



FCC TEST REPORT (15.407)

REPORT NO.: RF110927C30-1

MODEL NO.: DWL-6600AP

FCC ID: KA2WL6600APA1

RECEIVED: Jul. 25, 2011

TESTED: Aug. 02 ~ Nov. 01, 2011

ISSUED: Nov. 07, 2011

APPLICANT: D-Link Corporation

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U.S.A.

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

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Nov. 07, 2011



1. CERTIFICATION

PRODUCT: Unified Concurrent Dual-band Access Point

MODEL: DWL-6600AP

BRAND: D-Link

APPLICANT: D-Link Corporation

TESTED: Aug. 02 ~ Nov. 01, 2011

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (model: DWL-6600AP) 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 :  , DATE : Nov. 07, 2011
Joanna Wang / Senior Specialist

APPROVED BY :  , DATE : Nov. 07, 2011
Gary Chang / Technical Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.49dB at 21.301MHz.
15.407(b)(1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 4000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 173.78MHz.
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	Internal antenna: Antenna connector is IPEX PLUG not a standard connector. External antenna: Antenna connector is R-SMA 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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44dB
Radiated emissions	30MHz ~ 200MHz	3.19dB
	200MHz ~1000MHz	3.21dB
	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Unified Concurrent Dual-band Access Point
MODEL NO.	DWL-6600AP
FCC ID	KA2WL6600APA1
POWER SUPPLY	12Vdc (adapter) 48Vdc (POE)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
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	5180.0 ~ 5240.0MHz
NUMBER OF CHANNEL	4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	28.7mW
ANTENNA TYPE	Refer to NOTE
DATA CABLE	1.8m non-shielded RS232 to RJ11 cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

- 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	2TX
802.11a	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

- The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	√		
802.11g	√		
802.11a		√	√
802.11n (20MHz)	√	√	√
802.11n (40MHz)	√	√	√

3. The EUT uses following adapter and POE.

ADAPTER	
BRAND	D-Link
MODEL	CAP012121 US
INPUT POWER	100-240Vac, 47-63Hz, 0.35A
OUTPUT POWER	12.0Vdc, 1.0A
POWER LINE	1.2m non-shielded cable without core

POE	
BRAND	PowerDsine™ 3001
MODEL	PD-3001/AC
INPUT POWER	100-250Vac ,50/60Hz, 0.5A
OUTPUT POWER	48Vdc, 0.35A

**The POE is for support unit only.

4. The following antennas were provided to the EUT.

Internal antenna:

Antenna	Antenna Type	Antenna Gain	Antenna Connector
Ant 1 (2.4G)	PIFA	3.47 dBi	IPEX PLUG
Ant 2 (2.4G)	PIFA	2.23 dBi	
Ant 3 (5G)	PIFA	1.40 dBi @ 5.0G	
		1.43 dBi @ 5.2G 3.65 dBi @ 5.5G 4.19 dBi @ 5.8G	
Ant 4 (5G)	PIFA	2.38 dBi @ 5.0G	
		4.09 dBi @ 5.2G 4.75 dBi @ 5.5G 5.23 dBi @ 5.8G	

External antenna:

Antenna	Antenna Type	Antenna Gain	Antenna Connector
Ant 1, 2, 3, 4 (2.4+5G)	Dipole	3 dBi @ 2.4G 5 dBi @ 5.0G 5 dBi @ 5.2G 5 dBi @ 5.5G 5 dBi @ 5.8G	R-SMA

5. The above EUT information is declared by manufacturer and for more detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

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

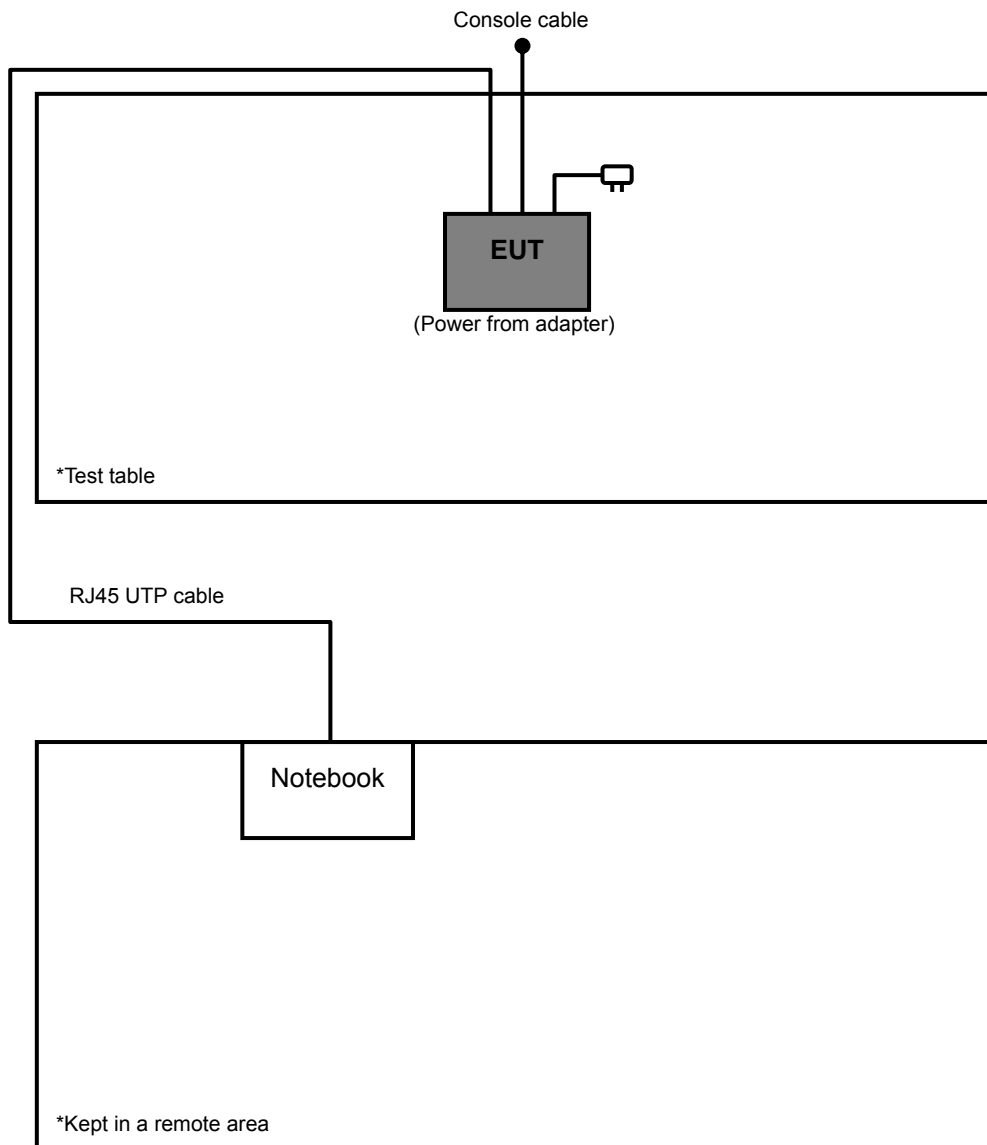
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190MHz	46	5230MHz

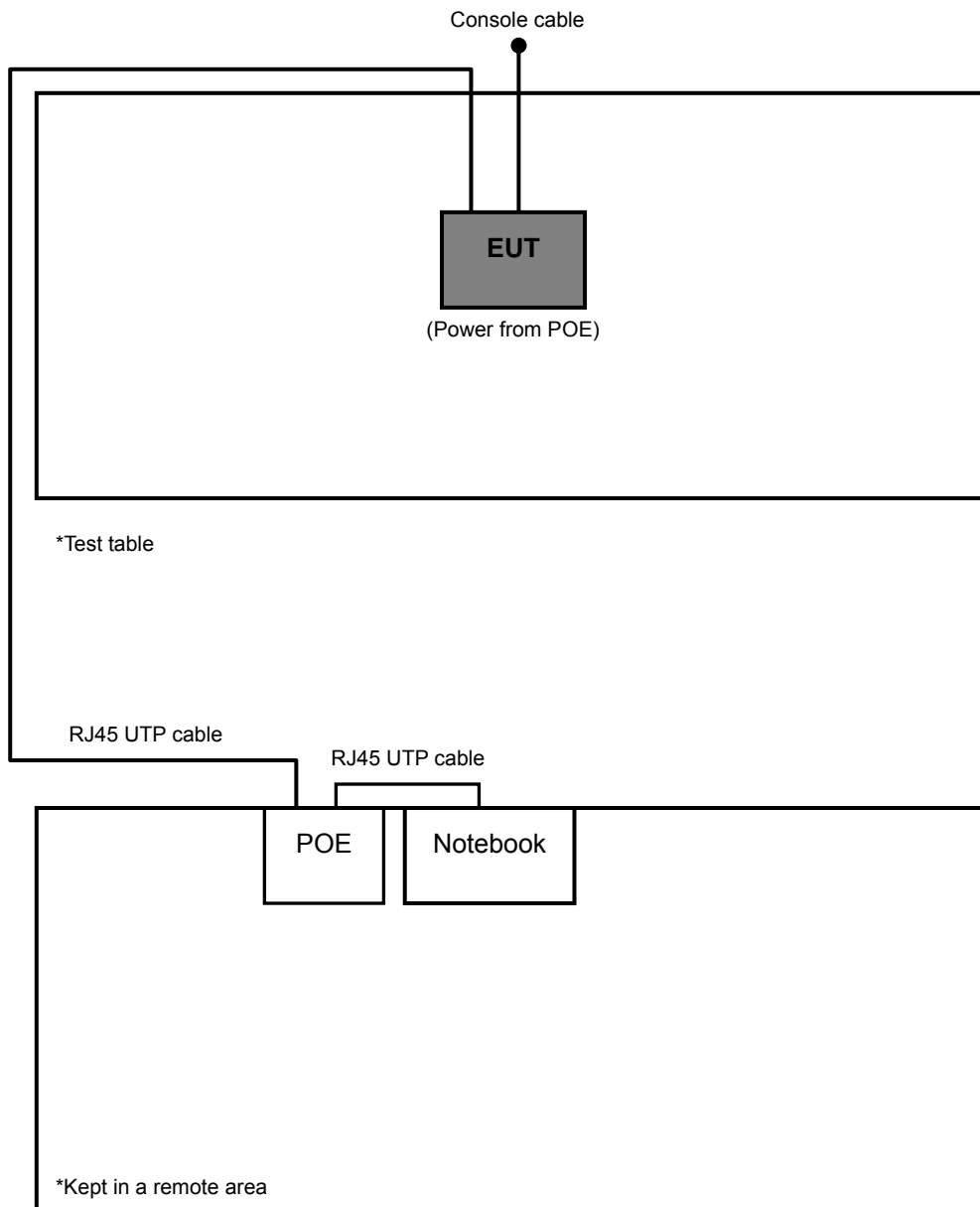
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

TEST MODE A & C





TEST MODE B & D



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION	
	RE \geq 1G	RE<1G	PLC	APCM	ANTENNA	POWER
A	-	√	√	-	Internal	Adapter
B	√	√	√	√		POE
C	-	√	√	-	External	Adapter
D	√	√	√	-		POE

Where **RE \geq 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

NOTE: "-": Means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
B, D	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0	Z
B, D	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2	Z
B, D	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0	Z

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A, B, C, D	802.11n (40MHz)	38 to 46	46	OFDM	BPSK	15.0	Z

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B, C, D	802.11n (40MHz)	38 to 46	46	OFDM	BPSK	15.0

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
B	802.11a	36 to 48	36, 48	OFDM	BPSK	6.0	Z
B	802.11n (20MHz)	36 to 48	36, 48	OFDM	BPSK	7.2	Z
B	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0	Z

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
B	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2
B	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	26deg. C, 65%RH	120Vac, 60Hz	Frank Wang
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Antony Lee
PLC	24deg. C, 65%RH (Adapter mode) 24deg. C, 65%RH (POE mode)	120Vac, 60Hz	Antony Lee (Adapter mode) Match Tsui (POE mode)
APCM	25deg. C, 68%RH	120Vac, 60Hz	Antony 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 other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5410	1HC2XM1	FCC DoC Approved
2	POE	PowerDsine™ 3001	PD-3001/AC	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable
2	10m RJ45 UTP cable

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Items 1~2 acted as communication partners to transfer data.
3. Item 2 is provided by the client.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m) *NOTE 3
	PK	PK
5150 ~ 5250	-27	68.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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



4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 27, 2010	Dec. 26, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 06, 2011	Jan. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01961	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10738	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250792/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 19, 2011	Aug. 18, 2012
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 29, 2011	Oct. 28, 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 HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

4.1.4 TEST PROCEDURES

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

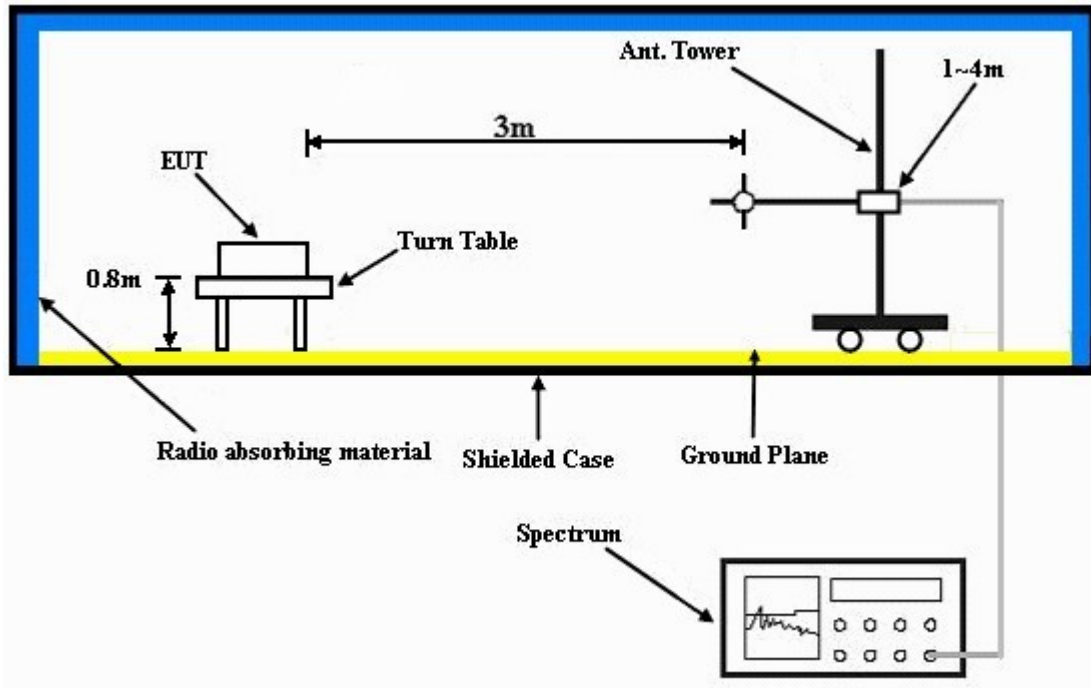
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

4.1.6 TEST SETUP



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

4.1.7 EUT OPERATING CONDITION

- Placed the EUT on the testing table.
- Prepared the notebook outside of testing area to act as communication partner.
- The notebook ran a test program (provided by manufacturer) to enable EUT under continuous communication link.

4.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.5 PK	74.0	-11.5	1.16 H	197	22.90	39.60
2	5150.00	47.6 AV	54.0	-6.4	1.16 H	197	8.00	39.60
3	*5180.00	106.2 PK			1.58 H	109	66.50	39.70
4	*5180.00	92.8 AV			1.58 H	109	53.10	39.70
5	#10360.00	59.3 PK	68.3	-9.0	1.14 H	301	9.00	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.5 PK	74.0	-13.5	1.28 V	307	20.90	39.60
2	5150.00	47.9 AV	54.0	-6.1	1.28 V	307	8.30	39.60
3	*5180.00	104.5 PK			1.30 V	356	64.80	39.70
4	*5180.00	91.4 AV			1.30 V	356	51.70	39.70
5	#10360.00	59.5 PK	68.3	-8.8	1.04 V	216	9.20	50.30

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	107.0 PK			1.11 H	327	67.30	39.70
2	*5200.00	93.8 AV			1.11 H	327	54.10	39.70
3	#10400.00	58.9 PK	68.3	-9.4	1.32 H	249	8.50	50.40
4	15600.00	59.7 PK	74.0	-14.3	1.32 H	249	8.90	50.80
5	15600.00	46.0 AV	54.0	-8.0	1.06 H	109	-4.80	50.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	104.8 PK			1.12 V	315	65.10	39.70
2	*5200.00	92.3 AV			1.12 V	315	52.60	39.70
3	#10400.00	59.4 PK	68.3	-8.9	1.42 V	197	9.00	50.40
4	15600.00	60.7 PK	74.0	-13.3	1.42 V	197	9.90	50.80
5	15600.00	46.7 AV	54.0	-7.3	1.29 V	306	-4.10	50.80

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	106.8 PK			1.39 H	271	67.10	39.70
2	*5240.00	93.7 AV			1.39 H	271	54.00	39.70
3	5350.00	57.4 PK	74.0	-16.6	1.06 H	294	17.60	39.80
4	5350.00	45.3 AV	54.0	-8.7	1.06 H	294	5.50	39.80
5	#10480.00	59.5 PK	68.3	-8.8	1.18 H	209	8.80	50.70
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	*5240.00	103.9 PK			1.13 V	281	64.20	39.70
2	*5240.00	91.9 AV			1.13 V	281	52.20	39.70
3	5350.00	55.4 PK	74.0	-18.6	1.32 V	215	15.60	39.80
4	5350.00	44.1 AV	54.0	-9.9	1.32 V	215	4.30	39.80
5	#10480.00	59.9 PK	68.3	-8.4	1.09 V	345	9.20	50.70

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

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	62.9 PK	74.0	-11.1	1.00 H	182	23.30	39.60
2	5150.00	47.2 AV	54.0	-6.8	1.00 H	182	7.60	39.60
3	*5180.00	108.8 PK			1.00 H	178	69.10	39.70
4	*5180.00	94.5 AV			1.00 H	178	54.80	39.70
5	#10360.00	59.9 PK	68.3	-8.4	1.21 H	242	9.60	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.2 PK	74.0	-9.8	1.15 V	169	24.60	39.60
2	5150.00	48.1 AV	54.0	-5.9	1.15 V	169	8.50	39.60
3	*5180.00	107.9 PK			1.00 V	185	68.20	39.70
4	*5180.00	93.5 AV			1.00 V	185	53.80	39.70
5	#10360.00	58.3 PK	68.3	-10.0	1.21 V	241	8.00	50.30

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

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	108.6 PK			1.05 H	2	68.90	39.70
2	*5200.00	94.3 AV			1.05 H	2	54.60	39.70
3	#10400.00	57.9 PK	68.3	-10.4	1.00 H	211	7.50	50.40
4	15600.00	59.8 PK	74.0	-14.2	1.55 H	102	9.00	50.80
5	15600.00	44.6 AV	54.0	-9.4	1.55 H	102	-6.20	50.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	107.8 PK			1.00 V	157	68.10	39.70
2	*5200.00	93.2 AV			1.00 V	157	53.50	39.70
3	#10400.00	58.5 PK	68.3	-9.8	1.55 V	263	8.10	50.40
4	15600.00	59.8 PK	74.0	-14.2	1.56 V	247	9.00	50.80
5	15600.00	44.3 AV	54.0	-9.7	1.56 V	247	-6.50	50.80

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

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			1.35 H	355	69.50	39.70
2	*5240.00	95.1 AV			1.35 H	355	55.40	39.70
3	5350.00	57.5 PK	74.0	-16.5	1.35 H	351	17.70	39.80
4	5350.00	42.6 AV	54.0	-11.4	1.35 H	351	2.80	39.80
5	#10480.00	58.8 PK	68.3	-9.5	1.36 H	57	8.10	50.70

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	*5240.00	108.6 PK			1.05 V	360	68.90	39.70
2	*5240.00	94.2 AV			1.05 V	360	54.50	39.70
3	5350.00	58.2 PK	74.0	-15.8	1.03 V	355	18.40	39.80
4	5350.00	42.9 AV	54.0	-11.1	1.03 V	355	3.10	39.80
5	#10480.00	60.3 PK	68.3	-8.0	1.00 V	257	9.60	50.70

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

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.7 PK	74.0	-11.3	1.02 H	303	23.10	39.60
2	5150.00	47.5 AV	54.0	-6.5	1.02 H	303	7.90	39.60
3	*5180.00	106.3 PK			1.22 H	296	66.60	39.70
4	*5180.00	92.7 AV			1.22 H	296	53.00	39.70
5	#10360.00	59.0 PK	68.3	-9.3	1.02 H	275	8.70	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.6 PK	74.0	-13.4	1.37 V	8	21.00	39.60
2	5150.00	48.2 AV	54.0	-5.8	1.37 V	8	8.60	39.60
3	*5180.00	104.3 PK			1.37 V	8	64.60	39.70
4	*5180.00	91.2 AV			1.37 V	8	51.50	39.70
5	#10360.00	59.3 PK	68.3	-9.0	1.00 V	135	9.00	50.30

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	107.2 PK			1.25 H	300	67.50	39.70
2	*5200.00	93.6 AV			1.25 H	300	53.90	39.70
3	#10400.00	59.2 PK	68.3	-9.1	1.05 H	282	8.80	50.40
4	15600.00	59.8 PK	74.0	-14.2	1.00 H	168	9.00	50.80
5	15600.00	46.2 AV	54.0	-7.8	1.00 H	168	-4.60	50.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	105.0 PK			1.35 V	6	65.30	39.70
2	*5200.00	92.0 AV			1.35 V	6	52.30	39.70
3	#10400.00	59.5 PK	68.3	-8.8	1.00 V	152	9.10	50.40
4	15600.00	60.5 PK	74.0	-13.5	1.00 V	25	9.70	50.80
5	15600.00	46.8 AV	54.0	-7.2	1.00 V	25	-4.00	50.80

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	107.0 PK			1.22 H	304	67.30	39.70
2	*5240.00	94.0 AV			1.22 H	304	54.30	39.70
3	5350.00	57.3 PK	74.0	-16.7	1.22 H	304	17.50	39.80
4	5350.00	45.4 AV	54.0	-8.6	1.22 H	304	5.60	39.80
5	#10480.00	59.3 PK	68.3	-9.0	1.02 H	270	8.60	50.70
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	*5240.00	104.7 PK			1.50 V	15	65.00	39.70
2	*5240.00	91.7 AV			1.55 V	15	52.00	39.70
3	5350.00	55.5 PK	74.0	-18.5	1.50 V	15	15.70	39.80
4	5350.00	44.4 AV	54.0	-9.6	1.50 V	15	4.60	39.80
5	#10480.00	59.6 PK	68.3	-8.7	1.00 V	140	8.90	50.70

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

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	62.3 PK	74.0	-11.7	1.06 H	342	22.70	39.60
2	5150.00	47.0 AV	54.0	-7.0	1.06 H	342	7.40	39.60
3	*5180.00	108.5 PK			1.06 H	358	68.80	39.70
4	*5180.00	94.4 AV			1.06 H	358	54.70	39.70
5	#10360.00	59.0 PK	68.3	-9.3	1.21 H	314	8.70	50.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.9 PK	74.0	-10.1	1.17 V	165	24.30	39.60
2	5150.00	47.2 AV	54.0	-6.8	1.17 V	165	7.60	39.60
3	*5180.00	108.0 PK			1.00 V	174	68.30	39.70
4	*5180.00	93.8 AV			1.00 V	174	54.10	39.70
5	#10360.00	58.2 PK	68.3	-10.1	1.20 V	232	7.90	50.30

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

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	108.8 PK			1.07 H	0	69.10	39.70
2	*5200.00	94.6 AV			1.07 H	0	54.90	39.70
3	#10400.00	58.9 PK	68.3	-9.4	1.08 H	204	8.50	50.40
4	15600.00	60.5 PK	74.0	-13.5	1.53 H	104	9.70	50.80
5	15600.00	45.3 AV	54.0	-8.7	1.53 H	104	-5.50	50.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	108.2 PK			1.00 V	166	68.50	39.70
2	*5200.00	93.9 AV			1.00 V	166	54.20	39.70
3	#10400.00	58.7 PK	68.3	-9.6	1.49 V	350	8.30	50.40
4	15600.00	60.8 PK	74.0	-13.2	1.93 V	260	10.00	50.80
5	15600.00	45.5 AV	54.0	-8.5	1.93 V	260	-5.30	50.80

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

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	109.0 PK			1.39 H	360	69.30	39.70
2	*5240.00	94.9 AV			1.39 H	360	55.20	39.70
3	5350.00	57.3 PK	74.0	-16.7	1.40 H	278	17.50	39.80
4	5350.00	42.7 AV	54.0	-11.3	1.40 H	278	2.90	39.80
5	#10480.00	59.3 PK	68.3	-9.0	1.49 H	20	8.60	50.70
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	*5240.00	108.4 PK			1.08 V	344	68.70	39.70
2	*5240.00	94.2 AV			1.08 V	344	54.50	39.70
3	5350.00	58.6 PK	74.0	-15.4	1.58 V	26	18.80	39.80
4	5350.00	43.9 AV	54.0	-10.1	1.58 V	26	4.10	39.80
5	#10480.00	59.2 PK	68.3	-9.1	1.08 V	274	8.50	50.70

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



802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	70.2 PK	74.0	-3.8	1.12 H	303	30.60	39.60
2	5150.00	52.9 AV	54.0	-1.1	1.12 H	303	13.30	39.60
3	*5190.00	105.0 PK			1.12 H	303	65.30	39.70
4	*5190.00	90.7 AV			1.12 H	303	51.00	39.70
5	#10380.00	59.1 PK	68.3	-9.2	1.00 H	8	8.70	50.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.5 PK	74.0	-7.5	1.52 V	3	26.90	39.60
2	5150.00	51.3 AV	54.0	-2.7	1.52 V	3	11.70	39.60
3	*5190.00	103.4 PK			1.52 V	3	63.70	39.70
4	*5190.00	89.2 AV			1.52 V	3	49.50	39.70
5	#10380.00	59.6 PK	68.3	-8.7	1.00 V	160	9.20	50.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	105.6 PK			1.22 H	302	65.90	39.70
2	*5230.00	90.8 AV			1.22 H	302	51.10	39.70
3	5350.00	59.6 PK	74.0	-14.4	1.22 H	302	19.80	39.80
4	5350.00	47.4 AV	54.0	-6.6	1.22 H	302	7.60	39.80
5	#10460.00	59.3 PK	68.3	-9.0	1.00 H	12	8.60	50.70
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	*5230.00	102.7 PK			1.12 V	14	63.00	39.70
2	*5230.00	89.0 AV			1.12 V	14	49.30	39.70
3	5350.00	58.6 PK	74.0	-15.4	1.12 V	14	18.80	39.80
4	5350.00	46.4 AV	54.0	-7.6	1.12 V	14	6.60	39.80
5	#10460.00	59.5 PK	68.3	-8.8	1.00 V	188	8.80	50.70

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.4 PK	74.0	-5.6	1.24 H	6	28.80	39.60
2	5150.00	52.3 AV	54.0	-1.7	1.24 H	6	12.70	39.60
3	*5190.00	106.2 PK			1.24 H	6	66.50	39.70
4	*5190.00	92.3 AV			1.24 H	6	52.60	39.70
5	#10380.00	59.1 PK	68.3	-9.2	1.05 H	162	8.70	50.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.9 PK	74.0	-5.1	1.00 V	1	29.30	39.60
2	5150.00	52.9 AV	54.0	-1.1	1.00 V	1	13.30	39.60
3	*5190.00	105.8 PK			1.00 V	1	66.10	39.70
4	*5190.00	91.9 AV			1.00 V	1	52.20	39.70
5	#10380.00	59.5 PK	68.3	-8.8	1.02 V	154	9.10	50.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH	TESTED BY	Frank Wang
TEST MODE	D		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	106.0 PK			1.25 H	6	66.30	39.70
2	*5230.00	92.1 AV			1.25 H	6	52.40	39.70
3	5350.00	51.2 PK	74.0	-22.8	1.25 H	6	11.40	39.80
4	5350.00	37.6 AV	54.0	-16.4	1.25 H	6	-2.20	39.80
5	#10460.00	60.0 PK	68.3	-8.3	1.03 H	152	9.30	50.70
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	*5230.00	105.5 PK			1.07 V	2	65.80	39.70
2	*5230.00	91.6 AV			1.07 V	2	51.90	39.70
3	5350.00	51.5 PK	74.0	-22.5	1.07 V	2	11.70	39.80
4	5350.00	38.1 AV	54.0	-15.9	1.07 V	2	-1.70	39.80
5	#10460.00	60.4 PK	68.3	-7.9	1.08 V	114	9.70	50.70

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

BELOW 1GHz WORST-CASE DATA : 802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
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	57.12	37.9 QP	40.0	-2.1	1.00 H	61	23.70	14.20
2	173.78	42.5 QP	43.5	-1.0	1.25 H	61	28.60	13.90
3	278.77	41.2 QP	46.0	-4.8	1.25 H	61	26.60	14.60
4	500.42	38.8 QP	46.0	-7.2	1.50 H	214	17.40	21.40
5	626.80	39.0 QP	46.0	-7.0	1.25 H	271	14.90	24.10
6	877.61	44.5 QP	46.0	-1.5	1.50 H	304	16.10	28.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.20	38.5 QP	40.0	-1.5	1.00 V	148	25.60	12.90
2	72.67	34.8 QP	40.0	-5.2	1.25 V	277	22.90	11.90
3	131.00	42.2 QP	43.5	-1.3	1.75 V	337	28.40	13.80
4	249.60	35.9 QP	46.0	-10.1	1.75 V	193	22.40	13.50
5	453.75	37.1 QP	46.0	-8.9	1.00 V	193	17.00	20.10
6	626.80	41.7 QP	46.0	-4.3	1.00 V	115	17.60	24.10
7	877.61	42.7 QP	46.0	-3.3	1.75 V	142	14.30	28.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
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	37.68	37.1 QP	40.0	-2.9	1.00 H	274	23.50	13.60
2	125.17	37.4 QP	43.5	-6.1	1.00 H	292	24.30	13.10
3	239.88	42.3 QP	46.0	-3.7	1.00 H	130	29.10	13.20
4	453.75	33.7 QP	46.0	-12.3	1.00 H	97	13.60	20.10
5	626.80	32.7 QP	46.0	-13.3	1.25 H	217	8.60	24.10
6	780.40	38.8 QP	46.0	-7.2	1.00 H	292	11.90	26.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.68	38.2 QP	40.0	-1.8	1.75 V	274	24.60	13.60
2	152.39	35.5 QP	43.5	-8.0	1.75 V	274	20.70	14.80
3	241.83	36.4 QP	46.0	-9.6	1.75 V	124	23.10	13.30
4	500.42	35.6 QP	46.0	-10.4	1.00 V	73	14.20	21.40
5	776.51	37.7 QP	46.0	-8.3	1.75 V	319	10.90	26.80
6	877.61	39.4 QP	46.0	-6.6	1.00 V	70	11.00	28.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
TEST MODE	C		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	125.17	30.8 QP	43.5	-12.7	1.75 H	235	17.70	13.10
2	249.60	40.1 QP	46.0	-5.9	1.25 H	115	26.60	13.50
3	375.98	36.1 QP	46.0	-9.9	1.00 H	214	18.30	17.80
4	500.42	39.1 QP	46.0	-6.9	1.50 H	208	17.70	21.40
5	626.80	40.2 QP	46.0	-5.8	1.25 H	64	16.10	24.10
6	877.61	42.7 QP	46.0	-3.3	1.50 H	313	14.30	28.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	33.79	36.1 QP	40.0	-3.9	1.25 V	85	23.10	13.00
2	249.60	35.6 QP	46.0	-10.4	1.75 V	175	22.10	13.50
3	375.98	38.1 QP	46.0	-7.9	1.25 V	22	20.30	17.80
4	500.42	38.8 QP	46.0	-7.2	1.00 V	88	17.40	21.40
5	626.80	41.4 QP	46.0	-4.6	1.00 V	10	17.30	24.10
6	877.61	43.0 QP	46.0	-3.0	1.00 V	232	14.60	28.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Antony Lee
TEST MODE	D		

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	35.73	33.5 QP	40.0	-6.5	1.75 H	88	20.30	13.20
2	241.83	42.9 QP	46.0	-3.1	1.00 H	136	29.60	13.30
3	453.75	33.5 QP	46.0	-12.5	1.00 H	103	13.40	20.10
4	626.80	32.2 QP	46.0	-13.8	1.25 H	52	8.10	24.10
5	751.23	34.4 QP	46.0	-11.6	1.00 H	208	8.20	26.20
6	877.61	37.4 QP	46.0	-8.6	1.50 H	145	9.00	28.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.68	38.2 QP	40.0	-1.8	1.00 V	340	24.60	13.60
2	241.83	37.2 QP	46.0	-8.8	1.75 V	103	23.90	13.30
3	453.75	37.1 QP	46.0	-8.9	1.00 V	199	17.00	20.10
4	626.80	32.8 QP	46.0	-13.2	1.00 V	10	8.70	24.10
5	751.23	33.5 QP	46.0	-12.5	1.75 V	238	7.30	26.20
6	877.61	39.5 QP	46.0	-6.5	1.00 V	82	11.10	28.40

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 30, 2010	Nov. 29, 2011
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	835239/001	Feb. 22, 2011	Feb. 21, 2012
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 30, 2011	Jun. 29, 2012
LISN ROHDE & SCHWARZ	ENV216	100072	Jun. 10, 2011	Jun. 09, 2012
Software ADT	ADT_Cond_ V7.3.7	NA	NA	NA

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

4.2.3 TEST PROCEDURES

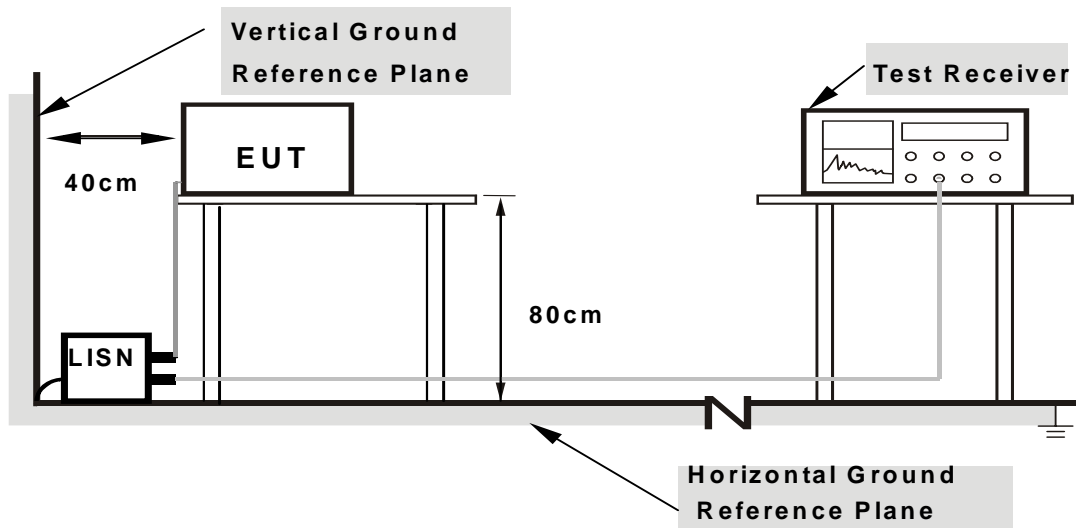
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

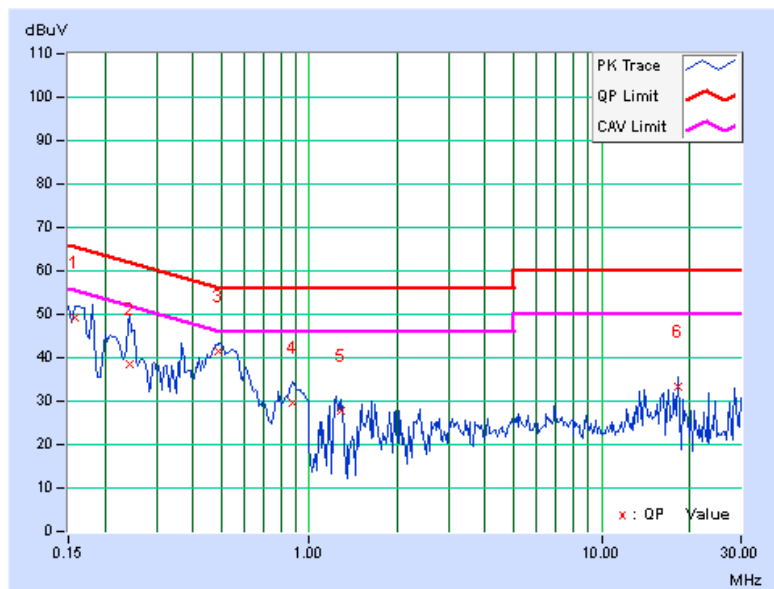
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11n (40MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.12	49.20	36.85	49.32	36.97	65.58	55.58	-16.26	-18.61
2	0.244	0.09	38.49	11.51	38.58	11.60	61.97	51.97	-23.39	-40.37
3	0.490	0.09	41.37	30.13	41.46	30.22	56.17	46.17	-14.71	-15.95
4	0.880	0.10	29.47	19.44	29.57	19.54	56.00	46.00	-26.43	-26.46
5	1.281	0.10	27.83	18.72	27.93	18.82	56.00	46.00	-28.07	-27.18
6	18.242	0.46	33.00	27.21	33.46	27.67	60.00	50.00	-26.54	-22.33

- 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.



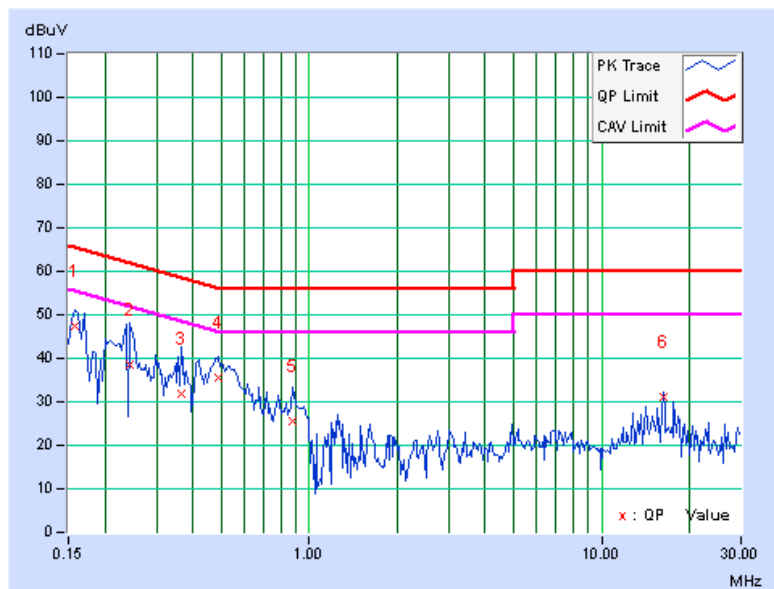


A D T

PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.14	47.34	31.77	47.48	31.91	65.58	55.58	-18.10	-23.67
2	0.244	0.11	38.42	10.47	38.53	10.58	61.97	51.97	-23.44	-41.39
3	0.365	0.09	31.92	15.62	32.01	15.71	58.62	48.62	-26.60	-32.90
4	0.490	0.09	35.34	24.17	35.43	24.26	56.17	46.17	-20.74	-21.91
5	0.877	0.11	25.28	14.05	25.39	14.16	56.00	46.00	-30.61	-31.84
6	16.227	0.40	30.72	26.02	31.12	26.42	60.00	50.00	-28.88	-23.58

- 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.



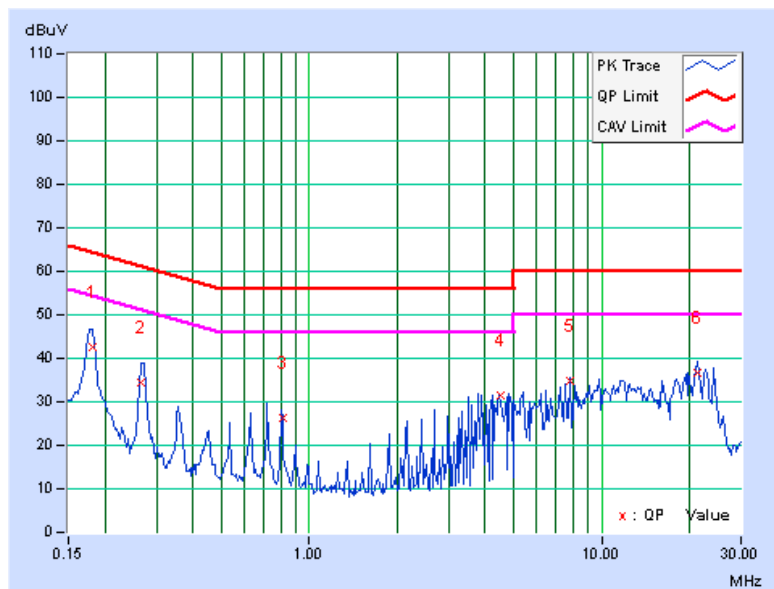


A D T

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.12	42.62	33.99	42.74	34.11	64.43	54.43	-21.69	-20.32
2	0.267	0.12	34.26	25.70	34.38	25.82	61.20	51.20	-26.82	-25.38
3	0.811	0.15	26.08	20.36	26.23	20.51	56.00	46.00	-29.77	-25.49
4	4.498	0.34	31.07	26.55	31.41	26.89	56.00	46.00	-24.59	-19.11
5	7.838	0.53	34.30	33.35	34.83	33.88	60.00	50.00	-25.17	-16.12
6	21.298	1.19	35.59	30.19	36.78	31.38	60.00	50.00	-23.22	-18.62

- 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.



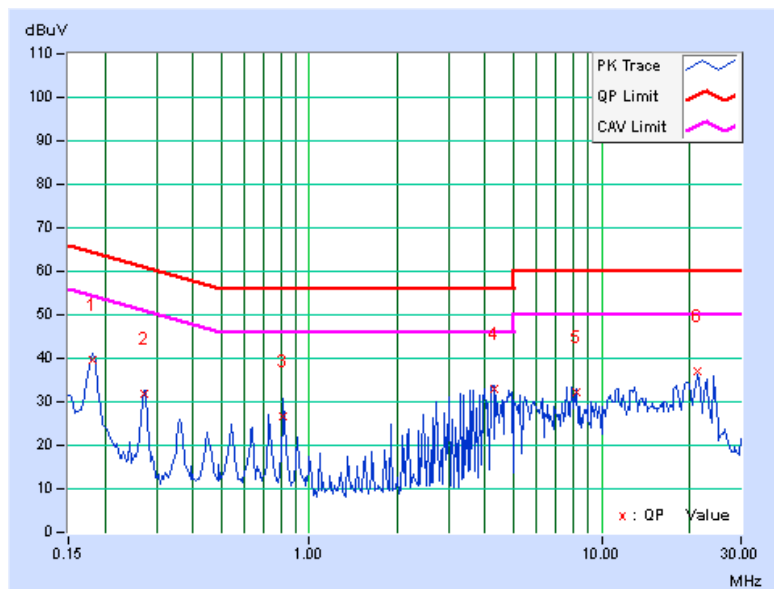


A D T

PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	(dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.13	39.44	30.16	39.57	30.29	64.43	54.43	-24.86	-24.14
2	0.272	0.13	31.62	22.51	31.75	22.64	61.04	51.04	-29.29	-28.40
3	0.818	0.17	26.58	20.10	26.75	20.27	56.00	46.00	-29.25	-25.73
4	4.277	0.33	32.58	28.48	32.91	28.81	56.00	46.00	-23.09	-17.19
5	8.160	0.52	31.58	31.58	32.10	32.10	60.00	50.00	-27.90	-17.90
6	21.213	0.97	35.90	35.12	36.87	36.09	60.00	50.00	-23.13	-13.91

- 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.



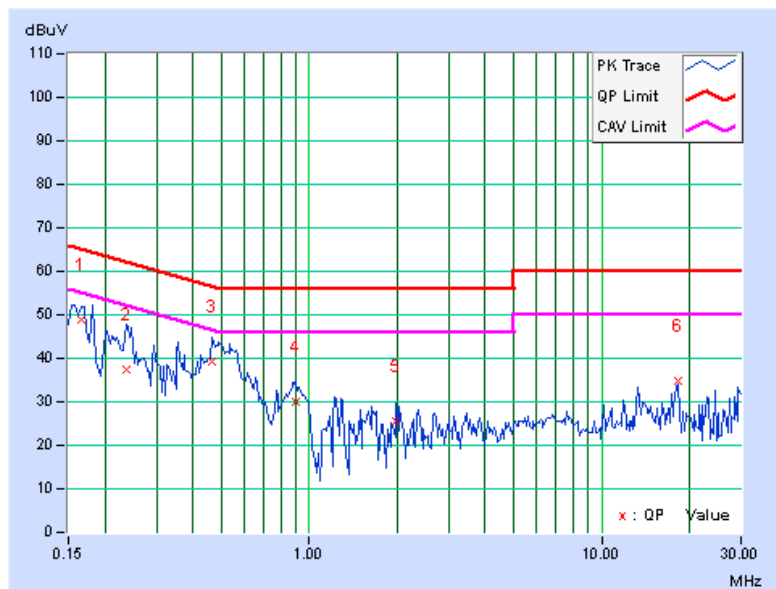


A D T

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.11	48.79	35.71	48.90	35.82	65.18	55.18	-16.27	-19.35
2	0.236	0.09	37.29	23.88	37.38	23.97	62.24	52.24	-24.86	-28.27
3	0.466	0.09	39.02	27.95	39.11	28.04	56.58	46.58	-17.47	-18.54
4	0.900	0.10	29.72	17.43	29.82	17.53	56.00	46.00	-26.18	-28.47
5	1.988	0.11	25.46	19.01	25.57	19.12	56.00	46.00	-30.43	-26.88
6	18.242	0.46	34.31	28.65	34.77	29.11	60.00	50.00	-25.23	-20.89

- 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.



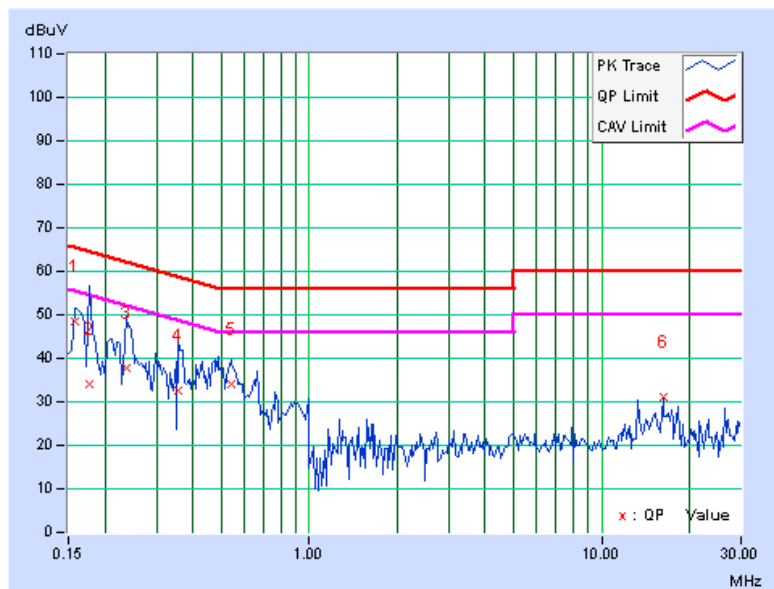


A D T

PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.14	48.53	32.94	48.67	33.08	65.58	55.58	-16.91	-22.50
2	0.177	0.12	33.77	25.42	33.89	25.54	64.61	54.61	-30.72	-29.07
3	0.236	0.11	37.49	20.44	37.60	20.55	62.24	52.24	-24.64	-31.69
4	0.357	0.09	32.64	14.62	32.73	14.71	58.80	48.80	-26.06	-34.08
5	0.541	0.09	34.14	21.85	34.23	21.94	56.00	46.00	-21.77	-24.06
6	16.230	0.40	30.86	26.10	31.26	26.50	60.00	50.00	-28.74	-23.50

- 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.



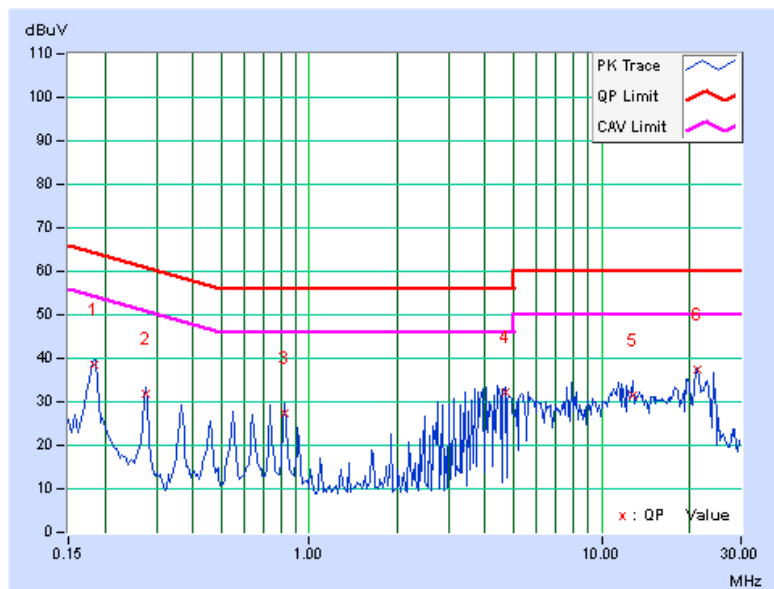


A D T

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.184	0.12	38.36	31.09	38.48	31.21	64.31	54.31	-25.83	-23.10
2	0.275	0.12	31.57	24.01	31.69	24.13	60.97	50.97	-29.28	-26.84
3	0.826	0.15	27.38	18.12	27.53	18.27	56.00	46.00	-28.47	-27.73
4	4.678	0.35	31.93	27.39	32.28	27.74	56.00	46.00	-23.72	-18.26
5	12.750	0.78	30.81	25.04	31.59	25.82	60.00	50.00	-28.41	-24.18
6	21.301	1.19	36.06	35.32	37.25	36.51	60.00	50.00	-22.75	-13.49

- 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.



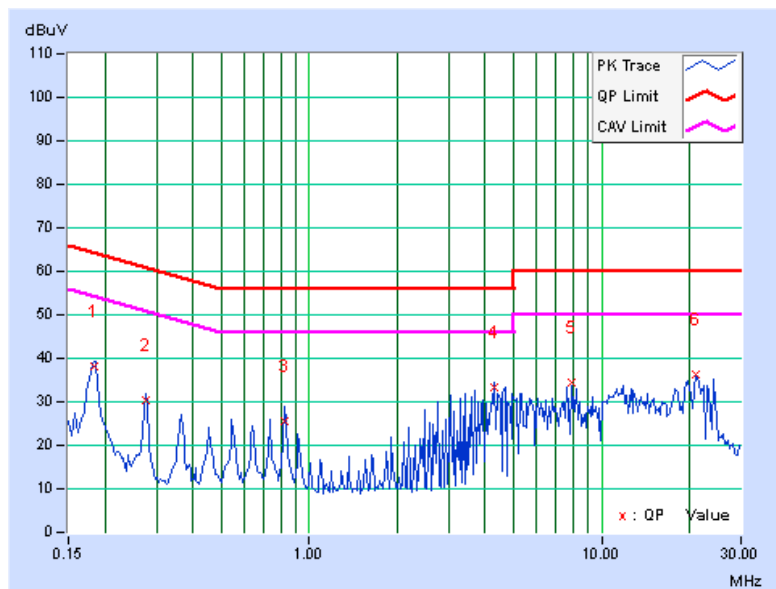


A D T

PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.184	0.13	38.14	28.89	38.27	29.02	64.31	54.31	-26.04	-25.29
2	0.275	0.13	30.27	21.74	30.40	21.87	60.97	50.97	-30.56	-29.09
3	0.826	0.17	25.39	16.52	25.56	16.69	56.00	46.00	-30.44	-29.31
4	4.316	0.34	32.83	28.68	33.17	29.02	56.00	46.00	-22.83	-16.98
5	7.926	0.51	33.91	33.03	34.42	33.54	60.00	50.00	-25.58	-16.46
6	21.043	0.96	35.27	34.57	36.23	35.53	60.00	50.00	-23.77	-14.47

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



4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB

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

4.3.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

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

NOTE:

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

FOR 26dB OCCUPIED BANDWIDTH

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

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

4.3.3 TEST PROCEDURE

FOR POWER OUTPUT MEASUREMENT

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

FOR 26dB OCCUPIED BANDWIDTH

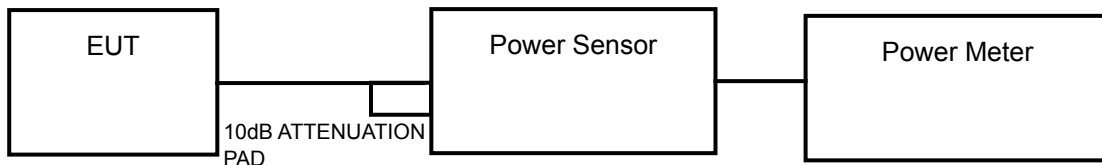
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

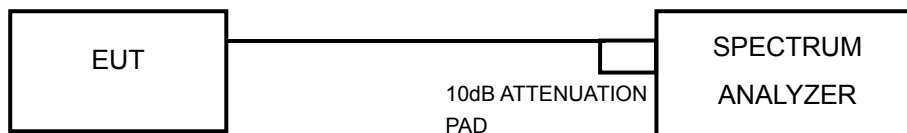
No deviation.

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

POWER OUTPUT: 802.11a

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS/ FAIL
		CHAIN 0	CHAIN 1				
36	5180	11.3	11.0	26.1	14.2	15	PASS
40	5200	11.2	10.9	25.5	14.1	15	PASS
48	5240	11.3	11.0	26.1	14.2	15	PASS

NOTE: Directional gain = $5\text{dBi} + 10\log(2) = 8\text{dBi} > 6\text{dBi}$, so the conducted power limit shall be reduced to $17 - (8 - 6) = 15\text{dBm}$.

802.11n (20MHz)

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS/ FAIL
		CHAIN 0	CHAIN 1				
36	5180	11.0	11.5	26.7	14.3	15	PASS
40	5200	10.9	11.5	26.4	14.2	15	PASS
48	5240	11.0	11.5	26.7	14.3	15	PASS

NOTE: Directional gain = $5\text{dBi} + 10\log(2) = 8\text{dBi} > 6\text{dBi}$, so the conducted power limit shall be reduced to $17 - (8 - 6) = 15\text{dBm}$.

802.11n (40MHz)

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS/ FAIL
		CHAIN 0	CHAIN 1				
38	5190	11.2	11.8	28.3	14.5	15	PASS
46	5230	11.1	12.0	28.7	14.6	15	PASS

NOTE: Directional gain = $5\text{dBi} + 10\log(2) = 8\text{dBi} > 6\text{dBi}$, so the conducted power limit shall be reduced to $17 - (8 - 6) = 15\text{dBm}$.

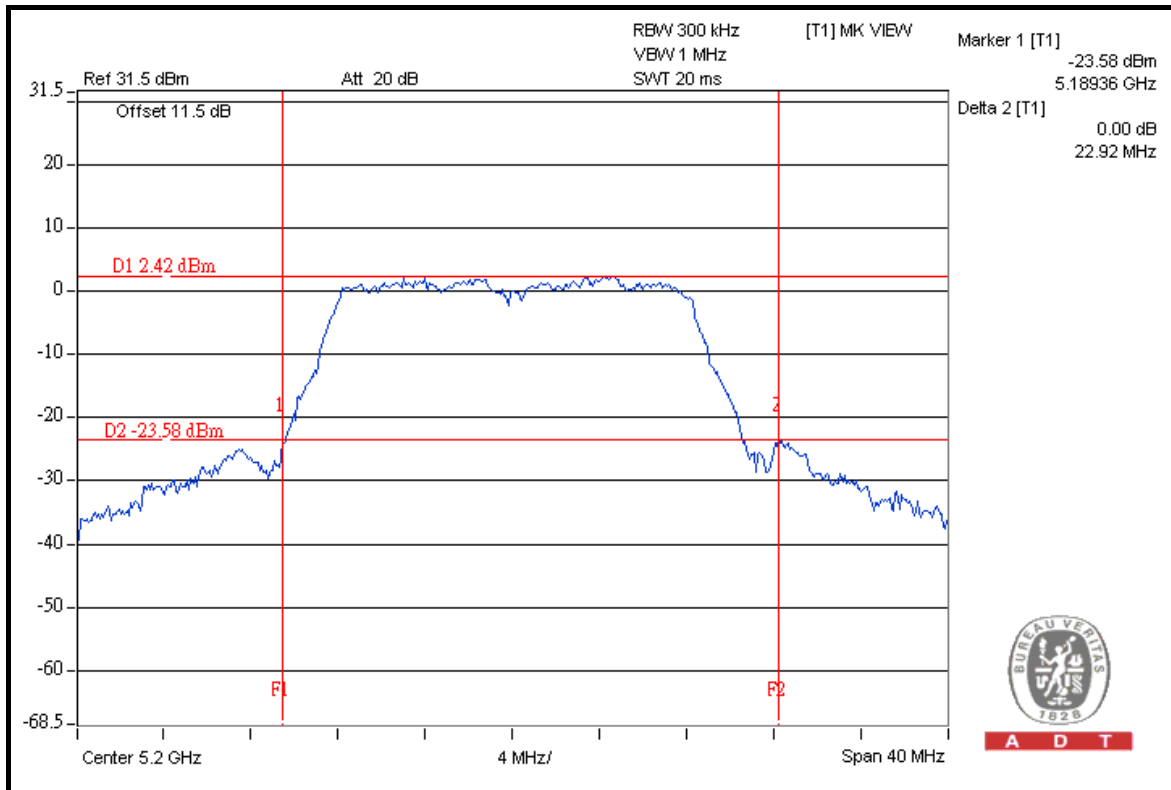


A D T

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	21.06	20.78	PASS
40	5200	22.92	20.79	PASS
48	5240	21.01	20.66	PASS

FOR CHAIN 0: CH 40



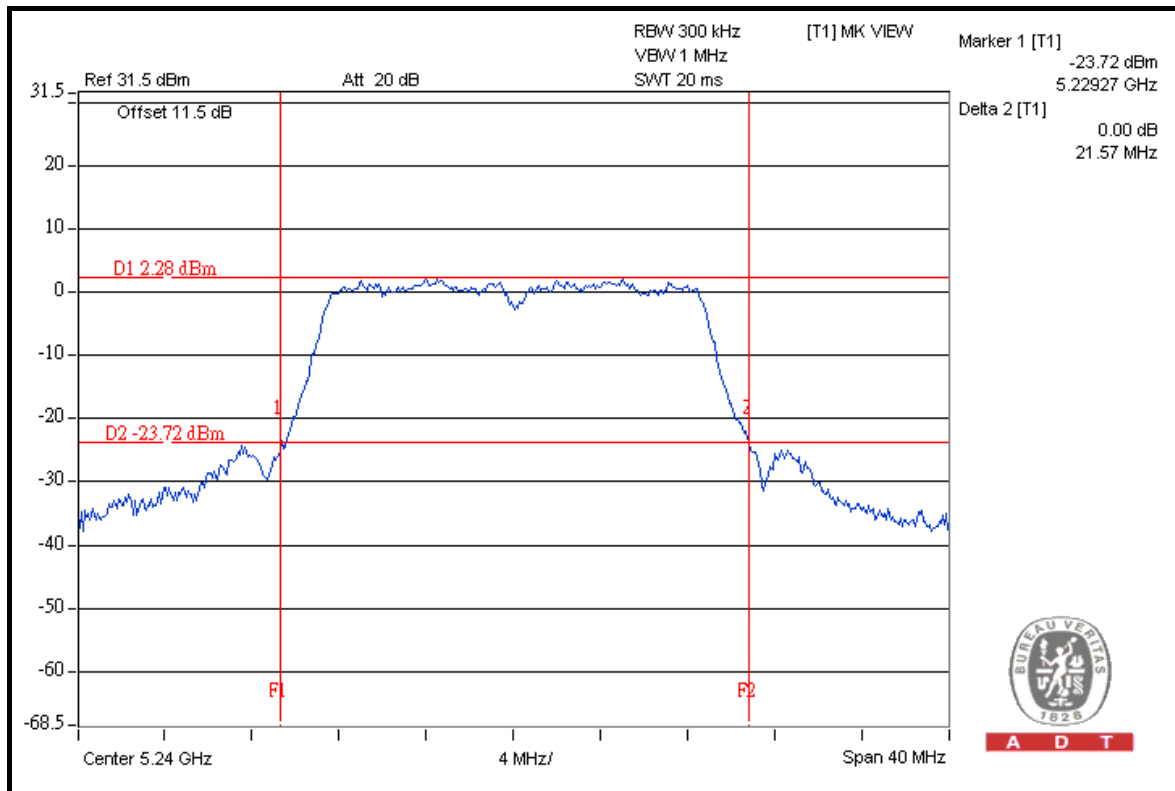


A D T

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	21.28	21.08	PASS
40	5200	21.35	21.04	PASS
48	5240	21.57	20.94	PASS

FOR CHAIN 0: CH 48



A D T

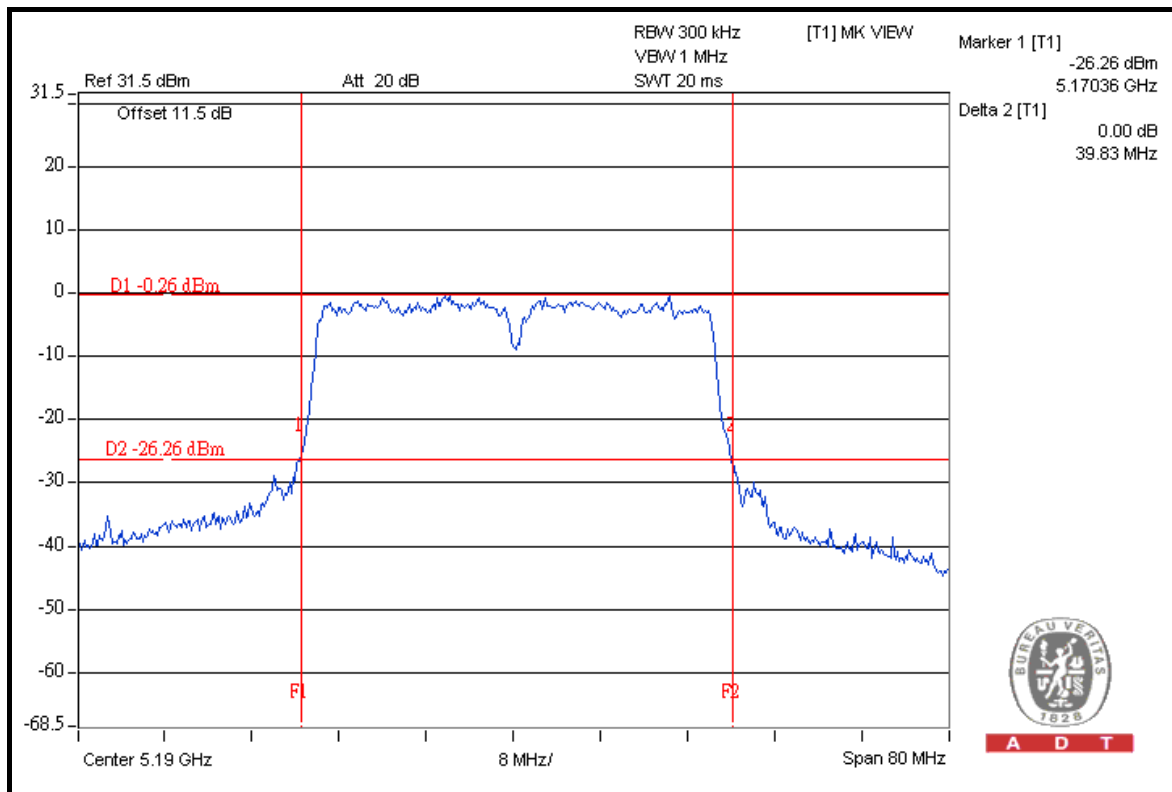


A D T

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	39.83	39.37	PASS
46	5230	39.72	39.57	PASS

FOR CHAIN 0: CH 38



4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	13dB

4.4.2 TEST INSTRUMENTS

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

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

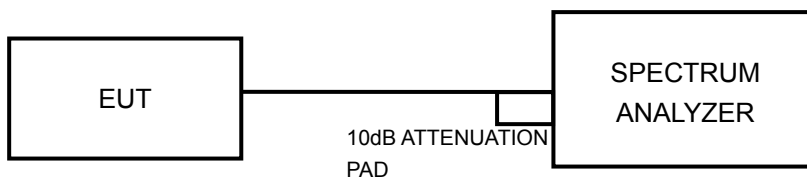
4.4.3 TEST PROCEDURE

- 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

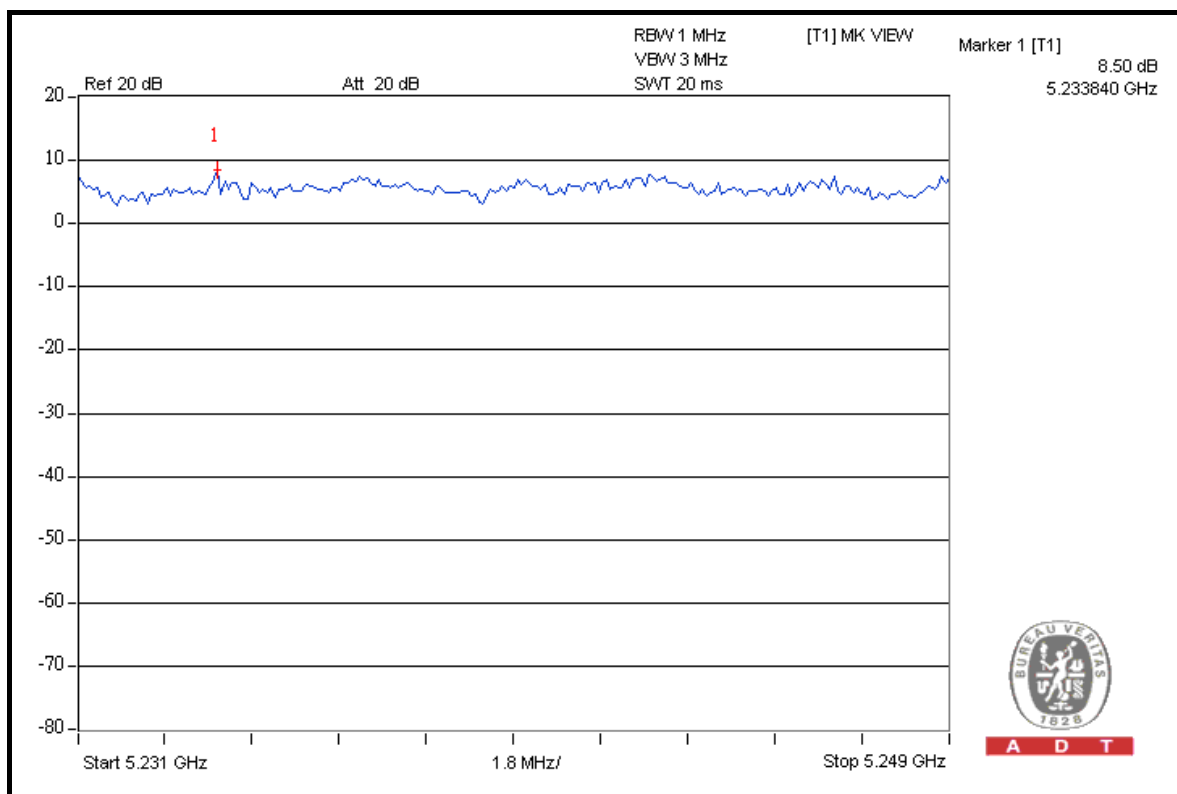
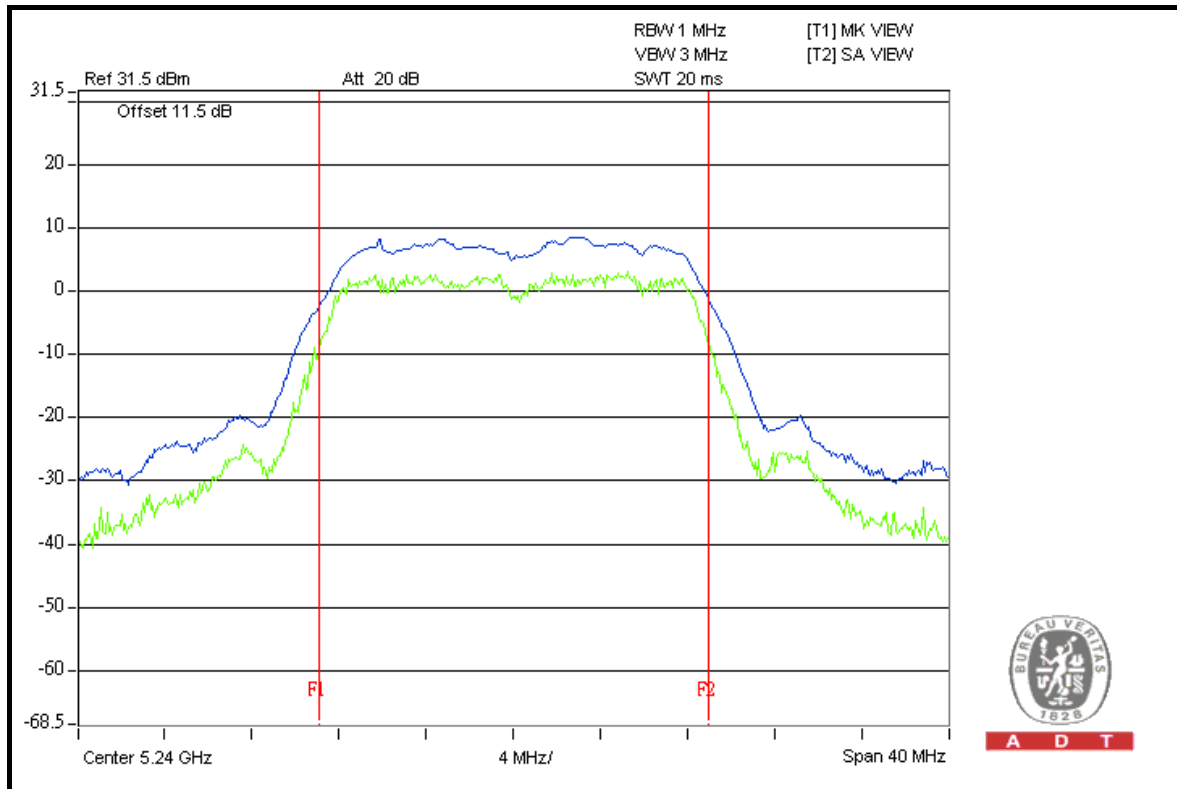
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	8.12	7.95	13	PASS
40	5200	7.71	7.95	13	PASS
48	5240	7.56	8.50	13	PASS



A D T

FOR CHAIN 1: CH 48





A D T

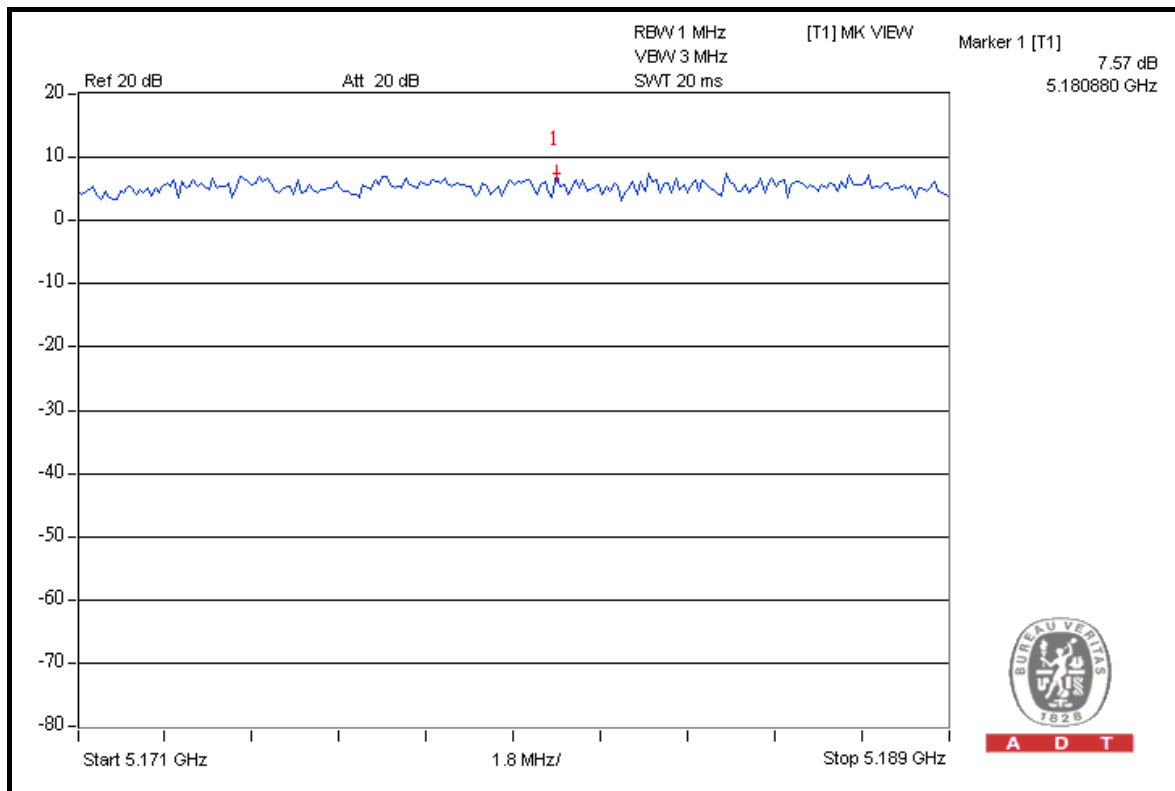
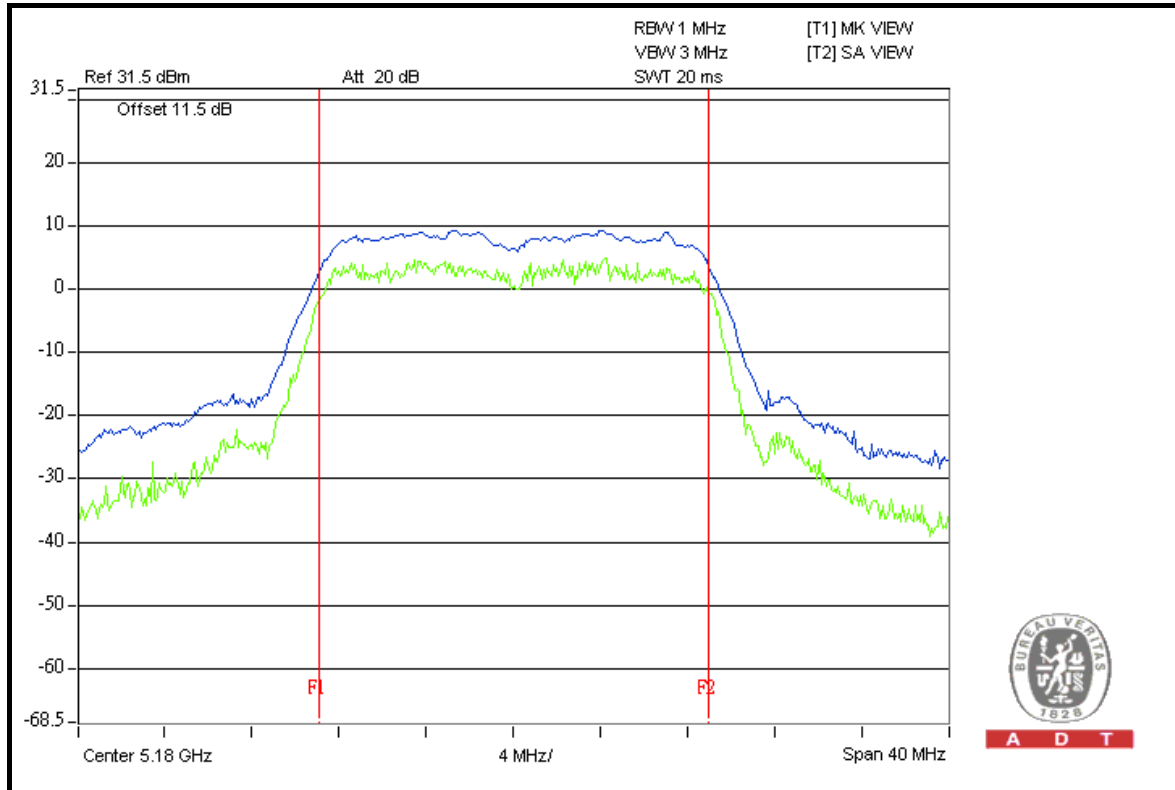
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	6.98	7.57	13	PASS
40	5200	7.04	7.40	13	PASS
48	5240	7.02	7.22	13	PASS



A D T

FOR CHAIN 1: CH 36





A D T

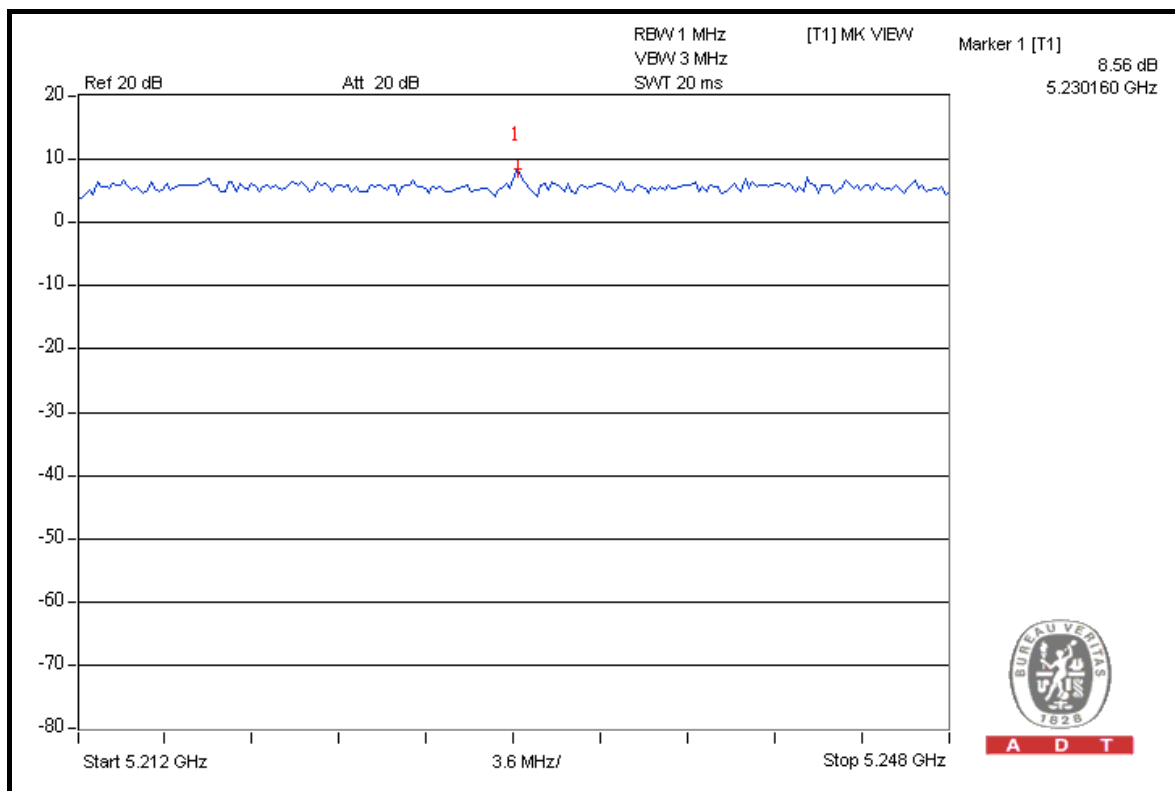
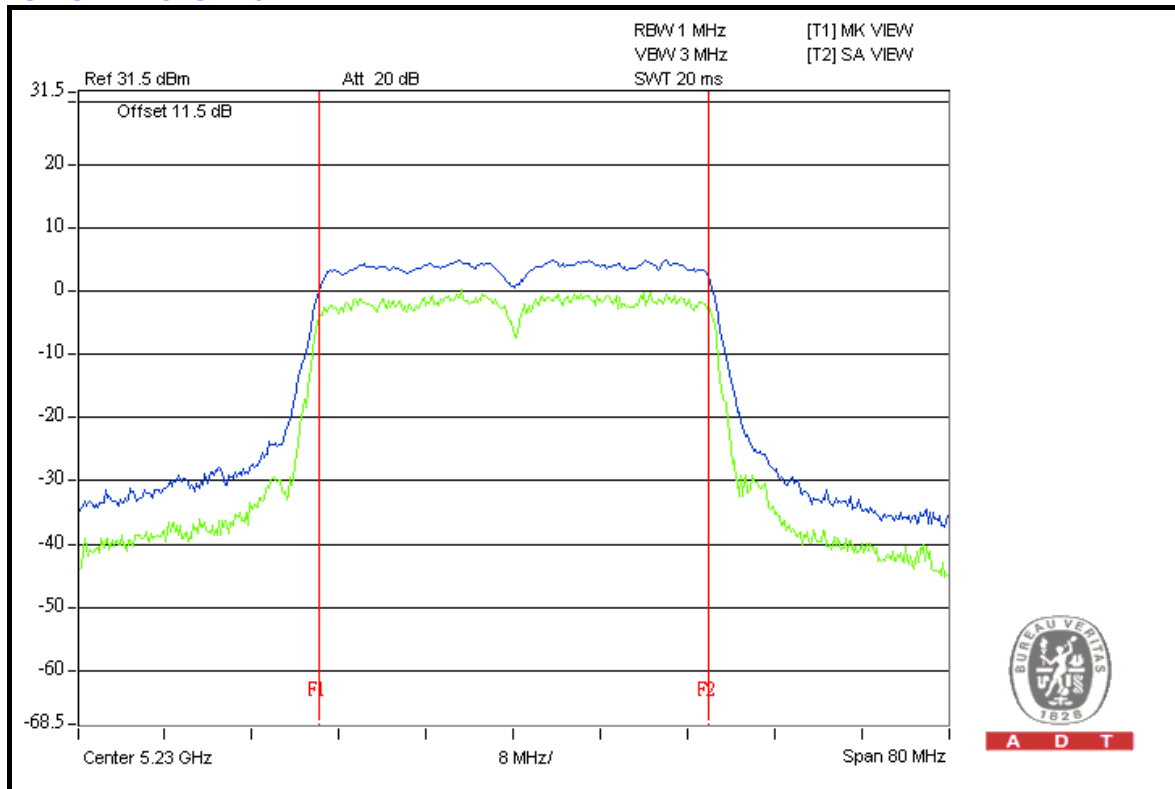
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	7.11	7.87	13	PASS
46	5230	8.56	7.84	13	PASS



A D T

FOR CHAIN 0: CH 46



4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	4dBm

4.5.2 TEST INSTRUMENTS

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

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

4.5.3 TEST PROCEDURES

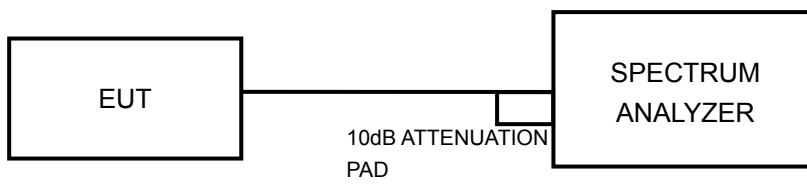
- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW = 1MHz, VBW = 3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

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 4.3.6.



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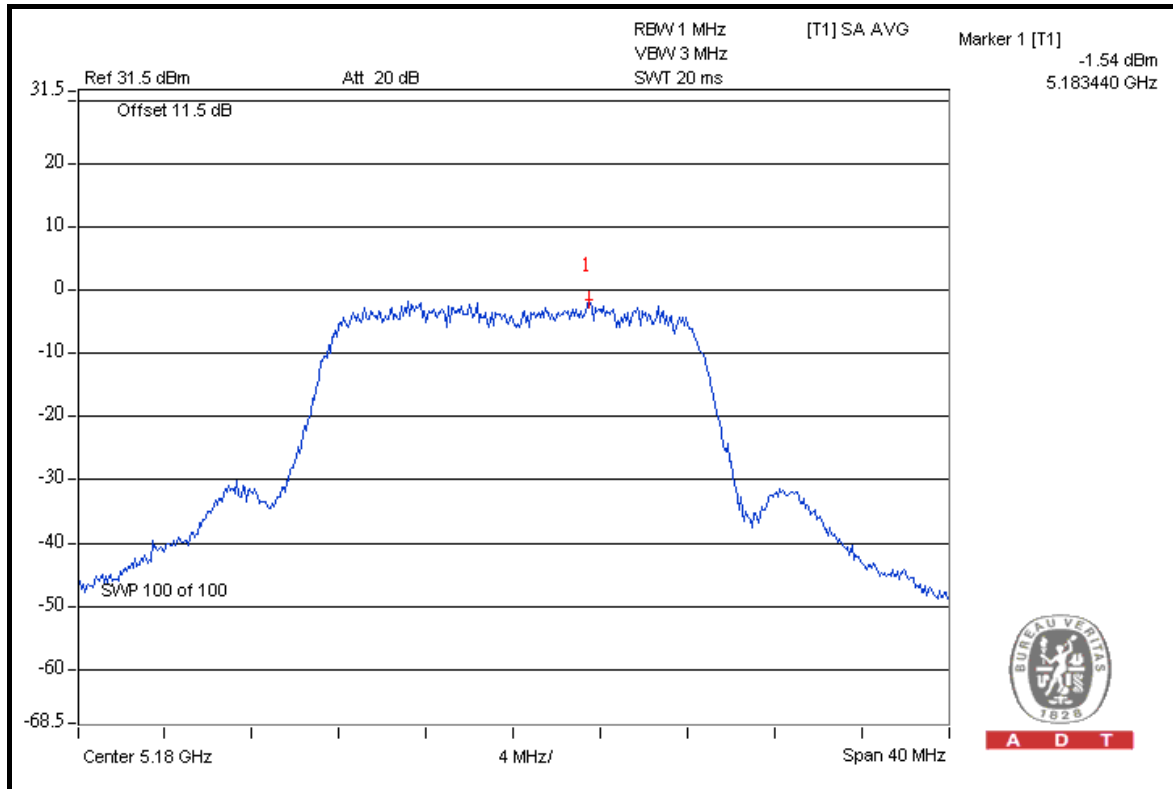
4.5.7 TEST RESULTS

802.11a

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	-1.5	3.01	1.5	2	PASS
	40	5200	-1.7	3.01	1.3	2	PASS
	48	5240	-1.6	3.01	1.4	2	PASS
1	36	5180	-1.8	3.01	1.2	2	PASS
	40	5200	-1.9	3.01	1.1	2	PASS
	48	5240	-1.9	3.01	1.1	2	PASS

NOTE: Directional gain = $5\text{dBi} + 10\log(2) = 8\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $4 - (8 - 6) = 2\text{dBm}$.

FOR CHAIN 0: CH 36



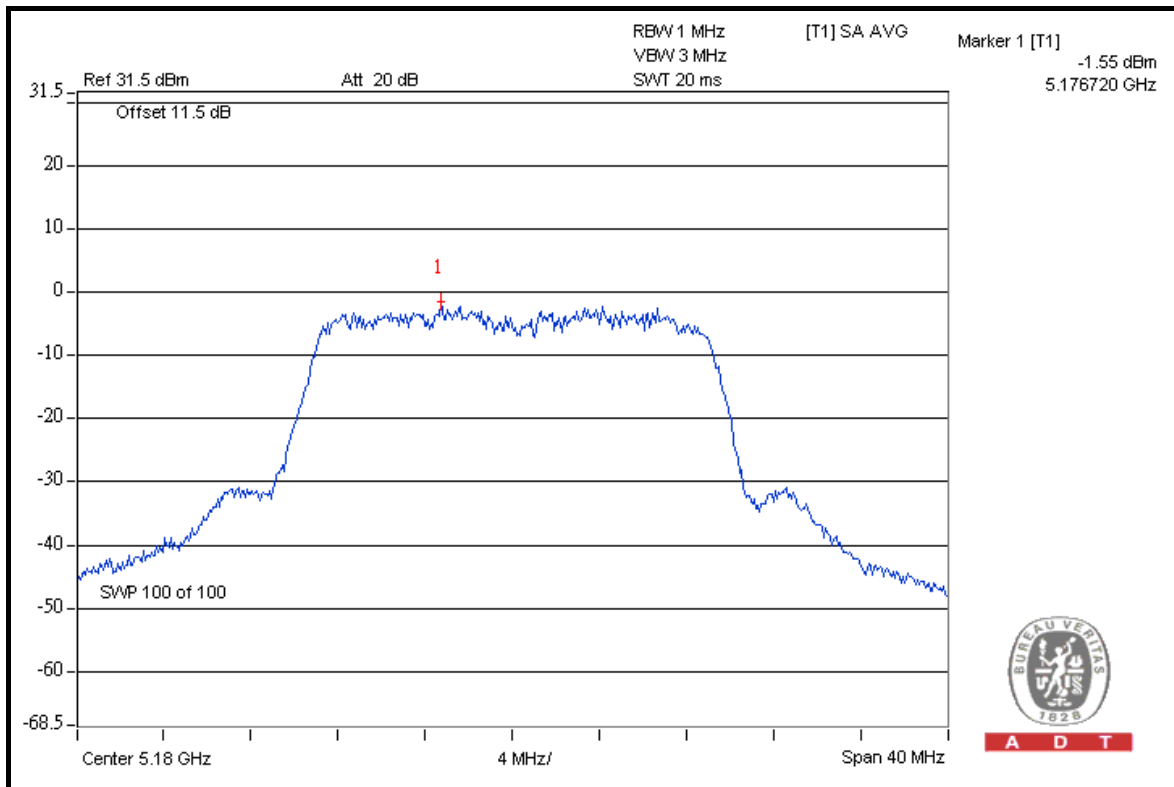
A D T

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	-1.9	3.01	1.1	2	PASS
	40	5200	-1.9	3.01	1.1	2	PASS
	48	5240	-2.0	3.01	1.0	2	PASS
1	36	5180	-1.6	3.01	1.4	2	PASS
	40	5200	-1.7	3.01	1.3	2	PASS
	48	5240	-1.7	3.01	1.3	2	PASS

NOTE: Directional gain = 5dBi + 10log(2) = 8dBi > 6dBi, so the power density limit shall be reduced to 4 - (8 - 6) = 2dBm.

FOR CHAIN 1: CH 36





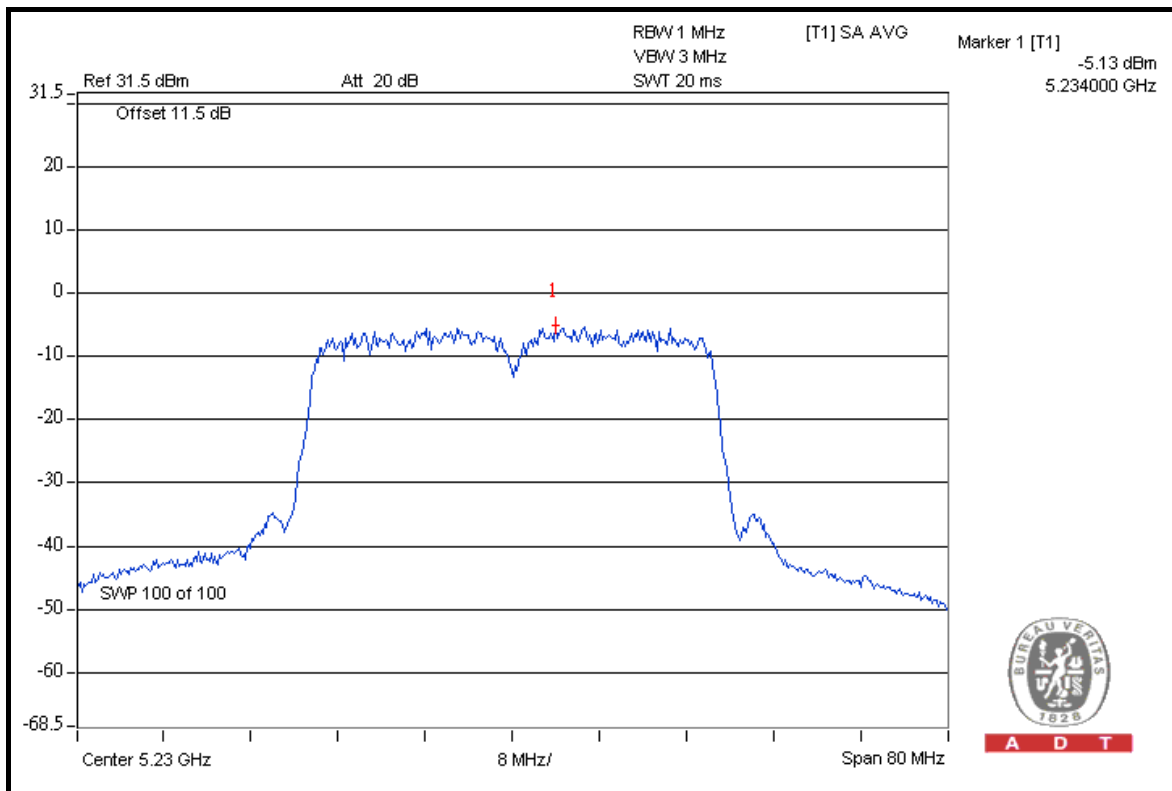
A D T

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	-5.9	3.01	-2.9	2	PASS
	46	5230	-5.9	3.01	-2.9	2	PASS
1	38	5190	-5.5	3.01	-2.5	2	PASS
	46	5230	-5.1	3.01	-2.1	2	PASS

NOTE: Directional gain = $5\text{dBi} + 10\log(2) = 8\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $4 - (8 - 6) = 2\text{dBm}$.

FOR CHAIN 1: CH 46



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within the band of operation frequency over a temperature variation of –30 degrees to 55 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

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

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

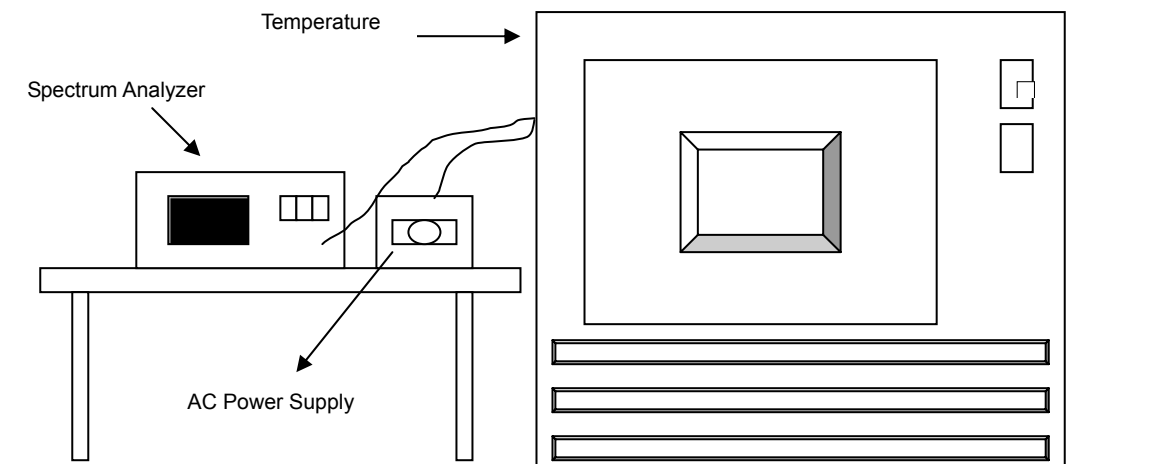
4.6.3 TEST PROCEDURE

- 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 B

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
55	110.0	5199.989082	-2.100	5199.989280	-2.062	5199.989252	-2.067	5199.989134	-2.090
50	110.0	5199.989148	-2.087	5199.988938	-2.127	5199.989132	-2.090	5199.989221	-2.073
40	110.0	5199.990710	-1.787	5199.990869	-1.756	5199.990959	-1.739	5199.990829	-1.764
30	110.0	5199.991847	-1.568	5199.991867	-1.564	5199.991974	-1.543	5199.991447	-1.645
20	110.0	5199.992676	-1.408	5199.992354	-1.470	5199.992232	-1.494	5199.992158	-1.508
10	110.0	5199.991296	-1.674	5199.991215	-1.689	5199.991572	-1.621	5199.991098	-1.712
0	110.0	5199.990087	-1.906	5199.990655	-1.797	5199.990353	-1.855	5199.989989	-1.925
-10	110.0	5199.988549	-2.202	5199.989220	-2.073	5199.988661	-2.181	5199.988925	-2.130
-20	110.0	5199.988353	-2.240	5199.988330	-2.244	5199.988598	-2.193	5199.988567	-2.199
-30	110.0	5199.988712	-2.171	5199.988552	-2.202	5199.988249	-2.260	5199.988589	-2.194

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	93.5	5199.992051	-1.529	5199.992115	-1.516	5199.991725	-1.591	5199.991952	-1.548
	110.0	5199.992676	-1.408	5199.992354	-1.470	5199.992232	-1.494	5199.992158	-1.508
	126.5	5199.991239	-1.685	5199.991217	-1.689	5199.991635	-1.609	5199.991606	-1.614



TEST MODE D

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
55	110.0	5199.988577	-2.197	5199.988308	-2.248	5199.988540	-2.204	5199.988279	-2.254
50	110.0	5199.988496	-2.212	5199.988638	-2.185	5199.988849	-2.144	5199.988589	-2.194
40	110.0	5199.990594	-1.809	5199.990329	-1.860	5199.990185	-1.887	5199.990248	-1.875
30	110.0	5199.991736	-1.589	5199.992074	-1.524	5199.991565	-1.622	5199.991683	-1.599
20	110.0	5199.992366	-1.468	5199.992288	-1.483	5199.992049	-1.529	5199.992770	-1.390
10	110.0	5199.990803	-1.769	5199.991261	-1.681	5199.991249	-1.683	5199.991039	-1.723
0	110.0	5199.989779	-1.966	5199.990029	-1.917	5199.990008	-1.922	5199.990118	-1.900
-10	110.0	5199.988913	-2.132	5199.989040	-2.108	5199.988776	-2.158	5199.988923	-2.130
-20	110.0	5199.988266	-2.257	5199.988803	-2.153	5199.988024	-2.303	5199.988645	-2.184
-30	110.0	5199.988177	-2.274	5199.987702	-2.365	5199.987576	-2.389	5199.987375	-2.428

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	93.5	5199.992038	-1.531	5199.992318	-1.477	5199.991743	-1.588	5199.992204	-1.499
	110.0	5199.992366	-1.468	5199.992288	-1.483	5199.992049	-1.529	5199.992770	-1.390
	126.5	5199.990756	-1.778	5199.990636	-1.801	5199.990935	-1.743	5199.990970	-1.737



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 R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
FOR RADIATED MEASUREMENT				
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 27, 2010	Dec. 26, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 06, 2011	Jan. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01961	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10738	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250792/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 19, 2011	Aug. 18, 2012
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA

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

4.7.2 TEST PROCEDURE

- 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 1kHz for Average detection (AV) at frequency above 1GHz

4.7.3 EUT OPERATING CONDITION

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

4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.25GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

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

802.11a

TEST MODE B

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)	106.20	43.18	63.02	74.00
5180.00 (AV)	92.80	42.59	50.21	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)
5240.00 (PK)	106.80	44.54	62.26	74.00
5240.00 (AV)	93.70	44.29	49.41	54.00

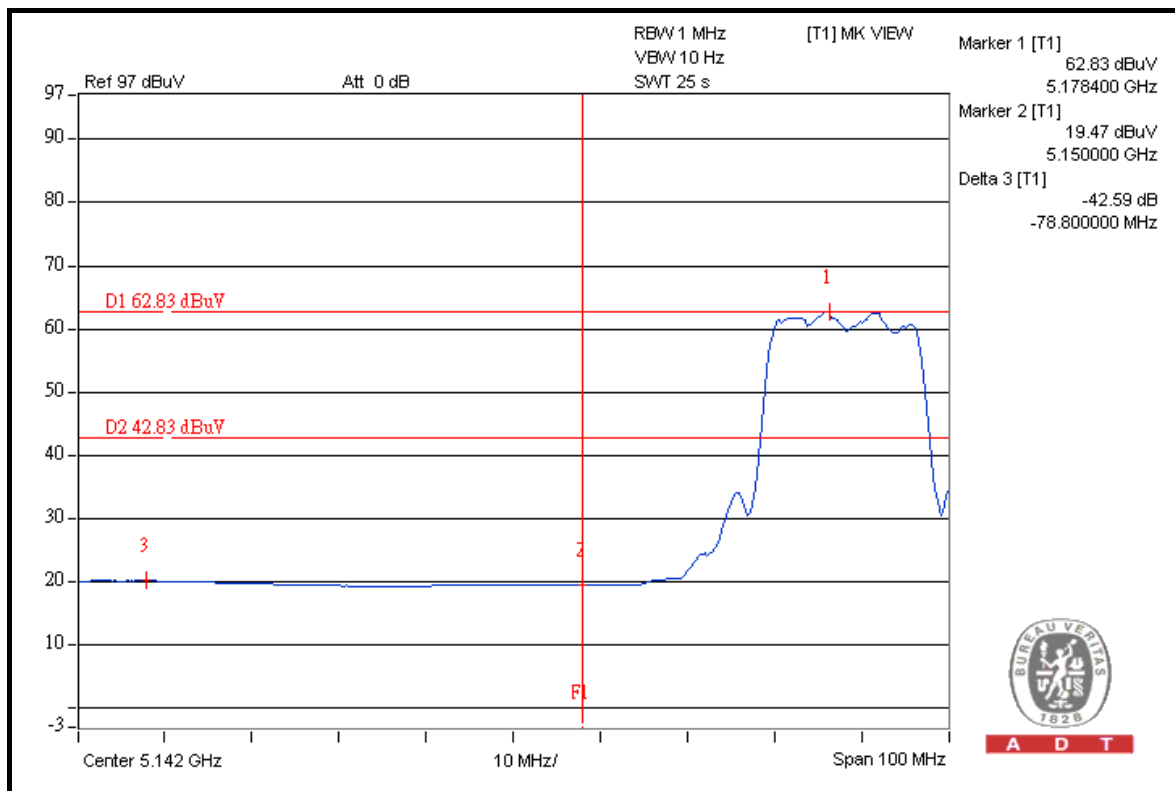
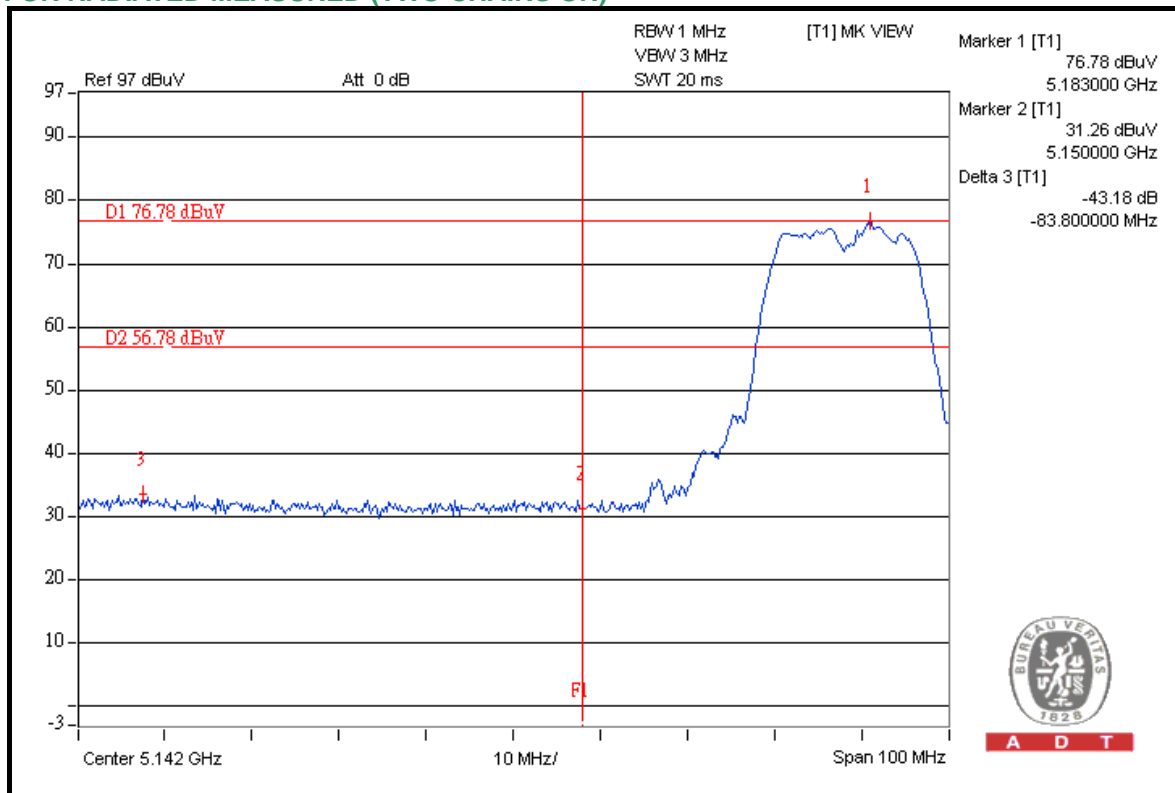
NOTE:

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



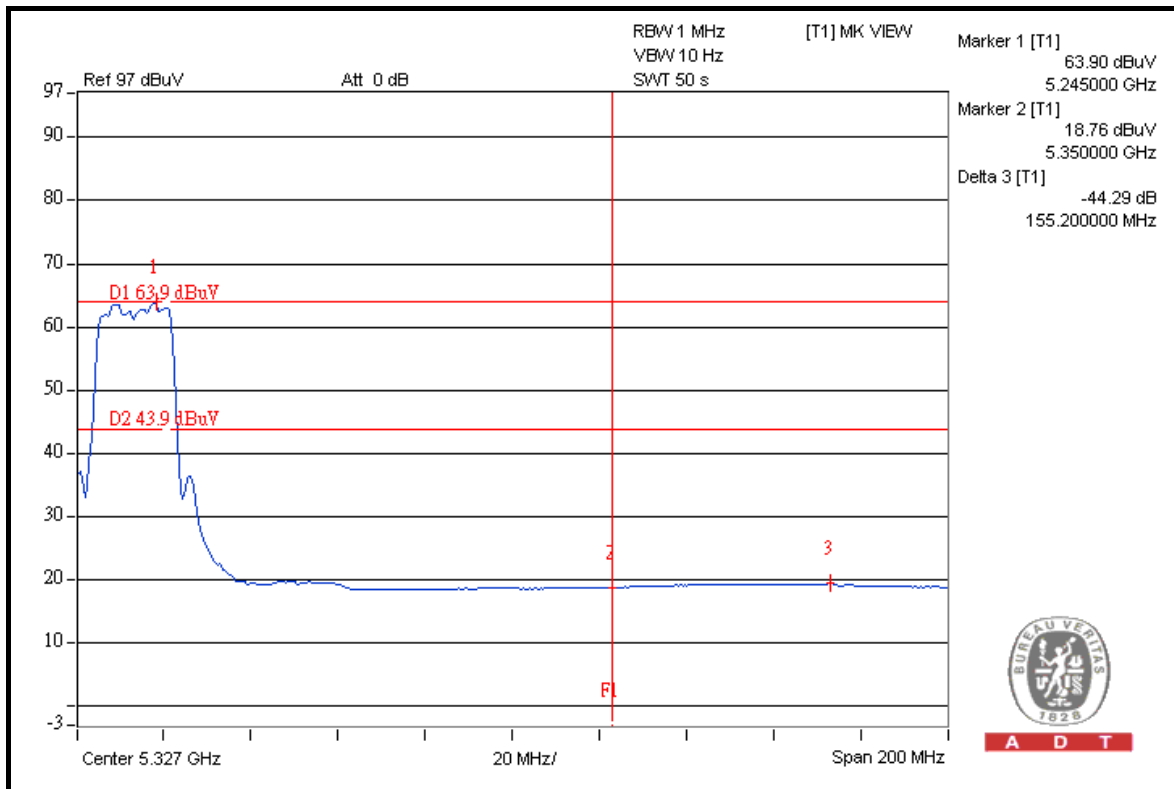
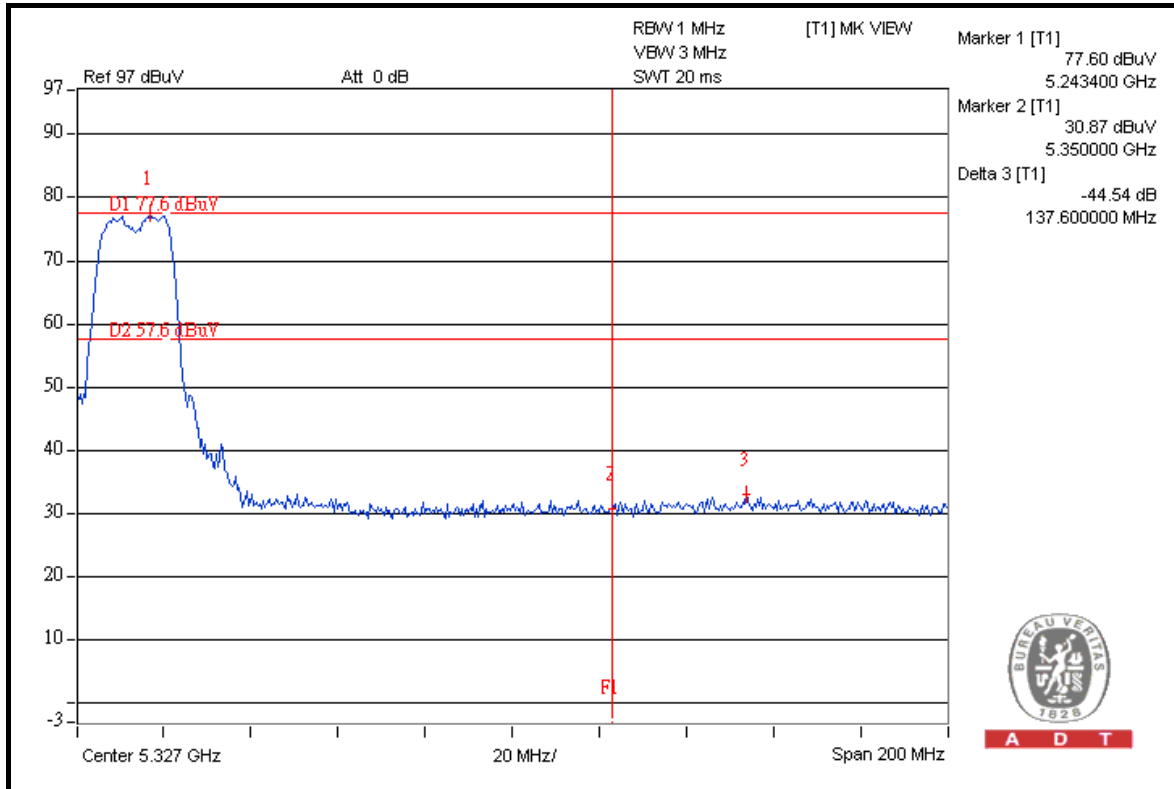
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FOR RADIATED MEASURED (TWO CHAINS ON)





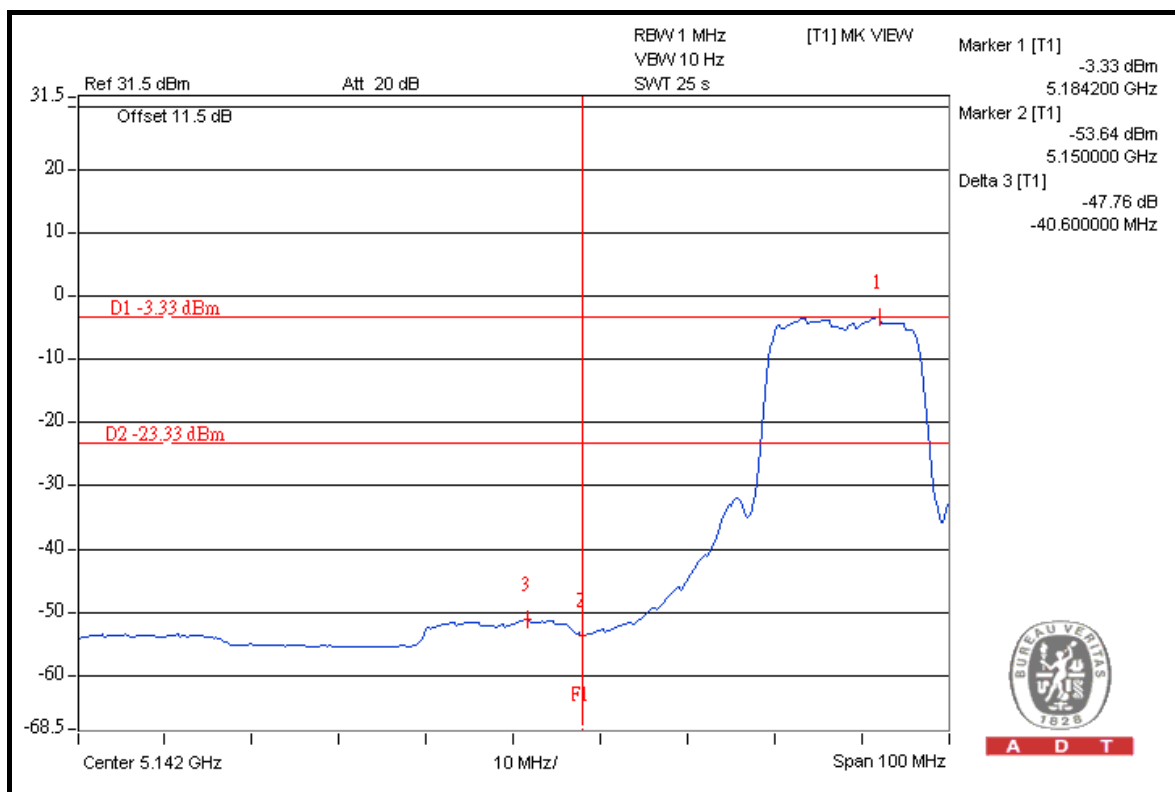
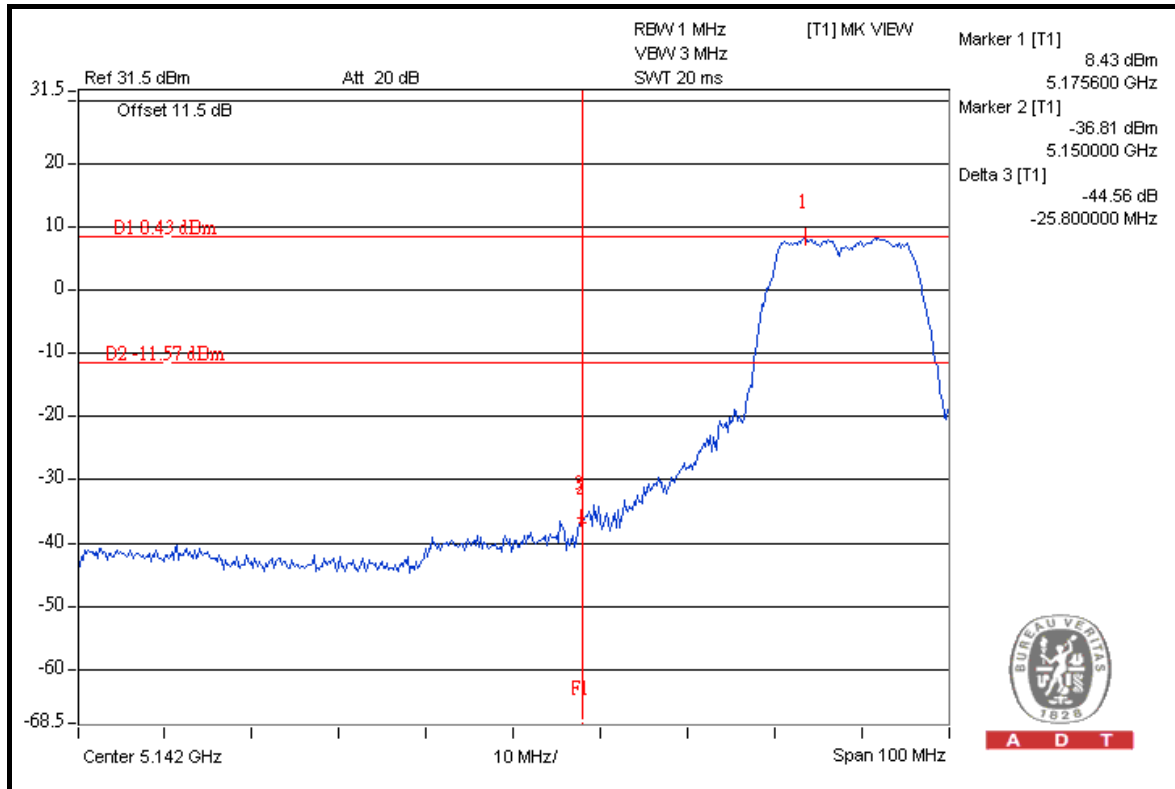
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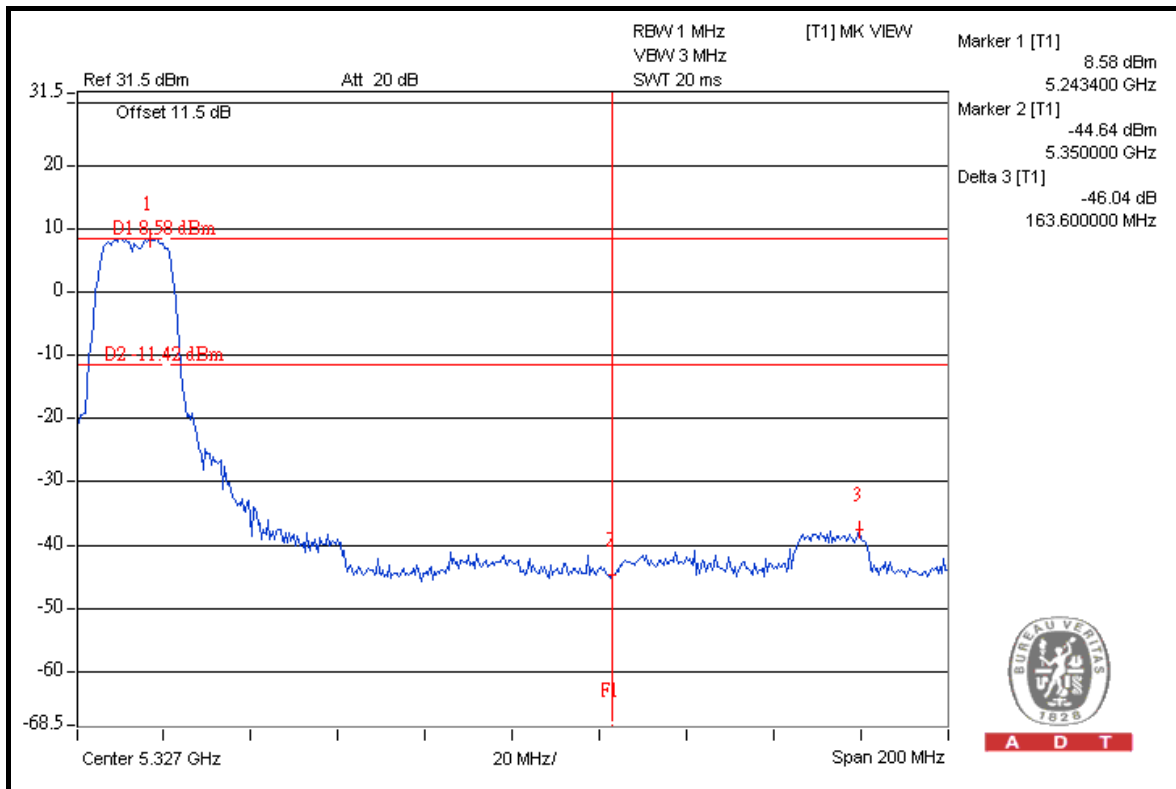
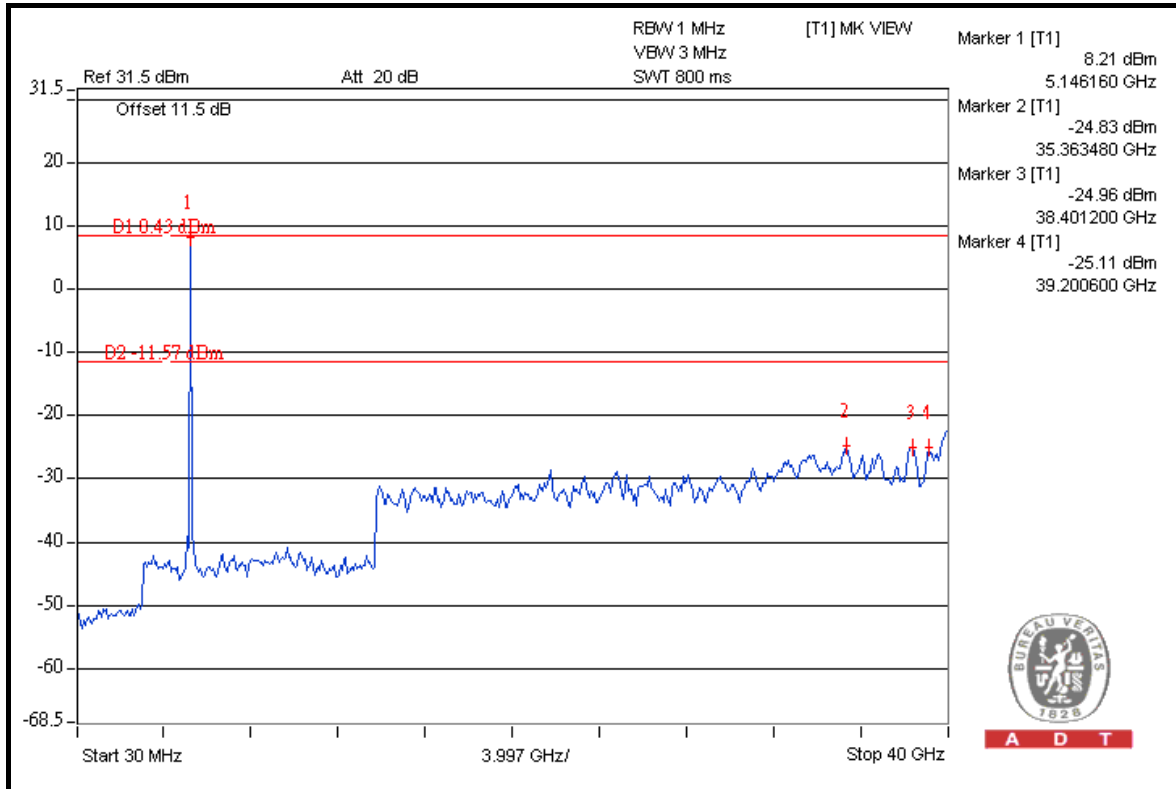
A D T

FOR CONDUCTED MEASURED CHAIN 0



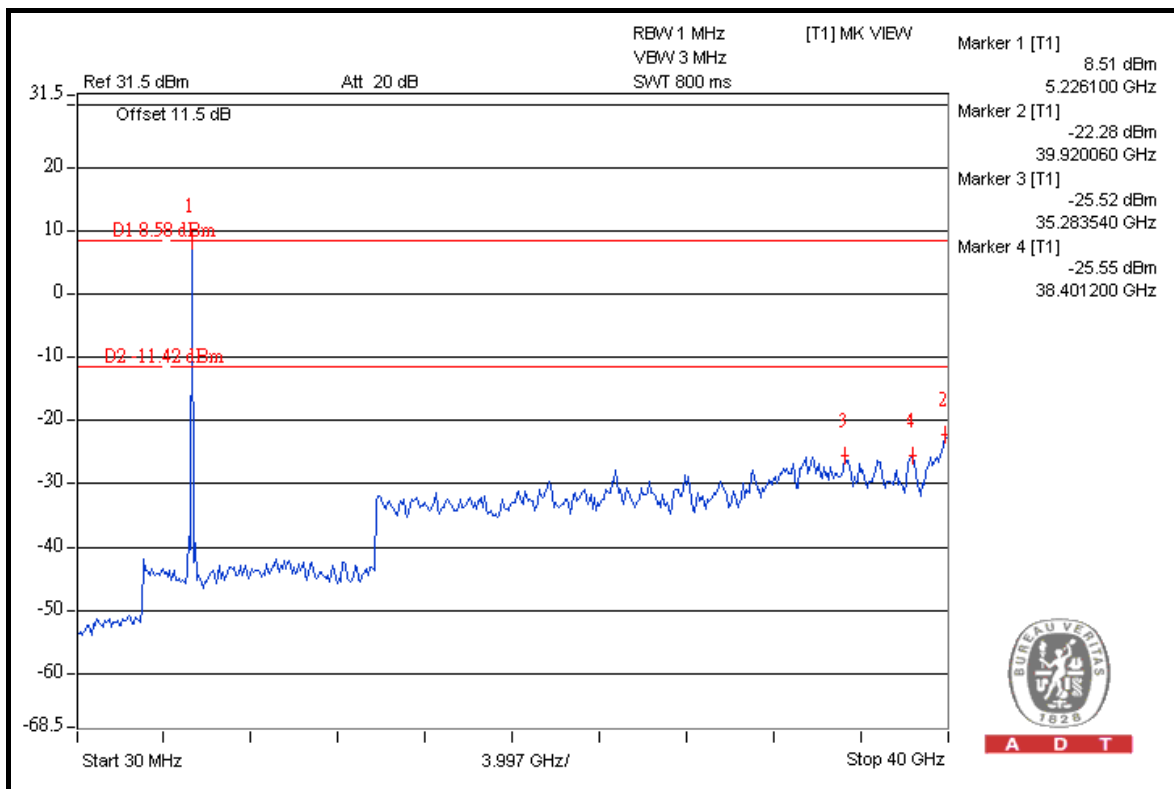
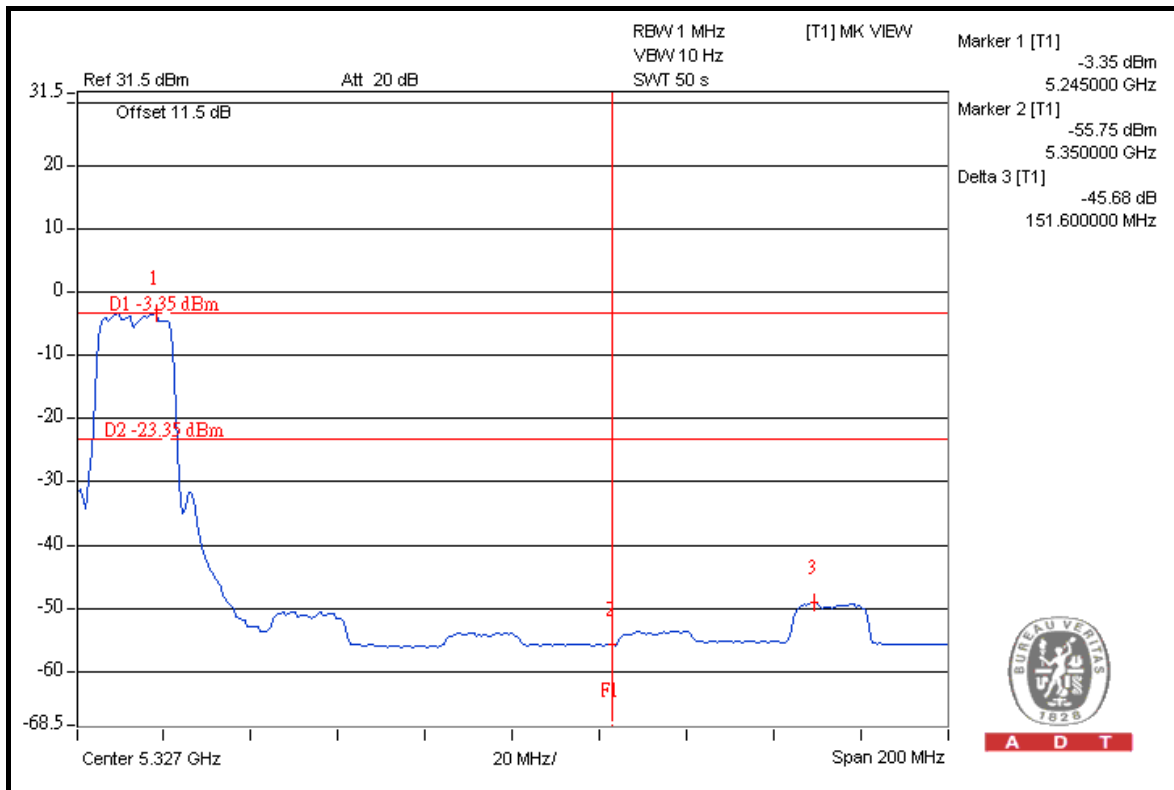


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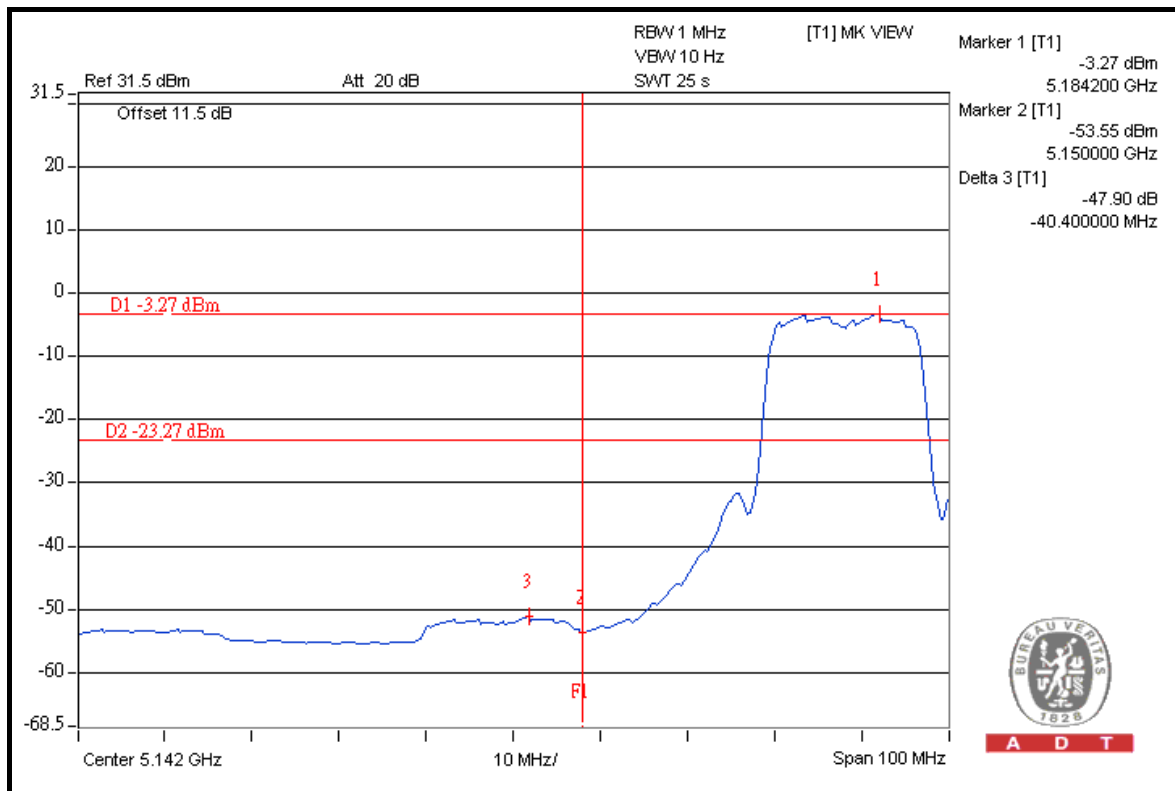
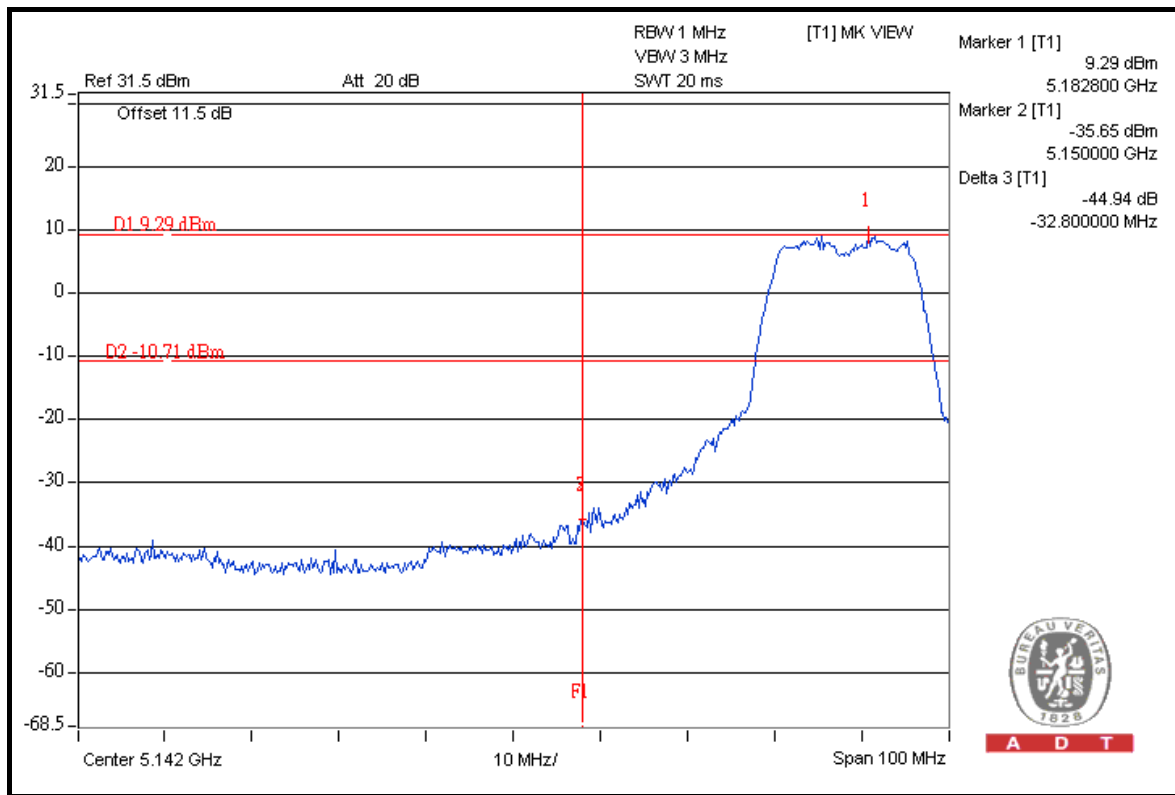
A D T





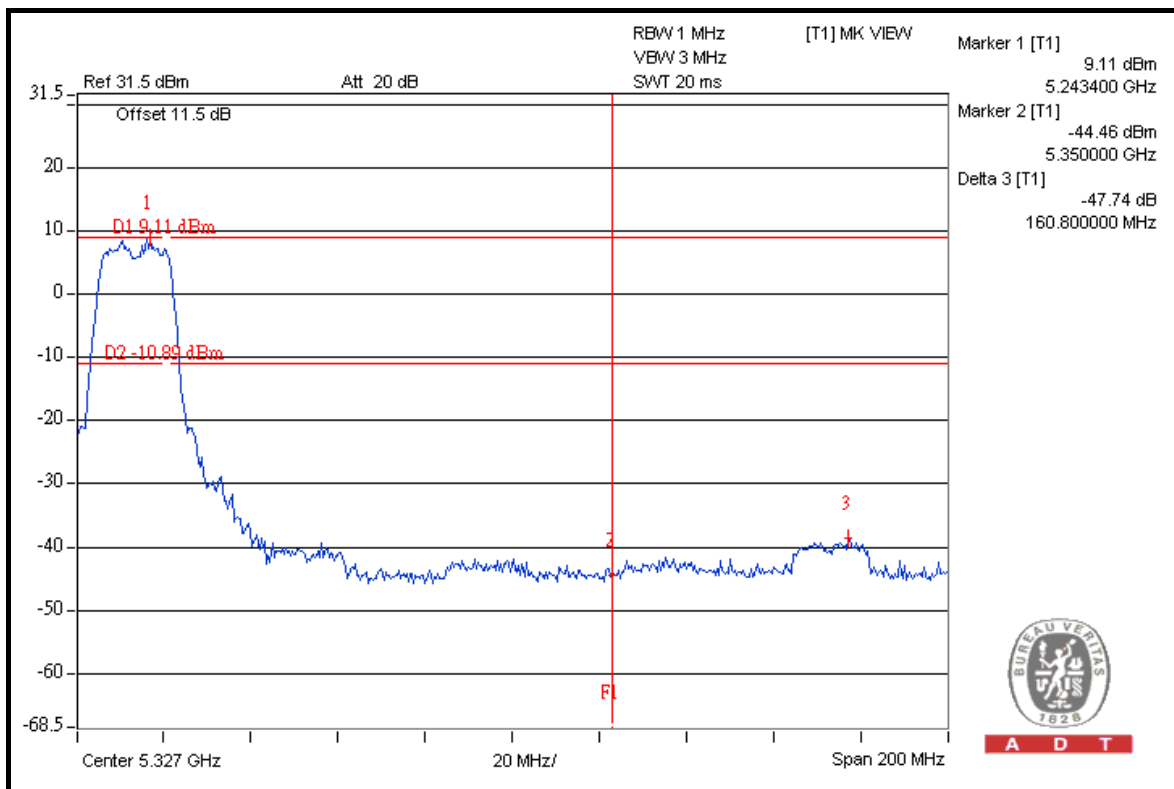
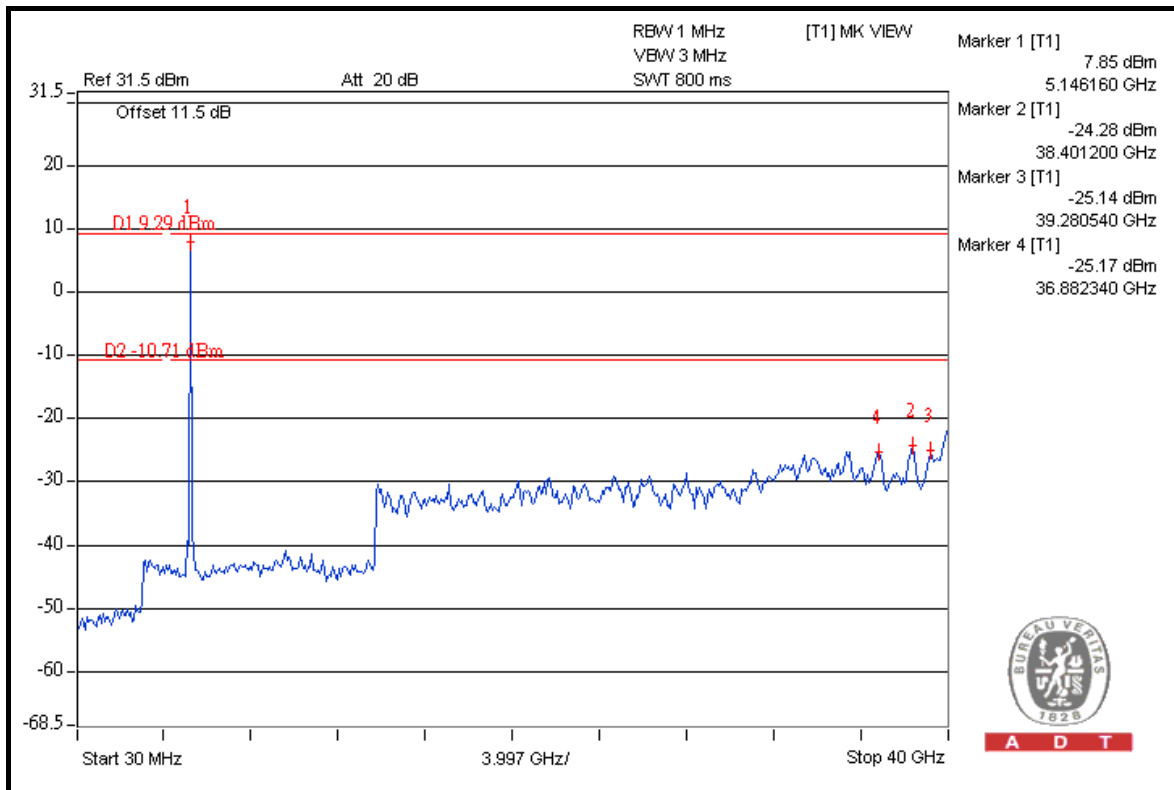
A D T

CHAIN 1



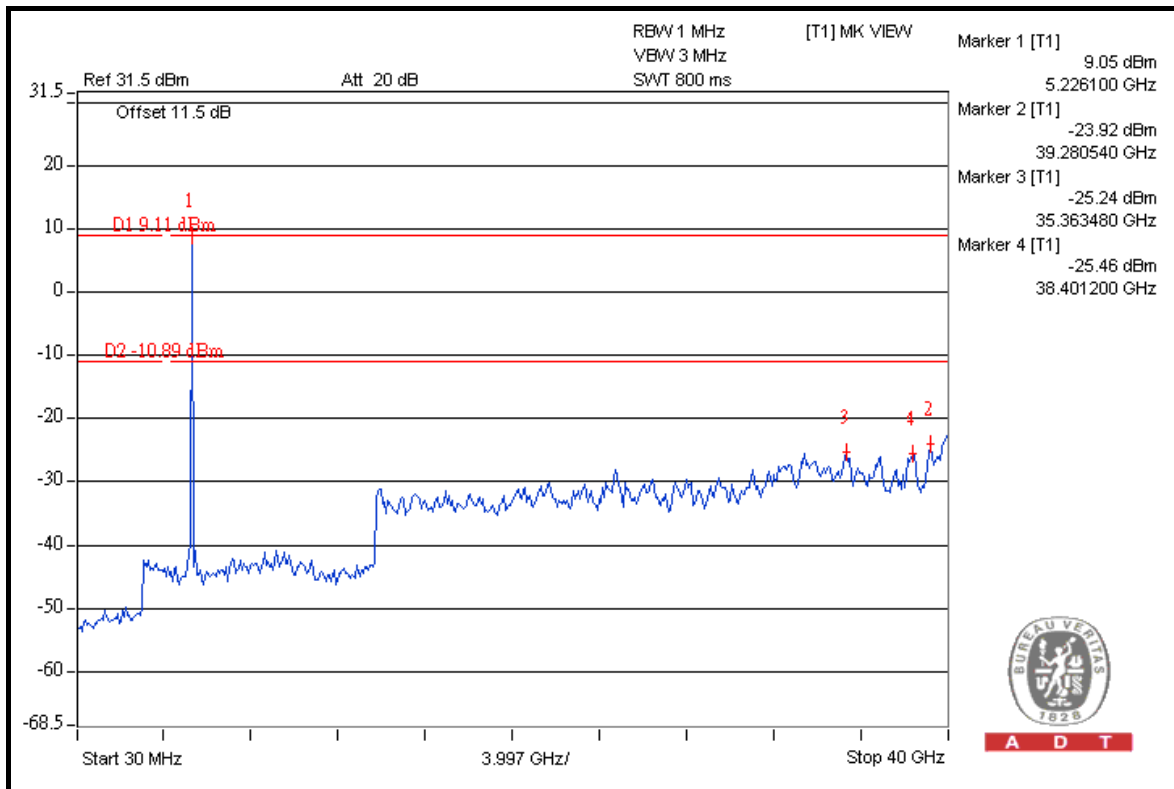
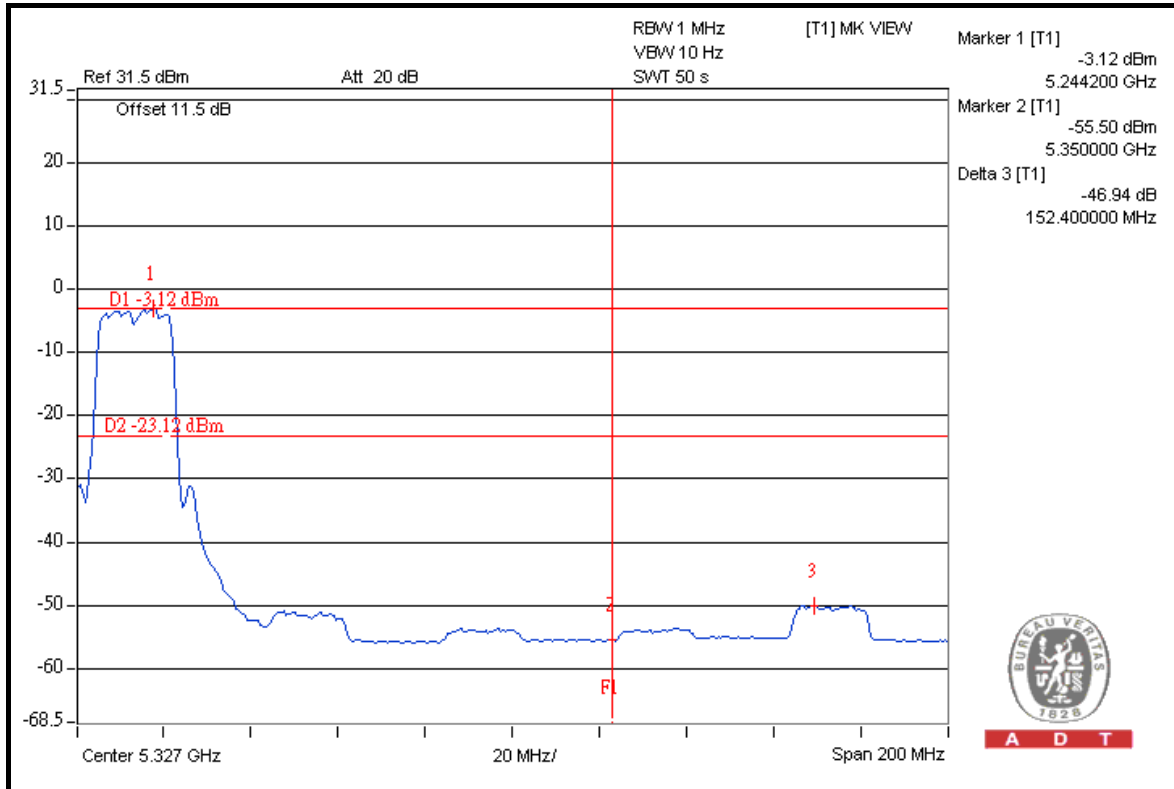


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TEST MODE D

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)	108.80	43.81	64.99	74.00
5180.00 (AV)	94.50	44.06	50.44	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)
5240.00 (PK)	109.20	44.78	64.42	74.00
5240.00 (AV)	95.10	44.75	50.35	54.00

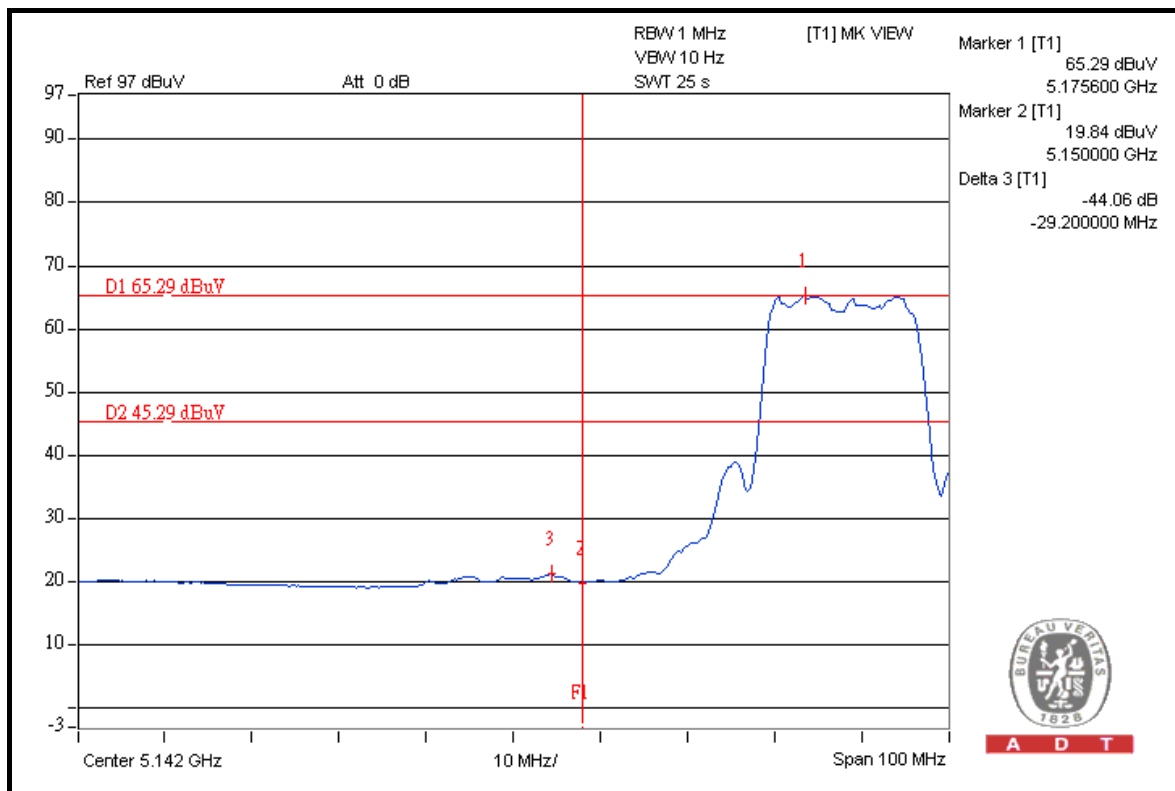
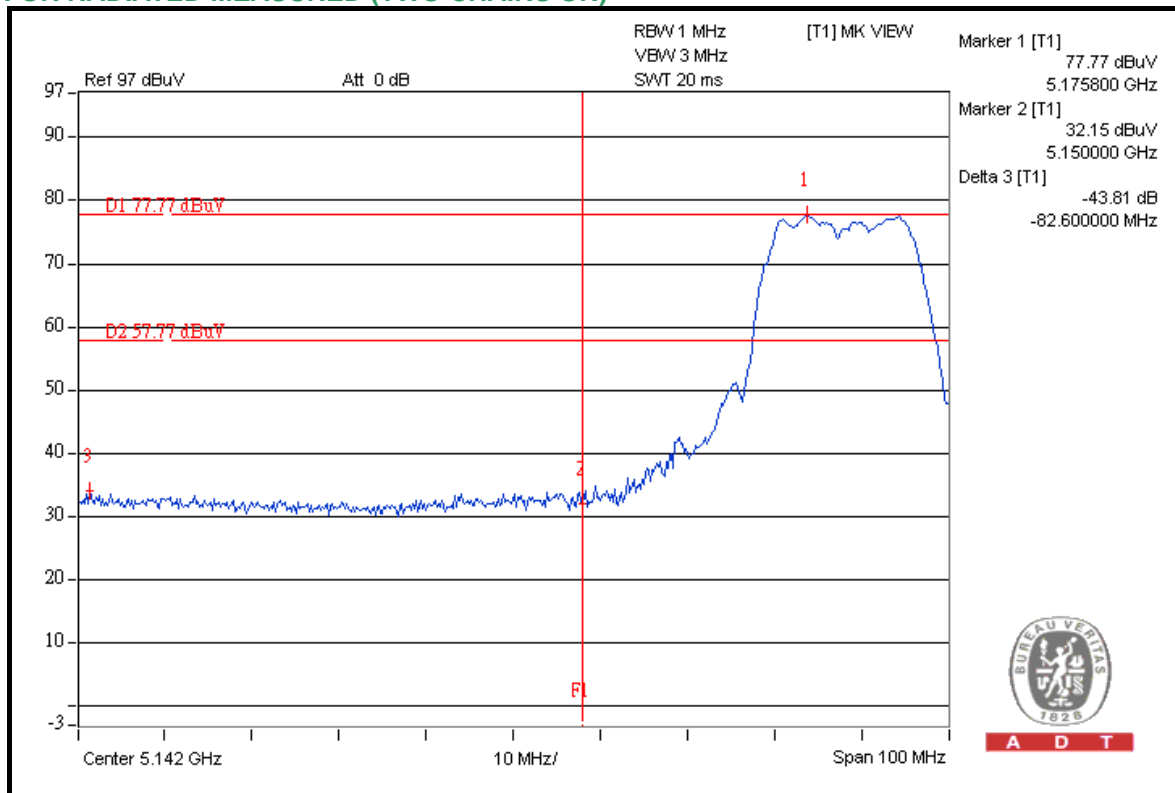
NOTE:

- 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.



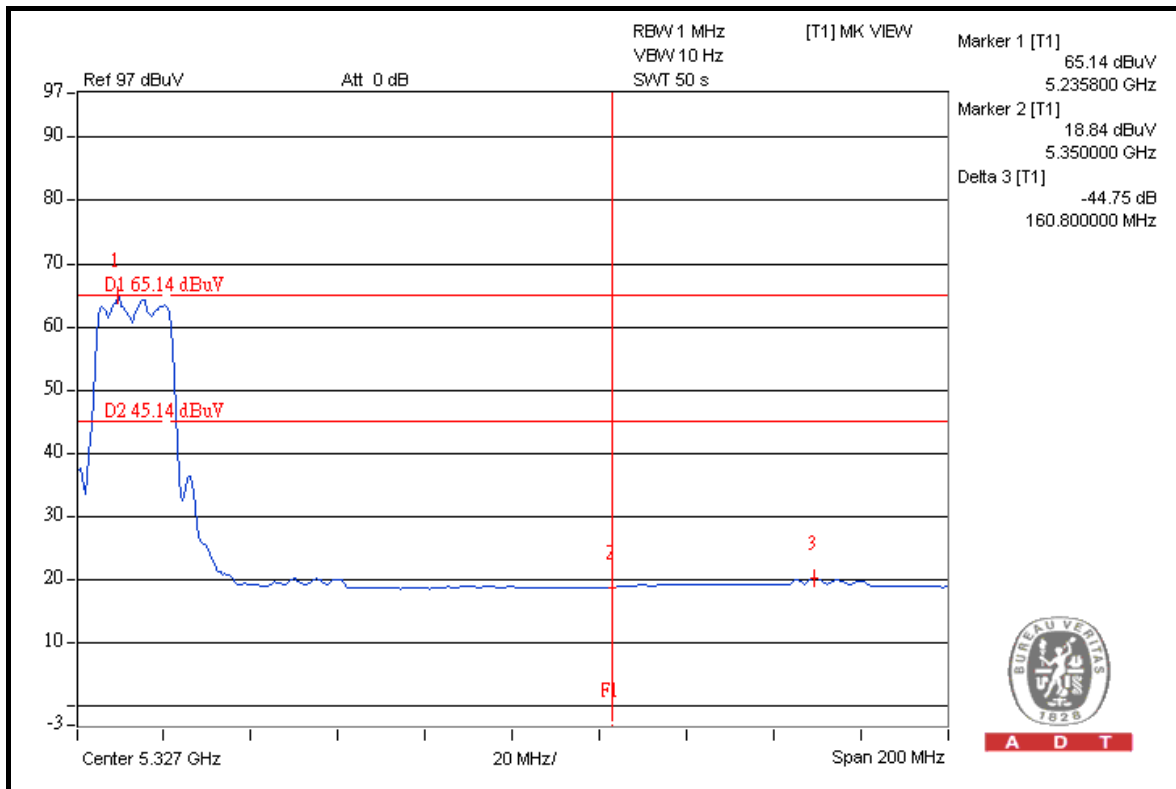
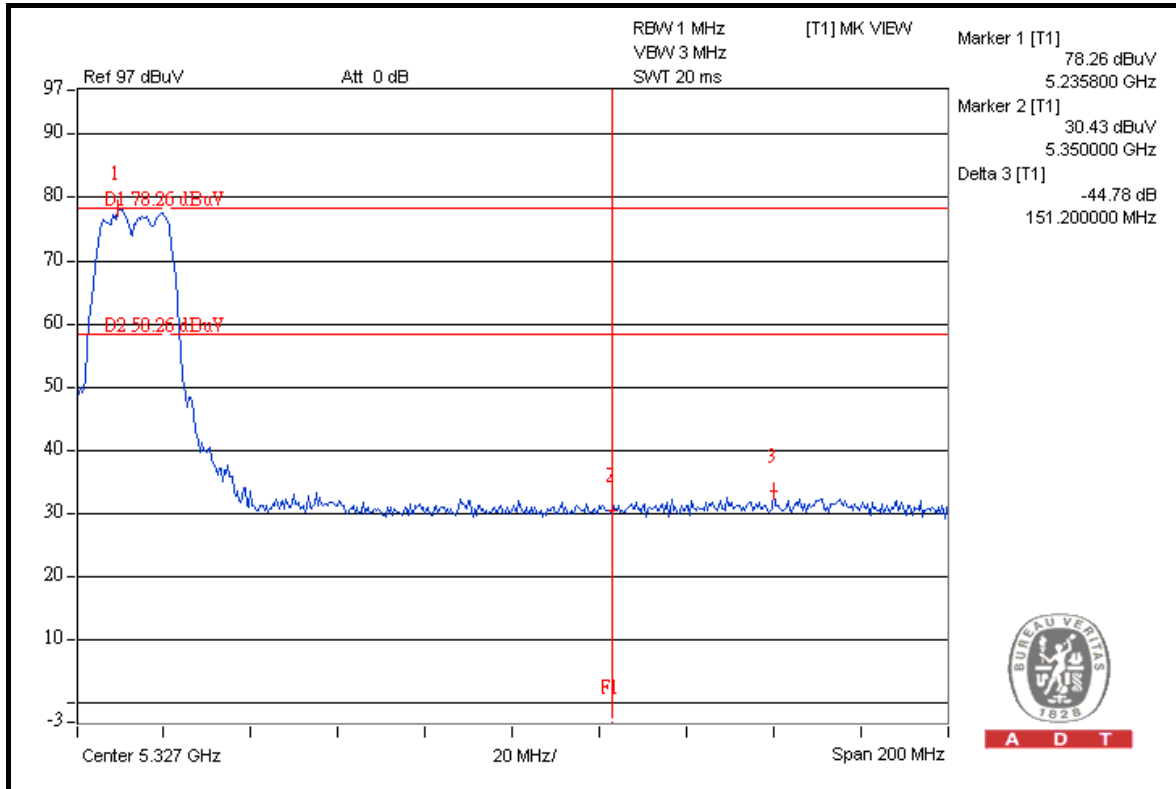
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





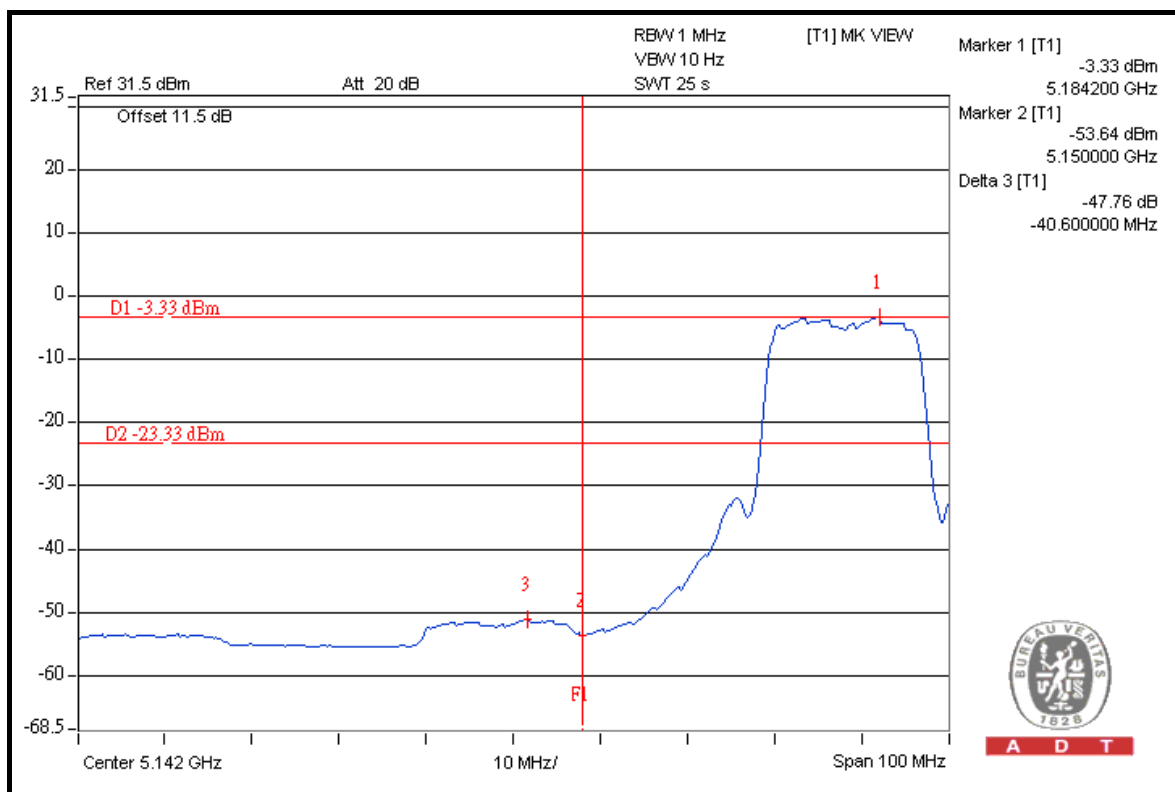
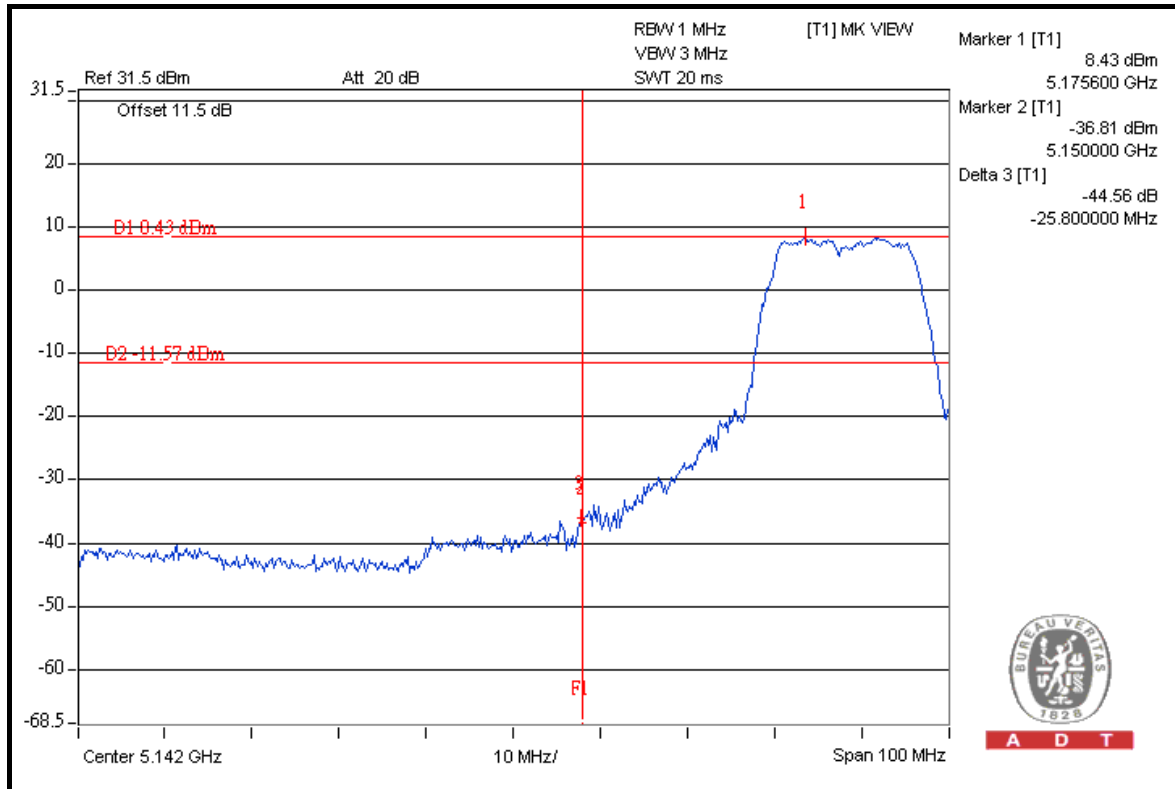
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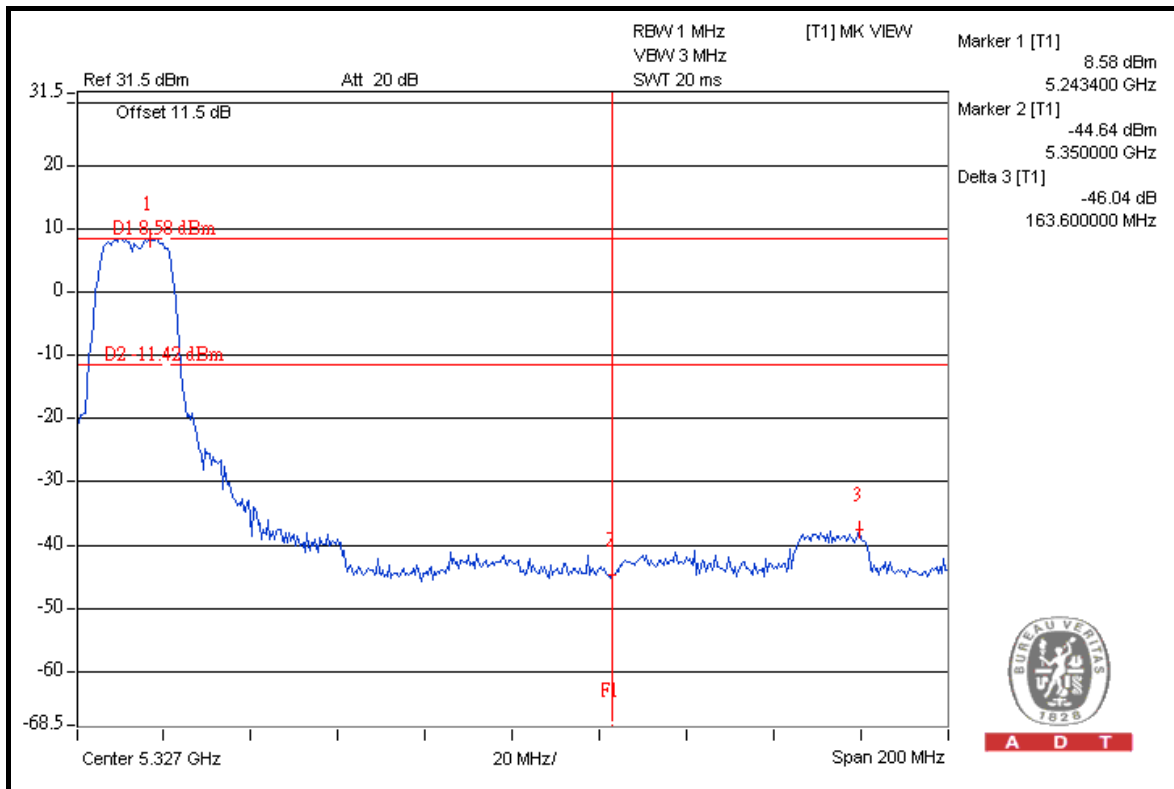
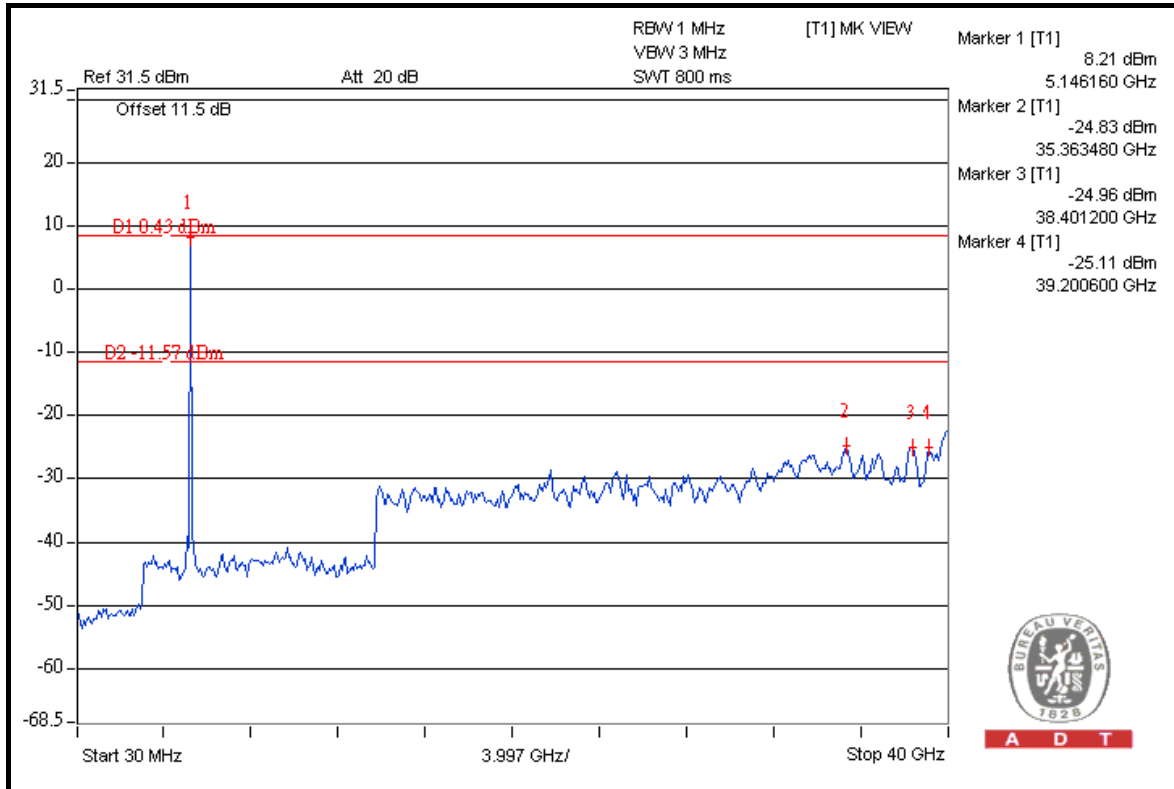
A D T

FOR CONDUCTED MEASURED CHAIN 0



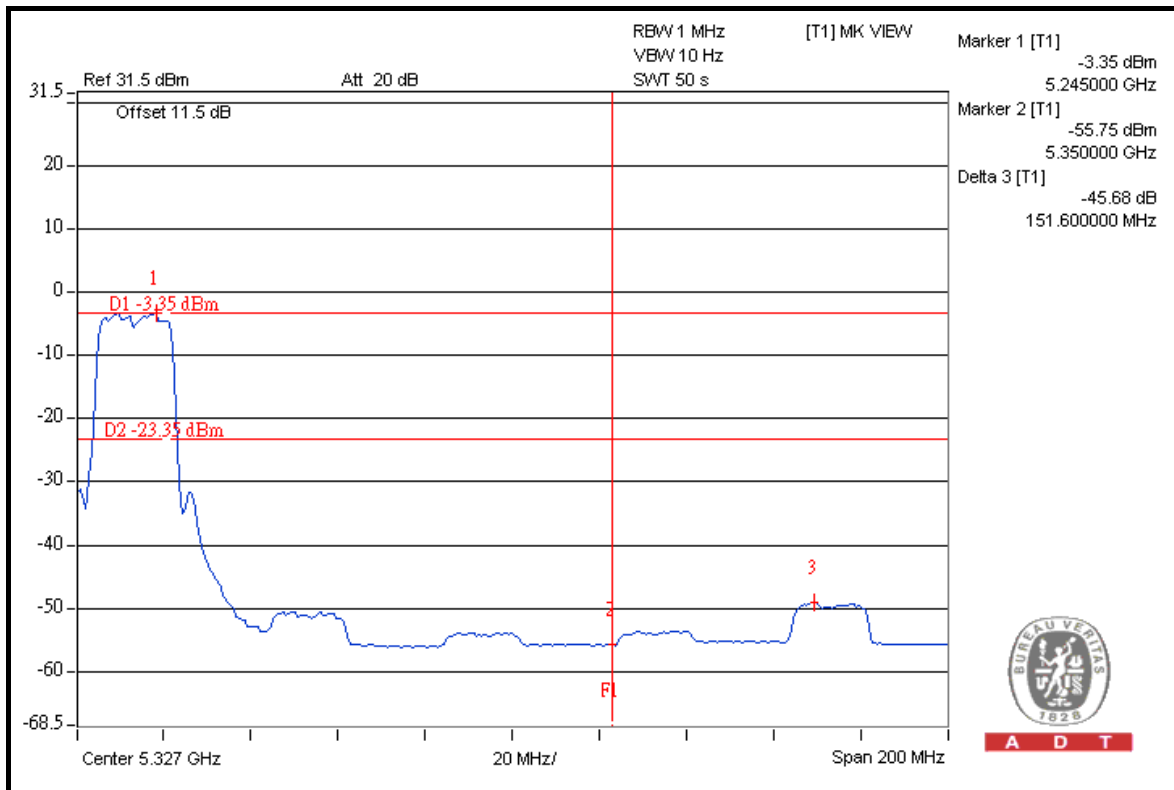


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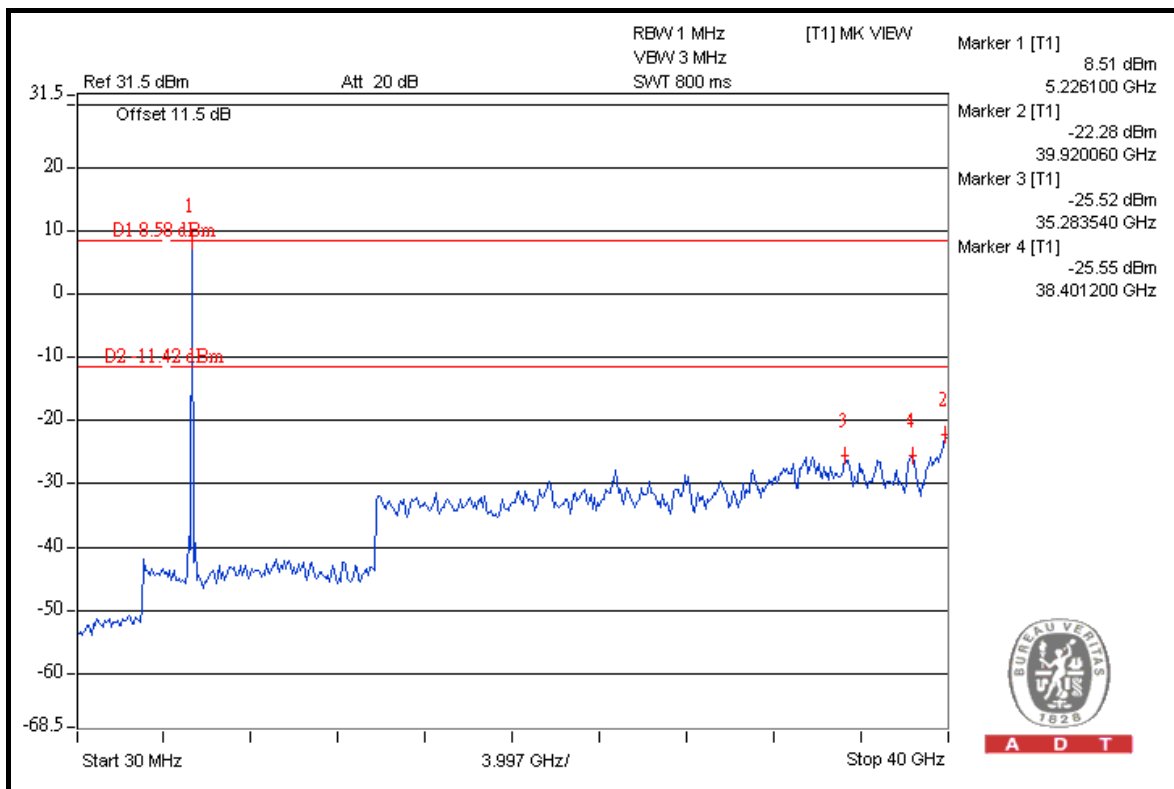




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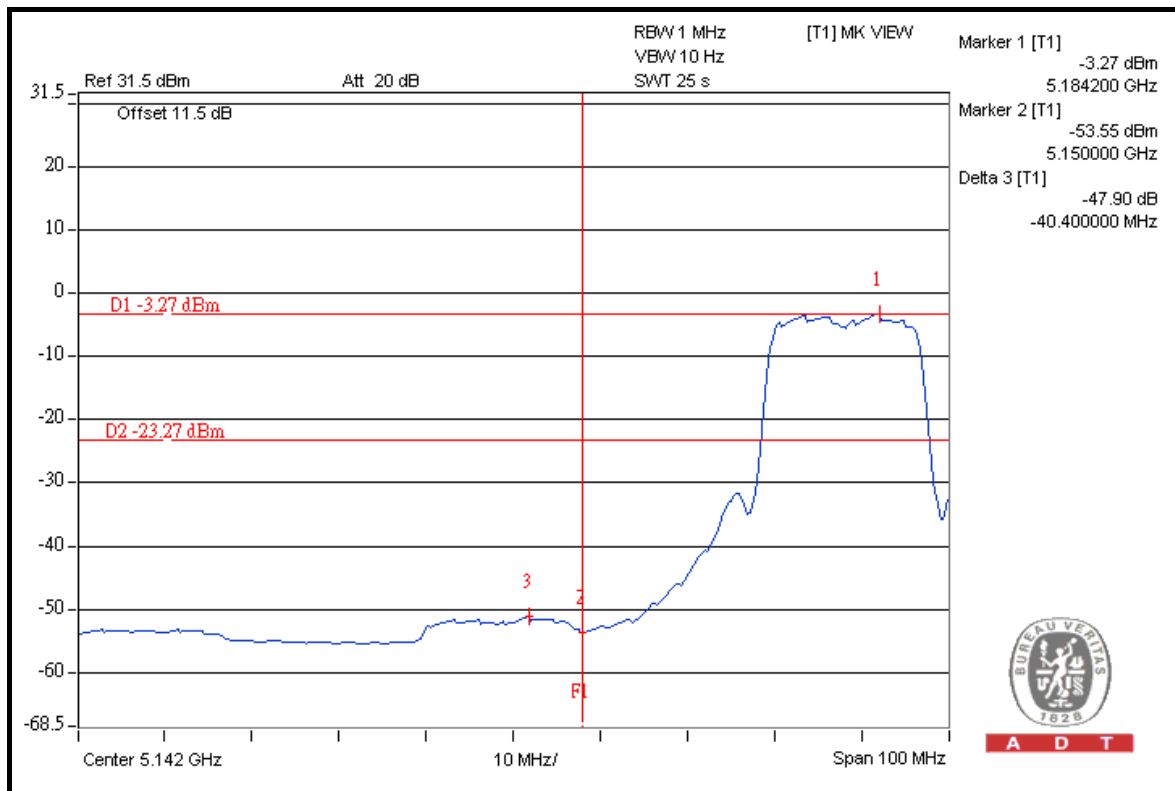
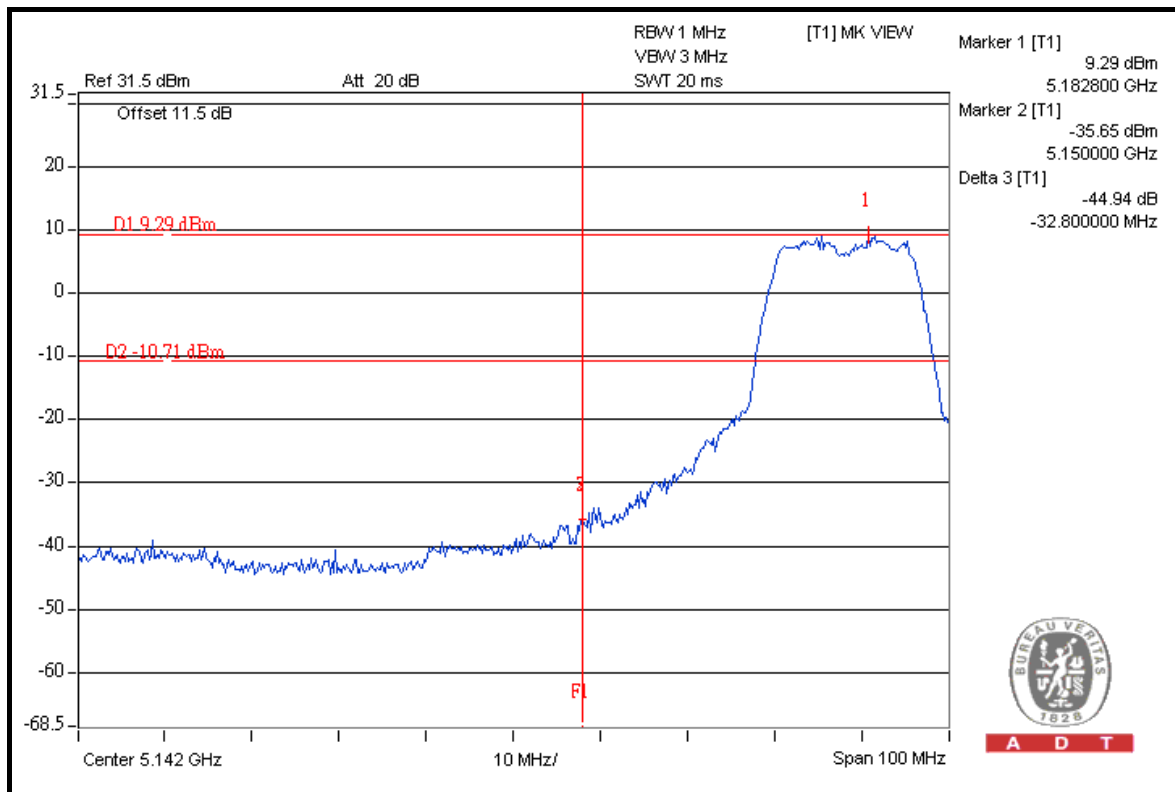


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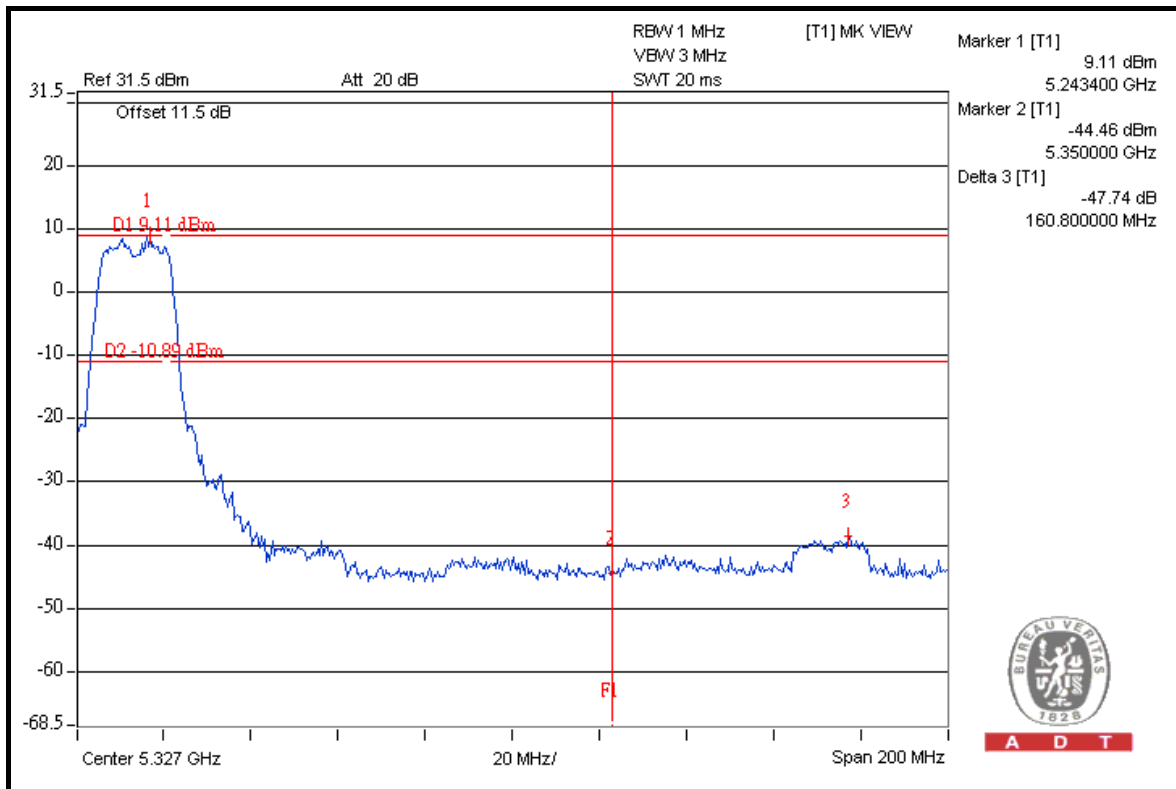
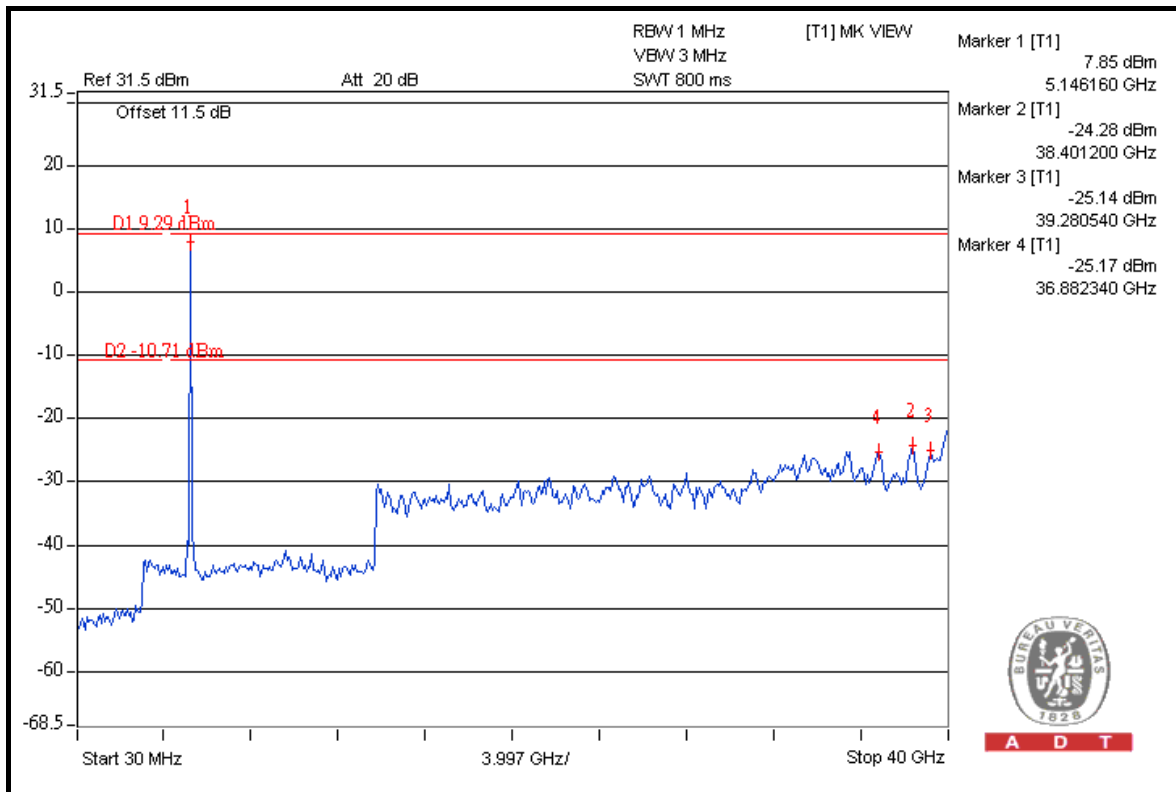
A D T

CHAIN 1



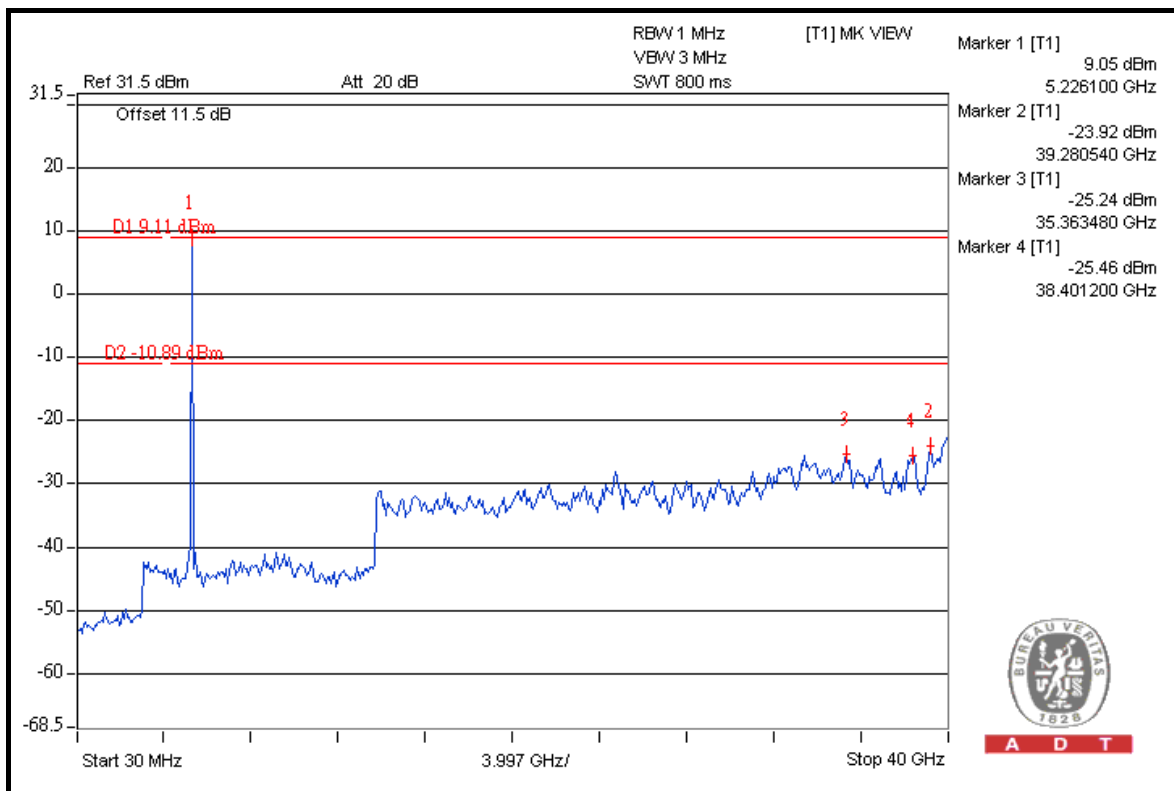
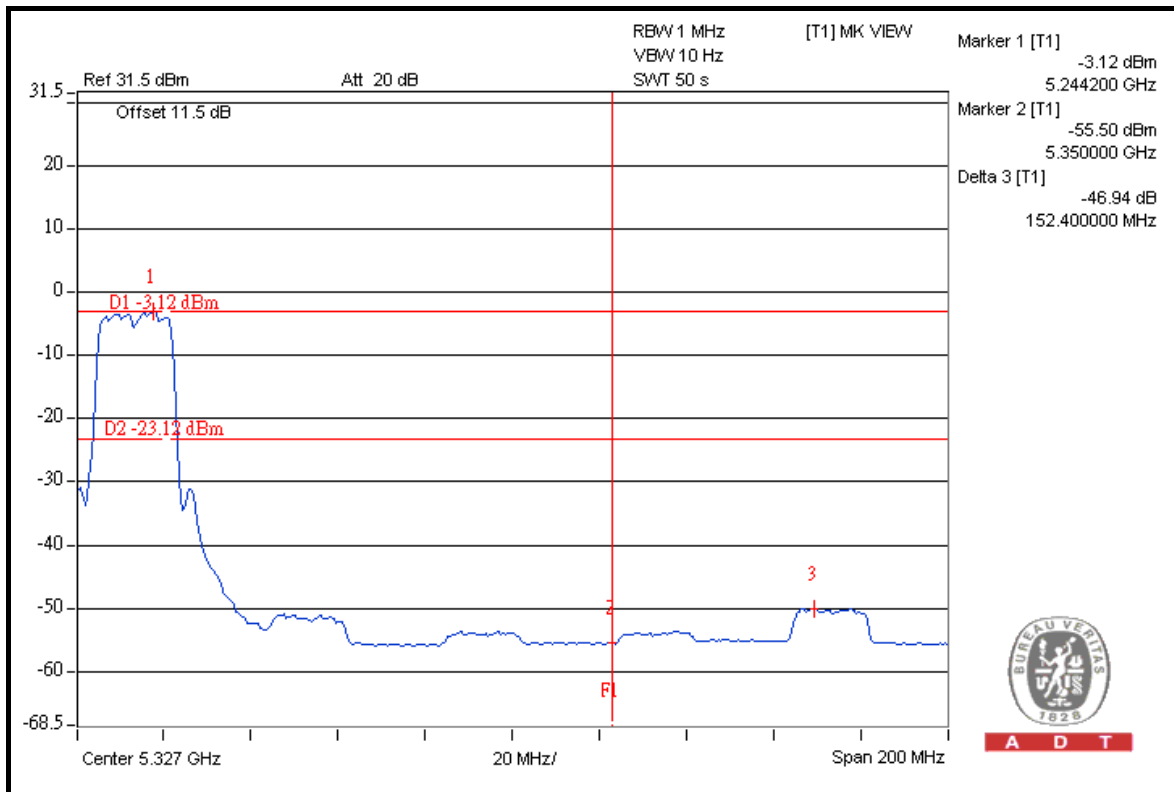


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802.11n (20MHz)

TEST MODE B

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)	106.30	41.64	64.66	74.00
5180.00 (AV)	92.70	41.59	51.11	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)
5240.00 (PK)	107.00	39.63	67.37	74.00
5240.00 (AV)	94.00	42.27	51.73	54.00

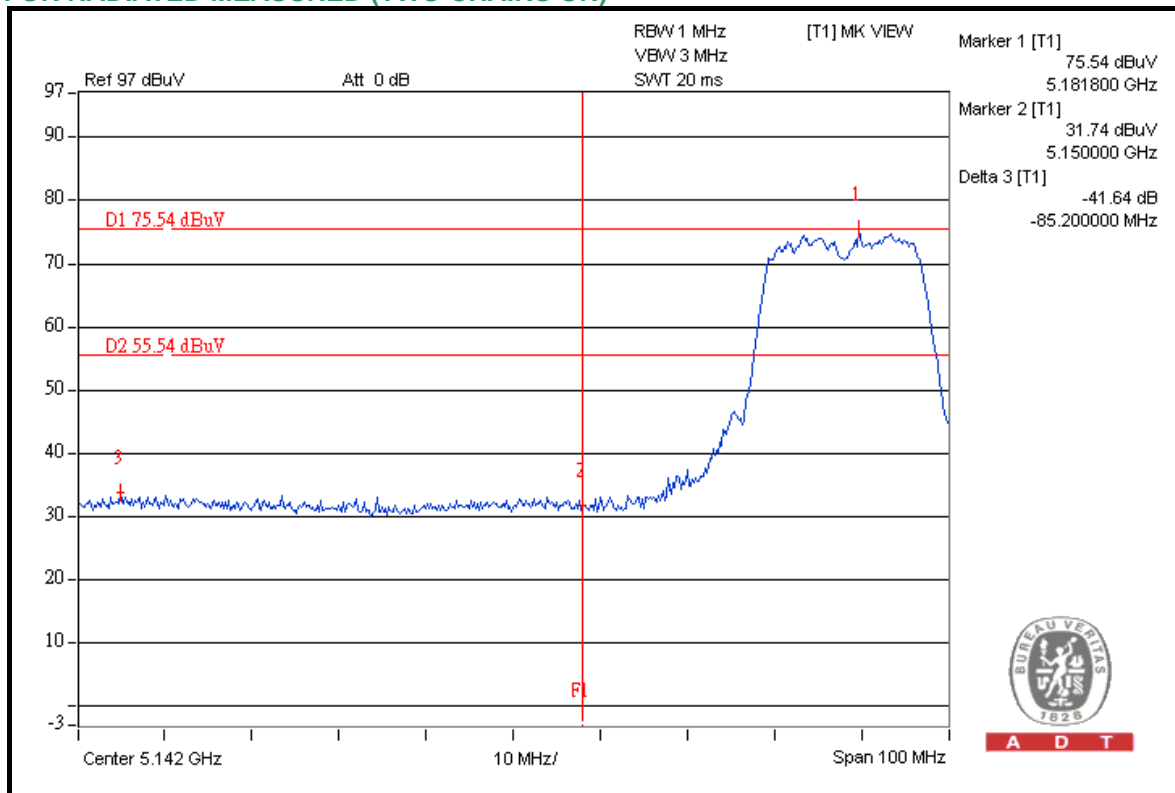
NOTE:

- 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.

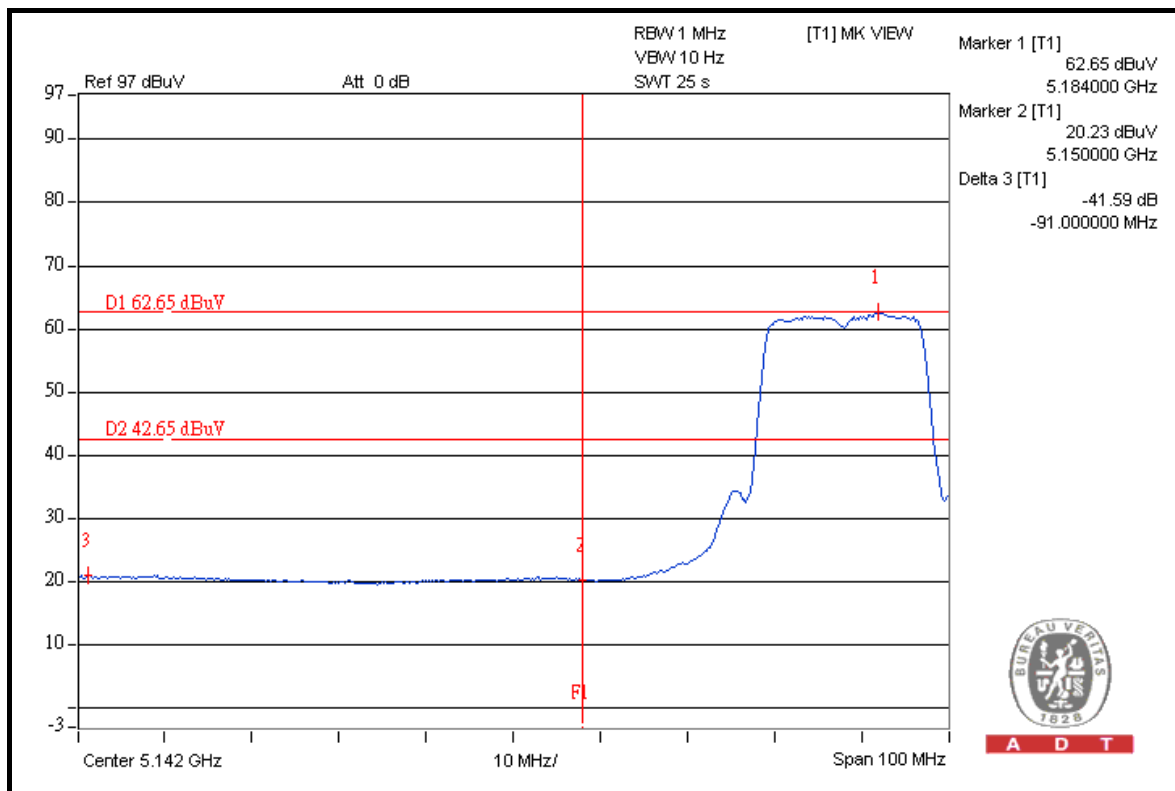


A D T

FOR RADIATED MEASURED (TWO CHAINS ON)



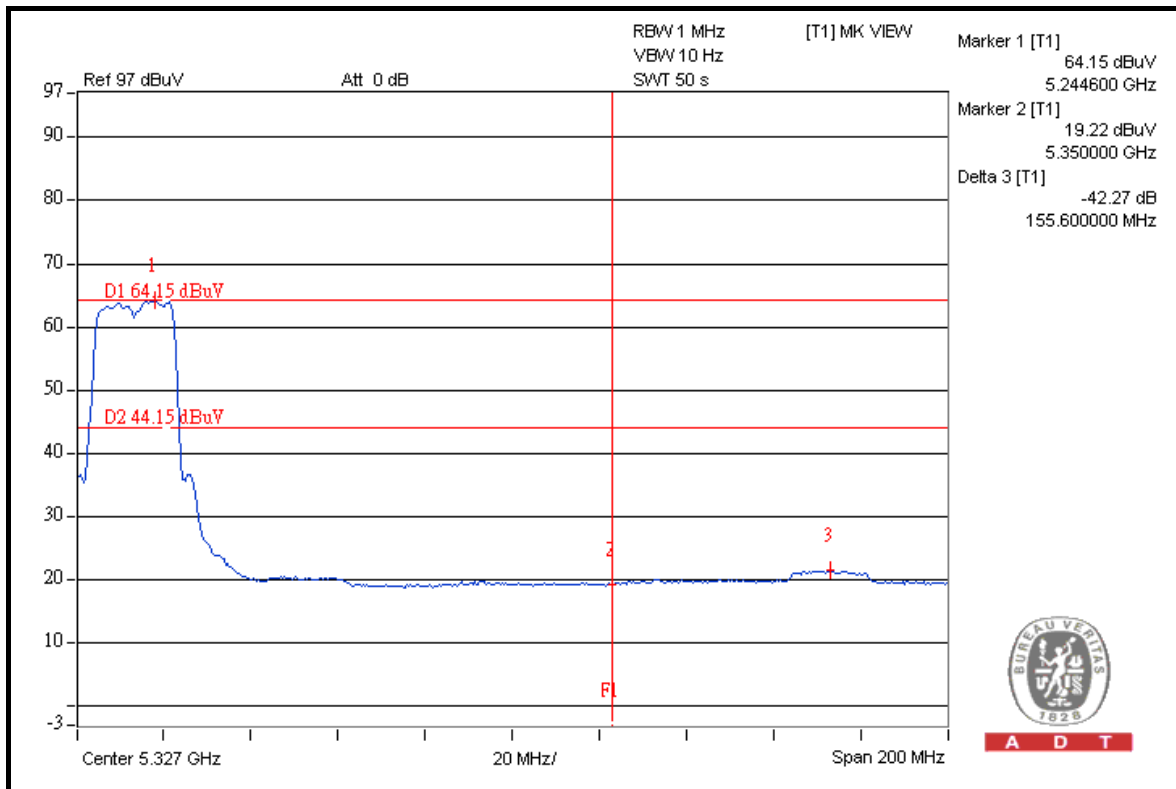
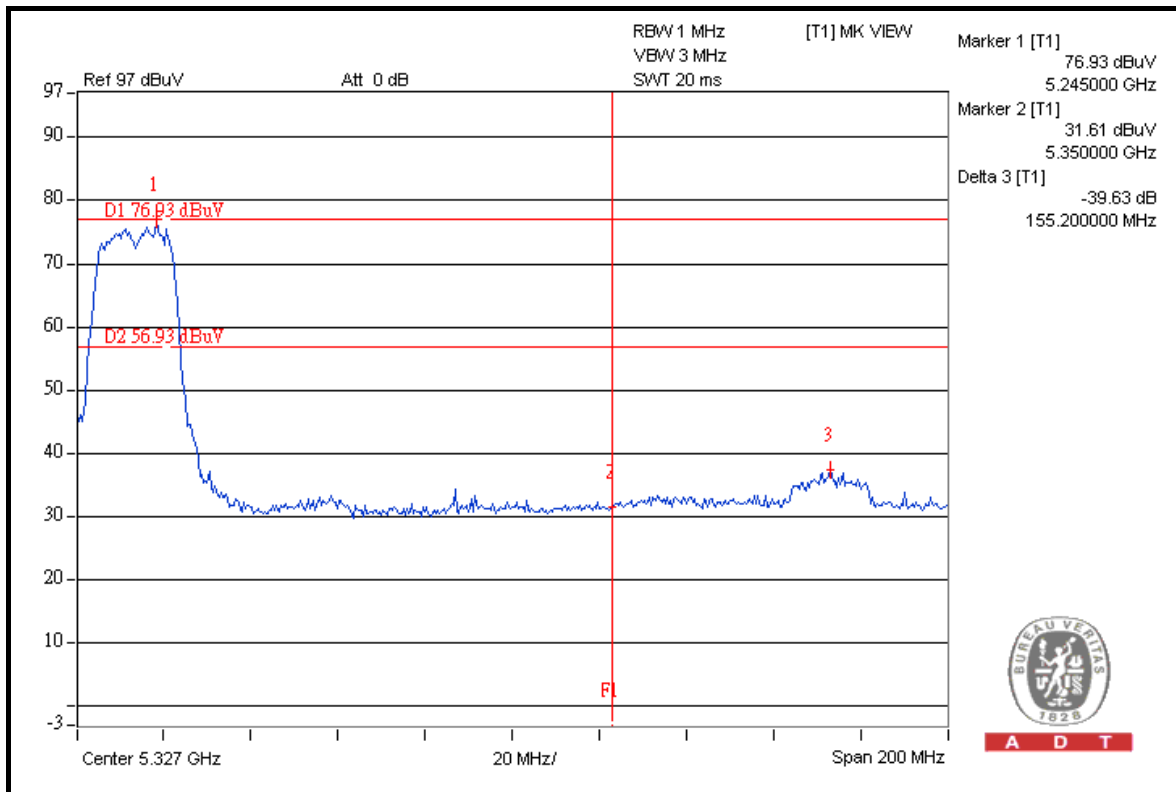
A D T



A D T



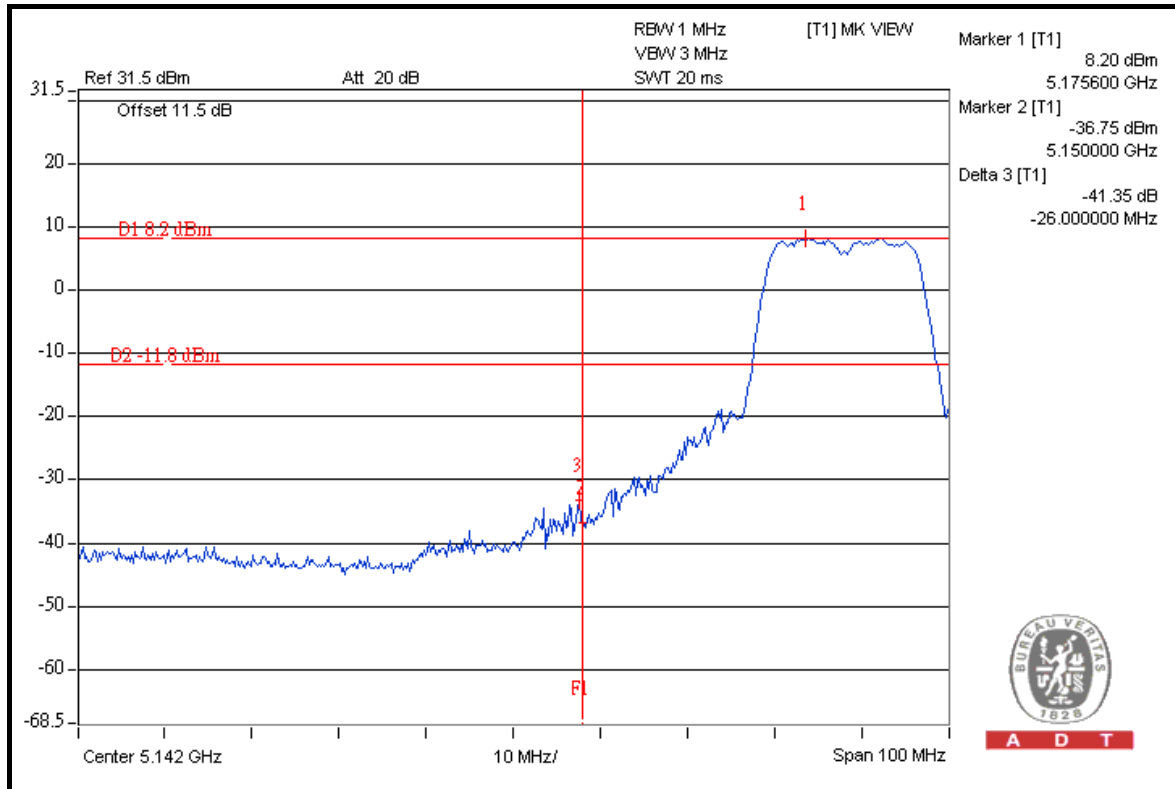
A D T



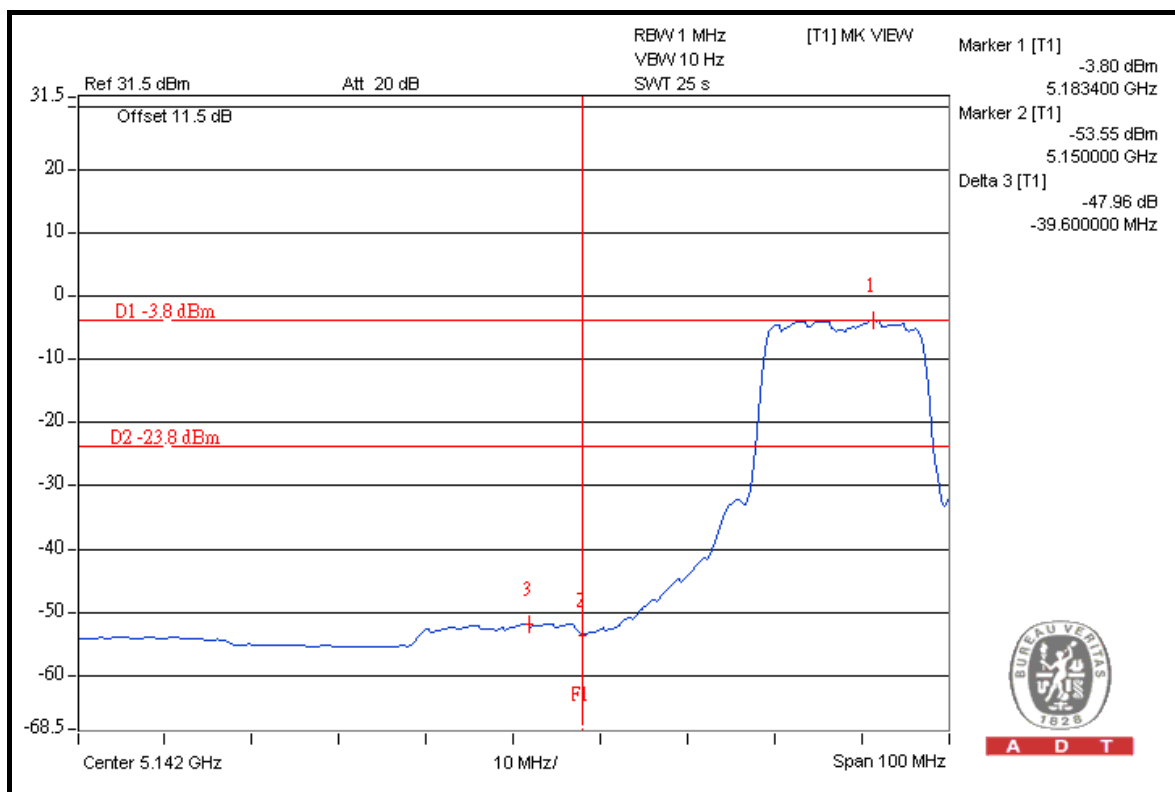


A D T

FOR CONDUCTED MEASURED CHAIN 0



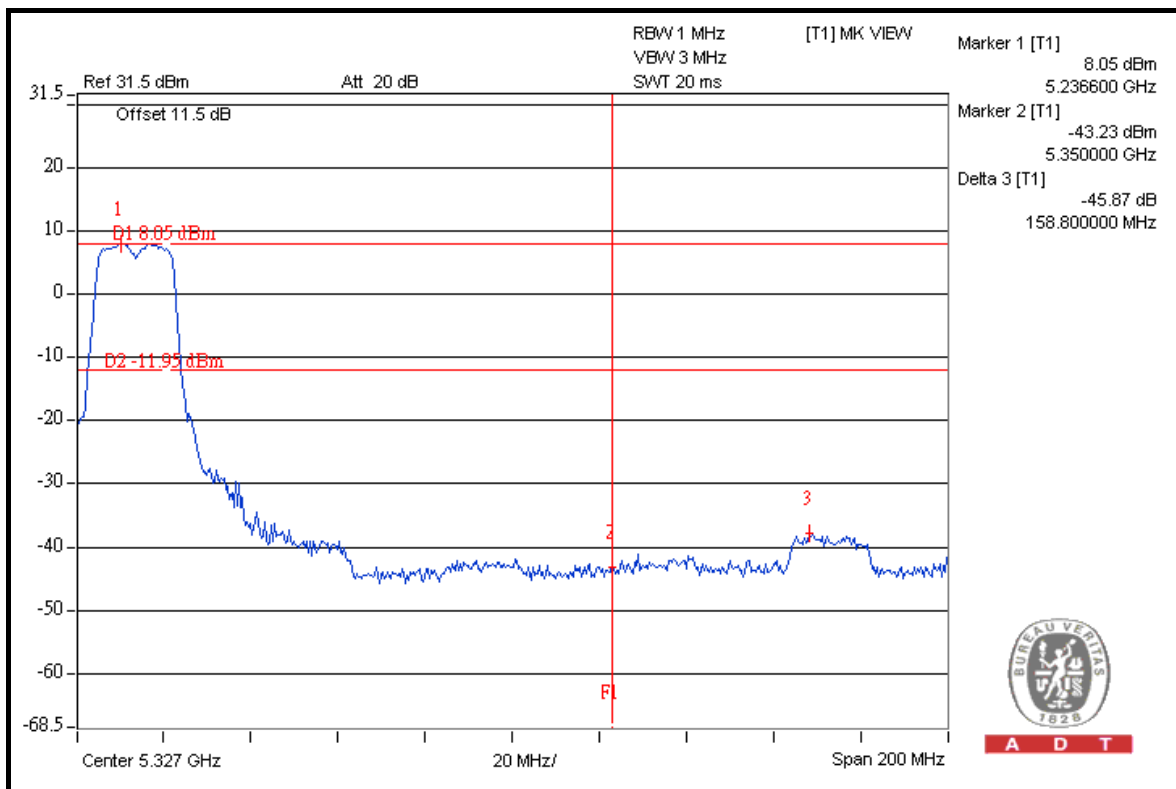
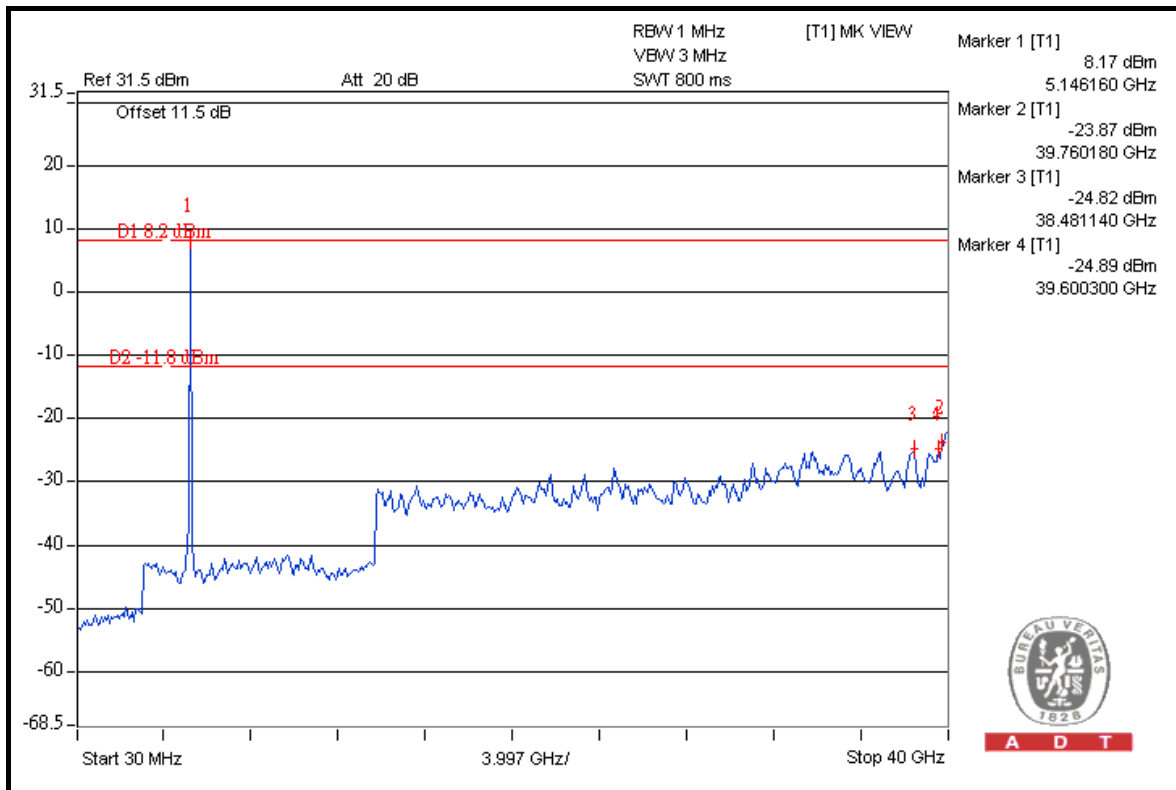
A D T



A D T

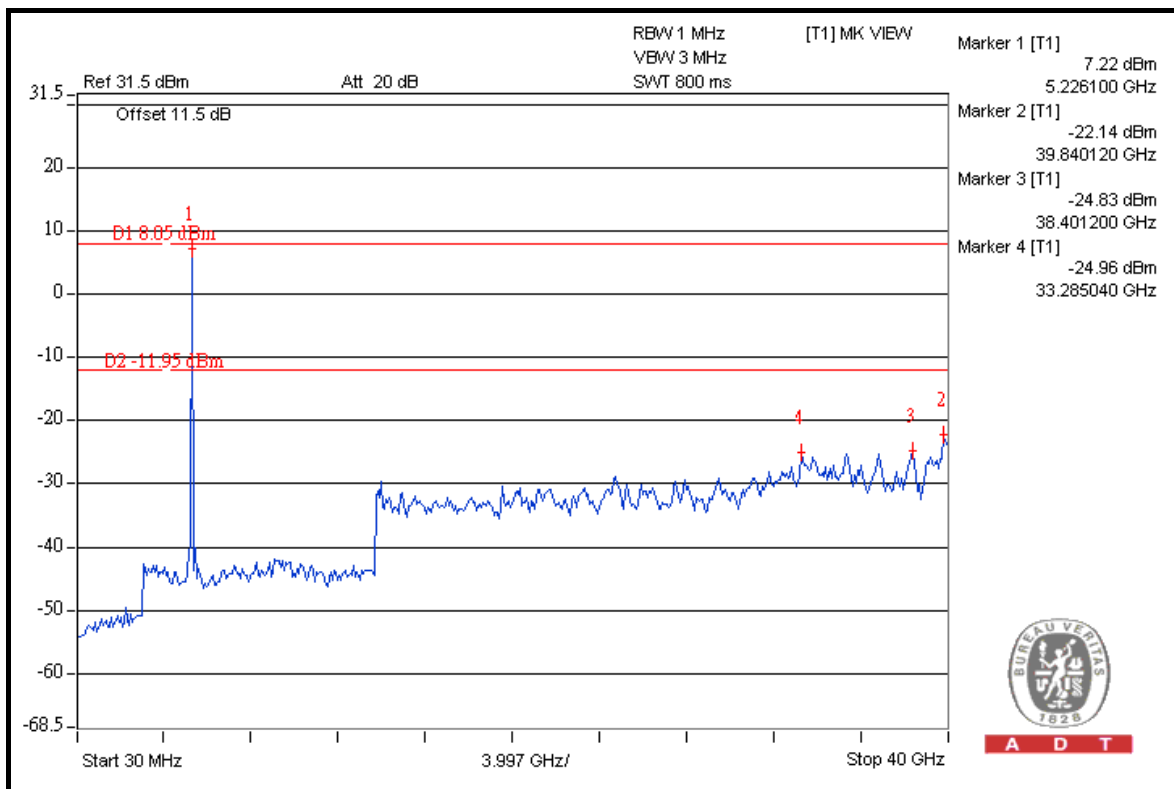
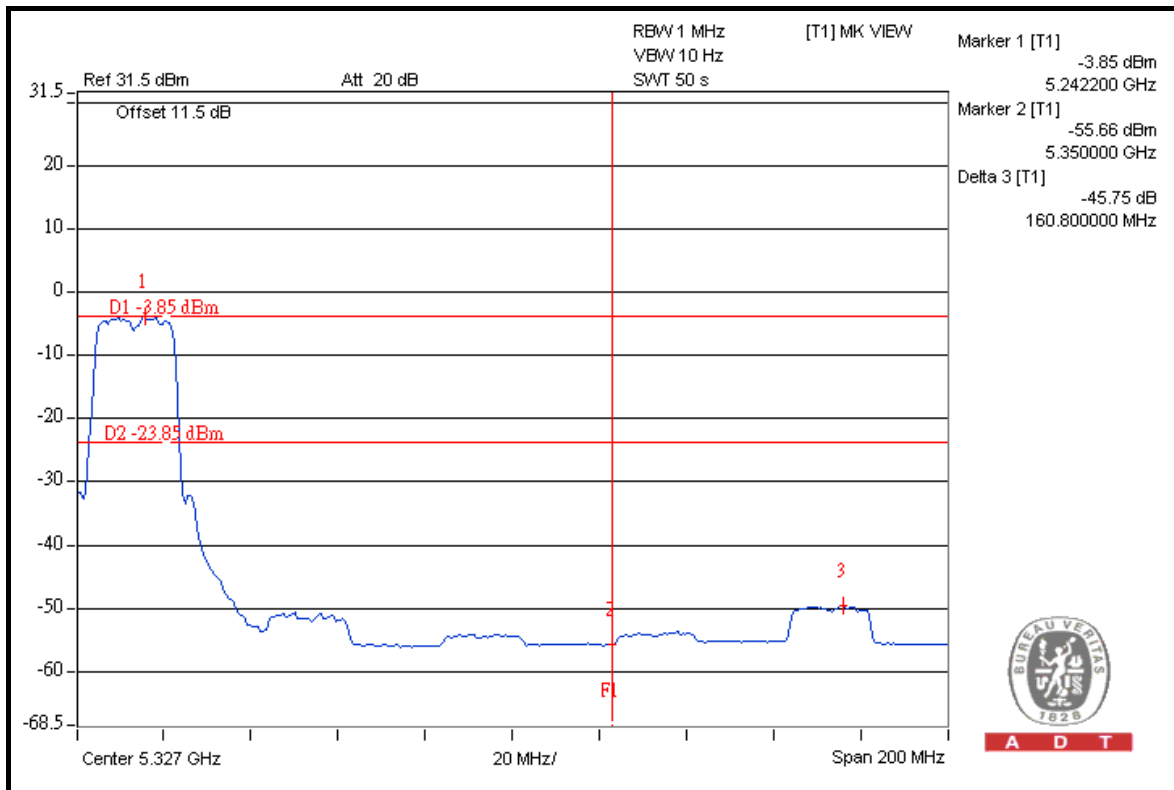


A D T





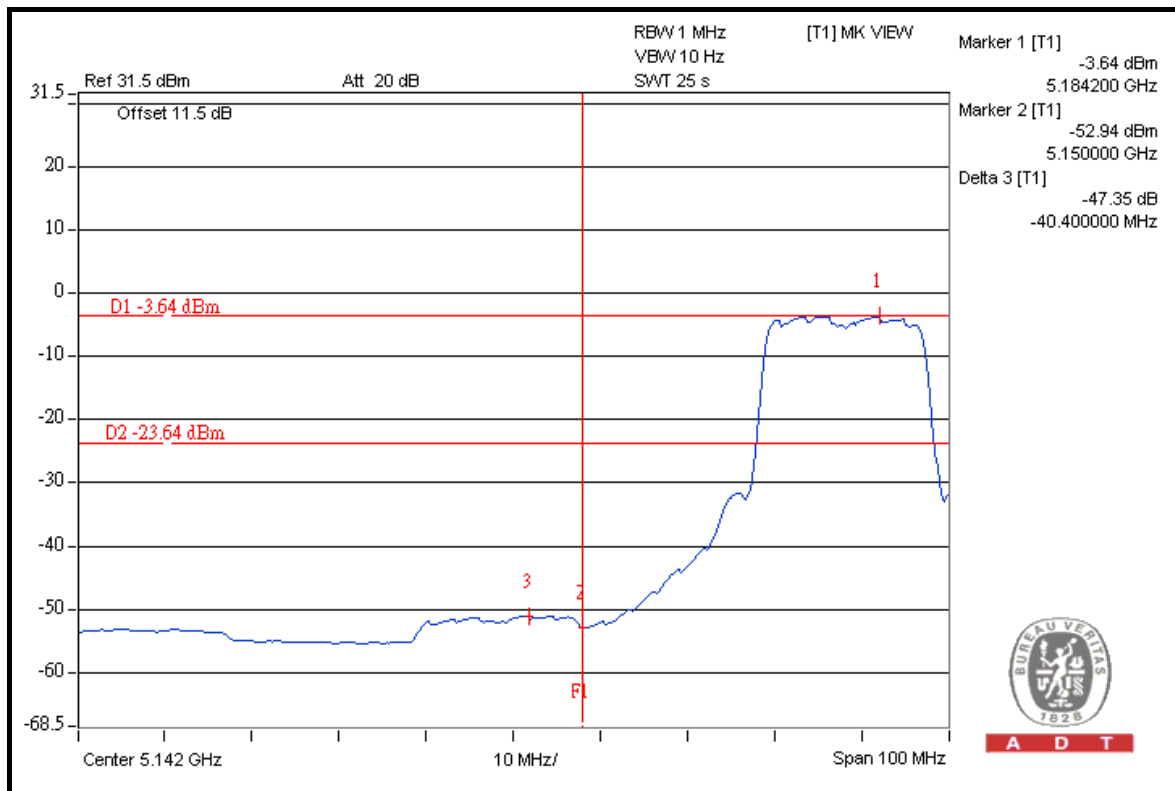
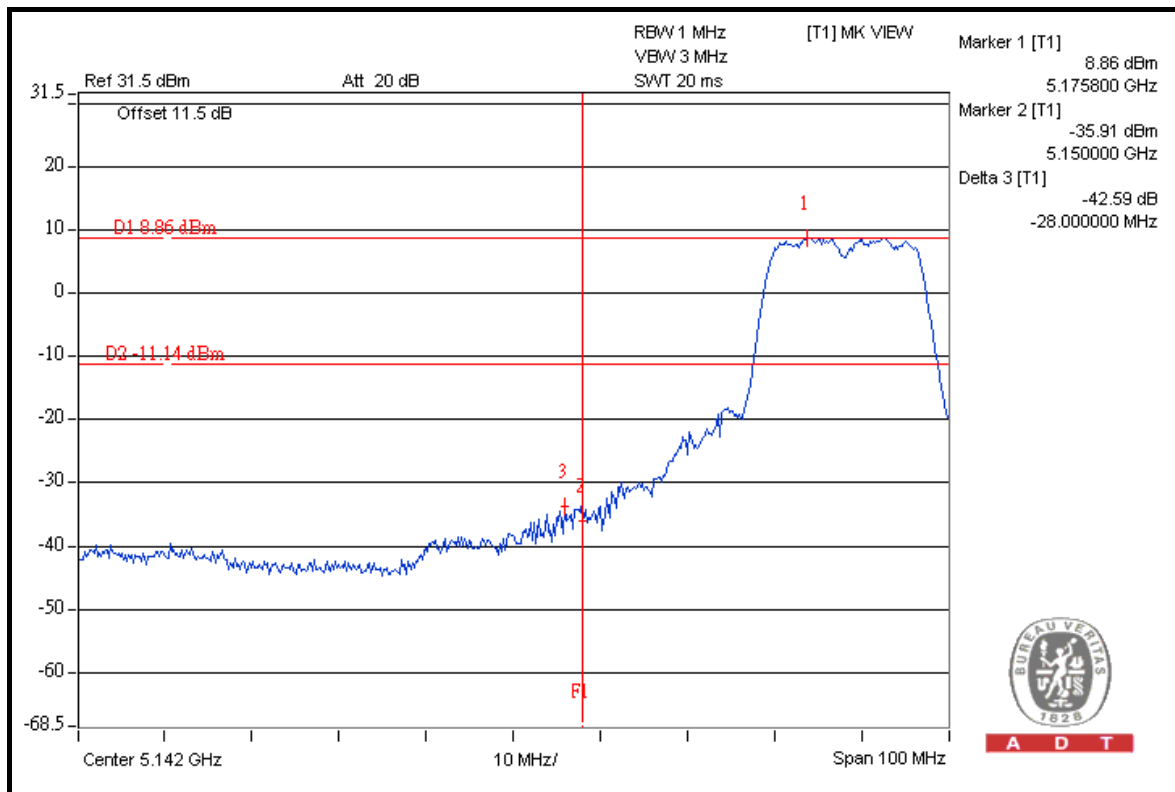
A D T





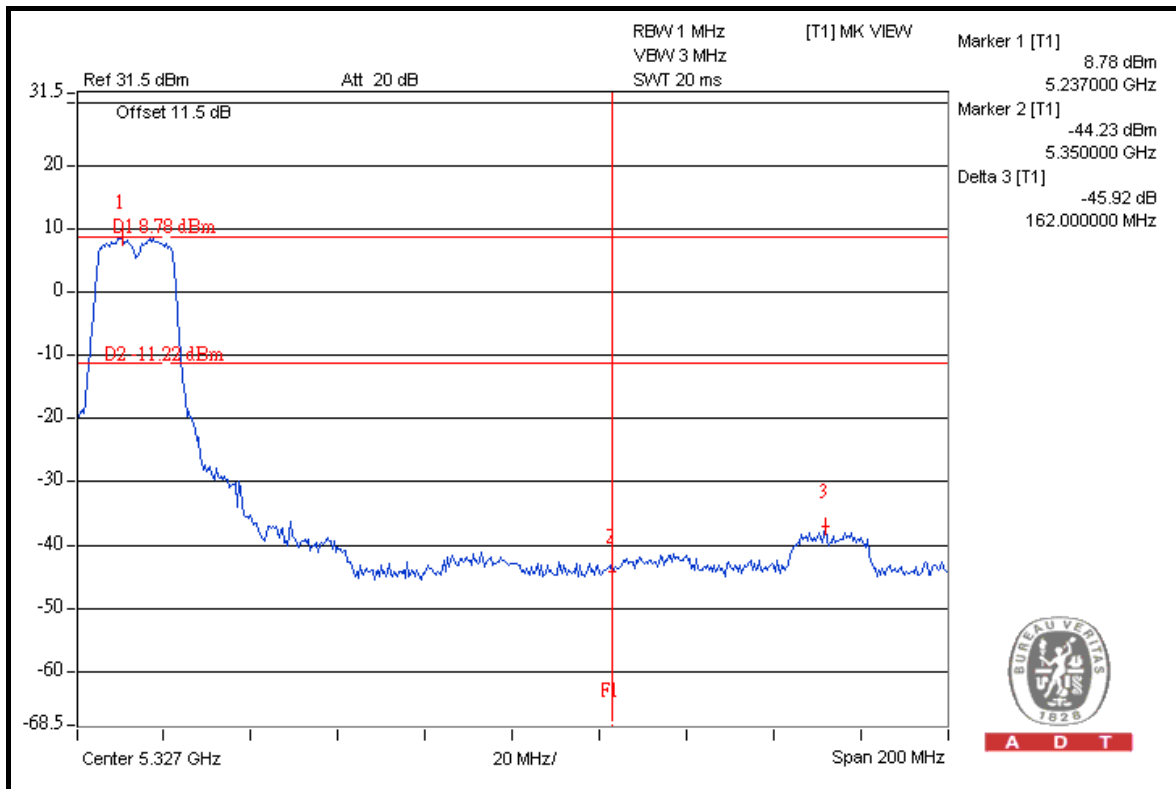
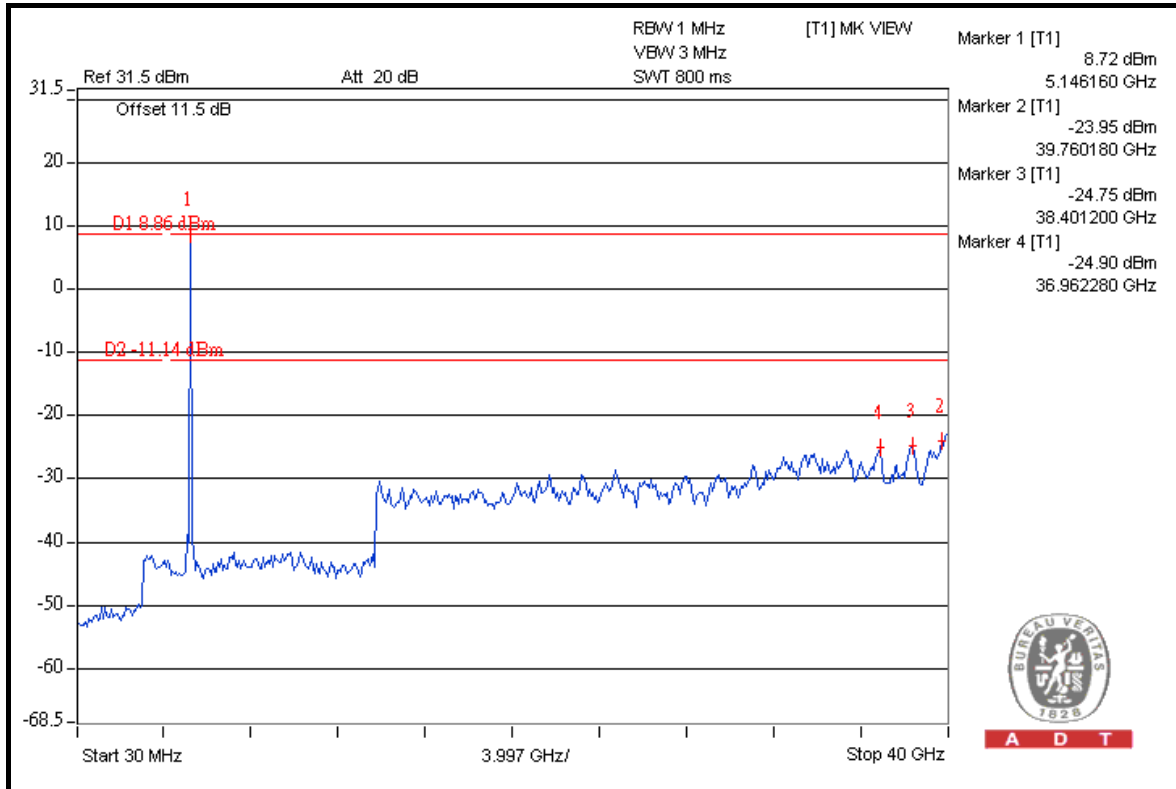
A D T

CHAIN 1



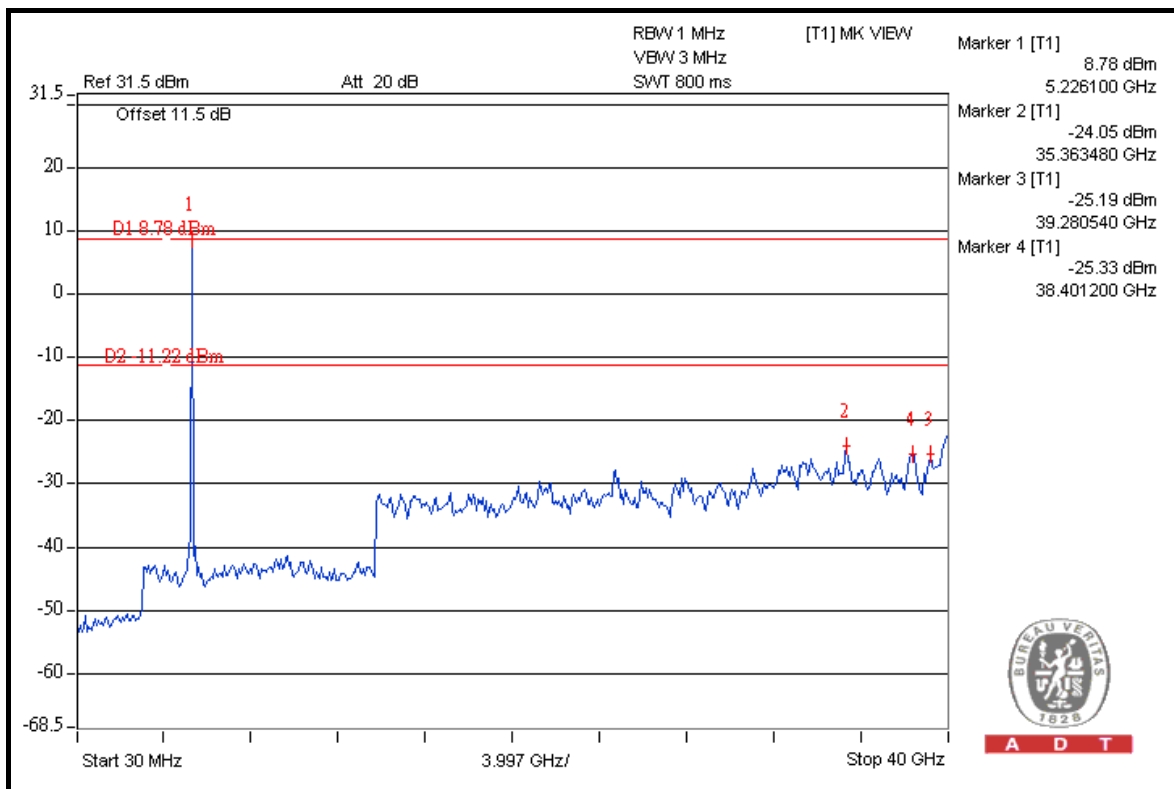
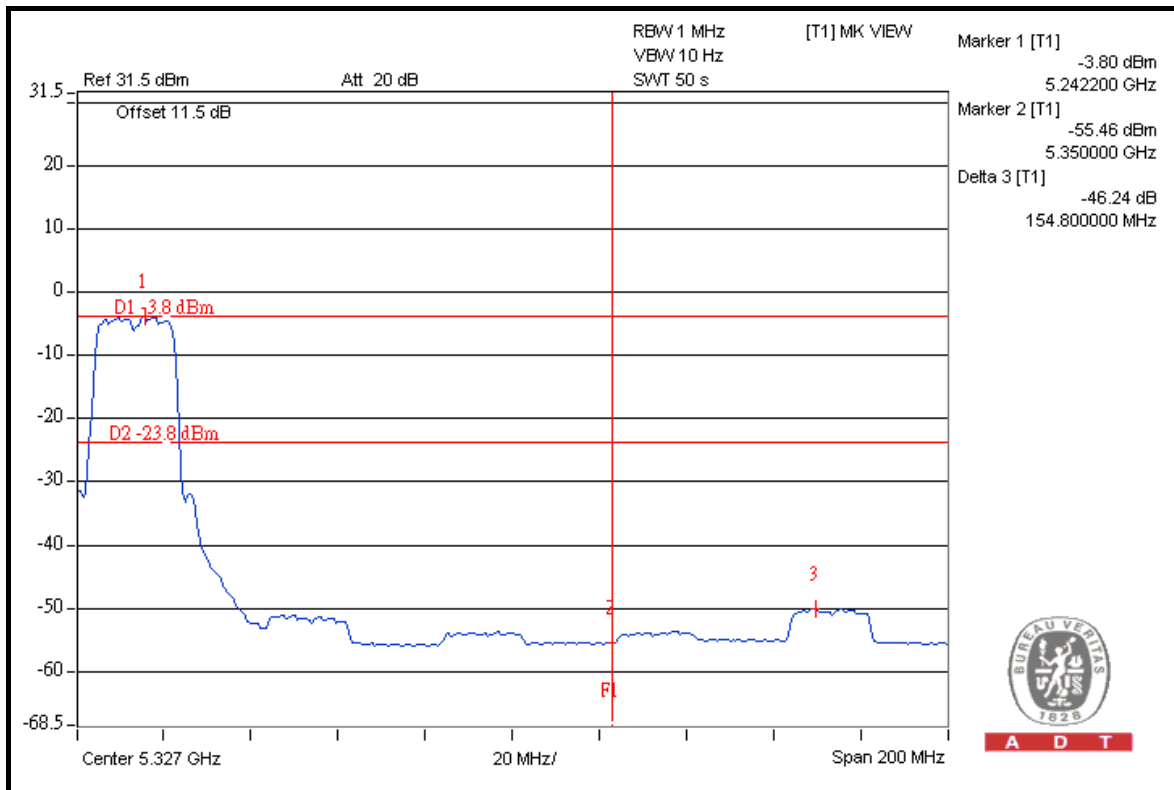


A D T





A D T



TEST MODE D

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)	108.50	46.58	61.92	74.00
5180.00 (AV)	94.40	42.95	51.45	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)
5240.00 (PK)	109.00	46.55	62.45	74.00
5240.00 (AV)	94.90	43.43	51.47	54.00

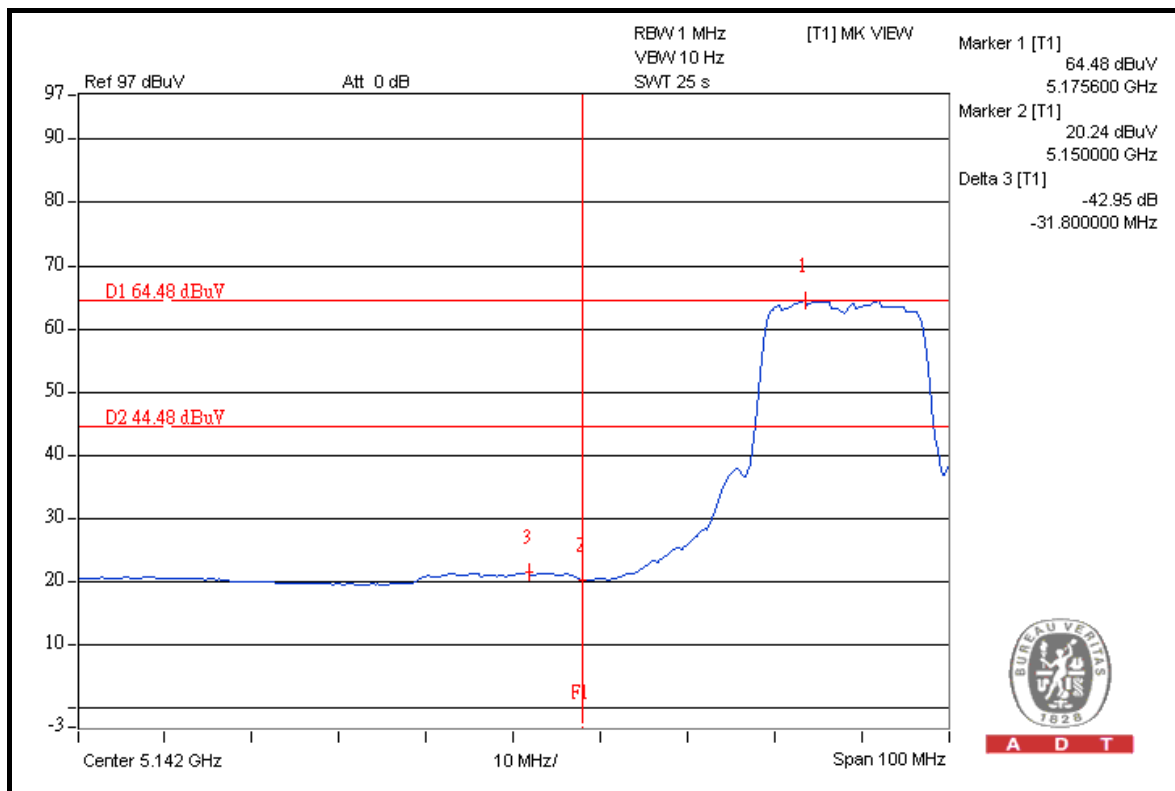
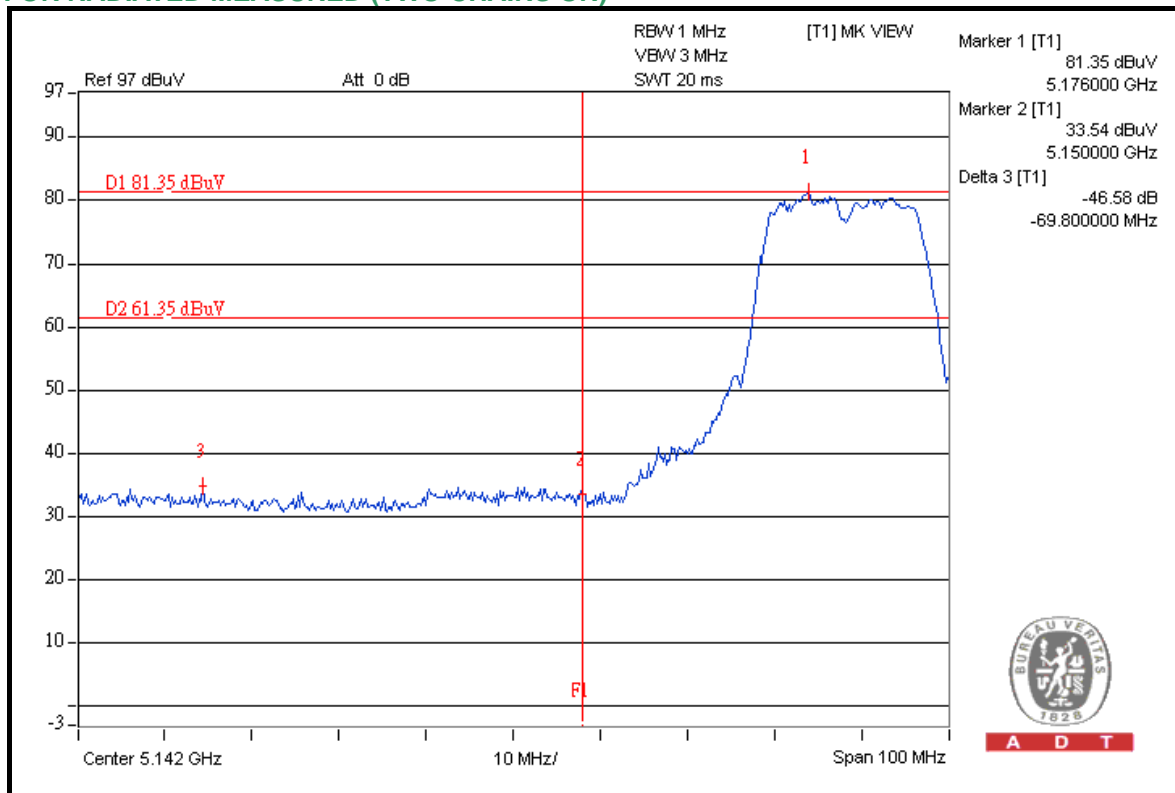
NOTE:

- 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.



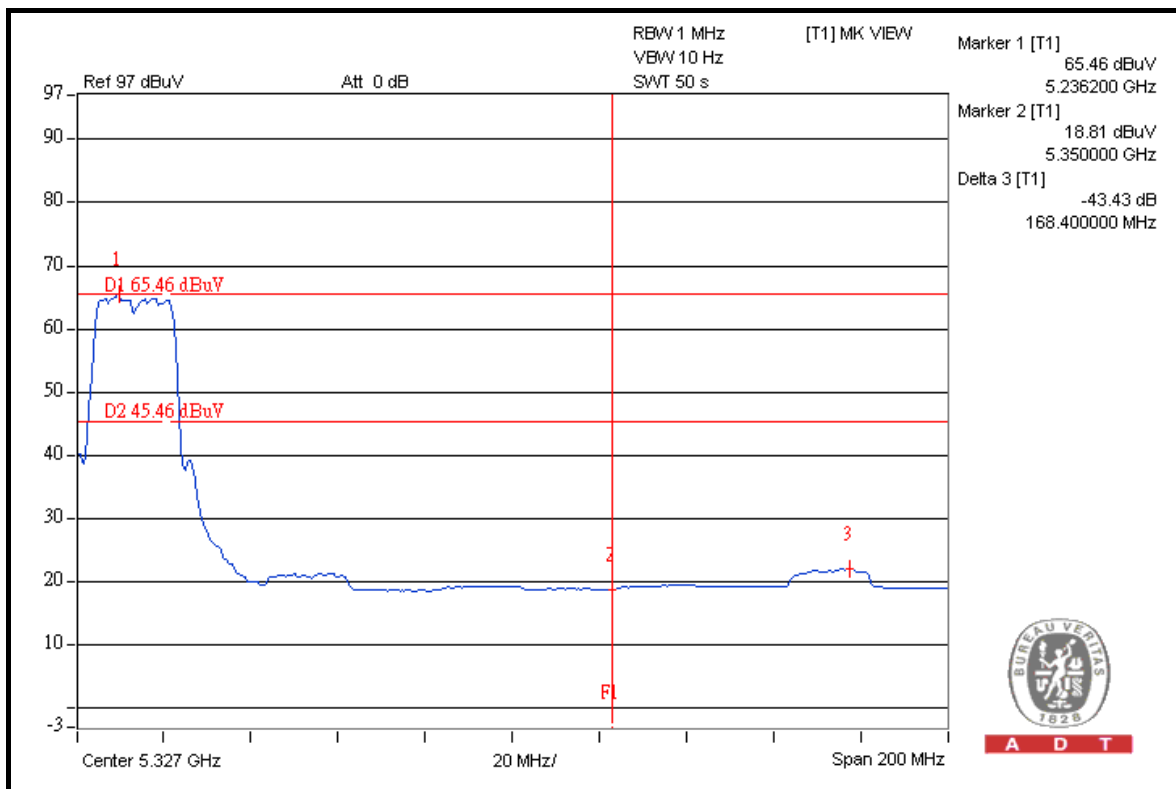
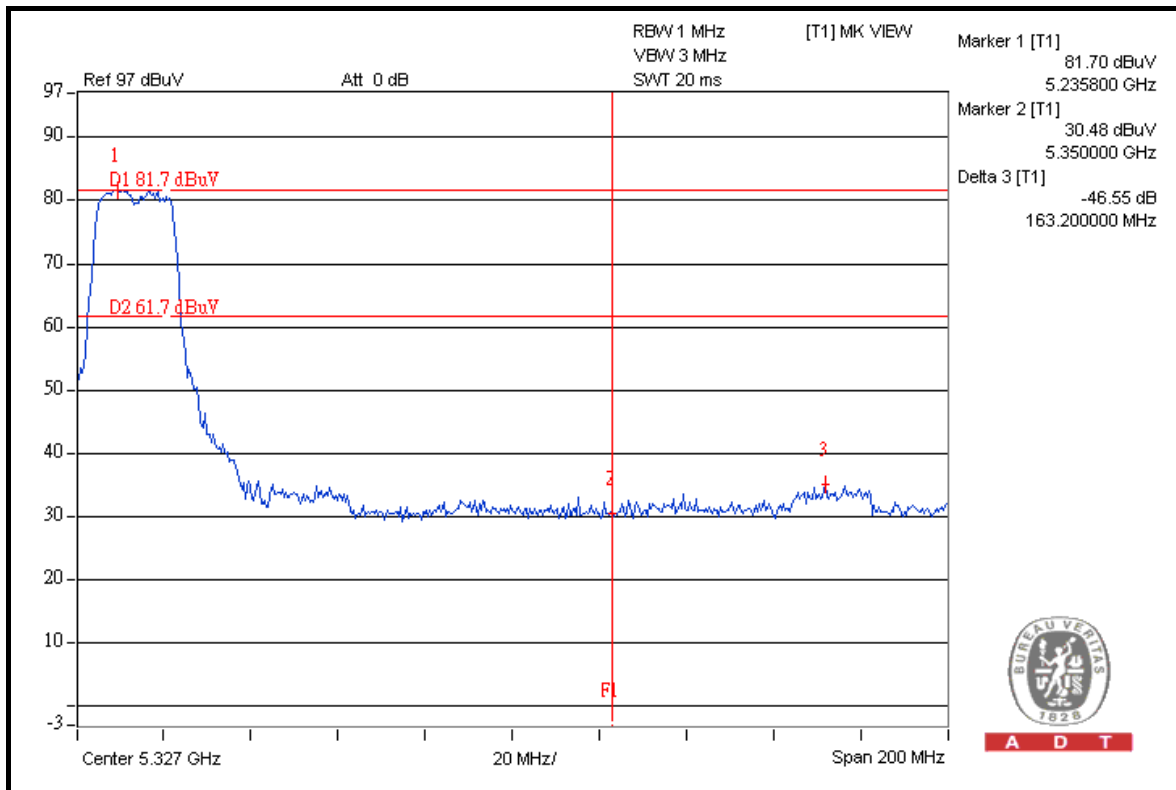
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





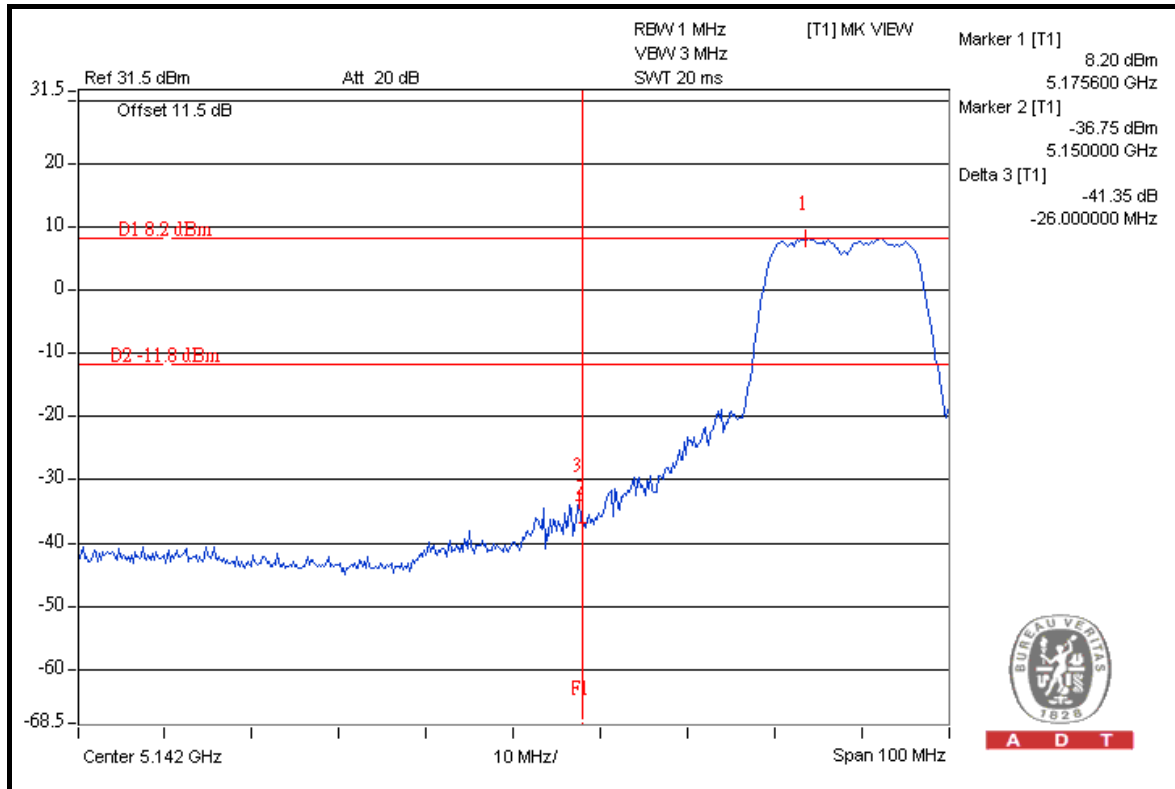
A D T



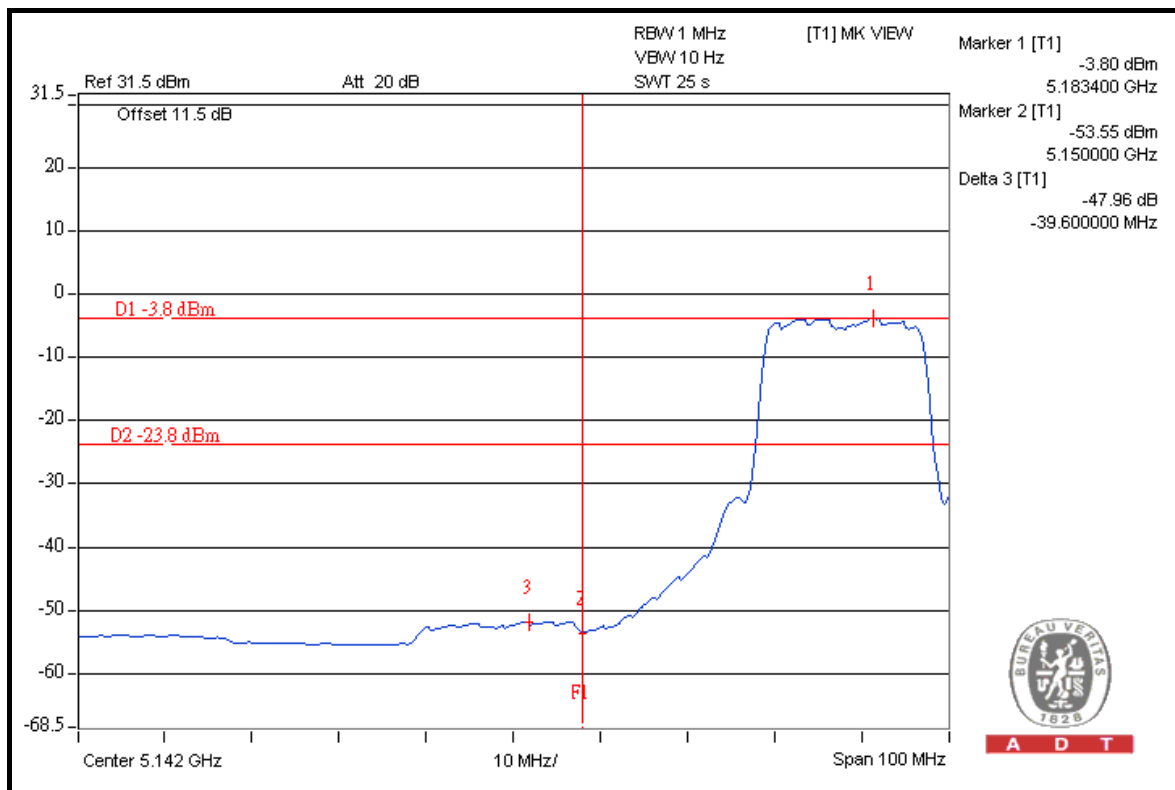


A D T

FOR CONDUCTED MEASURED CHAIN 0



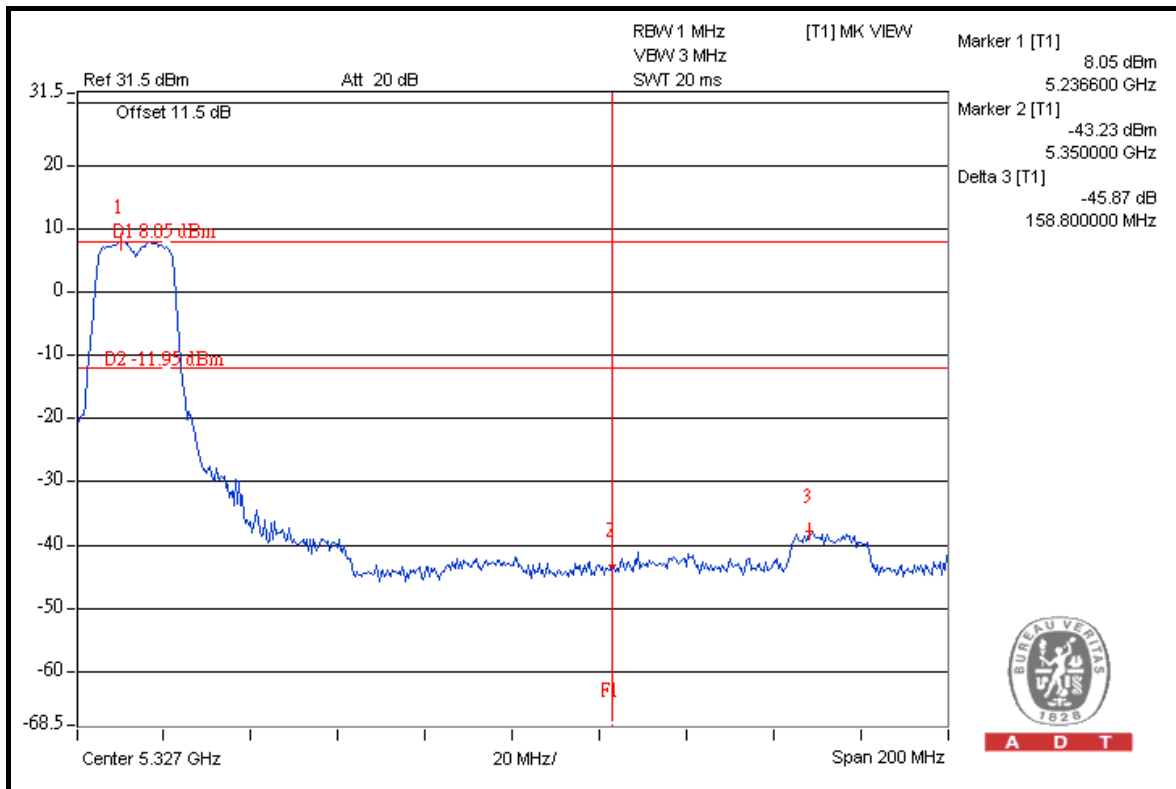
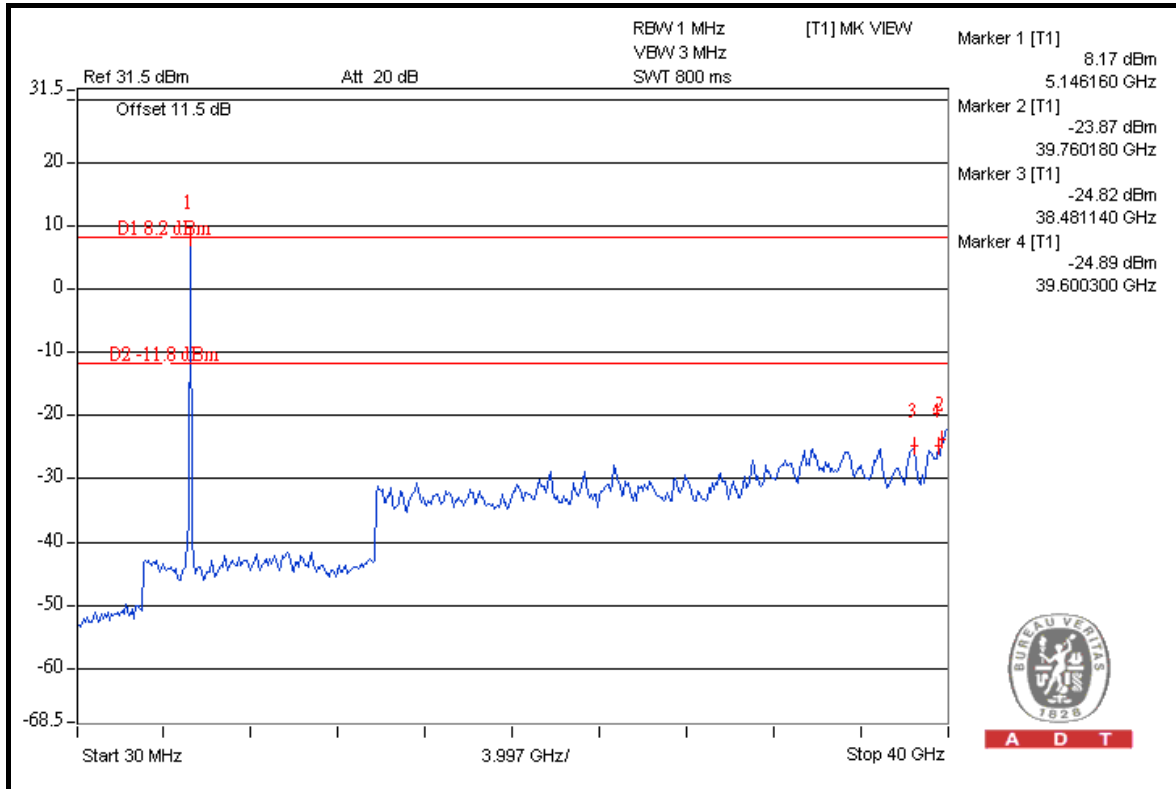
A D T



A D T

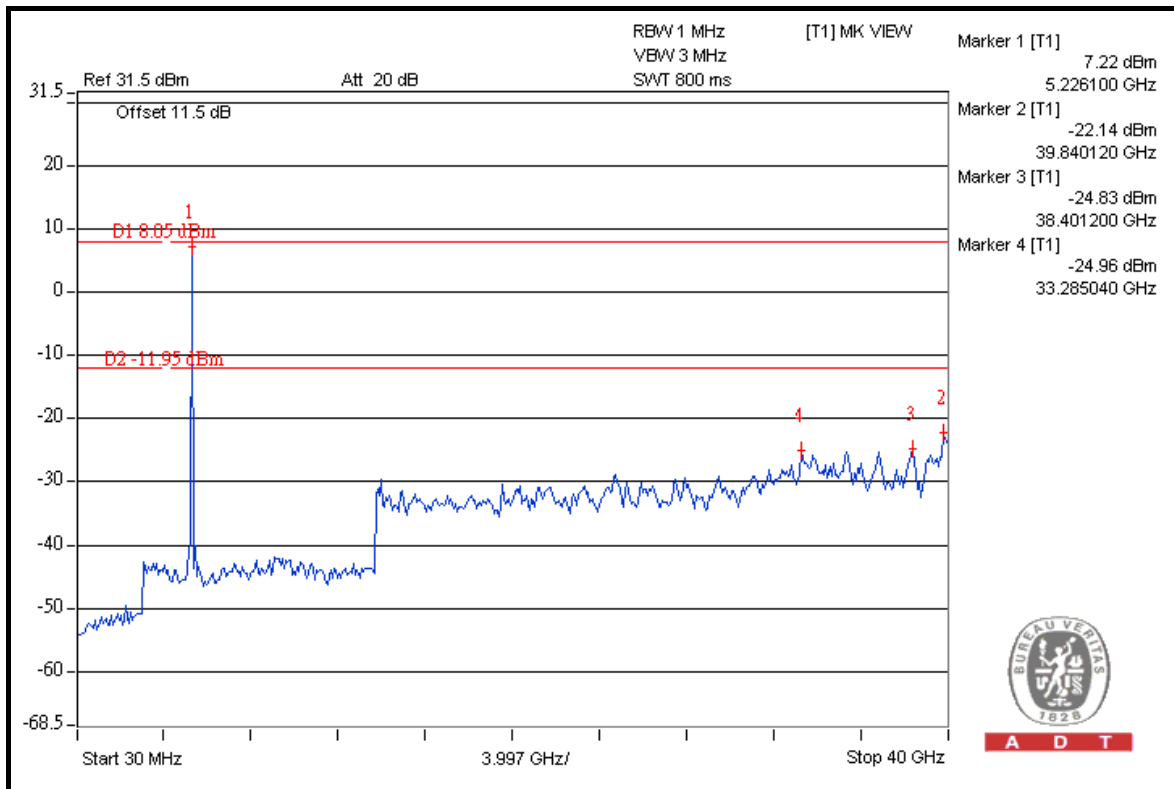
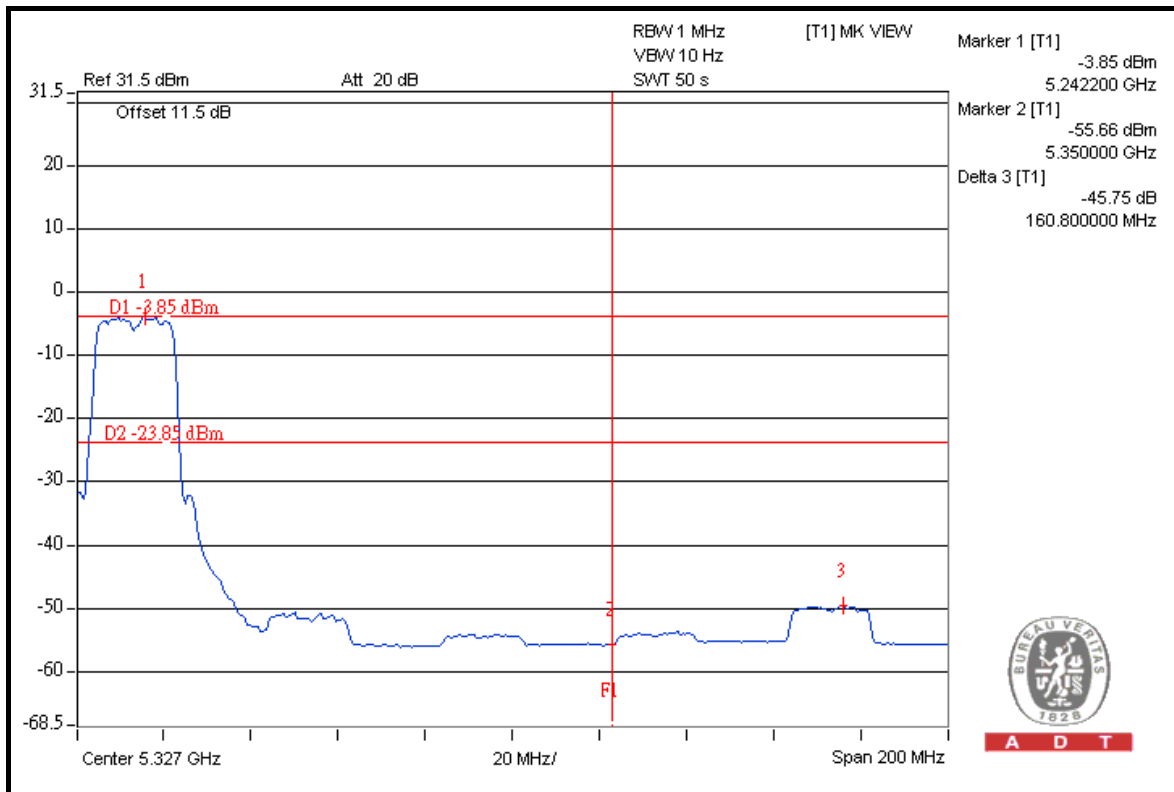


A D T





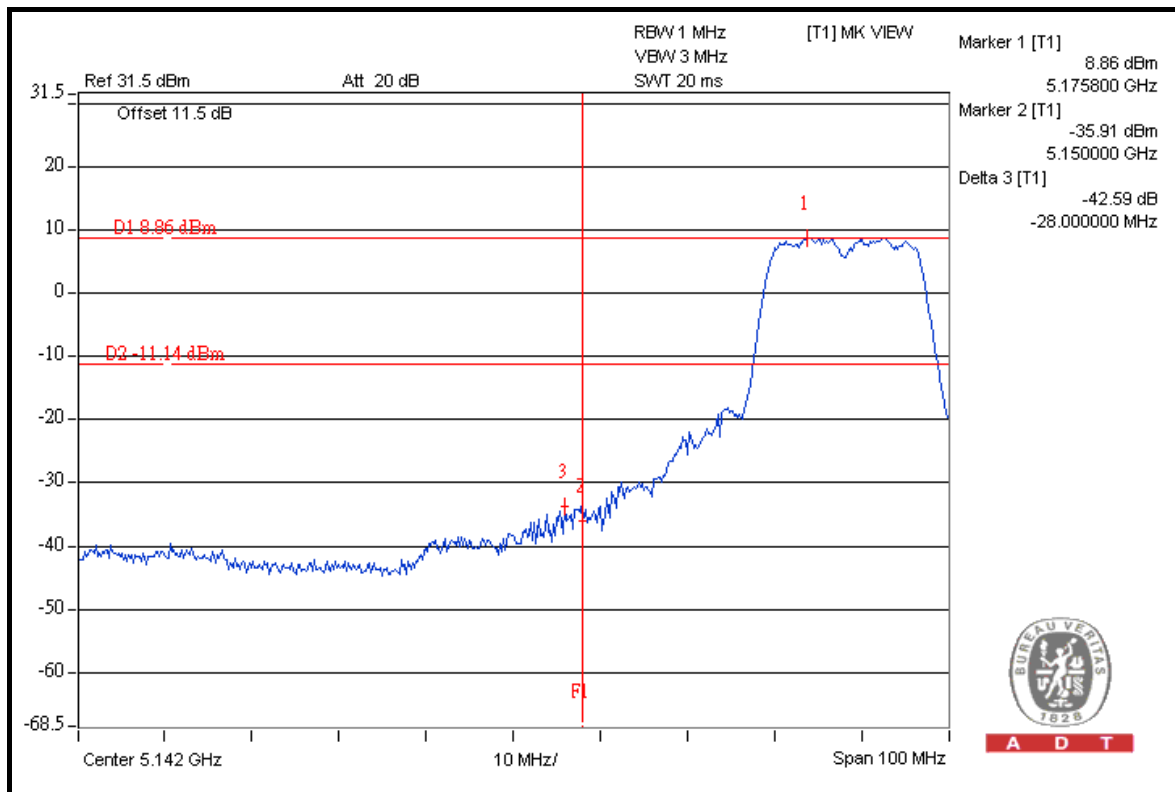
A D T



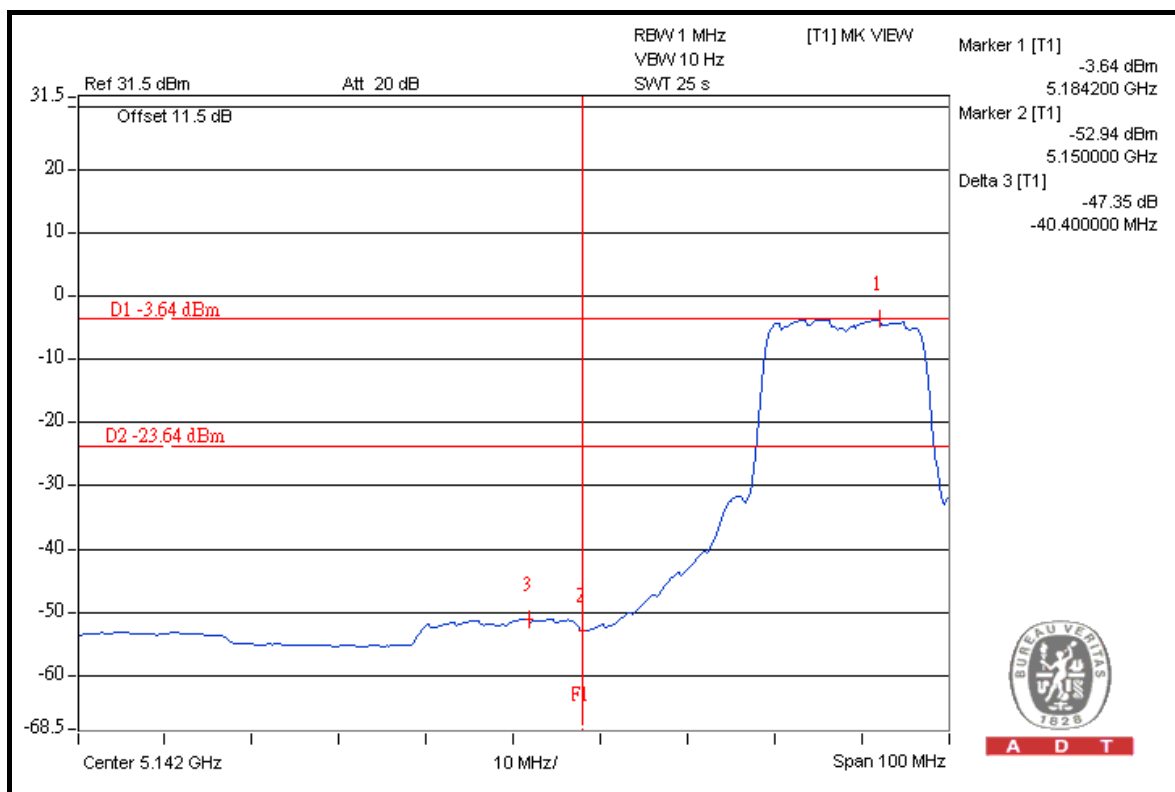


A D T

CHAIN 1



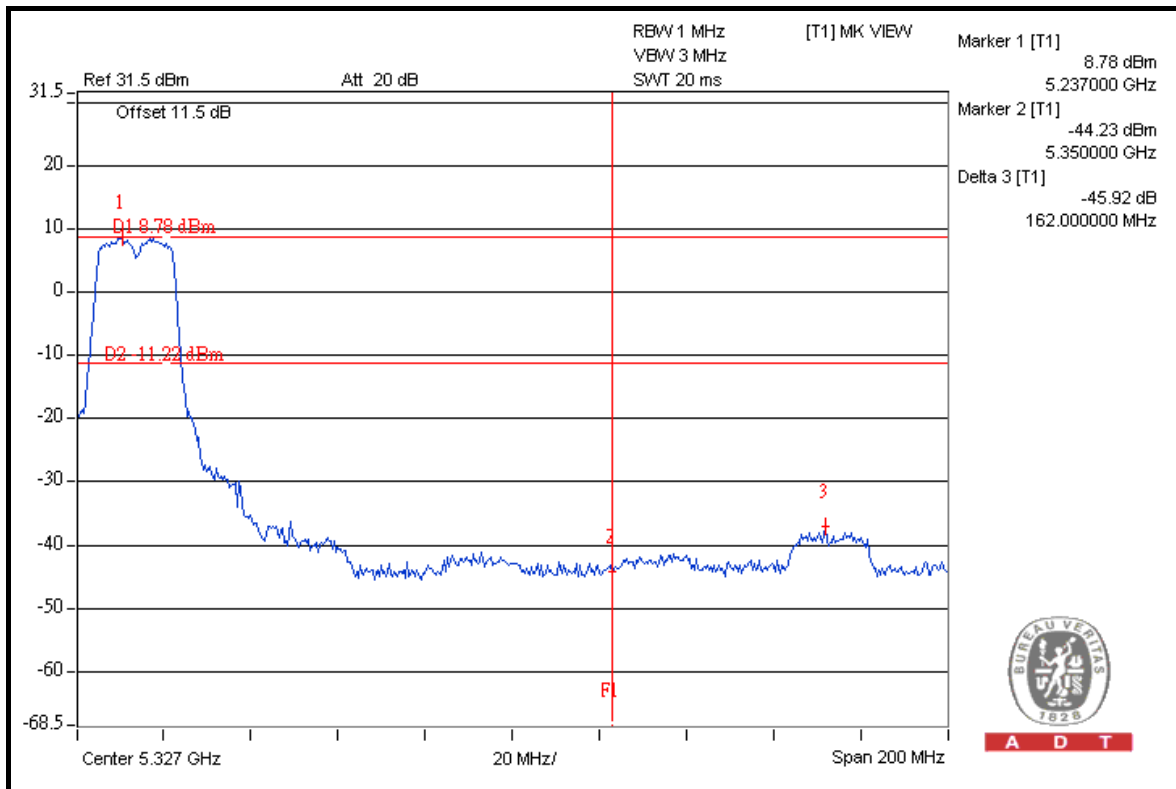
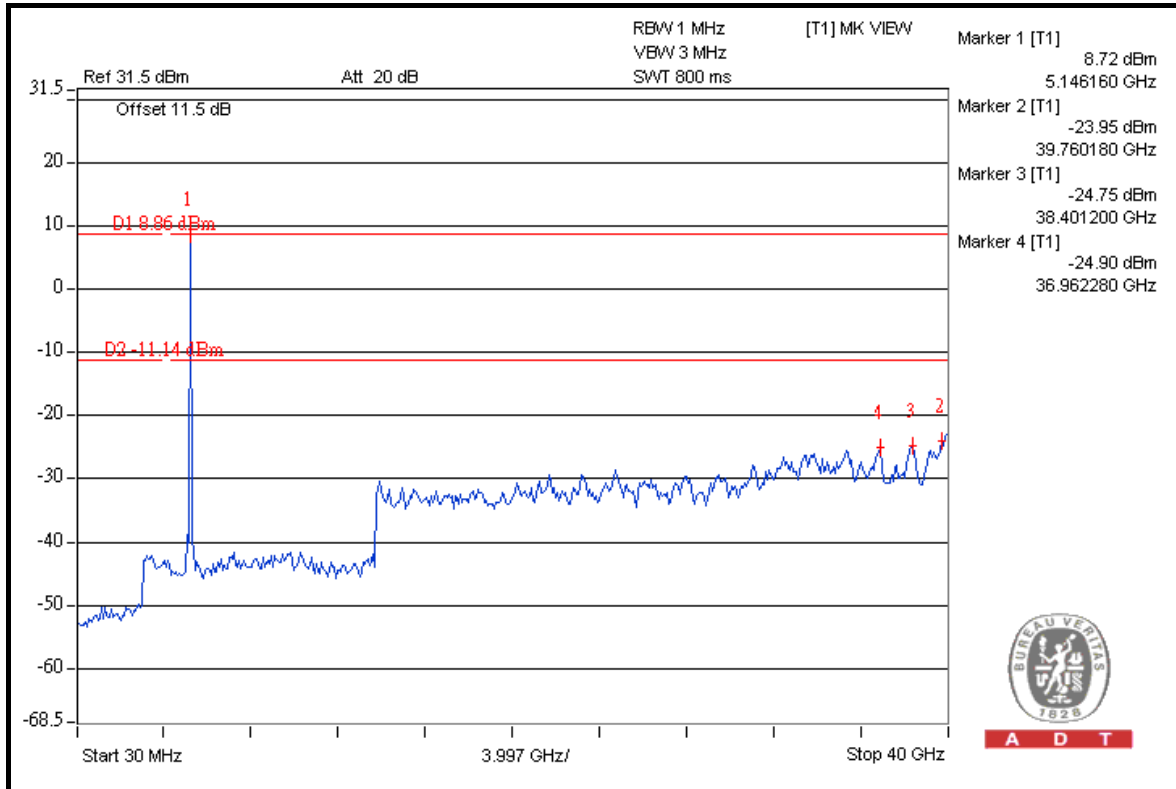
A D T



A D T

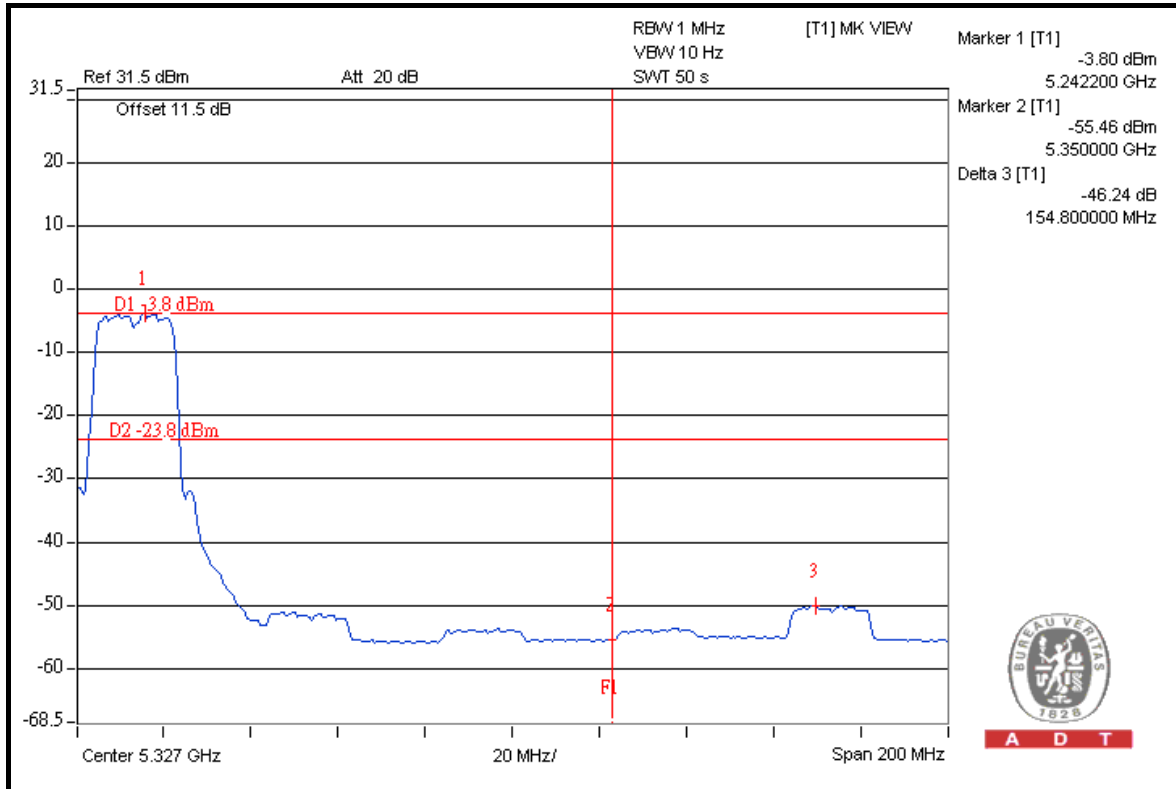


A D T

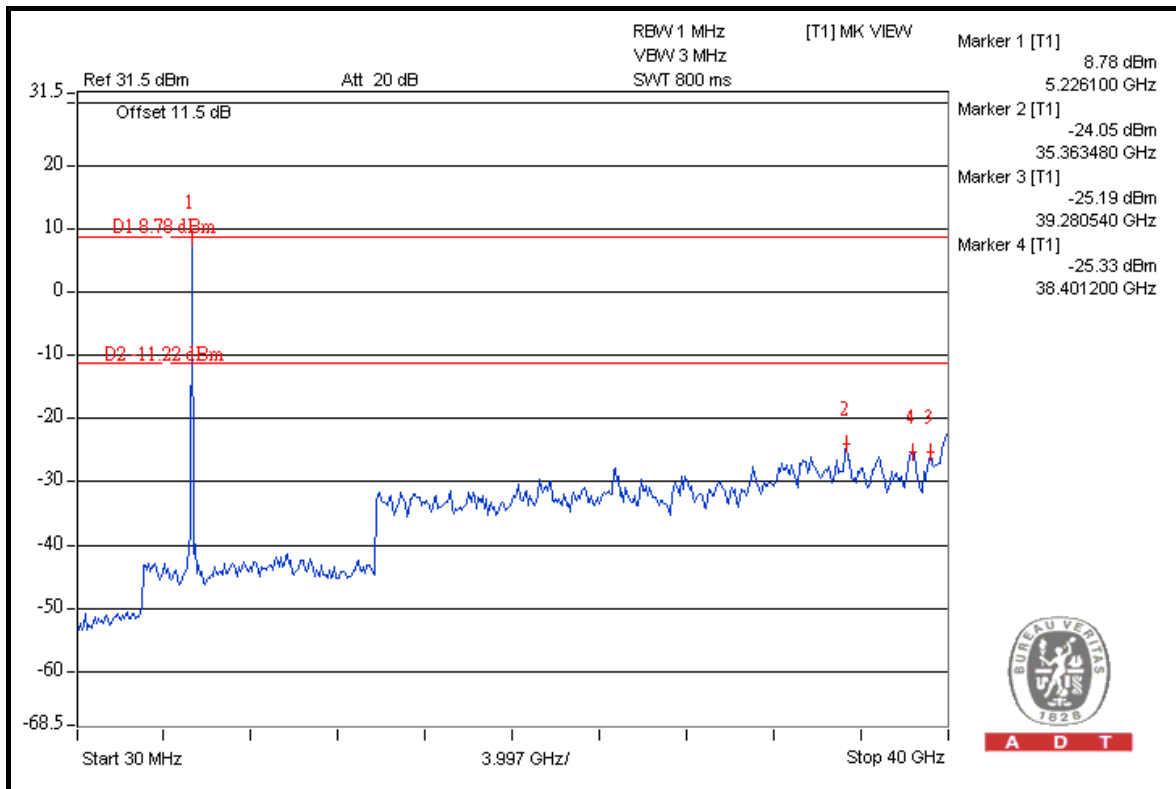




A D T



A D T



A D T

802.11n (40MHz)

TEST MODE B

RESTRICT BAND (4500 ~ 5150 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5190.00 (PK)	105.00	36.82	68.18	74.00
5190.00 (AV)	90.70	38.73	51.97	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)
5230.00 (PK)	105.60	40.34	65.26	74.00
5230.00 (AV)	90.80	40.88	49.92	54.00

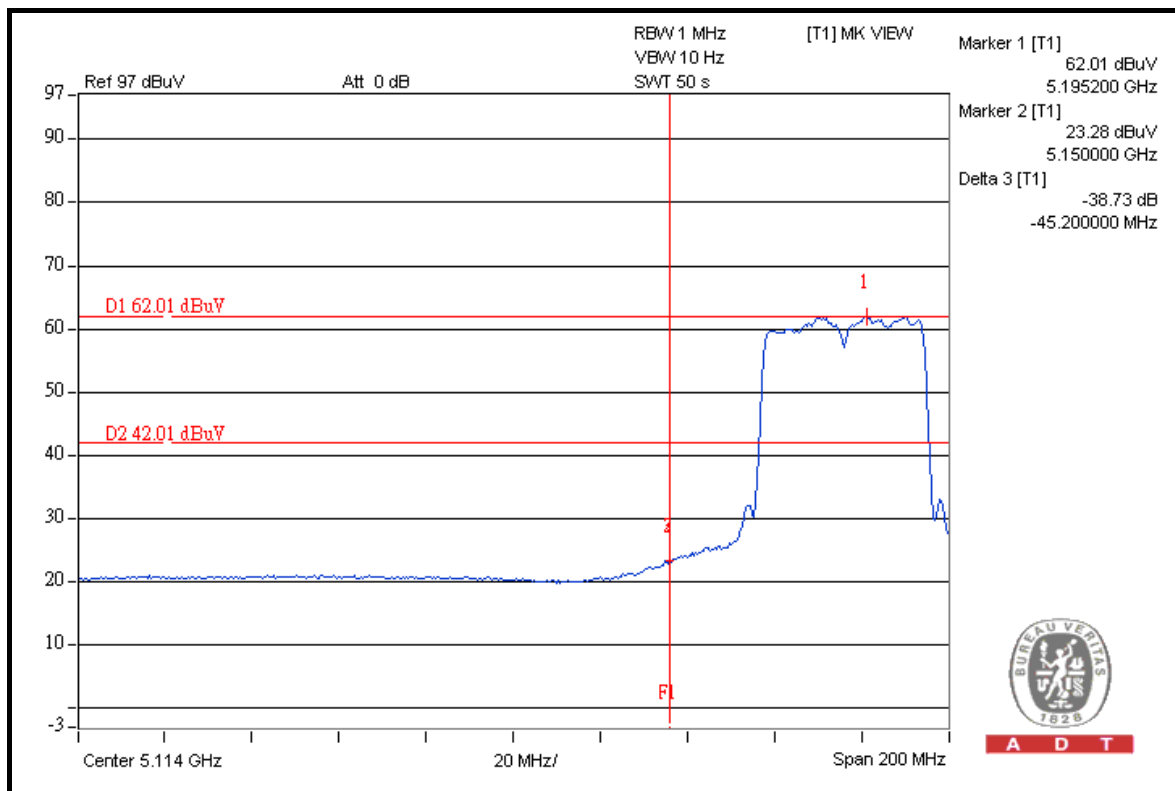
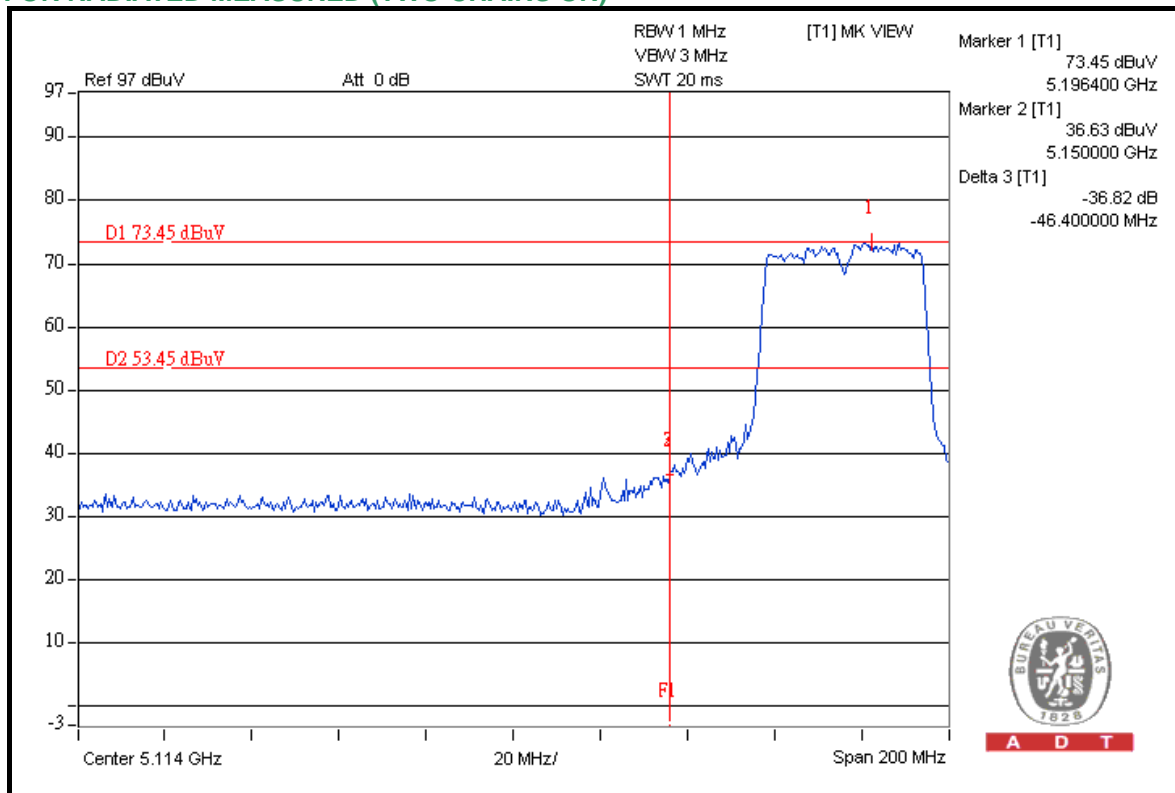
NOTE:

- 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.



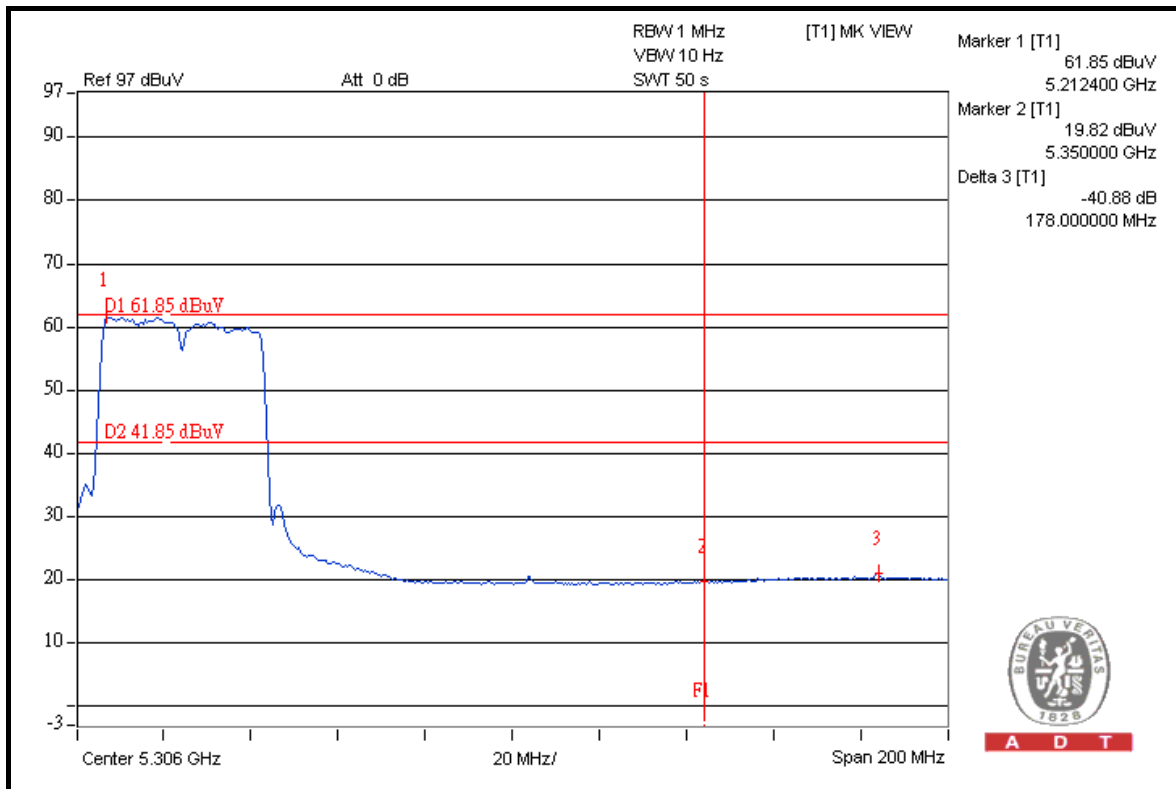
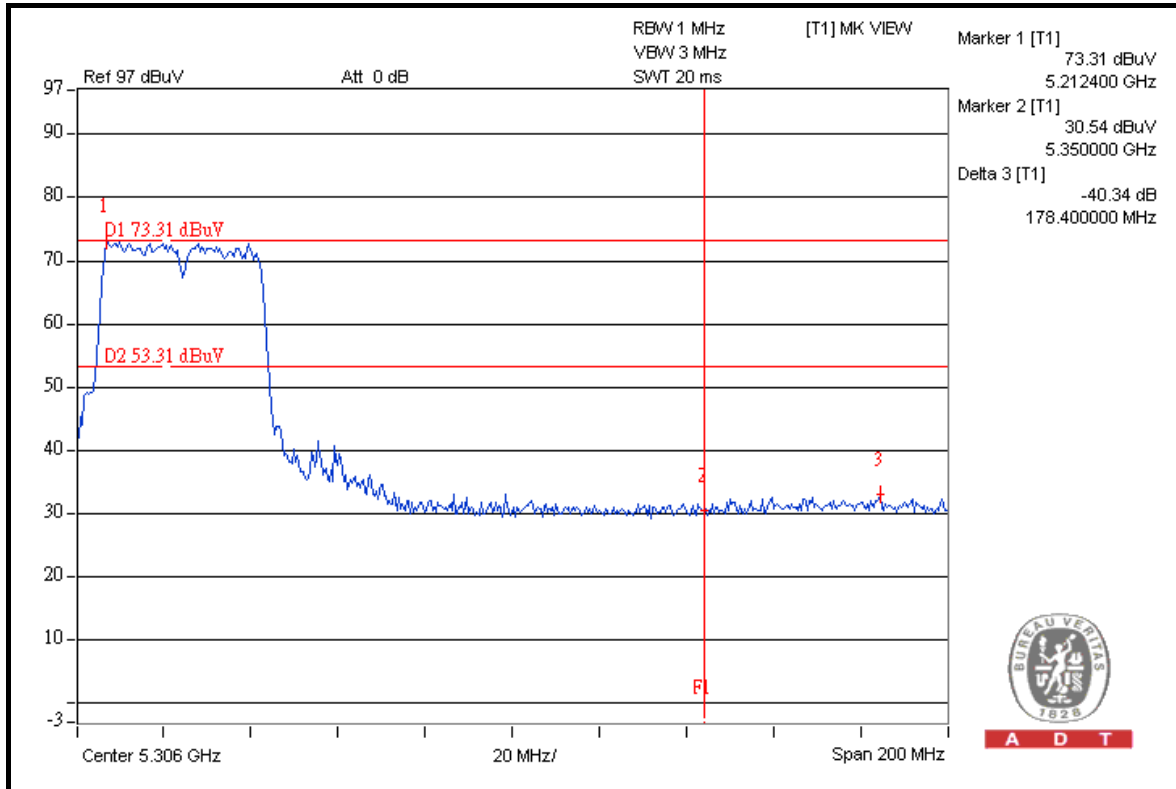
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)





A D T

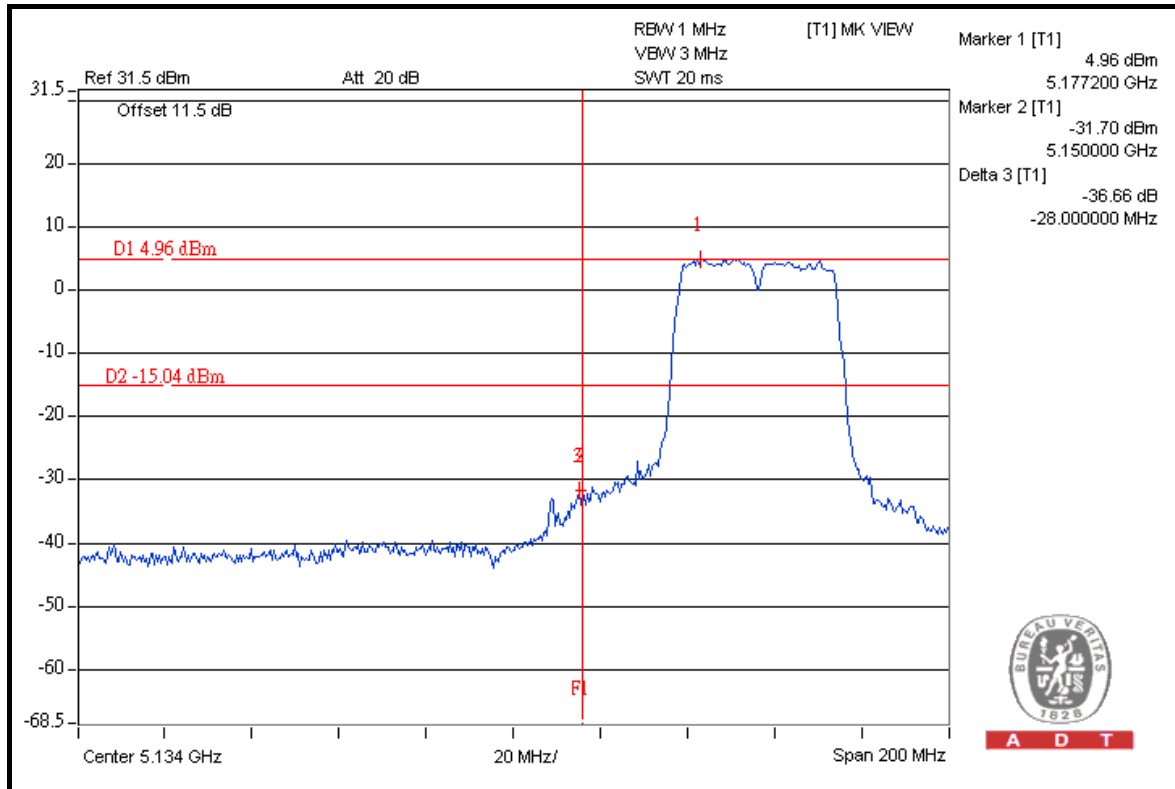




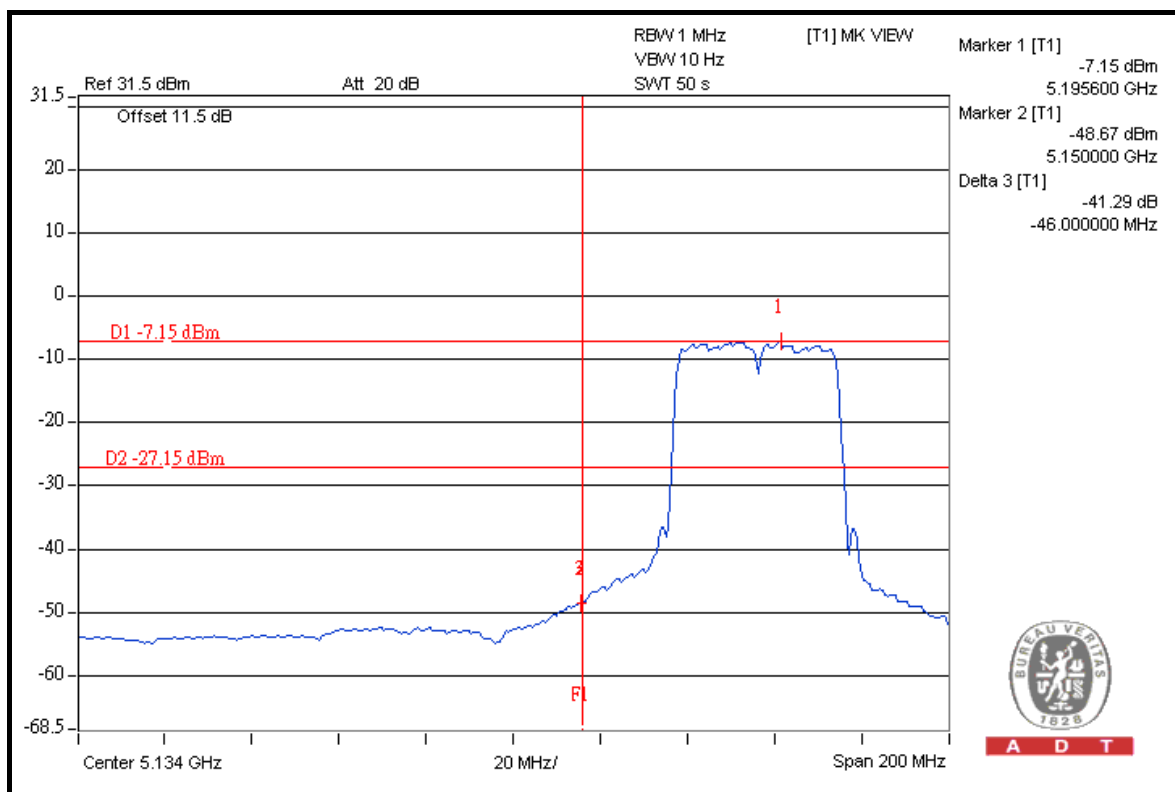
A D T

FOR CONDUCTED MEASURED

CHAIN 0



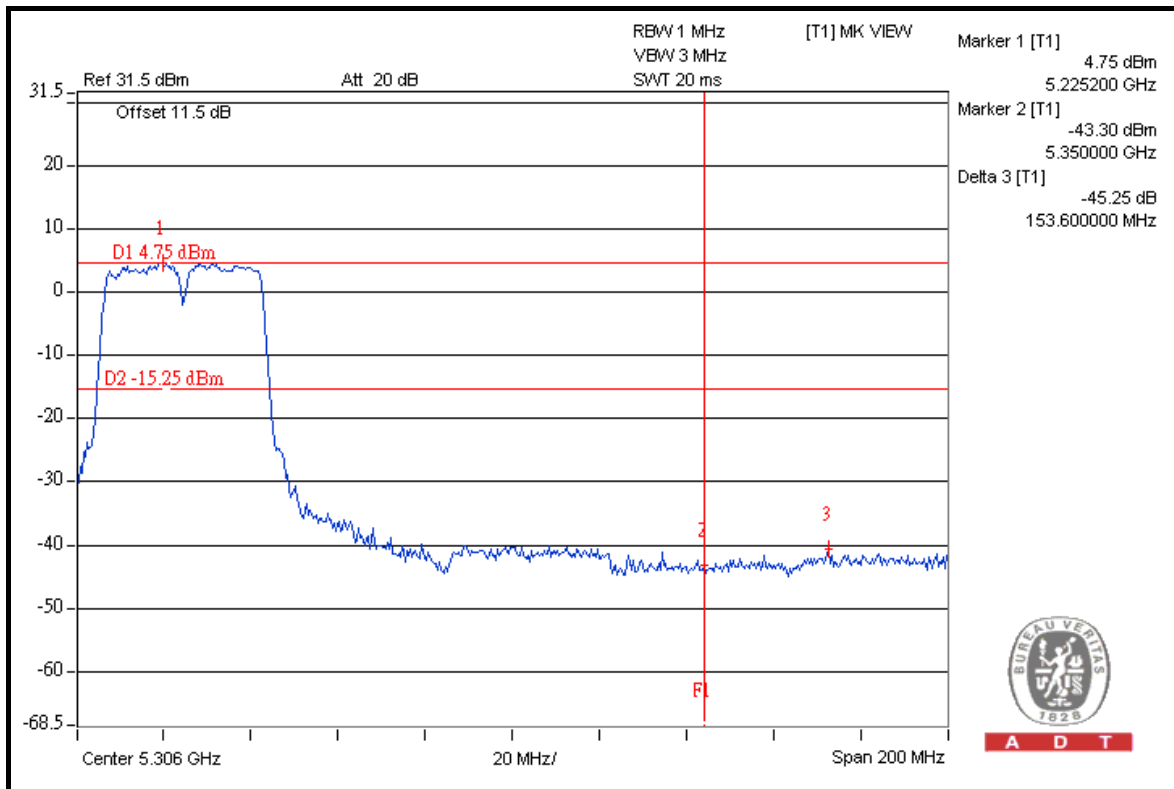
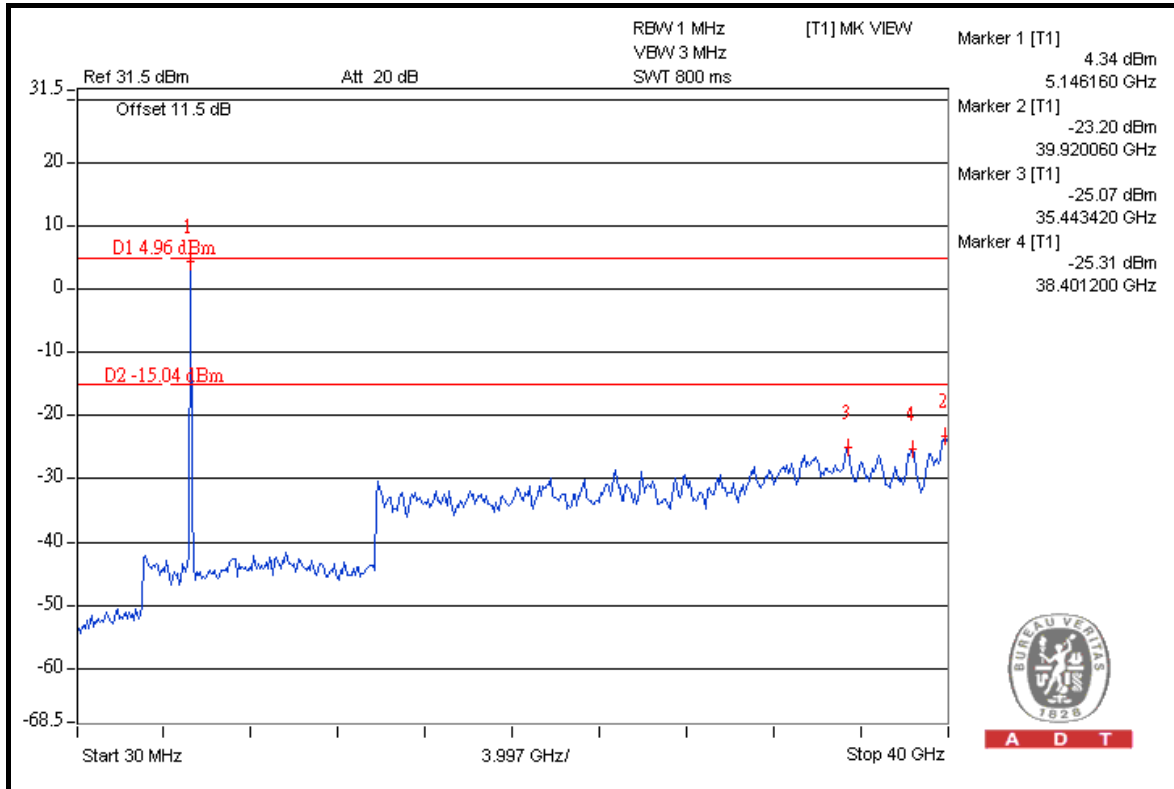
A D T



A D T

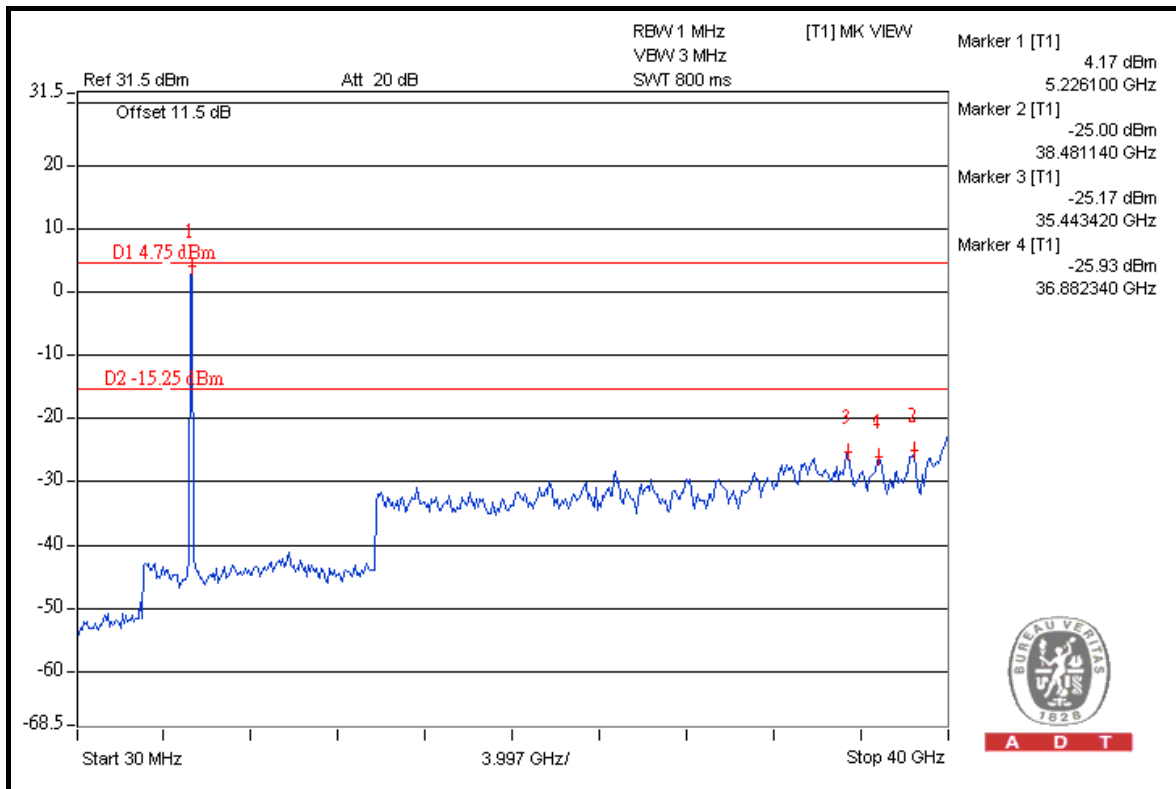
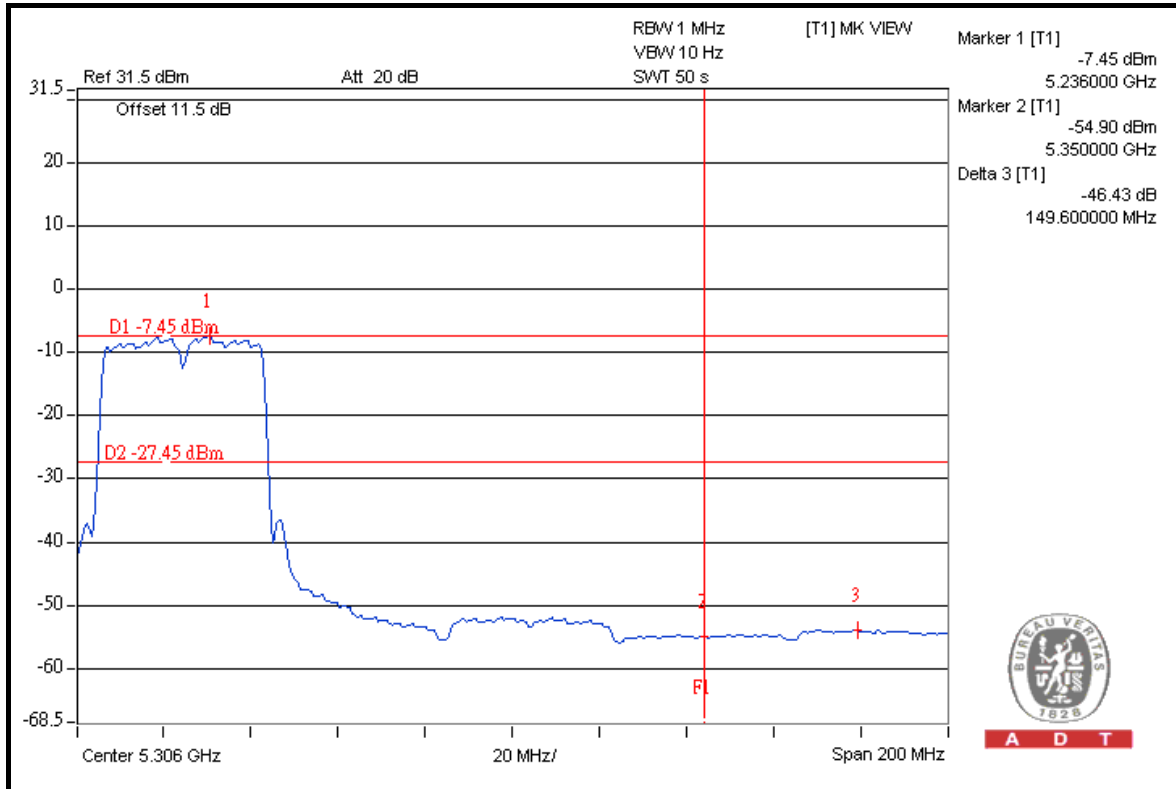


A D T





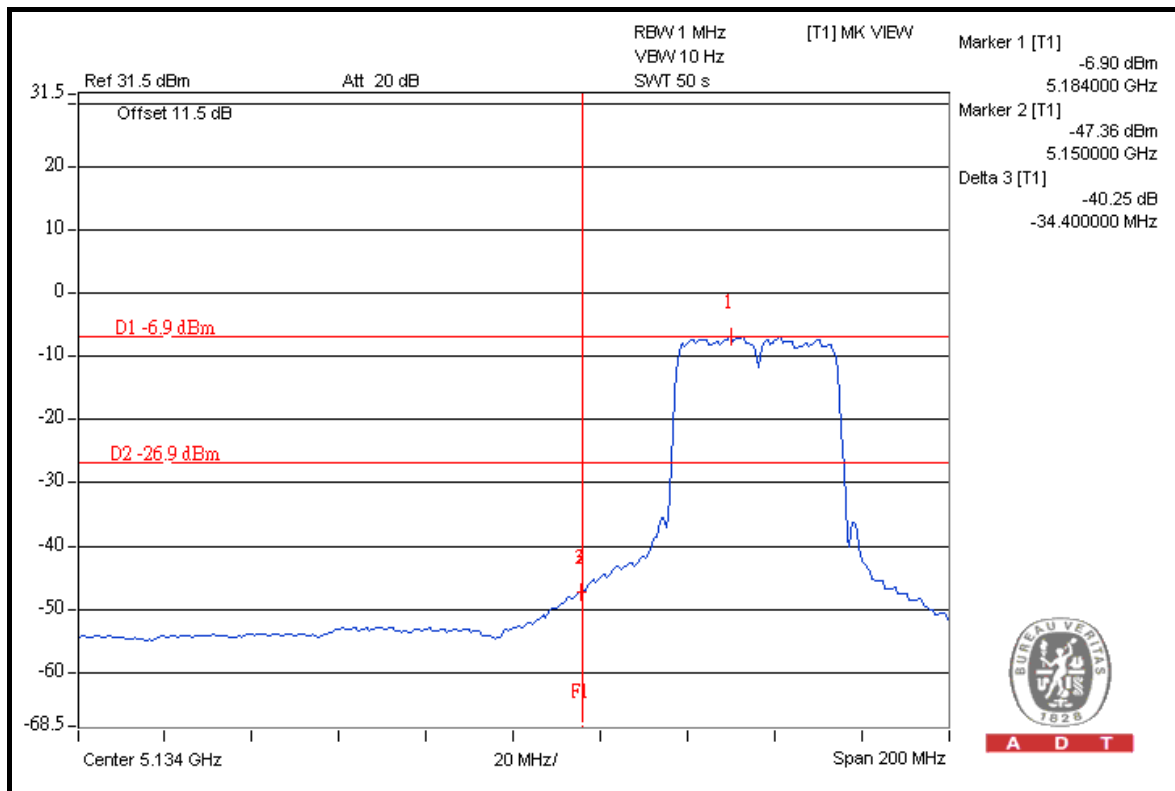
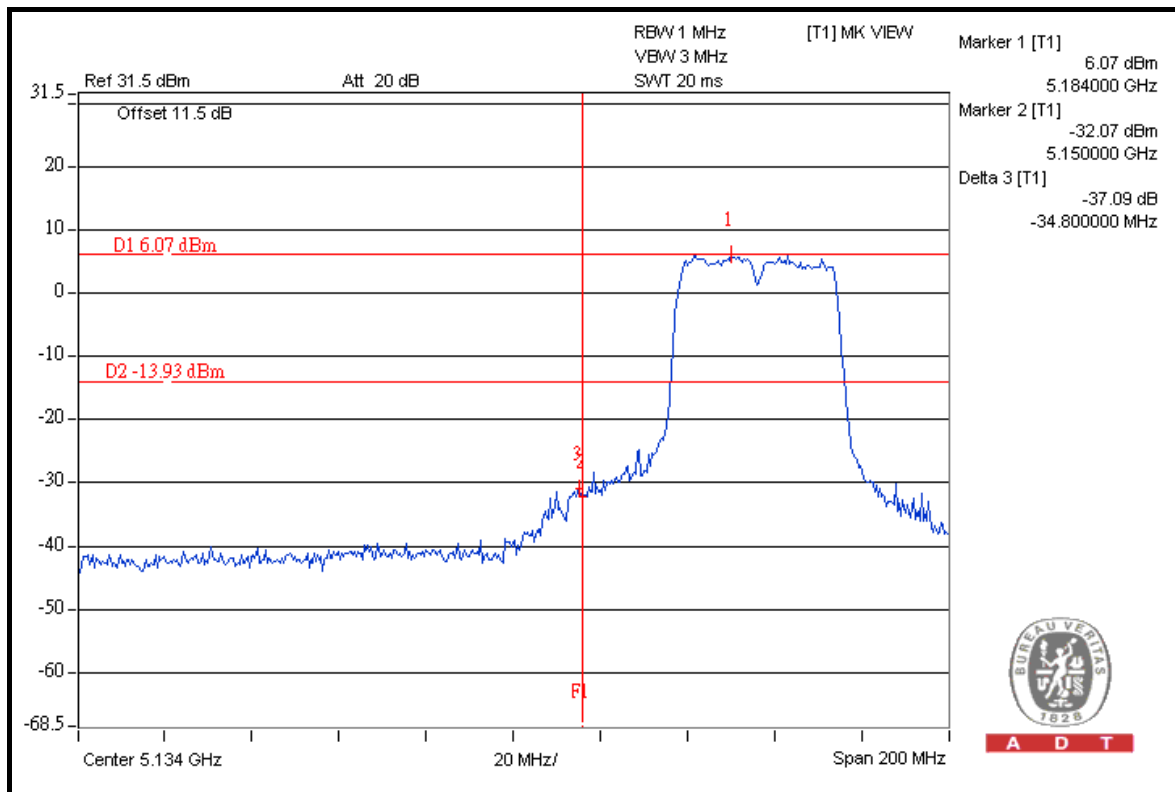
A D T





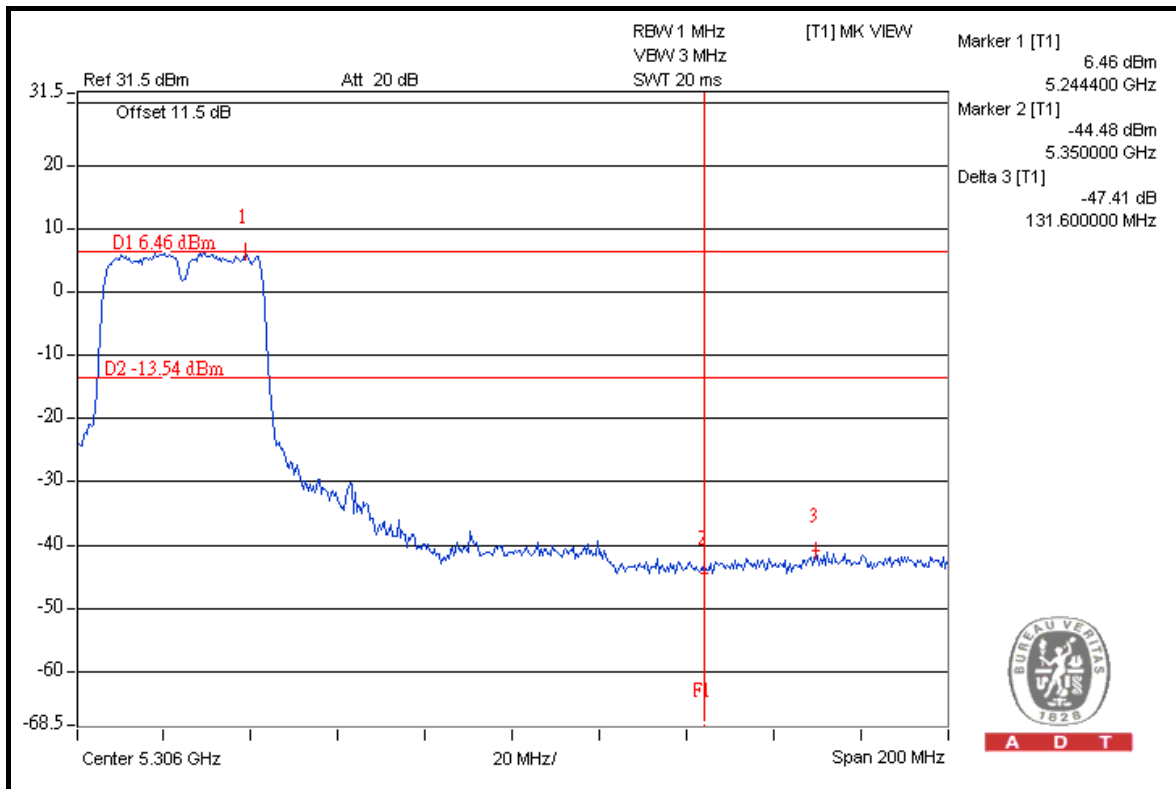
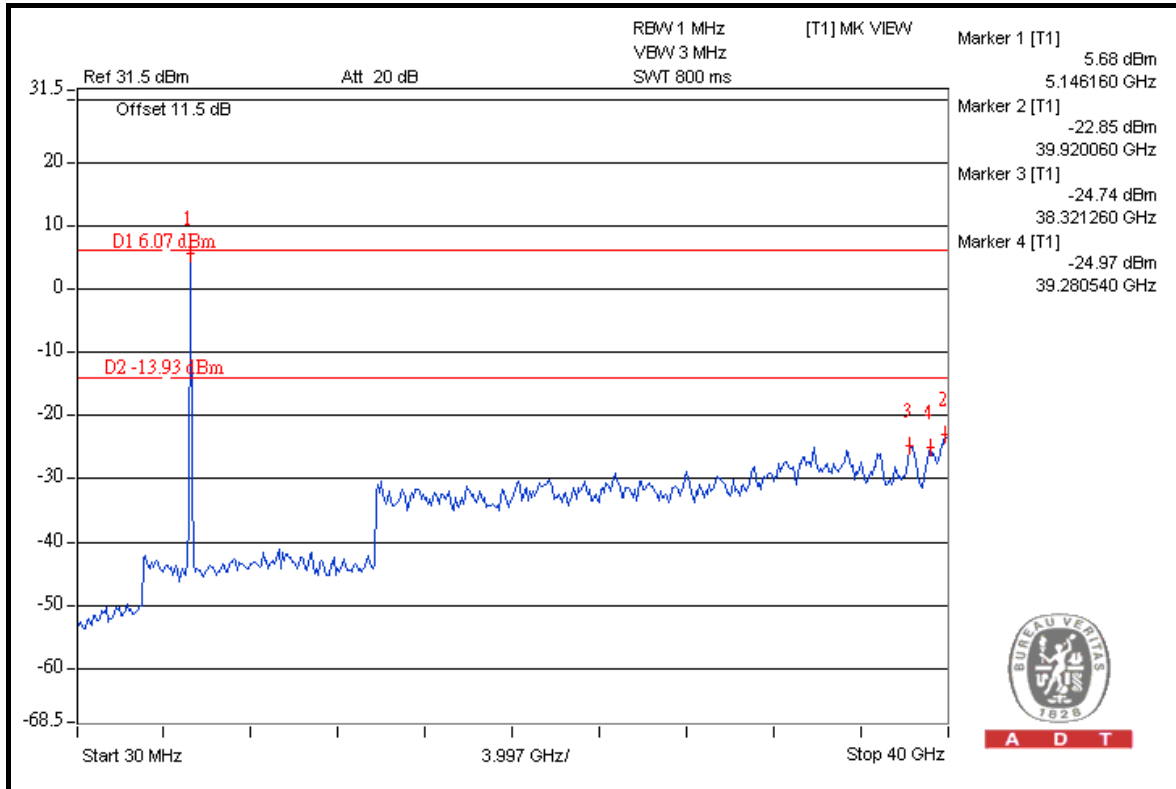
A D T

CHAIN 1



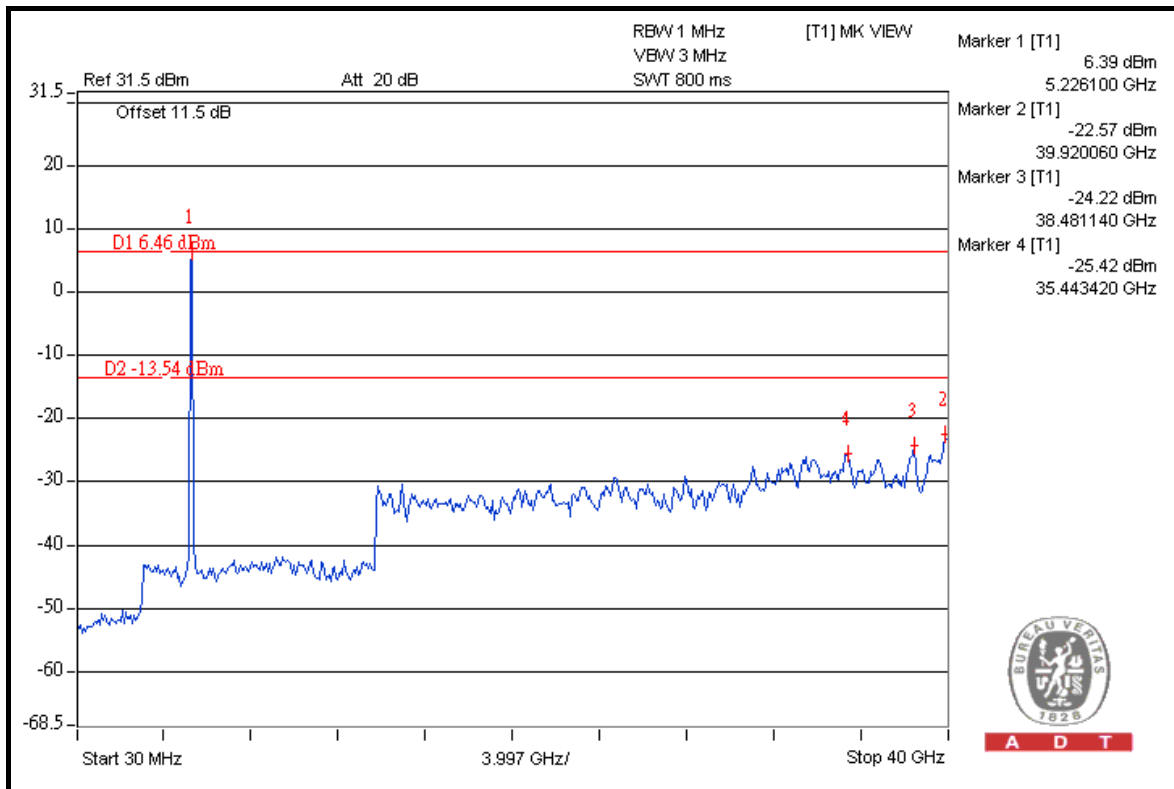
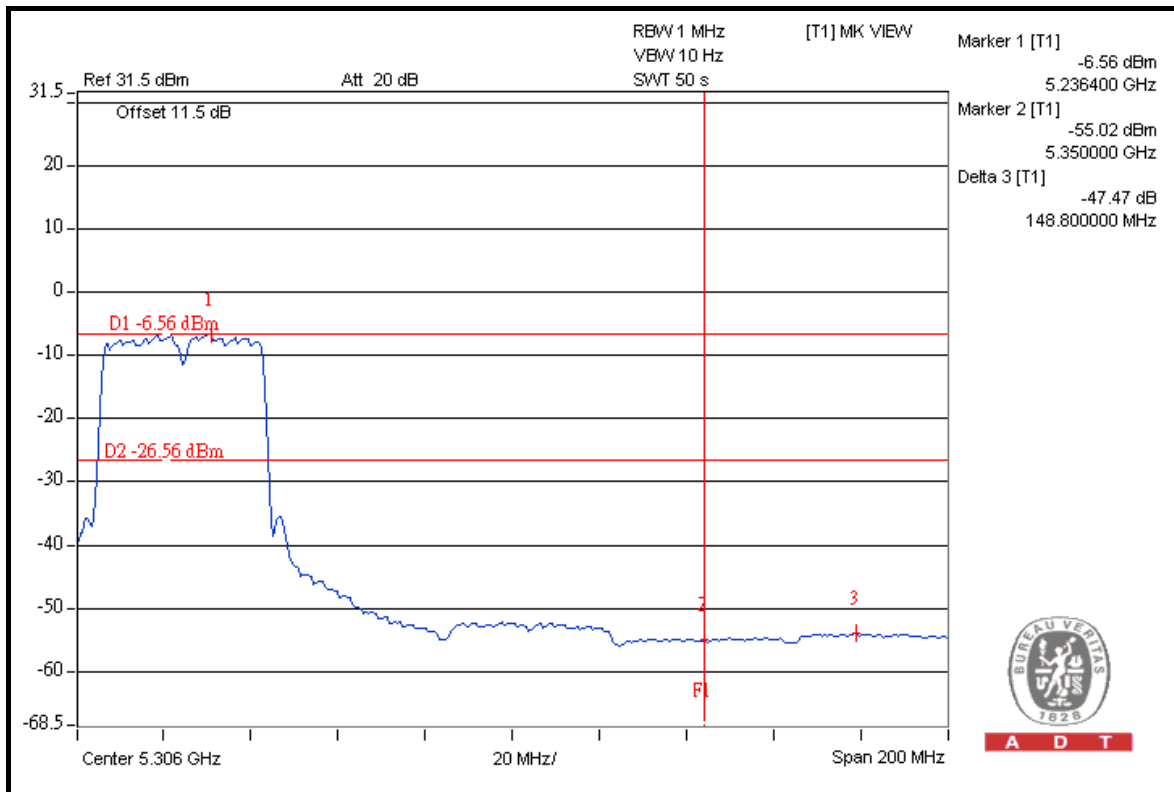


A D T





A D T



TEST MODE D

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)	106.20	40.07	66.13	74.00
5190.00 (AV)	92.30	39.69	52.61	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)
5230.00 (PK)	106.00	41.16	64.84	74.00
5230.00 (AV)	92.10	41.68	50.42	54.00

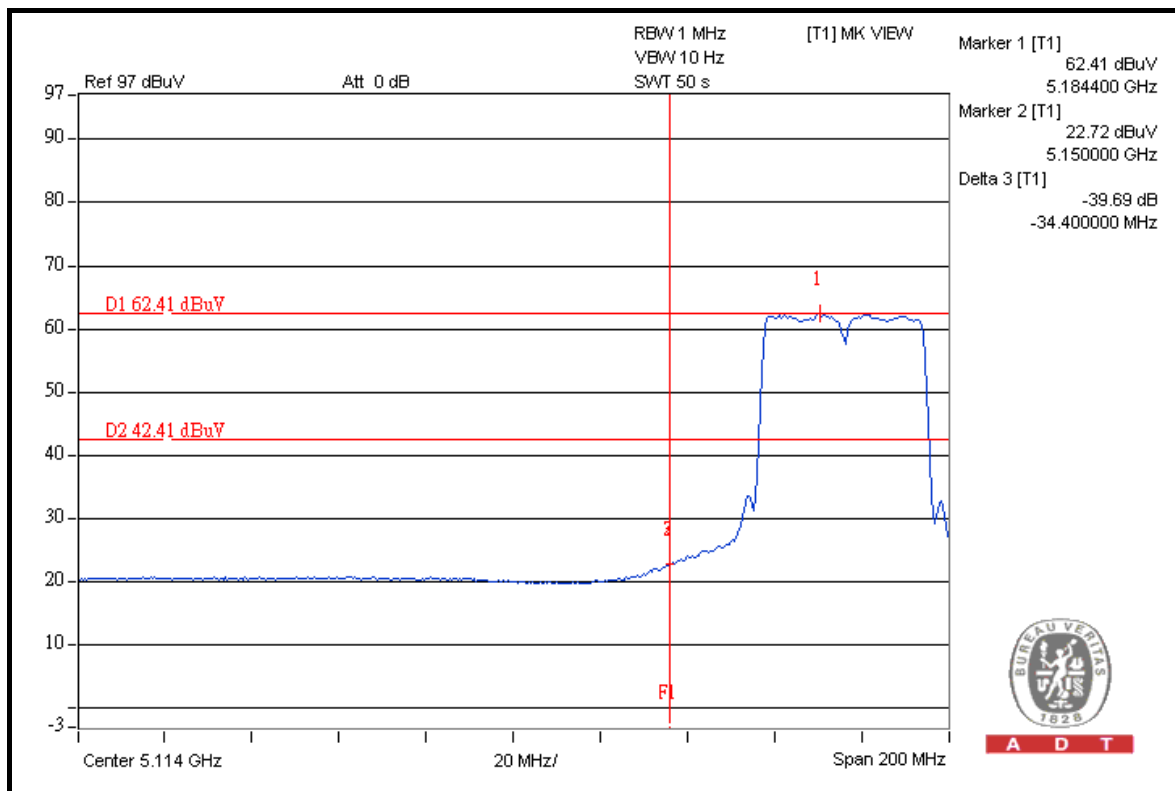
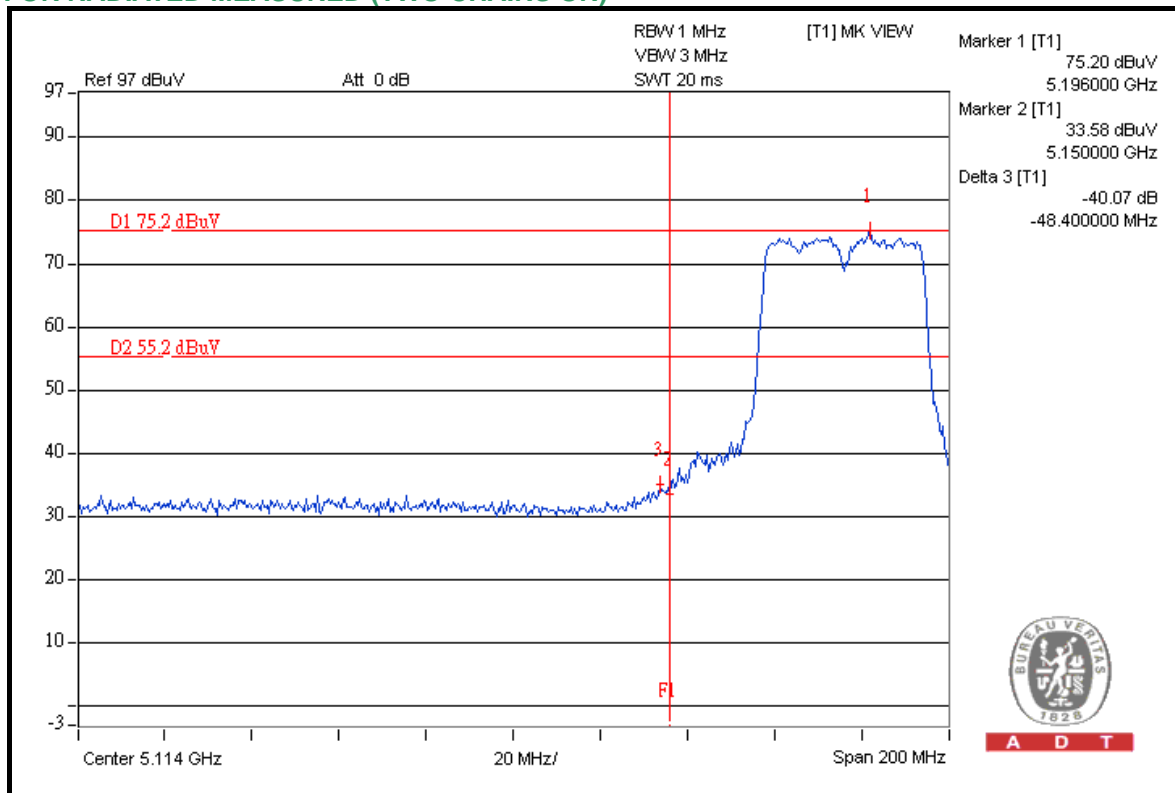
NOTE:

- 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.



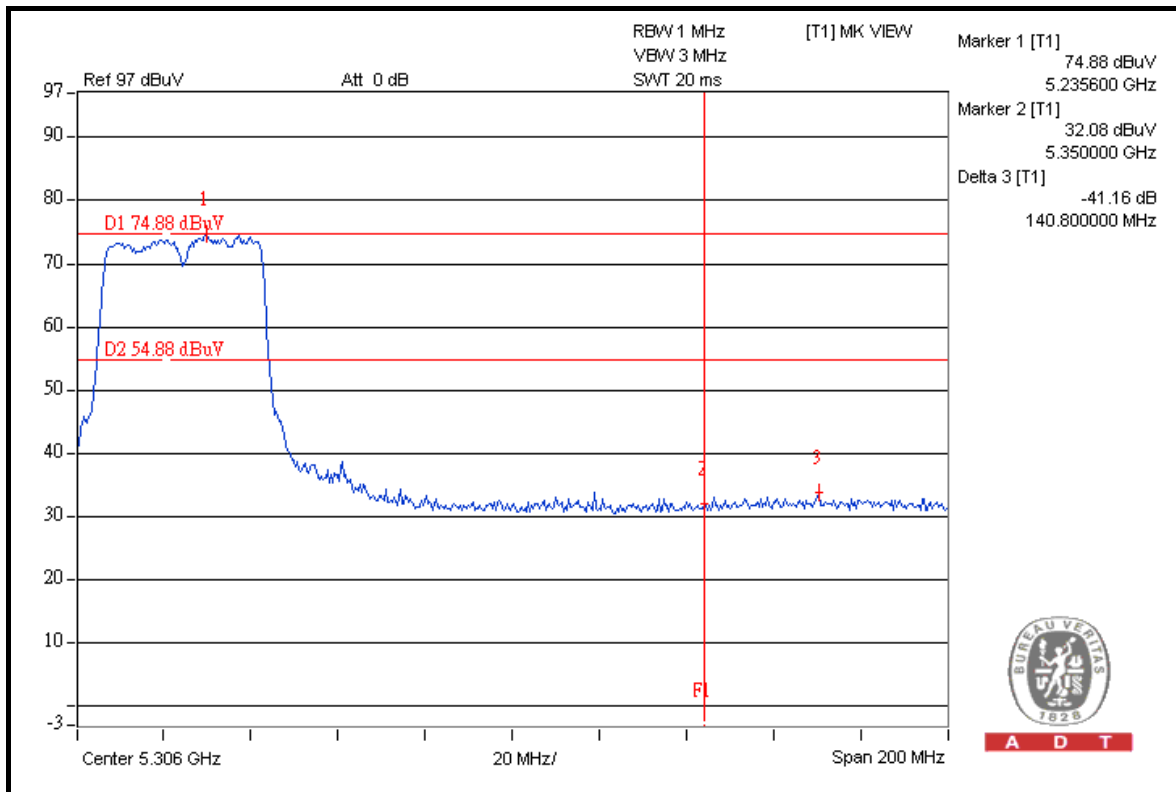
A D T

FOR RADIATED MEASURED (TWO CHAINS ON)

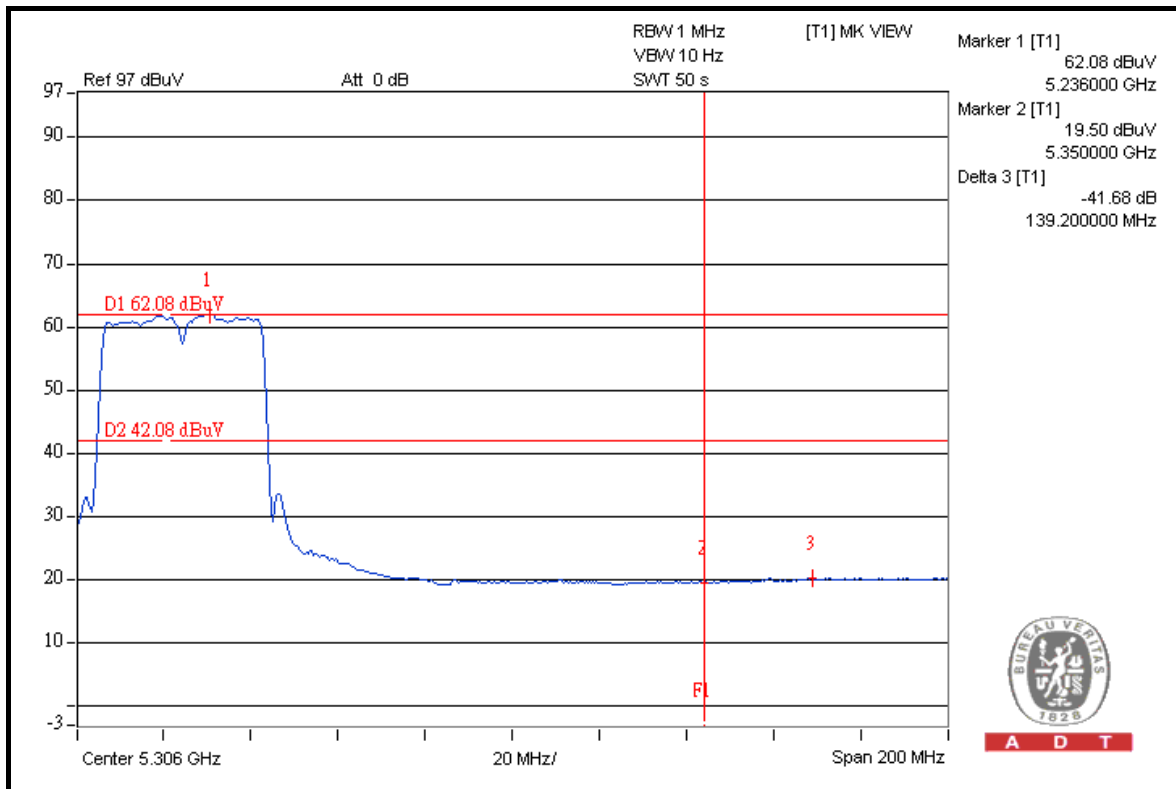




A D T



A D T

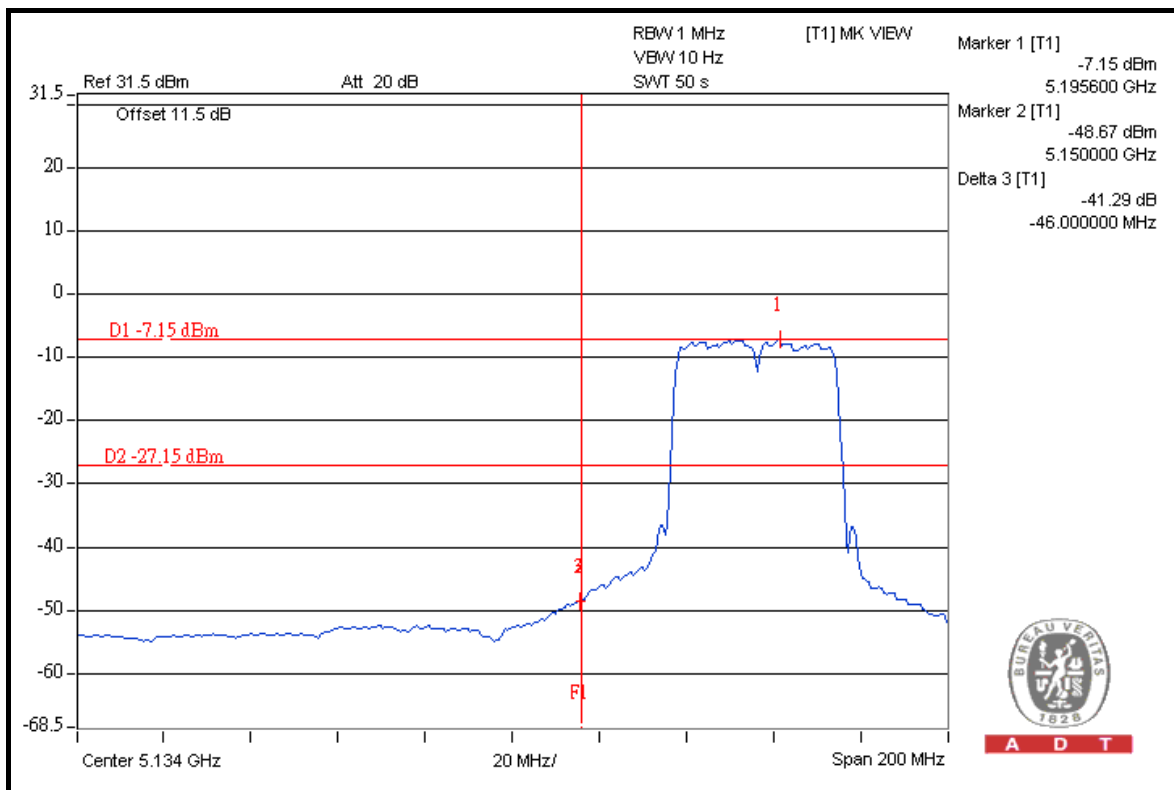
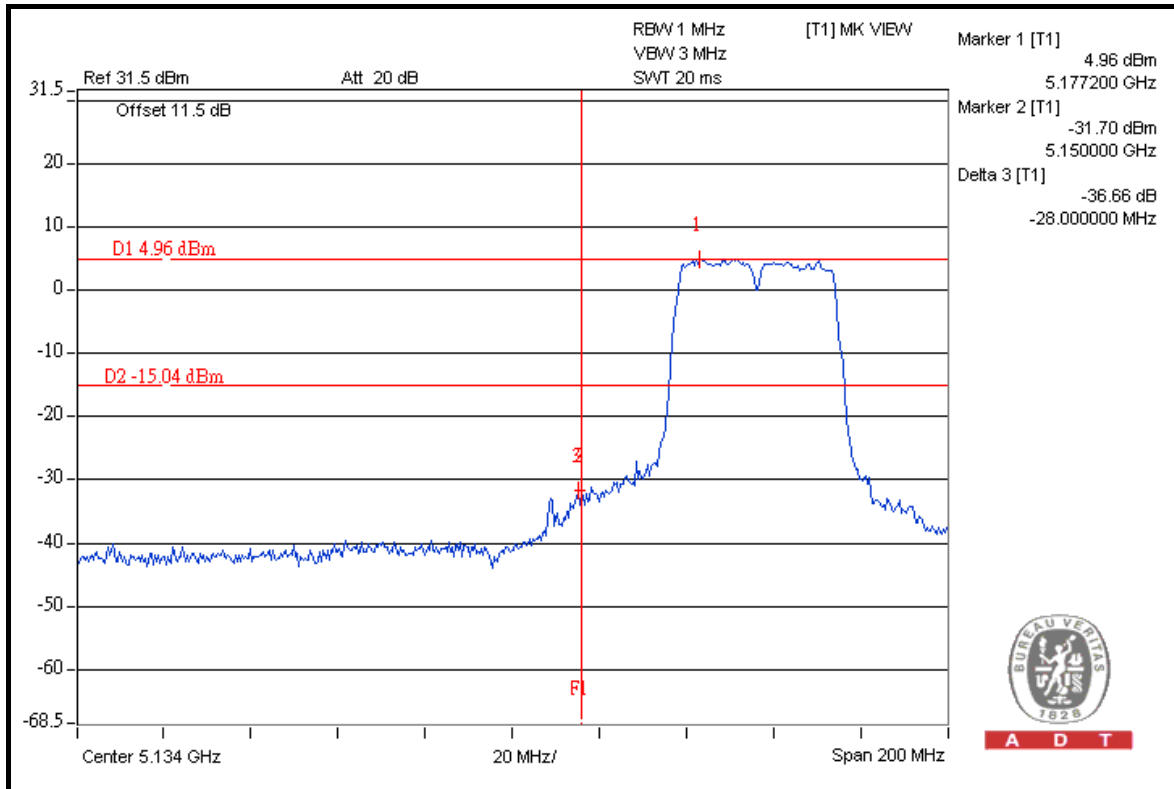


A D T



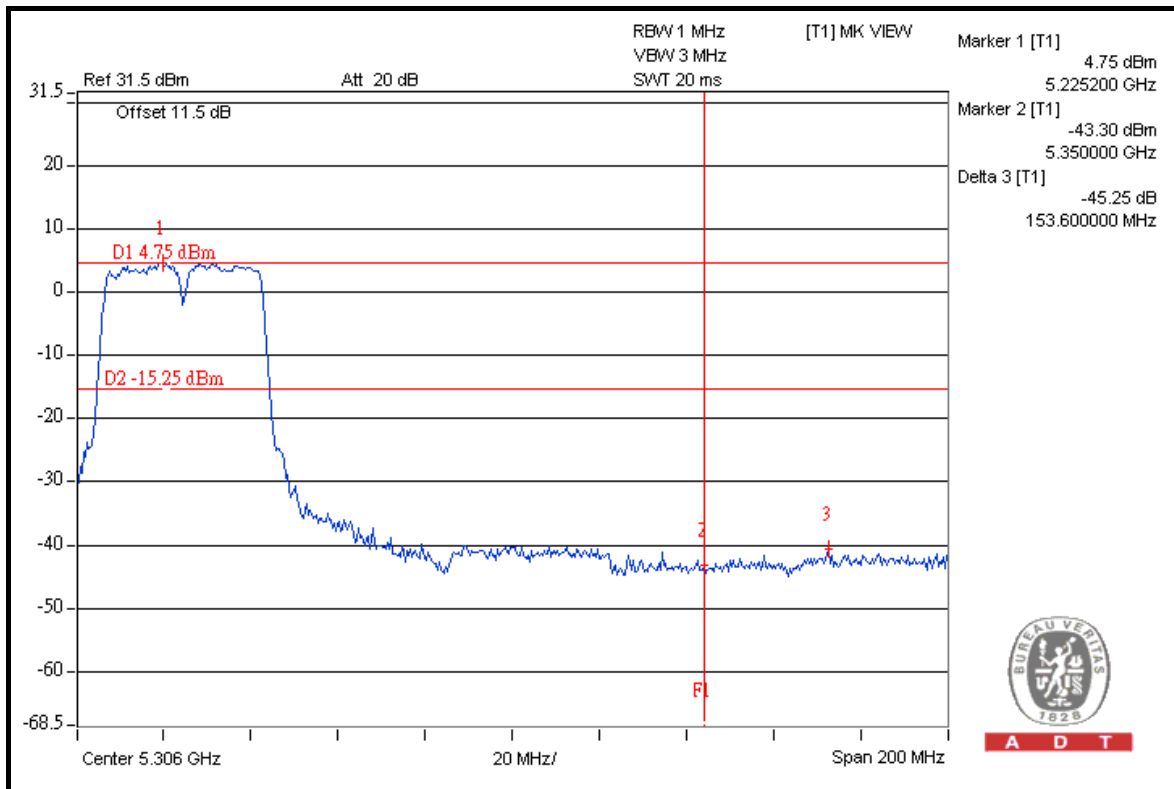
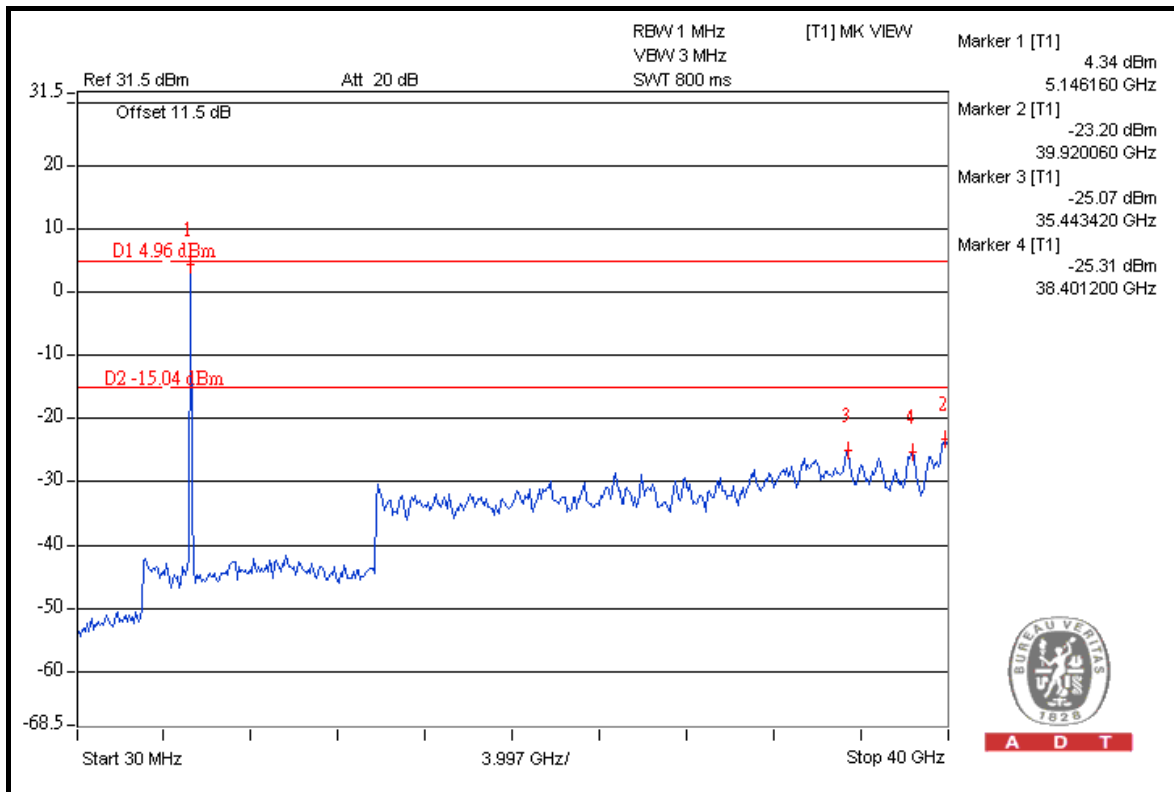
A D T

FOR CONDUCTED MEASURED CHAIN 0



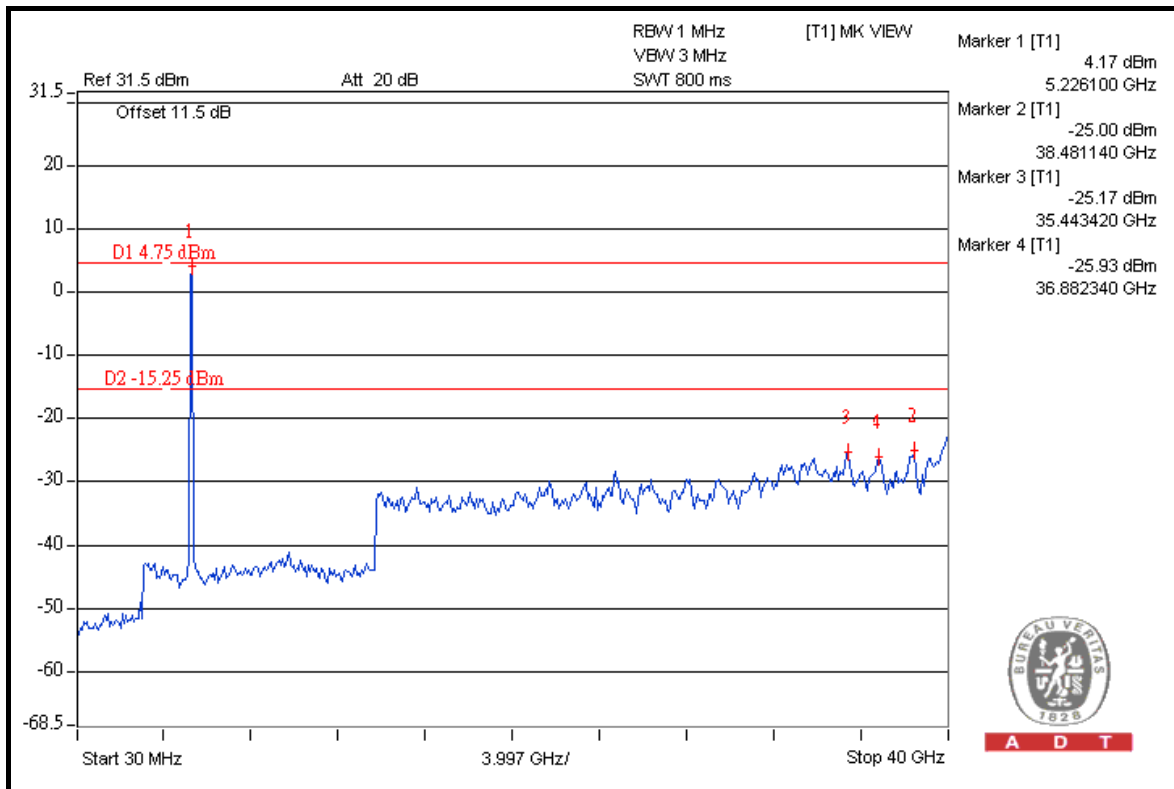
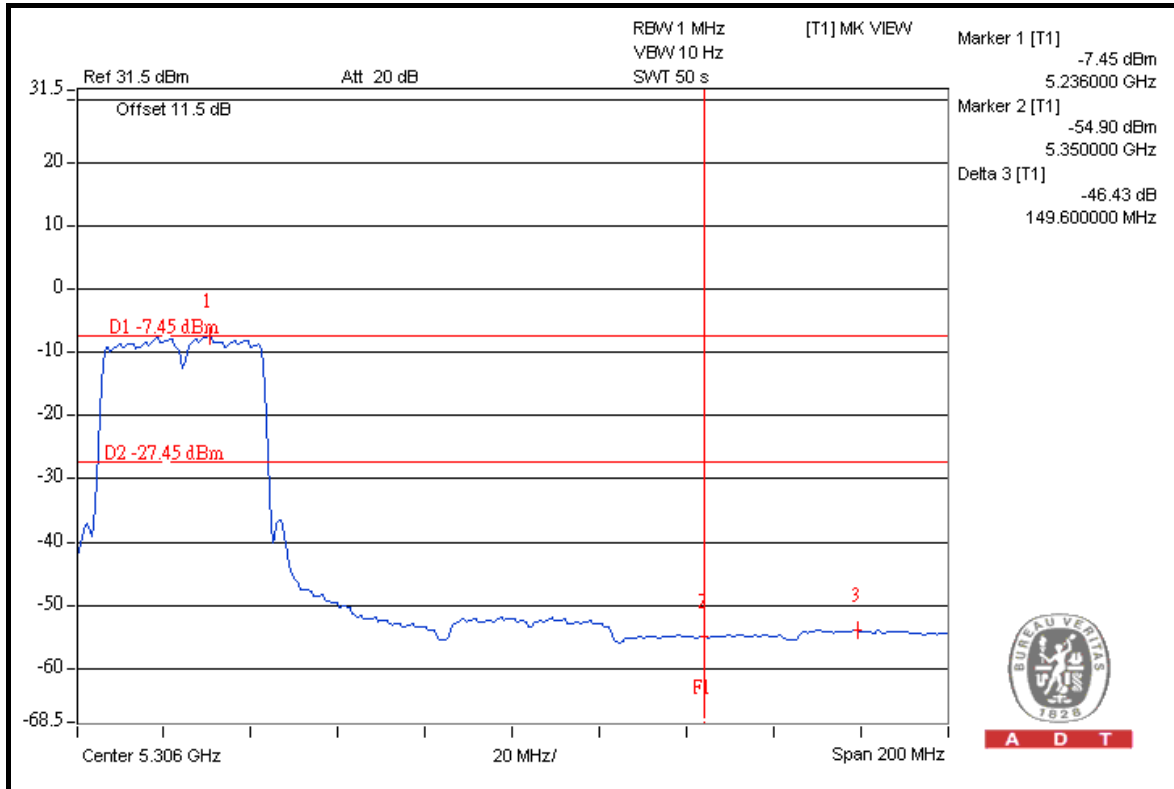


A D T





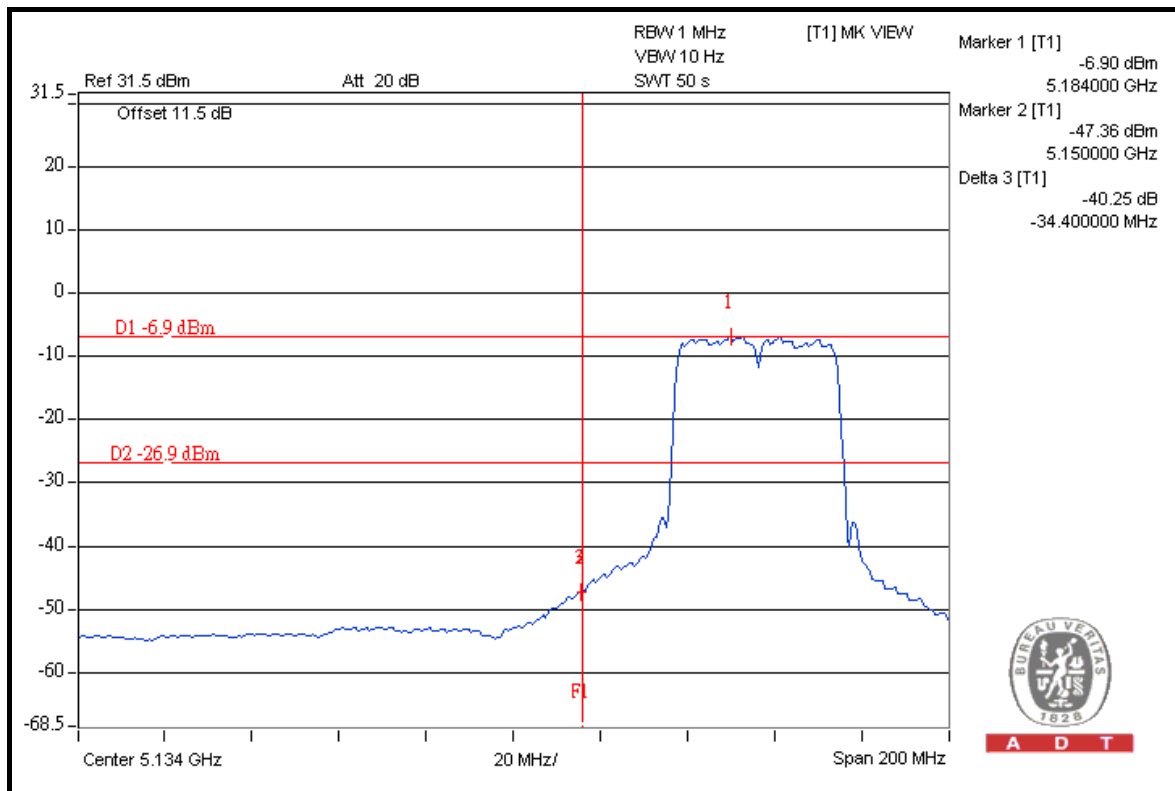
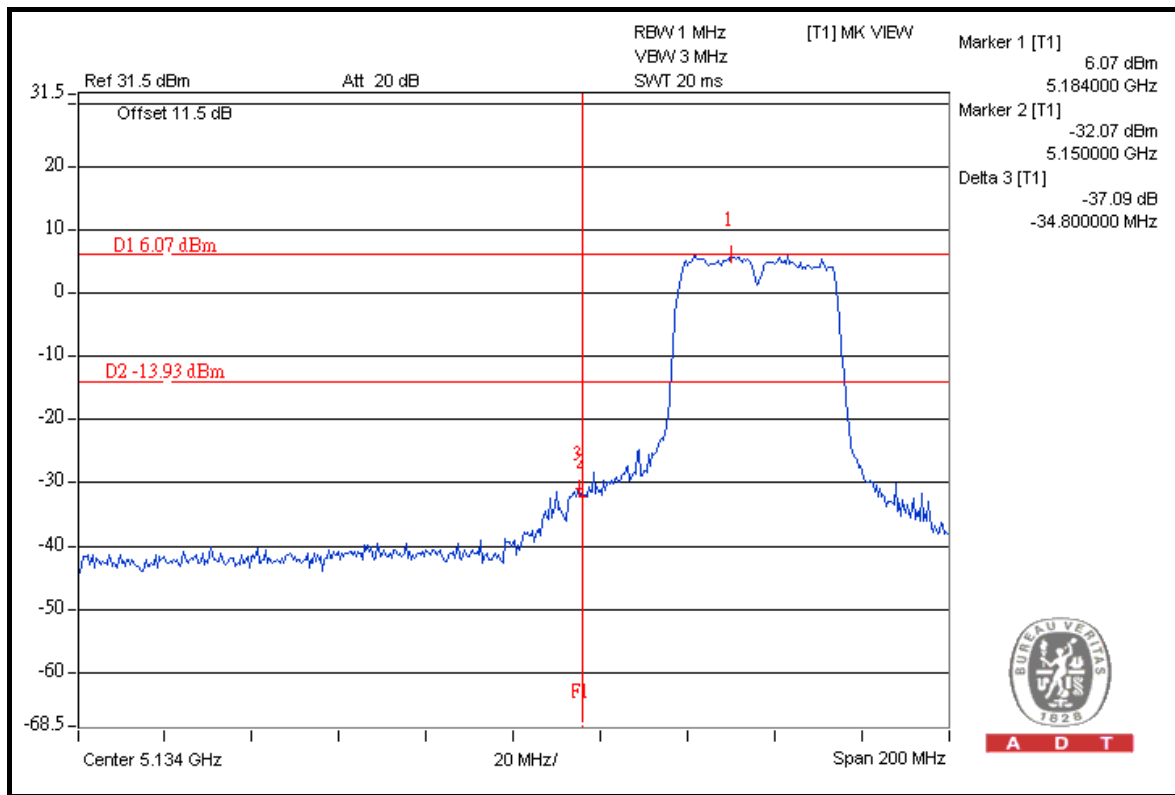
A D T





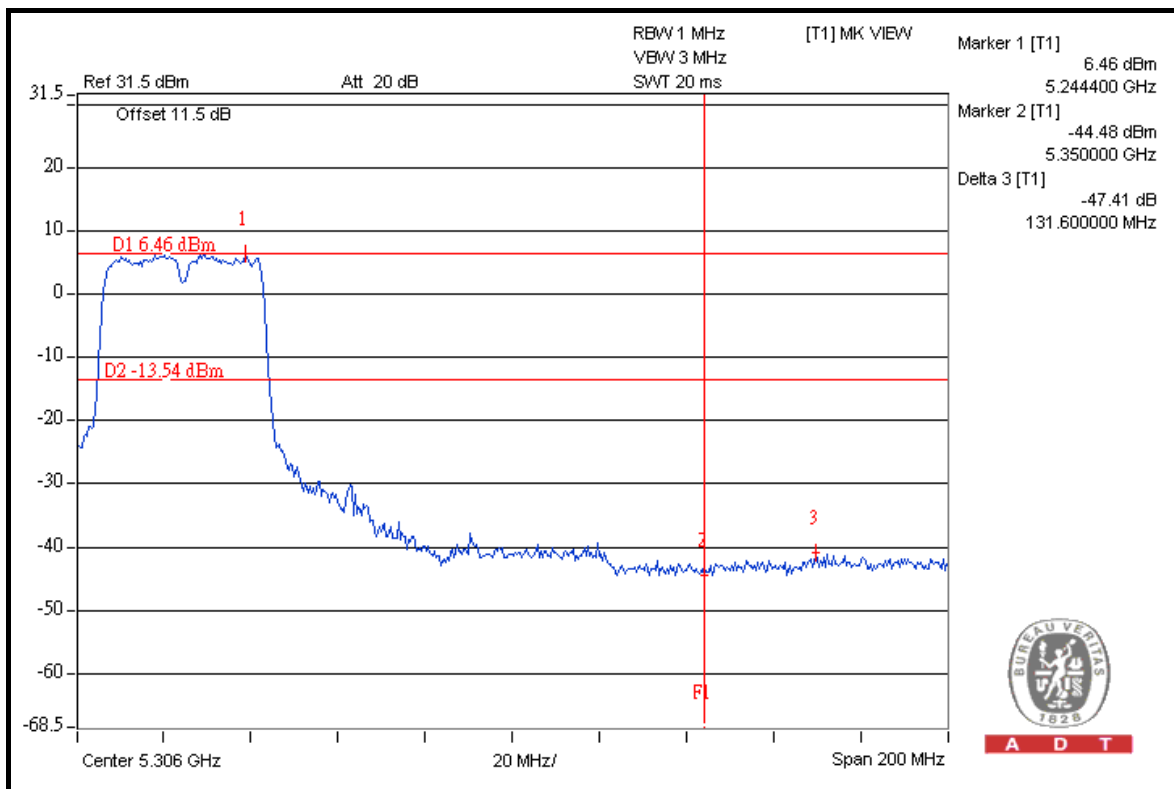
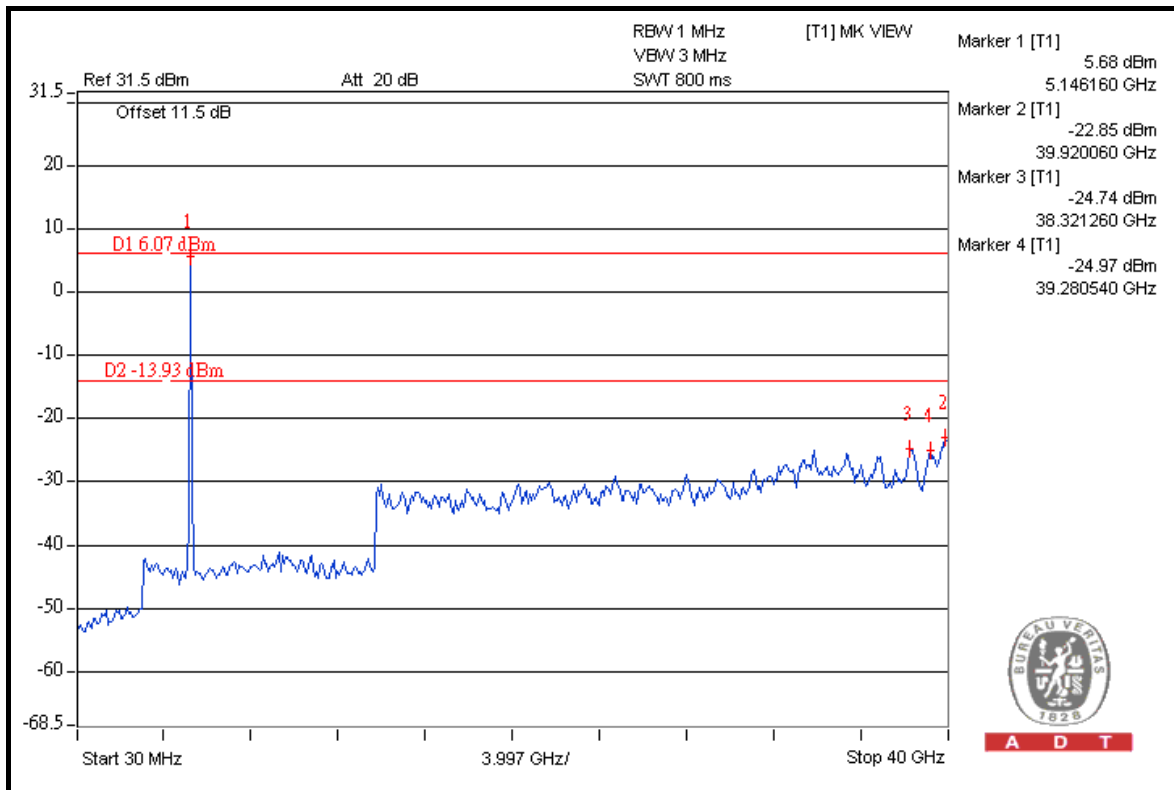
A D T

CHAIN 1



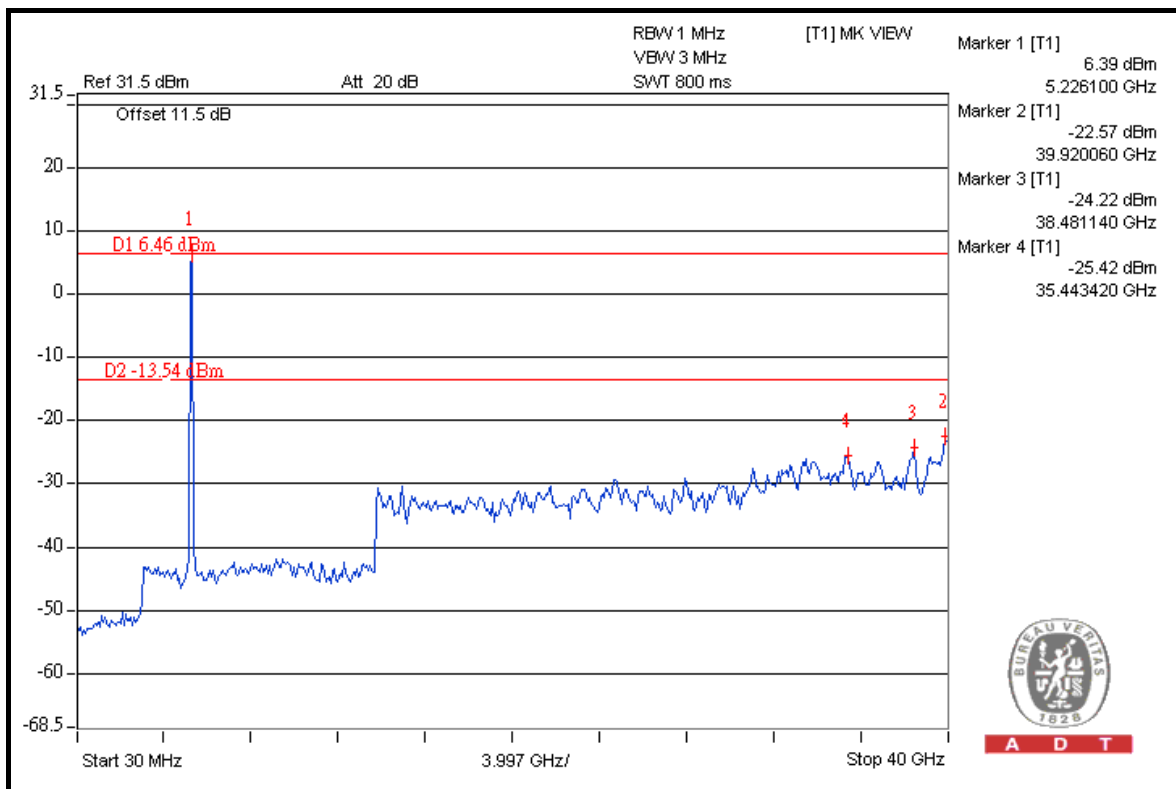
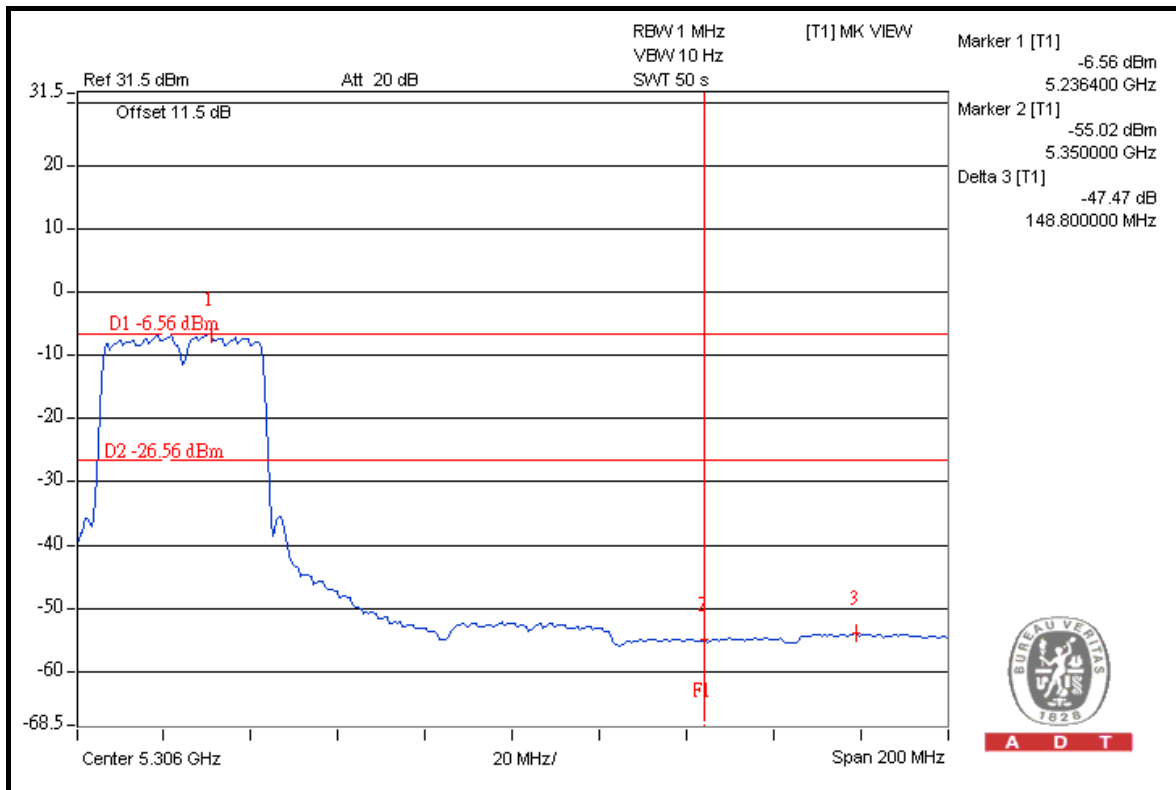


A D T





A D T



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 and authorization 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---