
5	#10360.00	60.2 PK	68.3	-8.1	1.19 V	308	10.83	49.36

- 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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	105.7 PK			1.47 H	302	66.33	39.33
2	*5200.00	94.5 AV			1.47 H	302	55.13	39.33
3	#10400.00	60.3 PK	68.3	-8.0	1.28 H	301	10.93	49.38
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	104.0 PK			1.38 V	305	64.68	39.33
2	*5200.00	93.3 AV			1.38 V	305	53.99	39.33
3	#10400.00	60.0 PK	68.3	-8.3	1.28 V	274	10.59	49.38

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	106.7 PK			1.46 H	306	67.29	39.38
2	*5240.00	95.2 AV			1.46 H	306	55.83	39.38
3	5350.00	45.5 PK	74.0	-28.5	1.46 H	306	6.01	39.52
4	5350.00	34.2 AV	54.0	-19.8	1.46 H	306	-5.33	39.52
5	#10480.00	60.5 PK	68.3	-7.8	1.40 H	305	11.02	49.48
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	104.1 PK			1.35 V	303	64.70	39.38
2	*5240.00	94.0 AV			1.35 V	303	54.57	39.38
3	5350.00	45.5 PK	74.0	-28.5	1.35 V	303	5.95	39.52
4	5350.00	35.0 AV	54.0	-19.0	1.35 V	303	-4.54	39.52
5	#10480.00	60.9 PK	68.3	-7.4	1.24 V	259	11.40	49.48

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	45.9 PK	74.0	-28.1	1.44 H	304	6.60	39.27
2	5150.00	34.5 AV	54.0	-19.5	1.44 H	304	-4.79	39.27
3	*5260.00	105.4 PK			1.44 H	304	66.02	39.41
4	*5260.00	94.9 AV			1.44 H	304	55.53	39.41
5	#10520.00	59.9 PK	68.3	-8.4	1.09 H	276	10.39	49.55

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	45.8 PK	74.0	-28.2	1.35 V	305	6.50	39.27
2	5150.00	34.4 AV	54.0	-19.6	1.35 V	305	-4.86	39.27
3	*5260.00	103.6 PK			1.35 V	305	64.14	39.41
4	*5260.00	93.4 AV			1.35 V	305	53.98	39.41
5	#10520.00	59.6 PK	68.3	-8.7	1.32 V	297	10.05	49.55

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	105.3 PK			1.42 H	307	65.83	39.46
2	*5300.00	94.9 AV			1.42 H	307	55.46	39.46
3	10600.00	59.6 PK	74.0	-14.4	1.31 H	329	9.88	49.70
4	10600.00	49.7 AV	54.0	-4.3	1.31 H	329	0.02	49.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.7 PK			1.36 V	263	64.21	39.46
2	*5300.00	93.6 AV			1.36 V	263	54.15	39.46
3	10600.00	60.5 PK	74.0	-13.5	1.27 V	271	10.82	49.70
4	10600.00	50.6 AV	54.0	-3.4	1.27 V	271	0.87	49.70

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



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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	107.3 PK			1.43 H	309	67.78	39.48
2	*5320.00	96.1 AV			1.43 H	309	56.66	39.48
3	5350.00	49.1 PK	74.0	-24.9	1.43 H	309	9.60	39.52
4	5350.00	38.5 AV	54.0	-15.5	1.43 H	309	-0.98	39.52
5	10640.00	60.5 PK	74.0	-13.5	1.36 H	271	10.74	49.74
6	10640.00	50.5 AV	54.0	-3.5	1.36 H	271	0.73	49.74
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	105.9 PK			1.29 V	279	66.42	39.48
2	*5320.00	95.3 AV			1.29 V	279	55.77	39.48
3	5350.00	48.0 PK	74.0	-26.0	1.29 V	279	8.46	39.52
4	5350.00	38.4 AV	54.0	-15.6	1.29 V	279	-1.16	39.52
5	10640.00	59.7 PK	74.0	-14.3	1.22 V	289	9.94	49.74
6	10640.00	49.8 AV	54.0	-4.2	1.22 V	289	0.05	49.74

- 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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	50.1 PK	74.0	-24.0	1.00 H	310	10.29	39.76
2	5460.00	37.1 AV	54.0	-16.9	1.00 H	310	-2.66	39.76
3	#5470.00	54.7 PK	68.3	-13.6	1.00 H	310	14.91	39.79
4	*5500.00	104.7 PK			1.00 H	310	64.80	39.88
5	*5500.00	94.4 AV			1.00 H	310	54.48	39.88
6	11000.00	60.4 PK	74.0	-13.6	1.06 H	276	10.02	50.37
7	11000.00	50.1 AV	54.0	-3.9	1.06 H	276	-0.23	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	46.5 PK	74.0	-27.6	1.00 V	215	6.69	39.76
2	5460.00	35.7 AV	54.0	-18.3	1.00 V	215	-4.03	39.76
3	#5470.00	49.2 PK	68.3	-19.1	1.00 V	215	9.37	39.79
4	*5500.00	103.9 PK			1.00 V	215	64.04	39.88
5	*5500.00	94.7 AV			1.00 V	215	54.80	39.88
6	11000.00	60.2 PK	74.0	-13.8	1.08 V	266	9.87	50.37
7	11000.00	50.1 AV	54.0	-3.9	1.08 V	266	-0.28	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	106.1 PK			1.44 H	298	66.04	40.01
2	*5580.00	95.6 AV			1.44 H	298	55.63	40.01
3	11160.00	60.3 PK	74.0	-13.7	1.31 H	299	10.08	50.26
4	11160.00	50.9 AV	54.0	-3.1	1.31 H	299	0.61	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	105.8 PK			1.31 V	292	65.81	40.01
2	*5580.00	95.4 AV			1.31 V	292	55.37	40.01
3	11160.00	60.3 PK	74.0	-13.8	1.24 V	281	9.99	50.26
4	11160.00	50.7 AV	54.0	-3.3	1.24 V	281	0.48	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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	103.9 PK			1.43 H	296	63.77	40.12
2	*5660.00	94.2 AV			1.43 H	296	54.06	40.12
3	11320.00	60.3 PK	74.0	-13.7	1.40 H	290	9.97	50.30
4	11320.00	50.4 AV	54.0	-3.6	1.40 H	290	0.14	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	102.9 PK			1.31 V	294	62.81	40.12
2	*5660.00	93.3 AV			1.31 V	294	53.18	40.12
3	11320.00	60.2 PK	74.0	-13.8	1.22 V	318	9.91	50.30
4	11320.00	50.5 AV	54.0	-3.5	1.22 V	318	0.24	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	105.5 PK			1.41 H	298	65.30	40.17
2	*5700.00	94.6 AV			1.41 H	298	54.45	40.17
3	#5725.00	64.2 PK	68.3	-4.1	1.41 H	298	24.03	40.21
4	11400.00	59.9 PK	74.0	-14.1	1.36 H	259	9.61	50.26
5	11400.00	50.4 AV	54.0	-3.6	1.36 H	259	0.17	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	104.6 PK			1.31 V	297	64.38	40.17
2	*5700.00	94.4 AV			1.31 V	297	54.27	40.17
3	#5725.00	66.3 PK	68.3	-2.0	1.31 V	297	26.08	40.21
4	11400.00	60.5 PK	74.0	-13.5	1.24 V	271	10.26	50.26
5	11400.00	50.3 AV	54.0	-3.7	1.24 V	271	0.01	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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	66.0 PK	74.0	-8.0	1.44 H	307	26.76	39.27
2	5150.00	51.9 AV	54.0	-2.1	1.44 H	307	12.63	39.27
3	*5190.00	105.5 PK			1.44 H	307	66.19	39.32
4	*5190.00	95.9 AV			1.44 H	307	56.57	39.32
5	#10380.00	60.5 PK	68.3	-7.9	1.38 H	297	11.08	49.37
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	5150.00	65.4 PK	74.0	-8.6	1.29 V	184	26.15	39.27
2	5150.00	51.9 AV	54.0	-2.1	1.29 V	184	12.65	39.27
3	*5190.00	104.6 PK			1.29 V	184	65.28	39.32
4	*5190.00	93.8 AV			1.29 V	184	54.44	39.32
5	#10380.00	59.8 PK	68.3	-8.5	1.22 V	171	10.39	49.37

- 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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	106.2 PK			1.43 H	310	66.85	39.37
2	*5230.00	95.4 AV			1.43 H	310	56.02	39.37
3	5350.00	46.5 PK	74.0	-27.5	1.43 H	310	6.94	39.52
4	5350.00	35.0 AV	54.0	-19.0	1.43 H	310	-4.53	39.52
5	#10460.00	59.9 PK	68.3	-8.4	1.33 H	281	10.47	49.46
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	*5230.00	101.8 PK			1.32 V	266	62.42	39.37
2	*5230.00	91.1 AV			1.32 V	266	51.75	39.37
3	5350.00	45.1 PK	74.0	-28.9	1.32 V	266	5.55	39.52
4	5350.00	33.8 AV	54.0	-20.2	1.32 V	266	-5.74	39.52
5	#10460.00	60.0 PK	68.3	-8.3	1.09 V	251	10.53	49.46

- 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.
  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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	45.5 PK	74.0	-28.6	1.40 H	306	6.18	39.27
2	5150.00	34.8 AV	54.0	-19.2	1.40 H	306	-4.46	39.27
3	*5270.00	106.7 PK			1.40 H	306	67.23	39.42
4	*5270.00	96.6 AV			1.40 H	306	57.14	39.42
5	#10540.00	60.3 PK	68.3	-8.0	1.33 H	274	10.75	49.59

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	45.3 PK	74.0	-28.7	1.28 V	274	6.06	39.27
2	5150.00	34.6 AV	54.0	-19.4	1.28 V	274	-4.66	39.27
3	*5270.00	103.9 PK			1.28 V	274	64.43	39.42
4	*5270.00	93.7 AV			1.28 V	274	54.26	39.42
5	#10540.00	60.2 PK	68.3	-8.1	1.19 V	267	10.62	49.59

- 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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	108.2 PK			1.45 H	303	68.77	39.47
2	*5310.00	97.9 AV			1.45 H	303	58.38	39.47
3	5350.00	59.2 PK	74.0	-14.8	1.45 H	303	19.69	39.52
4	5350.00	45.2 AV	54.0	-8.9	1.45 H	303	5.63	39.52
5	10620.00	58.9 PK	74.0	-15.2	1.37 H	294	9.13	49.72
6	10620.00	50.1 AV	54.0	-3.9	1.37 H	294	0.41	49.72
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	106.6 PK			1.27 V	276	67.13	39.47
2	*5310.00	95.7 AV			1.27 V	276	56.20	39.47
3	5350.00	60.5 PK	74.0	-13.5	1.27 V	276	21.01	39.52
4	5350.00	43.1 AV	54.0	-10.9	1.27 V	276	3.59	39.52
5	10620.00	59.9 PK	74.0	-14.1	1.16 V	231	10.17	49.72
6	10620.00	50.4 AV	54.0	-3.6	1.16 V	231	0.71	49.72

- 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 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	54.5 PK	74.0	-19.5	1.37 H	248	14.74	39.76
2	5460.00	43.0 AV	54.0	-11.0	1.37 H	248	3.24	39.76
3	#5470.00	62.4 PK	68.3	-5.9	1.37 H	248	22.57	39.79
4	*5510.00	105.3 PK			1.37 H	248	65.42	39.90
5	*5510.00	95.4 AV			1.37 H	248	55.54	39.90
6	11020.00	60.2 PK	74.0	-13.8	1.32 H	198	9.86	50.36
7	11020.00	50.1 AV	54.0	-3.9	1.32 H	198	-0.22	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	55.9 PK	74.0	-18.1	1.00 V	192	16.11	39.76
2	5460.00	42.2 AV	54.0	-11.8	1.00 V	192	2.47	39.76
3	#5470.00	61.4 PK	68.3	-6.9	1.00 V	192	21.64	39.79
4	*5510.00	103.7 PK			1.00 V	192	63.81	39.90
5	*5510.00	94.4 AV			1.00 V	192	54.49	39.90
6	11020.00	60.4 PK	74.0	-13.7	1.03 V	165	9.99	50.36
7	11020.00	50.7 AV	54.0	-3.3	1.03 V	165	0.36	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	103.9 PK			1.00 H	303	63.95	39.96
2	*5550.00	94.1 AV			1.00 H	303	54.13	39.96
3	11100.00	60.3 PK	74.0	-13.7	1.02 H	258	9.96	50.31
4	11100.00	50.0 AV	54.0	-4.0	1.02 H	258	-0.29	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	102.9 PK			1.00 V	190	62.92	39.96
2	*5550.00	93.6 AV			1.00 V	190	53.62	39.96
3	11100.00	59.9 PK	74.0	-14.1	1.09 V	211	9.63	50.31
4	11100.00	50.7 AV	54.0	-3.3	1.09 V	211	0.42	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.



A D T

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, 74%RH 1006 hPa	TESTED BY	Nick Chen
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	103.0 PK			1.00 H	305	62.83	40.13
2	*5670.00	92.9 AV			1.00 H	305	52.76	40.13
3	#5725.00	47.4 PK	68.3	-20.9	1.00 H	305	7.22	40.21
4	11340.00	59.6 PK	74.0	-14.4	1.03 H	294	9.32	50.29
5	11340.00	48.7 AV	54.0	-5.3	1.03 H	294	-1.60	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	101.7 PK			1.00 V	170	61.53	40.13
2	*5670.00	91.5 AV			1.00 V	170	51.38	40.13
3	#5725.00	53.2 PK	68.3	-15.1	1.00 V	170	13.03	40.21
4	11340.00	60.3 PK	74.0	-13.8	1.09 V	165	9.96	50.29
5	11340.00	50.5 AV	54.0	-3.5	1.09 V	165	0.23	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.
  6. "#":The radiated frequency is out the restricted band.
  4. Margin value = Emission level – Limit value.



A D T

## 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	26deg. C, 79%RH 1006 hPa	TESTED BY	Nick Chen
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	120.38	33.1 QP	43.5	-10.4	1.02 H	220	20.80	12.31
2	155.89	36.6 QP	43.5	-6.9	1.36 H	193	22.14	14.46
3	255.96	31.3 QP	46.0	-14.7	1.84 H	91	17.52	13.79
4	302.76	37.4 QP	46.0	-8.6	1.33 H	148	21.69	15.68
5	335.04	33.8 QP	46.0	-12.2	1.25 H	253	17.09	16.73
6	606.19	32.0 QP	46.0	-14.0	1.36 H	40	8.55	23.48
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	230.13	37.0 QP	46.0	-9.0	1.12 V	271	24.30	12.67
2	404.44	33.2 QP	46.0	-12.8	1.68 V	286	14.41	18.75
3	565.84	36.0 QP	46.0	-10.0	1.36 V	226	13.28	22.70
4	756.29	37.3 QP	46.0	-8.8	1.89 V	10	11.68	25.57
5	778.89	31.5 QP	46.0	-14.5	1.28 V	217	5.43	26.11
6	838.60	32.3 QP	46.0	-13.7	1.08 V	214	5.24	27.10

- 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.



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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	26deg. C, 79%RH 1006 hPa	TESTED BY	Nick Chen
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	120.38	33.8 QP	43.5	-9.7	1.74 H	205	21.52	12.31
2	154.28	36.4 QP	43.5	-7.1	1.89 H	235	21.90	14.46
3	215.61	31.6 QP	43.5	-11.9	1.22 H	94	19.55	12.03
4	255.96	31.0 QP	46.0	-15.0	1.36 H	52	17.22	13.79
5	778.89	34.7 QP	46.0	-11.3	1.82 H	334	8.63	26.11
6	838.60	33.3 QP	46.0	-12.7	1.11 H	301	6.18	27.10
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	41.30	33.4 QP	40.0	-6.6	1.22 V	46	19.16	14.24
2	71.96	25.6 QP	40.0	-14.4	1.69 V	208	13.38	12.18
3	144.59	31.2 QP	43.5	-12.3	1.84 V	160	17.22	14.02
4	606.19	31.9 QP	46.0	-14.1	1.32 V	235	8.39	23.48
5	778.89	31.4 QP	46.0	-14.6	1.13 V	208	5.26	26.11
6	838.60	31.9 QP	46.0	-14.1	1.56 V	208	4.81	27.10

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	11.1Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 79%RH 1006 hPa	TESTED BY	Nick Chen
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	247.89	33.3 QP	46.0	-12.8	1.74 H	271	19.79	13.46
2	272.10	35.8 QP	46.0	-10.2	1.68 H	256	21.32	14.48
3	301.15	36.2 QP	46.0	-9.8	1.52 H	265	20.55	15.63
4	359.25	31.0 QP	46.0	-15.0	1.36 H	238	13.52	17.48
5	407.67	31.8 QP	46.0	-14.3	1.88 H	247	12.91	18.84
6	662.68	33.4 QP	46.0	-12.6	1.38 H	229	9.49	23.91
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	144.59	30.9 QP	43.5	-12.6	1.25 V	184	16.86	14.02
2	234.98	36.8 QP	46.0	-9.2	1.38 V	274	23.91	12.89
3	431.88	35.1 QP	46.0	-10.9	1.82 V	274	15.68	19.45
4	531.95	34.7 QP	46.0	-11.3	1.32 V	274	12.81	21.93
5	606.19	32.7 QP	46.0	-13.3	1.44 V	202	9.23	23.48
6	838.60	31.6 QP	46.0	-14.5	1.85 V	265	4.45	27.10

- 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.



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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	26deg. C, 79%RH 1006 hPa	TESTED BY	Nick Chen
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	120.38	33.6 QP	43.5	-9.9	1.74 H	214	21.27	12.31
2	154.28	35.8 QP	43.5	-7.7	1.69 H	223	21.37	14.46
3	215.61	31.3 QP	43.5	-12.2	1.85 H	85	19.28	12.03
4	559.38	35.3 QP	46.0	-10.7	1.57 H	262	12.78	22.56
5	606.19	33.4 QP	46.0	-12.6	1.64 H	10	9.94	23.48
6	665.91	33.1 QP	46.0	-13.0	1.33 H	298	9.12	23.93
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	34.84	30.7 QP	40.0	-9.3	1.12 V	334	18.01	12.70
2	71.96	25.8 QP	40.0	-14.2	1.68 V	175	13.60	12.18
3	144.59	30.6 QP	43.5	-12.9	1.74 V	181	16.56	14.02
4	273.71	30.4 QP	46.0	-15.6	1.35 V	7	15.84	14.55
5	530.33	31.3 QP	46.0	-14.7	1.88 V	184	9.44	21.90
6	607.80	32.0 QP	46.0	-14.0	1.23 V	184	8.51	23.49

- 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. 26, 2011	Apr. 25, 2012
Anritsu Power Meter	ML2495A	0842014	Apr. 26, 2011	Apr. 25, 2012

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Measurement Bandwidth of ML2495A is 65MHz greater than 26dB bandwidth of emission.

##### FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER	FSP 40	100036	Apr. 29, 2011	Apr. 28, 2012

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

### 4.3.3 TEST PROCEDURE

#### FOR POWER OUTPUT MEASUREMENT

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

#### FOR 26dB OCCUPIED BANDWIDTH

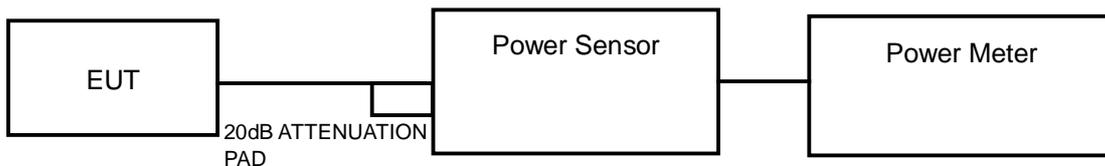
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

### 4.3.4 DEVIATION FROM TEST STANDARD

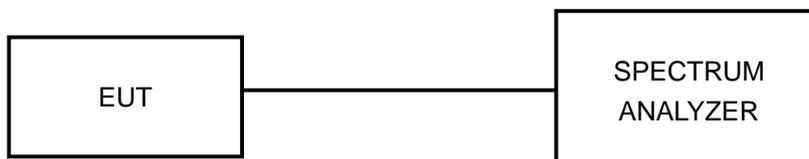
No deviation.

### 4.3.5 TEST SETUP

#### FOR POWER OUTPUT MEASUREMENT



#### FOR 26dB OCCUPIED BANDWIDTH



### 4.3.6 EUT OPERATING CONDITIONS

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

### 4.3.7 TEST RESULTS

#### POWER OUTPUT: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
36	5180	28.2	14.5	17	PASS
40	5200	32.4	15.1	17	PASS
48	5240	<b>33.9</b>	15.3	17	PASS
52	5260	<b>31.6</b>	15.0	24	PASS
60	5300	21.9	13.4	24	PASS
64	5320	22.4	13.5	24	PASS
100	5500	<b>27.5</b>	14.4	24	PASS
116	5580	23.4	13.7	24	PASS
132	5660	24.5	13.9	24	PASS
140	5700	20.0	13.0	24	PASS

**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	10.7	10.7	23.5	13.7	17	PASS
40	5200	11.3	11.1	26.4	14.2	17	PASS
48	5240	11.1	11.5	27.0	14.3	17	PASS
52	5260	10.8	11.7	26.8	14.3	24	PASS
60	5300	10.3	10.8	22.7	13.6	24	PASS
64	5320	10.2	10.7	22.2	13.5	24	PASS
100	5500	11.3	11.0	26.1	14.2	24	PASS
116	5580	10.3	10.3	21.4	13.3	24	PASS
132	5660	10.2	10.4	21.4	13.3	24	PASS
140	5700	10.1	10.1	20.5	13.1	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	11.2	11.4	27.0	14.3	17	PASS
46	5230	11.0	11.7	27.4	14.4	17	PASS
54	5270	10.4	11.6	25.4	14.1	24	PASS
62	5310	9.3	9.5	17.4	12.4	24	PASS
102	5510	9.5	9.5	17.8	12.5	24	PASS
110	5550	9.8	9.4	18.3	12.6	24	PASS
134	5670	8.9	9.2	16.1	12.1	24	PASS

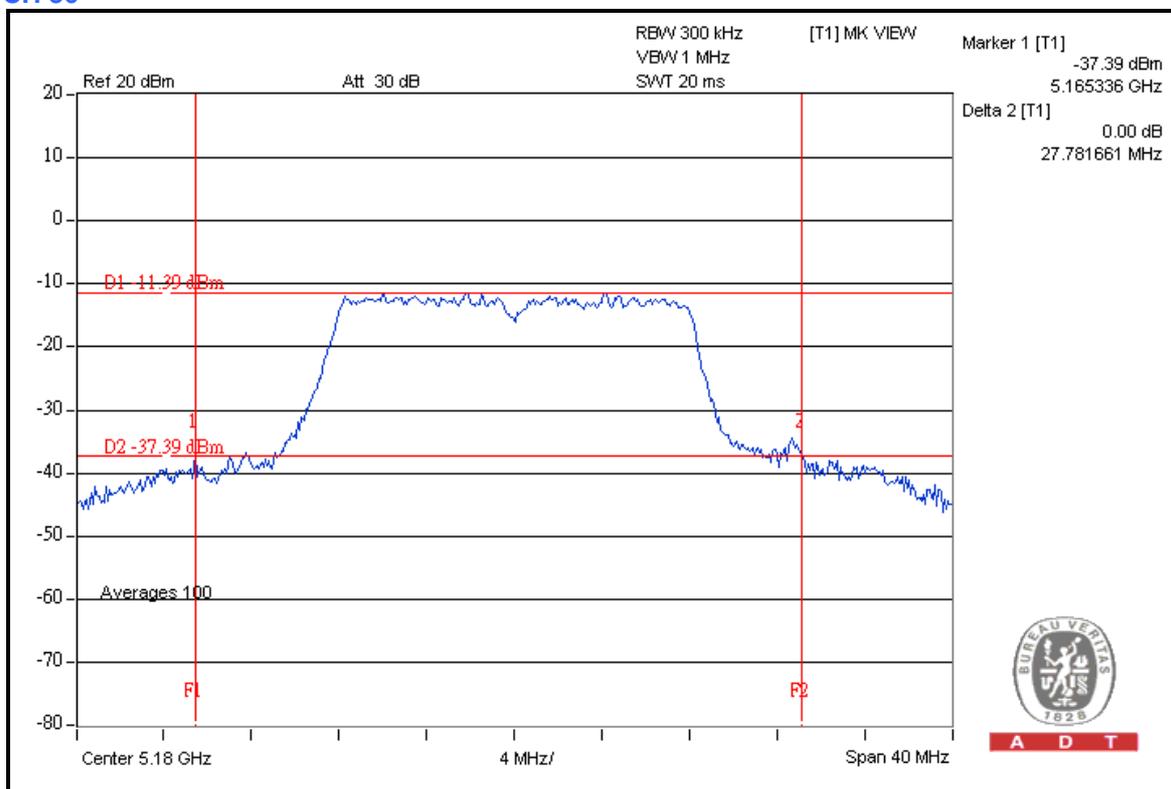


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### 26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
36	5180	27.78
40	5200	20.87
48	5240	20.79
52	5260	20.71
60	5300	20.77
64	5320	20.61
100	5500	20.77
116	5580	20.58
132	5660	20.61
140	5700	20.67

### CH 36



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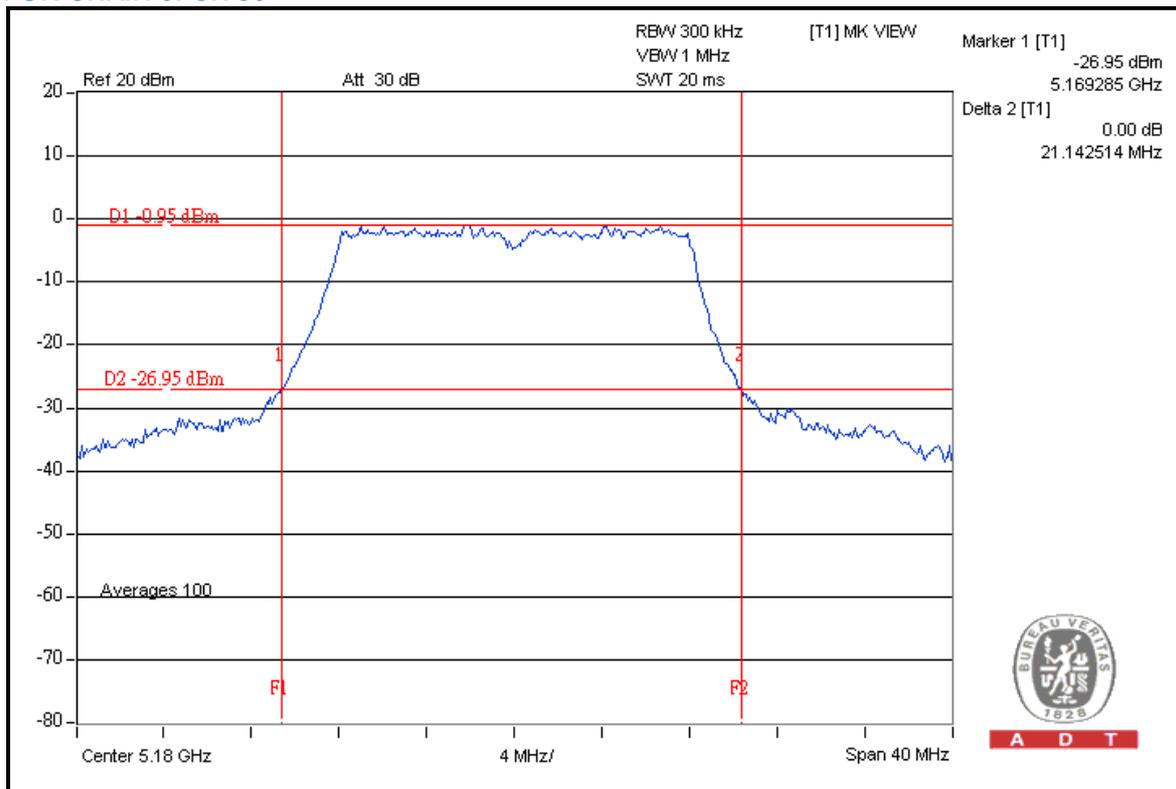


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### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	21.14	20.90
40	5200	20.76	20.92
48	5240	20.59	20.75
52	5260	20.56	20.84
60	5300	20.74	20.81
64	5320	20.77	20.85
100	5500	20.73	21.11
116	5580	20.65	20.80
132	5660	20.76	20.90
140	5700	20.79	20.90

### FOR CHAIN 0: CH 36



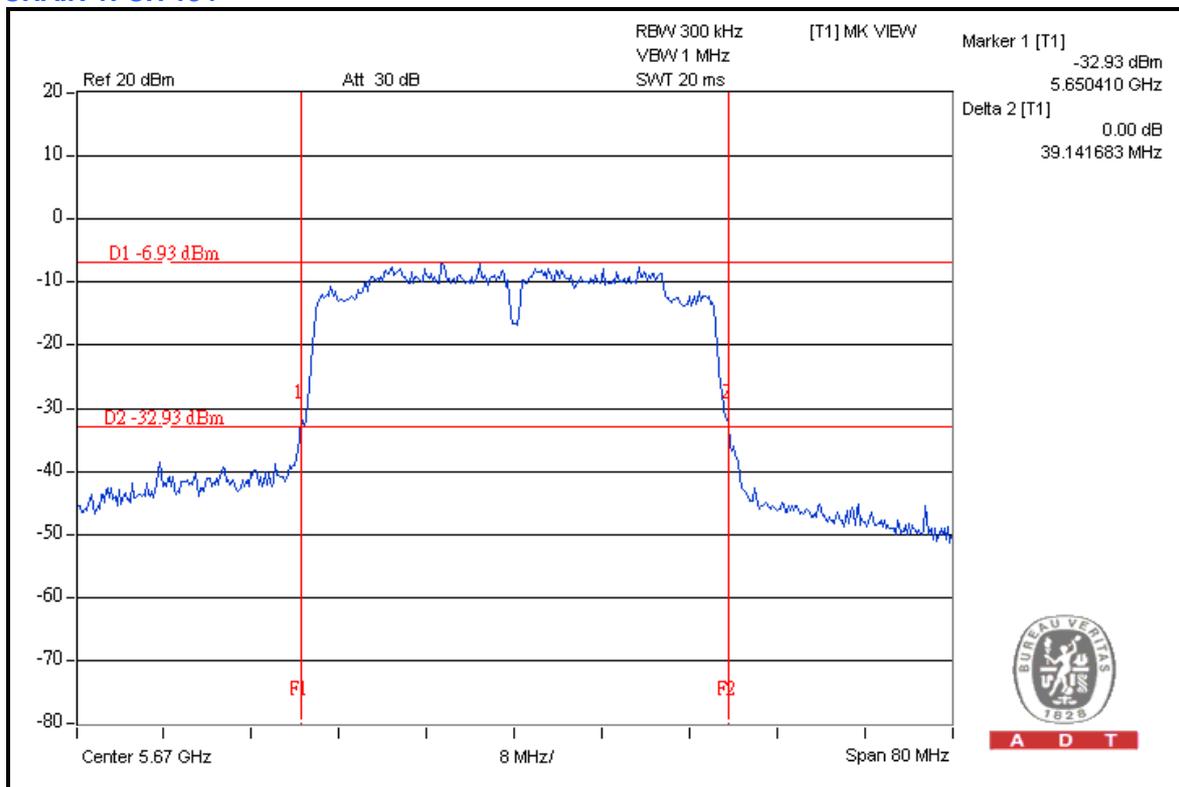


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### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	38.92	39.03
46	5230	38.79	38.84
54	5270	38.84	38.78
62	5310	38.70	38.80
102	5510	38.79	38.79
110	5550	38.84	38.80
134	5670	38.89	39.14

### CHAIN 1: CH 134



## 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
SPECTRUM ANALYZER	FSP 40	100036	Apr. 29, 2011	Apr. 28, 2012

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

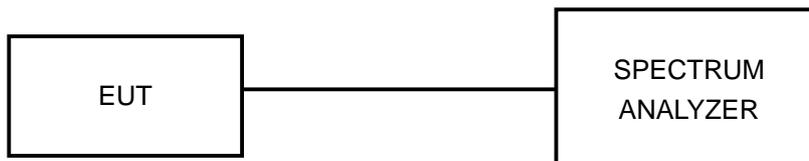
### 4.4.3 TEST PROCEDURE

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set the spectrum bandwidth span to view the entire spectrum.
- c. Using peak detector and Max-hold function for Trace 1 (RB = 1MHz, VB = 3MHz) and 2 (RB = 1MHz, VB = 300kHz).
- d. 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

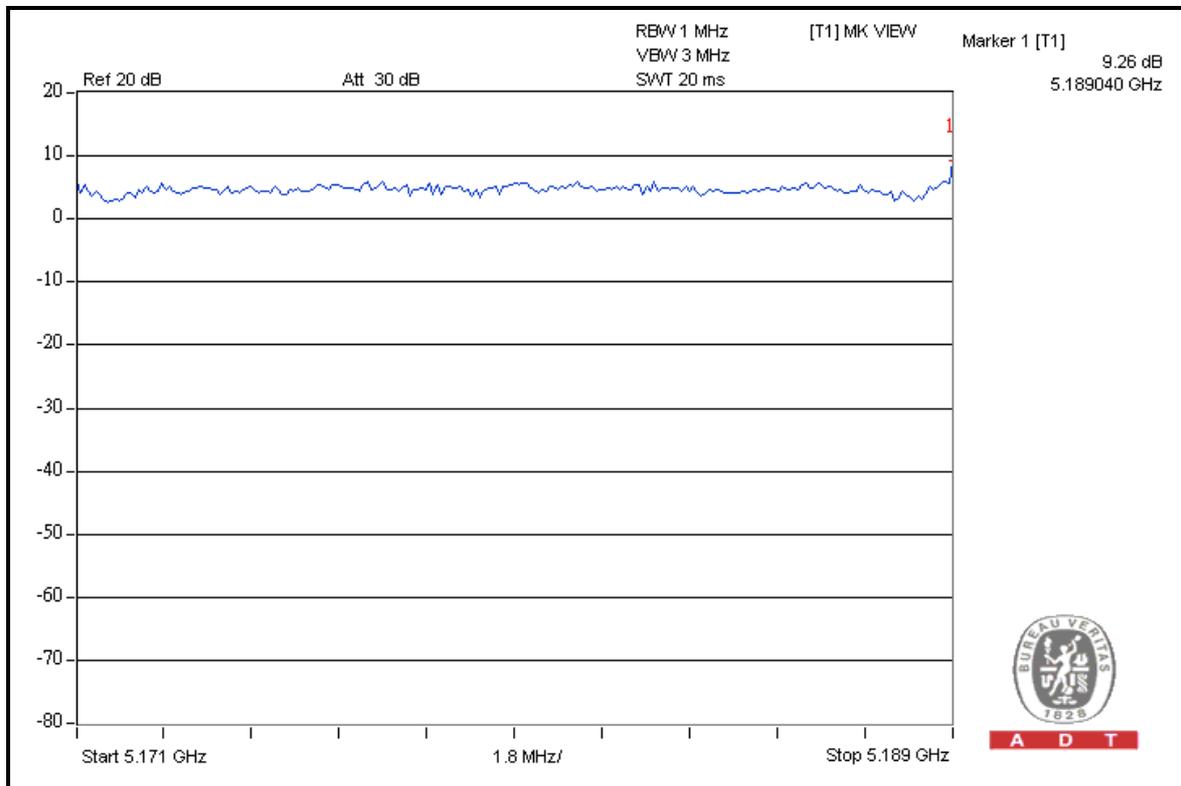
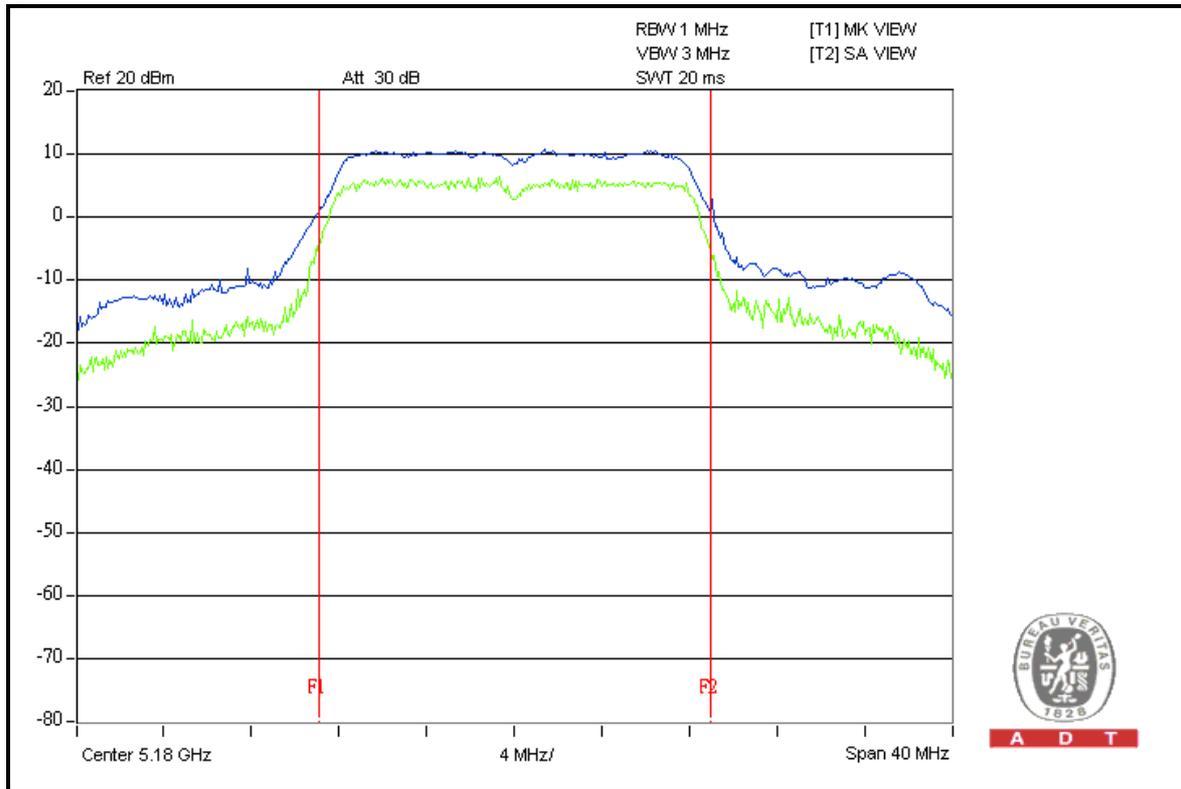
### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	9.26	13	PASS
40	5200	6.95	13	PASS
48	5240	7.32	13	PASS
52	5260	6.54	13	PASS
60	5300	6.59	13	PASS
64	5320	7.89	13	PASS
100	5500	6.77	13	PASS
116	5580	6.14	13	PASS
132	5660	7.11	13	PASS
140	5700	6.82	13	PASS



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### CH 36





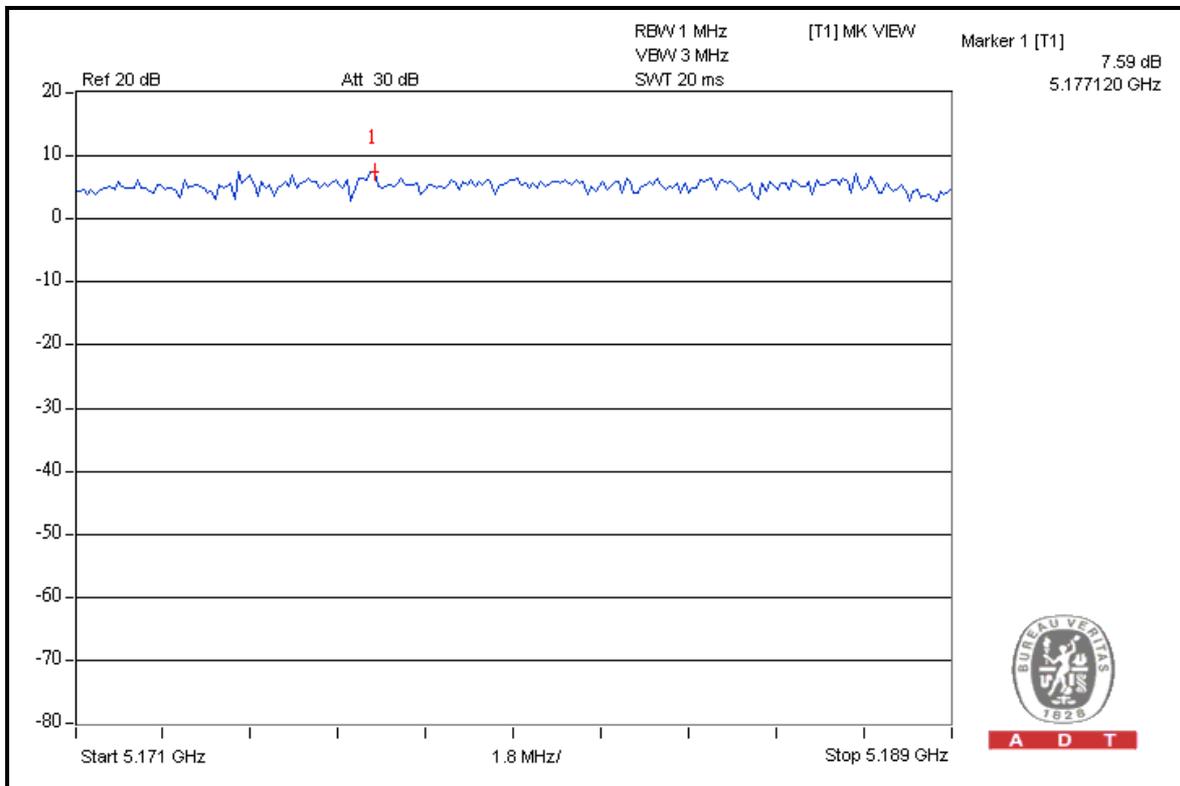
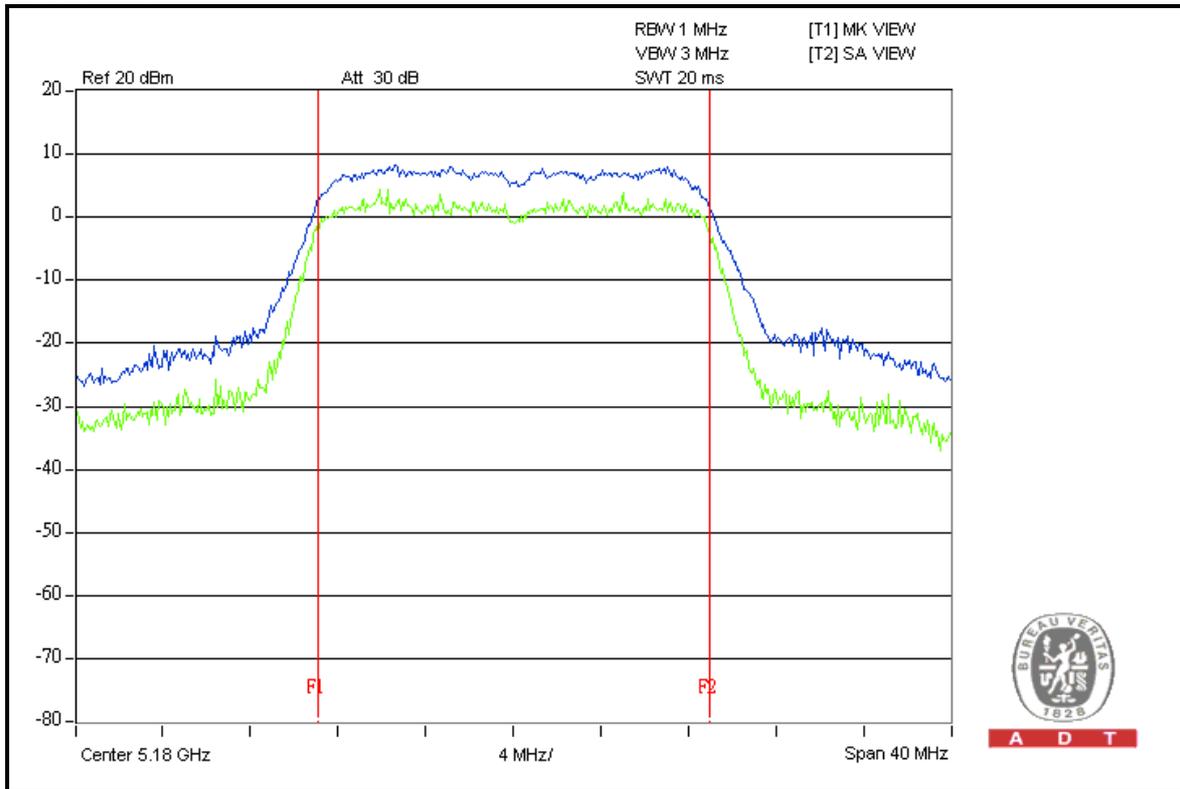
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	7.59	7.23	13	PASS
40	5200	6.60	7.03	13	PASS
48	5240	6.65	7.18	13	PASS
52	5260	7.24	7.09	13	PASS
60	5300	6.66	6.83	13	PASS
64	5320	6.88	7.54	13	PASS
100	5500	6.68	7.28	13	PASS
116	5580	6.79	7.14	13	PASS
132	5660	6.85	6.82	13	PASS
140	5700	7.16	6.94	13	PASS



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### CHAIN 0: CH 36





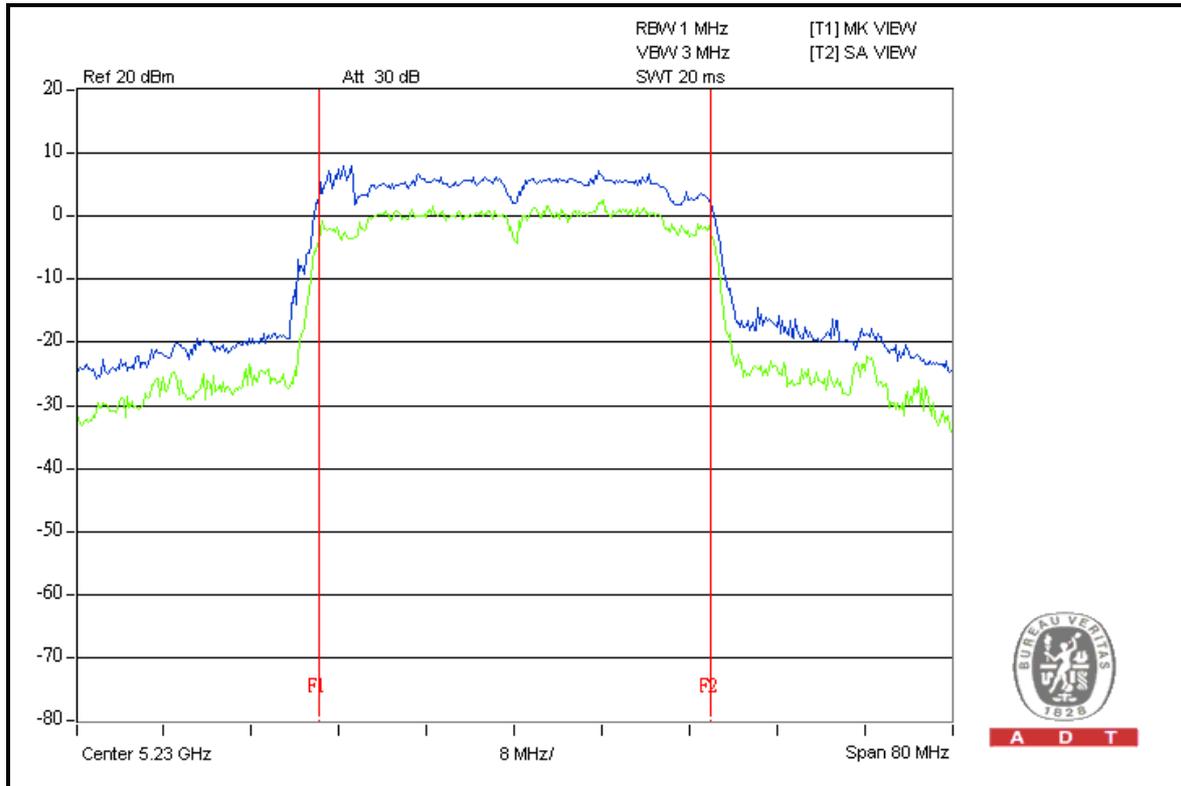
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	6.75	9.53	13	PASS
46	5230	9.17	11.53	13	PASS
54	5270	6.86	7.35	13	PASS
62	5310	7.02	10.80	13	PASS
102	5510	11.03	7.90	13	PASS
110	5550	7.15	6.63	13	PASS
134	5670	8.74	6.89	13	PASS

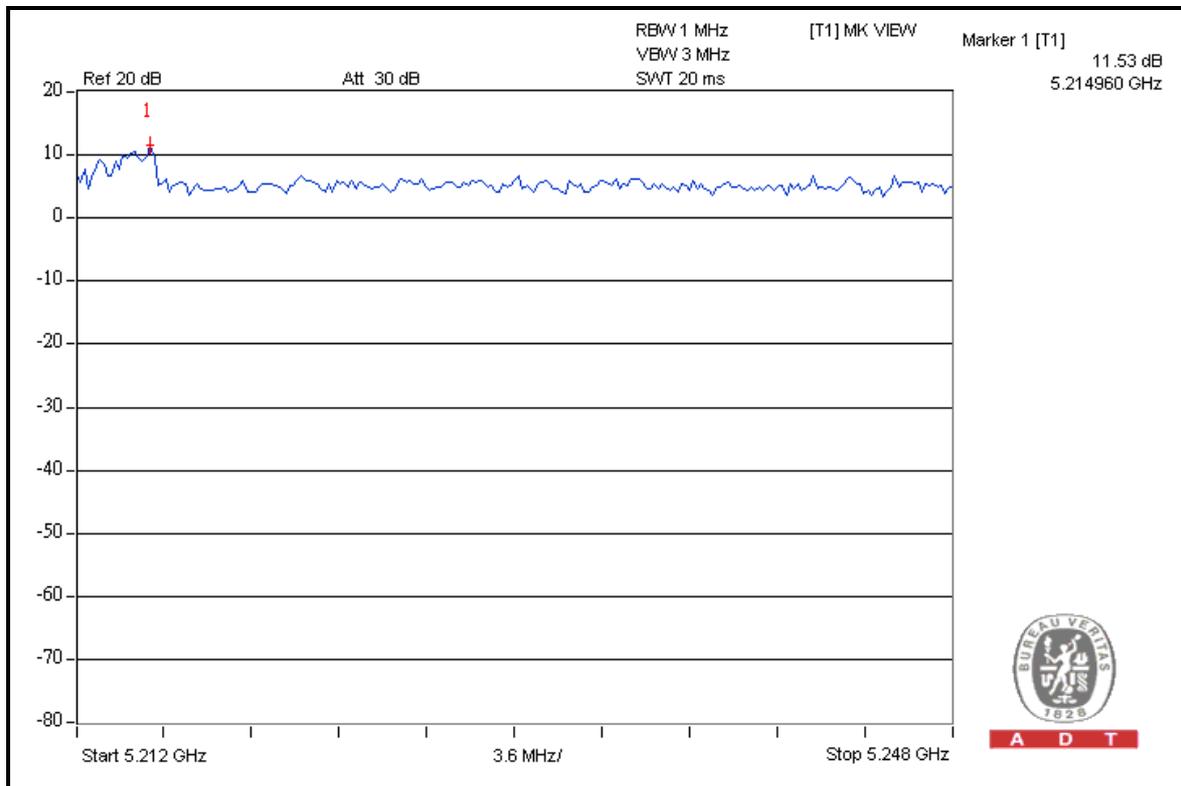


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### CHAIN 1: CH 46



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## 4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

### 4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

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

### 4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSP 40	100036	Apr. 29, 2011	Apr. 28, 2012

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

### 4.5.3 TEST PROCEDURES

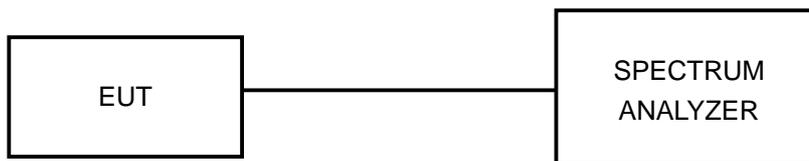
- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW = 1MHz, VBW = 3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

Follow method 2 of KDB 662911 D01 Multiple Transmitter Output v01 to calculate total power density of 2 TX port.

#### 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.



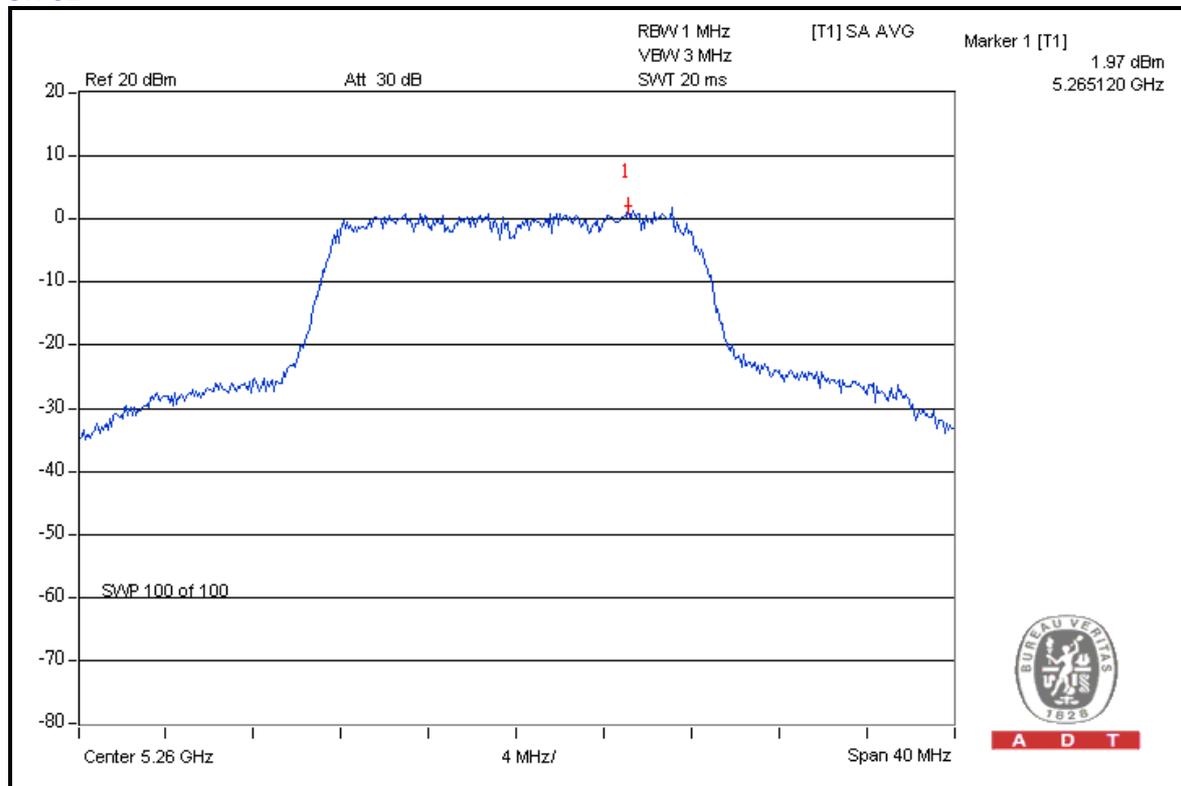
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### 4.5.7 TEST RESULTS

#### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	0.5	4	PASS
40	5200	1.0	4	PASS
48	5240	1.3	4	PASS
52	5260	2.0	11	PASS
60	5300	1.0	11	PASS
64	5320	0.2	11	PASS
100	5500	0.4	11	PASS
116	5580	0.1	11	PASS
132	5660	-0.2	11	PASS
140	5700	-0.5	11	PASS

#### CH 52





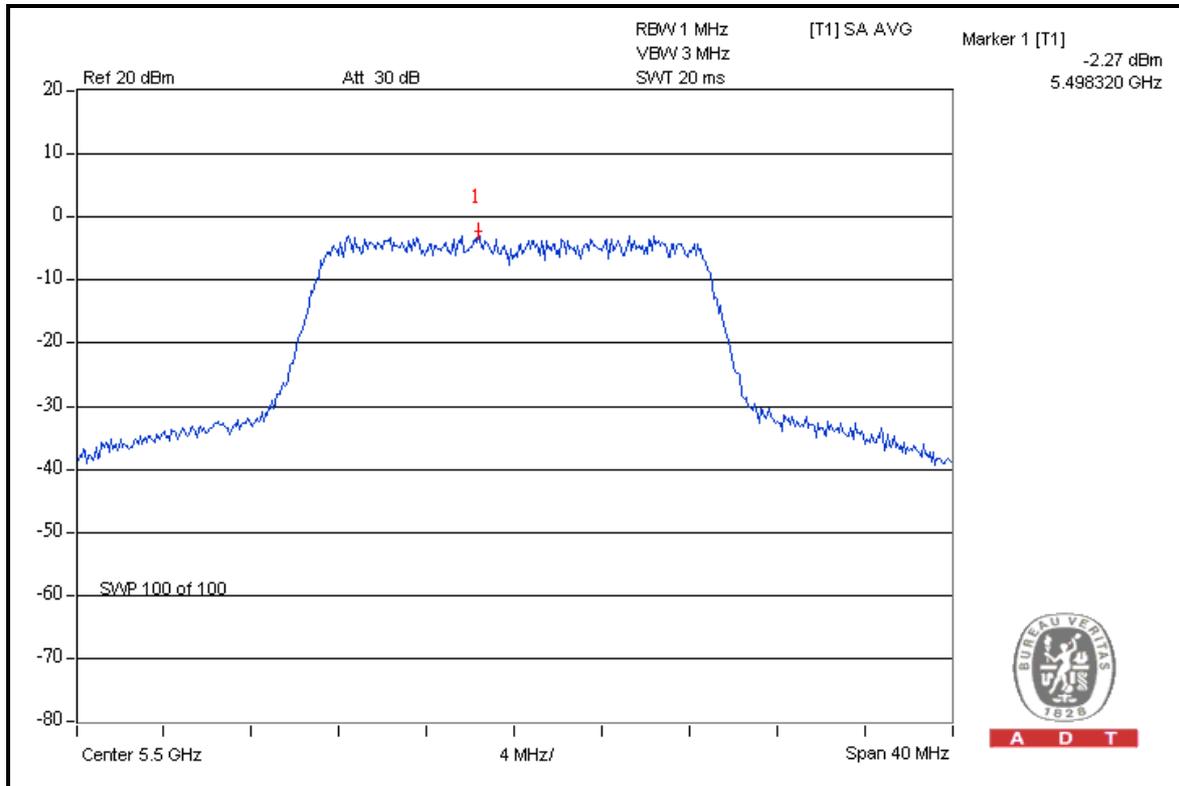
802.11n (20MHz)

CHAIN	CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
			MEASURED	10 log (N=2) dB			
0	36	5180	-4.4	3.01	-1.4	4	PASS
	40	5200	-2.5	3.01	0.5	4	PASS
	48	5240	-2.9	3.01	0.1	4	PASS
	52	5260	-3.5	3.01	-0.5	11	PASS
	60	5300	-3.2	3.01	-0.2	11	PASS
	64	5320	-3.3	3.01	-0.3	11	PASS
	100	5500	-2.3	3.01	0.7	11	PASS
	116	5580	-3.9	3.01	-0.9	11	PASS
	132	5660	-4.2	3.01	-1.2	11	PASS
	140	5700	-4.2	3.01	-1.2	11	PASS
1	36	5180	-3.4	3.01	-0.4	4	PASS
	40	5200	-2.7	3.01	0.3	4	PASS
	48	5240	-2.5	3.01	0.5	4	PASS
	52	5260	-2.6	3.01	0.4	11	PASS
	60	5300	-2.6	3.01	0.4	11	PASS
	64	5320	-2.9	3.01	0.1	11	PASS
	100	5500	-3.5	3.01	-0.5	11	PASS
	116	5580	-4.0	3.01	-1.0	11	PASS
	132	5660	-3.4	3.01	-0.4	11	PASS
	140	5700	-3.8	3.01	-0.8	11	PASS



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### CHAIN 0: CH 100





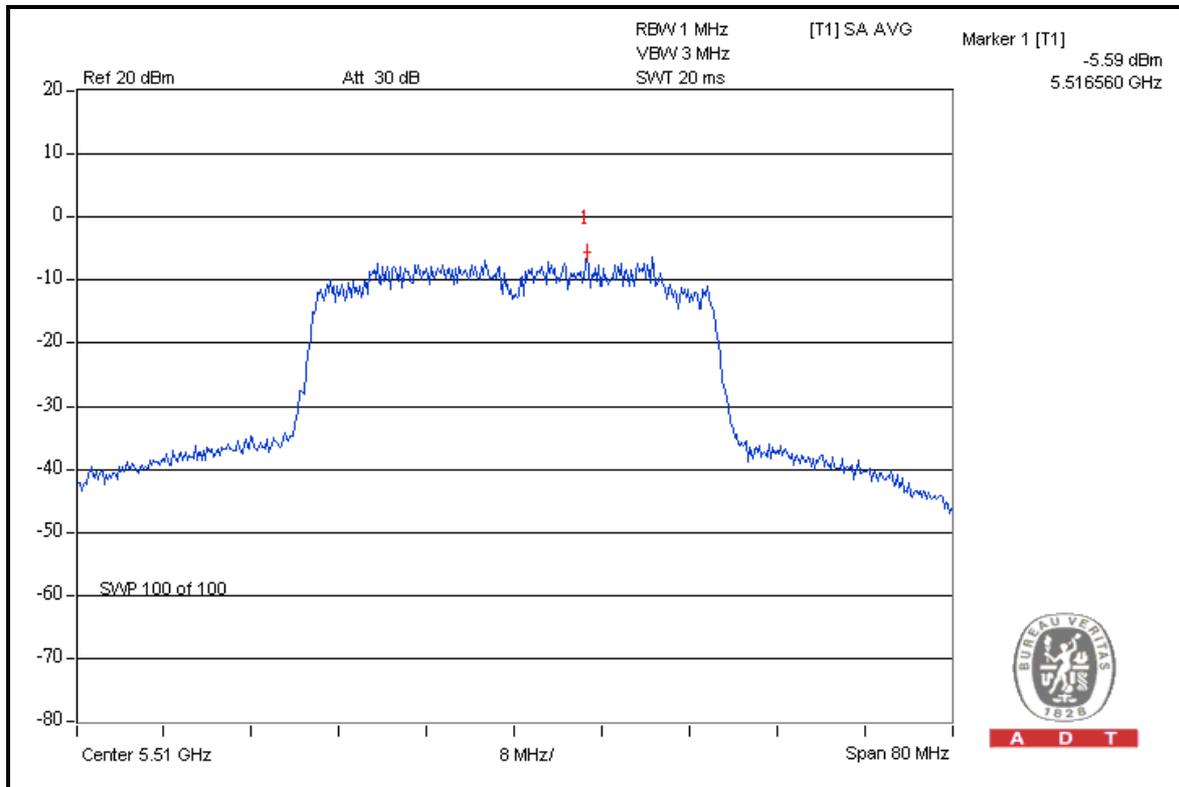
802.11n (40MHz)

CHAIN	CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
			MEASURED	10 log (N=2) dB			
0	38	5190	-7.2	3.01	-4.2	4	PASS
	46	5230	-6.2	3.01	-3.2	4	PASS
	54	5270	-7.0	3.01	-4.0	11	PASS
	62	5310	-7.8	3.01	-4.8	11	PASS
	102	5510	-7.0	3.01	-4.0	11	PASS
	110	5550	-8.0	3.01	-5.0	11	PASS
	134	5670	-8.5	3.01	-5.5	11	PASS
1	38	5190	-6.6	3.01	-3.6	4	PASS
	46	5230	-5.9	3.01	-2.9	4	PASS
	54	5270	-6.1	3.01	-3.1	11	PASS
	62	5310	-7.4	3.01	-4.4	11	PASS
	102	5510	-5.6	3.01	-2.6	11	PASS
	110	5550	-7.3	3.01	-4.3	11	PASS
	134	5670	-7.6	3.01	-4.6	11	PASS



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### CHAIN 1: CH 102



## 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
SPECTRUM ANALYZER	FSP 40	100036	Apr. 29, 2011	Apr. 28, 2012
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 24, 2011	Jun. 23, 2012

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

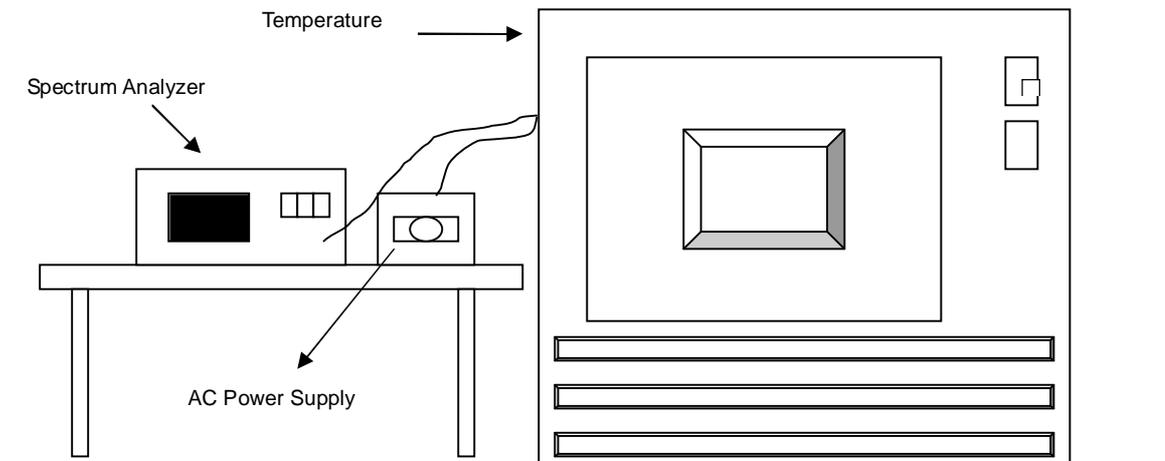
### 4.6.3 TEST PROCEDURE

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. 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.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. 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	5319.988024	-0.0002251	5319.987855	-0.0002283	5319.987973	-0.0002261	5319.987992	-0.0002257
40	120.0	5319.98812	-0.0002233	5319.988285	-0.0002202	5319.987656	-0.0002320	5319.988108	-0.0002235
30	120.0	5319.987751	-0.0002302	5319.988208	-0.0002216	5319.987059	-0.0002433	5319.988035	-0.0002249
20	120.0	5319.987502	-0.0002349	5319.988132	-0.0002231	5319.986462	-0.0002545	5319.987961	-0.0002263
10	120.0	5319.987253	-0.0002396	5319.988055	-0.0002245	5319.985865	-0.0002657	5319.987888	-0.0002277
0	120.0	5319.987004	-0.0002443	5319.987979	-0.0002260	5319.985268	-0.0002769	5319.987814	-0.0002291
-10	120.0	5319.986755	-0.0002490	5319.987902	-0.0002274	5319.984671	-0.0002881	5319.987741	-0.0002304
-20	120.0	5319.986506	-0.0002536	5319.987826	-0.0002288	5319.984074	-0.0002994	5319.987667	-0.0002318

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	5319.987585	-0.0002334	5319.988157	-0.0002226	5319.986661	-0.0002507	5319.987986	-0.0002258
	120.0	5319.987502	-0.0002349	5319.988132	-0.0002231	5319.986462	-0.0002545	5319.987961	-0.0002263
	102.0	5319.987419	-0.0002365	5319.988106	-0.0002236	5319.986263	-0.0002582	5319.987937	-0.0002268

## 4.7 BAND EDGES MEASUREMENT

### 4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
<b>FOR CONDUCTED MEASUREMENT:</b>				
SPECTRUM ANALYZER	FSP 40	100036	Apr. 29, 2011	Apr. 28, 2012
<b>FOR RADIATED MEASUREMENT:</b>				
HP Preamplifier	8447D	2432A03504	Mar. 04, 2011	Mar. 03, 2012
HP Preamplifier	8449B	3008A01924	Mar. 04, 2011	Mar. 03, 2012
HP Preamplifier	8449B	3008A01292	Mar. 04, 2011	Mar. 03, 2012
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 10, 2011	Jun. 09, 2012
Schwarzbeck Antenna	VULB 9168	137	Apr. 12, 2011	Apr. 11, 2012
Schwarzbeck Antenna	VHBA 9123	480	May 06, 2011	May 05, 2012
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. 22, 2011	Apr. 21, 2012
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 5.32GHz & 5.5 to 5.7GHz 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, average RBW = 1MHz, VBW = 10Hz) 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)	107.3	39.7	67.6	74.00
5180.00 (AV)	97.4	46.5	50.9	54.00

**RESTRICT BAND (5350 ~ 5460 MHz)**

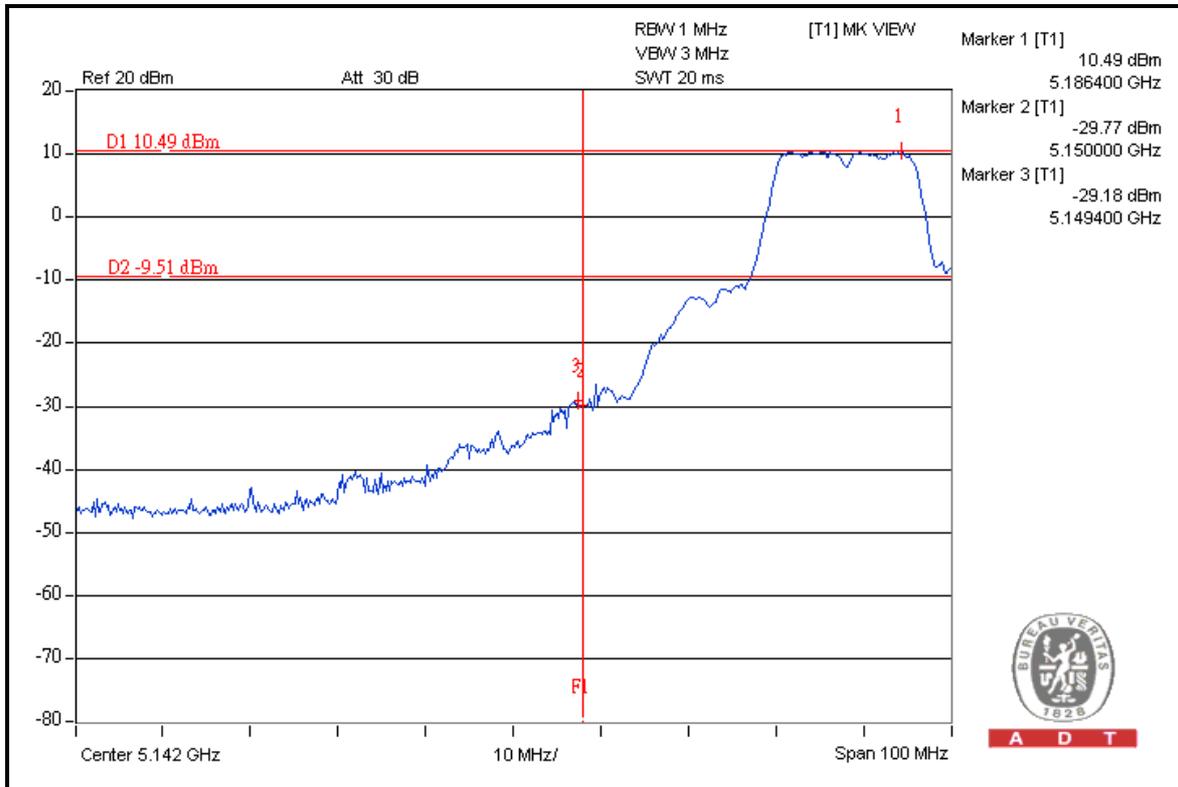
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	106.7	41.7	65.0	74.00
5320.00 (AV)	98.3	51.0	47.3	54.00

**NOTE:**

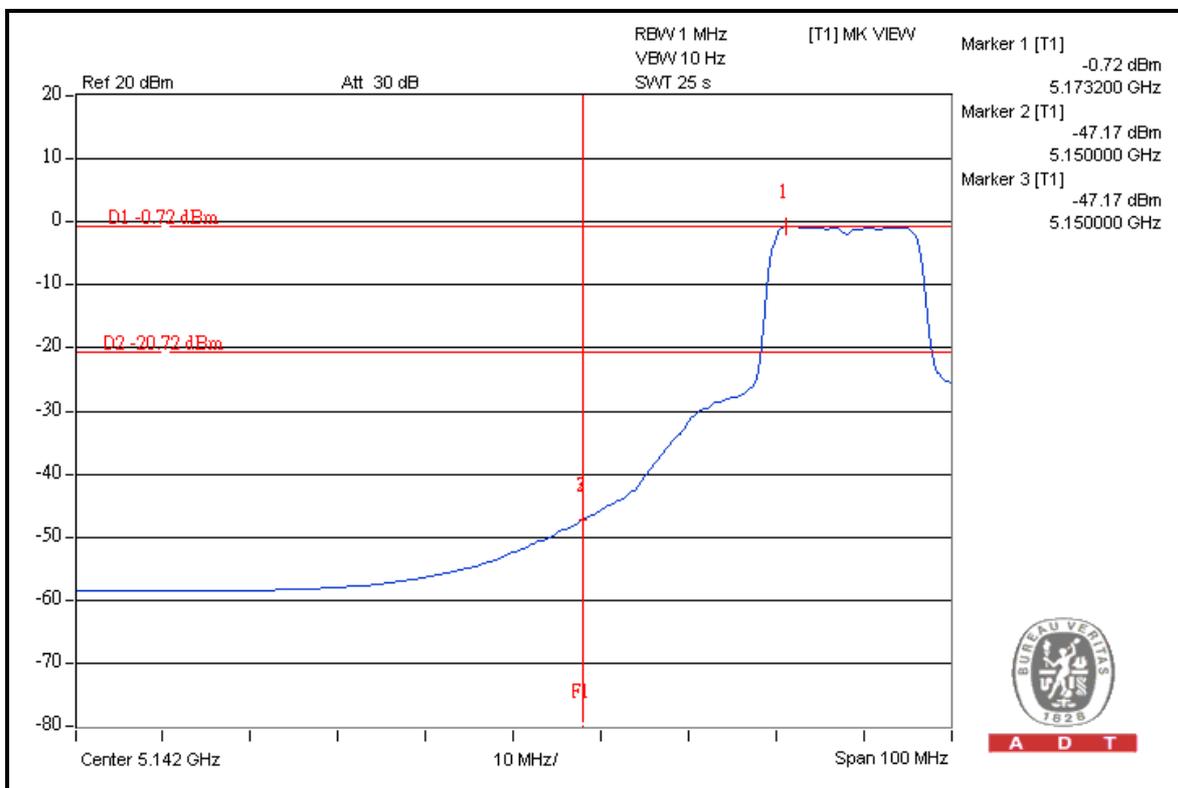
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



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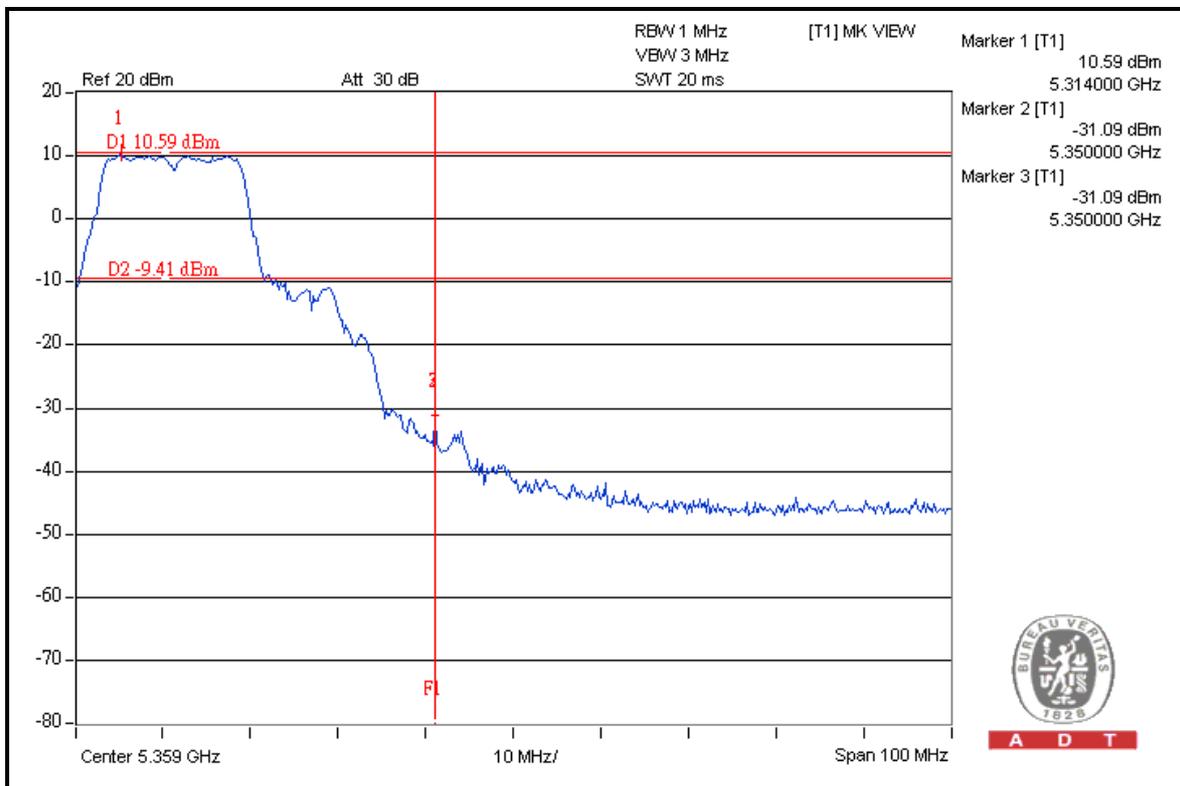
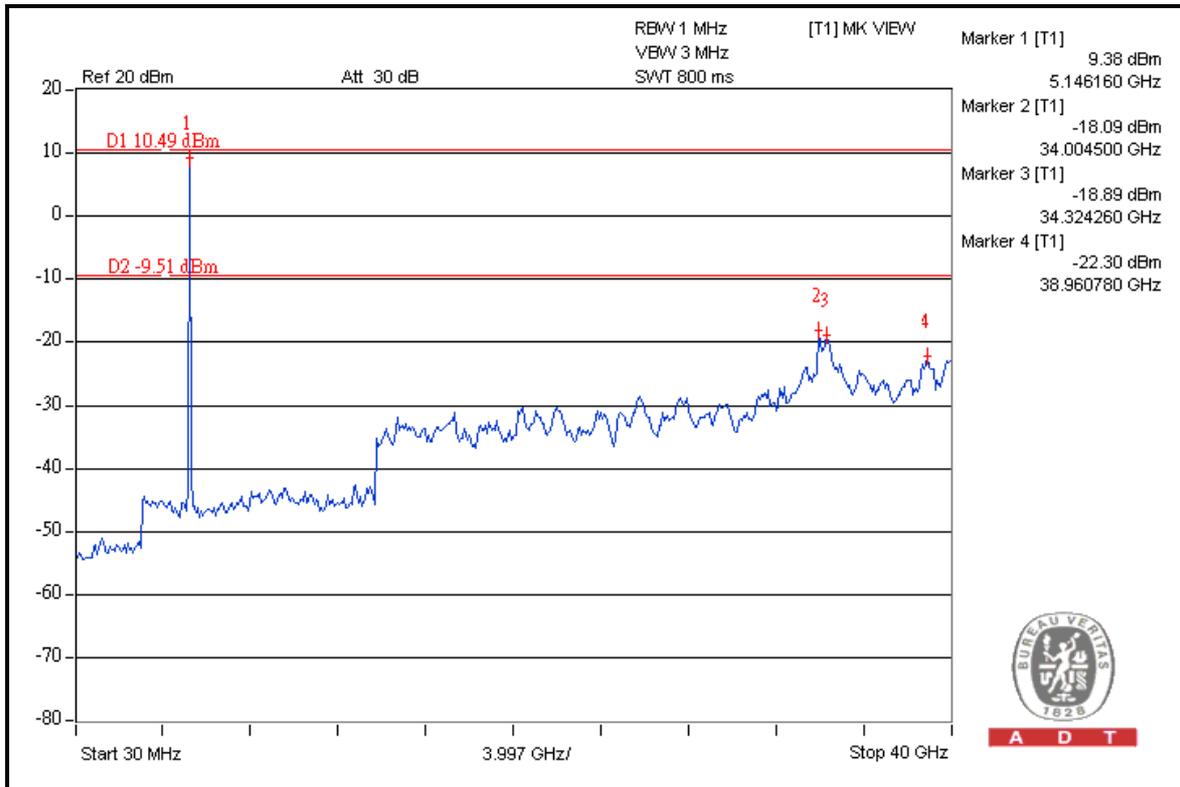
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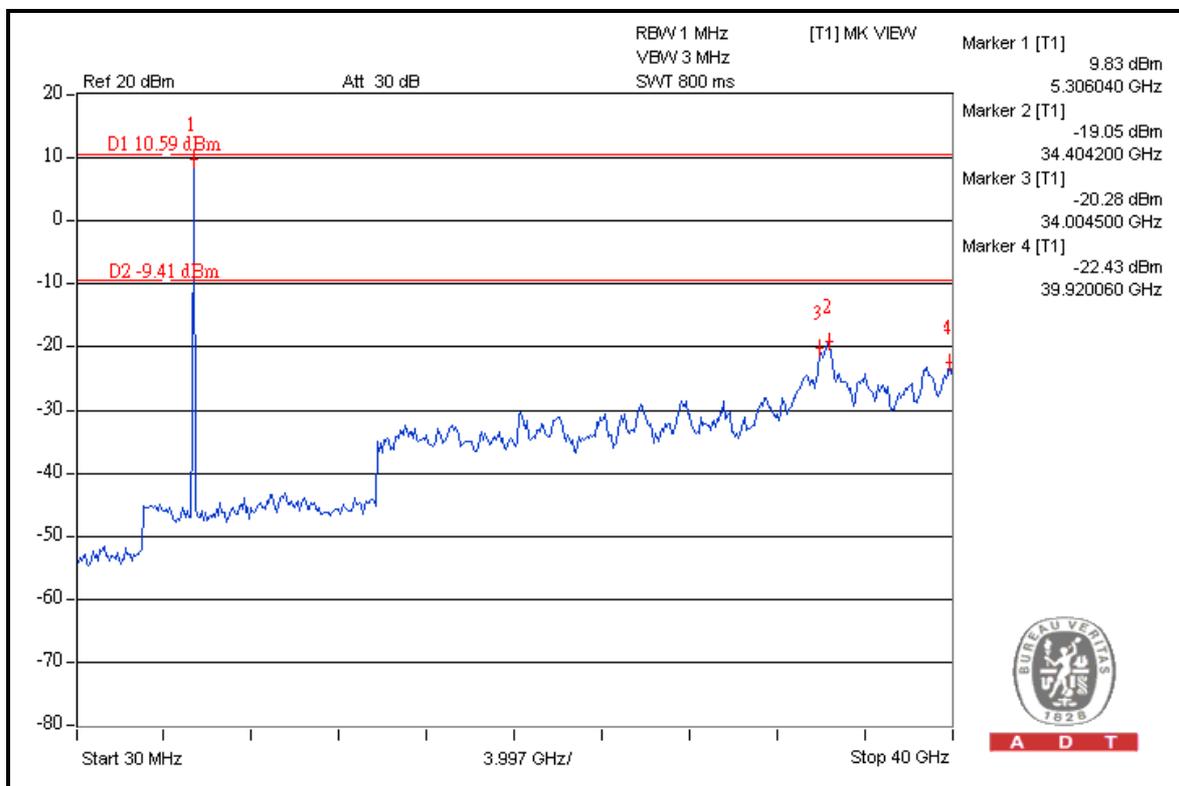
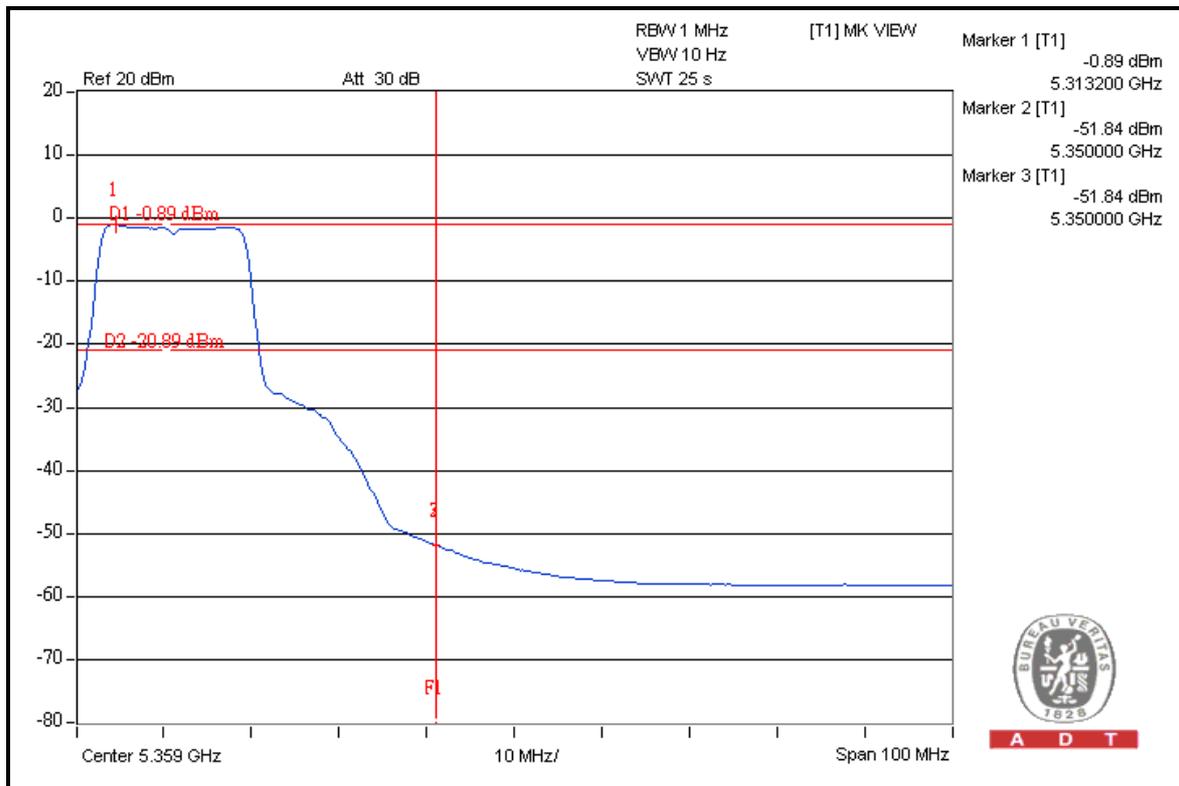


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**FOR 5500-5700MHz BAND:**

**802.11a**

**5500MHz**

**RESTRICT BAND (5350 ~ 5460 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	105.2	45.2	60.0	74.00
5500.00 (AV)	93.5	46.8	46.7	54.00

**FREQUENCY BAND (5460 ~ 5470 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	105.2	39.4	65.8	68.30

**5700MHz**

**ABOVE 5725 MHz**

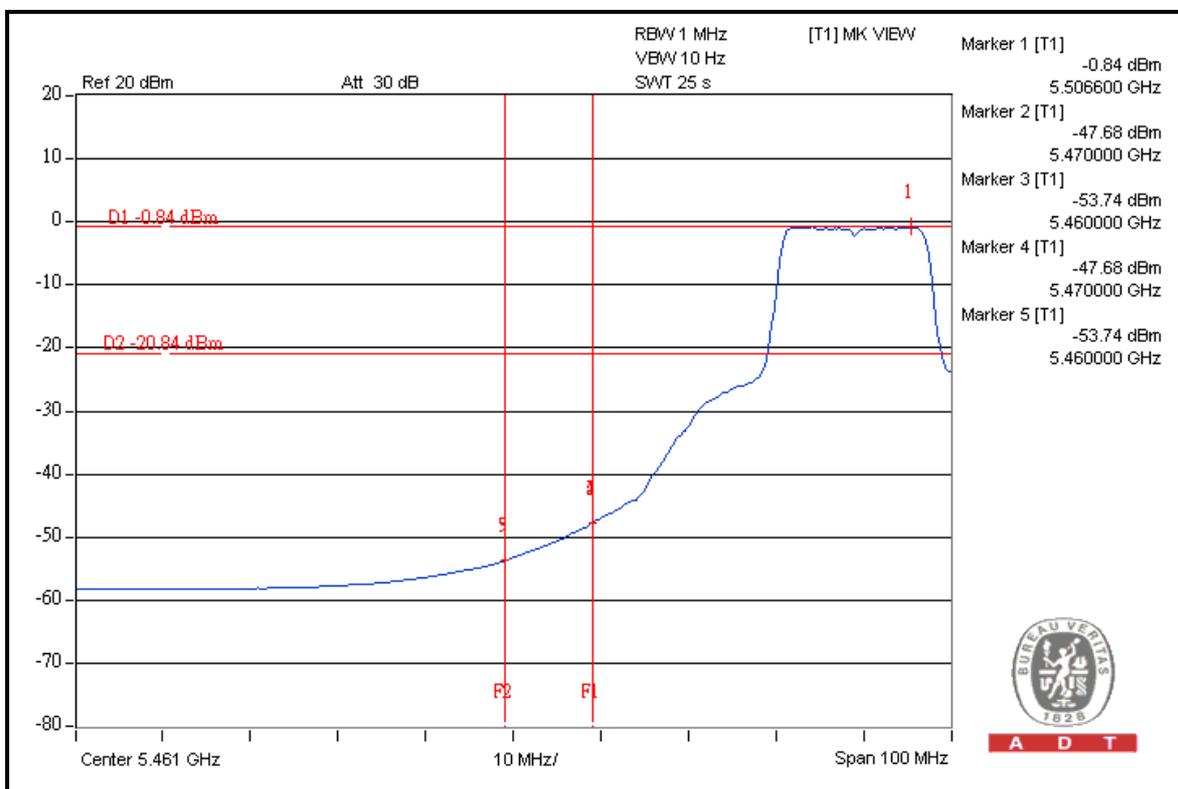
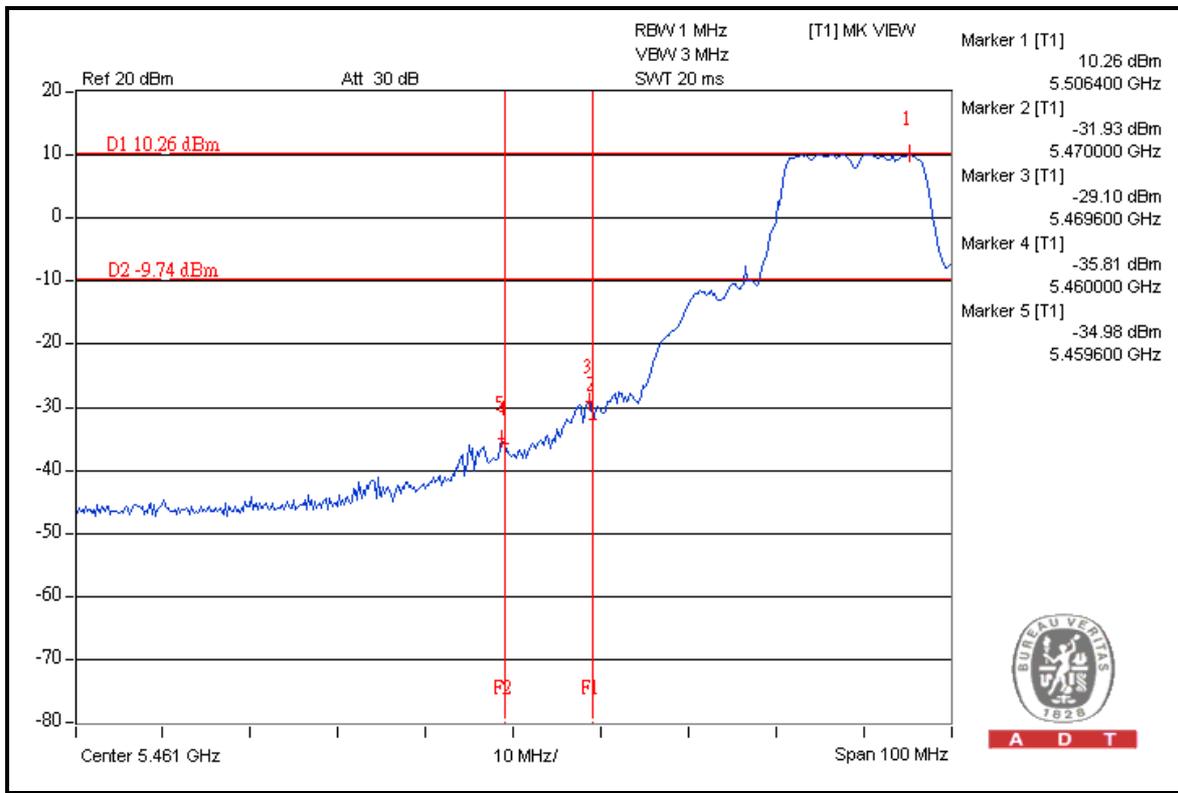
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	105.0	37.0	68.0	68.30

**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.

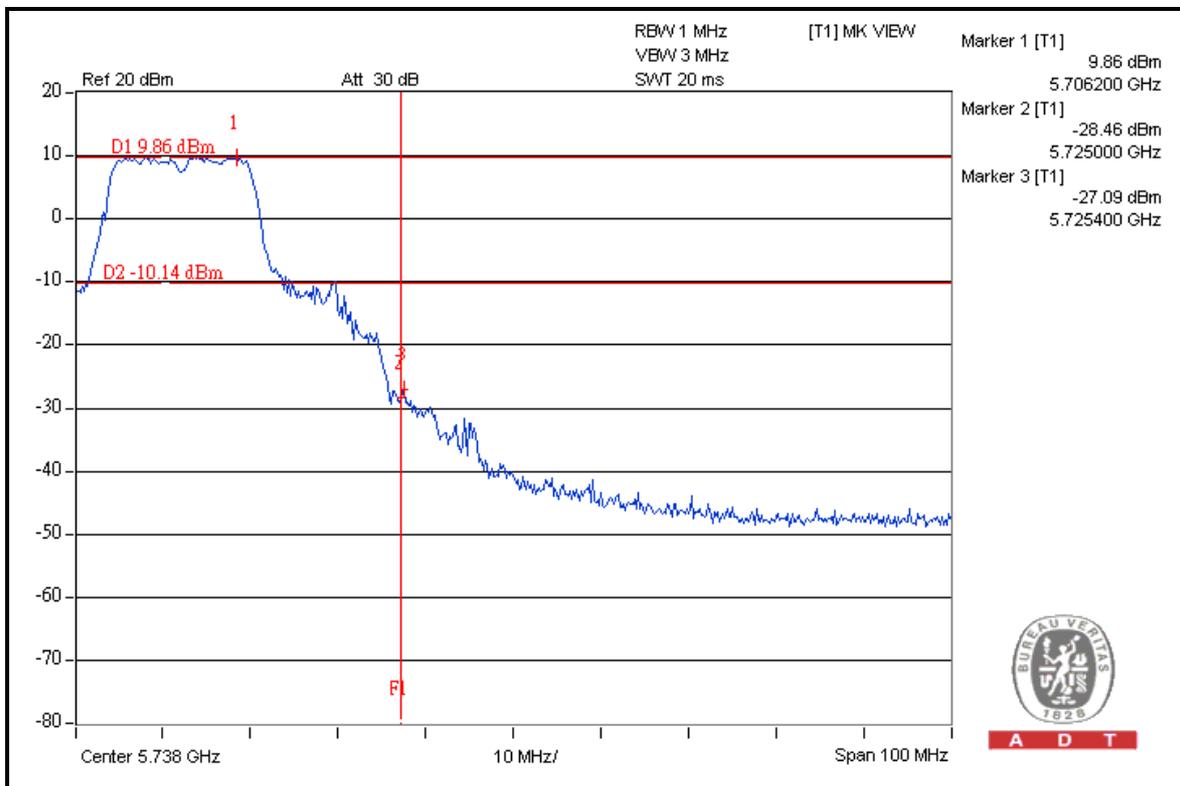
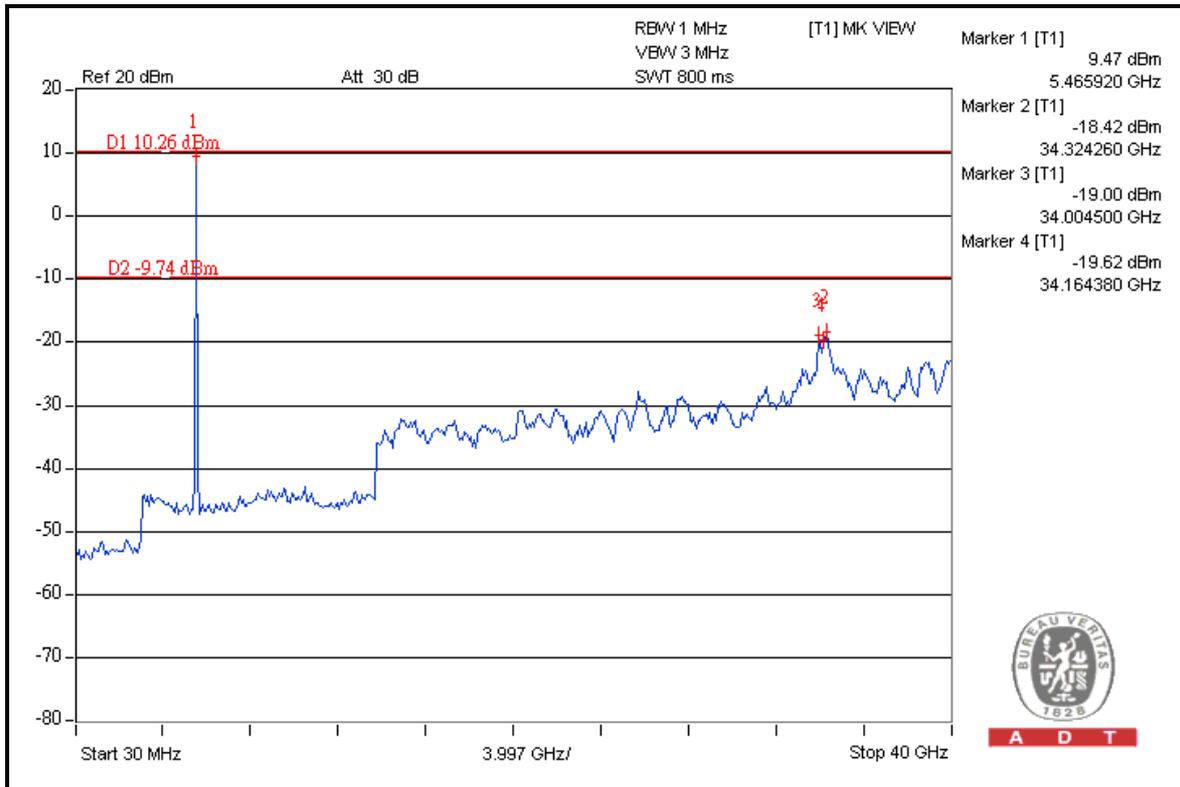


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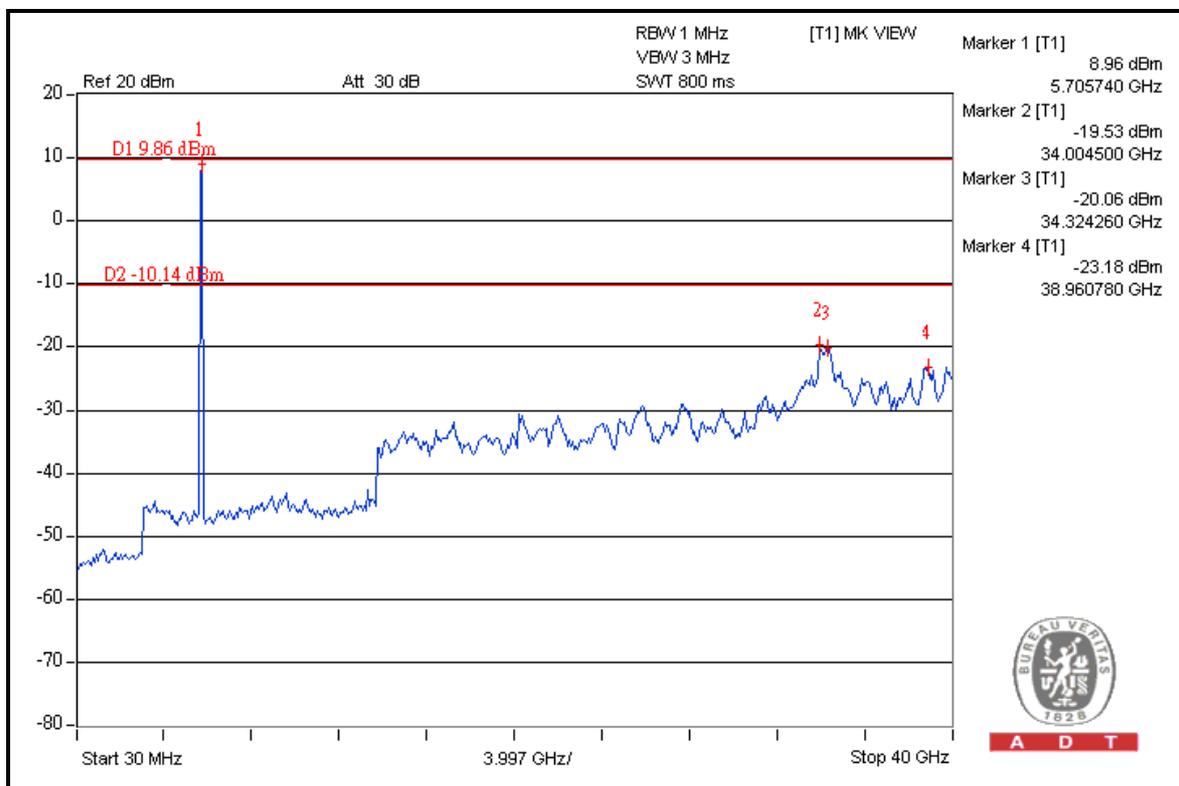
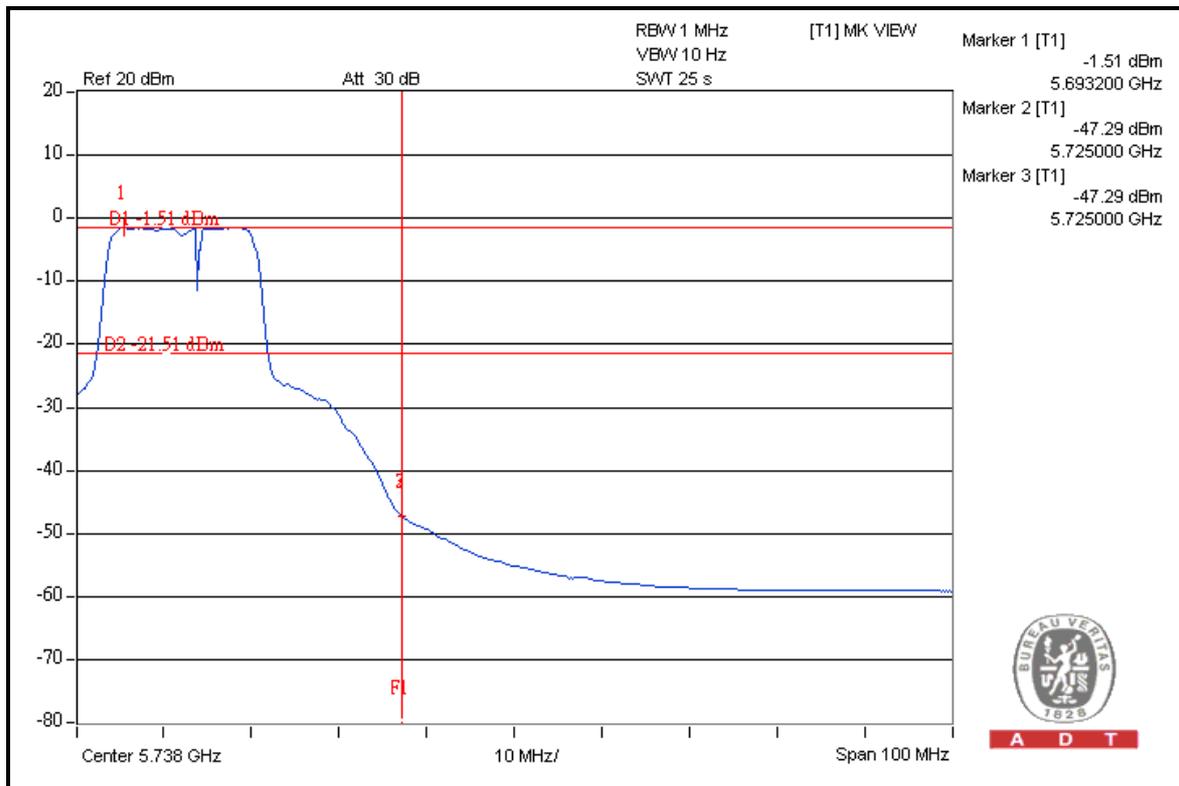


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**FOR 5180-5320MHz BAND:**

**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)	105.4	42.6	62.8	74.00
5180.00 (AV)	94.8	44.6	50.2	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)	107.3	43.9	63.4	74.00
5320.00 (AV)	96.1	45.1	51.0	54.00

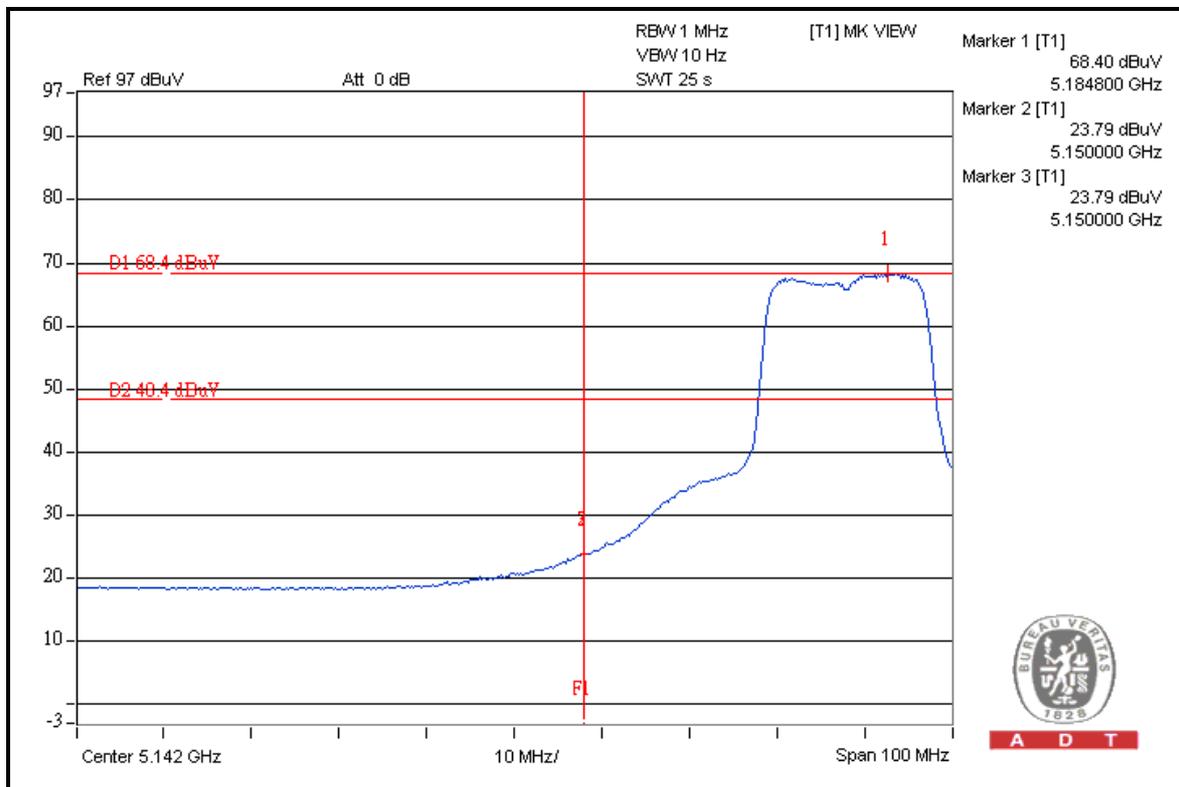
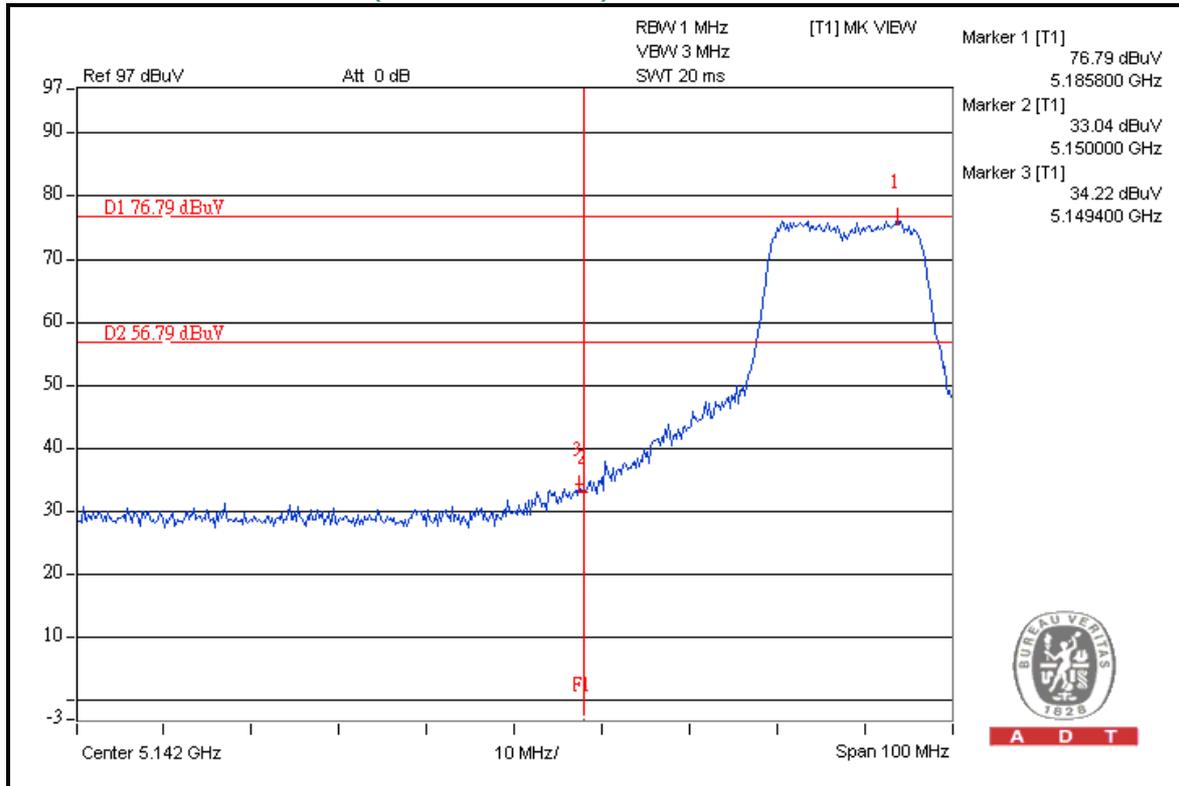
**NOTE:**

- 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.



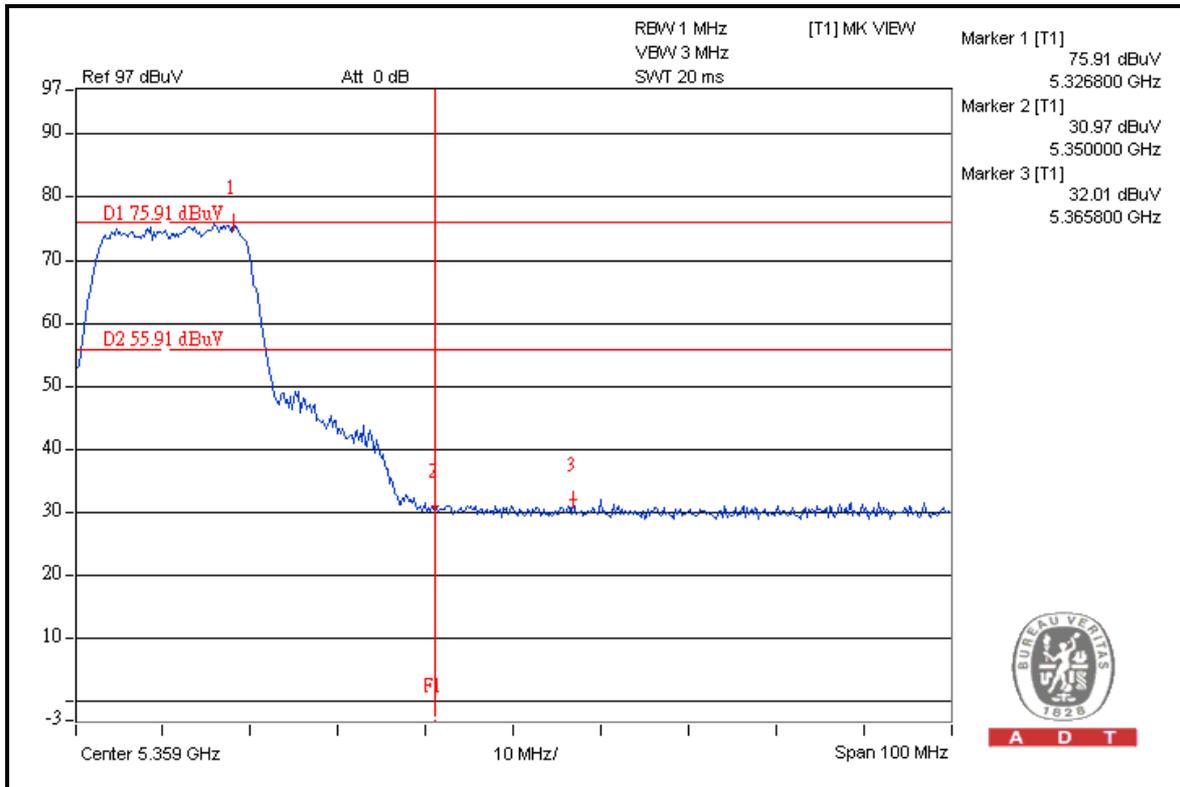
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### FOR RADIATED MEASURED (TWO CHAINS ON)

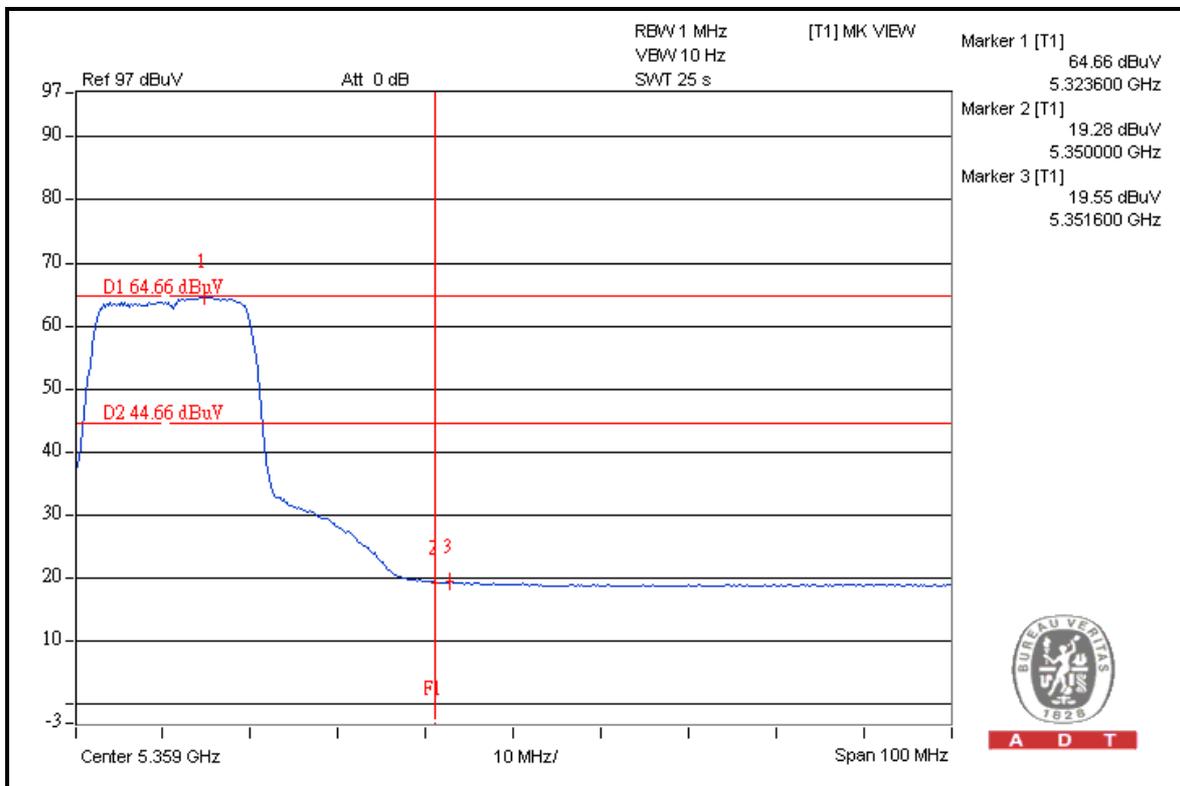




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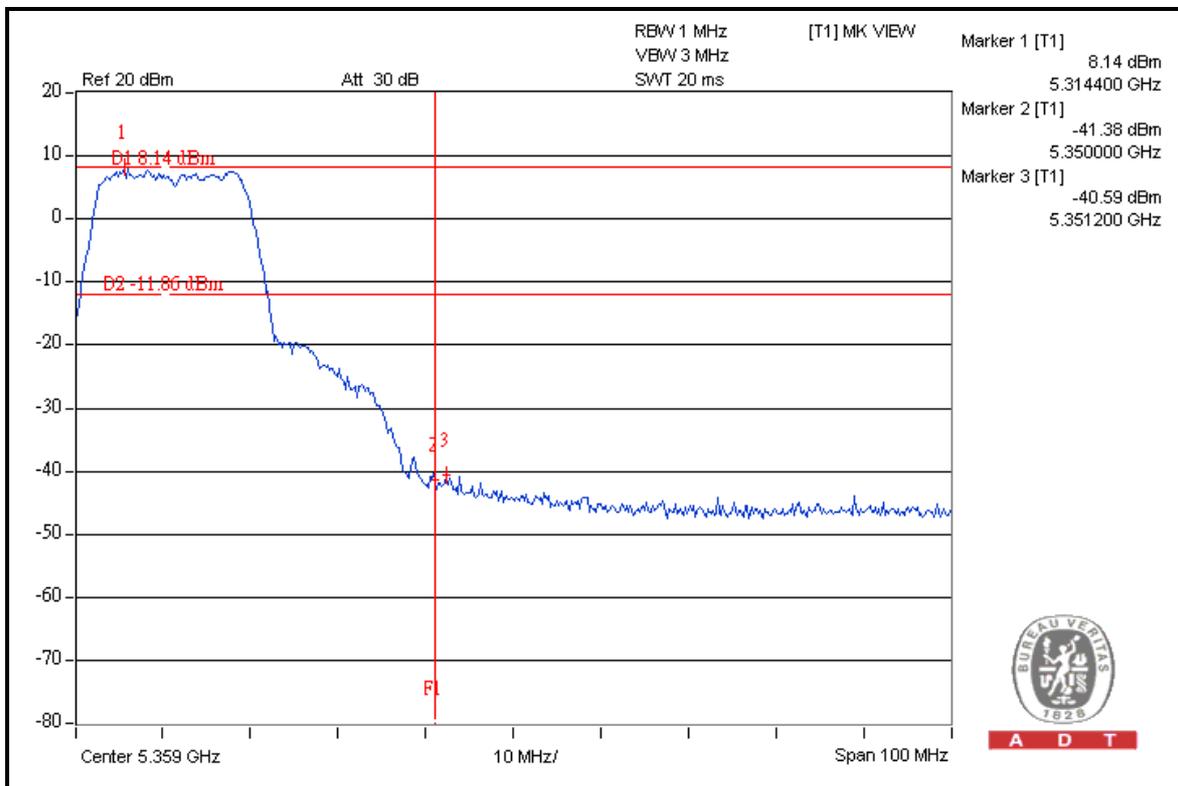
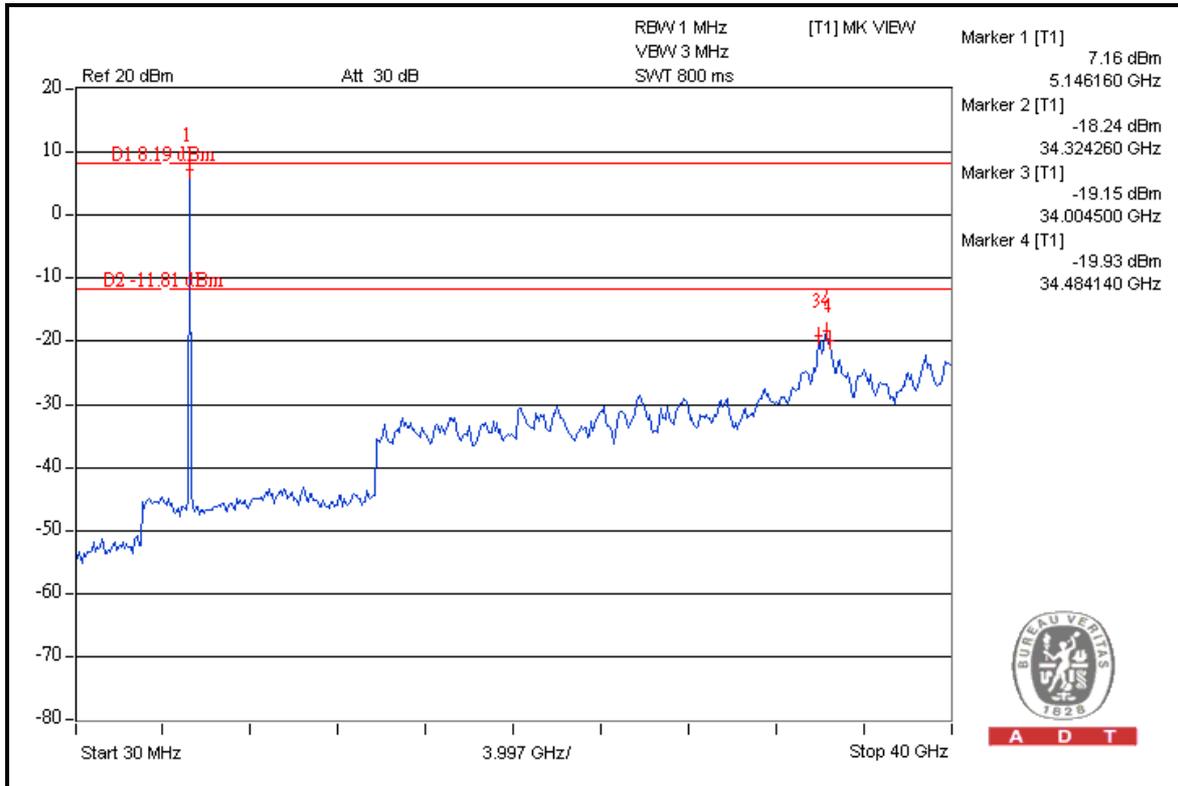


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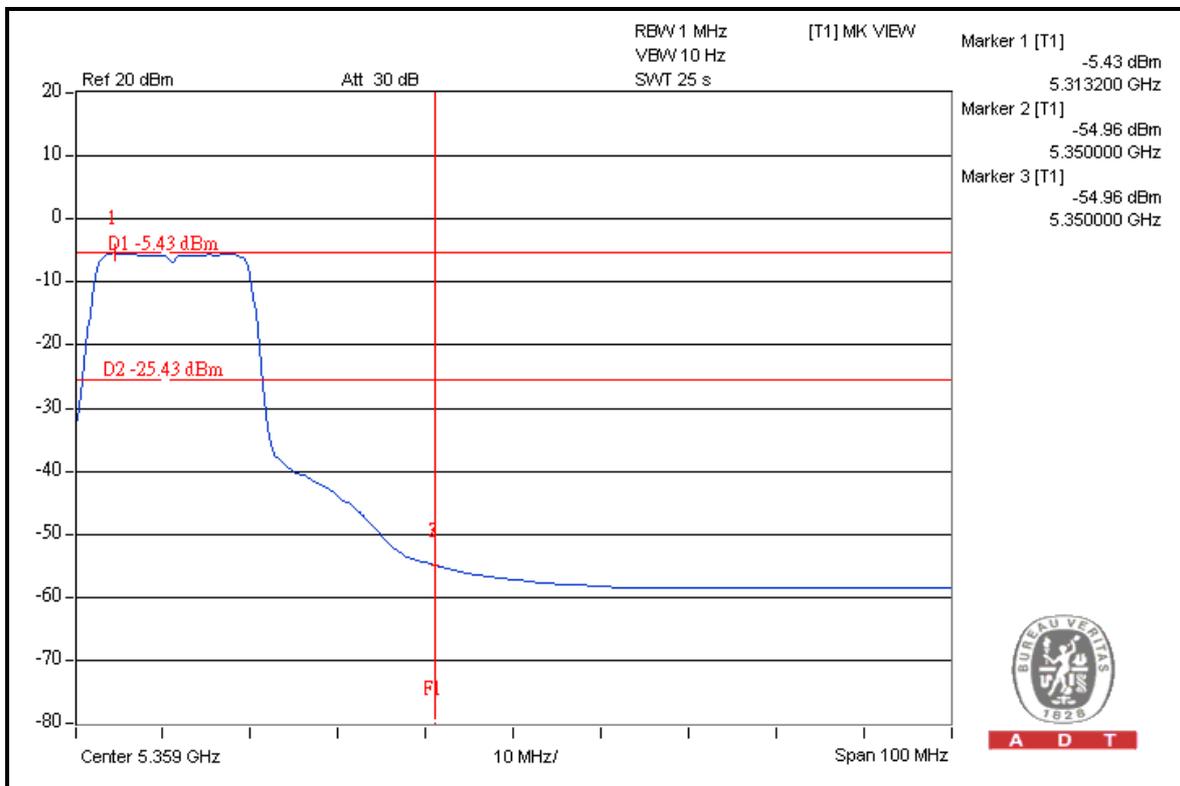
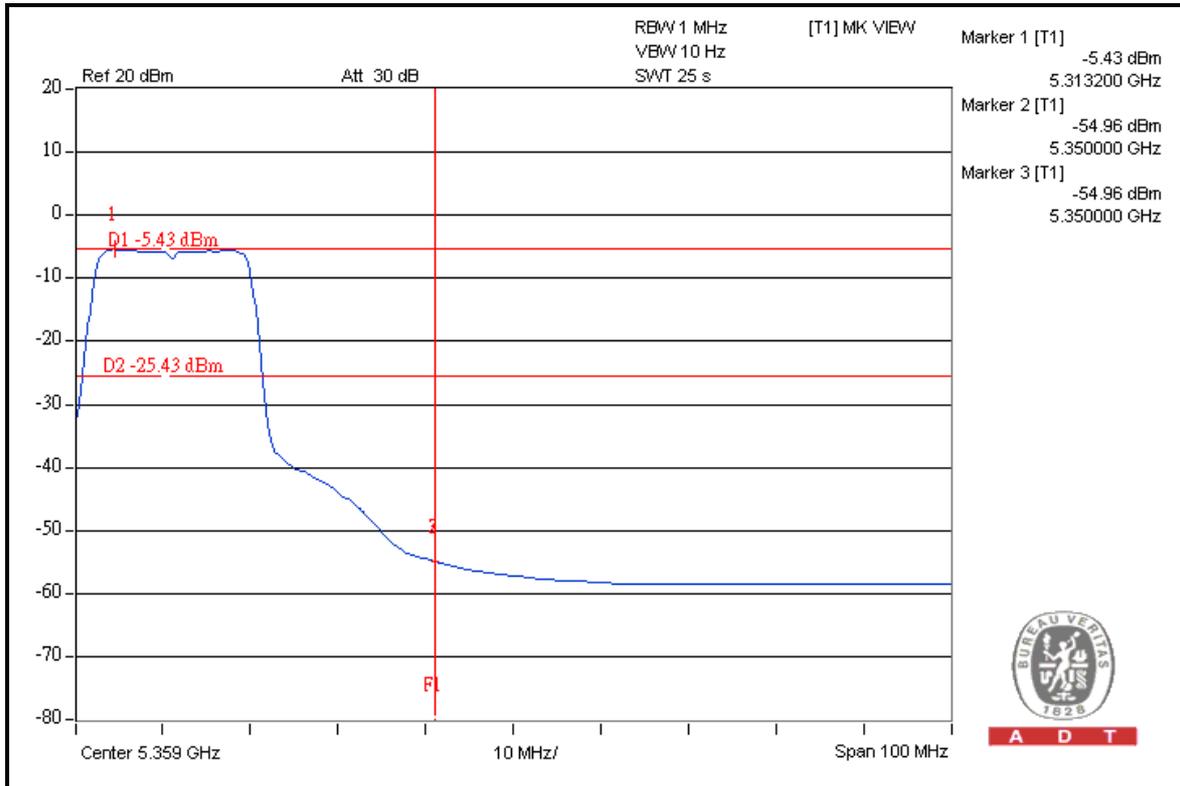


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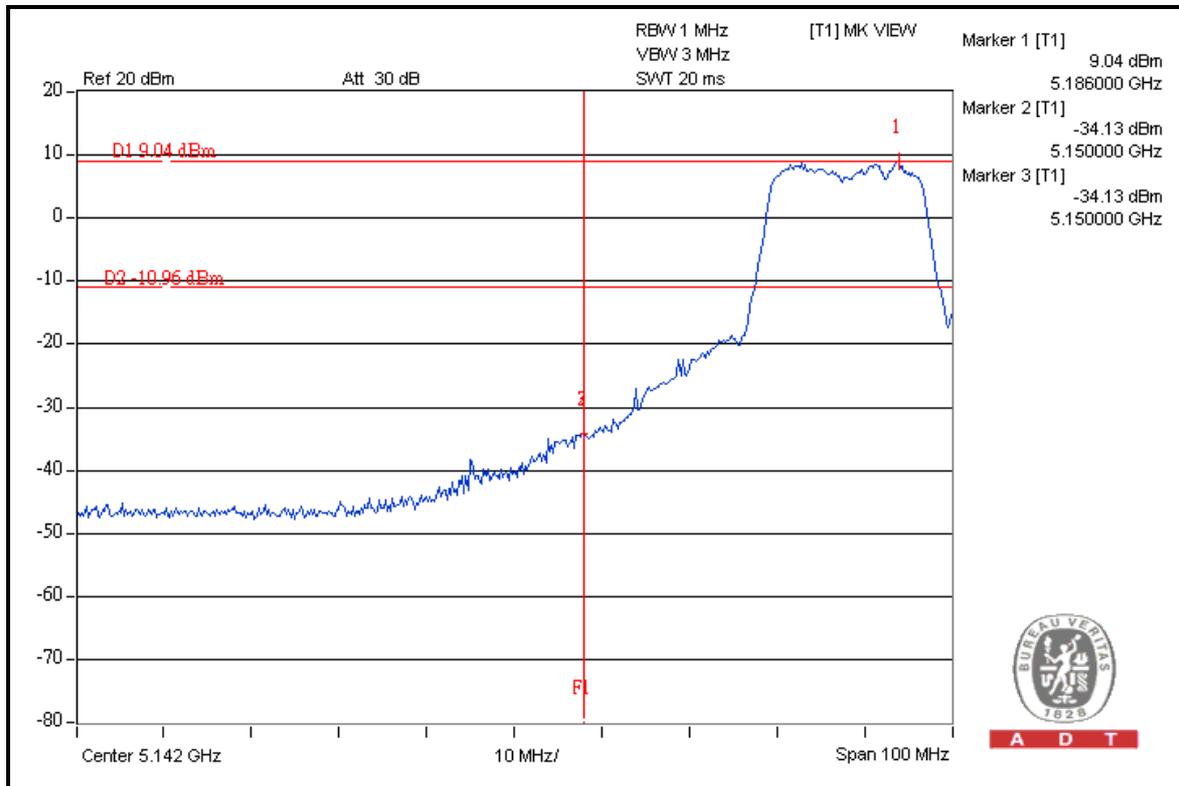
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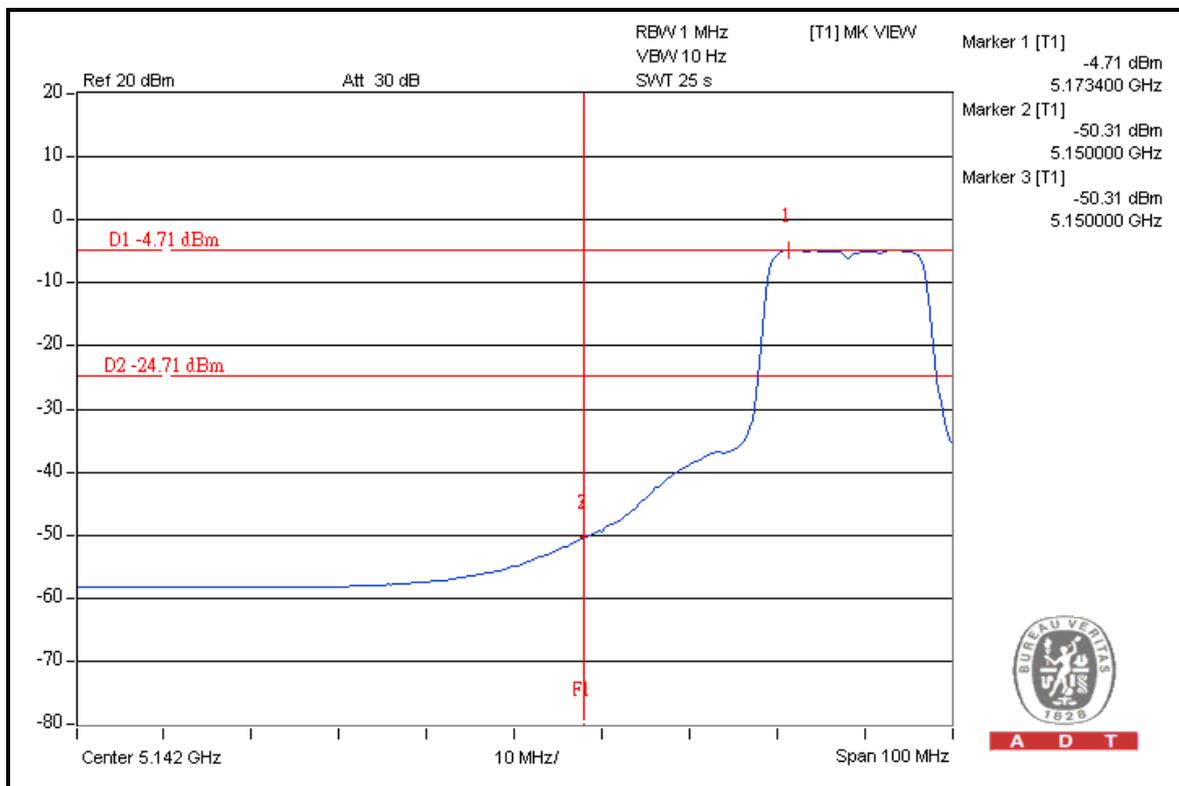


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### CHAIN 1



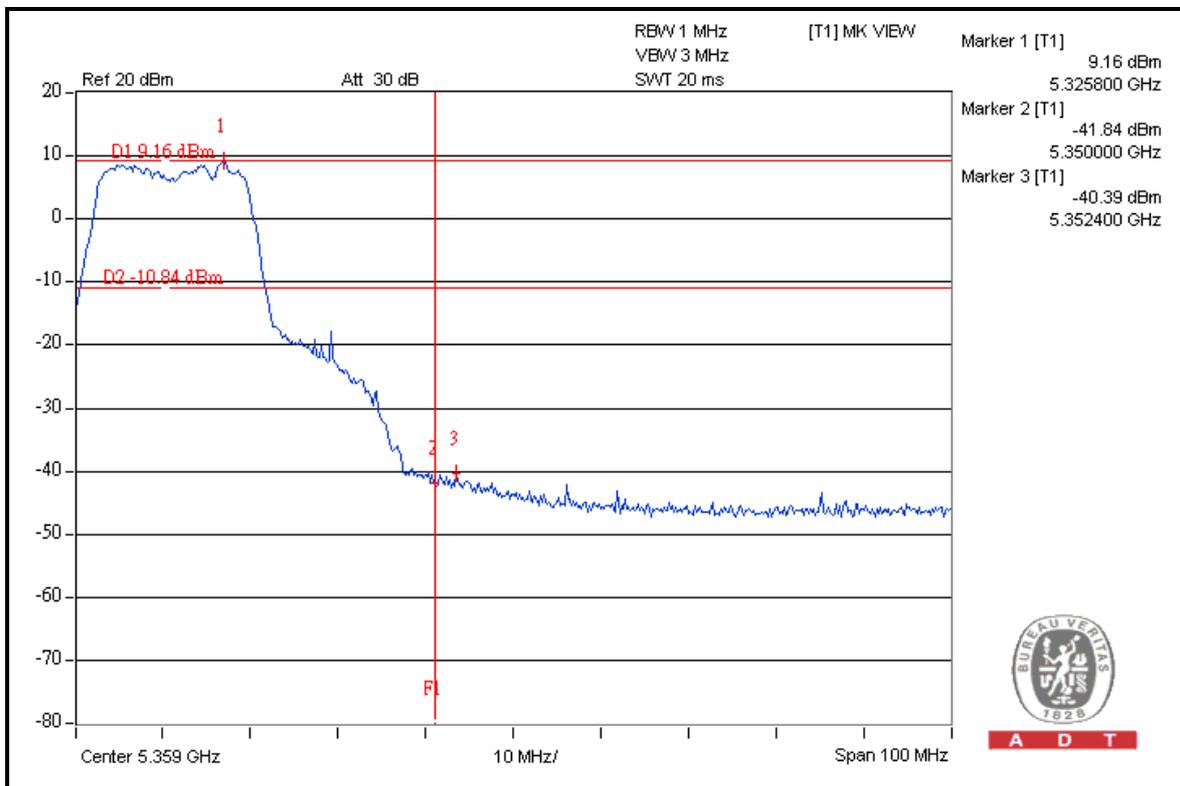
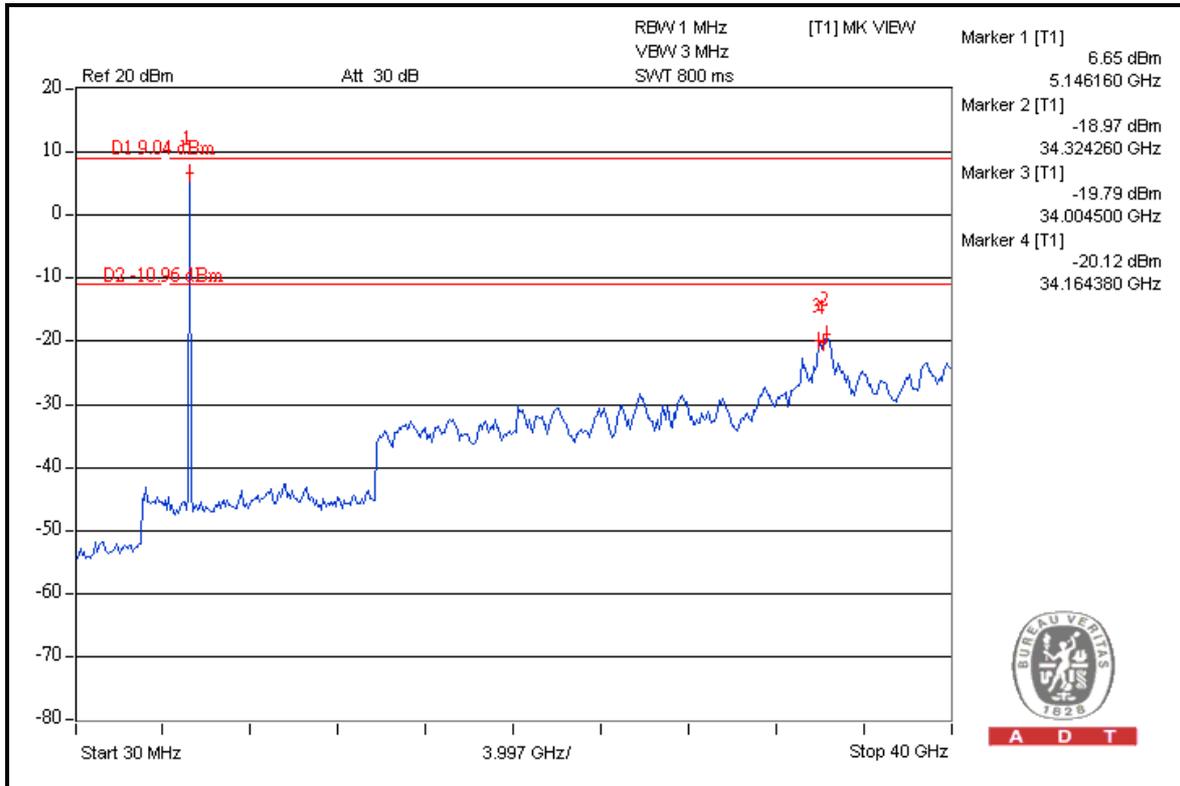
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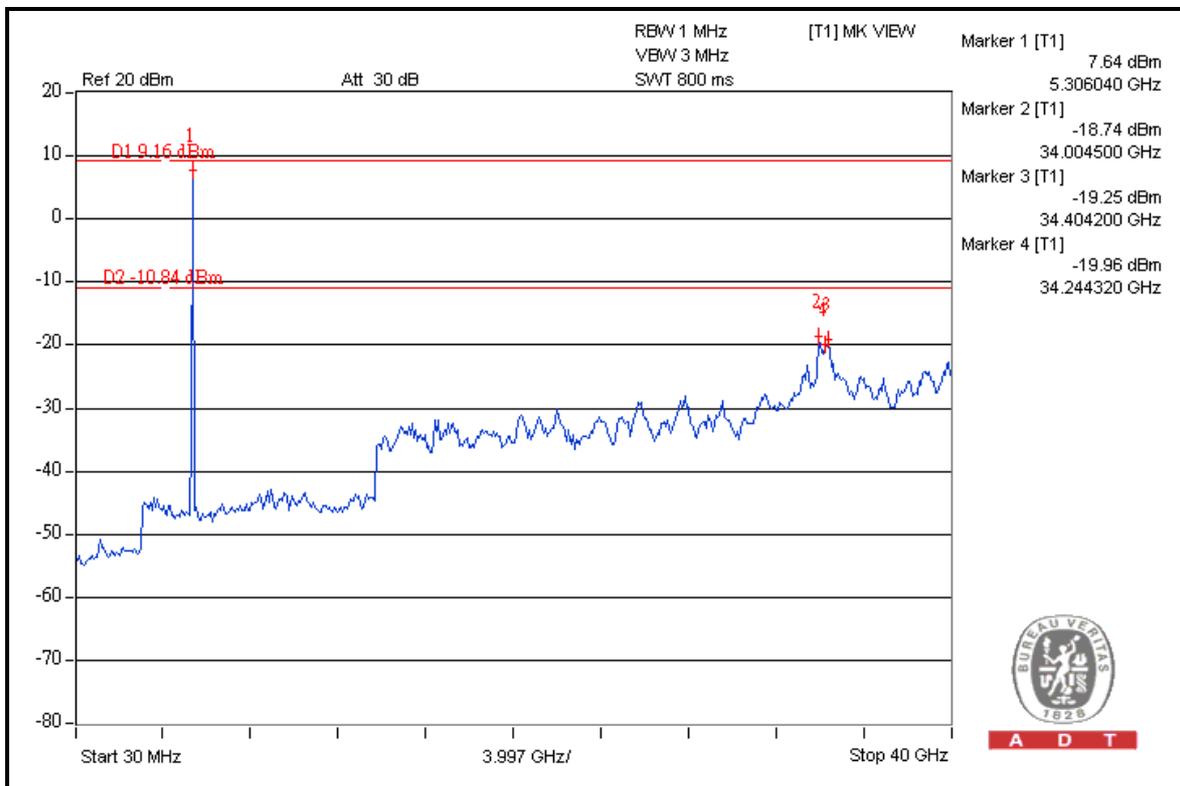
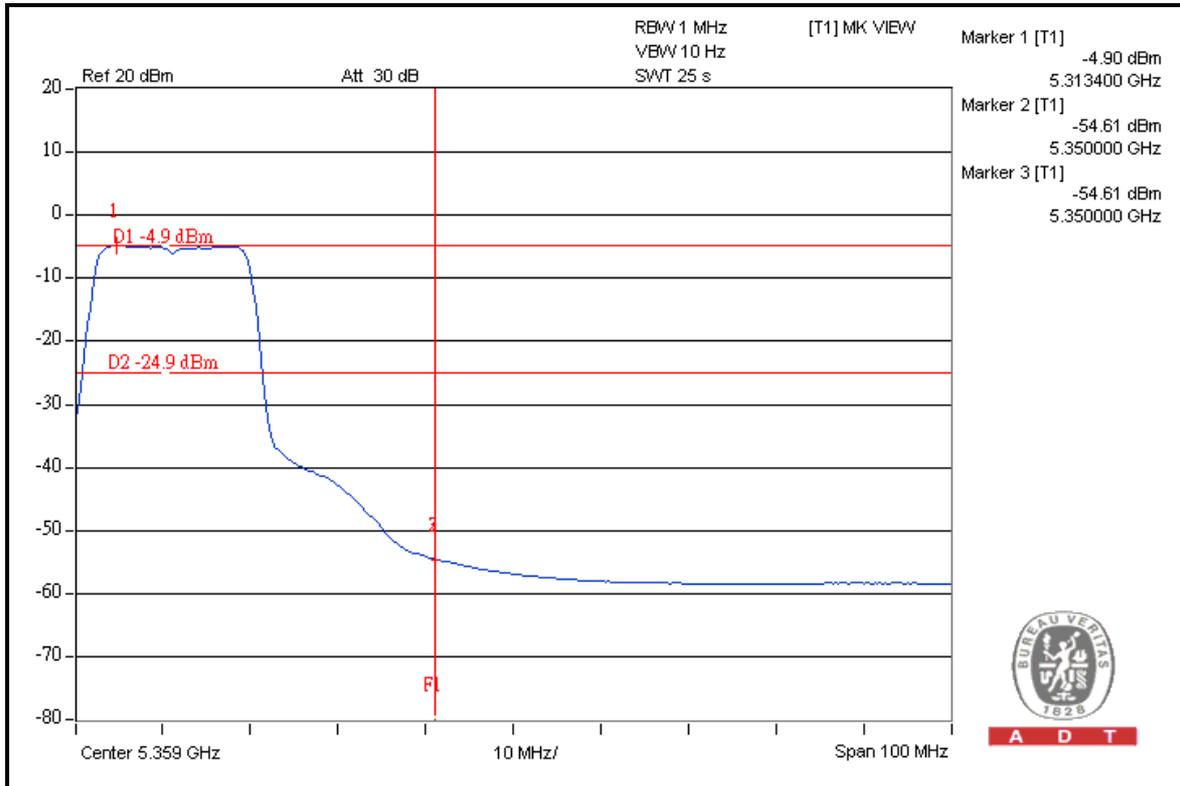


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**FOR 5500-5700MHz BAND:**

**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)	104.7	44.0	60.7	74.00
5500.00 (AV)	94.7	46.1	48.6	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)	104.7	43.2	61.5	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)	105.5	39.2	66.3	68.30

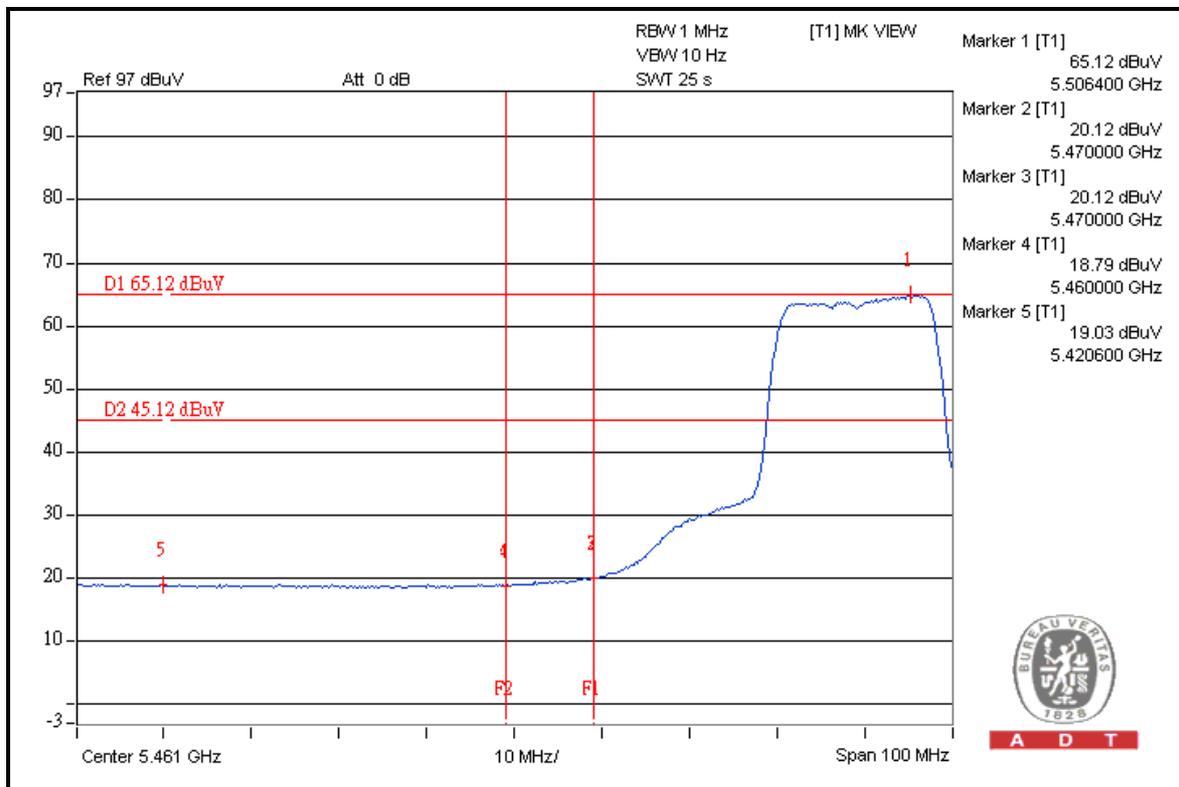
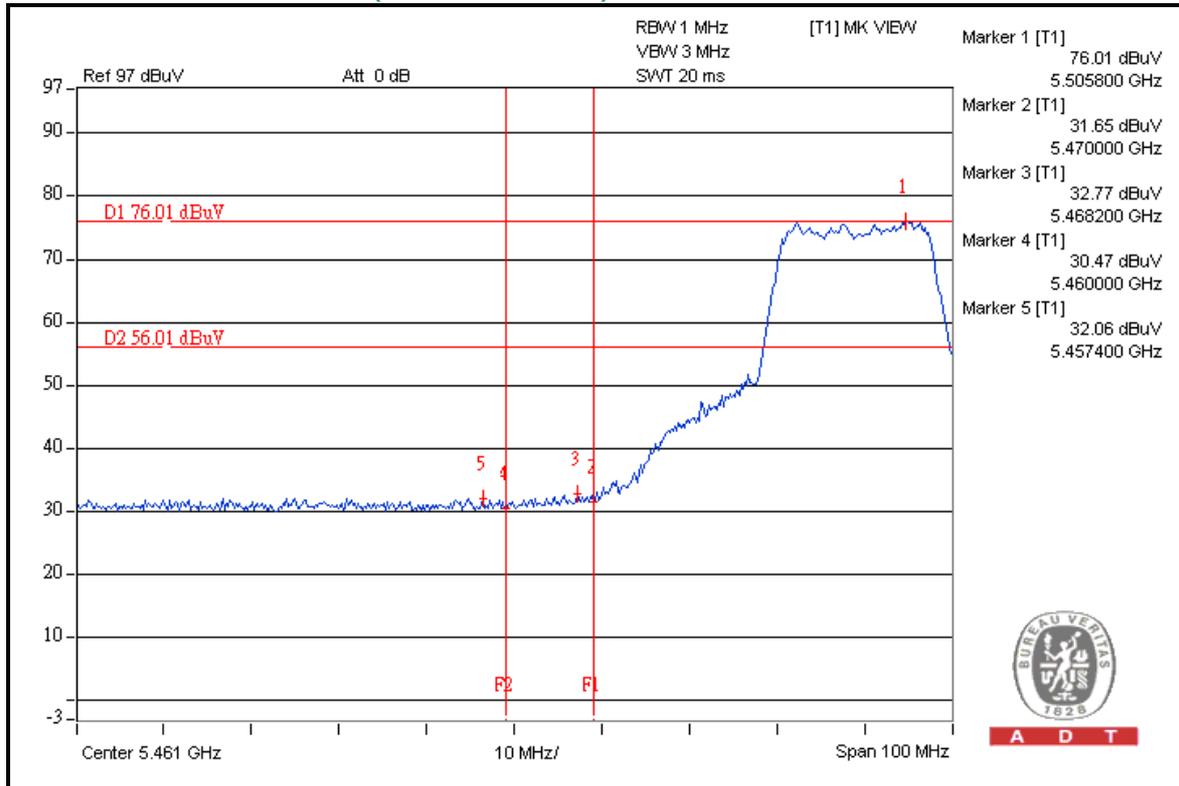
**NOTE:**

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.



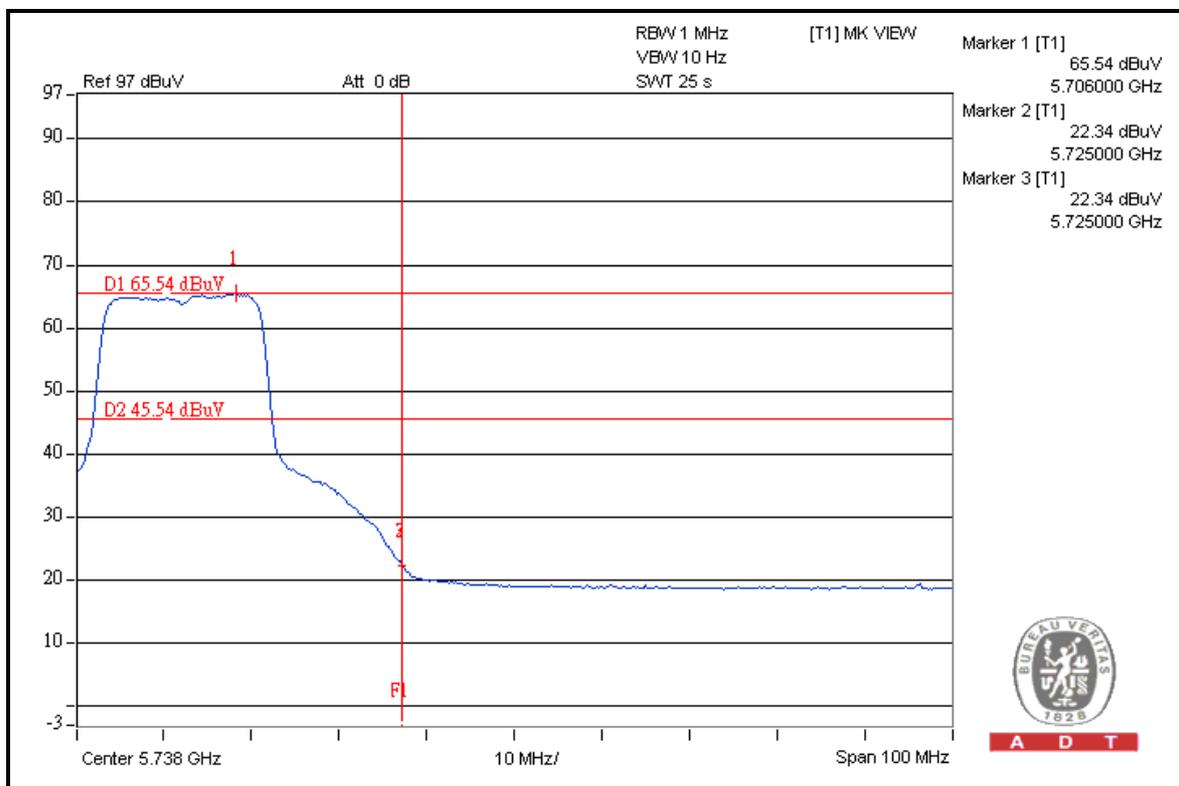
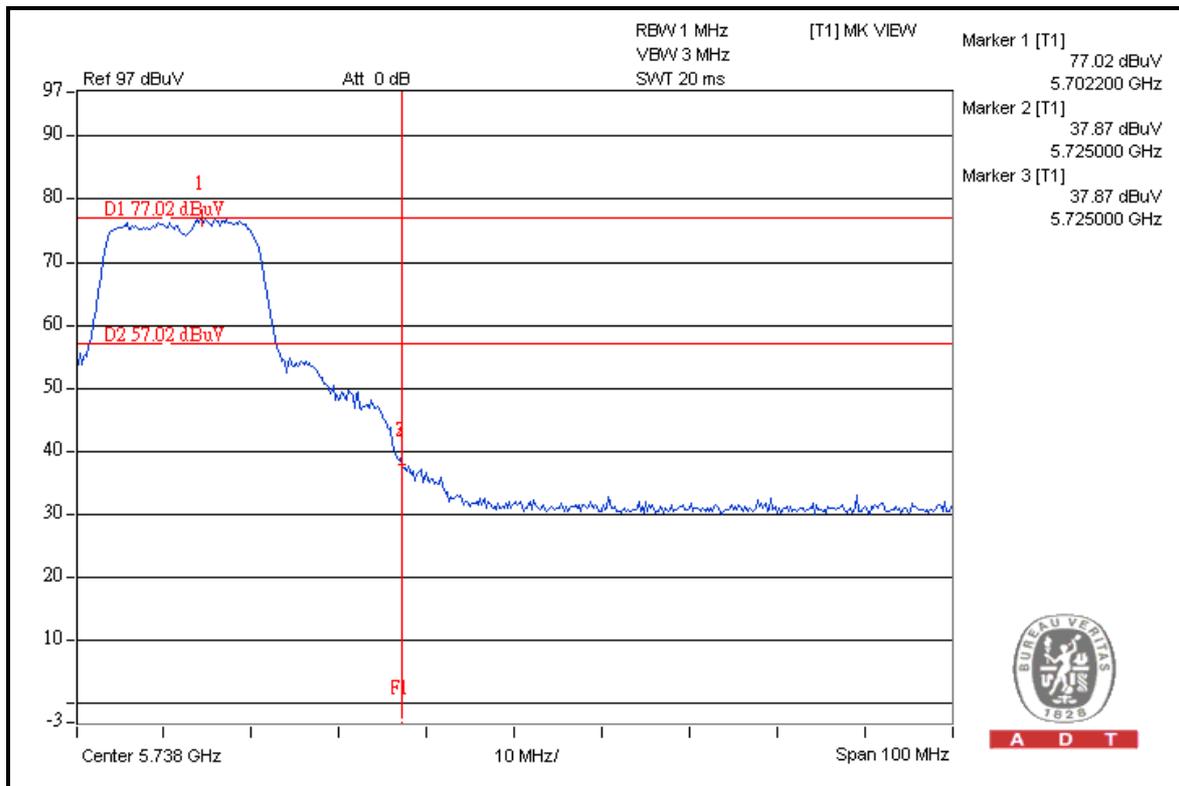
A D T

### FOR RADIATED MEASURED (TWO CHAINS ON)





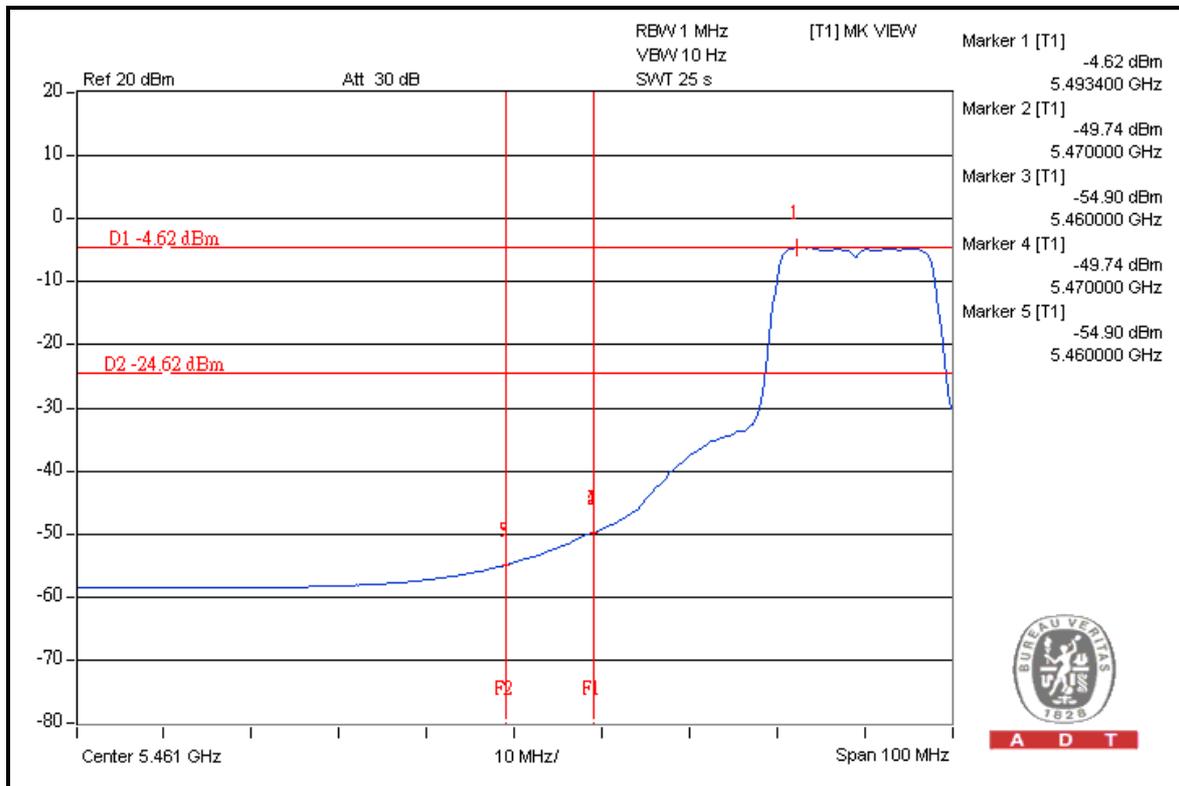
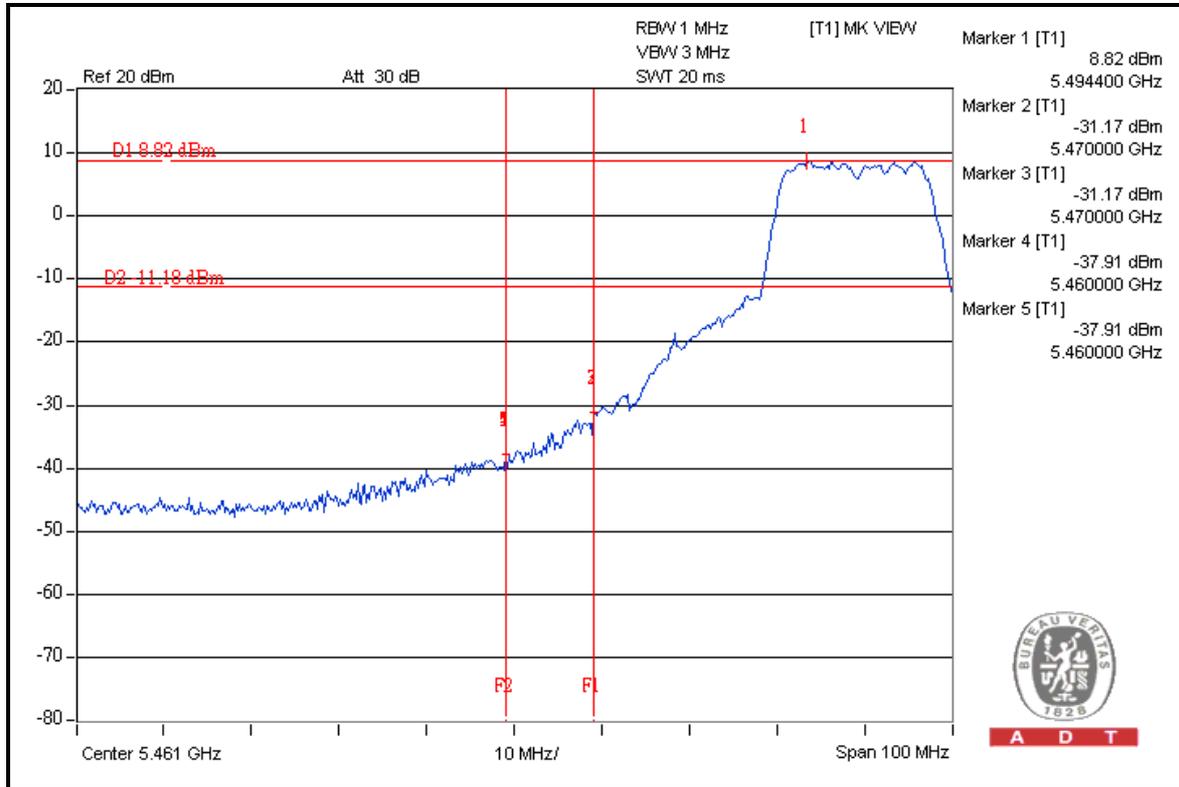
A D T





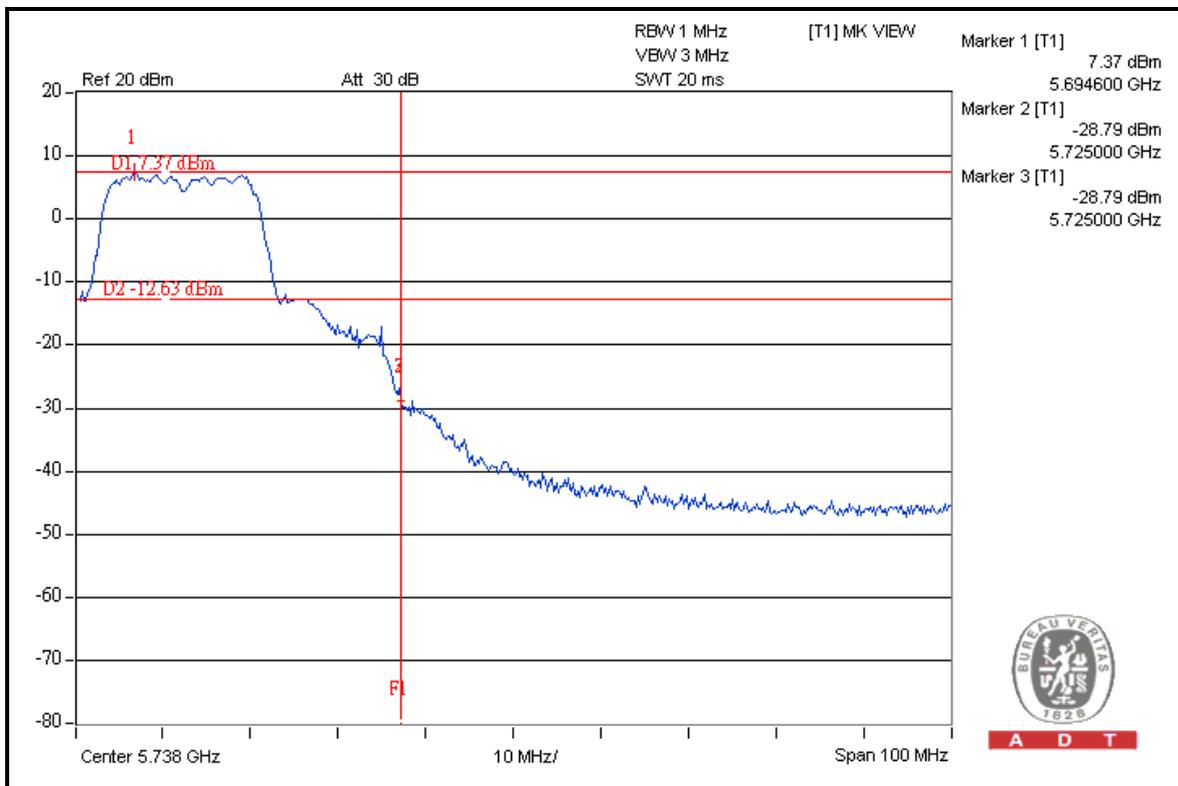
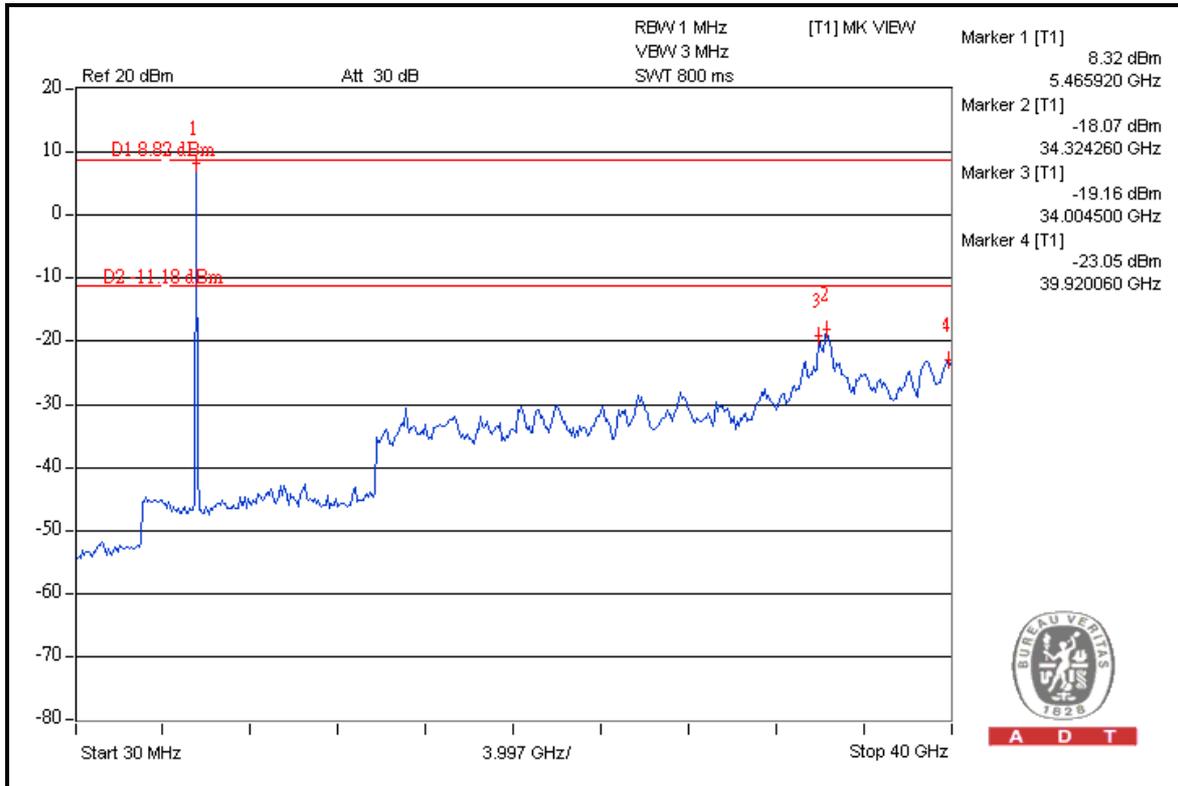
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### FOR CONDUCTED MEASURED CHAIN 0



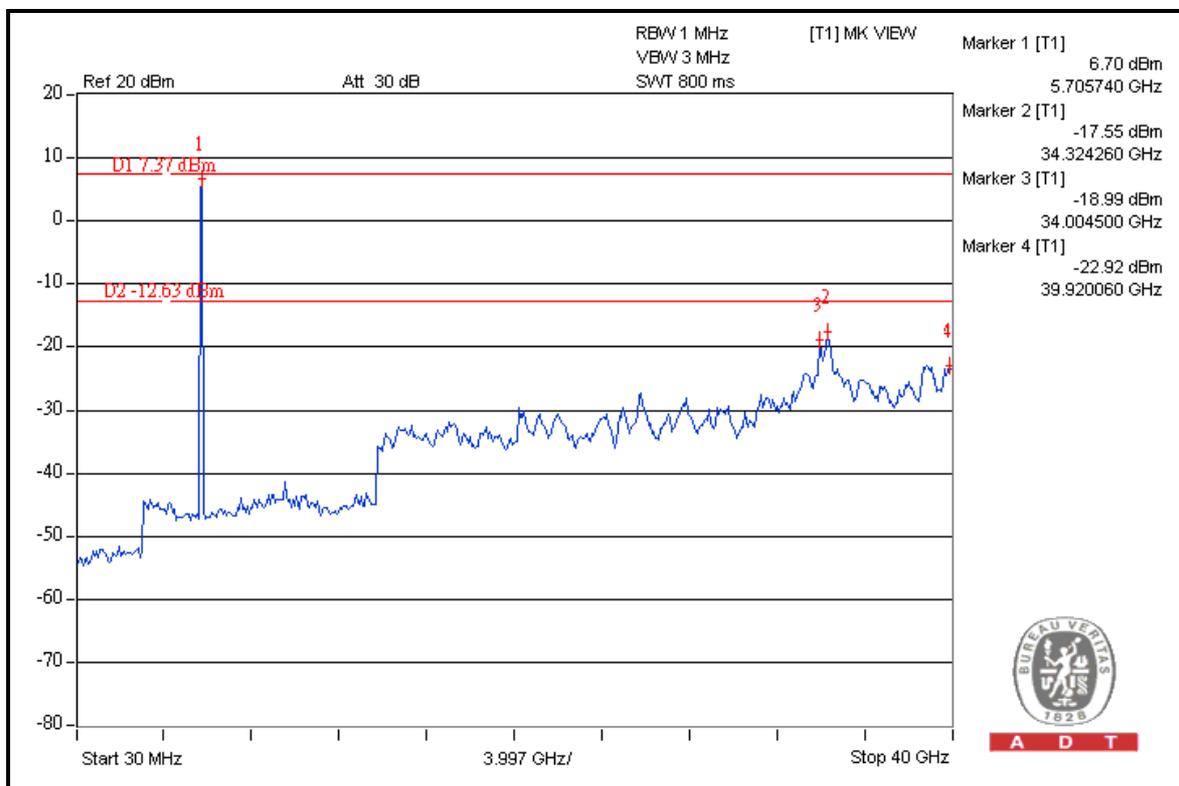
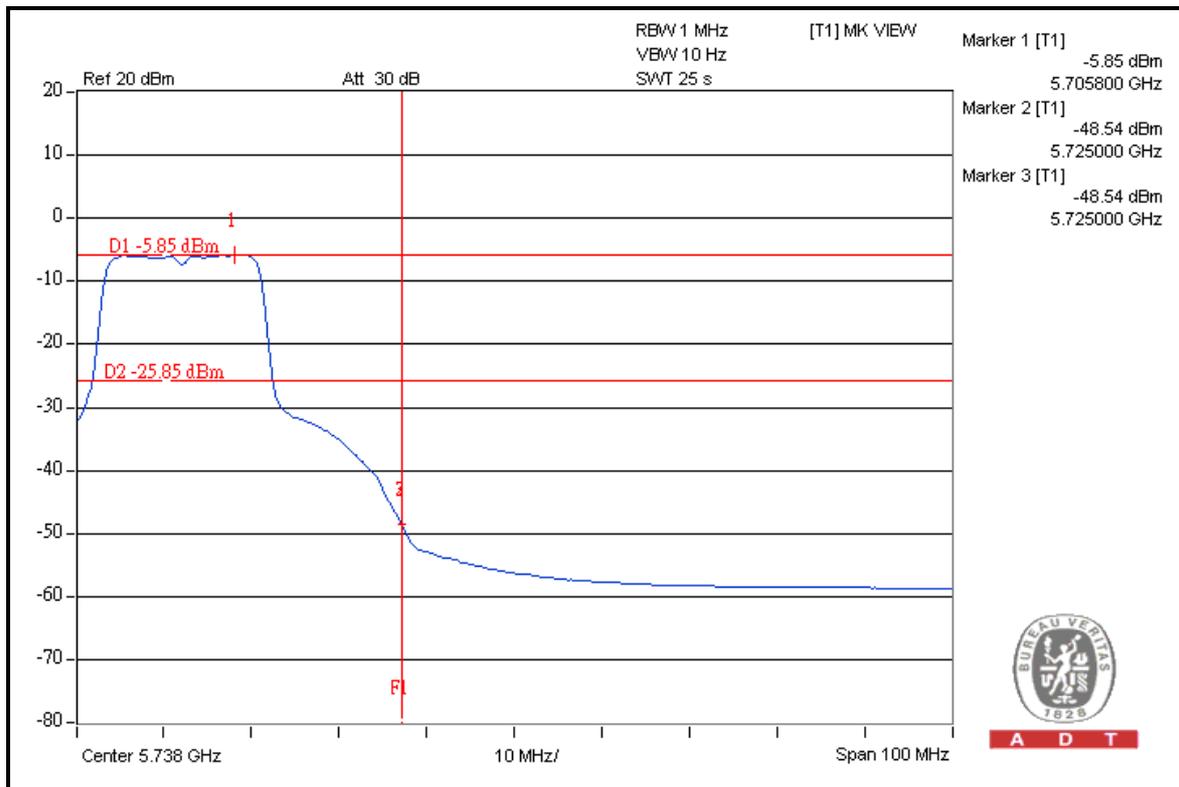


A D T





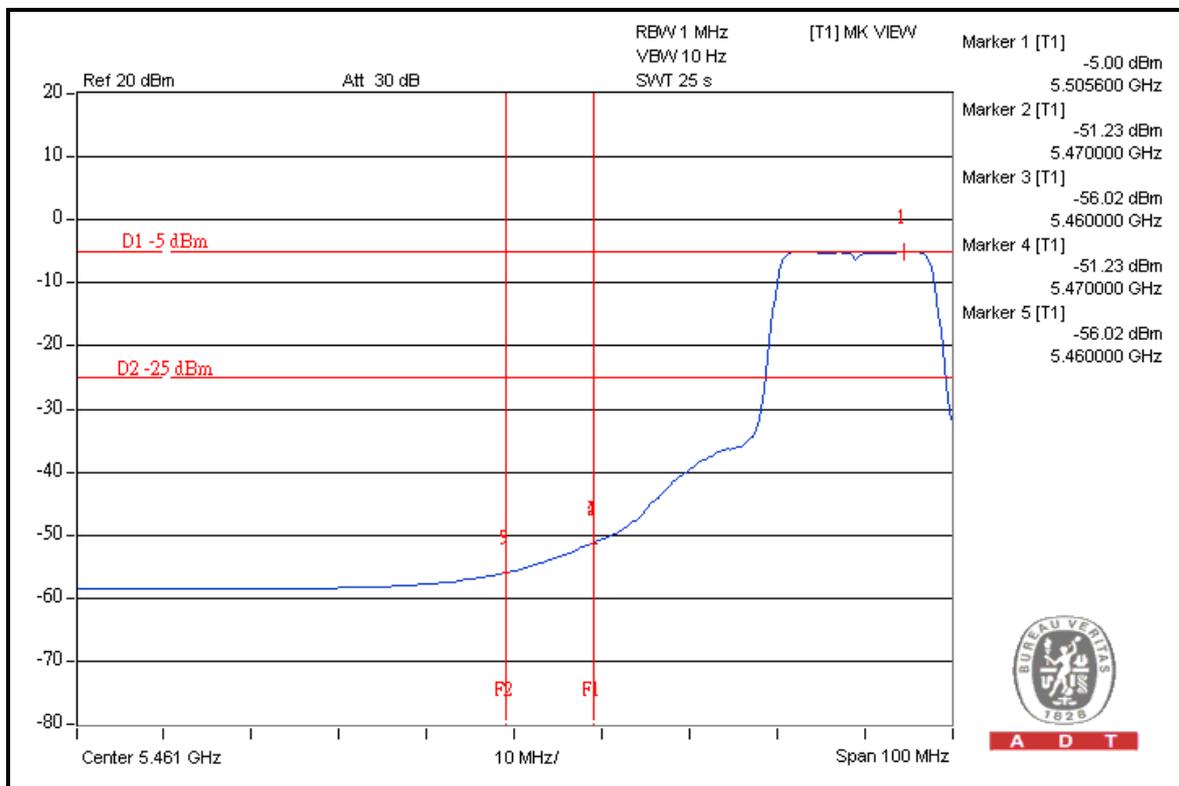
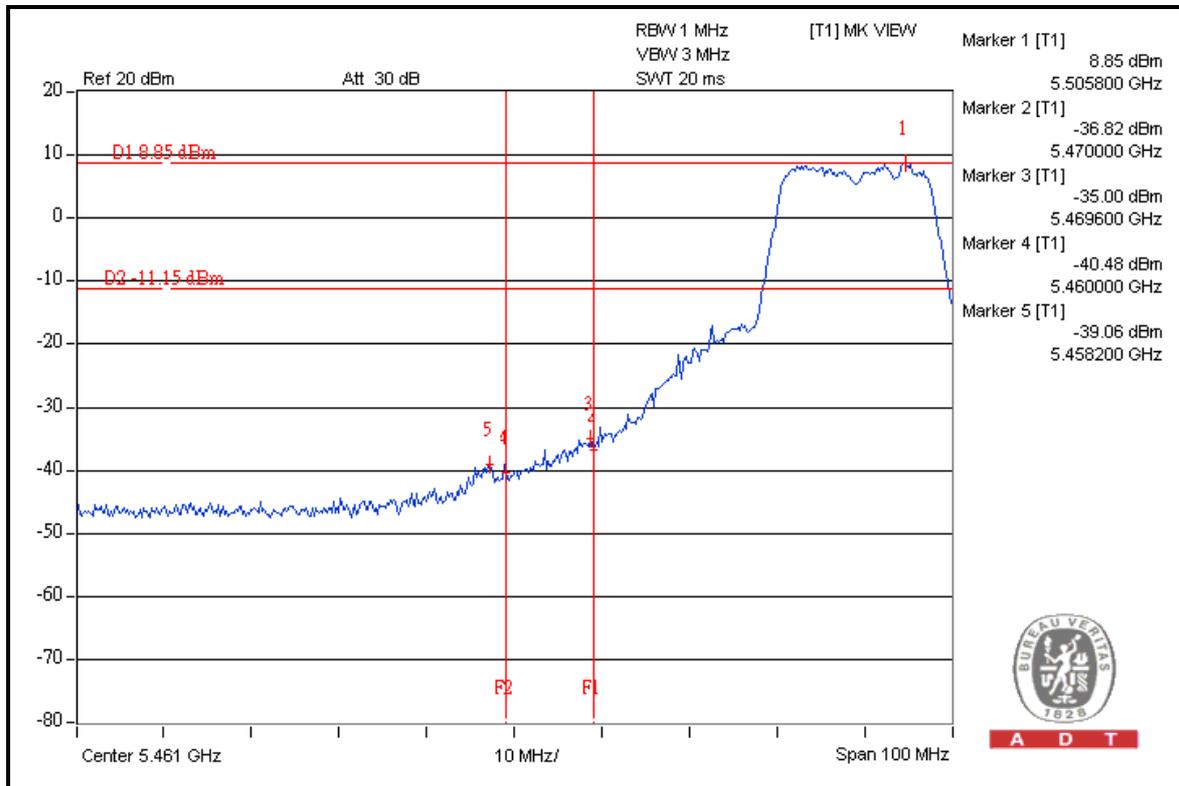
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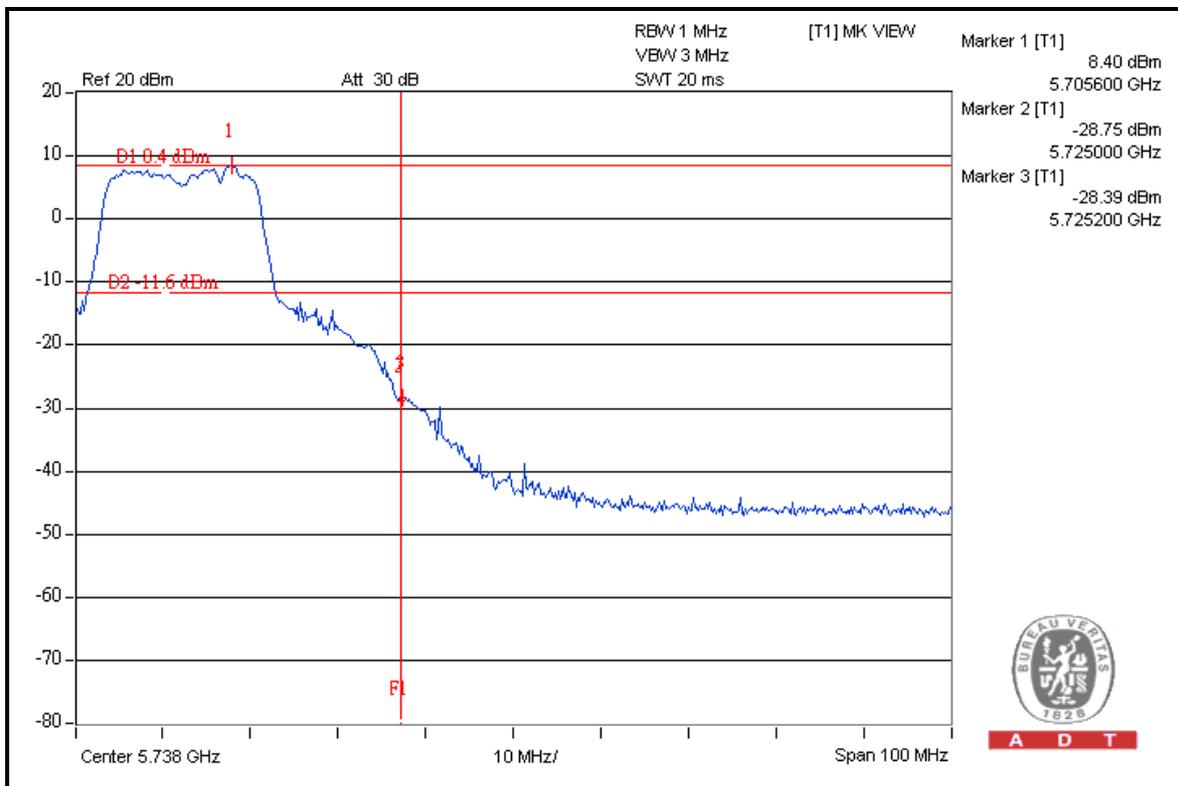
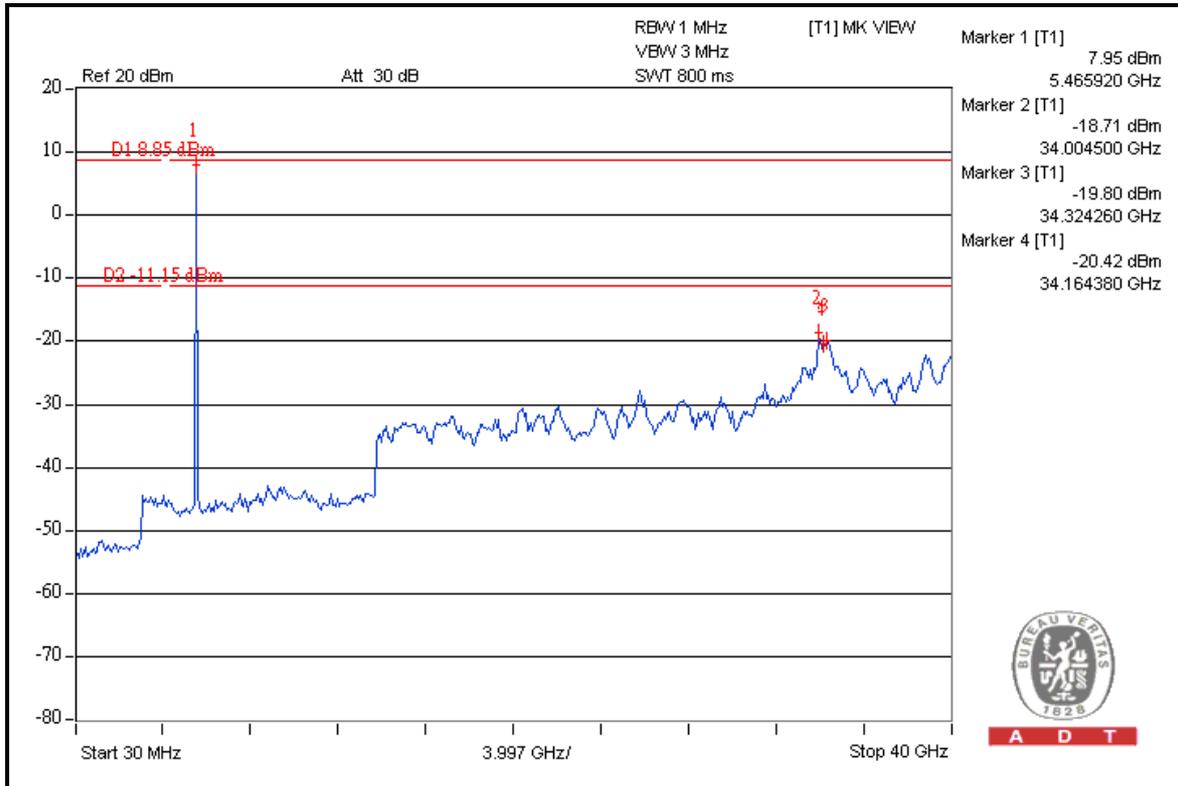
A D T

### CHAIN 1



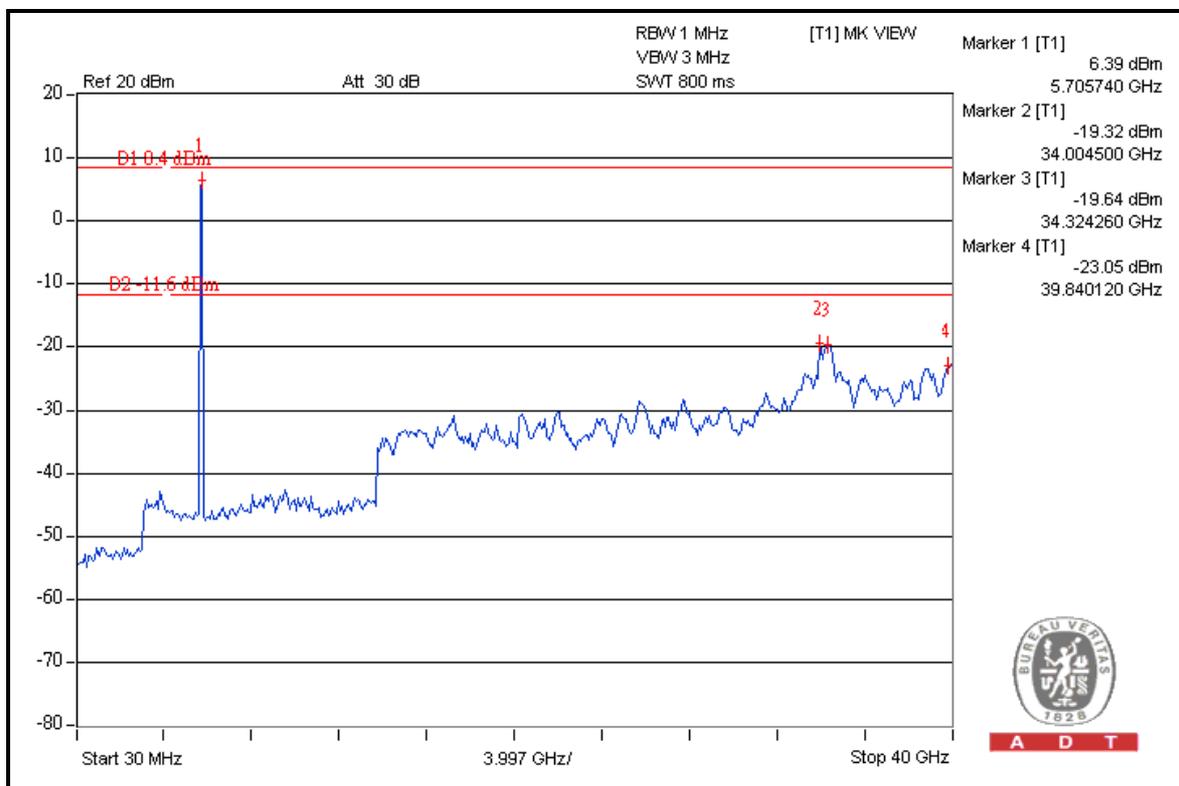
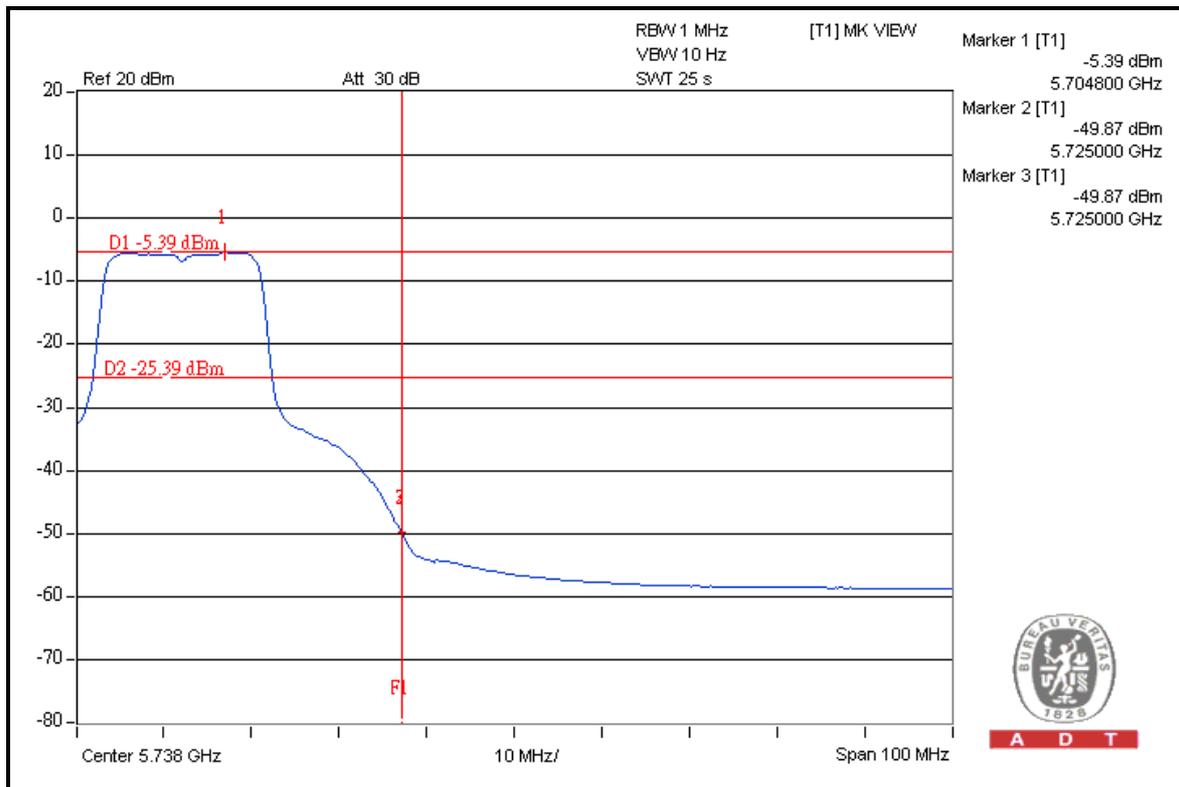


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**FOR 5180-5320MHz BAND:**

**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)	105.5	34.4	71.1	74.00
5190.00 (AV)	95.9	43.3	52.6	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)
5310.00 (PK)	108.2	37.5	70.7	74.00
5310.00 (AV)	97.9	46.0	51.9	54.00

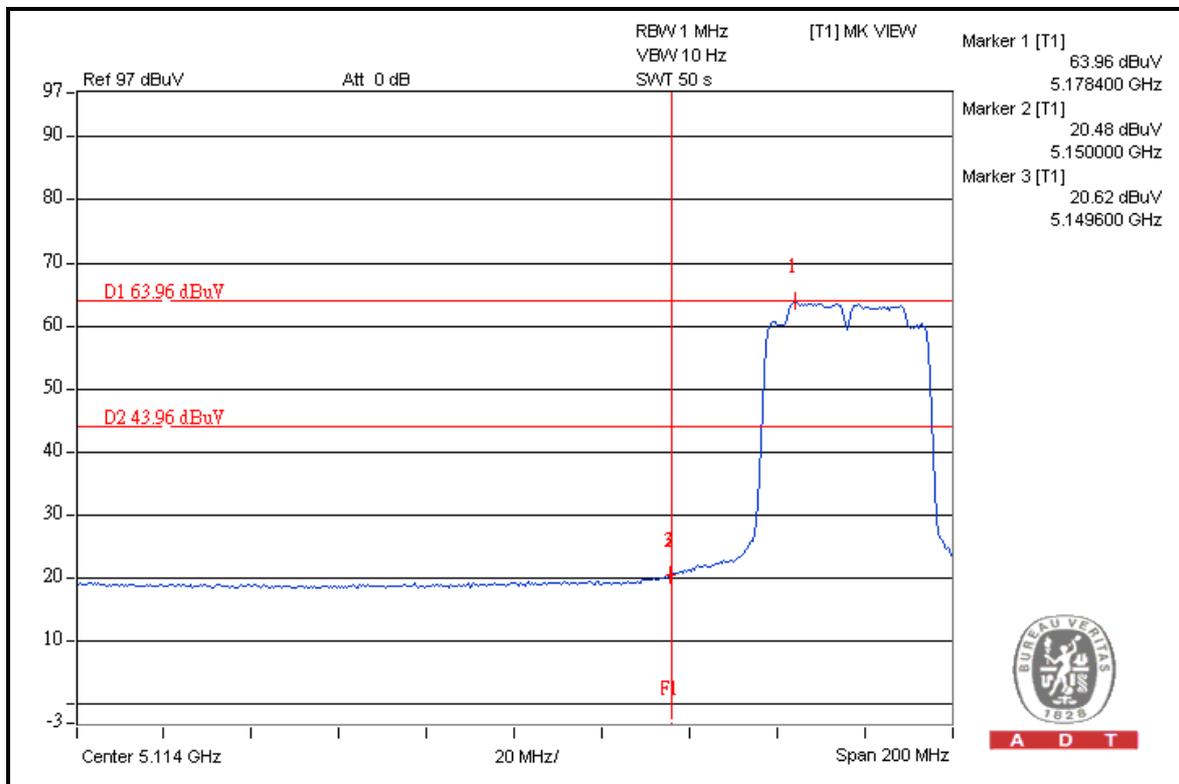
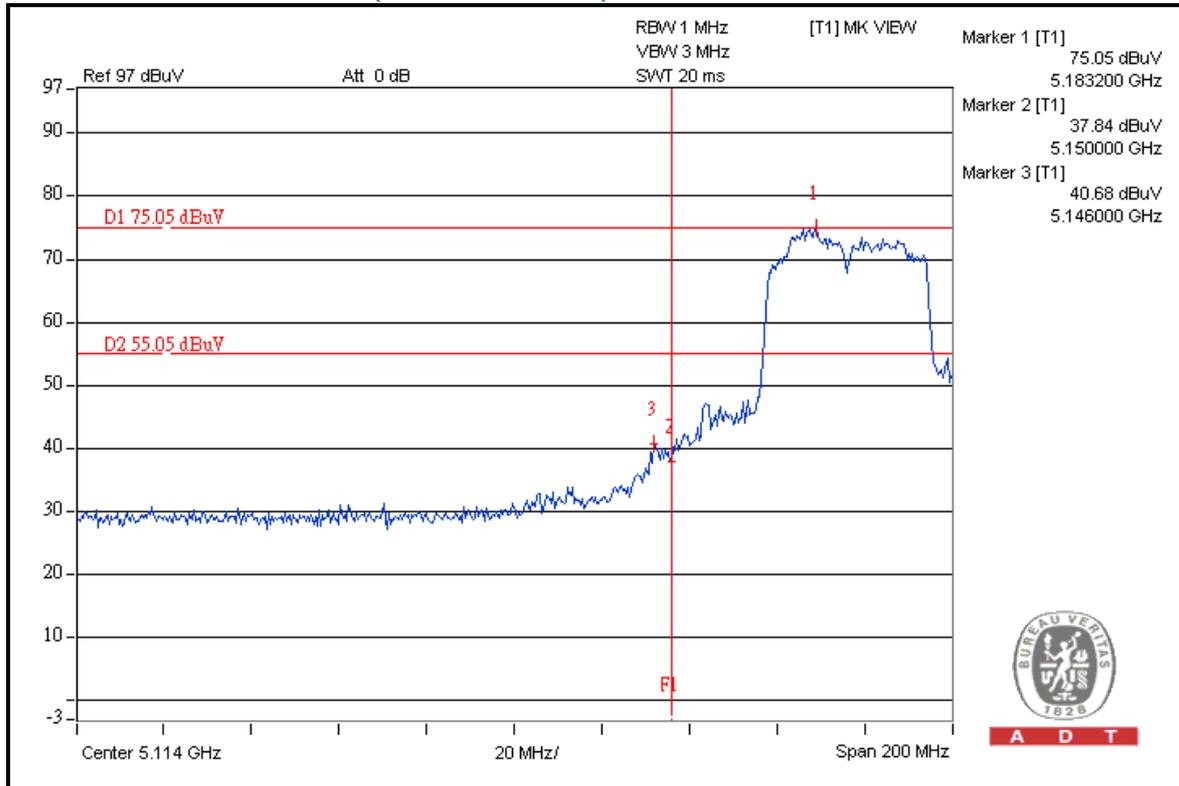
**NOTE:**

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



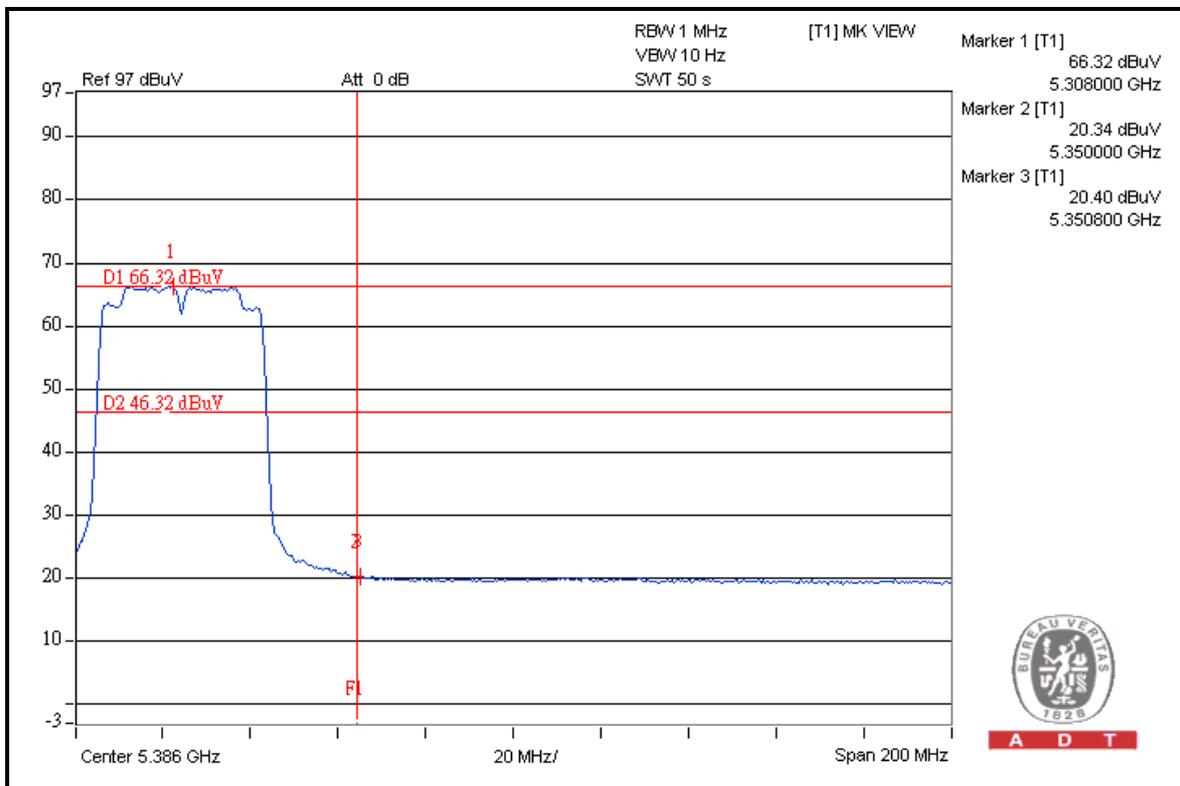
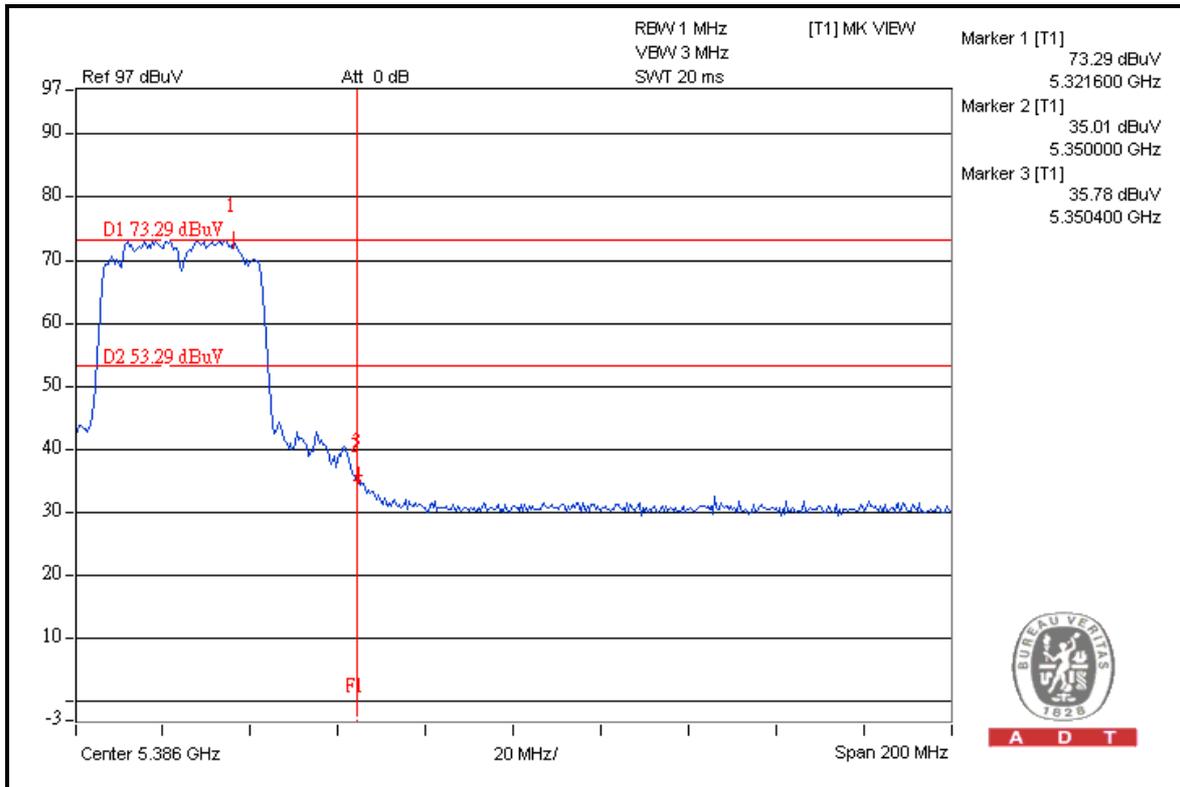
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### FOR RADIATED MEASURED (TWO CHAINS ON)





A D T

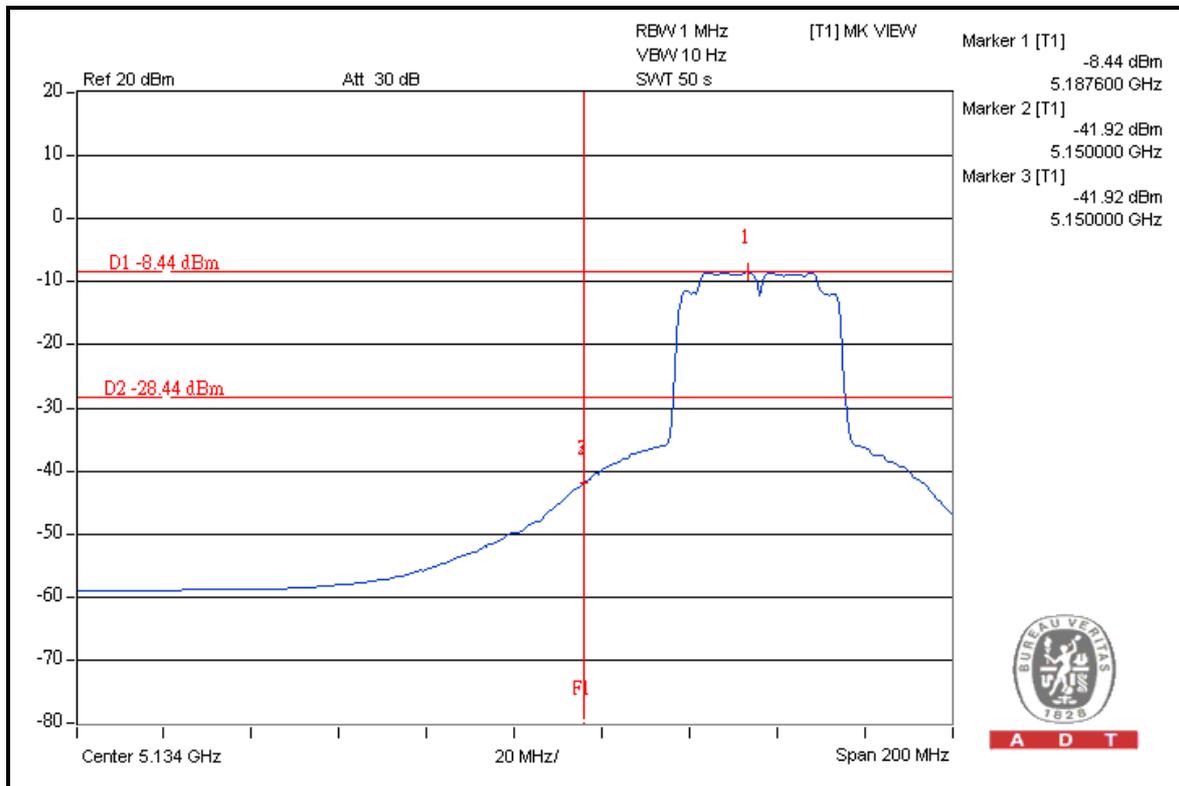
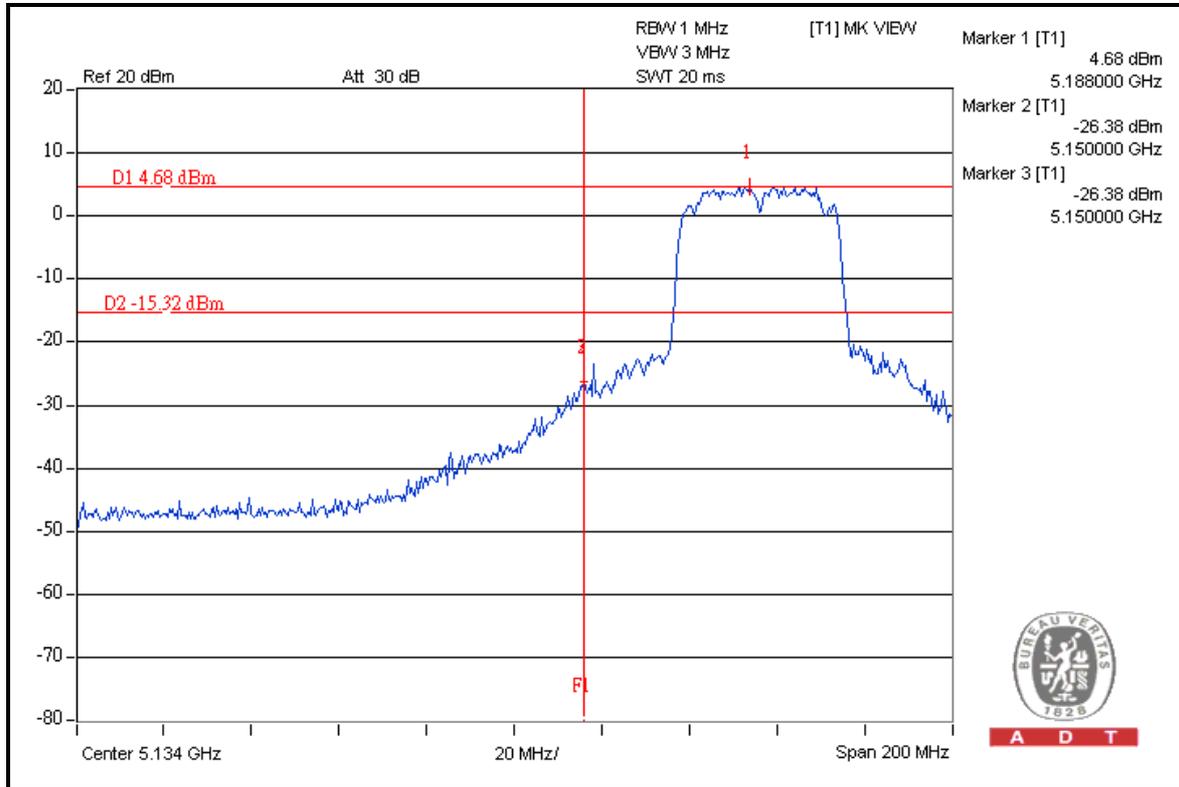




A D T

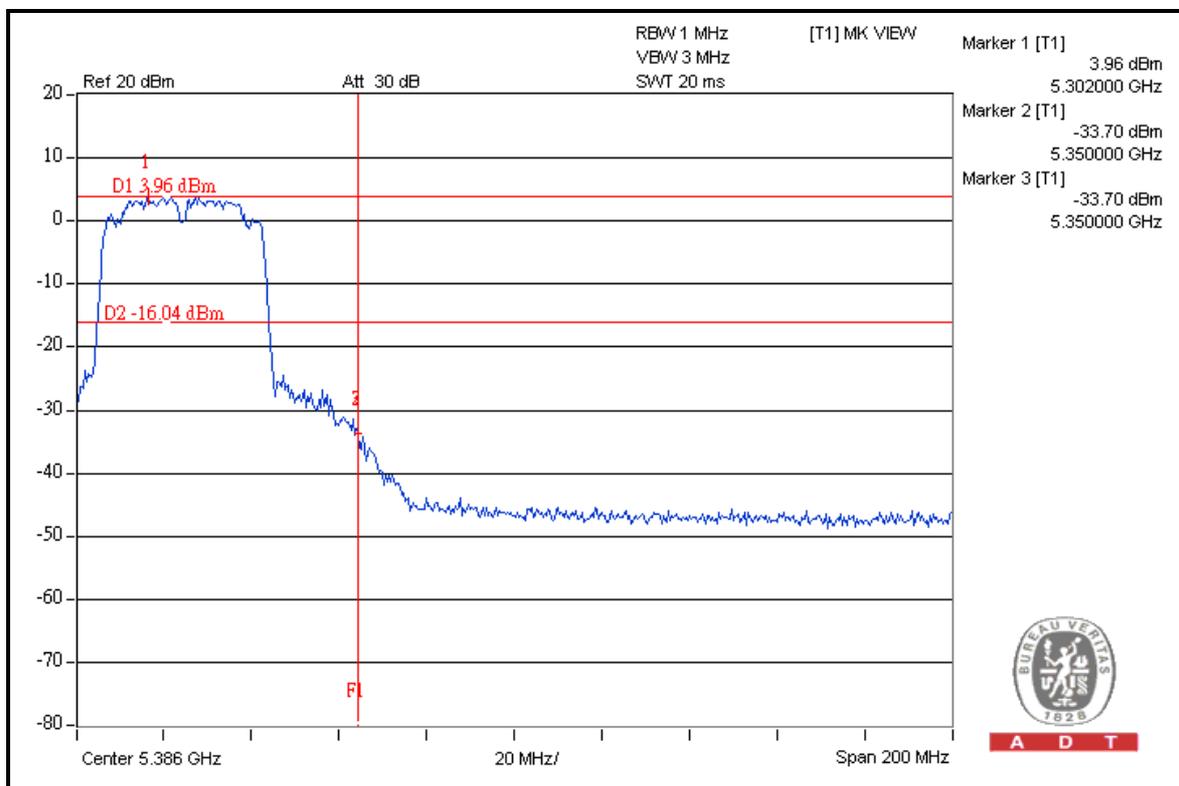
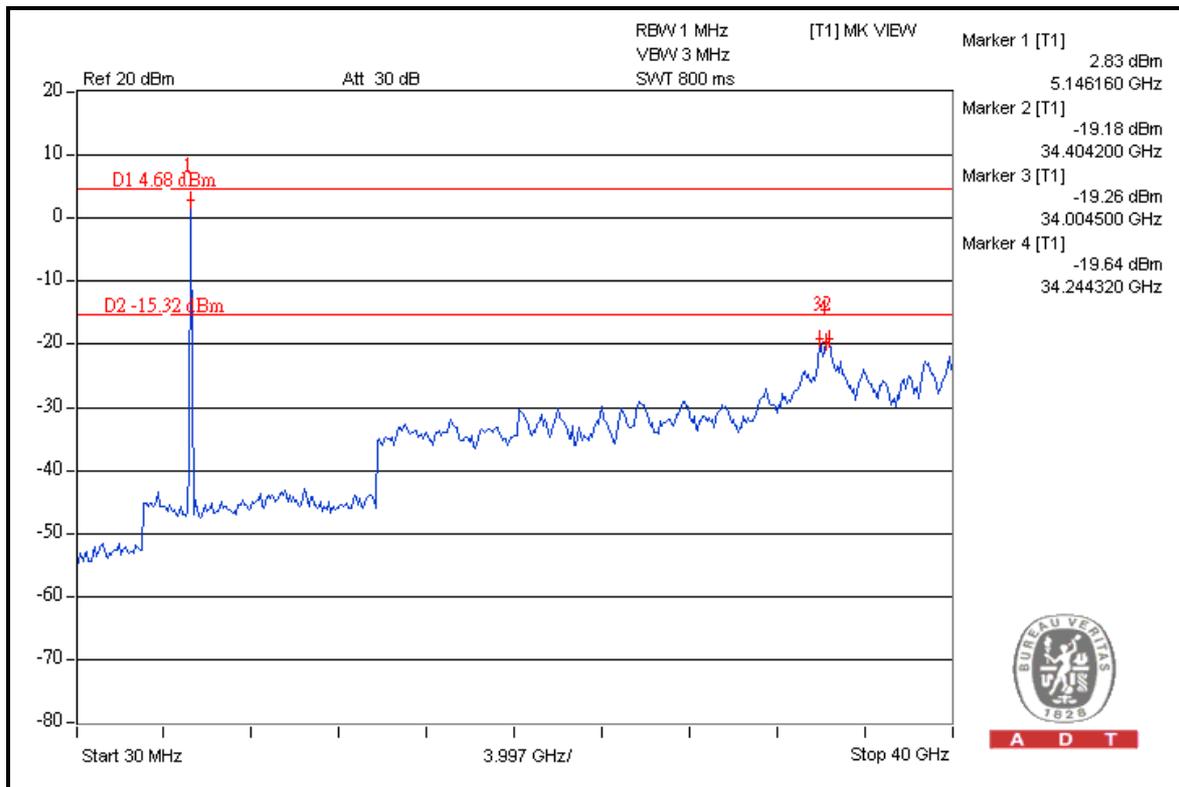
### FOR CONDUCTED MEASURED

### CHAIN 0



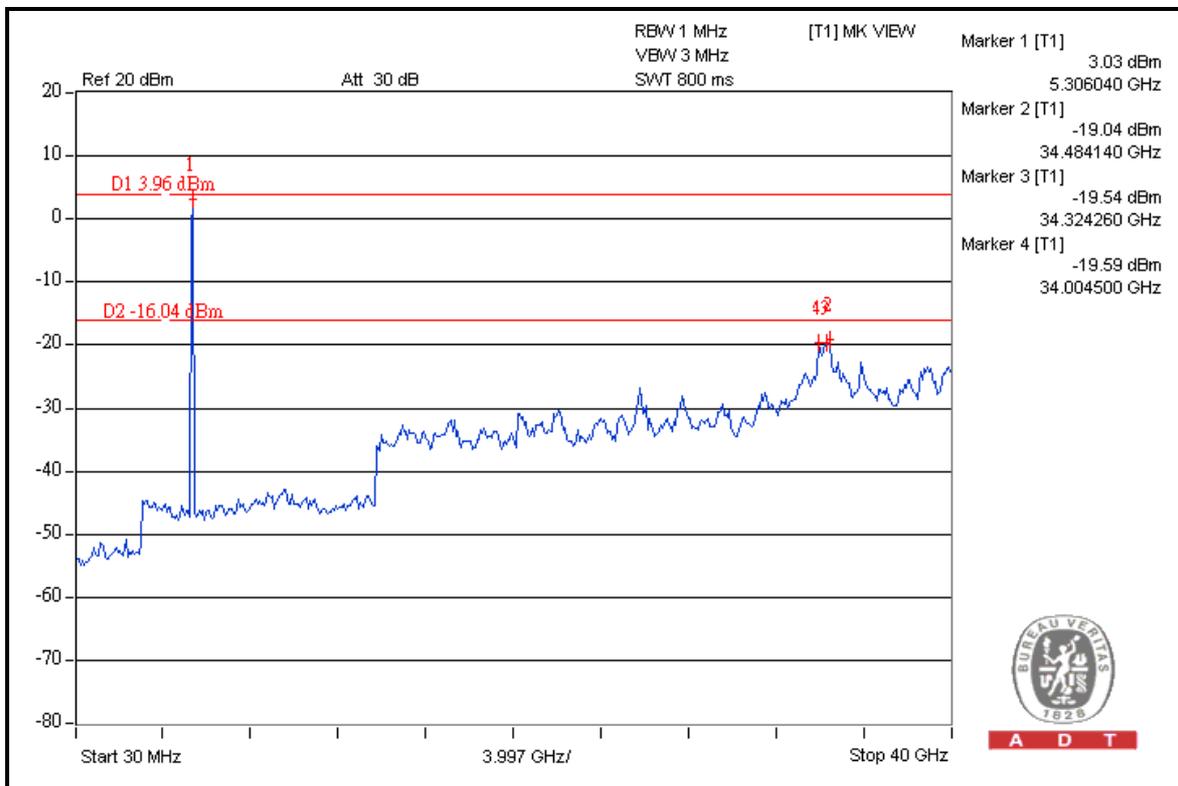
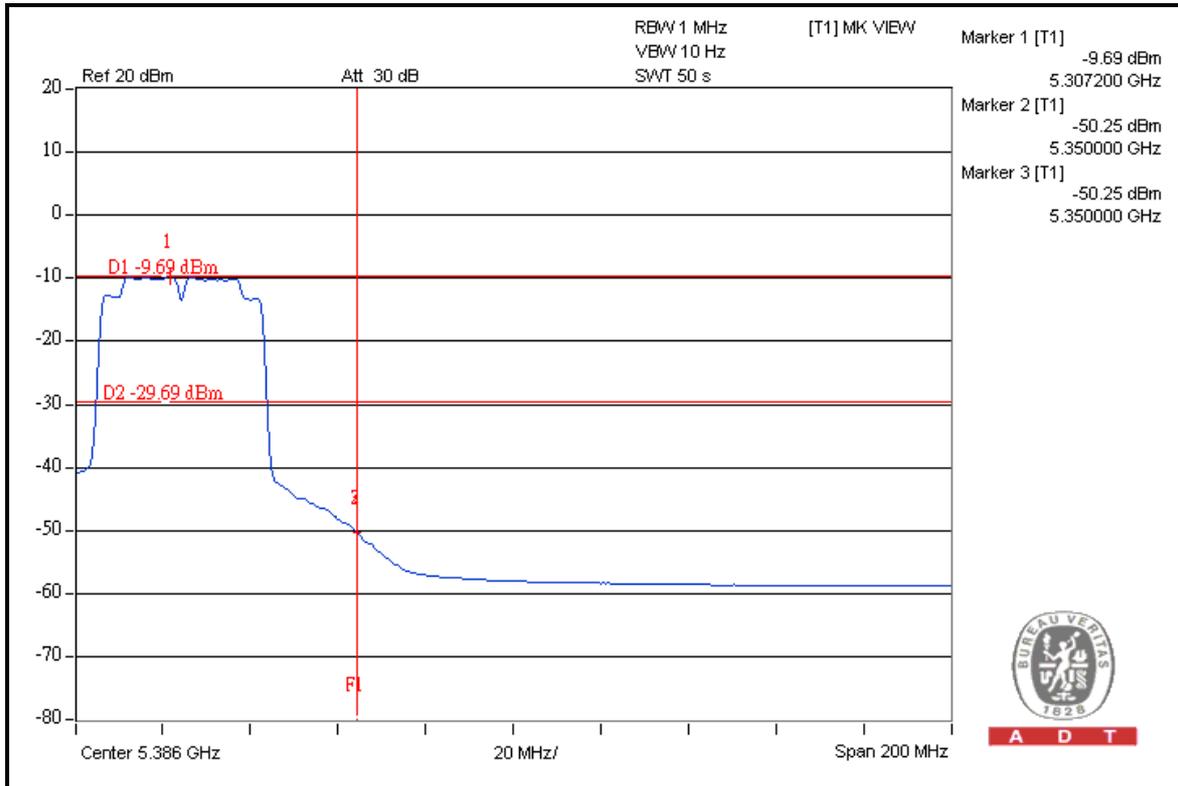


A D T





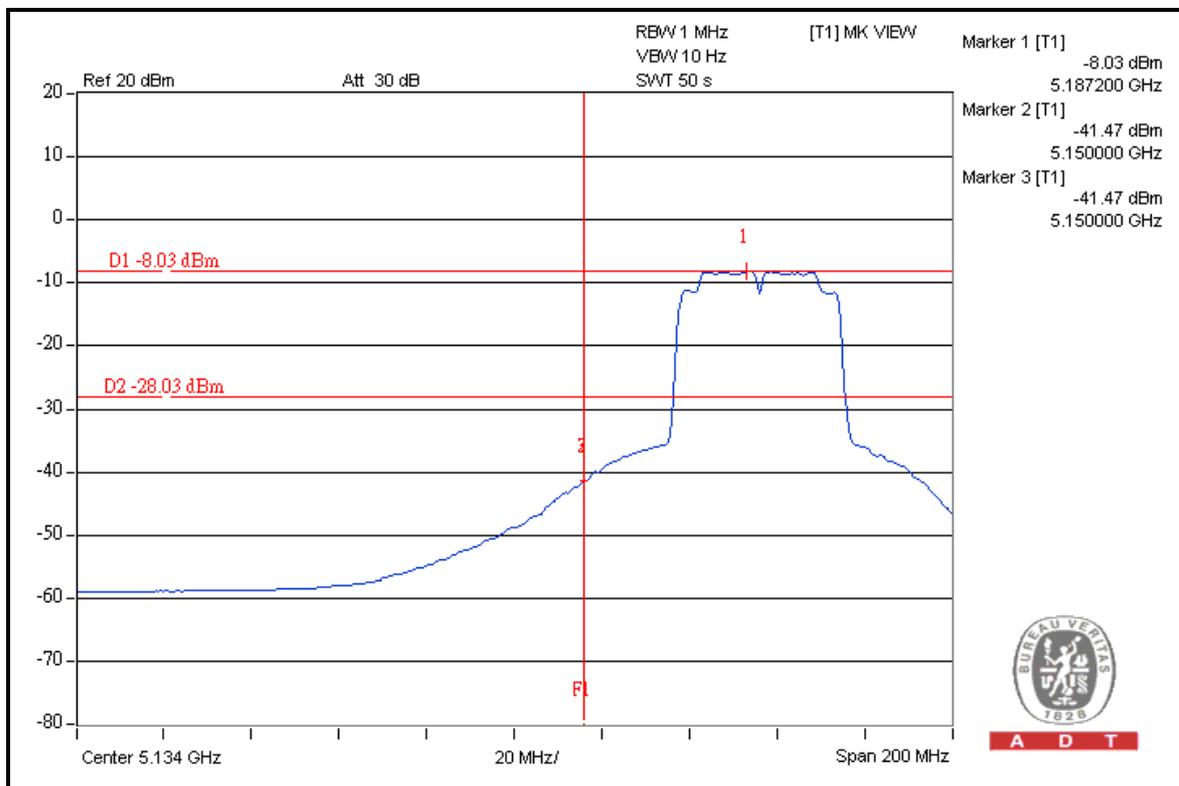
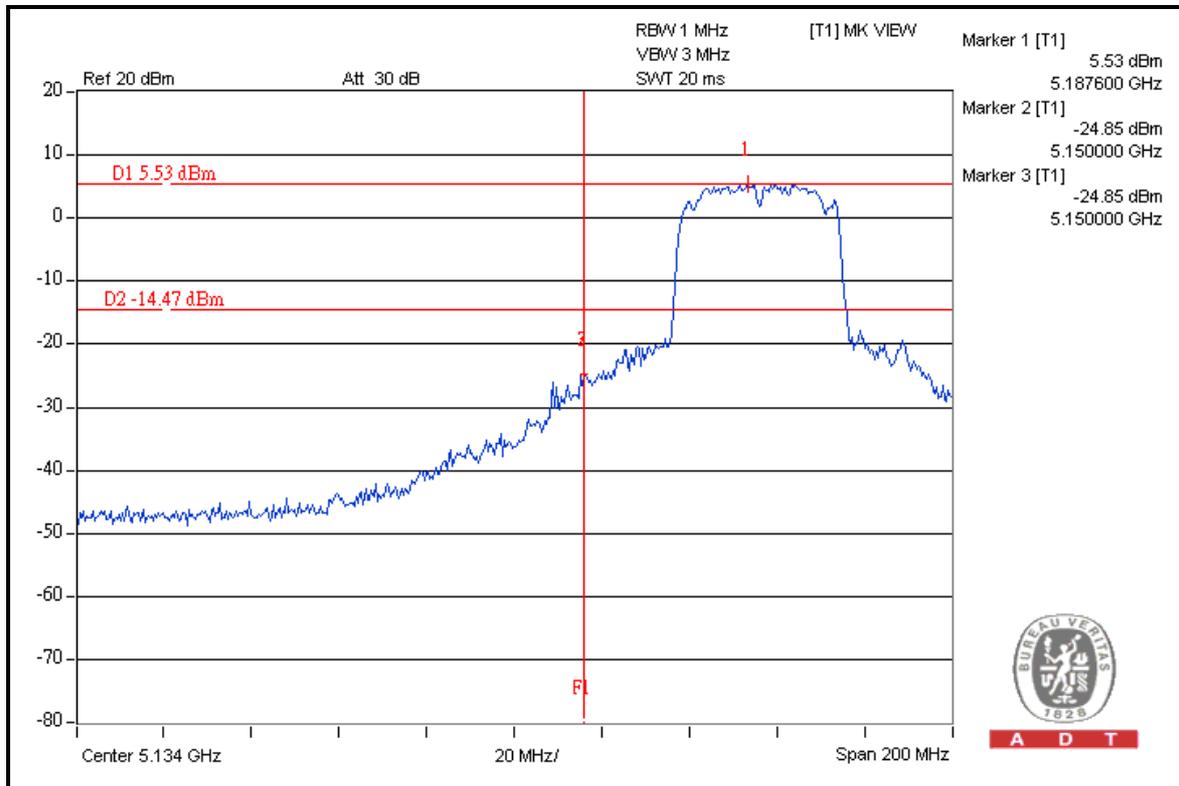
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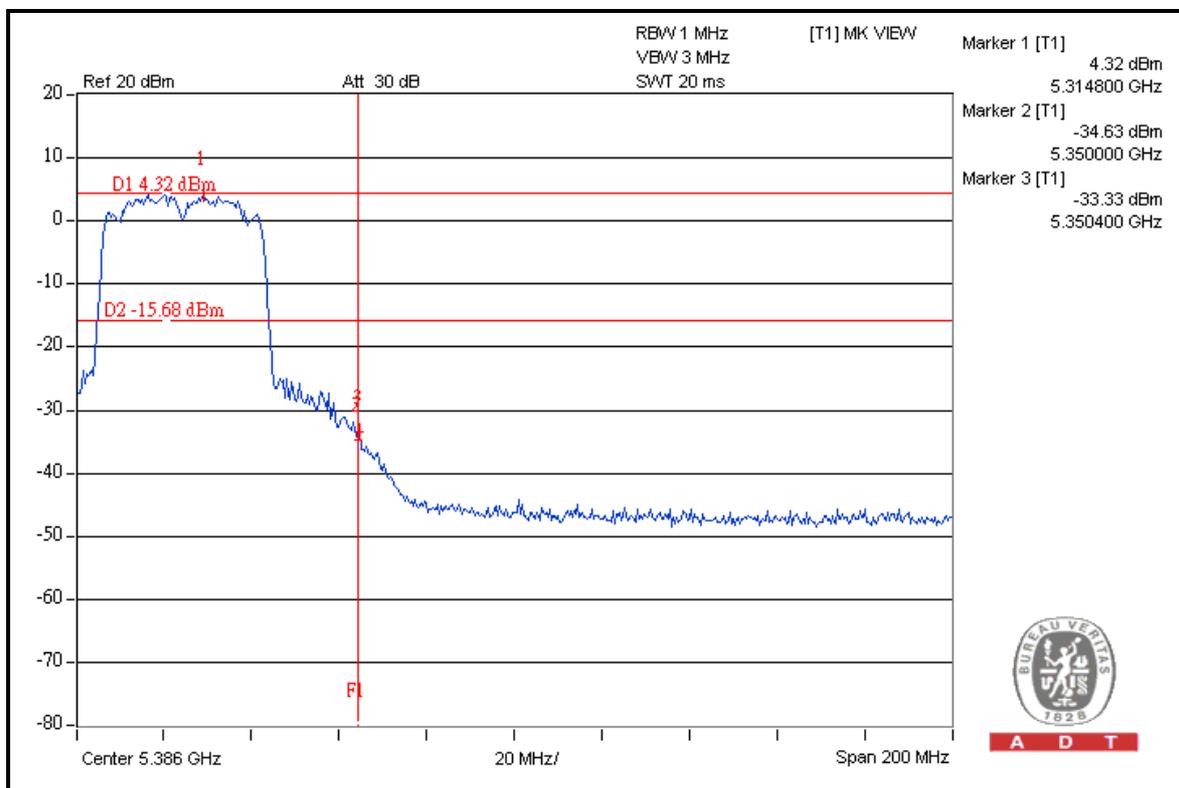
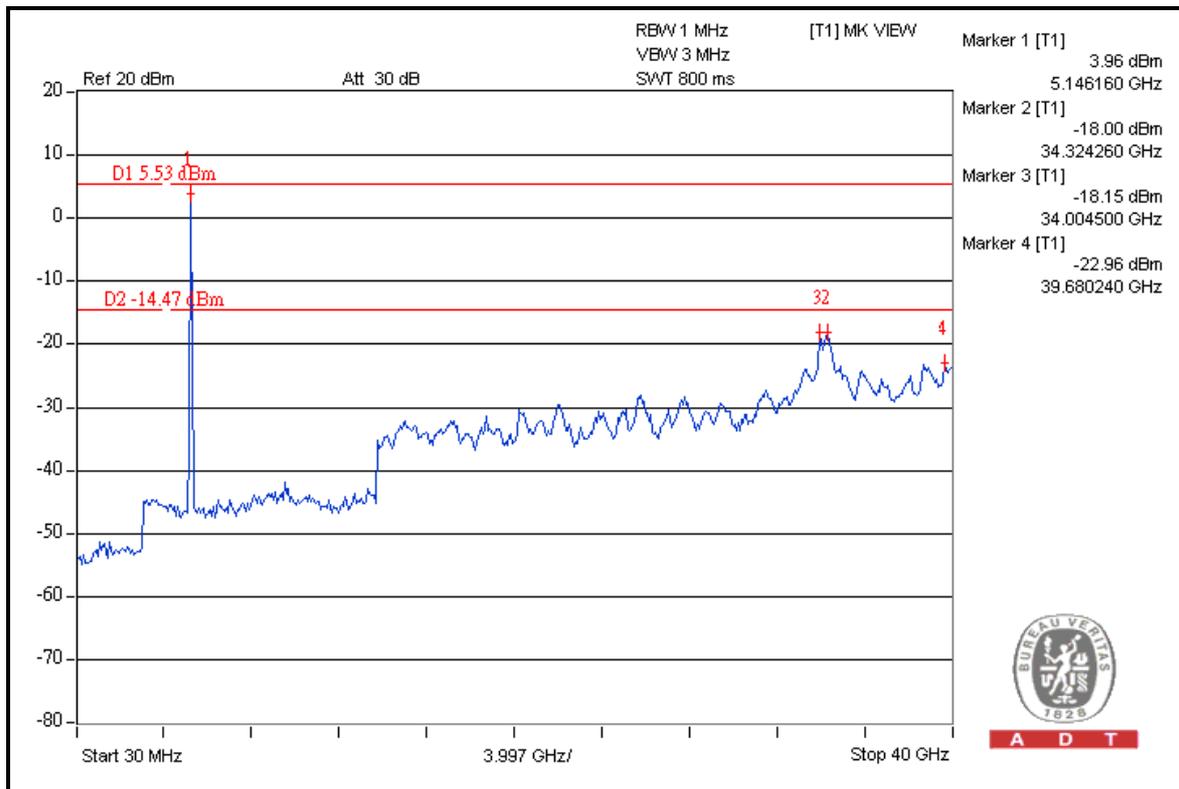
A D T

### CHAIN 1



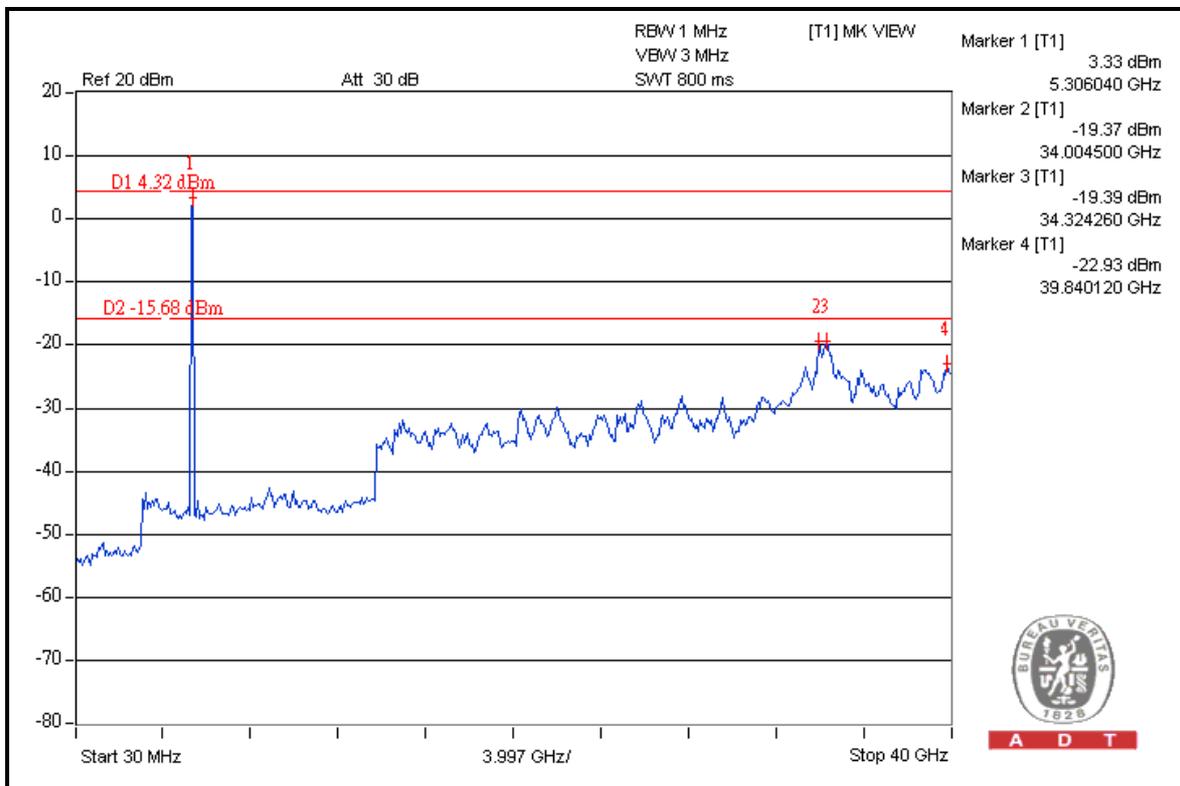
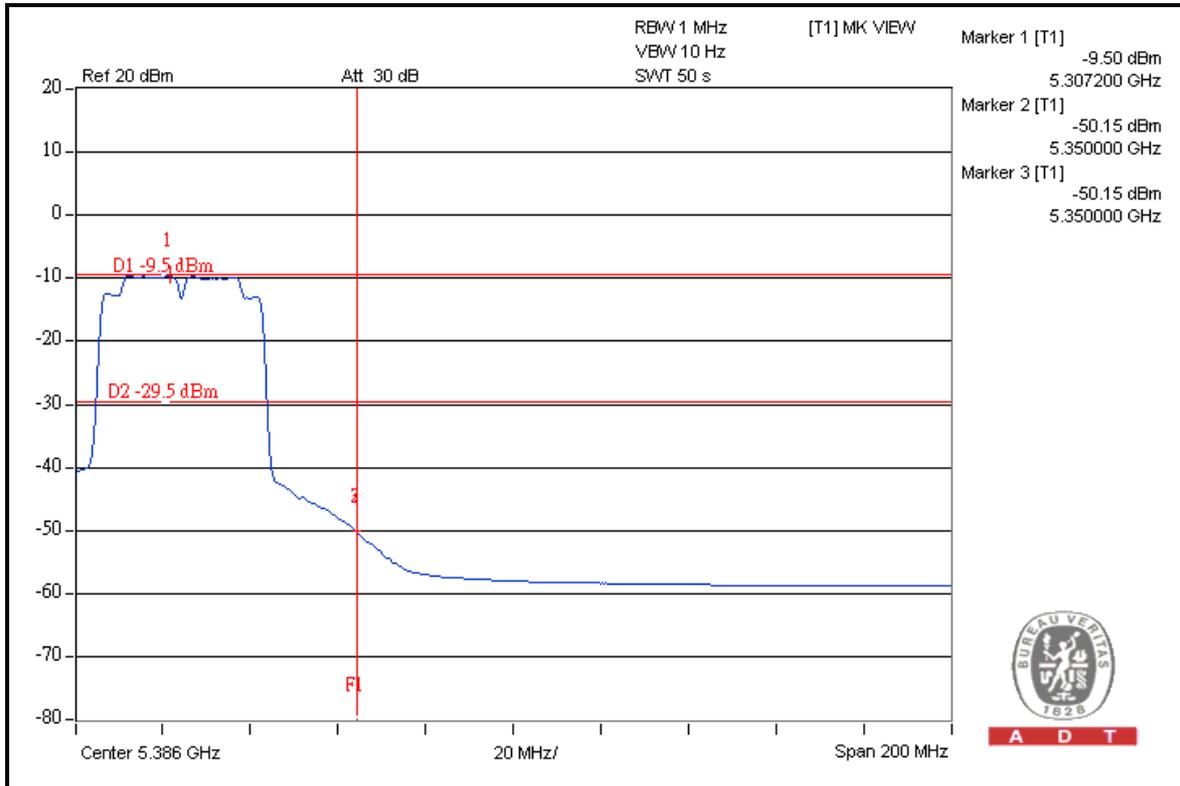


A D T





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)	105.3	39.1	66.2	74.00
5510.00 (AV)	95.4	44.2	51.2	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)	105.3	40.5	64.8	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)	103.0	43.3	59.7	68.30

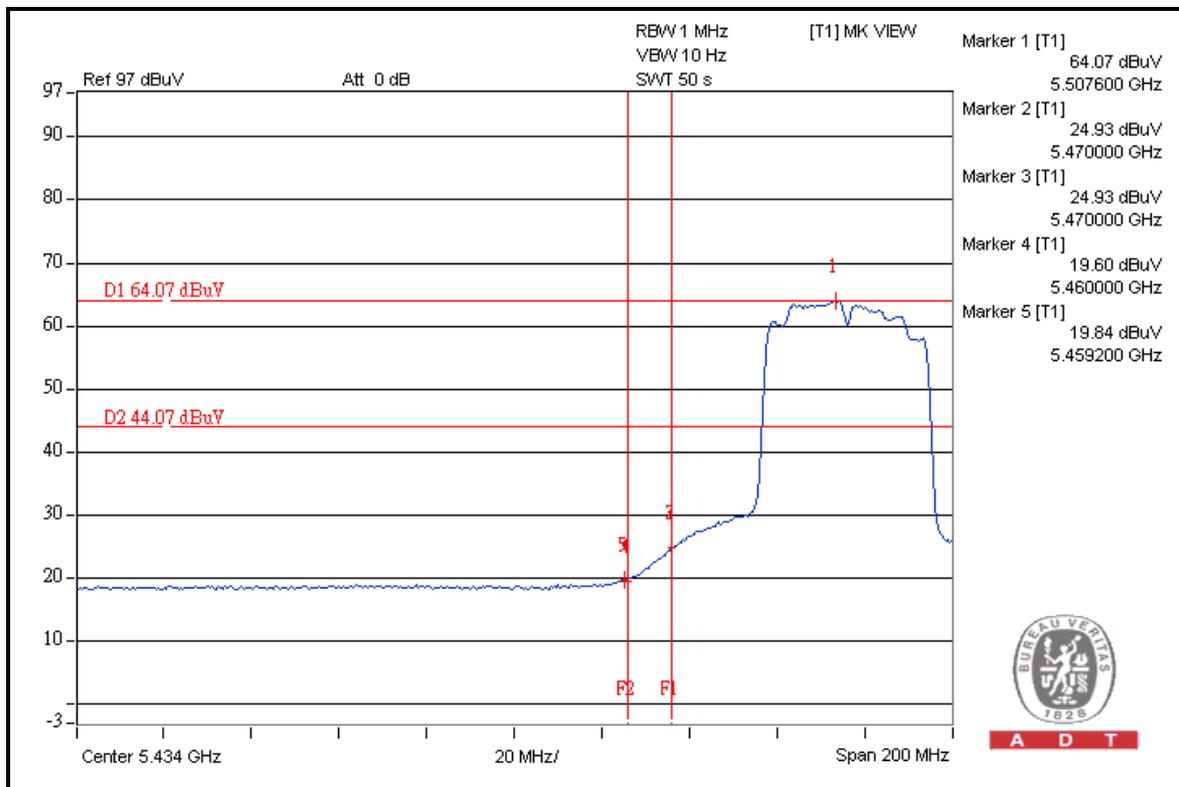
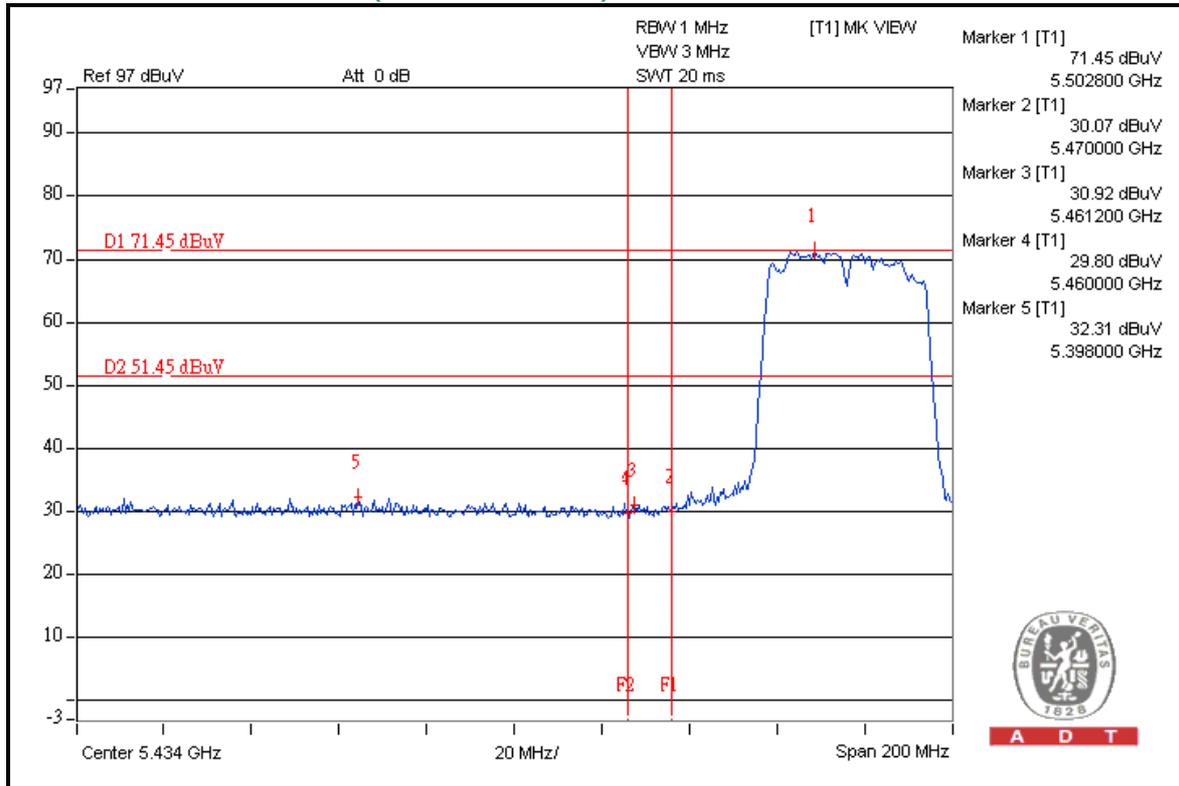
**NOTE:**

- 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.



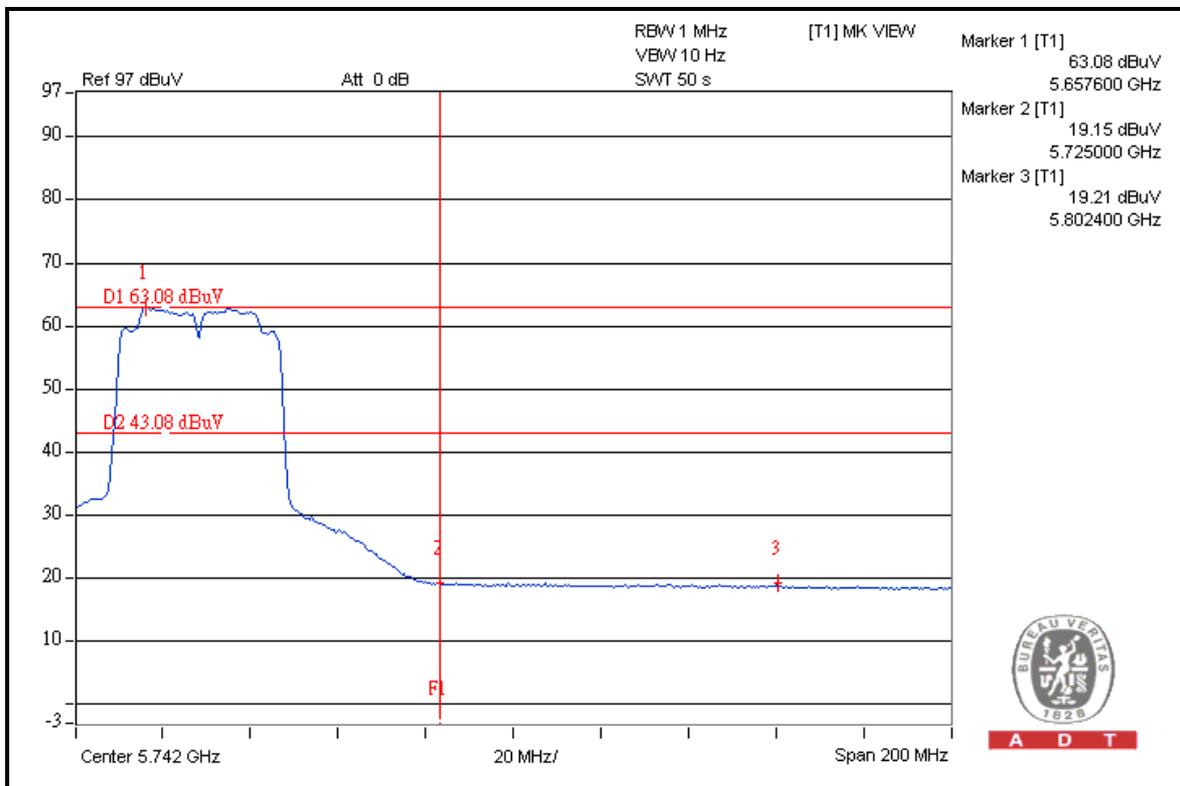
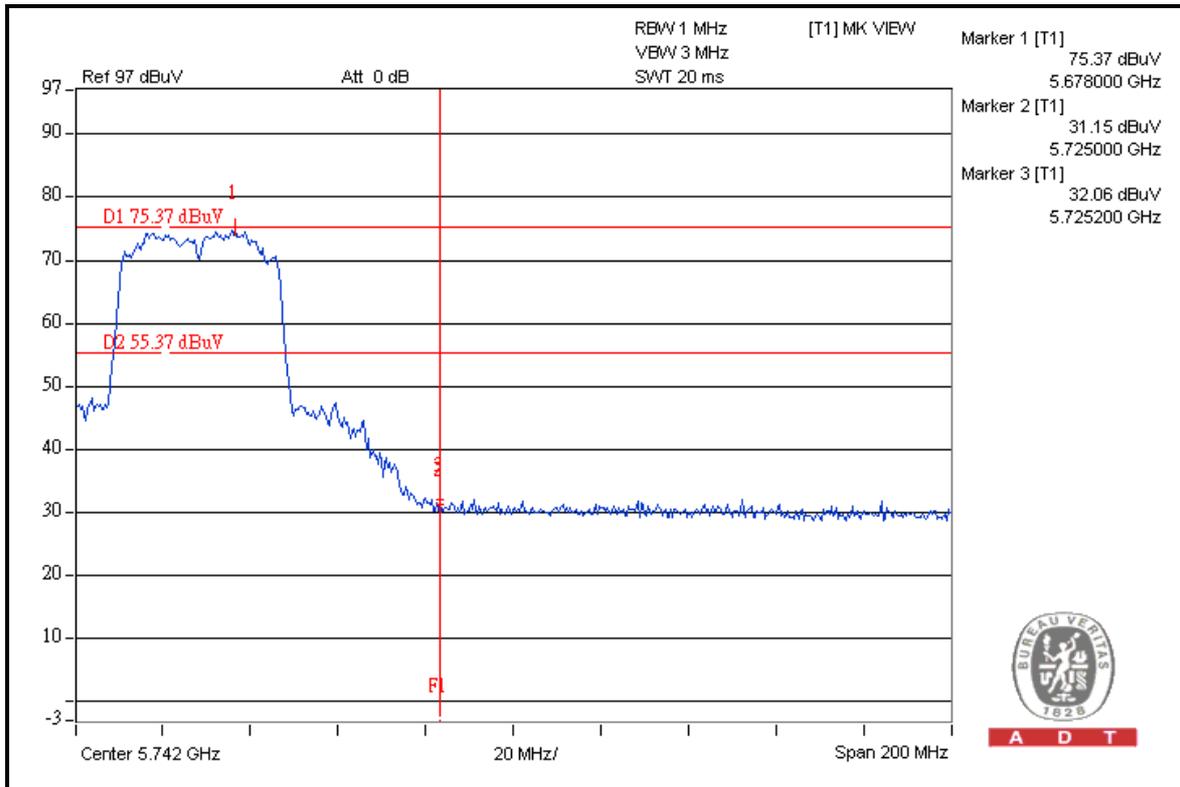
A D T

### FOR RADIATED MEASURED (TWO CHAINS ON)





A D T

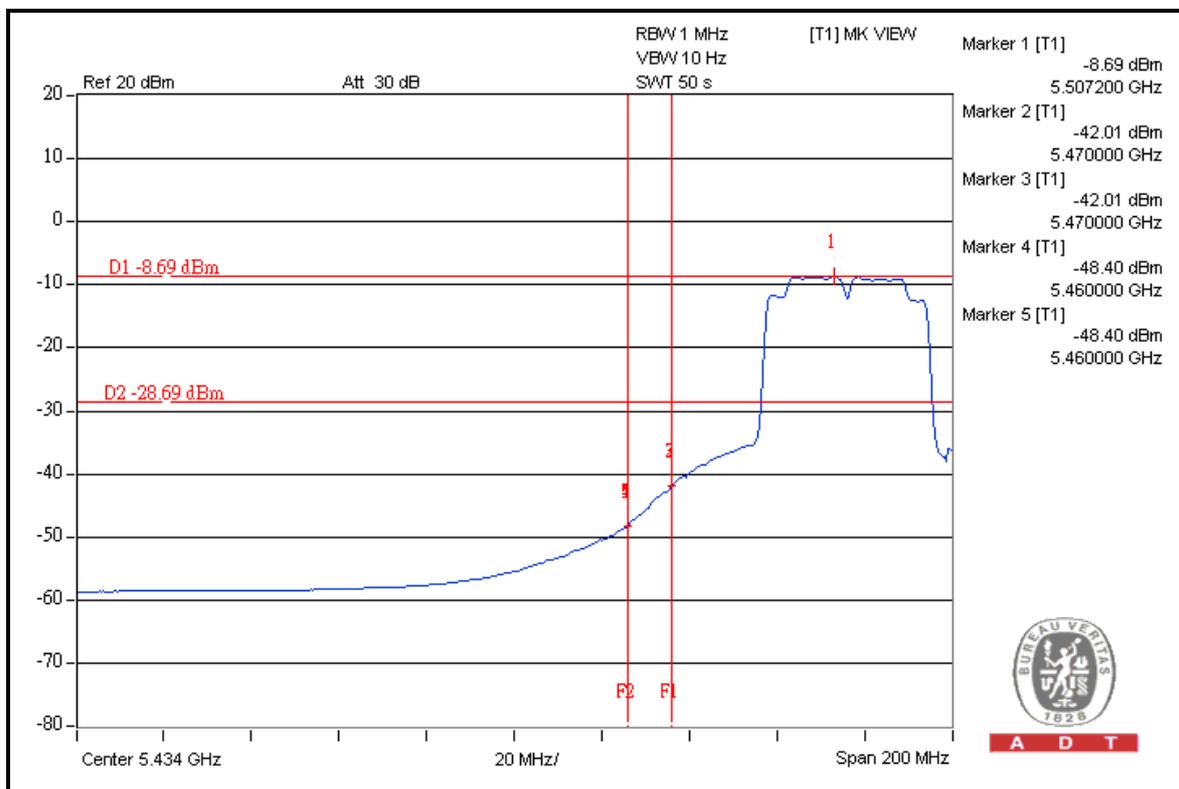
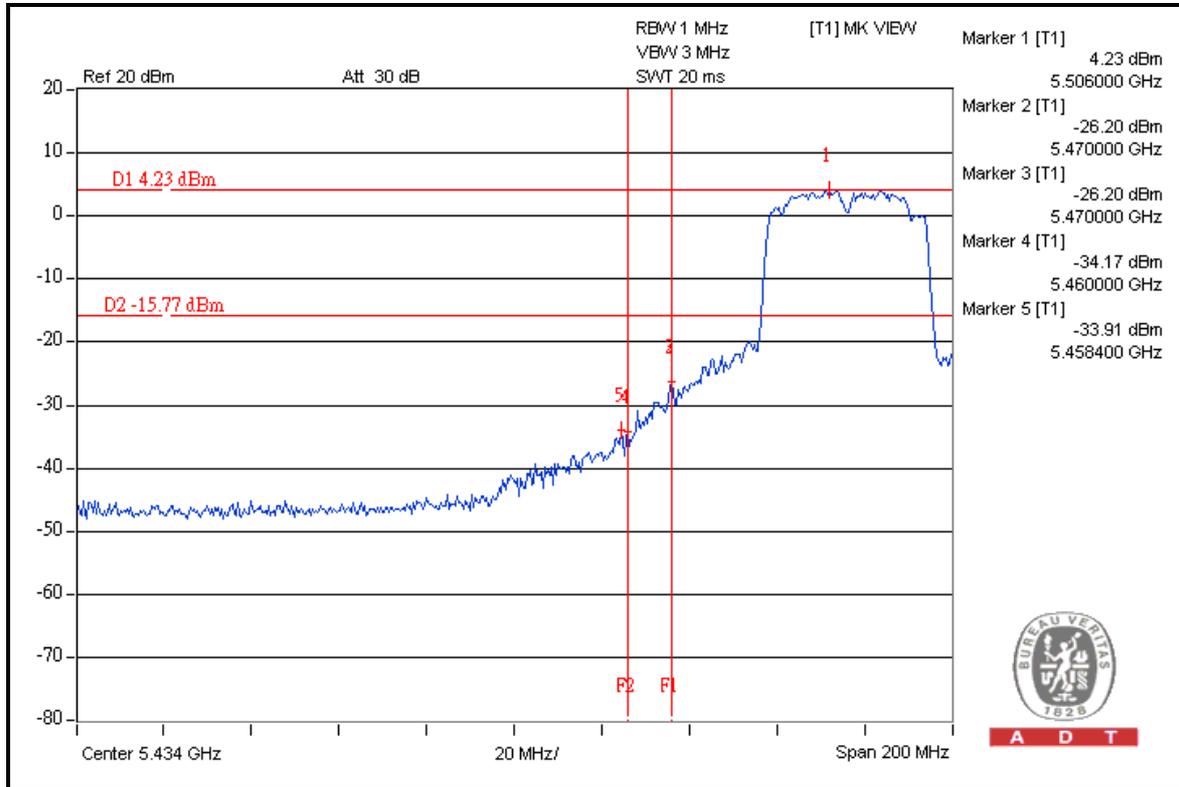




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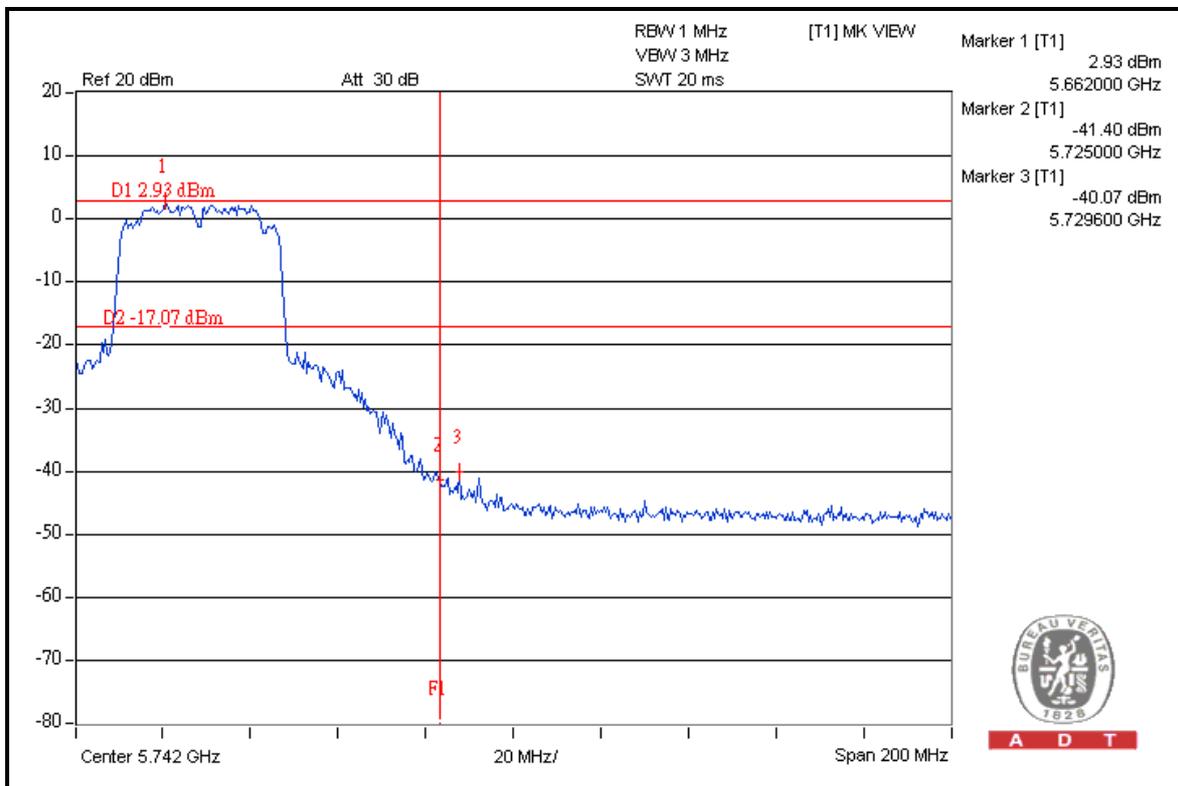
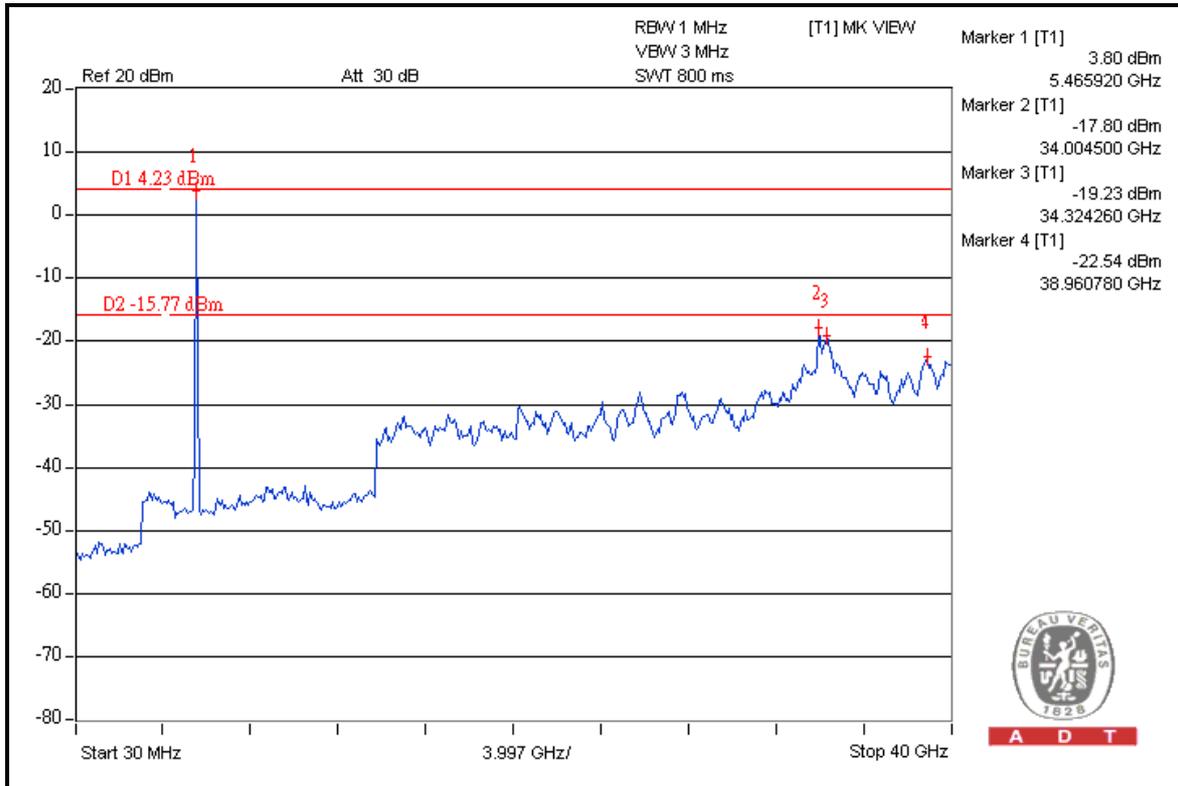
### FOR CONDUCTED MEASURED

### CHAIN 0



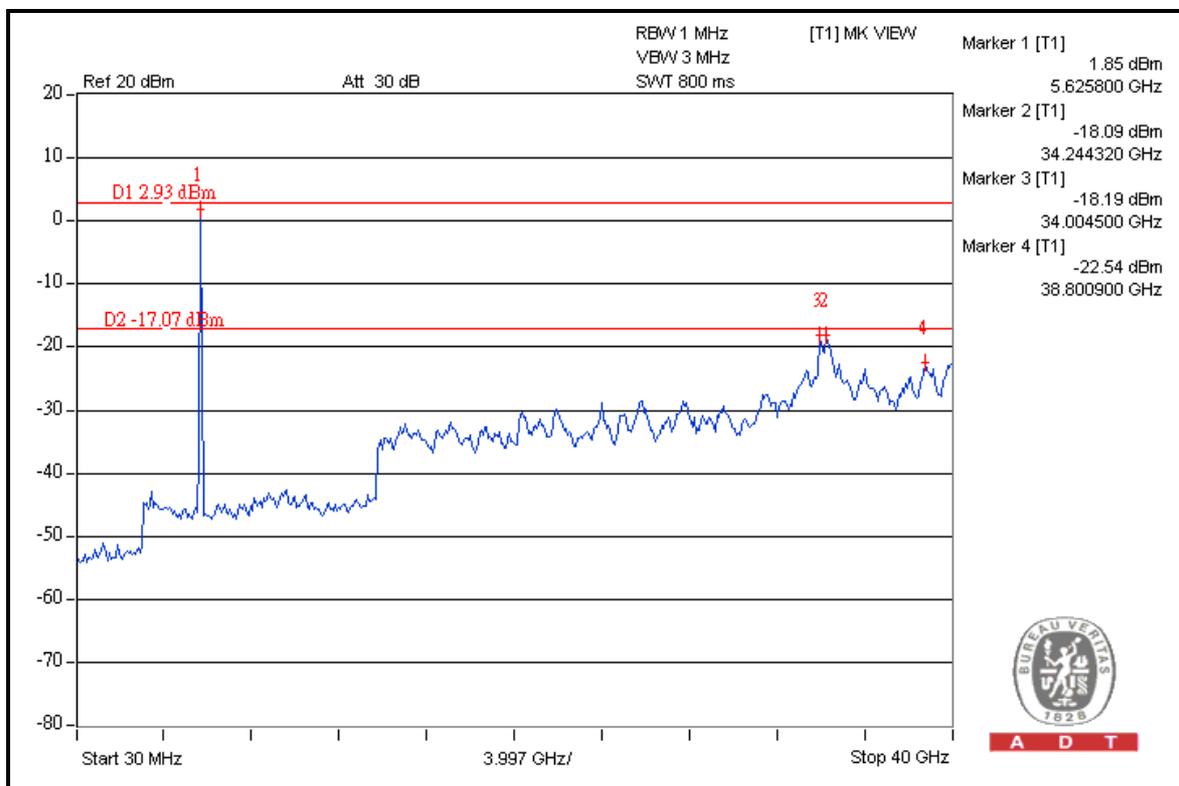
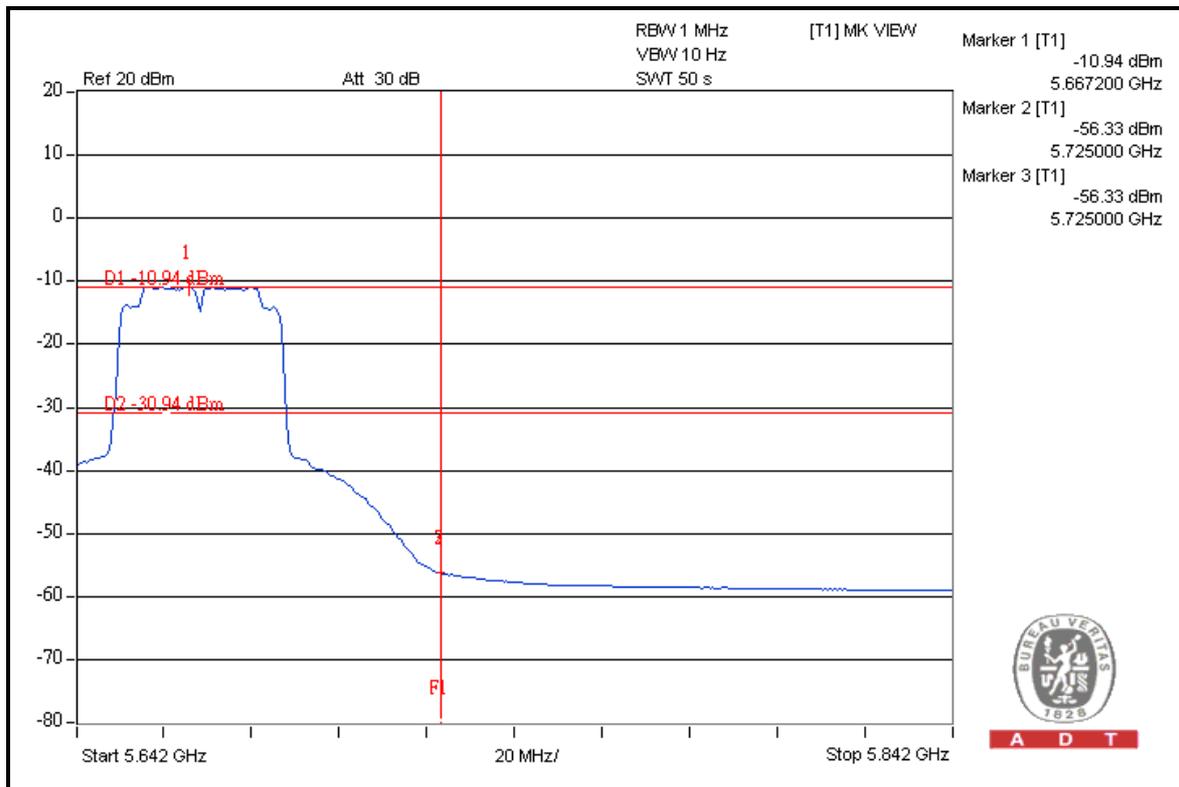


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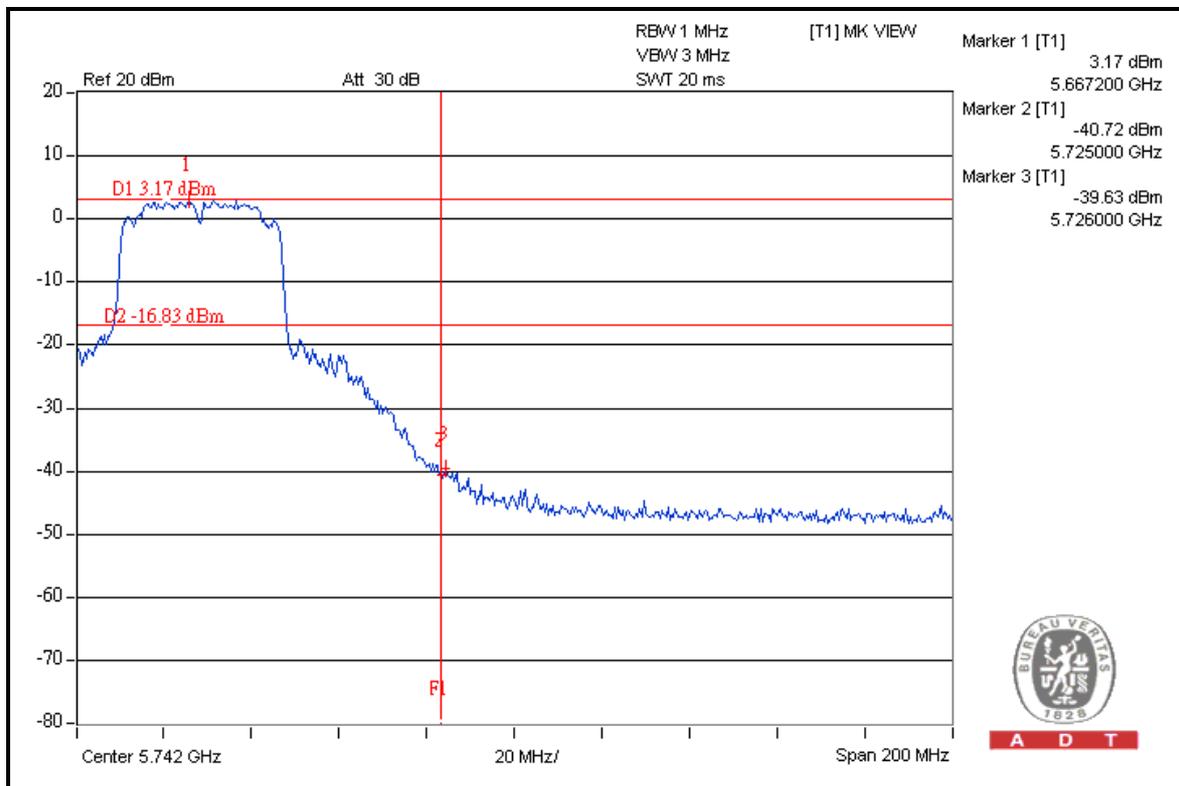
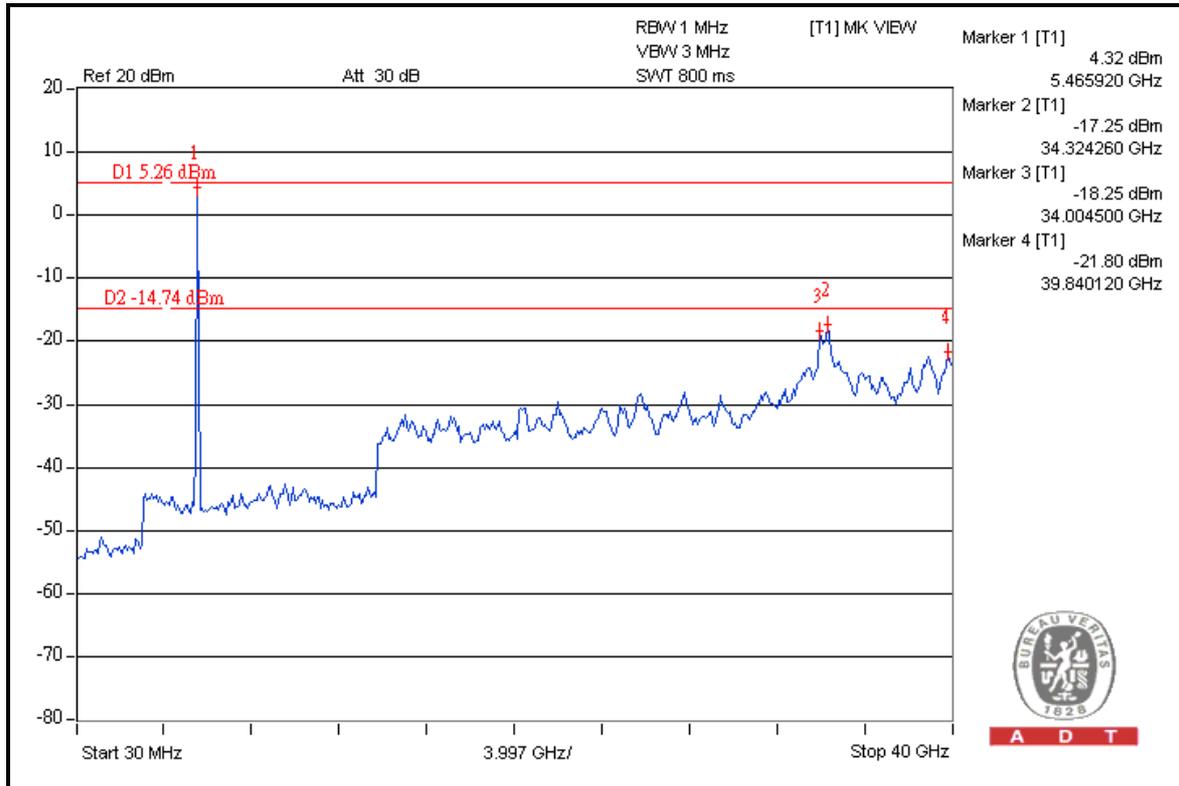
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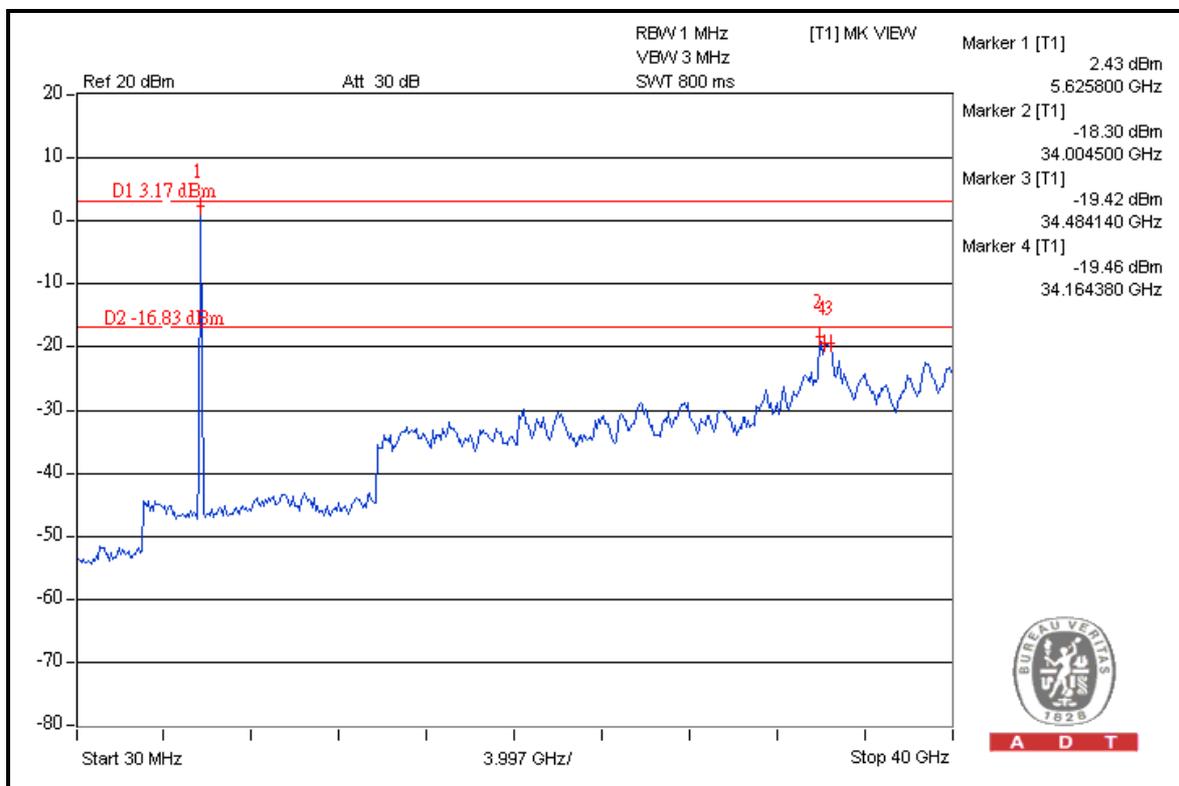
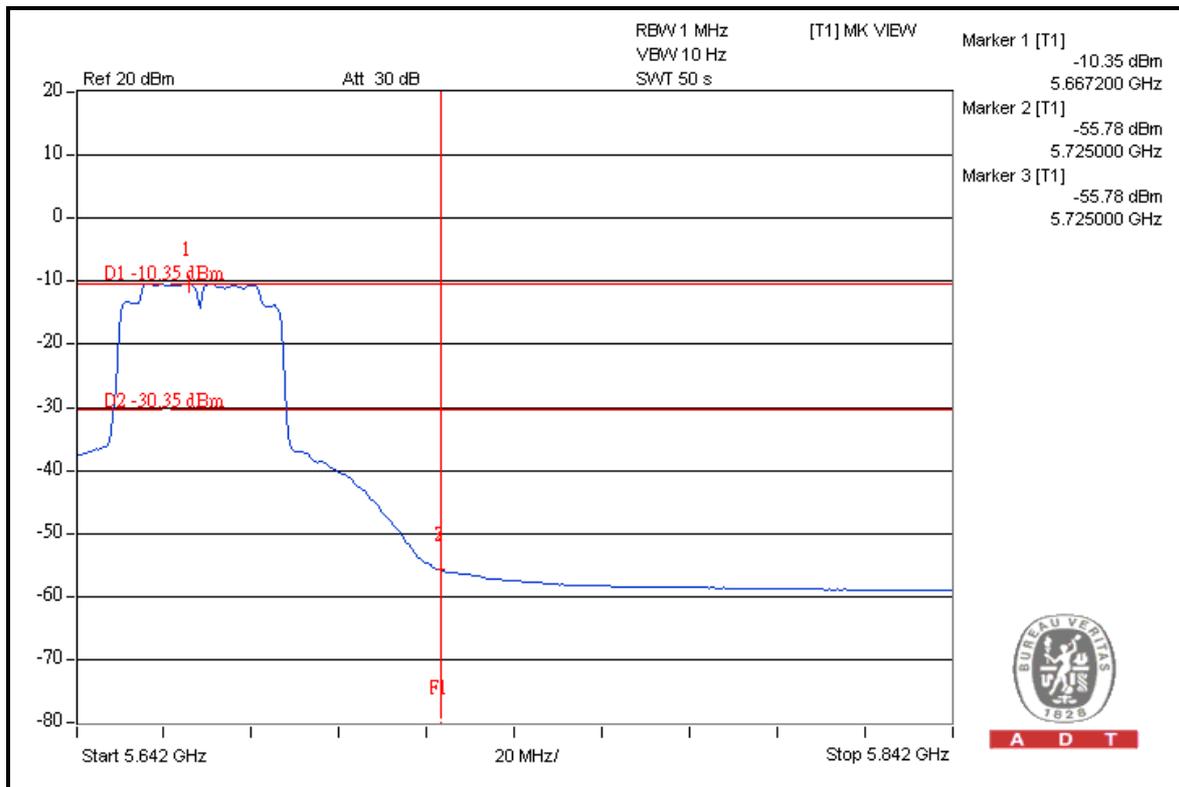


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## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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](http://www.adt.com.tw/index.5/phtml). If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety Telecom Lab:**

Tel: 886-3-3183232

Fax: 886-3-3185050

**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

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.

**---END---**