

FCC TEST REPORT

REPORT NO.: RF110823C29

MODEL NO.: WBPN

FCC ID: VUI-WBPN

RECEIVED: Aug. 23, 2011

TESTED: Sep. 13 ~ Sep. 30, 2011

ISSUED: Oct. 04, 2011

APPLICANT: PEGATRON CORPORATION

ADDRESS: 5F., NO. 76, LIGONG ST., BEITOU DISTRICT,
TAIPEI CITY 112, TAIWAN (R.O.C.)

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

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New
Taipei City, Taiwan (R.O.C)

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

This test report consists of 84 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product, certification, approval or endorsement by TAF or any government agency. The test results in the report only apply to the tested sample.





TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	6
3. GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	9
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	10
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	11
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	13
3.4 DESCRIPTION OF SUPPORT UNITS	13
4. TEST TYPES AND RESULTS	14
4.1 RADIATED EMISSION MEASUREMENT	14
4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT	14
4.1.2 TEST INSTRUMENTS	15
4.1.3 TEST PROCEDURES	16
4.1.4 DEVIATION FROM TEST STANDARD	16
4.1.5 TEST SETUP	17
4.1.6 EUT OPERATING CONDITIONS	17
4.1.7 TEST RESULTS	18
4.2 CONDUCTED EMISSION MEASUREMENT	32
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	32
4.2.2 TEST INSTRUMENTS	32
4.2.3 TEST PROCEDURES	33
4.2.4 DEVIATION FROM TEST STANDARD	33
4.2.5 TEST SETUP	34
4.2.6 EUT OPERATING CONDITIONS	34
4.2.7 TEST RESULTS	35
4.3 6dB BANDWIDTH MEASUREMENT	39
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	39
4.3.2 TEST INSTRUMENTS	39
4.3.3 TEST PROCEDURE	39
4.3.4 DEVIATION FROM TEST STANDARD	39
4.3.5 TEST SETUP	40
4.3.6 EUT OPERATING CONDITIONS	40
4.3.7 TEST RESULTS	41
4.4 MAXIMUM OUTPUT POWER	45



4.4.1	LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT	45
4.4.2	INSTRUMENTS.....	45
4.4.3	TEST PROCEDURES	45
4.4.4	DEVIATION FROM TEST STANDARD	46
4.4.5	TEST SETUP	46
4.4.6	EUT OPERATING CONDITIONS	46
4.4.7	TEST RESULTS	47
4.5	POWER SPECTRAL DENSITY MEASUREMENT	48
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	48
4.5.2	TEST INSTRUMENTS	48
4.5.3	TEST PROCEDURE	48
4.5.4	DEVIATION FROM TEST STANDARD	49
4.5.5	TEST SETUP	49
4.5.6	EUT OPERATING CONDITION	49
4.5.7	TEST RESULTS	50
4.6	BAND EDGES MEASUREMENT	54
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	54
4.6.2	TEST INSTRUMENTS	54
4.6.3	TEST PROCEDURE	55
4.6.4	DEVIATION FROM TEST STANDARD	55
4.6.5	EUT OPERATING CONDITION	55
4.6.6	TEST RESULTS	56
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	82
6.	INFORMATION ON THE TESTING LABORATORIES	83
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	84



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Oct. 04, 2011

1. CERTIFICATION

PRODUCT: Wireless-N Bridge Phone Adapters
MODEL NO.: WBPN
BRAND: CISCO
APPLICANT: PEGATRON CORPORATION
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Sep. 13 ~ Sep. 30, 2011
STANDARDS: **FCC Part 15, Subpart C**
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: WBPN) 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: Oct. 04, 2011
Pettie Chen / Specialist

APPROVED BY :  , DATE: Oct. 04, 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 C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.64dB at 17.723MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 4824.0MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is MHF.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless-N Bridge Phone Adapters
MODEL NO.	WBPN
FCC ID	VUI-WBPN
NOMINAL VOLTAGE	5Vdc, 12Vdc (adapter)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	2412.0 ~ 2462.0MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
OUTPUT POWER	318.3mW
ANTENNA TYPE	PIFA antenna with 2dBi gain
ANTENNA CONNECTER	MHF connector
DATA CABLE	0.2m non-shielded RJ45 cable without core 0.2m non-shielded Power out cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	NA

NOTE:

1. The EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11n (20MHz)(MCS 0-7)	1TX
802.11n (20MHz)(MCS 8-15)	2TX
802.11n (40MHz)(MCS 0-7)	1TX
802.11n (40MHz)(MCS 8-15)	2TX

2. The EUT was powered by the following adapters:

ADAPTER 1	
BRAND:	LINKSYS
MODEL:	A2-36SG12R-V
INPUT:	100-240Vac, 1.2A, 50-60Hz
OUTPUT:	12Vdc, 3.0A
POWER LINE:	1.2 m non-shielded cable with one core

ADAPTER 2	
BRAND:	LINKSYS
MODEL:	PSM11R-050
INPUT:	100-240V~ 0.3A 50-60Hz
OUTPUT:	5Vdc, 2.0A MAX
POWER LINE:	1.8 m non-shielded cable without core

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

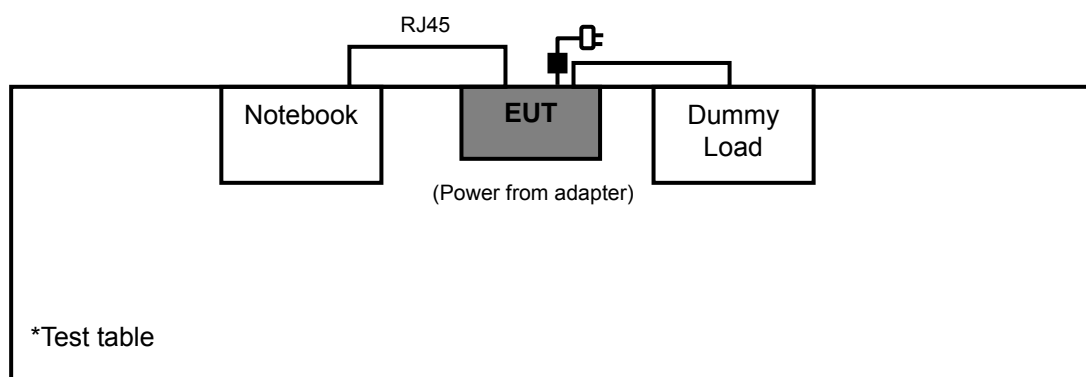
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

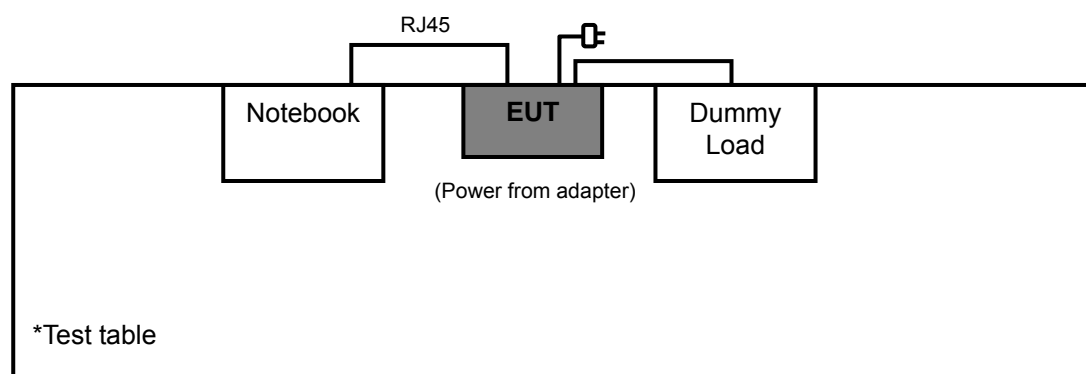
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A



Test Mode B



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter 1
B	-	√	√	-	Power from adapter 2

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
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Y
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Y
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	Y
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	Y

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	802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2	Y

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	802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2

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)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
A	802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	David Huang
RE $<$ 1G	25deg. C, 62%RH	120Vac, 60Hz	Antony Lee
PLC	24deg. C, 62%RH	120Vac, 60Hz	Antony Lee
APCM	25deg. C, 65%RH	120Vac, 60Hz	David Huang

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 C (15.247)

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	D820	21498926752	FCC DoC Approved
2	Dummy load	NA	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 2 was provided by client.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). Other emissions shall be at least 20dB below the highest level of the desired power.

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 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	Aug. 02, 2011	Aug. 01, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP 40	100041	Jul. 21, 2011	Jul. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 13, 2011	Apr. 12, 2012
HORN Antenna SCHWARZBECK	9120D	209	Aug. 25, 2011	Aug. 24, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8447D	2944A10633	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8449B	3008A01964	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295014/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	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	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 Chamber 3.
 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 988962.
 5. The IC Site Registration No. is IC 7450F-3.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters 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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

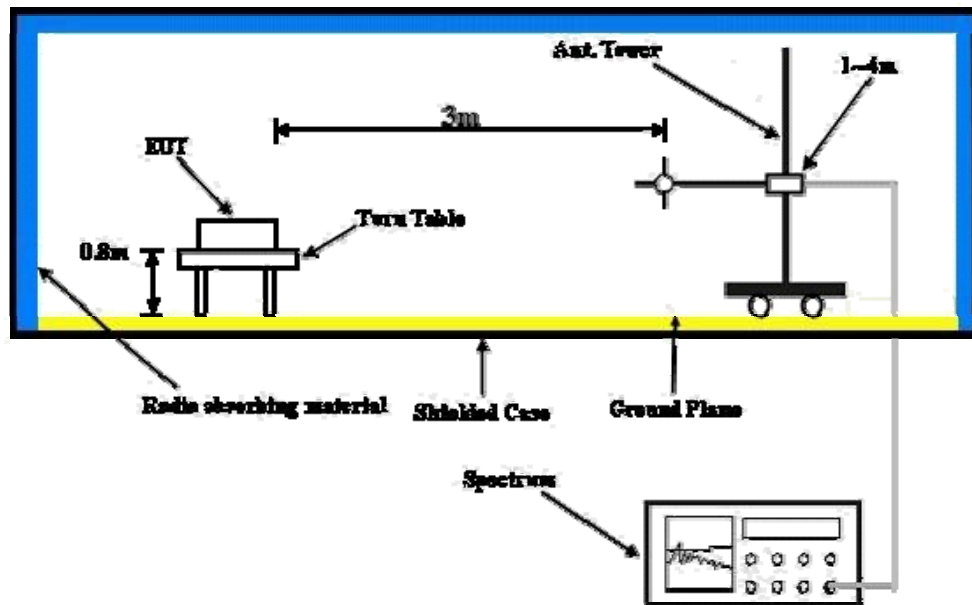
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

- Connected EUT with a notebook system via RJ45 cable and placed on a testing table.
- The notebook ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

4.1.7 TEST RESULTS

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	2390.00	56.6 PK	74.0	-17.4	1.24 H	49	25.50	31.10
2	2390.00	45.7 AV	54.0	-8.3	1.24 H	49	14.60	31.10
3	*2412.00	105.5 PK			1.24 H	49	74.30	31.20
4	*2412.00	101.8 AV			1.24 H	49	70.60	31.20
5	4824.00	53.8 PK	74.0	-20.2	1.10 H	141	16.90	36.90
6	4824.00	49.2 AV	54.0	-4.8	1.10 H	141	12.30	36.90
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	2390.00	60.1 PK	74.0	-13.9	1.17 V	28	29.00	31.10
2	2390.00	45.7 AV	54.0	-8.3	1.17 V	28	14.60	31.10
3	*2412.00	103.3 PK			1.17 V	28	72.10	31.20
4	*2412.00	99.5 AV			1.17 V	28	68.30	31.20
5	4824.00	56.6 PK	74.0	-17.4	1.28 V	41	19.70	36.90
6	4824.00	53.0 AV	54.0	-1.0	1.28 V	41	16.10	36.90

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2437.00	105.0 PK			1.23 H	50	73.70	31.30
2	*2437.00	100.6 AV			1.23 H	50	69.30	31.30
3	4874.00	53.9 PK	74.0	-20.1	1.05 H	128	16.90	37.00
4	4874.00	49.8 AV	54.0	-4.2	1.05 H	128	12.80	37.00
5	7311.00	52.8 PK	74.0	-21.2	1.00 H	263	9.70	43.10
6	7311.00	39.3 AV	54.0	-14.7	1.00 H	263	-3.80	43.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.6 PK			1.20 V	14	72.30	31.30
2	*2437.00	99.2 AV			1.20 V	14	67.90	31.30
3	4874.00	54.3 PK	74.0	-19.7	1.33 V	358	17.30	37.00
4	4874.00	50.8 AV	54.0	-3.2	1.33 V	358	13.80	37.00
5	7311.00	53.2 PK	74.0	-20.8	1.00 V	147	10.10	43.10
6	7311.00	39.7 AV	54.0	-14.3	1.00 V	147	-3.40	43.10

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2462.00	104.6 PK			1.20 H	102	73.20	31.40
2	*2462.00	100.6 AV			1.20 H	102	69.20	31.40
3	2483.50	56.7 PK	74.0	-17.3	1.20 H	102	25.30	31.40
4	2483.50	47.1 AV	54.0	-6.9	1.20 H	102	15.70	31.40
5	4924.00	51.8 PK	74.0	-22.2	1.17 H	133	14.70	37.10
6	4924.00	46.9 AV	54.0	-7.1	1.17 H	133	9.80	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.4 PK			1.42 V	40	71.00	31.40
2	*2462.00	98.0 AV			1.42 V	40	66.60	31.40
3	2483.50	56.9 PK	74.0	-17.1	1.42 V	40	25.50	31.40
4	2483.50	45.9 AV	54.0	-8.1	1.42 V	40	14.50	31.40
5	4924.00	53.9 PK	74.0	-20.1	1.23 V	41	16.80	37.10
6	4924.00	50.4 AV	54.0	-3.6	1.23 V	41	13.30	37.10

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

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	2390.00	56.7 PK	74.0	-17.3	1.24 H	51	25.60	31.10
2	2390.00	46.3 AV	54.0	-7.7	1.24 H	51	15.20	31.10
3	*2412.00	105.7 PK			1.24 H	51	74.50	31.20
4	*2412.00	95.1 AV			1.24 H	51	63.90	31.20
5	4824.00	50.4 PK	74.0	-23.6	1.06 H	125	13.50	36.90
6	4824.00	37.2 AV	54.0	-16.8	1.06 H	125	0.30	36.90
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	2390.00	56.6 PK	74.0	-17.4	1.17 V	26	25.50	31.10
2	2390.00	45.2 AV	54.0	-8.8	1.17 V	26	14.10	31.10
3	*2412.00	102.1 PK			1.17 V	26	70.90	31.20
4	*2412.00	91.4 AV			1.17 V	26	60.20	31.20
5	4824.00	50.8 PK	74.0	-23.2	1.24 V	317	13.90	36.90
6	4824.00	36.8 AV	54.0	-17.2	1.24 V	317	-0.10	36.90

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2437.00	106.6 PK			1.25 H	103	75.30	31.30
2	*2437.00	96.2 AV			1.25 H	103	64.90	31.30
3	4874.00	46.9 PK	74.0	-27.1	1.00 H	136	9.90	37.00
4	4874.00	33.7 AV	54.0	-20.3	1.00 H	136	-3.30	37.00
5	7311.00	51.2 PK	74.0	-22.8	1.10 H	228	8.10	43.10
6	7311.00	38.4 AV	54.0	-15.6	1.10 H	228	-4.70	43.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.9 PK			1.18 V	33	71.60	31.30
2	*2437.00	92.5 AV			1.18 V	33	61.20	31.30
3	4874.00	47.5 PK	74.0	-26.5	1.20 V	148	10.50	37.00
4	4874.00	35.9 AV	54.0	-18.1	1.20 V	148	-1.10	37.00
5	7311.00	50.3 PK	74.0	-23.7	1.00 V	159	7.20	43.10
6	7311.00	38.8 AV	54.0	-15.2	1.00 V	159	-4.30	43.10

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2462.00	105.5 PK			1.24 H	106	74.10	31.40
2	*2462.00	95.0 AV			1.24 H	106	63.60	31.40
3	2483.50	57.6 PK	74.0	-16.4	1.24 H	106	26.20	31.40
4	2483.50	46.3 AV	54.0	-7.7	1.24 H	106	14.90	31.40
5	4924.00	47.6 PK	74.0	-26.4	1.00 H	196	10.50	37.10
6	4924.00	35.1 AV	54.0	-18.9	1.00 H	196	-2.00	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.8 PK			1.07 V	53	71.40	31.40
2	*2462.00	91.7 AV			1.07 V	53	60.30	31.40
3	2483.50	58.4 PK	74.0	-15.6	1.07 V	53	27.00	31.40
4	2483.50	45.8 AV	54.0	-8.2	1.07 V	53	14.40	31.40
5	4924.00	45.5 PK	74.0	-28.5	1.00 V	189	8.40	37.10
6	4924.00	33.8 AV	54.0	-20.2	1.00 V	189	-3.30	37.10

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

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	2390.00	57.9 PK	74.0	-16.1	1.26 H	52	26.80	31.10
2	2390.00	46.6 AV	54.0	-7.4	1.26 H	52	15.50	31.10
3	*2412.00	107.4 PK			1.26 H	52	76.20	31.20
4	*2412.00	95.6 AV			1.26 H	52	64.40	31.20
5	4824.00	49.9 PK	74.0	-24.1	1.20 H	124	13.00	36.90
6	4824.00	36.6 AV	54.0	-17.4	1.20 H	124	-0.30	36.90
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	2390.00	56.4 PK	74.0	-17.6	1.00 V	261	25.30	31.10
2	2390.00	45.6 AV	54.0	-8.4	1.00 V	261	14.50	31.10
3	*2412.00	100.1 PK			1.00 V	261	68.90	31.20
4	*2412.00	89.1 AV			1.00 V	261	57.90	31.20
5	4824.00	54.6 PK	74.0	-19.4	1.00 V	107	17.70	36.90
6	4824.00	40.3 AV	54.0	-13.7	1.00 V	107	3.40	36.90

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2437.00	108.3 PK			1.26 H	106	77.00	31.30
2	*2437.00	96.5 AV			1.26 H	106	65.20	31.30
3	4874.00	50.2 PK	74.0	-23.8	1.25 H	197	13.20	37.00
4	4874.00	36.9 AV	54.0	-17.1	1.25 H	197	-0.10	37.00
5	7311.00	50.7 PK	74.0	-23.3	1.00 H	151	7.60	43.10
6	7311.00	38.2 AV	54.0	-15.8	1.00 H	151	-4.90	43.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.2 PK			1.00 V	273	69.90	31.30
2	*2437.00	90.1 AV			1.00 V	273	58.80	31.30
3	4874.00	54.7 PK	74.0	-19.3	1.00 V	159	17.70	37.00
4	4874.00	40.9 AV	54.0	-13.1	1.00 V	159	3.90	37.00
5	7311.00	51.7 PK	74.0	-22.3	1.00 V	325	8.60	43.10
6	7311.00	39.6 AV	54.0	-14.4	1.00 V	325	-3.50	43.10

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2462.00	107.7 PK			1.26 H	101	76.30	31.40
2	*2462.00	95.9 AV			1.26 H	101	64.50	31.40
3	2483.50	58.3 PK	74.0	-15.7	1.26 H	101	26.90	31.40
4	2483.50	46.9 AV	54.0	-7.1	1.26 H	101	15.50	31.40
5	4924.00	47.5 PK	74.0	-26.5	1.00 H	241	10.40	37.10
6	4924.00	33.8 AV	54.0	-20.2	1.00 H	241	-3.30	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.3 PK			1.00 V	258	68.90	31.40
2	*2462.00	89.2 AV			1.00 V	258	57.80	31.40
3	2483.50	56.8 PK	74.0	-17.2	1.00 V	258	25.40	31.40
4	2483.50	45.9 AV	54.0	-8.1	1.00 V	258	14.50	31.40
5	4924.00	52.4 PK	74.0	-21.6	1.00 V	236	15.30	37.10
6	4924.00	38.3 AV	54.0	-15.7	1.00 V	236	1.20	37.10

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

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	2390.00	61.4 PK	74.0	-12.6	1.27 H	104	30.30	31.10
2	2390.00	50.1 AV	54.0	-3.9	1.27 H	104	19.00	31.10
3	*2422.00	103.3 PK			1.27 H	104	72.10	31.20
4	*2422.00	92.2 AV			1.27 H	104	61.00	31.20
5	4844.00	47.5 PK	74.0	-26.5	1.00 H	163	10.60	36.90
6	4844.00	35.8 AV	54.0	-18.2	1.00 H	163	-1.10	36.90
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	2390.00	58.0 PK	74.0	-16.0	1.10 V	114	26.90	31.10
2	2390.00	47.0 AV	54.0	-7.0	1.10 V	114	15.90	31.10
3	*2422.00	100.4 PK			1.10 V	114	69.20	31.20
4	*2422.00	89.0 AV			1.10 V	114	57.80	31.20
5	4844.00	48.5 PK	74.0	-25.5	1.00 V	185	11.60	36.90
6	4844.00	36.9 AV	54.0	-17.1	1.00 V	185	0.00	36.90

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2437.00	104.2 PK			1.26 H	107	72.90	31.30
2	*2437.00	93.2 AV			1.26 H	107	61.90	31.30
3	4874.00	46.7 PK	74.0	-27.3	1.10 H	298	9.70	37.00
4	4874.00	35.4 AV	54.0	-18.6	1.10 H	298	-1.60	37.00
5	7311.00	49.7 PK	74.0	-24.3	1.00 H	107	6.60	43.10
6	7311.00	38.4 AV	54.0	-15.6	1.00 H	107	-4.70	43.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.4 PK			1.10 V	119	70.10	31.30
2	*2437.00	100.1 AV			1.10 V	119	68.80	31.30
3	4874.00	48.4 PK	74.0	-25.6	1.00 V	154	11.40	37.00
4	4874.00	37.9 AV	54.0	-16.1	1.00 V	154	0.90	37.00
5	7311.00	50.7 PK	74.0	-23.3	1.10 V	212	7.60	43.10
6	7311.00	39.0 AV	54.0	-15.0	1.10 V	212	-4.10	43.10

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

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	*2452.00	103.6 PK			1.25 H	101	72.30	31.30
2	*2452.00	92.5 AV			1.25 H	101	61.20	31.30
3	2483.50	62.7 PK	74.0	-11.3	1.25 H	101	31.30	31.40
4	2483.50	50.8 AV	54.0	-3.2	1.25 H	101	19.40	31.40
5	4904.00	46.9 PK	74.0	-27.1	1.10 H	152	9.90	37.00
6	4904.00	34.3 AV	54.0	-19.7	1.10 H	152	-2.70	37.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	100.7 PK			1.10 V	116	69.40	31.30
2	*2452.00	89.4 AV			1.10 V	116	58.10	31.30
3	2483.50	57.6 PK	74.0	-16.4	1.10 V	116	26.20	31.40
4	2483.50	46.7 AV	54.0	-7.3	1.10 V	116	15.30	31.40
5	4904.00	47.6 PK	74.0	-26.4	1.00 V	174	10.60	37.00
6	4904.00	35.1 AV	54.0	-18.9	1.00 V	174	-1.90	37.00

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

BELOW 1GHz WORST-CASE DATA : 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	125.17	38.8 QP	43.5	-4.7	1.75 H	337	25.70	13.10
2	226.27	35.5 QP	46.0	-10.5	1.50 H	43	22.60	12.90
3	319.60	31.5 QP	46.0	-14.5	1.00 H	151	15.60	15.90
4	500.42	41.1 QP	46.0	-4.9	1.75 H	148	19.70	21.40
5	720.12	34.7 QP	46.0	-11.3	1.25 H	10	9.20	25.50
6	900.94	34.9 QP	46.0	-11.1	1.50 H	88	6.20	28.70
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	57.12	33.0 QP	40.0	-7.0	1.25 V	64	18.80	14.20
2	249.60	28.6 QP	46.0	-17.4	1.75 V	223	15.10	13.50
3	500.42	36.7 QP	46.0	-9.3	2.00 V	241	15.30	21.40
4	599.58	31.6 QP	46.0	-14.4	1.00 V	187	7.90	23.70
5	722.07	34.3 QP	46.0	-11.7	1.00 V	10	8.80	25.50
6	949.55	36.2 QP	46.0	-9.8	2.00 V	283	7.00	29.20

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	94.06	39.8 QP	43.5	-3.7	2.00 H	181	29.40	10.40
2	249.60	38.6 QP	46.0	-7.4	1.25 H	31	25.10	13.50
3	319.60	37.0 QP	46.0	-9.0	1.25 H	43	21.10	15.90
4	500.42	35.1 QP	46.0	-10.9	1.75 H	124	13.70	21.40
5	720.12	37.3 QP	46.0	-8.7	1.00 H	223	11.80	25.50
6	862.06	39.3 QP	46.0	-6.7	1.50 H	100	11.10	28.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	43.83	37.0 QP	40.0	-3.0	1.00 V	87	22.20	14.80
2	152.39	32.5 QP	43.5	-11.0	1.00 V	10	17.70	14.80
3	447.92	34.9 QP	46.0	-11.1	2.00 V	115	15.00	19.90
4	599.58	32.0 QP	46.0	-14.0	1.00 V	193	8.30	23.70
5	760.95	35.1 QP	46.0	-10.9	1.75 V	205	8.60	26.50
6	850.39	38.1 QP	46.0	-7.9	2.00 V	235	10.00	28.10

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

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_Conc_ 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

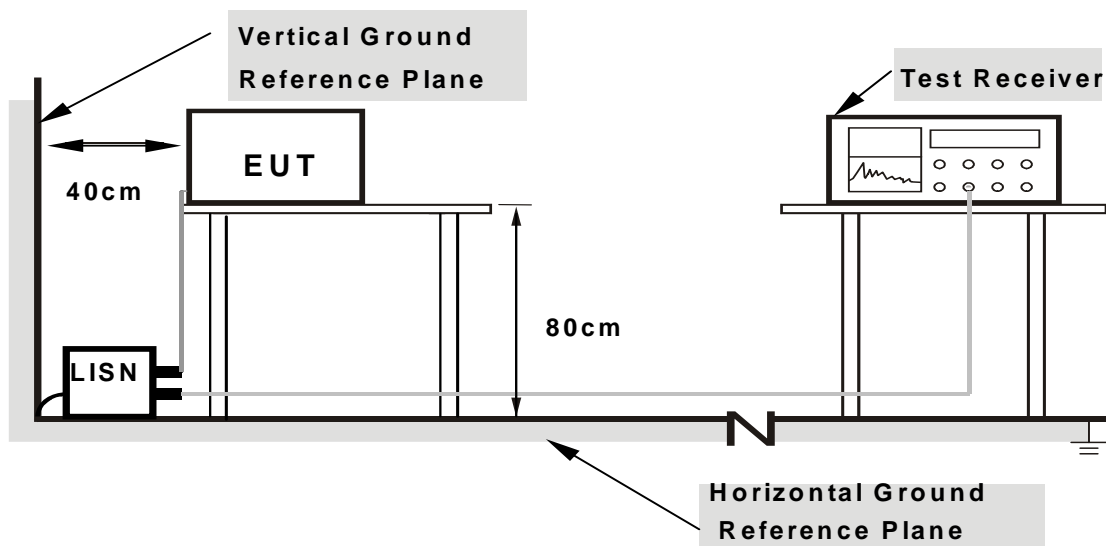
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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.

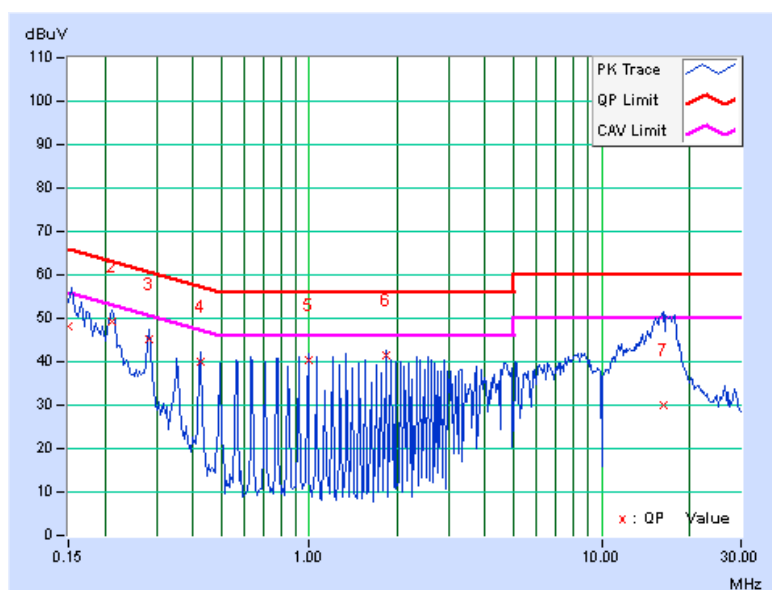
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.11	48.03	30.25	48.15	30.36	66.00	56.00	-17.85	-25.64
2	0.213	0.12	49.23	40.72	49.35	40.84	63.11	53.11	-13.76	-12.27
3	0.283	0.12	45.06	37.37	45.18	37.49	60.73	50.73	-15.55	-13.24
4	0.423	0.12	39.81	37.92	39.93	38.04	57.38	47.38	-17.45	-9.34
5	0.990	0.16	40.03	36.62	40.19	36.78	56.00	46.00	-15.81	-9.22
6	1.836	0.19	41.16	39.15	41.35	39.34	56.00	46.00	-14.65	-6.66
7	16.242	0.94	29.24	21.05	30.18	21.99	60.00	50.00	-29.82	-28.01

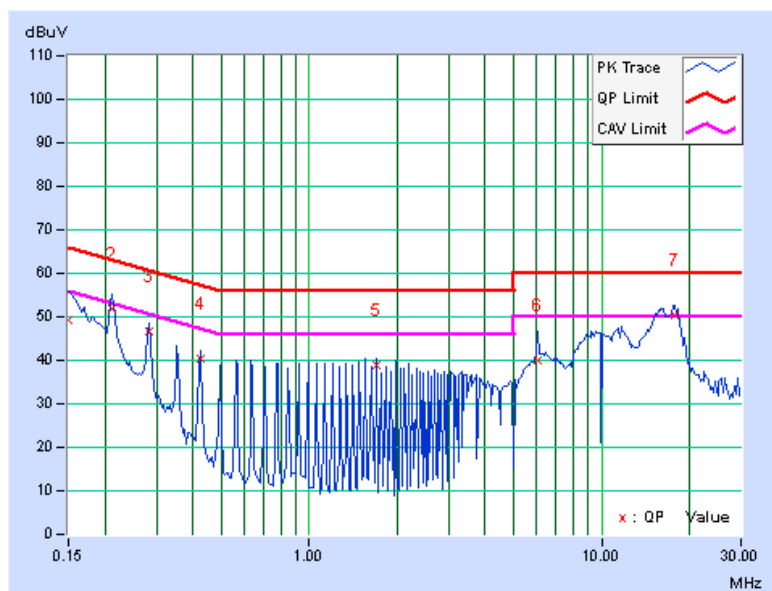
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.12	49.08	31.93	49.20	32.05	66.00	56.00	-16.80	-23.95
2	0.213	0.13	51.80	43.04	51.93	43.17	63.11	53.11	-11.18	-9.94
3	0.283	0.13	46.56	39.11	46.69	39.24	60.73	50.73	-14.04	-11.49
4	0.423	0.14	40.12	36.66	40.26	36.80	57.38	47.38	-17.12	-10.58
5	1.695	0.19	38.81	35.40	39.00	35.59	56.00	46.00	-17.00	-10.41
6	6.072	0.42	39.45	35.90	39.87	36.32	60.00	50.00	-20.13	-13.68
7	17.723	0.84	49.47	42.52	50.31	43.36	60.00	50.00	-9.69	-6.64

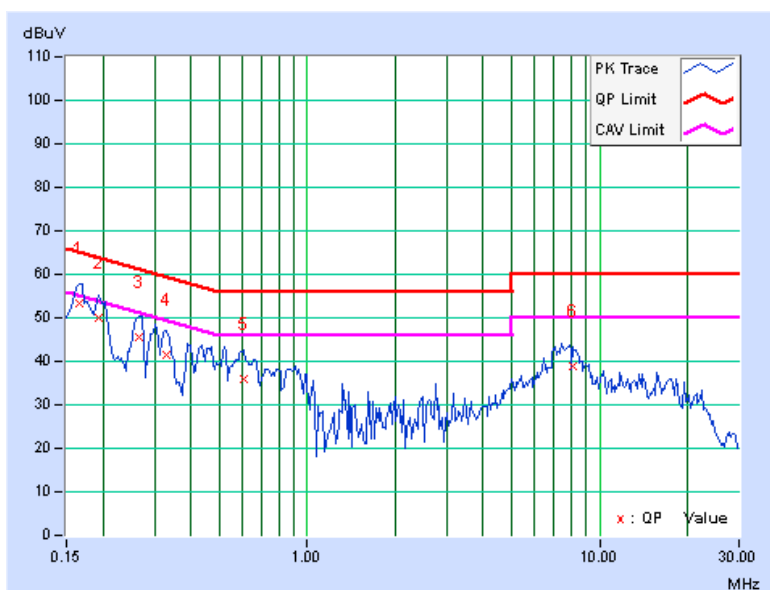
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.12	53.38	38.96	53.50	39.08	65.18	55.18	-11.68	-16.10
2	0.193	0.12	49.94	36.06	50.06	36.18	63.91	53.91	-13.85	-17.73
3	0.267	0.12	45.36	31.02	45.48	31.14	61.20	51.20	-15.72	-20.06
4	0.330	0.12	41.40	24.86	41.52	24.98	59.46	49.46	-17.94	-24.48
5	0.603	0.13	35.84	22.57	35.97	22.70	56.00	46.00	-20.03	-23.30
6	8.129	0.55	38.16	31.39	38.71	31.94	60.00	50.00	-21.29	-18.06

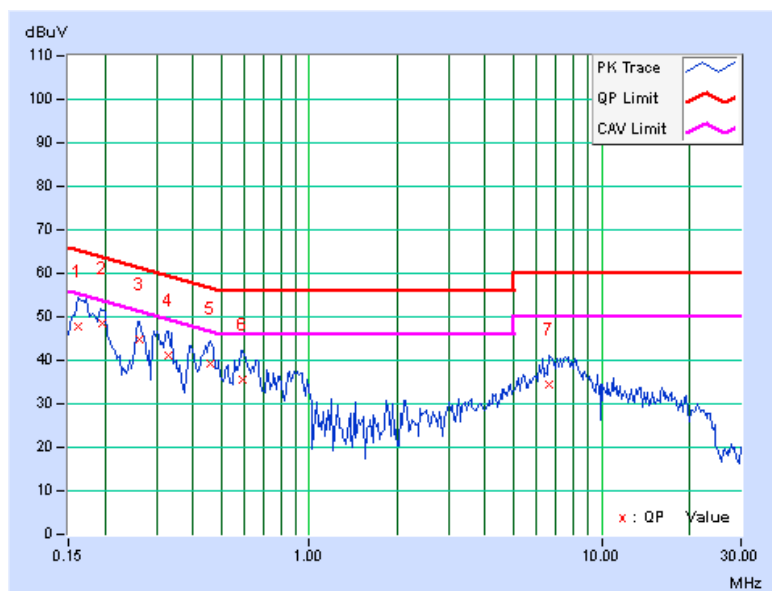
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.13	47.73	32.61	47.86	32.74	65.38	55.38	-17.52	-22.64
2	0.197	0.13	48.42	35.34	48.55	35.47	63.75	53.75	-15.20	-18.28
3	0.263	0.13	44.79	31.28	44.92	31.41	61.33	51.33	-16.41	-19.92
4	0.330	0.14	40.95	25.54	41.09	25.68	59.46	49.46	-18.37	-23.78
5	0.459	0.14	39.22	28.41	39.36	28.55	56.72	46.72	-17.35	-18.16
6	0.595	0.15	35.36	24.57	35.51	24.72	56.00	46.00	-20.49	-21.28
7	6.629	0.45	34.17	27.22	34.62	27.67	60.00	50.00	-25.38	-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.



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 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.

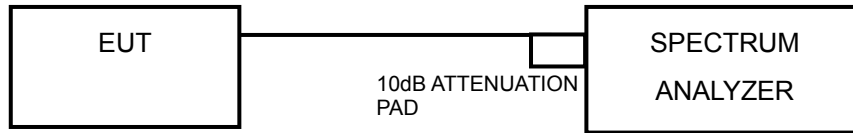
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

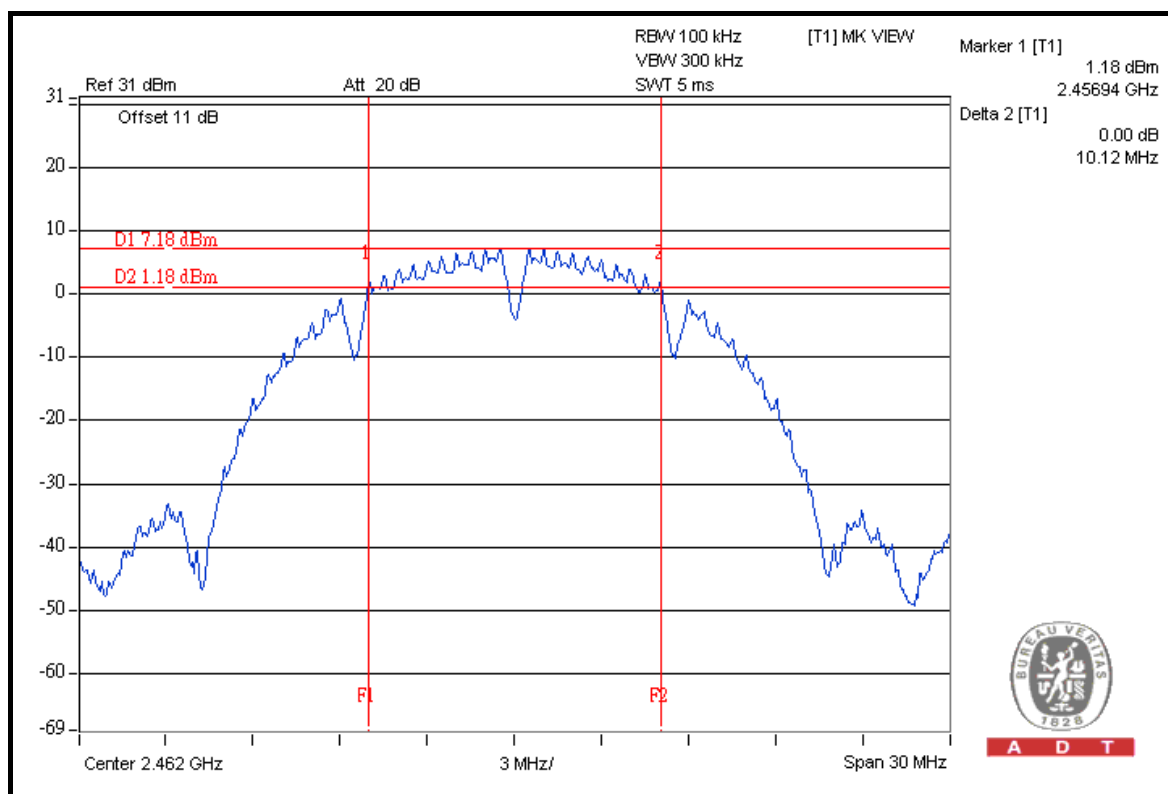
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.12	0.5	PASS
6	2437	10.11	0.5	PASS
11	2462	10.12	0.5	PASS

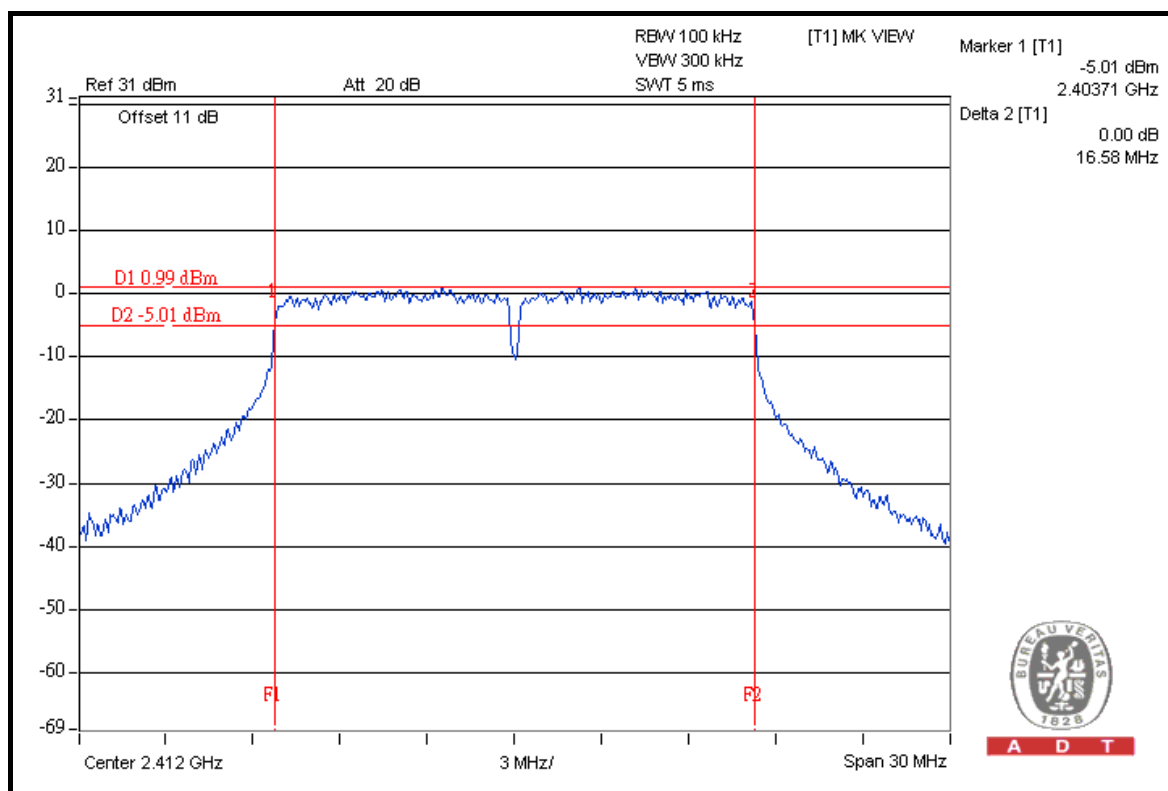
CH 11



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.58	0.5	PASS
6	2437	16.58	0.5	PASS
11	2462	16.58	0.5	PASS

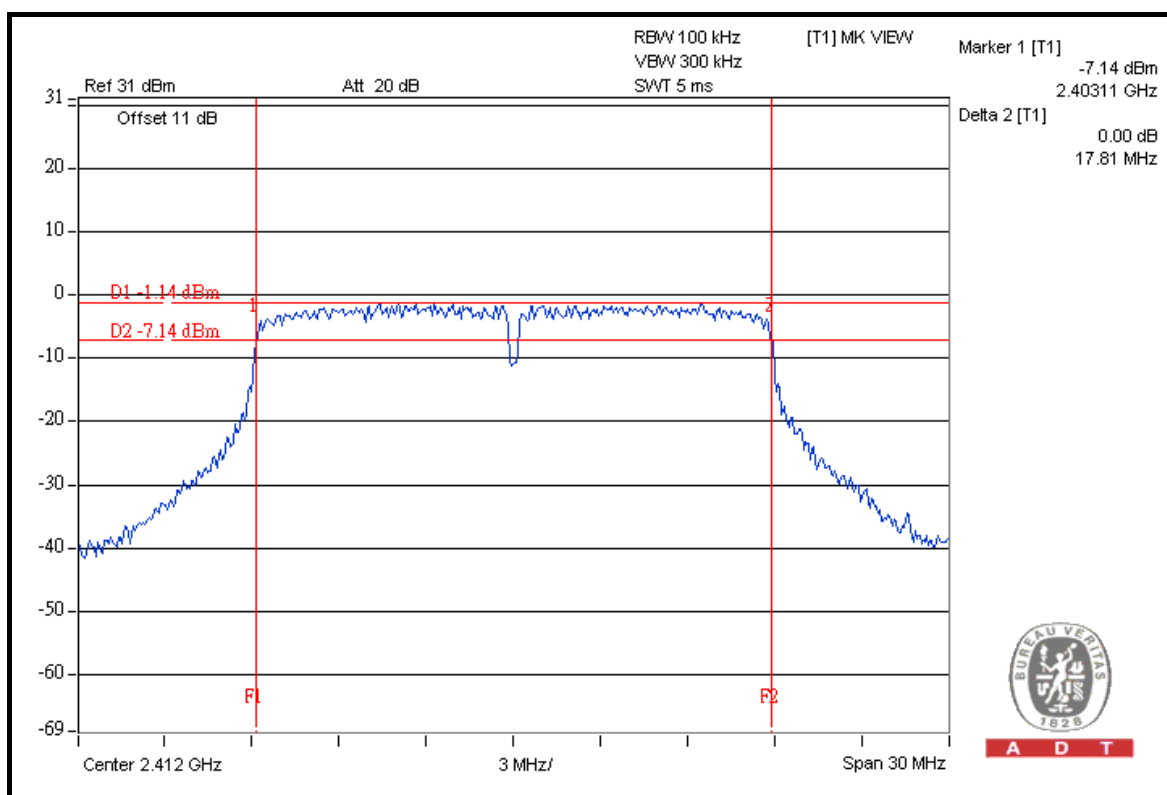
CH 1



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.81	17.73	0.5	PASS
6	2437	17.79	17.72	0.5	PASS
11	2462	17.80	17.72	0.5	PASS

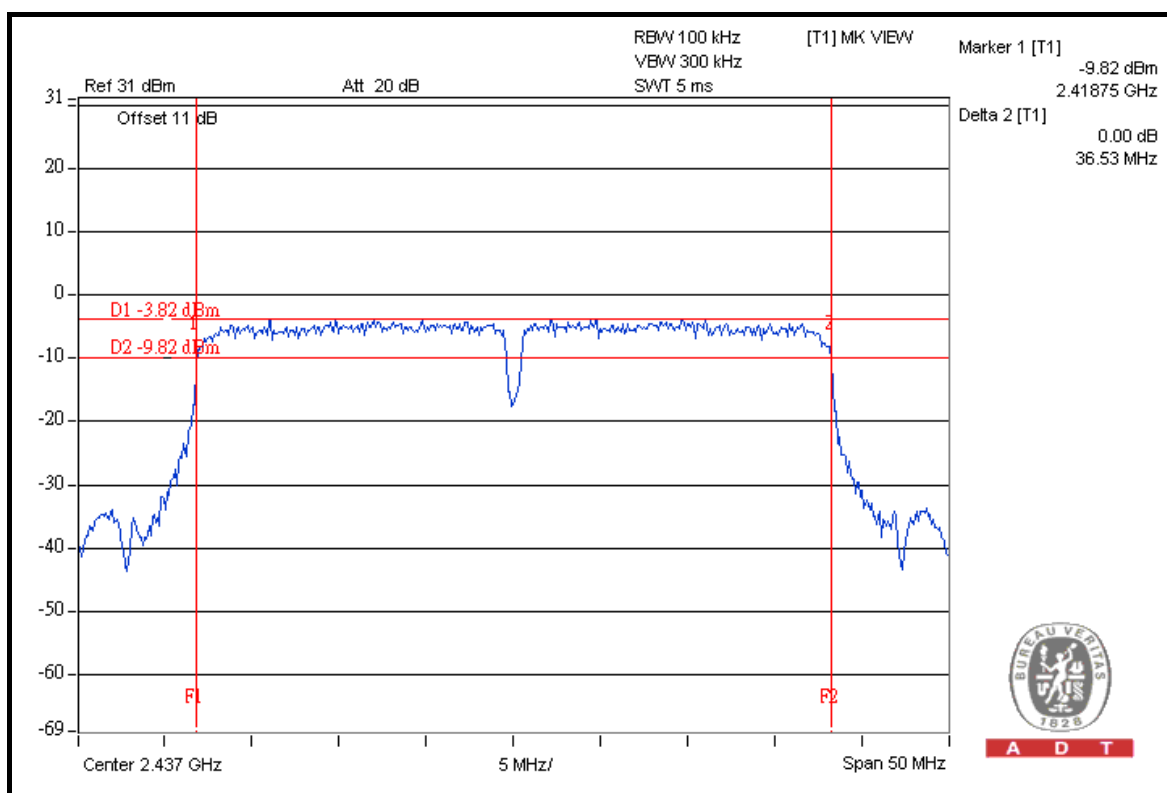
FOR CHAIN 0: CH 1



802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.48	36.45	0.5	PASS
4	2437	36.53	36.47	0.5	PASS
7	2452	36.52	36.44	0.5	PASS

FOR CHAIN 0: CH 4



4.4 MAXIMUM OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0824011	Aug. 04, 2011	Aug. 03, 2012
Power Sensor	MA2411B	0738171	Aug. 04, 2011	Aug. 03, 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 6dB bandwidth of emission.

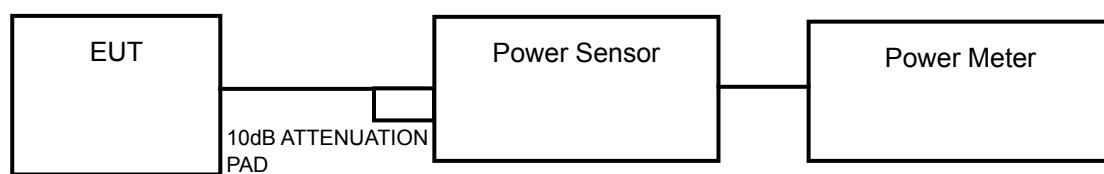
4.4.3 TEST PROCEDURES

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.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	19.4	87.1	30	PASS
6	2437	19.3	85.1	30	PASS
11	2462	19.2	83.2	30	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (dBm)	POWER OUTPUT (mW)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	24.3	269.2	30	PASS
6	2437	24.6	288.4	30	PASS
11	2462	24.4	275.4	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	22.4	21.6	318.3	25.0	30	PASS
6	2437	22.3	21.7	317.7	25.0	30	PASS
11	2462	22.2	21.8	317.3	25.0	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	22.3	21.7	317.7	25.0	30	PASS
4	2437	22.2	21.5	307.2	24.9	30	PASS
7	2452	22.2	21.2	297.8	24.7	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

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 PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

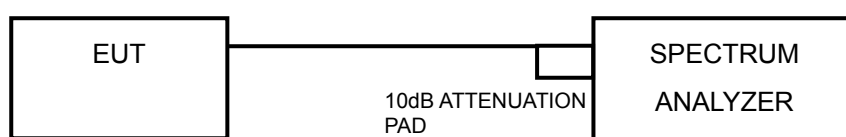
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

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 CONDITION

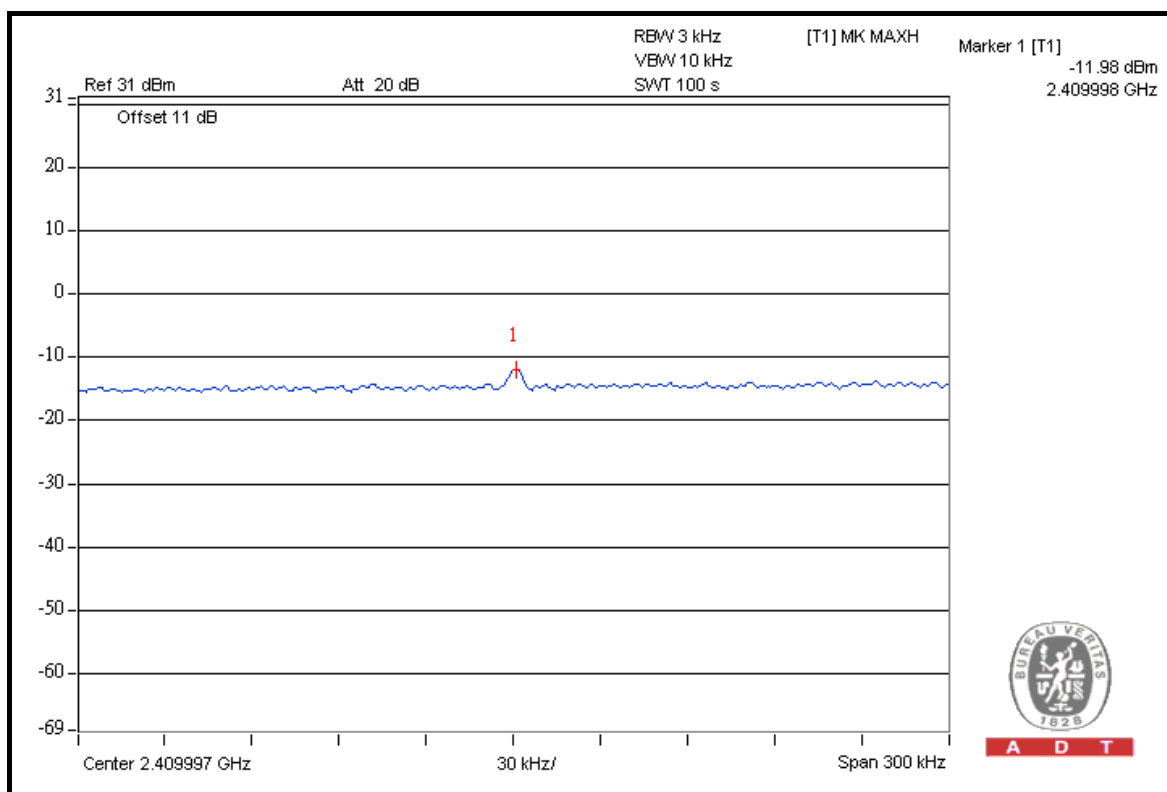
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.98	8	PASS
6	2437	-12.30	8	PASS
11	2462	-12.27	8	PASS

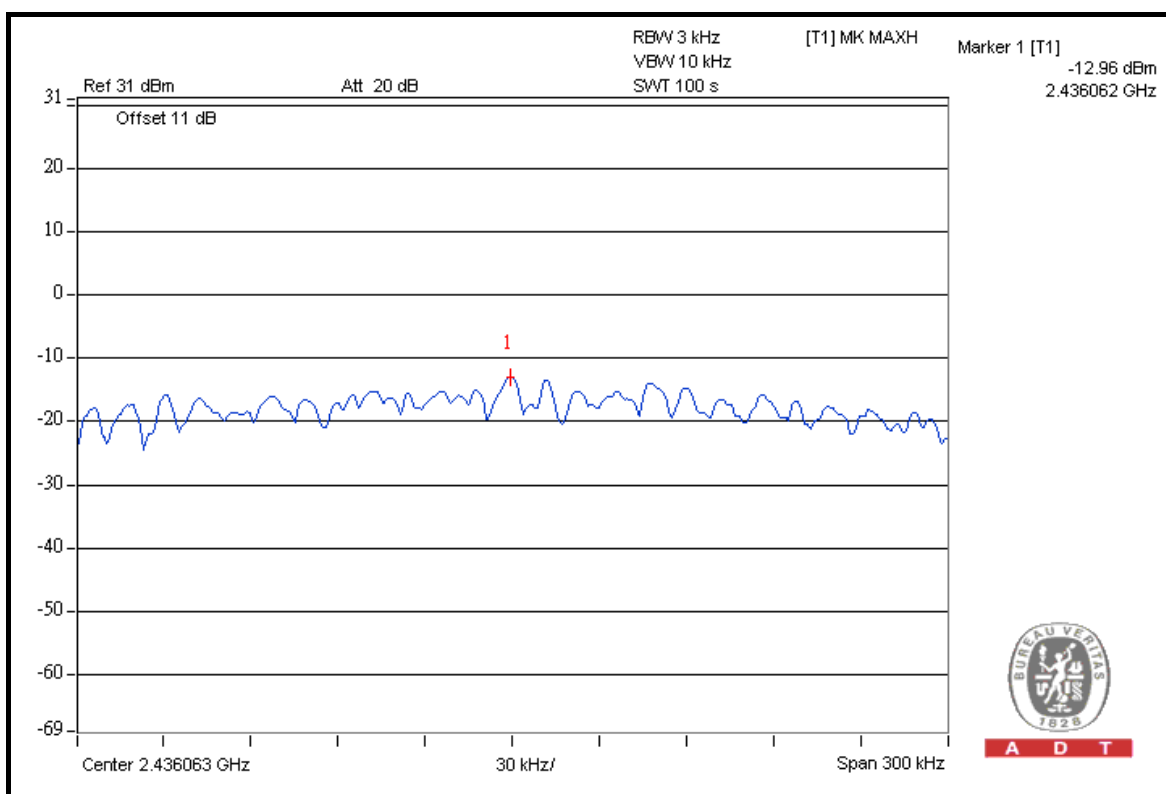
CH 1



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.42	8	PASS
6	2437	-12.96	8	PASS
11	2462	-13.49	8	PASS

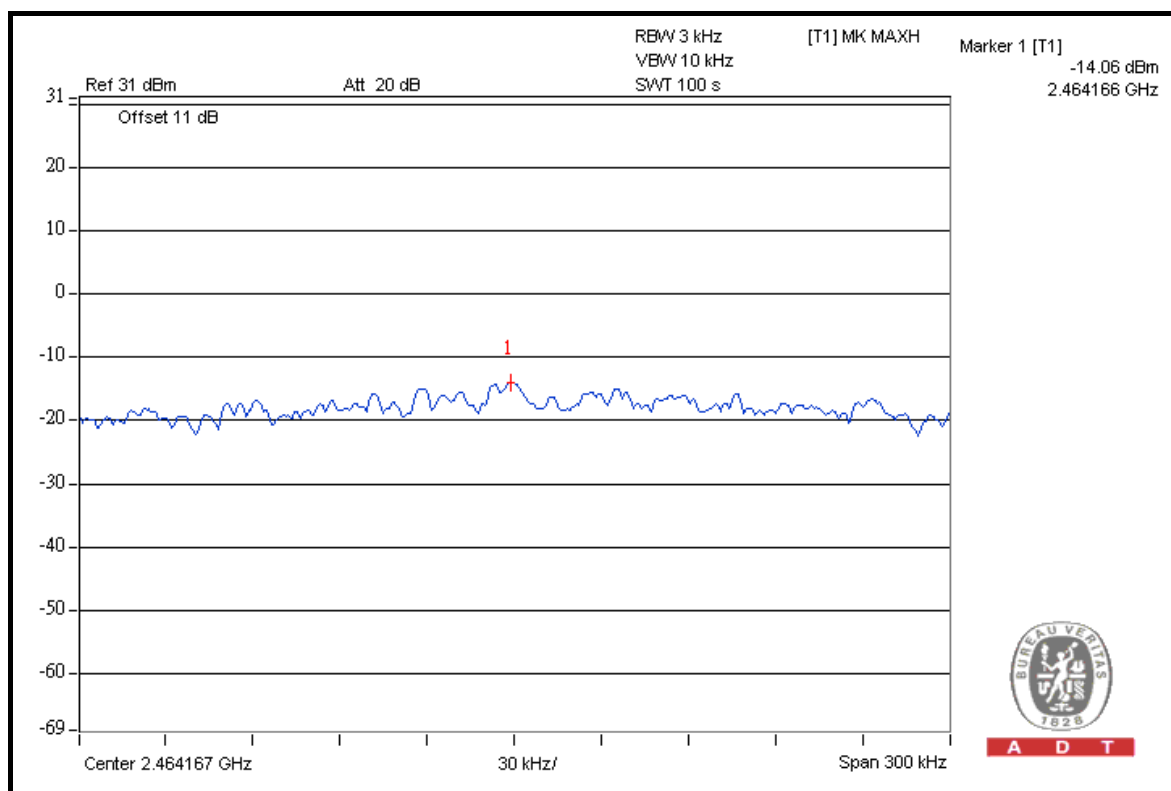
CH 6



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	1	2412	-14.33	3.01	-11.32	8	PASS
	6	2437	-14.60	3.01	-11.59	8	PASS
	11	2462	-14.33	3.01	-11.32	8	PASS
1	1	2412	-14.09	3.01	-11.08	8	PASS
	6	2437	-14.11	3.01	-11.10	8	PASS
	11	2462	-14.06	3.01	-11.05	8	PASS

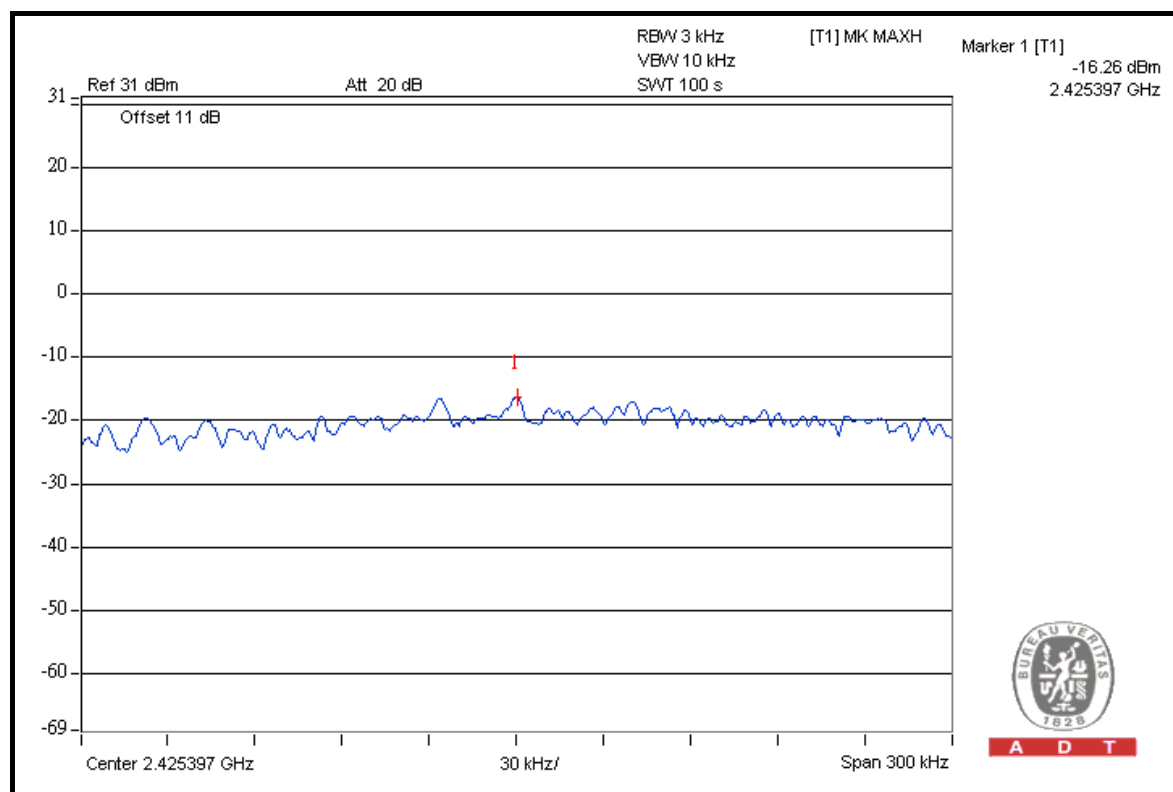
FOR CHAIN 1: CH 11



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	1	2422	-16.26	3.01	-13.25	8	PASS
	4	2437	-16.31	3.01	-13.30	8	PASS
	7	2452	-16.29	3.01	-13.28	8	PASS
1	1	2422	-17.42	3.01	-14.41	8	PASS
	4	2437	-17.47	3.01	-14.46	8	PASS
	7	2452	-17.68	3.01	-14.67	8	PASS

FOR CHAIN 0: CH 1



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 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	ESIB7	100212	Aug. 02, 2011	Aug. 01, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP 40	100041	Jul. 21, 2011	Jul. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 13, 2011	Apr. 12, 2012
HORN Antenna SCHWARZBECK	9120D	209	Aug. 25, 2011	Aug. 24, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8447D	2944A10633	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8449B	3008A01964	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295014/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	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	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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.

4.6.3 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 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6.

4.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	105.5	53.97	51.53	74.00
2412.00 (AV)	101.8	58.67	43.13	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

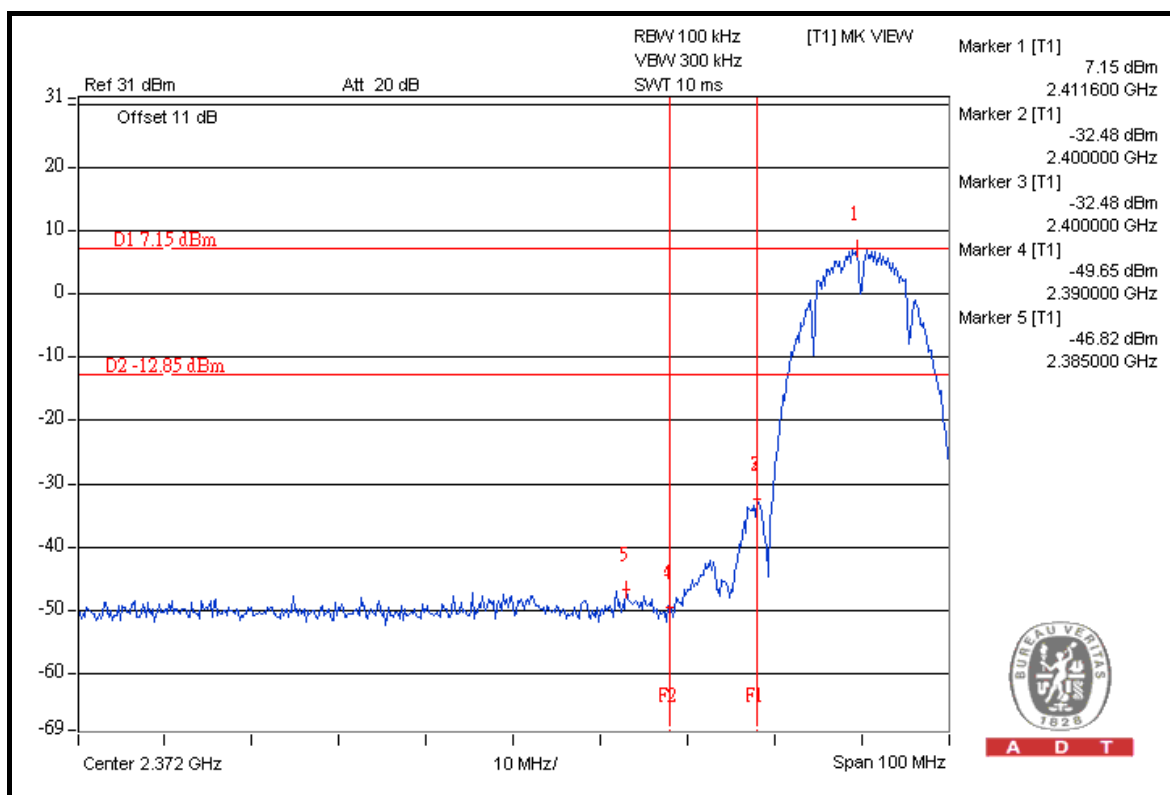
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	104.6	54.14	50.46	74.00
2462.00 (AV)	100.6	57.31	43.29	54.00

NOTE:

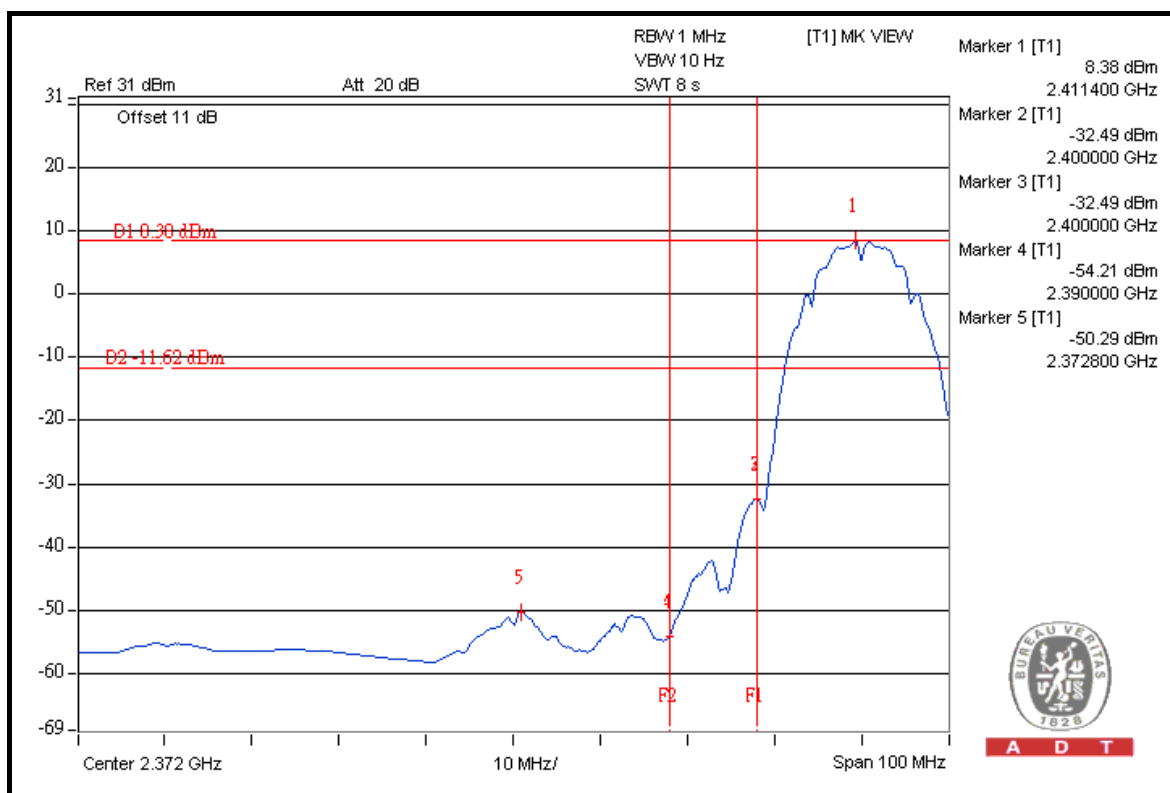
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



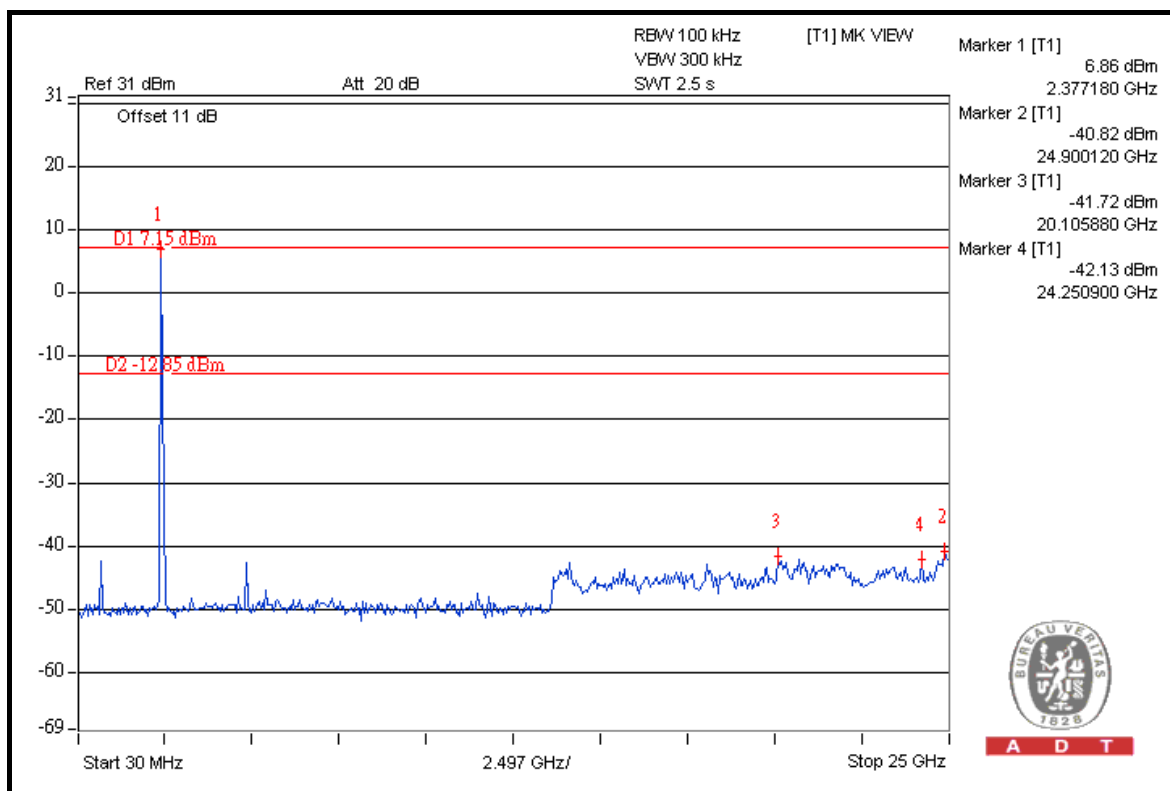
A D T



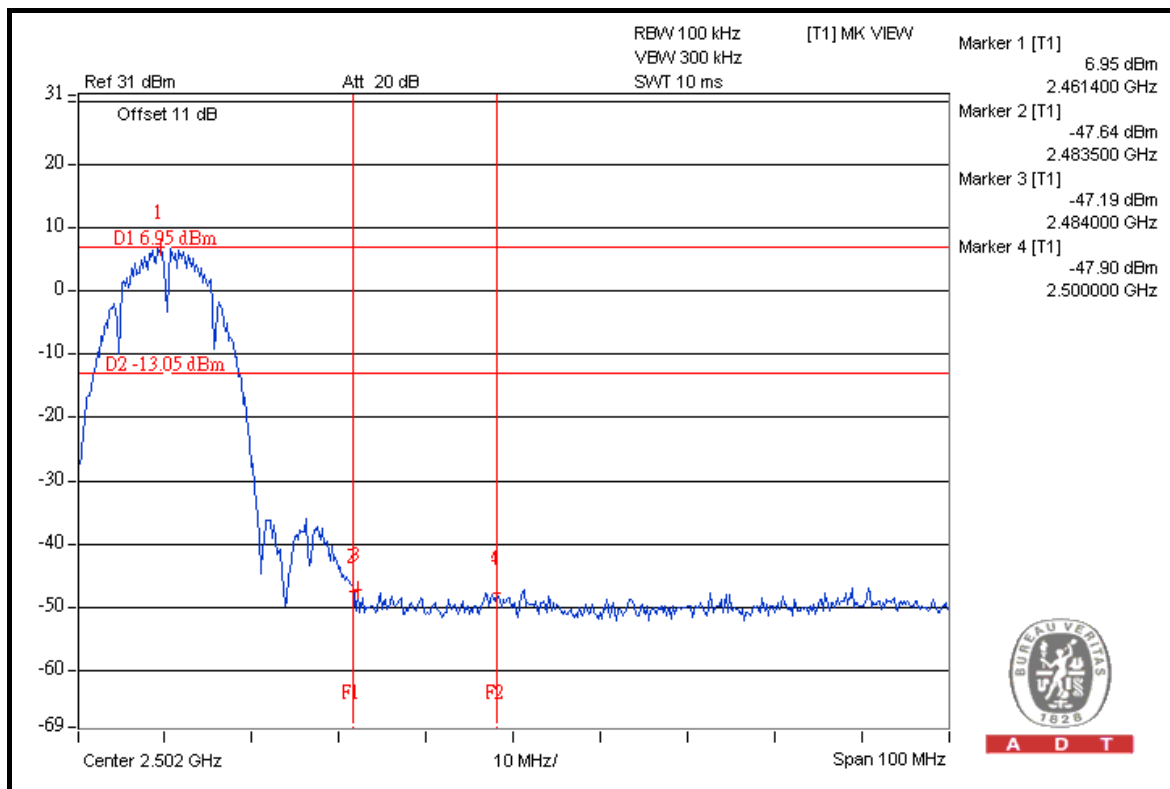
A D T



A D T



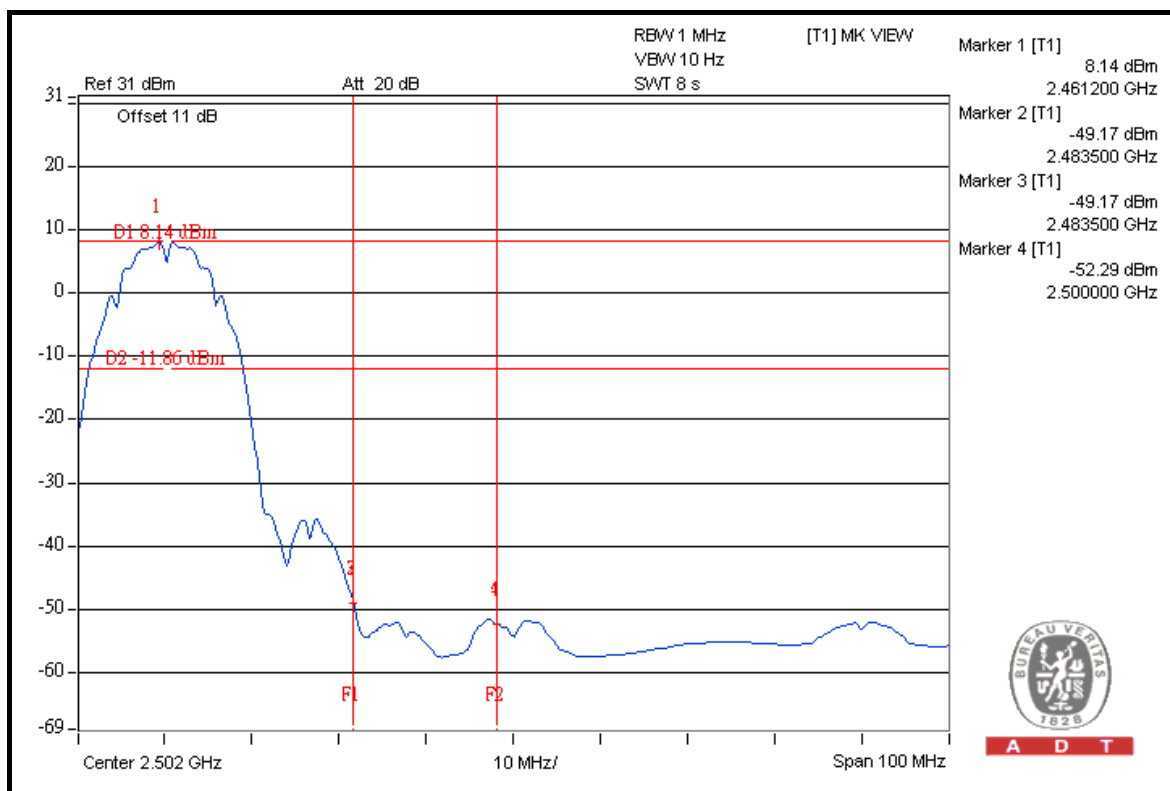
A D T



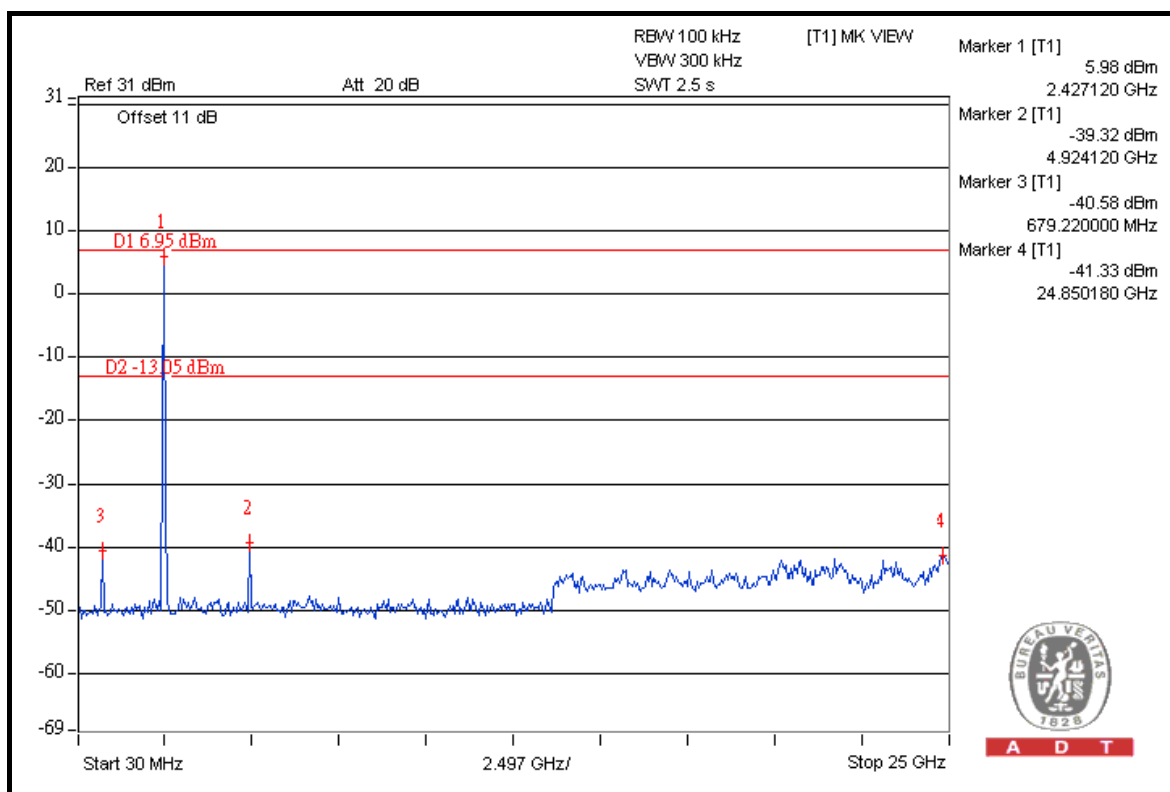
A D T



A D T



A D T



A D T

802.11g

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	105.7	48.53	57.17	74.00
2412.00 (AV)	95.1	54.15	40.95	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

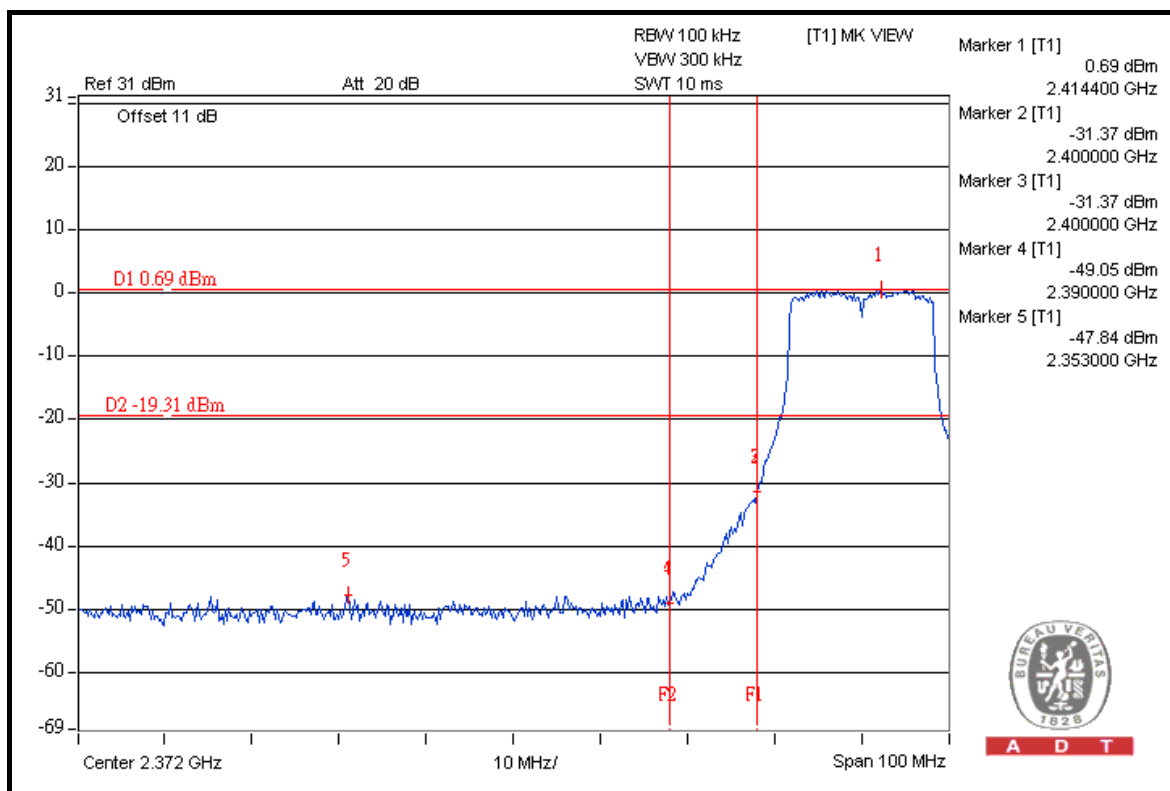
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	105.5	46.19	59.31	74.00
2462.00 (AV)	95.0	51.84	43.16	54.00

NOTE:

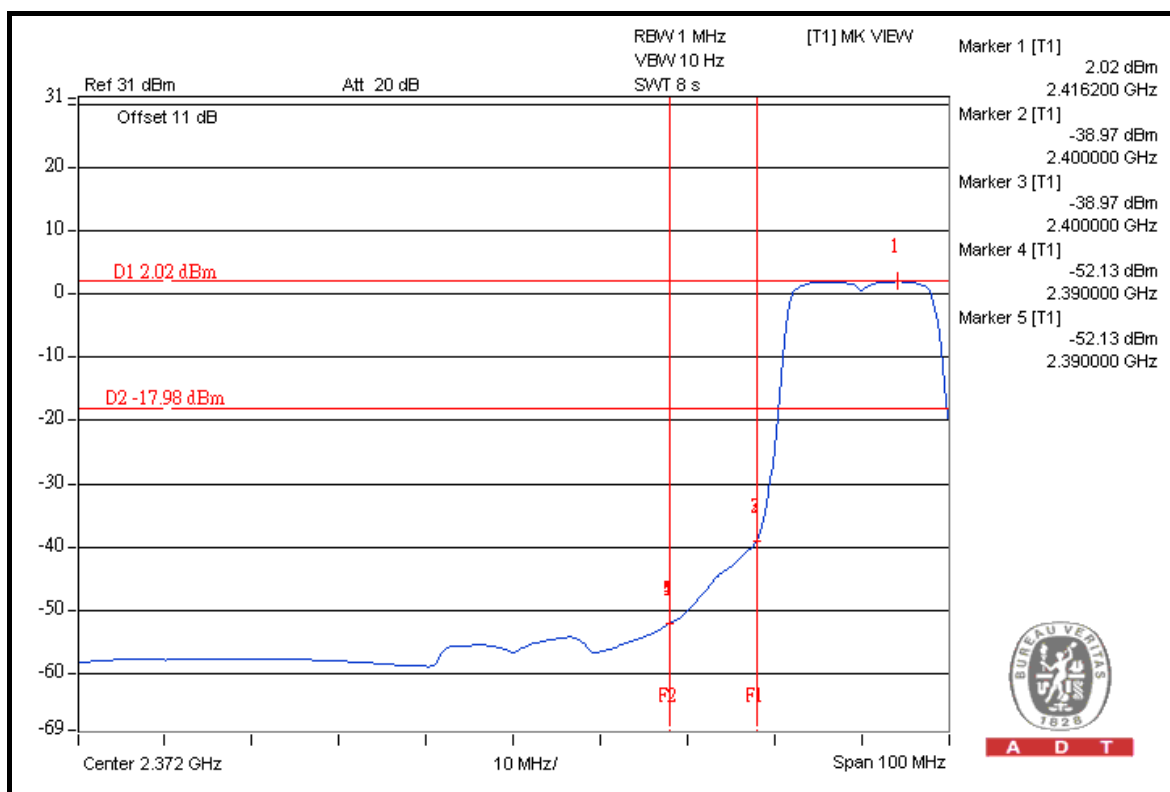
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



A D T



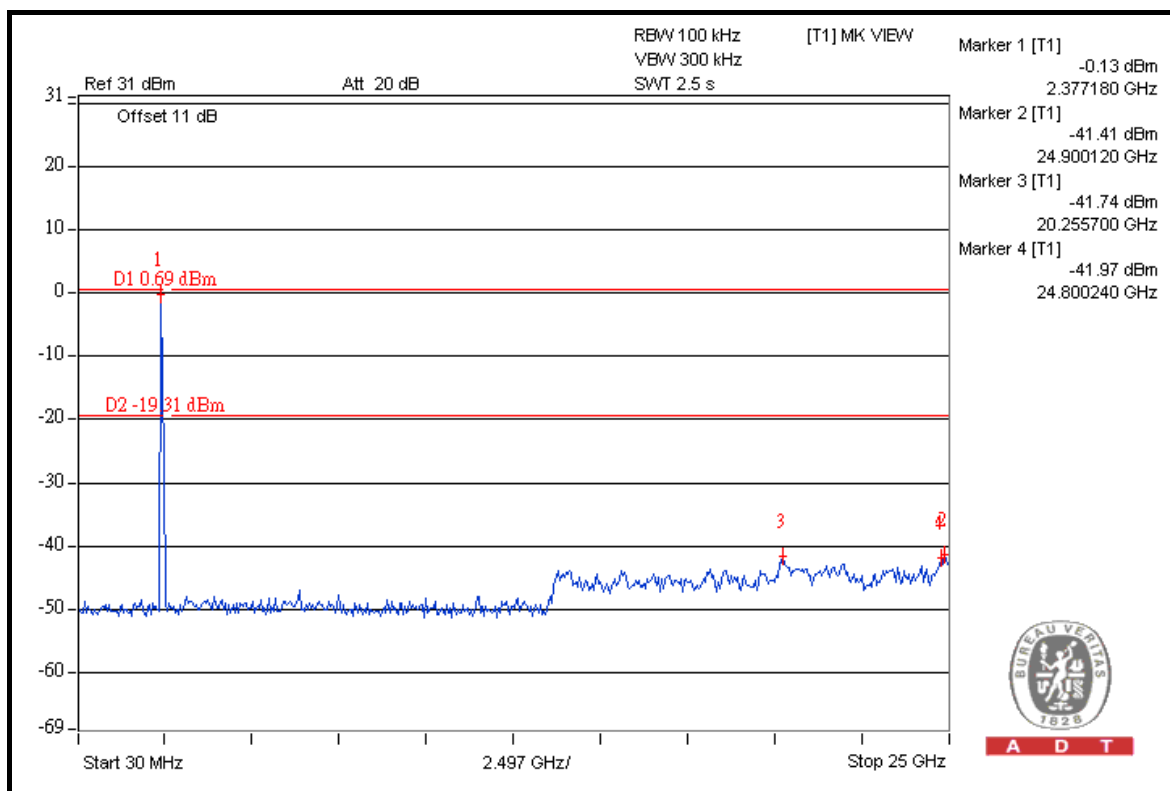
A D T



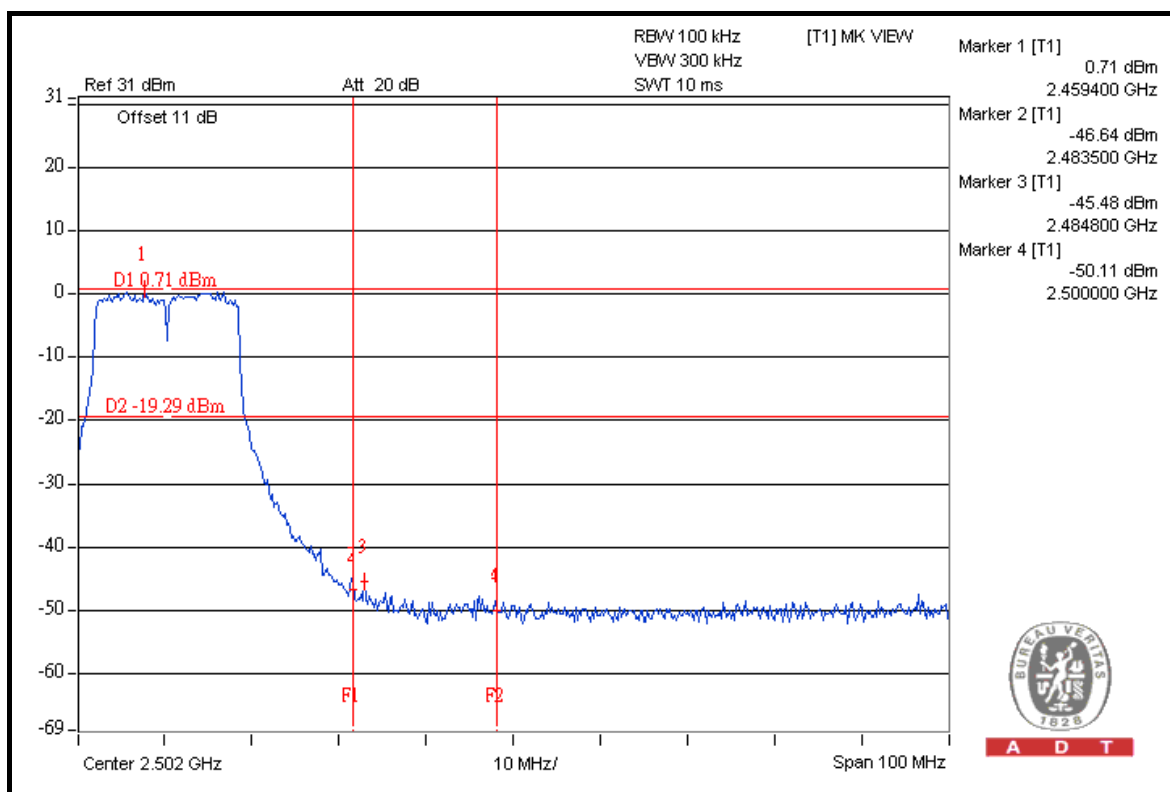
A D T



A D T



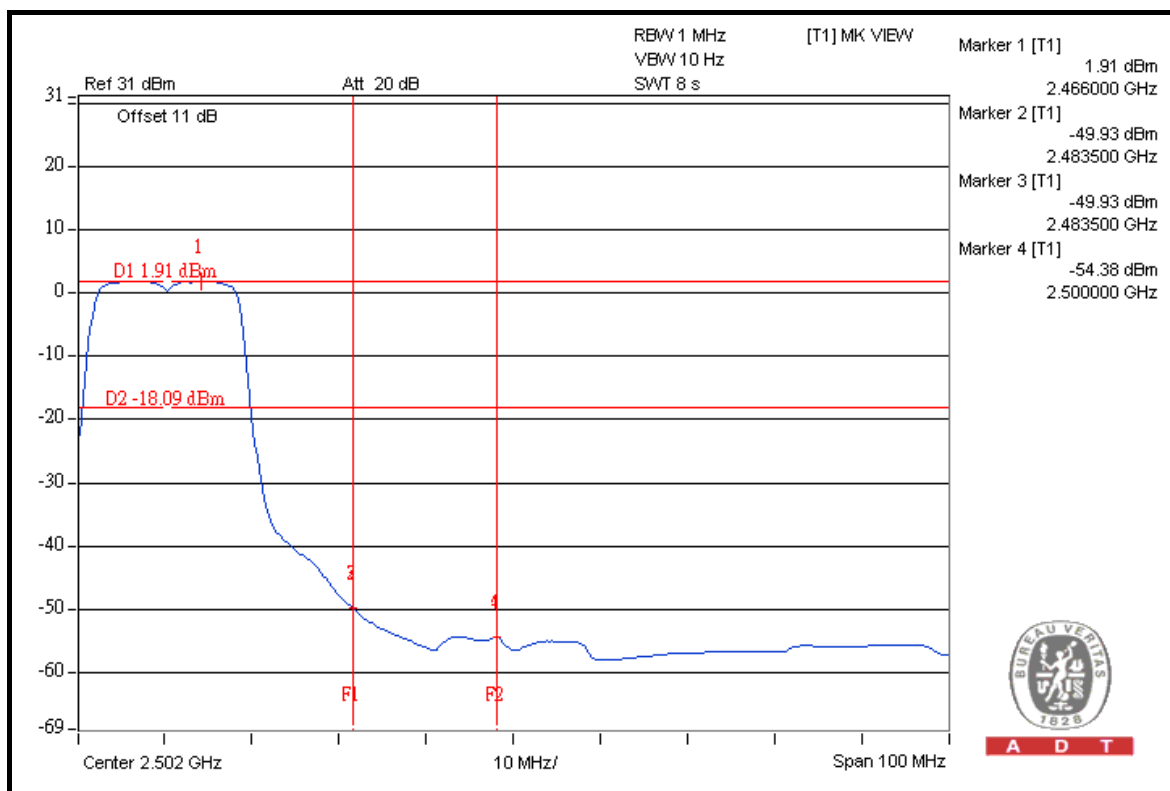
A D T



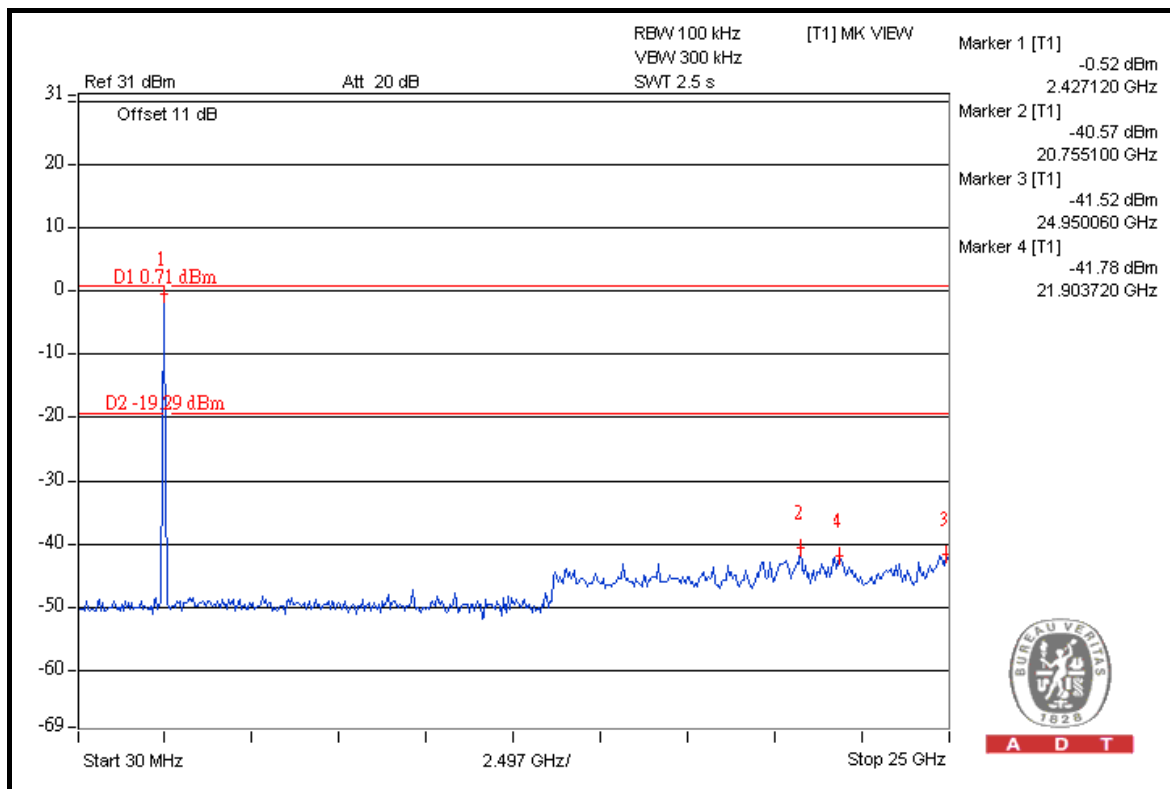
A D T



A D T



A D T



A D T

802.11n (20MHz)

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	107.4	43.95	63.45	74.00
2412.00 (AV)	95.6	50.70	44.90	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	107.7	43.06	64.64	74.00
2462.00 (AV)	95.9	49.85	46.05	54.00

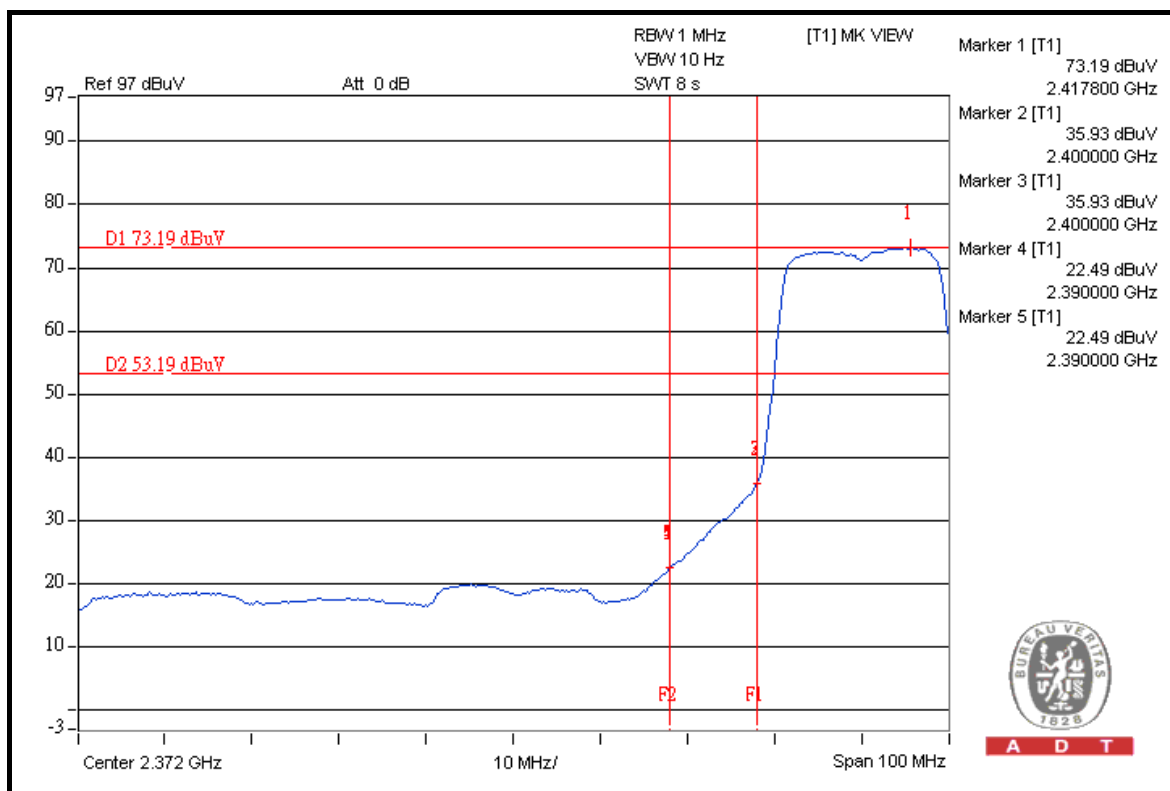
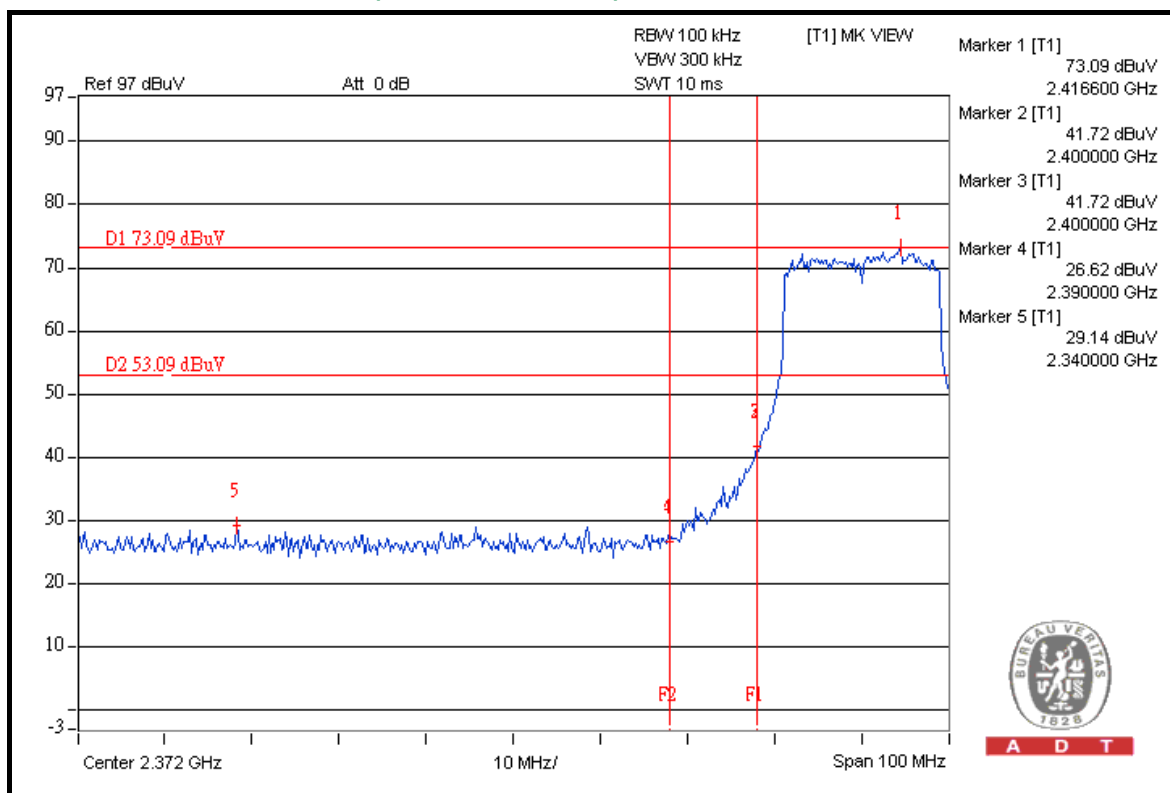
NOTE:

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



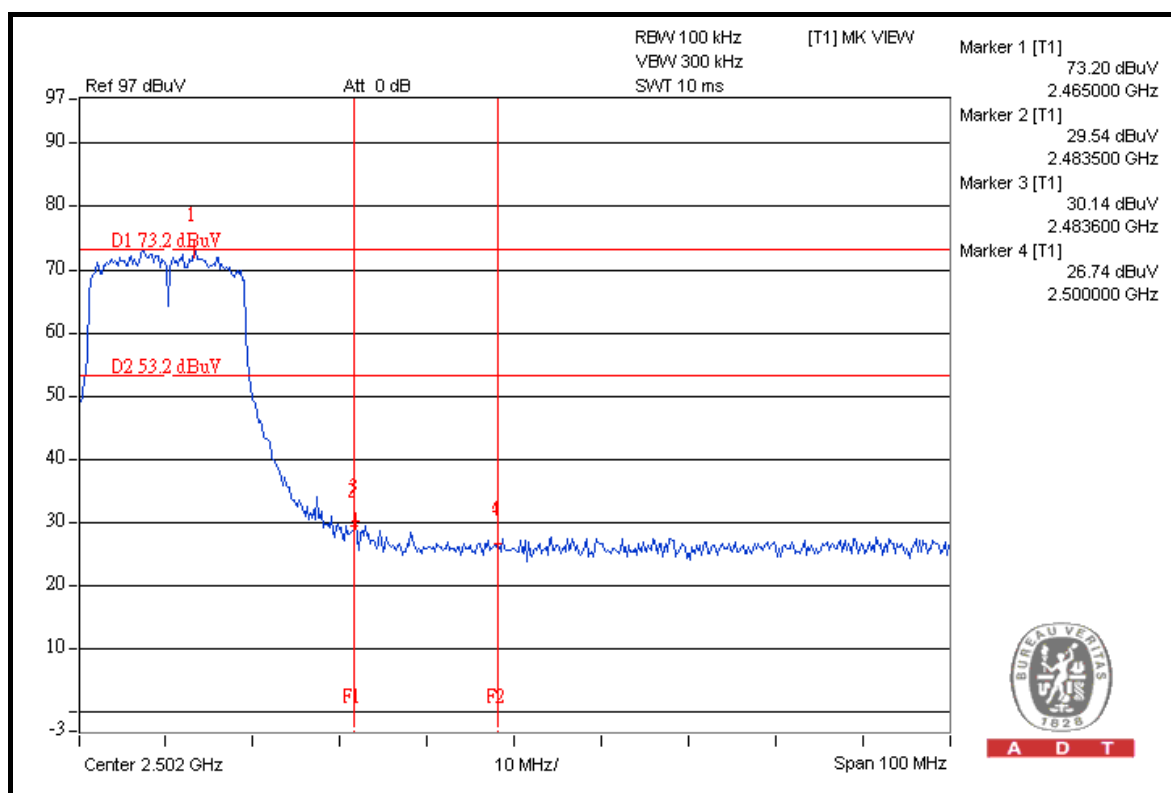
A D T

FOR RADIATED MEASURED (BOTH CHAINS ON)

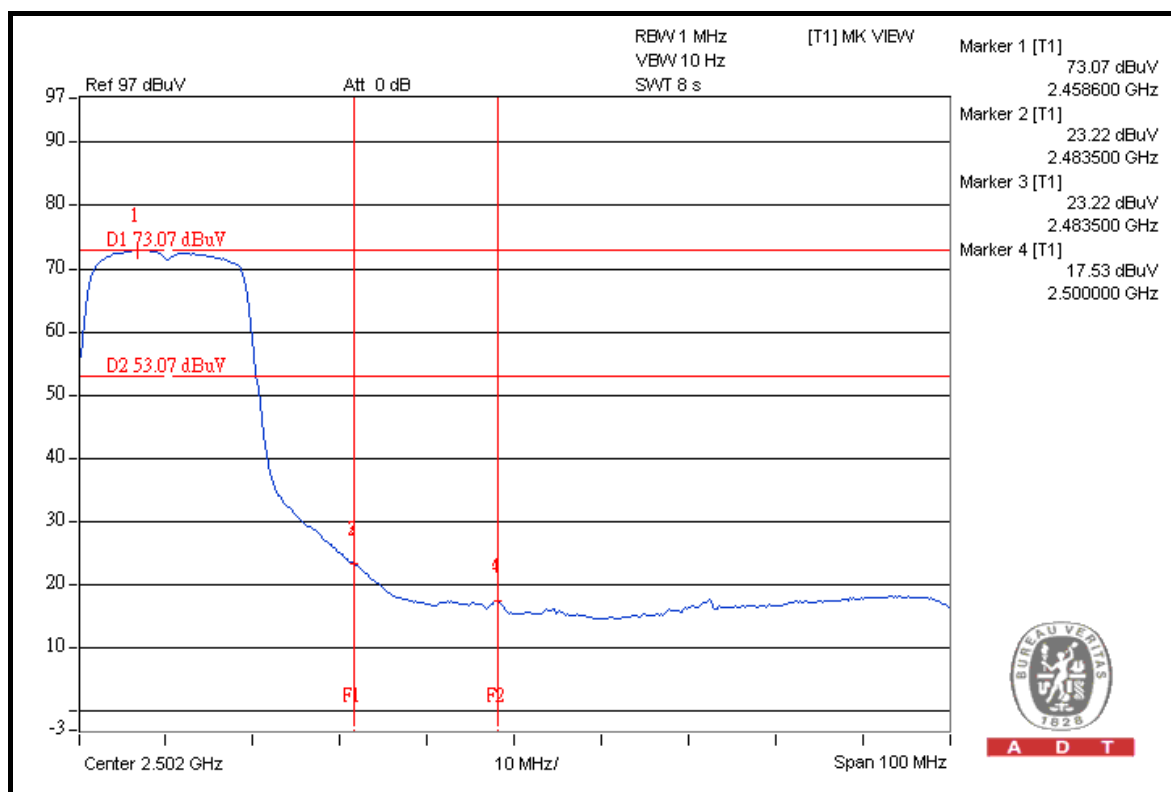




A D T



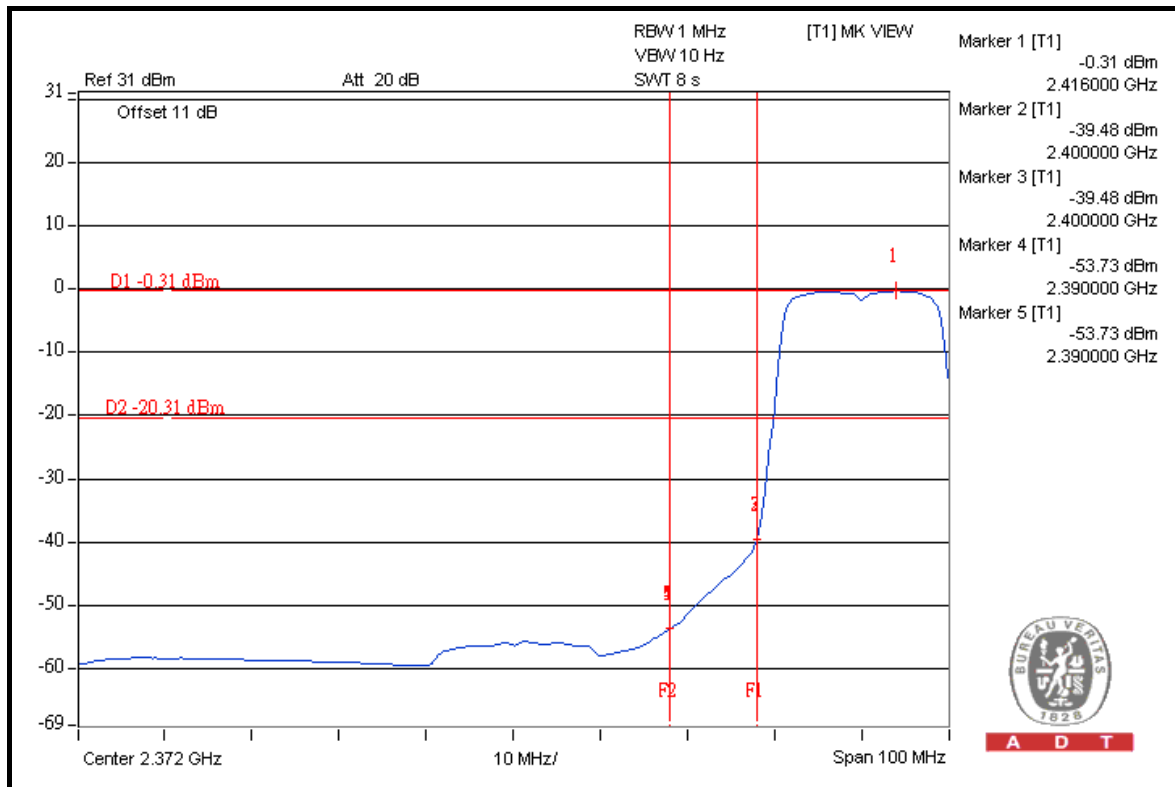
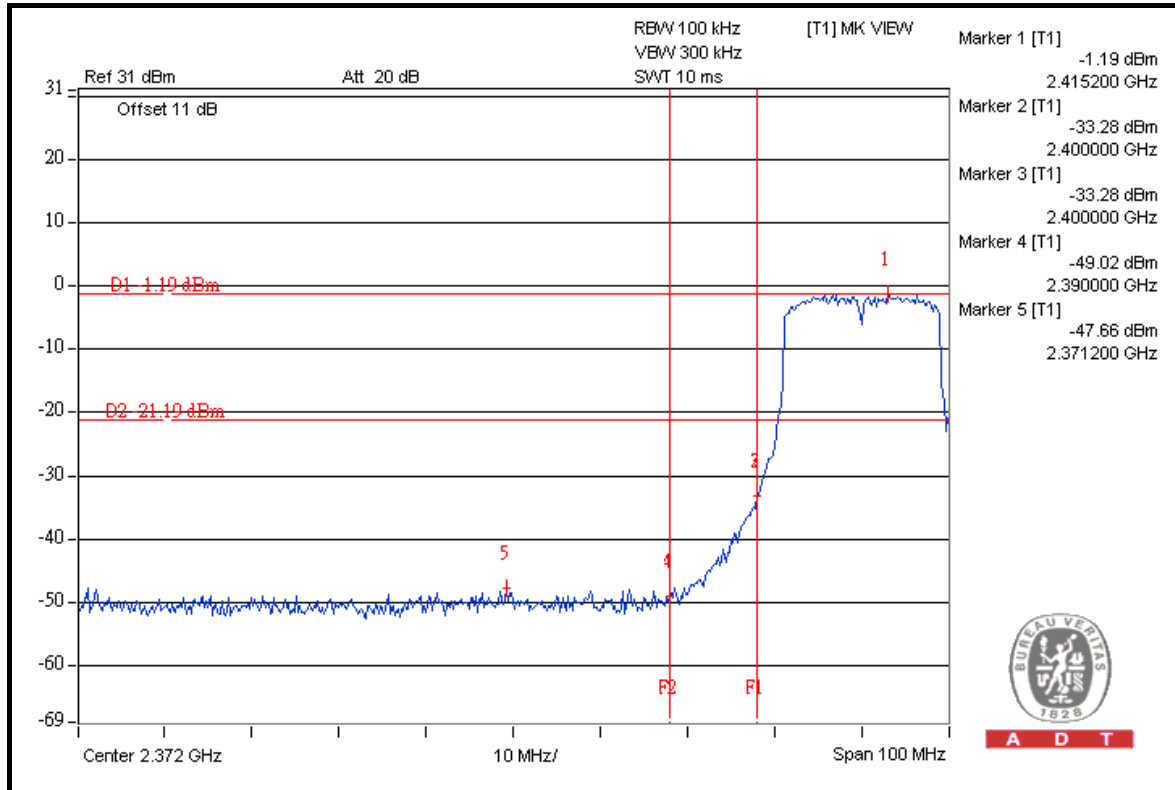
A D T



A D T

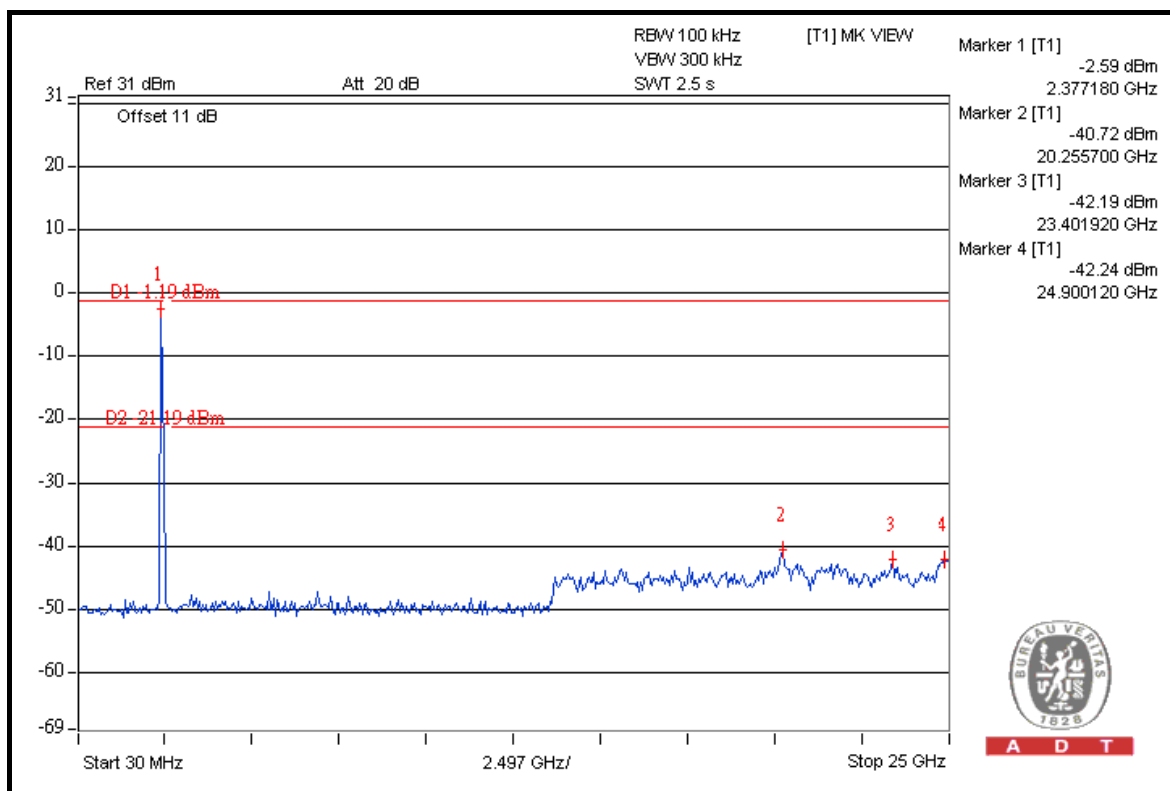
FOR CONDUCTED MEASURED

CHAIN 0

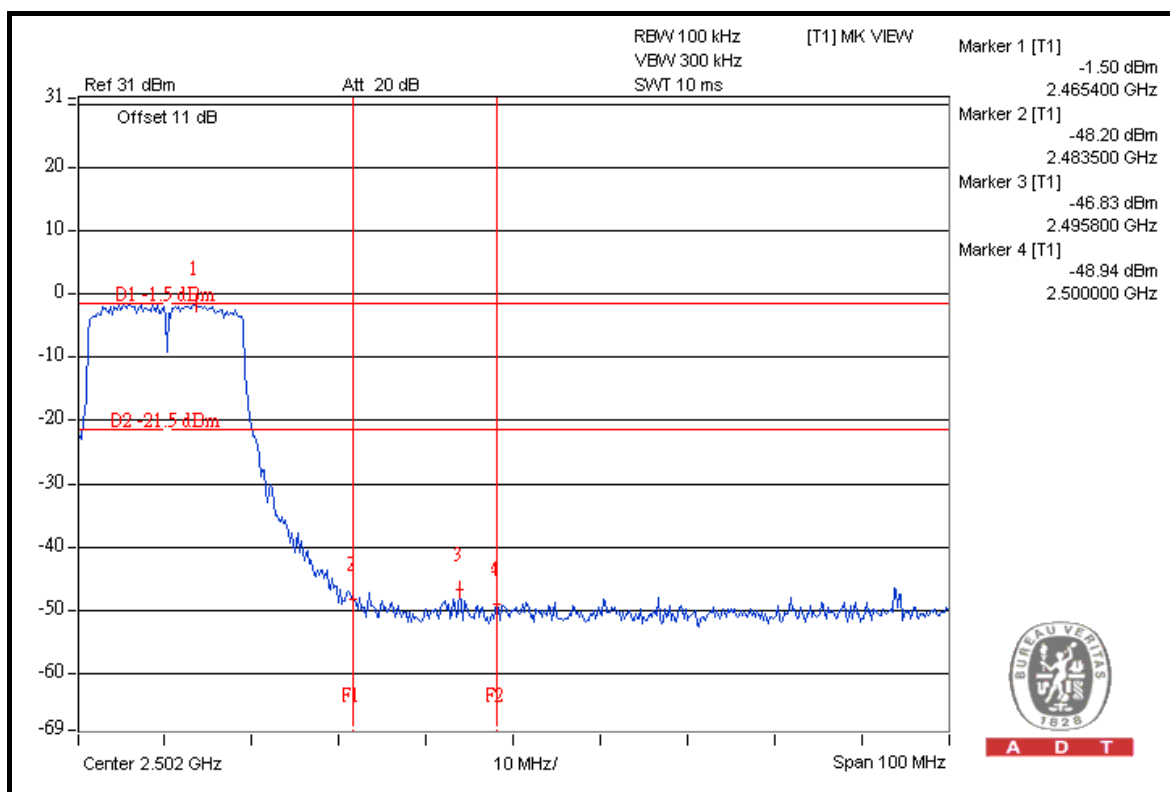




A D T



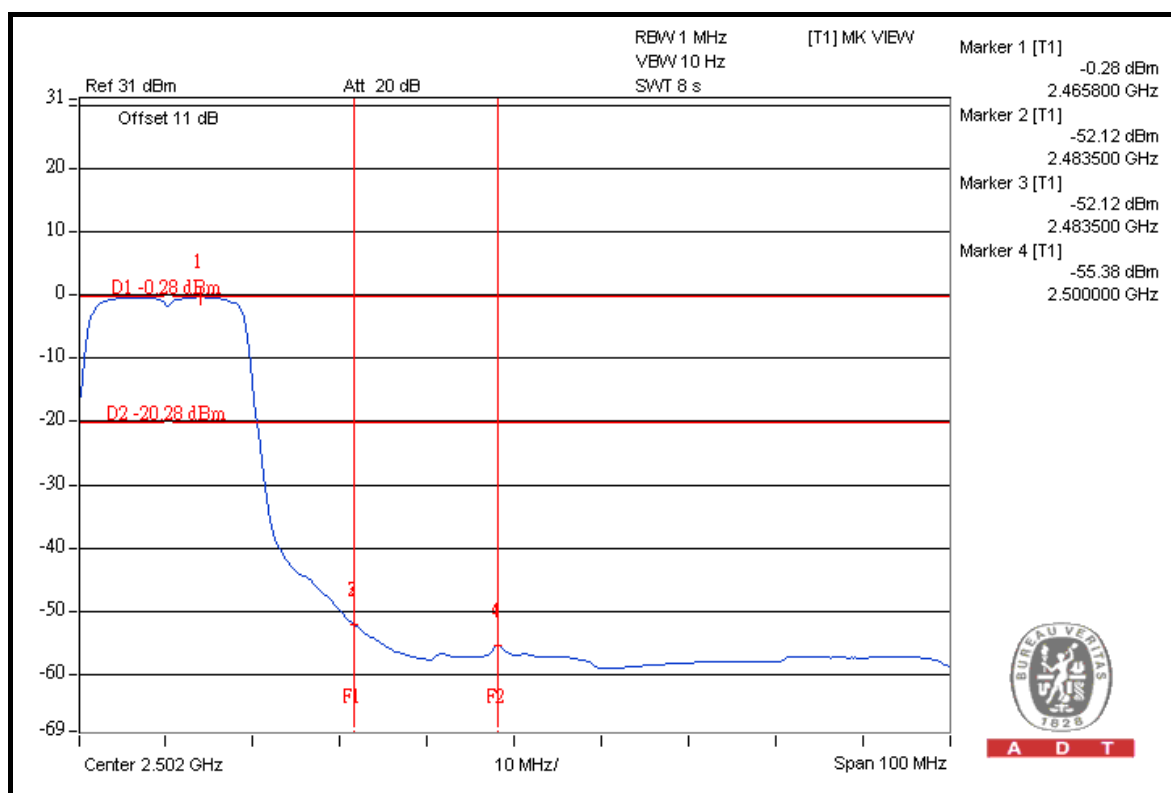
A D T



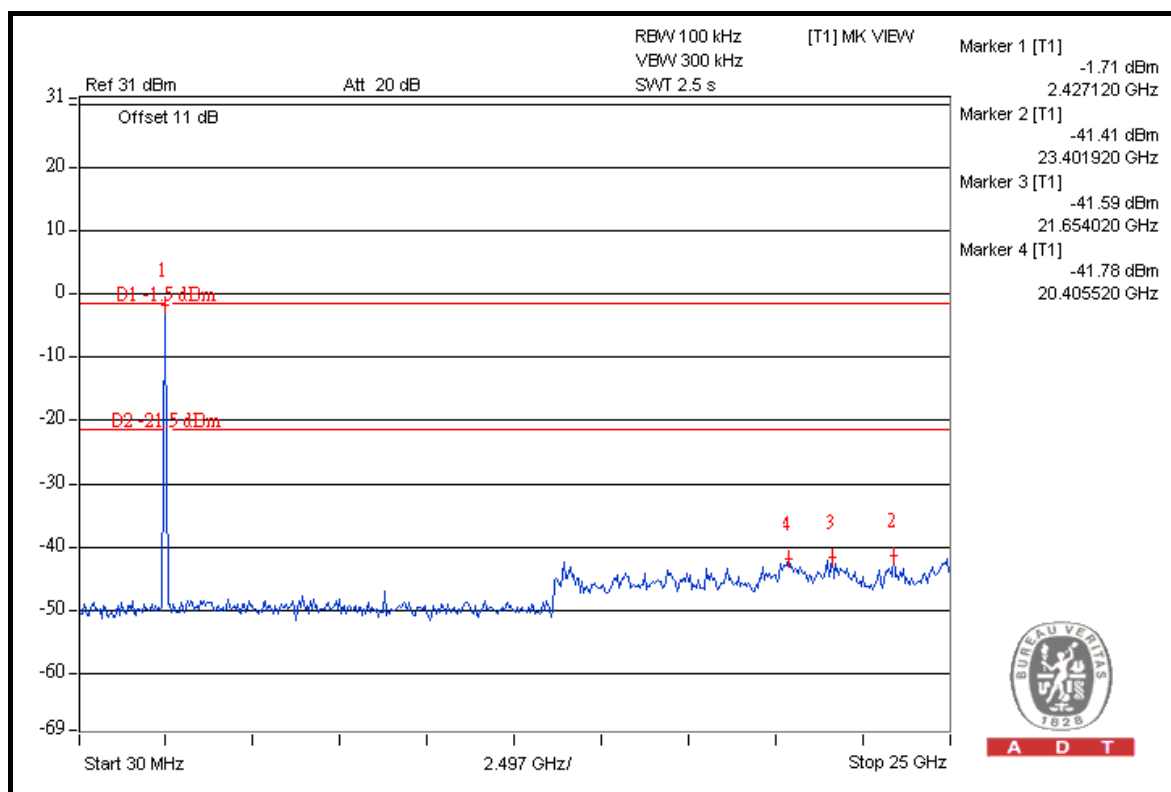
A D T



A D T

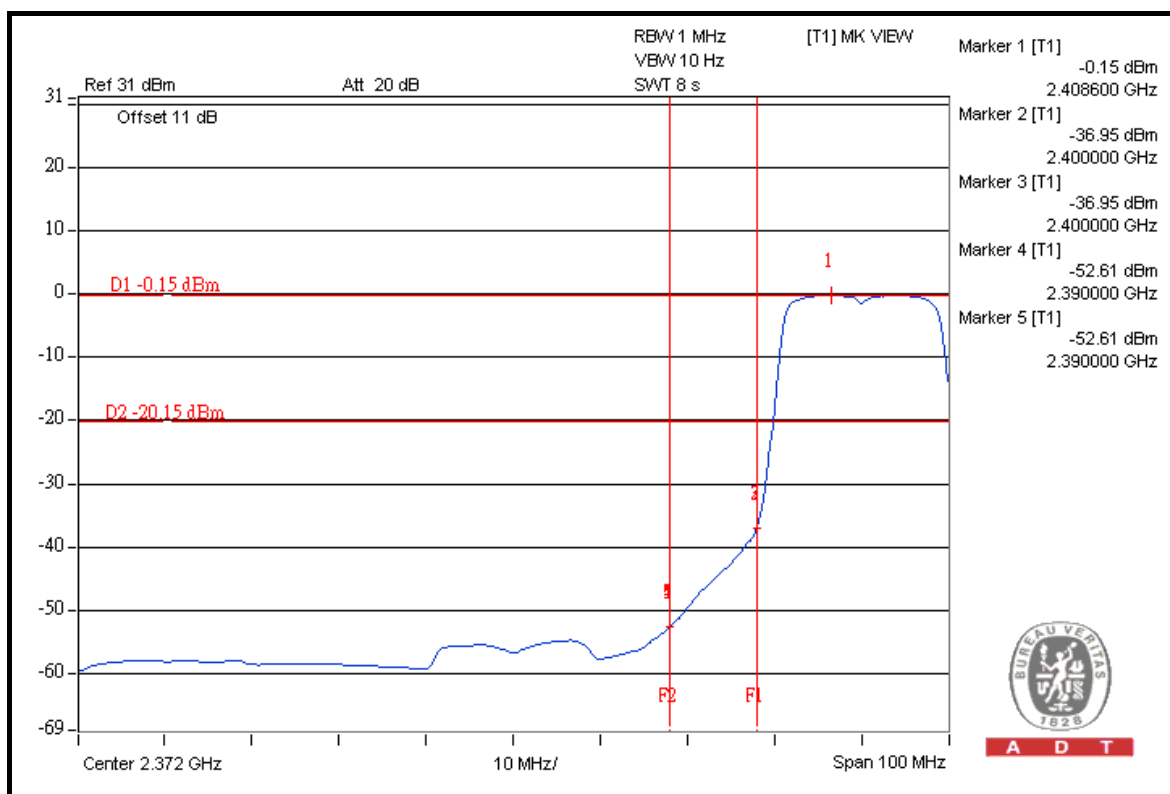
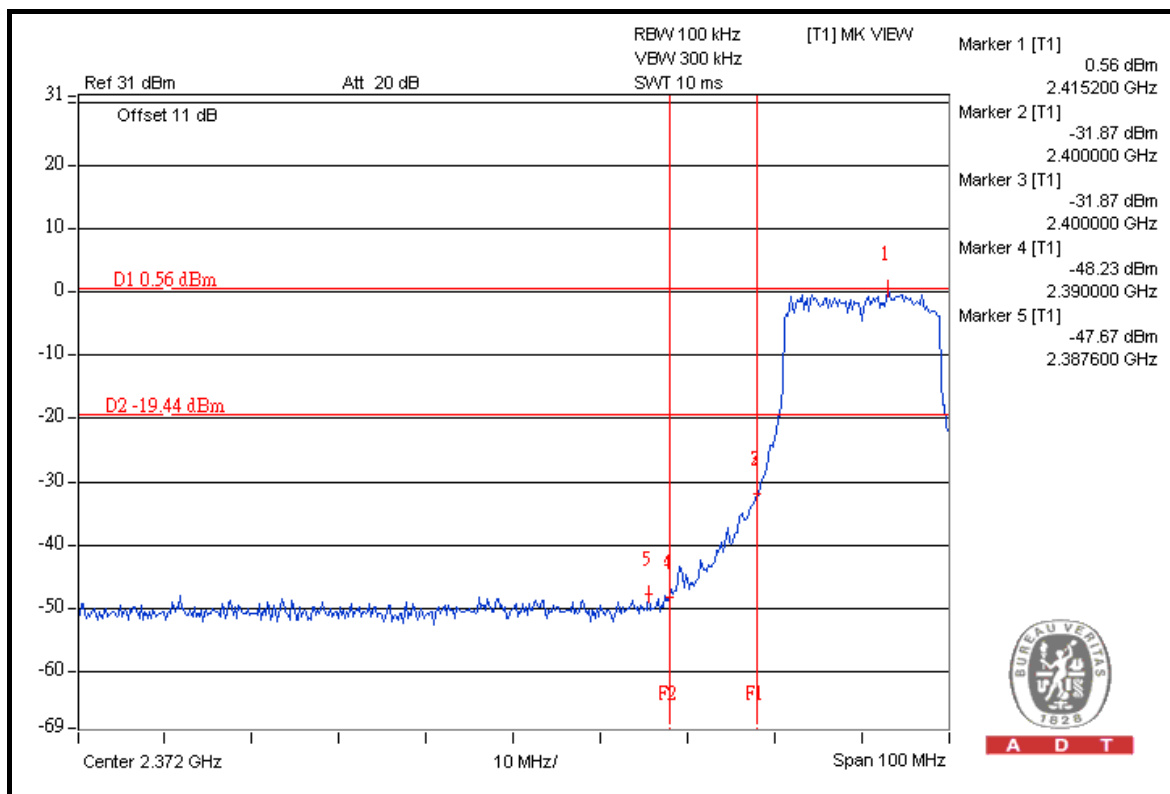


A D T



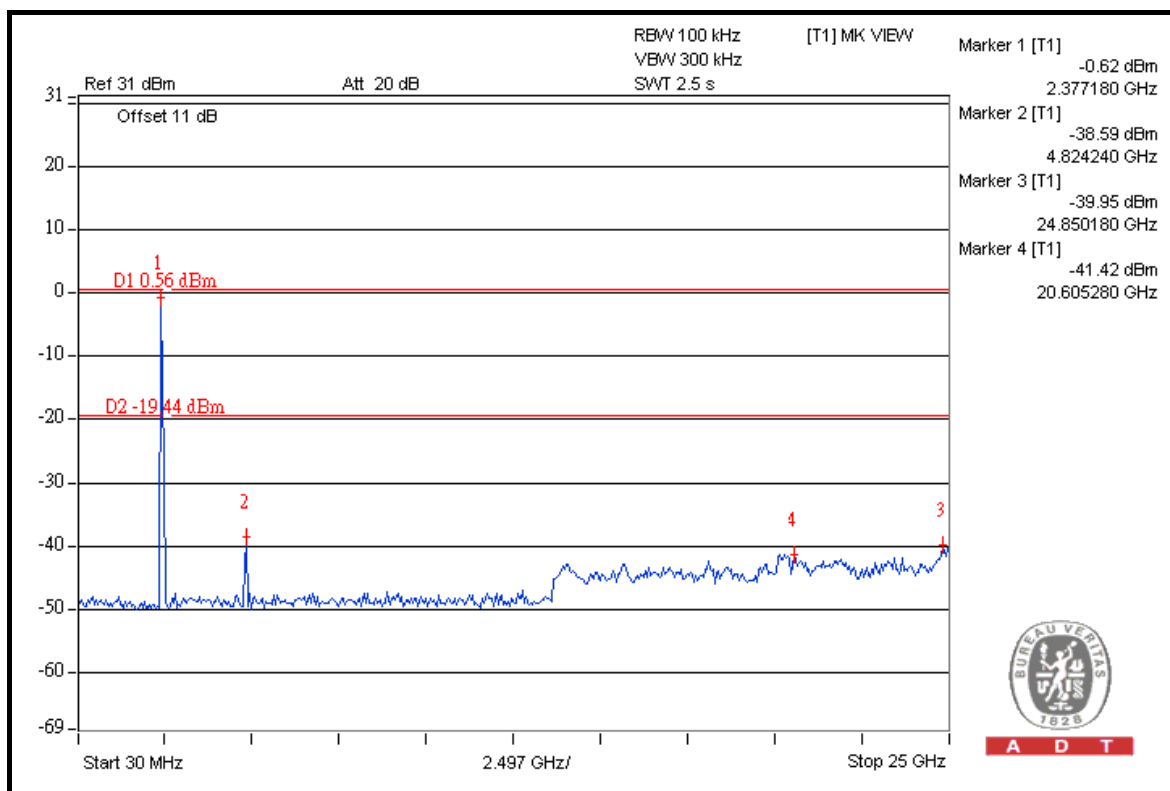
A D T

CHAIN 1

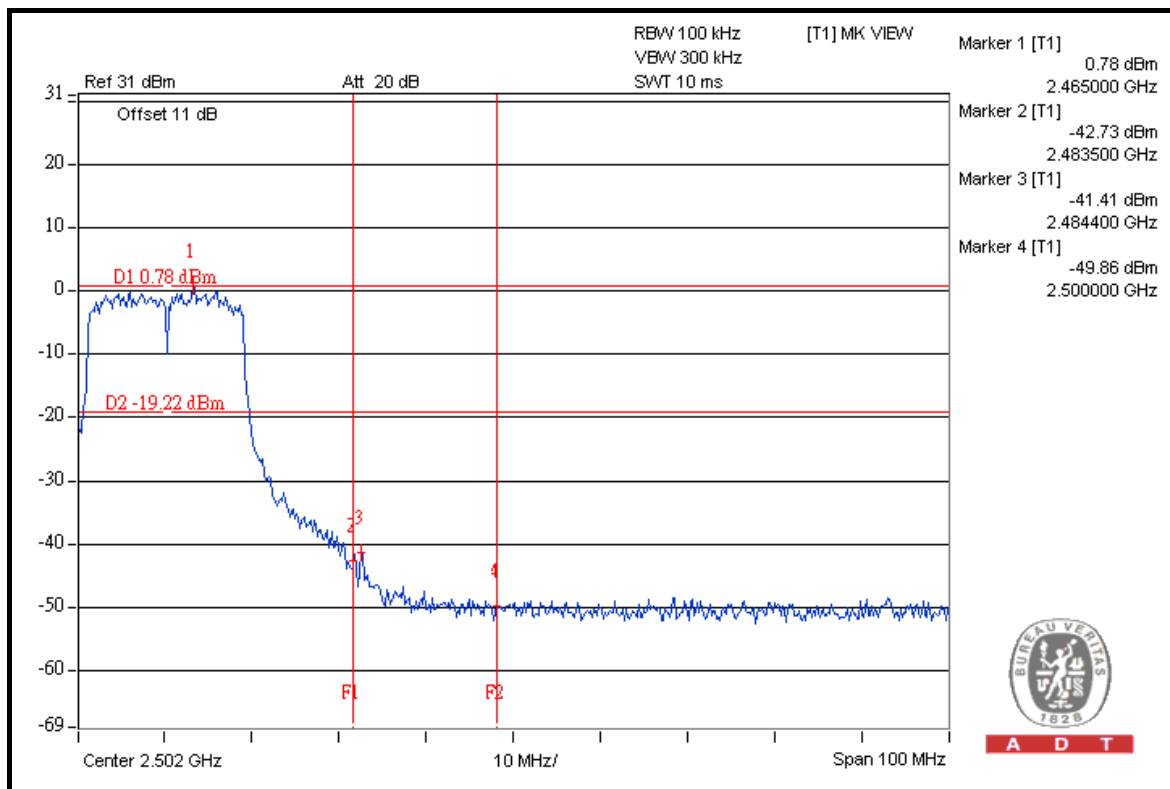




A D T



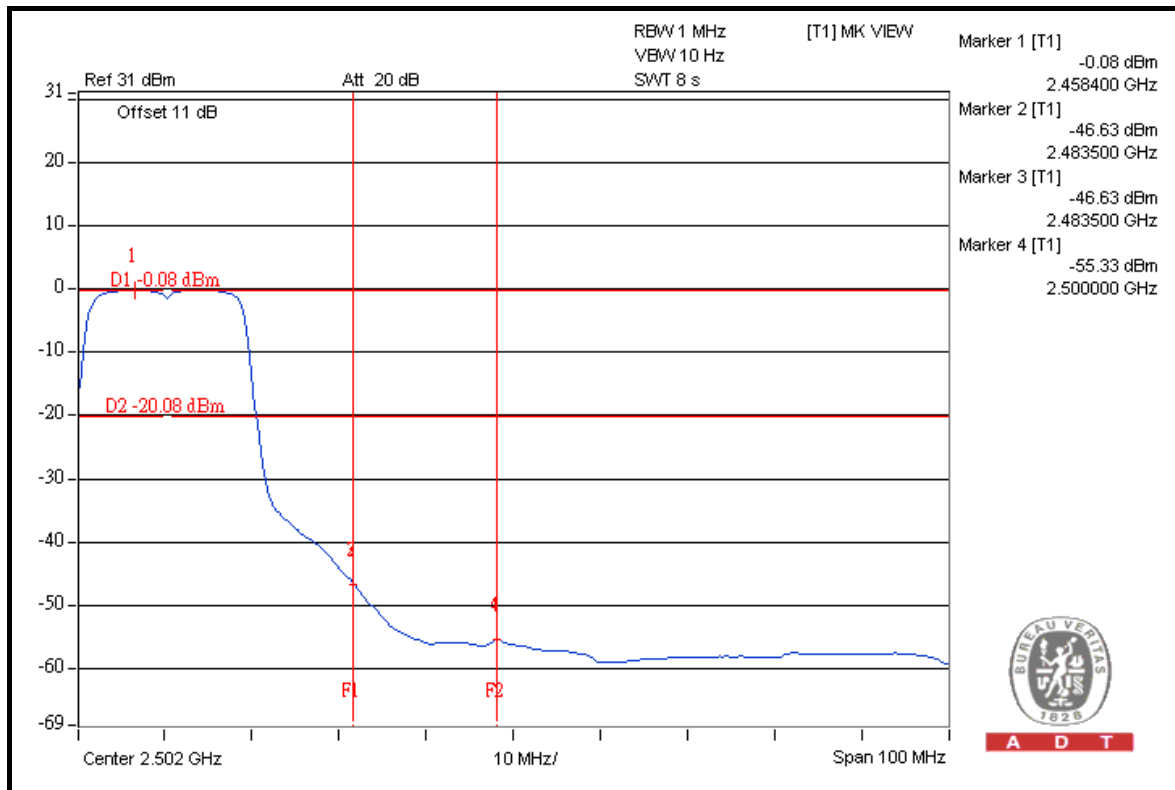
A D T



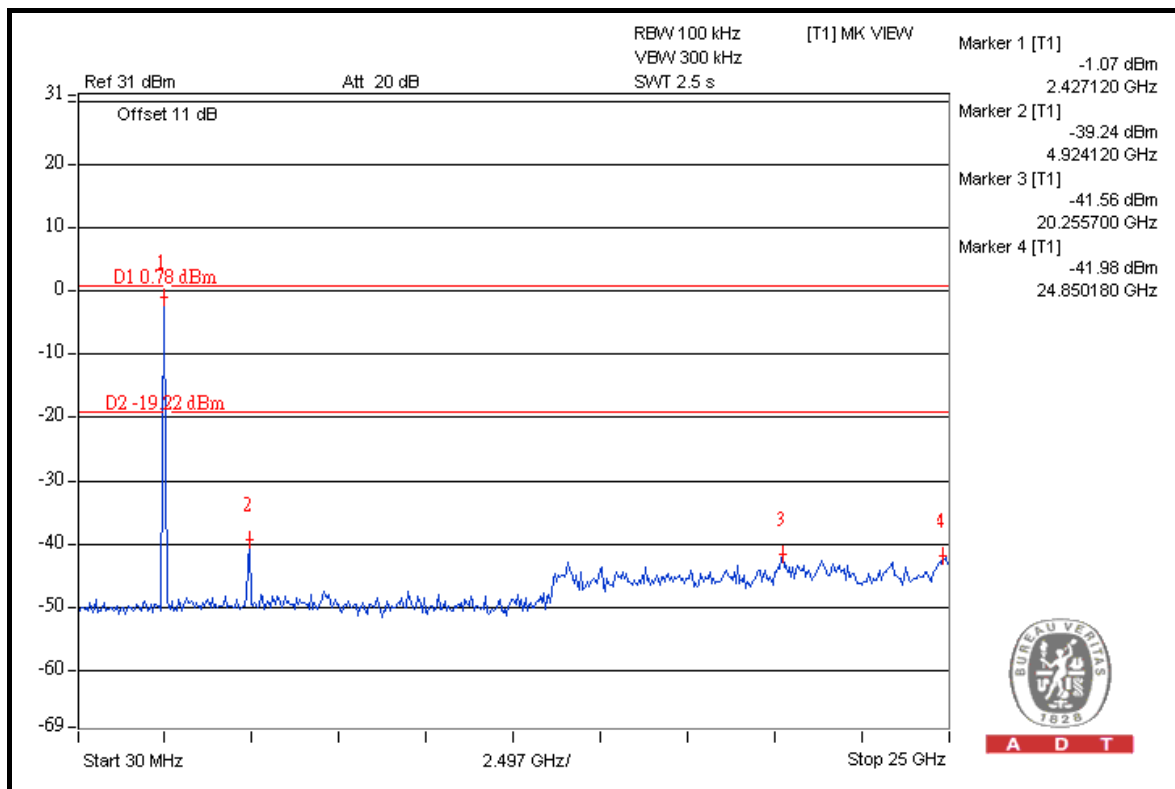
A D T



A D T



A D T



A D T

802.11n (40MHz)

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2422.00 (PK)	103.3	37.71	65.59	74.00
2422.00 (AV)	92.2	41.53	50.67	54.00

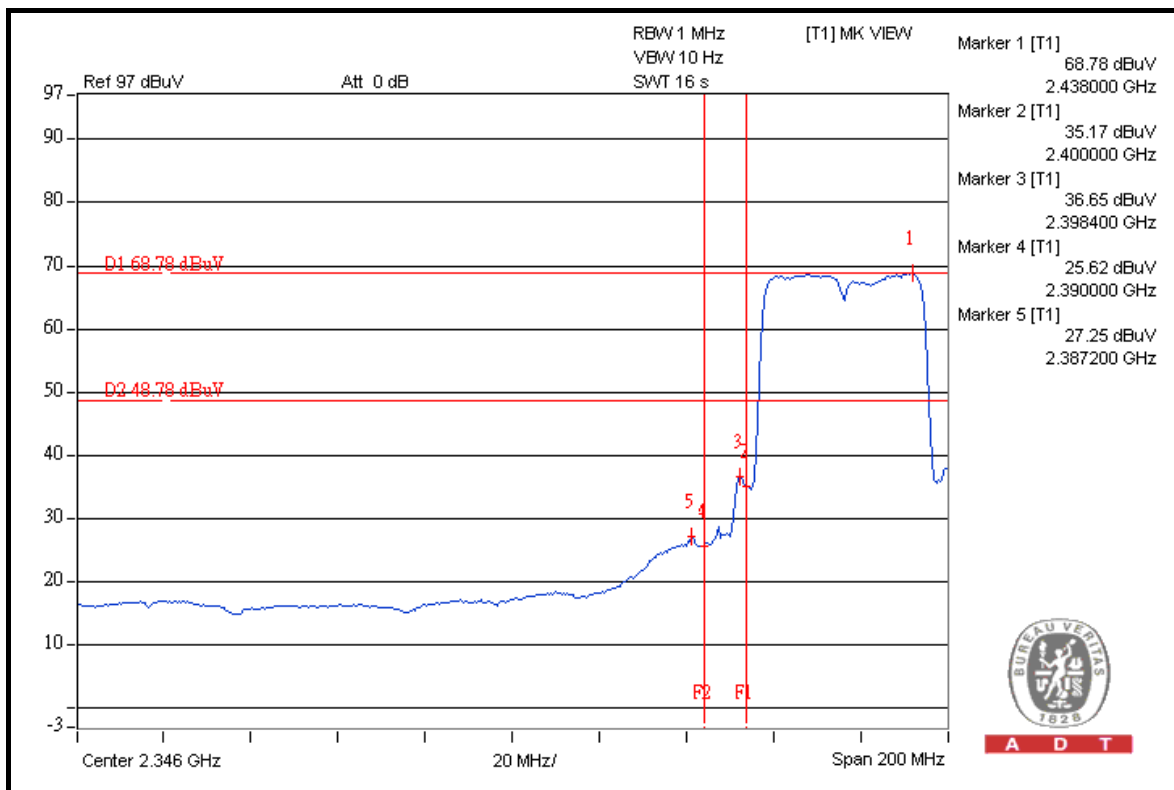
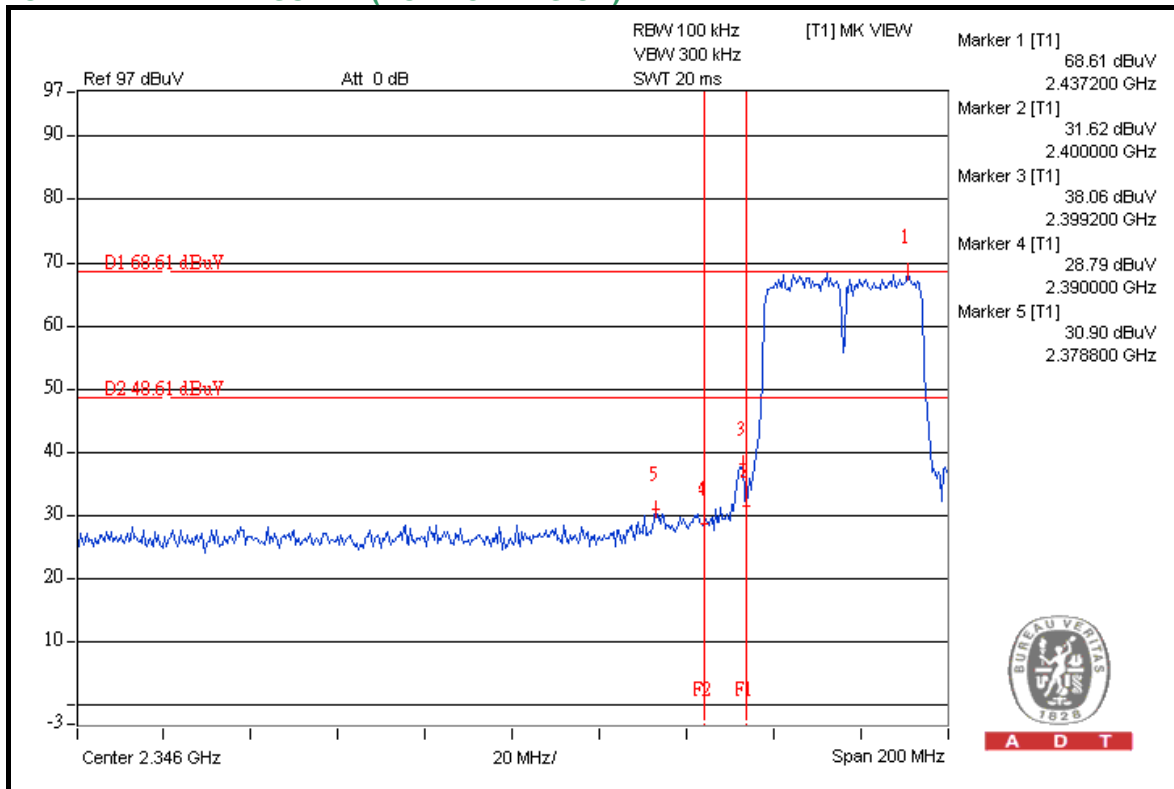
RESTRICT BAND (2483.5 ~ 2500 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2452.00 (PK)	103.6	36.68	66.92	74.00
2452.00 (AV)	92.5	41.56	50.94	54.00

NOTE:

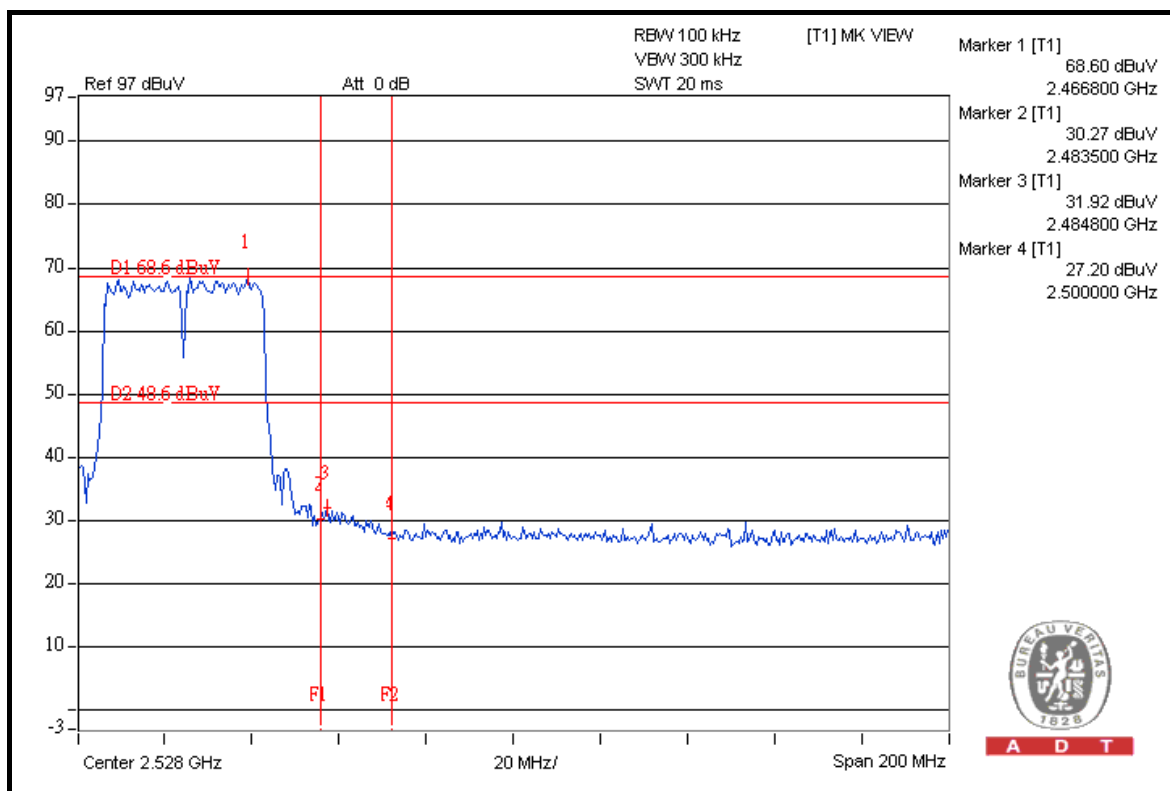
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 2 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

FOR RADIATED MEASURED (BOTH CHAINS ON)

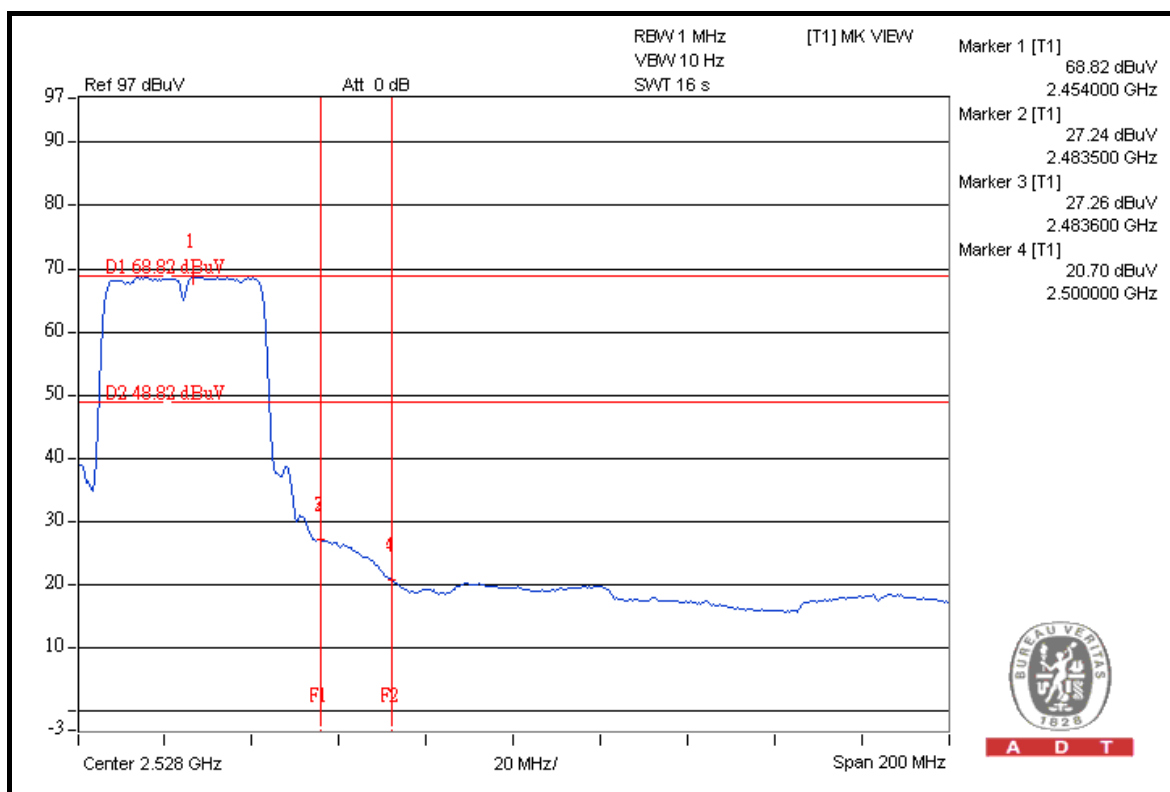




A D T



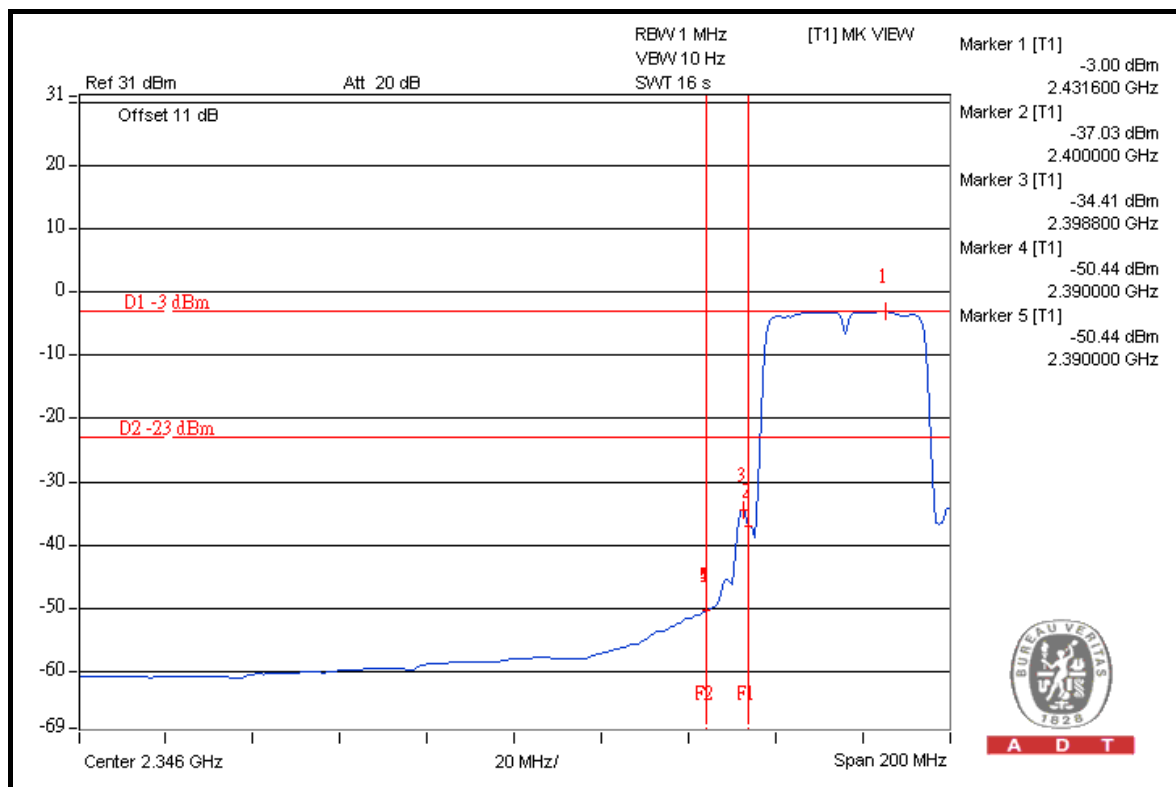
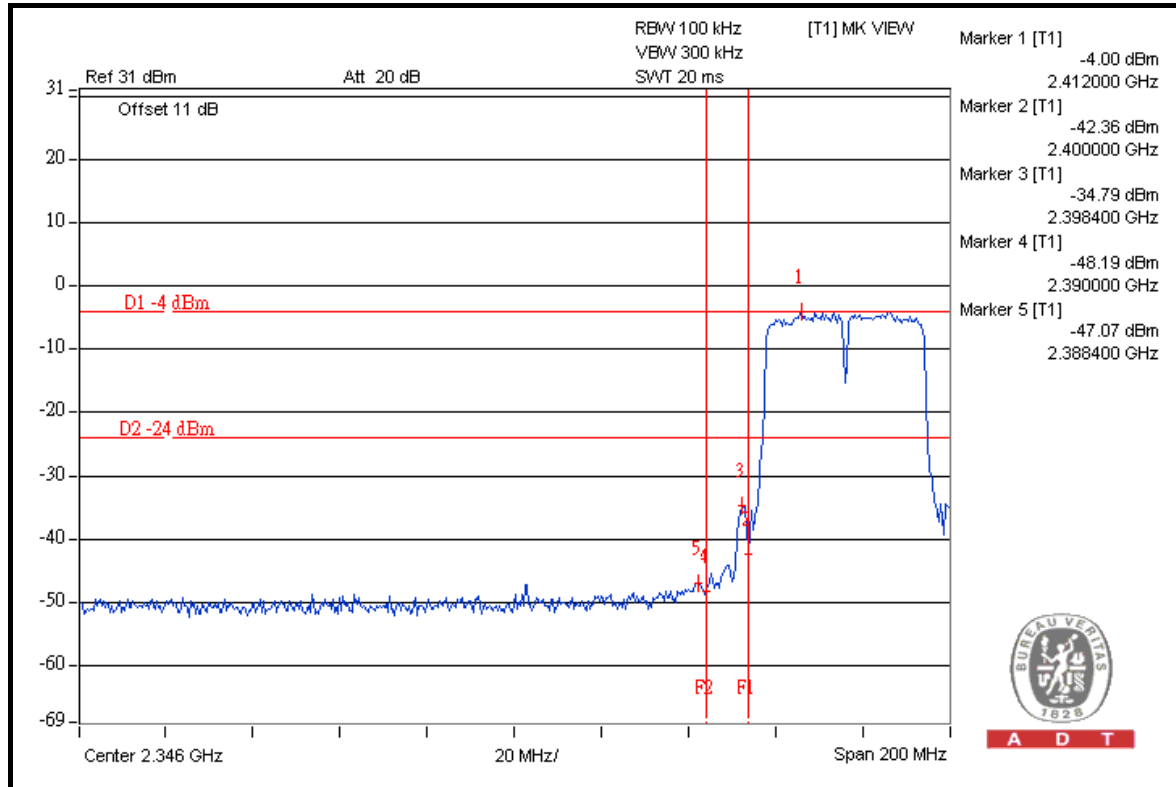
A D T



A D T

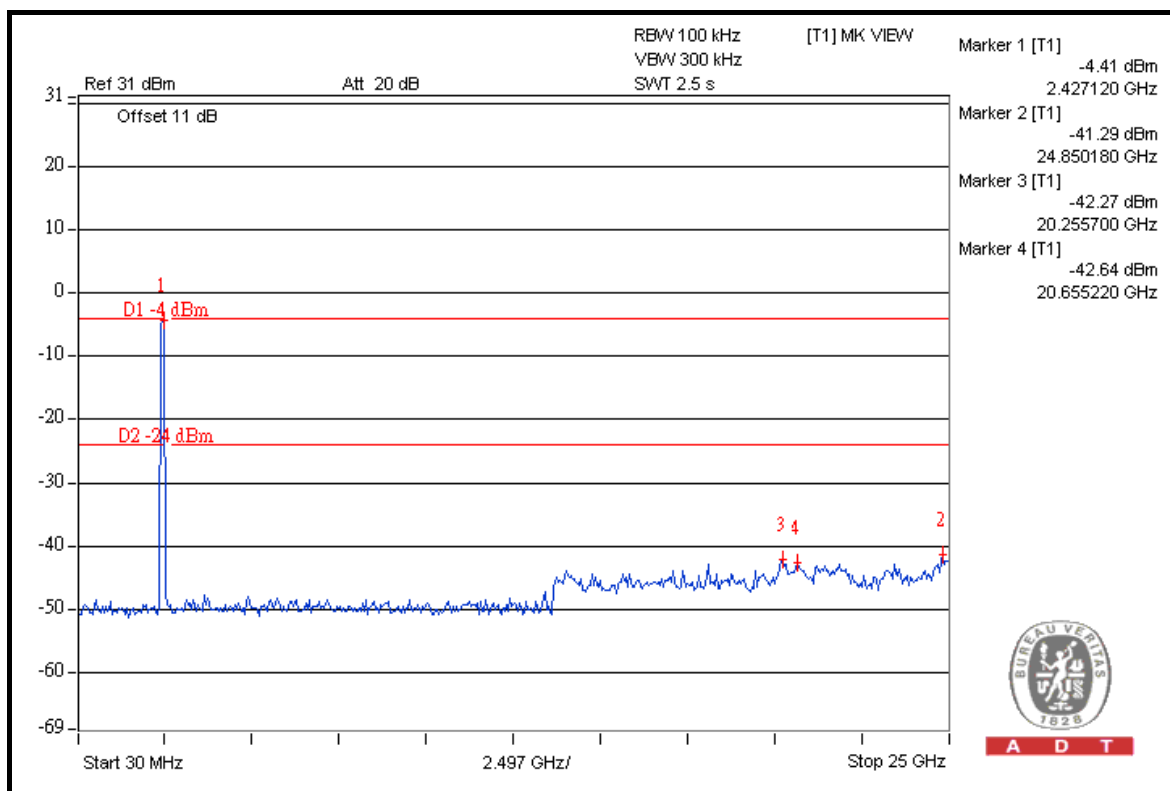
FOR CONDUCTED MEASURED

CHAIN 0

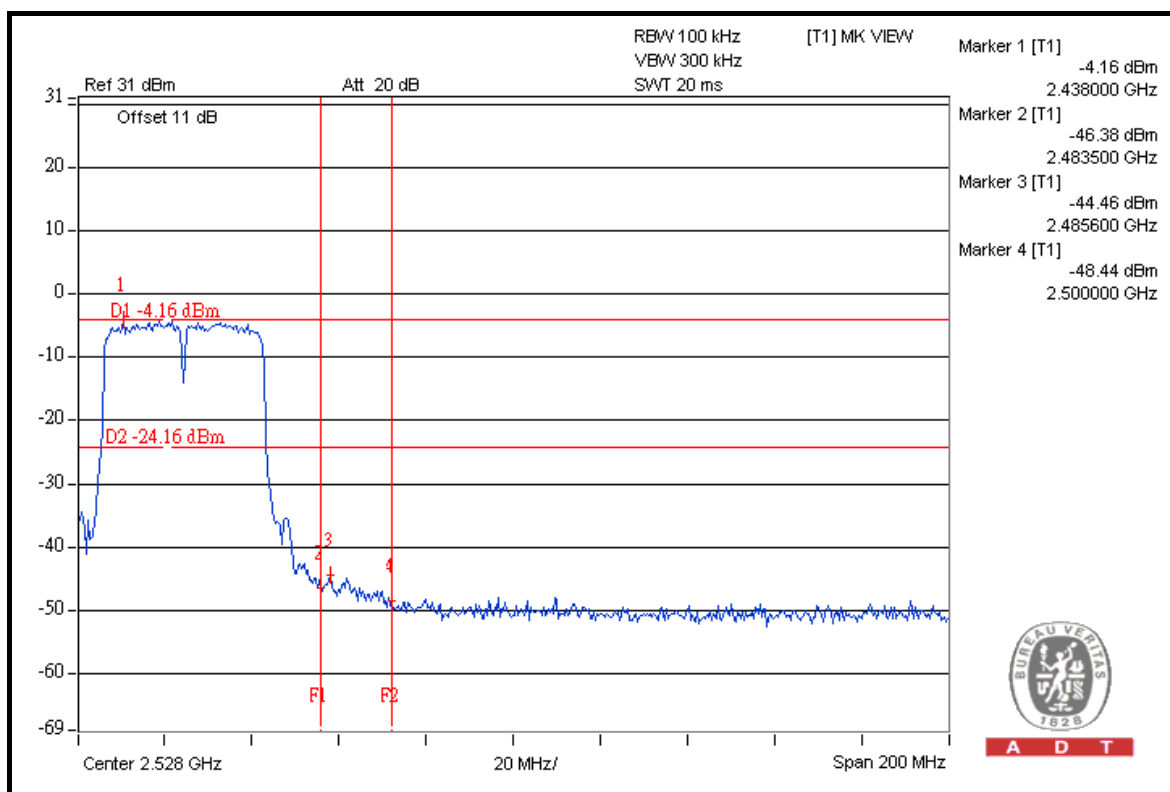




A D T



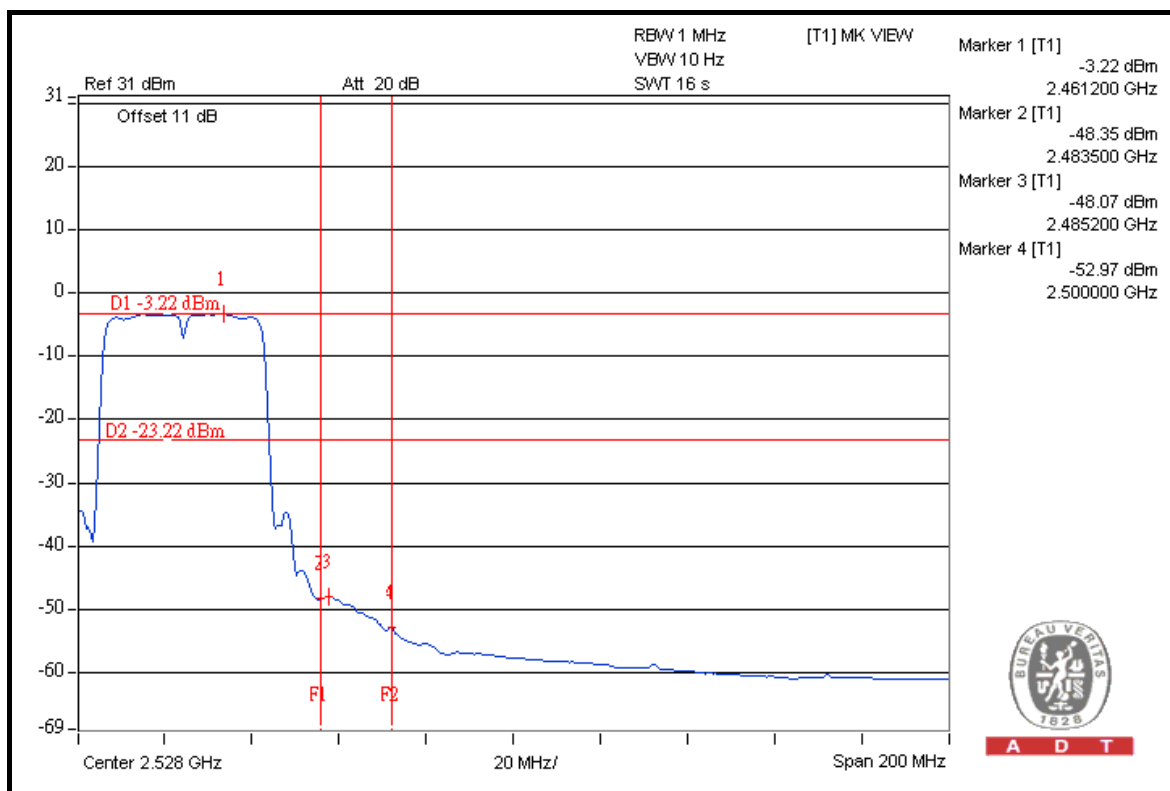
A D T



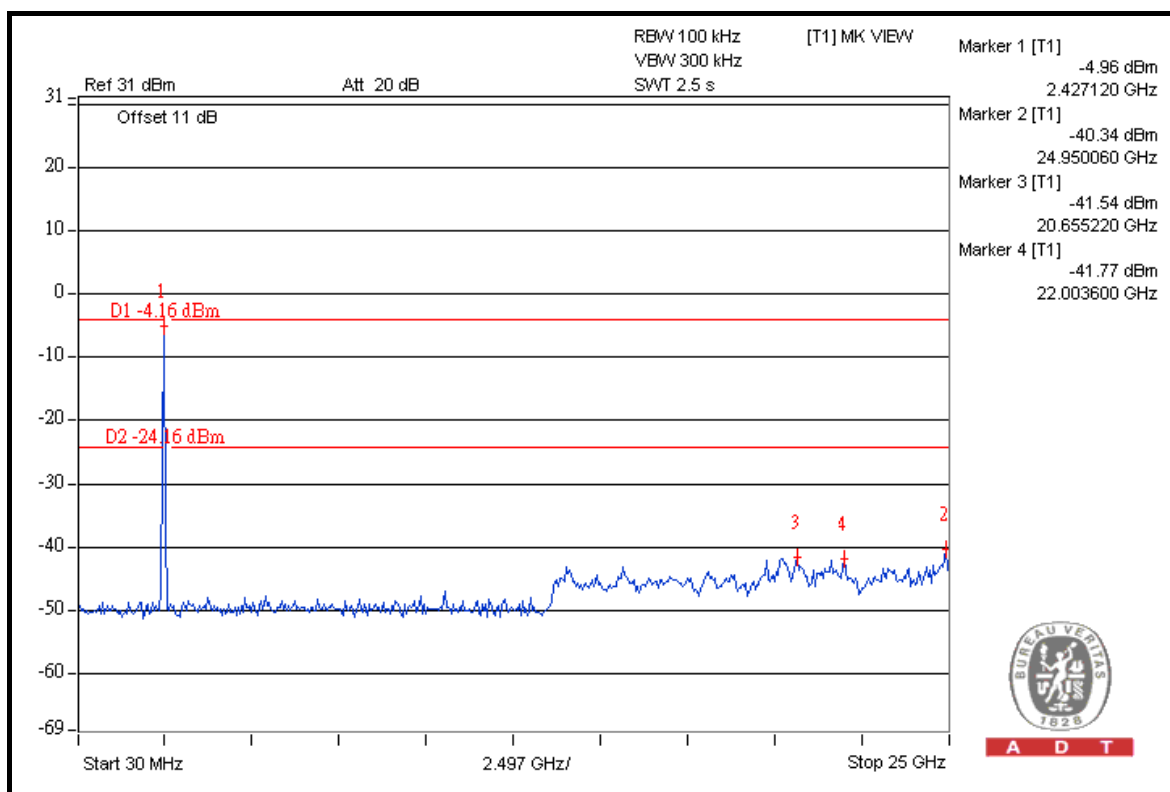
A D T



A D T



A D T

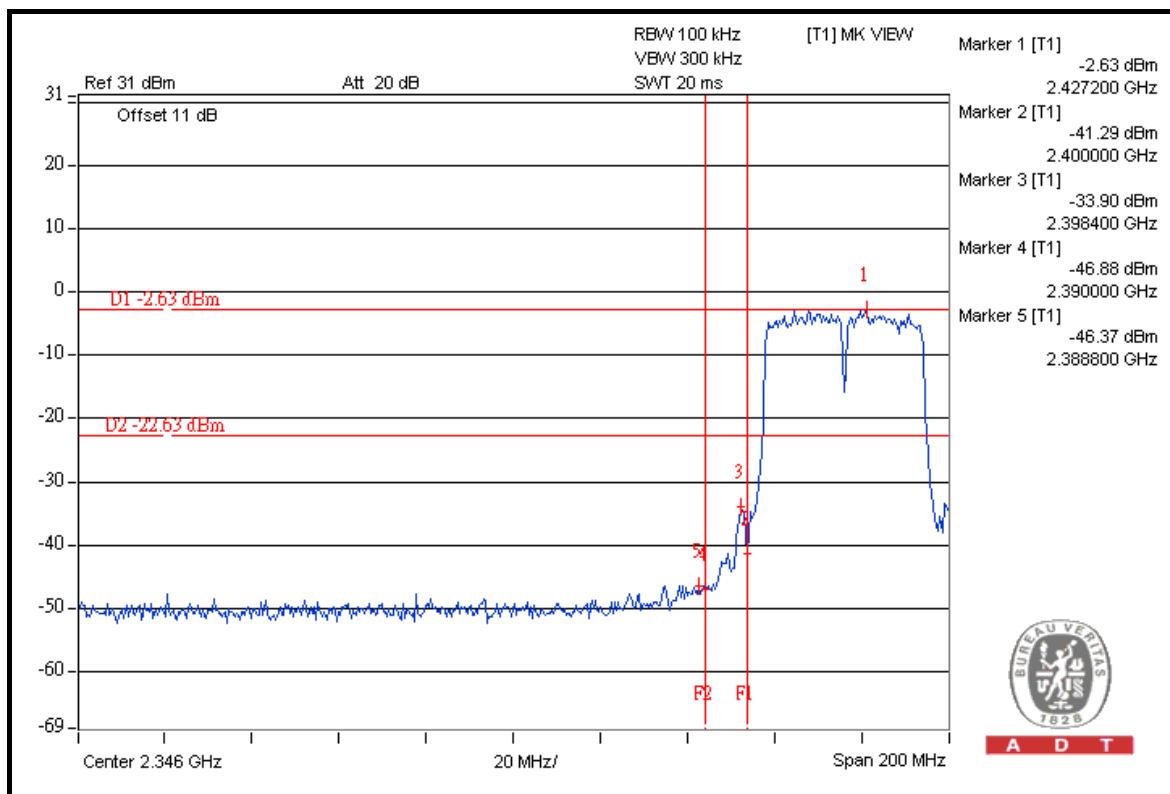


A D T

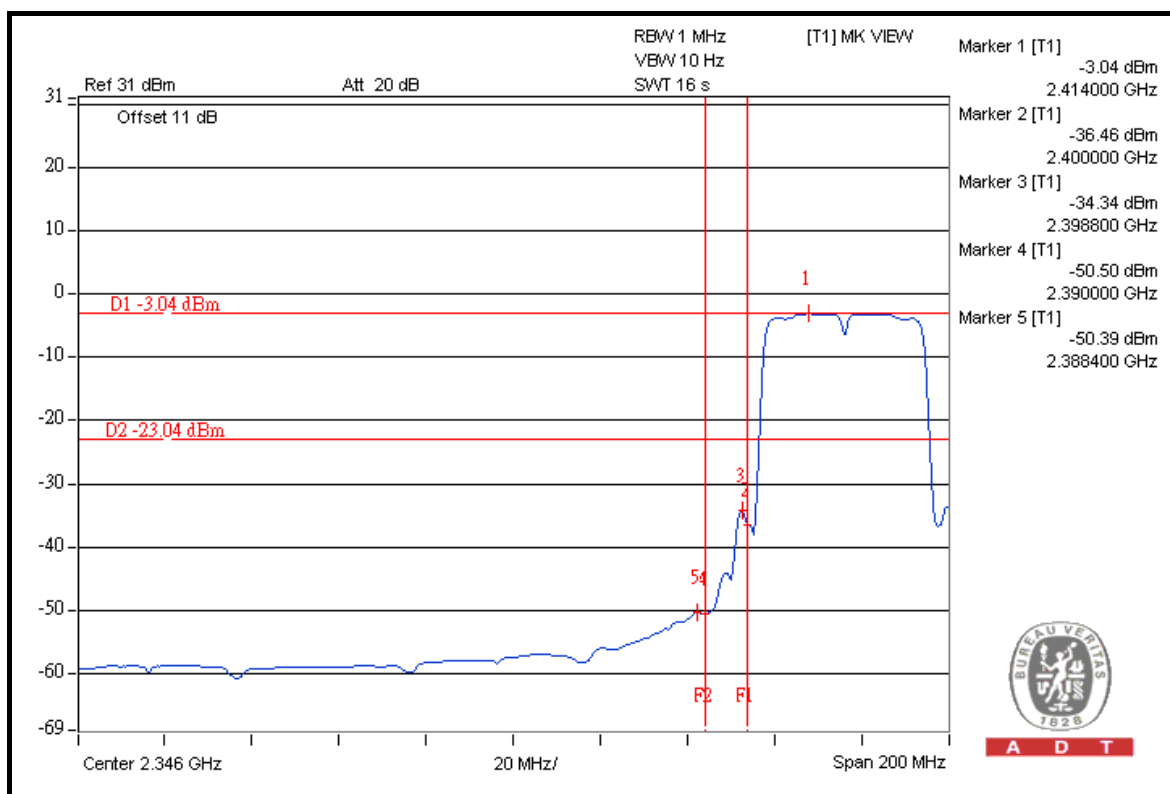


A D T

CHAIN 1



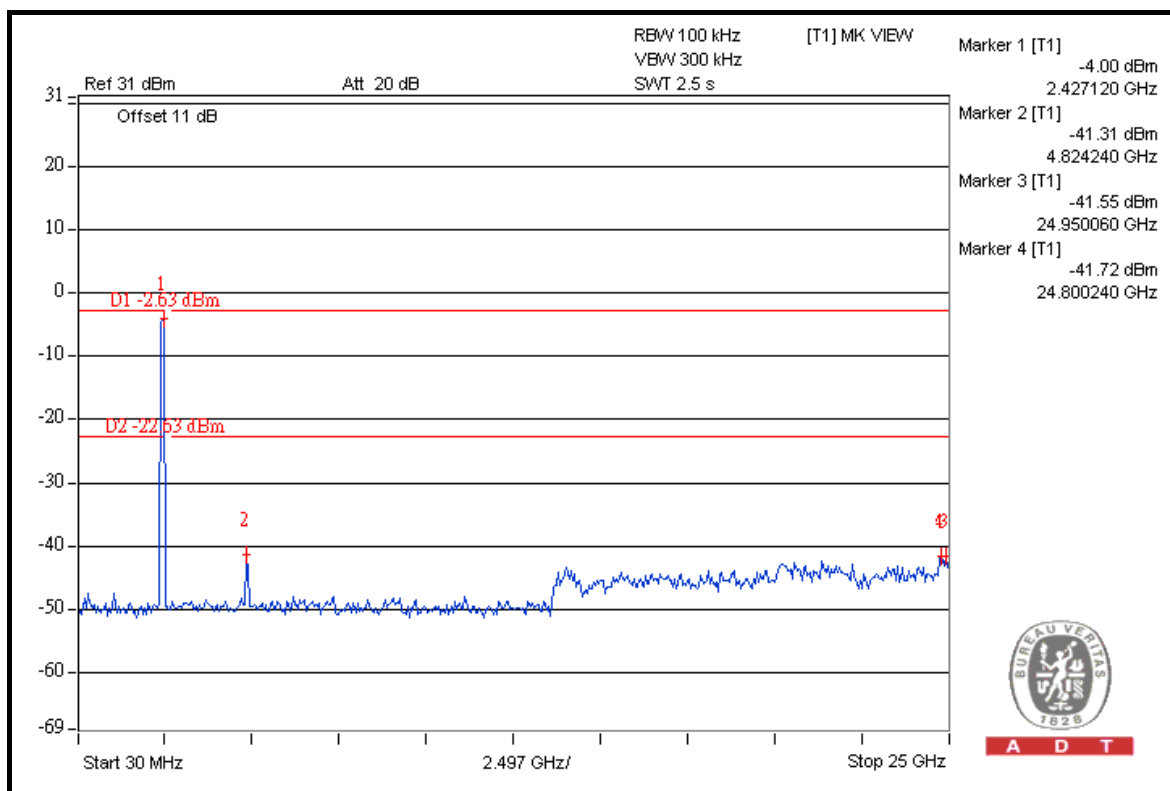
A D T



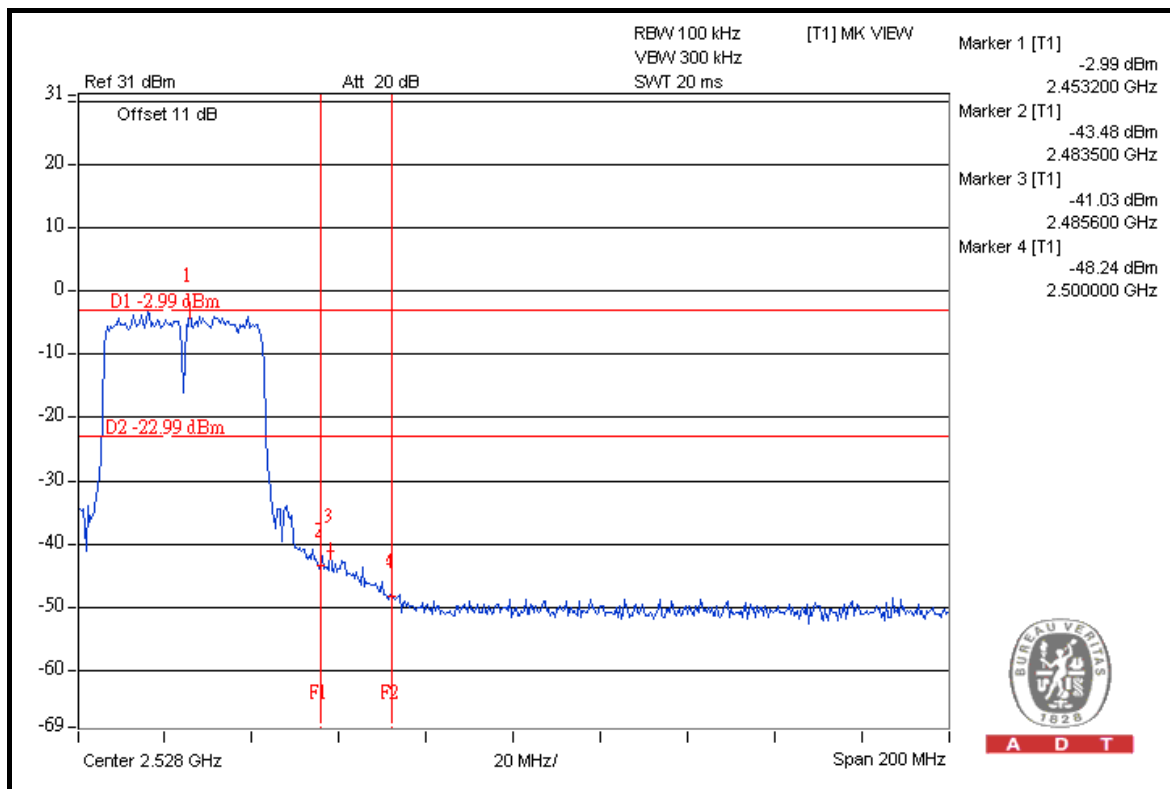
A D T



A D T



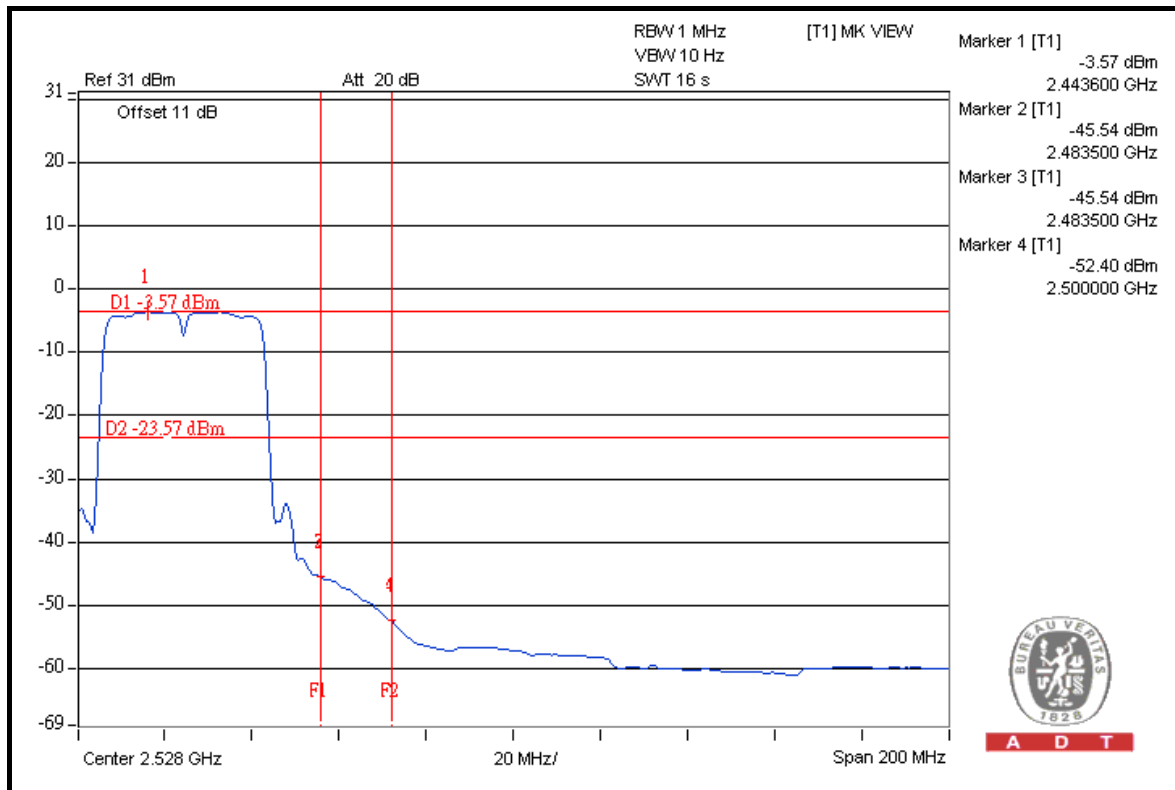
A D T



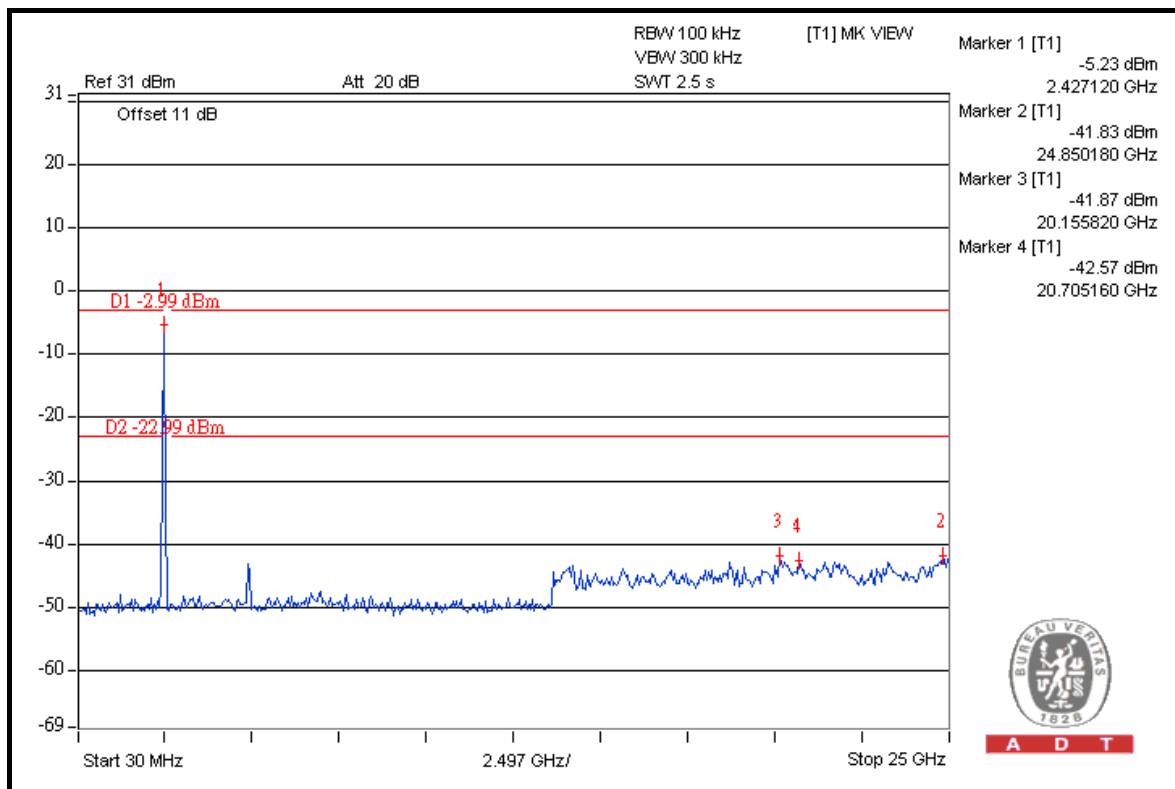
A D T



A D T



A D T



A D T

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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

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

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

---END---