



FCC TEST REPORT (15.407) (For WLAN)

REPORT NO.: RF110617D07A

MODEL NO.: PCG-4121FL, PCG-4121GL

FCC ID: AK8PCG4121FL

RECEIVED: Jun. 17, 2011

TESTED: Jun. 24 ~ 30, 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

This test report consists of 131 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.



TABLE OF CONTENTS

RELEASE CONTROL RECORD.....	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY.....	6
3. GENERAL INFORMATION.....	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	10
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	11
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	12
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	15
3.4 DESCRIPTION OF SUPPORT UNITS	15
4. TEST TYPES AND RESULTS	16
4.1 CONDUCTED EMISSION MEASUREMENT	16
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	16
4.1.2 TEST INSTRUMENTS	16
4.1.3 TEST PROCEDURES	17
4.1.4 DEVIATION FROM TEST STANDARD	17
4.1.5 TEST SETUP	18
4.1.6 EUT OPERATING CONDITIONS	18
4.1.7 TEST RESULTS.....	19
4.2 RADIATED EMISSION MEASUREMENT	23
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	23
4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	23
4.2.3 TEST INSTRUMENTS	24
4.2.4 TEST PROCEDURES	25
4.2.5 DEVIATION FROM TEST STANDARD	25
4.2.6 TEST SETUP	26
4.2.7 EUT OPERATING CONDITION	26
4.2.8 TEST RESULTS.....	27
4.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT	58
4.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT.....	58
4.3.2 TEST INSTRUMENTS	58
4.3.3 TEST PROCEDURE	59
4.3.4 DEVIATION FROM TEST STANDARD	59
4.3.5 TEST SETUP	59
4.3.6 EUT OPERATING CONDITIONS	59
4.3.7 TEST RESULTS.....	60
4.4 PEAK POWER EXCURSION MEASUREMENT	65
4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT	65
4.4.2 TEST INSTRUMENTS	65
4.4.3 TEST PROCEDURE	65
4.4.4 DEVIATION FROM TEST STANDARD	66
4.4.5 TEST SETUP	66



4.4.6	EUT OPERATING CONDITIONS	66
4.4.7	TEST RESULTS.....	67
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT	73
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	73
4.5.2	TEST INSTRUMENTS	73
4.5.3	TEST PROCEDURES.....	73
4.5.4	DEVIATION FROM TEST STANDARD	74
4.5.5	TEST SETUP	74
4.5.6	EUT OPERATING CONDITIONS	74
4.5.7	TEST RESULTS.....	75
4.6	FREQUENCY STABILITY	80
4.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	80
4.6.2	TEST INSTRUMENTS	80
4.6.3	TEST PROCEDURE	80
4.6.4	DEVIATION FROM TEST STANDARD	81
4.6.5	TEST SETUP	81
4.6.6	EUT OPERATING CONDITION	81
4.6.7	TEST RESULTS.....	82
4.7	BAND EDGES MEASUREMENT	83
4.7.1	TEST INSTRUMENTS	83
4.7.2	TEST PROCEDURE	84
4.7.3	EUT OPERATING CONDITION	84
4.7.4	TEST RESULTS.....	85
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	129
6.	INFORMATION ON THE TESTING LABORATORIES	130
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	131



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110617D07A	Original release	Jul. 22, 2011



1. CERTIFICATION

PRODUCT: Personal Computer

BRAND NAME: SONY

MODEL: PCG-4121FL, PCG-4121GL

APPLICANT: SONY Corporation

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Jun. 24 ~ 30, 2011

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

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: PCG-4121FL) 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 -0.4dB 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

EUT	Personal Computer
MODEL NO.	PCG-4121FL, PCG-4121GL
FCC ID	AK8PCG4121FL
NOMINAL VOLTAGE	19.5Vdc from AC adapter or 11.1Vdc from battery
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	5180 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5320MHz: 8 for 802.11a, 802.11n (20MHz) 4 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
OUTPUT POWER	33.9mW for 5180 ~ 5240MHz 31.6mW for 5260 ~ 5320MHz 27.5mW for 5500 ~ 5700MHz
ANTENNA TYPE	Refer to note below
ANTENNA CONNECTOR	Refer to note below
I/O PORTS	Refer to User's manual
DATA CABLE	NA
ACCESSORY DEVICES	Refer to note below

NOTE:

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

Function	Test Standard	Reference Report	
WLAN IEEE802.11abgn Mini-PCI Card+ Bluetooth module (Brand: Intel, Model: 62230ANHMW)	WLAN 802.11an (5180~5320MHz, 5500~5700MHz)	RF110617D07A	
	WLAN 802.11a (For DFS report) (5260~5320MHz, 5500~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF110617D07A-3
	WLAN 802.11an (5745~5825 MHz)	FCC Part 15, Subpart C (Section 15.247)	RF110617D07A-1
	WLAN 802.11bgn	FCC Part 15, Subpart C (Section 15.247)	RF110617D07A-2
	Bluetooth	FCC Part 15, Subpart C (Section 15.247)	RF110617D07A-2
	CO-Located Report	FCC Part 15, Subpart C (Section 15.247) FCC Part 15, Subpart E (Section 15.407)	RF110617D07A-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-4121FL	Without
	PCG-4121GL	With

During the test, the **model no.: PCG-4121FL** 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	1.74	1.38	1.48

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):

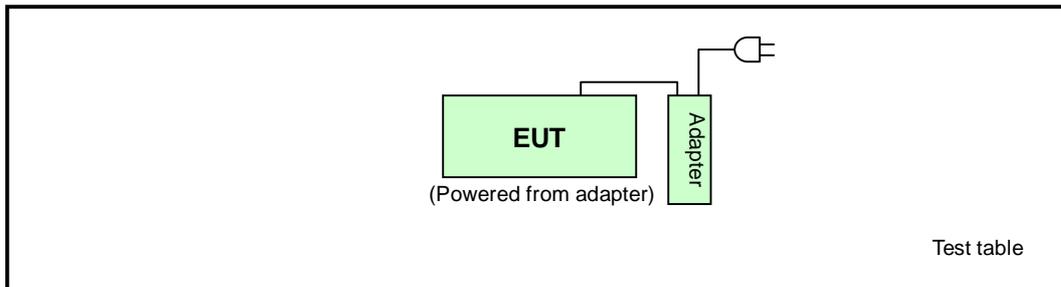
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

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

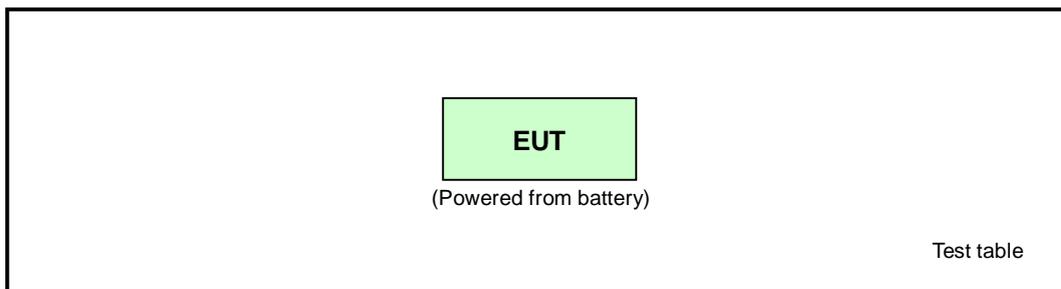
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	134	5670 MHz
110	5550 MHz		

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 [≥] 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT powered from adapter
B	-	√	Note 1	-	EUT powered from battery

Where **RE[≥]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 ³ 1G	A	21deg. C, 74%RH, 997hPa	120Vac, 60Hz	Nick Chen
RE <1G	A	21deg. C, 74%RH, 1003hPa	120Vac, 60Hz	Nick Chen
	B	21deg. C, 74%RH, 1003hPa	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 μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100276	Dec. 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.

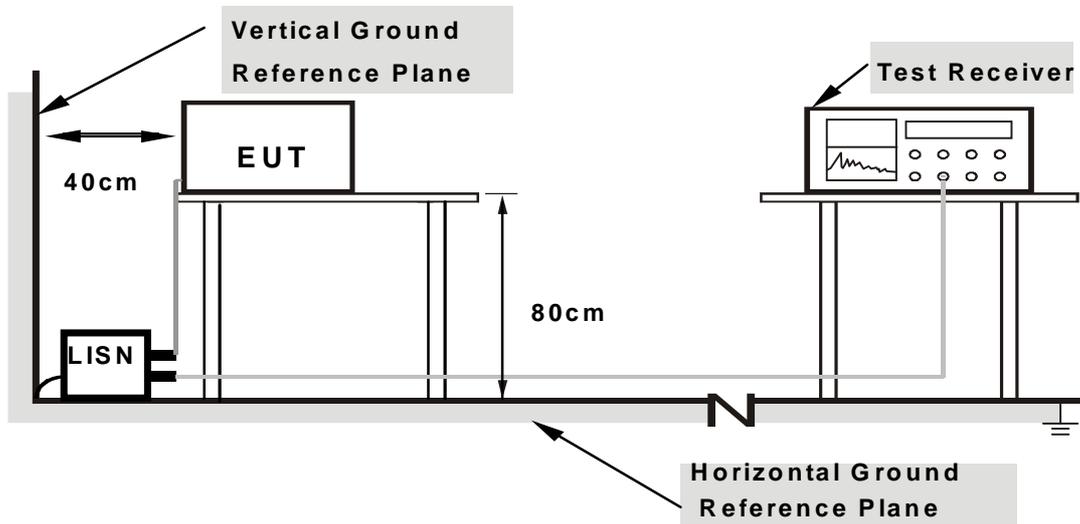
4.1.3 TEST PROCEDURES

- 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.

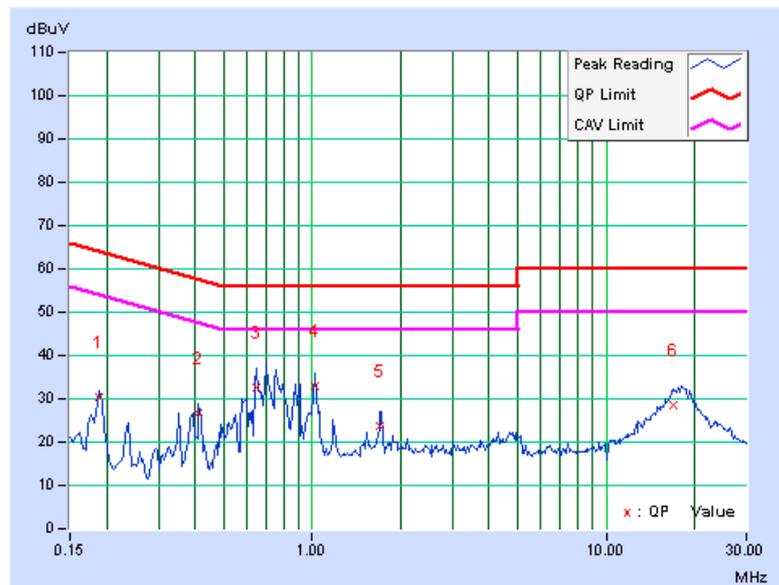
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11a

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	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.



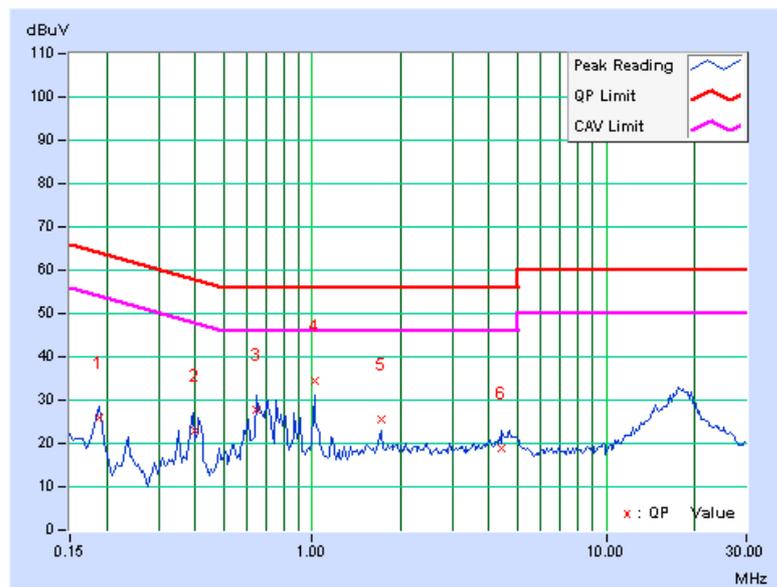


A D T

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	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	-
4	1.022	0.28	34.13	-	34.41	-	56.00	46.00	-21.59	-
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.



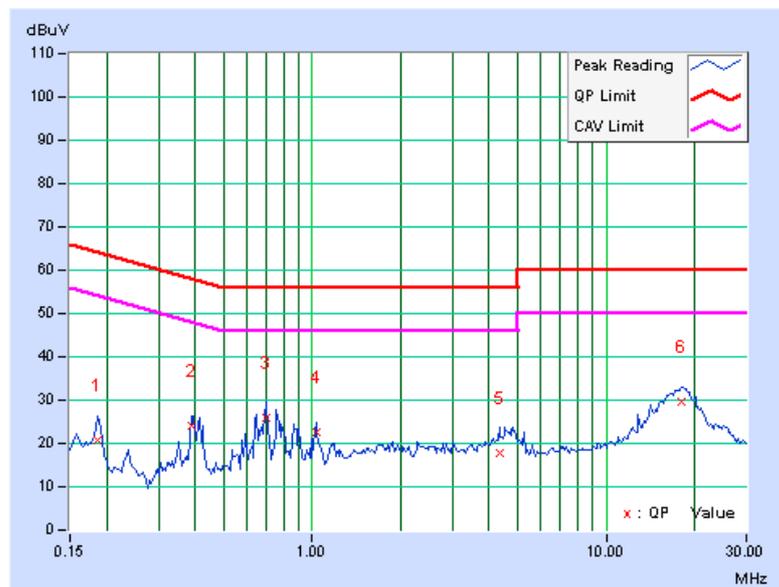


A D T

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.185	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.



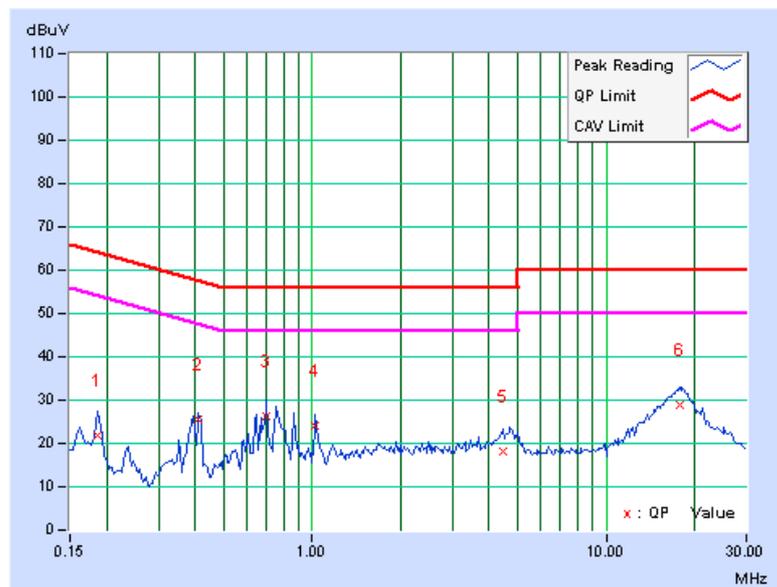


A D T

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.186	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.

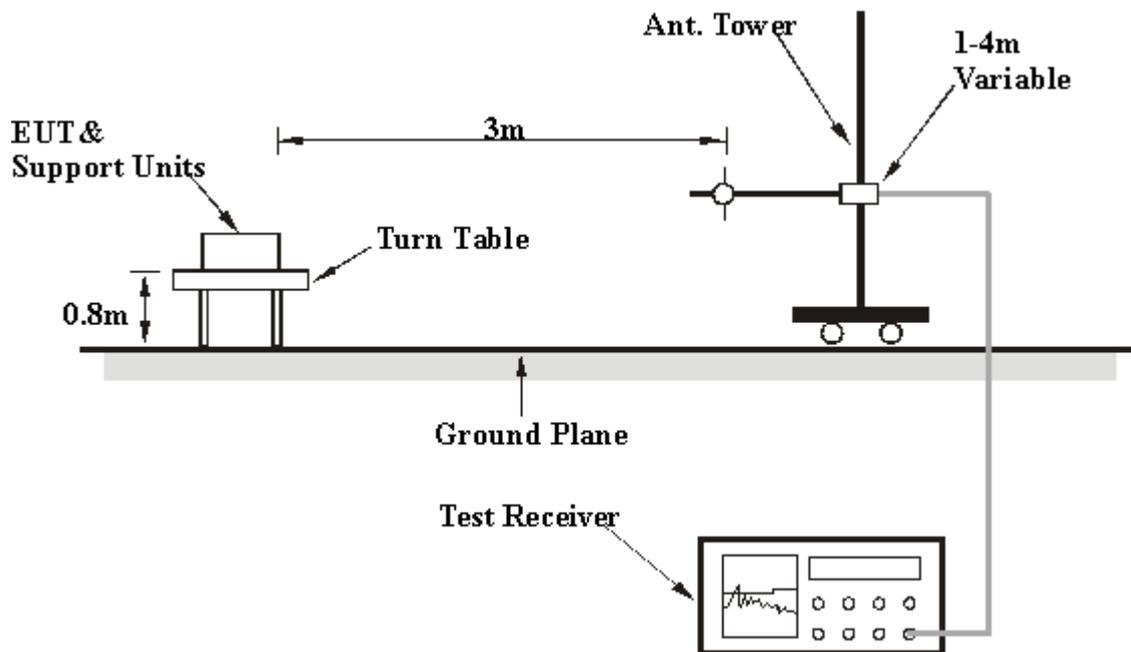
NOTE:

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 997 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	67.9 PK	74.0	-6.1	1.00 H	304	28.62	39.27
2	5150.00	50.8 AV	54.0	-3.2	1.00 H	304	11.50	39.27
3	*5180.00	108.8 PK			1.00 H	304	69.50	39.31
4	*5180.00	98.8 AV			1.00 H	304	59.53	39.31
5	#10360.00	60.8 PK	68.3	-7.6	1.02 H	294	11.39	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	59.4 PK	74.0	-14.6	1.39 V	300	20.10	39.27
2	5150.00	45.9 AV	54.0	-8.1	1.39 V	300	6.64	39.27
3	*5180.00	104.1 PK			1.39 V	300	64.79	39.31
4	*5180.00	95.1 AV			1.39 V	300	55.82	39.31
5	#10360.00	60.2 PK	68.3	-8.1	1.00 V	31	10.85	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 997 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	108.3 PK			1.00 H	305	68.95	39.33
2	*5200.00	98.9 AV			1.00 H	305	59.55	39.33
3	#10400.00	60.5 PK	68.3	-7.8	1.08 H	281	11.13	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	106.3 PK			1.38 V	306	67.00	39.33
2	*5200.00	97.5 AV			1.38 V	306	58.12	39.33
3	#10400.00	60.4 PK	68.3	-7.9	1.00 V	54	11.01	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 997 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	109.2 PK			1.00 H	304	69.77	39.38
2	*5240.00	99.6 AV			1.00 H	304	60.23	39.38
3	5350.00	46.5 PK	74.0	-27.5	1.00 H	304	7.01	39.52
4	5350.00	35.4 AV	54.0	-18.6	1.00 H	304	-4.14	39.52
5	#10480.00	60.2 PK	68.3	-8.1	1.00 H	281	10.75	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	107.3 PK			1.38 V	303	67.89	39.38
2	*5240.00	97.6 AV			1.38 V	303	58.22	39.38
3	5350.00	46.9 PK	74.0	-27.1	1.38 V	303	7.36	39.52
4	5350.00	35.9 AV	54.0	-18.1	1.38 V	303	-3.61	39.52
5	#10480.00	60.0 PK	68.3	-8.3	1.00 V	69	10.55	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 997 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	46.6 PK	74.0	-27.5	1.04 H	302	7.28	39.27
2	5150.00	35.7 AV	54.0	-18.3	1.04 H	302	-3.56	39.27
3	*5260.00	108.9 PK			1.04 H	302	69.48	39.41
4	*5260.00	99.5 AV			1.04 H	302	60.12	39.41
5	#10520.00	60.6 PK	68.3	-7.7	1.12 H	281	11.07	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	46.9 PK	74.0	-27.1	1.35 V	305	7.61	39.27
2	5150.00	35.9 AV	54.0	-18.1	1.35 V	305	-3.34	39.27
3	*5260.00	106.1 PK			1.35 V	305	66.67	39.41
4	*5260.00	97.5 AV			1.35 V	305	58.04	39.41
5	#10520.00	60.6 PK	68.3	-7.8	1.00 V	82	11.00	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 997 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	108.8 PK			1.05 H	303	69.38	39.46
2	*5300.00	100.5 AV			1.05 H	303	61.00	39.46
3	10600.00	60.4 PK	74.0	-13.6	1.00 H	272	10.68	49.70
4	10600.00	53.2 AV	54.0	-0.8	1.00 H	272	3.52	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	107.4 PK			1.36 V	306	67.89	39.46
2	*5300.00	98.5 AV			1.36 V	306	59.05	39.46
3	10600.00	60.5 PK	74.0	-13.5	1.00 V	55	10.83	49.70
4	10600.00	52.4 AV	54.0	-1.6	1.00 V	55	2.66	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.



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 997 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	108.2 PK			1.04 H	306	68.70	39.48
2	*5320.00	99.7 AV			1.04 H	306	60.18	39.48
3	5350.00	63.8 PK	74.0	-10.2	1.04 H	306	24.27	39.52
4	5350.00	43.7 AV	54.0	-10.3	1.04 H	306	4.21	39.52
5	10640.00	60.4 PK	74.0	-13.6	1.09 H	280	10.63	49.74
6	10640.00	53.6 AV	54.0	-0.4	1.09 H	280	3.87	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	107.5 PK			1.37 V	269	68.04	39.48
2	*5320.00	98.6 AV			1.37 V	269	59.08	39.48
3	5350.00	59.9 PK	74.0	-14.1	1.37 V	269	20.39	39.52
4	5350.00	41.8 AV	54.0	-12.2	1.37 V	269	2.27	39.52
5	10640.00	60.3 PK	74.0	-13.7	1.00 V	91	10.60	49.74
6	10640.00	53.6 AV	54.0	-0.5	1.00 V	91	3.81	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 997 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	57.6 PK	74.0	-16.4	1.00 H	304	17.84	39.76
2	5460.00	40.3 AV	54.0	-13.7	1.00 H	304	0.51	39.76
3	#5470.00	63.9 PK	68.3	-4.4	1.00 H	304	24.10	39.79
4	*5500.00	106.7 PK			1.00 H	304	66.86	39.88
5	*5500.00	95.0 AV			1.00 H	304	55.11	39.88
6	11000.00	60.5 PK	74.0	-13.5	1.00 H	288	10.15	50.37
7	11000.00	52.8 AV	54.0	-1.2	1.00 H	288	2.47	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	50.8 PK	74.0	-23.2	1.30 V	315	11.07	39.76
2	5460.00	39.1 AV	54.0	-14.9	1.30 V	315	-0.69	39.76
3	#5470.00	58.8 PK	68.3	-9.5	1.30 V	315	18.99	39.79
4	*5500.00	105.0 PK			1.30 V	315	65.09	39.88
5	*5500.00	96.4 AV			1.30 V	315	56.52	39.88
6	11000.00	60.1 PK	74.0	-13.9	1.00 V	56	9.71	50.37
7	11000.00	50.8 AV	54.0	-3.2	1.00 V	56	0.46	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 997 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	109.3 PK			1.00 H	304	69.24	40.01
2	*5580.00	99.4 AV			1.00 H	304	59.37	40.01
3	11160.00	60.2 PK	74.0	-13.8	1.00 H	290	9.90	50.26
4	11160.00	51.6 AV	54.0	-2.4	1.00 H	290	1.31	50.26
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	108.1 PK			1.30 V	280	68.13	40.01
2	*5580.00	98.7 AV			1.30 V	280	58.66	40.01
3	11160.00	60.2 PK	74.0	-13.8	1.06 V	101	9.91	50.26
4	11160.00	51.3 AV	54.0	-2.7	1.06 V	101	1.01	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.



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 997 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	108.7 PK			1.00 H	298	68.59	40.12
2	*5660.00	98.9 AV			1.00 H	298	58.81	40.12
3	11320.00	60.3 PK	74.0	-13.7	1.06 H	283	10.01	50.30
4	11320.00	51.9 AV	54.0	-2.1	1.06 H	283	1.62	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	108.7 PK			1.34 V	296	68.62	40.12
2	*5660.00	98.9 AV			1.34 V	296	58.79	40.12
3	11320.00	60.1 PK	74.0	-13.9	1.01 V	69	9.78	50.30
4	11320.00	51.8 AV	54.0	-2.2	1.01 V	69	1.53	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 997 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	105.2 PK			1.00 H	301	66.31	40.17
2	*5700.00	96.9 AV			1.00 H	301	56.73	40.17
3	#5725.00	67.6 PK	68.3	-0.7	1.00 H	301	27.36	40.21
4	11400.00	60.0 PK	74.0	-14.0	1.02 H	198	9.77	50.26
5	11400.00	51.8 AV	54.0	-2.2	1.02 H	198	1.57	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	66.33	40.17
2	*5700.00	95.9 AV			1.33 V	303	57.24	40.17
3	#5725.00	67.1 PK	68.3	-1.2	1.33 V	303	28.09	40.21
4	11400.00	60.9 PK	74.0	-13.1	1.00 V	51	10.62	50.26
5	11400.00	52.0 AV	54.0	-2.0	1.00 V	51	1.71	50.26

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

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 997 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	57.9 PK	74.0	-16.1	1.35 H	352	18.64	39.27
2	5150.00	46.6 AV	54.0	-7.4	1.35 H	352	7.35	39.27
3	*5180.00	106.9 PK			1.35 H	352	67.55	39.31
4	*5180.00	96.2 AV			1.35 H	352	56.90	39.31
5	#10360.00	61.1 PK	68.3	-7.2	1.29 H	311	11.71	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	58.1 PK	74.0	-16.0	1.04 V	300	18.78	39.27
2	5150.00	44.1 AV	54.0	-10.0	1.04 V	300	4.78	39.27
3	*5180.00	106.0 PK			1.04 V	300	66.64	39.31
4	*5180.00	95.4 AV			1.04 V	300	56.04	39.31
5	#10360.00	61.3 PK	68.3	-7.0	1.19 V	308	11.93	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 997 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	107.3 PK			1.47 H	302	67.93	39.33
2	*5200.00	96.0 AV			1.47 H	302	56.63	39.33
3	#10400.00	61.5 PK	68.3	-6.8	1.28 H	301	12.13	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	105.5 PK			1.38 V	305	66.18	39.33
2	*5200.00	94.7 AV			1.38 V	305	55.39	39.33
3	#10400.00	61.3 PK	68.3	-7.0	1.28 V	274	11.89	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 997 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	108.2 PK			1.46 H	306	68.79	39.38
2	*5240.00	96.5 AV			1.46 H	306	57.13	39.38
3	5350.00	46.9 PK	74.0	-27.1	1.46 H	306	7.41	39.52
4	5350.00	35.5 AV	54.0	-18.5	1.46 H	306	-4.03	39.52
5	#10480.00	61.7 PK	68.3	-6.6	1.40 H	305	12.24	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	105.6 PK			1.35 V	303	66.20	39.38
2	*5240.00	95.4 AV			1.35 V	303	55.97	39.38
3	5350.00	47.0 PK	74.0	-27.0	1.35 V	303	7.45	39.52
4	5350.00	35.9 AV	54.0	-18.1	1.35 V	303	-3.64	39.52
5	#10480.00	61.9 PK	68.3	-6.4	1.24 V	259	12.40	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 997 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	46.7 PK	74.0	-27.3	1.44 H	304	7.45	39.27
2	5150.00	35.5 AV	54.0	-18.5	1.44 H	304	-3.79	39.27
3	*5260.00	106.8 PK			1.44 H	304	67.42	39.41
4	*5260.00	96.1 AV			1.44 H	304	56.73	39.41
5	#10520.00	61.2 PK	68.3	-7.1	1.09 H	276	11.69	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	46.8 PK	74.0	-27.2	1.35 V	305	7.54	39.27
2	5150.00	35.7 AV	54.0	-18.3	1.35 V	305	-3.56	39.27
3	*5260.00	105.0 PK			1.35 V	305	65.54	39.41
4	*5260.00	94.7 AV			1.35 V	305	55.28	39.41
5	#10520.00	61.1 PK	68.3	-7.2	1.32 V	297	11.55	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 997 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	106.7 PK			1.42 H	307	67.23	39.46
2	*5300.00	96.0 AV			1.42 H	307	56.56	39.46
3	10600.00	61.0 PK	74.0	-13.0	1.31 H	329	11.28	49.70
4	10600.00	51.1 AV	54.0	-2.9	1.31 H	329	1.42	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	105.2 PK			1.36 V	263	65.71	39.46
2	*5300.00	95.1 AV			1.36 V	263	55.65	39.46
3	10600.00	61.8 PK	74.0	-12.2	1.27 V	271	12.12	49.70
4	10600.00	51.8 AV	54.0	-2.2	1.27 V	271	2.07	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 997 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	108.6 PK			1.43 H	309	69.08	39.48
2	*5320.00	97.6 AV			1.43 H	309	58.09	39.48
3	5350.00	50.4 PK	74.0	-23.6	1.43 H	309	10.90	39.52
4	5350.00	39.8 AV	54.0	-14.2	1.43 H	309	0.32	39.52
5	10640.00	61.9 PK	74.0	-12.1	1.36 H	271	12.14	49.74
6	10640.00	51.7 AV	54.0	-2.3	1.36 H	271	1.93	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	107.4 PK			1.29 V	279	67.92	39.48
2	*5320.00	96.3 AV			1.29 V	279	56.77	39.48
3	5350.00	49.0 PK	74.0	-25.0	1.29 V	279	9.46	39.52
4	5350.00	39.2 AV	54.0	-14.8	1.29 V	279	-0.36	39.52
5	10640.00	61.1 PK	74.0	-12.9	1.22 V	289	11.34	49.74
6	10640.00	51.2 AV	54.0	-2.8	1.22 V	289	1.45	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 997 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	51.1 PK	74.0	-23.0	1.00 H	310	11.29	39.76
2	5460.00	38.2 AV	54.0	-15.8	1.00 H	310	-1.56	39.76
3	#5470.00	56.2 PK	68.3	-12.1	1.00 H	310	16.41	39.79
4	*5500.00	106.2 PK			1.00 H	310	66.30	39.88
5	*5500.00	95.8 AV			1.00 H	310	55.88	39.88
6	11000.00	61.6 PK	74.0	-12.4	1.06 H	276	11.22	50.37
7	11000.00	51.3 AV	54.0	-2.7	1.06 H	276	0.97	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	47.5 PK	74.0	-26.6	1.00 V	215	7.69	39.76
2	5460.00	36.8 AV	54.0	-17.2	1.00 V	215	-2.93	39.76
3	#5470.00	51.2 PK	68.3	-17.1	1.00 V	215	11.37	39.79
4	*5500.00	105.5 PK			1.00 V	215	65.64	39.88
5	*5500.00	96.2 AV			1.00 V	215	56.30	39.88
6	11000.00	61.2 PK	74.0	-12.8	1.08 V	266	10.87	50.37
7	11000.00	51.1 AV	54.0	-2.9	1.08 V	266	0.72	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 997 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	107.6 PK			1.44 H	298	67.54	40.01
2	*5580.00	96.6 AV			1.44 H	298	56.63	40.01
3	11160.00	61.4 PK	74.0	-12.6	1.31 H	299	11.18	50.26
4	11160.00	51.9 AV	54.0	-2.1	1.31 H	299	1.61	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	107.1 PK			1.31 V	292	67.11	40.01
2	*5580.00	96.8 AV			1.31 V	292	56.77	40.01
3	11160.00	61.6 PK	74.0	-12.5	1.24 V	281	11.29	50.26
4	11160.00	51.7 AV	54.0	-2.3	1.24 V	281	1.48	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 997 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	105.3 PK			1.43 H	296	65.17	40.12
2	*5660.00	95.5 AV			1.43 H	296	55.36	40.12
3	11320.00	61.6 PK	74.0	-12.4	1.40 H	290	11.27	50.30
4	11320.00	51.6 AV	54.0	-2.4	1.40 H	290	1.34	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	104.4 PK			1.31 V	294	64.31	40.12
2	*5660.00	94.6 AV			1.31 V	294	54.48	40.12
3	11320.00	61.4 PK	74.0	-12.6	1.22 V	318	11.11	50.30
4	11320.00	51.8 AV	54.0	-2.2	1.22 V	318	1.54	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 997 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	107.1 PK			1.41 H	298	66.90	40.17
2	*5700.00	96.0 AV			1.41 H	298	55.85	40.17
3	#5725.00	65.7 PK	68.3	-2.6	1.41 H	298	25.53	40.21
4	11400.00	61.2 PK	74.0	-12.8	1.36 H	259	10.91	50.26
5	11400.00	51.6 AV	54.0	-2.4	1.36 H	259	1.37	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	106.1 PK			1.31 V	297	65.88	40.17
2	*5700.00	95.8 AV			1.31 V	297	55.67	40.17
3	#5725.00	67.5 PK	68.3	-0.8	1.31 V	297	27.28	40.21
4	11400.00	61.8 PK	74.0	-12.2	1.24 V	271	11.56	50.26
5	11400.00	51.4 AV	54.0	-2.6	1.24 V	271	1.11	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 (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 997 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	67.5 PK	74.0	-6.5	1.44 H	307	28.26	39.27
2	5150.00	53.3 AV	54.0	-0.7	1.44 H	307	14.03	39.27
3	*5190.00	107.1 PK			1.44 H	307	67.79	39.32
4	*5190.00	97.1 AV			1.44 H	307	57.77	39.32
5	#10380.00	61.6 PK	68.3	-6.8	1.38 H	297	12.18	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	66.7 PK	74.0	-7.3	1.29 V	184	27.45	39.27
2	5150.00	53.1 AV	54.0	-0.9	1.29 V	184	13.85	39.27
3	*5190.00	106.0 PK			1.29 V	184	66.68	39.32
4	*5190.00	95.1 AV			1.29 V	184	55.74	39.32
5	#10380.00	61.1 PK	68.3	-7.2	1.22 V	171	11.69	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 997 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	107.6 PK			1.43 H	310	68.25	39.37
2	*5230.00	96.8 AV			1.43 H	310	57.42	39.37
3	5350.00	47.7 PK	74.0	-26.3	1.43 H	310	8.14	39.52
4	5350.00	36.2 AV	54.0	-17.8	1.43 H	310	-3.33	39.52
5	#10460.00	61.3 PK	68.3	-7.0	1.33 H	281	11.87	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	103.2 PK			1.32 V	266	63.82	39.37
2	*5230.00	92.4 AV			1.32 V	266	53.05	39.37
3	5350.00	46.2 PK	74.0	-27.8	1.32 V	266	6.65	39.52
4	5350.00	35.4 AV	54.0	-18.6	1.32 V	266	-4.14	39.52
5	#10460.00	61.3 PK	68.3	-7.0	1.09 V	251	11.83	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 997 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	46.6 PK	74.0	-27.5	1.40 H	306	7.28	39.27
2	5150.00	35.8 AV	54.0	-18.2	1.40 H	306	-3.46	39.27
3	*5270.00	108.3 PK			1.40 H	306	68.83	39.42
4	*5270.00	98.1 AV			1.40 H	306	58.66	39.42
5	#10540.00	61.5 PK	68.3	-6.8	1.33 H	274	11.95	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	46.3 PK	74.0	-27.7	1.28 V	274	7.06	39.27
2	5150.00	35.7 AV	54.0	-18.3	1.28 V	274	-3.56	39.27
3	*5270.00	105.4 PK			1.28 V	274	65.93	39.42
4	*5270.00	95.1 AV			1.28 V	274	55.66	39.42
5	#10540.00	61.5 PK	68.3	-6.8	1.19 V	267	11.92	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 997 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	109.3 PK			1.45 H	303	69.87	39.47
2	*5310.00	99.2 AV			1.45 H	303	59.68	39.47
3	5350.00	60.3 PK	74.0	-13.7	1.45 H	303	20.79	39.52
4	5350.00	46.2 AV	54.0	-7.9	1.45 H	303	6.63	39.52
5	10620.00	61.3 PK	74.0	-12.8	1.37 H	294	11.53	49.72
6	10620.00	51.3 AV	54.0	-2.7	1.37 H	294	1.61	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	107.9 PK			1.27 V	276	68.43	39.47
2	*5310.00	97.0 AV			1.27 V	276	57.50	39.47
3	5350.00	61.7 PK	74.0	-12.3	1.27 V	276	22.21	39.52
4	5350.00	44.4 AV	54.0	-9.6	1.27 V	276	4.89	39.52
5	10620.00	61.3 PK	74.0	-12.7	1.16 V	231	11.57	49.72
6	10620.00	51.4 AV	54.0	-2.6	1.16 V	231	1.71	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 997 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	55.7 PK	74.0	-18.3	1.37 H	248	15.94	39.76
2	5460.00	44.2 AV	54.0	-9.8	1.37 H	248	4.44	39.76
3	#5470.00	63.9 PK	68.3	-4.4	1.37 H	248	24.07	39.79
4	*5510.00	106.9 PK			1.37 H	248	67.02	39.90
5	*5510.00	96.8 AV			1.37 H	248	56.94	39.90
6	11020.00	61.5 PK	74.0	-12.5	1.32 H	198	11.16	50.36
7	11020.00	51.4 AV	54.0	-2.6	1.32 H	198	1.08	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	57.2 PK	74.0	-16.8	1.00 V	192	17.41	39.76
2	5460.00	43.4 AV	54.0	-10.6	1.00 V	192	3.67	39.76
3	#5470.00	62.7 PK	68.3	-5.6	1.00 V	192	22.94	39.79
4	*5510.00	105.3 PK			1.00 V	192	65.41	39.90
5	*5510.00	96.0 AV			1.00 V	192	56.09	39.90
6	11020.00	61.6 PK	74.0	-12.5	1.03 V	165	11.19	50.36
7	11020.00	51.8 AV	54.0	-2.2	1.03 V	165	1.46	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 997 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	105.6 PK			1.00 H	303	65.65	39.96
2	*5550.00	95.6 AV			1.00 H	303	55.63	39.96
3	11100.00	61.6 PK	74.0	-12.4	1.02 H	258	11.26	50.31
4	11100.00	51.2 AV	54.0	-2.8	1.02 H	258	0.91	50.31
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	104.3 PK			1.00 V	190	64.32	39.96
2	*5550.00	94.7 AV			1.00 V	190	54.72	39.96
3	11100.00	61.2 PK	74.0	-12.8	1.09 V	211	10.93	50.31
4	11100.00	51.9 AV	54.0	-2.1	1.09 V	211	1.62	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 997 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	104.5 PK			1.00 H	305	64.33	40.13
2	*5670.00	94.4 AV			1.00 H	305	54.26	40.13
3	#5725.00	48.7 PK	68.3	-19.6	1.00 H	305	8.52	40.21
4	11340.00	61.1 PK	74.0	-12.9	1.03 H	294	10.82	50.29
5	11340.00	51.1 AV	54.0	-2.9	1.03 H	294	0.80	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	103.2 PK			1.00 V	170	63.03	40.13
2	*5670.00	92.8 AV			1.00 V	170	52.68	40.13
3	#5725.00	54.3 PK	68.3	-14.0	1.00 V	170	14.13	40.21
4	11340.00	61.6 PK	74.0	-12.5	1.09 V	165	11.26	50.29
5	11340.00	51.7 AV	54.0	-2.3	1.09 V	165	1.43	50.29

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

BELOW 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1003 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	252.50	41.4 QP	46.0	-4.6	1.05 H	244	27.71	13.65
2	298.56	35.2 QP	46.0	-10.8	1.33 H	124	19.71	15.53
3	606.38	36.1 QP	46.0	-9.9	1.07 H	235	12.61	23.48
4	646.61	34.8 QP	46.0	-11.2	1.28 H	325	11.01	23.77
5	684.42	38.5 QP	46.0	-7.5	1.23 H	28	14.38	24.09
6	722.72	35.3 QP	46.0	-10.7	1.03 H	322	10.49	24.77
7	757.62	36.7 QP	46.0	-9.3	1.00 H	85	11.14	25.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	143.43	33.9 QP	43.5	-9.6	1.07 V	121	19.95	13.93
2	252.02	34.0 QP	46.0	-12.0	1.22 V	88	20.37	13.63
3	606.38	36.2 QP	46.0	-9.8	1.13 V	124	12.72	23.48
4	666.00	35.7 QP	46.0	-10.3	1.07 V	163	11.74	23.93
5	682.00	36.8 QP	46.0	-9.2	1.28 V	100	12.72	24.07
6	719.81	34.3 QP	46.0	-11.7	1.22 V	88	9.56	24.70
7	757.62	35.1 QP	46.0	-10.9	1.50 V	181	9.53	25.60

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1003 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	160.88	33.1 QP	43.5	-10.4	1.07 H	241	18.65	14.43
2	257.35	39.0 QP	46.0	-7.0	1.24 H	244	25.19	13.85
3	646.61	34.9 QP	46.0	-11.1	1.33 H	295	11.13	23.77
4	663.58	35.2 QP	46.0	-10.8	1.07 H	337	11.31	23.91
5	684.42	38.1 QP	46.0	-7.9	1.28 H	226	14.00	24.09
6	719.81	34.5 QP	46.0	-11.5	1.25 H	310	9.83	24.70
7	760.53	36.1 QP	46.0	-9.9	1.00 H	328	10.47	25.67
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	141.01	33.9 QP	43.5	-9.6	1.07 V	115	20.15	13.74
2	246.69	34.2 QP	46.0	-11.9	1.22 V	352	20.75	13.40
3	606.38	36.8 QP	46.0	-9.2	1.03 V	106	13.32	23.48
4	644.19	34.3 QP	46.0	-11.7	1.17 V	133	10.53	23.76
5	663.58	35.9 QP	46.0	-10.1	1.28 V	145	11.99	23.91
6	684.42	35.6 QP	46.0	-10.4	1.15 V	175	11.47	24.09
7	719.81	35.1 QP	46.0	-10.9	1.01 V	169	10.43	24.70
8	757.62	35.8 QP	46.0	-10.2	1.25 V	64	10.19	25.60

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	11.1Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1003 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	95.93	38.3 QP	43.5	-5.2	1.17 H	196	29.19	9.10
2	251.53	41.8 QP	46.0	-4.2	1.28 H	265	28.16	13.61
3	608.32	37.0 QP	46.0	-9.1	1.32 H	58	13.46	23.49
4	666.00	36.4 QP	46.0	-9.6	1.27 H	322	12.46	23.93
5	682.00	39.3 QP	46.0	-6.7	1.42 H	112	15.21	24.07
6	833.24	36.8 QP	46.0	-9.2	1.25 H	103	9.80	27.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	27.3 QP	40.0	-12.7	1.08 V	10	13.09	14.22
2	247.66	35.4 QP	46.0	-10.6	1.13 V	13	21.98	13.45
3	606.38	36.6 QP	46.0	-9.4	1.08 V	157	13.13	23.48
4	666.00	35.9 QP	46.0	-10.1	1.24 V	151	12.01	23.93
5	682.48	37.5 QP	46.0	-8.5	1.33 V	355	13.41	24.07
6	757.62	34.6 QP	46.0	-11.4	1.02 V	82	8.99	25.60
7	833.73	34.1 QP	46.0	-11.9	1.00 V	55	7.09	27.03

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 74%RH 1003 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	95.93	32.9 QP	43.5	-10.6	1.09 H	148	23.77	9.10
2	249.60	41.5 QP	46.0	-4.5	1.11 H	277	28.00	13.53
3	408.11	33.1 QP	46.0	-12.9	1.32 H	13	14.25	18.85
4	608.32	36.2 QP	46.0	-9.8	1.21 H	64	12.70	23.49
5	666.00	35.4 QP	46.0	-10.6	1.24 H	322	11.43	23.93
6	684.91	37.6 QP	46.0	-8.4	1.50 H	94	13.51	24.09

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	246.69	34.8 QP	46.0	-11.2	1.07 V	76	21.36	13.40
2	380.48	33.0 QP	46.0	-13.0	1.11 V	331	14.92	18.09
3	576.81	33.5 QP	46.0	-12.5	1.37 V	169	10.60	22.93
4	608.32	35.9 QP	46.0	-10.1	1.27 V	7	12.40	23.49
5	666.00	36.7 QP	46.0	-9.3	1.23 V	184	12.76	23.93
6	682.00	37.6 QP	46.0	-8.5	1.24 V	196	13.48	24.07
7	757.62	35.4 QP	46.0	-10.6	1.21 V	70	9.78	25.60
8	836.64	34.5 QP	46.0	-11.6	1.00 V	298	7.38	27.07

- 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

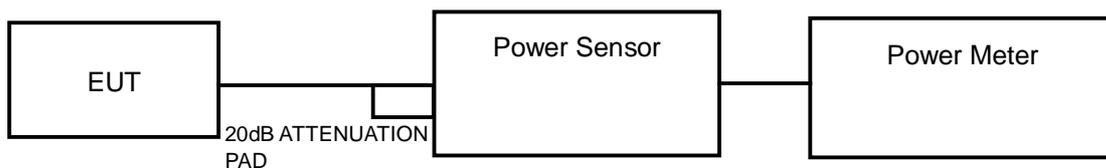
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

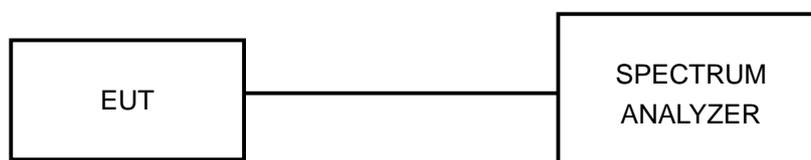
No deviation.

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	33.9	15.3	17	PASS
52	5260	31.6	15.0	24	PASS
60	5300	21.9	13.4	24	PASS
64	5320	22.4	13.5	24	PASS
100	5500	27.5	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

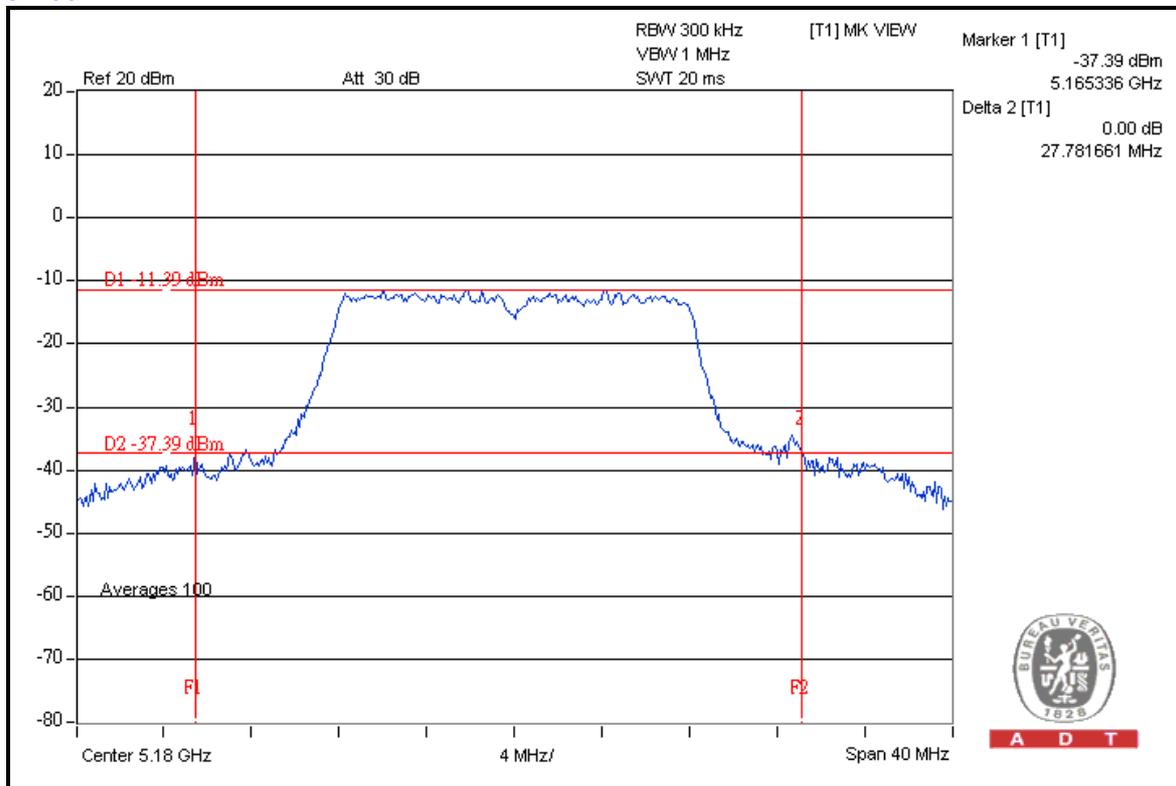


A D T

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



A D T

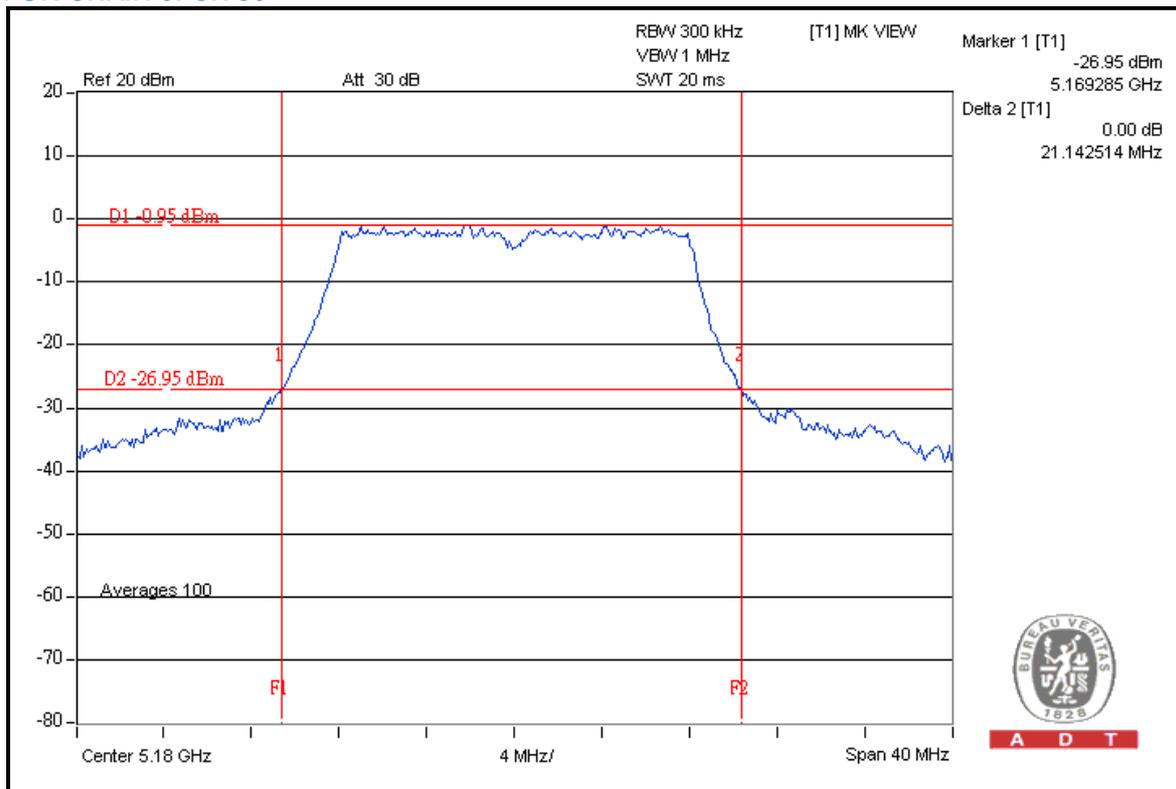


A D T

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



A D T

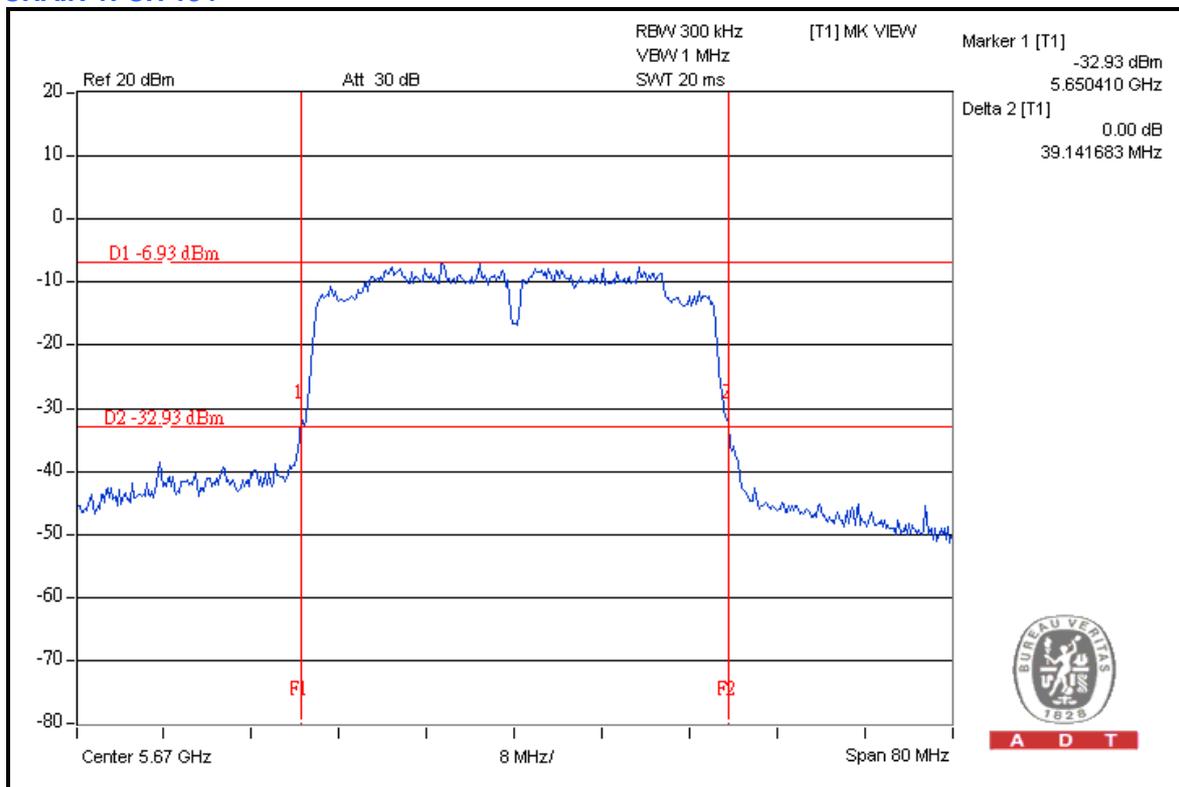


A D T

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.

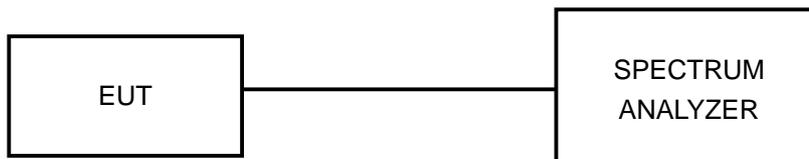
4.4.3 TEST PROCEDURE

- 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

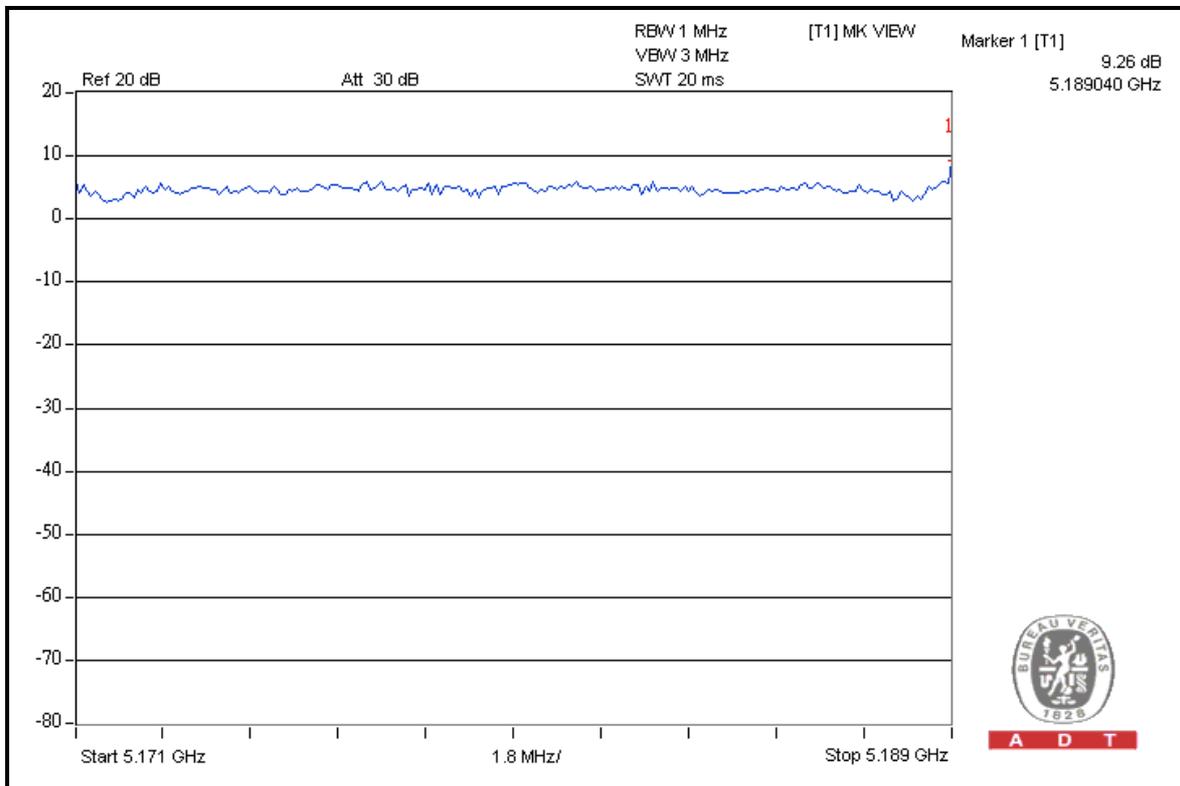
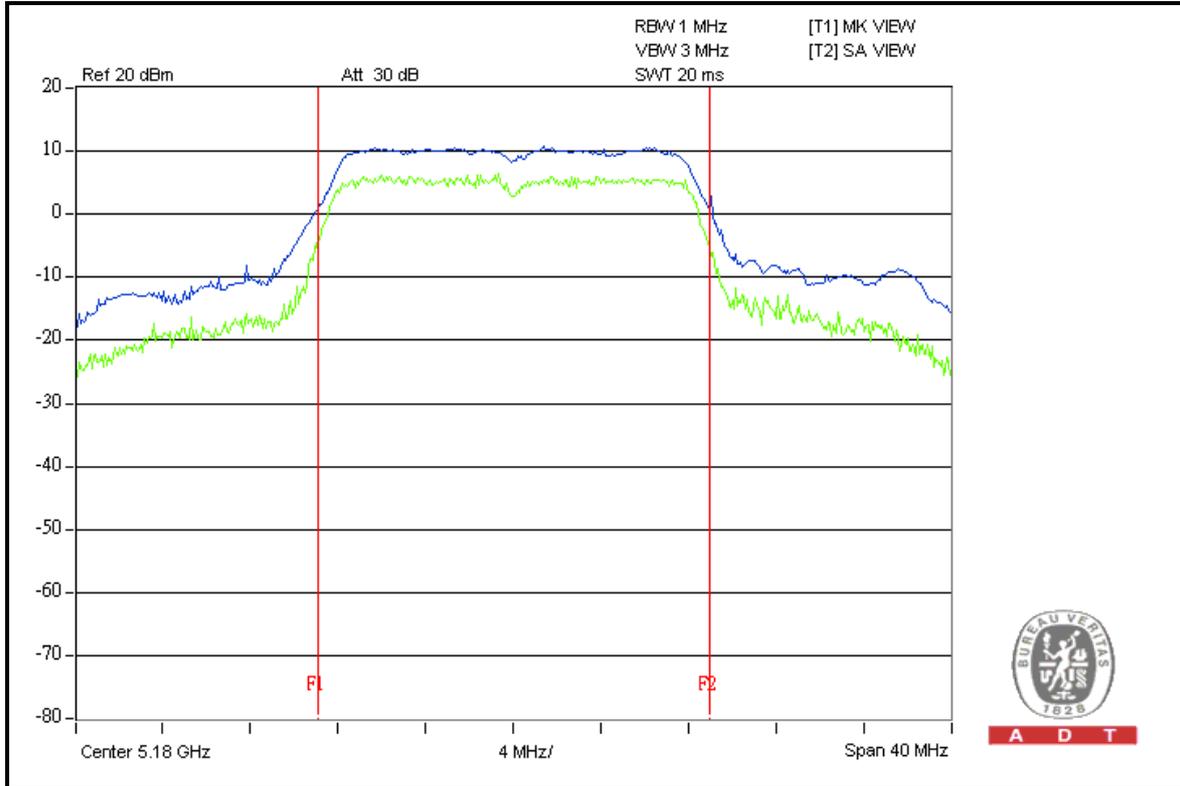
802.11a

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



A D T

CH 36





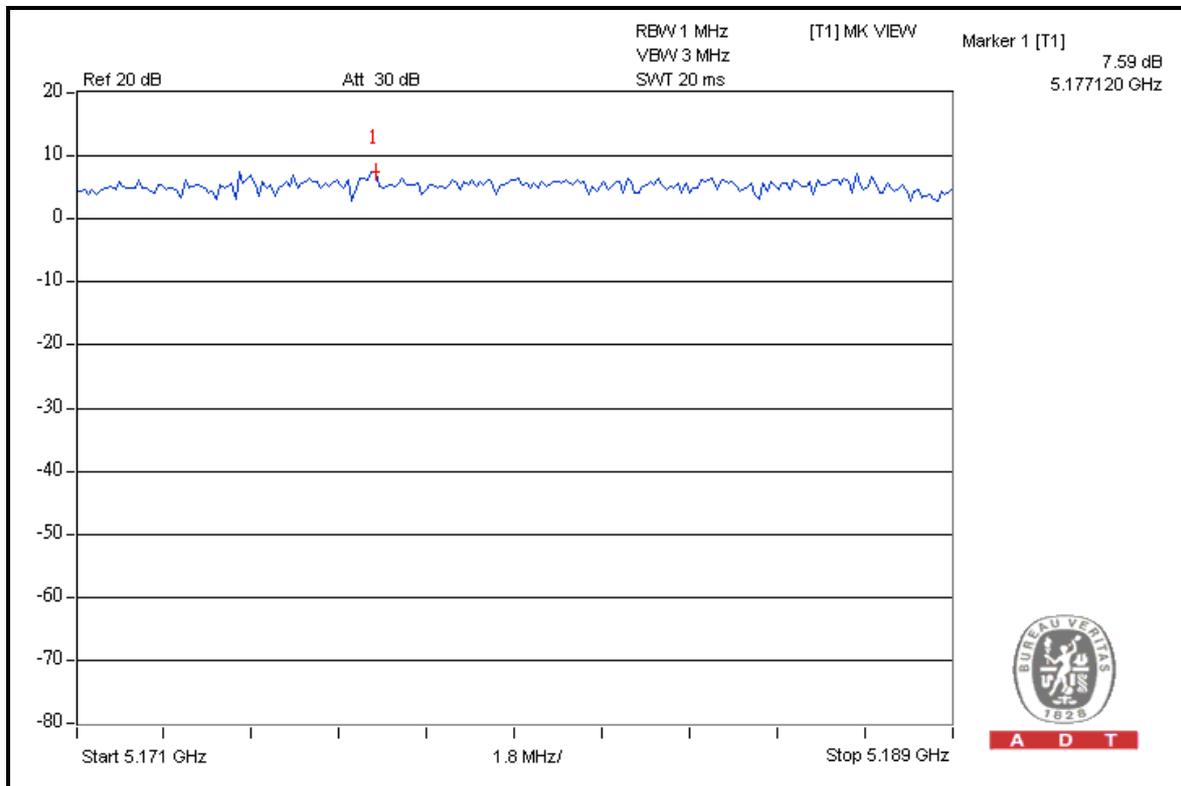
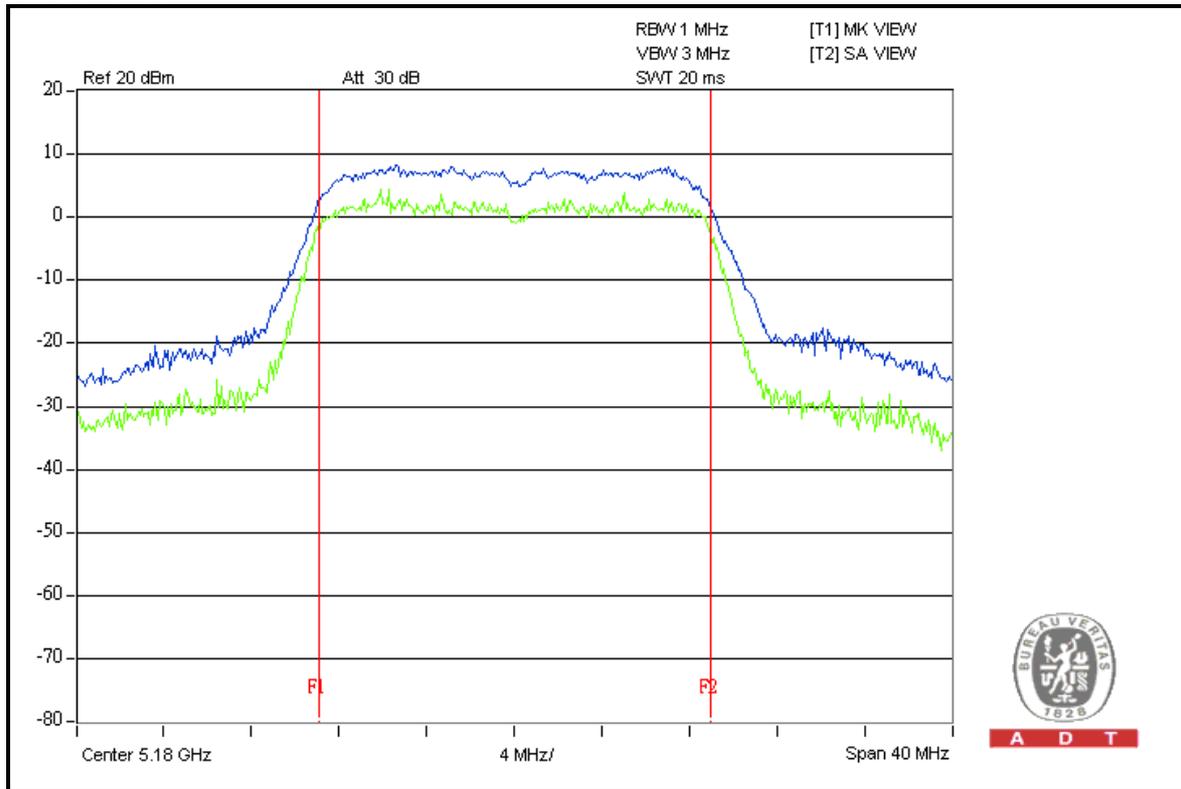
802.11n (20MHz)

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



A D T

CHAIN 0: CH 36





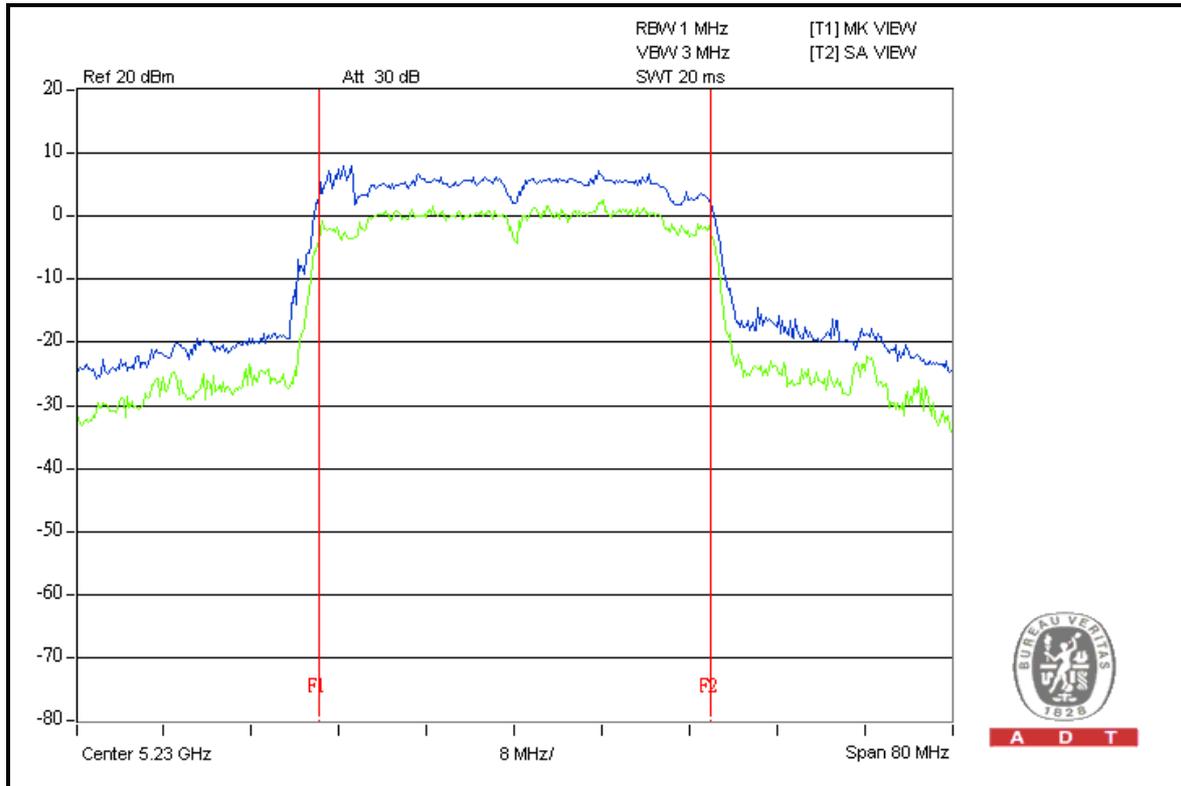
802.11n (40MHz)

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

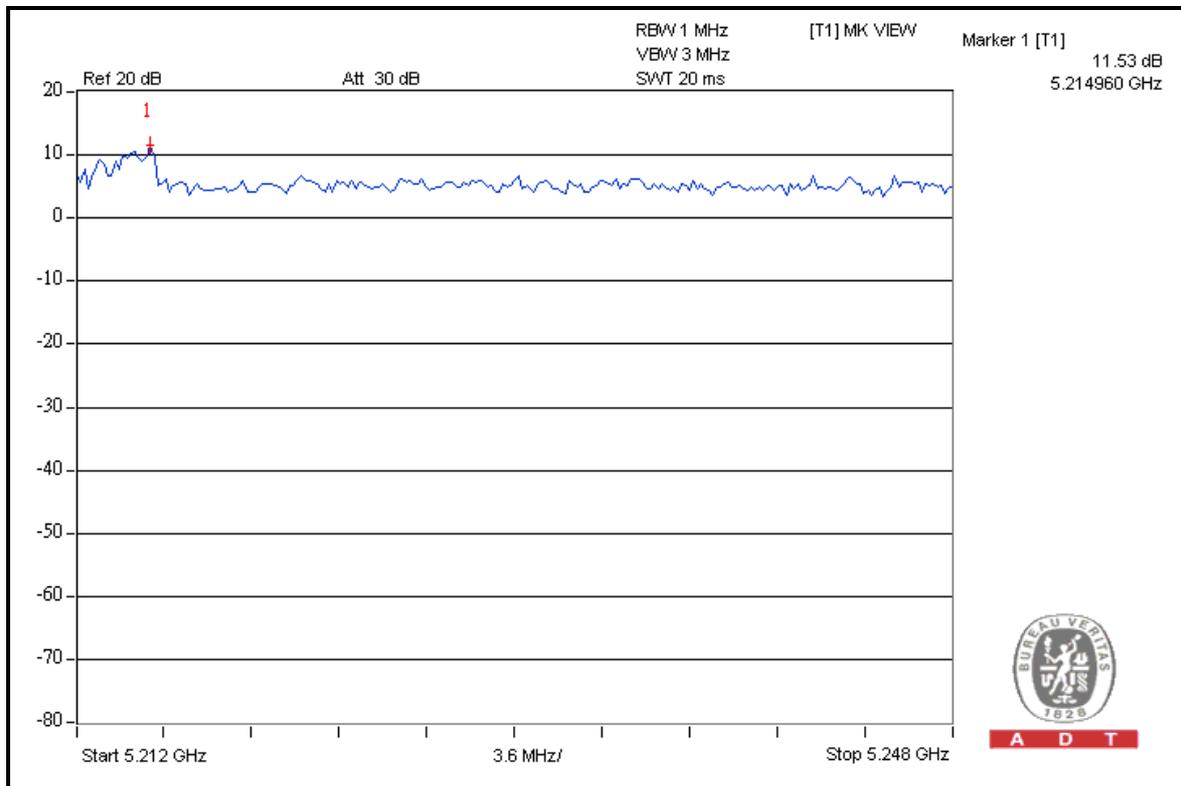


A D T

CHAIN 1: CH 46



A D T



A D T

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

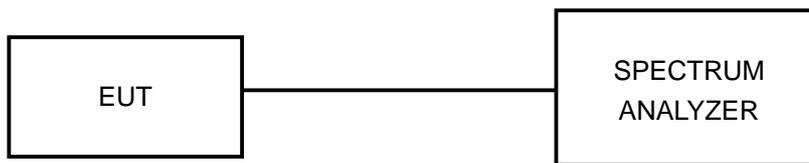
- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW = 1MHz, VBW = 3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

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.



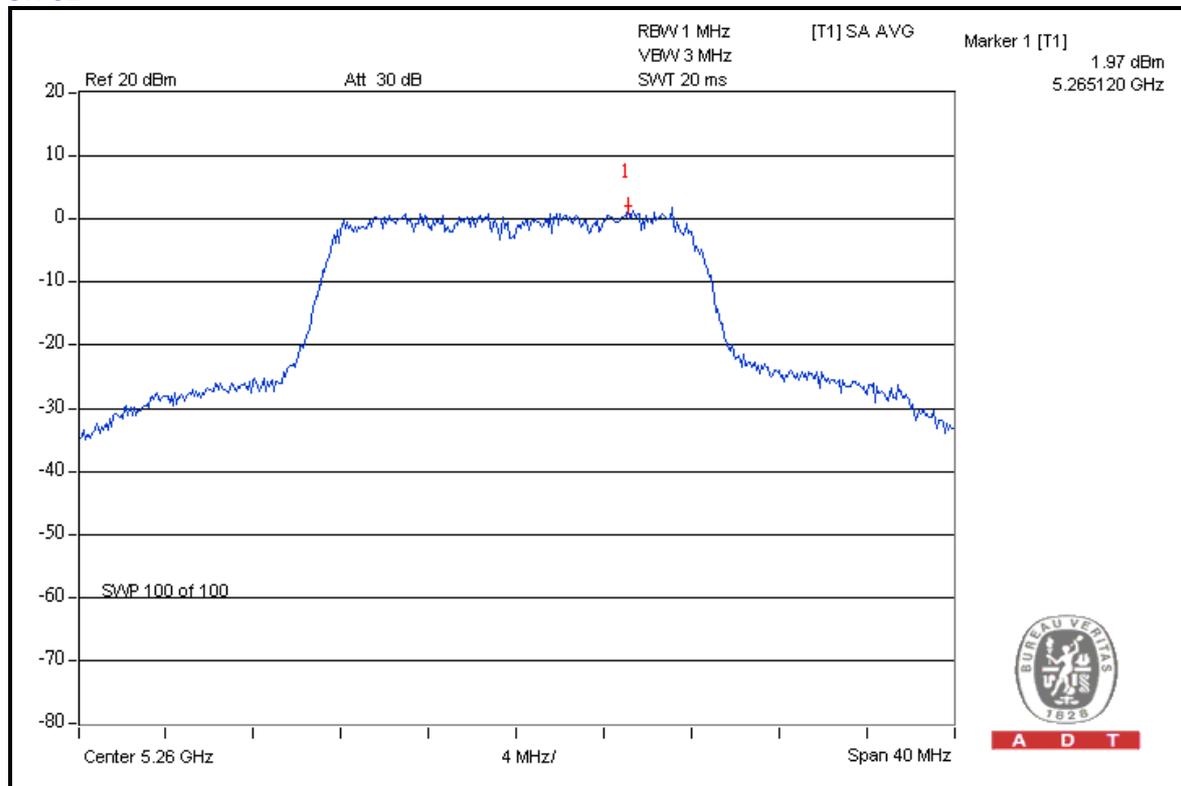
A D T

4.5.7 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	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





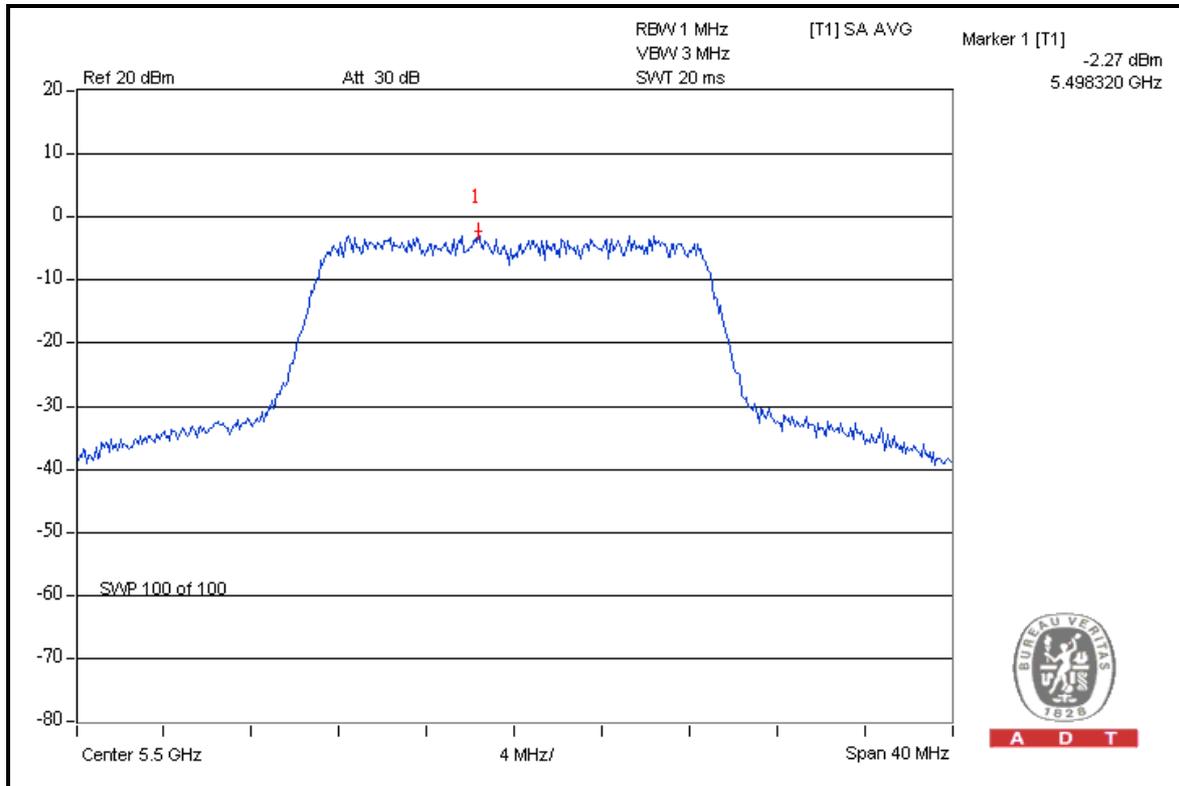
802.11n (20MHz)

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



A D T

CHAIN 0: CH 100





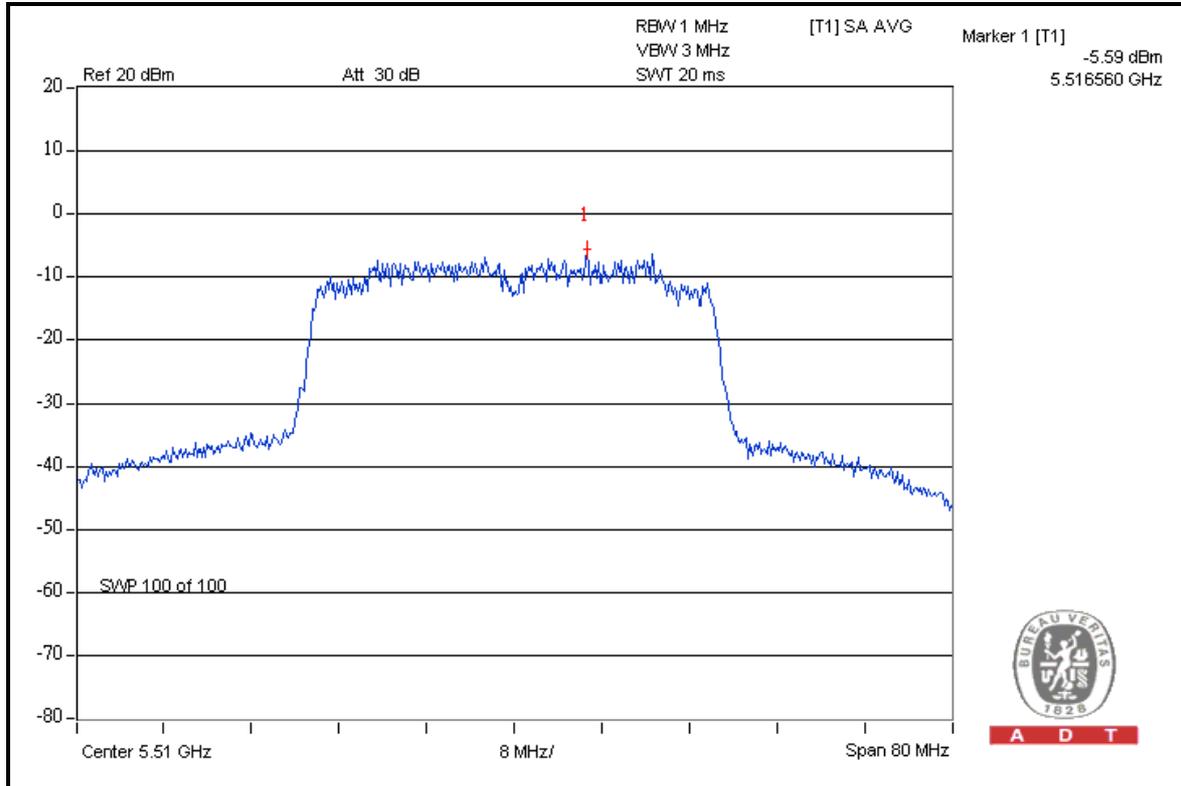
802.11n (40MHz)

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



A D T

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.

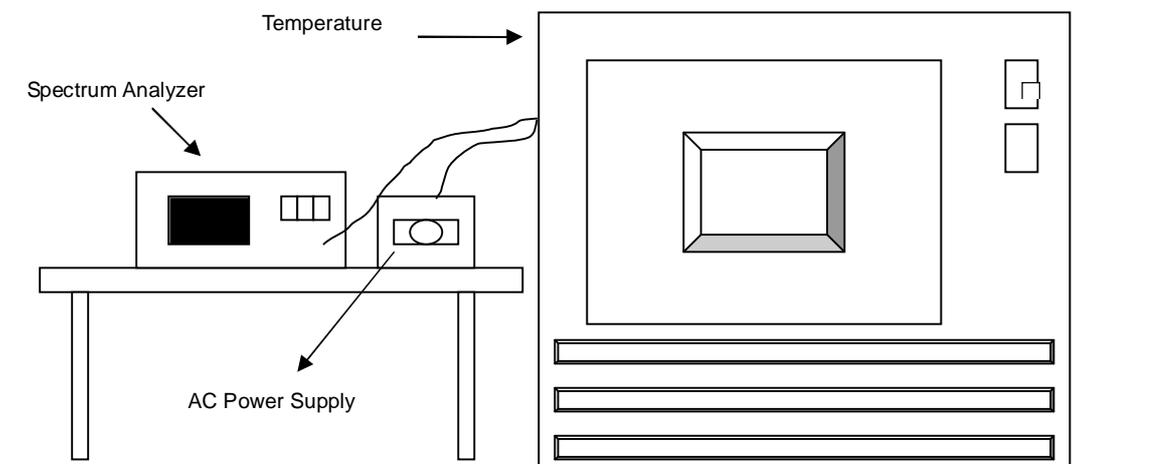
4.6.3 TEST PROCEDURE

- 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
FOR CONDUCTED MEASUREMENT:				
SPECTRUM ANALYZER	FSP 40	100036	Apr. 29, 2011	Apr. 28, 2012
FOR RADIATED MEASUREMENT:				
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)	108.8	39.7	69.1	74.00
5180.00 (AV)	98.8	46.5	52.3	54.00

RESTRICT BAND (5350 ~ 5460 MHz)

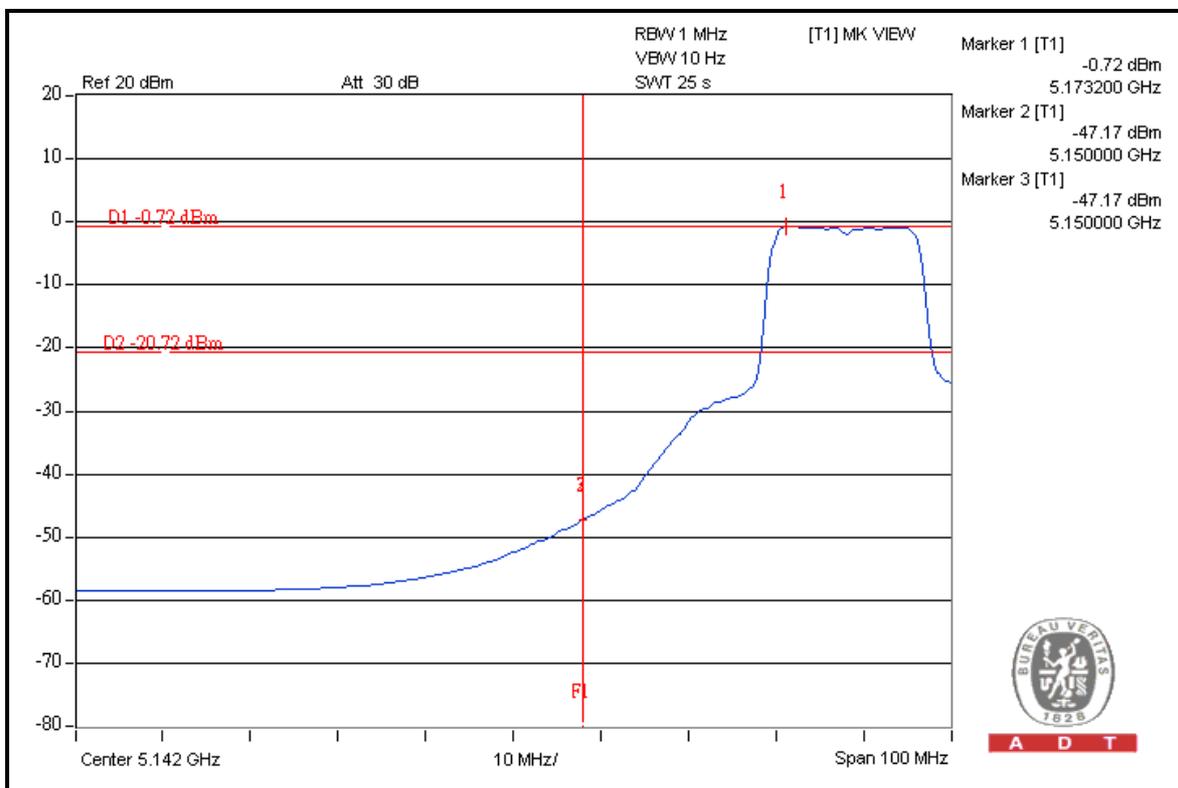
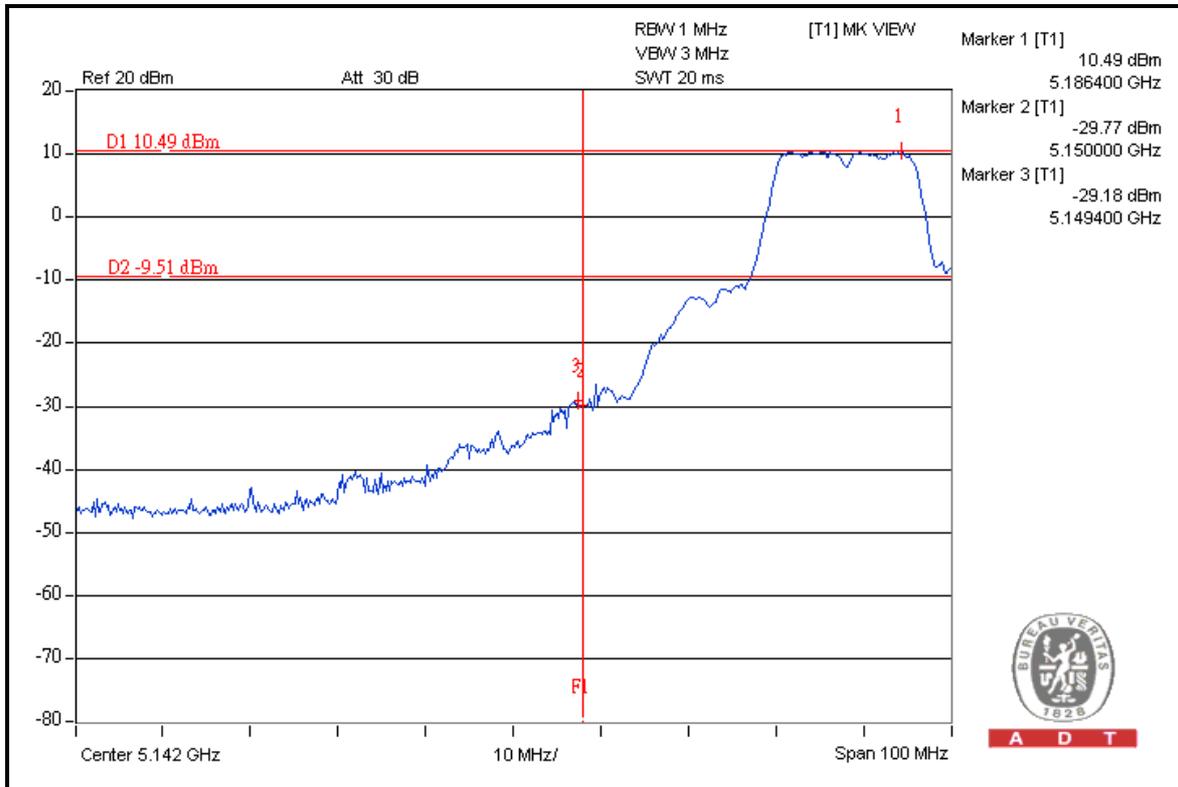
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	108.2	41.7	66.5	74.00
5320.00 (AV)	99.7	51.0	48.7	54.00

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.

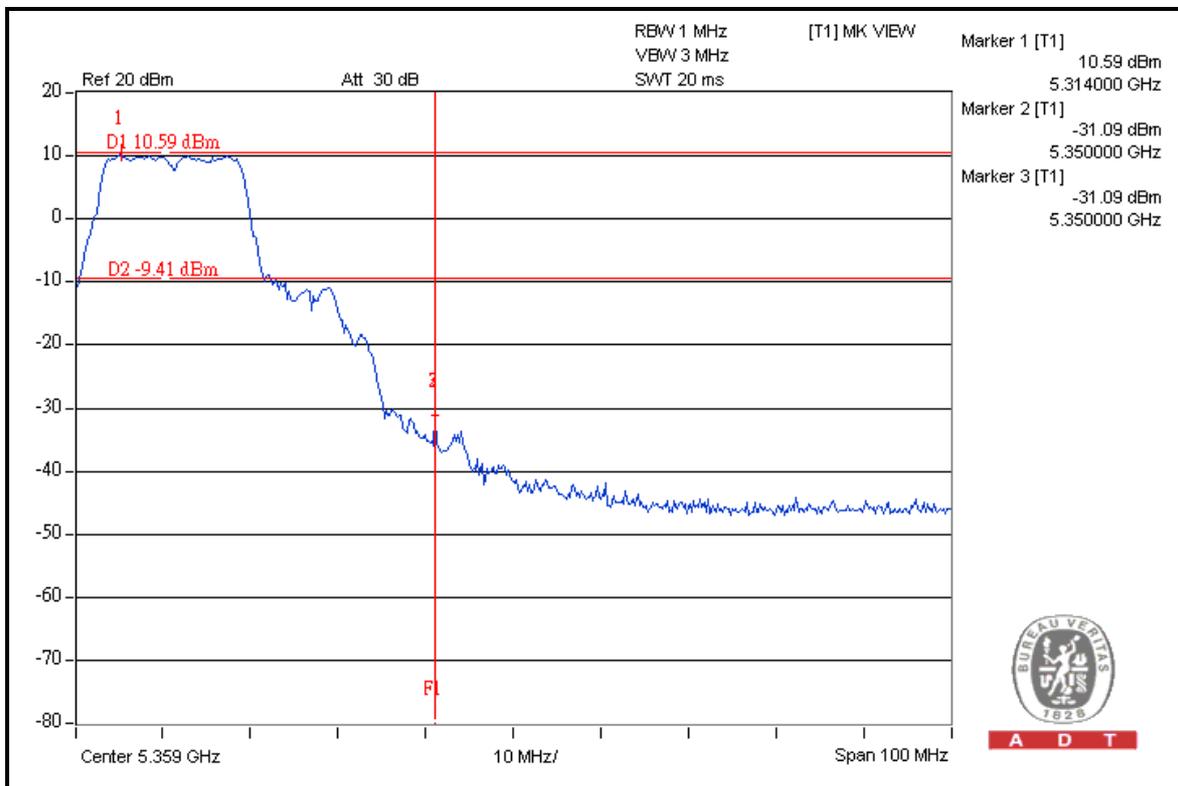
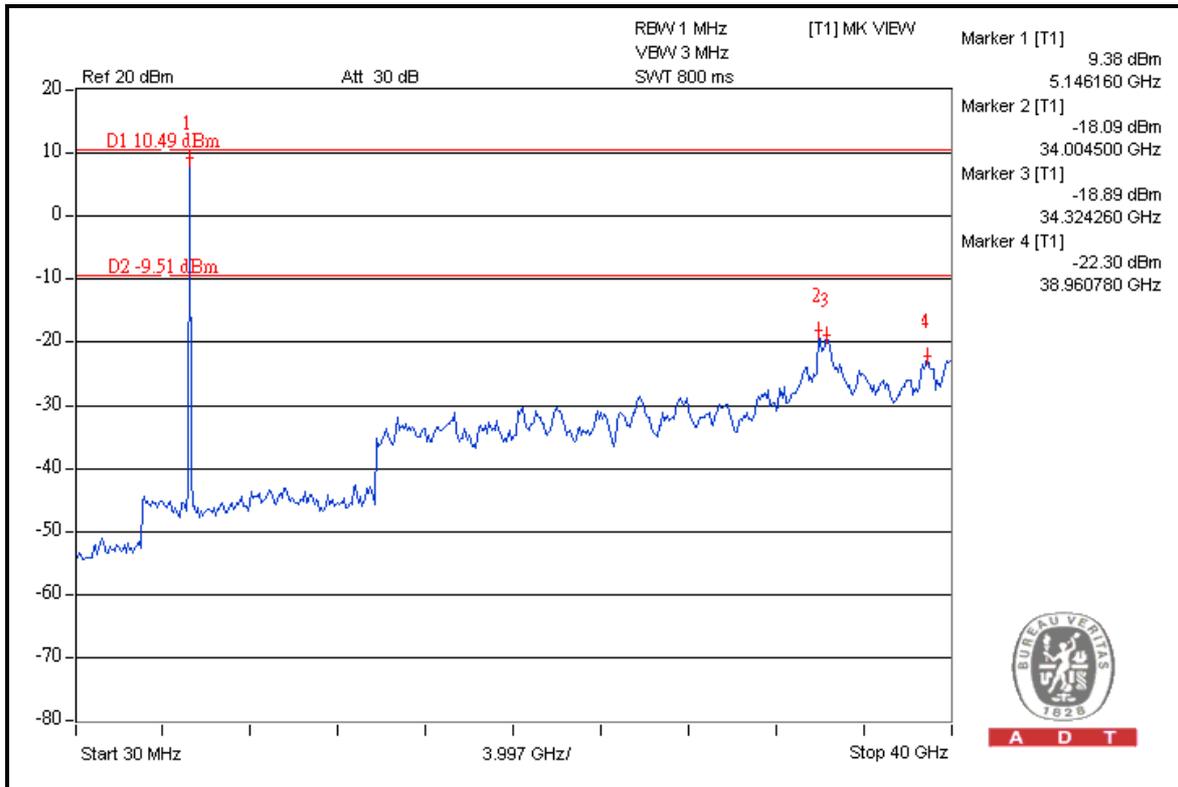


A D T



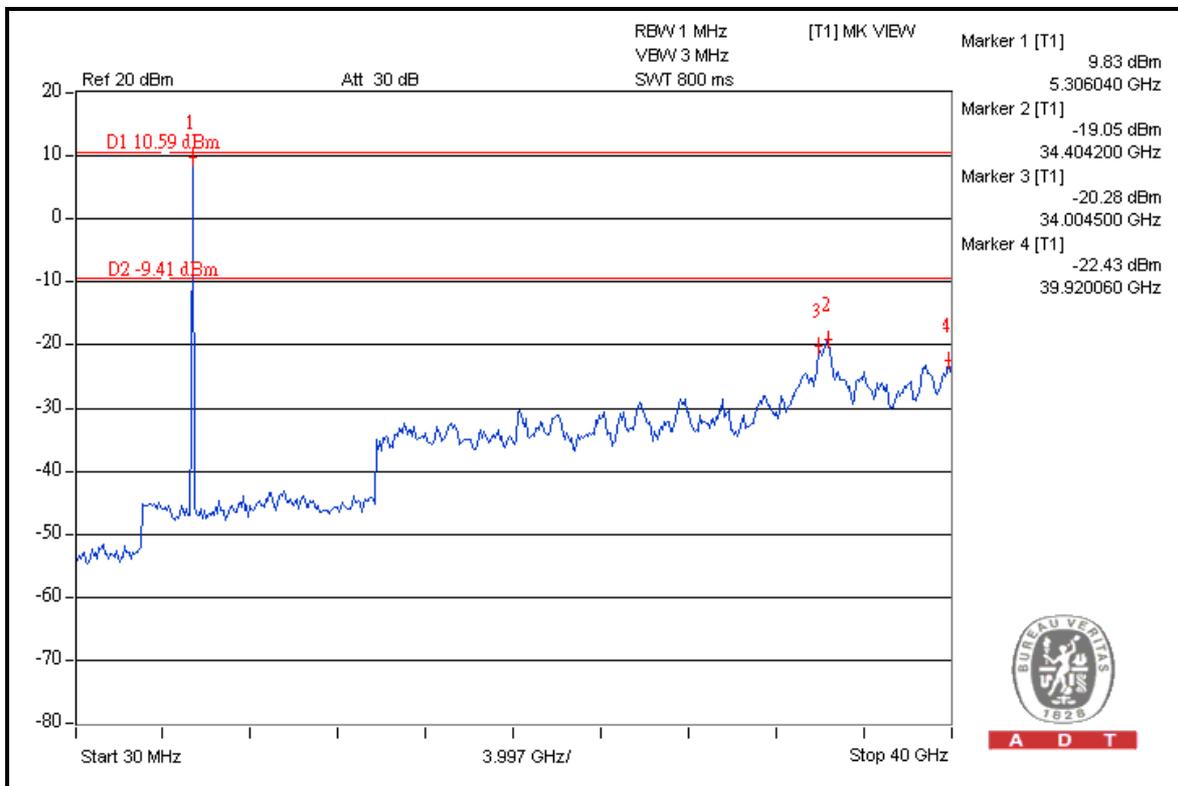
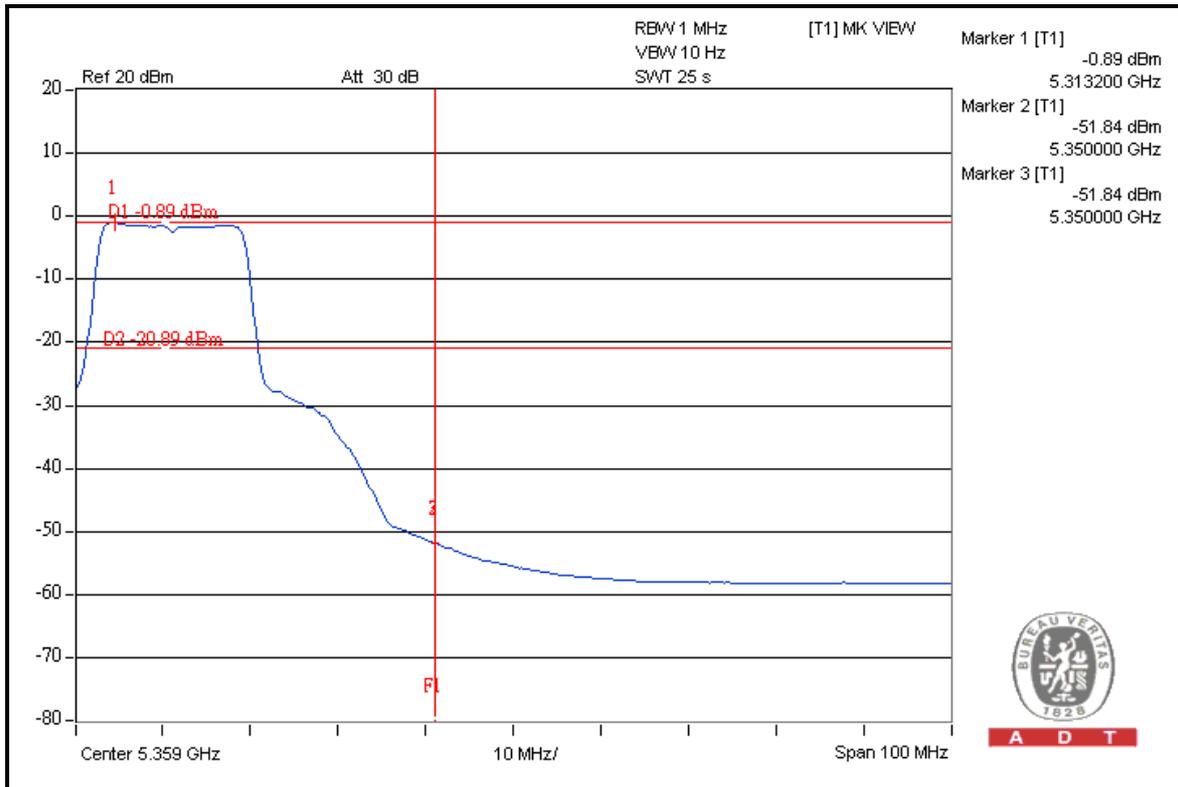


A D T





A D T



FOR 5500-5700MHz BAND:

802.11a

5500MHz

RESTRICT BAND (5350 ~ 5460 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	106.7	45.2	61.5	74.00
5500.00 (AV)	96.4	52.9	43.5	54.00

FREQUENCY BAND (5460 ~ 5470 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	106.7	39.4	67.3	68.30

5700MHz

ABOVE 5725 MHz

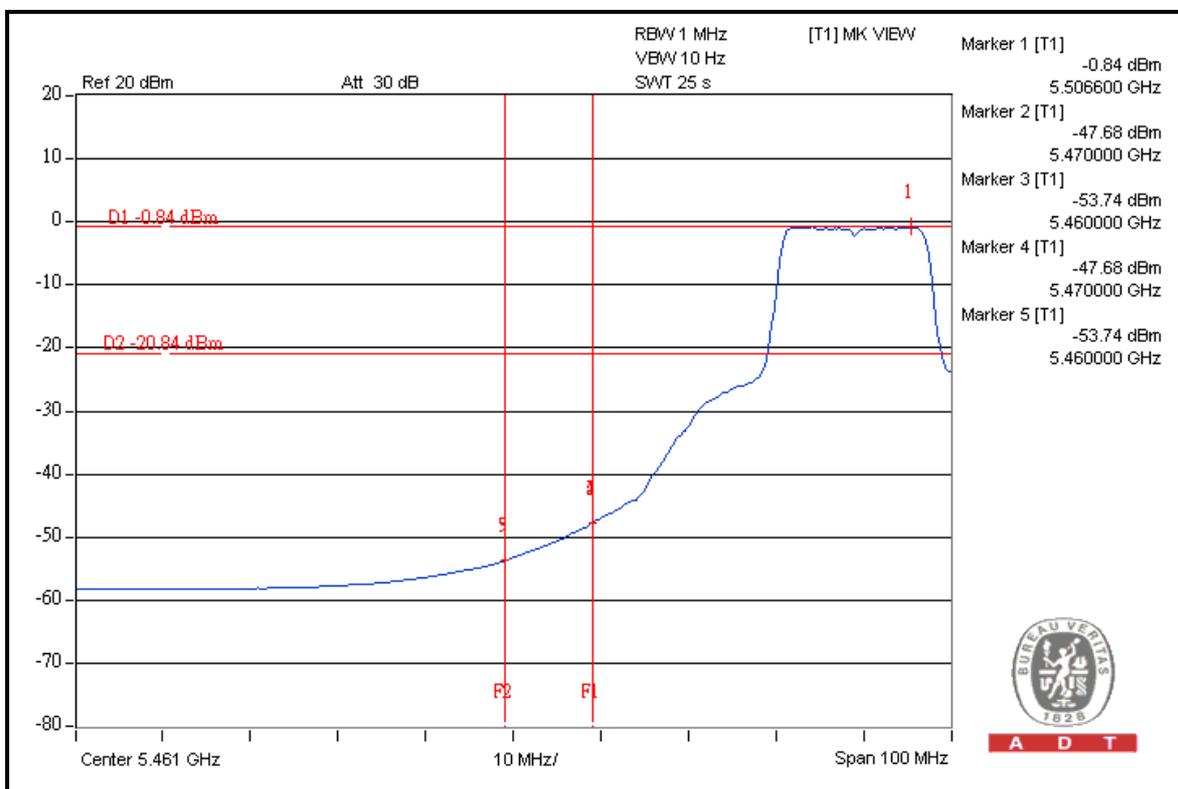
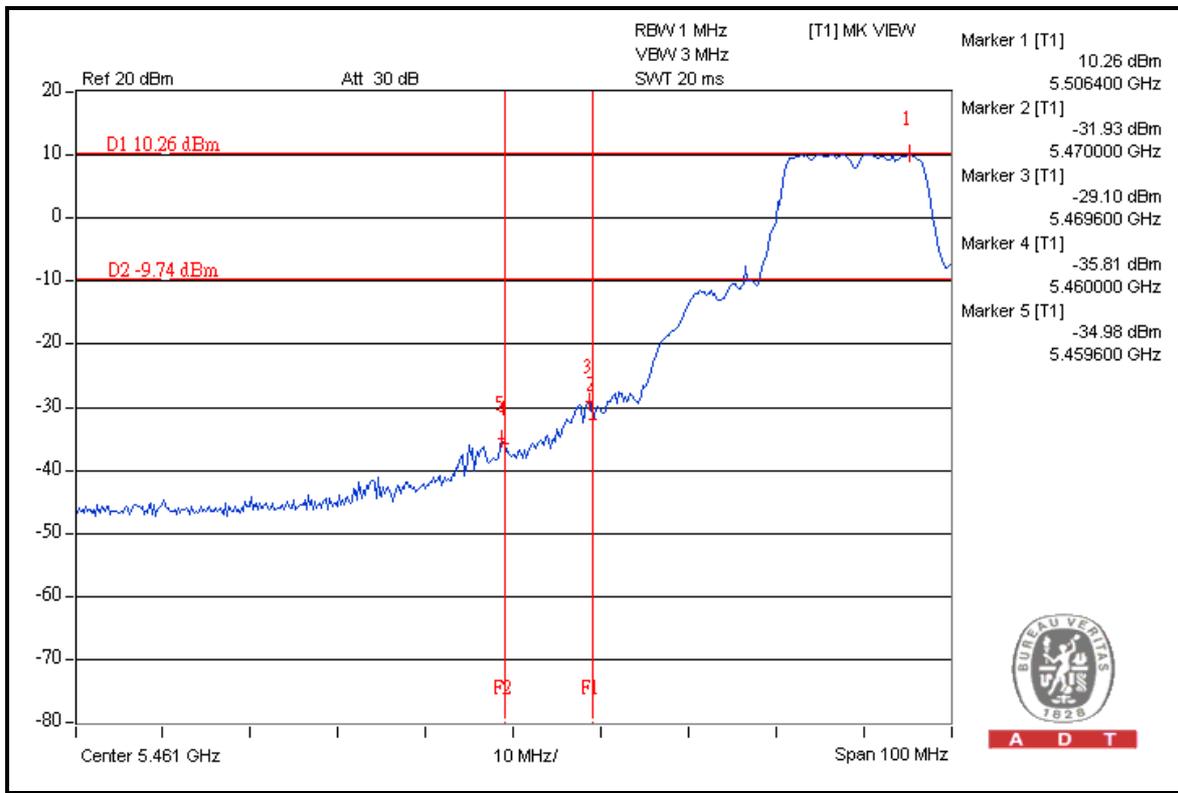
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	105.2	37.0	68.2	68.30

NOTE:

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

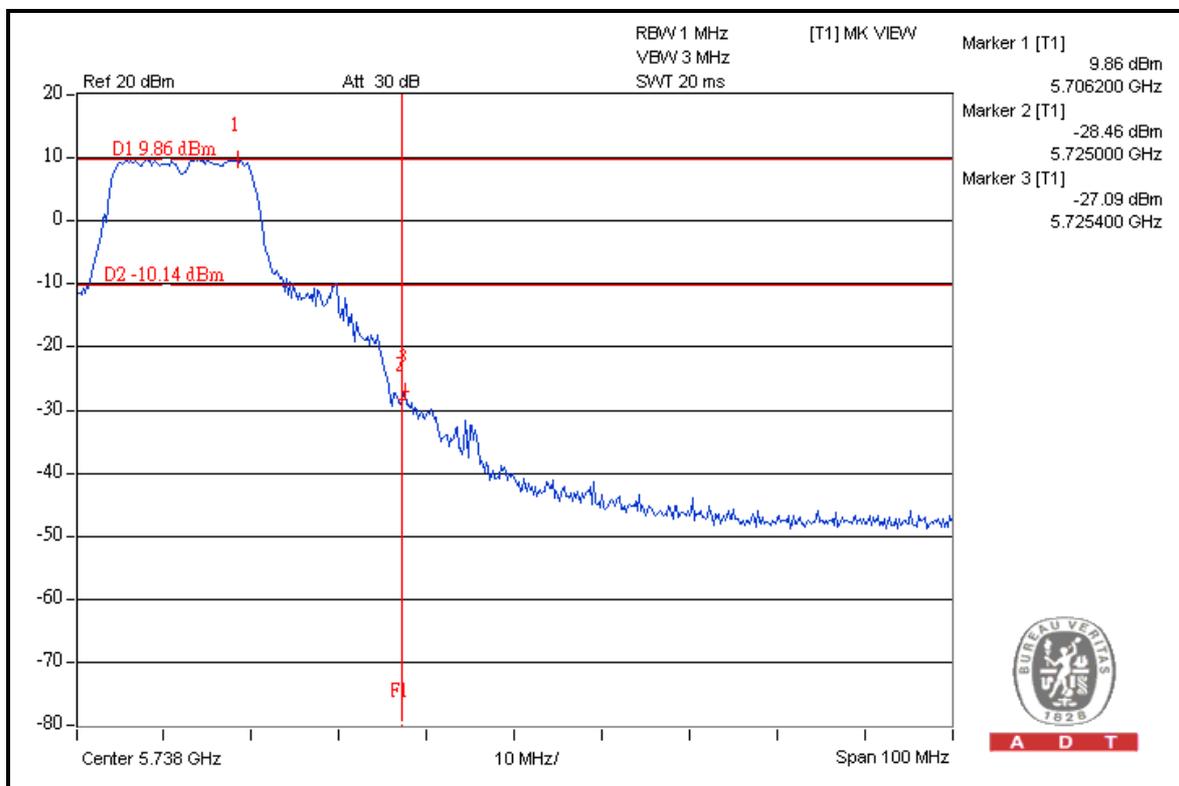
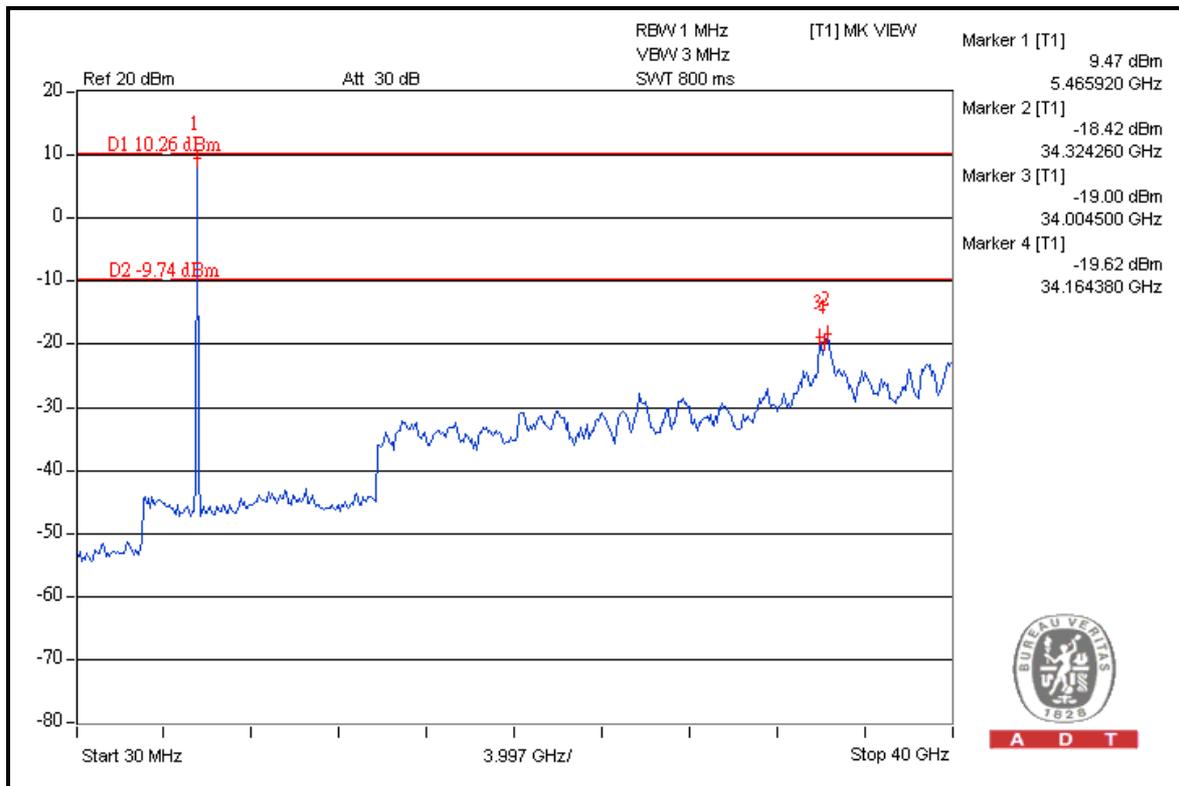


A D T



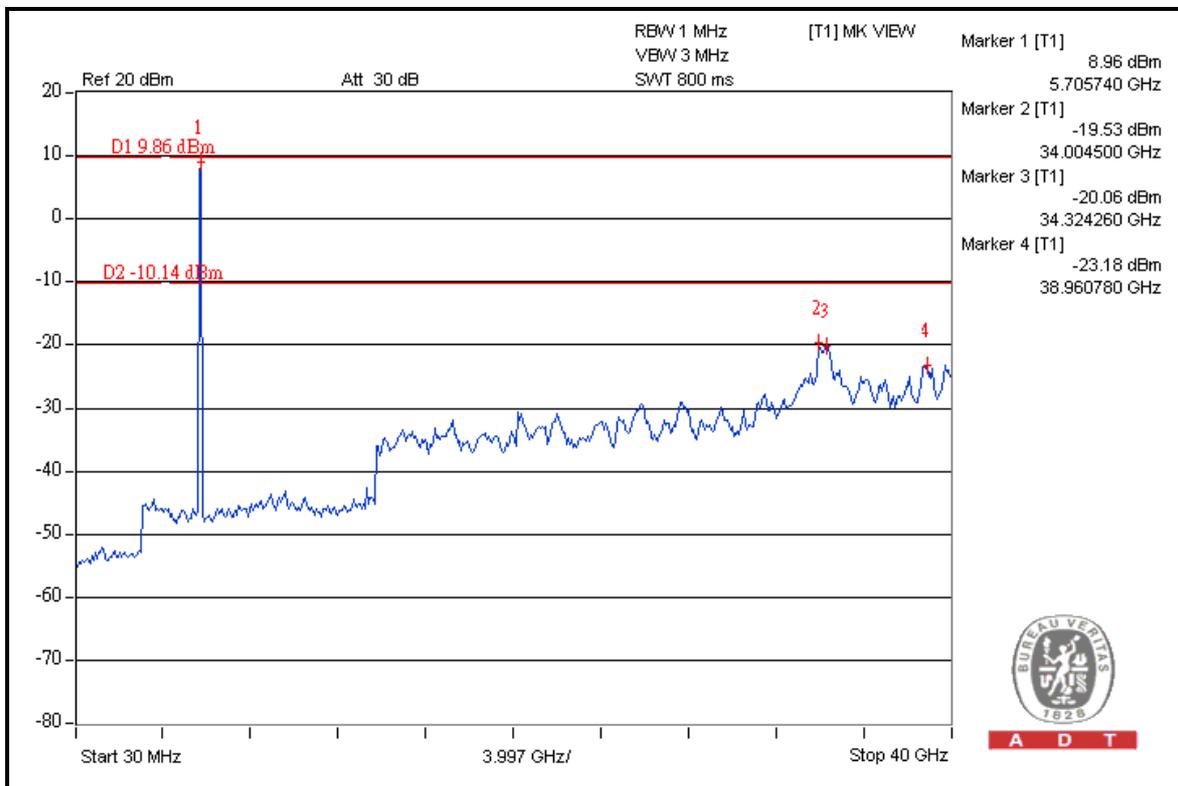
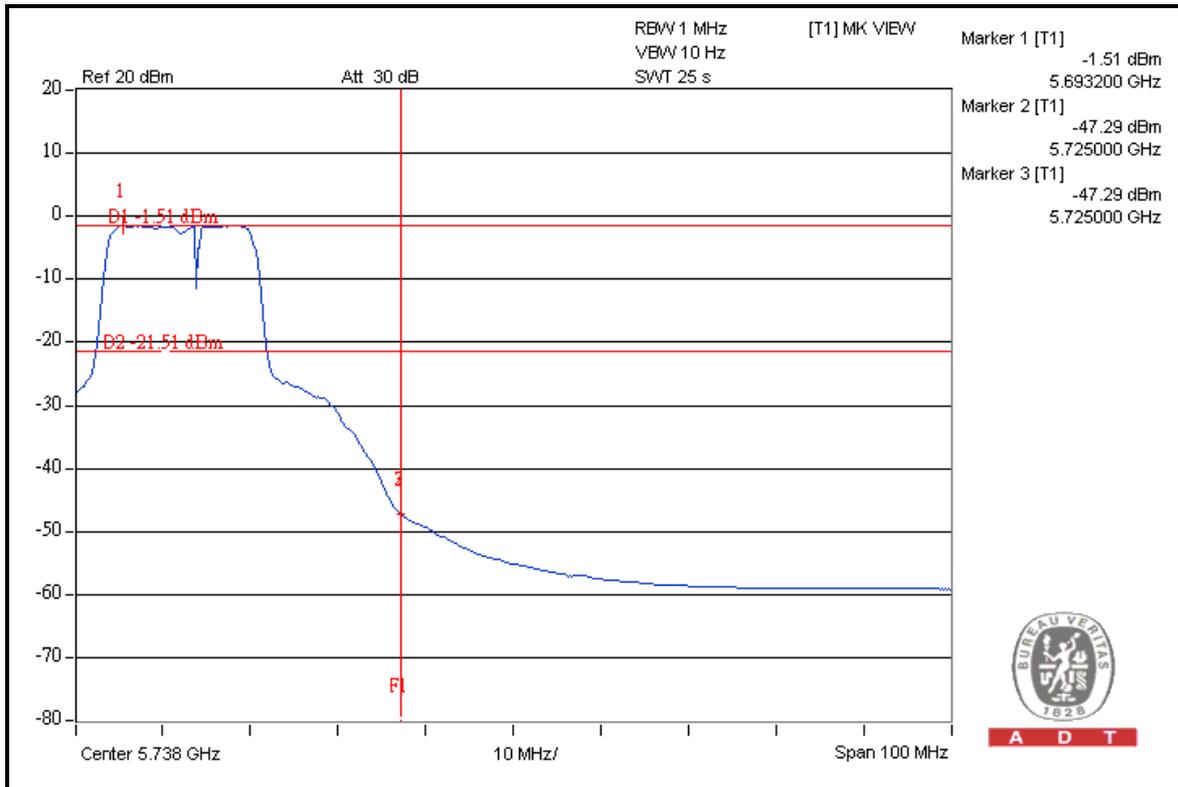


A D T





A D T



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)	106.9	42.6	64.3	74.00
5180.00 (AV)	96.2	44.6	51.6	54.00

RESTRICT BAND (5350 ~ 5460 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	108.6	43.9	64.7	74.00
5320.00 (AV)	97.6	45.1	52.5	54.00

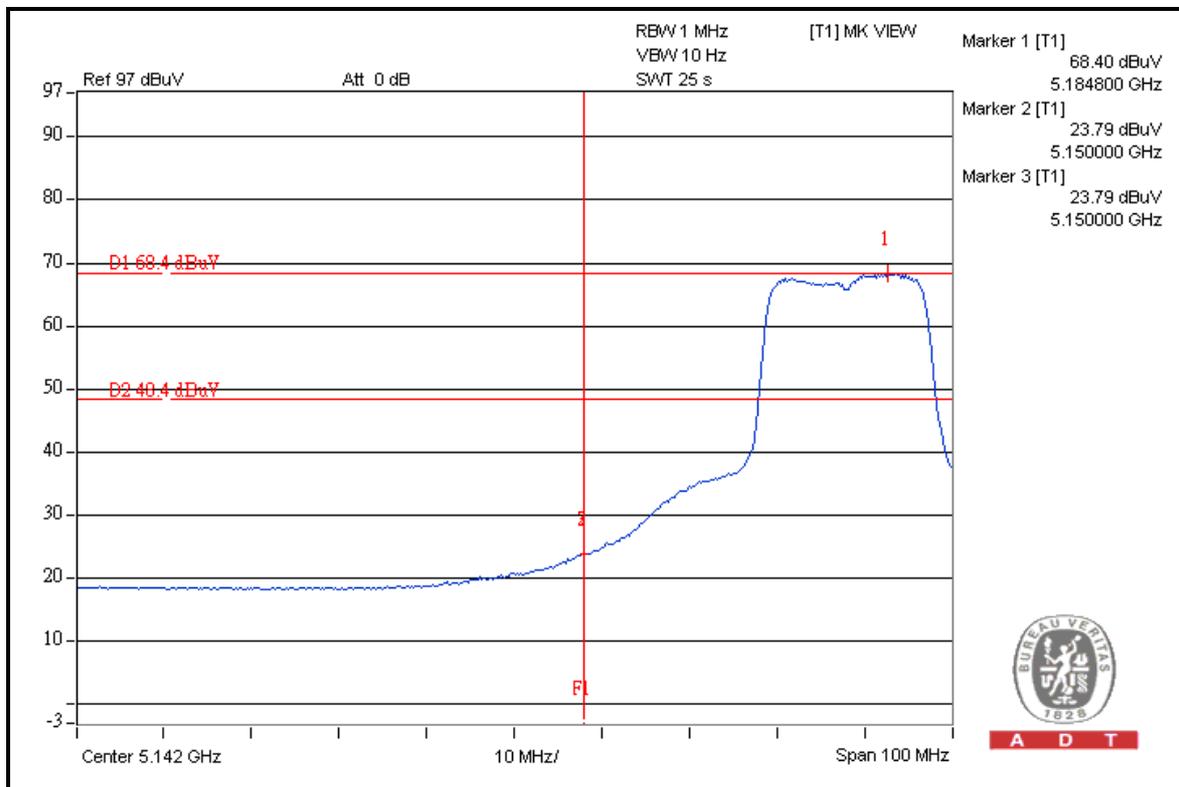
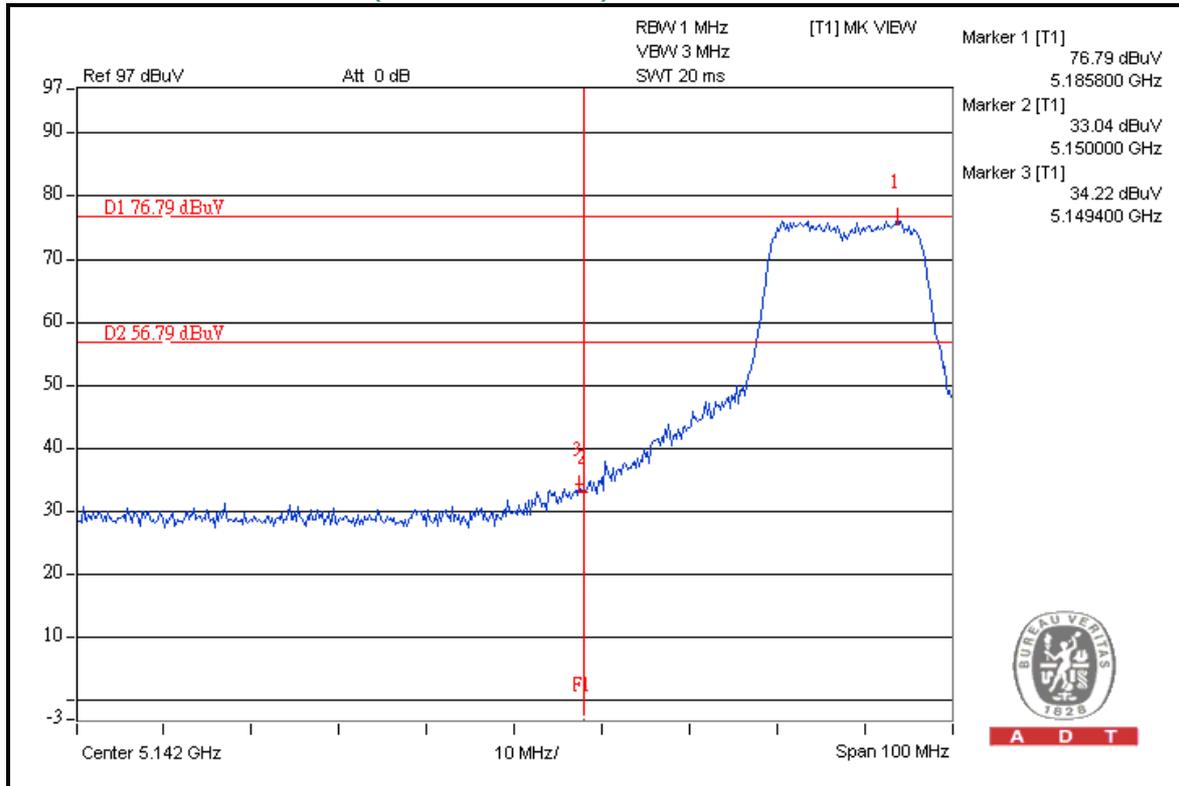
NOTE:

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



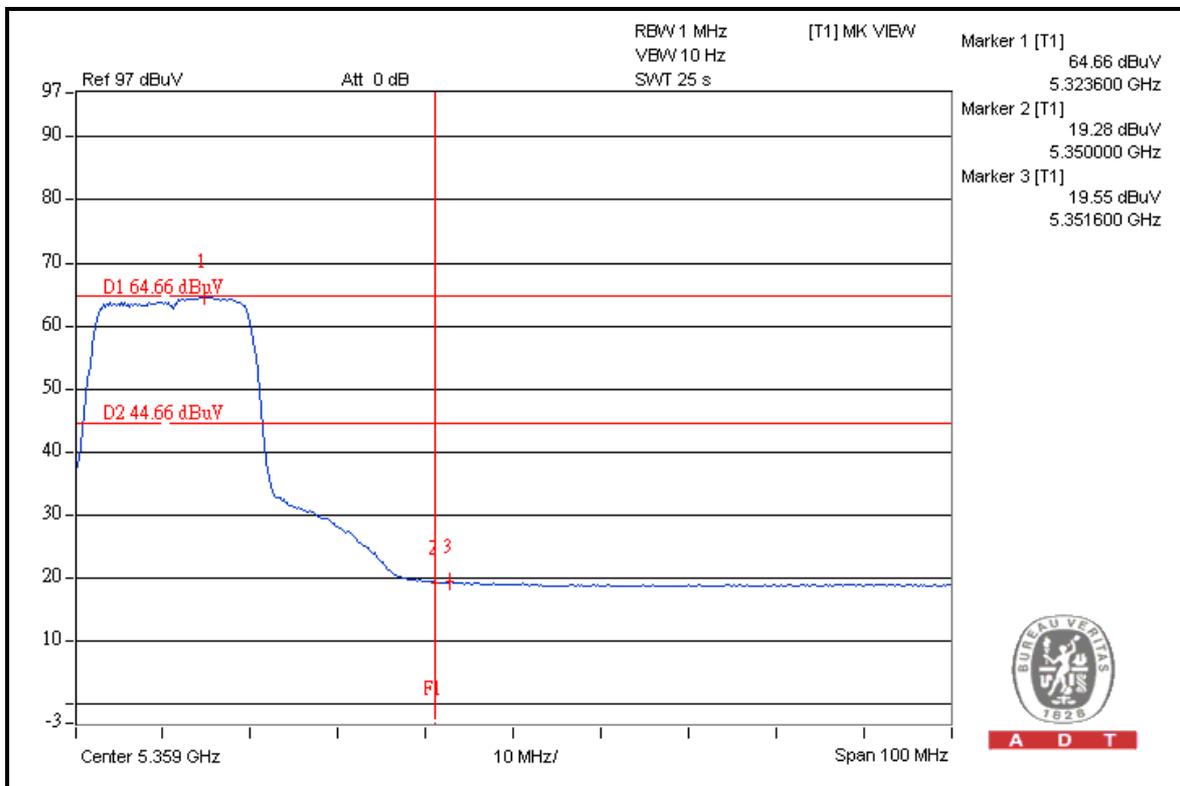
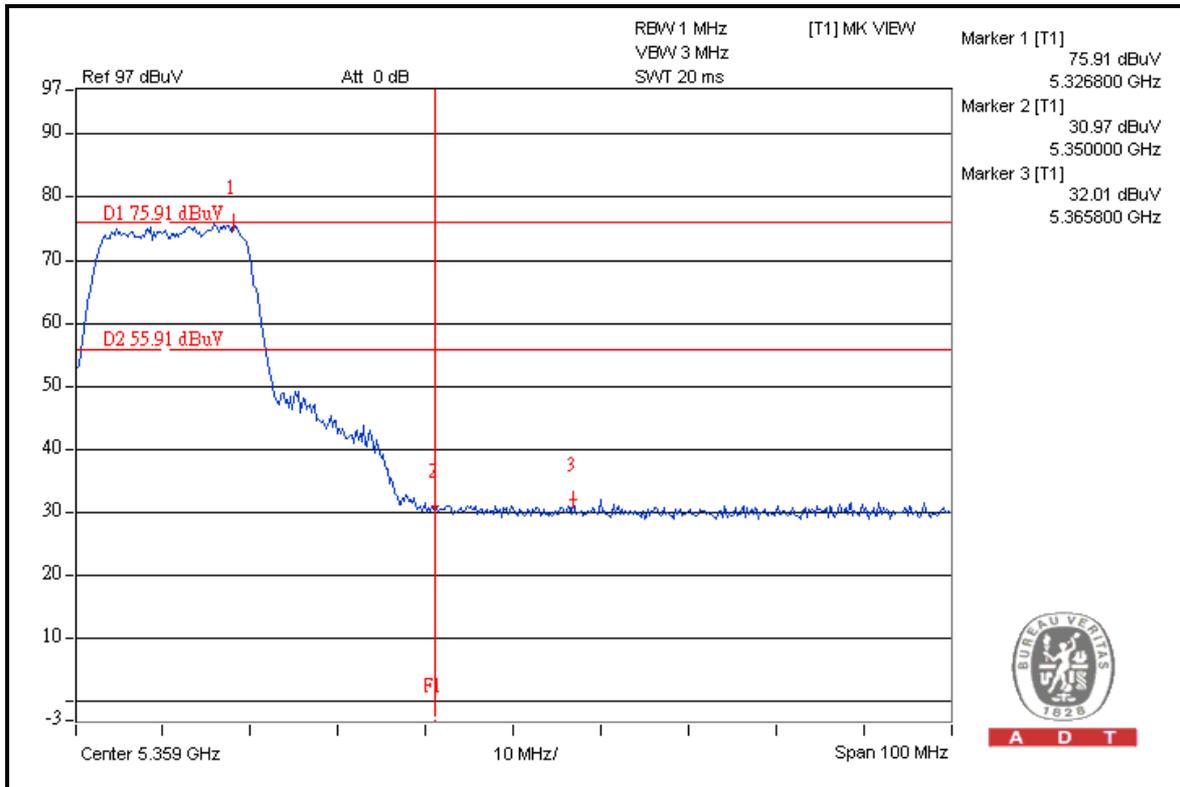
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





A D T

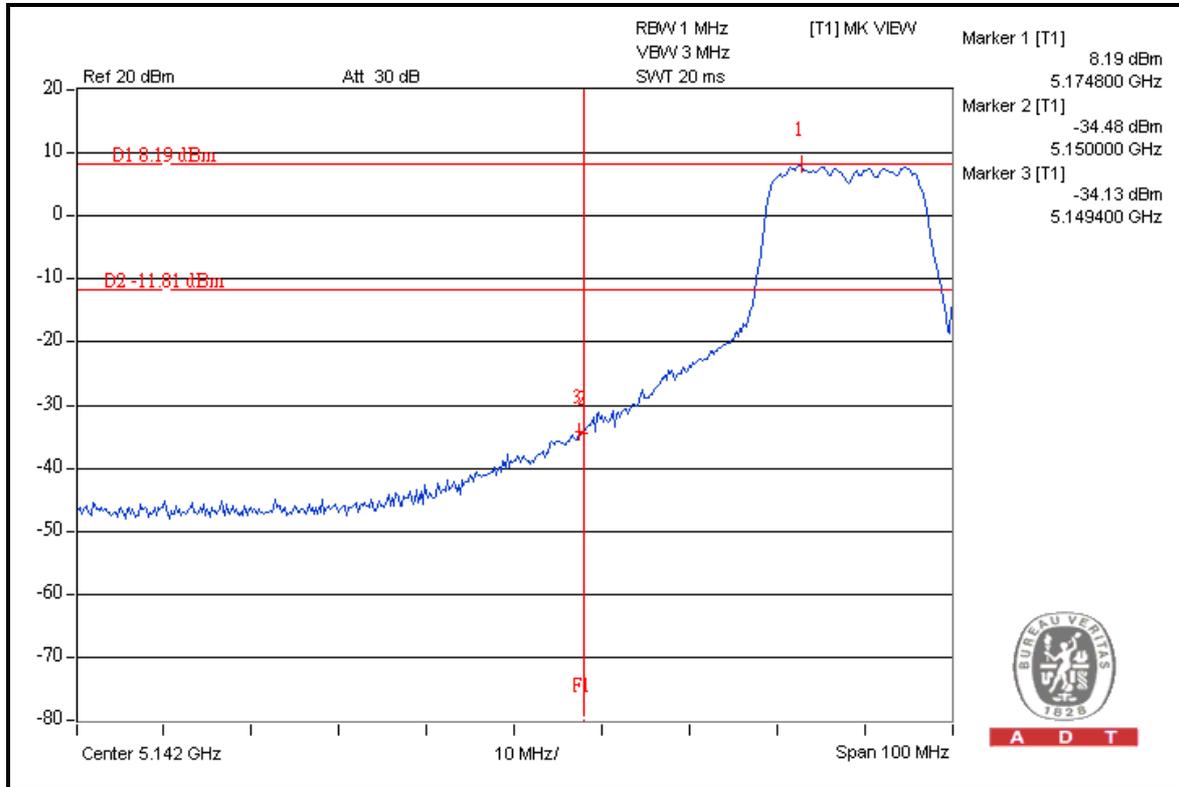




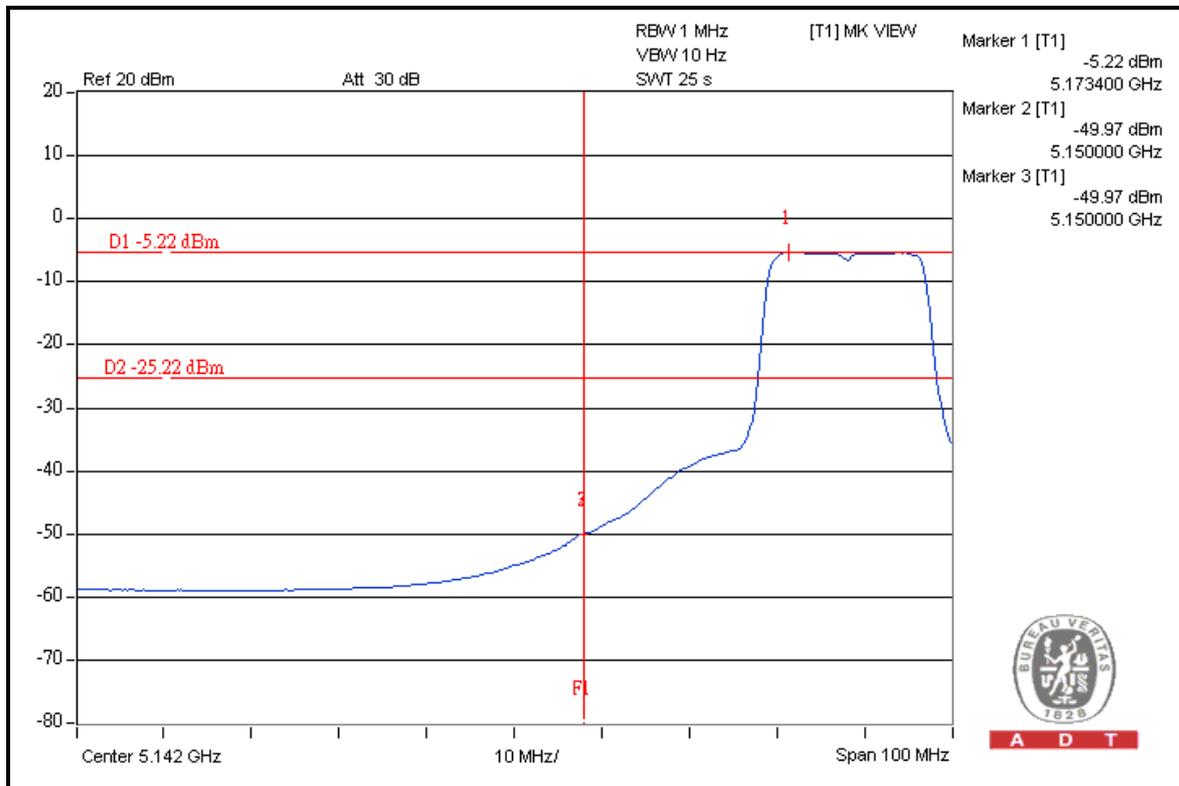
A D T

FOR CONDUCTED MEASURED

CHAIN 0



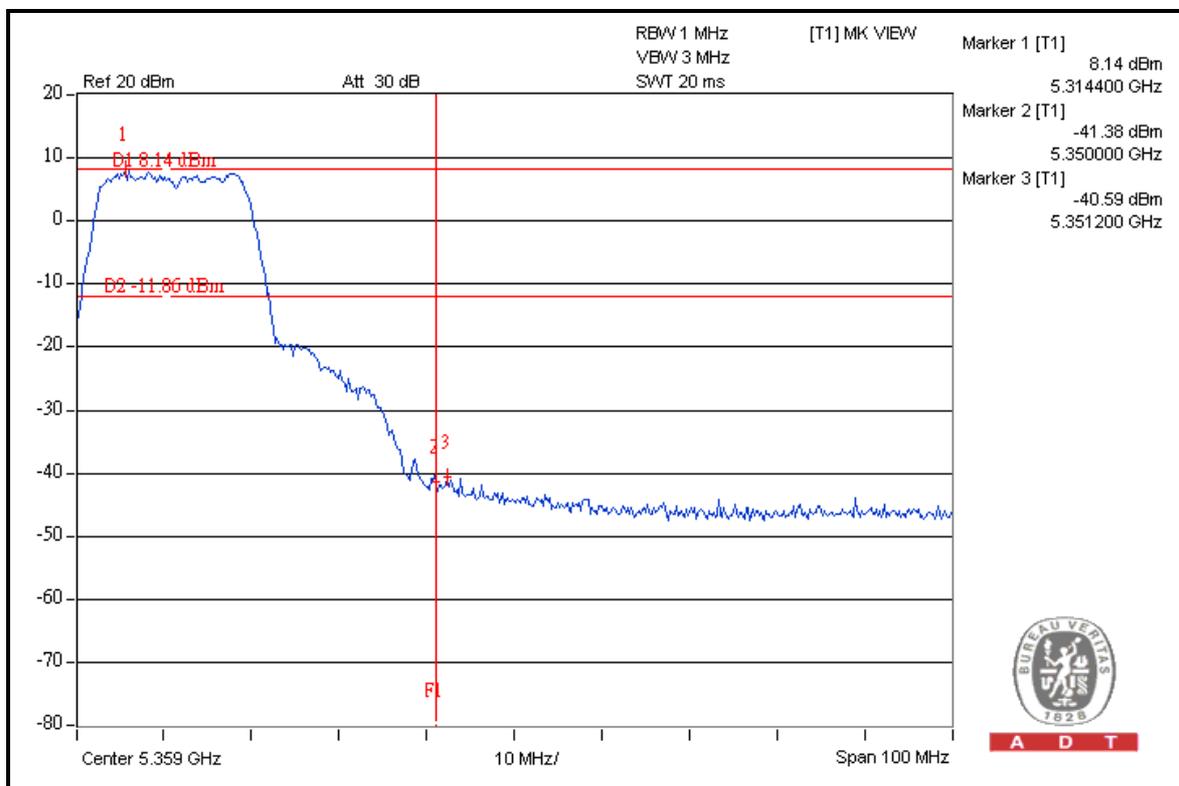
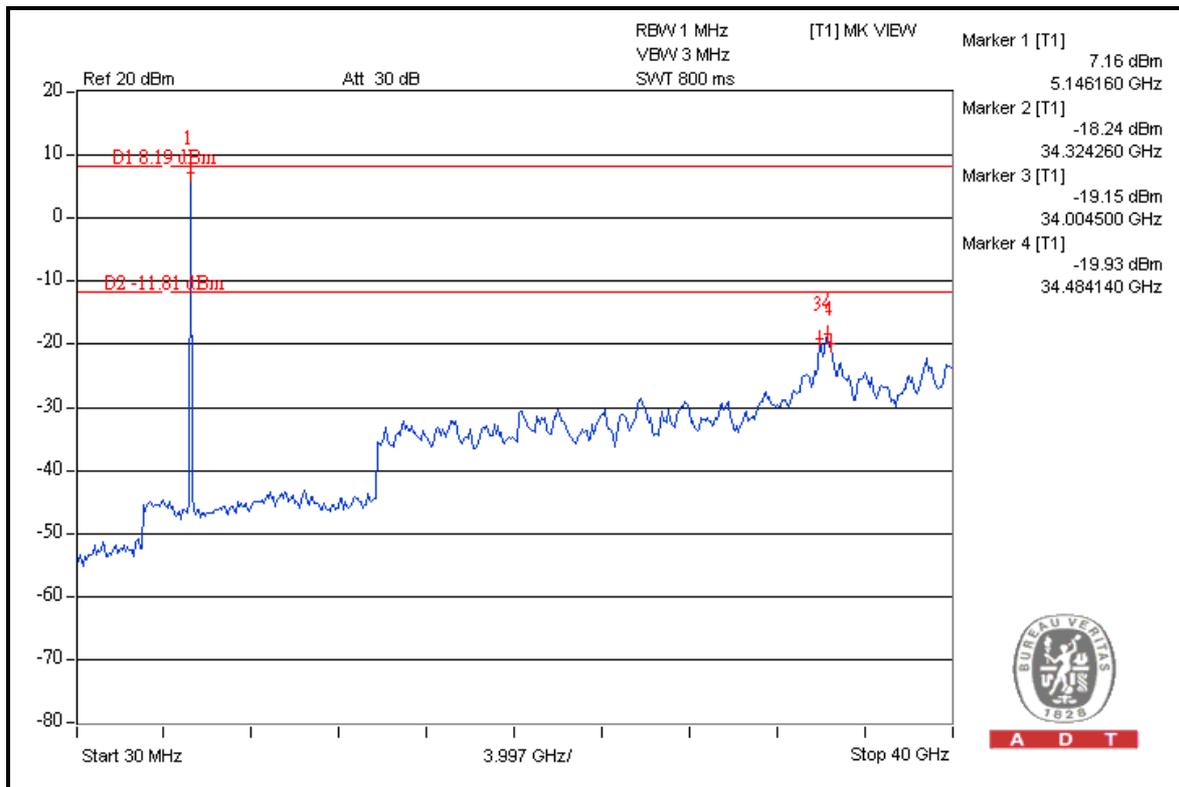
A D T



A D T

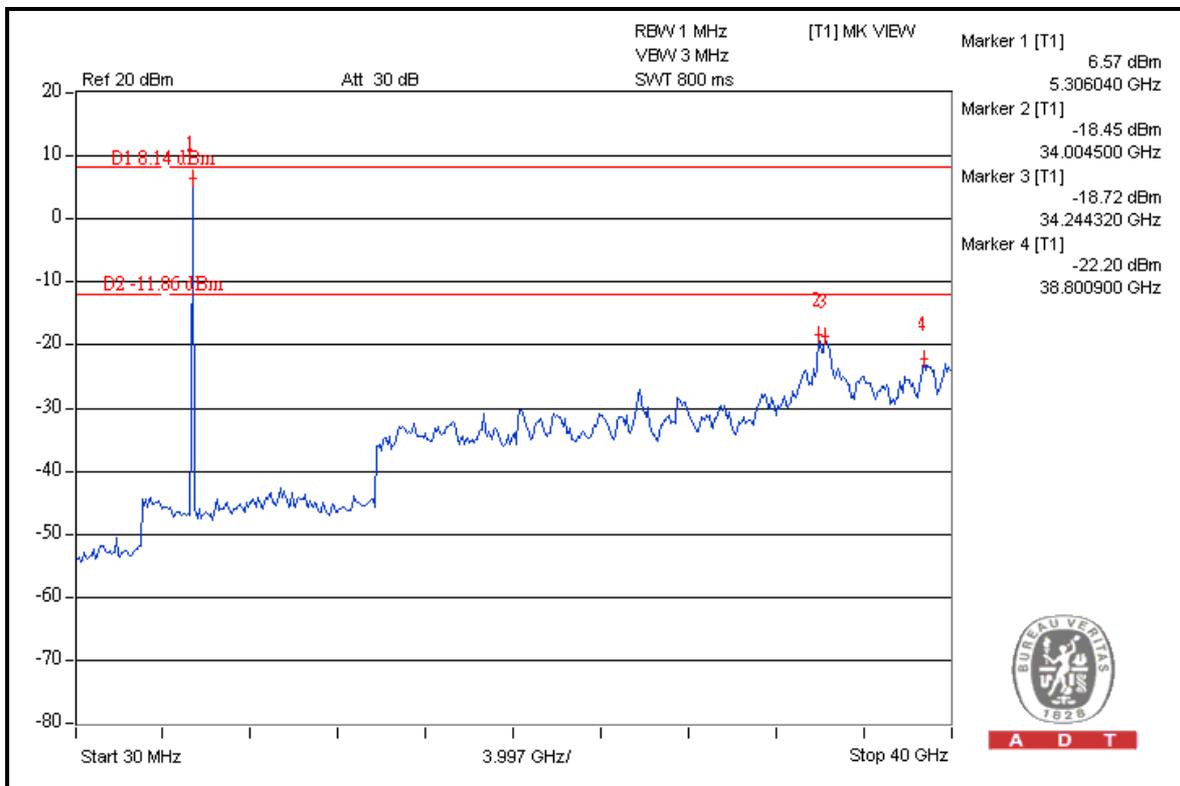
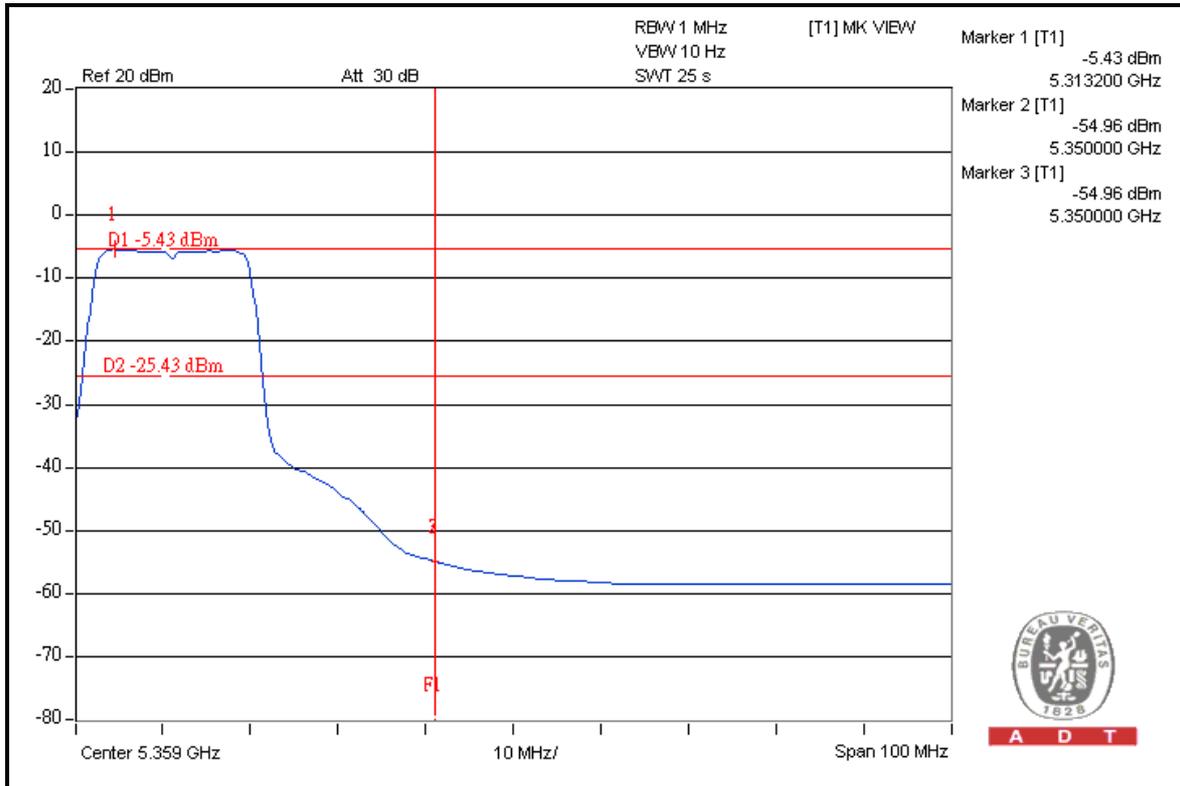


A D T





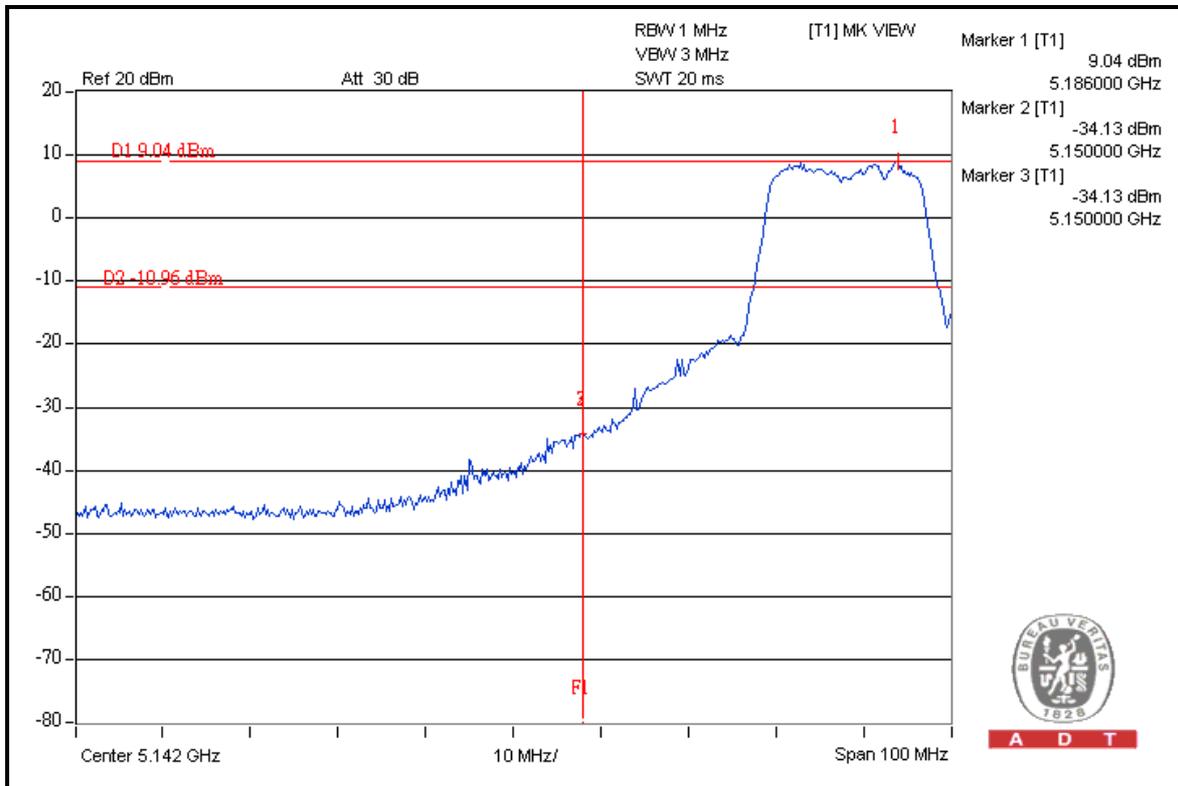
A D T



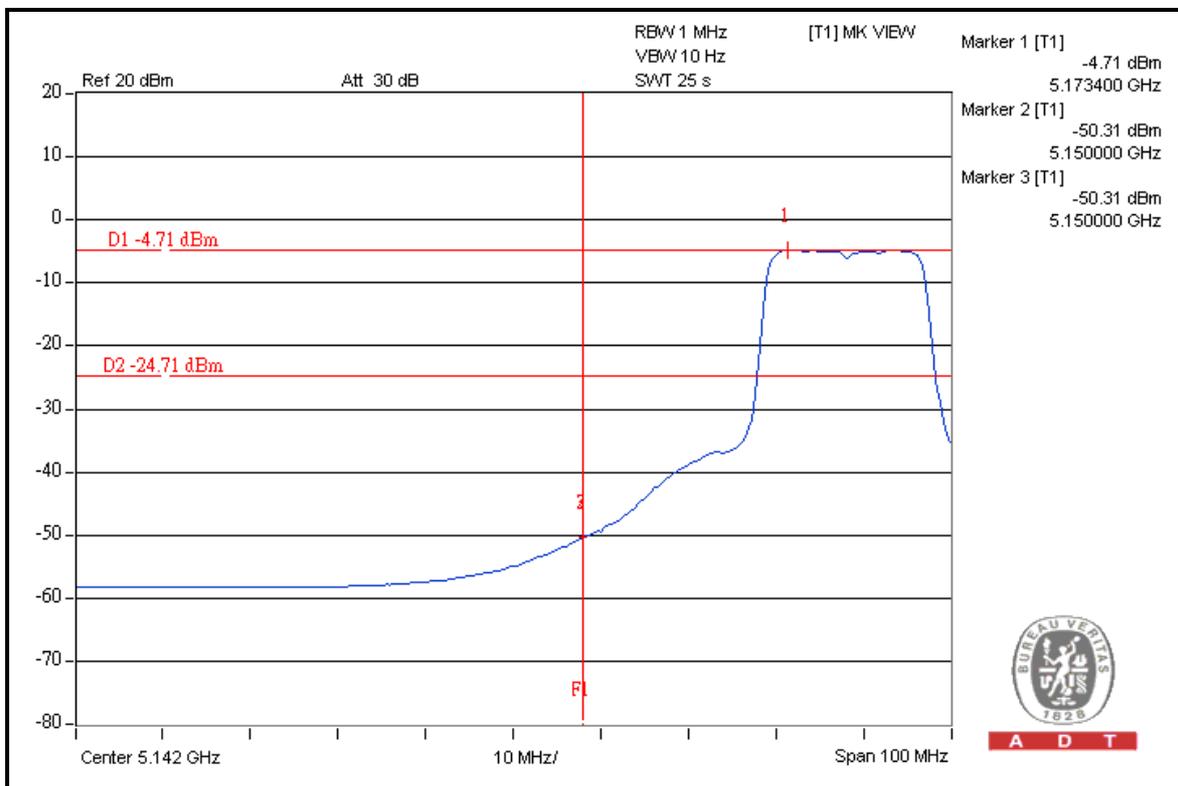


A D T

CHAIN 1



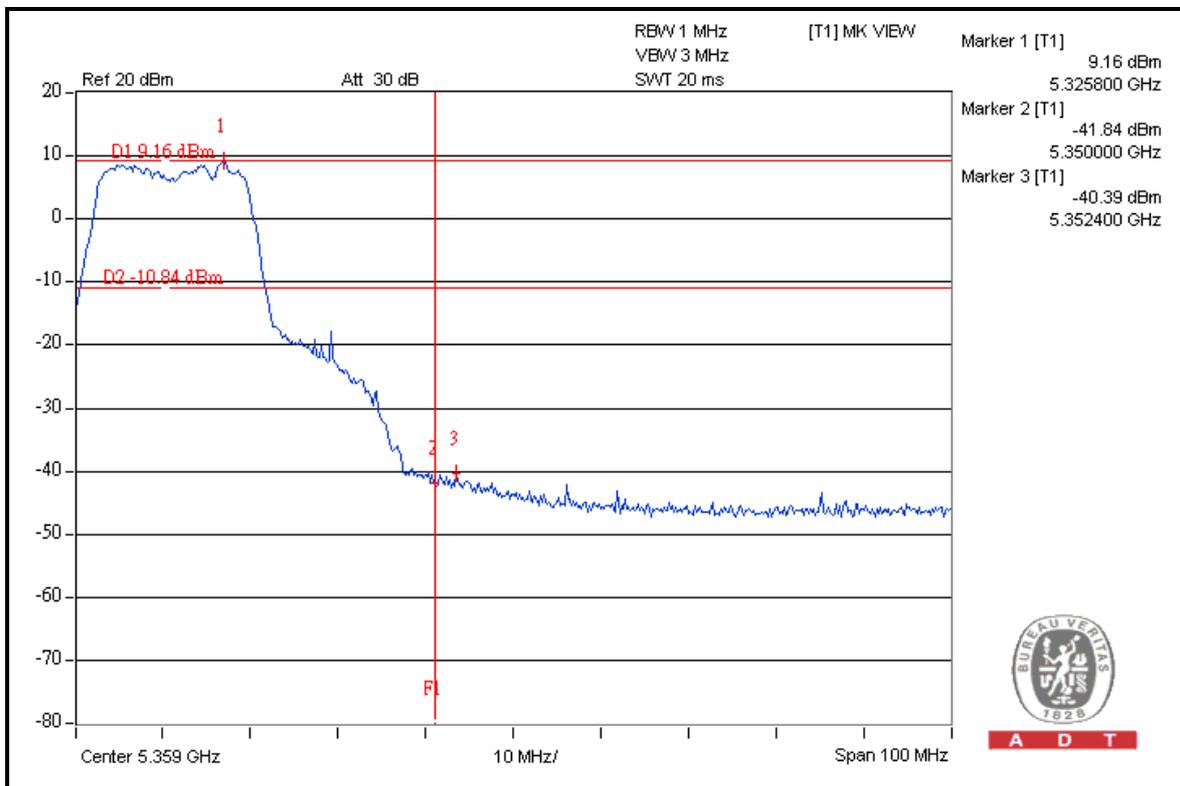
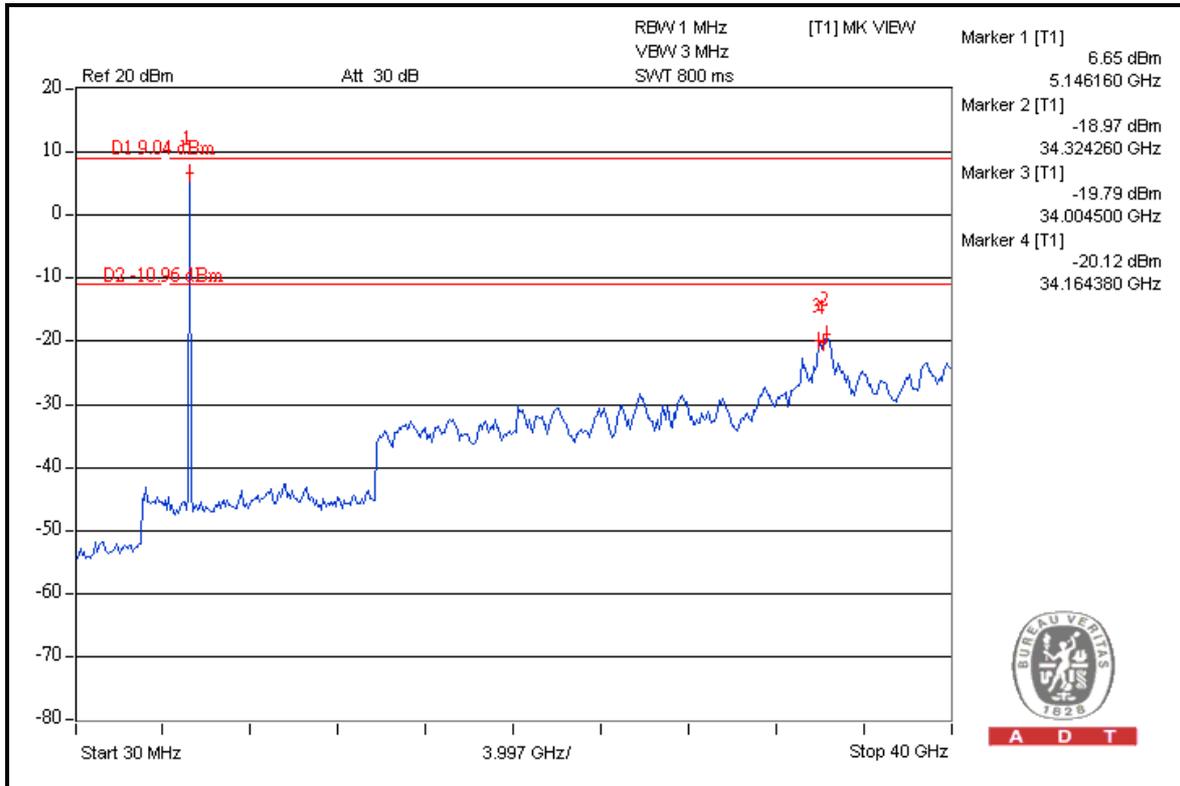
A D T



A D T

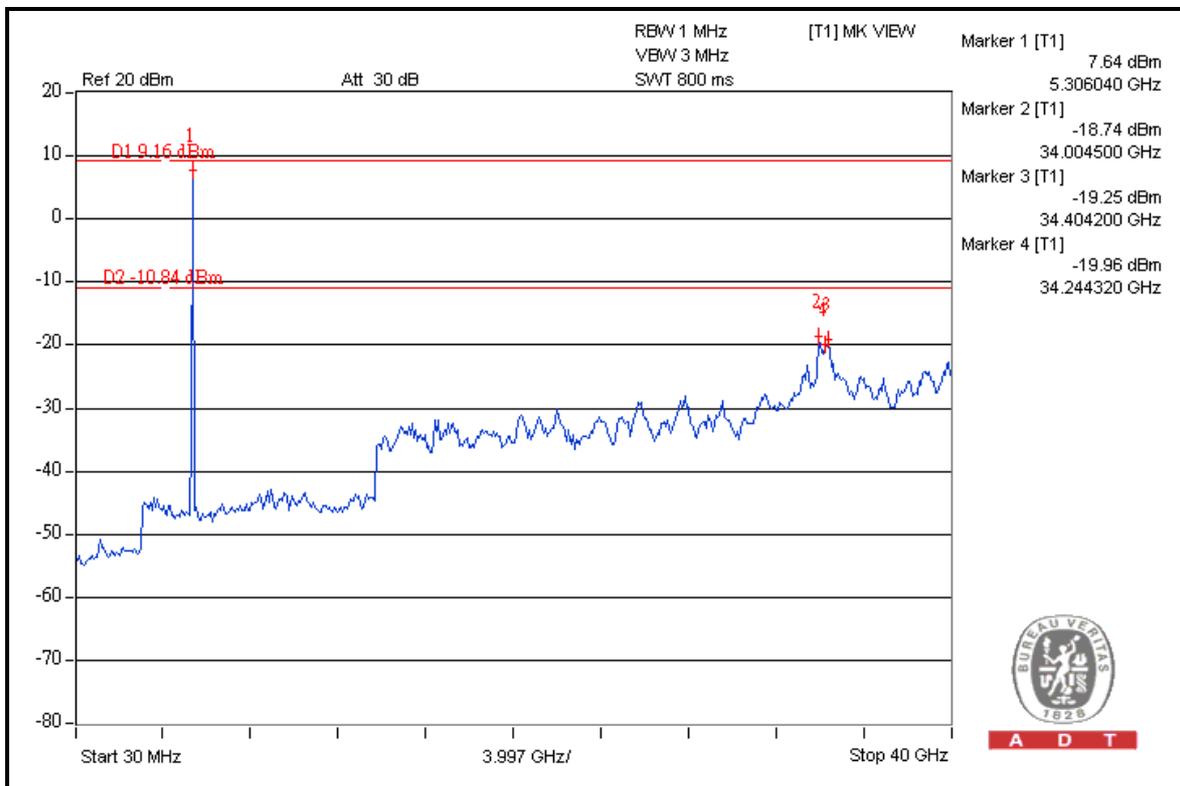
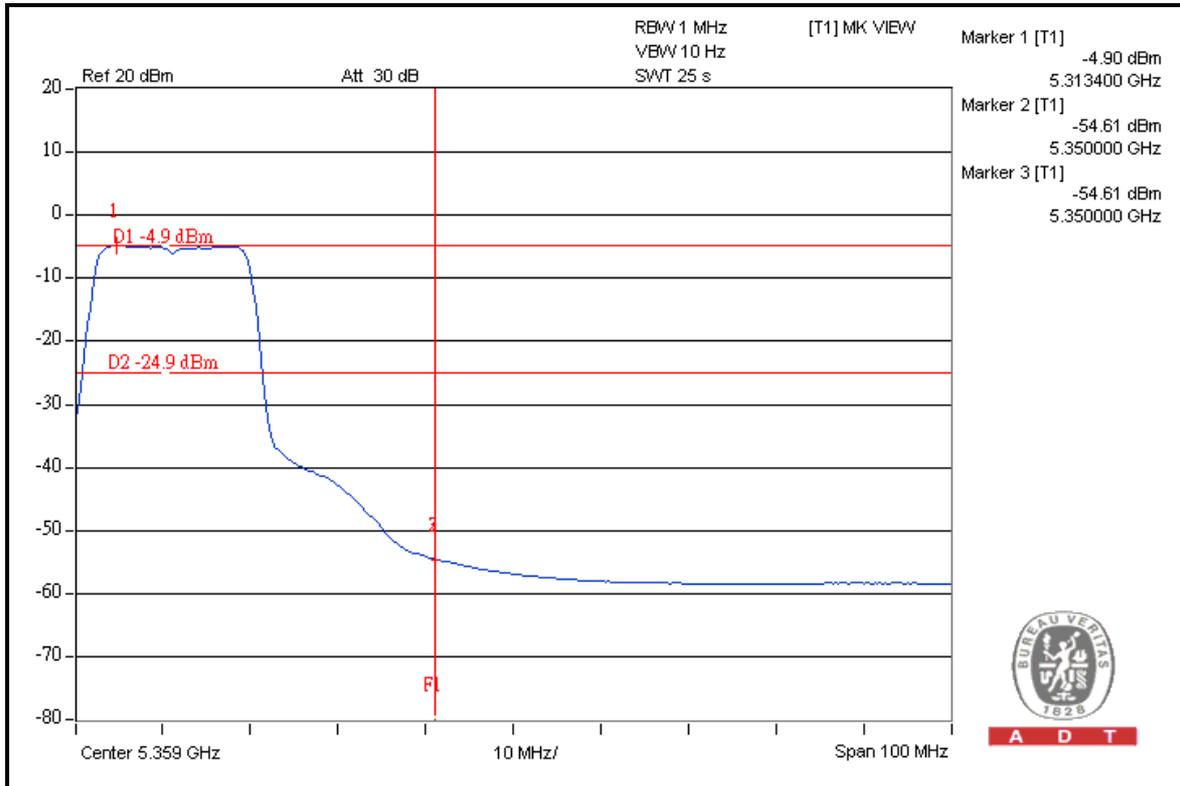


A D T





A D T



FOR 5500-5700MHz BAND:

802.11n (20MHz)

5500MHz

RESTRICT BAND (5350 ~ 5460 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	106.2	44.0	62.2	74.00
5500.00 (AV)	96.2	46.1	50.1	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)	106.2	43.2	63.0	68.30

5700MHz

ABOVE 5725 MHz

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	107.1	39.2	67.9	68.30

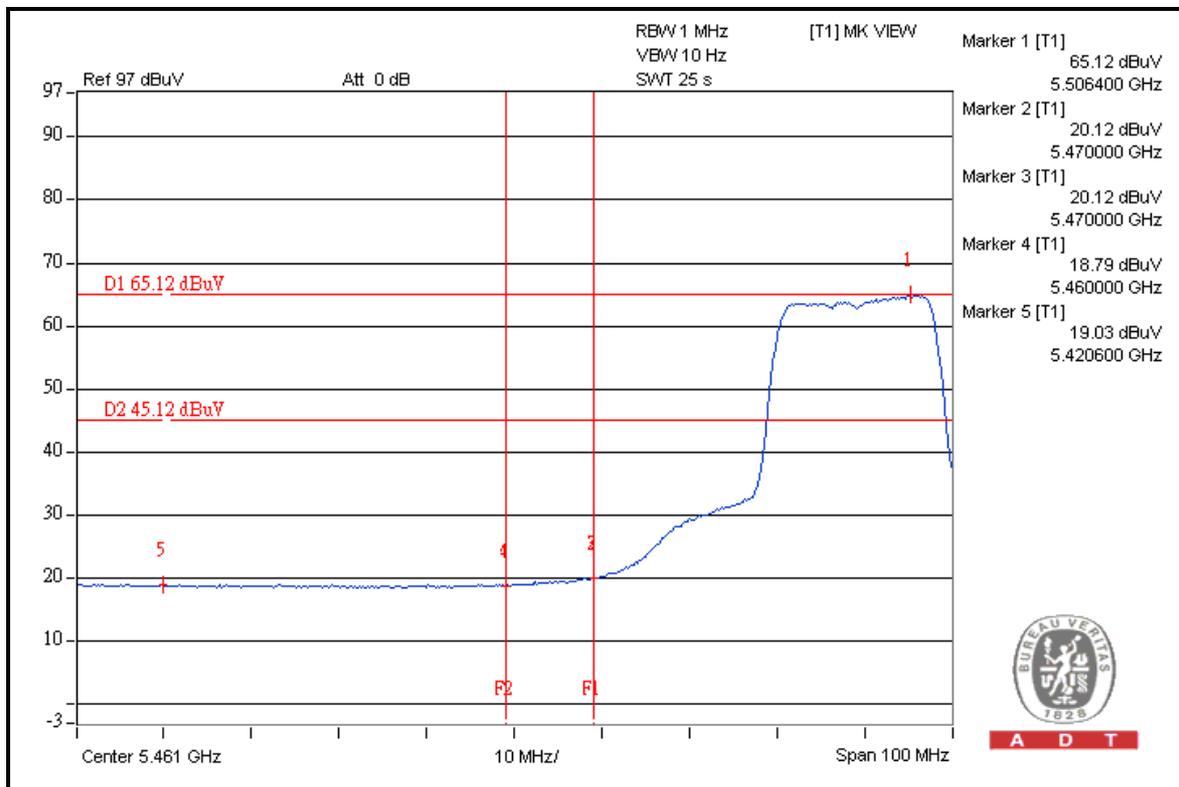
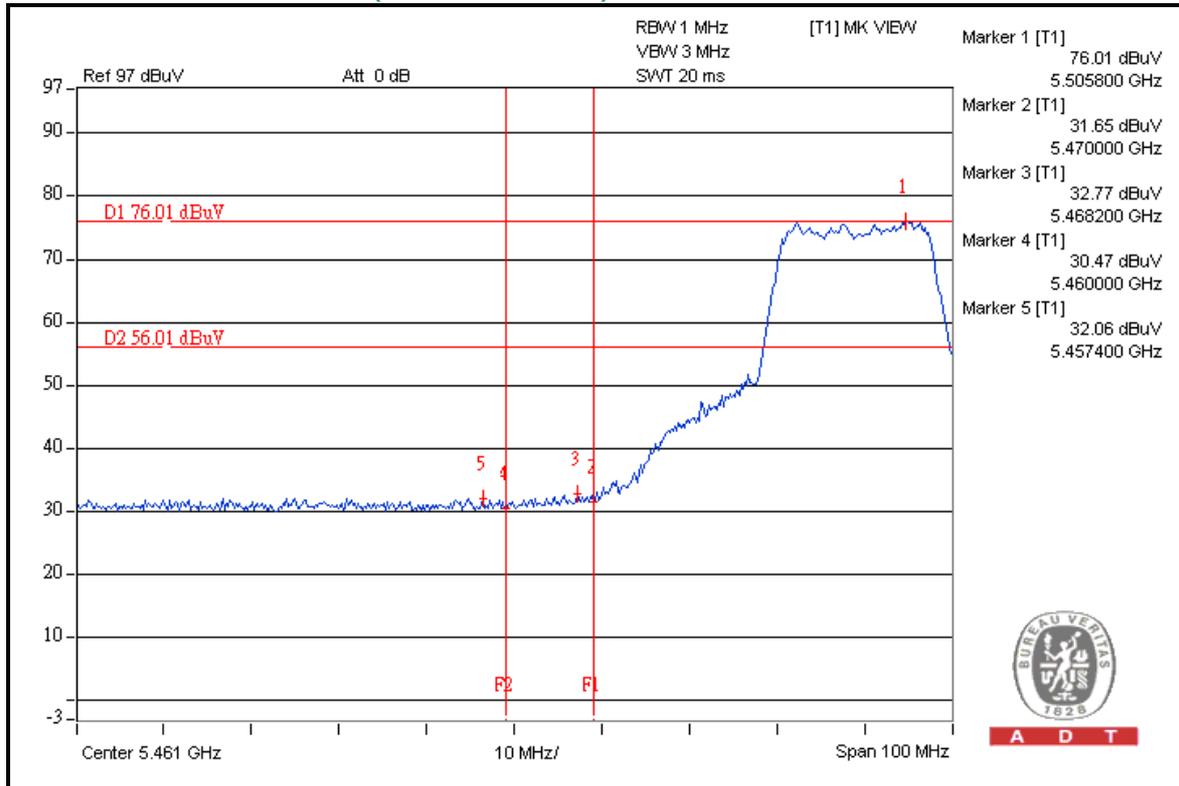
NOTE:

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.



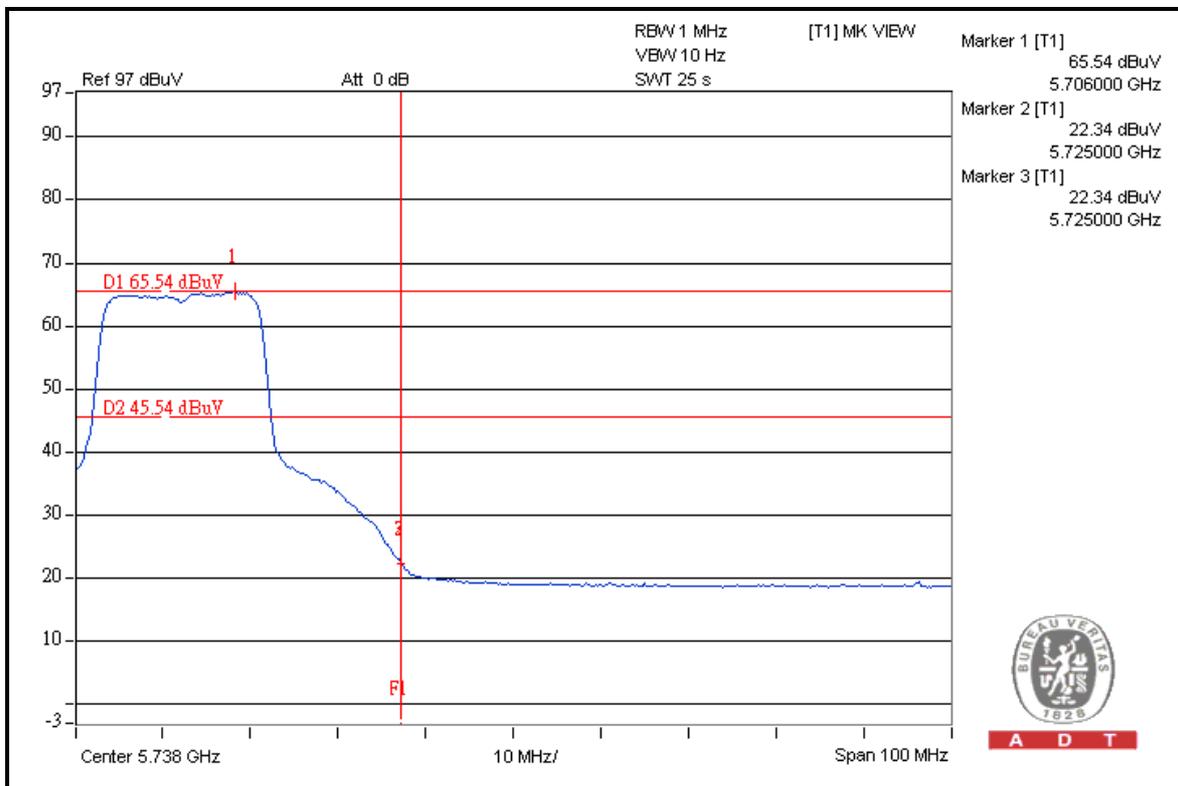
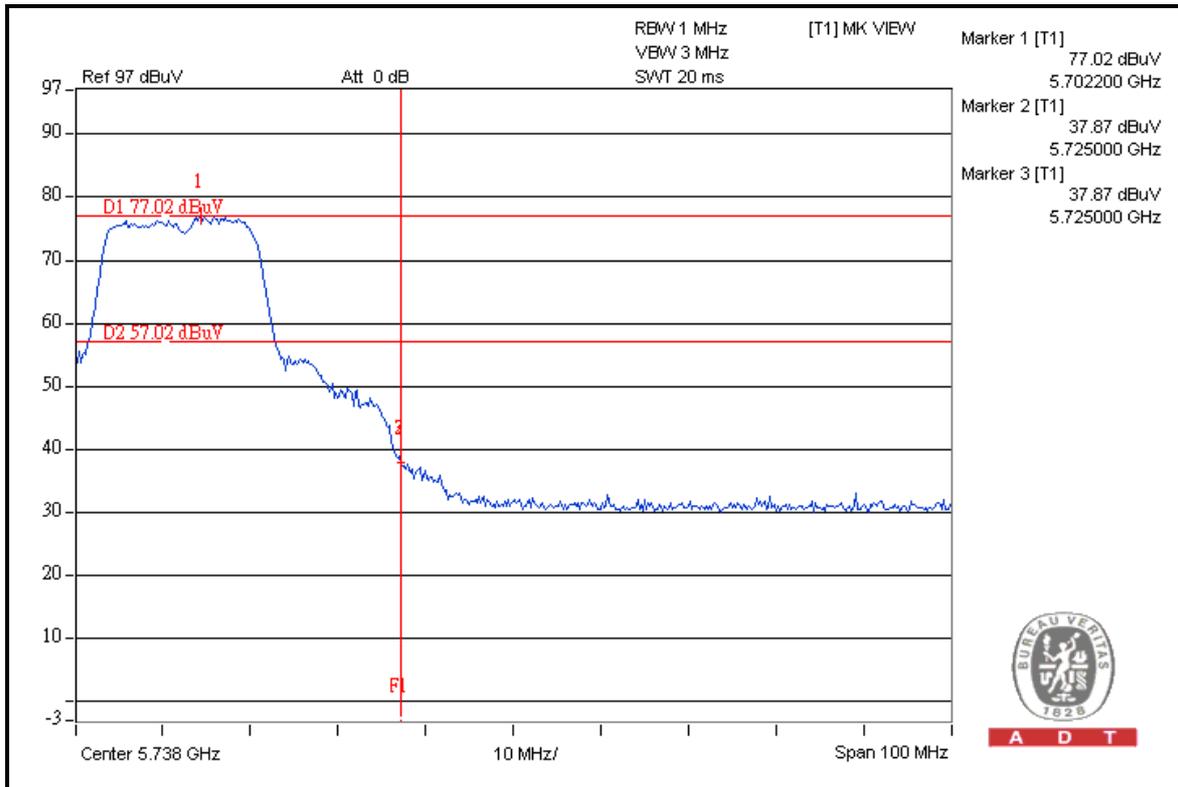
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





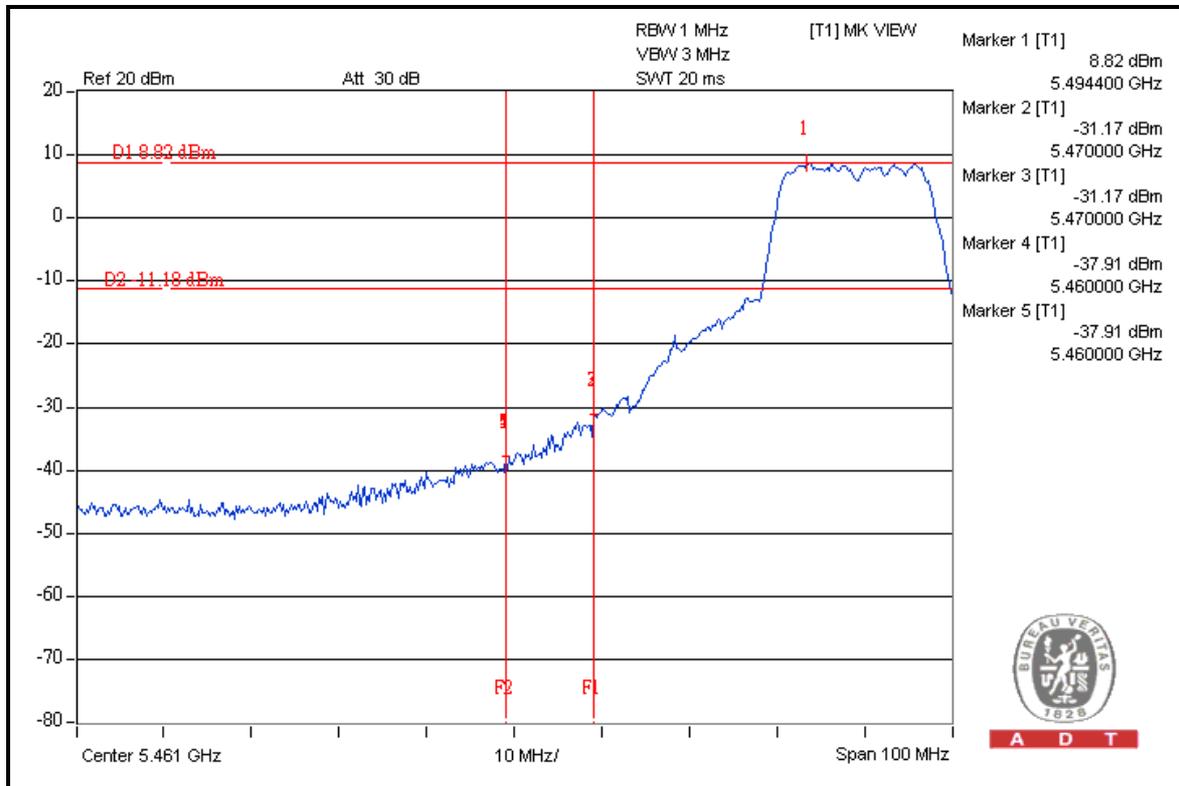
A D T



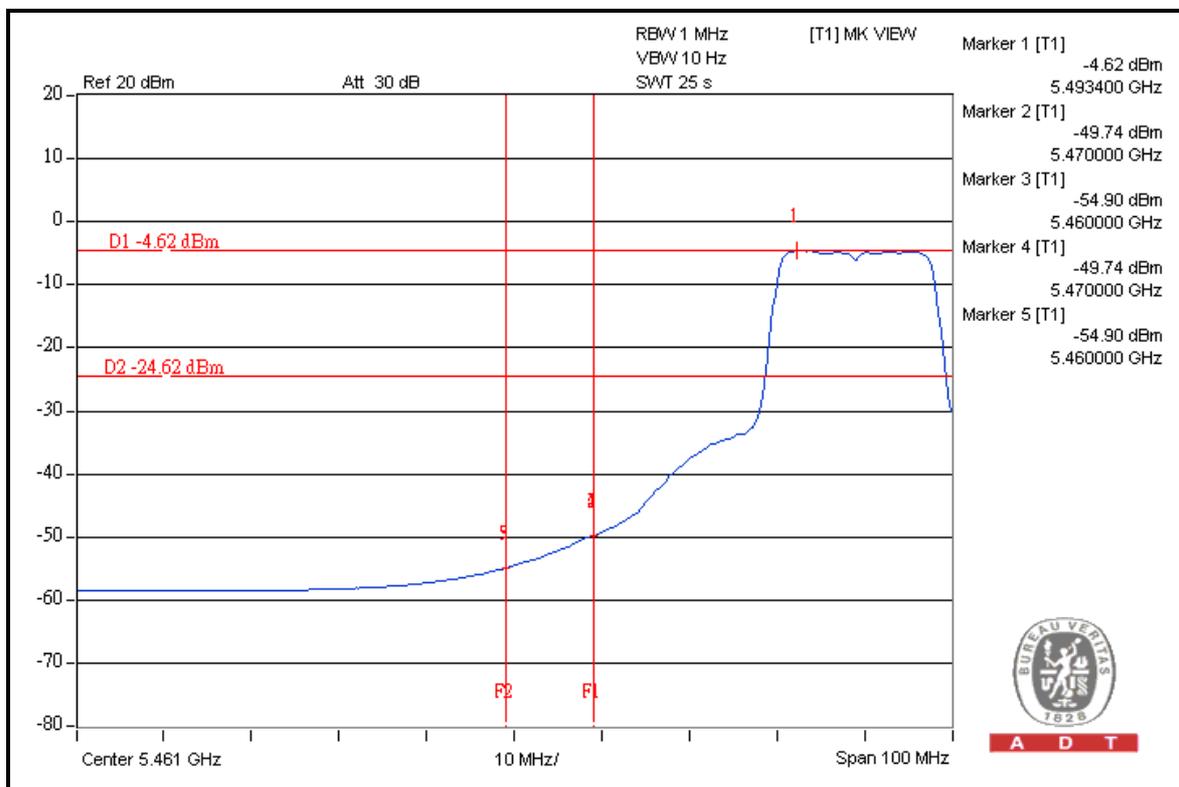


A D T

FOR CONDUCTED MEASURED CHAIN 0



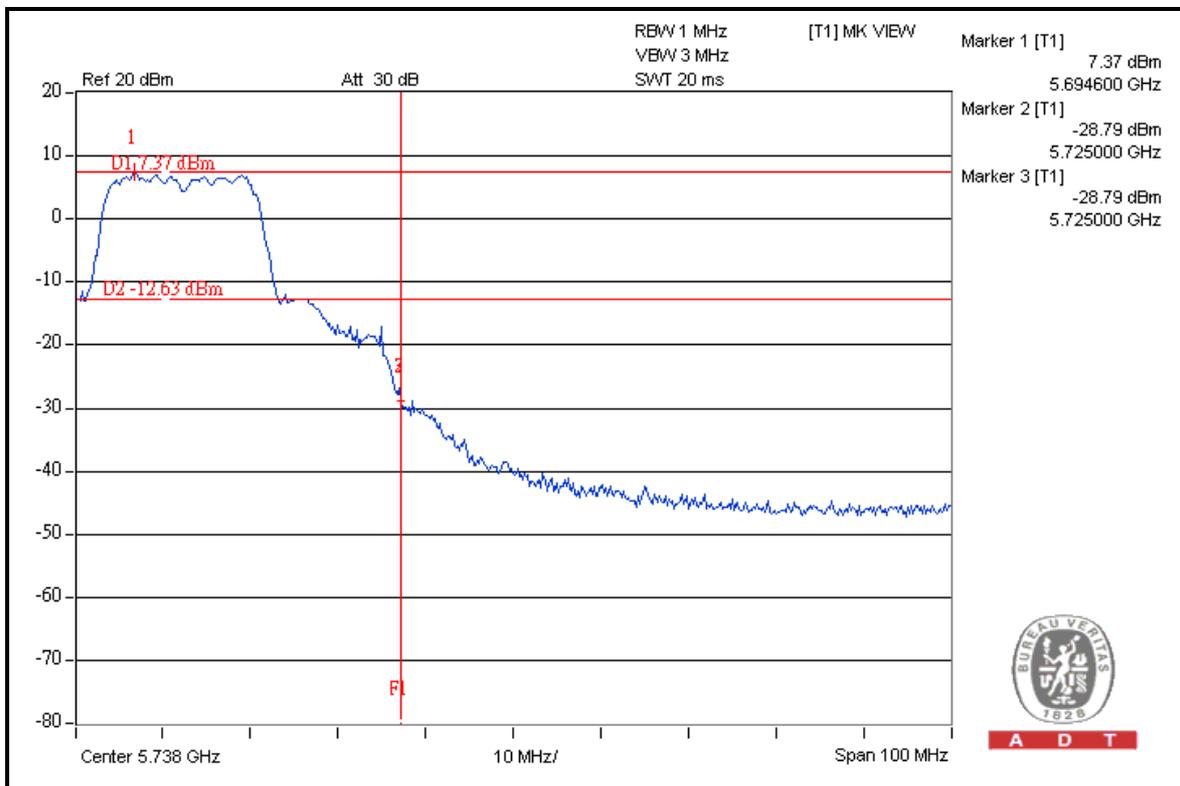
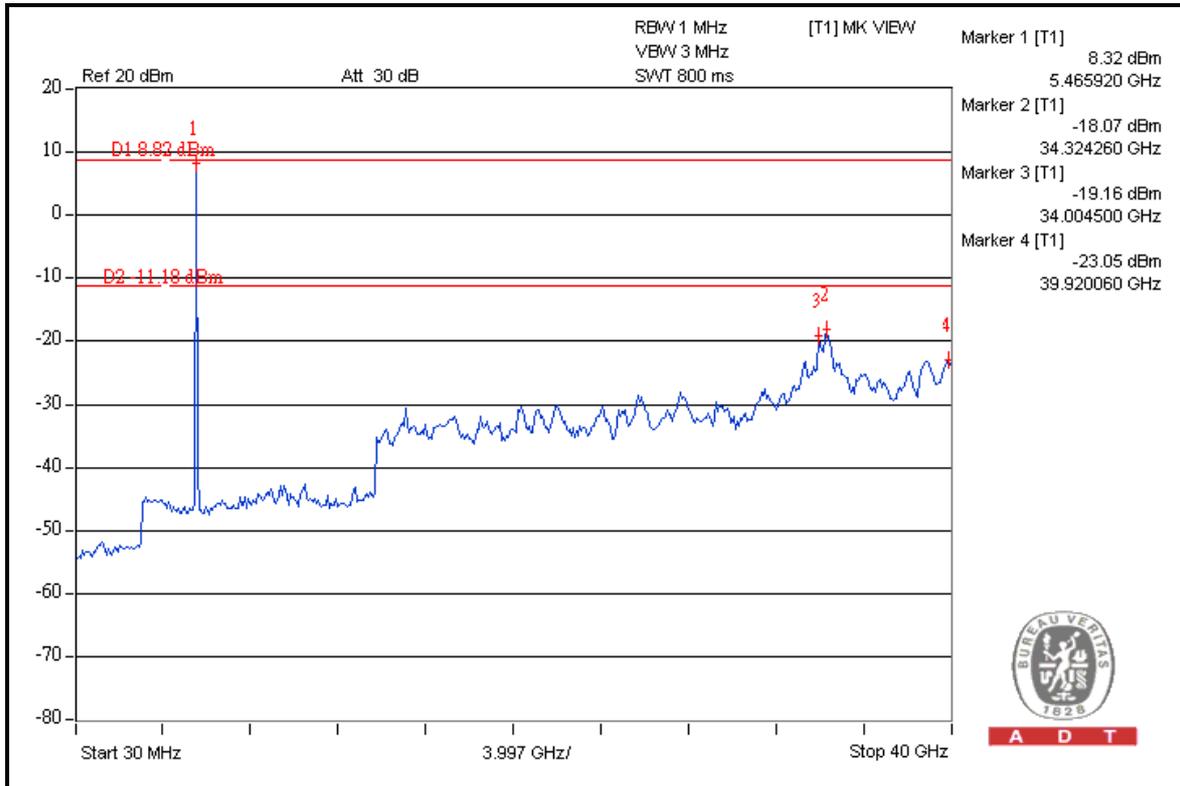
A D T



A D T

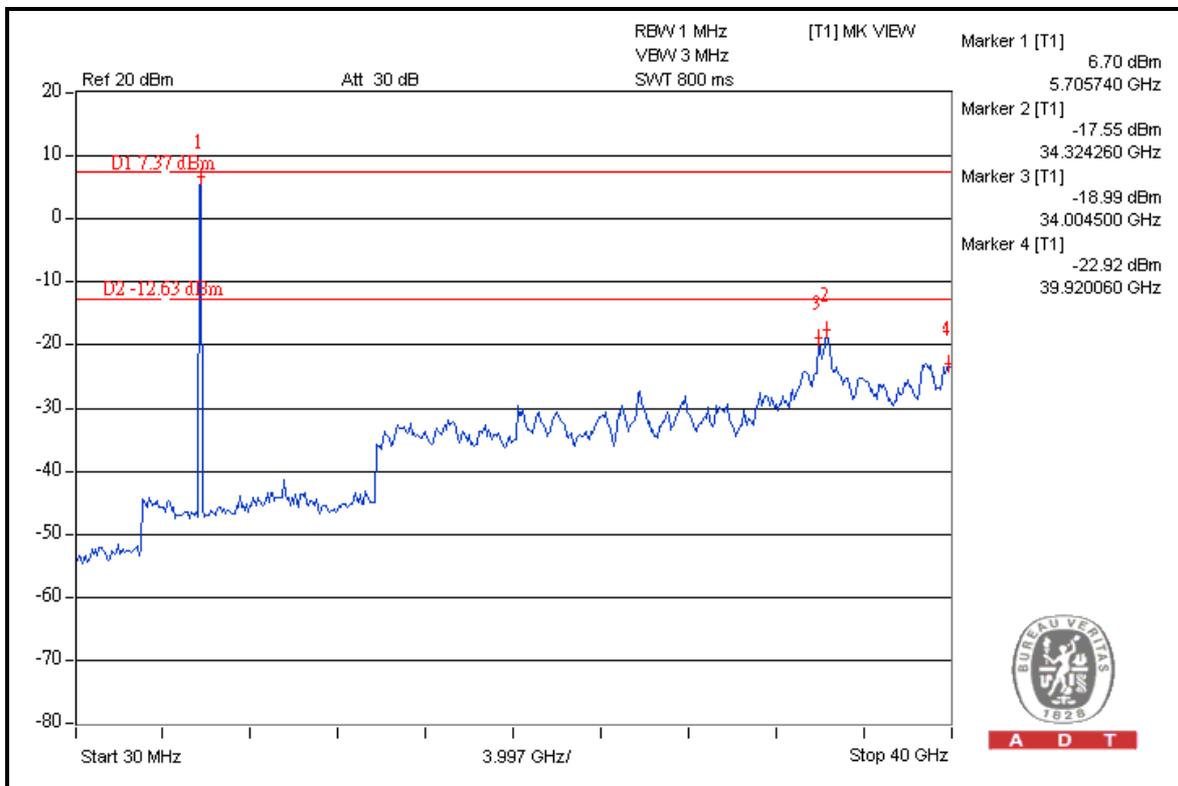
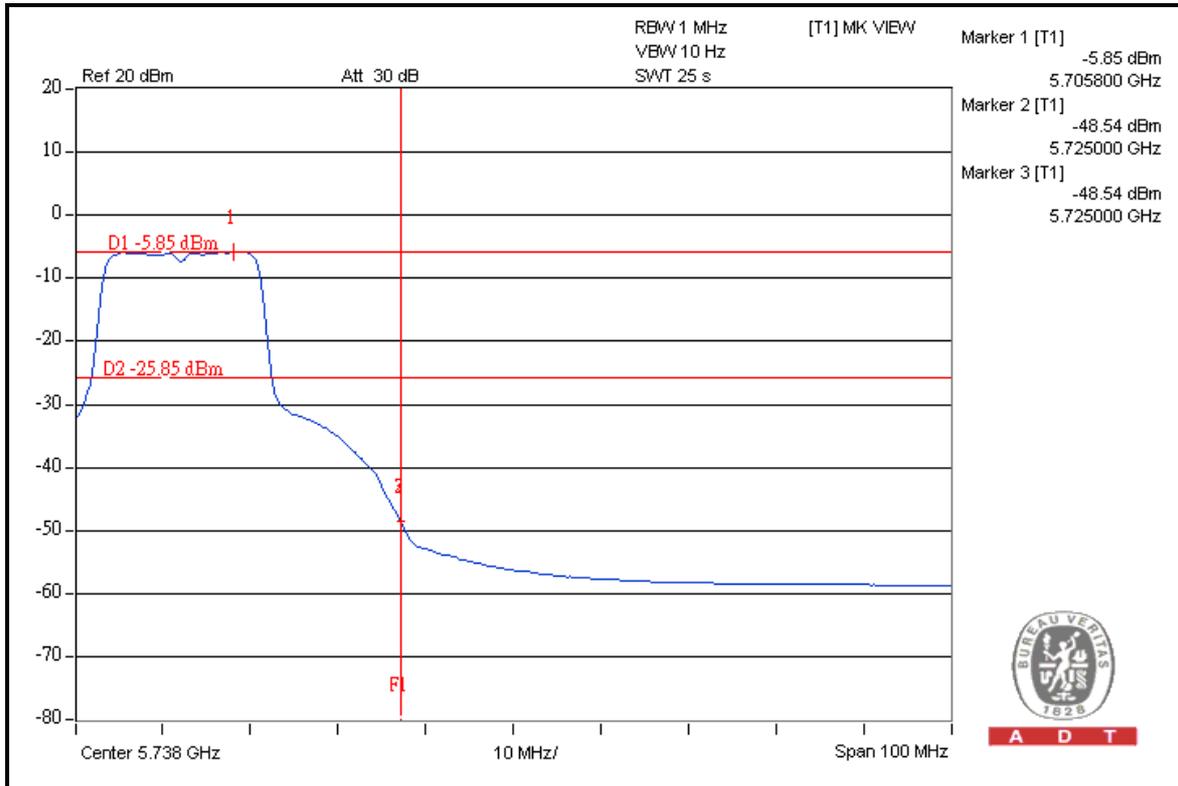


A D T





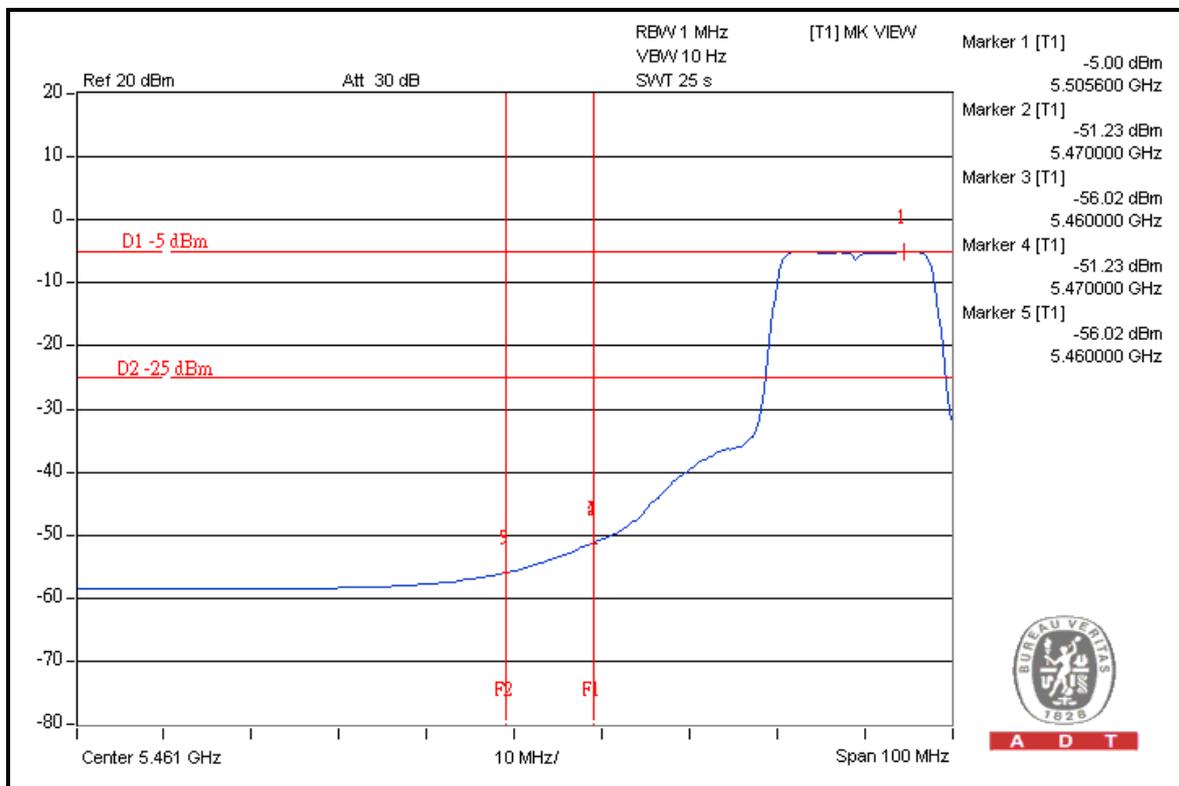
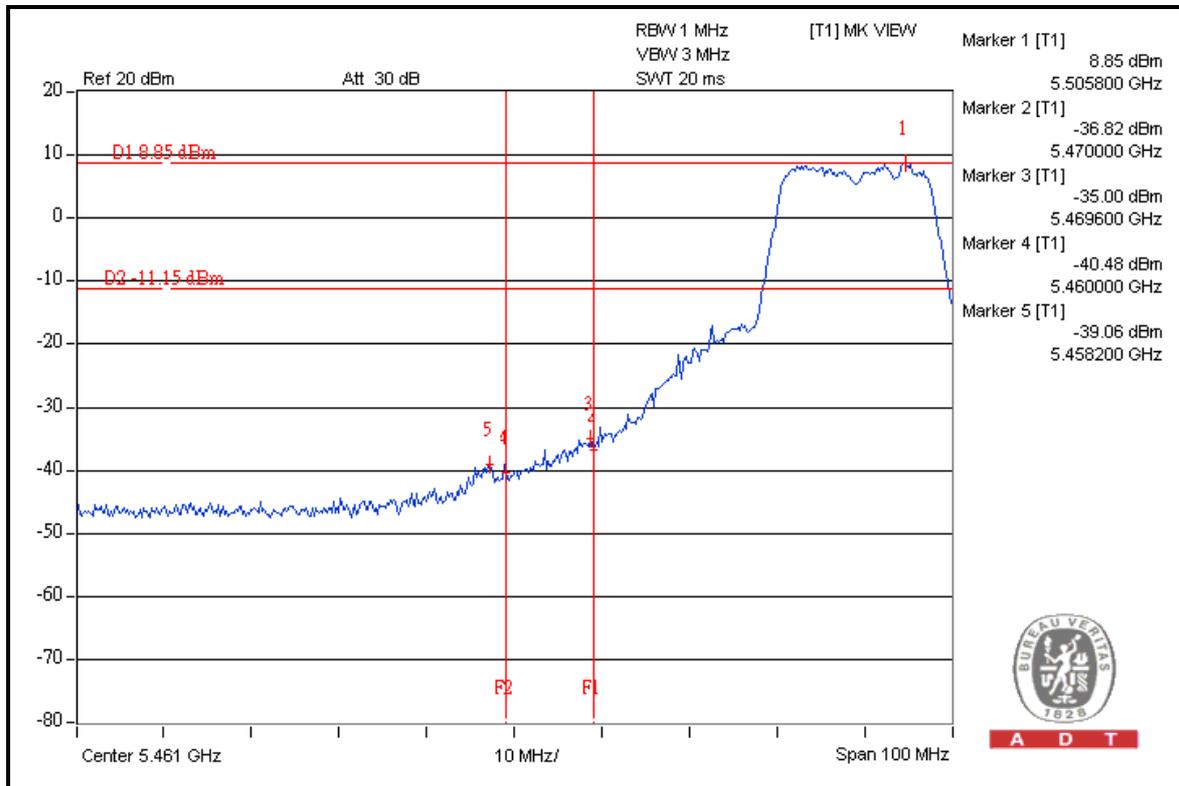
A D T





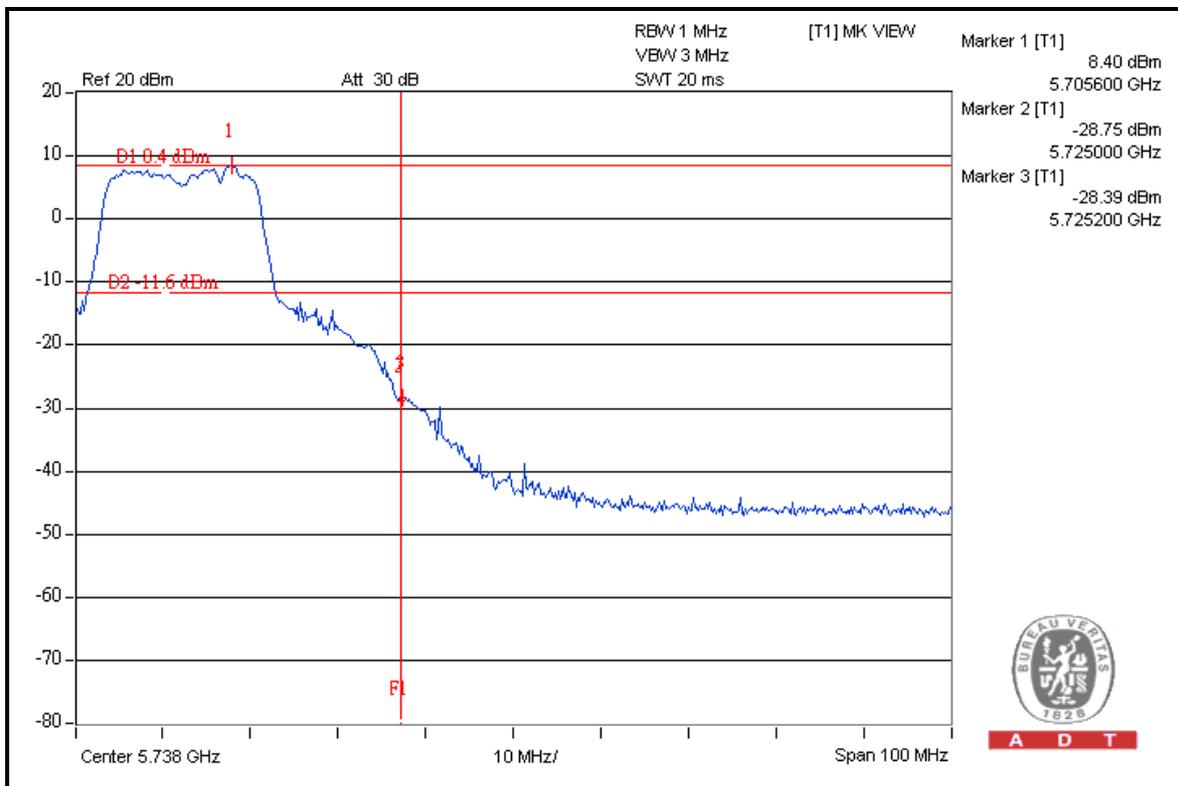
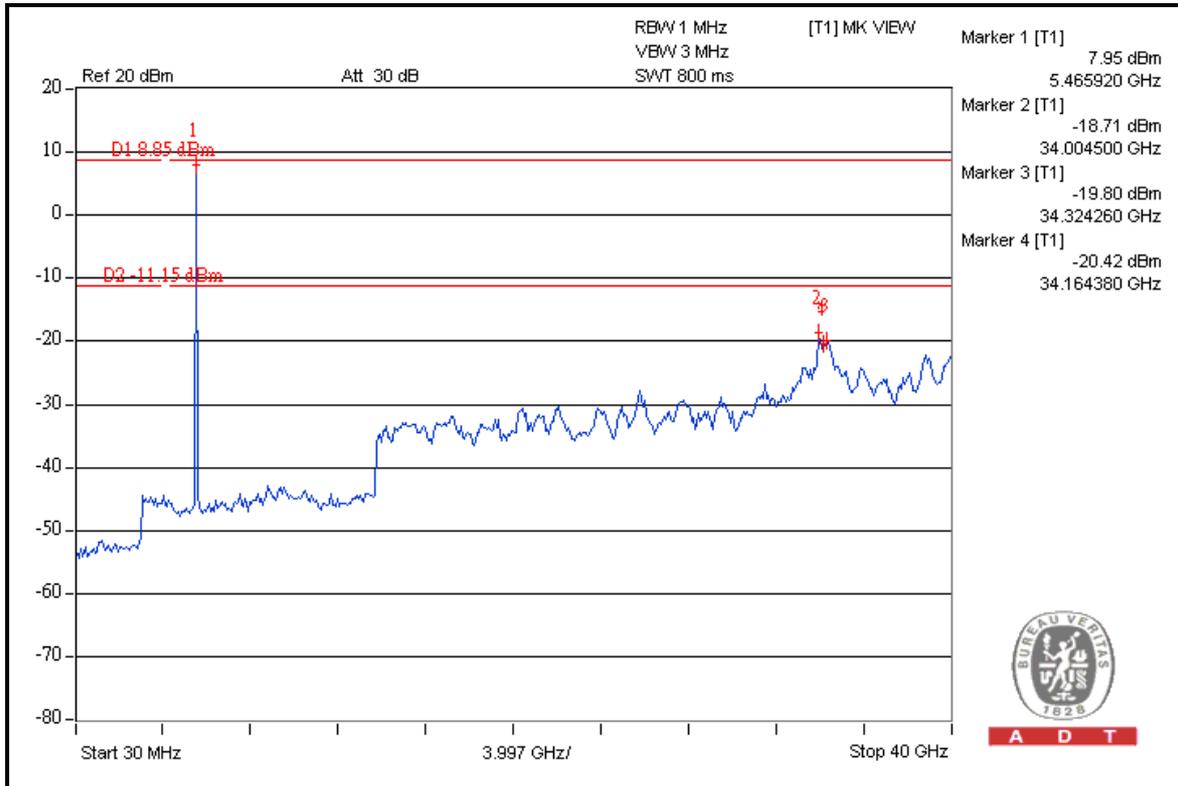
A D T

CHAIN 1



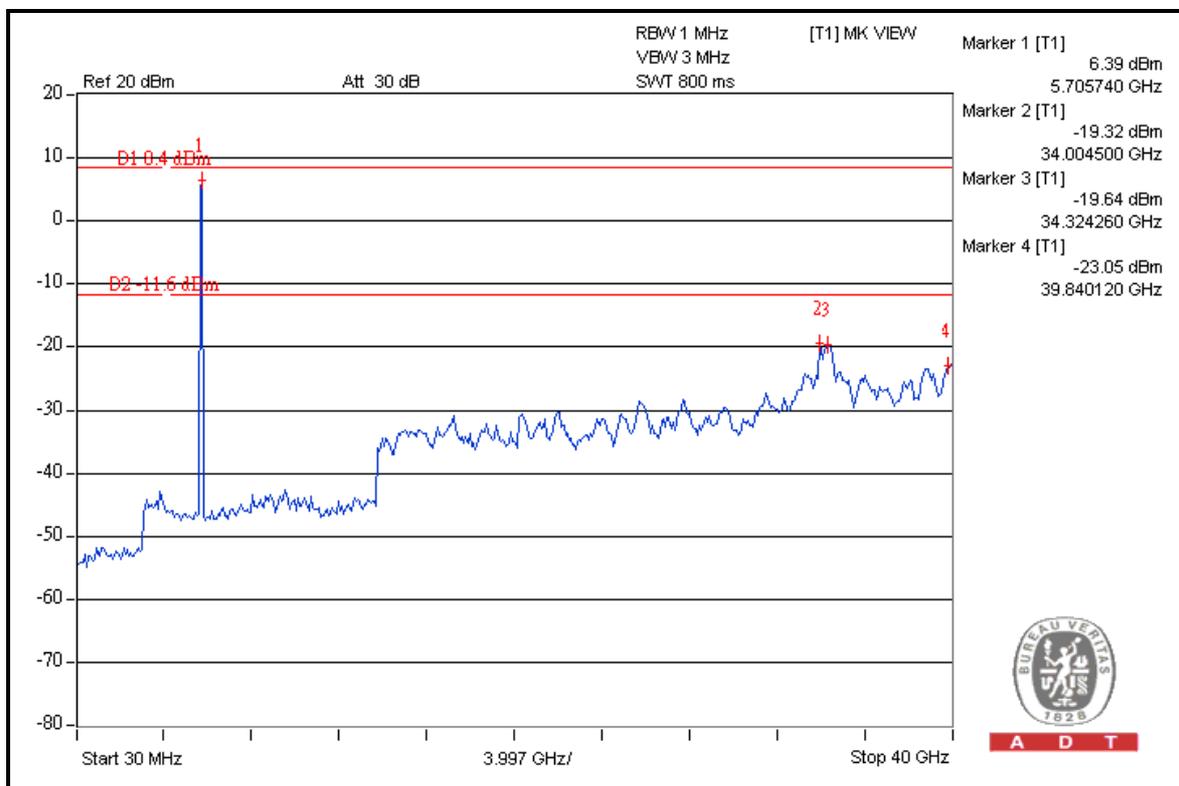
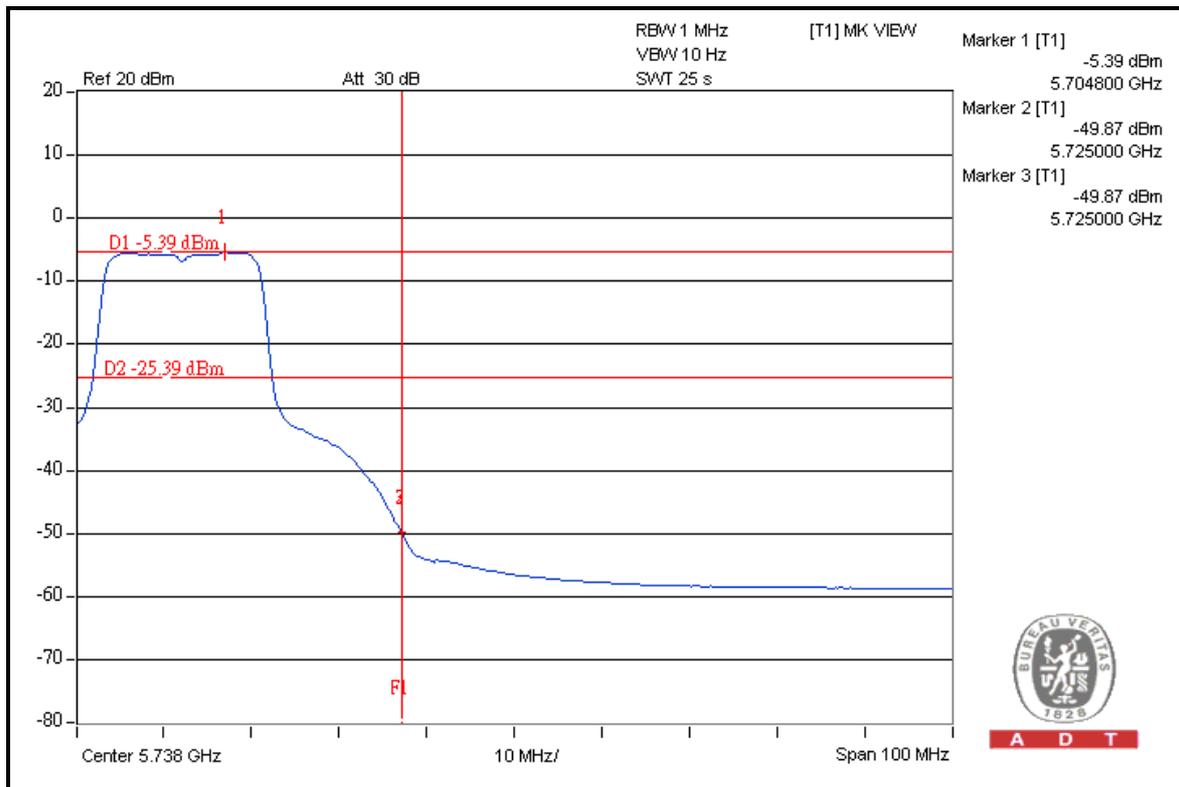


A D T





A D T



FOR 5180-5320MHz BAND:

802.11n (40MHz)

RESTRICT BAND (4500 ~ 5150 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5190.00 (PK)	107.1	34.4	72.7	74.00
5190.00 (AV)	97.1	43.3	53.8	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)	109.3	37.5	71.8	74.00
5310.00 (AV)	99.2	46.0	53.2	54.00

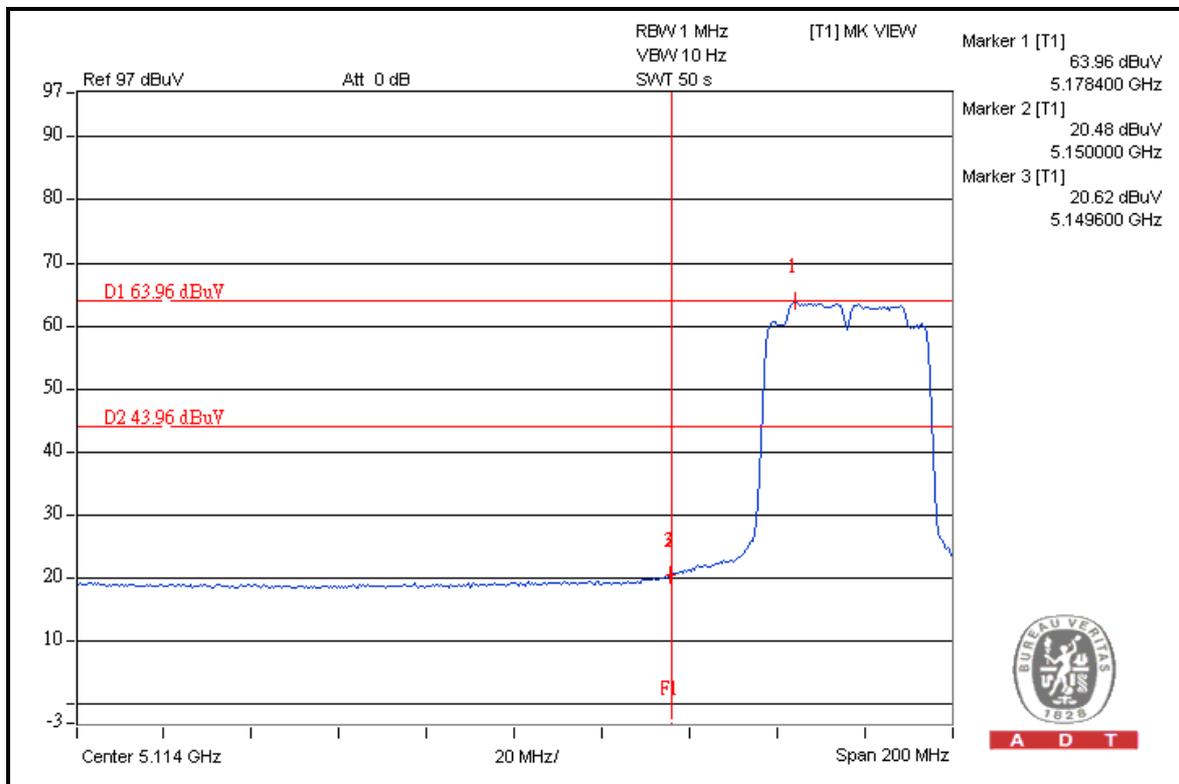
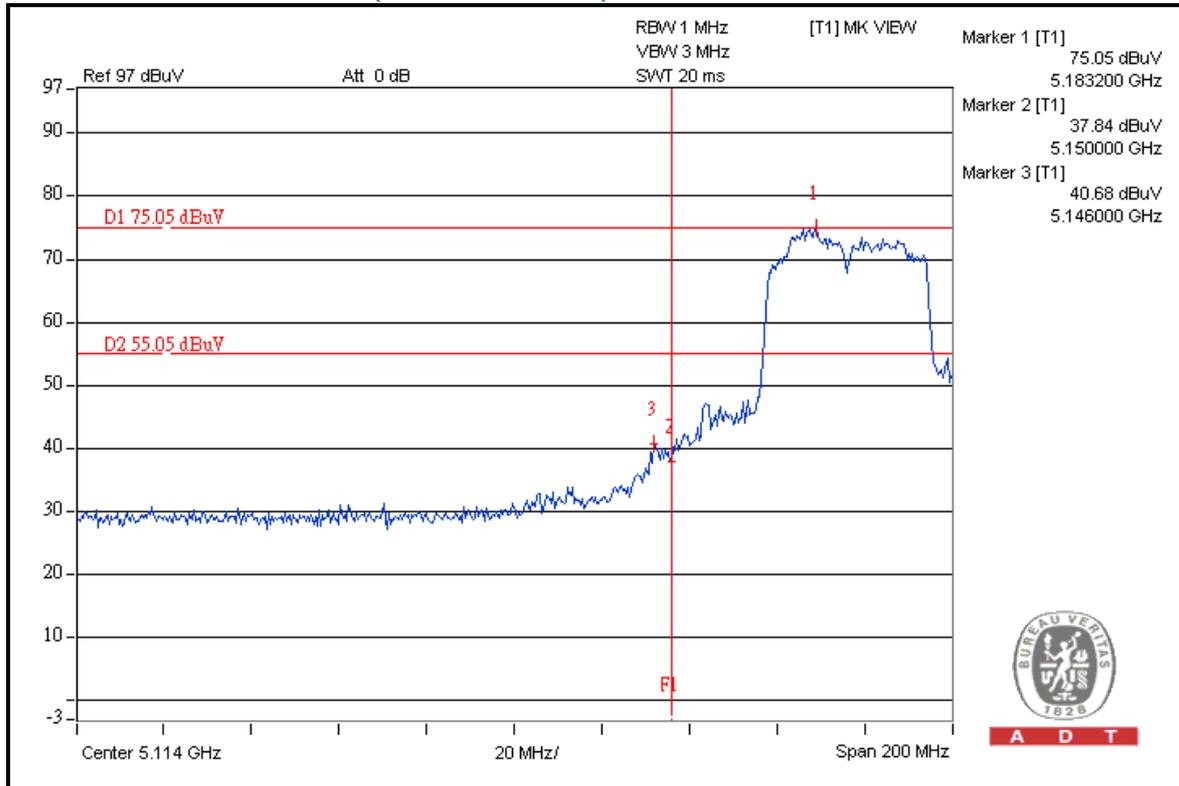
NOTE:

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



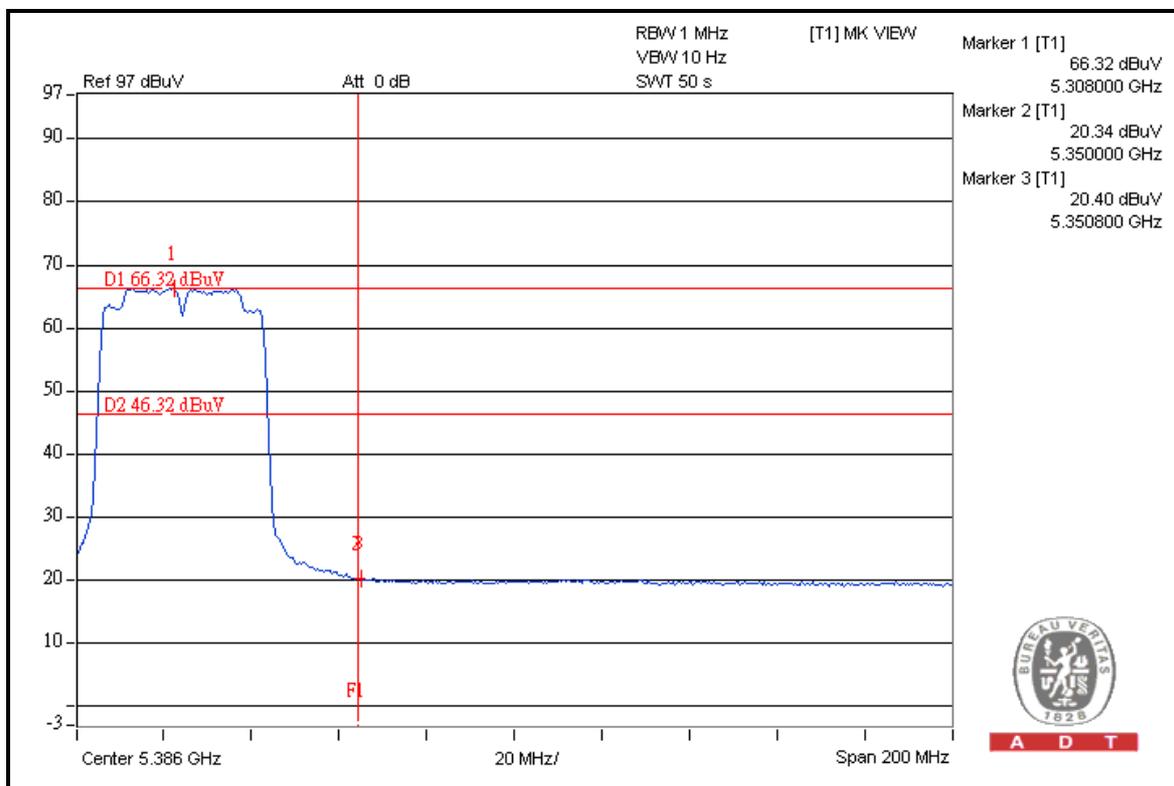
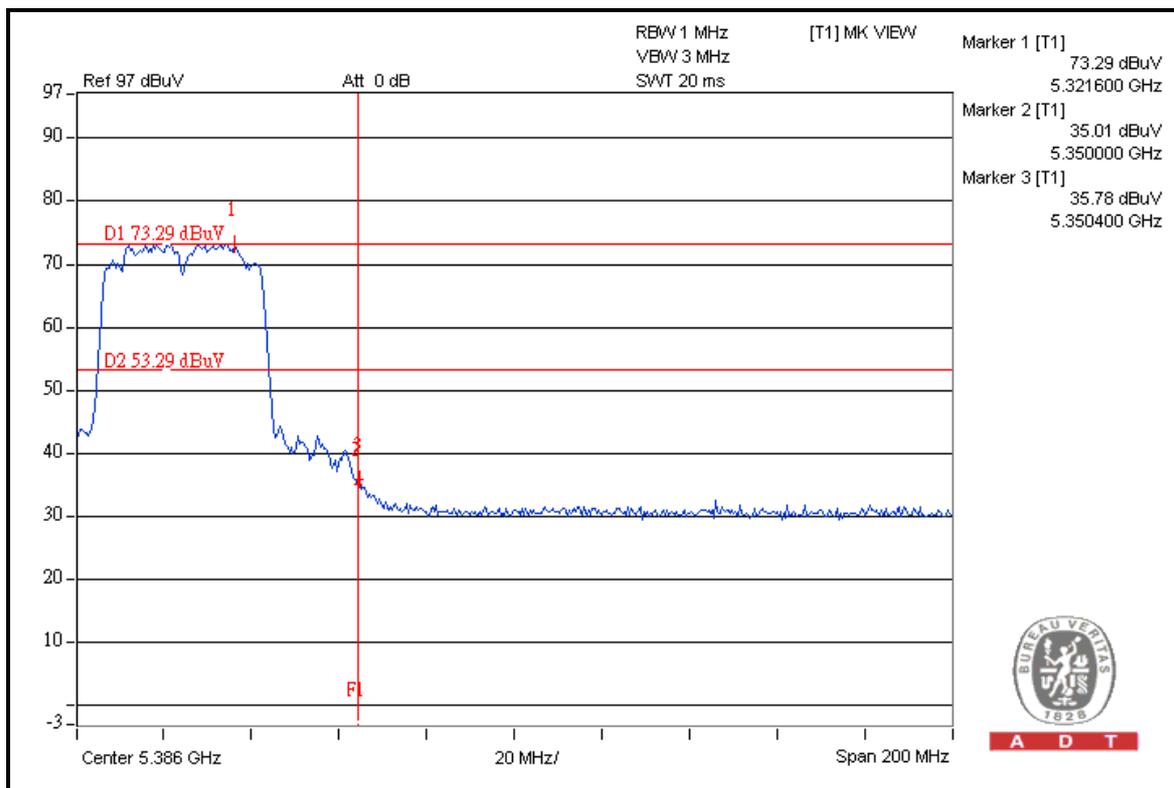
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





A D T

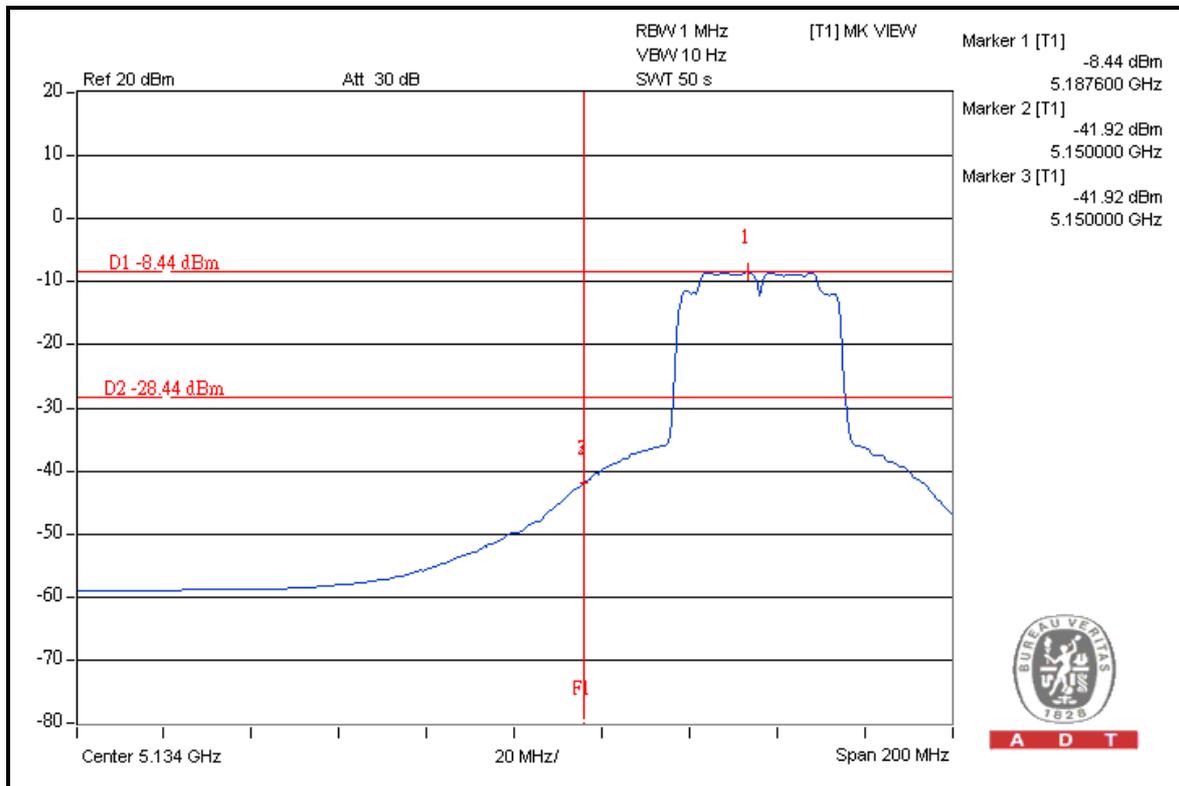
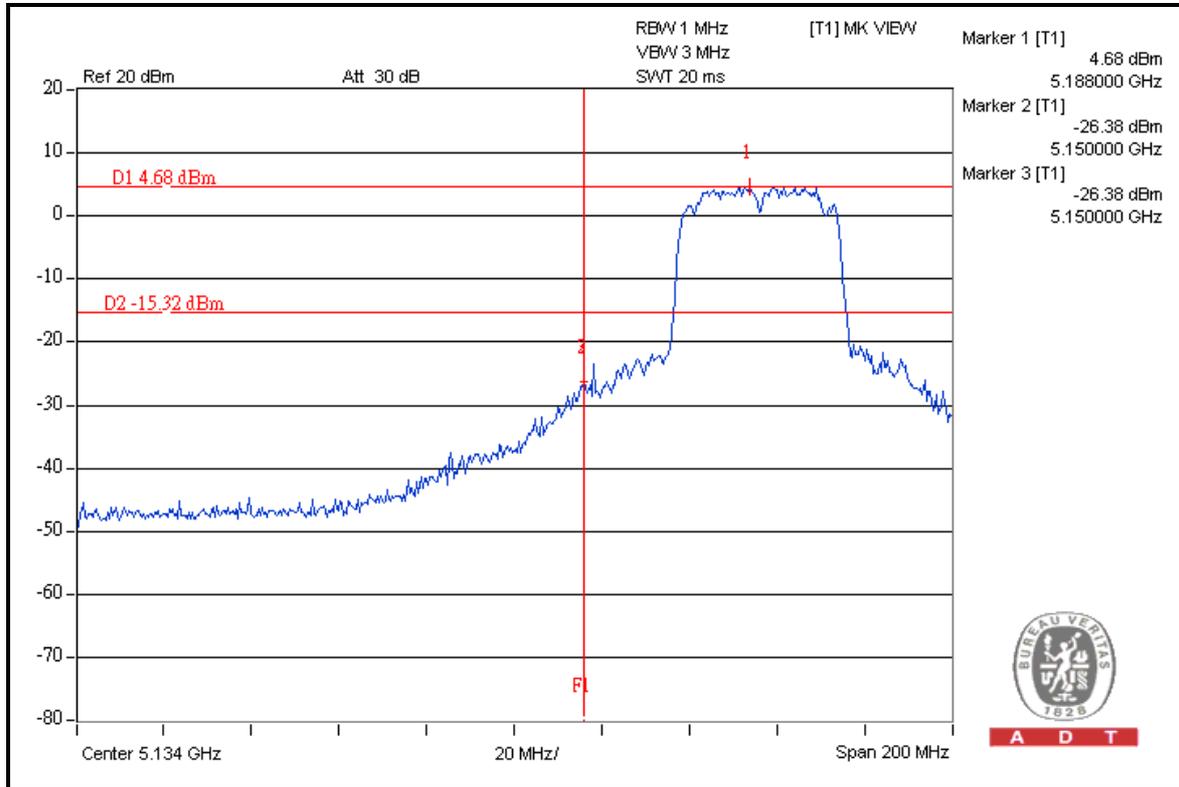




A D T

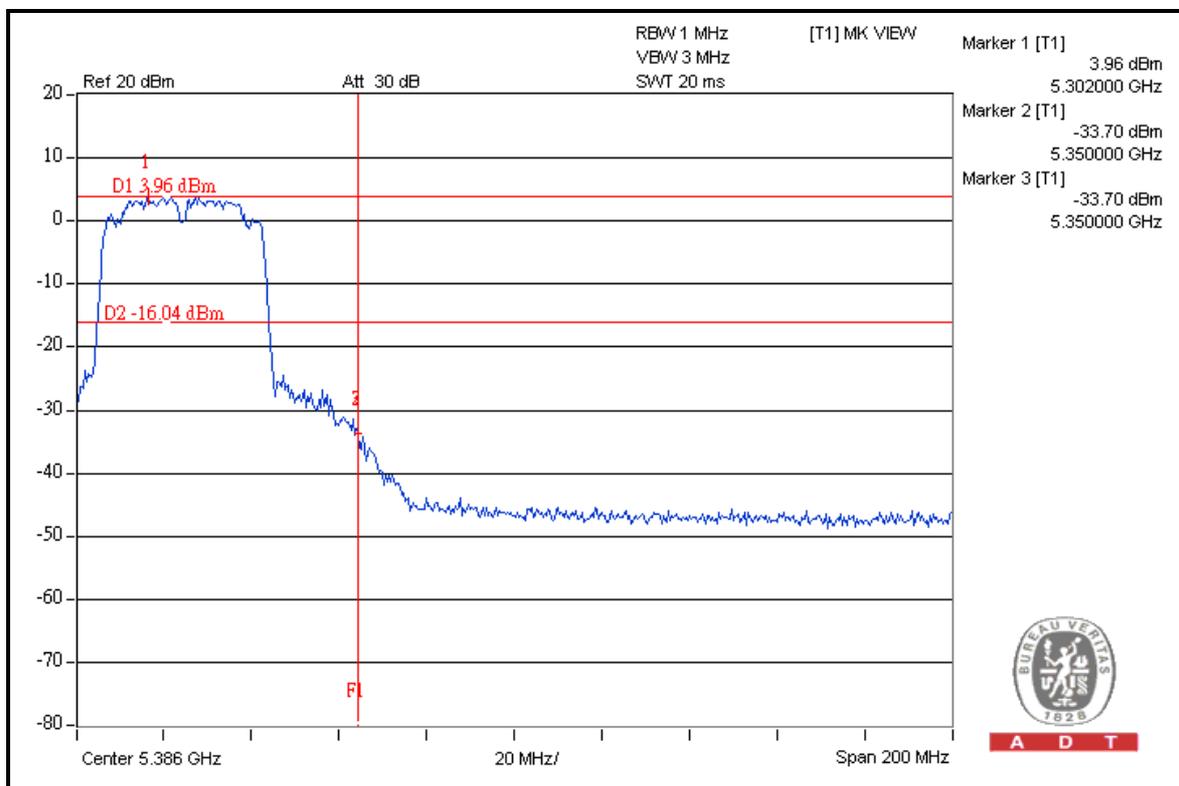
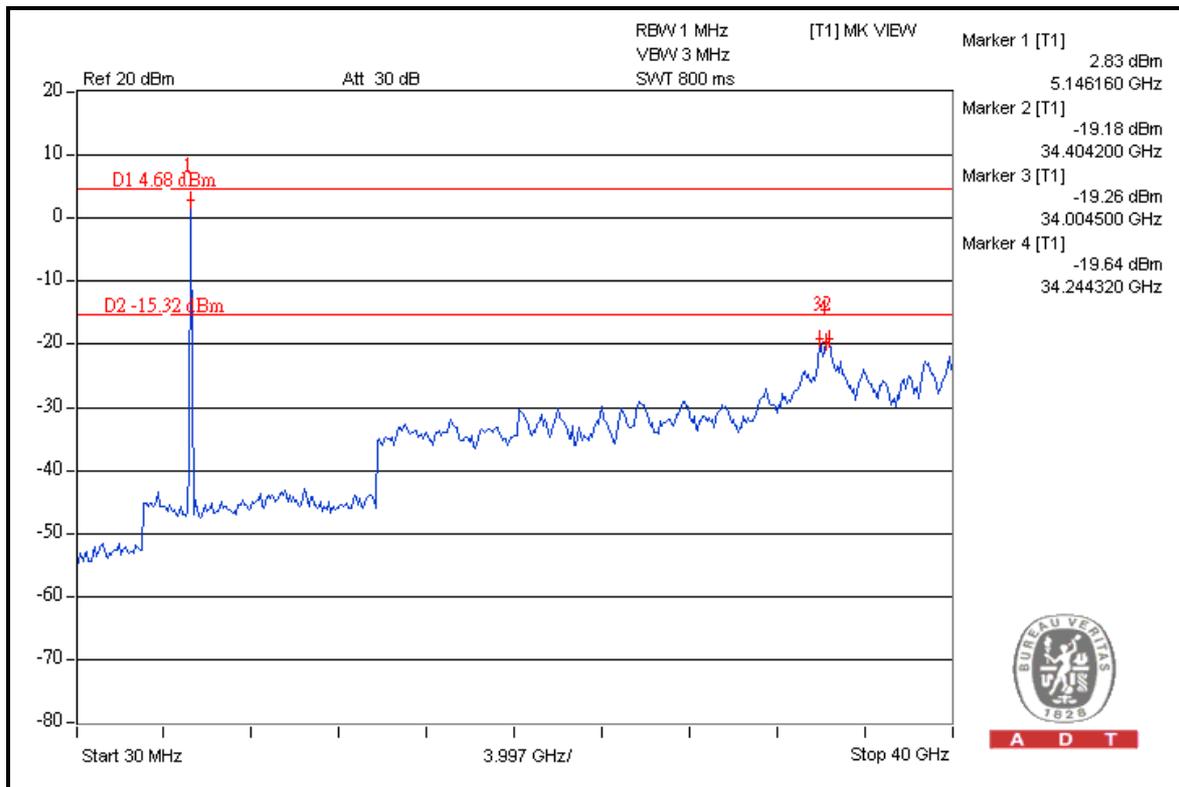
FOR CONDUCTED MEASURED

CHAIN 0



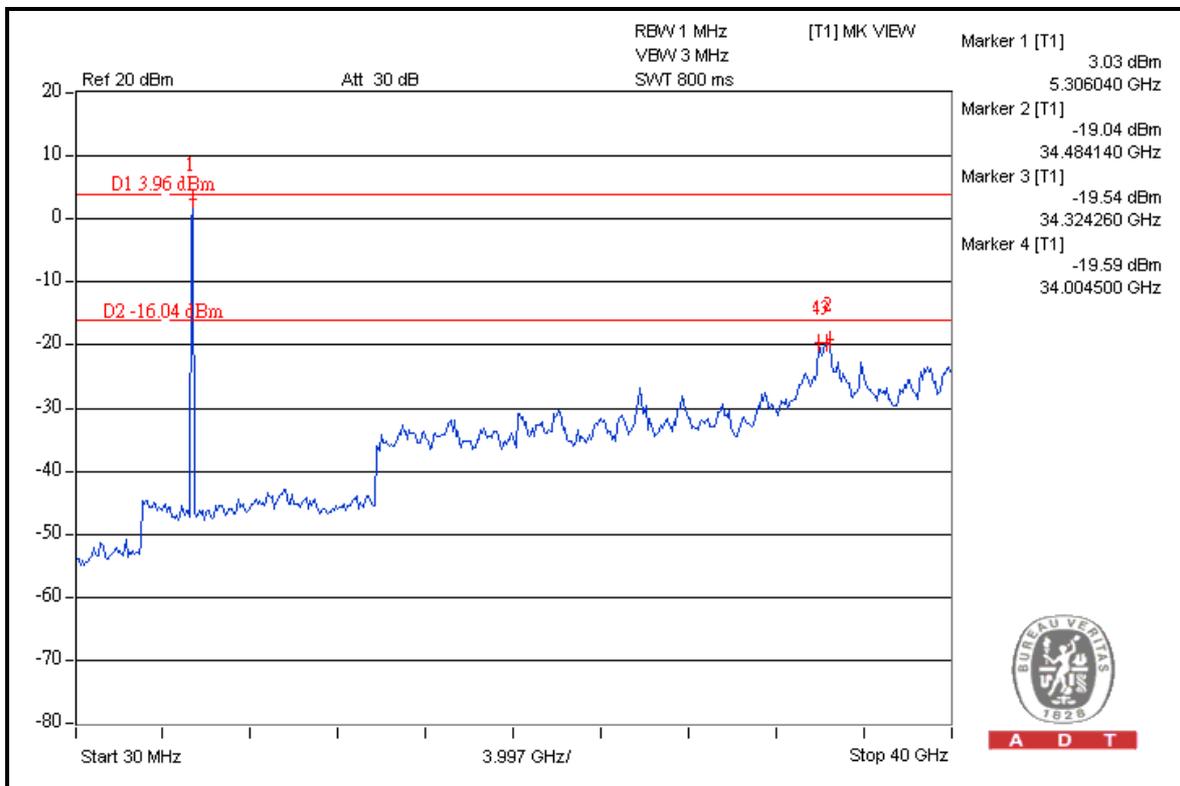
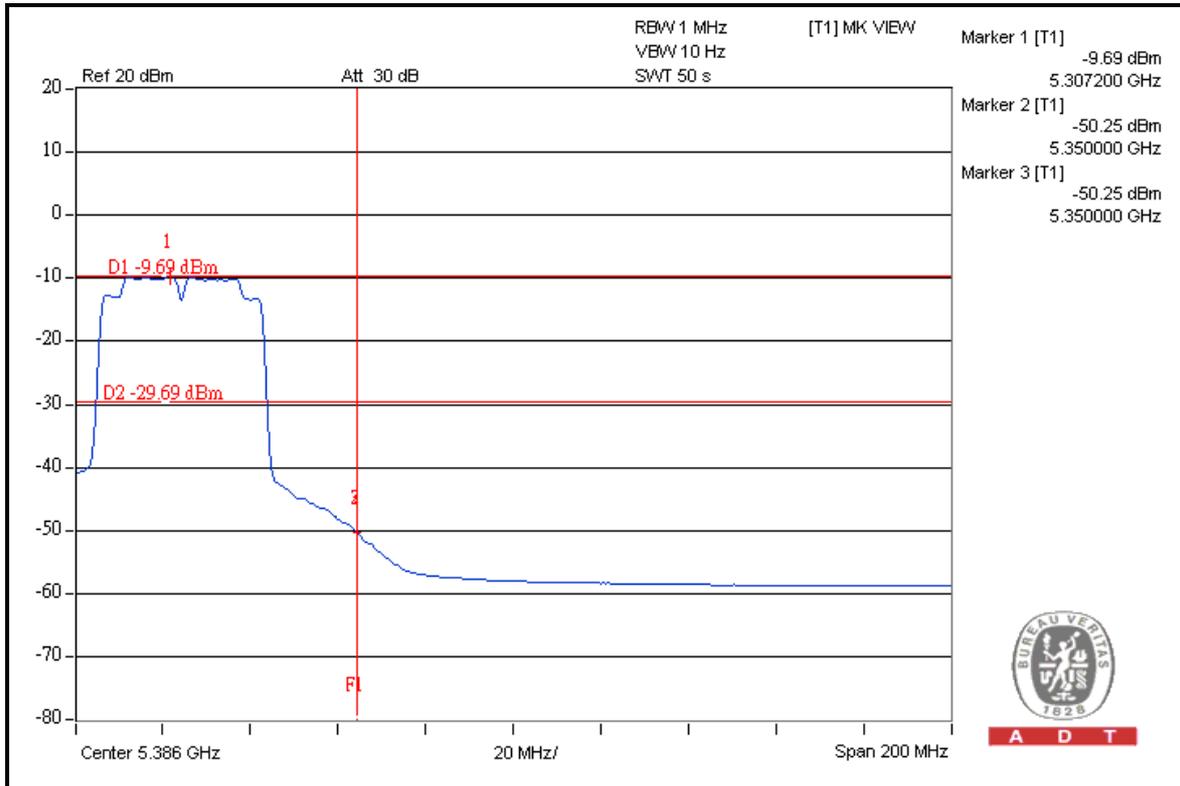


A D T





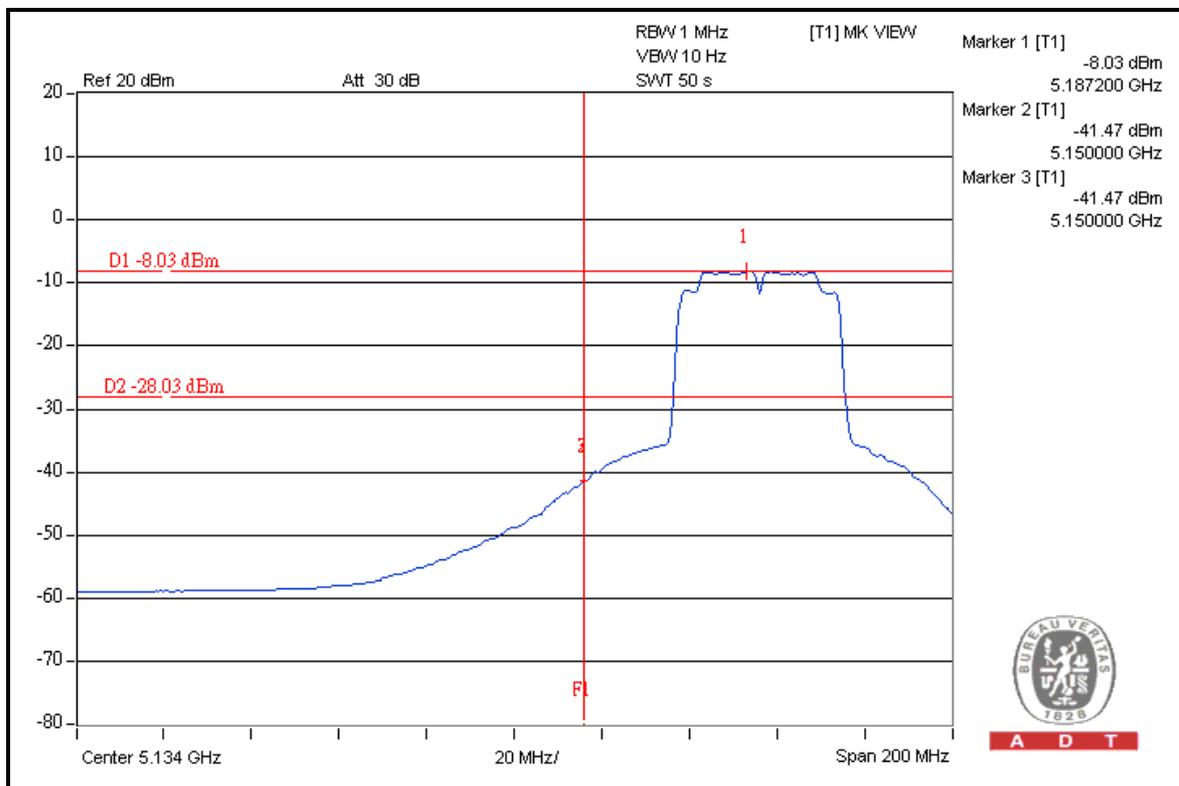
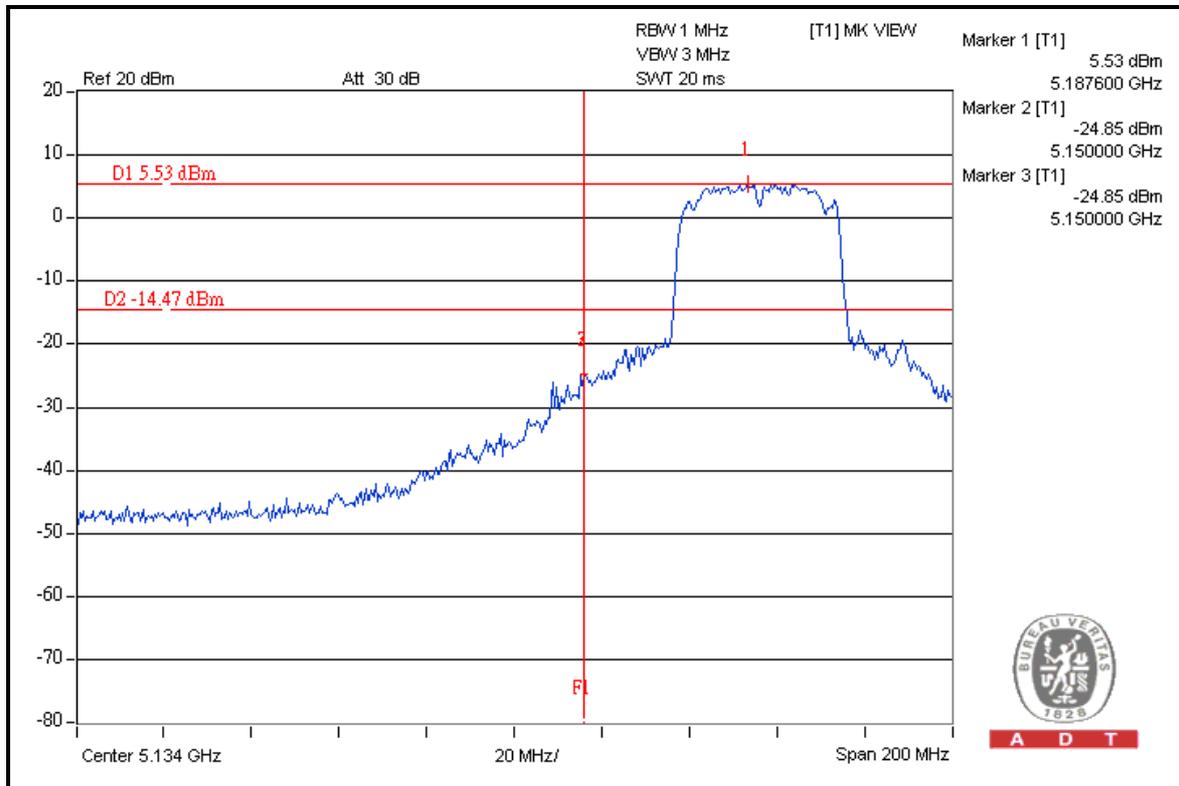
A D T





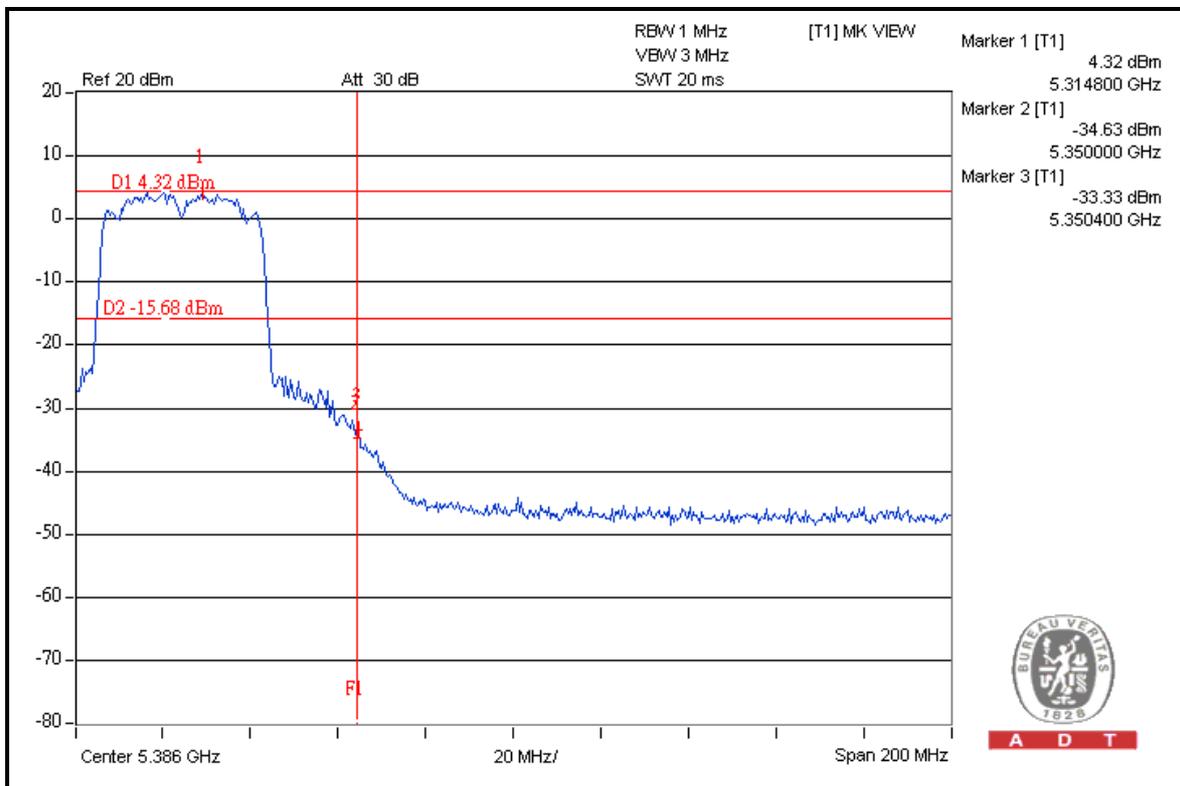
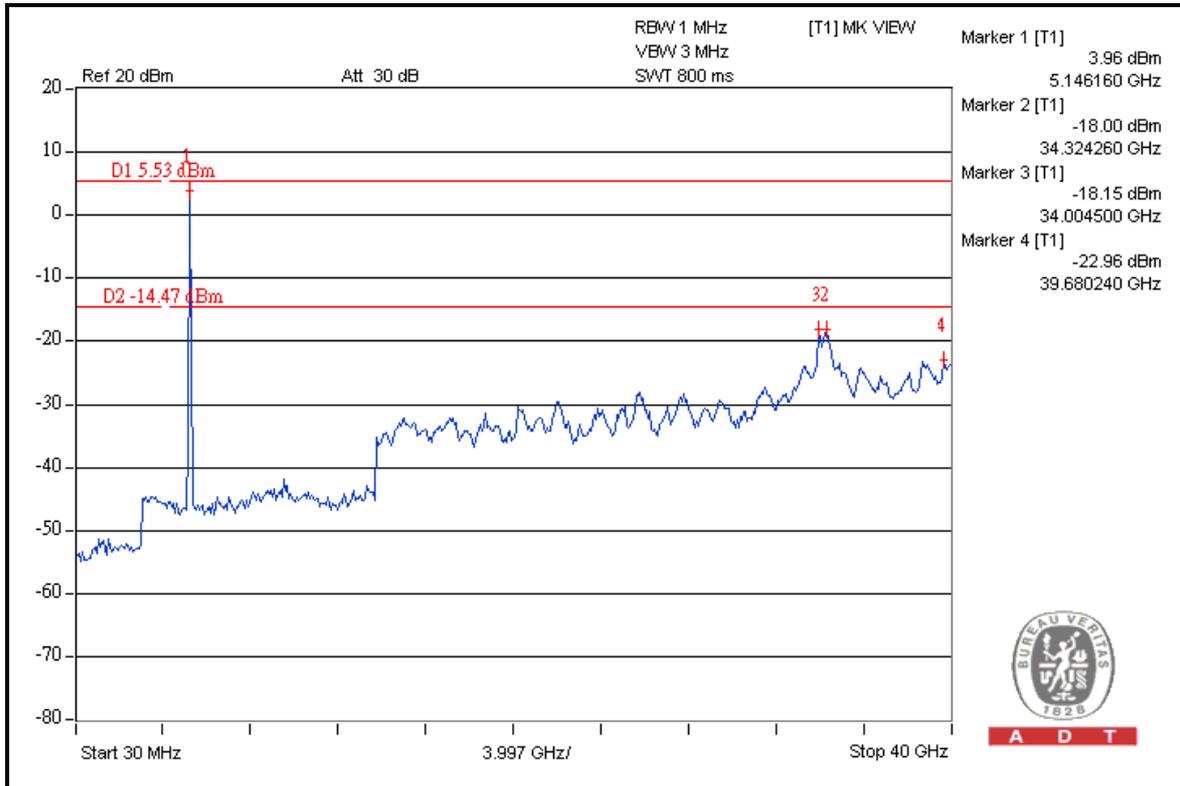
A D T

CHAIN 1



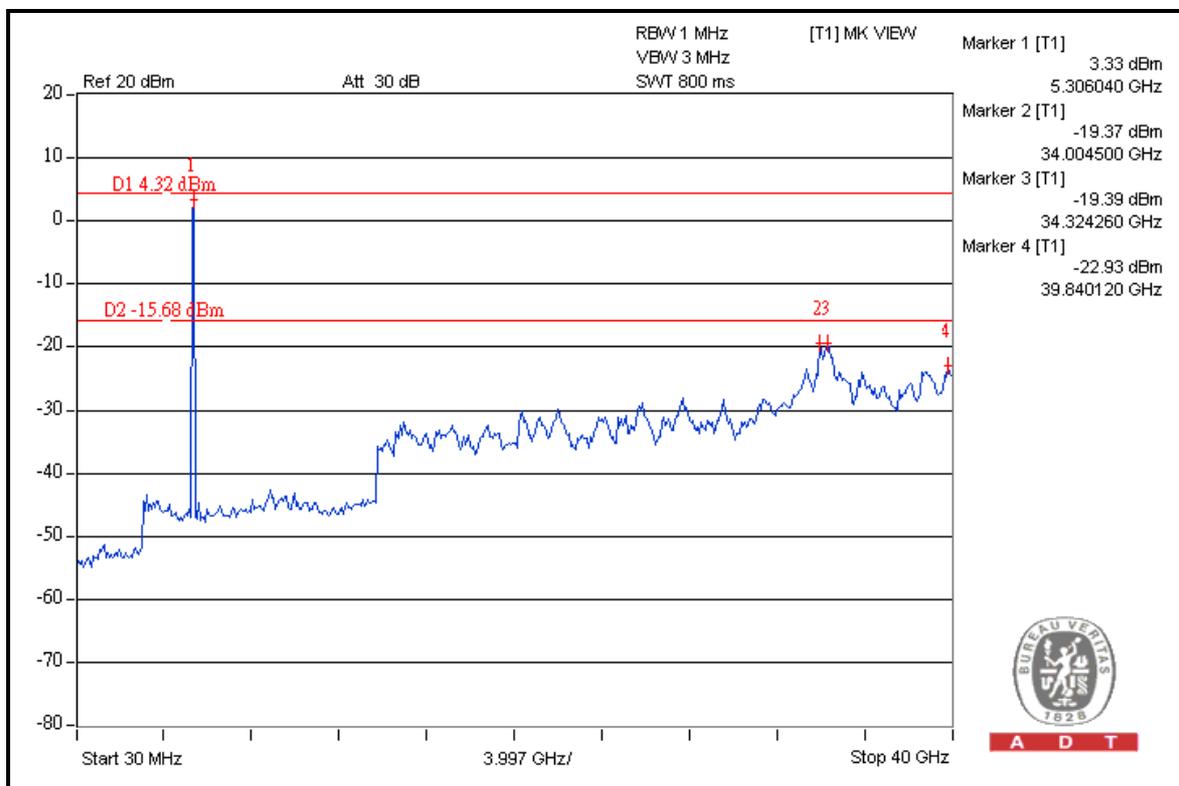
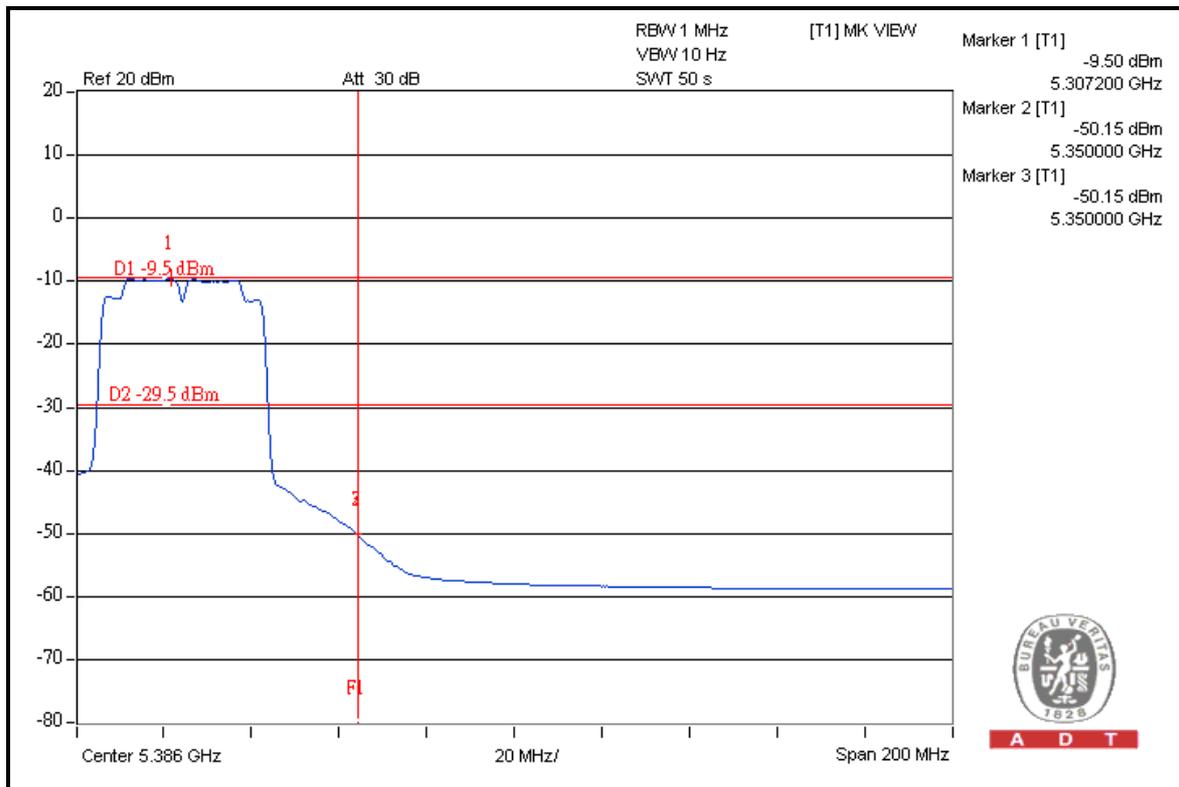


A D T





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)	106.9	39.1	67.8	74.00
5510.00 (AV)	96.8	44.2	52.6	54.00

FREQUENCY BAND (5460 ~ 5470 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5510.00 (PK)	106.9	40.5	66.4	68.30

5670MHz

ABOVE 5725 MHz

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5670.00 (PK)	104.5	43.3	61.2	68.30

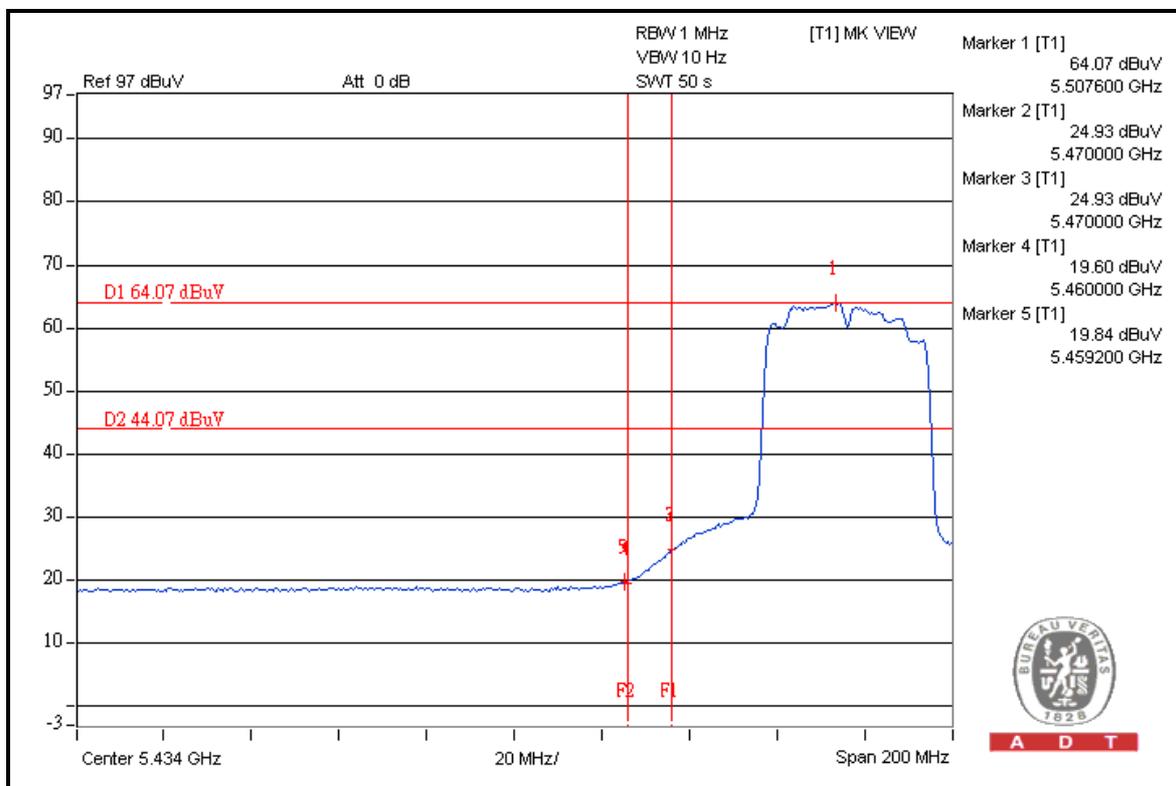
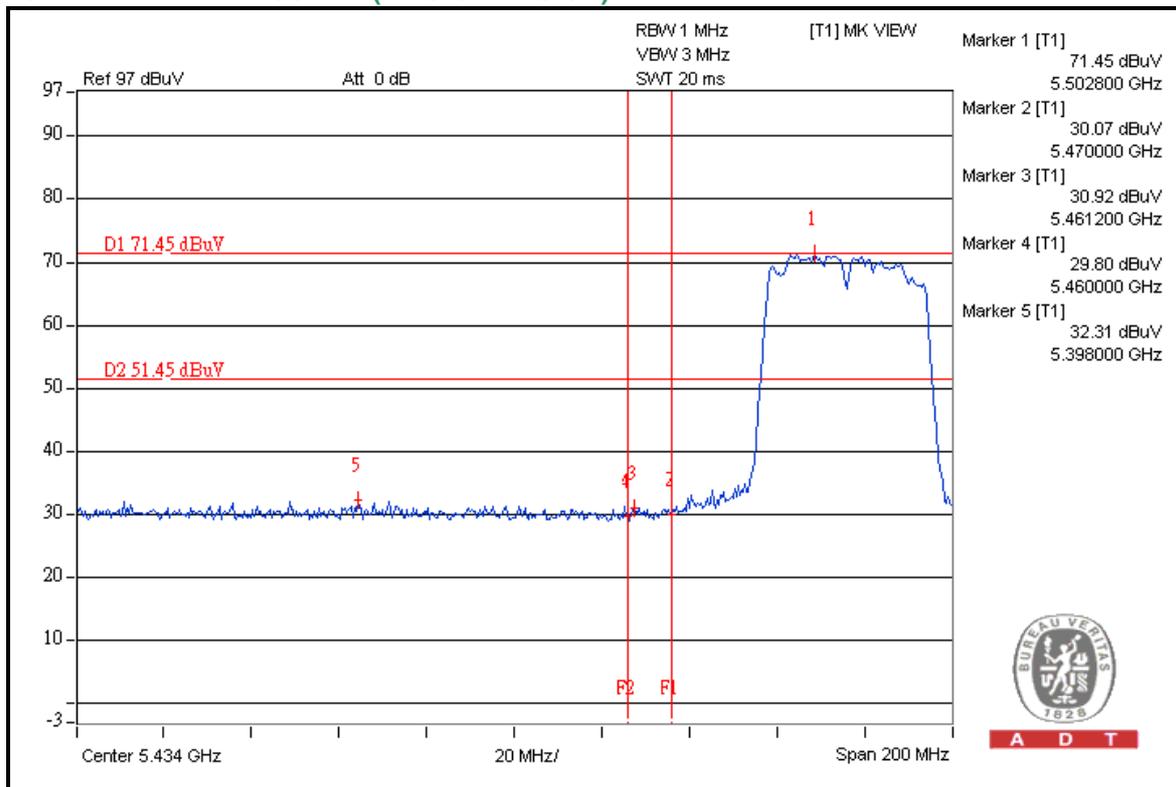
NOTE:

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.



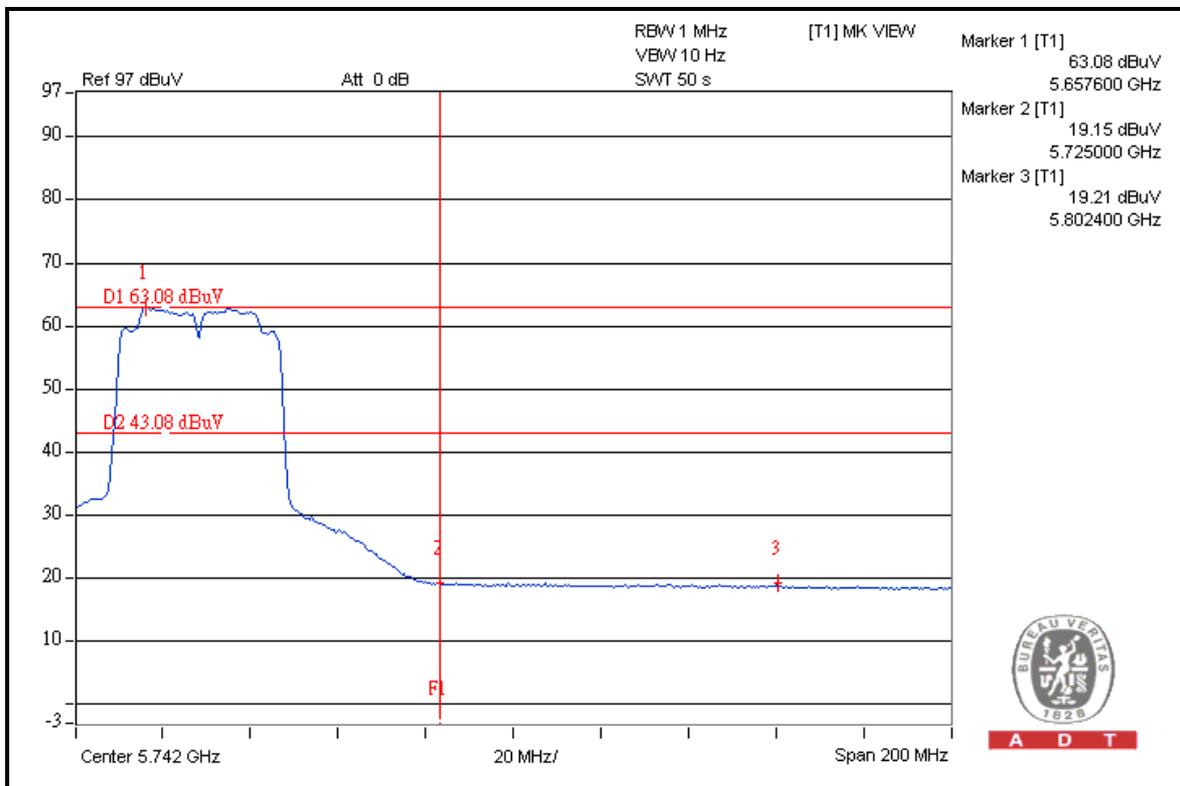
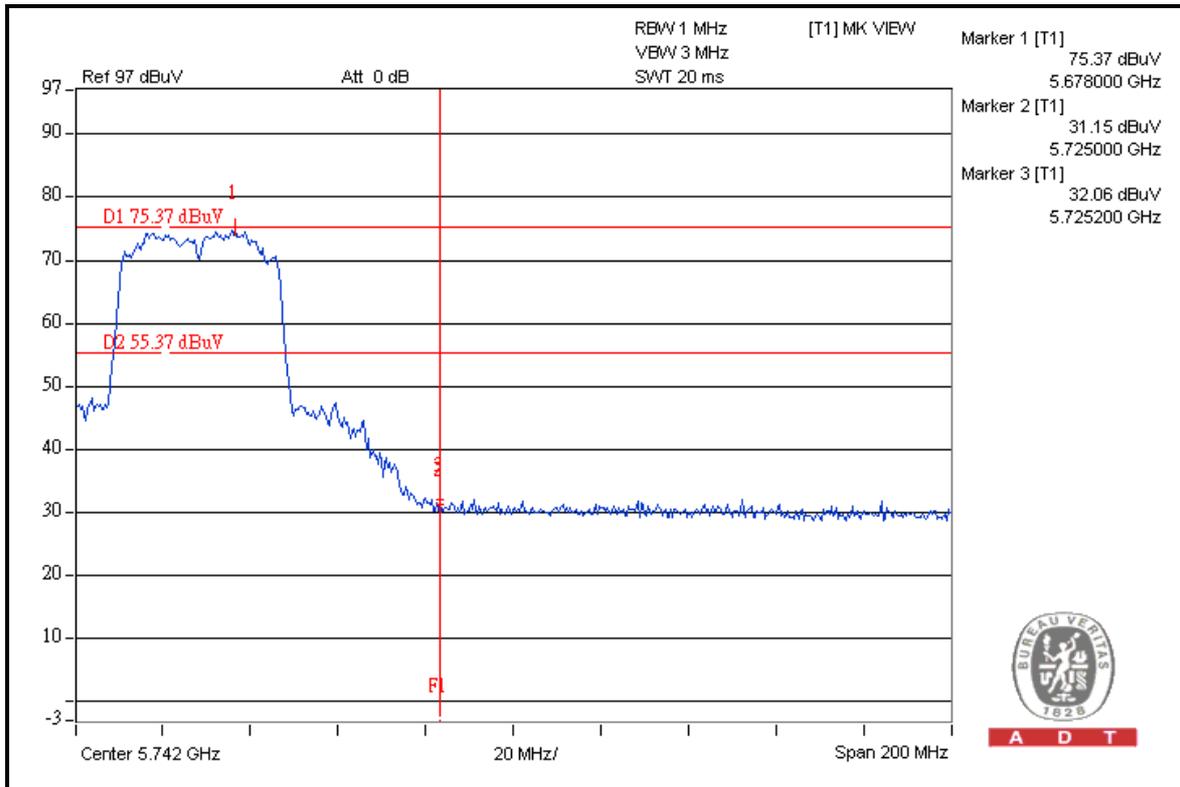
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





A D T

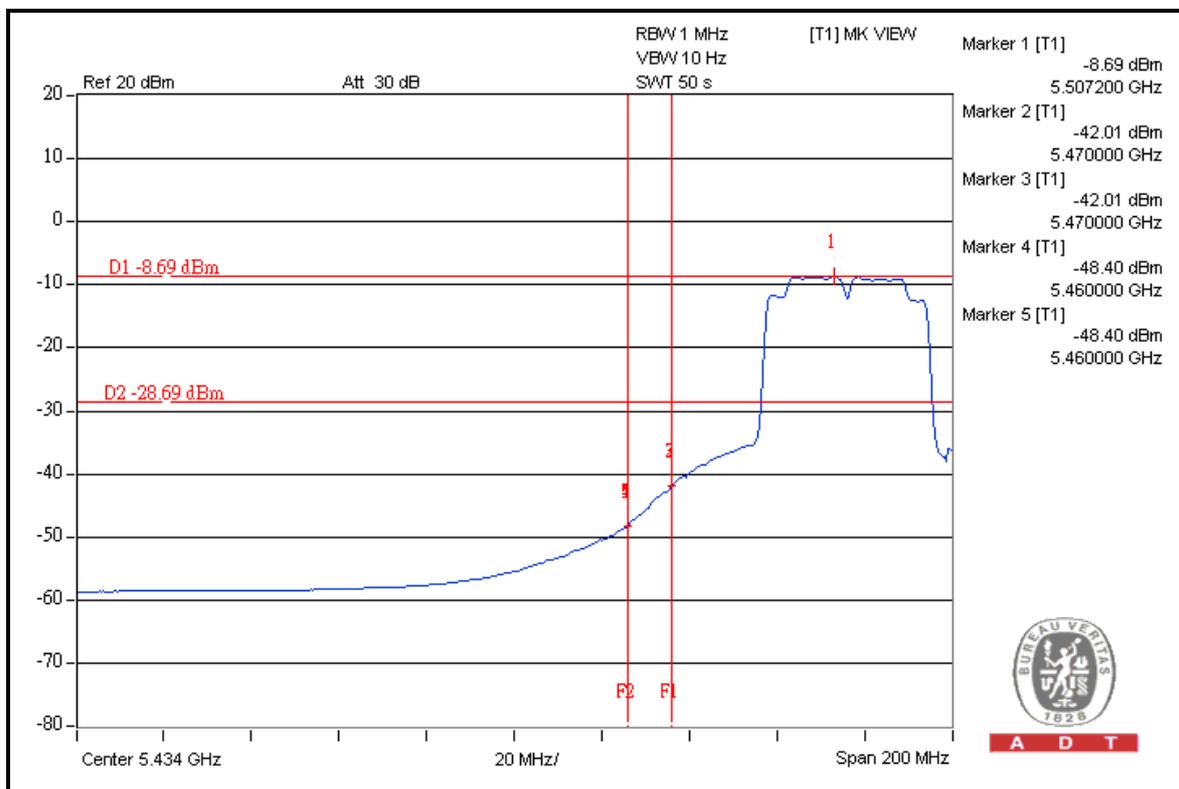
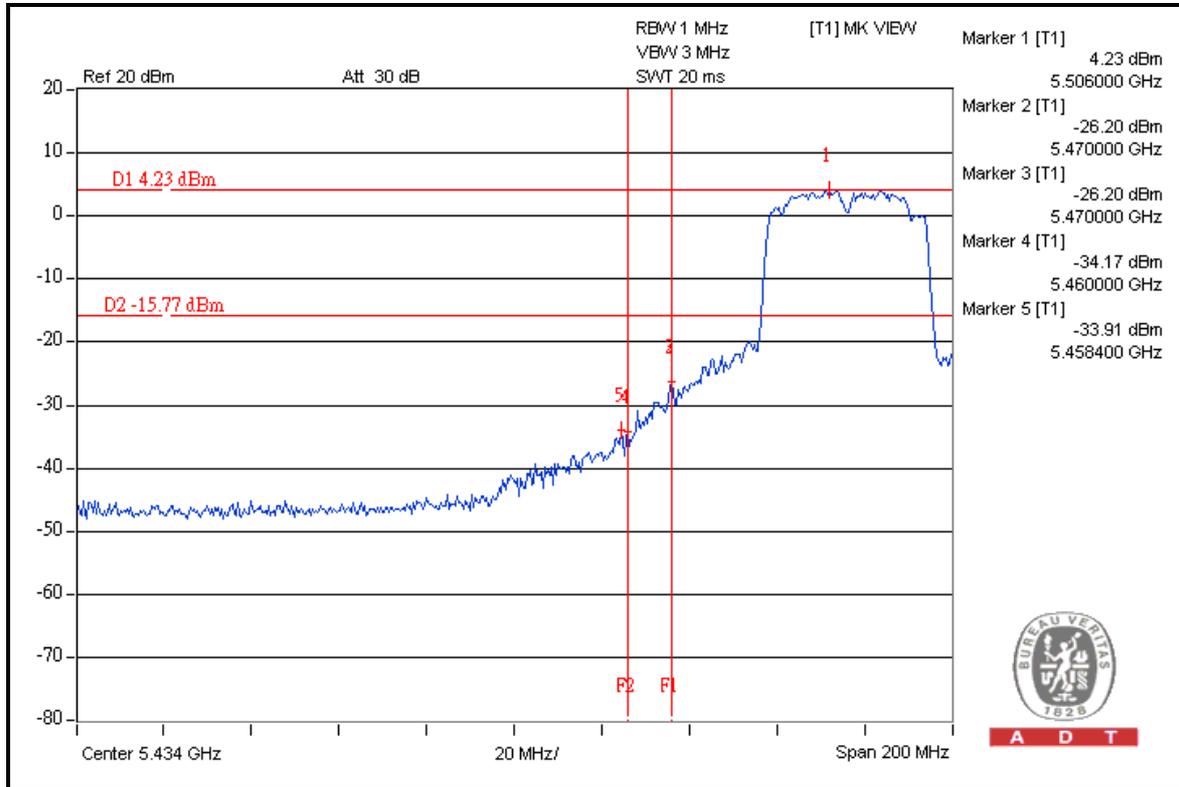




A D T

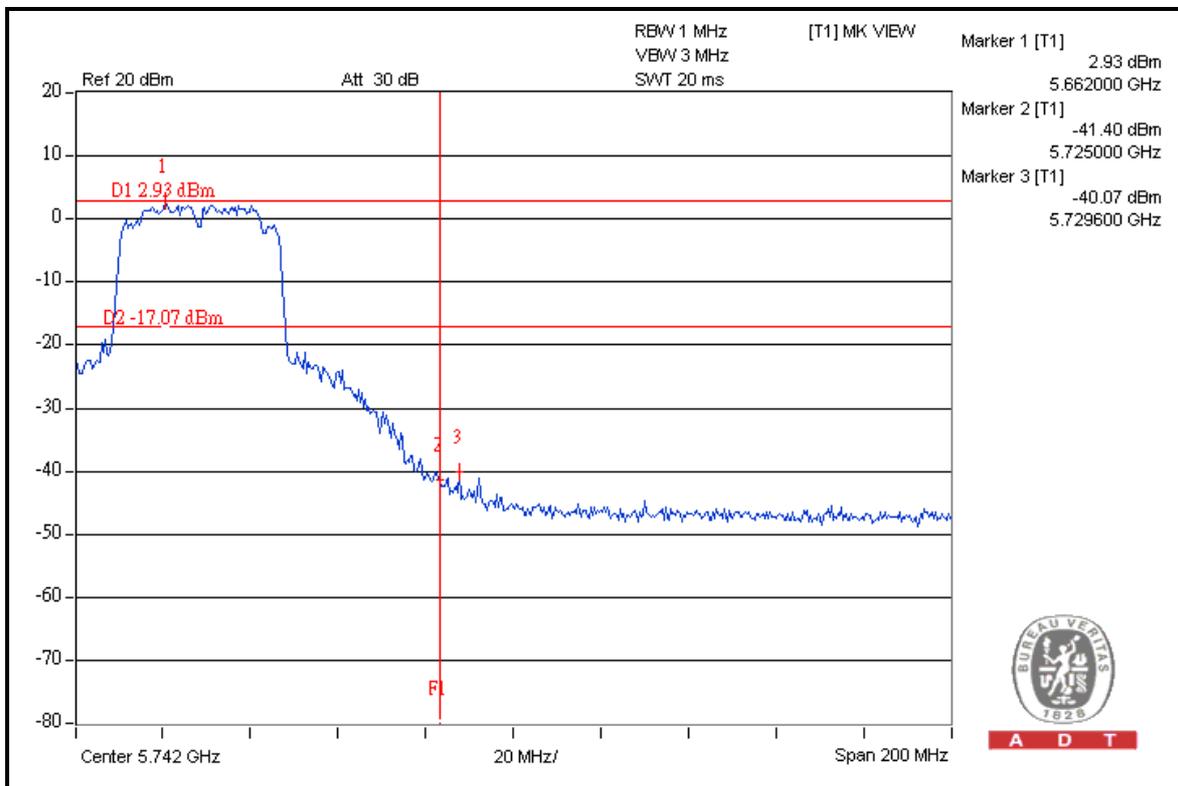
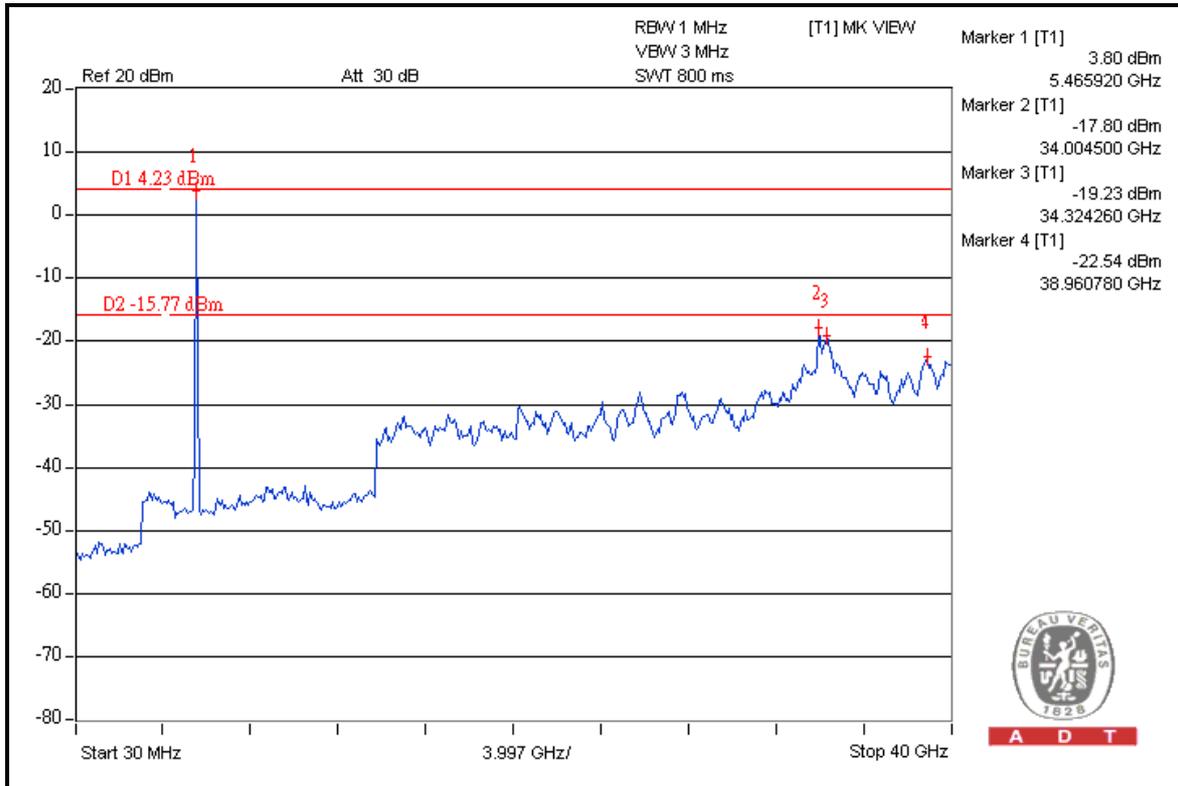
FOR CONDUCTED MEASURED

CHAIN 0



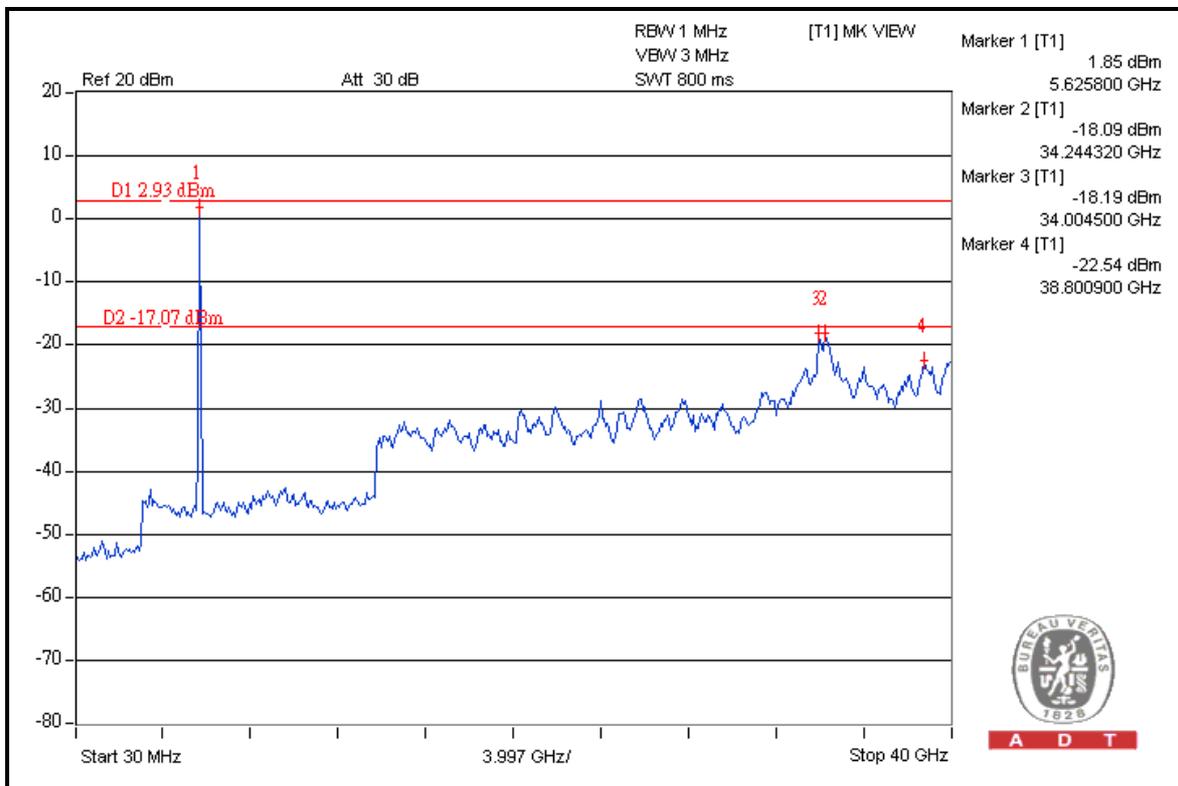
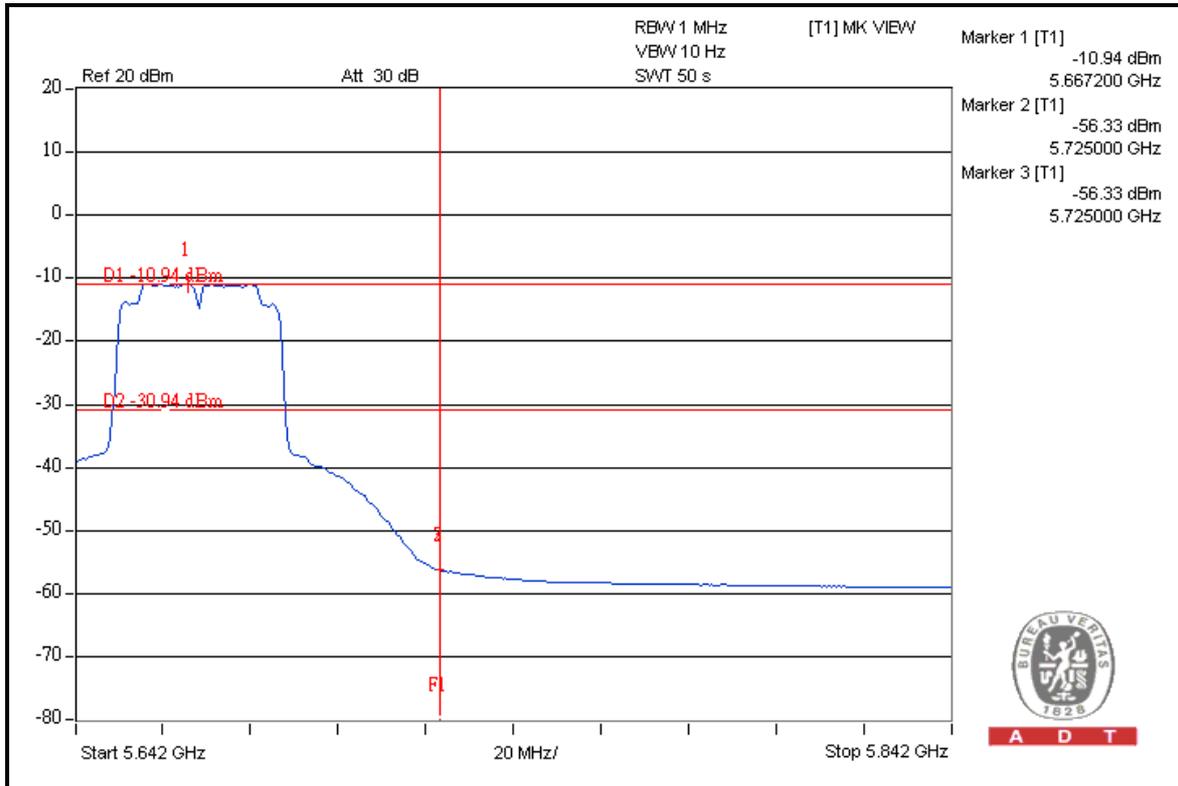


A D T



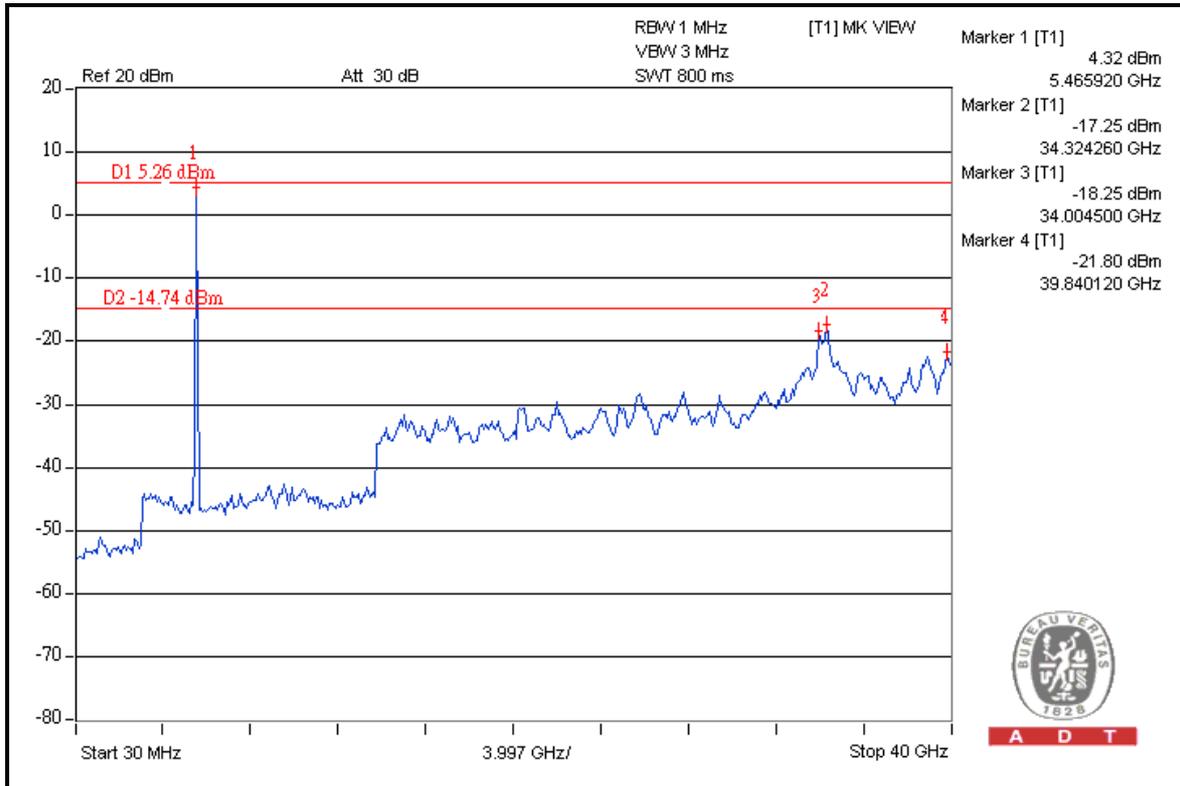


A D T

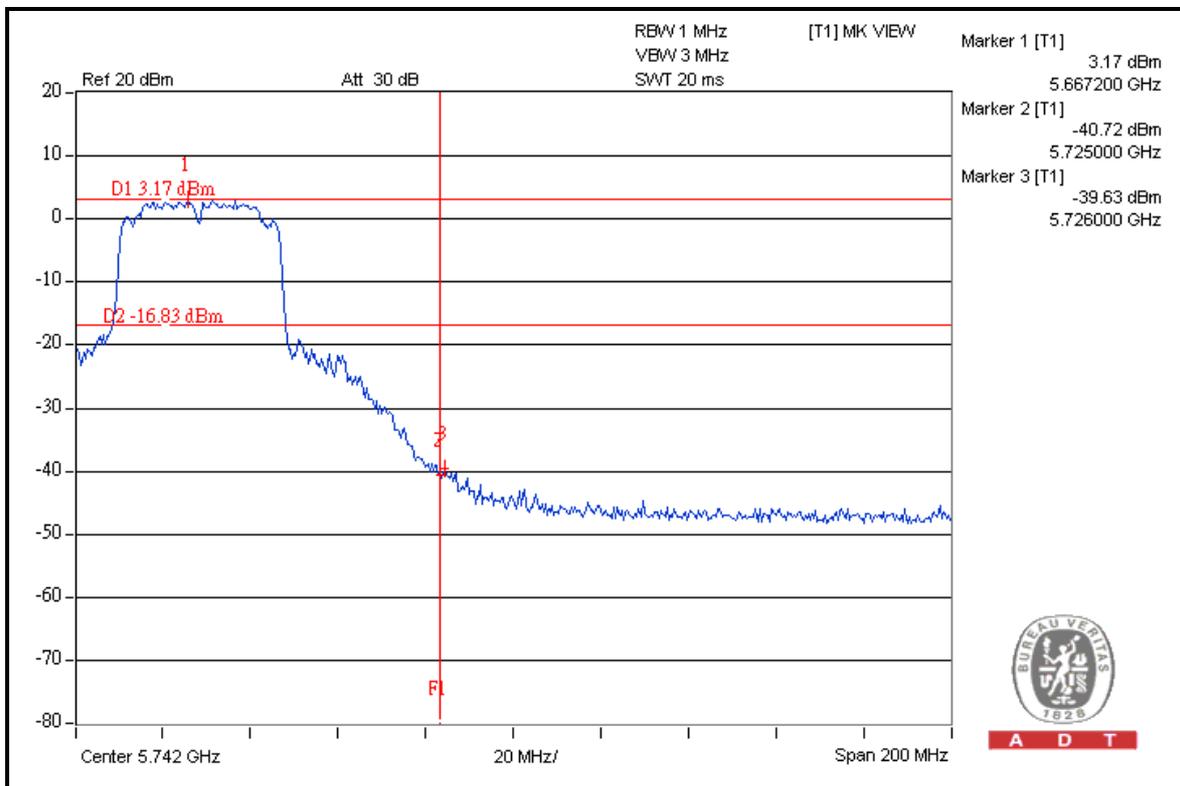




A D T



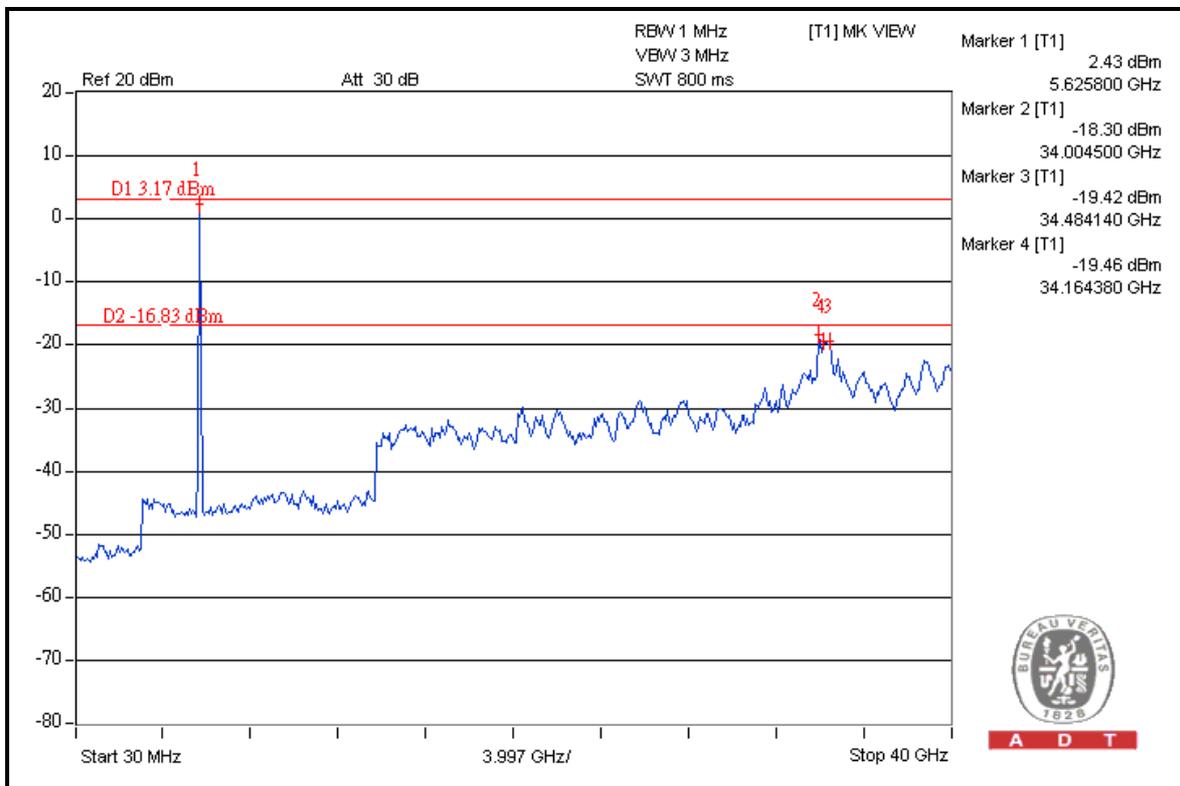
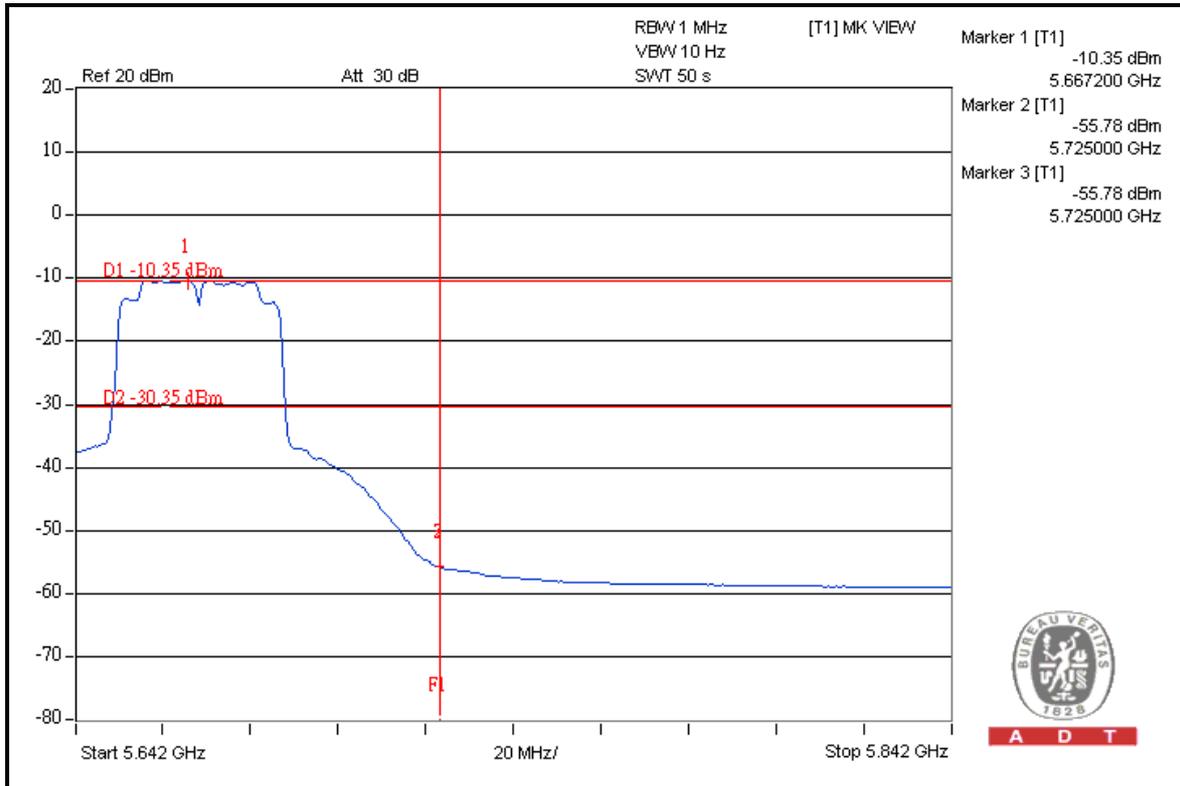
A D T



A D T



A D T



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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

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---