FCC TEST REPORT
(WLAN)

REPORT NO.:	RF110715C25A
MODEL NO.:	F-01E
FCC ID:	VQK-F01E
RECEIVED:	Jul. 15, 2011
TESTED:	Aug. 21 ~ Aug. 27, 2011 (For Sample 1)
	Sep. 12 ~ Sep. 15, 2012 (For Sample 2)
ISSUED:	Sep. 17, 2012

APPLICANT:	FUJITSU LIMITED
ADDRESS:	1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan

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 report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110715C25A	Original release	Sep. 17, 2012

1. CERTIFICATION

PRODUCT: Mobile Phone
MODEL: F-01E
BRAND: FOMA
APPLICANT: FUJITSU LIMITED
TESTED: Aug. 21 ~ Aug. 27, 2011 (For Sample 1)
Sep. 12 ~ Sep. 15, 2012 (For Sample 2)
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (Model: F-01E) 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:** Sep. 17, 2012
Pettie Chen / Senior Specialist

APPROVED BY : _____ , **DATE:** Sep. 17, 2012
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 -19.89dB at 0.739MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -6.0dB at 2390.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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 (Sample 1)	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB
Radiated emissions (Sample 2)	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 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

EUT	Mobile Phone
MODEL NO.	F-01E
POWER SUPPLY	3.7Vdc (Li-ion battery) 5.4Vdc (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 (20MHz): up to 72.2Mbps
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	19.4mW
ANTENNA TYPE	λ/4 Monopole Antenna with -1.73dBi gain
ANTENNA CONNECTOR	NA
I/O PORTS	Refer to user's manual
DATA CABLE	NA
ACCESSORY DEVICES	Battery

NOTE:

1. There are two samples for the EUT. The differences between these two samples are HW versions and GPS function (sample 1 is without GPS function, sample 2 is with GPS function). The difference of two HW versions is the mechanical part of top cover. All tests were fully tested on the sample 1, and sample 2 was verified on the worst condition of sample 1.
2. The EUT use the following internal Li-ion battery:

BRAND	Fujitsu Limited
MODEL	F19
RATING	3.7Vdc, 830mAh

3. The following accessories are for optional units only.

PRODUCT	BRAND	MODEL	DESCRIPTION
ADAPTER	SMK	NA	I/P: 100-240Vac, 0.12A, 50-60Hz O/P: 5.4Vdc, 700mA
USB cable	NA	NA	0.8m non-shielded cable without core

4. The EUT provides one completed transmitter and one receiver.

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

5. The following table is for HW and SW.

ITEM	HARDWARE VERSION	SOFTWARE VERSION
Sample 1	V2.2	R17.2
Sample 2	V1.2.0	R08.2

6. The following table is for IMEI code.

ITEM	IMEI code
Sample 1	357261040007442 & 357261040007434
Sample 2	353705050008017

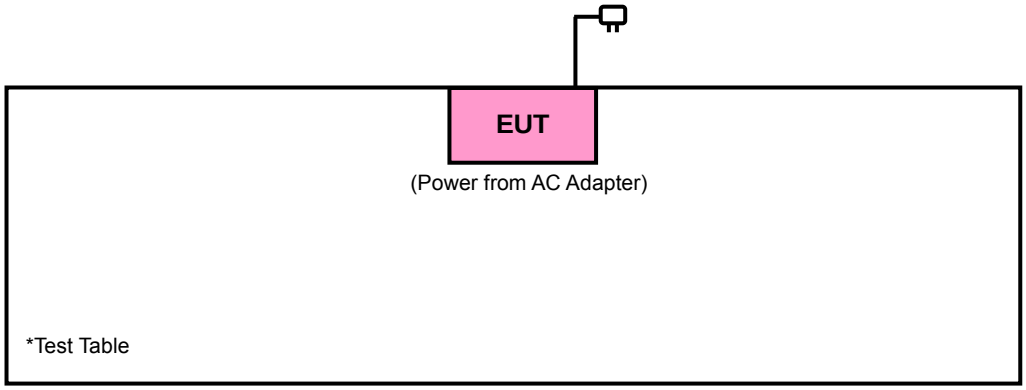
7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

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		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Sample 1
B	√	√	√	-	Sample 2

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

NOTE:
The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**
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 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	6.5
B	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	11	DSSS	DBPSK	1.0
B	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5

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	802.11b	1 to 11	11	DSSS	DBPSK	1.0
B	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5

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	6.5

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	6.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G (Test Mode A)	25deg. C, 65%RH	120Vac, 60Hz	David Huang
RE<1G (Test Mode B)	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
RE<1G (Test Mode A)	25deg. C, 65%RH	120Vac, 60Hz	David Huang
RE<1G (Test Mode B)	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
PLC (Test Mode A)	23deg. C, 62%RH	120Vac, 60Hz	Ariel Lin
PLC (Test Mode B)	25deg. C, 52%RH	120Vac, 60Hz	David Huang
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)
558074 D01 DTS Meas Guidance v01
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.

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. 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

Test Mode A

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	9120D-405	Feb. 08, 2011	Feb. 07, 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.

Test Mode B

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver Agilent	N9038A	MY51210203	Dec. 22, 2011	Dec. 21, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2011	Dec. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 20, 2011	Dec. 19, 2012
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 30, 2011	Dec. 29, 2012
Preamplifier EMCI	EMC 330H	980112	Dec. 30, 2011	Dec. 29, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 21, 2011	Oct. 20, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Jan. 02, 2012	Jan. 01, 2013
RF signal cable Worken	RG-213	NA	Jan. 02, 2012	Jan. 01, 2013
Software	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 9.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 460141.
6. The IC Site Registration No. is IC 7450F-4.

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.

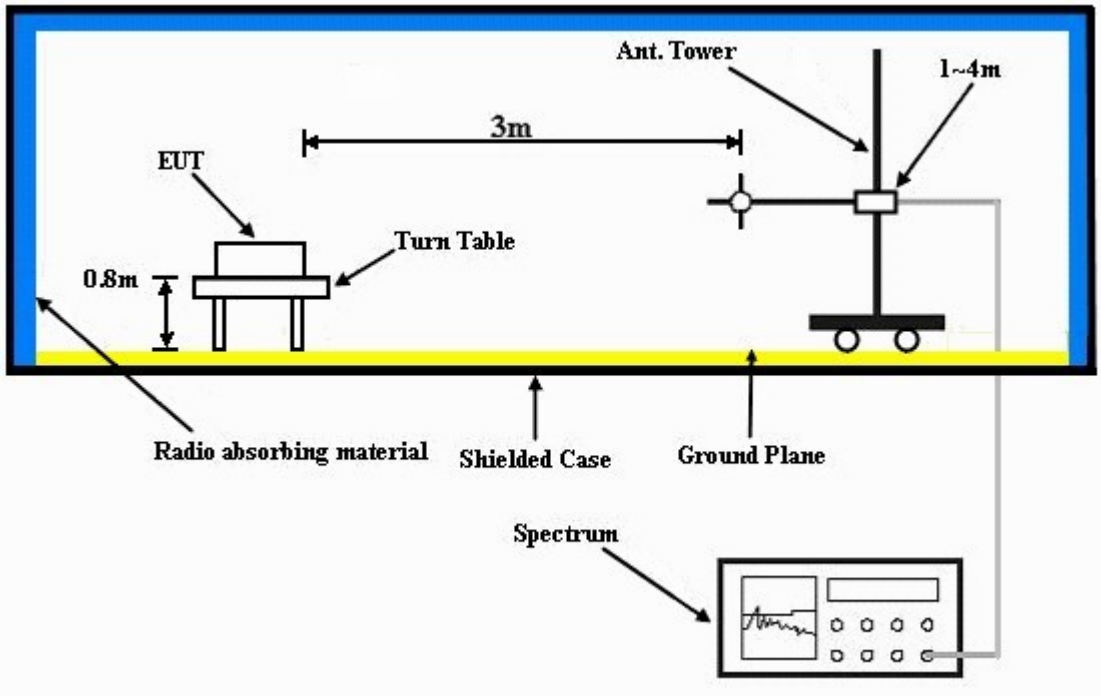
NOTE:

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

4.1.4 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

a. Placed the EUT on a testing table.

b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	2390.00	53.8 PK	74.0	-20.2	1.07 H	5	23.30	30.50
2	2390.00	44.5 AV	54.0	-9.5	1.07 H	5	14.00	30.50
3	*2412.00	104.2 PK			1.07 H	5	73.60	30.60
4	*2412.00	97.8 AV			1.07 H	5	67.20	30.60
5	4824.00	47.3 PK	74.0	-26.7	1.00 H	149	10.70	36.60
6	4824.00	37.2 AV	54.0	-16.8	1.00 H	149	0.60	36.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.2 PK	74.0	-19.8	1.67 V	192	23.70	30.50
2	2390.00	44.0 AV	54.0	-10.0	1.67 V	192	13.50	30.50
3	*2412.00	99.7 PK			1.67 V	192	69.10	30.60
4	*2412.00	94.7 AV			1.67 V	192	64.10	30.60
5	4824.00	48.2 PK	74.0	-25.8	1.03 V	126	11.60	36.60
6	4824.00	36.9 AV	54.0	-17.1	1.03 V	126	0.30	36.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	2390.00	55.9 PK	74.0	-18.1	1.32 H	1	25.40	30.50
2	2390.00	43.8 AV	54.0	-10.2	1.32 H	1	13.30	30.50
3	*2437.00	104.7 PK			1.38 H	138	74.00	30.70
4	*2437.00	99.3 AV			1.38 H	138	68.60	30.70
5	4874.00	49.1 PK	74.0	-24.9	1.03 H	159	12.40	36.70
6	4874.00	40.6 AV	54.0	-13.4	1.03 H	159	3.90	36.70
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	2390.00	54.4 PK	74.0	-19.6	1.74 V	186	23.90	30.50
2	2390.00	43.7 AV	54.0	-10.3	1.74 V	186	13.20	30.50
3	*2437.00	100.5 PK			1.74 V	186	69.80	30.70
4	*2437.00	95.0 AV			1.74 V	186	64.30	30.70
5	4874.00	48.4 PK	74.0	-25.6	1.00 V	202	11.70	36.70
6	4874.00	37.9 AV	54.0	-16.1	1.00 V	202	1.20	36.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	*2462.00	104.5 PK			1.04 H	136	73.70	30.80
2	*2462.00	97.6 AV			1.04 H	136	66.80	30.80
3	2483.50	56.7 PK	74.0	-17.3	1.04 H	136	25.90	30.80
4	2483.50	45.4 AV	54.0	-8.6	1.04 H	136	14.60	30.80
5	4924.00	46.2 PK	74.0	-27.8	1.04 H	136	9.40	36.80
6	4924.00	39.1 AV	54.0	-14.9	1.04 H	136	2.30	36.80
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	*2462.00	99.6 PK			1.63 V	191	68.80	30.80
2	*2462.00	94.0 AV			1.63 V	191	63.20	30.80
3	2483.50	54.9 PK	74.0	-19.1	1.63 V	191	24.10	30.80
4	2483.50	44.7 AV	54.0	-9.3	1.63 V	191	13.90	30.80
5	4924.00	47.8 PK	74.0	-26.2	1.00 V	167	11.00	36.80
6	4924.00	37.6 AV	54.0	-16.4	1.00 V	167	0.80	36.80

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.

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	2390.00	63.9 PK	74.0	-10.1	1.32 H	144	33.40	30.50
2	2390.00	46.4 AV	54.0	-7.6	1.32 H	144	15.90	30.50
3	*2412.00	104.4 PK			1.32 H	144	73.80	30.60
4	*2412.00	89.0 AV			1.32 H	144	58.40	30.60
5	4824.00	45.1 PK	74.0	-28.9	1.00 H	193	8.50	36.60
6	4824.00	32.2 AV	54.0	-21.8	1.00 H	193	-4.40	36.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	1.06 V	203	26.30	30.50
2	2390.00	44.8 AV	54.0	-9.2	1.06 V	203	14.30	30.50
3	*2412.00	98.6 PK			1.06 V	203	68.00	30.60
4	*2412.00	83.5 AV			1.06 V	203	52.90	30.60
5	4824.00	45.1 PK	74.0	-28.9	1.00 V	254	8.50	36.60
6	4824.00	32.0 AV	54.0	-22.0	1.00 V	254	-4.60	36.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	2390.00	61.6 PK	74.0	-12.4	1.30 H	164	31.10	30.50
2	2390.00	47.6 AV	54.0	-6.4	1.30 H	164	17.10	30.50
3	*2437.00	104.6 PK			1.30 H	164	73.90	30.70
4	*2437.00	89.4 AV			1.30 H	164	58.70	30.70
5	4874.00	45.3 PK	74.0	-28.7	1.00 H	152	8.60	36.70
6	4874.00	32.9 AV	54.0	-21.1	1.00 H	152	-3.80	36.70
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	2390.00	55.9 PK	74.0	-18.1	1.05 V	221	25.40	30.50
2	2390.00	43.7 AV	54.0	-10.3	1.05 V	221	13.20	30.50
3	*2437.00	98.9 PK			1.05 V	221	68.20	30.70
4	*2437.00	83.8 AV			1.05 V	221	53.10	30.70
5	4874.00	45.6 PK	74.0	-28.4	1.00 V	231	8.90	36.70
6	4874.00	32.4 AV	54.0	-21.6	1.00 V	231	-4.30	36.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	*2462.00	104.7 PK			1.27 H	182	73.90	30.80
2	*2462.00	89.5 AV			1.27 H	182	58.70	30.80
3	2483.50	64.6 PK	74.0	-9.4	1.27 H	182	33.80	30.80
4	2483.50	47.3 AV	54.0	-6.7	1.27 H	182	16.50	30.80
5	4924.00	44.4 PK	74.0	-29.6	1.00 H	201	7.60	36.80
6	4924.00	32.3 AV	54.0	-21.7	1.00 H	201	-4.50	36.80
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	*2462.00	98.7 PK			1.05 V	194	67.90	30.80
2	*2462.00	83.7 AV			1.05 V	194	52.90	30.80
3	2483.50	58.0 PK	74.0	-16.0	1.05 V	194	27.20	30.80
4	2483.50	45.9 AV	54.0	-8.1	1.05 V	194	15.10	30.80
5	4924.00	41.3 PK	74.0	-32.7	1.00 V	124	4.50	36.80
6	4924.00	28.2 AV	54.0	-25.8	1.00 V	124	-8.60	36.80

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	2390.00	64.1 PK	74.0	-9.9	1.25 H	145	33.60	30.50
2	2390.00	46.8 AV	54.0	-7.2	1.25 H	145	16.30	30.50
3	*2412.00	104.1 PK			1.25 H	145	73.50	30.60
4	*2412.00	89.1 AV			1.25 H	145	58.50	30.60
5	4824.00	46.2 PK	74.0	-27.8	1.00 H	243	9.60	36.60
6	4824.00	33.1 AV	54.0	-20.9	1.00 H	243	-3.50	36.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.1 PK	74.0	-16.9	1.06 V	215	26.60	30.50
2	2390.00	45.2 AV	54.0	-8.8	1.06 V	215	14.70	30.50
3	*2412.00	98.3 PK			1.06 V	215	67.70	30.60
4	*2412.00	83.4 AV			1.06 V	215	52.80	30.60
5	4824.00	41.2 PK	74.0	-32.8	1.00 V	187	4.60	36.60
6	4824.00	29.1 AV	54.0	-24.9	1.00 V	187	-7.50	36.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	2390.00	62.1 PK	74.0	-11.9	1.30 H	181	31.60	30.50
2	**2390.00**	**48.0 AV**	**54.0**	**-6.0**	**1.30 H**	**181**	**17.50**	**30.50**
3	*2437.00	104.2 PK			1.30 H	181	73.50	30.70
4	*2437.00	89.2 AV			1.30 H	181	58.50	30.70
5	4874.00	46.2 PK	74.0	-27.8	1.00 H	172	9.50	36.70
6	4874.00	33.6 AV	54.0	-20.4	1.00 H	172	-3.10	36.70
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	2390.00	56.1 PK	74.0	-17.9	1.05 V	167	25.60	30.50
2	2390.00	44.2 AV	54.0	-9.8	1.05 V	167	13.70	30.50
3	*2437.00	98.5 PK			1.05 V	167	67.80	30.70
4	*2437.00	83.4 AV			1.05 V	167	52.70	30.70
5	4874.00	44.3 PK	74.0	-29.7	1.00 V	124	7.60	36.70
6	4874.00	32.0 AV	54.0	-22.0	1.00 V	124	-4.70	36.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
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	*2462.00	104.3 PK			1.25 H	231	73.50	30.80
2	*2462.00	89.3 AV			1.25 H	231	58.50	30.80
3	2483.50	64.9 PK	74.0	-9.1	1.25 H	210	34.10	30.80
4	2483.50	47.8 AV	54.0	-6.2	1.25 H	210	17.00	30.80
5	4924.00	44.6 PK	74.0	-29.4	1.00 H	232	7.80	36.80
6	4924.00	32.7 AV	54.0	-21.3	1.00 H	232	-4.10	36.80
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	*2462.00	98.4 PK			1.05 V	234	67.60	30.80
2	*2462.00	83.3 AV			1.05 V	234	52.50	30.80
3	2483.50	58.6 PK	74.0	-15.4	1.05 V	234	27.80	30.80
4	2483.50	46.3 AV	54.0	-7.7	1.05 V	234	15.50	30.80
5	4924.00	42.3 PK	74.0	-31.7	1.00 V	213	5.50	36.80
6	4924.00	29.7 AV	54.0	-24.3	1.00 V	213	-7.10	36.80

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.

BELOW 1GHz WORST-CASE DATA：802.11b

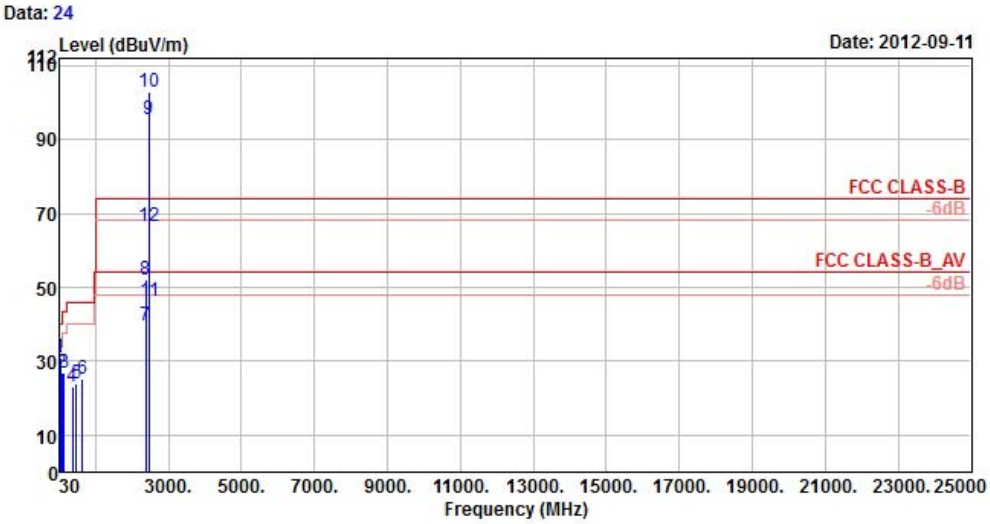
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang
TEST MODE	A		

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	74.62	18.5 QP	40.0	-21.5	1.50 H	166	7.80	10.70
2	125.17	22.3 QP	43.5	-21.2	1.50 H	55	9.40	12.90
3	187.39	25.6 QP	43.5	-17.9	1.50 H	16	13.80	11.80
4	282.66	21.7 QP	46.0	-24.3	1.00 H	58	7.50	14.20
5	471.25	26.8 QP	46.0	-19.2	1.50 H	109	7.40	19.40
6	768.73	27.8 QP	46.0	-18.2	1.00 H	79	2.90	24.90
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	45.45	26.9 QP	40.0	-13.1	1.00 V	310	12.50	14.40
2	72.67	24.1 QP	40.0	-15.9	1.50 V	88	12.80	11.30
3	101.84	19.6 QP	43.5	-23.9	1.00 V	10	9.20	10.40
4	204.89	18.8 QP	43.5	-24.7	1.00 V	64	8.20	10.60
5	424.59	21.4 QP	46.0	-24.6	1.00 V	253	3.30	18.10
6	471.25	24.3 QP	46.0	-21.7	1.00 V	10	4.90	19.40

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.

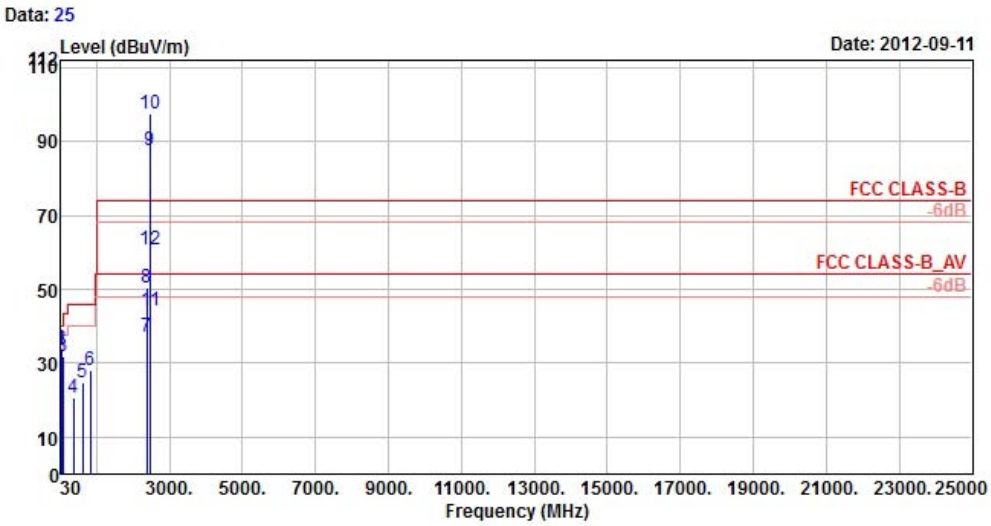
Test Mode B

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF HORIZONTAL
Brand/Model: F-01E
Remark : 11N_HT20 TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0

	Freq	Level	Read Level	Limit Line	Over Limit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	42.15	30.97	47.77	40.00	-9.03	13.58	0.70	31.08	100	225	Peak
2	75.90	26.77	48.15	40.00	-13.23	9.33	0.94	31.65	100	175	Peak
3	131.79	26.86	45.63	43.50	-16.64	11.81	1.25	31.83	100	196	Peak
4	361.60	23.02	38.28	46.00	-22.98	14.43	2.27	31.96	100	196	Peak
5	479.90	24.12	36.33	46.00	-21.88	16.93	2.71	31.85	100	156	Peak
6	650.00	25.37	33.94	46.00	-20.63	20.21	3.24	32.02	100	321	Peak
7	2388.00	39.84	45.23	54.00	-14.16	27.26	4.85	37.50	104	155	Average
8	2388.00	52.13	57.52	74.00	-21.87	27.26	4.85	37.50	104	155	Peak
9 pp	2462.00	95.53	100.56			27.45	4.91	37.39	104	155	Average
10 pk	2462.00	103.09	108.12			27.45	4.91	37.39	104	155	Peak
11	2483.50	46.25	51.15	54.00	-7.75	27.50	4.92	37.32	104	155	Average
12	2483.50	66.35	71.25	74.00	-7.65	27.50	4.92	37.32	104	155	Peak



Site : 966 Chamber 5
Condition : FCC CLASS-B 3m ANT_18G~40G_HF VERTICAL
Brand/Model: F-01E
Remark : 11N_HT20 TX CH11
Tested by : Kay Wu
Temprature : 25℃
Humidity : 65%
Plane : X
Rate : MCS0

	Freq	Level	Read Level	Limit Line	OverLimit	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m	dB	dB	cm	deg	
1	34.05	33.68	51.54	40.00	-6.32	12.63	0.59	31.08	100	269	QP
2 qp	42.15	33.83	50.63	40.00	-6.17	13.58	0.70	31.08	100	156	QP
3	75.36	31.78	53.16	40.00	-8.22	9.33	0.94	31.65	100	184	Peak
4	361.60	20.49	35.75	46.00	-25.51	14.43	2.27	31.96	100	251	Peak
5	617.10	24.60	33.79	46.00	-21.40	19.81	3.14	32.14	100	184	Peak
6	832.00	28.11	33.44	46.00	-17.89	22.64	3.77	31.74	100	132	Peak
7	2380.00	37.29	42.73	54.00	-16.71	27.21	4.85	37.50	123	198	Average
8	2380.00	50.50	55.94	[illegible]	[illegible]	27.21	4.85	37.50	123	198	Peak
9 pp	2462.00	87.61	92.64			27.45	4.91	37.39	123	198	Average
10 pk	2462.00	97.69	102.72	[illegible]	[illegible]	27.45	4.91	37.39	123	198	Peak
11	2484.00	44.35	49.25	54.00	-9.65	27.50	4.92	37.32	123	198	Average
12	2484.00	60.83	65.73	74.00	-13.17	27.50	4.92	37.32	123	198	Peak

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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

Test Mode A

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 23, 2010	Nov. 22, 2011
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 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 2.

3. The VCCI Site Registration No. is C-2047.

Test Mode B

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 19, 2011	Nov. 18, 2012
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2011	Dec. 29, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
Software ADT	BV ADT_Cond_ V7.3.7.3	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 2.
3. The VCCI Site Registration No. is C-2047.

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.

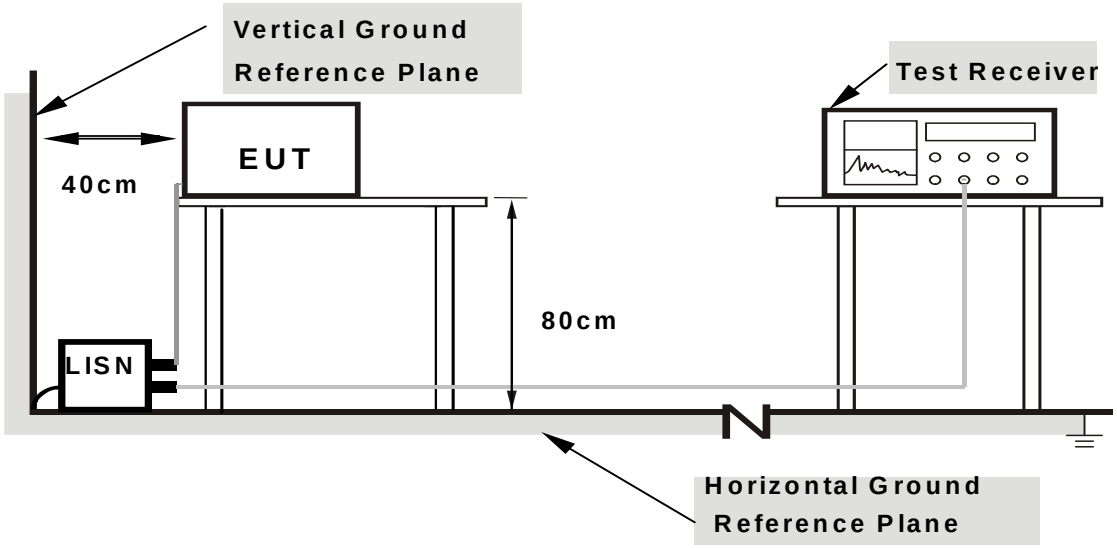
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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 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

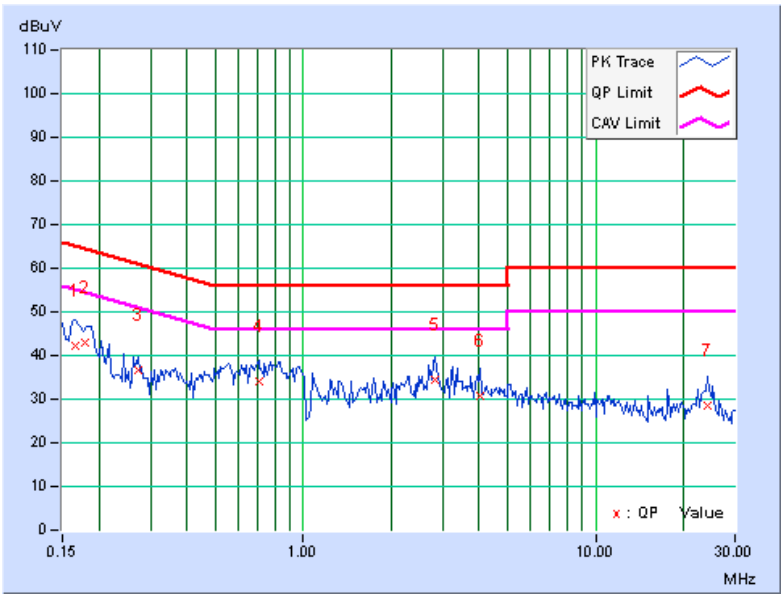
CONDUCTED WORST-CASE DATA：802.11g

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)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.17	41.95	28.25	42.12	28.42	65.18	55.18	-23.06	-26.76
2	0.17961	0.17	42.93	35.77	43.10	35.94	64.50	54.50	-21.41	-18.57
3	0.27109	0.18	36.34	34.28	36.52	34.46	61.08	51.08	-24.56	-16.62
4	0.70469	0.22	33.97	22.38	34.19	22.60	56.00	46.00	-21.81	-23.40
5	2.82422	0.31	33.97	23.94	34.28	24.25	56.00	46.00	-21.72	-21.75
6	4.03906	0.37	30.49	21.14	30.86	21.51	56.00	46.00	-25.14	-24.49
7	24.04297	1.32	27.34	18.44	28.66	19.76	60.00	50.00	-31.34	-30.24

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

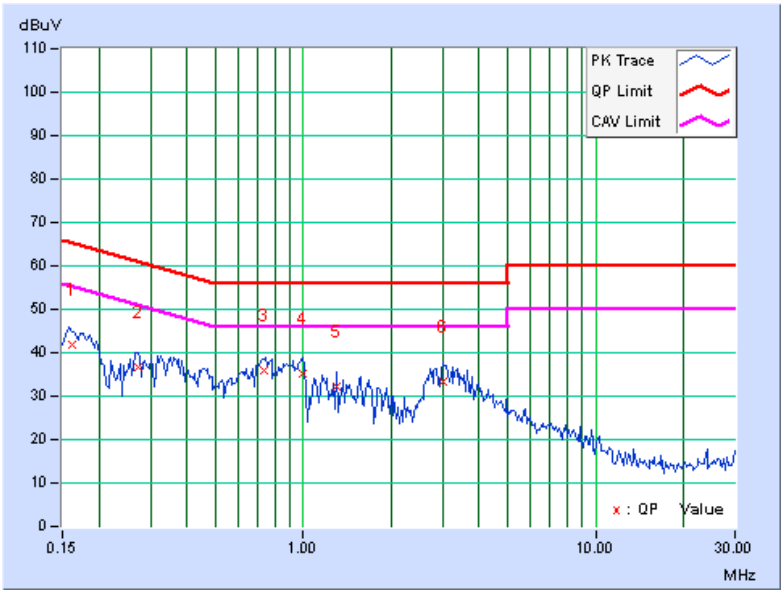


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16163	0.19	41.59	28.95	41.78	29.14	65.38	55.38	-23.60	-26.24
2	0.27101	0.19	36.40	34.34	36.59	34.53	61.09	51.09	-24.50	-16.56
3	**0.73875**	**0.21**	**35.90**	**23.67**	**36.11**	**23.88**	**56.00**	**46.00**	**-19.89**	**-22.12**
4	0.99766	0.21	34.93	23.58	35.14	23.79	56.00	46.00	-20.86	-22.21
5	1.29569	0.22	32.16	20.23	32.38	20.45	56.00	46.00	-23.62	-25.55
6	3.01563	0.30	33.14	24.52	33.44	24.82	56.00	46.00	-22.56	-21.18

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



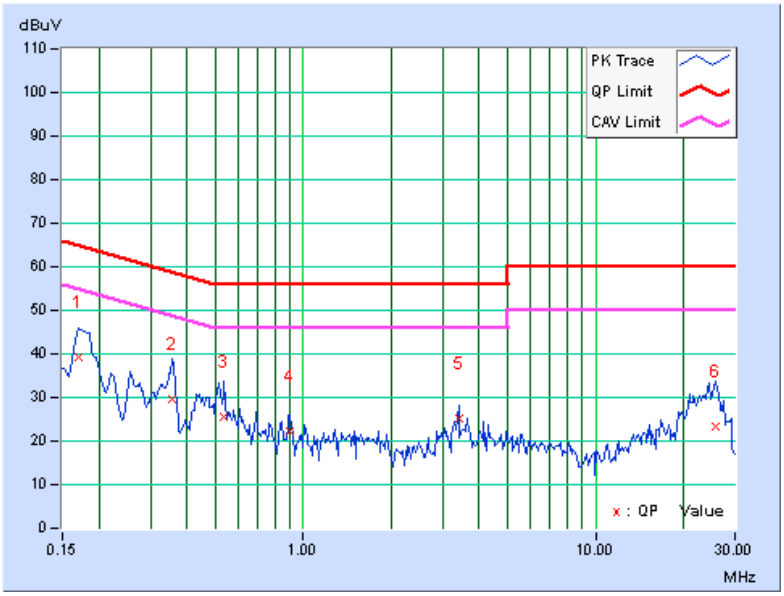
802.11n(20MHz)

PHASE	Line 1	6dB BANDWIDTH	9 kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.15	39.06	32.87	39.21	33.02	64.98	54.98	-25.77	-21.96
2	0.35703	0.17	29.42	20.73	29.59	20.90	58.80	48.80	-29.21	-27.90
3	0.53672	0.17	25.26	14.37	25.43	14.54	56.00	46.00	-30.57	-31.46
4	0.90391	0.19	22.18	9.77	22.37	9.96	56.00	46.00	-33.63	-36.04
5	3.40234	0.32	24.89	16.05	25.21	16.37	56.00	46.00	-30.79	-29.63
6	25.67188	0.57	22.75	10.48	23.32	11.05	60.00	50.00	-36.68	-38.95

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

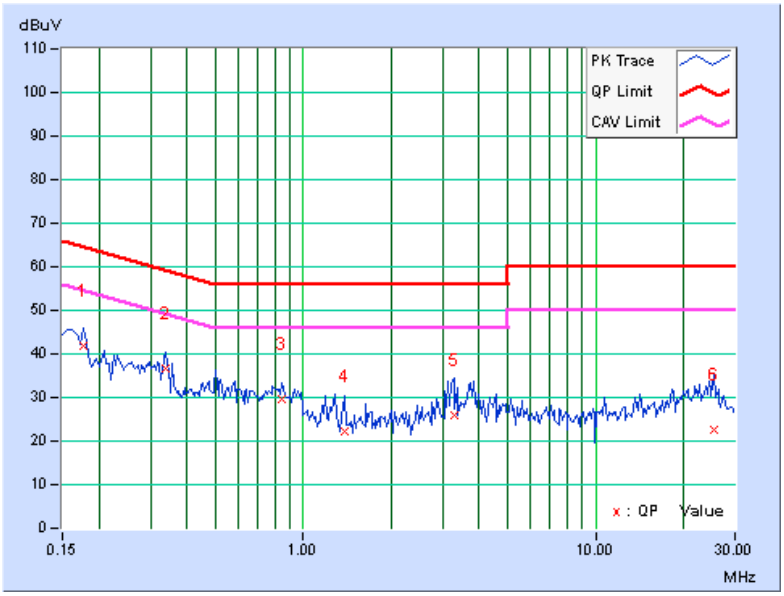


PHASE	Line 2	6dB BANDWIDTH	9 kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.14	41.58	33.67	41.72	33.81	64.61	54.61	-22.89	-20.80
2	0.33750	0.15	36.40	27.94	36.55	28.09	59.26	49.26	-22.71	-21.17
3	0.84141	0.18	29.36	20.68	29.54	20.86	56.00	46.00	-26.46	-25.14
4	1.38281	0.22	21.92	12.47	22.14	12.69	56.00	46.00	-33.86	-33.31
5	3.27734	0.32	25.58	16.79	25.90	17.11	56.00	46.00	-30.10	-28.89
6	25.51953	0.62	21.88	12.62	22.50	13.24	60.00	50.00	-37.50	-36.76

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. 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	100040	Aug. 01, 2011	Jul. 31, 2012

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

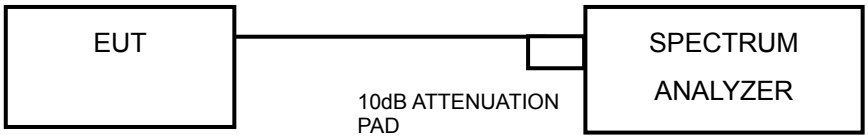
4.3.3 TEST PROCEDURE

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

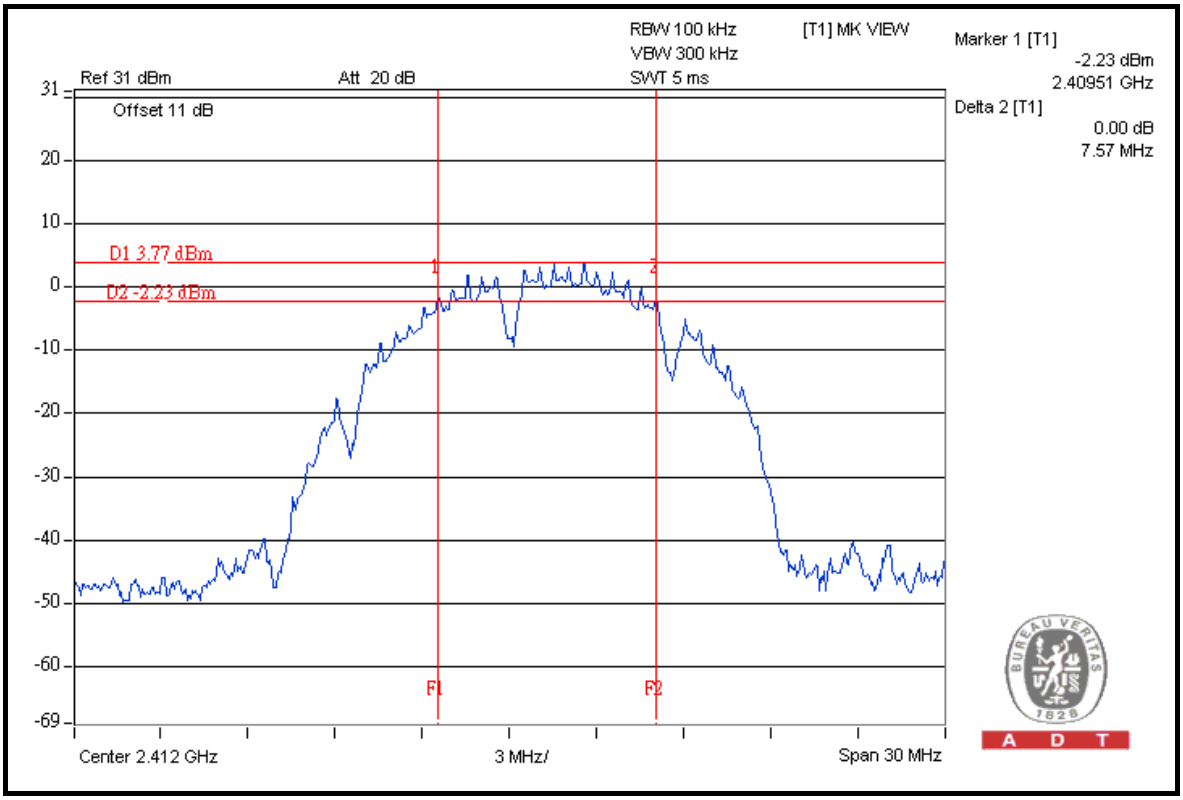
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	7.57	0.5	PASS
6	2437	7.55	0.5	PASS
11	2462	7.17	0.5	PASS

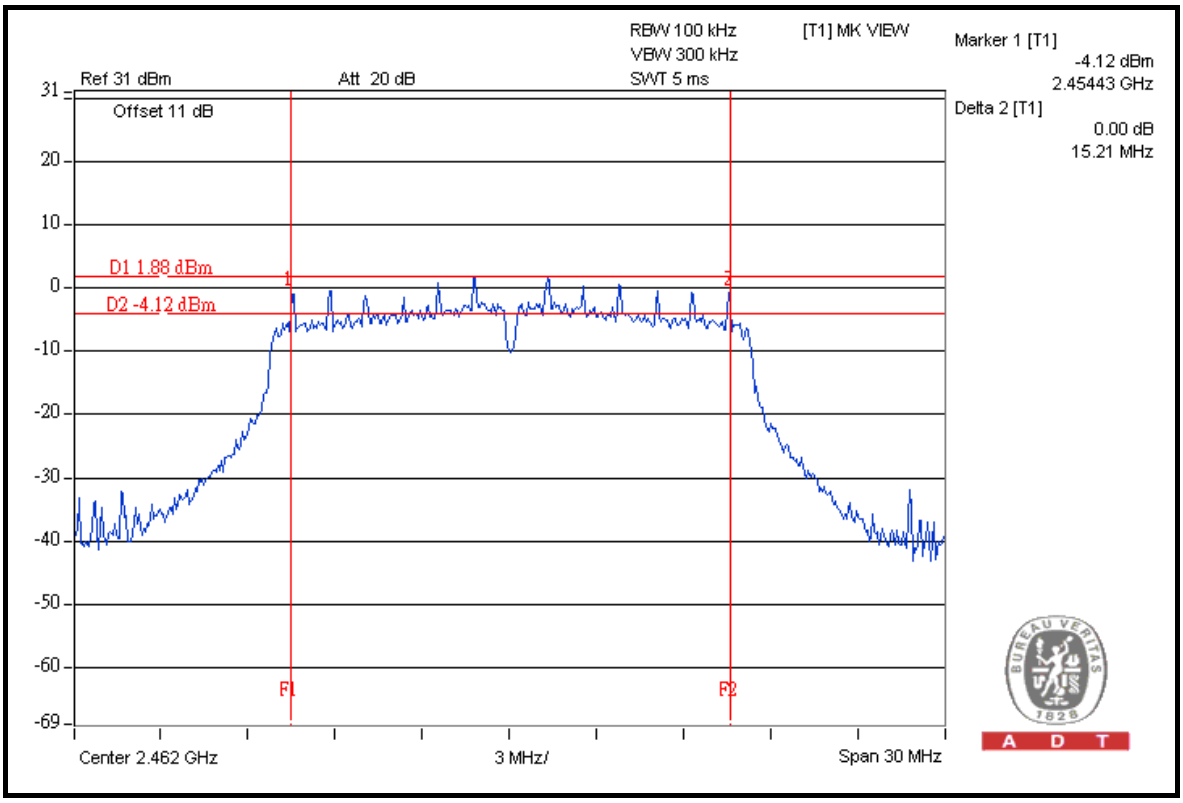
CH 1



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	13.92	0.5	PASS
6	2437	15.13	0.5	PASS
11	2462	15.21	0.5	PASS

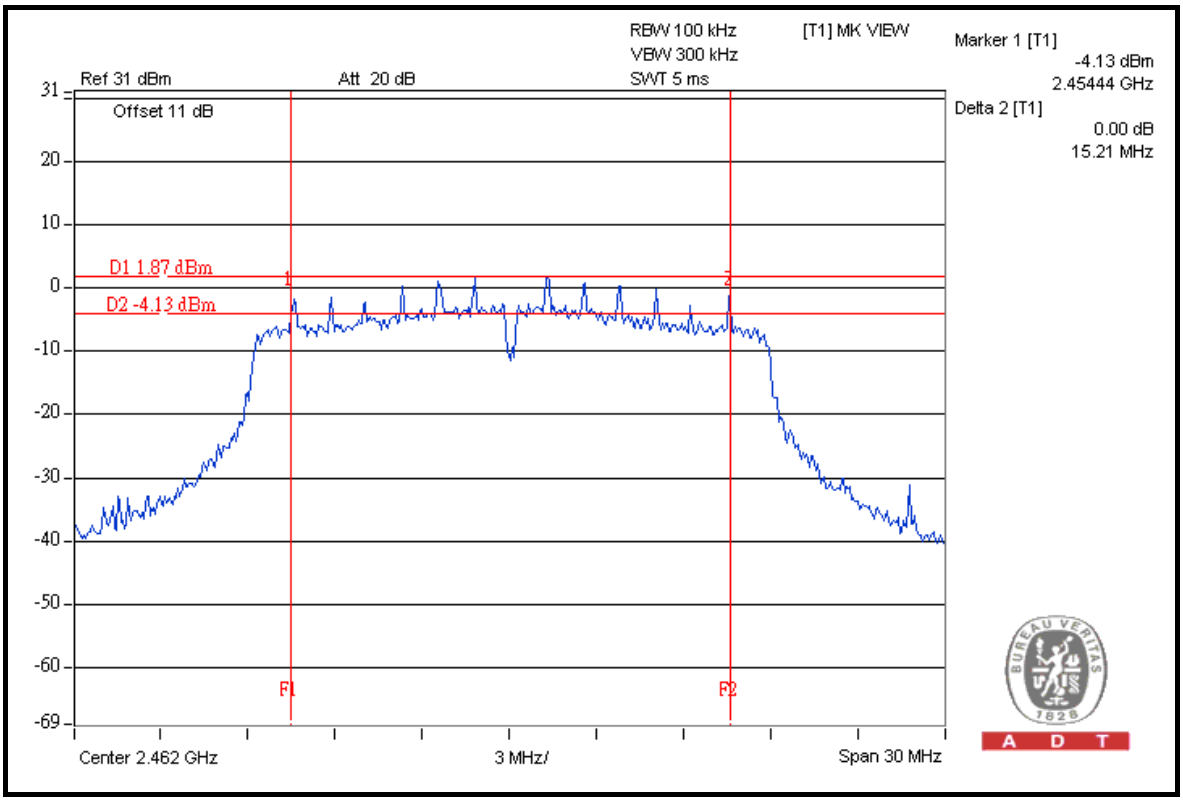
CH 11



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.15	0.5	PASS
6	2437	15.16	0.5	PASS
11	2462	15.21	0.5	PASS

CH 11



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
SPECTRUM ANALYZER R&S	FSP40	100040	Aug. 01, 2011	Jul. 31, 2012

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

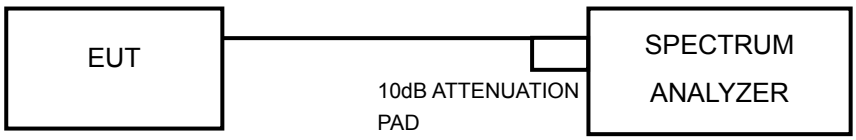
4.4.3 TEST PROCEDURES

1. Follow DTS measurement (Power Output Option 2), the transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth (EBW) of the signal.
3. Set RBW = 1 MHz ;VBW ≧3 MHz.
4. Use sample detector mode and video trigger with the trigger level set to enable triggering only on full power pulses.
5. Trace average 100 traces in power averaging mode.
6. Compute power by integrating the spectrum across the 26 dB EBW of the signal.
7. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

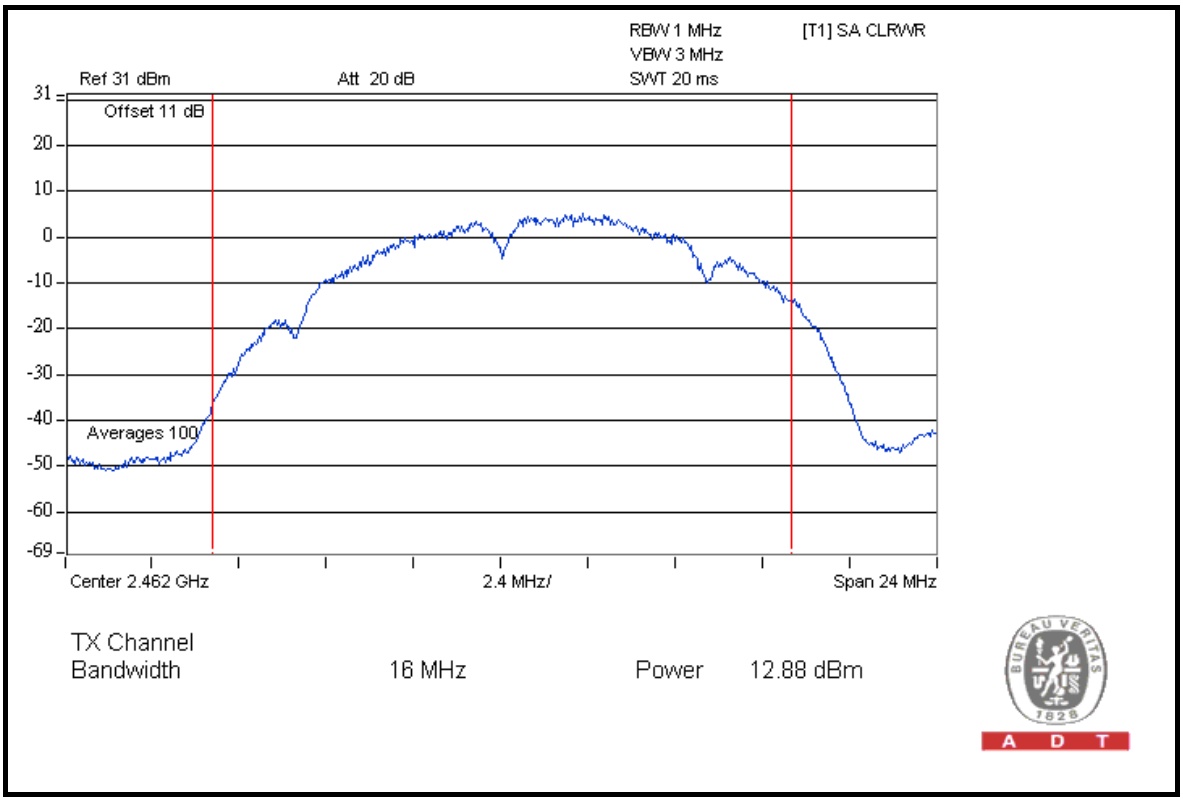
Same as Item 4.3.6.

4.4.7 TEST RESULTS

FOR POWER OUTPUT MEASUREMENT: 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (mW)	POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	17.3	12.4	30	PASS
6	2437	18.2	12.6	30	PASS
11	2462	**19.4**	12.9	30	PASS

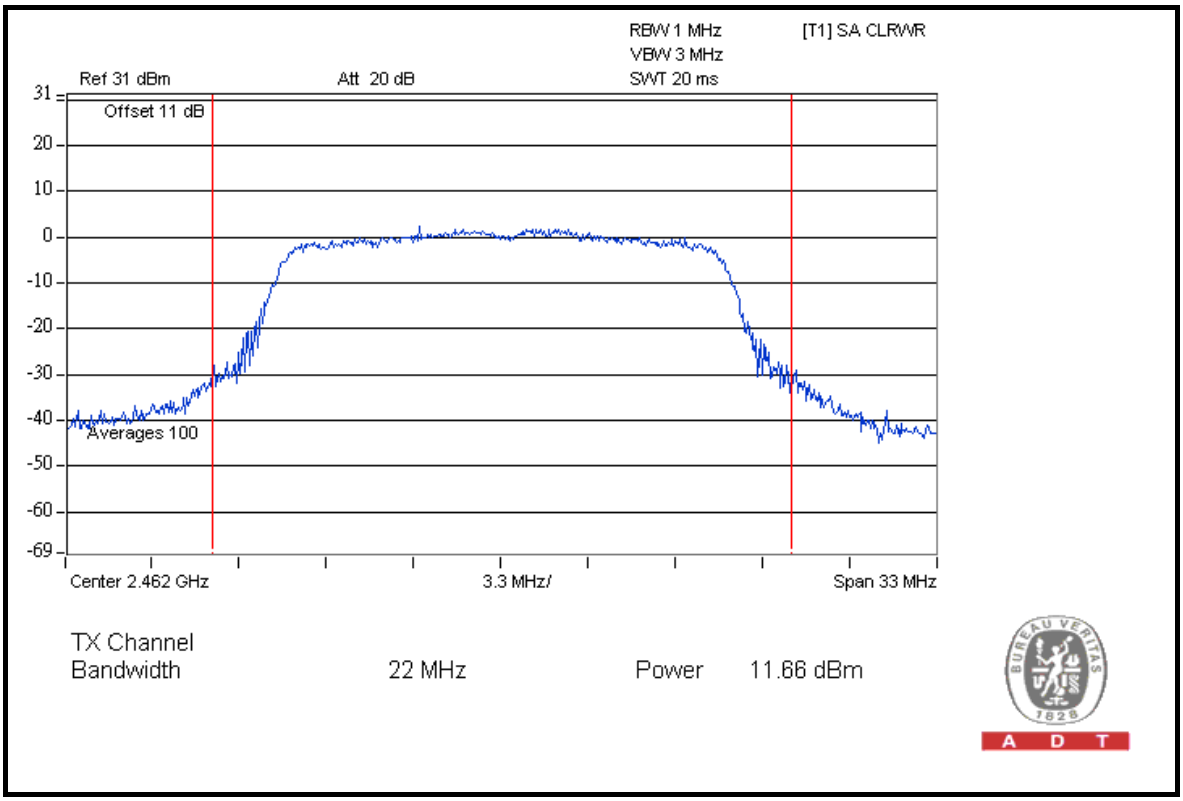
CH 11



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (mW)	POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.7	11.4	30	PASS
6	2437	14.5	11.6	30	PASS
11	2462	14.7	11.7	30	PASS

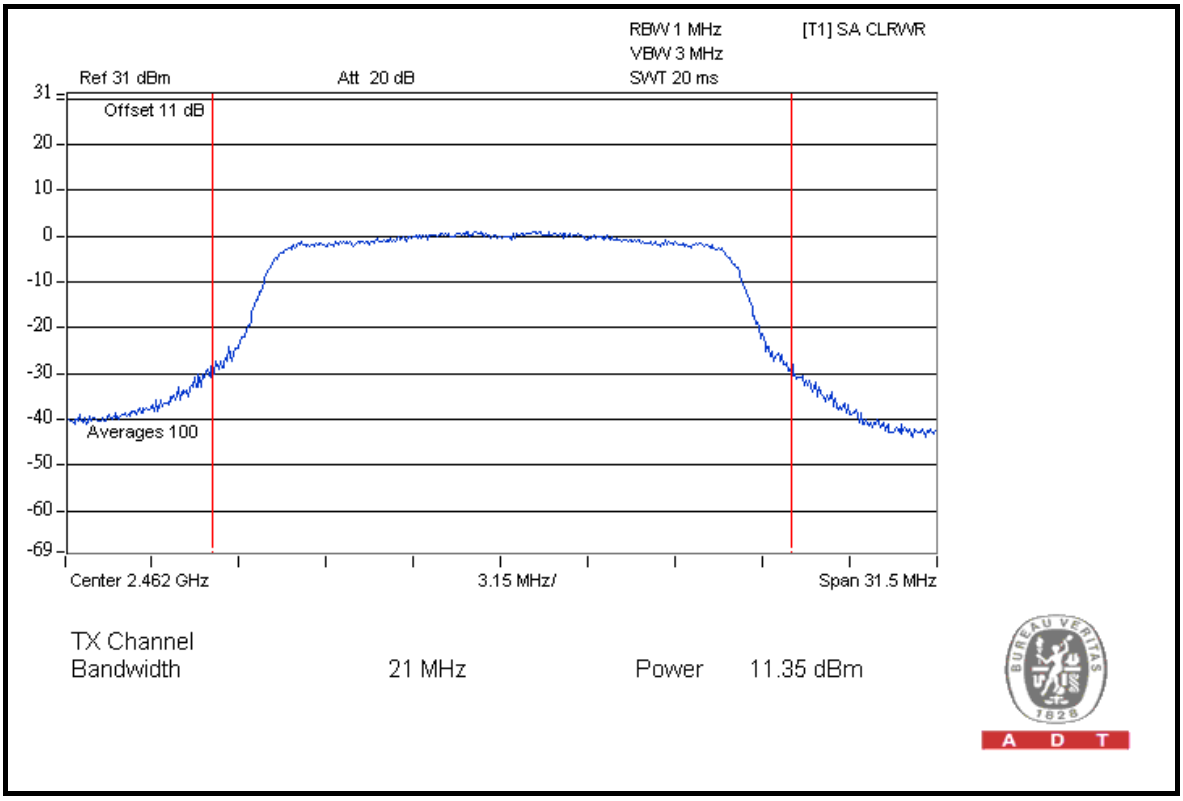
CH 11



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	POWER OUTPUT (mW)	POWER OUTPUT (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.4	11.3	30	PASS
6	2437	12.9	11.1	30	PASS
11	2462	13.6	11.4	30	PASS

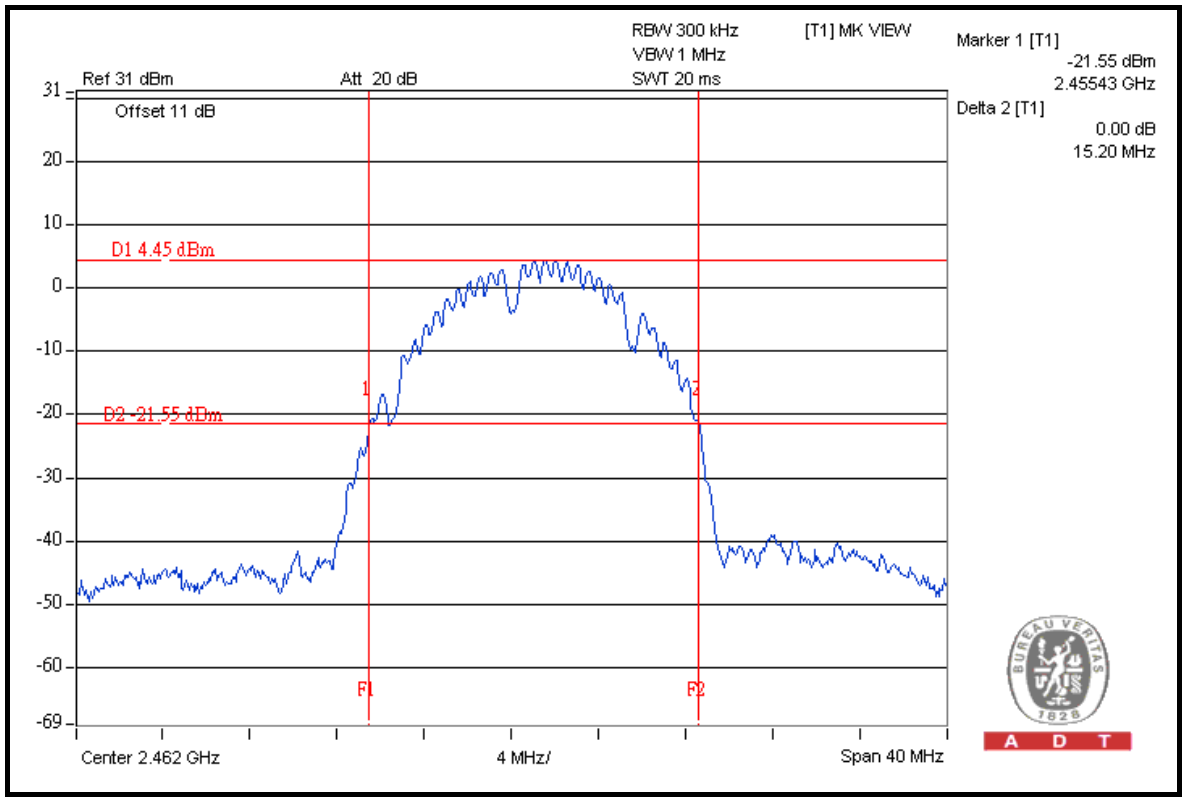
CH 11



26dB OCCUPIED BANDWIDTH: 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
1	2412	15.18	PASS
6	2437	15.19	PASS
11	2462	15.20	PASS

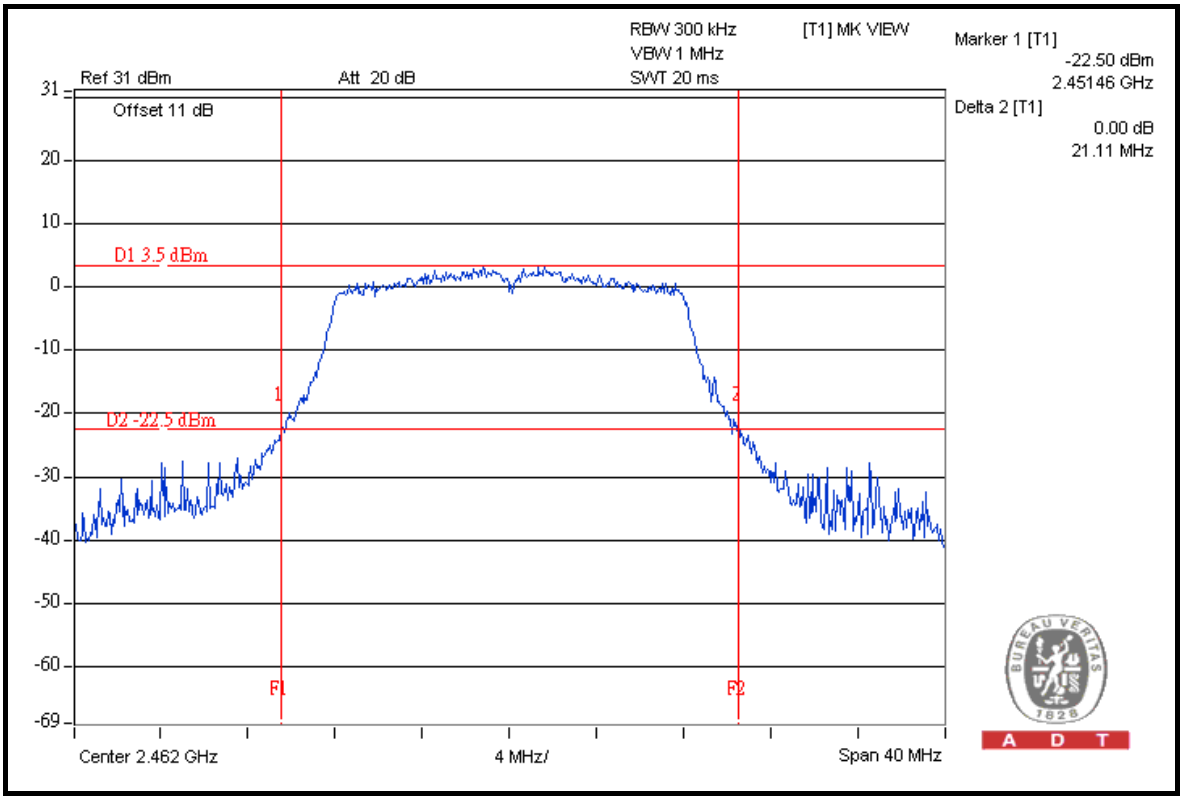
CH 11



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
1	2412	20.94	PASS
6	2437	20.86	PASS
11	2462	21.11	PASS

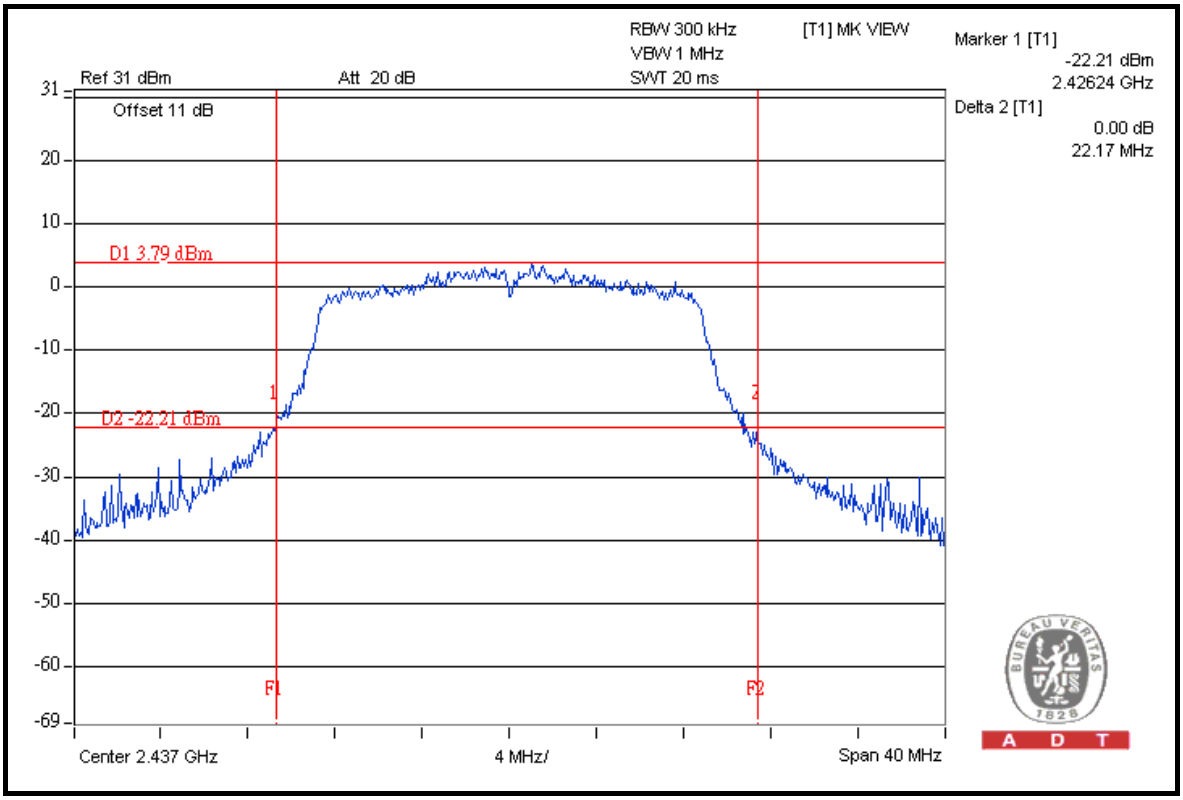
CH 11



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
1	2412	22.05	PASS
6	2437	22.17	PASS
11	2462	20.99	PASS

CH 6



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	100040	Aug. 01, 2011	Jul. 31, 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

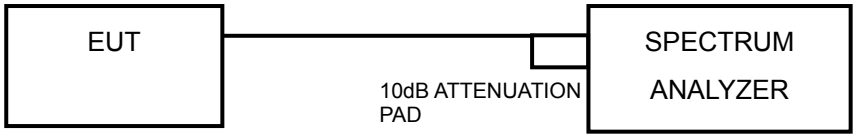
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 10kHz VBW, set sweep time = Auto , detector type =Peak. Trace average 100 traces in power averaging mode. The power spectral density was measured and recorded.

(Refer to PSD option2 of Measurement of Digital Transmission Systems Operating under Section 15.247)

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

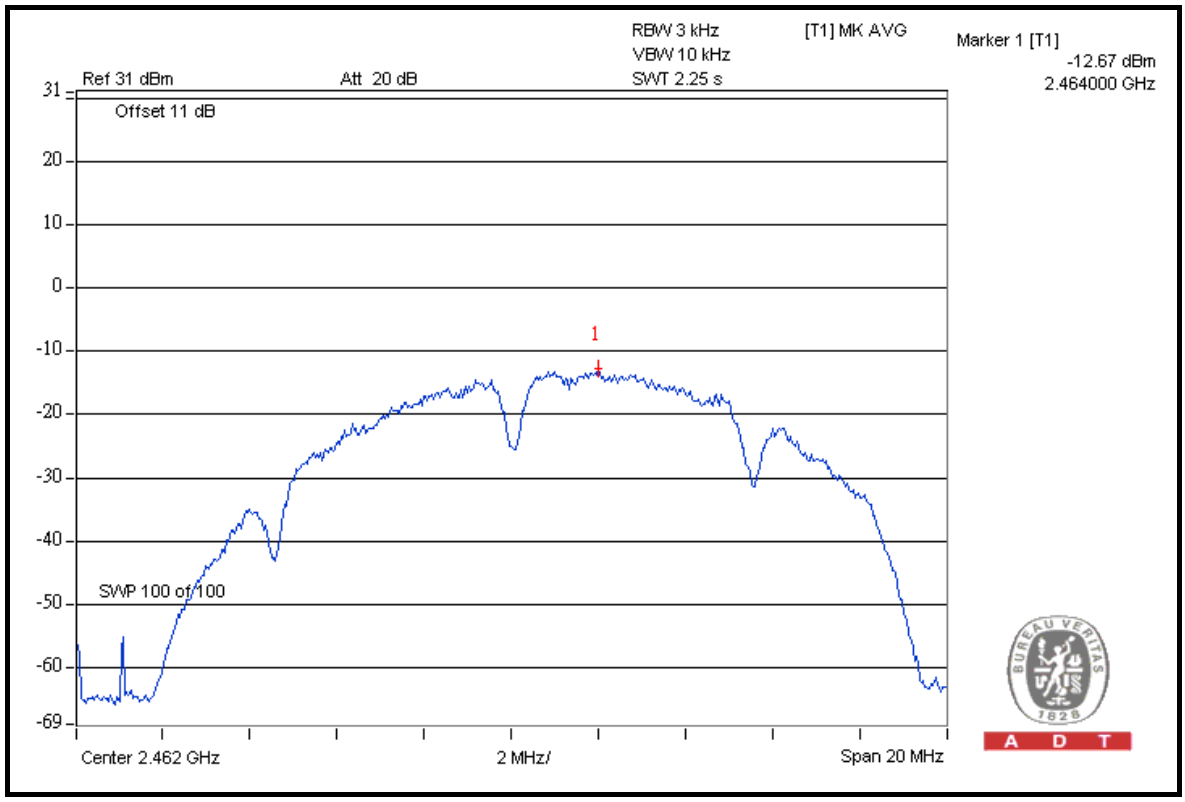
Same as Item 4.3.6

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	-13.3	8	PASS
6	2437	-12.9	8	PASS
11	2462	-12.7	8	PASS

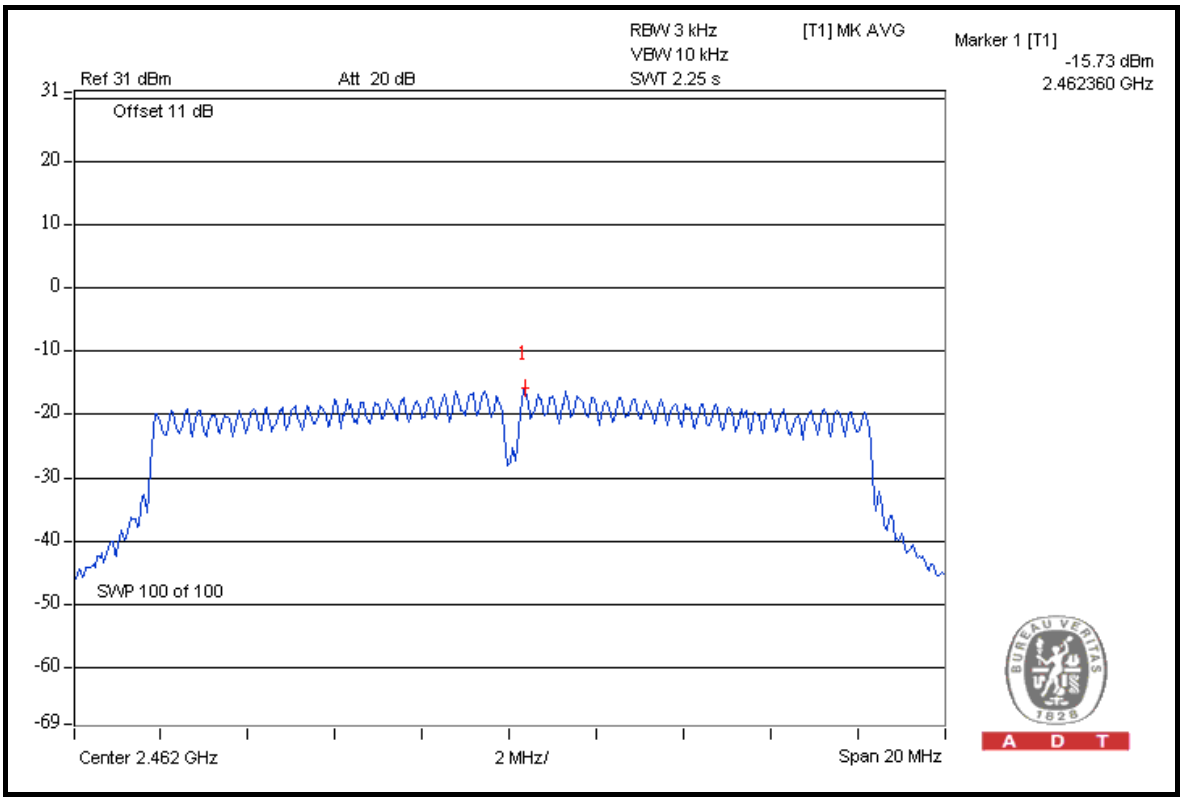
CH 11



802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-16.1	8	PASS
6	2437	-16.1	8	PASS
11	2462	-15.7	8	PASS

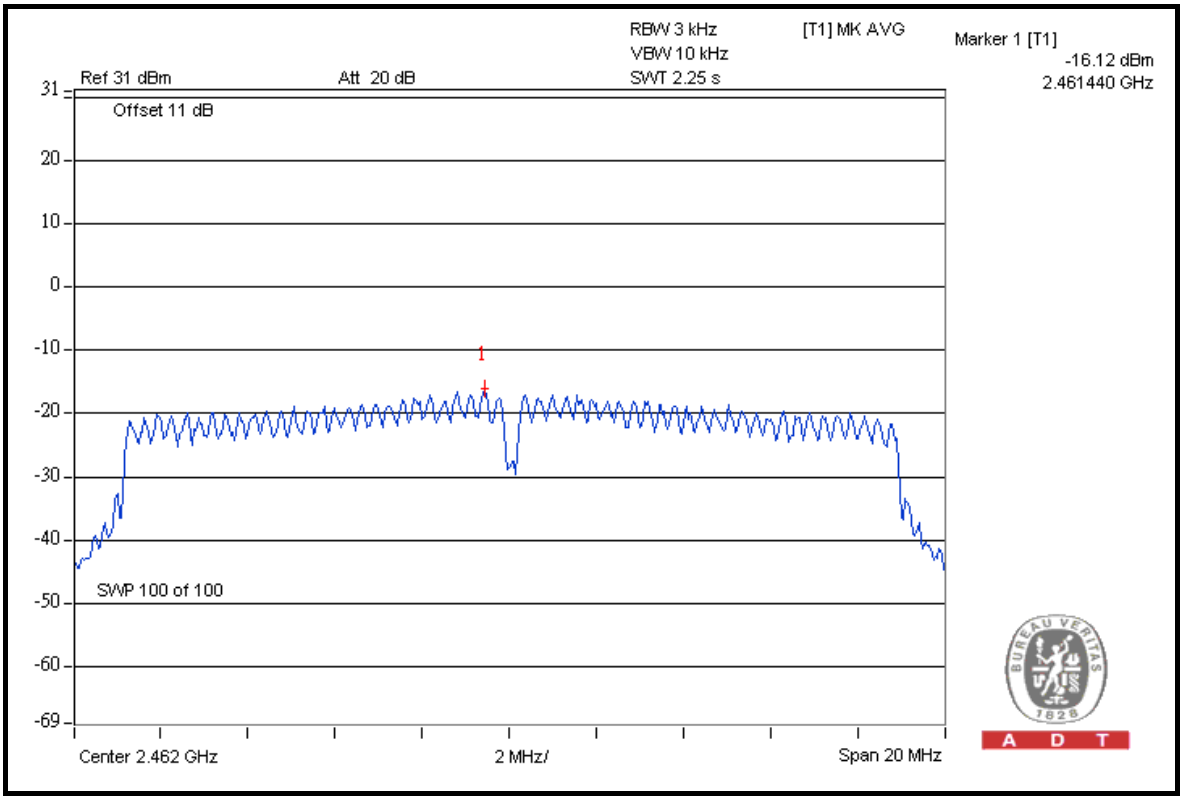
CH 11



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-16.2	8	PASS
6	2437	-16.6	8	PASS
11	2462	-16.1	8	PASS

CH 11



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –30dB 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
SPECTRUM ANALYZER R&S	FSP40	100040	Aug. 01, 2011	Jul. 31, 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

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 300kMHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW =100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

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 30dB offset below D1. It shows compliance with the requirement.

802.11b

RESTRICT BAND (2310 ~ 2390 MHz)

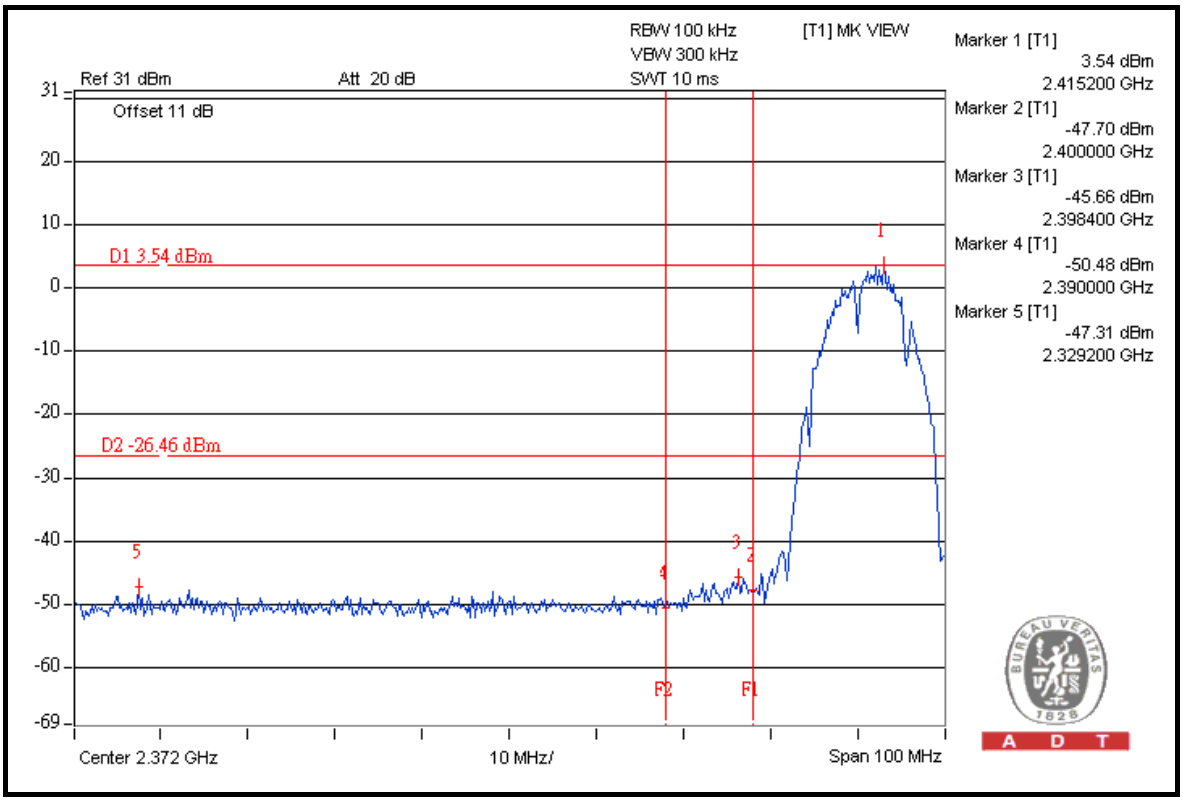
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	104.2	50.85	53.35	74.00
2412.00 (AV)	97.8	60.14	37.66	54.00

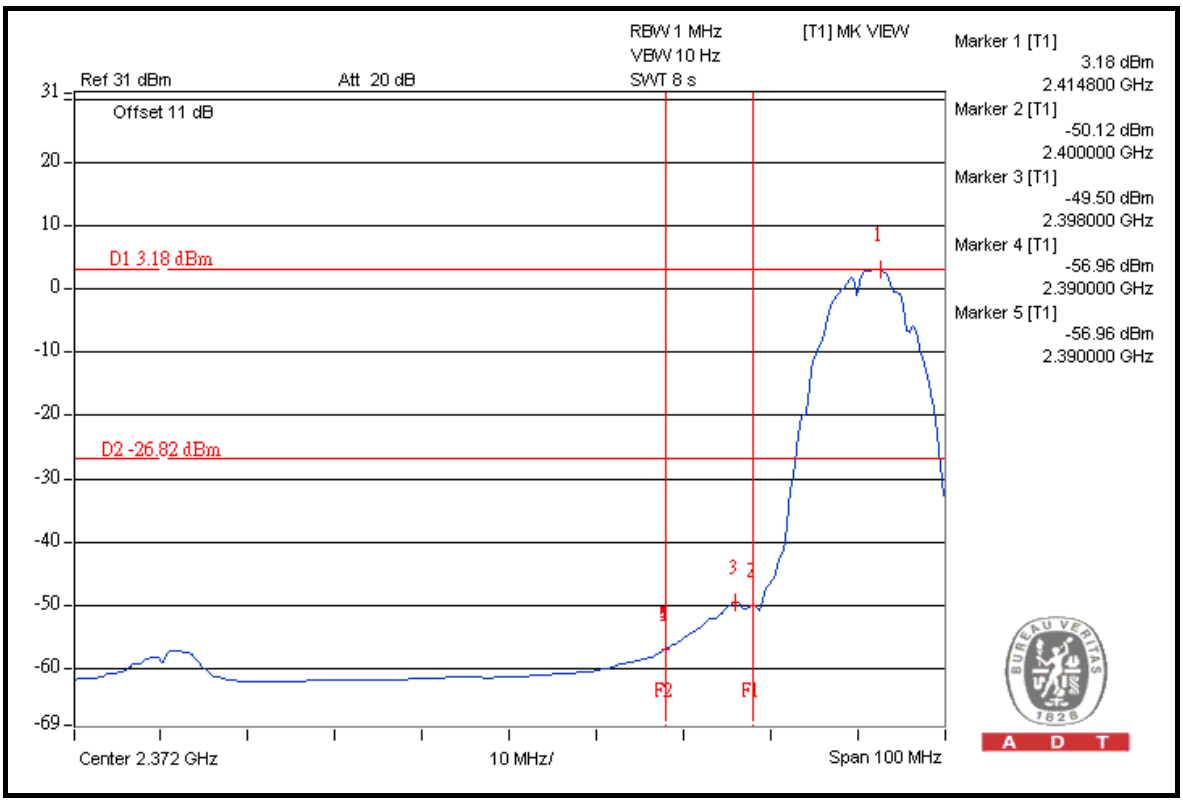
RESTRICT BAND (2483.5 ~ 2500 MHz)

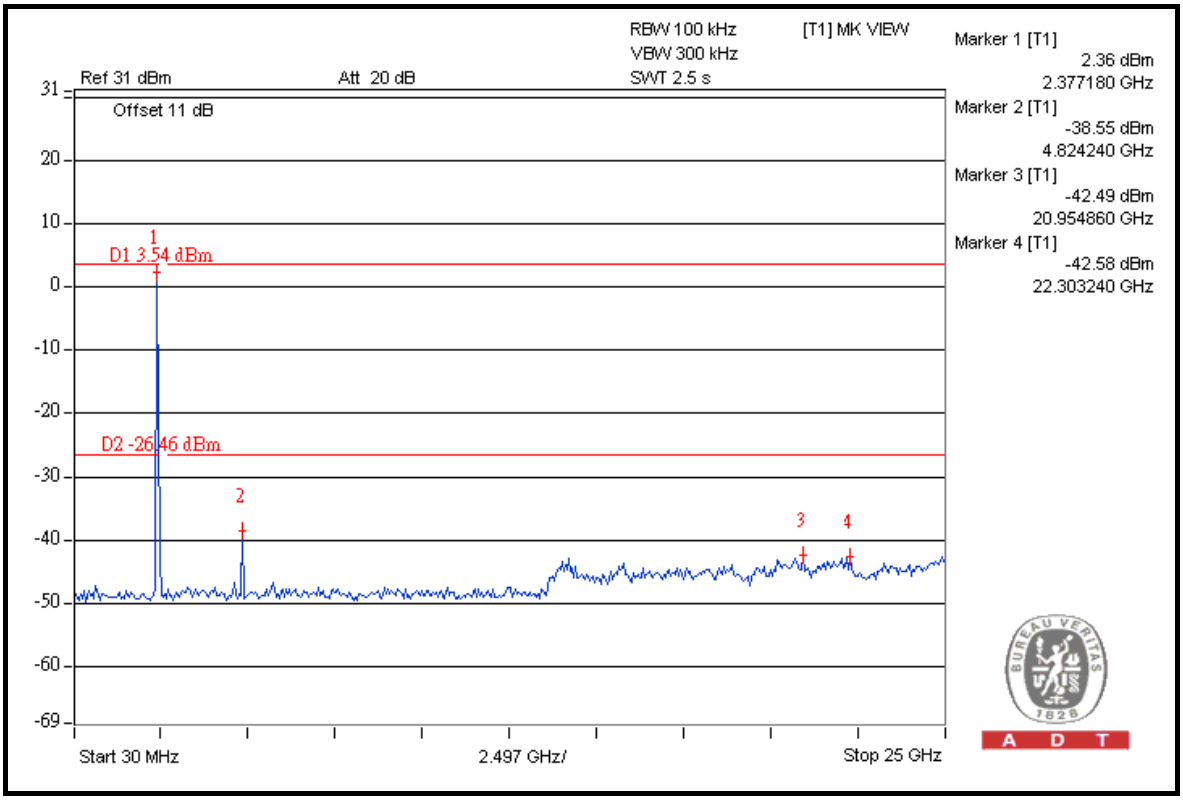
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	104.5	51.05	53.45	74.00
2462.00 (AV)	97.6	58.49	39.11	54.00

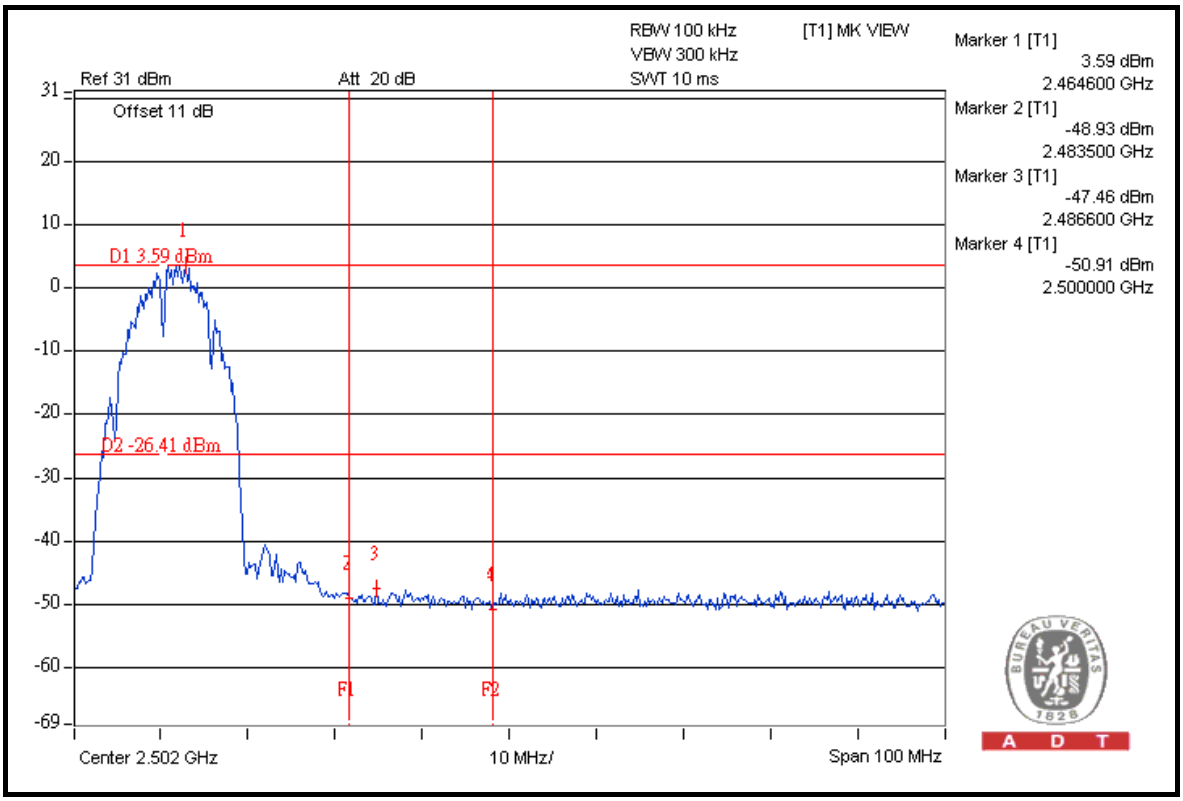
NOTE:

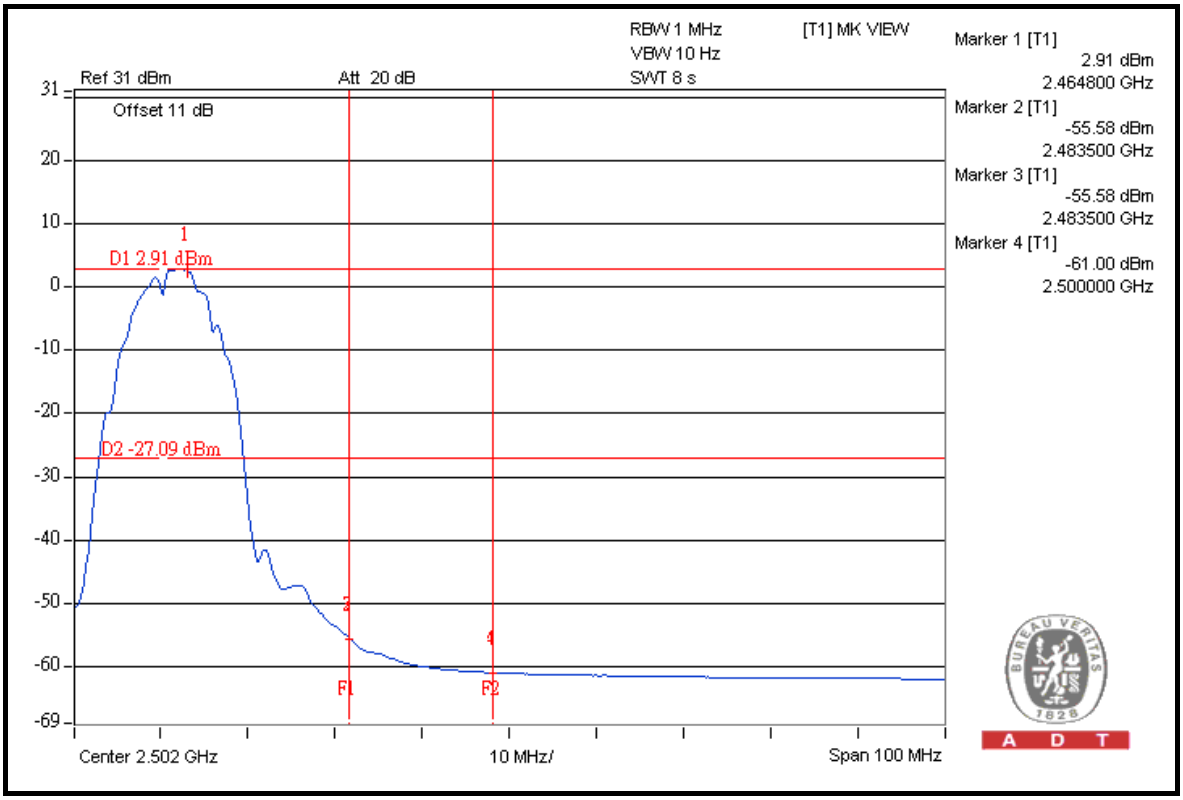
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

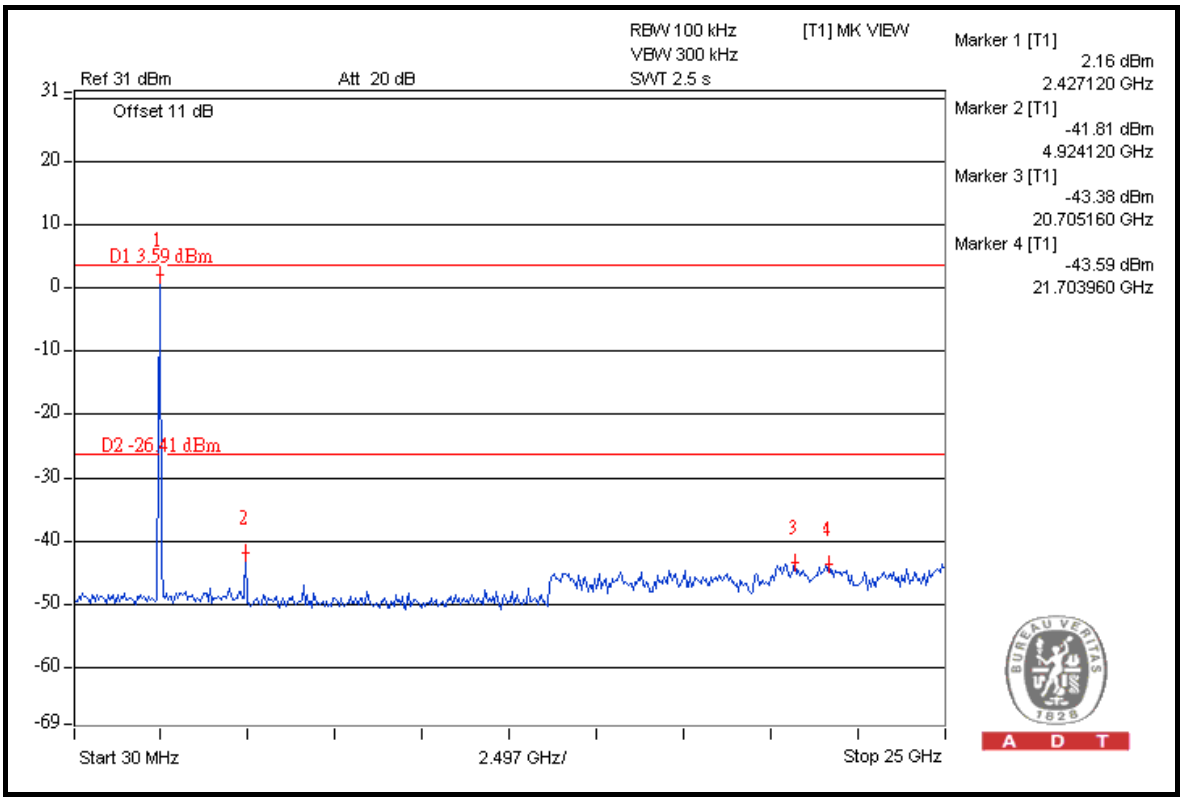

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 3.54 dBm
D2 -26.46 dBm
Marker 1 [T1]
3.54 dBm
2.415200 GHz
Marker 2 [T1]
-47.70 dBm
2.400000 GHz
Marker 3 [T1]
-45.66 dBm
2.398400 GHz
Marker 4 [T1]
-50.48 dBm
2.390000 GHz
Marker 5 [T1]
-47.31 dBm
2.329200 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 3.18 dBm
D2 -26.82 dBm
Marker 1 [T1]
3.18 dBm
2.414800 GHz
Marker 2 [T1]
-50.12 dBm
2.400000 GHz
Marker 3 [T1]
-49.50 dBm
2.398000 GHz
Marker 4 [T1]
-56.96 dBm
2.390000 GHz
Marker 5 [T1]
-56.96 dBm
2.390000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 3.54 dBm
D2 -26.46 dBm
Marker 1 [T1]
2.36 dBm
2.377180 GHz
Marker 2 [T1]
-38.55 dBm
4.824240 GHz
Marker 3 [T1]
-42.49 dBm
20.954860 GHz
Marker 4 [T1]
-42.58 dBm
22.303240 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 3.59 dBm
D2 -26.41 dBm
Marker 1 [T1]
3.59 dBm
2.464600 GHz
Marker 2 [T1]
-48.93 dBm
2.483500 GHz
Marker 3 [T1]
-47.46 dBm
2.486600 GHz
Marker 4 [T1]
-50.91 dBm
2.500000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 2.91 dBm
D2 -27.09 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
2.91 dBm
2.464800 GHz
Marker 2 [T1]
-55.58 dBm
2.483500 GHz
Marker 3 [T1]
-55.58 dBm
2.483500 GHz
Marker 4 [T1]
-61.00 dBm
2.500000 GHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 3.59 dBm
D2 -26.41 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
2.16 dBm
2.427120 GHz
Marker 2 [T1]
-41.81 dBm
4.924120 GHz
Marker 3 [T1]
-43.38 dBm
20.705160 GHz
Marker 4 [T1]
-43.59 dBm
21.703960 GHz

802.11g

RESTRICT BAND (2310 ~ 2390 MHz)

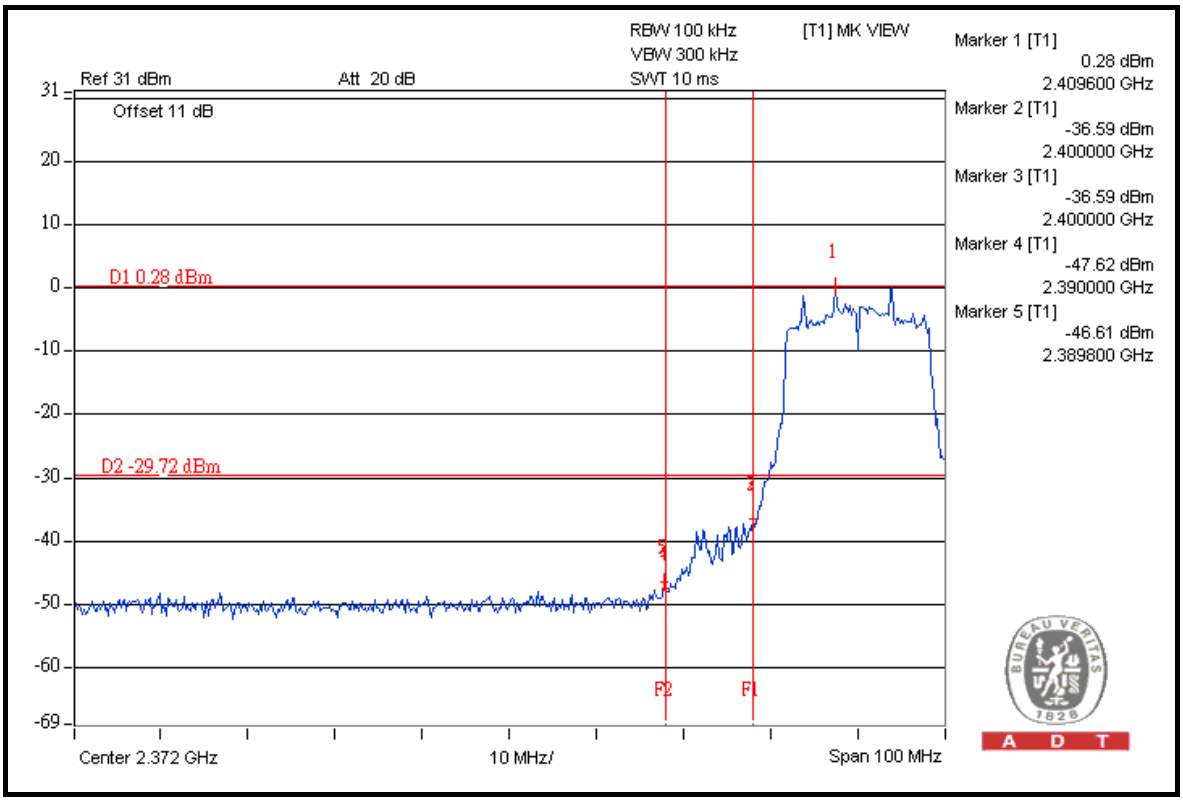
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	104.4	46.89	57.51	74.00
2412.00 (AV)	89.0	45.51	43.49	54.00

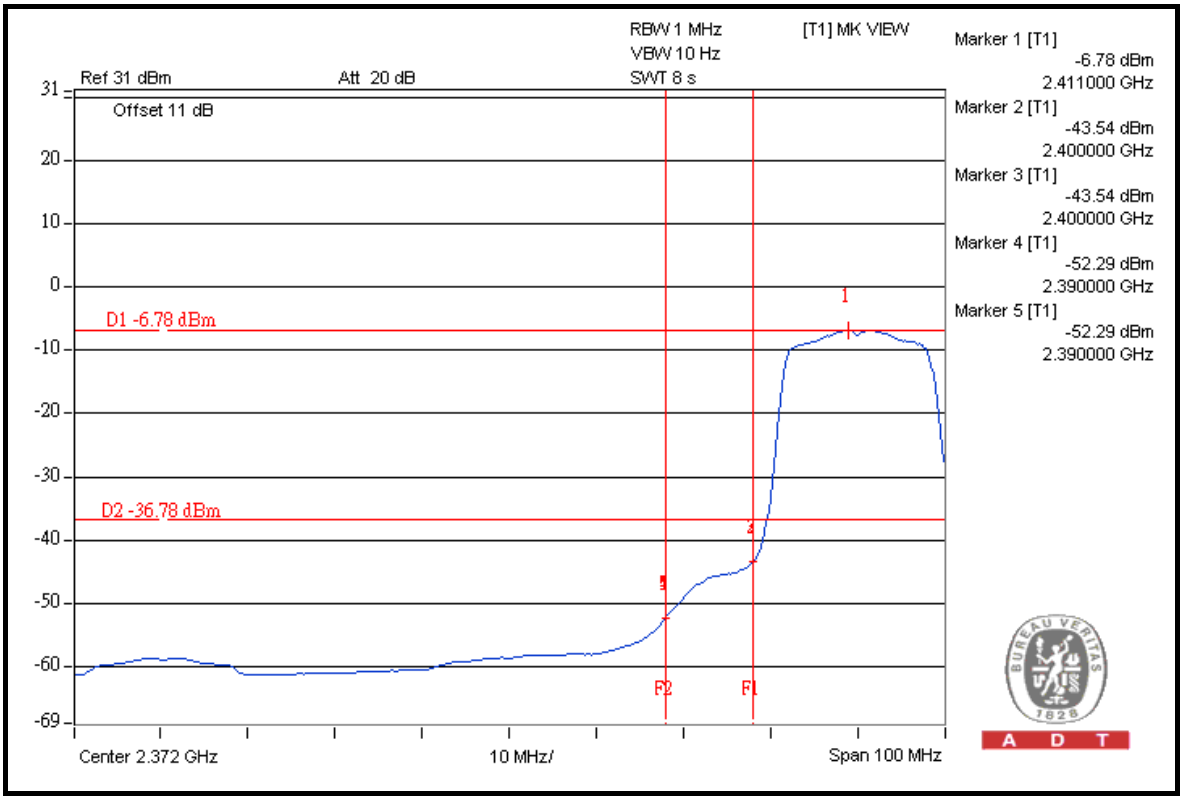
RESTRICT BAND (2483.5 ~ 2500 MHz)

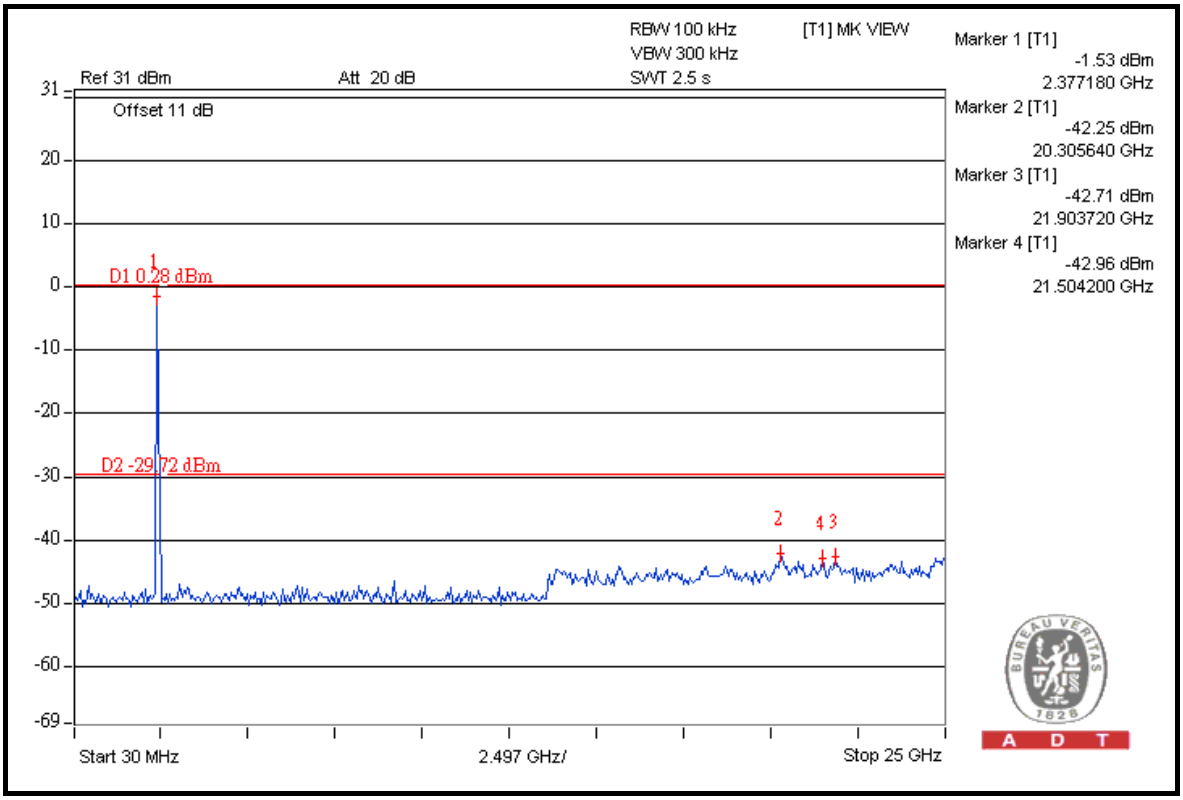
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	104.7	46.23	58.47	74.00
2462.00 (AV)	89.5	44.23	45.27	54.00

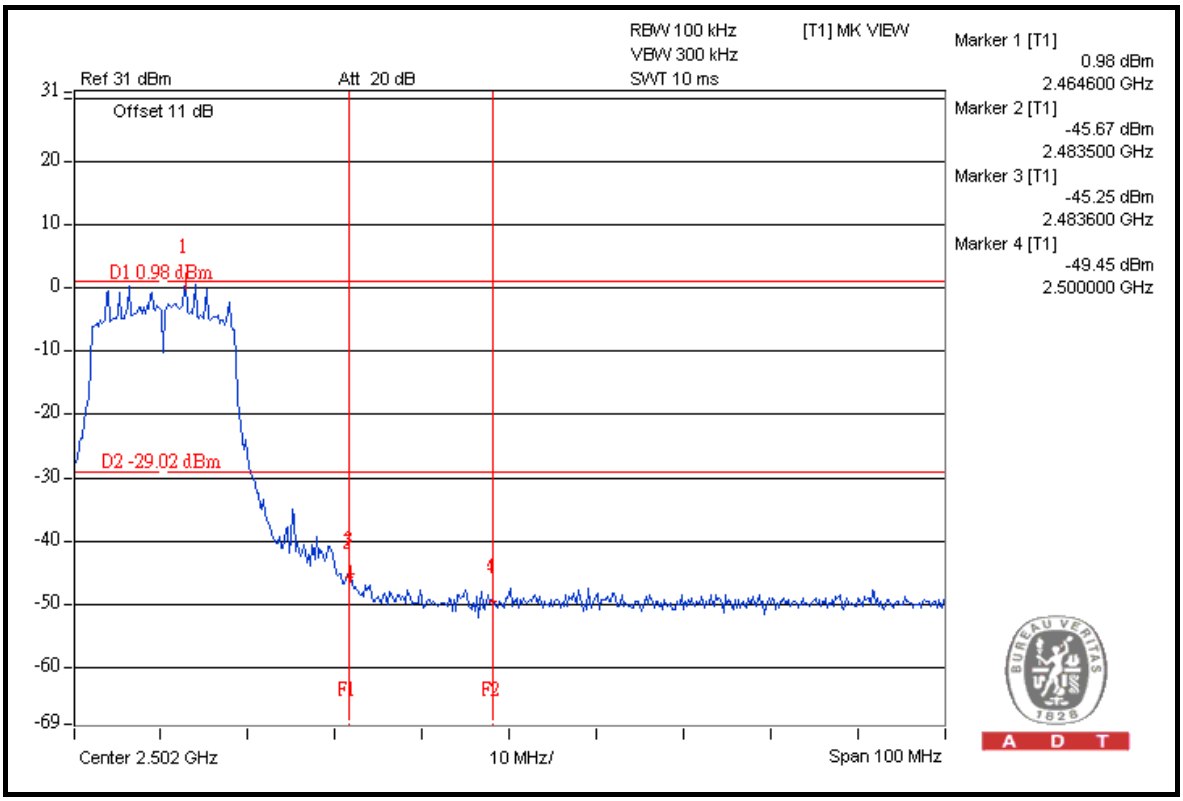
NOTE:

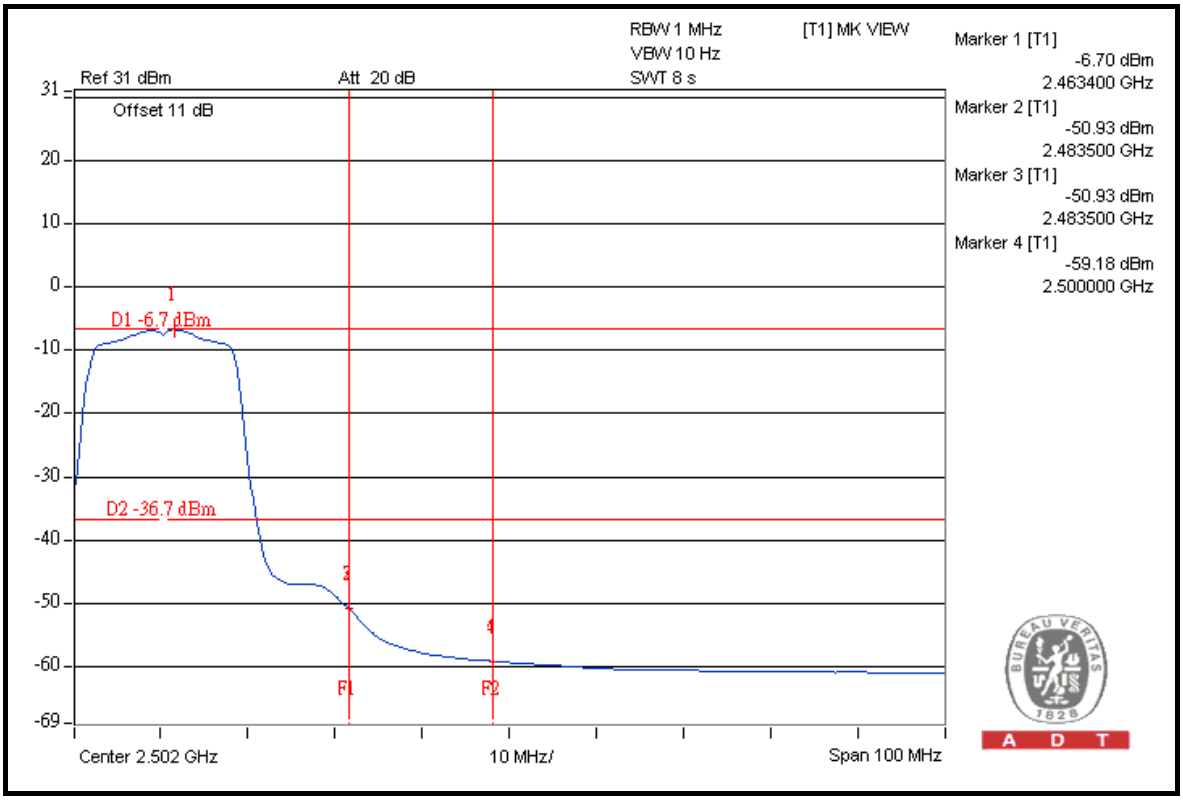
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

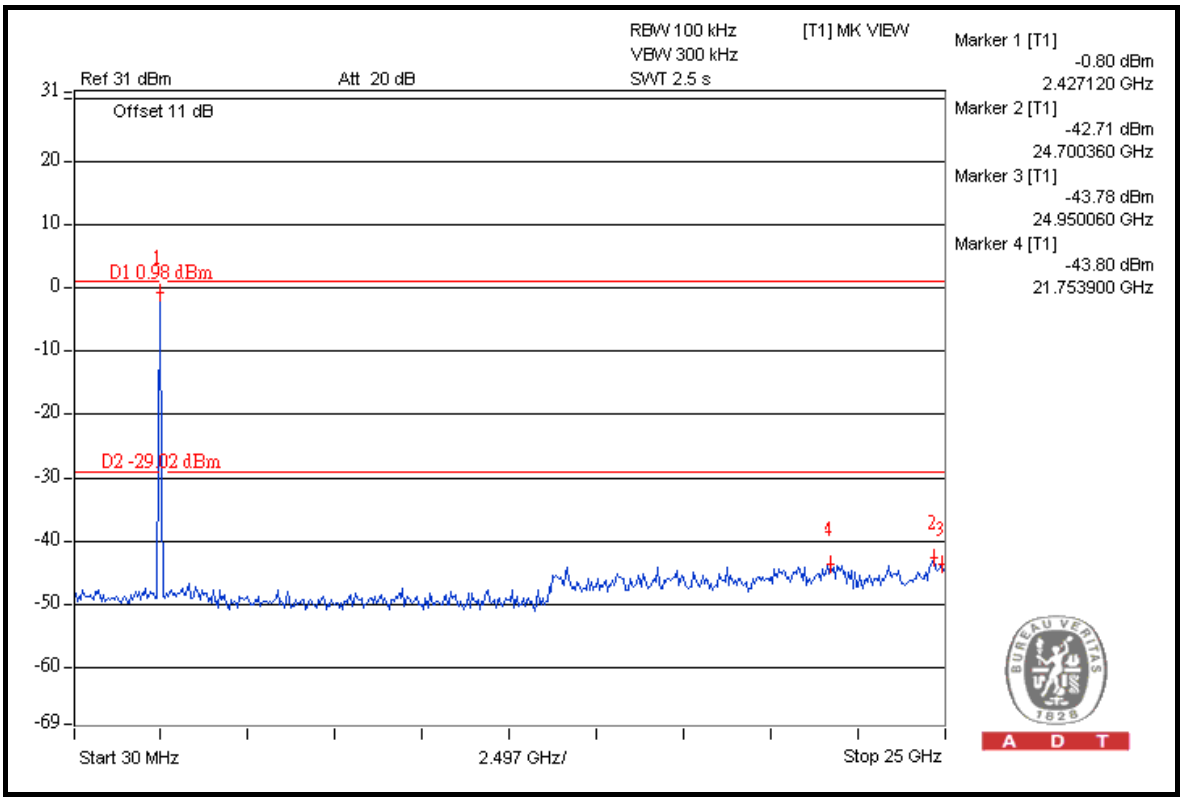

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.28 dBm
D2 -29.72 dBm
Marker 1 [T1]
0.28 dBm
2.409600 GHz
Marker 2 [T1]
-36.59 dBm
2.400000 GHz
Marker 3 [T1]
-36.59 dBm
2.400000 GHz
Marker 4 [T1]
-47.62 dBm
2.390000 GHz
Marker 5 [T1]
-46.61 dBm
2.389800 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.78 dBm
D2 -36.78 dBm
Marker 1 [T1]
-6.78 dBm
2.411000 GHz
Marker 2 [T1]
-43.54 dBm
2.400000 GHz
Marker 3 [T1]
-43.54 dBm
2.400000 GHz
Marker 4 [T1]
-52.29 dBm
2.390000 GHz
Marker 5 [T1]
-52.29 dBm
2.390000 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.28 dBm
D2 -29.72 dBm
Marker 1 [T1]
-1.53 dBm
2.377180 GHz
Marker 2 [T1]
-42.25 dBm
20.305640 GHz
Marker 3 [T1]
-42.71 dBm
21.903720 GHz
Marker 4 [T1]
-42.96 dBm
21.504200 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.98 dBm
D2 -29.02 dBm
Marker 1 [T1]
0.98 dBm
2.464600 GHz
Marker 2 [T1]
-45.67 dBm
2.483500 GHz
Marker 3 [T1]
-45.25 dBm
2.483600 GHz
Marker 4 [T1]
-49.45 dBm
2.500000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Marker 1 [T1]
-6.70 dBm
2.463400 GHz
Marker 2 [T1]
-50.93 dBm
2.483500 GHz
Marker 3 [T1]
-50.93 dBm
2.483500 GHz
Marker 4 [T1]
-59.18 dBm
2.500000 GHz
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.7 dBm
D2 -36.7 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-0.80 dBm
2.427120 GHz
Marker 2 [T1]
-42.71 dBm
24.700360 GHz
Marker 3 [T1]
-43.78 dBm
24.950060 GHz
Marker 4 [T1]
-43.80 dBm
21.753900 GHz
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.98 dBm
D2 -29.02 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (20MHz)

RESTRICT BAND (2310 ~ 2390 MHz)

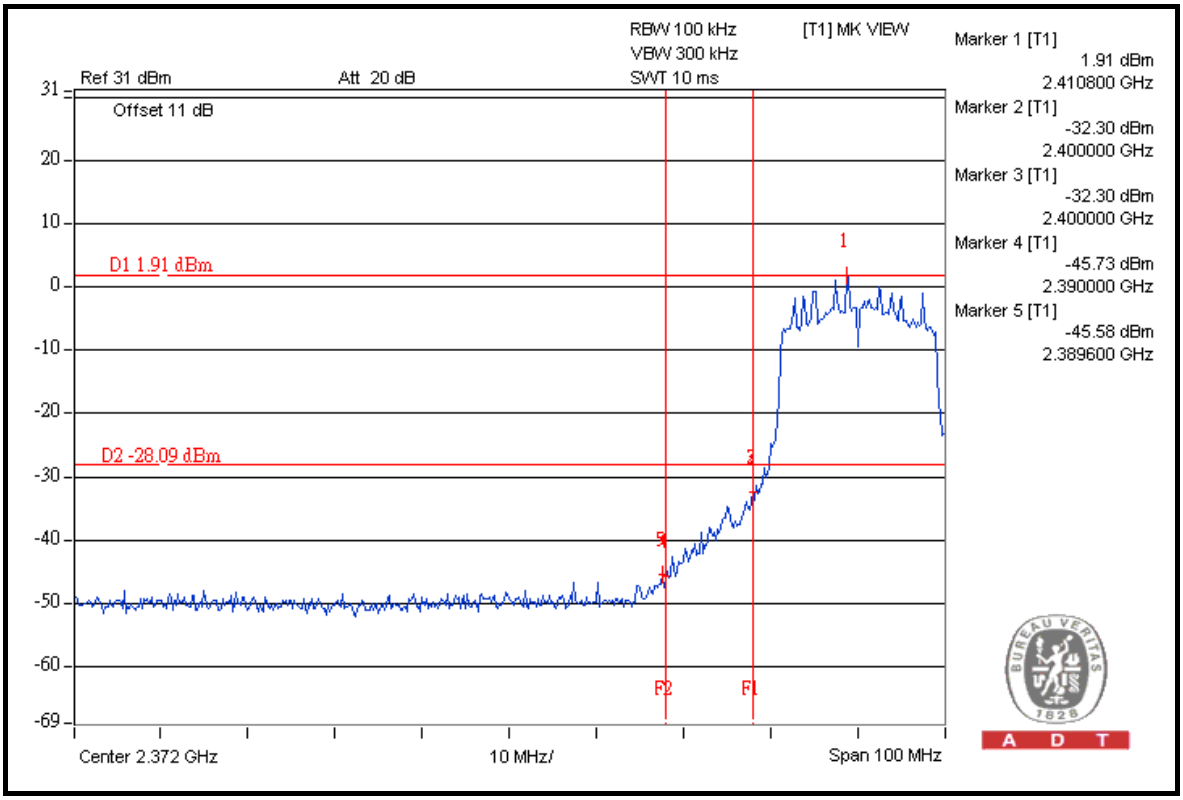
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	104.1	47.49	56.61	74.00
2412.00 (AV)	89.1	42.59	46.51	54.00

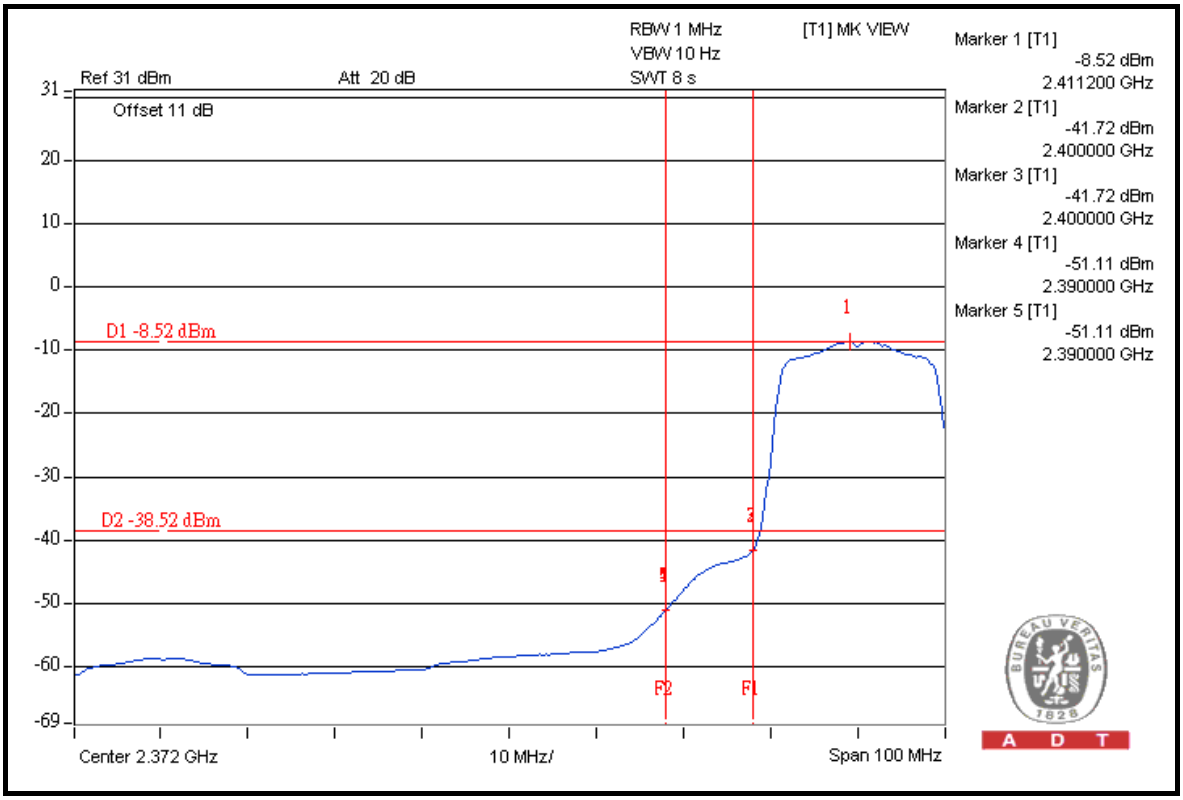
RESTRICT BAND (2483.5 ~ 2500 MHz)

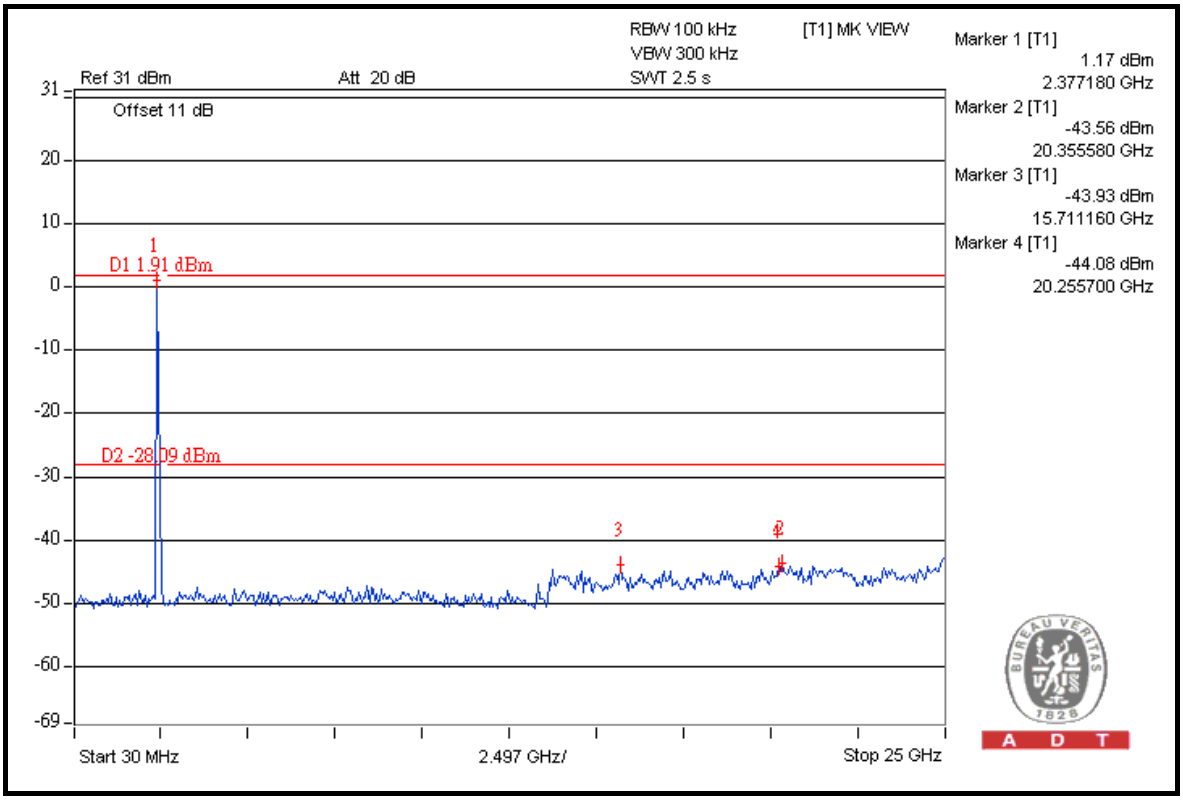
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	104.3	46.20	58.10	74.00
2462.00 (AV)	89.3	41.75	47.55	54.00

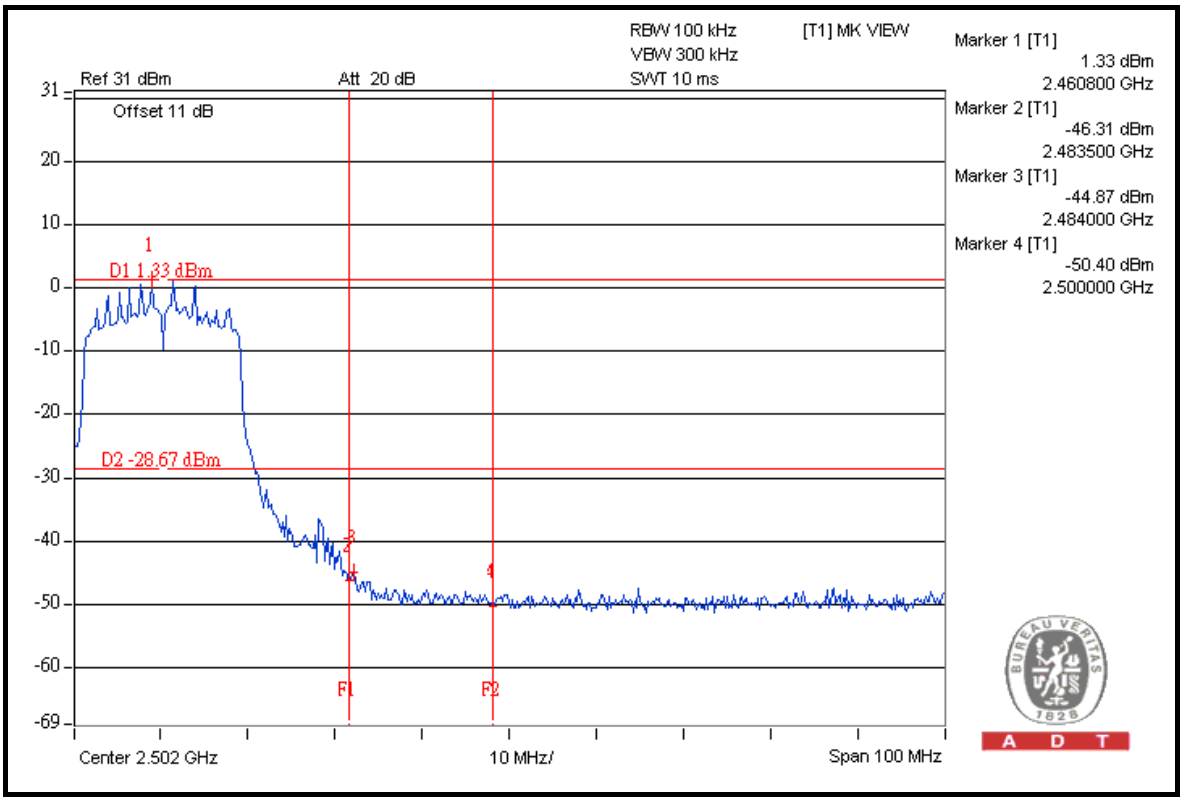
NOTE:

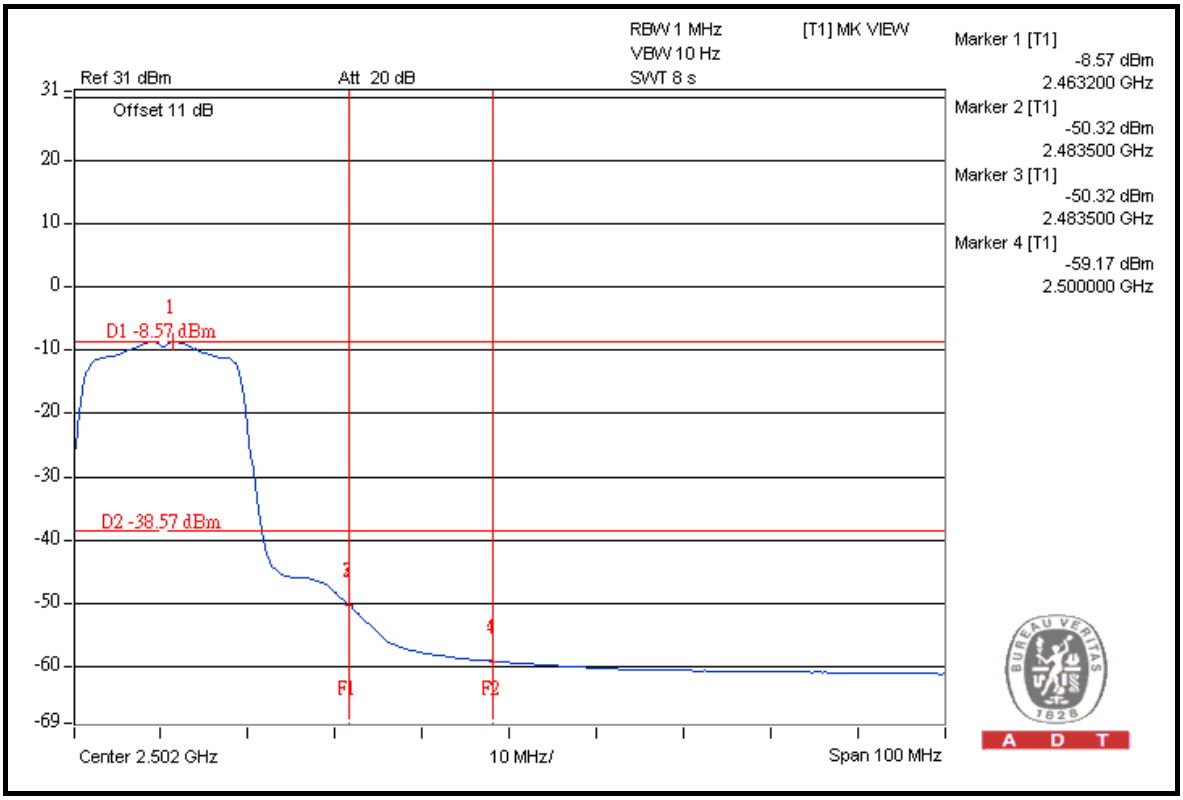
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 2 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

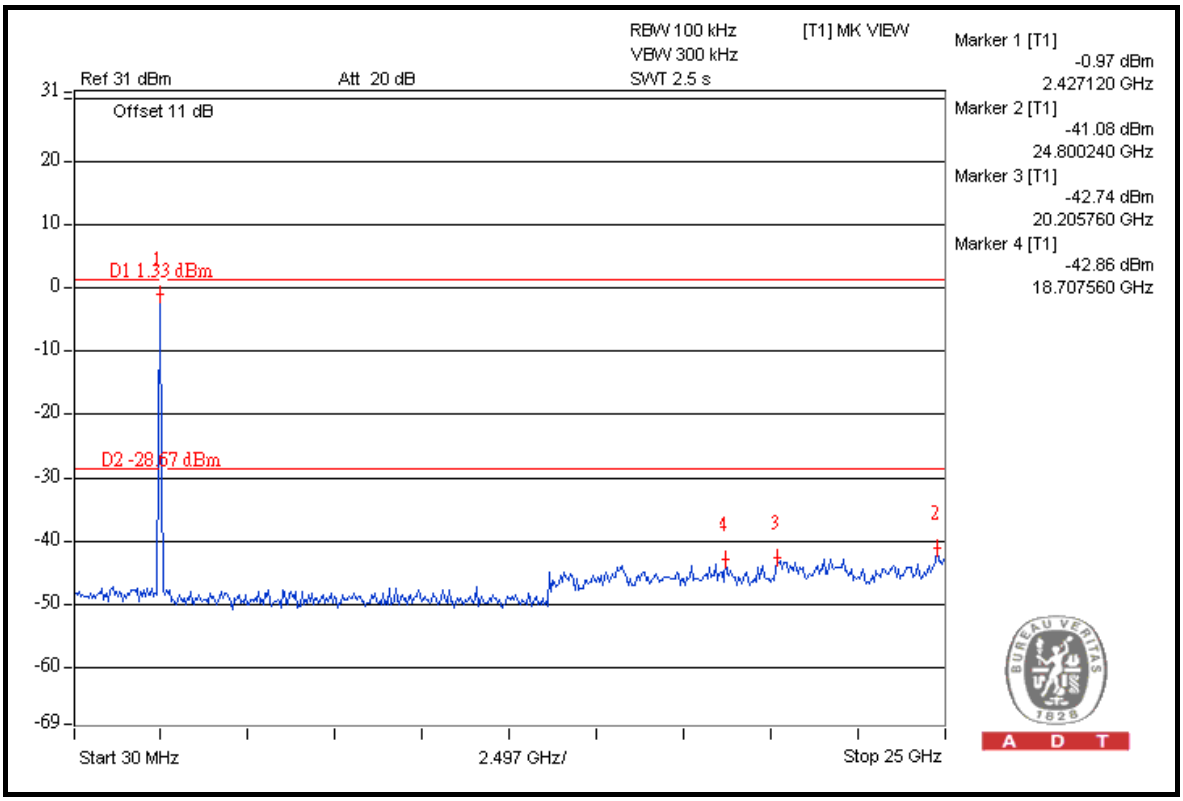

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.91 dBm
D2 -28.09 dBm
Marker 1 [T1]
1.91 dBm
2.410800 GHz
Marker 2 [T1]
-32.30 dBm
2.400000 GHz
Marker 3 [T1]
-32.30 dBm
2.400000 GHz
Marker 4 [T1]
-45.73 dBm
2.390000 GHz
Marker 5 [T1]
-45.58 dBm
2.389600 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -8.52 dBm
D2 -38.52 dBm
Marker 1 [T1]
-8.52 dBm
2.411200 GHz
Marker 2 [T1]
-41.72 dBm
2.400000 GHz
Marker 3 [T1]
-41.72 dBm
2.400000 GHz
Marker 4 [T1]
-51.11 dBm
2.390000 GHz
Marker 5 [T1]
-51.11 dBm
2.390000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.91 dBm
D2 -28.09 dBm
Marker 1 [T1]
1.17 dBm
2.377180 GHz
Marker 2 [T1]
-43.56 dBm
20.355580 GHz
Marker 3 [T1]
-43.93 dBm
15.711160 GHz
Marker 4 [T1]
-44.08 dBm
20.255700 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.33 dBm
D2 -28.67 dBm
Marker 1 [T1]
1.33 dBm
2.460800 GHz
Marker 2 [T1]
-46.31 dBm
2.483500 GHz
Marker 3 [T1]
-44.87 dBm
2.484000 GHz
Marker 4 [T1]
-50.40 dBm
2.500000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -8.57 dBm
D2 -38.57 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
-8.57 dBm
2.463200 GHz
Marker 2 [T1]
-50.32 dBm
2.483500 GHz
Marker 3 [T1]
-50.32 dBm
2.483500 GHz
Marker 4 [T1]
-59.17 dBm
2.500000 GHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.33 dBm
D2 -28.67 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-0.97 dBm
2.427120 GHz
Marker 2 [T1]
-41.08 dBm
24.800240 GHz
Marker 3 [T1]
-42.74 dBm
20.205760 GHz
Marker 4 [T1]
-42.86 dBm
18.707560 GHz

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.

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: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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---