FCC TEST REPORT

REPORT NO.: RF140224C05

MODEL NO.: TEW-731BR

FCC ID: XU8TEW731BRV2

RECEIVED: Feb. 24, 2014

TESTED: Feb. 26 ~ Apr. 02, 2014

ISSUED: Apr. 14, 2014

APPLICANT: TRENDnet, Inc.

ADDRESS: 20675 Manhattan Place, Torrance, CA 90501

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.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140224C05	Original release	Apr. 14, 2014

1. CERTIFICATION

PRODUCT:	N300 Wireless Home Router
MODEL NO.:	TEW-731BR
BRAND:	TRENDnet
APPLICANT:	TRENDnet, Inc.
TESTED:	Feb. 26 ~ Apr. 02, 2014
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)**
	ANSI C63.10-2009

The above equipment (model: TEW-731BR) 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 :** Apr. 14, 2014

Ivy Lin / Specialist

APPROVED BY : , **DATE :** Apr. 14, 2014

Ken Liu / Senior 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**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -7.93dB at 0.15000MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 7311.00MHz, 2483.50MHz
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	150kHz~30MHz	2.44dB
Radiated emissions	30MHz ~ 200MHz	2.93dB
	200MHz ~1000MHz	2.95dB
	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	N300 Wireless Home Router
MODEL NO.	TEW-731BR
POWER SUPPLY	5Vdc (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 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
OUTPUT POWER	202.411mW
ANTENNA TYPE	Dipole antenna with 2dBi gain
ANTENNA CONNECTOR	N/A
DATA CABLE	1m non-shielded RJ45 cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX/ 2TX
802.11g	1TX/ 2TX
802.11n (20MHz) (MCS 0 ~ 7)	1TX
802.11n (20MHz) (MCS8 ~ 15)	2TX
802.11n (40MHz) (MCS 0 ~ 7)	1TX
802.11n (40MHz) (MCS8 ~ 15)	2TX

2. The EUT consumes power from the following adapters.

ADAPTER 1	
BRAND:	AMIGO
MODEL:	AMS47-0501000FU
INPUT:	100-240Vac, 50/60Hz, 0.2A
OUTPUT:	5Vdc, 1.0A
POWER LINE:	1.5m cable without core attached on adapter

ADAPTER 2	
BRAND:	FRECOM
MODEL:	F05W-050100SPAU
INPUT:	100-240Vac, 50/60Hz, 0.19A
OUTPUT:	5Vdc, 1.0A
POWER LINE:	1.5m cable without core attached on adapter

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

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
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter 1
B	-	√	√	-	Power from adapter 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:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**
2. "-" 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	MODULATIONTECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	2TX
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	1TX
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	2TX

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)	TX FUNCTION
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0	2TX

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)	TX FUNCTION
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0	2TX

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	MODULATIONTECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	1TX
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	2TX
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	1TX
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	2TX
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	1TX
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	2TX
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0	1TX
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0	2TX

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	MODULATIONTECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	1TX
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	2TX
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	1TX
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	2TX
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	1TX
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	2TX
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0	1TX
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0	2TX

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin, Ted Tung
RE<1G	25deg. C, 68%RH	120Vac, 60Hz	Sun Lin
PLC	25deg. C, 68%RH	120Vac, 60Hz	Ted Chang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Cedric Wu

3.3 DUTY CYCLE OF TEST SIGNAL

1TX:

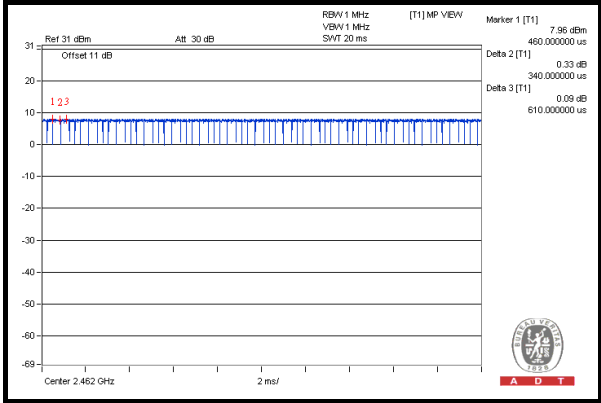
802.11b: Duty cycle of test signal is > 98 %, duty factor is not required.

802.11g: Duty cycle of test signal is > 98 %, duty factor is not required.

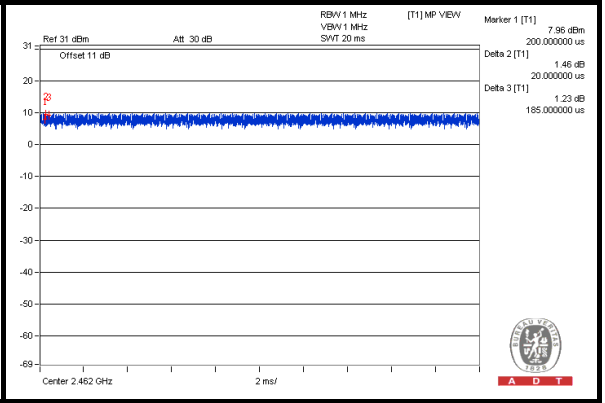
802.11n (20MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

802.11n (40MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

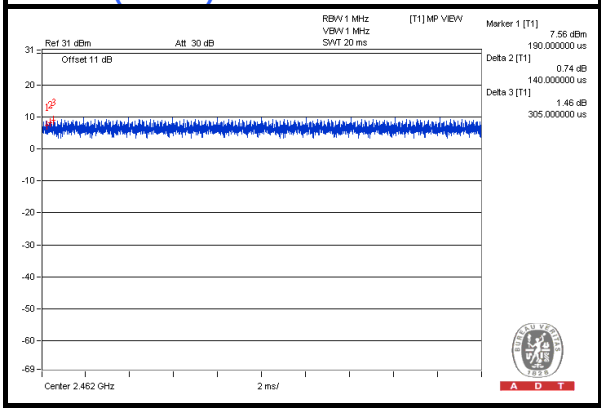
802.11b



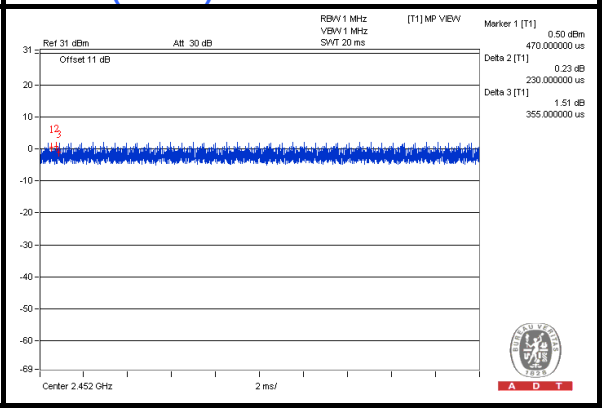
802.11g



802.11n (20MHz)



802.11n (40MHz)



2TX:

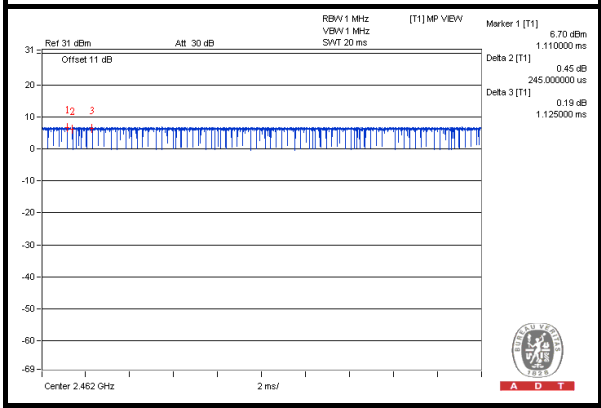
802.11b: Duty cycle of test signal is > 98 %, duty factor is not required.

802.11g: Duty cycle of test signal is > 98 %, duty factor is not required.

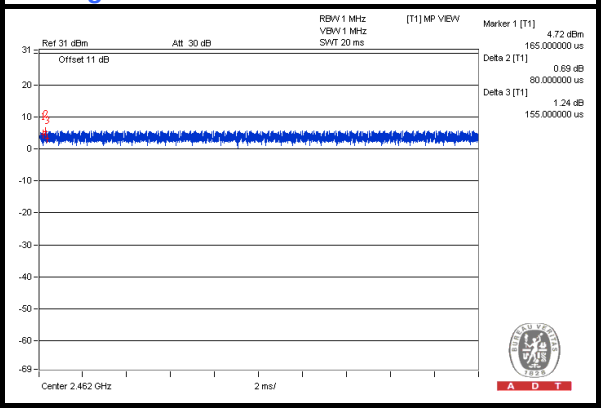
802.11n (20MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

802.11n (40MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

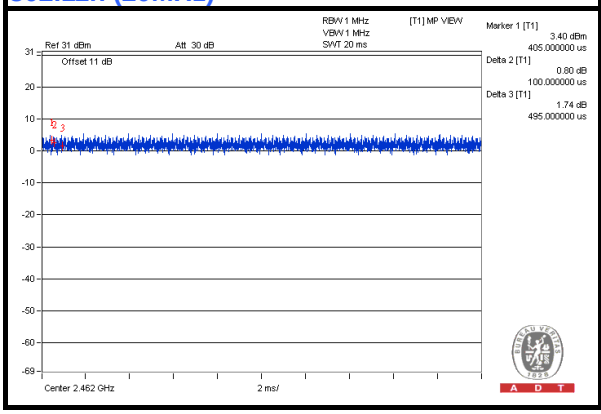
802.11b



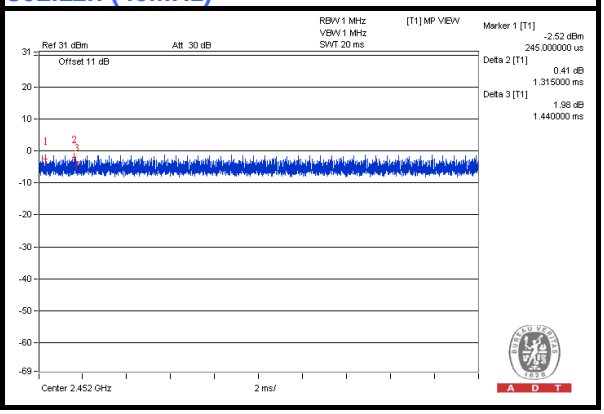
802.11g



802.11n (20MHz)



802.11n (40MHz)



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.

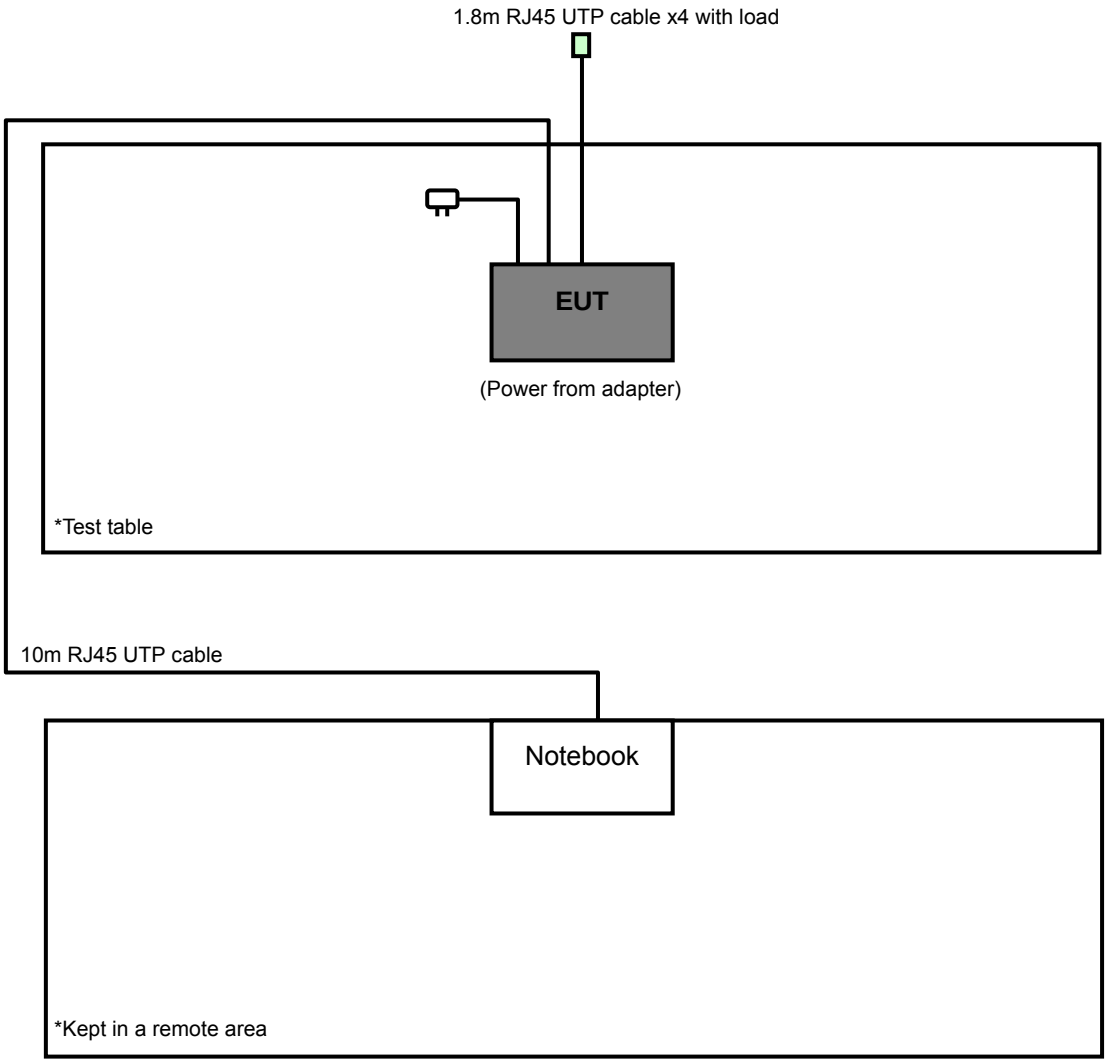
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	D531	CN-0XM006-48643-81U-2610	QDS-BRCM1020

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

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Items 1 acted as a communication partner to transfer data.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



3.5 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 v03r01
662911 D01 Multiple Transmitter Output v02r01
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.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB 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. 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 30dB 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	ESCS30	100289	Nov. 29, 2013	Nov. 28, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Feb. 11, 2014	Feb. 10, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Feb. 25, 2014	Feb. 24, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Sep. 12, 2013	Sep. 11, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01911	Aug. 22, 2013	Aug. 21, 2014
Preamplifier Agilent	8447D	2944A10638	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	248780/4 309222/4 274092/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable Worken	5D-FB	Cable-HYCH9-01	Aug. 11, 2013	Aug. 10, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA	NA
High Speed Power Meter	ML2495A	0824011	Jul. 29, 2013	Jul. 28, 2014
Power Sensor	MA2411B	0738171	Jul. 29, 2013	Jul. 28, 2014

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 9.

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 215374.

5. The IC Site Registration No. is IC 7450F-9.

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. Height of receiving antenna 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:

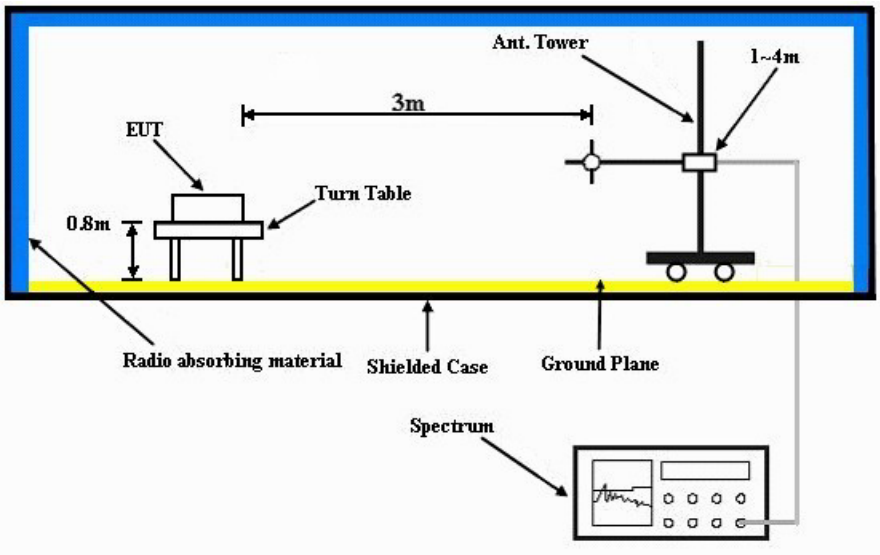
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) 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

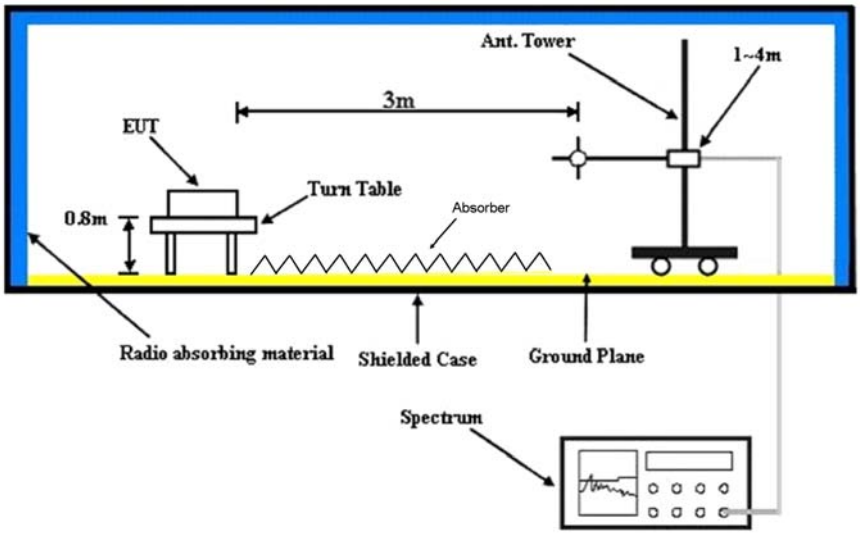
No deviation.

4.1.5 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



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 the testing table.
b. Prepared notebook to act as communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".

4.1.7 TEST RESULTS

ABOVE 1GHz DATA: 1TX

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**	Sun Lin

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	2387.00	59.0 PK	74.0	-15.0	1.01 H	212	26.70	32.30
2	2387.00	46.9 AV	54.0	-7.1	1.01 H	212	14.60	32.30
3	*2412.00	100.1 PK			1.01 H	212	67.60	32.50
4	*2412.00	96.2 AV			1.01 H	212	63.70	32.50
5	4824.00	49.8 PK	74.0	-24.2	1.57 H	89	47.80	2.00
6	4824.00	43.6 AV	54.0	-10.4	1.57 H	89	41.60	2.00
7	#7236.00	53.6 PK	70.1	-16.5	1.24 H	122	46.00	7.60
8	#7236.00	48.0 AV	66.2	-18.2	1.24 H	122	40.40	7.60
9	12060.00	60.0 PK	74.0	-14.0	1.52 H	209	45.40	14.60
10	12060.00	47.4 AV	54.0	-6.6	1.52 H	209	32.80	14.60

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 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	Sun Lin

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	2387.00	60.9 PK	74.0	-13.1	1.21 V	28	28.60	32.30
2	2387.00	49.1 AV	54.0	-4.9	1.21 V	28	16.80	32.30
3	*2412.00	111.6 PK			1.21 V	25	79.10	32.50
4	*2412.00	108.1 AV			1.21 V	25	75.60	32.50
5	4824.00	52.6 PK	74.0	-21.4	2.00 V	357	50.60	2.00
6	4824.00	49.0 AV	54.0	-5.0	2.00 V	357	47.00	2.00
7	#7236.00	65.1 PK	81.6	-16.5	1.76 V	278	57.50	7.60
8	#7236.00	59.8 AV	78.1	-18.3	1.76 V	278	52.20	7.60
9	12060.00	62.0 PK	74.0	-12.0	1.95 V	42	47.40	14.60
10	12060.00	52.8 AV	54.0	-1.2	1.95 V	42	38.20	14.60

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 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	Sun Lin

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	94.9 PK			1.00 H	204	62.40	32.50
2	*2437.00	90.9 AV			1.00 H	204	58.40	32.50
3	4874.00	47.8 PK	74.0	-26.2	1.69 H	101	45.80	2.00
4	4874.00	39.8 AV	54.0	-14.2	1.69 H	101	37.80	2.00
5	7311.00	52.2 PK	74.0	-21.8	1.22 H	108	44.20	8.00
6	7311.00	45.2 AV	54.0	-8.8	1.22 H	108	37.20	8.00
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	*2437.00	106.8 PK			1.18 V	6	73.50	33.30
2	*2437.00	103.2 AV			1.18 V	6	69.90	33.30
3	4874.00	49.6 PK	74.0	-24.4	1.04 V	200	47.70	1.90
4	4874.00	42.9 AV	54.0	-11.1	1.04 V	200	41.00	1.90
5	7311.00	60.0 PK	74.0	-14.0	1.89 V	277	51.40	8.60
6	**7311.00**	**53.0 AV**	**54.0**	**-1.0**	**1.89 V**	**277**	**44.40**	**8.60**

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) – Pre-Amplifier 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	Sun Lin

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	95.2 PK			1.00 H	208	62.60	32.60
2	*2462.00	91.1 AV			1.00 H	208	58.50	32.60
3	2483.50	58.6 PK	74.0	-15.4	1.00 H	208	25.80	32.80
4	2483.50	48.6 AV	54.0	-5.4	1.00 H	208	15.80	32.80
5	4924.00	47.5 PK	74.0	-26.5	1.52 H	92	45.40	2.10
6	4924.00	39.6 AV	54.0	-14.4	1.52 H	92	37.50	2.10
7	7386.00	52.9 PK	74.0	-21.1	1.29 H	112	44.80	8.10
8	7386.00	44.9 AV	54.0	-9.1	1.29 H	112	36.80	8.10
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	107.0 PK			1.16 V	7	74.40	32.60
2	*2462.00	103.1 AV			1.16 V	7	70.50	32.60
3	2483.50	58.6 PK	74.0	-15.4	1.18 V	8	25.80	32.80
4	2483.50	48.5 AV	54.0	-5.5	1.18 V	8	15.70	32.80
5	4924.00	49.5 PK	74.0	-24.5	1.24 V	198	47.40	2.10
6	4924.00	44.5 AV	54.0	-9.5	1.24 V	198	42.40	2.10
7	7386.00	59.5 PK	74.0	-14.5	1.82 V	272	51.40	8.10
8	7386.00	52.8 AV	54.0	-1.2	1.82 V	272	44.70	8.10

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) – Pre-Amplifier 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	Sun Lin

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	58.8 PK	74.0	-15.2	1.00 H	212	26.50	32.30
2	2390.00	46.5 AV	54.0	-7.5	1.00 H	212	14.20	32.30
3	*2412.00	95.9 PK			1.00 H	208	63.40	32.50
4	*2412.00	86.5 AV			1.00 H	208	54.00	32.50
5	4824.00	44.9 PK	74.0	-29.1	1.52 H	285	42.90	2.00
6	4824.00	34.4 AV	54.0	-19.6	1.52 H	285	32.40	2.00
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	2390.00	65.0 PK	74.0	-9.0	1.24 V	188	32.70	32.30
2	2390.00	52.4 AV	54.0	-1.6	1.24 V	188	20.10	32.30
3	*2412.00	106.2 PK			1.16 V	206	73.70	32.50
4	*2412.00	96.8 AV			1.16 V	206	64.30	32.50
5	4824.00	46.8 PK	74.0	-27.2	1.46 V	247	44.80	2.00
6	4824.00	36.9 AV	54.0	-17.1	1.46 V	247	34.90	2.00

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) – Pre-Amplifier 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	Sun Lin

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	99.1 PK			1.00 H	206	66.60	32.50
2	*2437.00	90.4 AV			1.00 H	206	57.90	32.50
3	4874.00	44.1 PK	74.0	-29.9	1.41 H	269	42.10	2.00
4	4874.00	34.2 AV	54.0	-19.8	1.41 H	269	32.20	2.00
5	7311.00	50.8 PK	74.0	-23.2	1.08 H	82	42.80	8.00
6	7311.00	40.9 AV	54.0	-13.1	1.08 H	82	32.90	8.00
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	*2437.00	109.1 PK			1.15 V	104	76.60	32.50
2	*2437.00	100.1 AV			1.15 V	104	67.60	32.50
3	4874.00	46.6 PK	74.0	-27.4	1.28 V	289	44.60	2.00
4	4874.00	36.4 AV	54.0	-17.6	1.28 V	289	34.40	2.00
5	7311.00	66.0 PK	74.0	-8.0	1.68 V	277	58.00	8.00
6	7311.00	52.8 AV	54.0	-1.2	1.68 V	277	44.80	8.00

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) – Pre-Amplifier 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	Sun Lin

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	98.6 PK			1.02 H	204	66.00	32.60
2	*2462.00	89.8 AV			1.02 H	204	57.20	32.60
3	2483.50	61.6 PK	74.0	-12.4	1.00 H	204	28.80	32.80
4	2483.50	48.5 AV	54.0	-5.5	1.00 H	204	15.70	32.80
5	4924.00	44.9 PK	74.0	-29.1	1.45 H	269	42.80	2.10
6	4924.00	34.5 AV	54.0	-19.5	1.45 H	269	32.40	2.10
7	7386.00	50.9 PK	74.0	-23.1	1.09 H	85	42.80	8.10
8	7386.00	41.1 AV	54.0	-12.9	1.09 H	85	33.00	8.10
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	108.5 PK			1.16 V	7	75.90	32.60
2	*2462.00	99.0 AV			1.16 V	7	66.40	32.60
3	2483.50	69.5 PK	74.0	-4.5	1.34 V	114	36.70	32.80
4	2483.50	52.8 AV	54.0	-1.2	1.34 V	114	20.00	32.80
5	4924.00	46.9 PK	74.0	-27.1	1.96 V	347	44.80	2.10
6	4924.00	36.9 AV	54.0	-17.1	1.96 V	347	34.80	2.10
7	7386.00	65.3 PK	74.0	-8.7	1.85 V	276	57.20	8.10
8	7386.00	50.8 AV	54.0	-3.2	1.85 V	276	42.70	8.10

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) – Pre-Amplifier 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	Sun Lin

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	58.2 PK	74.0	-15.8	1.02 H	215	25.90	32.30
2	2390.00	45.0 AV	54.0	-9.0	1.02 H	215	12.70	32.30
3	*2412.00	95.7 PK			1.00 H	211	63.20	32.50
4	*2412.00	86.4 AV			1.00 H	211	53.90	32.50
5	4824.00	44.6 PK	74.0	-29.4	1.48 H	279	42.60	2.00
6	4824.00	34.5 AV	54.0	-19.5	1.48 H	279	32.50	2.00
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	2390.00	64.2 PK	74.0	-9.8	1.17 V	212	31.90	32.30
2	2390.00	52.4 AV	54.0	-1.6	1.17 V	212	20.10	32.30
3	*2412.00	105.6 PK			1.12 V	204	73.10	32.50
4	*2412.00	96.4 AV			1.12 V	204	63.90	32.50
5	4824.00	46.5 PK	74.0	-27.5	1.41 V	258	44.50	2.00
6	4824.00	36.6 AV	54.0	-17.4	1.41 V	258	34.60	2.00

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) – Pre-Amplifier 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	Sun Lin

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	98.5 PK			1.04 H	212	66.00	32.50
2	*2437.00	89.1 AV			1.04 H	212	56.60	32.50
3	4874.00	44.8 PK	74.0	-29.2	1.42 H	269	42.80	2.00
4	4874.00	34.9 AV	54.0	-19.1	1.42 H	269	32.90	2.00
5	7311.00	50.9 PK	74.0	-23.1	1.06 H	72	42.90	8.00
6	7311.00	40.8 AV	54.0	-13.2	1.06 H	72	32.80	8.00
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	*2437.00	108.2 PK			1.77 V	208	75.70	32.50
2	*2437.00	98.4 AV			1.77 V	208	65.90	32.50
3	4874.00	46.8 PK	74.0	-27.2	1.24 V	229	44.80	2.00
4	4874.00	36.6 AV	54.0	-17.4	1.24 V	229	34.60	2.00
5	7311.00	66.5 PK	74.0	-7.5	1.98 V	272	58.50	8.00
6	7311.00	52.8 AV	54.0	-1.2	1.98 V	272	44.80	8.00

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) – Pre-Amplifier 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	Sun Lin

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	96.5 PK			1.04 H	221	63.90	32.60
2	*2462.00	86.8 AV			1.04 H	221	54.20	32.60
3	2483.50	59.2 PK	74.0	-14.8	1.04 H	228	26.40	32.80
4	2483.50	47.0 AV	54.0	-7.0	1.04 H	228	14.20	32.80
5	4924.00	44.9 PK	74.0	-29.1	1.42 H	304	42.80	2.10
6	4924.00	35.0 AV	54.0	-19.0	1.42 H	304	32.90	2.10
7	7386.00	51.5 PK	74.0	-22.5	1.04 H	68	43.40	8.10
8	7386.00	42.2 AV	54.0	-11.8	1.04 H	68	34.10	8.10
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	105.7 PK			1.12 V	198	73.10	32.60
2	*2462.00	96.6 AV			1.12 V	198	64.00	32.60
3	2483.50	69.9 PK	74.0	-4.1	1.08 V	118	37.10	32.80
4	2483.50	52.9 AV	54.0	-1.1	1.08 V	118	20.10	32.80
5	4924.00	47.0 PK	74.0	-27.0	1.49 V	221	44.90	2.10
6	4924.00	37.1 AV	54.0	-16.9	1.49 V	221	35.00	2.10
7	7386.00	64.8 PK	74.0	-9.2	1.72 V	271	56.70	8.10
8	7386.00	50.0 AV	54.0	-4.0	1.72 V	271	41.90	8.10

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) – Pre-Amplifier 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 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin

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	59.1 PK	74.0	-14.9	1.08 H	224	26.80	32.30
2	2390.00	47.9 AV	54.0	-6.1	1.08 H	224	15.60	32.30
3	*2422.00	94.9 PK			1.08 H	224	62.40	32.50
4	*2422.00	85.6 AV			1.08 H	224	53.10	32.50
5	4844.00	44.8 PK	74.0	-29.2	1.52 H	285	42.80	2.00
6	4844.00	35.8 AV	54.0	-18.2	1.52 H	285	33.80	2.00
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	2390.00	67.2 PK	74.0	-6.8	1.16 V	97	34.90	32.30
2	2390.00	52.5 AV	54.0	-1.5	1.16 V	97	20.20	32.30
3	*2422.00	103.2 PK			1.00 V	97	70.70	32.50
4	*2422.00	94.0 AV			1.00 V	97	61.50	32.50
5	4844.00	46.5 PK	74.0	-27.5	1.96 V	302	44.50	2.00
6	4844.00	37.0 AV	54.0	-17.0	1.96 V	302	35.00	2.00

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) – Pre-Amplifier 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	Sun Lin

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	59.4 PK	74.0	-14.6	1.02 H	211	27.10	32.30
2	2390.00	48.1 AV	54.0	-5.9	1.02 H	211	15.80	32.30
3	*2437.00	96.1 PK			1.00 H	211	63.60	32.50
4	*2437.00	86.7 AV			1.00 H	211	54.20	32.50
5	2483.50	60.6 PK	74.0	-13.4	1.02 H	212	27.80	32.80
6	2483.50	48.8 AV	54.0	-5.2	1.02 H	212	16.00	32.80
7	4874.00	44.5 PK	74.0	-29.5	1.48 H	291	42.50	2.00
8	4874.00	35.0 AV	54.0	-19.0	1.48 H	291	33.00	2.00
9	7311.00	54.4 PK	74.0	-19.6	1.28 H	128	46.40	8.00
10	7311.00	42.2 AV	54.0	-11.8	1.28 H	128	34.20	8.00

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	2390.00	63.8 PK	74.0	-10.2	1.14 V	197	31.50	32.30
2	2390.00	52.0 AV	54.0	-2.0	1.14 V	197	19.70	32.30
3	*2437.00	104.1 PK			1.12 V	100	71.60	32.50
4	*2437.00	94.9 AV			1.12 V	100	62.40	32.50
5	2483.50	65.2 PK	74.0	-8.8	1.12 V	141	32.40	32.80
6	2483.50	52.8 AV	54.0	-1.2	1.12 V	141	20.00	32.80
7	4874.00	46.5 PK	74.0	-27.5	1.58 V	326	44.50	2.00
8	4874.00	36.6 AV	54.0	-17.4	1.58 V	326	34.60	2.00
9	7311.00	60.0 PK	74.0	-14.0	1.75 V	275	52.00	8.00
10	7311.00	46.8 AV	54.0	-7.2	1.75 V	275	38.80	8.00

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) – Pre-Amplifier 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 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin

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	97.8 PK			1.08 H	218	65.20	32.60
2	*2452.00	88.2 AV			1.08 H	218	55.60	32.60
3	2483.50	60.2 PK	74.0	-13.8	1.08 H	214	27.40	32.80
4	2483.50	49.0 AV	54.0	-5.0	1.08 H	214	16.20	32.80
5	4904.00	44.9 PK	74.0	-29.1	1.44 H	304	42.80	2.10
6	4904.00	34.9 AV	54.0	-19.1	1.44 H	304	32.80	2.10
7	7356.00	53.8 PK	74.0	-20.2	1.24 H	129	45.70	8.10
8	7356.00	42.8 AV	54.0	-11.2	1.24 H	129	34.70	8.10
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	*2452.00	102.7 PK			1.12 V	97	70.10	32.60
2	*2452.00	93.4 AV			1.12 V	97	60.80	32.60
3	2483.50	67.4 PK	74.0	-6.6	1.08 V	115	34.60	32.80
4	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**1.08 V**	**115**	**20.20**	**32.80**
5	4904.00	46.9 PK	74.0	-27.1	1.70 V	322	44.80	2.10
6	4904.00	36.8 AV	54.0	-17.2	1.70 V	322	34.70	2.10
7	7356.00	57.1 PK	74.0	-16.9	1.87 V	277	49.00	8.10
8	7356.00	44.9 AV	54.0	-9.1	1.87 V	277	36.80	8.10

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

ABOVE 1GHz DATA: 2TX

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	Ted Tung

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	2287.00	49.4 PK	74.0	-24.6	1.56 H	66	51.60	-2.20
2	2287.00	42.4 AV	54.0	-11.6	1.56 H	66	44.60	-2.20
3	2390.00	60.2 PK	74.0	-13.8	1.20 H	204	27.90	32.30
4	2390.00	48.9 AV	54.0	-5.1	1.20 H	204	16.60	32.30
5	*2412.00	104.7 PK			1.01 H	157	72.20	32.50
6	*2412.00	100.9 AV			1.01 H	157	68.40	32.50
7	4824.00	50.6 PK	74.0	-23.4	1.52 H	77	48.60	2.00
8	4824.00	47.6 AV	54.0	-6.4	1.52 H	77	45.60	2.00

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	2287.00	53.0 PK	74.0	-21.0	1.00 V	5	55.20	-2.20
2	2287.00	45.7 AV	54.0	-8.3	1.00 V	5	47.90	-2.20
3	2390.00	62.4 PK	74.0	-11.6	1.48 V	9	30.10	32.30
4	2390.00	52.6 AV	54.0	-1.4	1.48 V	9	20.30	32.30
5	*2412.00	112.6 PK			1.00 V	2	80.10	32.50
6	*2412.00	108.8 AV			1.00 V	2	76.30	32.50
7	4824.00	55.6 PK	74.0	-18.4	1.66 V	126	53.60	2.00
8	4824.00	52.7 AV	54.0	-1.3	1.66 V	126	50.70	2.00

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) – Pre-Amplifier 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	Ted Tung

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	101.3 PK			1.00 H	206	68.80	32.50
2	*2437.00	97.4 AV			1.00 H	206	64.90	32.50
3	4874.00	49.5 PK	74.0	-24.5	1.53 H	351	47.50	2.00
4	4874.00	45.6 AV	54.0	-8.4	1.53 H	351	43.60	2.00
5	7311.00	56.2 PK	74.0	-17.8	1.32 H	115	48.20	8.00
6	7311.00	49.2 AV	54.0	-4.8	1.32 H	115	41.20	8.00
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	*2437.00	109.2 PK			1.00 V	17	76.70	32.50
2	*2437.00	105.3 AV			1.00 V	17	72.80	32.50
3	4874.00	53.6 PK	74.0	-20.4	1.01 V	131	51.60	2.00
4	4874.00	49.8 AV	54.0	-4.2	1.01 V	131	47.80	2.00
5	7311.00	60.5 PK	74.0	-13.5	2.07 V	294	52.50	8.00
6	7311.00	52.7 AV	54.0	-1.3	2.07 V	294	44.70	8.00

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) – Pre-Amplifier 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	Ted Tung

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	99.6 PK			1.01 H	224	67.00	32.60
2	*2462.00	95.9 AV			1.01 H	224	63.30	32.60
3	2483.50	58.4 PK	74.0	-15.6	1.02 H	11	25.60	32.80
4	2483.50	45.4 AV	54.0	-8.6	1.02 H	11	12.60	32.80
5	4924.00	50.4 PK	74.0	-23.6	1.05 H	62	48.30	2.10
6	4924.00	46.2 AV	54.0	-7.8	1.05 H	62	44.10	2.10
7	7386.00	57.1 PK	74.0	-16.9	1.60 H	198	49.00	8.10
8	7386.00	46.2 AV	54.0	-7.8	1.60 H	198	38.10	8.10

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	106.7 PK			1.00 V	17	74.10	32.60
2	*2462.00	102.9 AV			1.00 V	17	70.30	32.60
3	2483.50	60.8 PK	74.0	-13.2	1.15 V	21	28.00	32.80
4	2483.50	48.5 AV	54.0	-5.5	1.15 V	21	15.70	32.80
5	4924.00	53.7 PK	74.0	-20.3	1.02 V	101	51.60	2.10
6	4924.00	49.6 AV	54.0	-4.4	1.02 V	101	47.50	2.10
7	7386.00	60.5 PK	74.0	-13.5	1.54 V	304	52.40	8.10
8	7386.00	52.5 AV	54.0	-1.5	1.54 V	304	44.40	8.10

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) – Pre-Amplifier 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	Ted Tung

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	61.7 PK	74.0	-12.3	1.00 H	251	29.40	32.30
2	2390.00	48.7 AV	54.0	-5.3	1.00 H	251	16.40	32.30
3	*2412.00	104.2 PK			1.00 H	207	71.70	32.50
4	*2412.00	95.0 AV			1.00 H	207	62.50	32.50
5	4824.00	47.6 PK	74.0	-26.4	1.52 H	66	45.60	2.00
6	4824.00	34.5 AV	54.0	-19.5	1.52 H	66	32.50	2.00
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	2390.00	66.8 PK	74.0	-7.2	1.00 V	217	34.50	32.30
2	2390.00	52.7 AV	54.0	-1.3	1.00 V	217	20.40	32.30
3	*2412.00	111.2 PK			1.20 V	12	78.70	32.50
4	*2412.00	101.9 AV			1.20 V	12	69.40	32.50
5	4824.00	49.4 PK	74.0	-24.6	1.00 V	268	47.40	2.00
6	4824.00	35.7 AV	54.0	-18.3	1.00 V	268	33.70	2.00

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) – Pre-Amplifier 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	Ted Tung

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	105.6 PK			1.00 H	206	73.10	32.50
2	*2437.00	96.3 AV			1.00 H	206	63.80	32.50
3	4874.00	47.2 PK	74.0	-26.8	1.64 H	110	45.20	2.00
4	4874.00	35.6 AV	54.0	-18.4	1.64 H	110	33.60	2.00
5	7311.00	61.7 PK	74.0	-12.3	1.06 H	69	53.70	8.00
6	7311.00	48.2 AV	54.0	-5.8	1.06 H	69	40.20	8.00
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	*2437.00	110.5 PK			1.00 V	14	78.00	32.50
2	*2437.00	100.9 AV			1.00 V	14	68.40	32.50
3	4874.00	50.6 PK	74.0	-23.4	1.00 V	88	48.60	2.00
4	4874.00	37.6 AV	54.0	-16.4	1.00 V	88	35.60	2.00
5	7311.00	66.7 PK	74.0	-7.3	1.75 V	294	58.70	8.00
6	7311.00	52.4 AV	54.0	-1.6	1.75 V	294	44.40	8.00

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) – Pre-Amplifier 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	Ted Tung

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	102.9 PK			1.00 H	206	70.30	32.60
2	*2462.00	93.3 AV			1.00 H	206	60.70	32.60
3	2483.50	63.7 PK	74.0	-10.3	1.00 H	209	30.90	32.80
4	2483.50	49.8 AV	54.0	-4.2	1.00 H	209	17.00	32.80
5	4924.00	47.8 PK	74.0	-26.2	1.52 H	77	45.70	2.10
6	4924.00	35.7 AV	54.0	-18.3	1.52 H	77	33.60	2.10
7	7386.00	61.7 PK	74.0	-12.3	1.01 H	330	53.60	8.10
8	7386.00	48.3 AV	54.0	-5.7	1.01 H	330	40.20	8.10
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	108.1 PK			1.00 V	24	75.50	32.60
2	*2462.00	98.5 AV			1.00 V	24	65.90	32.60
3	2483.50	69.4 PK	74.0	-4.6	1.00 V	13	36.60	32.80
4	2483.50	52.9 AV	54.0	-1.1	1.00 V	13	20.10	32.80
5	4924.00	49.5 PK	74.0	-24.5	1.00 V	102	47.40	2.10
6	4924.00	36.6 AV	54.0	-17.4	1.00 V	102	34.50	2.10
7	7386.00	66.7 PK	74.0	-7.3	1.93 V	266	58.60	8.10
8	7386.00	51.6 AV	54.0	-2.4	1.93 V	266	43.50	8.10

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) – Pre-Amplifier 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	Sun Lin

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	61.1 PK	74.0	-12.9	1.02 H	211	28.80	32.30
2	2390.00	48.5 AV	54.0	-5.5	1.02 H	211	16.20	32.30
3	*2412.00	99.7 PK			1.00 H	219	67.20	32.50
4	*2412.00	88.7 AV			1.00 H	219	56.20	32.50
5	4824.00	44.6 PK	74.0	-29.4	1.44 H	67	42.60	2.00
6	4824.00	34.8 AV	54.0	-19.2	1.44 H	67	32.80	2.00
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	2390.00	66.9 PK	74.0	-7.1	1.00 V	197	34.60	32.30
2	2390.00	52.5 AV	54.0	-1.5	1.00 V	197	20.20	32.30
3	*2412.00	106.7 PK			1.00 V	207	74.20	32.50
4	*2412.00	95.7 AV			1.00 V	207	63.20	32.50
5	4824.00	47.5 PK	74.0	-26.5	1.58 V	321	45.50	2.00
6	4824.00	37.2 AV	54.0	-16.8	1.58 V	321	35.20	2.00

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) – Pre-Amplifier 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	Sun Lin

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	99.4 PK			1.04 H	198	66.90	32.50
2	*2437.00	88.4 AV			1.04 H	198	55.90	32.50
3	4874.00	44.9 PK	74.0	-29.1	1.48 H	72	42.90	2.00
4	4874.00	35.6 AV	54.0	-18.4	1.48 H	72	33.60	2.00
5	7311.00	58.8 PK	74.0	-15.2	1.54 H	96	50.80	8.00
6	7311.00	46.9 AV	54.0	-7.1	1.54 H	96	38.90	8.00
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	*2437.00	106.2 PK			1.00 V	198	73.70	32.50
2	*2437.00	94.7 AV			1.00 V	198	62.20	32.50
3	4874.00	46.8 PK	74.0	-27.2	1.51 V	308	44.80	2.00
4	4874.00	37.0 AV	54.0	-17.0	1.51 V	308	35.00	2.00
5	7311.00	65.5 PK	74.0	-8.5	1.75 V	261	57.50	8.00
6	7311.00	52.5 AV	54.0	-1.5	1.75 V	261	44.50	8.00

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) – Pre-Amplifier 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	Sun Lin

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	99.7 PK			1.00 H	205	67.10	32.60
2	*2462.00	88.8 AV			1.00 H	205	56.20	32.60
3	2483.50	61.2 PK	74.0	-12.8	1.00 H	204	28.40	32.80
4	2483.50	50.0 AV	54.0	-4.0	1.00 H	204	17.20	32.80
5	4924.00	44.5 PK	74.0	-29.5	1.54 H	77	42.40	2.10
6	4924.00	35.0 AV	54.0	-19.0	1.54 H	77	32.90	2.10
7	7386.00	59.3 PK	74.0	-14.7	1.48 H	104	51.20	8.10
8	7386.00	47.3 AV	54.0	-6.7	1.48 H	104	39.20	8.10
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	106.4 PK			1.12 V	186	73.80	32.60
2	*2462.00	95.0 AV			1.12 V	186	62.40	32.60
3	2483.50	62.5 PK	74.0	-11.5	1.14 V	172	29.70	32.80
4	2483.50	50.0 AV	54.0	-4.0	1.14 V	172	17.20	32.80
5	4924.00	46.2 PK	74.0	-27.8	1.62 V	317	44.10	2.10
6	4924.00	34.8 AV	54.0	-19.2	1.62 V	317	32.70	2.10
7	7386.00	65.1 PK	74.0	-8.9	2.08 V	267	57.00	8.10
8	7386.00	52.8 AV	54.0	-1.2	2.08 V	267	44.70	8.10

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) – Pre-Amplifier 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 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin

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	60.3 PK	74.0	-13.7	1.00 H	216	28.00	32.30
2	2390.00	48.1 AV	54.0	-5.9	1.00 H	216	15.80	32.30
3	*2422.00	96.4 PK			1.00 H	216	63.90	32.50
4	*2422.00	86.5 AV			1.00 H	216	54.00	32.50
5	4844.00	47.2 PK	74.0	-26.8	1.49 H	58	45.20	2.00
6	4844.00	36.9 AV	54.0	-17.1	1.49 H	58	34.90	2.00
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	2390.00	64.9 PK	74.0	-9.1	1.00 V	187	32.60	32.30
2	2390.00	52.9 AV	54.0	-1.1	1.00 V	187	20.60	32.30
3	*2422.00	103.4 PK			1.18 V	21	70.90	32.50
4	*2422.00	92.7 AV			1.18 V	21	60.20	32.50
5	4844.00	44.9 PK	74.0	-29.1	1.44 V	298	42.90	2.00
6	4844.00	34.8 AV	54.0	-19.2	1.44 V	298	32.80	2.00

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) – Pre-Amplifier 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	Sun Lin

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	60.5 PK	74.0	-13.5	1.02 H	209	28.20	32.30
2	2390.00	49.2 AV	54.0	-4.8	1.02 H	209	16.90	32.30
3	*2437.00	97.6 PK			1.02 H	209	65.10	32.50
4	*2437.00	87.4 AV			1.02 H	209	54.90	32.50
5	2483.50	63.3 PK	74.0	-10.7	1.02 H	209	30.50	32.80
6	2483.50	50.6 AV	54.0	-3.4	1.02 H	209	17.80	32.80
7	4874.00	46.8 PK	74.0	-27.2	1.52 H	85	44.80	2.00
8	4874.00	37.2 AV	54.0	-16.8	1.52 H	85	35.20	2.00
9	7311.00	50.2 PK	74.0	-23.8	1.52 H	48	42.20	8.00
10	7311.00	40.5 AV	54.0	-13.5	1.52 H	48	32.50	8.00

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	2390.00	62.2 PK	74.0	-11.8	1.12 V	189	29.90	32.30
2	2390.00	52.2 AV	54.0	-1.8	1.12 V	189	19.90	32.30
3	*2437.00	103.9 PK			1.17 V	182	71.40	32.50
4	*2437.00	93.9 AV			1.17 V	182	61.40	32.50
5	2483.50	65.6 PK	74.0	-8.4	1.12 V	187	32.80	32.80
6	2483.50	52.8 AV	54.0	-1.2	1.12 V	187	20.00	32.80
7	4874.00	47.9 PK	74.0	-26.1	1.52 V	301	45.90	2.00
8	4874.00	36.8 AV	54.0	-17.2	1.52 V	301	34.80	2.00
9	7311.00	67.1 PK	74.0	-6.9	1.96 V	268	59.10	8.00
10	7311.00	52.0 AV	54.0	-2.0	1.96 V	268	44.00	8.00

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) – Pre-Amplifier 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 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin

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	94.0 PK			1.02 H	202	61.40	32.60
2	*2452.00	84.2 AV			1.02 H	202	51.60	32.60
3	2483.50	62.0 PK	74.0	-12.0	1.02 H	202	29.20	32.80
4	2483.50	49.2 AV	54.0	-4.8	1.02 H	202	16.40	32.80
5	4904.00	46.3 PK	74.0	-27.7	1.54 H	62	44.20	2.10
6	4904.00	36.3 AV	54.0	-17.7	1.54 H	62	34.20	2.10
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	*2452.00	101.1 PK			1.15 V	208	68.50	32.60
2	*2452.00	90.4 AV			1.15 V	208	57.80	32.60
3	2483.50	65.6 PK	74.0	-8.4	1.15 V	201	32.80	32.80
4	2483.50	52.5 AV	54.0	-1.5	1.15 V	201	19.70	32.80
5	4904.00	44.9 PK	74.0	-29.1	1.48 V	278	42.80	2.10
6	4904.00	34.8 AV	54.0	-19.2	1.48 V	278	32.70	2.10

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) – Pre-Amplifier 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：2TX

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, 68%RH	TESTED BY	Sun Lin
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	261.62	33.3 QP	46.0	-12.7	1.25 H	117	46.90	-13.60
2	309.81	38.4 QP	46.0	-7.6	1.00 H	151	50.30	-11.90
3	499.46	33.7 QP	46.0	-12.3	1.50 H	300	42.10	-8.40
4	622.26	32.9 QP	46.0	-13.1	1.25 H	16	38.60	-5.70
5	776.15	34.0 QP	46.0	-12.0	1.00 H	324	36.80	-2.80
6	933.16	38.5 QP	46.0	-7.5	1.50 H	160	38.90	-0.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.66	37.4 QP	40.0	-2.6	1.00 V	122	53.20	-15.80
2	50.19	37.2 QP	40.0	-2.8	1.04 V	201	51.10	-13.90
3	107.72	29.8 QP	43.5	-13.7	1.00 V	311	47.30	-17.50
4	157.47	30.6 QP	43.5	-12.9	1.49 V	15	44.30	-13.70
5	309.81	33.8 QP	46.0	-12.2	1.49 V	154	45.70	-11.90
6	499.46	30.5 QP	46.0	-15.5	1.00 V	194	38.90	-8.40

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) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

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, 68%RH	TESTED BY	Sun Lin
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	155.91	31.9 QP	43.5	-11.6	1.49 H	254	45.40	-13.50
2	256.96	30.7 QP	46.0	-15.3	1.24 H	13	44.60	-13.90
3	309.81	37.5 QP	46.0	-8.5	1.00 H	50	49.40	-11.90
4	499.46	35.8 QP	46.0	-10.2	1.49 H	82	44.20	-8.40
5	932.16	39.9 QP	46.0	-6.1	1.49 H	15	40.20	-0.30
6	945.59	40.2 QP	46.0	-5.8	1.49 H	15	40.30	-0.10
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	47.10	34.0 QP	40.0	-6.0	1.00 V	353	48.10	-14.10
2	62.64	34.3 QP	40.0	-5.7	1.00 V	15	49.30	-15.00
3	154.36	36.5 QP	43.5	-7.0	2.00 V	185	50.10	-13.60
4	260.06	34.0 QP	46.0	-12.0	1.00 V	55	47.70	-13.70
5	314.47	34.1 QP	46.0	-11.9	1.49 V	300	45.90	-11.80
6	499.46	36.0 QP	46.0	-10.0	1.00 V	235	44.40	-8.40

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) – Pre-Amplifier 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 (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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 29, 2013	Nov. 28, 2014
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 13, 2014	Feb. 12, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 17, 2013	Jul. 16, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA
ISN	FCC-TLISN-T2-02-09	091393	Nov. 21, 2013	Nov. 20, 2014
ISN	F-071115-1057-1-09	120033	Apr. 02, 2013	Apr. 01, 2014
Capacitive Voltage Probe	F-CVP-1	82	Jul. 01, 2013	Jun. 30, 2014
RF Current Probe	F-33-4	45	Feb. 10, 2014	Feb. 09, 2015
Coupling And Decoupling Network	CDN RJ45-S	07	Jul. 20, 2013	Jul. 19, 2014

Notes: 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 T-1653.

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.

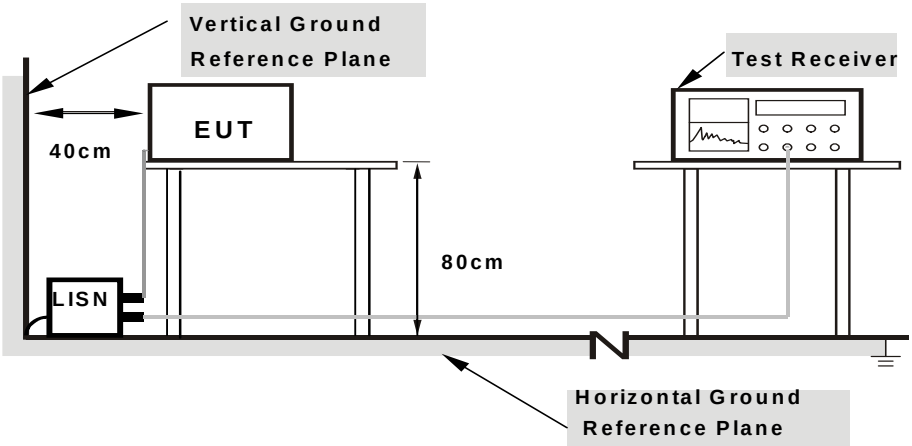
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

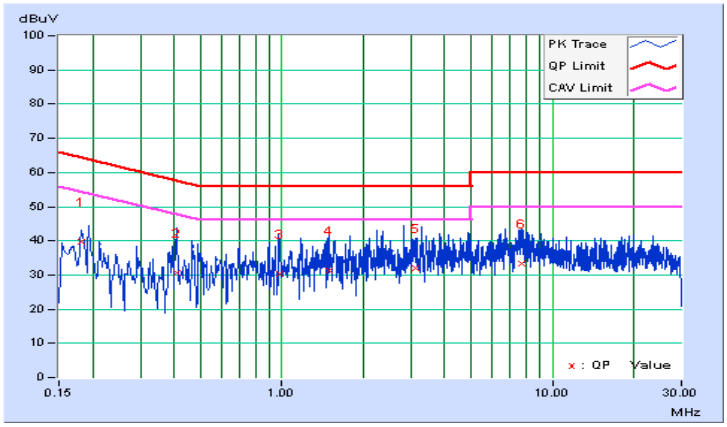
CONDUCTED WORST-CASE DATA：

802.11b：2TX

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	0.18075	0.10	39.74	20.81	39.84	20.91	64.45	54.45	-24.61	-33.54
2	0.40693	0.11	30.46	16.63	30.57	16.74	57.71	47.71	-27.14	-30.97
3	0.97892	0.21	30.20	15.74	30.41	15.95	56.00	46.00	-25.59	-30.05
4	1.48774	0.23	31.04	16.61	31.27	16.84	56.00	46.00	-24.73	-29.16
5	3.10596	0.26	31.73	17.72	31.99	17.98	56.00	46.00	-24.01	-28.02
6	7.68133	0.44	32.94	19.13	33.38	19.57	60.00	50.00	-26.62	-30.43

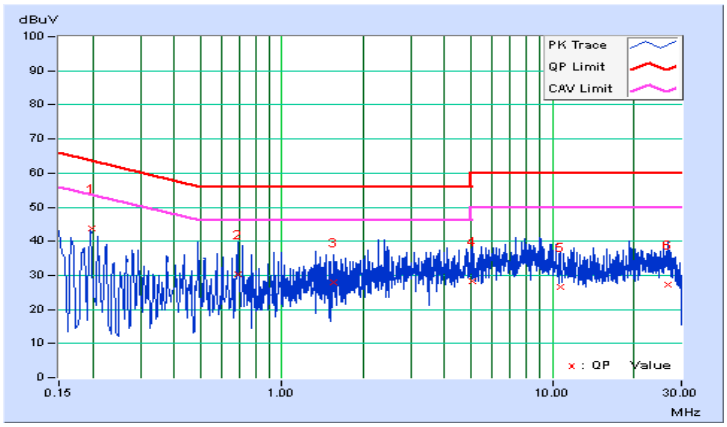
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading 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	0.19717	0.09	43.65	22.15	43.74	22.24	63.73	53.73	-19.99	-31.49
2	0.68564	0.19	30.21	14.22	30.40	14.41	56.00	46.00	-25.60	-31.59
3	1.54587	0.22	27.64	13.97	27.86	14.19	56.00	46.00	-28.14	-31.81
4	5.04532	0.31	28.05	15.19	28.36	15.50	60.00	50.00	-31.64	-34.50
5	10.66399	0.57	26.12	12.00	26.69	12.57	60.00	50.00	-33.31	-37.43
6	26.61679	1.18	26.15	11.35	27.33	12.53	60.00	50.00	-32.67	-37.47

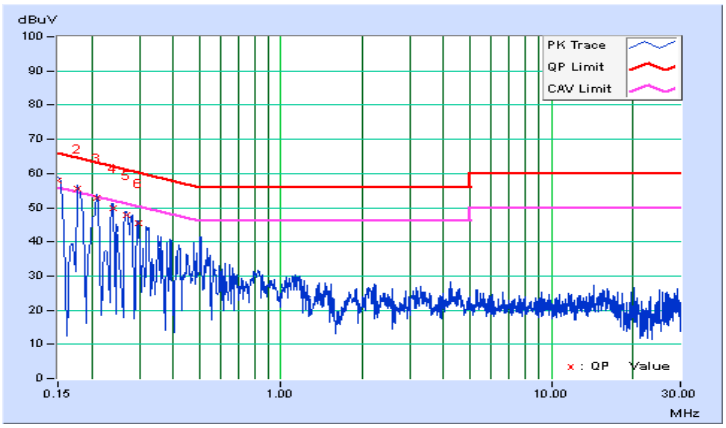
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading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



PHASE	Line 1	6dB BANDWIDTH	9kHz
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	**0.15000**	**0.11**	**57.96**	**46.95**	**58.07**	**47.06**	**66.00**	**56.00**	**-7.93**	**-8.94**
2	0.17744	0.10	55.59	44.59	55.69	44.69	64.60	54.60	-8.92	-9.92
3	0.20893	0.09	52.82	41.91	52.91	42.00	63.25	53.25	-10.34	-11.25
4	0.23993	0.09	49.74	38.00	49.83	38.09	62.10	52.10	-12.26	-14.00
5	0.26765	0.10	47.71	36.41	47.81	36.51	61.19	51.19	-13.38	-14.68
6	0.29662	0.10	45.19	33.69	45.29	33.79	60.34	50.34	-15.05	-16.55

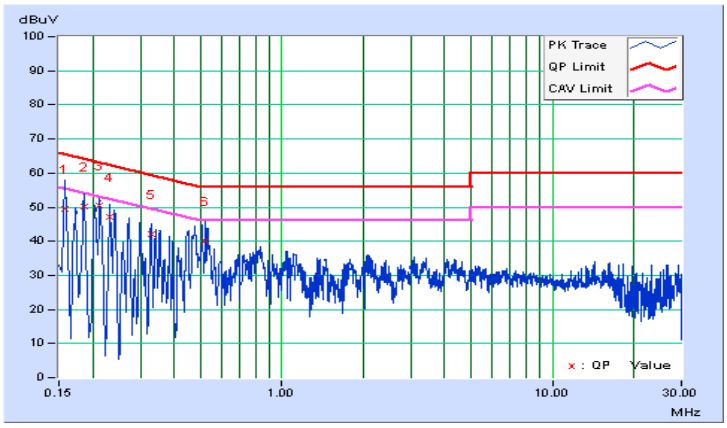
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading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



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	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	0.15782	0.06	49.31	28.61	49.37	28.67	65.58	55.58	-16.21	-26.91
2	0.18519	0.08	50.04	34.15	50.12	34.23	64.25	54.25	-14.13	-20.02
3	0.21256	0.10	50.34	37.39	50.44	37.49	63.10	53.10	-12.67	-15.62
4	0.23211	0.10	46.89	31.29	46.99	31.39	62.37	52.37	-15.38	-20.98
5	0.32986	0.14	42.11	30.56	42.25	30.70	59.45	49.45	-17.20	-18.75
6	0.52145	0.18	40.01	22.28	40.19	22.46	56.00	46.00	-15.81	-23.54

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.

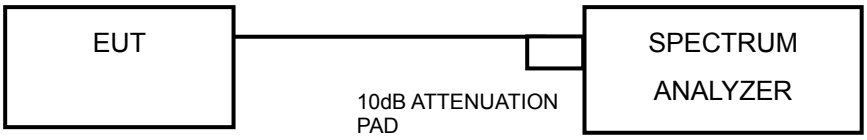


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

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

1TX:

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.07	0.5	PASS
6	2437	10.07	0.5	PASS
11	2462	10.07	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.61	0.5	PASS
6	2437	16.61	0.5	PASS
11	2462	16.60	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.83	0.5	PASS
6	2437	17.84	0.5	PASS
11	2462	17.82	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.50	0.5	PASS
6	2437	36.46	0.5	PASS
9	2452	36.48	0.5	PASS

2TX:

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	10.11	10.12	0.5	PASS
6	2437	10.11	10.12	0.5	PASS
11	2462	10.12	10.11	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.64	16.52	0.5	PASS
6	2437	16.61	16.57	0.5	PASS
11	2462	16.62	16.63	0.5	PASS

802.11n (20MHz)

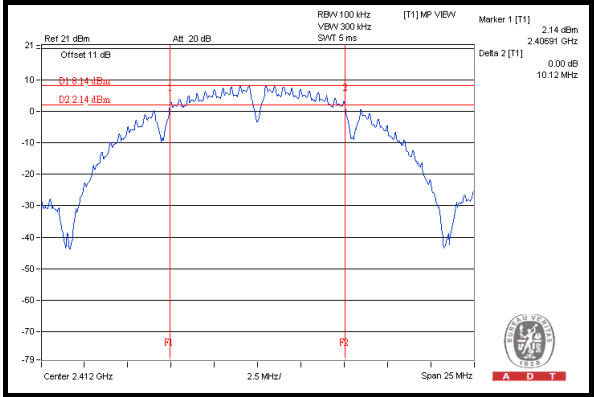
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.83	17.84	0.5	PASS
6	2437	17.83	17.86	0.5	PASS
11	2462	17.82	17.85	0.5	PASS

802.11n (40MHz)

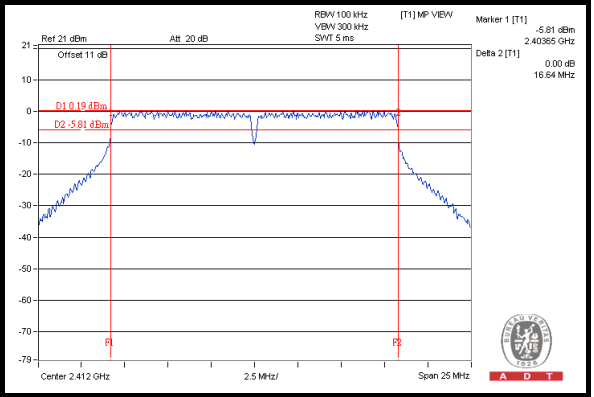
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	36.48	36.40	0.5	PASS
6	2437	36.45	36.42	0.5	PASS
9	2452	36.46	36.42	0.5	PASS

SPECTRUM PLOT OF WORST VALUE

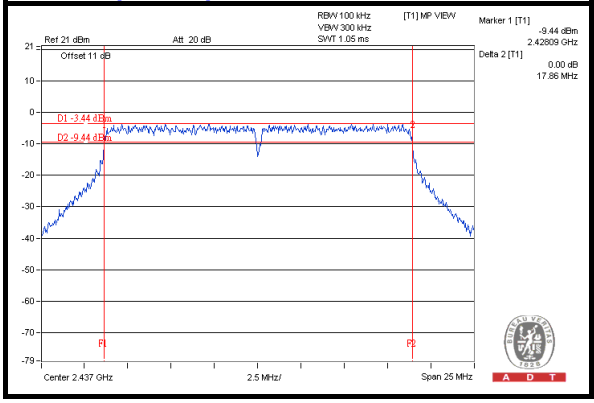
802.11b



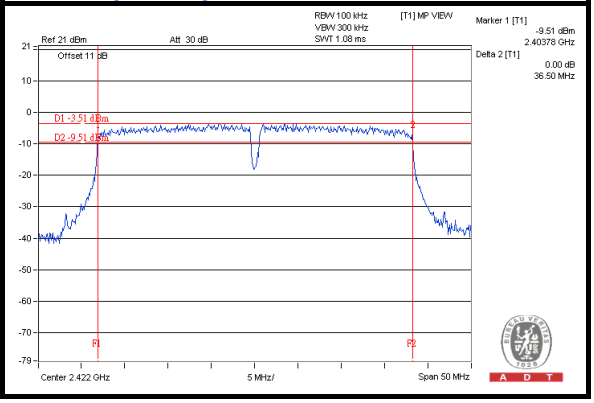
802.11g



802.11n (20MHz)



802.11n (40MHz)



4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

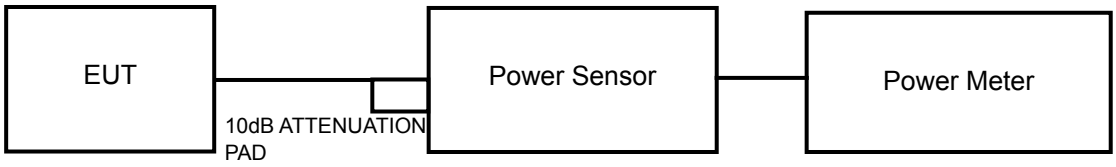
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

1TX:

802.11b

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	114.288	20.58	30	PASS
6	2437	39.902	16.01	30	PASS
11	2462	33.651	15.27	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	50.234	17.01	30	PASS
6	2437	87.297	19.41	30	PASS
11	2462	60.534	17.82	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	48.753	16.88	30	PASS
6	2437	84.723	19.28	30	PASS
11	2462	51.523	17.12	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	37.584	15.75	30	PASS
6	2437	59.156	17.72	30	PASS
9	2452	32.509	15.12	30	PASS

2TX

802.11b

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	21.07	18.72	**202.411**	23.06	30	PASS
6	2437	16.21	15.22	75.049	18.75	30	PASS
11	2462	14.07	13.82	49.626	16.96	30	PASS

802.11g

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	16.47	15.22	77.627	18.90	30	PASS
6	2437	17.08	15.62	87.525	19.42	30	PASS
11	2462	14.58	13.52	51.199	17.09	30	PASS

802.11n (20MHz)

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	14.01	14.07	50.704	17.05	30	PASS
6	2437	13.55	13.07	42.923	16.33	30	PASS
11	2462	12.89	12.78	38.421	15.85	30	PASS

802.11n (40MHz)

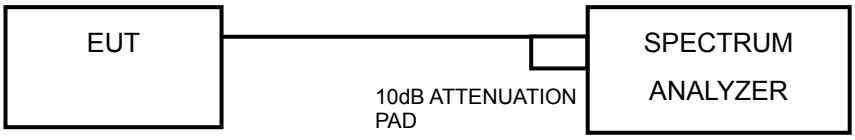
CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	12.08	12.01	32.029	15.06	30	PASS
6	2437	15.12	14.52	60.823	17.84	30	PASS
9	2452	12.09	12.12	32.474	15.12	30	PASS

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 SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

a. Set the RBW = 3 kHz, VBW =10 kHz, Detector = peak.
b. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
c. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

1TX:

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.90	8	PASS
6	2437	-17.59	8	PASS
11	2462	-18.34	8	PASS

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-17.70	8	PASS
6	2437	-15.46	8	PASS
11	2462	-17.05	8	PASS

802.11n (20MHz)

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-17.86	8	PASS
6	2437	-15.64	8	PASS
11	2462	-17.88	8	PASS

802.11n (40MHz)

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-22.62	8	PASS
6	2437	-20.54	8	PASS
9	2452	-22.80	8	PASS

2TX:

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-13.32	3.01	-10.31	8	PASS
	6	2437	-18.04	3.01	-15.03	8	PASS
	11	2462	-19.34	3.01	-16.33	8	PASS
1	1	2412	-14.14	3.01	-11.13	8	PASS
	6	2437	-17.98	3.01	-14.97	8	PASS
	11	2462	-19.44	3.01	-16.43	8	PASS

NOTE: Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi, so the limit no need to reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-18.66	3.01	-15.65	8	PASS
	6	2437	-18.27	3.01	-15.26	8	PASS
	11	2462	-19.91	3.01	-16.90	8	PASS
1	1	2412	-18.51	3.01	-15.50	8	PASS
	6	2437	-17.66	3.01	-14.65	8	PASS
	11	2462	-20.70	3.01	-17.69	8	PASS

NOTE: Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi, so the limit no need to reduced.

802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-21.60	3.01	-18.59	8	PASS
	6	2437	-21.92	3.01	-18.91	8	PASS
	11	2462	-22.35	3.01	-19.34	8	PASS
1	1	2412	-20.00	3.01	-16.99	8	PASS
	6	2437	-22.58	3.01	-19.57	8	PASS
	11	2462	-22.92	3.01	-19.91	8	PASS

NOTE: IEEE 802.11n, MCS = 8-15, NSS = 2,

Directional gain = 2dBi + 10log(2/2) = 2dBi < 6dBi, so the limit no need to reduced.

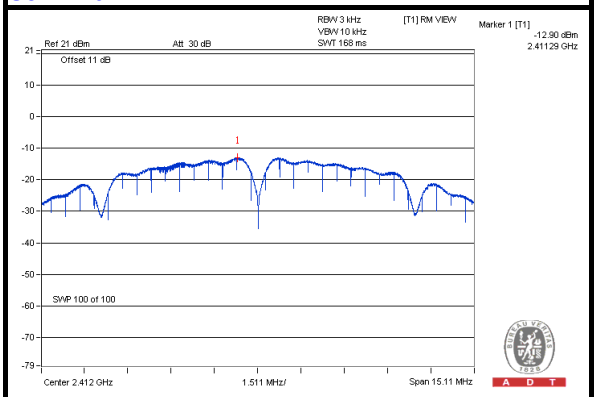
802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-26.01	3.01	-23.00	8	PASS
	6	2437	-23.23	3.01	-20.22	8	PASS
	9	2452	-26.97	3.01	-23.96	8	PASS
1	3	2422	-25.66	3.01	-22.65	8	PASS
	6	2437	-22.31	3.01	-19.30	8	PASS
	9	2452	-24.83	3.01	-21.82	8	PASS

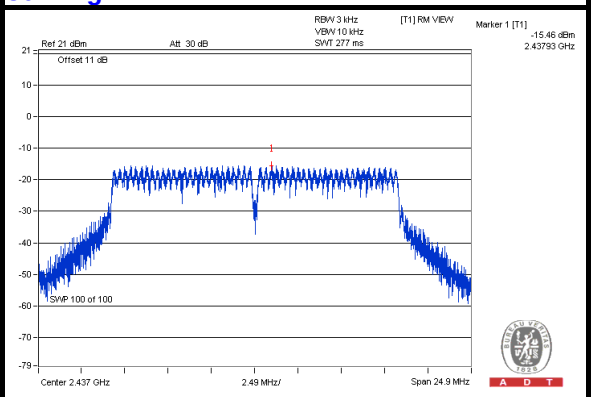
NOTE: IEEE 802.11n, MCS = 8-15, NSS = 2,
Directional gain = 2dBi + 10log(2/2) = 2dBi < 6dBi, so the limit no need to reduced.

SPECTRUM PLOT OF WORST VALUE

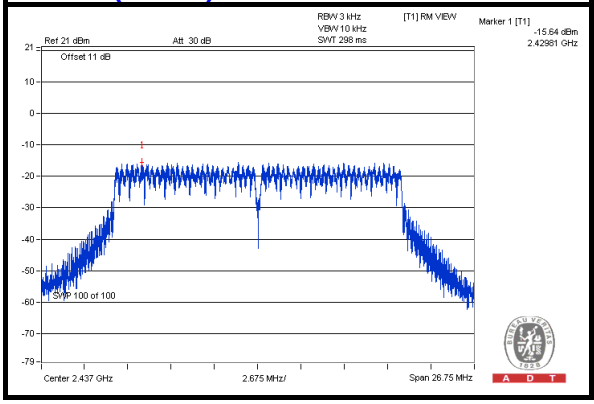
802.11b



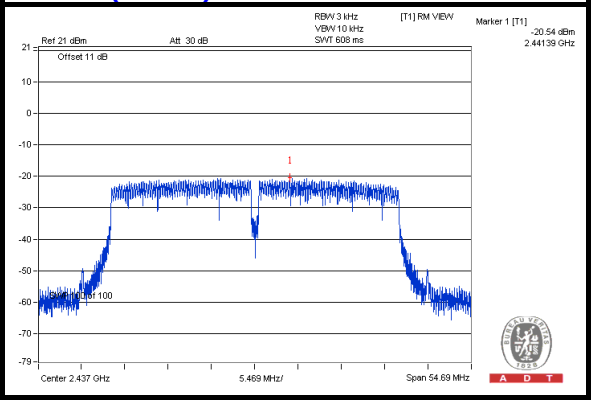
802.11g



802.11n (20MHz)



802.11n (40MHz)

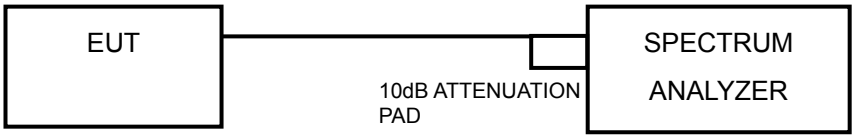


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below –30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = average.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Ensure that the number of measurement points ≥ span/RBW
4. According to measurement points to set differ measurement span.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

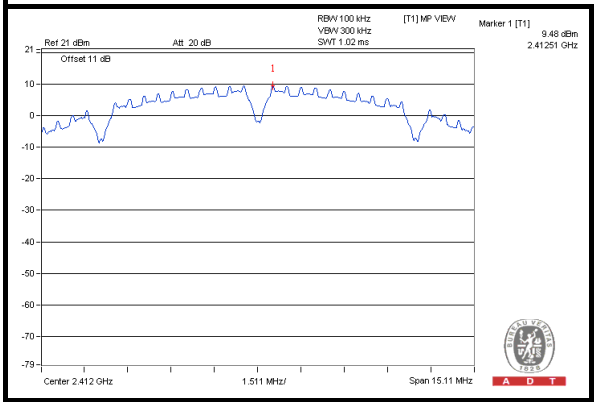
4.6.7 TEST RESULTS

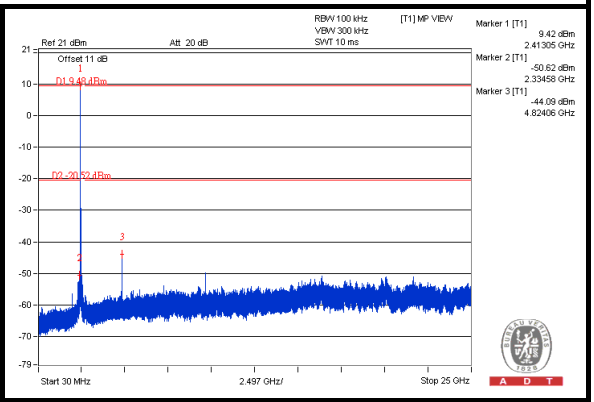
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

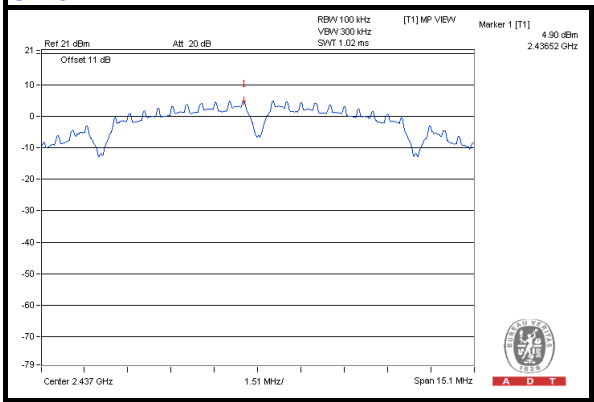
1TX
802.11b

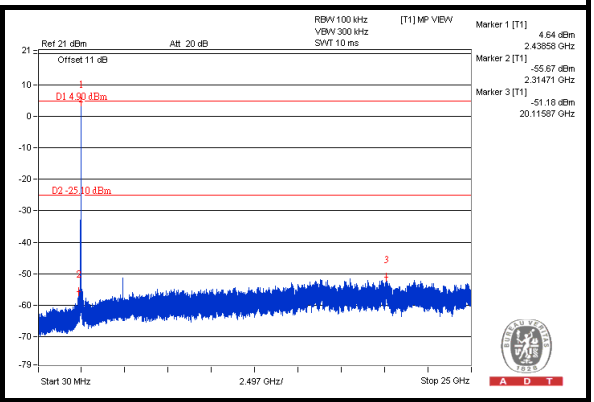
CH 1



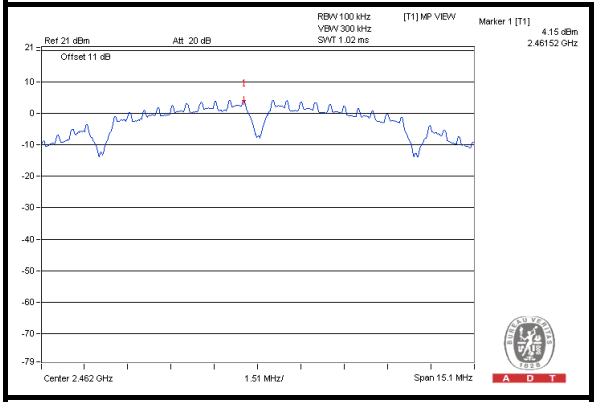


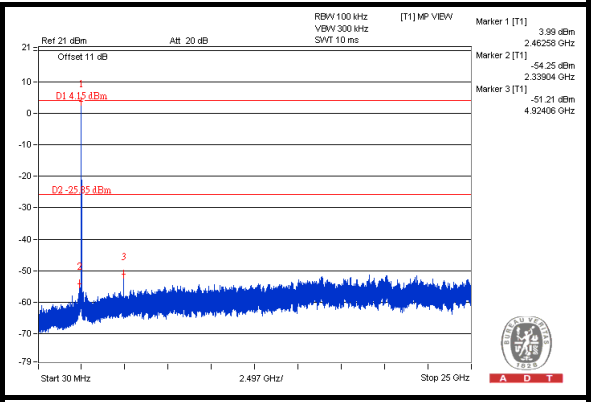
CH 6



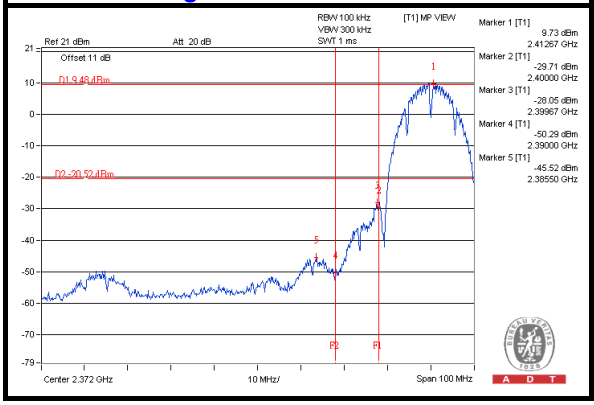


CH 11

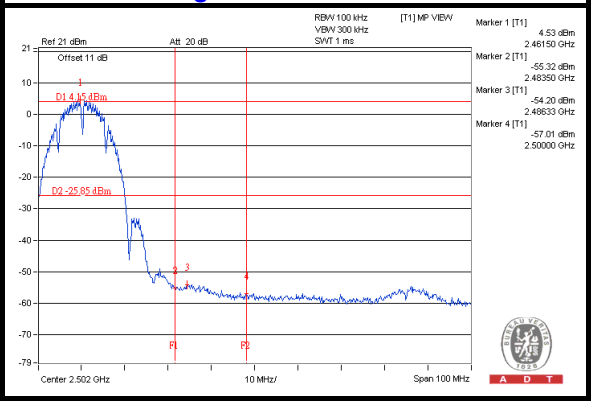




CH 1 Band edge

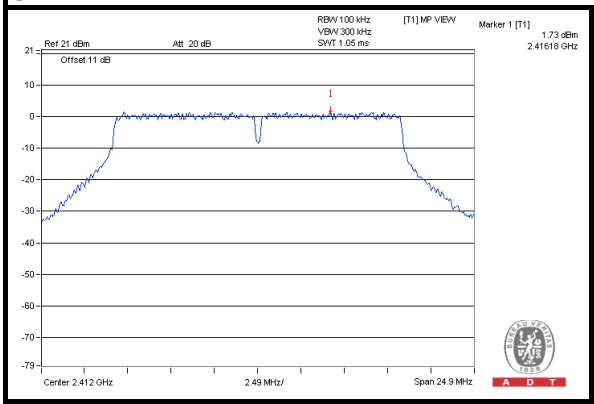


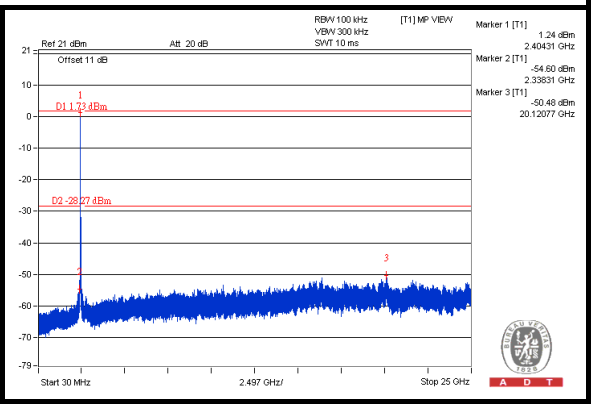
CH 11 Band edge



802.11g

CH 1





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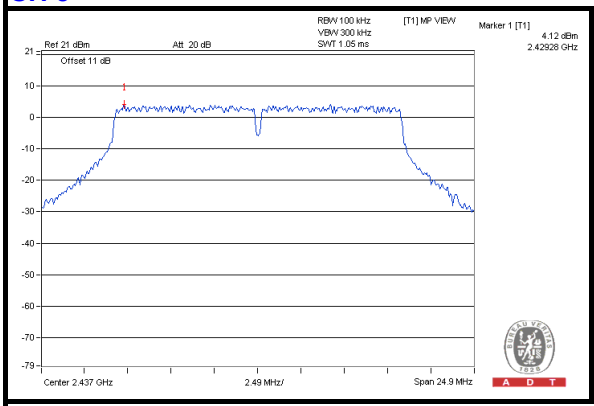

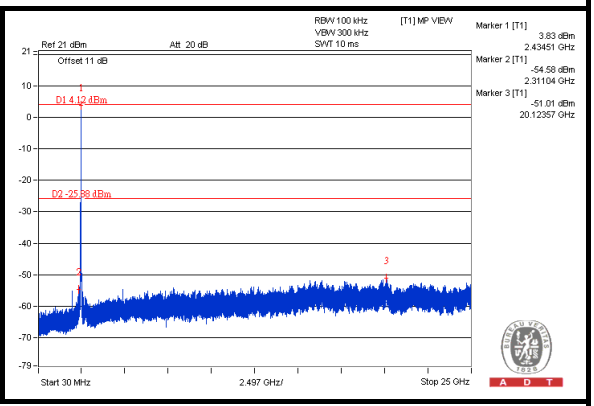

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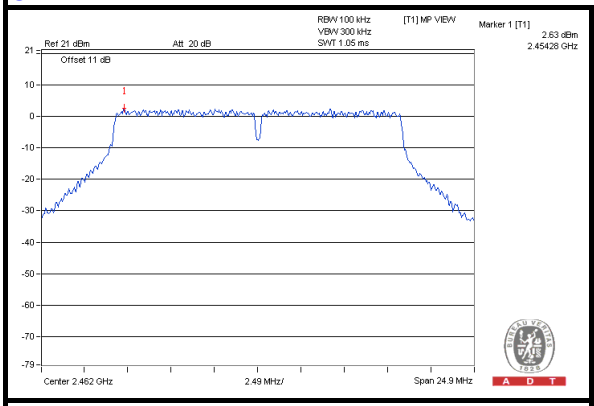
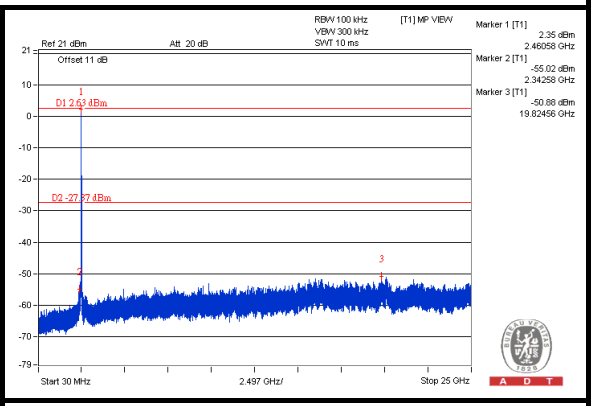
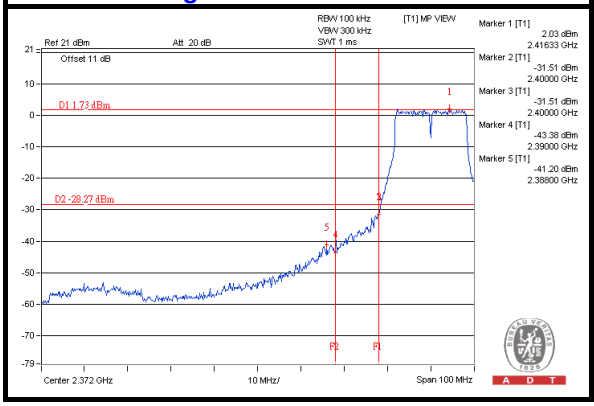
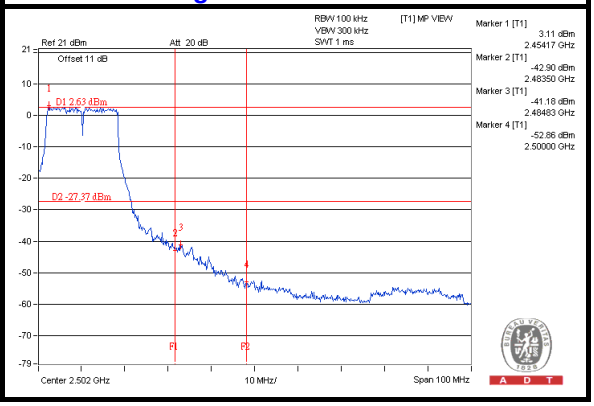




CH 1 Band edge

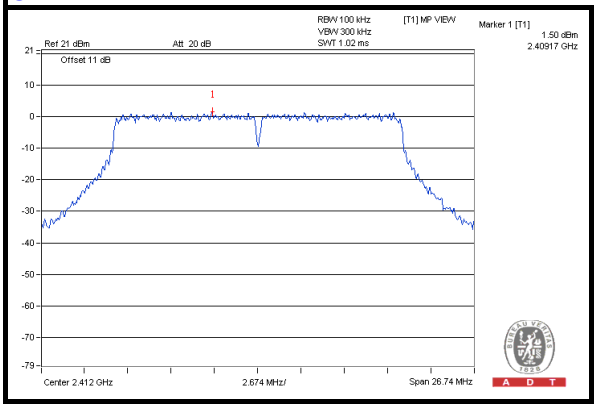


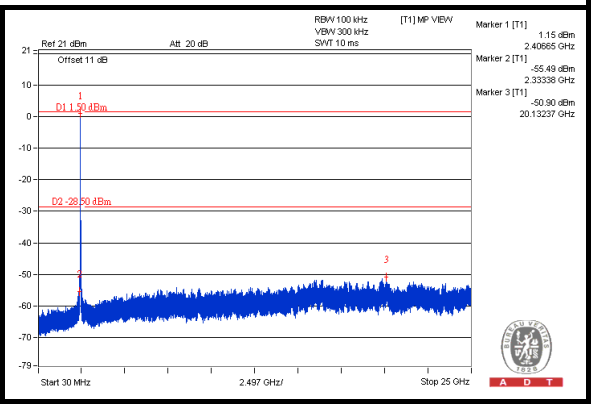
CH 11 Band edge



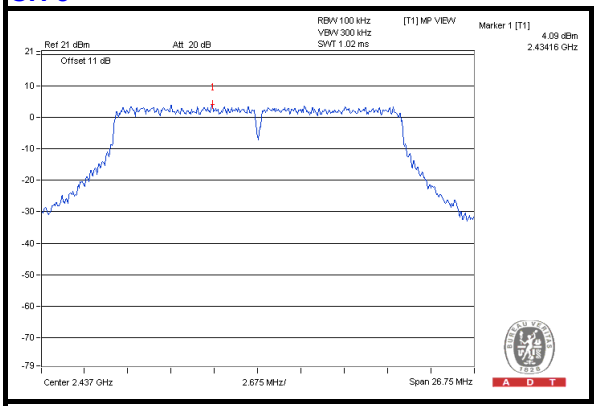
802.11n (20MHz)

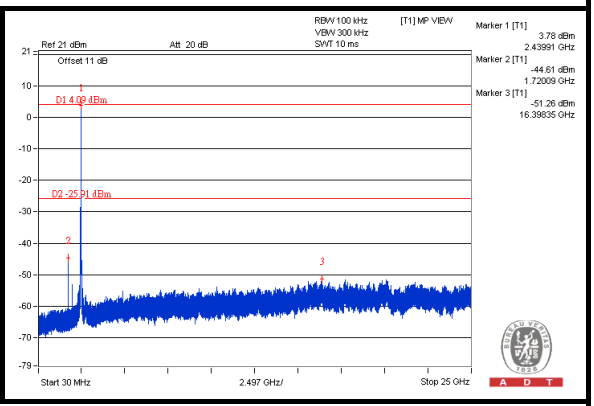
CH 1





CH 6





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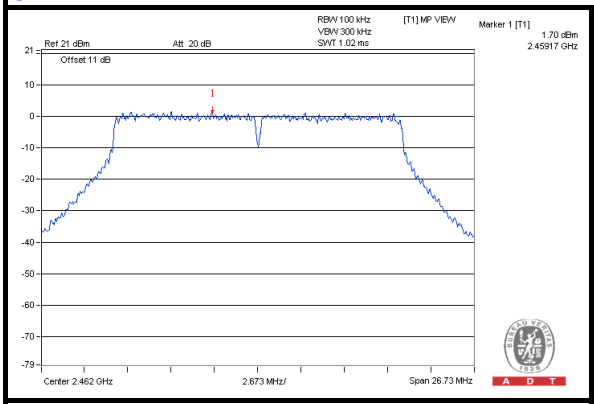
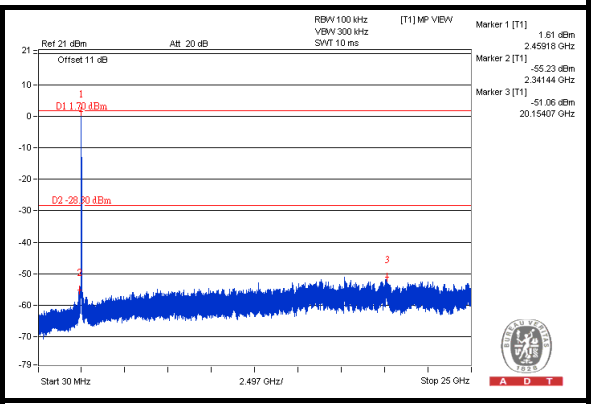
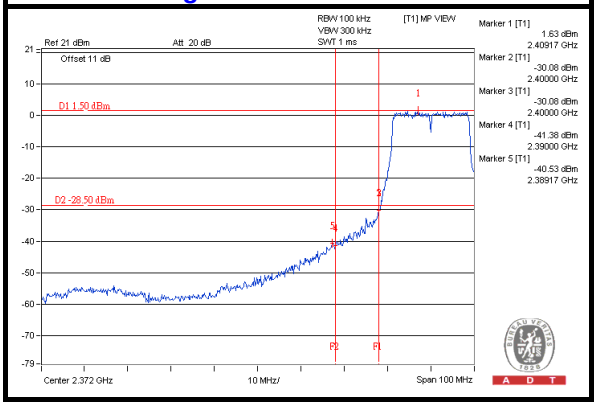
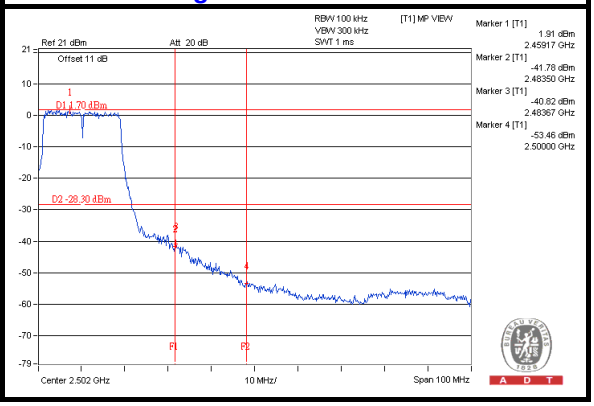




CH 1 Band edge



CH 11 Band edge



2TX

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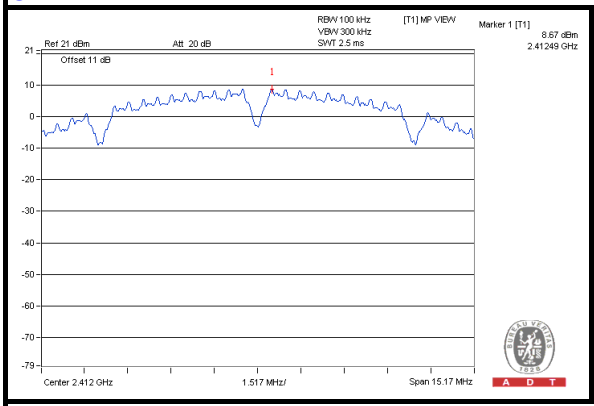
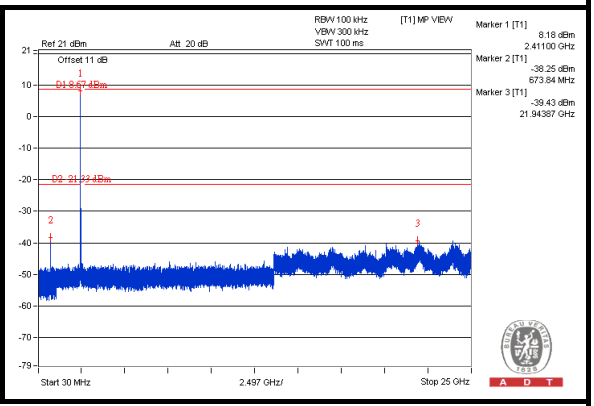
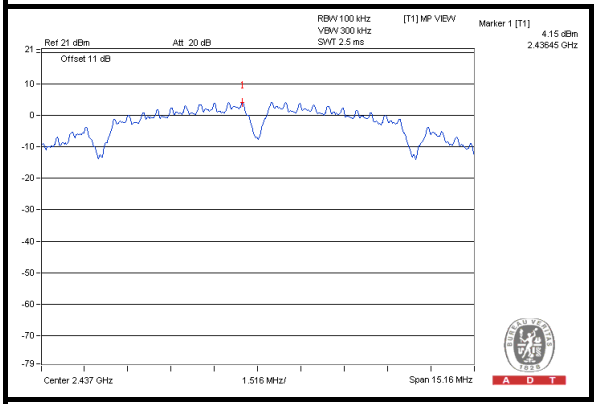
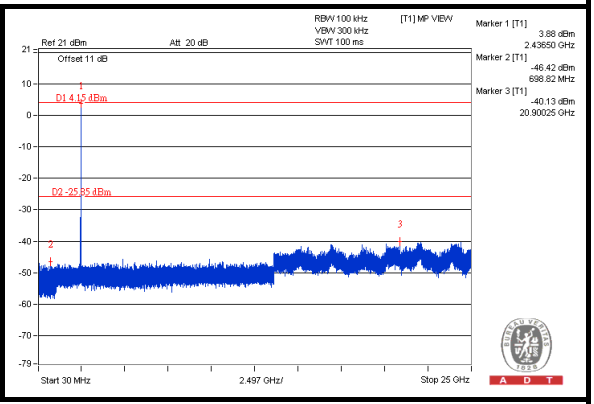
CH 1





CH 6





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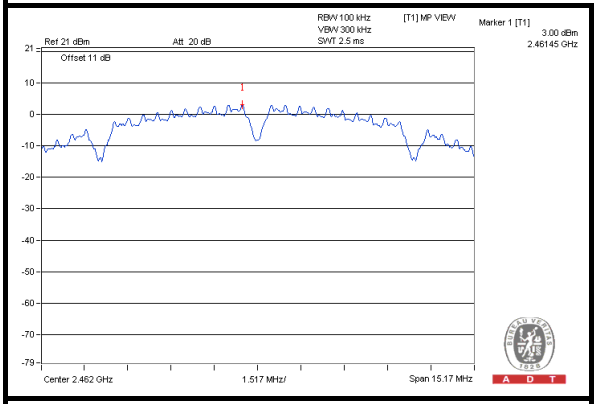
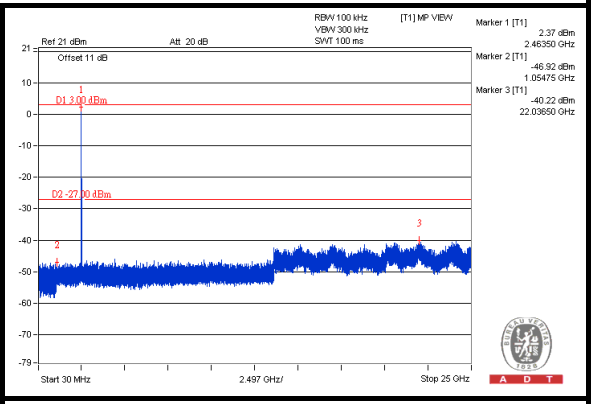
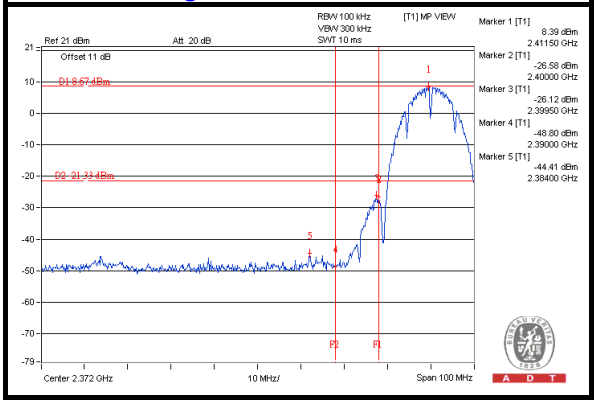
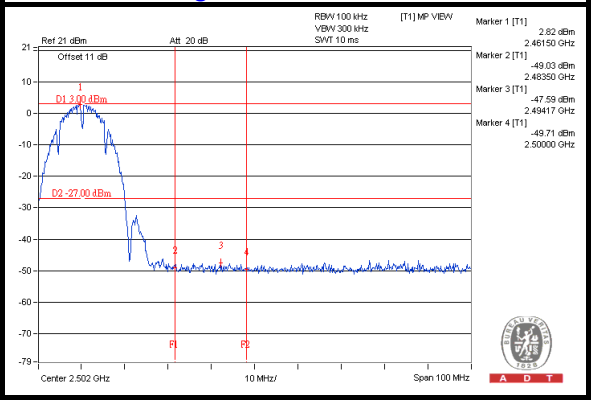




CH 1 Band edge

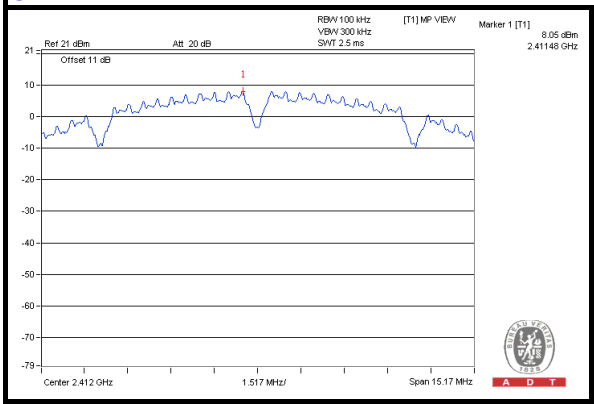


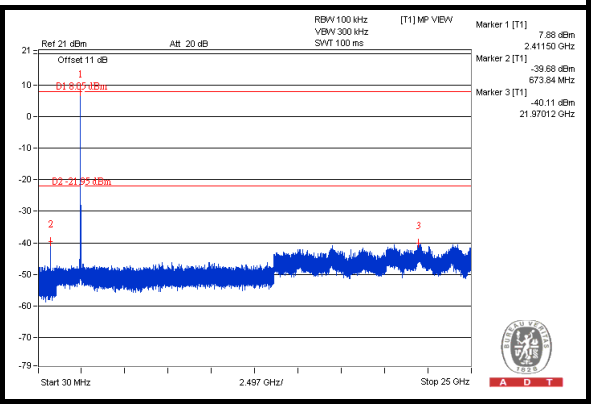
CH 11 Band edge



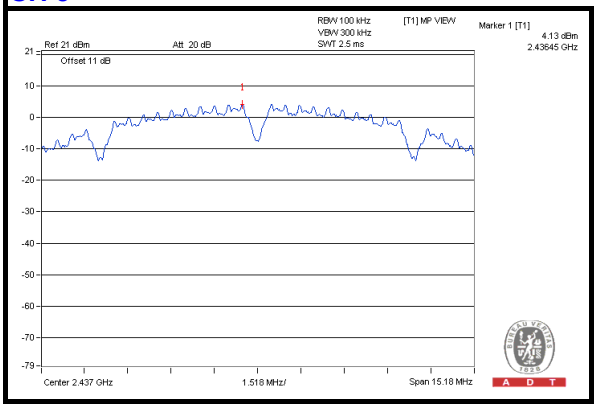
CHAIN 1

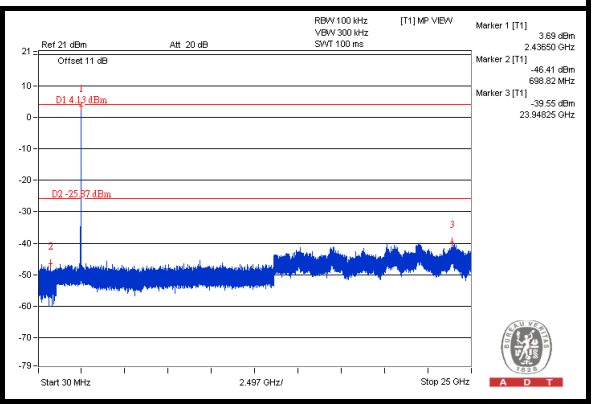
CH 1



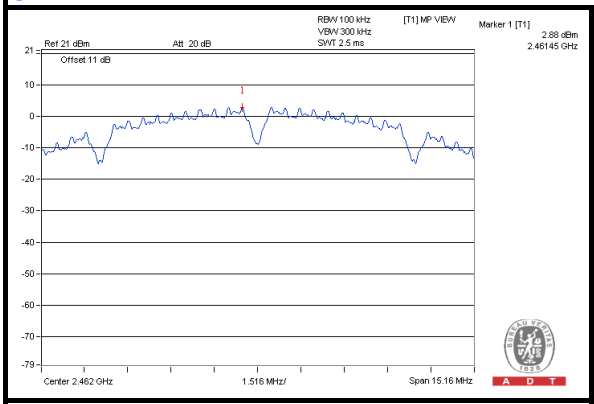


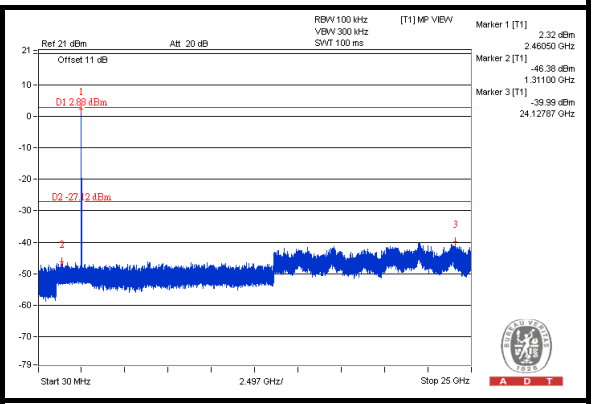
CH 6



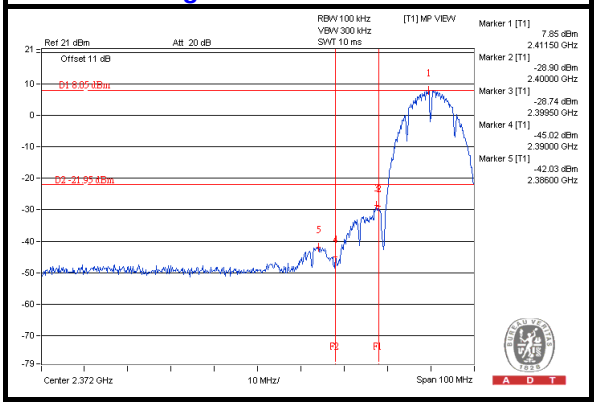


CH 11

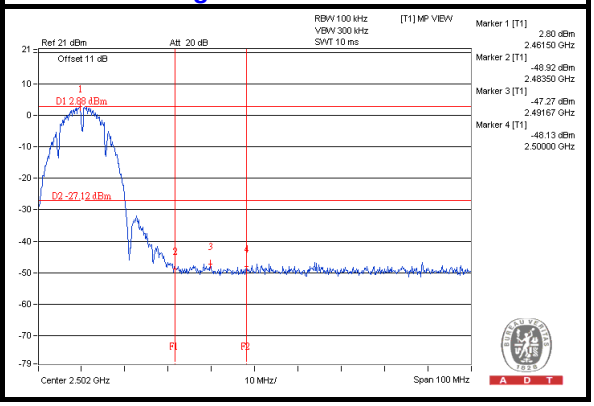




CH 1 Band edge

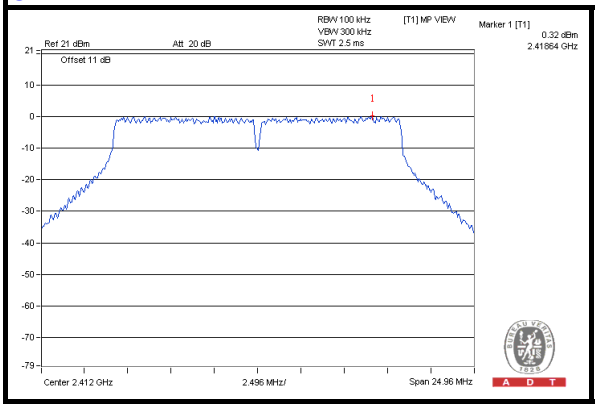


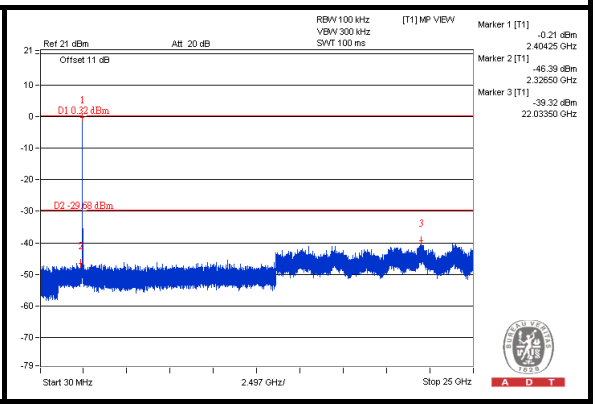
CH 11 Band edge



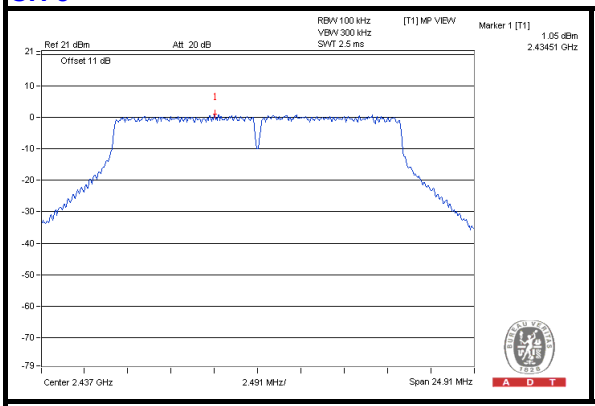
802.11g: CHAIN 0

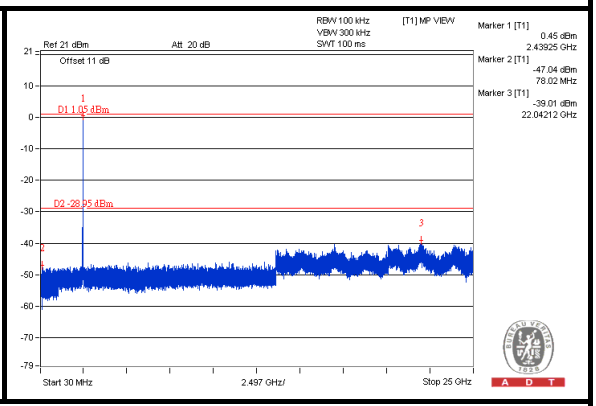
CH 1



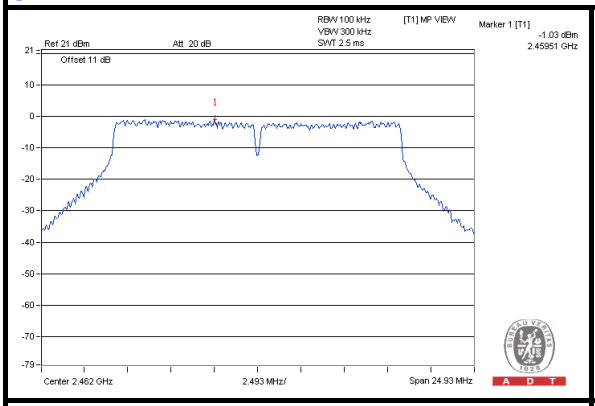


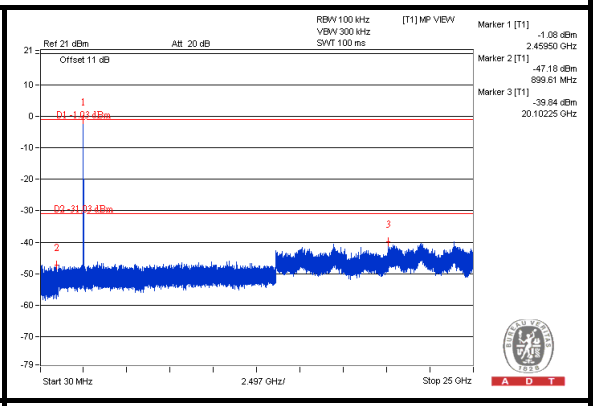
CH 6





CH 11





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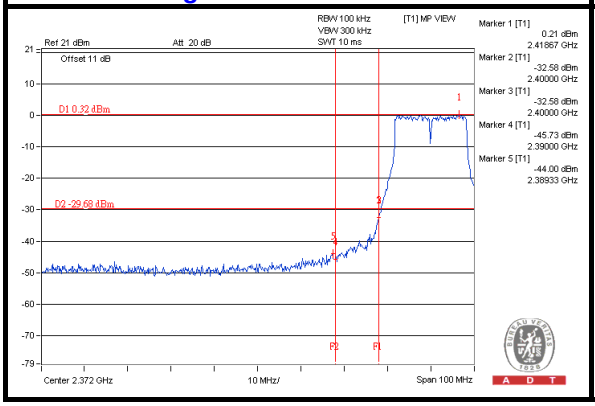

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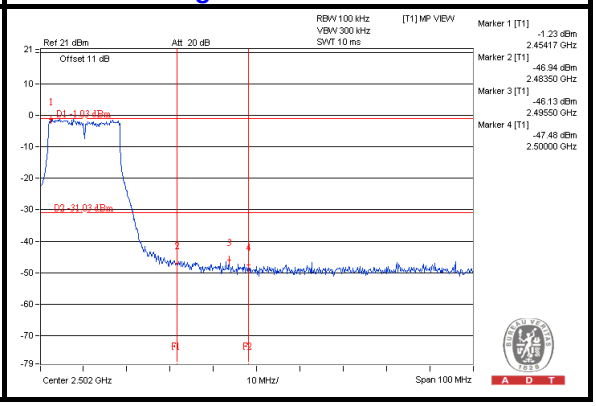
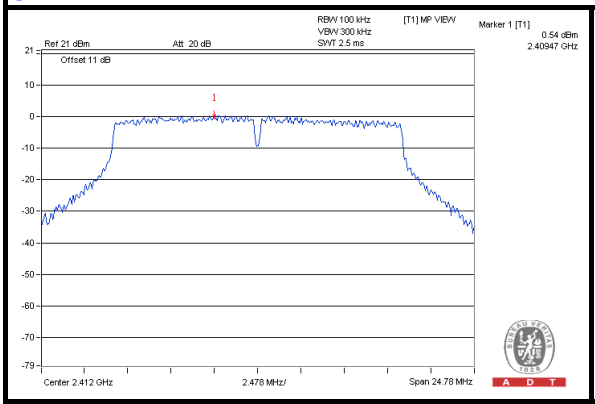
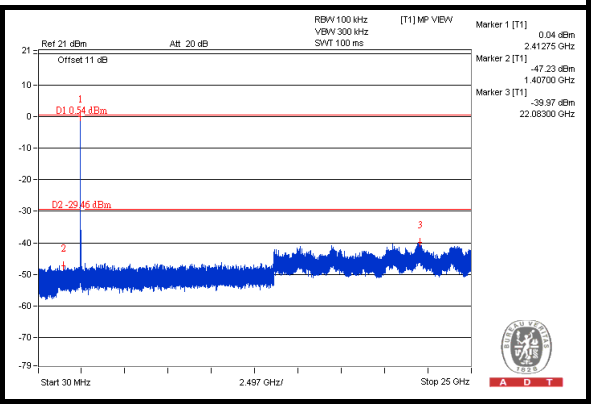


CHAIN 1

CH 1





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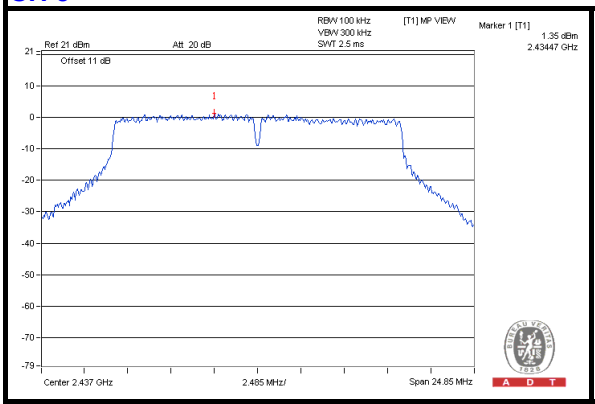

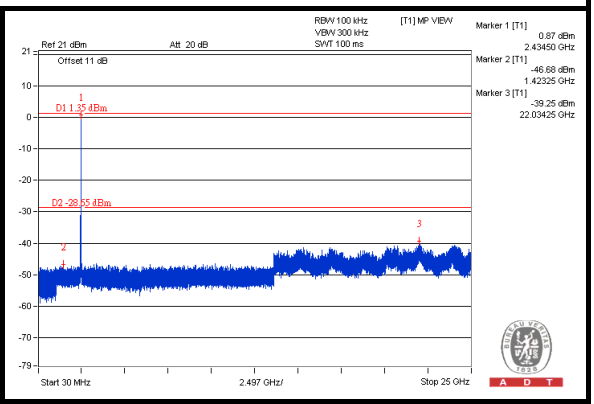

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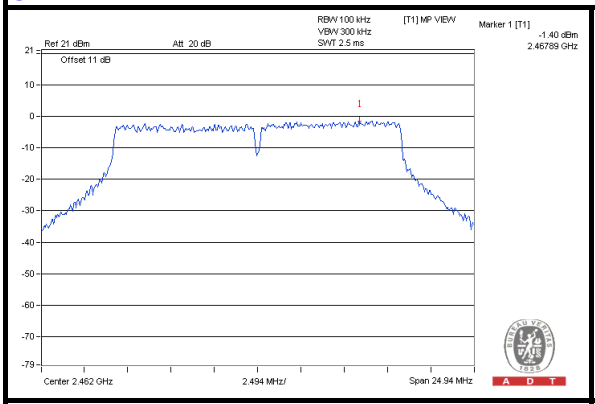

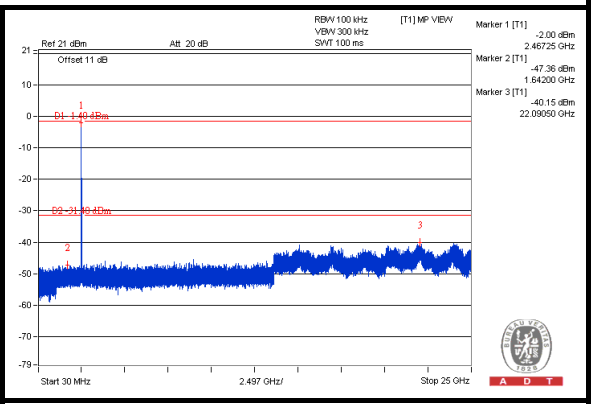

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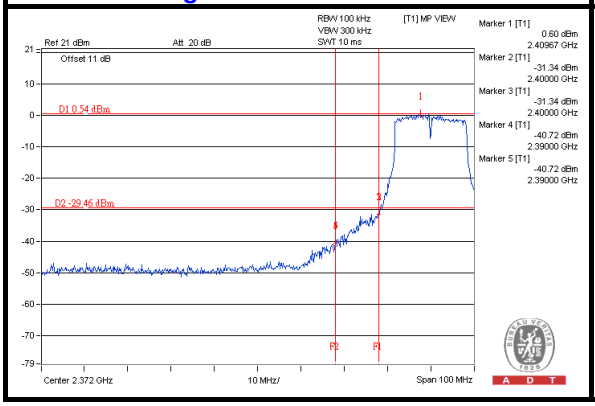

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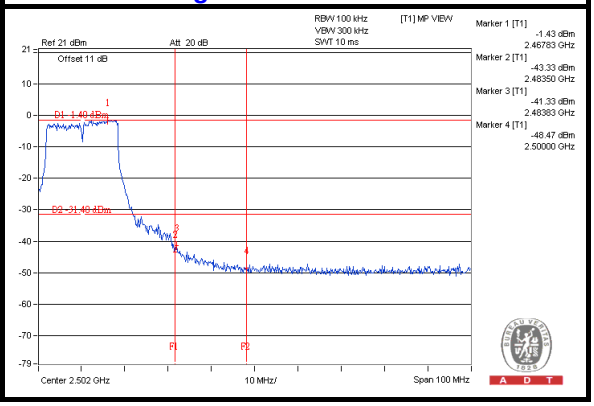

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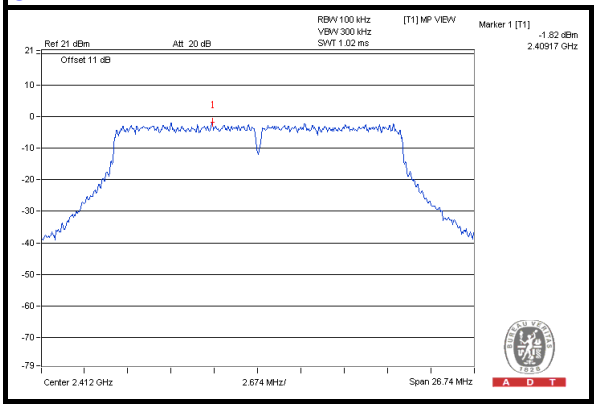

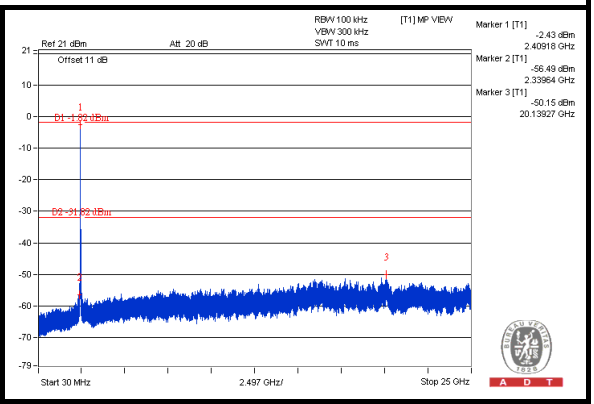

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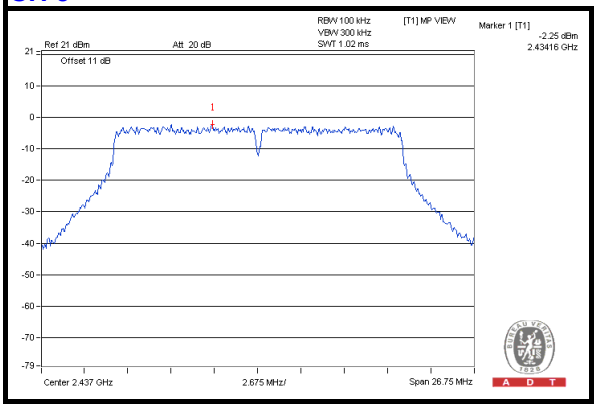

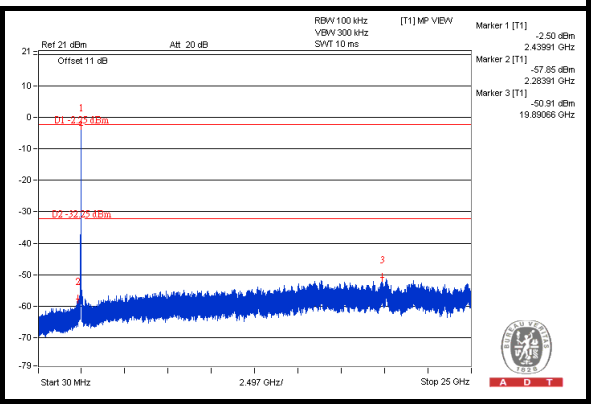

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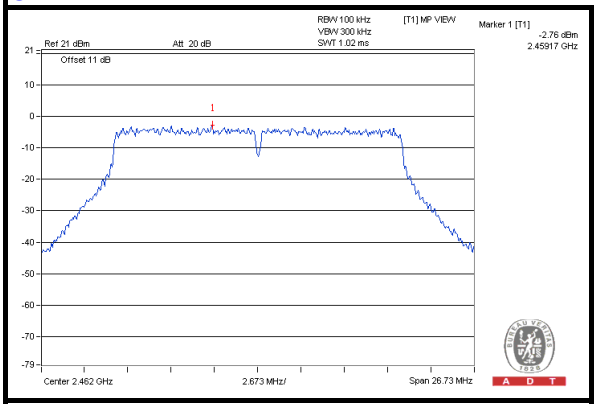

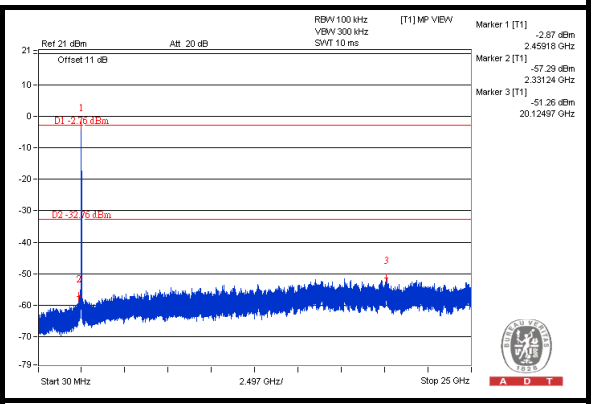

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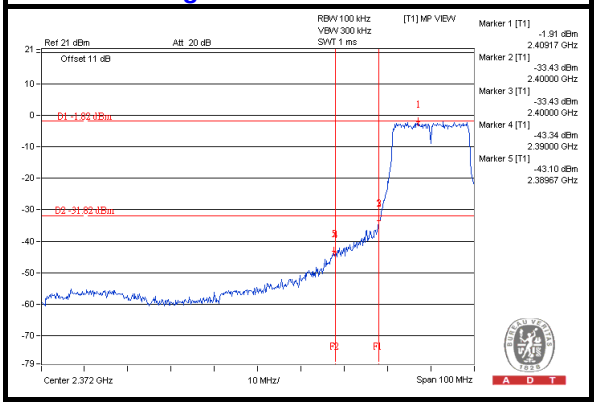

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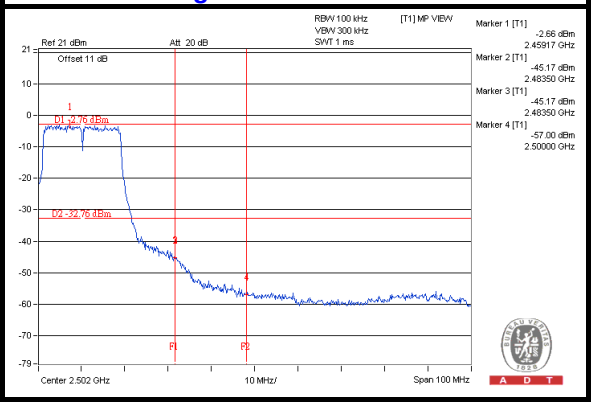
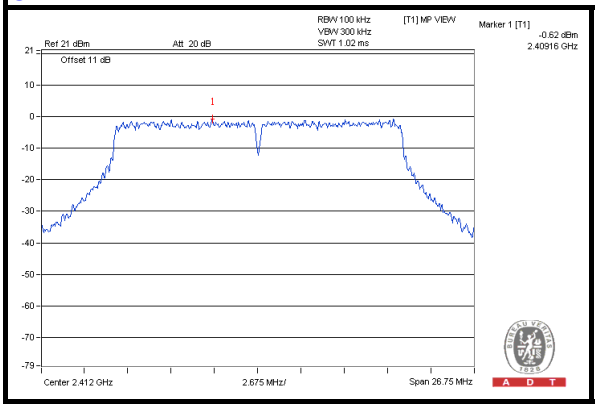
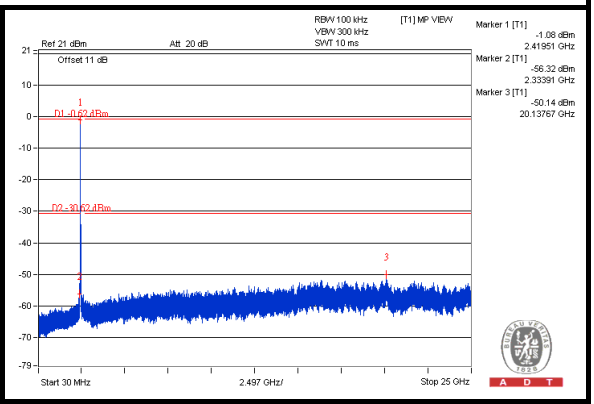


CHAIN 1

CH 1





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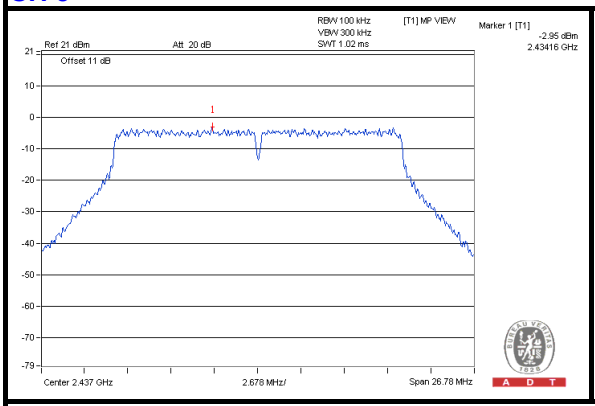

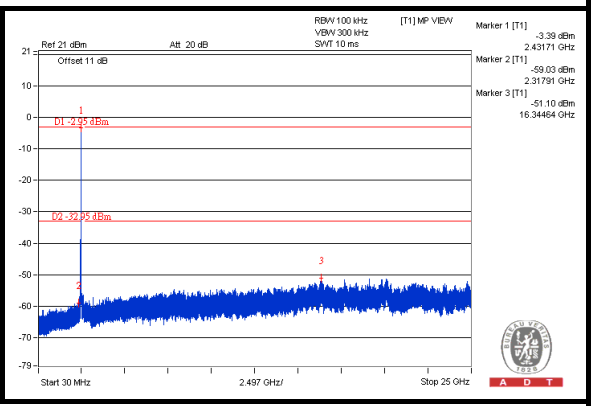

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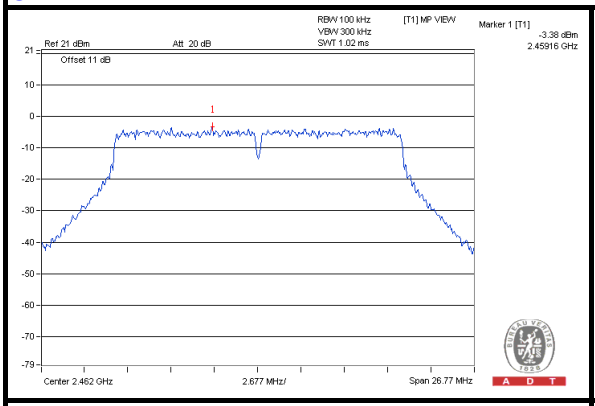

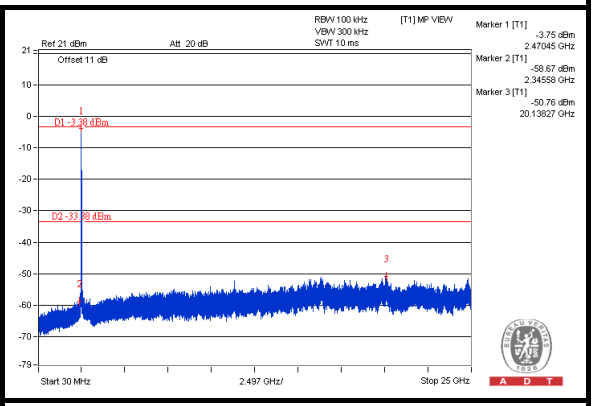

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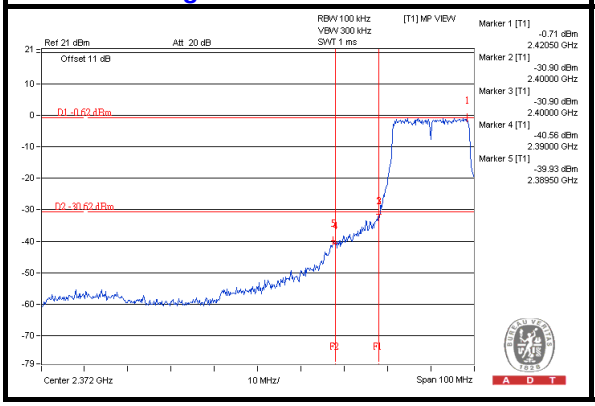

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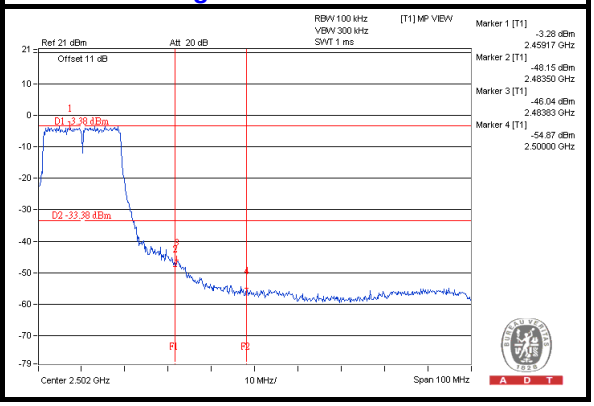

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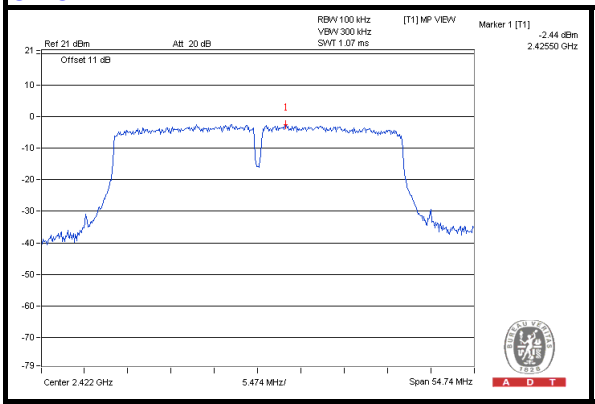

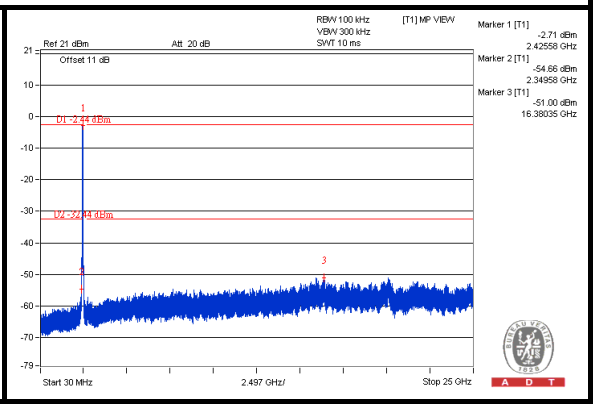

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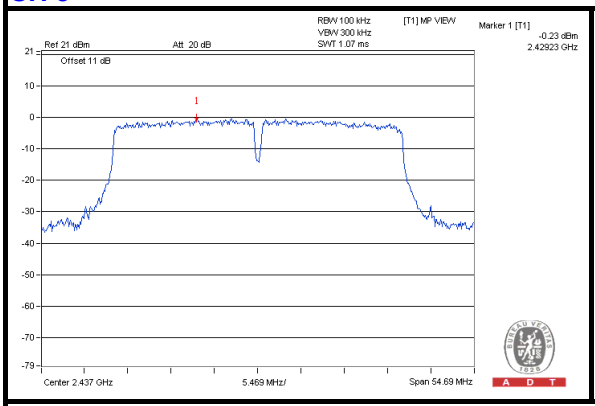

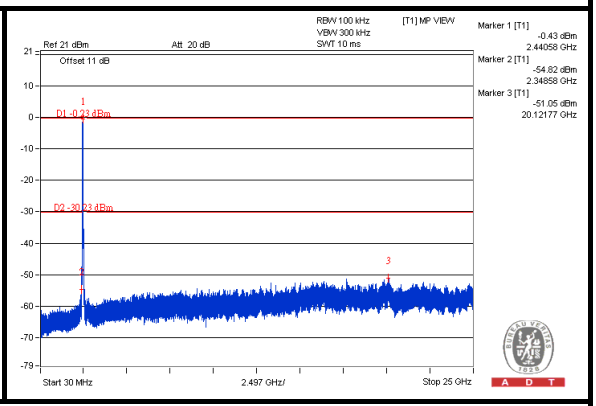

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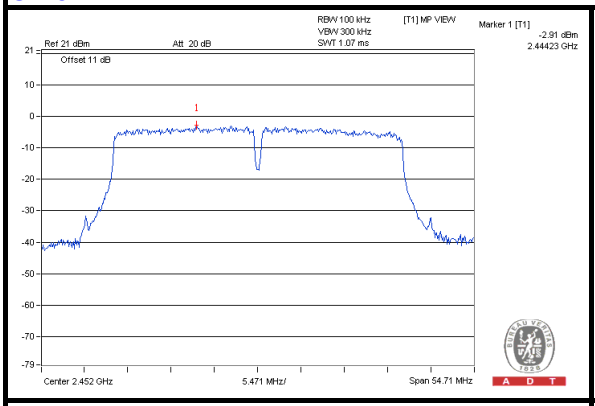

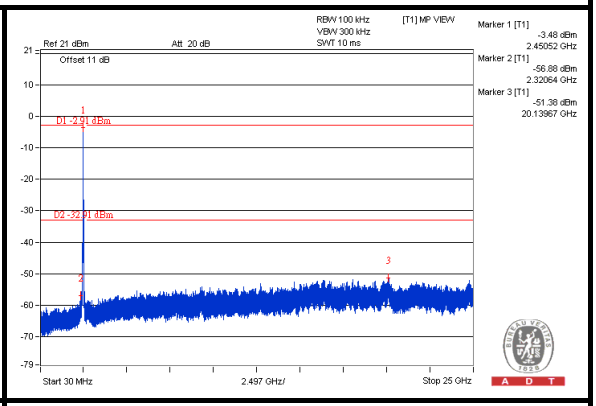

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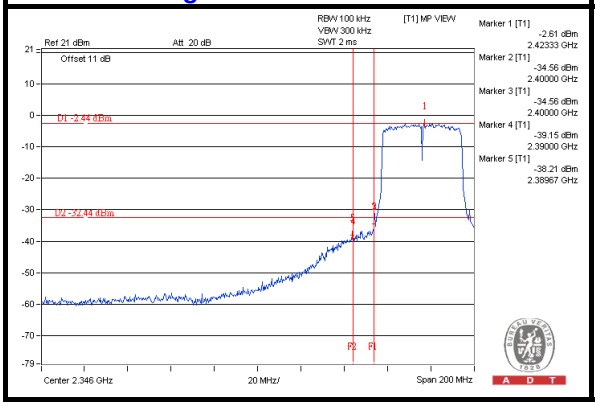

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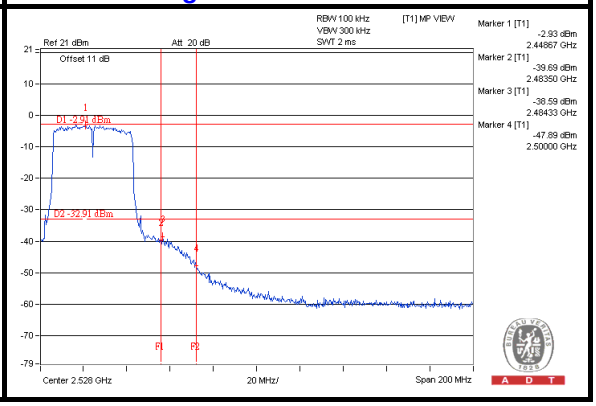

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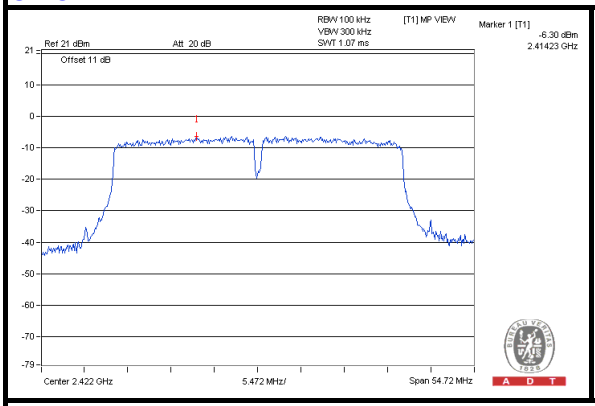

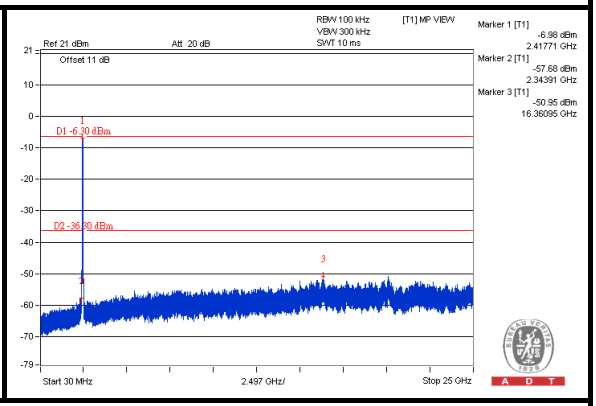

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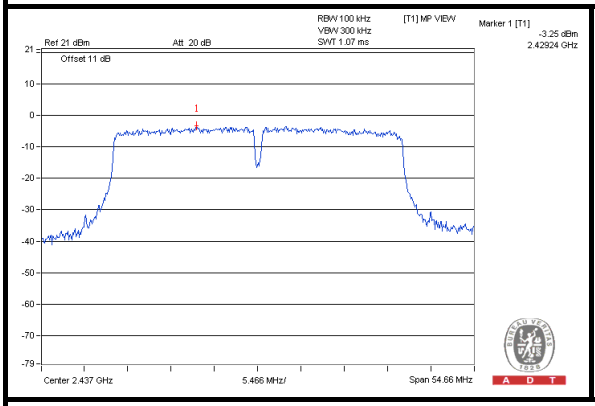

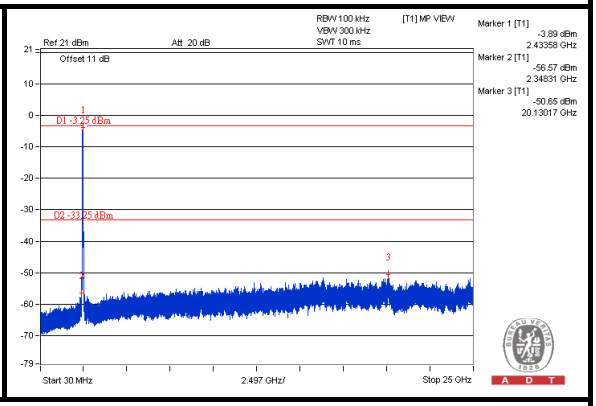

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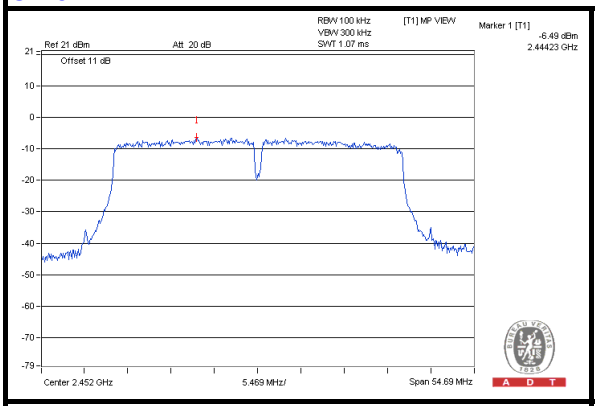

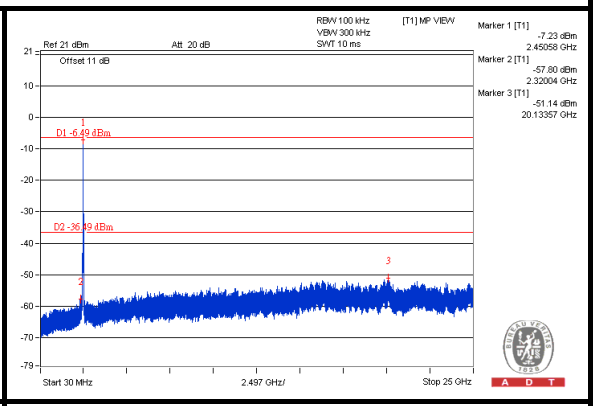

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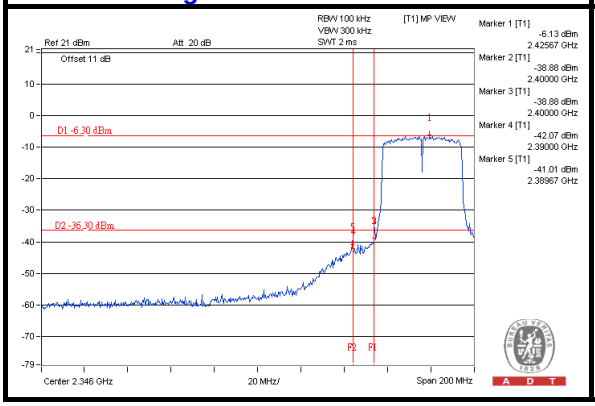

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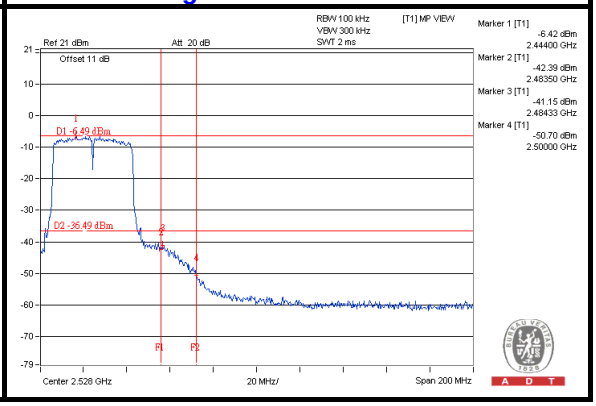

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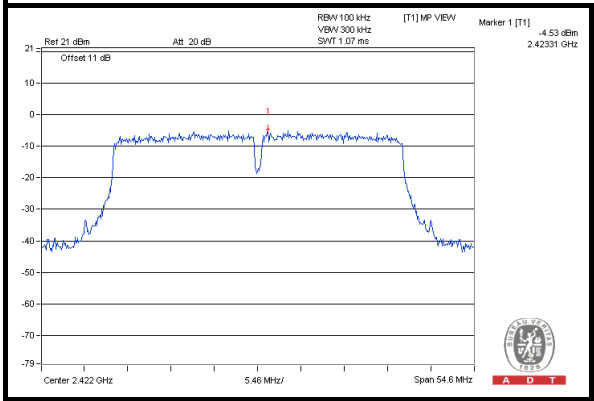

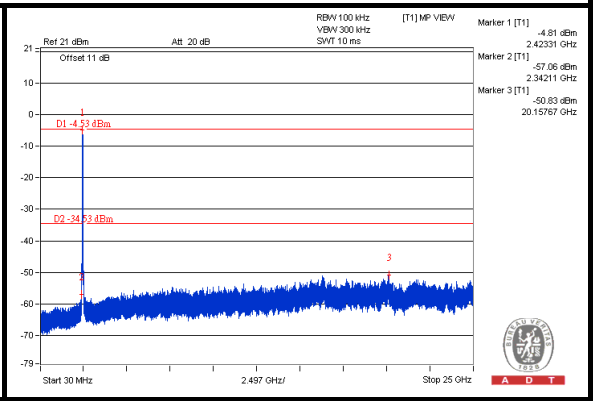

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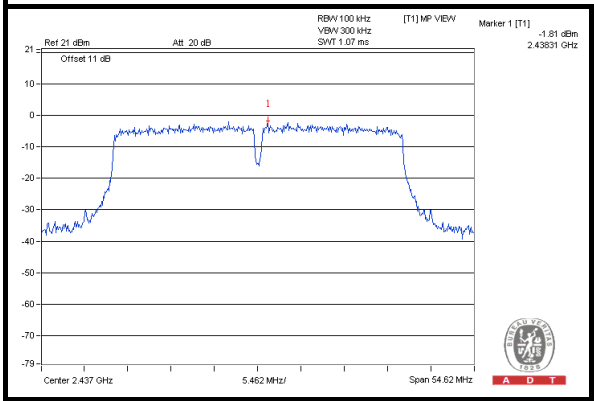

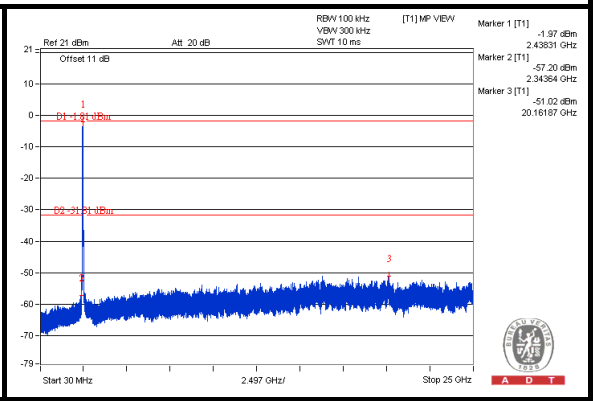

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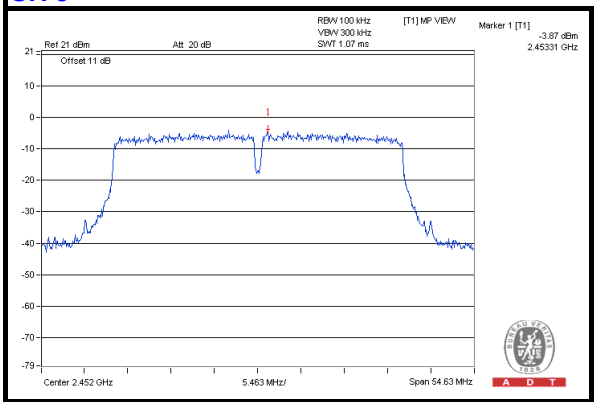

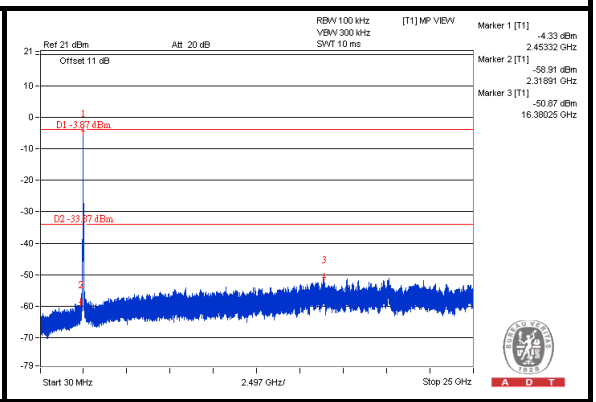

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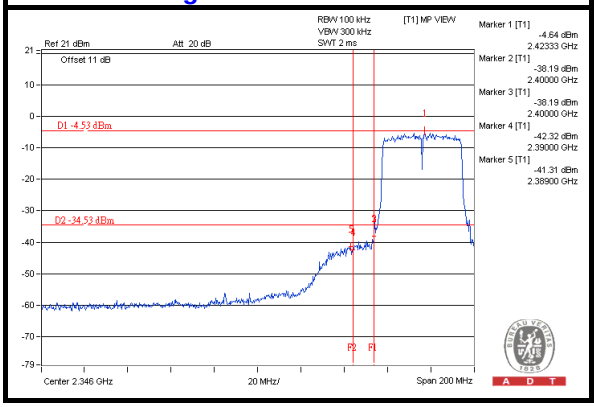
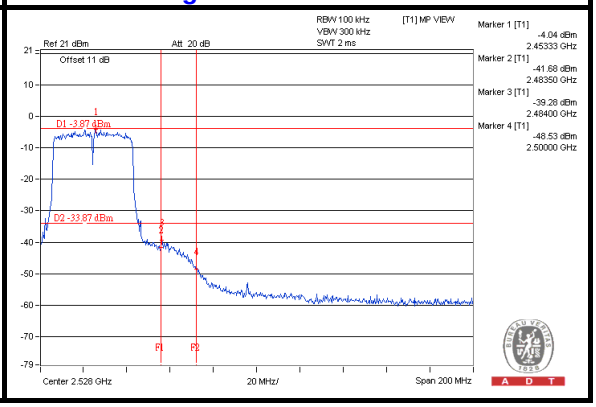


CH 9 Band edge



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 were made to the EUT by the lab during the test.

---END---