FCC Test Report (WLAN-2.4GHz)

Report No.: RF160509E03

FCC ID: MQT-200I15YXF

Test Model: xCE_E200I-15YXF

Series Model: xCE_E200I-15NXF, xCE_E200I-15YXX, xCE_E200I-15NXX

Received Date: May 09, 2016

Test Date: May 20 to June 07, 2016

Issued Date: Aug. 12, 2016

Applicant: XAC AUTOMATION CORP.

Address: 4F, No. 30, INDUSTRY E. RD. IX, SCIENCE-BASED INDUSTRIAL PARK,HSINCHU,TAIWAN

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
RF160509E03	Original release.	Aug. 12, 2016

1 Certificate of Conformity

Product: Terminal

Brand: XAC

Test Model: xCE_E200I-15YXF

Series Model: xCE_E200I-15NXF, xCE_E200I-15YXX, xCE_E200I-15NXX

Sample Status: ENGINEERING SAMPLE

Applicant: XAC AUTOMATION CORP.

Test Date: May 20 to June 07, 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:** Aug. 12, 2016
Claire Kuan / Specialist

Approved by : _____ , **Date:** Aug. 12, 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 -3.47dB at 0.43516MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2390.00MHz and 2483.50MHz.
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	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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.65 dB
	6GHz ~ 18GHz	3.88 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 (WLAN)

Product	Terminal
Brand	XAC
Test Model	xCE_E200I-15YXF
Series Model	xCE_E200I-15NXF, xCE_E200I-15YXX, xCE_E200I-15NXX
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 24V
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 150Mbps
Operating Frequency	**For 15.247** 2.412 ~ 2.462GHz
	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5 ~ 5.7GHz, 5.745 ~ 5.825GHz
Number of Channel	**For 15.247** 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
	For 15.407 24 for 802.11b, 802.11g, 802.11n (HT20) 11 for 802.11n (HT40)
Output Power	**For 15.247** 802.11n (HT20): 80.168mW
	For 15.407 **5.18 ~ 5.24GHz** 802.11n (HT40): 11.324mW **5.26 ~ 5.32GHz** 802.11n (HT40): 11.429mW **5.5 ~ 5.7GHz** 802.11n (HT40): 7.925mW **5.745 ~ 5.825GHz** 802.11n (HT40): 7.709mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter (Optional) x 1
Data Cable Supplied	NA

Note:

1. All models are listed as below.

Brand	Model	Difference	
XAC	xCE_E200I-15YXF	with Modem	with camera
	xCE_E200I-15YXX		without camera
	xCE_E200I-15NXF	without Modem	with camera
	xCE_E200I-15NXX		without camera

From the above models, model: xCE_E200I-15YXF was the worst case and it was selected as representative model for the test and its data was recorded in this report.

2. There are WLAN and Bluetooth technology used for the EUT.
3. For WLAN: 2.4GHz & 5GHz technology cannot transmit at same time.

4. WLAN and Bluetooth coexistence mode:

Condition	Technology	
1	WLAN (2.4GHz)	Bluetooth
2	WLAN (5GHz)	Bluetooth
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

5. The EUT power needs to be supplied from one power adapter, the information is as below table:

Brand	Model No.	Spec.
FSP GROUP INC	FSP060-DAAN2	Input: 100-240Vac, 1.5A, 50-60Hz Output: 24V, 2.5A DC cable: unshielded, 1.5m with one core

6. The antenna provided to the EUT, please refer to the following table:

Brand	Model	Antenna Type	Connecter Type	Antenna Gain(dBi)	Frequency range
INPAQ	ACM3-5036-A1-CC-S	Chip	NA	3	2.4~2.4835GHz 5.15~5.85GHz

7. The EUT incorporates a SISO function.

2.4GHz			
Modulation Mode	Data Rate (MCS)	Tx & Rx Configuration	
802.11b	1 ~ 11Mbps	1TX	1RX
802.11g	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX
5GHz			
Modulation Mode	Data Rate (MCS)	Tx & Rx Configuration	
802.11a	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX

8. The EUT was pre-tested under following test modes:

Pre-test Mode	Description
Mode A	Adapter (FSP060-DAAN2)
Mode B	Print + Adapter (FSP120-AAAN2)

The worst radiated emission was found in **Mode A**. Therefore only the test data of the modes were recorded in this report.

9. 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	√	√	√	√	EUT with Adapter (FSP060-DAAN2)
2	-	-	√	-	EUT with Print + Adapter (FSP120-AAAN2)

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: 1. "-"means no effect.
2. The EUT's monitor had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-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)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

Power Line Conducted Emission Test:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

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 TestTest Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	JyunChun Lin
RE<1G	23deg. C, 67%RH	120Vac, 60Hz	JyunChun Lin
PLC	24deg. C, 59%RH 25deg. C, 68%RH	120Vac, 60Hz	Bear Lee Arthur Yang
APCM	23deg. C, 65%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98 %, duty factor shall be considered.

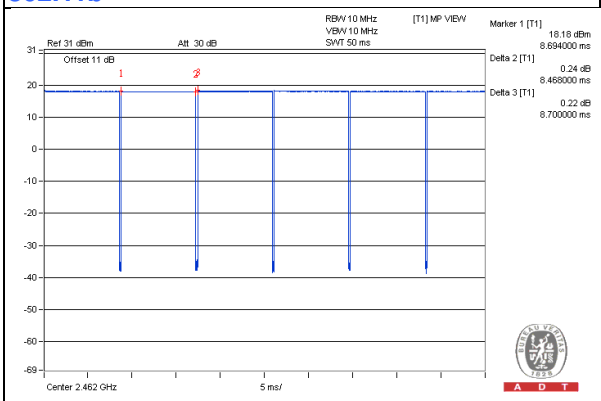
802.11b: Duty cycle = 8.468/8.7 = 0.973, Duty factor = 10 * log(1/0.973) = 0.1

802.11g: Duty cycle = 2.722/3.047 = 89.3, Duty factor = 10 * log(1/0.893) = 0.5

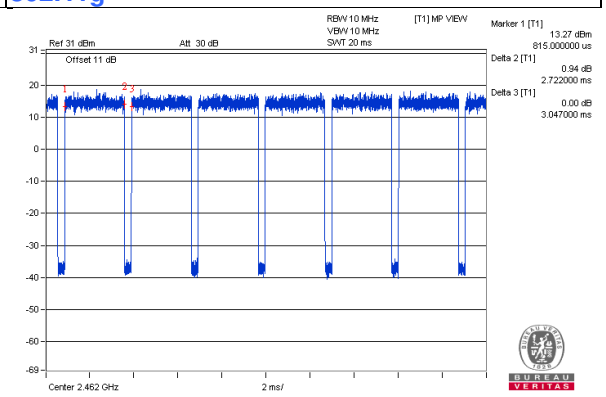
802.11n (HT20): Duty cycle = 2.527/2.867 = 0.881, Duty factor = 10 * log(1/0.881) = 0.5

802.11n (HT40): Duty cycle = 1.239/1.558 = 0.795, Duty factor = 10 * log(1/0.795) = 1

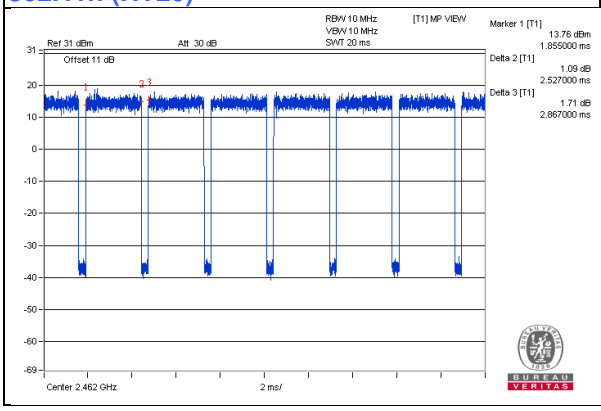
802.11b



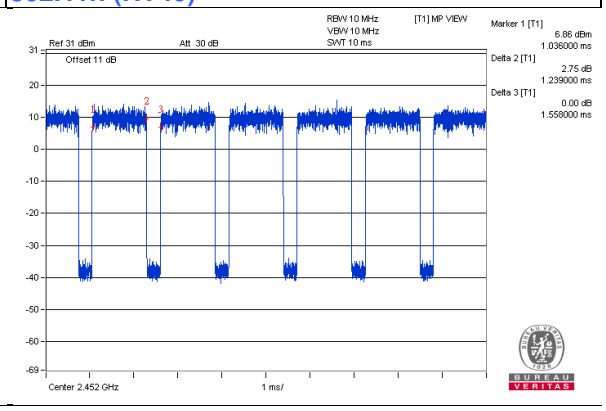
802.11g



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.

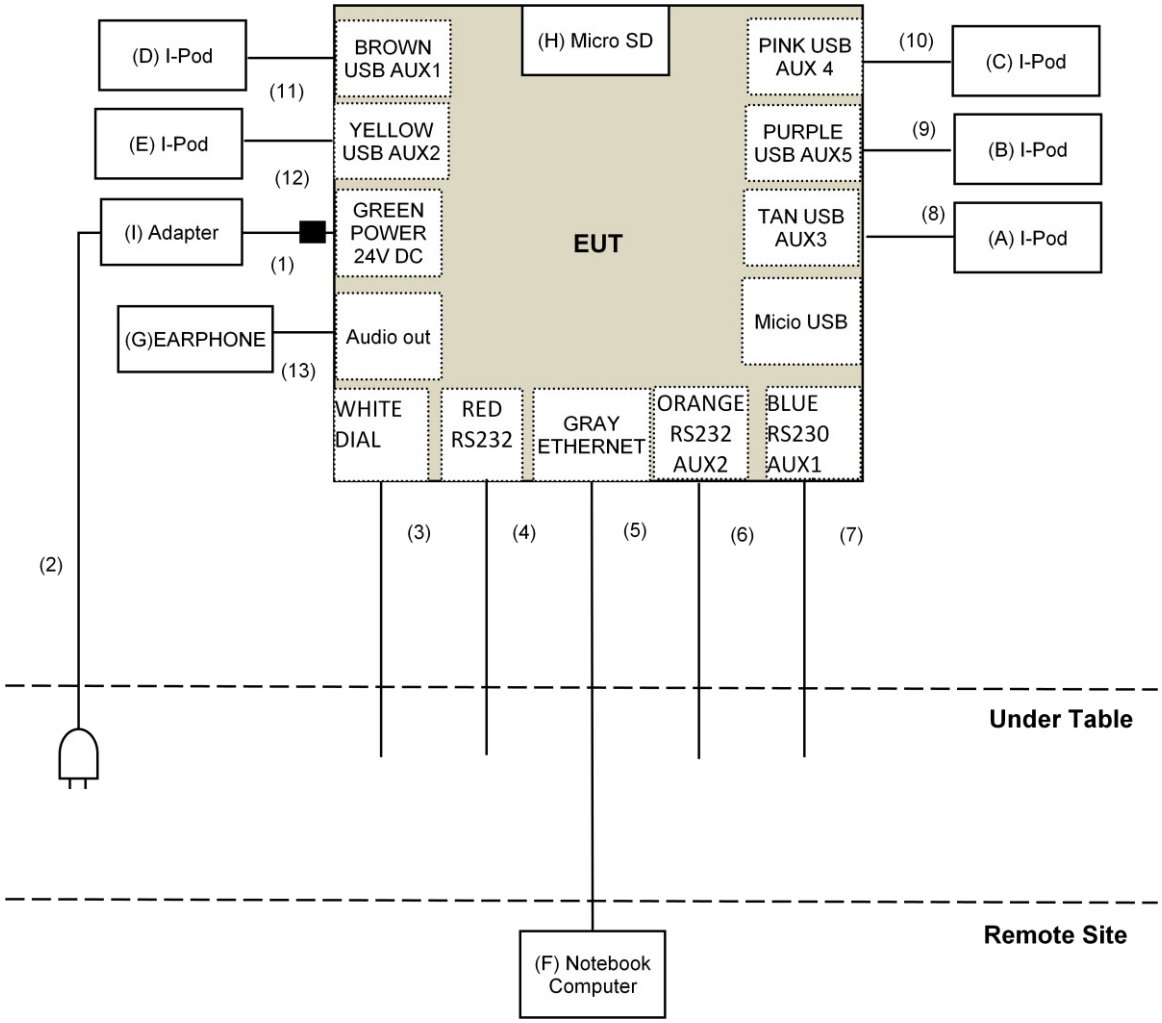
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	iPod	Apple	MD778TA/A	CC4JMCMXF4T1	NA	Prodived by Lab
B.	iPod	Apple	MD778TA/A	CC4JMJU0F4T1	NA	Prodived by Lab
C.	iPod	Apple	MD778TA/A	CC4JD4CDF4T1	NA	Provided by Lab
D.	iPod	Apple	MD778TA/A	CC4JMJV2F4T1	NA	Prodived by Lab
E.	iPod	Apple	MD778TA/A	CC4JMJTYF4T1	NA	Prodived by Lab
F.	Notebook computer	DELL	PP32LA	GSLB32S	FCC DoC	Provided by Lab
G.	Earphone	XAC	TP72-SA	NA	NA	Supplied by client
H.	Micro SD	Sandisk	2G	NA	NA	Provided by Lab
I.	Adapter	FSP GROUP INC	FSP060-DAAN2	NA	NA	Supplied by client
J.	Print	XAC	TP72-SA	NA	NA	Supplied by client
K.	Adapter	FSP GROUP INC	FSP120-AAAN2	NA	NA	Supplied by client

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

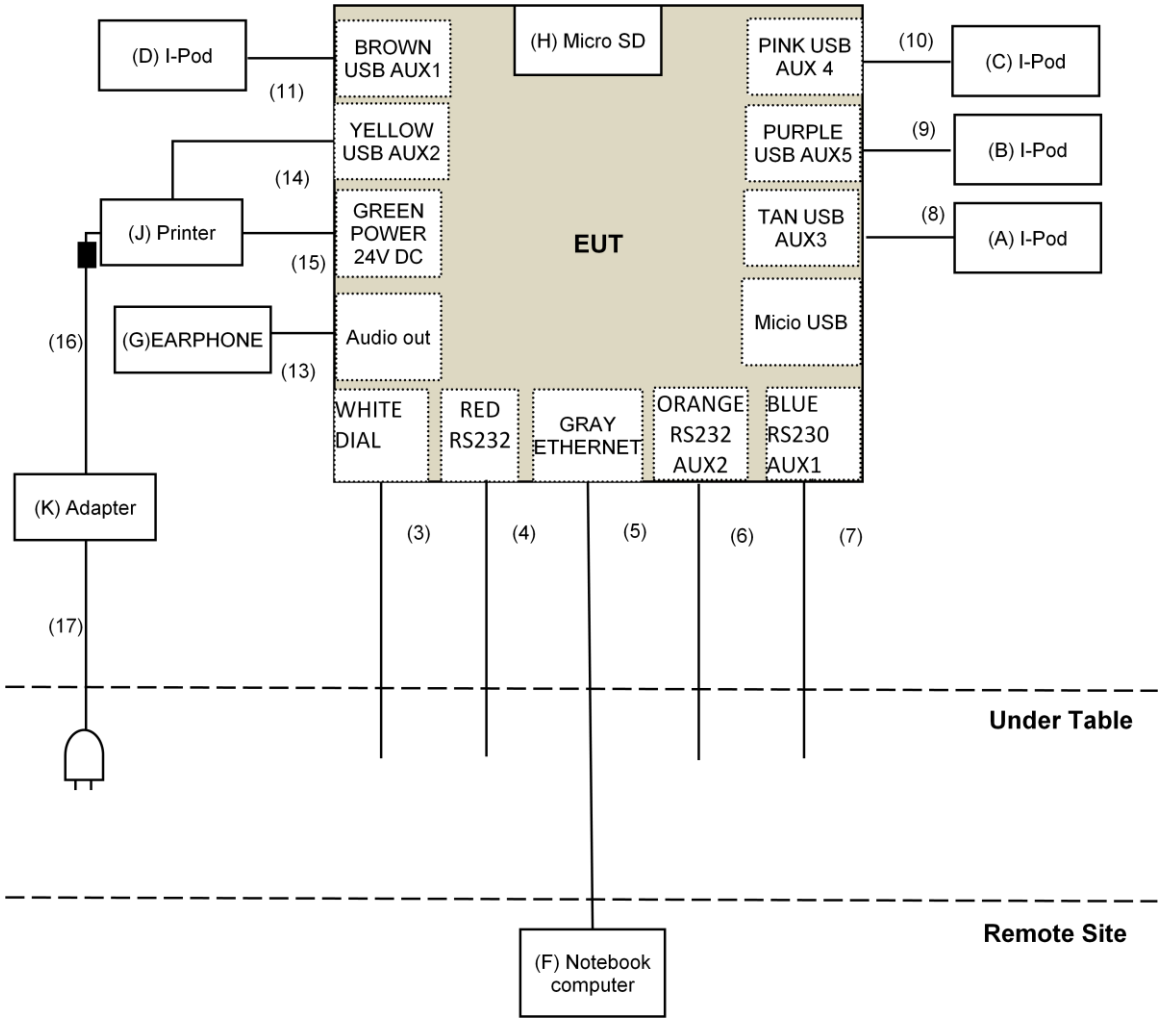
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC	1	1.5	No	1	Supplied by client
2.	AC	1	1.8	No	0	Supplied by client
3.	RJ 11	1	1.5	No	0	Supplied by client
4.	RJ11 To RS232	1	1.5	No	0	Supplied by client
5.	RJ45	1	10	No	0	Provided by Lab
6.	RJ11 To RS232	1	1.5	No	0	Supplied by client
7.	RJ11 To RS232	1	1.5	No	0	Supplied by client
8.	USB	1	0.1	Yes	0	Provided by Lab
9.	USB	1	0.1	Yes	0	Provided by Lab
10.	USB	1	0.1	Yes	0	Provided by Lab
11.	USB	1	0.1	Yes	0	Provided by Lab
12.	USB	1	0.1	Yes	0	Provided by Lab
13.	Audio	1	1.3	No	0	Provided by Lab
14.	USB	1	1.8	Yes	0	Supplied by client
15.	DC	1	1	No	0	Supplied by client
16.	DC	1	1.5	No	1	Supplied by client
17.	AC	1	1.8	No	0	Supplied by client

3.4.1 Configuration of System under Test

ADAPTER MODE



PRINT MODE


(D) I-Pod
(11)
BROWN USB AUX1
(H) Micro SD
PINK USB AUX 4
(10)
(C) I-Pod
YELLOW USB AUX2
PURPLE USB AUX5
(9)
(B) I-Pod
(14)
(J) Printer
GREEN POWER 24V DC
EUT
TAN USB AUX3
(8)
(A) I-Pod
(15)
(16)
(G)EARPHONE
Audio out
Micio USB
(13)
WHITE DIAL
RED RS232
GRAY ETHERNET
ORANGE RS232 AUX2
BLUE RS230 AUX1
(K) Adapter
(3)
(4)
(5)
(6)
(7)
(17)
Under Table
Remote Site
(F) Notebook computer

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
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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	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-03	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D-FB	CHGCAB-001 -1 CHGCAB-001 -2	Oct. 03, 2015	Oct. 02, 2016
	RF-141	CHGCAB-004	Oct. 03, 2015	Oct. 02, 2016
Horn_Antenna AISI	AIH.8018	000032009111 0	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/ 4	Jan. 15, 2016	Jan. 14, 2017
Spectrum Analyzer Agilent	E4446A	MY48250254	Nov. 25, 2015	Nov. 24, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 11, 2015	Dec. 10, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Jan. 18, 2016	Jan. 17, 2017
RF Cable	SUCOFLEX 102	36442/2 36434/2	Dec. 10, 2015	Dec.09, 2016
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	CM100	NA	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-WD01	NA	NA
Spectrum Analyzer R&S	FSP40	100060	May 11, 2016	May 10, 2017

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. G.
3. The FCC Site Registration No. is 966073.
4. The CANADA Site Registration No. is IC 7450H-2.
5. Tested Date: May 20 to June 07, 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:

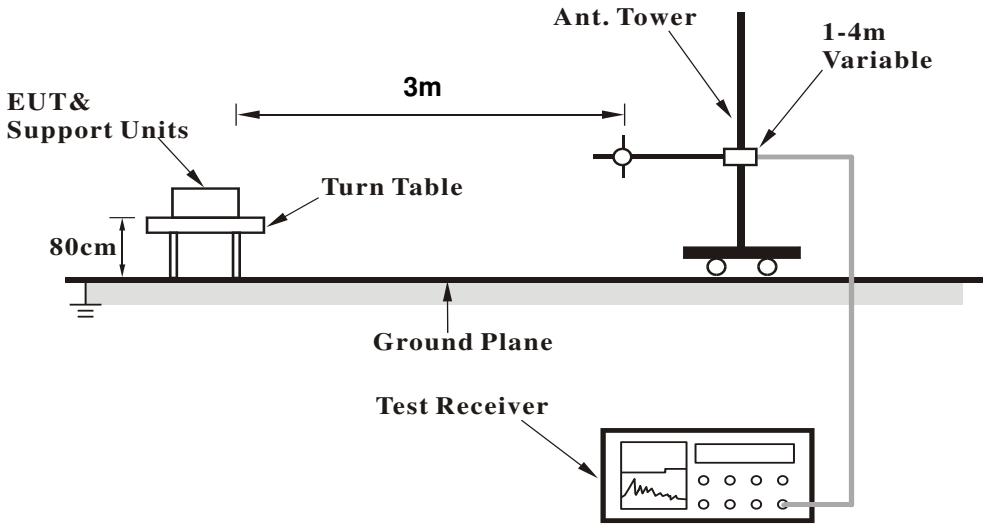
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

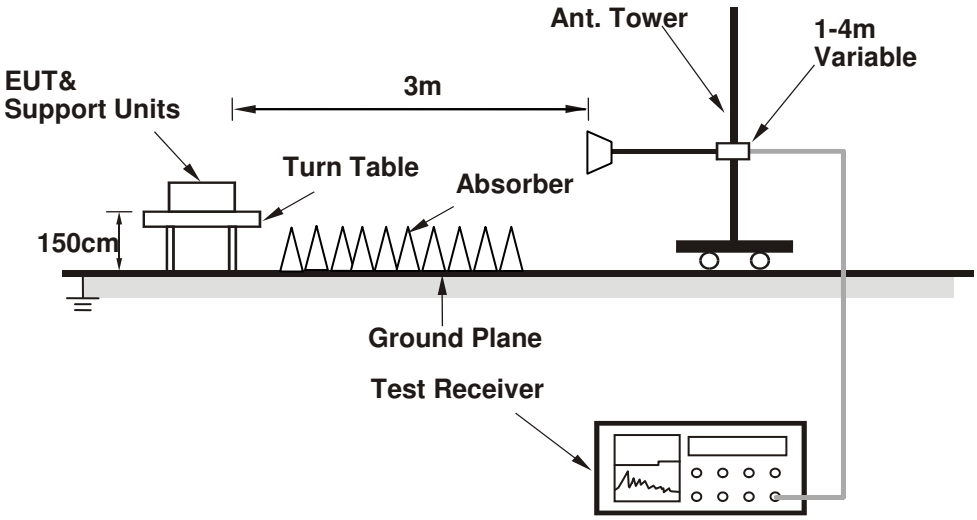
No deviation.

4.1.5 Test Setup

<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

1. Connect the EUT with the support unit F (Notebook Computer) which is placed on remote site.
2. The communication partner run test program “Run hypertrm terminal paste command” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

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	53.1 PK	74.0	-20.9	1.55 H	360	52.5	0.6
2	2390.00	38.8 AV	54.0	-15.2	1.55 H	360	38.2	0.6
3	*2412.00	99.8 PK			1.55 H	360	99.0	0.8
4	*2412.00	97.4 AV			1.55 H	360	96.6	0.8
5	4824.00	54.2 PK	74.0	-19.8	1.57 H	108	45.0	9.2
6	4824.00	47.5 AV	54.0	-6.5	1.57 H	108	38.3	9.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	54.2 PK	74.0	-19.8	2.05 V	120	53.6	0.6
2	2390.00	44.5 AV	54.0	-9.5	2.05 V	120	43.9	0.6
3	*2412.00	107.2 PK			2.05 V	120	106.4	0.8
4	*2412.00	104.7 AV			2.05 V	120	103.9	0.8
5	4824.00	54.8 PK	74.0	-19.2	1.33 V	346	45.6	9.2
6	4824.00	49.3 AV	54.0	-4.7	1.33 V	346	40.1	9.2

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	100.7 PK			1.70 H	360	99.9	0.8
2	*2437.00	97.5 AV			1.70 H	360	96.7	0.8
3	4874.00	54.5 PK	74.0	-19.5	1.59 H	124	45.2	9.3
4	4874.00	47.8 AV	54.0	-6.2	1.59 H	124	38.5	9.3
5	7311.00	58.0 PK	74.0	-16.0	1.65 H	152	41.5	16.5
6	7311.00	46.7 AV	54.0	-7.3	1.65 H	152	30.2	16.5
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	107.1 PK			1.96 V	122	106.3	0.8
2	*2437.00	104.0 AV			1.96 V	122	103.2	0.8
3	4874.00	55.0 PK	74.0	-19.0	1.39 V	339	45.7	9.3
4	4874.00	49.6 AV	54.0	-4.4	1.39 V	339	40.3	9.3
5	7311.00	58.1 PK	74.0	-15.9	1.43 V	50	41.6	16.5
6	7311.00	46.8 AV	54.0	-7.2	1.43 V	50	30.3	16.5

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	99.7 PK			1.60 H	360	98.8	0.9
2	*2462.00	97.1 AV			1.60 H	360	96.2	0.9
3	2483.50	55.8 PK	74.0	-18.2	1.60 H	360	54.9	0.9
4	2483.50	45.3 AV	54.0	-8.7	1.60 H	360	44.4	0.9
5	4924.00	55.0 PK	74.0	-19.0	1.55 H	118	45.6	9.4
6	4924.00	48.3 AV	54.0	-5.7	1.55 H	118	38.9	9.4
7	7386.00	58.1 PK	74.0	-15.9	1.63 H	164	42.1	16.0
8	7386.00	47.1 AV	54.0	-6.9	1.63 H	164	31.1	16.0

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	106.8 PK			2.08 V	131	105.9	0.9
2	*2462.00	103.7 AV			2.08 V	131	102.8	0.9
3	2483.50	57.9 PK	74.0	-16.1	2.08 V	131	57.0	0.9
4	2483.50	51.1 AV	54.0	-2.9	2.08 V	131	50.2	0.9
5	4924.00	55.6 PK	74.0	-18.4	1.42 V	331	46.2	9.4
6	4924.00	50.0 AV	54.0	-4.0	1.42 V	331	40.6	9.4
7	7386.00	58.4 PK	74.0	-15.6	1.43 V	70	42.4	16.0
8	7386.00	46.9 AV	54.0	-7.1	1.43 V	70	30.9	16.0

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	58.1 PK	74.0	-15.9	1.73 H	8	57.5	0.6
2	2390.00	39.5 AV	54.0	-14.5	1.73 H	8	38.9	0.6
3	*2412.00	98.6 PK			1.73 H	8	97.8	0.8
4	*2412.00	88.3 AV			1.73 H	8	87.5	0.8
5	4824.00	51.2 PK	74.0	-22.8	1.54 H	153	42.0	9.2
6	4824.00	40.8 AV	54.0	-13.2	1.54 H	153	31.6	9.2
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	61.0 PK	74.0	-13.0	2.08 V	118	60.4	0.6
2	2390.00	44.1 AV	54.0	-9.9	2.08 V	118	43.5	0.6
3	*2412.00	106.1 PK			2.08 V	118	105.3	0.8
4	*2412.00	95.7 AV			2.08 V	118	94.9	0.8
5	4824.00	51.7 PK	74.0	-22.3	1.55 V	35	42.5	9.2
6	4824.00	43.6 AV	54.0	-10.4	1.55 V	35	34.4	9.2

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	99.1 PK			1.74 H	10	98.3	0.8
2	*2437.00	88.7 AV			1.74 H	10	87.9	0.8
3	4874.00	51.4 PK	74.0	-22.6	1.57 H	129	42.1	9.3
4	4874.00	41.1 AV	54.0	-12.9	1.57 H	129	31.8	9.3
5	7311.00	58.0 PK	74.0	-16.0	1.68 H	147	41.5	16.5
6	7311.00	46.7 AV	54.0	-7.3	1.68 H	147	30.2	16.5
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	105.9 PK			2.09 V	118	105.1	0.8
2	*2437.00	95.8 AV			2.09 V	118	95.0	0.8
3	4874.00	51.4 PK	74.0	-22.6	1.52 V	49	42.1	9.3
4	4874.00	43.5 AV	54.0	-10.5	1.52 V	49	34.2	9.3
5	7311.00	59.5 PK	74.0	-14.5	1.56 V	59	43.0	16.5
6	7311.00	47.8 AV	54.0	-6.2	1.56 V	59	31.3	16.5

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	98.8 PK			1.72 H	15	97.9	0.9
2	*2462.00	88.4 AV			1.72 H	15	87.5	0.9
3	2483.50	58.6 PK	74.0	-15.4	1.72 H	15	57.7	0.9
4	2483.50	40.2 AV	54.0	-13.8	1.72 H	15	39.3	0.9
5	4924.00	52.0 PK	74.0	-22.0	1.57 H	140	42.6	9.4
6	4924.00	41.6 AV	54.0	-12.4	1.57 H	140	32.2	9.4
7	7386.00	58.1 PK	74.0	-15.9	1.69 H	130	42.1	16.0
8	7386.00	46.8 AV	54.0	-7.2	1.69 H	130	30.8	16.0
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	105.5 PK			2.09 V	131	104.6	0.9
2	*2462.00	95.7 AV			2.09 V	131	94.8	0.9
3	2483.50	64.6 PK	74.0	-9.4	2.09 V	131	63.7	0.9
4	2483.50	45.3 AV	54.0	-8.7	2.09 V	131	44.4	0.9
5	4924.00	51.8 PK	74.0	-22.2	1.51 V	38	42.4	9.4
6	4924.00	43.6 AV	54.0	-10.4	1.51 V	38	34.2	9.4
7	7386.00	58.7 PK	74.0	-15.3	1.60 V	80	42.7	16.0
8	7386.00	47.2 AV	54.0	-6.8	1.60 V	80	31.2	16.0

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	58.4 PK	74.0	-15.6	1.79 H	14	57.8	0.6
2	2390.00	39.9 AV	54.0	-14.1	1.79 H	14	39.3	0.6
3	*2412.00	99.4 PK			1.79 H	14	98.6	0.8
4	*2412.00	89.1 AV			1.79 H	14	88.3	0.8
5	4824.00	51.5 PK	74.0	-22.5	1.51 H	124	42.3	9.2
6	4824.00	41.2 AV	54.0	-12.8	1.51 H	124	32.0	9.2
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	2.08 V	121	66.2	0.6
2	2390.00	47.2 AV	54.0	-6.8	2.08 V	121	46.6	0.6
3	*2412.00	106.3 PK			2.08 V	121	105.5	0.8
4	*2412.00	96.1 AV			2.08 V	121	95.3	0.8
5	4824.00	51.8 PK	74.0	-22.2	1.46 V	39	42.6	9.2
6	4824.00	43.7 AV	54.0	-10.3	1.46 V	39	34.5	9.2

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	99.4 PK			1.75 H	3	98.6	0.8
2	*2437.00	89.0 AV			1.75 H	3	88.2	0.8
3	4874.00	51.5 PK	74.0	-22.5	1.53 H	141	42.2	9.3
4	4874.00	41.2 AV	54.0	-12.8	1.53 H	141	31.9	9.3
5	7311.00	58.0 PK	74.0	-16.0	1.65 H	133	41.5	16.5
6	7311.00	47.0 AV	54.0	-7.0	1.65 H	133	30.5	16.5
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	106.6 PK			2.09 V	120	105.8	0.8
2	*2437.00	96.1 AV			2.09 V	120	95.3	0.8
3	4874.00	51.7 PK	74.0	-22.3	1.50 V	36	42.4	9.3
4	4874.00	43.6 AV	54.0	-10.4	1.50 V	36	34.3	9.3
5	7311.00	58.8 PK	74.0	-15.2	1.57 V	67	42.3	16.5
6	7311.00	47.3 AV	54.0	-6.7	1.57 V	67	30.8	16.5

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	99.1 PK			1.77 H	6	98.2	0.9
2	*2462.00	88.8 AV			1.77 H	6	87.9	0.9
3	2483.50	58.7 PK	74.0	-15.3	1.77 H	6	57.8	0.9
4	2483.50	40.2 AV	54.0	-13.8	1.77 H	6	39.3	0.9
5	4924.00	51.0 PK	74.0	-23.0	1.55 H	130	41.6	9.4
6	4924.00	40.8 AV	54.0	-13.2	1.55 H	130	31.4	9.4
7	7386.00	58.7 PK	74.0	-15.3	1.60 H	107	42.7	16.0
8	7386.00	47.2 AV	54.0	-6.8	1.60 H	107	31.2	16.0
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	106.3 PK			2.09 V	130	105.4	0.9
2	*2462.00	95.9 AV			2.09 V	130	95.0	0.9
3	2483.50	69.3 PK	74.0	-4.7	2.09 V	130	68.4	0.9
4	2483.50	47.1 AV	54.0	-6.9	2.09 V	130	46.2	0.9
5	4924.00	51.2 PK	74.0	-22.8	1.51 V	40	41.8	9.4
6	4924.00	43.3 AV	54.0	-10.7	1.51 V	40	33.9	9.4
7	7386.00	58.3 PK	74.0	-15.7	1.58 V	72	42.3	16.0
8	7386.00	47.1 AV	54.0	-6.9	1.58 V	72	31.1	16.0

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	67.5 PK	74.0	-6.5	1.71 H	16	66.9	0.6
2	2390.00	46.6 AV	54.0	-7.4	1.71 H	16	46.0	0.6
3	*2422.00	97.0 PK			1.71 H	16	96.2	0.8
4	*2422.00	86.9 AV			1.71 H	16	86.1	0.8
5	4844.00	51.4 PK	74.0	-22.6	1.53 H	154	42.2	9.2
6	4844.00	40.9 AV	54.0	-13.1	1.53 H	154	31.7	9.2
7	7266.00	58.5 PK	74.0	-15.5	1.57 H	124	41.9	16.6
8	7266.00	47.5 AV	54.0	-6.5	1.57 H	124	30.9	16.6
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**	**1.71 V**	**98**	**73.2**	**0.6**
2	2390.00	52.8 AV	54.0	-1.2	1.71 V	98	52.2	0.6
3	*2422.00	103.2 PK			1.71 V	98	102.4	0.8
4	*2422.00	93.1 AV			1.71 V	98	92.3	0.8
5	4844.00	52.1 PK	74.0	-21.9	1.46 V	22	42.9	9.2
6	4844.00	42.7 AV	54.0	-11.3	1.46 V	22	33.5	9.2
7	7266.00	58.6 PK	74.0	-15.4	1.51 V	67	42.0	16.6
8	7266.00	47.4 AV	54.0	-6.6	1.51 V	67	30.8	16.6

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	61.8 PK	74.0	-12.2	1.71 H	12	61.2	0.6
2	2390.00	40.2 AV	54.0	-13.8	1.71 H	12	39.6	0.6
3	*2437.00	97.5 PK			1.71 H	12	96.7	0.8
4	*2437.00	87.6 AV			1.71 H	12	86.8	0.8
5	2483.50	62.1 PK	74.0	-11.9	1.71 H	12	61.2	0.9
6	2483.50	40.8 AV	54.0	-13.2	1.71 H	12	39.9	0.9
7	4874.00	51.5 PK	74.0	-22.5	1.51 H	151	42.2	9.3
8	4874.00	41.1 AV	54.0	-12.9	1.51 H	151	31.8	9.3
9	7311.00	59.2 PK	74.0	-14.8	1.65 H	113	42.7	16.5
10	7311.00	47.8 AV	54.0	-6.2	1.65 H	113	31.3	16.5
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	68.3 PK	74.0	-5.7	1.70 V	124	67.7	0.6
2	2390.00	44.2 AV	54.0	-9.8	1.70 V	124	43.6	0.6
3	*2437.00	103.7 PK			1.70 V	124	102.9	0.8
4	*2437.00	93.9 AV			1.70 V	124	93.1	0.8
5	2483.50	66.3 PK	74.0	-7.7	1.70 V	124	65.4	0.9
6	2483.50	45.6 AV	54.0	-8.4	1.70 V	124	44.7	0.9
7	4874.00	52.1 PK	74.0	-21.9	1.45 V	32	42.8	9.3
8	4874.00	42.1 AV	54.0	-11.9	1.45 V	32	32.8	9.3
9	7311.00	58.5 PK	74.0	-15.5	1.45 V	75	42.0	16.5
10	7311.00	47.3 AV	54.0	-6.7	1.45 V	75	30.8	16.5

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	96.2 PK			1.75 H	18	95.3	0.9
2	*2452.00	86.4 AV			1.75 H	18	85.5	0.9
3	2483.50	67.6 PK	74.0	-6.4	1.75 H	18	66.7	0.9
4	2483.50	45.9 AV	54.0	-8.1	1.75 H	18	45.0	0.9
5	4904.00	51.5 PK	74.0	-22.5	1.55 H	138	42.1	9.4
6	4904.00	41.0 AV	54.0	-13.0	1.55 H	138	31.6	9.4
7	7356.00	58.6 PK	74.0	-15.4	1.62 H	122	42.4	16.2
8	7356.00	47.3 AV	54.0	-6.7	1.62 H	122	31.1	16.2
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	102.5 PK			2.01 V	121	101.6	0.9
2	*2452.00	92.7 AV			2.01 V	121	91.8	0.9
3	**2483.50**	**73.8 PK**	**74.0**	**-0.2**	**2.01 V**	**121**	**72.9**	**0.9**
4	2483.50	52.1 AV	54.0	-1.9	2.01 V	121	51.2	0.9
5	4904.00	52.3 PK	74.0	-21.7	1.41 V	36	42.9	9.4
6	4904.00	42.6 AV	54.0	-11.4	1.41 V	36	33.2	9.4
7	7356.00	58.3 PK	74.0	-15.7	1.48 V	64	42.1	16.2
8	7356.00	47.2 AV	54.0	-6.8	1.48 V	64	31.0	16.2

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

802.11n (HT20)

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	464.03	42.3 QP	46.0	-3.7	1.00 H	121	44.4	-2.1
2	544.03	40.9 QP	46.0	-5.1	1.00 H	346	41.5	-0.6
3	560.03	40.6 QP	46.0	-5.4	1.50 H	240	40.9	-0.3
4	584.04	40.1 QP	46.0	-5.9	1.50 H	21	39.8	0.3
5	640.03	41.6 QP	46.0	-4.4	1.50 H	360	39.8	1.8
6	656.01	40.1 QP	46.0	-5.9	1.50 H	360	38.3	1.8
7	680.05	41.4 QP	46.0	-4.6	2.00 H	325	39.2	2.2
8	726.02	40.8 QP	46.0	-5.2	1.00 H	248	38.0	2.8
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	96.01	34.9 QP	43.5	-8.6	1.00 V	319	48.1	-13.2
2	448.02	40.5 QP	46.0	-5.5	1.00 V	328	42.9	-2.4
3	512.02	41.1 QP	46.0	-4.9	1.00 V	322	42.3	-1.2
4	560.03	41.0 QP	46.0	-5.0	1.00 V	360	41.3	-0.3
5	640.03	40.4 QP	46.0	-5.6	1.00 V	327	38.6	1.8
6	656.04	40.4 QP	46.0	-5.6	1.00 V	145	38.6	1.8
7	680.05	40.4 QP	46.0	-5.6	1.50 V	0	38.2	2.2
8	726.02	41.0 QP	46.0	-5.0	1.50 V	0	38.2	2.8

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 09, 2016	May 08, 2017
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
10 dB PAD Mini-Circuits	HAT-10+	CONATT-002	Sep. 14, 2015	Sep. 13, 2016
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: May 24 to June 06, 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.

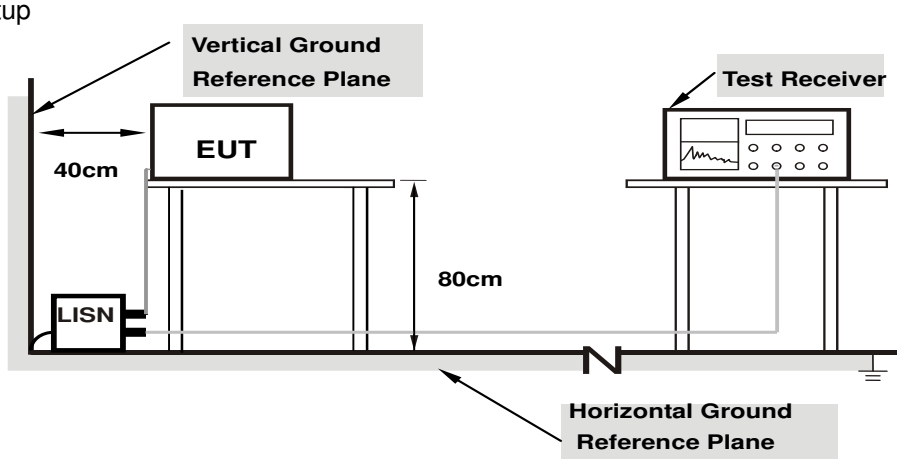
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

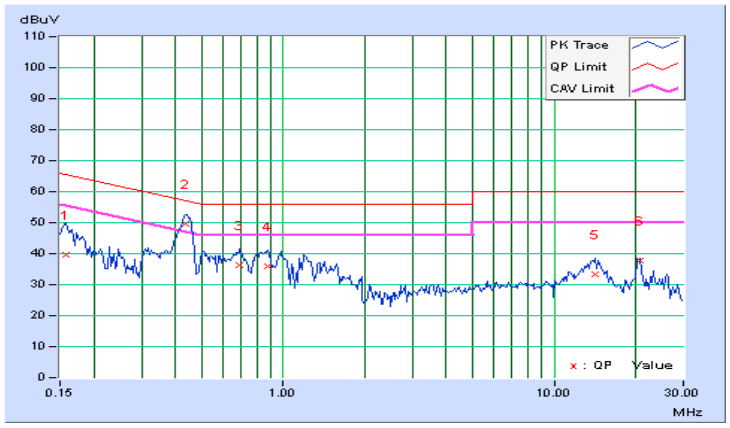
4.2.7 Test Results (Mode 1)

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.32	29.37	14.90	39.69	25.22	65.58	55.58	-25.89	-30.36
2	**0.43516**	**10.30**	**39.48**	**33.38**	**49.78**	**43.68**	**57.15**	**47.15**	**-7.37**	**-3.47**
3	0.68906	10.27	26.02	21.52	36.29	31.79	56.00	46.00	-19.71	-14.21
4	0.87266	10.24	25.86	20.68	36.10	30.92	56.00	46.00	-19.90	-15.08
5	14.12891	10.75	22.55	17.51	33.30	28.26	60.00	50.00	-26.70	-21.74
6	20.80859	10.97	26.75	24.44	37.72	35.41	60.00	50.00	-22.28	-14.59

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

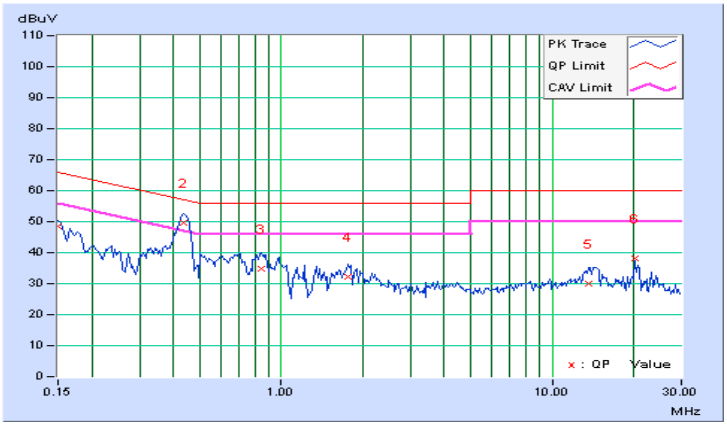


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.30	38.06	23.10	48.36	33.40	66.00	56.00	-17.64	-22.60
2	0.43516	10.28	39.37	33.13	49.65	43.41	57.15	47.15	-7.50	-3.74
3	0.84922	10.24	24.43	19.84	34.67	30.08	56.00	46.00	-21.33	-15.92
4	1.76172	10.25	21.96	17.50	32.21	27.75	56.00	46.00	-23.79	-18.25
5	13.64453	10.74	19.34	12.60	30.08	23.34	60.00	50.00	-29.92	-26.66
6	20.25781	10.99	27.14	25.29	38.13	36.28	60.00	50.00	-21.87	-13.72

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



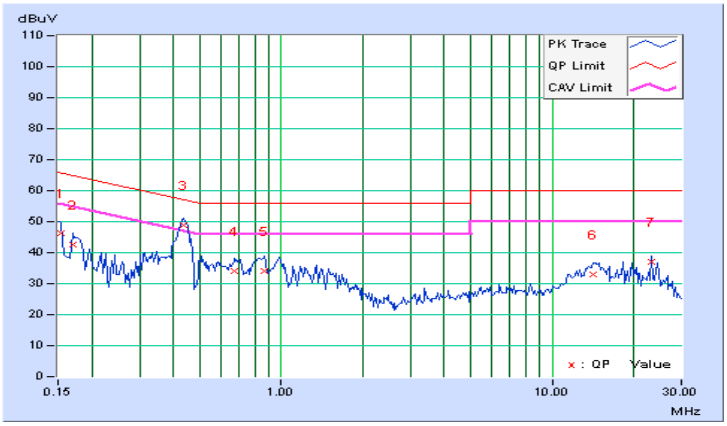
4.2.8 Test Results (Mode 2)

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.32	36.15	21.12	46.47	31.44	65.79	55.79	-19.32	-24.35
2	0.16953	10.31	32.46	17.42	42.77	27.73	64.98	54.98	-22.21	-27.25
3	0.43516	10.30	38.56	33.08	48.86	43.38	57.15	47.15	-8.29	-3.77
4	0.67344	10.27	23.64	18.20	33.91	28.47	56.00	46.00	-22.09	-17.53
5	0.86484	10.25	23.90	18.40	34.15	28.65	56.00	46.00	-21.85	-17.35
6	14.23047	10.75	22.23	15.76	32.98	26.51	60.00	50.00	-27.02	-23.49
7	23.12891	11.04	26.15	23.42	37.19	34.46	60.00	50.00	-22.81	-15.54

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

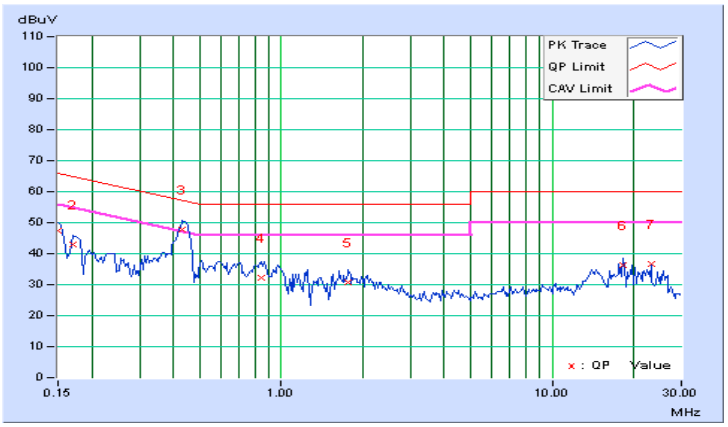


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.30	37.22	23.51	47.52	33.81	66.00	56.00	-18.48	-22.19
2	0.16953	10.29	32.53	18.20	42.82	28.49	64.98	54.98	-22.16	-26.49
3	0.43125	10.28	37.52	32.20	47.80	42.48	57.23	47.23	-9.43	-4.75
4	0.84531	10.24	22.02	16.51	32.26	26.75	56.00	46.00	-23.74	-19.25
5	1.76953	10.25	20.63	15.24	30.88	25.49	56.00	46.00	-25.12	-20.51
6	18.24219	10.92	25.42	23.00	36.34	33.92	60.00	50.00	-23.66	-16.08
7	23.12891	11.06	25.53	22.23	36.59	33.29	60.00	50.00	-23.41	-16.71

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

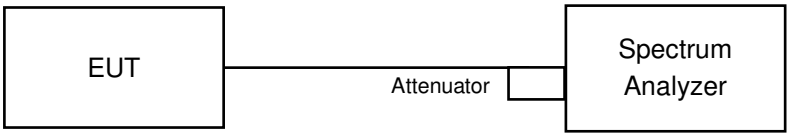


4.3 6dB Bandwidth Measurement

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 Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	10.11	0.5	PASS
6	2437	10.10	0.5	PASS
11	2462	10.10	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.19	0.5	PASS
6	2437	15.16	0.5	PASS
11	2462	15.12	0.5	PASS

802.11n (HT20)

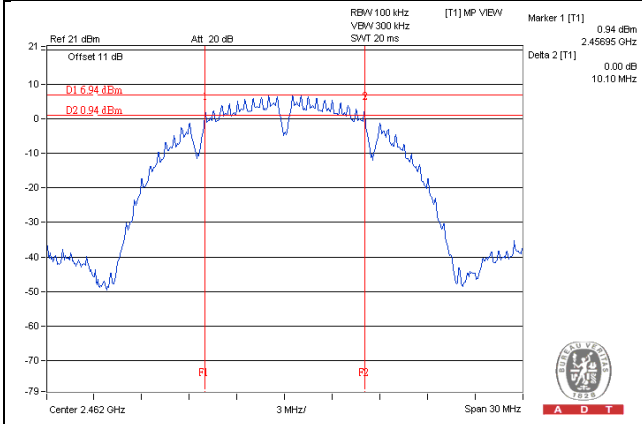
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.19	0.5	PASS
6	2437	15.16	0.5	PASS
11	2462	15.16	0.5	PASS

802.11n (HT40)

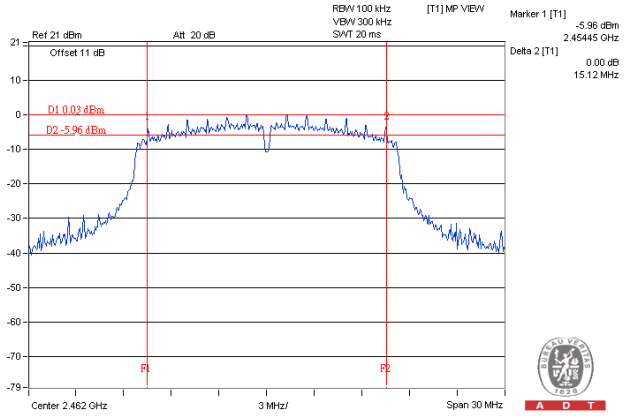
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.19	0.5	PASS
6	2437	35.20	0.5	PASS
9	2452	35.20	0.5	PASS

Spectrum Plot of Worst Value

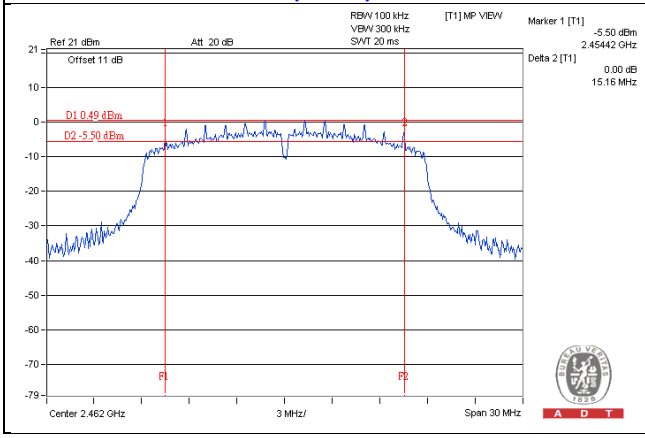
802.11b / CH11



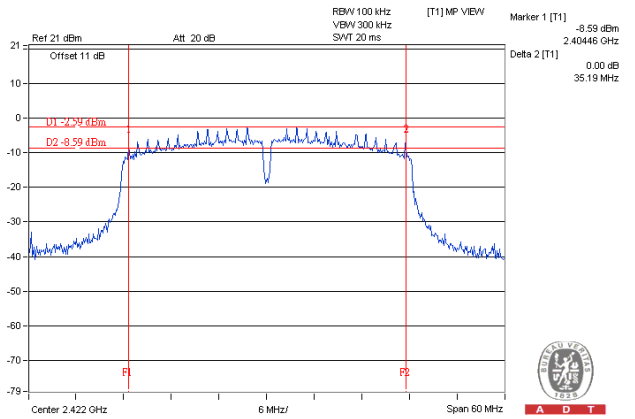
802.11g / CH11



802.11n (HT20) / CH11



802.11n (HT40) / CH3

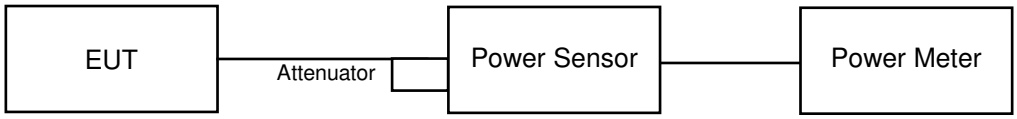


4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	54.702	17.38	30	Pass
6	2437	52.602	17.21	30	Pass
11	2462	56.885	17.55	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	75.683	18.79	30	Pass
6	2437	75.162	18.76	30	Pass
11	2462	71.45	18.54	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	72.778	18.62	30	Pass
6	2437	80.168	19.04	30	Pass
11	2462	72.277	18.59	30	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	71.45	18.54	30	Pass
6	2437	74.989	18.75	30	Pass
9	2452	70.307	18.47	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	36.813	15.66
6	2437	34.834	15.42
11	2462	38.107	15.81

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	12.823	11.08
6	2437	12.972	11.13
11	2462	12.706	11.04

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	12.942	11.12
6	2437	13.213	11.21
11	2462	13.122	11.18

802.11n (HT40)

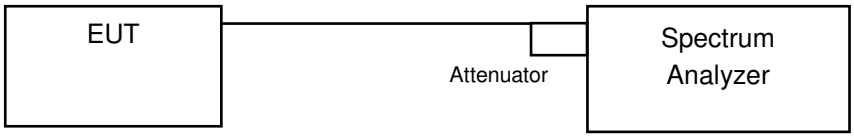
Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	11.803	10.72
6	2437	13.868	11.42
9	2452	11.066	10.44

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 analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

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

Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-8.23	8	Pass
6	2437	-7.49	8	Pass
11	2462	-7.84	8	Pass

802.11g

Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-13.75	8	Pass
6	2437	-13.68	8	Pass
11	2462	-14.25	8	Pass

802.11n (HT20)

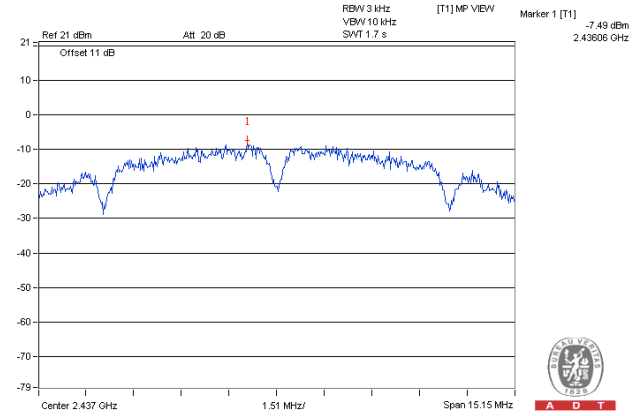
Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-15.01	8	Pass
6	2437	-13.69	8	Pass
11	2462	-14.10	8	Pass

802.11n (HT40)

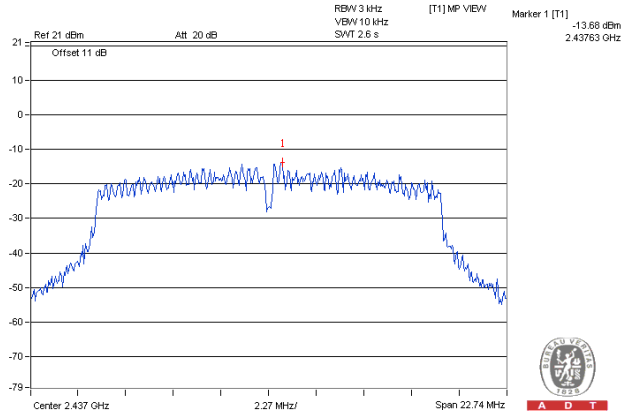
Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-17.80	8	Pass
6	2437	-17.27	8	Pass
9	2452	-18.42	8	Pass

Spectrum Plot of Worst Value

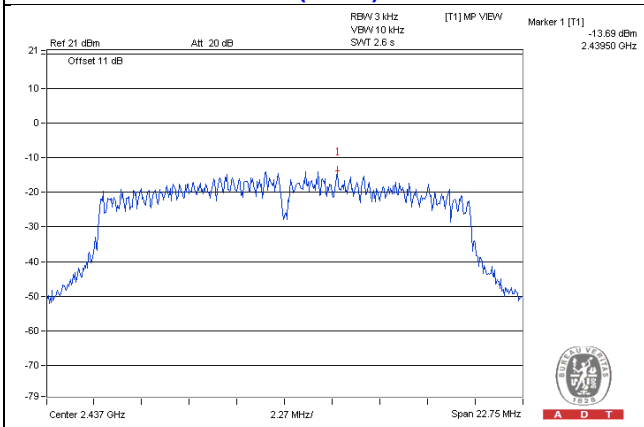
802.11b / CH6



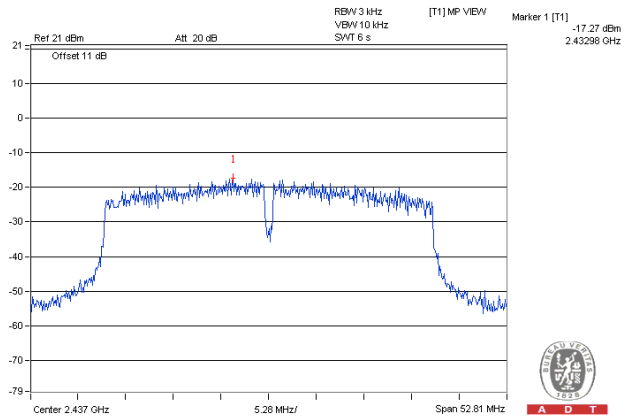
802.11g / CH6



802.11n (HT20) / CH6



802.11n (HT40) / CH6

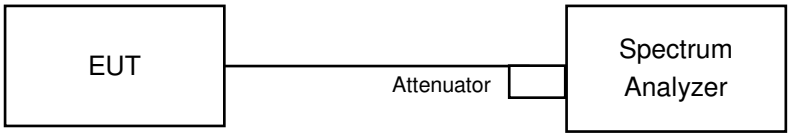


4.6 Conducted Out of Band Emission Measurement

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

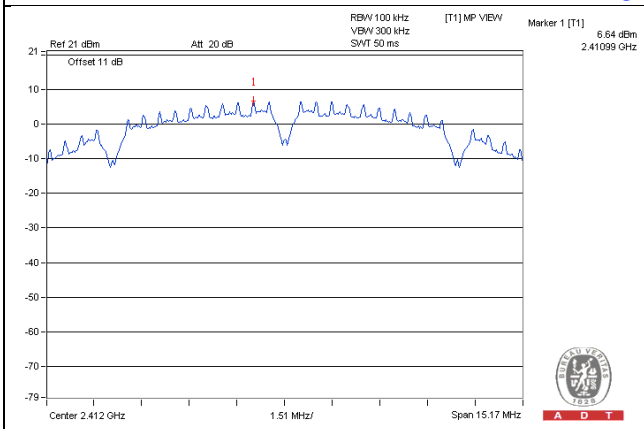
Same as Item 4.3.6

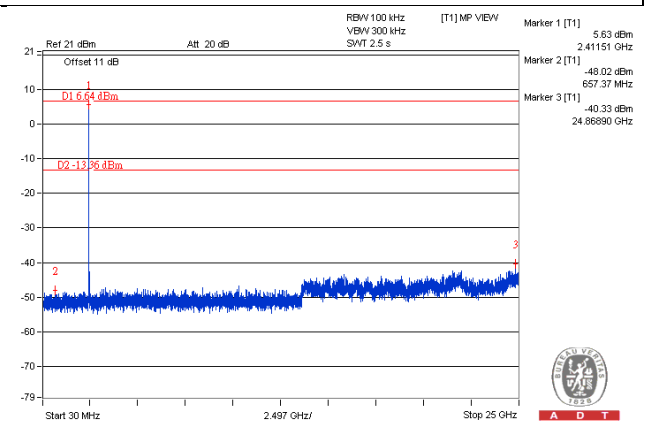
4.6.7 Test Results

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.

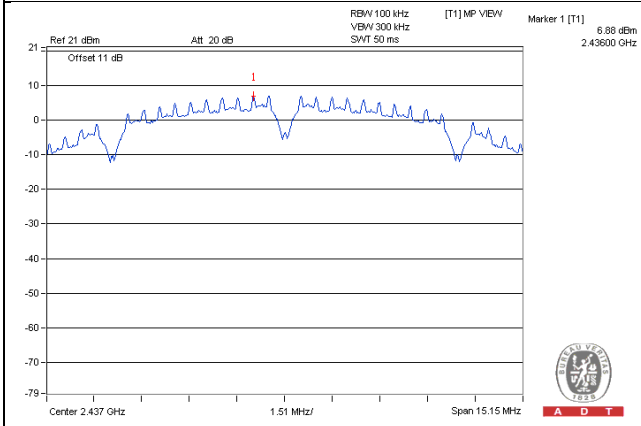
802.11b

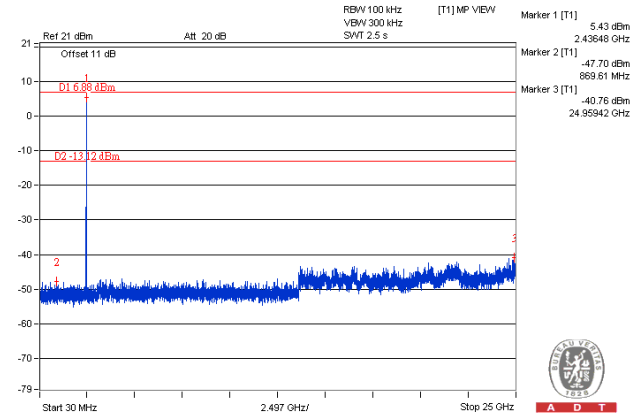
CH 1



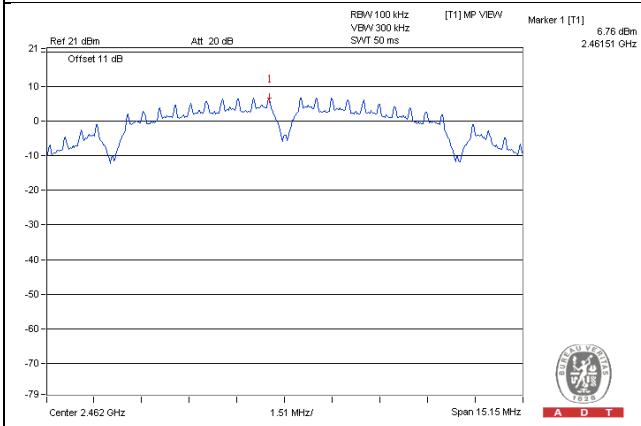


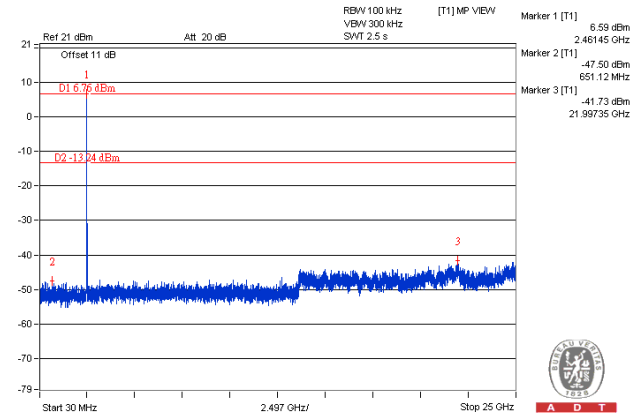
CH 6



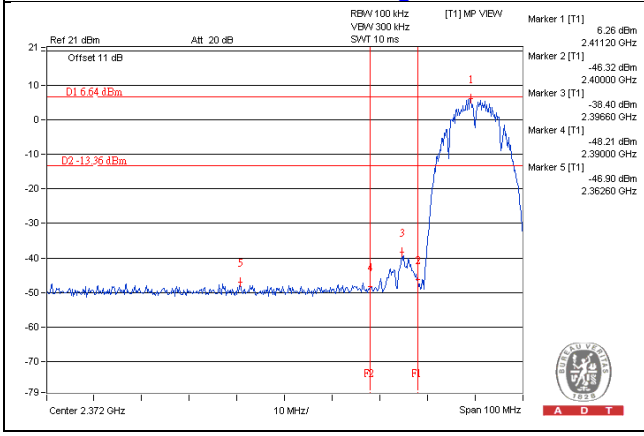


CH 11

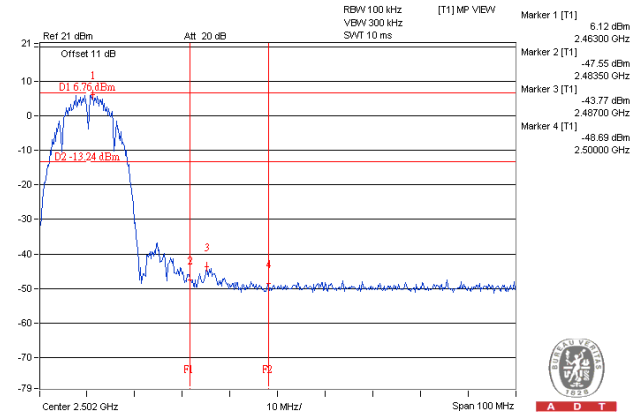




CH 1 Band edge

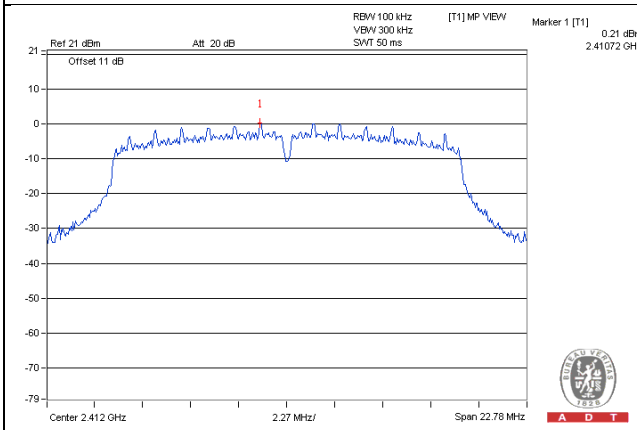


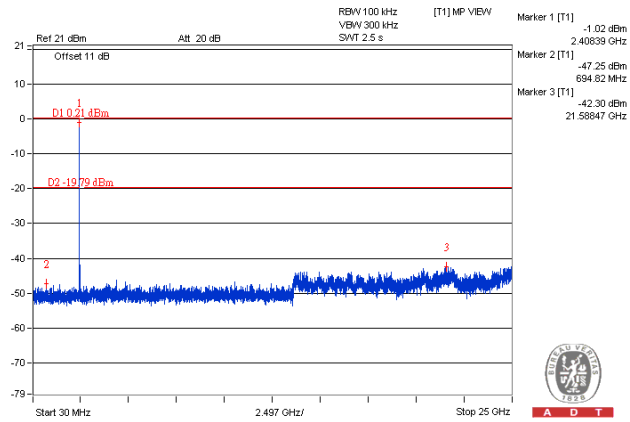
CH 11 Band edge



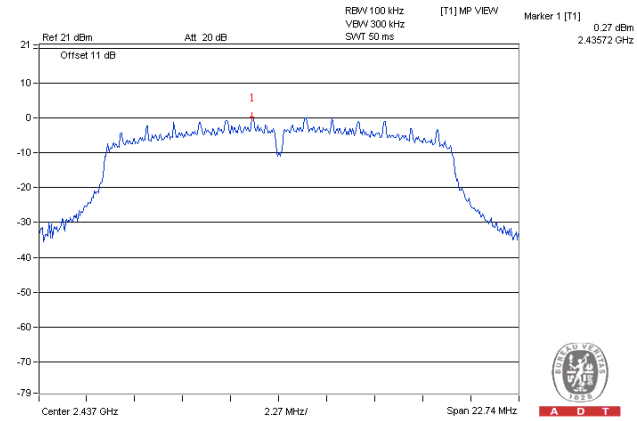
802.11g

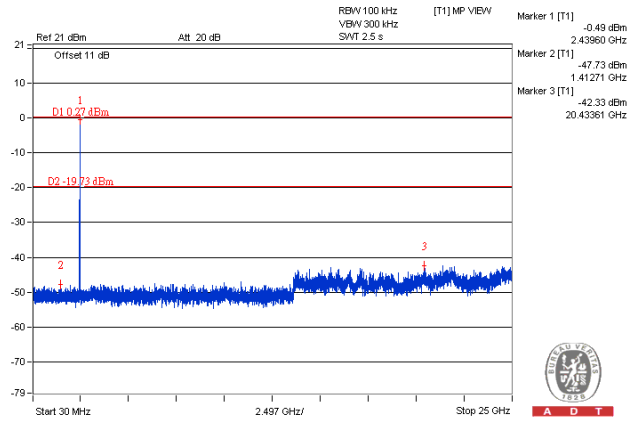
CH 1



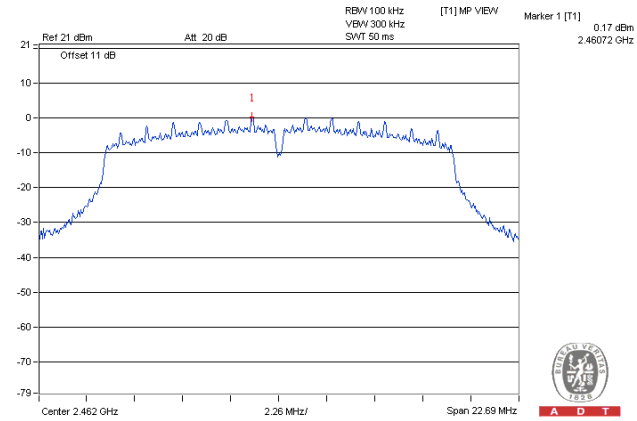


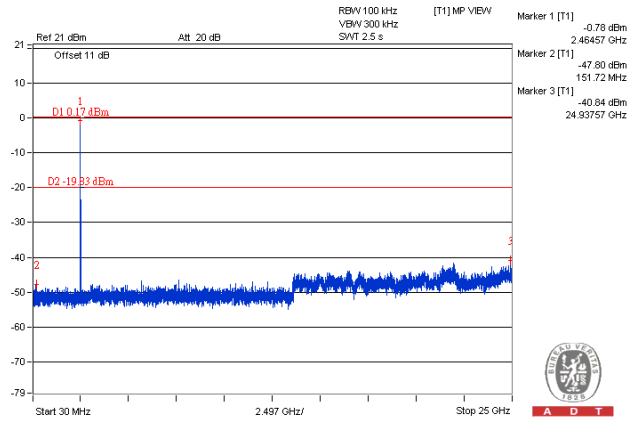
CH 6



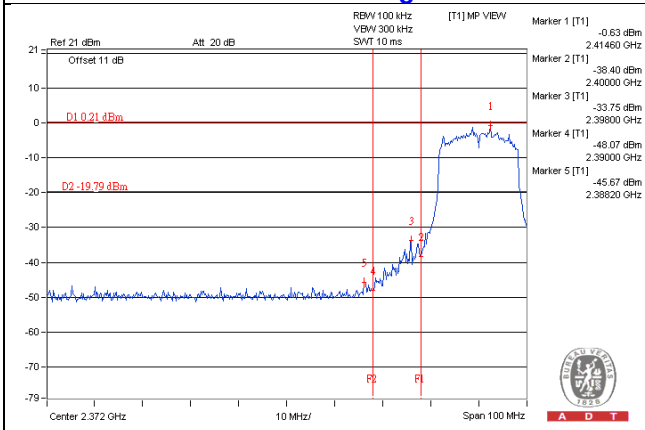


CH 11

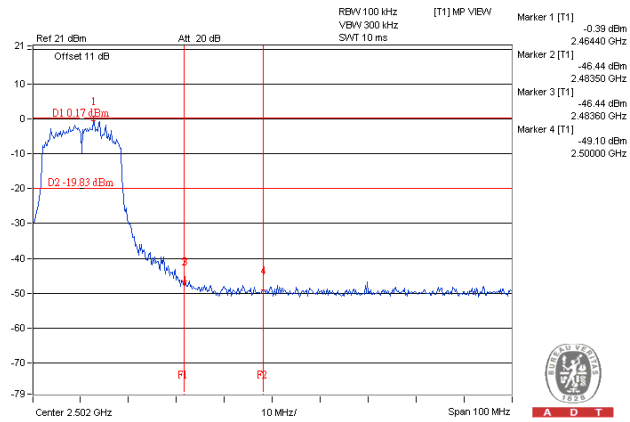




CH 1 Band edge

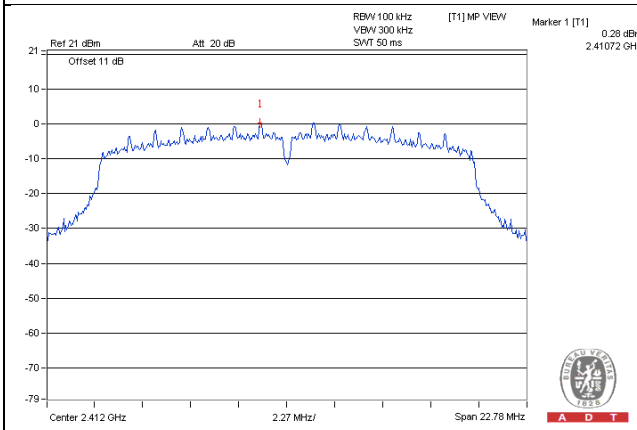


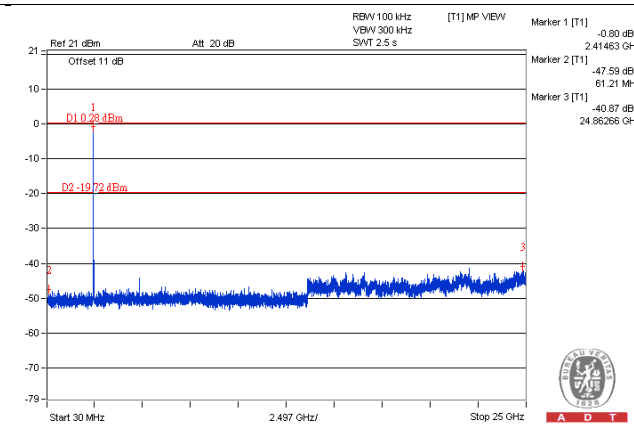
CH 11 Band edge



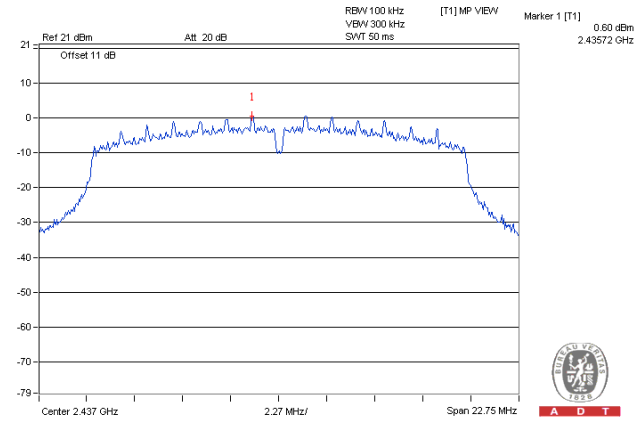
802.11n (HT20)

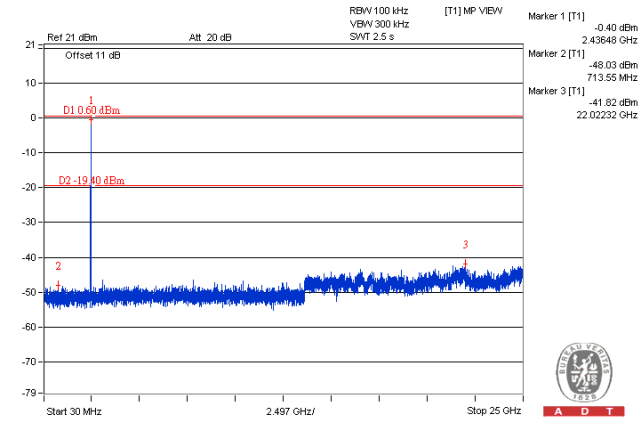
CH 1



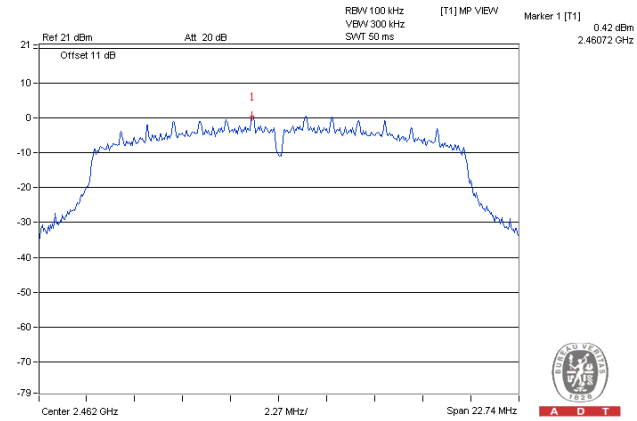


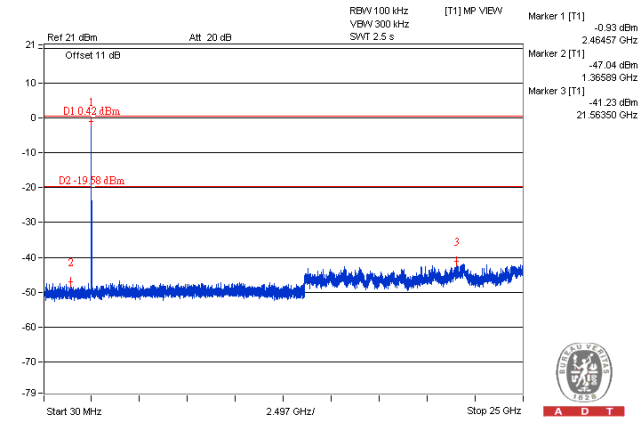
CH 6



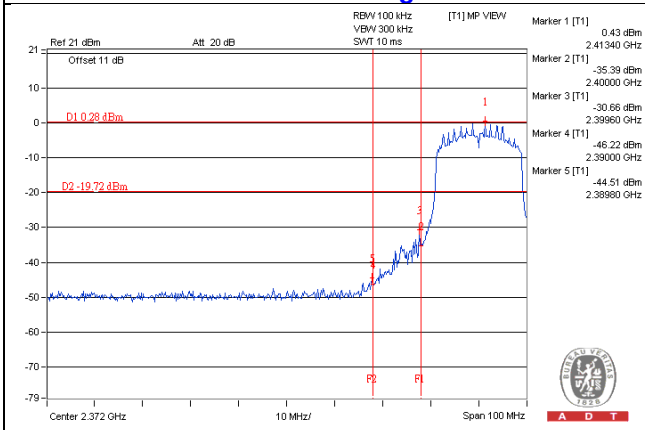


CH 11

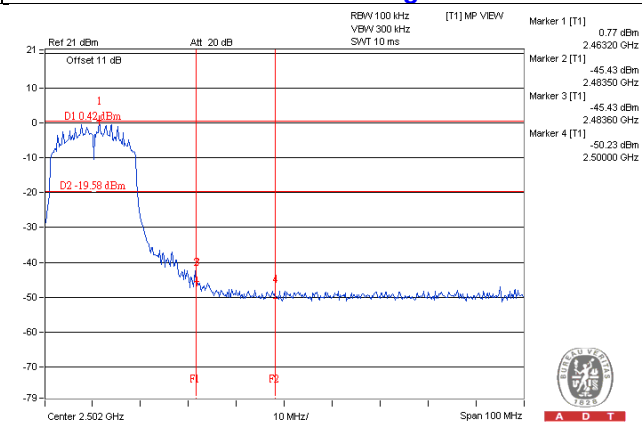




CH 1 Band edge

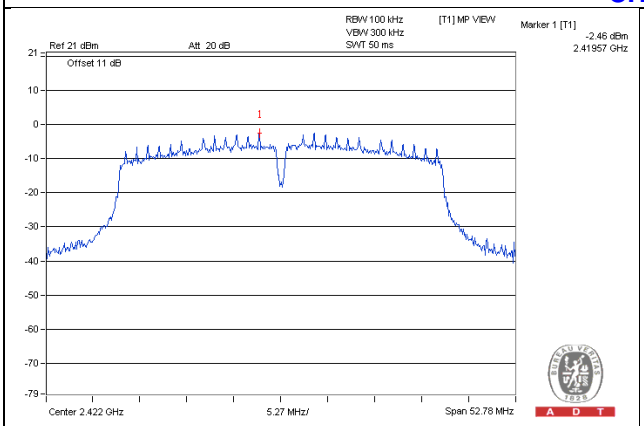


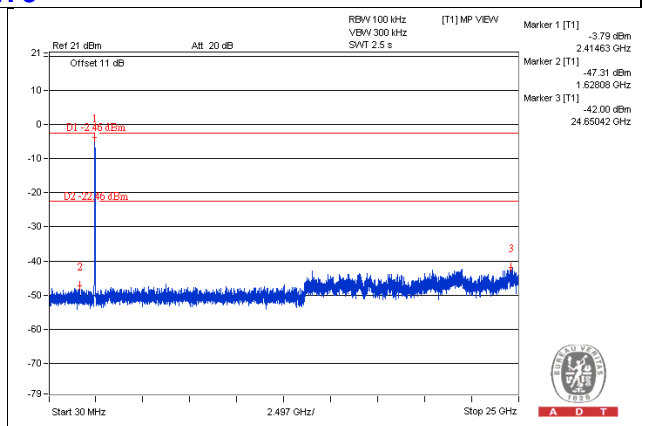
CH 11 Band edge



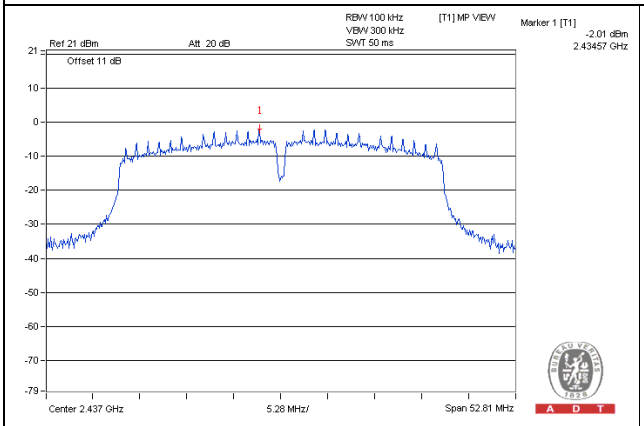
802.11n (HT40)

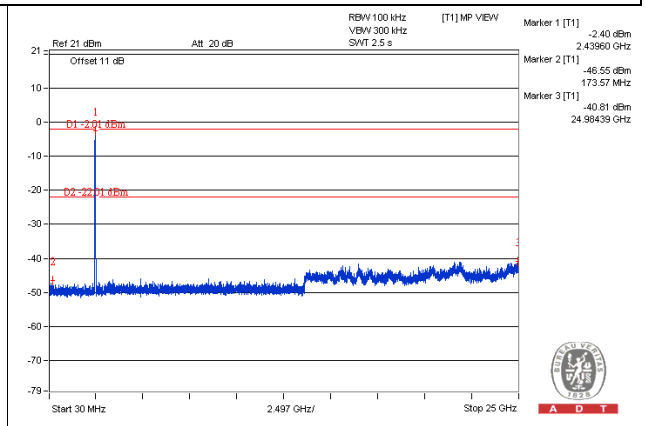
CH 3



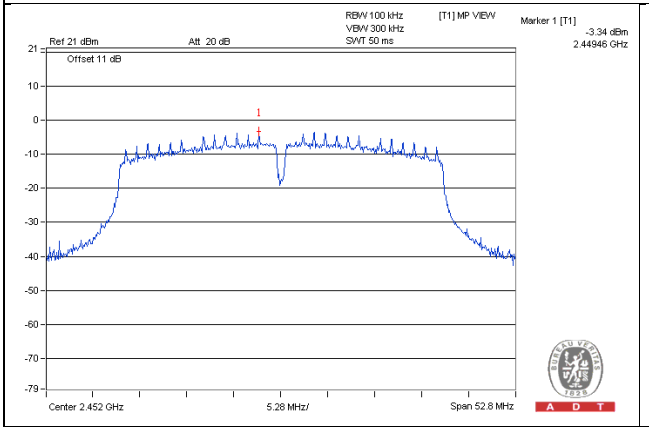


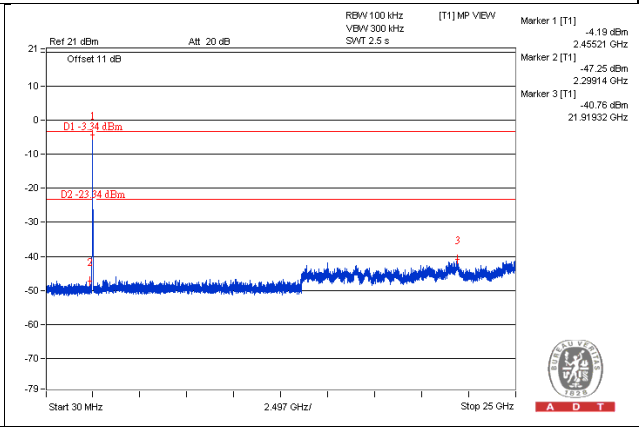
CH 6



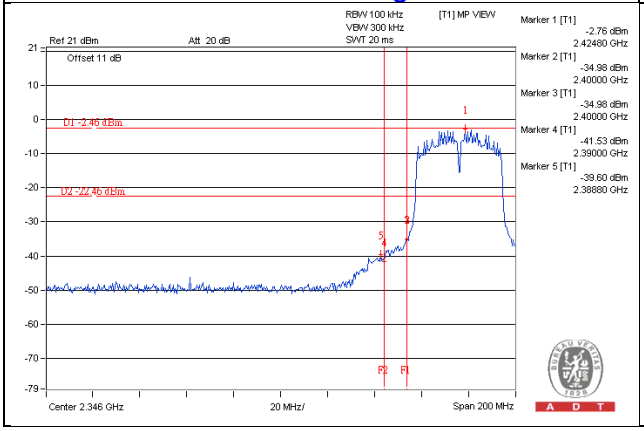


CH 9

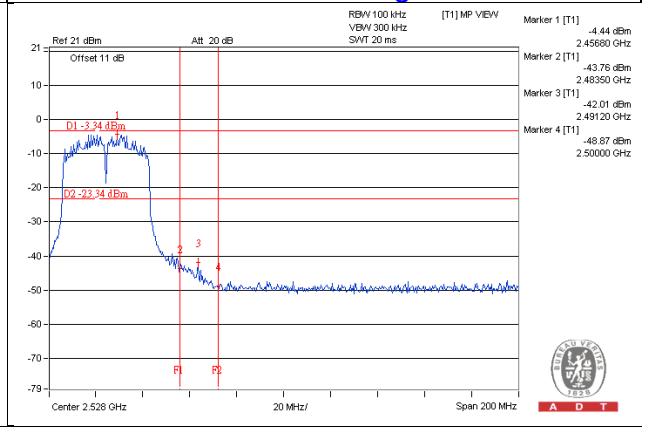




CH 3 Band edge



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:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
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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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