FCC Test Report

Report No.:	RF160217E01A
FCC ID:	PY315400328
Test Model:	D6220
Received Date:	Mar. 07, 2016
Test Date:	Mar. 10 to 22, 2016
Issued Date:	Apr. 07, 2016
Applicant:	HON HAI PRECISION IND. CO., LTD.
Address:	350 East Plumeria Drive San Jose, CA 95134
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF160217E01A	Original release.	Apr. 07, 2016

1 Certificate of Conformity

Product:	AC1200 WiFi VDSL/ADSL Modem Router
Brand:	NETGEAR
Test Model:	D6220
Sample Status:	ENGINEERING SAMPLE
Applicant:	HON HAI PRECISION IND. CO., LTD.
Test Date:	Mar. 10 to 22, 2016
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

The above equipment 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. 07, 2016

Claire Kuan / Specialist

Approved by : _____ , **Date:** Apr. 07, 2016

May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -5.39dB at 0.32188MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2483.50MHz & 4924.00MHz & 7311.00MHz.
15.247(d)	Antenna Port Emission	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	Antenna connector is i-pex(MHF) not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.40 dB
	6GHz ~ 18GHz	3.73 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC1200 WiFi VDSL/ADSL Modem Router
Brand	NETGEAR
Test Model	D6220
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from Power Adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412GHz ~ 2.462GHz **5GHz:** 5.18GHz ~ 5.24GHz, 5.745GHz ~ 5.825GHz
Number of Channel	**2.4GHz:** 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) **5GHz:** 9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
Output Power	2.4GHz: 546.529mW 5GHz 5.18 ~ 5.24GHz: 382.476mW 5.745 ~ 5.825GHz: 330.424mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. 2.4GHz and 5GHz technology can transmit at same time.
2. The EUT could be supplied with a power adapter as following table:

No.	Brand	Model No.	P/N	Spec.
1	NETGEAR	2ABL030F	332-10756-01	Input: 100-240V, 1.0A, 50/60Hz Output: 12V, 2.5A DC output cable (1.8m, unshielded)
2	NETGEAR	ADS-40FPA-12 12030GPCU/GPC	332-10757-01	Input: 100-240V, 1.0A, 50/60Hz Output: 12V, 2.5A DC output cable (1.8m, unshielded)
From the above adapters, the spurious emission worse case was found in **adapter 2**. Therefore only the test data of the mode was recorded in this report.				

3. The antennas provided to the EUT, please refer to the following table:

Ant. No.	Brand	Model	Antenna Gain (dBi)	Cable Length (mm)	Frequency range (GHz to GHz)	Antenna Type	Connecter Type
1	Master Wave	98619	2.62	140	2.4-2.4835	Dipole	i-pex(MHF)
			5.8	140	5.15-5.85		
2	Master Wave	98619	2.42	220	2.4-2.4835	Dipole	i-pex(MHF)
			5.59	220	5.15-5.85		

4. The EUT incorporates a MIMO function.

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS 0~8, NSS=1	2TX	2RX
	MCS 0~8, NSS=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, NSS=1	2TX	2RX
	MCS 0~9, NSS=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, NSS=1	2TX	2RX
	MCS 0~9, NSS=2	2TX	2RX

5. Spurious emission of the simultaneous operation (2.4GHz and 5GHz) has been evaluated and no non-compliance was found.
6. 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 (HT20):

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 (HT40):

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	
1	√	√	√	√	With adapter 1
2	-	-	√	-	With adapter 2

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**.

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

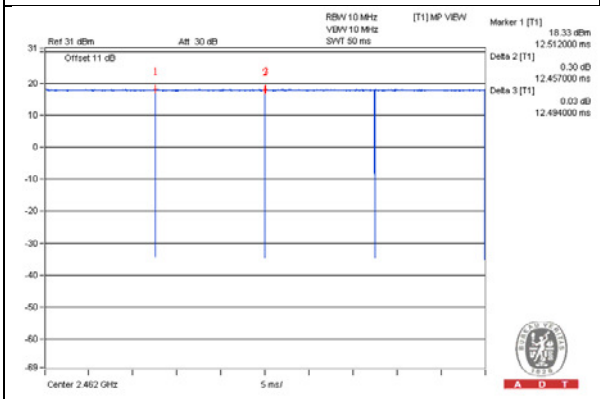
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 70%RH	120Vac, 60Hz	Andy Ho
RE<1G	25deg. C, 70%RH	120Vac, 60Hz	Robert Cheng
PLC	20deg. C, 63%RH	120Vac, 60Hz	Timmy Hu
APCM	16deg. C, 65%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

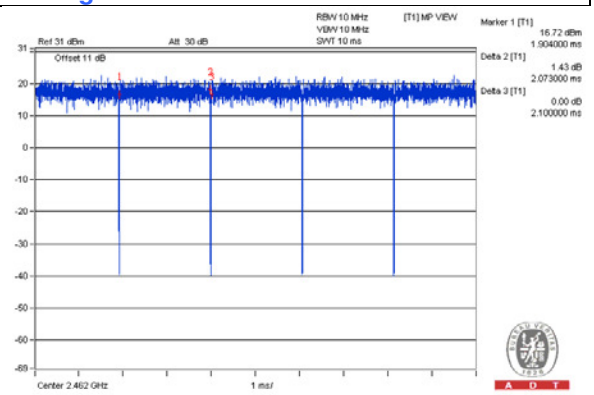
Duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11b: Duty cycle = 12.413/12.43 = 0.999
802.11g: Duty cycle = 2.073/2.1 = 0.987
802.11n (HT20): Duty cycle = 1.922/1.953 = 0.984
802.11n (HT40): Duty cycle = 0.946/0.965 = 0.98

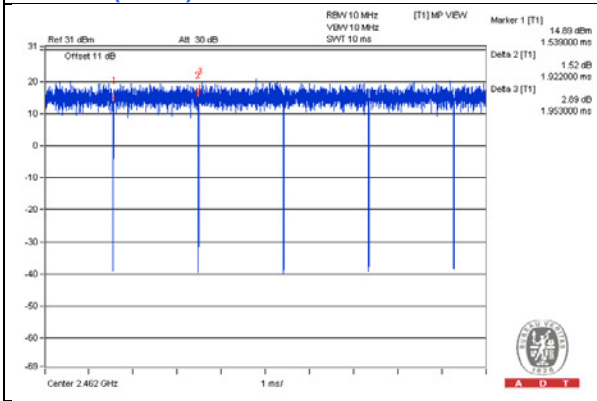
802.11b



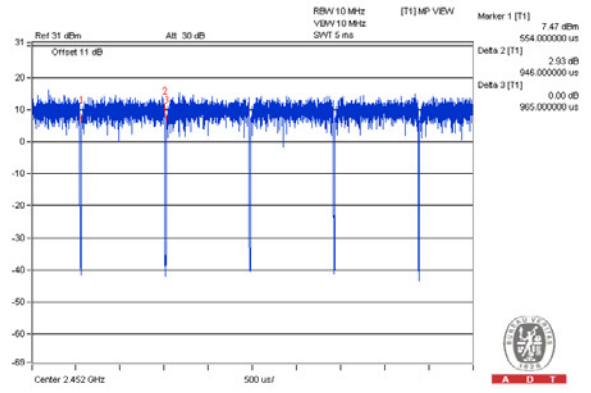
802.11g



802.11n (HT20)



802.11n (HT40)



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.

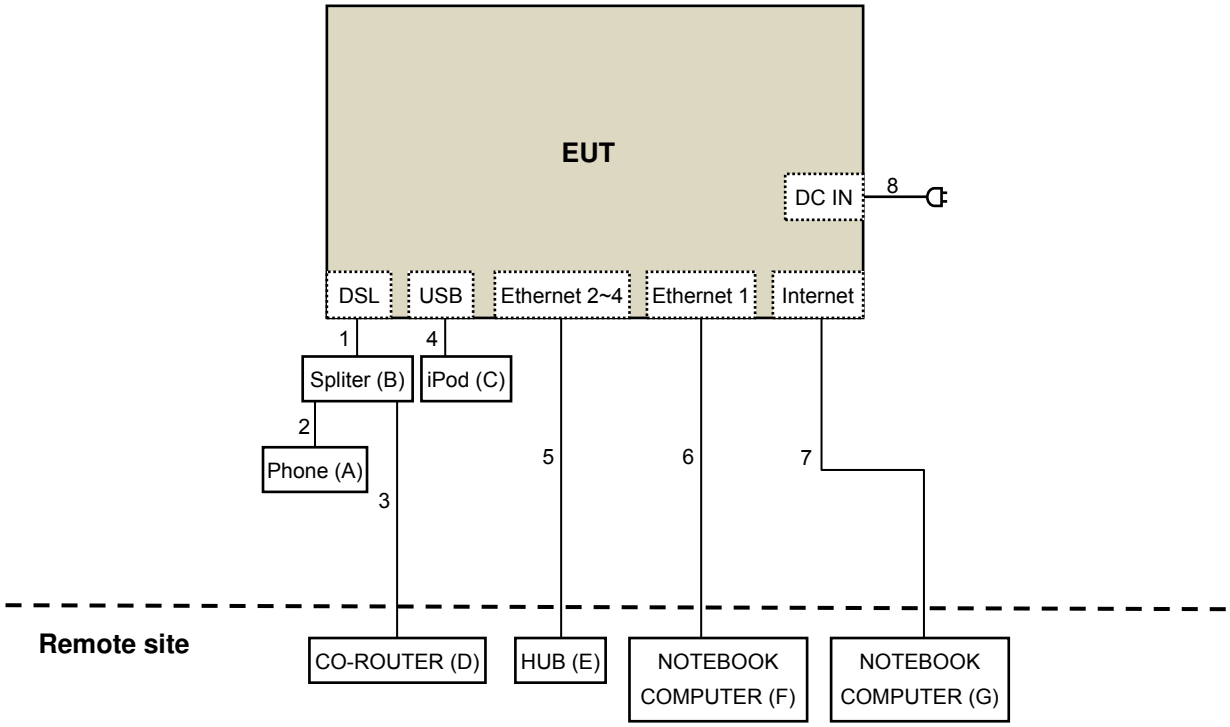
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	PHONE	DAISHO	DS-03	NA	NA	Provided by Lab
B.	SPLITER	NA	DSL499	NA	NA	Supplied by Client
C.	IPOD	Apple	MD778TA/A	CC4JG680F4T1	NA	Provided by Lab
D.	CO-ROUTER	ZyXEL	IES-1000	S4Z3112558	NA	Provided by Lab
E.	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
F.	NOTEBOOK COMPUTER	DELL	E5430	4YV4VY1	FCC DoC	Provided by Lab
G.	NOTEBOOK COMPUTER	DELL	E5430	GM1SKV1	FCC DoC	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 to RJ232	1	1.5	No	0	Provided by Lab
2.	USB	1	0.1	Yes	0	Provided by Lab
3.	UTP RJ45	1	10	No	0	Provided by Lab
4.	UTP RJ45	1	10	No	0	Provided by Lab
5.	UTP RJ45	1	1.8	No	0	Provided by Lab
6.	AC	1	1.8	No	0	Provided by Lab

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)
KDB 558074 D01 DTS Meas Guidance v03r05
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

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 20dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

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

4.1.2 Test Instruments

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 12, 2015	Aug. 11, 2016
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Jan. 20, 2016	Jan. 19, 2017
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 06, 2015	Apr. 05, 2016
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150317 150321 150322	Mar. 31, 2015	Mar. 30, 2016
Spectrum Analyzer Keysight	N9030A	MY54490520	July 26, 2015	July 25, 2016
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Boresight Antenna Fixture	NA	NA	NA	NA
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

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 966 Chamber No. 3.
3. The FCC Site Registration No. is 147459
4. The CANADA Site Registration No. is 20331-1
5. Tested Date: Mar. 22, 2016

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY54450088	July 24, 2015	July 23, 2016
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 03, 2015	Apr. 02, 2016
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Boresight Antenna Fixture	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998
5. The CANADA Site Registration No. is 20331-2
6. Tested Date: Mar. 17, 2016

4.1.3 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

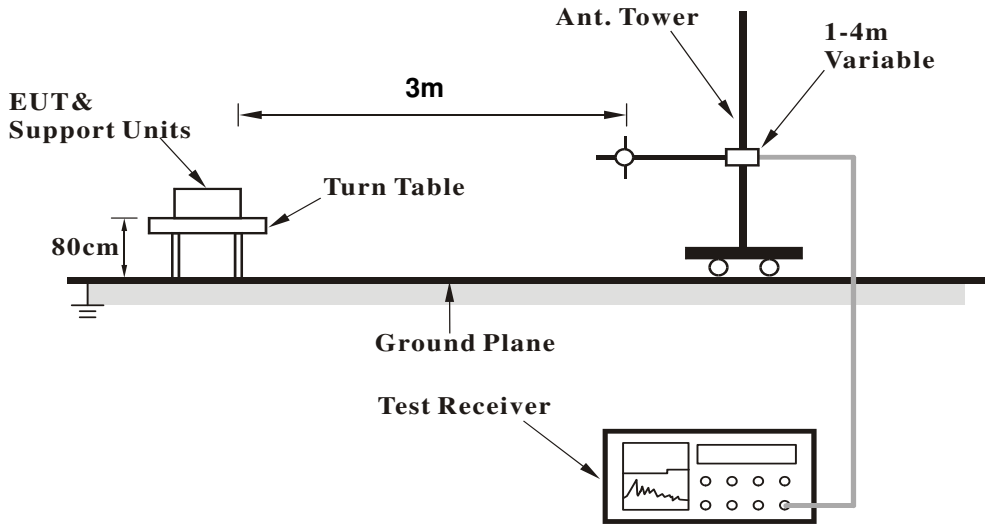
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

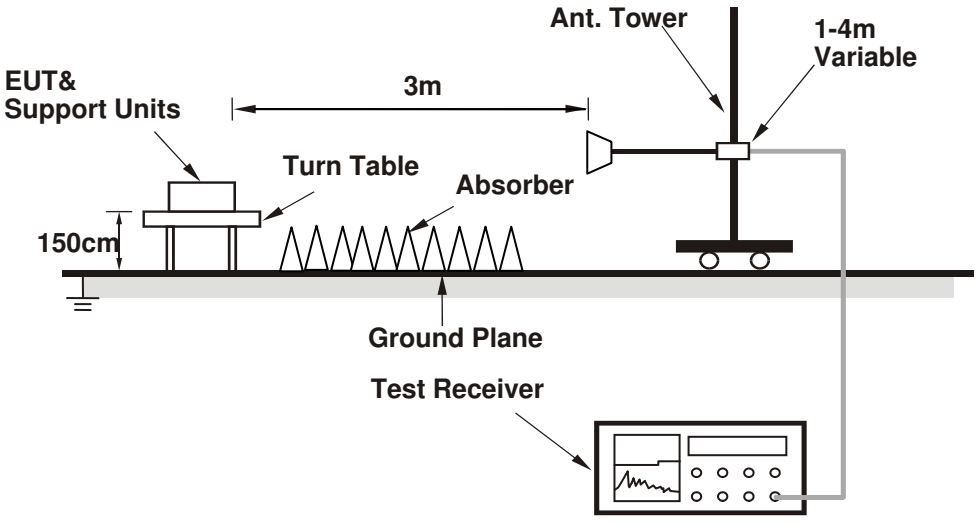
No deviation.

4.1.5 Test Set Up

<Frequency Range below 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 notebooks to act as communication partner and placed it outside of testing area.
c. Contorlling software (Mtool.exe [v2.0.1.0]) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data：

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	44.2 PK	74.0	-29.8	1.51 H	228	48.58	-4.38
2	2390.00	35.4 AV	54.0	-18.6	1.51 H	228	39.78	-4.38
3	*2412.00	97.0 PK			1.51 H	228	101.31	-4.31
4	*2412.00	94.1 AV			1.51 H	228	98.41	-4.31
5	4824.00	51.6 PK	74.0	-22.4	1.61 H	150	49.61	1.99
6	4824.00	50.0 AV	54.0	-4.0	1.61 H	150	48.01	1.99
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.8 PK	74.0	-18.2	1.91 V	146	60.18	-4.38
2	2390.00	44.4 AV	54.0	-9.6	1.91 V	146	48.78	-4.38
3	*2412.00	108.5 PK			1.91 V	146	112.81	-4.31
4	*2412.00	105.9 AV			1.91 V	146	110.21	-4.31
5	4824.00	55.3 PK	74.0	-18.7	2.46 V	168	53.31	1.99
6	4824.00	53.8 AV	54.0	-0.2	2.46 V	168	51.81	1.99

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	97.3 PK			1.52 H	221	101.54	-4.24
2	*2437.00	94.3 AV			1.52 H	221	98.54	-4.24
3	4874.00	51.9 PK	74.0	-22.1	1.69 H	167	49.77	2.13
4	4874.00	50.2 AV	54.0	-3.8	1.69 H	167	48.07	2.13
5	7311.00	51.4 PK	74.0	-22.6	1.48 H	216	42.80	8.60
6	7311.00	47.7 AV	54.0	-6.3	1.48 H	216	39.10	8.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.9 PK			1.89 V	133	113.14	-4.24
2	*2437.00	106.2 AV			1.89 V	133	110.44	-4.24
3	4874.00	54.8 PK	74.0	-19.2	1.06 V	187	52.67	2.13
4	4874.00	53.5 AV	54.0	-0.5	1.06 V	187	51.37	2.13
5	7311.00	56.3 PK	74.0	-17.7	1.50 V	128	47.70	8.60
6	7311.00	52.4 AV	54.0	-1.6	1.50 V	128	43.80	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	96.9 PK			1.52 H	214	101.06	-4.16
2	*2462.00	94.2 AV			1.52 H	214	98.36	-4.16
3	2500.00	48.3 PK	74.0	-25.7	1.50 H	230	52.35	-4.05
4	2500.00	37.8 AV	54.0	-16.2	1.50 H	230	41.85	-4.05
5	4924.00	51.6 PK	74.0	-22.4	1.65 H	165	49.39	2.21
6	4924.00	50.0 AV	54.0	-4.0	1.65 H	165	47.79	2.21
7	7386.00	51.4 PK	74.0	-22.6	1.51 H	223	42.61	8.79
8	7386.00	47.5 AV	54.0	-6.5	1.51 H	223	38.71	8.79
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	109.0 PK			2.02 V	175	113.16	-4.16
2	*2462.00	106.5 AV			2.02 V	175	110.66	-4.16
3	2500.00	55.1 PK	74.0	-18.9	2.02 V	174	59.15	-4.05
4	2500.00	45.2 AV	54.0	-8.8	2.02 V	174	49.25	-4.05
5	4924.00	55.5 PK	74.0	-18.5	1.47 V	184	53.29	2.21
6	**4924.00**	**53.9 AV**	**54.0**	**-0.1**	**1.47 V**	**184**	**51.69**	**2.21**
7	7386.00	57.1 PK	74.0	-16.9	2.50 V	132	48.31	8.79
8	7386.00	53.0 AV	54.0	-1.0	2.50 V	132	44.21	8.79

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

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	66.2 PK	74.0	-7.8	1.52 H	220	70.58	-4.38
2	2390.00	44.1 AV	54.0	-9.9	1.52 H	220	48.48	-4.38
3	*2412.00	100.2 PK			1.52 H	220	104.51	-4.31
4	*2412.00	89.4 AV			1.52 H	220	93.71	-4.31
5	4824.00	50.3 PK	74.0	-23.7	1.66 H	160	48.31	1.99
6	4824.00	34.4 AV	54.0	-19.6	1.66 H	160	32.41	1.99
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	73.8 PK	74.0	-0.2	2.08 V	126	78.18	-4.38
2	2390.00	51.7 AV	54.0	-2.3	2.08 V	126	56.08	-4.38
3	*2412.00	112.6 PK			2.08 V	126	116.91	-4.31
4	*2412.00	101.1 AV			2.08 V	126	105.41	-4.31
5	4824.00	54.6 PK	74.0	-19.4	1.37 V	179	52.61	1.99
6	4824.00	38.2 AV	54.0	-15.8	1.37 V	179	36.21	1.99

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.3 PK			1.51 H	219	110.54	-4.24
2	*2437.00	95.9 AV			1.51 H	219	100.14	-4.24
3	2483.50	66.7 PK	74.0	-7.3	1.51 H	219	70.79	-4.09
4	2483.50	45.9 AV	54.0	-8.1	1.51 H	219	49.99	-4.09
5	4874.00	55.3 PK	74.0	-18.7	1.62 H	154	53.17	2.13
6	4874.00	40.3 AV	54.0	-13.7	1.62 H	154	38.17	2.13
7	7311.00	63.8 PK	74.0	-10.2	2.70 H	90	55.20	8.60
8	7311.00	48.7 AV	54.0	-5.3	2.70 H	90	40.10	8.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.7 PK			2.46 V	127	121.94	-4.24
2	*2437.00	107.5 AV			2.46 V	127	111.74	-4.24
3	**2483.50**	**73.9 PK**	**74.0**	**-0.1**	**2.46 V**	**127**	**77.99**	**-4.09**
4	2483.50	53.2 AV	54.0	-0.8	2.46 V	127	57.29	-4.09
5	4874.00	59.3 PK	74.0	-14.7	1.39 V	191	57.17	2.13
6	4874.00	44.1 AV	54.0	-9.9	1.39 V	191	41.97	2.13
7	7311.00	68.3 PK	74.0	-5.7	2.69 V	91	59.70	8.60
8	**7311.00**	**53.9 AV**	**54.0**	**-0.1**	**2.69 V**	**91**	**45.30**	**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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	100.6 PK			1.46 H	211	104.76	-4.16
2	*2462.00	90.1 AV			1.46 H	211	94.26	-4.16
3	2483.50	66.4 PK	74.0	-7.6	1.46 H	211	70.49	-4.09
4	2483.50	45.2 AV	54.0	-8.8	1.46 H	211	49.29	-4.09
5	4924.00	50.6 PK	74.0	-23.4	1.63 H	171	48.39	2.21
6	4924.00	34.8 AV	54.0	-19.2	1.63 H	171	32.59	2.21
7	7386.00	57.2 PK	74.0	-16.8	2.65 H	94	48.41	8.79
8	7386.00	42.8 AV	54.0	-11.2	2.65 H	94	34.01	8.79
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	112.1 PK			2.02 V	128	116.26	-4.16
2	*2462.00	101.5 AV			2.02 V	128	105.66	-4.16
3	2483.50	73.7 PK	74.0	-0.3	2.02 V	128	77.79	-4.09
4	2483.50	52.5 AV	54.0	-1.5	2.02 V	128	56.59	-4.09
5	4924.00	53.9 PK	74.0	-20.1	1.40 V	165	51.69	2.21
6	4924.00	37.8 AV	54.0	-16.2	1.40 V	165	35.59	2.21
7	7386.00	62.4 PK	74.0	-11.6	2.50 V	92	53.61	8.79
8	7386.00	48.2 AV	54.0	-5.8	2.50 V	92	39.41	8.79

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 (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	66.5 PK	74.0	-7.5	1.52 H	219	70.88	-4.38
2	2390.00	44.4 AV	54.0	-9.6	1.52 H	219	48.78	-4.38
3	*2412.00	100.8 PK			1.52 H	219	105.11	-4.31
4	*2412.00	89.8 AV			1.52 H	219	94.11	-4.31
5	4824.00	49.7 PK	74.0	-24.3	1.70 H	150	47.71	1.99
6	4824.00	33.9 AV	54.0	-20.1	1.70 H	150	31.91	1.99
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	73.8 PK	74.0	-0.2	2.19 V	358	78.18	-4.38
2	2390.00	51.3 AV	54.0	-2.7	2.19 V	358	55.68	-4.38
3	*2412.00	112.4 PK			2.19 V	358	116.71	-4.31
4	*2412.00	100.9 AV			2.19 V	358	105.21	-4.31
5	4824.00	55.1 PK	74.0	-18.9	1.43 V	192	53.11	1.99
6	4824.00	38.5 AV	54.0	-15.5	1.43 V	192	36.51	1.99

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	105.2 PK			1.56 H	204	109.44	-4.24
2	*2437.00	94.3 AV			1.56 H	204	98.54	-4.24
3	2483.50	66.2 PK	74.0	-7.8	1.56 H	204	70.29	-4.09
4	2483.50	45.7 AV	54.0	-8.3	1.56 H	204	49.79	-4.09
5	4874.00	54.8 PK	74.0	-19.2	1.63 H	160	52.67	2.13
6	4874.00	40.0 AV	54.0	-14.0	1.63 H	160	37.87	2.13
7	7311.00	63.5 PK	74.0	-10.5	2.75 H	91	54.90	8.60
8	7311.00	48.7 AV	54.0	-5.3	2.75 H	91	40.10	8.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	117.7 PK			2.11 V	84	121.94	-4.24
2	*2437.00	106.2 AV			2.11 V	84	110.44	-4.24
3	2483.50	73.8 PK	74.0	-0.2	2.11 V	84	77.89	-4.09
4	2483.50	51.8 AV	54.0	-2.2	2.11 V	84	55.89	-4.09
5	4874.00	58.9 PK	74.0	-15.1	1.31 V	196	56.77	2.13
6	4874.00	44.0 AV	54.0	-10.0	1.31 V	196	41.87	2.13
7	7311.00	67.5 PK	74.0	-6.5	2.64 V	93	58.90	8.60
8	7311.00	52.0 AV	54.0	-2.0	2.64 V	93	43.40	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	98.3 PK			1.50 H	221	102.46	-4.16
2	*2462.00	88.4 AV			1.50 H	221	92.56	-4.16
3	2483.50	64.4 PK	74.0	-9.6	1.50 H	221	68.49	-4.09
4	2483.50	43.3 AV	54.0	-10.7	1.50 H	221	47.39	-4.09
5	4924.00	49.2 PK	74.0	-24.8	1.64 H	163	46.99	2.21
6	4924.00	34.2 AV	54.0	-19.8	1.64 H	163	31.99	2.21
7	7386.00	54.2 PK	74.0	-19.8	2.71 H	102	45.41	8.79
8	7386.00	40.3 AV	54.0	-13.7	2.71 H	102	31.51	8.79
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	111.2 PK			1.97 V	126	115.36	-4.16
2	*2462.00	100.0 AV			1.97 V	126	104.16	-4.16
3	2483.50	73.8 PK	74.0	-0.2	1.97 V	126	77.89	-4.09
4	2483.50	50.4 AV	54.0	-3.6	1.97 V	126	54.49	-4.09
5	4924.00	52.0 PK	74.0	-22.0	1.35 V	163	49.79	2.21
6	4924.00	36.5 AV	54.0	-17.5	1.35 V	163	34.29	2.21
7	7386.00	60.5 PK	74.0	-13.5	2.54 V	77	51.71	8.79
8	7386.00	45.4 AV	54.0	-8.6	2.54 V	77	36.61	8.79

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 (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	66.6 PK	74.0	-7.4	1.54 H	220	70.98	-4.38
2	2390.00	44.3 AV	54.0	-9.7	1.54 H	220	48.68	-4.38
3	*2422.00	93.1 PK			1.54 H	220	97.37	-4.27
4	*2422.00	81.5 AV			1.54 H	220	85.77	-4.27
5	4844.00	45.4 PK	74.0	-28.6	1.64 H	183	43.35	2.05
6	4844.00	32.2 AV	54.0	-21.8	1.64 H	183	30.15	2.05
7	7266.00	49.9 PK	74.0	-24.1	2.73 H	93	41.41	8.49
8	7266.00	36.5 AV	54.0	-17.5	2.73 H	93	28.01	8.49
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	73.8 PK	74.0	-0.2	2.63 V	89	78.18	-4.38
2	2390.00	51.4 AV	54.0	-2.6	2.63 V	89	55.78	-4.38
3	*2422.00	104.6 PK			2.63 V	89	108.87	-4.27
4	*2422.00	93.0 AV			2.63 V	89	97.27	-4.27
5	4844.00	48.4 PK	74.0	-25.6	1.39 V	155	46.35	2.05
6	4844.00	32.6 AV	54.0	-21.4	1.39 V	155	30.55	2.05
7	7266.00	56.4 PK	74.0	-17.6	2.57 V	70	47.91	8.49
8	7266.00	41.6 AV	54.0	-12.4	2.57 V	70	33.11	8.49

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	1.60 H	223	64.88	-4.38
2	2390.00	41.8 AV	54.0	-12.2	1.60 H	223	46.18	-4.38
3	*2437.00	94.6 PK			1.60 H	223	98.84	-4.24
4	*2437.00	93.4 AV			1.60 H	223	97.64	-4.24
5	2483.50	66.5 PK	74.0	-7.5	1.60 H	223	70.59	-4.09
6	2483.50	44.5 AV	54.0	-9.5	1.60 H	223	48.59	-4.09
7	4874.00	47.6 PK	74.0	-26.4	1.62 H	171	45.47	2.13
8	4874.00	32.6 AV	54.0	-21.4	1.62 H	171	30.47	2.13
9	7311.00	52.4 PK	74.0	-21.6	2.77 H	104	43.80	8.60
10	7311.00	38.6 AV	54.0	-15.4	2.77 H	104	30.00	8.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.3 PK	74.0	-6.7	1.77 V	357	71.68	-4.38
2	2390.00	48.8 AV	54.0	-5.2	1.77 V	357	53.18	-4.38
3	*2437.00	107.2 PK			1.77 V	357	111.44	-4.24
4	*2437.00	95.6 AV			1.77 V	357	99.84	-4.24
5	2483.50	73.7 PK	74.0	-0.3	1.77 V	357	77.79	-4.09
6	2483.50	51.9 AV	54.0	-2.1	1.77 V	357	55.99	-4.09
7	4874.00	50.4 PK	74.0	-23.6	1.41 V	170	48.27	2.13
8	4874.00	34.6 AV	54.0	-19.4	1.41 V	170	32.47	2.13
9	7311.00	58.4 PK	74.0	-15.6	2.56 V	82	49.80	8.60
10	7311.00	43.3 AV	54.0	-10.7	2.56 V	82	34.70	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.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	107.4 PK			1.61 H	220	111.59	-4.19
2	*2452.00	82.4 AV			1.61 H	220	86.59	-4.19
3	2483.50	66.5 PK	74.0	-7.5	1.61 H	220	70.59	-4.09
4	2483.50	46.1 AV	54.0	-7.9	1.61 H	220	50.19	-4.09
5	4904.00	45.0 PK	74.0	-29.0	1.66 H	185	42.80	2.20
6	4904.00	31.8 AV	54.0	-22.2	1.66 H	185	29.60	2.20
7	7356.00	50.0 PK	74.0	-24.0	2.69 H	105	41.28	8.72
8	7356.00	36.6 AV	54.0	-17.4	2.69 H	105	27.88	8.72
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.7 PK			2.24 V	79	110.89	-4.19
2	*2452.00	94.1 AV			2.24 V	79	98.29	-4.19
3	**2483.50**	**73.9 PK**	**74.0**	**-0.1**	**2.24 V**	**79**	**77.99**	**-4.09**
4	2483.50	53.2 AV	54.0	-0.8	2.24 V	79	57.29	-4.09
5	4904.00	48.0 PK	74.0	-26.0	1.40 V	141	45.80	2.20
6	4904.00	32.3 AV	54.0	-21.7	1.40 V	141	30.10	2.20
7	7356.00	56.4 PK	74.0	-17.6	2.52 V	54	47.68	8.72
8	7356.00	41.9 AV	54.0	-12.1	2.52 V	54	33.18	8.72

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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:

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	80.03	29.1 QP	40.0	-10.9	2.00 H	66	42.60	-13.52
2	185.42	37.2 QP	43.5	-6.4	1.50 H	318	48.16	-11.01
3	261.73	40.7 QP	46.0	-5.3	1.00 H	283	50.06	-9.36
4	299.95	38.5 QP	46.0	-7.5	1.00 H	277	46.34	-7.88
5	375.00	41.1 QP	46.0	-4.9	1.00 H	320	47.10	-5.98
6	625.00	38.7 QP	46.0	-7.3	1.50 H	301	38.84	-0.11
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	78.23	36.6 QP	40.0	-3.4	2.00 V	96	49.80	-13.20
2	188.26	36.0 QP	43.5	-7.5	1.00 V	212	47.32	-11.29
3	261.83	38.7 QP	46.0	-7.3	1.00 V	262	48.09	-9.36
4	375.00	38.6 QP	46.0	-7.4	1.00 V	216	44.61	-5.98
5	500.01	37.9 QP	46.0	-8.1	1.00 V	295	40.84	-2.91
6	625.00	39.5 QP	46.0	-6.5	1.50 V	5	39.61	-0.11

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 (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	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.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 06, 2015	May 05, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 01, 2015	Aug. 31, 2016
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 11, 2015	June 10, 2016
RF Cable	5D-FB	COCCAB-001	Mar. 08, 2016	Mar. 07, 2017
50 ohms Terminator	N/A	EMC-03	Sep. 23, 2015	Sep. 22, 2016
50 ohms Terminator	N/A	EMC-02	Oct. 01, 2015	Sep. 30, 2016
50 ohms Terminator	E1-011315	13	Dec. 11 2015	Dec. 10 2016
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Mar. 10, 2016

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.

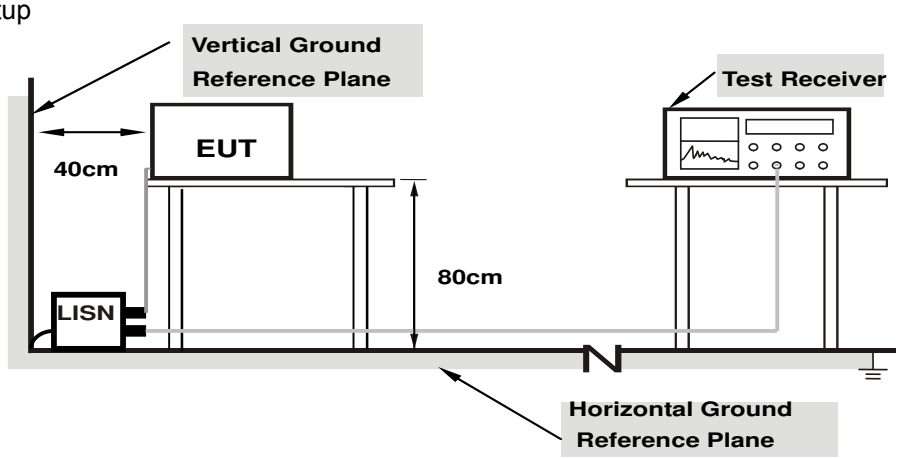
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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.

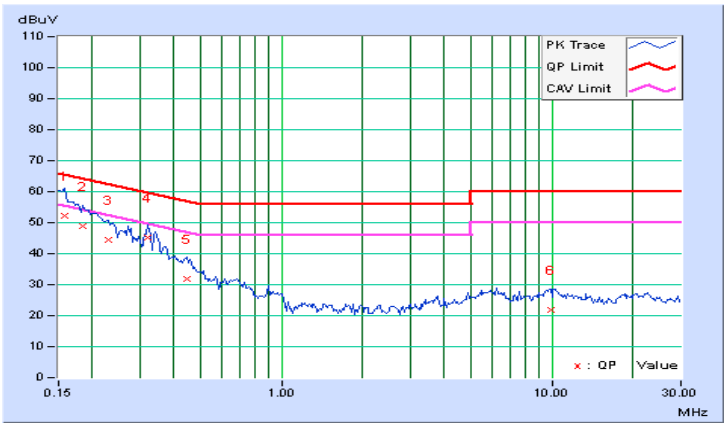
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.25	42.05	32.36	52.30	42.61	65.58	55.58	-13.27	-12.96
2	0.18516	10.23	38.71	28.62	48.94	38.85	64.25	54.25	-15.31	-15.40
3	0.22812	10.22	34.14	26.28	44.36	36.50	62.52	52.52	-18.16	-16.02
4	**0.32188**	**10.23**	**34.78**	**34.04**	**45.01**	**44.27**	**59.66**	**49.66**	**-14.65**	**-5.39**
5	0.44688	10.23	21.46	16.02	31.69	26.25	56.93	46.93	-25.24	-20.68
6	9.89063	10.52	11.19	7.17	21.71	17.69	60.00	50.00	-38.29	-32.31

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.

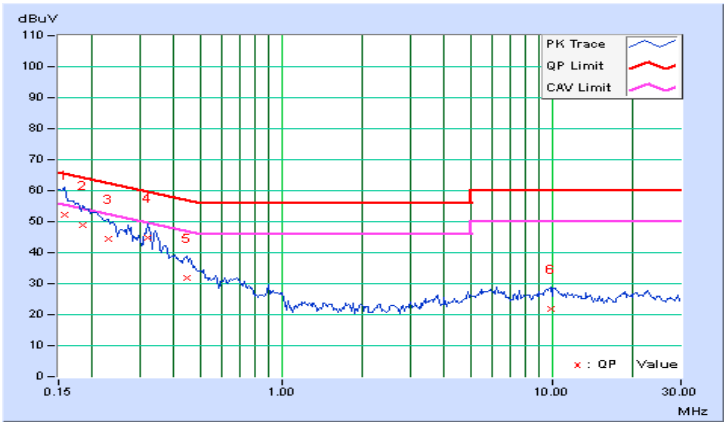


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.23	42.05	32.36	52.28	42.59	65.58	55.58	-13.29	-12.98
2	0.18516	10.21	38.71	28.62	48.92	38.83	64.25	54.25	-15.33	-15.42
3	0.22812	10.20	34.14	26.28	44.34	36.48	62.52	52.52	-18.18	-16.04
4	0.32188	10.21	34.78	34.04	44.99	44.25	59.66	49.66	-14.67	-5.41
5	0.44688	10.22	21.46	16.02	31.68	26.24	56.93	46.93	-25.26	-20.70
6	9.89063	10.53	11.19	7.17	21.72	17.70	60.00	50.00	-38.28	-32.30

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.



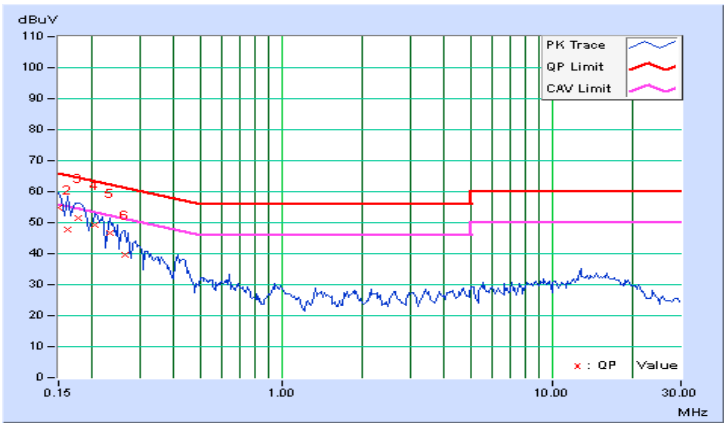
4.2.8 Test Results (Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.26	44.38	35.73	54.64	45.99	66.00	56.00	-11.36	-10.01
2	0.16172	10.25	37.63	22.19	47.88	32.44	65.38	55.38	-17.49	-22.93
3	0.17734	10.24	41.22	31.51	51.46	41.75	64.61	54.61	-13.15	-12.86
4	0.20469	10.22	38.97	28.93	49.19	39.15	63.42	53.42	-14.23	-14.27
5	0.23203	10.22	36.33	27.84	46.55	38.06	62.38	52.38	-15.82	-14.31
6	0.26328	10.23	29.34	25.28	39.57	35.51	61.33	51.33	-21.76	-15.82

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.

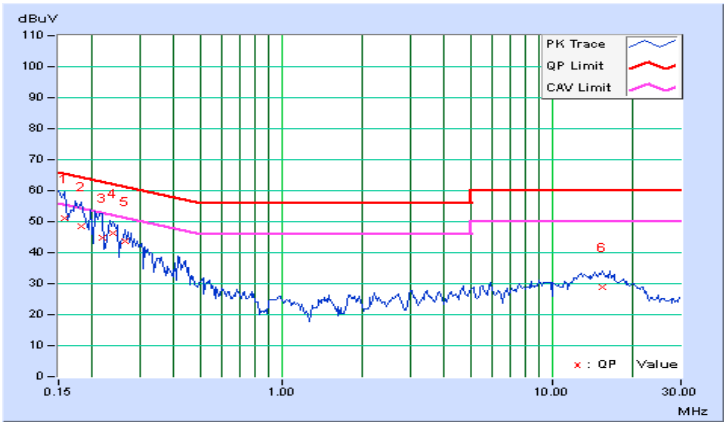


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.23	40.93	17.20	51.16	27.43	65.58	55.58	-14.41	-28.14
2	0.18125	10.22	38.29	31.57	48.51	41.79	64.43	54.43	-15.92	-12.64
3	0.21641	10.20	34.43	23.57	44.63	33.77	62.96	52.96	-18.32	-19.18
4	0.23984	10.20	36.27	26.71	46.47	36.91	62.10	52.10	-15.63	-15.19
5	0.26328	10.21	33.52	25.02	43.73	35.23	61.33	51.33	-17.60	-16.10
6	15.29688	10.80	18.21	14.13	29.01	24.93	60.00	50.00	-30.99	-25.07

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.

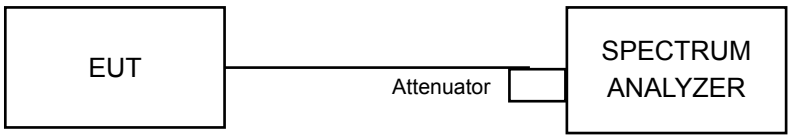


4.3 6dB Bandwidth Measurement

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 fromTest 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 Result

802.11b

Channel	Frequency (MHz)	6db Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	8.13	8.09	0.5	PASS
6	2437	8.12	8.12	0.5	PASS
11	2462	8.12	8.13	0.5	PASS

802.11g

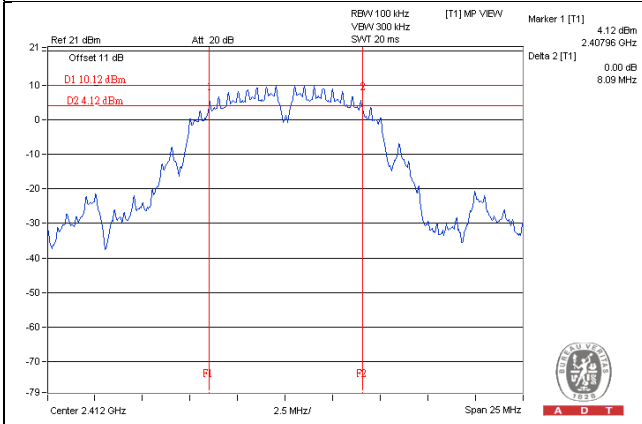
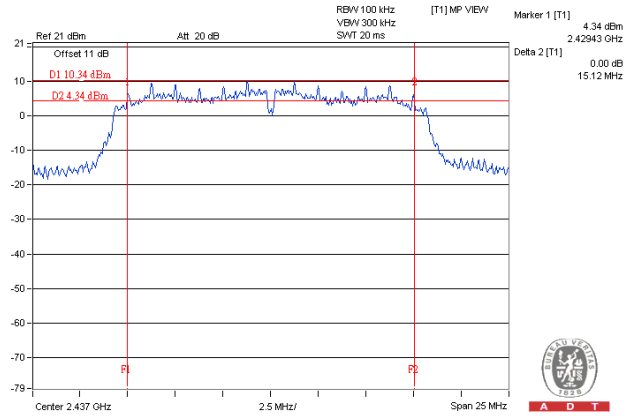
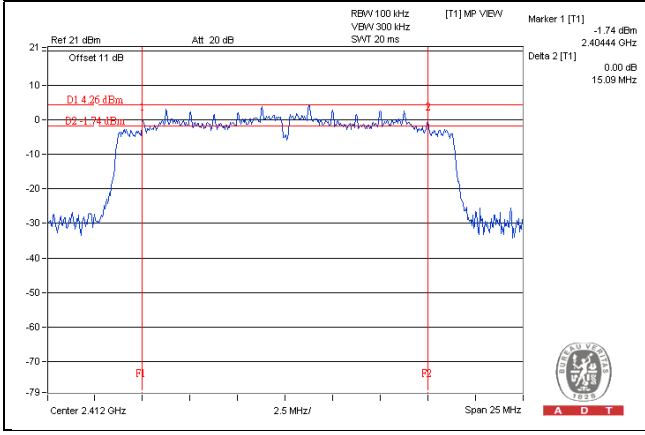
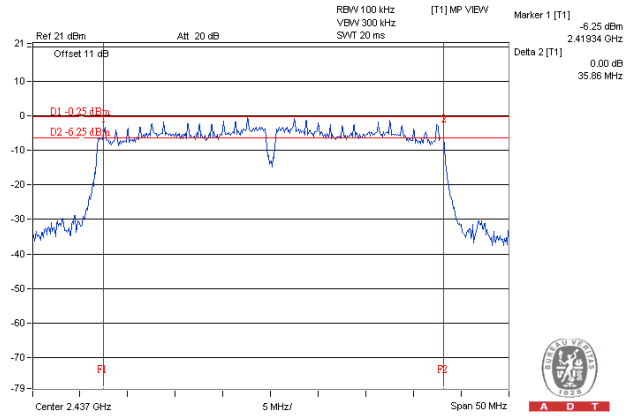
Channel	Frequency (MHz)	6db Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	15.15	15.14	0.5	PASS
6	2437	15.12	15.14	0.5	PASS
11	2462	15.13	15.15	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6db Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	15.09	15.74	0.5	Pass
6	2437	15.14	15.14	0.5	Pass
11	2462	15.13	15.15	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6db Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
3	2422	36.12	36.45	0.5	Pass
6	2437	35.86	36.44	0.5	Pass
9	2452	36.16	36.45	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / Chain 1: CH1	**802.11g / Chain 0: CH6**
	
802.11n (HT20) / Chain 0: CH1	**802.11n (HT40) / Chain 0: CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

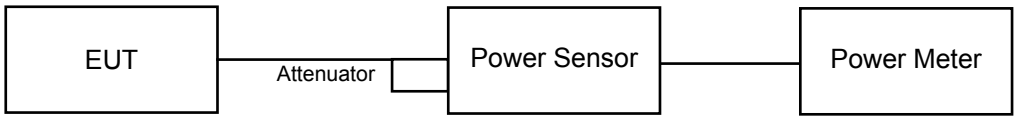
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output 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

A peak / average power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak / 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

FOR PEAK POWER

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.19	21.16	262.139	24.19	30	Pass
6	2437	21.60	21.43	283.539	24.53	30	Pass
11	2462	21.89	21.60	299.069	24.76	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.97	22.71	384.791	25.85	30	Pass
6	2437	24.28	24.45	546.529	27.38	30	Pass
11	2462	22.82	23.45	412.735	26.16	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.59	22.32	352.16	25.47	30	Pass
6	2437	24.24	24.41	541.519	27.34	30	Pass
11	2462	21.58	21.48	284.485	24.54	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	19.82	20.51	208.4	23.19	30	Pass
6	2437	21.71	21.67	295.145	24.70	30	Pass
9	2452	20.48	21.16	242.303	23.84	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	17.84	17.67	119.293	20.77
6	2437	18.29	18.34	135.687	21.33
11	2462	18.61	18.30	140.219	21.47

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.12	14.46	53.748	17.30
6	2437	19.83	19.35	182.26	22.61
11	2462	14.90	14.75	60.757	17.84

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.12	14.37	53.176	17.26
6	2437	18.41	18.54	140.793	21.49
11	2462	12.89	13.45	41.585	16.19

802.11n (HT40)

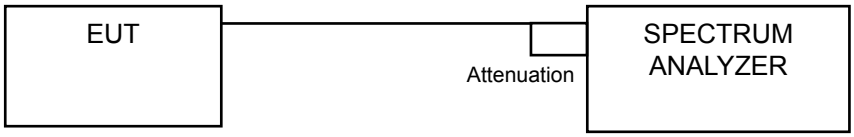
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	10.35	11.43	24.739	13.93
6	2437	12.92	12.60	37.785	15.77
9	2452	11.60	11.55	28.743	14.59

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 instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.

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

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	-4.25	3.01	-1.24	8	Pass
	6	2437	-3.90	3.01	-0.89	8	Pass
	11	2462	-1.39	3.01	1.62	8	Pass
1	1	2412	-3.99	3.01	-0.98	8	Pass
	6	2437	-3.78	3.01	-0.77	8	Pass
	11	2462	-3.93	3.01	-0.92	8	Pass

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.53dBi < 6dBi , so the power density limit shall not be 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	-9.23	3.01	-6.22	8	Pass
	6	2437	-4.69	3.01	-1.68	8	Pass
	11	2462	-10.16	3.01	-7.15	8	Pass
1	1	2412	-9.67	3.01	-6.66	8	Pass
	6	2437	-5.48	3.01	-2.47	8	Pass
	11	2462	-9.88	3.01	-6.87	8	Pass

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.53dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT20)

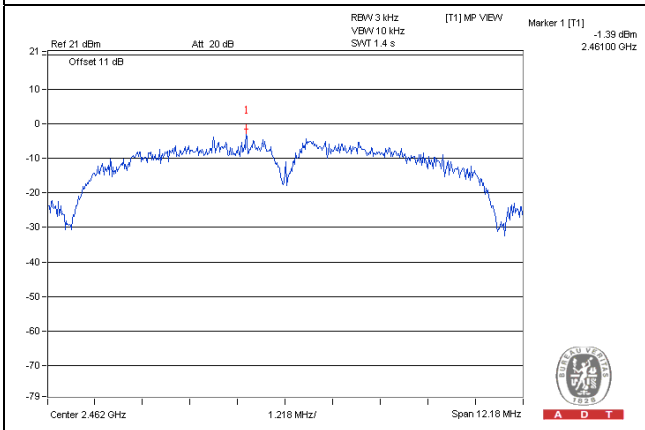
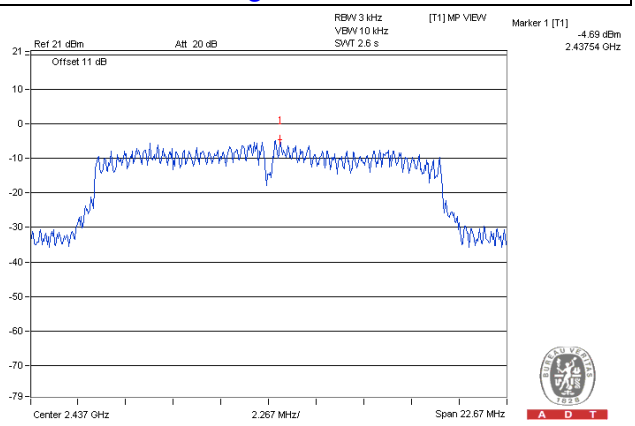
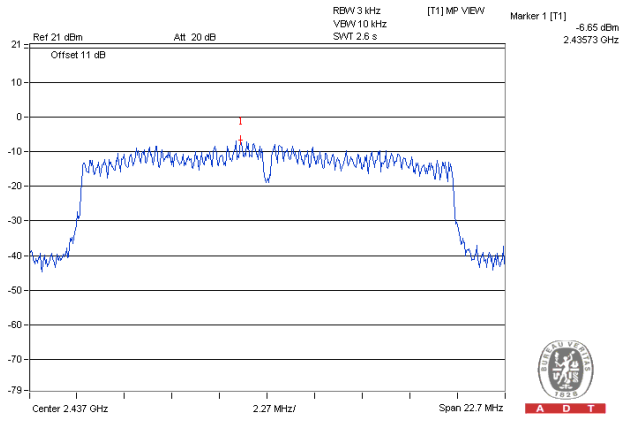
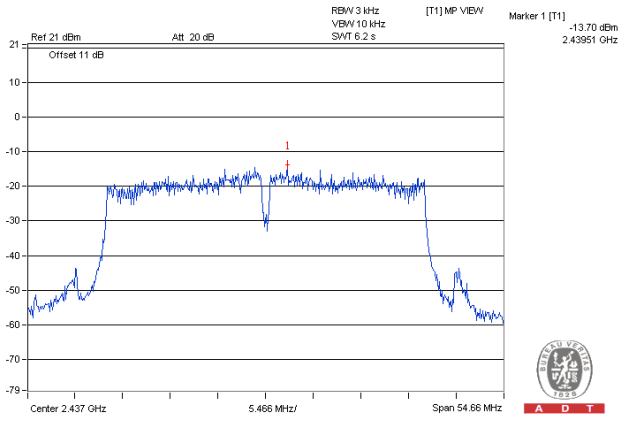
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.11	3.01	-7.10	8	Pass
	6	2437	-6.65	3.01	-3.64	8	Pass
	11	2462	-11.98	3.01	-8.97	8	Pass
1	1	2412	-10.47	3.01	-7.46	8	Pass
	6	2437	-6.97	3.01	-3.96	8	Pass
	11	2462	-12.74	3.01	-9.73	8	Pass

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.53dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT40)

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	-17.69	3.01	-14.68	8	Pass
	6	2437	-15.23	3.01	-12.22	8	Pass
	9	2452	-15.93	3.01	-12.92	8	Pass
1	3	2422	-16.64	3.01	-13.63	8	Pass
	6	2437	-13.70	3.01	-10.69	8	Pass
	9	2452	-16.38	3.01	-13.37	8	Pass

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.53dBi < 6dBi , so the power density limit shall not be reduced.

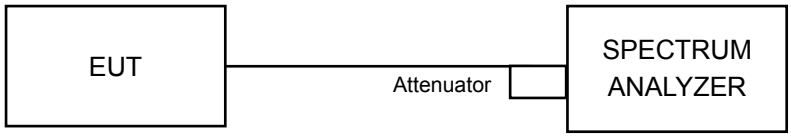
Spectrum Plot of Worst Value	
802.11b / Chain 0: CH11	**802.11g / Chain 0: CH6**
	
802.11n (HT20) / Chain 0: CH6	**802.11n (HT40) / Chain 1: CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB 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 = peak.
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. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

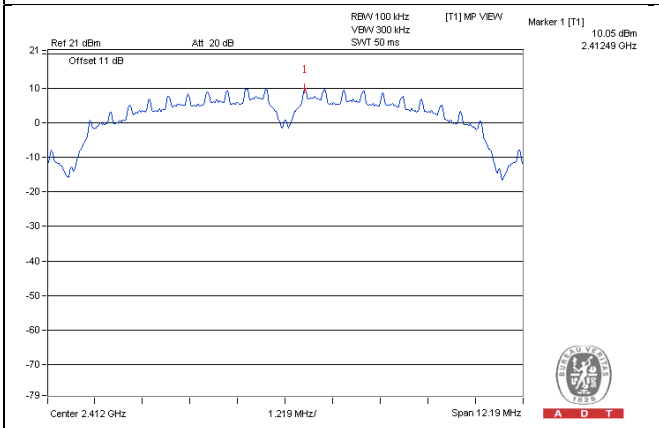
Same as Item 4.3.6

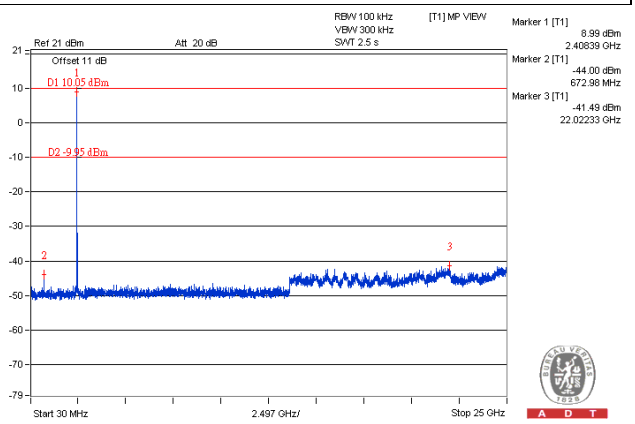
4.6.7 Test Results

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

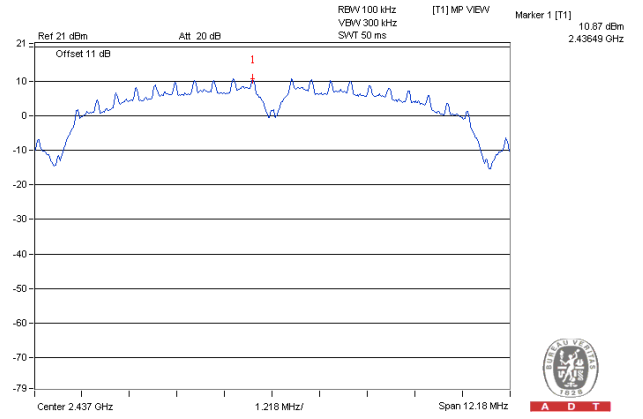
802.11b / CHAIN 0

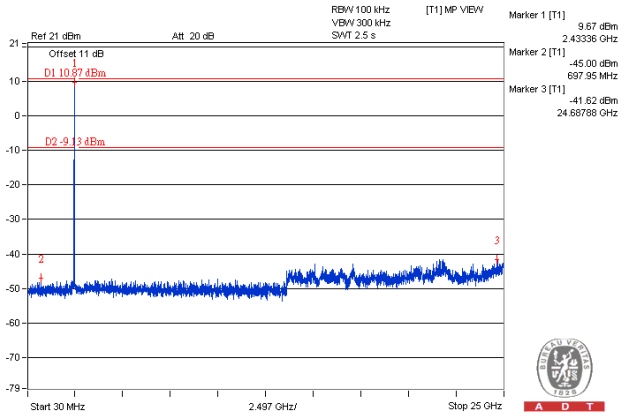
CH 1



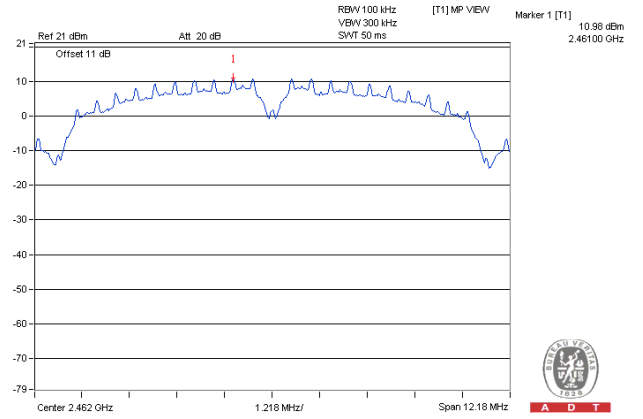


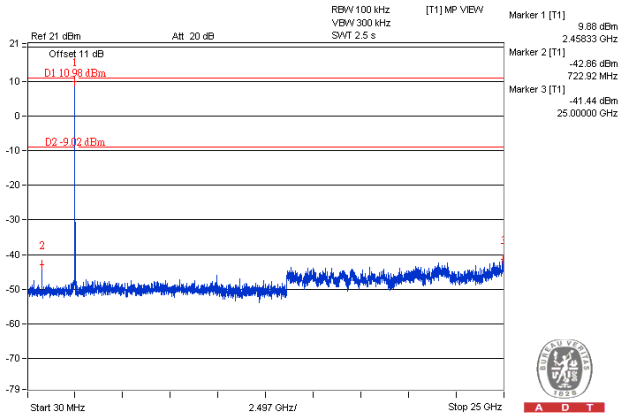
CH 6



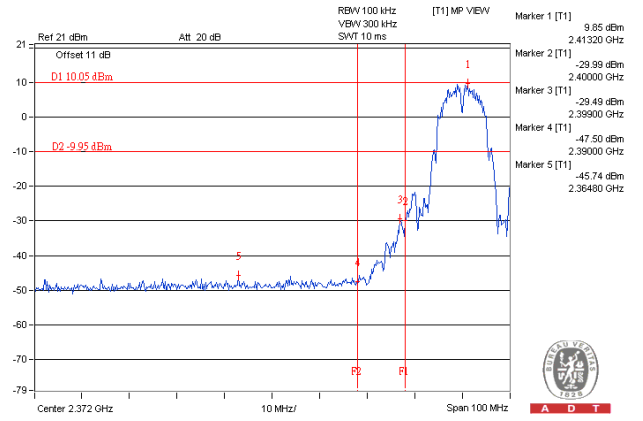


CH 11

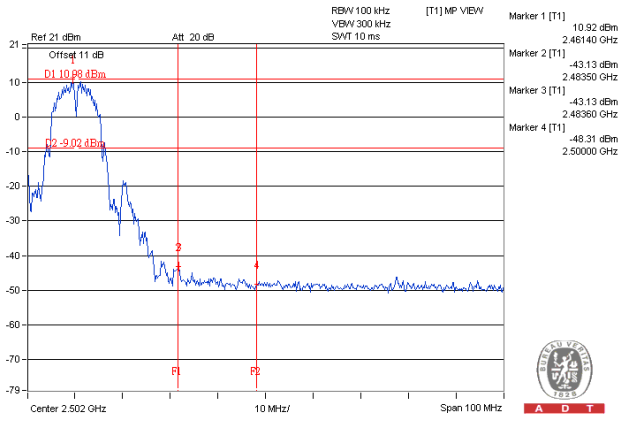




CH 1 Band edge

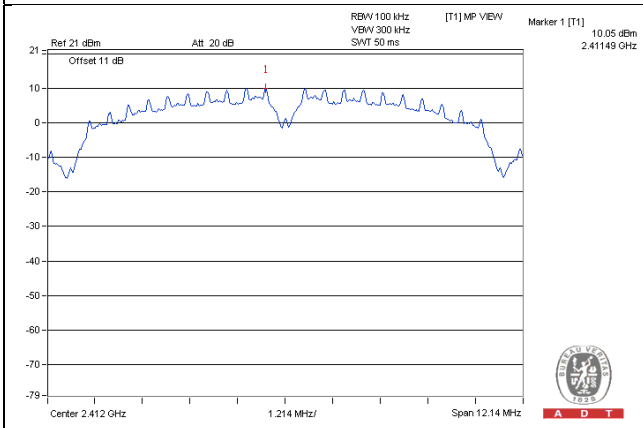


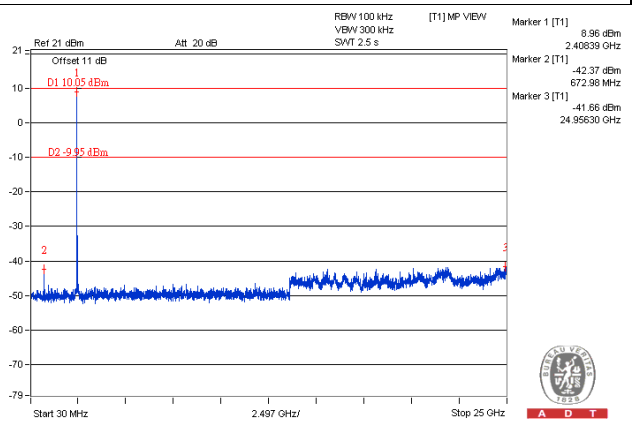
CH 11 Band edge



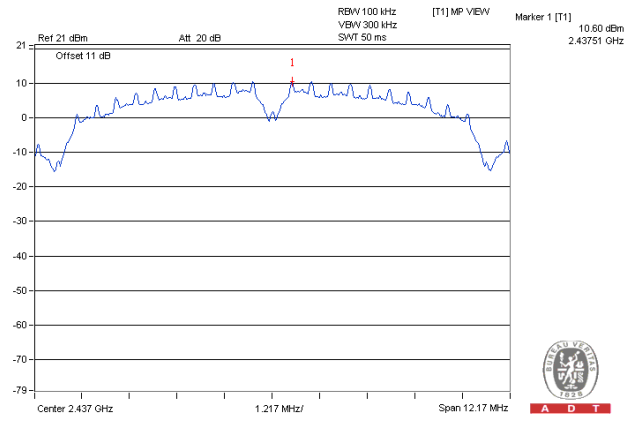
CHAIN 1

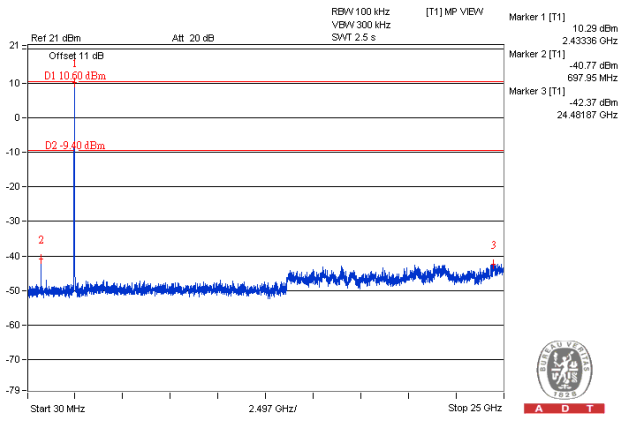
CH 1



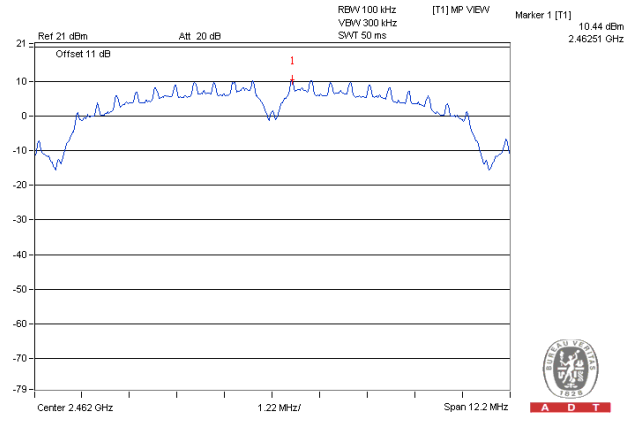


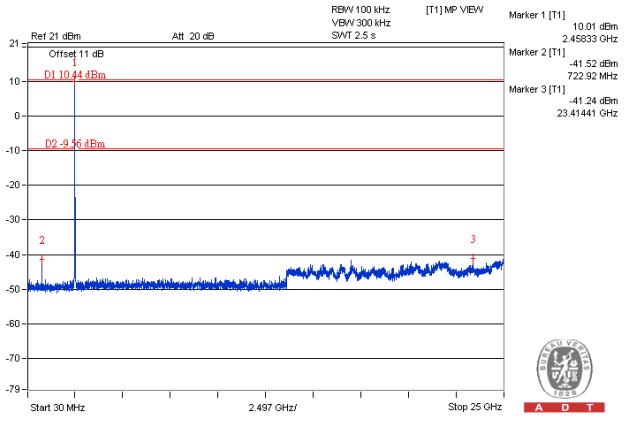
CH 6



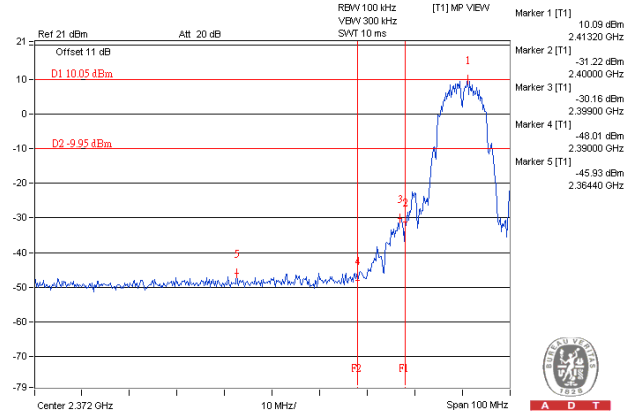


CH 11

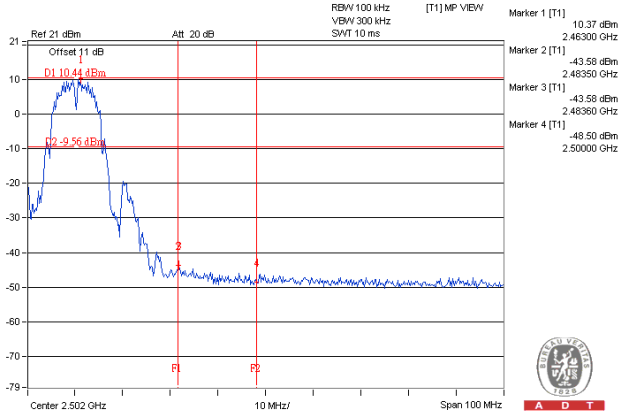




CH 1 Band edge

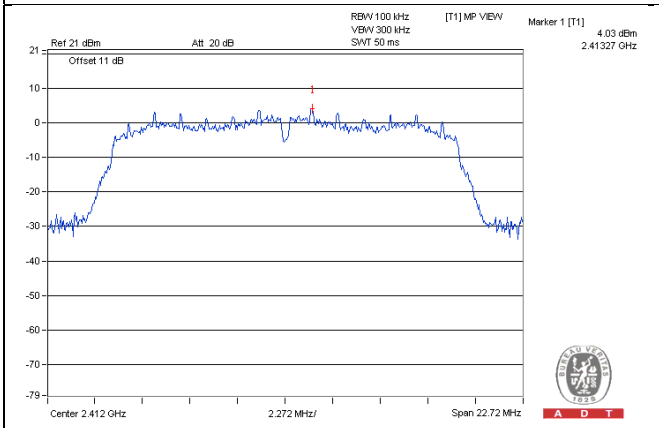


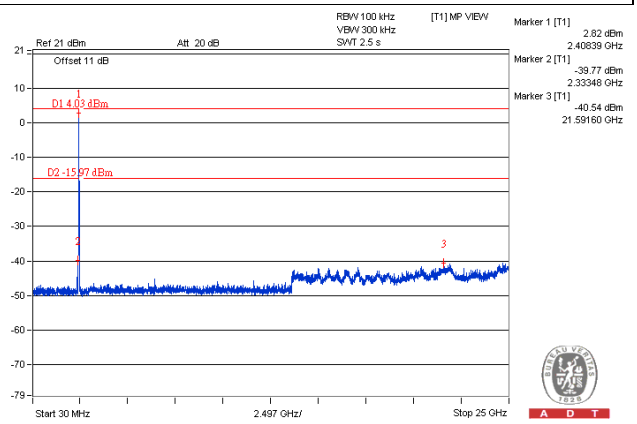
CH 11 Band edge



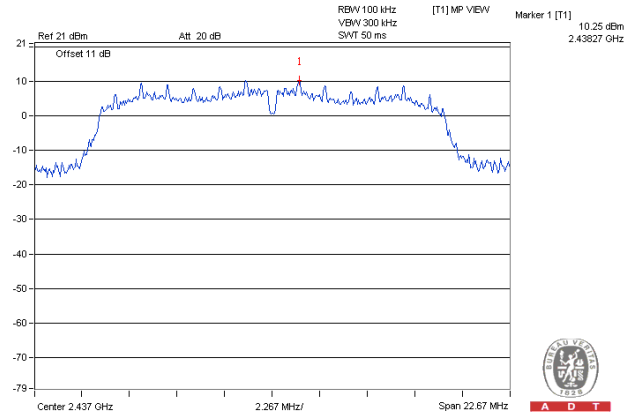
802.11g / CHAIN 0

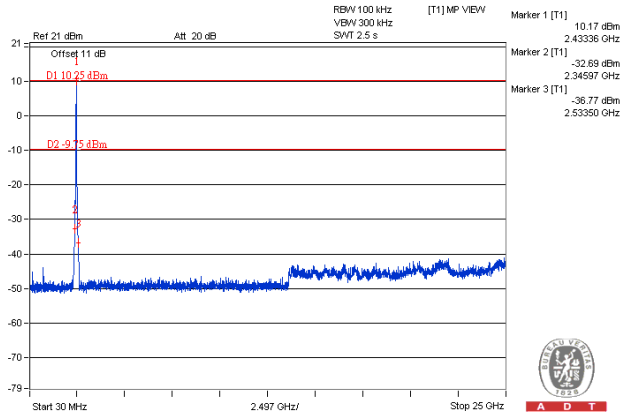
CH 1



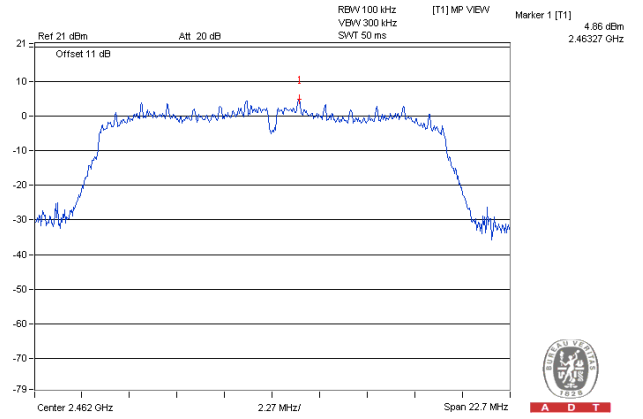


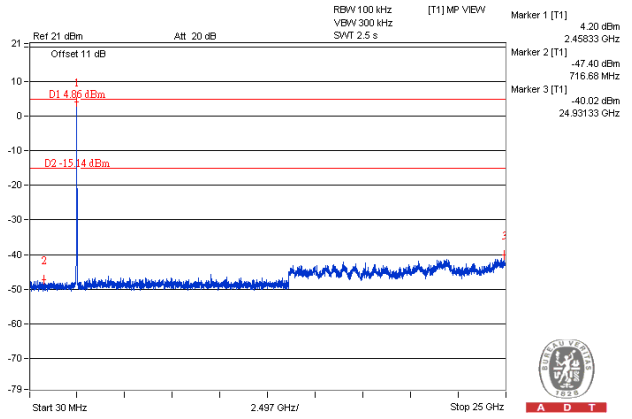
CH 6



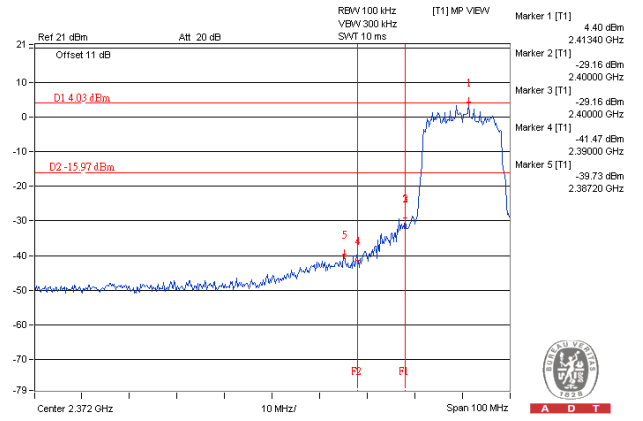


CH 11

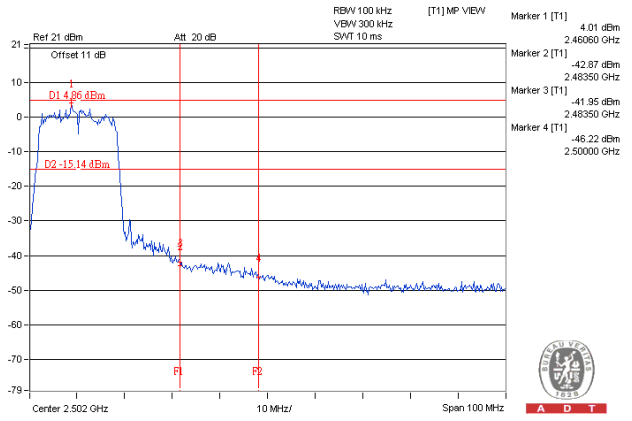




CH 1 Band edge

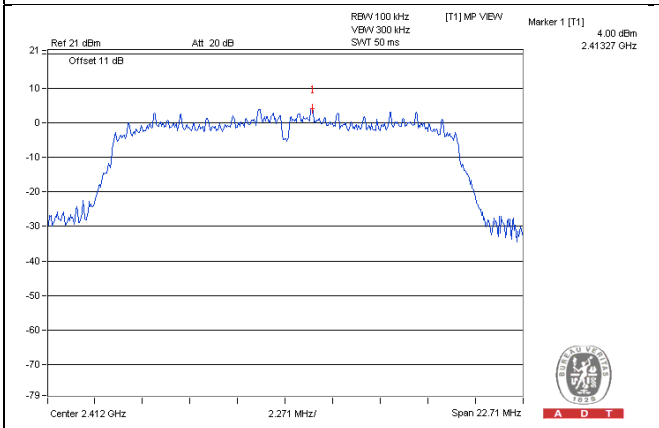


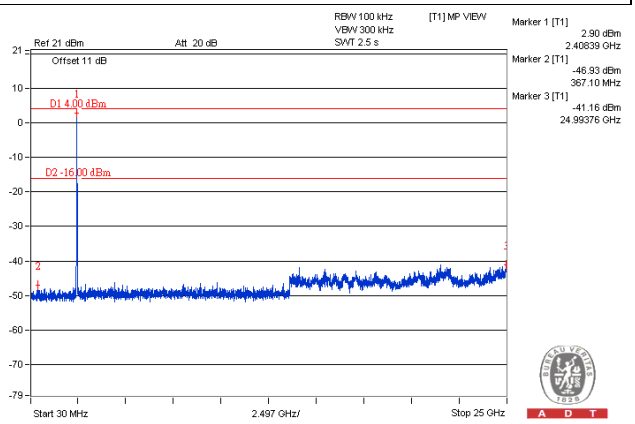
CH 11 Band edge



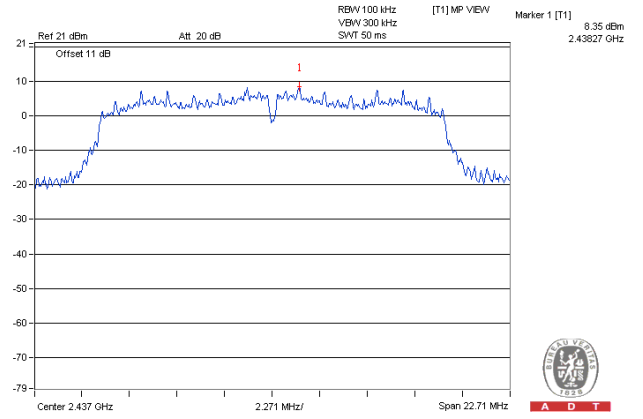
CHAIN 1

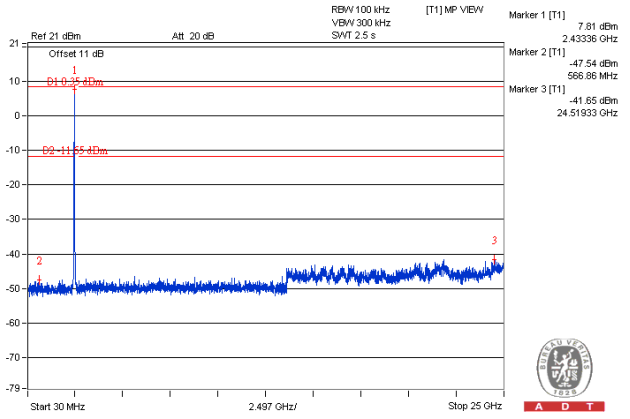
CH 1



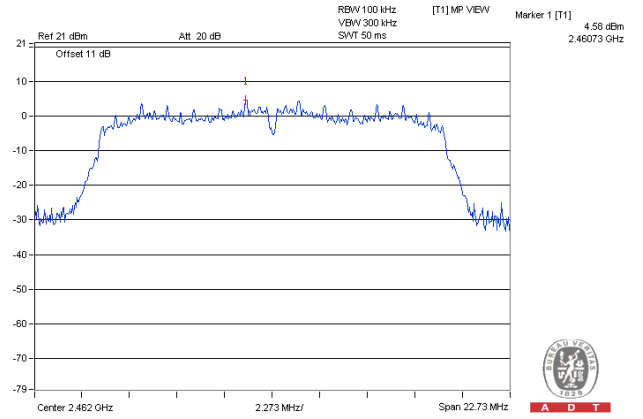


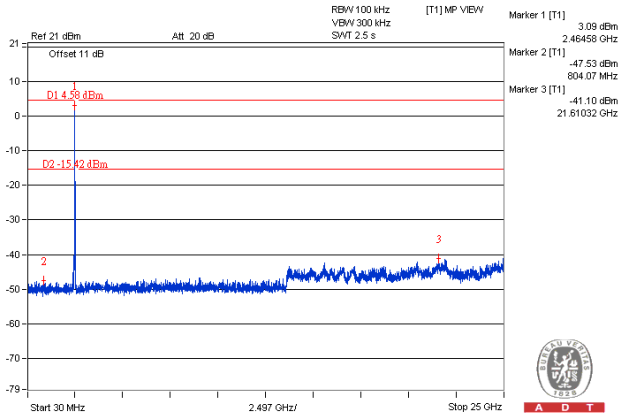
CH 6



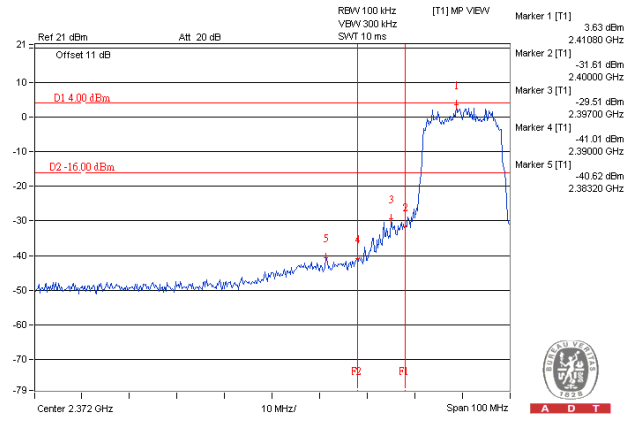


CH 11

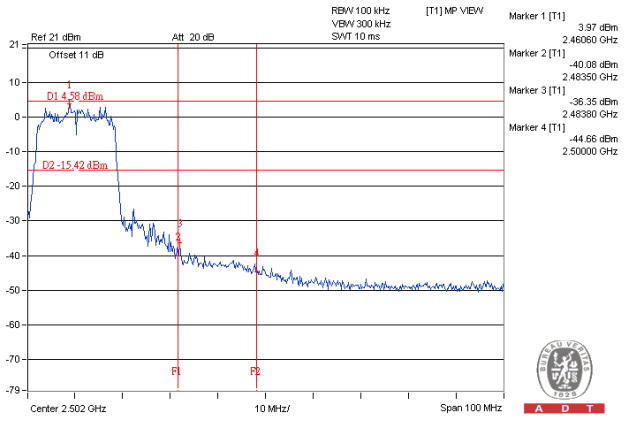




CH 1 Band edge

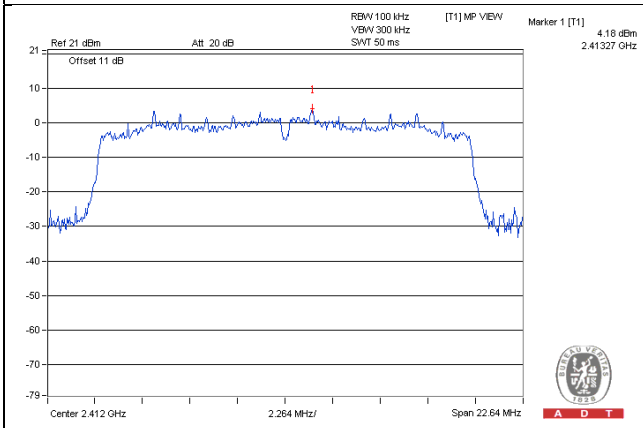


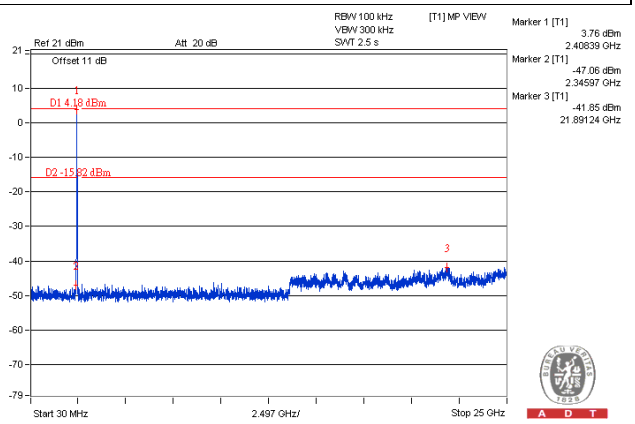
CH 11 Band edge



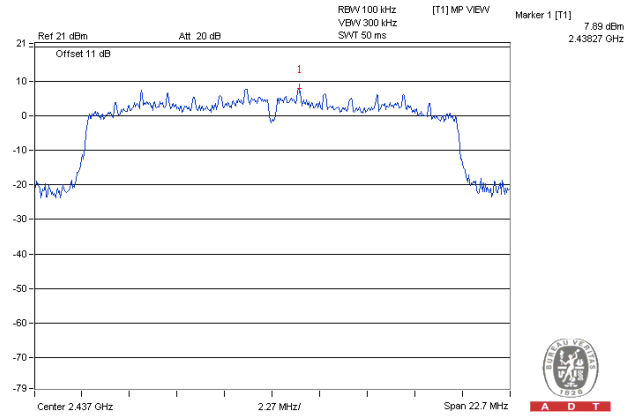
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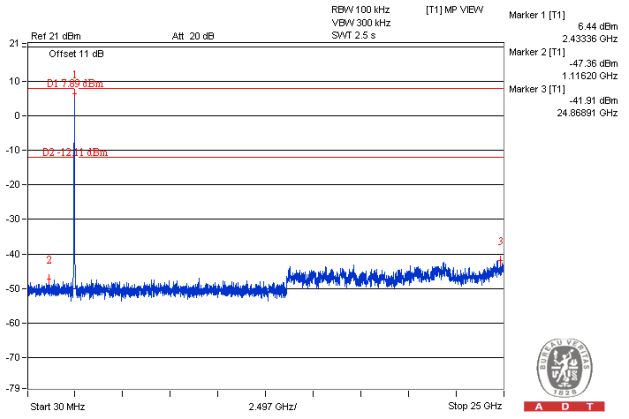
CH 1



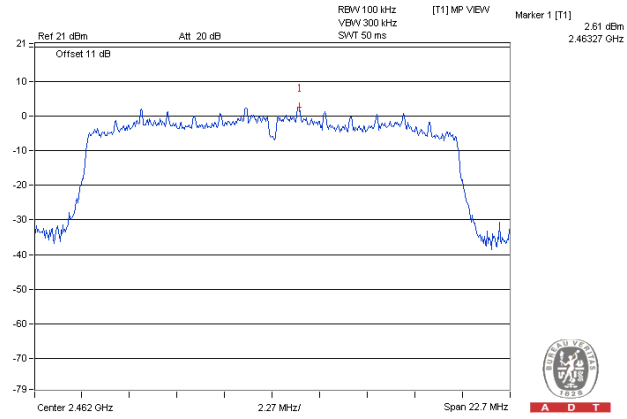


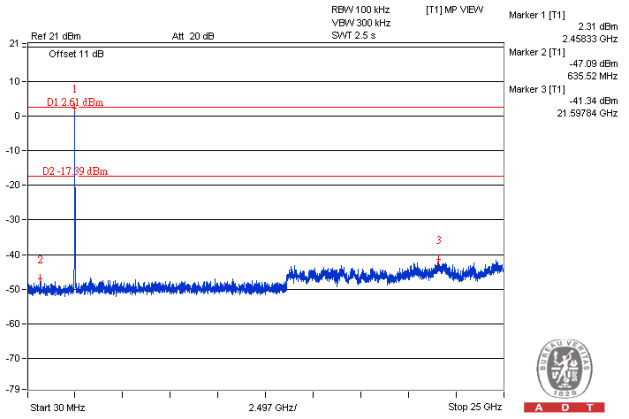
CH 6



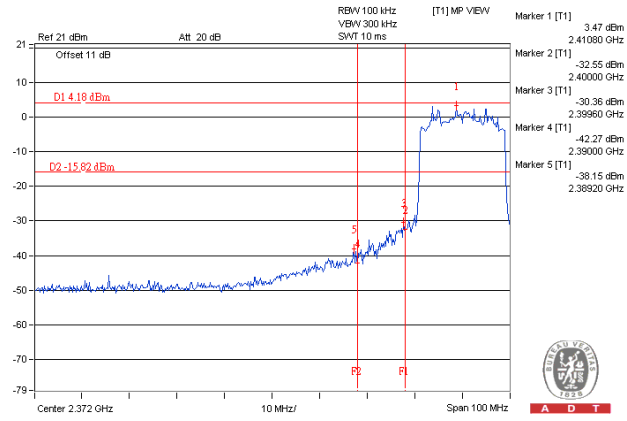


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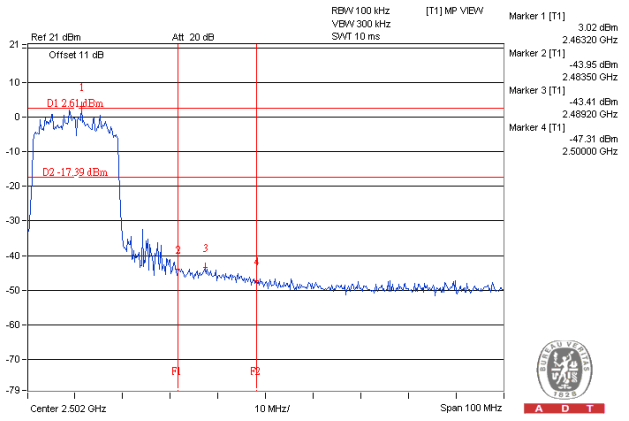




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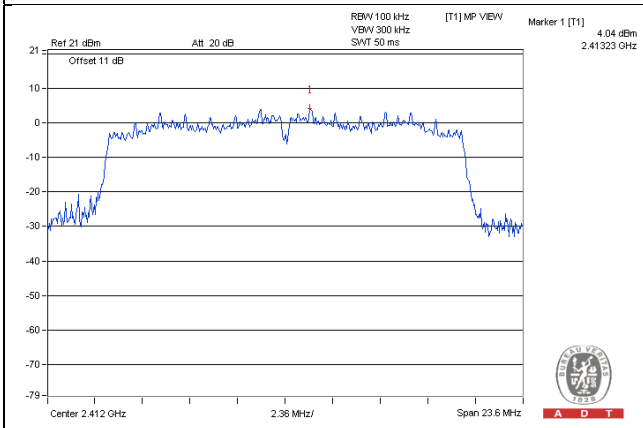


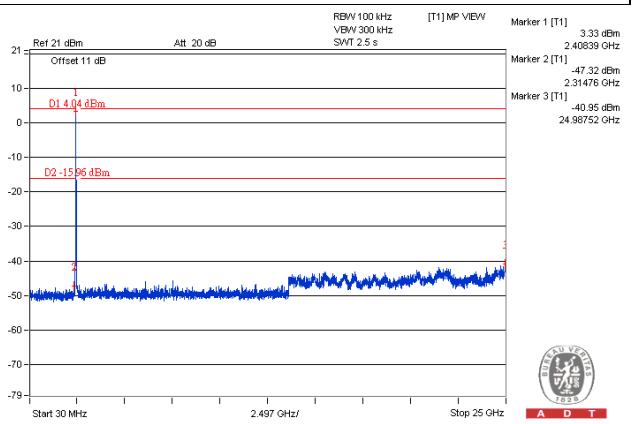
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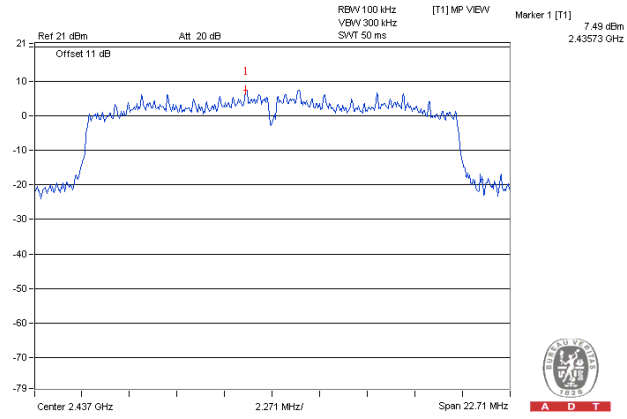
CHAIN 1

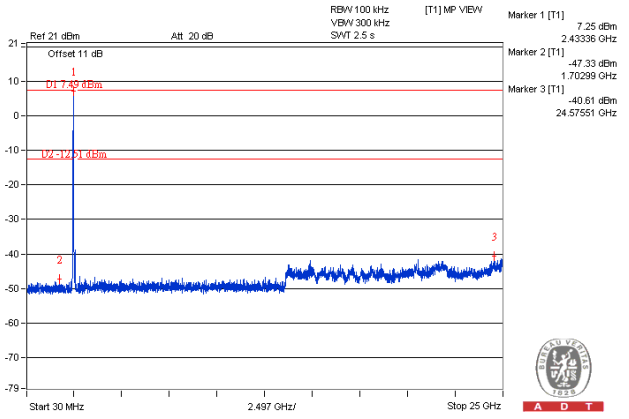
CH 1



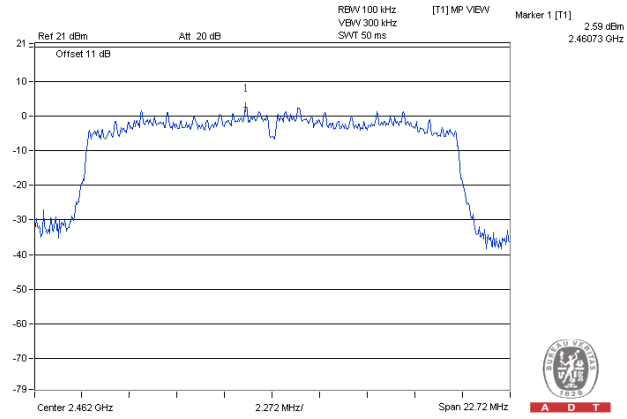


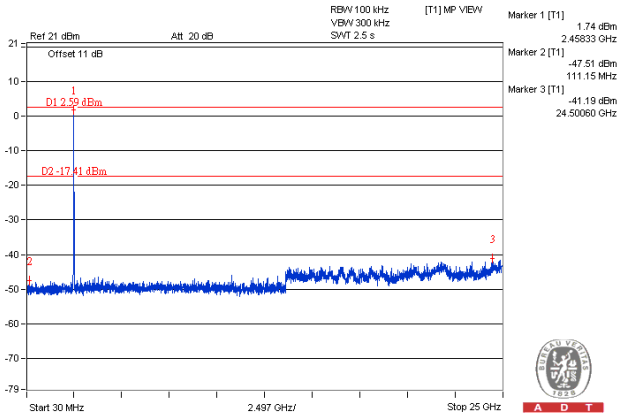
CH 6



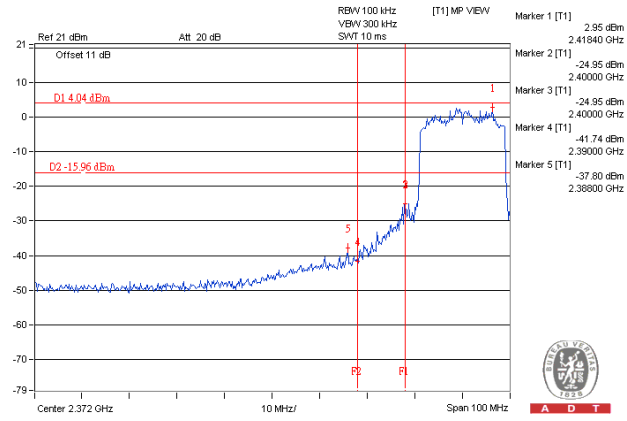


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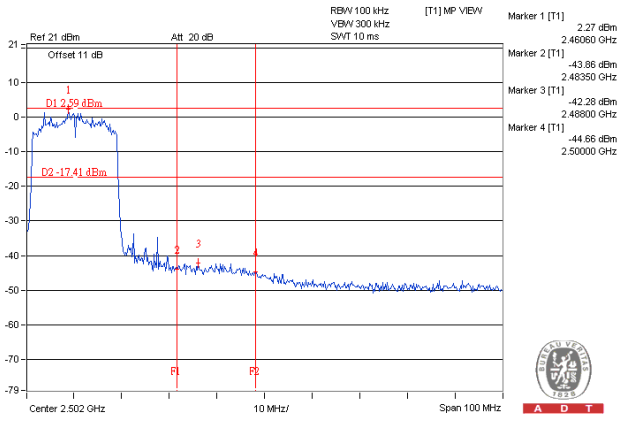




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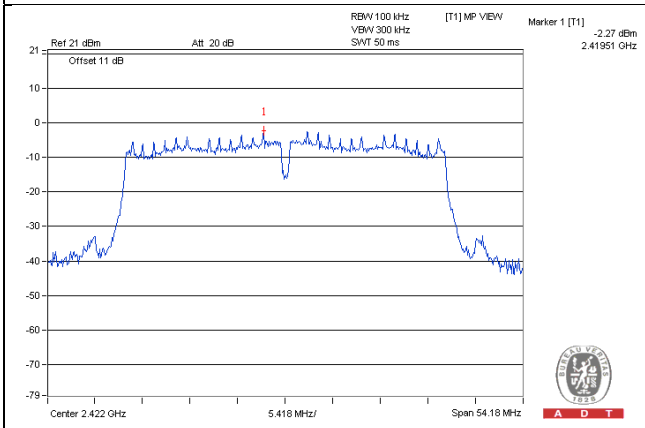


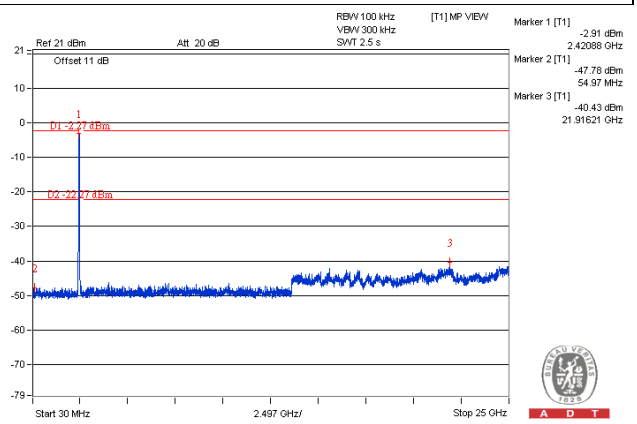
CH 11 Band edge



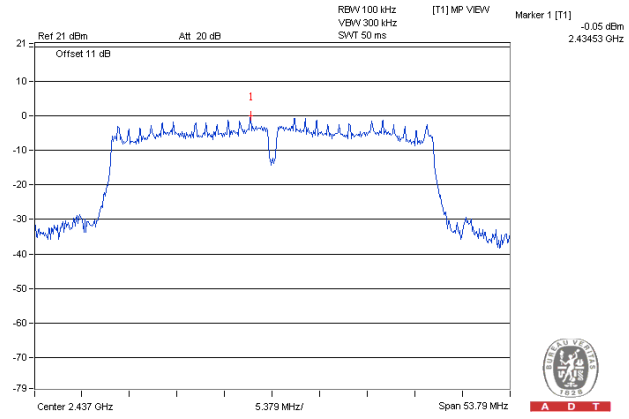
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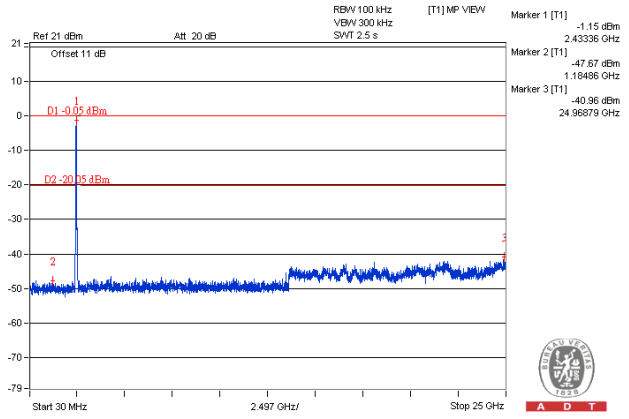
CH 3



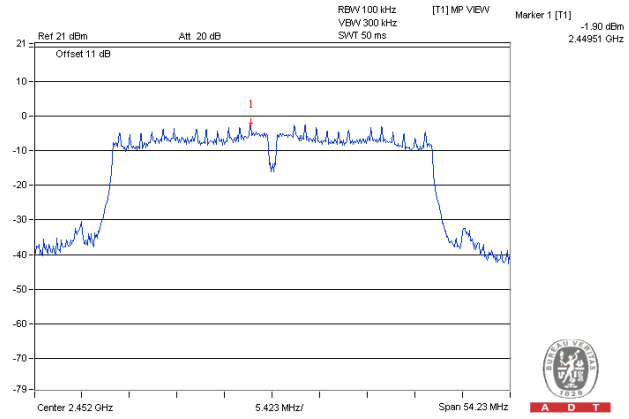


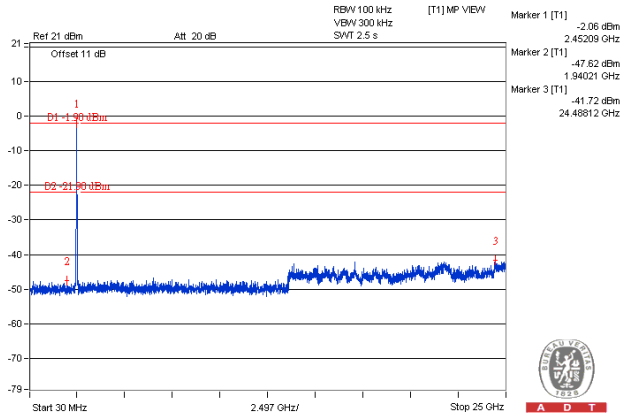
CH 6



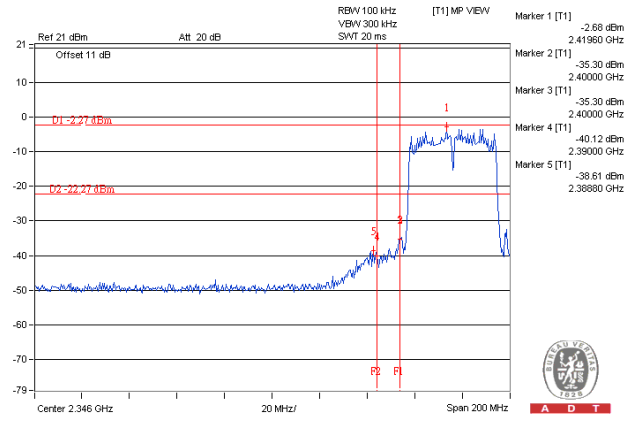


CH 9

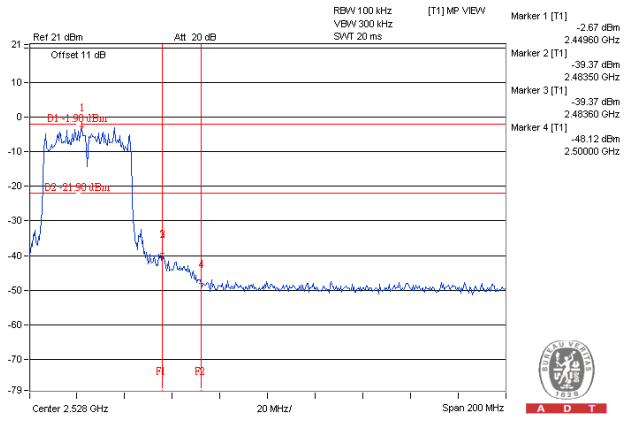




CH 3 Band edge

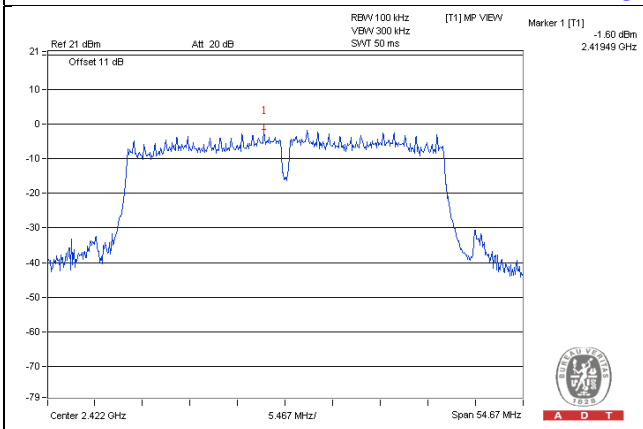


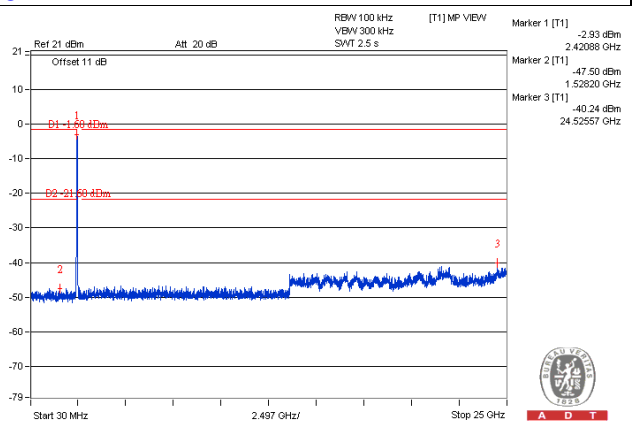
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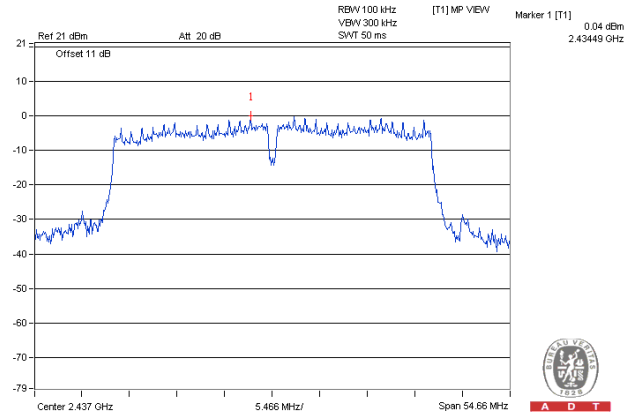
CHAIN 1

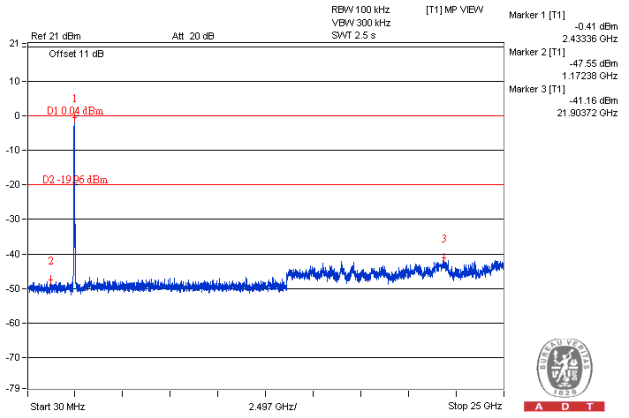
CH 3



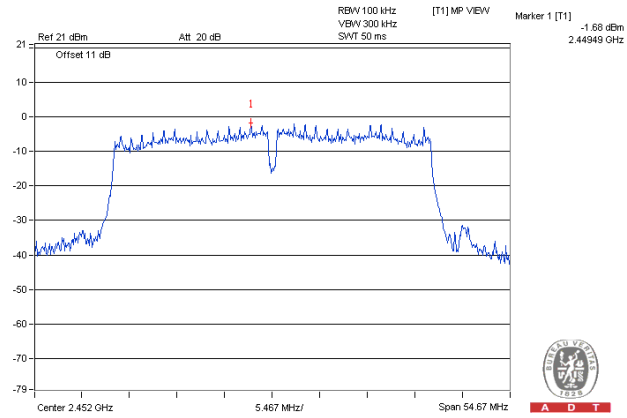


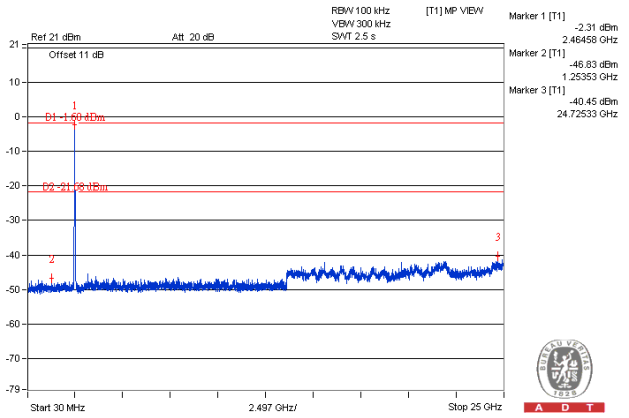
CH 6



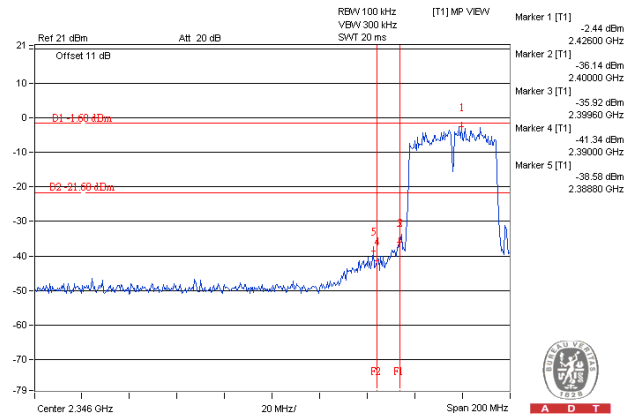


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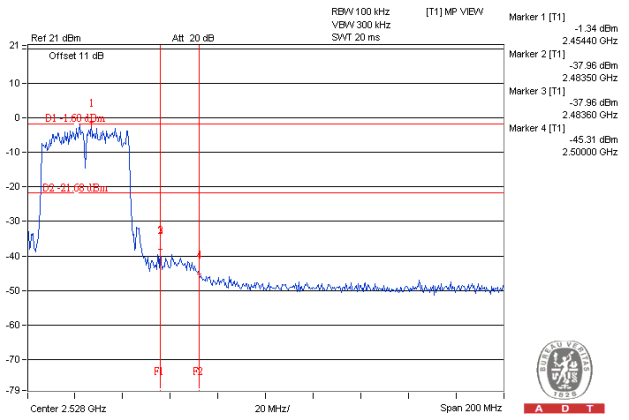




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – 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:

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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.

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