FCC Test Report

Report No.:	RF160120E04
FCC ID:	HDC434RG
Test Model:	434RG
Received Date:	Jan. 20, 2016
Test Date:	Jan. 28 to 30, 2016
Issued Date:	Mar. 07, 2016
Applicant:	Adtran
Address:	901 Explorer Boulevard, Huntsville Alabama, United States, 35806-2807
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
RF160120E04	Original release.	Mar. 07, 2016

1 Certificate of Conformity

Product:	Indoor GPON HGU
Brand:	ADTRAN
Test Model:	434RG
Sample Status:	ENGINEERING SAMPLE
Applicant:	Adtran
Test Date:	Jan. 28 to 30, 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:** Mar. 07, 2016

Claire Kuan / Specialist

Approved by : _____ , **Date:** Mar. 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 -9.78dB at 4.58203MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.3dB at 2483.50MHz and 2390.00MHz.
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	No antenna connector is used.

NOTE: The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.25 GHz and 5.725~5.85GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz. For the 5.15~5.25GHz and 5.725~5.85GHz RF parameters was recorded in another test report.

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	5.31 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	Indoor GPON HGU
Brand	ADTRAN
Test Model	434RG
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from adapter or UPS
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g/a: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 1300Mbps
Operating Frequency	**For 15.407** 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
Number of Channel	**For 15.407** 9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	**For 15.407** 5.18 ~ 5.24GHz 802.11a: 146.893mW 802.11ac (VHT20): 192.527mW 802.11ac (VHT40): 260.004mW 802.11ac (VHT80): 172.055mW 5.745 ~ 5.825GHz 802.11a: 152.757mW 802.11ac (VHT20): 159.055mW 802.11ac (VHT40): 161.693mW 802.11ac (VHT80): 155.069mW
	For 15.247 802.11b: 338.065mW 802.11g: 311.889mW 802.11n (HT20): 573.758mW 802.11n (HT40): 165.018mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	NA

Note:

1. 2.4GHz and 5GHz technology can transmit at same time.
2. The antennas provided to the EUT, please refer to the following table:

For 2.4GHz						
Antenna No.	Brand	Part No.	Antenna Type	Connector	Gain (dBi)	Cable(mm)
Ant 1	WHAYU	C1597-510085-A	PCB	Soldering	2.8	47.7
Ant 2	WHAYU	C1597-510083-A	PCB	Soldering	2.4	98.7
For 5GHz						
Antenna No.	Brand	Part No.	Antenna Type	Connector	Gain (dBi)	Cable(mm)
Ant 3	WHAYU	C1597-510086-A	PCB	I-PEX	3.3	84.8
Ant 4	WHAYU	C1597-510084-A	PCB	I-PEX	3.4	74.8
Ant 5	WHAYU	C1597-510082-A	PCB	I-PEX	3.5	186.8

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

Brand	Model No.	Spec.
UMEC	UP0301A-12PA	Input: 100-240V, 0.8A, 50/60Hz Output: 12V, 2.5A DC output cable(1.4m, unshielded)

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

Mode	Power
A	**with adapter**
B	with UPS
Note: The worst radiated emissions was found in **Mode A**. Therefore only the test data of the modes were recorded in this report.	

5. The EUT incorporates a MIMO function.

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	1TX (Fixed Chain 0)	1RX
802.11g	6 ~ 54Mbps	1TX (Fixed Chain 0)	1RX
802.11n (HT20)	MCS 0~7	2TX (CDD Mode)	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX (CDD Mode)	2RX
	MCS 8~15	2TX	2RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	1TX (Fixed Chain 0)	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS0~8 Nss=1	3TX	3RX
	MCS0~8 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
802.11ac (VHT40)	MCS0~9 Nss=1	3TX	2RX
	MCS0~9 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
802.11ac (VHT80)	MCS0~9 Nss=1	3TX	2RX
	MCS0~9 Nss=2	3TX	3RX
	MCS0~9 Nss=3	3TX	3RX
Note: 1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report.			

6. The emission of the simultaneous operation (2.4GHz & 5GHz) has been evaluated and no non-compliance was found.
7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (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	√	√	√	√	Adapter Mode
2	-	-	√	-	UPS Mode

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

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

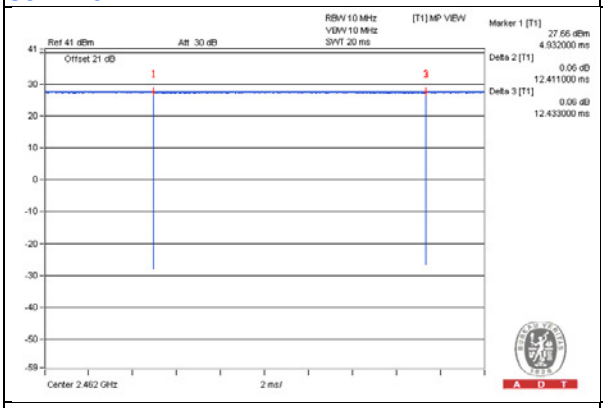
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	20deg. C, 62%RH	120Vac, 60Hz	Tim Ho
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Tim Ho
PLC	20deg. C, 65%RH	120Vac, 60Hz	Jason Huang
APCM	14deg. C, 69%RH	120Vac, 60Hz	Anderson Chen

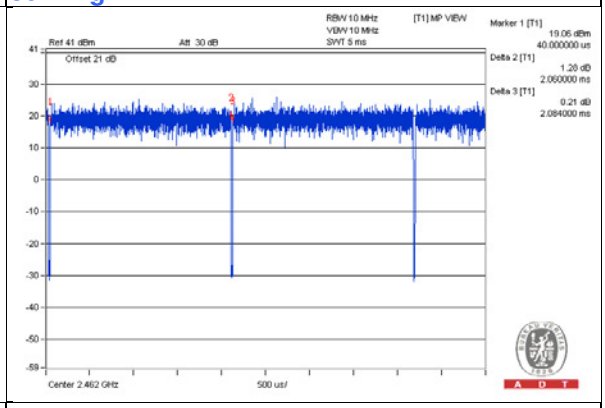
3.3 Duty Cycle of Test Signal

If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.
802.11b: Duty cycle = 12.411/12.433 = 0.998
802.11g: Duty cycle = 2.06/2.084 = 0.988
802.11n (HT20): Duty cycle = 1.918/1.942 = 0.988
802.11n (HT40): Duty cycle = 0.942/0.963 = 0.978, Duty factor = 10 * log(1/0.978) = 0.1

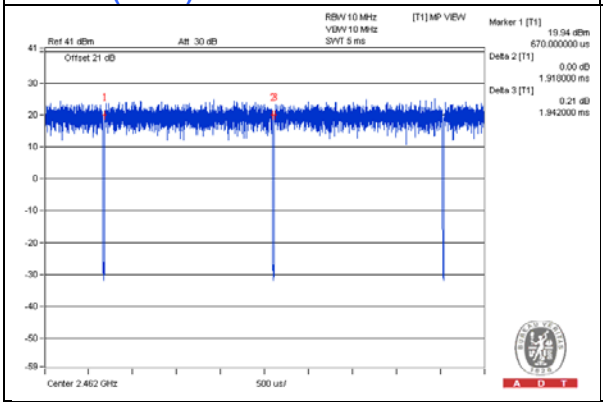
802.11b



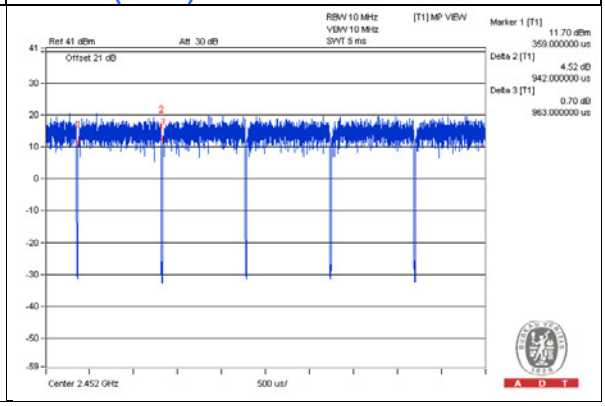
802.11g



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.	USB 3.0 HDD	WD	WDBACW0010HBK-SESN	WCAZAL625787	FCC DoC	Provided by Lab.
B.	NOTEBOOK COMPUTER	DELL	E5430	4YV4VY1	FCC DoC	Provided by Lab
C.	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
D.	TELEPHONE	WONDER	WD-303	7C17KA05211	NA	Provided by Lab
	TELEPHONE	WONDER	WD-303	7C17KA04011	NA	Provided by Lab
E.	UPS POWER	Cyber Power	CSN27U12V3	NA	NA	Supplied by Client.

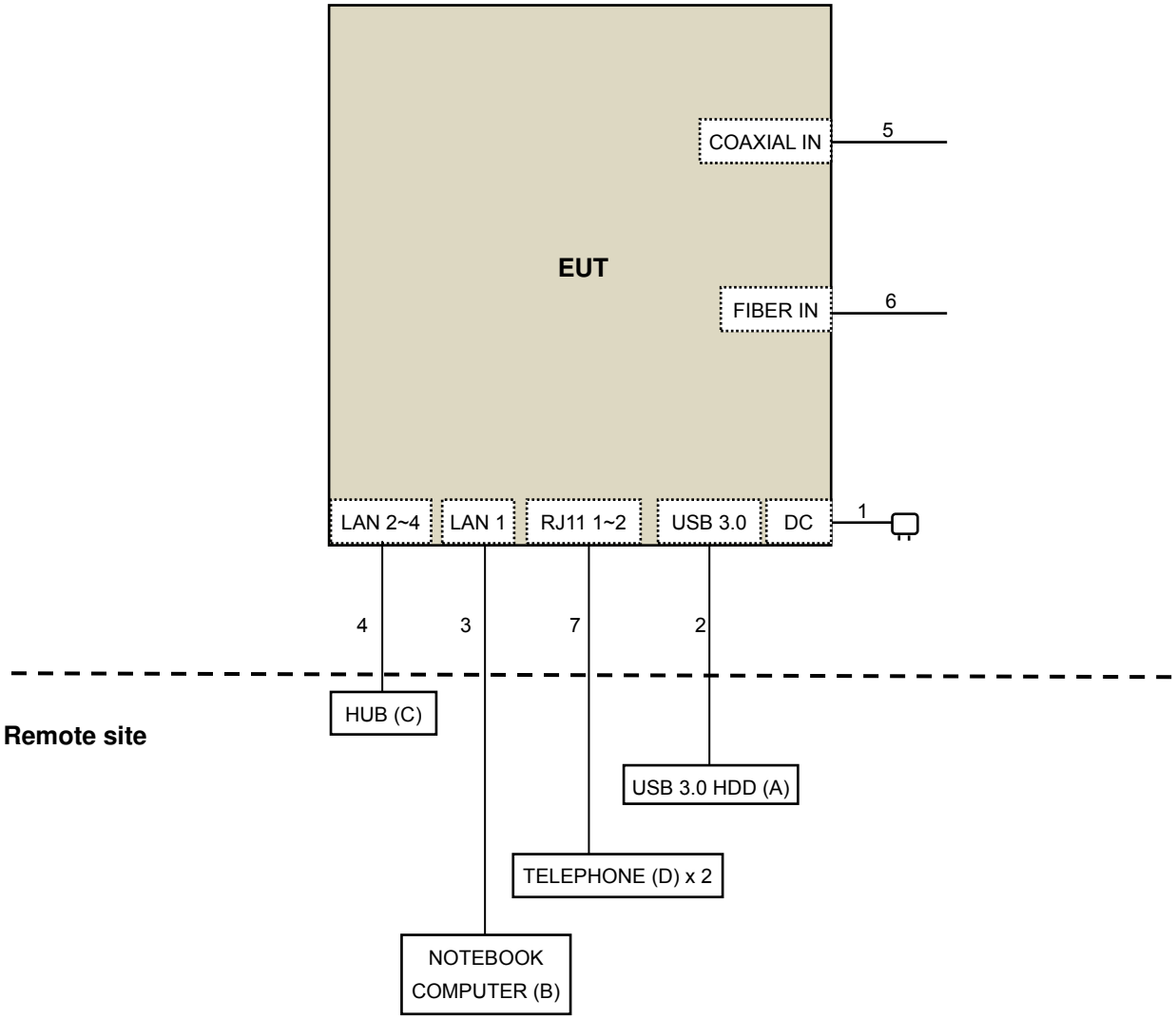
Note:

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

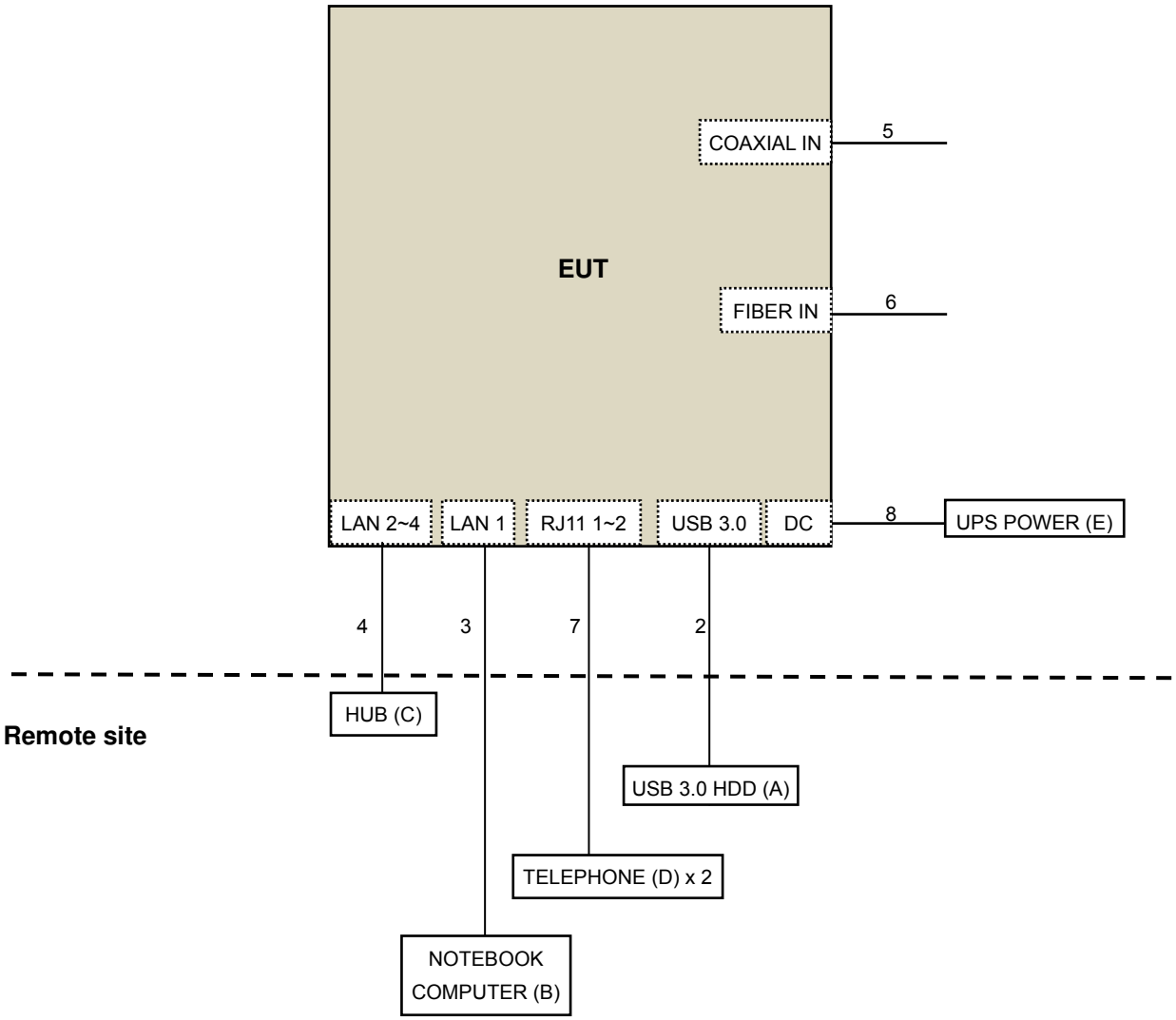
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC	1	1.4	No	0	Supplied by Client.
2.	USB	1	0.45	Yes	0	Provided by Lab
3.	RJ45	1	10	No	0	Provided by Lab
4.	RJ45	3	10	No	0	Provided by Lab
5.	COAXIAL	1	4	No	0	Provided by Lab
6.	FIBER	1	5	No	0	Supplied by Client.
7.	RJ11	2	10	No	0	Provided by Lab
8.	UPS	1	1	No	0	Provided by Lab

3.4.1 Configuration of System under Test

For mode 1



For mode 2


EUT
COAXIAL IN
5
FIBER IN
6
LAN 2~4
LAN 1
RJ11 1~2
USB 3.0
DC
8
UPS POWER (E)
4
3
7
2
HUB (C)
Remote site
USB 3.0 HDD (A)
TELEPHONE (D) x 2
NOTEBOOK
COMPUTER (B)

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 2009

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 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	MY50010156	Aug. 12, 2015	Aug. 11, 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-1000VH2B	AMP-ZFL-07	May 08, 2015	May 07, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	138	Jan. 18, 2016	Jan. 17, 2017
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 03, 2015	Apr. 02, 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
Power meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016
Spectrum Analyzer R&S	FSP 40	100060	May 08, 2015	May 07, 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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3 Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. 3.
5. The FCC Site Registration No. is 147459
6. The CANADA Site Registration No. is 20331-1
7. Tested Date: Jan. 28 to 30, 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:

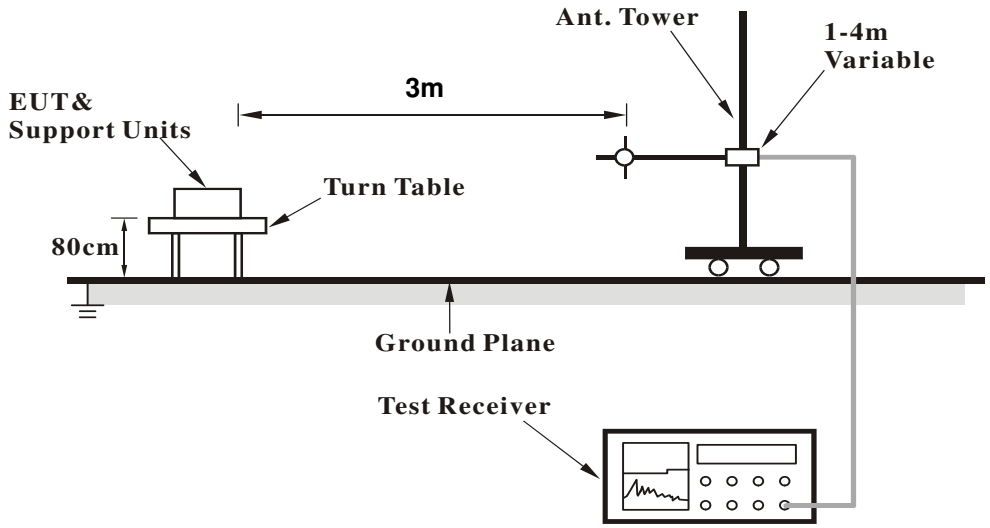
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

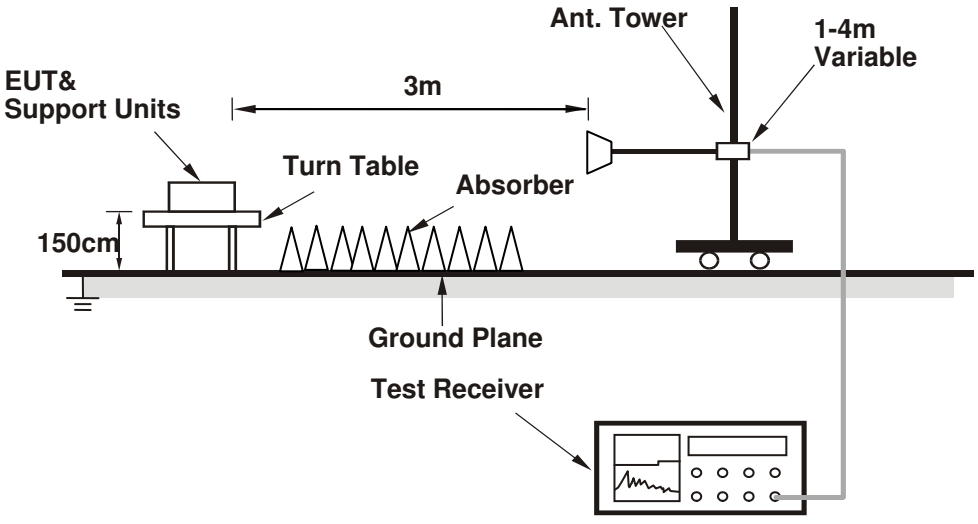
No deviation.

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

a. Connected the EUT with the support unit B (Notebook Computer) which is placed on remote site.
b. Contorlling software (MTool.exe [2.0.0.7]) 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	55.2 PK	74.0	-18.8	2.30 H	360	60.09	-4.89
2	2390.00	42.3 AV	54.0	-11.7	2.30 H	360	47.19	-4.89
3	*2412.00	110.6 PK			2.30 H	360	115.42	-4.82
4	*2412.00	107.9 AV			2.30 H	360	112.72	-4.82
5	4824.00	47.6 PK	74.0	-26.4	3.42 H	222	46.24	1.36
6	4824.00	44.7 AV	54.0	-9.3	3.42 H	222	43.34	1.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.2 PK	74.0	-11.8	3.96 V	321	67.09	-4.89
2	2390.00	52.0 AV	54.0	-2.0	3.96 V	321	56.89	-4.89
3	*2412.00	110.5 PK			3.96 V	321	115.32	-4.82
4	*2412.00	108.1 AV			3.96 V	321	112.92	-4.82
5	4824.00	48.9 PK	74.0	-25.1	3.33 V	268	47.54	1.36
6	4824.00	45.5 AV	54.0	-8.5	3.33 V	268	44.14	1.36

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	110.2 PK			2.31 H	360	114.95	-4.75
2	*2437.00	107.7 AV			2.31 H	360	112.45	-4.75
3	4874.00	47.1 PK	74.0	-26.9	3.41 H	214	45.59	1.51
4	4874.00	44.3 AV	54.0	-9.7	3.41 H	214	42.79	1.51
5	7311.00	53.4 PK	74.0	-20.6	3.27 H	290	45.33	8.07
6	7311.00	48.8 AV	54.0	-5.2	3.27 H	290	40.73	8.07
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.4 PK			3.94 V	309	115.15	-4.75
2	*2437.00	107.8 AV			3.94 V	309	112.55	-4.75
3	4874.00	48.7 PK	74.0	-25.3	3.29 V	283	47.19	1.51
4	4874.00	45.4 AV	54.0	-8.6	3.29 V	283	43.89	1.51
5	7311.00	56.4 PK	74.0	-17.6	2.48 V	280	48.33	8.07
6	7311.00	52.1 AV	54.0	-1.9	2.48 V	280	44.03	8.07

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	108.6 PK			2.24 H	360	113.27	-4.67
2	*2462.00	107.2 AV			2.24 H	360	111.87	-4.67
3	2483.50	58.6 PK	74.0	-15.4	2.24 H	360	63.20	-4.60
4	2483.50	47.9 AV	54.0	-6.1	2.24 H	360	52.50	-4.60
5	4924.00	46.9 PK	74.0	-27.1	3.43 H	213	45.29	1.61
6	4924.00	44.0 AV	54.0	-10.0	3.43 H	213	42.39	1.61
7	7386.00	53.2 PK	74.0	-20.8	3.25 H	285	44.93	8.27
8	7386.00	48.5 AV	54.0	-5.5	3.25 H	285	40.23	8.27
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			4.00 V	261	115.87	-4.67
2	*2462.00	108.5 AV			4.00 V	261	113.17	-4.67
3	2483.50	59.4 PK	74.0	-14.6	4.00 V	261	64.00	-4.60
4	2483.50	48.7 AV	54.0	-5.3	4.00 V	261	53.30	-4.60
5	4924.00	48.5 PK	74.0	-25.5	3.32 V	274	46.89	1.61
6	4924.00	45.2 AV	54.0	-8.8	3.32 V	274	43.59	1.61
7	7386.00	56.2 PK	74.0	-17.8	2.49 V	269	47.93	8.27
8	7386.00	51.8 AV	54.0	-2.2	2.49 V	269	43.53	8.27

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	73.2 PK	74.0	-0.8	2.57 H	90	78.09	-4.89
2	2390.00	50.8 AV	54.0	-3.2	2.57 H	90	55.69	-4.89
3	*2412.00	114.4 PK			2.57 H	90	119.22	-4.82
4	*2412.00	102.0 AV			2.57 H	90	106.82	-4.82
5	4824.00	49.1 PK	74.0	-24.9	2.66 H	231	47.74	1.36
6	4824.00	35.8 AV	54.0	-18.2	2.66 H	231	34.44	1.36
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	73.5 PK	74.0	-0.5	3.93 V	343	78.39	-4.89
2	2390.00	50.1 AV	54.0	-3.9	3.93 V	343	54.99	-4.89
3	*2412.00	111.8 PK			3.93 V	343	116.62	-4.82
4	*2412.00	101.1 AV			3.93 V	343	105.92	-4.82
5	4824.00	51.2 PK	74.0	-22.8	3.18 V	298	49.84	1.36
6	4824.00	37.9 AV	54.0	-16.1	3.18 V	298	36.54	1.36

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	67.5 PK	74.0	-6.5	2.72 H	86	72.39	-4.89
2	2390.00	49.4 AV	54.0	-4.6	2.72 H	86	54.29	-4.89
3	*2437.00	119.4 PK			2.72 H	86	124.15	-4.75
4	*2437.00	107.9 AV			2.72 H	86	112.65	-4.75
5	2483.50	72.7 PK	74.0	-1.3	2.72 H	86	77.30	-4.60
6	2483.50	53.5 AV	54.0	-0.5	2.72 H	86	58.10	-4.60
7	4874.00	48.9 PK	74.0	-25.1	2.60 H	238	47.39	1.51
8	4874.00	35.9 AV	54.0	-18.1	2.60 H	238	34.39	1.51
9	7311.00	58.1 PK	74.0	-15.9	2.13 H	297	50.03	8.07
10	7311.00	44.5 AV	54.0	-9.5	2.13 H	297	36.43	8.07
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	68.7 PK	74.0	-5.3	3.77 V	244	73.59	-4.89
2	2390.00	49.2 AV	54.0	-4.8	3.77 V	244	54.09	-4.89
3	*2437.00	115.3 PK			3.78 V	326	120.05	-4.75
4	*2437.00	106.1 AV			3.78 V	326	110.85	-4.75
5	2483.50	71.7 PK	74.0	-2.3	3.74 V	343	76.30	-4.60
6	2483.50	51.5 AV	54.0	-2.5	3.74 V	343	56.10	-4.60
7	4874.00	51.2 PK	74.0	-22.8	3.15 V	298	49.69	1.51
8	4874.00	37.8 AV	54.0	-16.2	3.15 V	298	36.29	1.51
9	7311.00	63.3 PK	74.0	-10.7	1.01 V	257	55.23	8.07
10	7311.00	48.5 AV	54.0	-5.5	1.01 V	257	40.43	8.07

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	113.8 PK			2.62 H	99	118.47	-4.67
2	*2462.00	102.6 AV			2.62 H	99	107.27	-4.67
3	2483.50	73.5 PK	74.0	-0.5	2.62 H	85	78.10	-4.60
4	2483.50	50.9 AV	54.0	-3.1	2.62 H	85	55.50	-4.60
5	4924.00	48.9 PK	74.0	-25.1	2.58 H	237	47.29	1.61
6	4924.00	35.9 AV	54.0	-18.1	2.58 H	237	34.29	1.61
7	7386.00	58.0 PK	74.0	-16.0	2.16 H	300	49.73	8.27
8	7386.00	44.4 AV	54.0	-9.6	2.16 H	300	36.13	8.27
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	106.1 PK			1.08 V	307	110.77	-4.67
2	*2462.00	96.3 AV			1.08 V	307	100.97	-4.67
3	2483.50	64.1 PK	74.0	-9.9	1.08 V	308	68.70	-4.60
4	2483.50	43.1 AV	54.0	-10.9	1.08 V	308	47.70	-4.60
5	4924.00	51.0 PK	74.0	-23.0	3.20 V	313	49.39	1.61
6	4924.00	37.8 AV	54.0	-16.2	3.20 V	313	36.19	1.61
7	7386.00	62.8 PK	74.0	-11.2	1.01 V	270	54.53	8.27
8	7386.00	48.0 AV	54.0	-6.0	1.01 V	270	39.73	8.27

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	71.4 PK	74.0	-2.6	3.02 H	93	76.29	-4.89
2	2390.00	53.3 AV	54.0	-0.7	3.02 H	93	58.19	-4.89
3	*2412.00	113.7 PK			3.02 H	92	118.52	-4.82
4	*2412.00	102.9 AV			3.02 H	92	107.72	-4.82
5	4824.00	48.8 PK	74.0	-25.2	2.59 H	224	47.44	1.36
6	4824.00	35.6 AV	54.0	-18.4	2.59 H	224	34.24	1.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.4 PK	74.0	-10.6	1.00 V	305	68.29	-4.89
2	2390.00	44.9 AV	54.0	-9.1	1.00 V	305	49.79	-4.89
3	*2412.00	105.8 PK			1.00 V	305	110.62	-4.82
4	*2412.00	95.6 AV			1.00 V	305	100.42	-4.82
5	4824.00	50.8 PK	74.0	-23.2	3.20 V	304	49.44	1.36
6	4824.00	37.6 AV	54.0	-16.4	3.20 V	304	36.24	1.36

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	67.3 PK	74.0	-6.7	2.64 H	91	72.19	-4.89
2	2390.00	49.6 AV	54.0	-4.4	2.64 H	91	54.49	-4.89
3	*2437.00	119.2 PK			2.64 H	91	123.95	-4.75
4	*2437.00	107.1 AV			2.64 H	91	111.85	-4.75
5	2483.50	71.8 PK	74.0	-2.2	2.63 H	91	76.40	-4.60
6	**2483.50**	**53.7 AV**	**54.0**	**-0.3**	**2.63 H**	**91**	**58.30**	**-4.60**
7	4874.00	49.3 PK	74.0	-24.7	2.52 H	222	47.79	1.51
8	4874.00	36.1 AV	54.0	-17.9	2.52 H	222	34.59	1.51
9	7311.00	57.8 PK	74.0	-16.2	2.13 H	293	49.73	8.07
10	7311.00	43.9 AV	54.0	-10.1	2.13 H	293	35.83	8.07
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.2 PK	74.0	-13.8	1.01 V	294	65.09	-4.89
2	2390.00	42.4 AV	54.0	-11.6	1.01 V	294	47.29	-4.89
3	*2437.00	111.7 PK			1.01 V	294	116.45	-4.75
4	*2437.00	99.7 AV			1.01 V	294	104.45	-4.75
5	2483.50	64.3 PK	74.0	-9.7	1.01 V	294	68.90	-4.60
6	2483.50	46.3 AV	54.0	-7.7	1.01 V	294	50.90	-4.60
7	4874.00	50.8 PK	74.0	-23.2	3.23 V	313	49.29	1.51
8	4874.00	37.7 AV	54.0	-16.3	3.23 V	313	36.19	1.51
9	7311.00	62.9 PK	74.0	-11.1	1.36 V	274	54.83	8.07
10	7311.00	48.0 AV	54.0	-6.0	1.36 V	274	39.93	8.07

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	113.2 PK			2.62 H	98	117.87	-4.67
2	*2462.00	102.1 AV			2.62 H	98	106.77	-4.67
3	2483.50	72.9 PK	74.0	-1.1	2.62 H	98	77.50	-4.60
4	2483.50	50.4 AV	54.0	-3.6	2.62 H	98	55.00	-4.60
5	4924.00	48.6 PK	74.0	-25.4	2.52 H	244	46.99	1.61
6	4924.00	35.5 AV	54.0	-18.5	2.52 H	244	33.89	1.61
7	7386.00	57.7 PK	74.0	-16.3	2.20 H	300	49.43	8.27
8	7386.00	44.4 AV	54.0	-9.6	2.20 H	300	36.13	8.27
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	105.9 PK			1.04 V	306	110.57	-4.67
2	*2462.00	94.9 AV			1.04 V	306	99.57	-4.67
3	2483.50	66.1 PK	74.0	-7.9	1.04 V	306	70.70	-4.60
4	2483.50	43.5 AV	54.0	-10.5	1.04 V	306	48.10	-4.60
5	4924.00	50.9 PK	74.0	-23.1	3.27 V	311	49.29	1.61
6	4924.00	37.9 AV	54.0	-16.1	3.27 V	311	36.29	1.61
7	7386.00	63.2 PK	74.0	-10.8	1.42 V	267	54.93	8.27
8	7386.00	48.5 AV	54.0	-5.5	1.42 V	267	40.23	8.27

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	69.7 PK	74.0	-4.3	2.67 H	90	74.59	-4.89
2	**2390.00**	**53.7 AV**	**54.0**	**-0.3**	**2.67 H**	**90**	**58.59**	**-4.89**
3	*2422.00	110.3 PK			2.69 H	95	115.08	-4.78
4	*2422.00	99.4 AV			2.69 H	95	104.18	-4.78
5	4844.00	48.9 PK	74.0	-25.1	2.57 H	250	47.48	1.42
6	4844.00	35.8 AV	54.0	-18.2	2.57 H	250	34.38	1.42
7	7266.00	57.5 PK	74.0	-16.5	2.15 H	299	49.52	7.98
8	7266.00	44.0 AV	54.0	-10.0	2.15 H	299	36.02	7.98
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.2 PK	74.0	-10.8	1.06 V	319	68.09	-4.89
2	2390.00	47.2 AV	54.0	-6.8	1.06 V	319	52.09	-4.89
3	*2422.00	103.1 PK			1.06 V	319	107.88	-4.78
4	*2422.00	92.3 AV			1.06 V	319	97.08	-4.78
5	4844.00	50.5 PK	74.0	-23.5	3.24 V	303	49.08	1.42
6	4844.00	37.3 AV	54.0	-16.7	3.24 V	303	35.88	1.42
7	7266.00	62.3 PK	74.0	-11.7	1.38 V	264	54.32	7.98
8	7266.00	47.6 AV	54.0	-6.4	1.38 V	264	39.62	7.98

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	66.2 PK	74.0	-7.8	2.03 H	87	71.09	-4.89
2	2390.00	48.4 AV	54.0	-5.6	2.03 H	87	53.29	-4.89
3	*2437.00	111.7 PK			2.03 H	88	116.45	-4.75
4	*2437.00	99.5 AV			2.03 H	88	104.25	-4.75
5	2483.50	69.8 PK	74.0	-4.2	1.77 H	87	74.40	-4.60
6	2483.50	53.2 AV	54.0	-0.8	1.77 H	87	57.80	-4.60
7	4874.00	48.5 PK	74.0	-25.5	2.54 H	241	46.99	1.51
8	4874.00	35.6 AV	54.0	-18.4	2.54 H	241	34.09	1.51
9	7311.00	58.4 PK	74.0	-15.6	2.17 H	312	50.33	8.07
10	7311.00	44.6 AV	54.0	-9.4	2.17 H	312	36.53	8.07
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	59.8 PK	74.0	-14.2	1.02 V	321	64.69	-4.89
2	2390.00	41.8 AV	54.0	-12.2	1.02 V	321	46.69	-4.89
3	*2437.00	104.6 PK			1.02 V	321	109.35	-4.75
4	*2437.00	92.3 AV			1.02 V	321	97.05	-4.75
5	2483.50	63.3 PK	74.0	-10.7	1.02 V	321	67.90	-4.60
6	2483.50	46.5 AV	54.0	-7.5	1.02 V	321	51.10	-4.60
7	4874.00	51.2 PK	74.0	-22.8	3.20 V	311	49.69	1.51
8	4874.00	38.1 AV	54.0	-15.9	3.20 V	311	36.59	1.51
9	7311.00	63.0 PK	74.0	-11.0	1.42 V	280	54.93	8.07
10	7311.00	48.0 AV	54.0	-6.0	1.42 V	280	39.93	8.07

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	109.8 PK			2.06 H	81	114.50	-4.70
2	*2452.00	98.8 AV			2.06 H	81	103.50	-4.70
3	2483.50	73.5 PK	74.0	-0.5	2.06 H	79	78.10	-4.60
4	2483.50	53.5 AV	54.0	-0.5	2.06 H	79	58.10	-4.60
5	4904.00	48.3 PK	74.0	-25.7	2.64 H	228	46.72	1.58
6	4904.00	35.5 AV	54.0	-18.5	2.64 H	228	33.92	1.58
7	7356.00	58.5 PK	74.0	-15.5	2.11 H	309	50.31	8.19
8	7356.00	44.8 AV	54.0	-9.2	2.11 H	309	36.61	8.19
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	103.5 PK			1.08 V	309	108.20	-4.70
2	*2452.00	92.2 AV			1.08 V	309	96.90	-4.70
3	2483.50	66.4 PK	74.0	-7.6	1.08 V	309	71.00	-4.60
4	2483.50	46.2 AV	54.0	-7.8	1.08 V	309	50.80	-4.60
5	4904.00	50.5 PK	74.0	-23.5	3.26 V	308	48.92	1.58
6	4904.00	37.4 AV	54.0	-16.6	3.26 V	308	35.82	1.58
7	7356.00	63.2 PK	74.0	-10.8	1.31 V	281	55.01	8.19
8	7356.00	48.4 AV	54.0	-5.6	1.31 V	281	40.21	8.19

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 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	33.76	33.2 QP	40.0	-6.8	1.00 H	261	42.78	-9.55
2	189.23	30.3 QP	43.5	-13.3	1.50 H	283	41.22	-10.97
3	219.85	33.5 QP	46.0	-12.5	1.00 H	270	44.63	-11.13
4	403.40	41.4 QP	46.0	-4.6	1.00 H	329	46.32	-4.96
5	625.02	31.7 QP	46.0	-14.3	1.00 H	258	31.45	0.25
6	800.03	34.2 QP	46.0	-11.8	1.50 H	96	31.15	3.04
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	33.37	33.8 QP	40.0	-6.2	1.00 V	30	43.46	-9.62
2	85.90	31.7 QP	40.0	-8.3	1.00 V	187	45.59	-13.90
3	218.71	35.9 QP	46.0	-10.1	1.00 V	10	47.14	-11.22
4	351.07	39.3 QP	46.0	-6.7	1.00 V	360	45.59	-6.27
5	400.01	39.3 QP	46.0	-6.7	1.00 V	29	44.28	-5.02
6	625.00	34.9 QP	46.0	-11.1	1.50 V	243	34.63	0.25

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. 09, 2015	Mar. 08, 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
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: Jan. 28, 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.

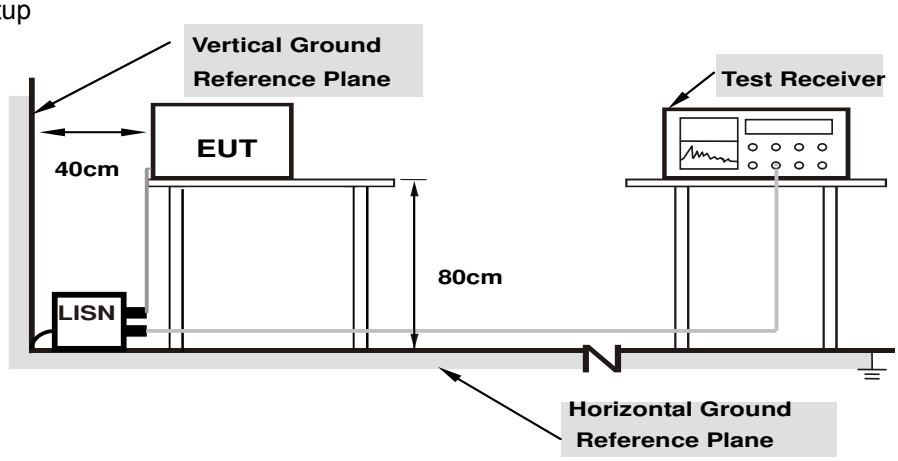
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

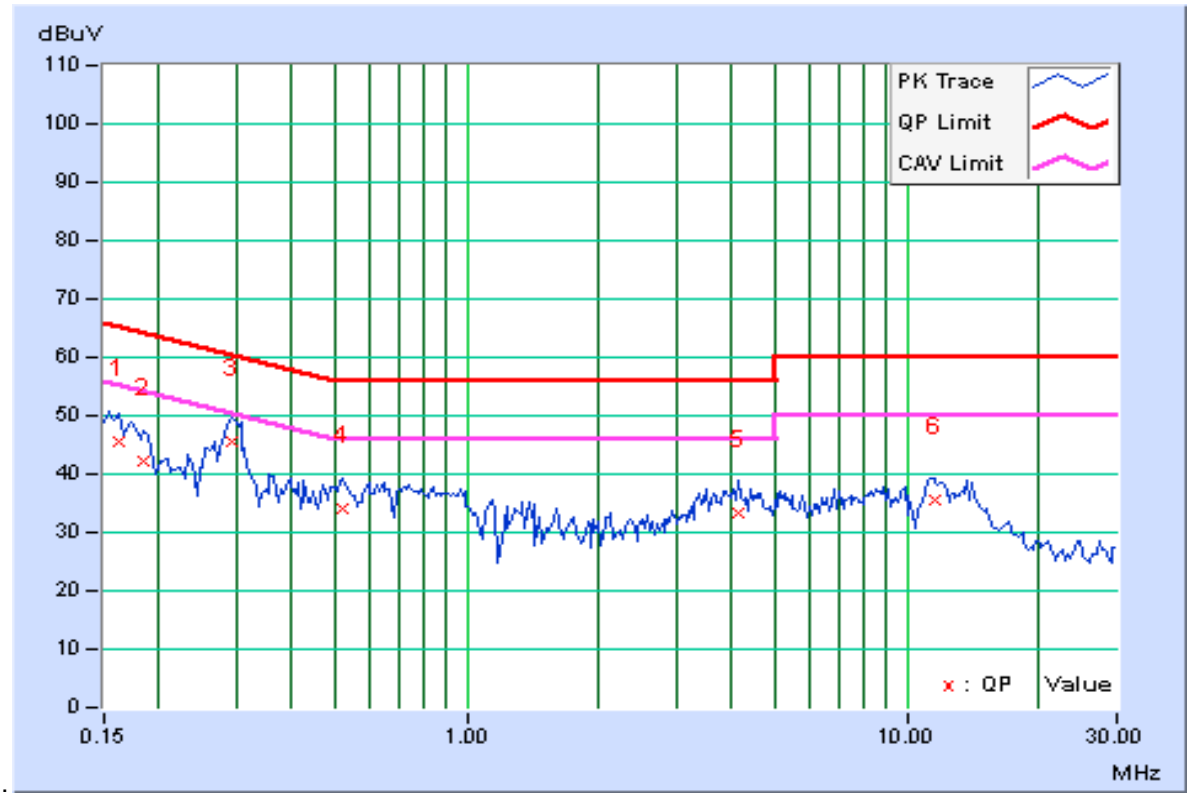
4.2.7 Test Results (Mode 1)

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

No	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	0.16172	10.37	35.08	23.29	45.45	33.66	65.38	55.38	-19.92	-21.71
2	0.18516	10.35	32.04	21.34	42.39	31.69	64.25	54.25	-21.86	-22.56
3	0.29453	10.35	35.16	25.50	45.51	35.85	60.40	50.40	-14.88	-14.54
4	0.52109	10.36	23.56	15.51	33.92	25.87	56.00	46.00	-22.08	-20.13
5	4.16016	10.59	22.92	16.57	33.51	27.16	56.00	46.00	-22.49	-18.84
6	11.53906	11.00	24.47	19.87	35.47	30.87	60.00	50.00	-24.53	-19.13

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

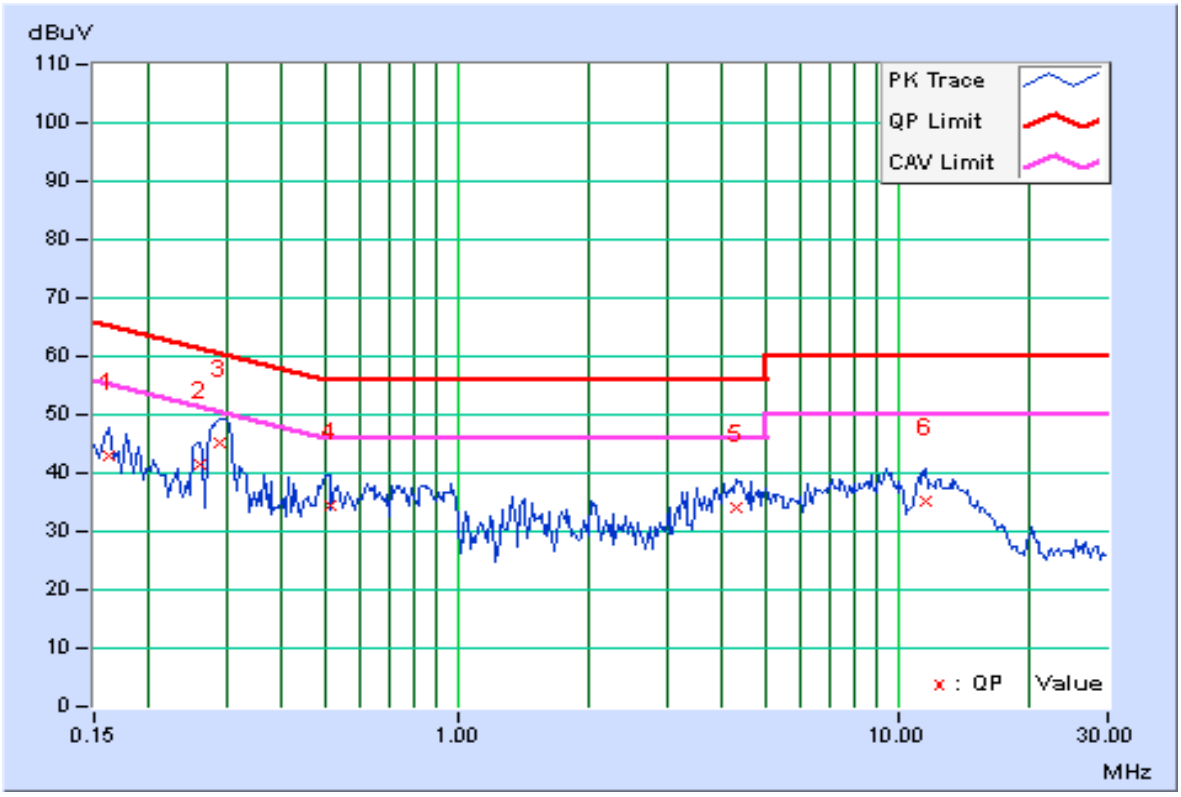


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	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	0.16172	10.38	32.55	22.65	42.93	33.03	65.38	55.38	-22.44	-22.34
2	0.25938	10.40	30.97	23.78	41.37	34.18	61.45	51.45	-20.08	-17.27
3	0.29063	10.40	34.90	24.41	45.30	34.81	60.51	50.51	-15.20	-15.69
4	0.51328	10.41	23.86	15.47	34.27	25.88	56.00	46.00	-21.73	-20.12
5	4.30859	10.69	23.36	16.81	34.05	27.50	56.00	46.00	-21.95	-18.50
6	11.59375	11.02	24.21	19.77	35.23	30.79	60.00	50.00	-24.77	-19.21

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



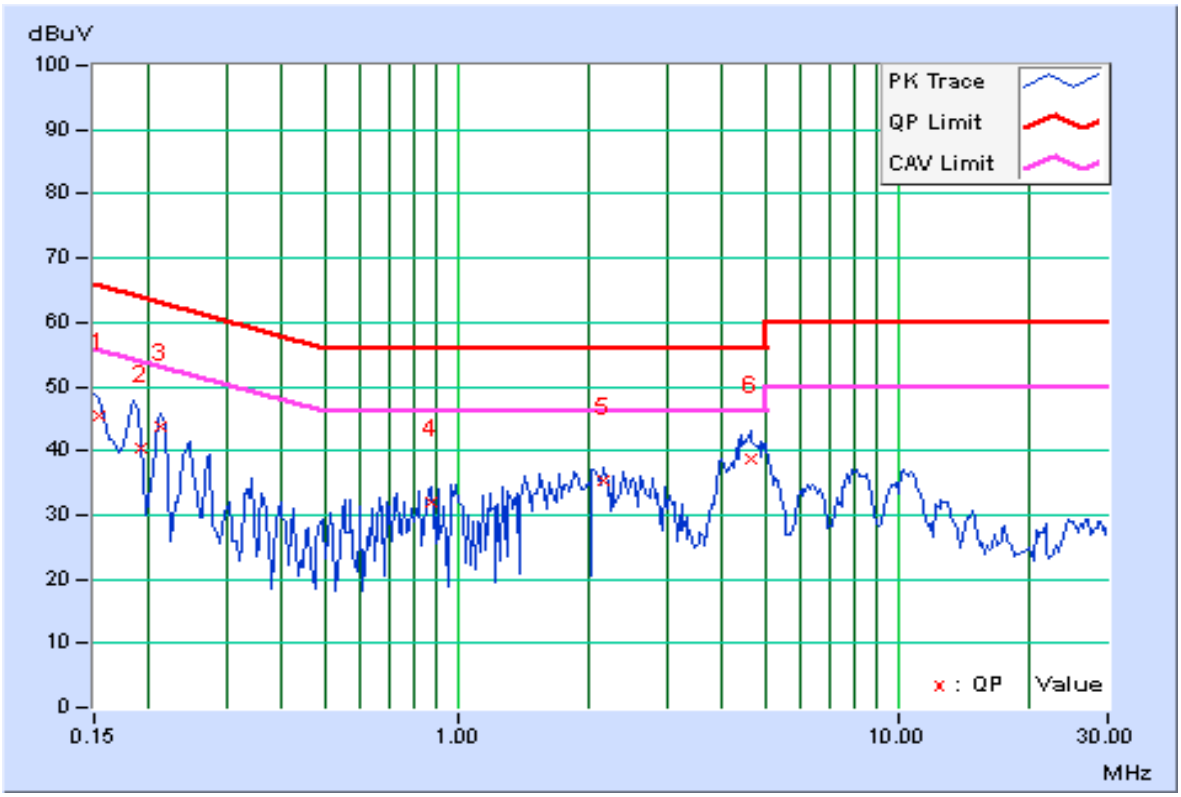
4.2.8 Test Results (Mode 2)

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

No	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	10.26	35.23	28.78	45.49	39.04	65.79	55.79	-20.30	-16.75
2	0.19078	10.23	30.12	16.21	40.35	26.44	64.00	54.00	-23.66	-27.57
3	0.21250	10.22	33.69	26.68	43.91	36.90	63.11	53.11	-19.20	-16.21
4	0.87656	10.18	21.91	19.47	32.09	29.65	56.00	46.00	-23.91	-16.35
5	2.14063	10.22	25.08	21.61	35.30	31.83	56.00	46.00	-20.70	-14.17
6	4.62500	10.39	28.34	21.92	38.73	32.31	56.00	46.00	-17.27	-13.69

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

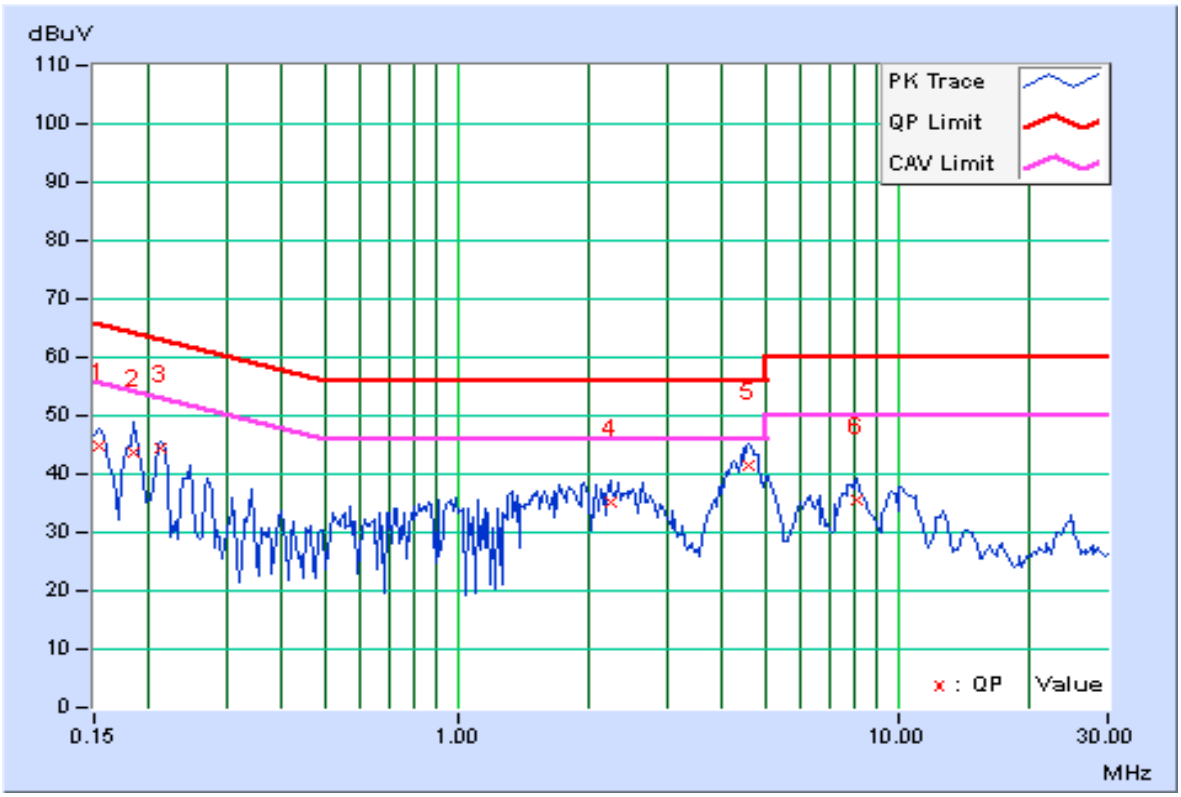


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	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	10.24	34.72	28.80	44.96	39.04	65.79	55.79	-20.83	-16.75
2	0.18516	10.21	33.41	27.51	43.62	37.72	64.25	54.25	-20.63	-16.53
3	0.21250	10.20	34.36	32.39	44.56	42.59	63.11	53.11	-18.55	-10.52
4	2.23047	10.23	24.83	22.25	35.06	32.48	56.00	46.00	-20.94	-13.52
5	**4.58203**	**10.40**	**30.98**	**25.82**	**41.38**	**36.22**	**56.00**	**46.00**	**-14.62**	**-9.78**
6	8.12891	10.49	24.96	19.92	35.45	30.41	60.00	50.00	-24.55	-19.59

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

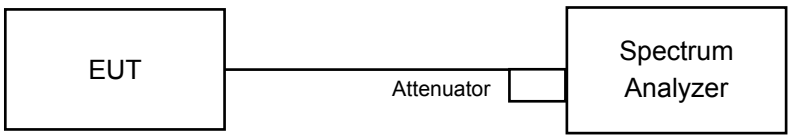


4.3 6dB Bandwidth Measurement

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
1	2412	8.11	0.5	PASS
6	2437	8.13	0.5	PASS
11	2462	8.12	0.5	PASS

802.11g

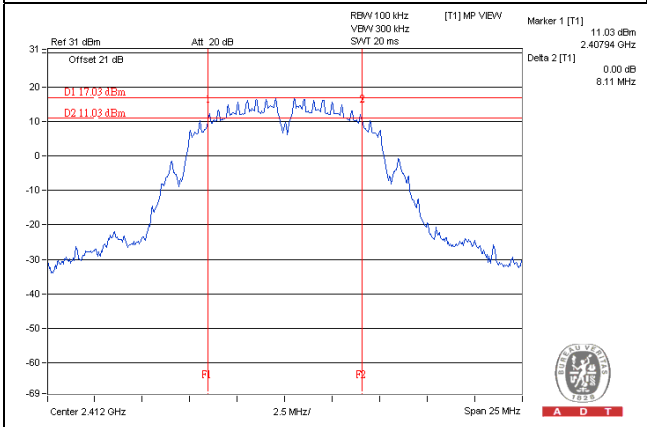
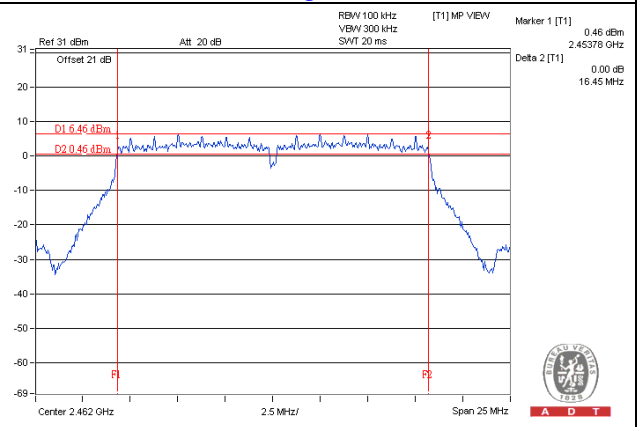
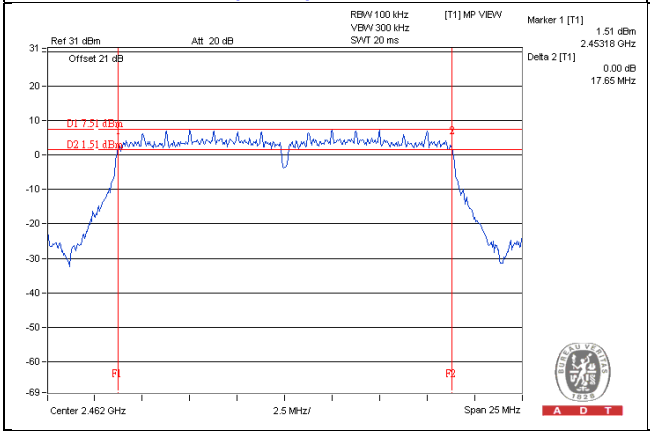
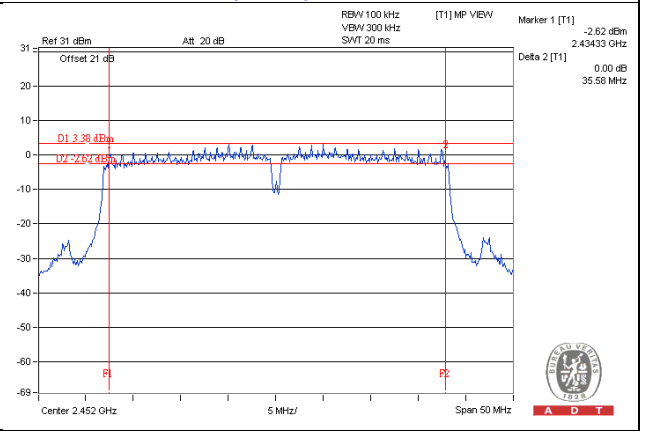
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.47	0.5	PASS
6	2437	16.46	0.5	PASS
11	2462	16.45	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.65	17.66	0.5	Pass
6	2437	17.65	17.65	0.5	Pass
11	2462	17.65	17.66	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.69	35.88	0.5	Pass
6	2437	35.85	35.86	0.5	Pass
9	2452	35.65	35.58	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / CH1	**802.11g / CH11**
	
802.11n (HT20) / Chain 0 : CH11	**802.11n (HT40) / Chain 1 : CH9**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

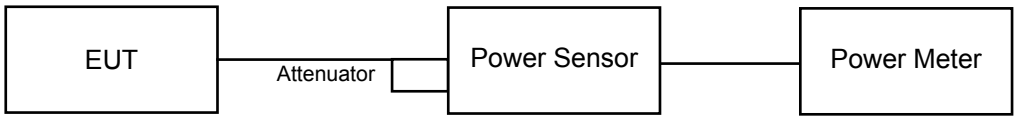
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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 average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power senso and set the detector to AVERAGE . 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 AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	338.065	25.29	30	Pass
6	2437	314.051	24.97	30	Pass
11	2462	283.139	24.52	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	114.025	20.57	30	Pass
6	2437	311.889	24.94	30	Pass
11	2462	75.336	18.77	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.16	19.45	170.519	22.32	30	Pass
6	2437	25.17	23.89	573.758	27.59	30	Pass
11	2462	18.66	18.57	145.396	21.63	30	Pass

802.11n (HT40)

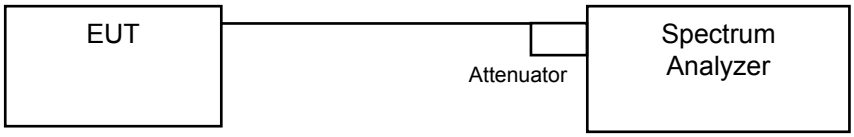
Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.22	17.86	113.817	20.56	30	Pass
6	2437	18.86	19.45	165.018	22.18	30	Pass
9	2452	16.72	16.46	91.248	19.60	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

802.11 b, 802.11 b & 802.11n (HT20)

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.

802.11n (HT40)

a) Measure the duty cycle (x).
b) Set instrument center frequency to DTS channel center frequency.
c) Set span to at least 1.5 times the OBW.
d) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz..
e) Set VBW ≥3 x RBW.
f) Detector = power averaging (RMS) or sample detector (when RMS not available).
g) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h) Sweep time = auto couple.
i) Do not use sweep triggering. Allow sweep to “free run”.
j) Employ trace averaging (RMS) mode over a minimum of 100 traces.
k) Use the peak marker function to determine the maximum amplitude level.
l) Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

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	Freq. (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-0.62	8	Pass
6	2437	0.41	8	Pass
11	2462	-1.79	8	Pass

802.11g

Channel	Freq. (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-9.88	8	Pass
6	2437	-5.72	8	Pass
11	2462	-12.40	8	Pass

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-11.24	3.01	-8.23	8	Pass
	6	2437	-5.65	3.01	-2.64	8	Pass
	11	2462	-11.44	3.01	-8.43	8	Pass
1	1	2412	-10.92	3.01	-7.91	8	Pass
	6	2437	-5.99	3.01	-2.98	8	Pass
	11	2462	-11.95	3.01	-8.94	8	Pass

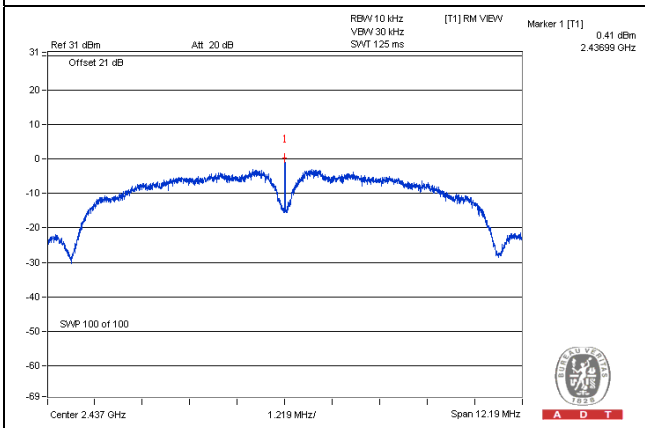
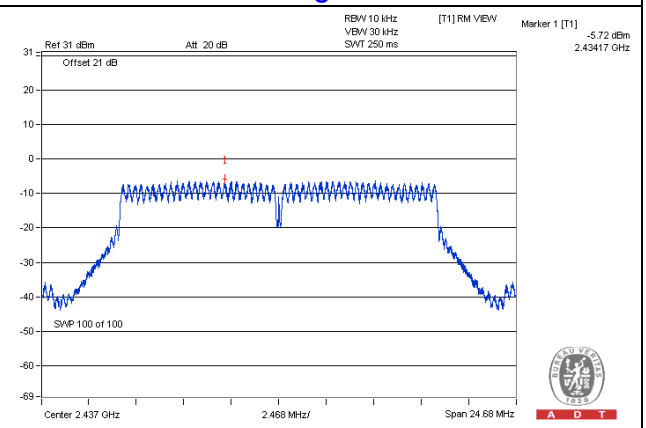
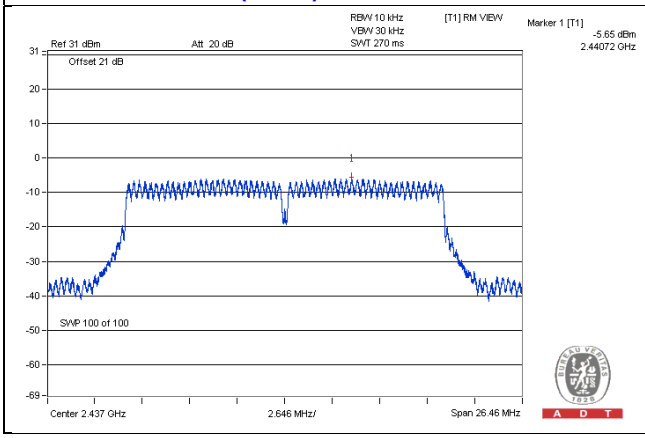
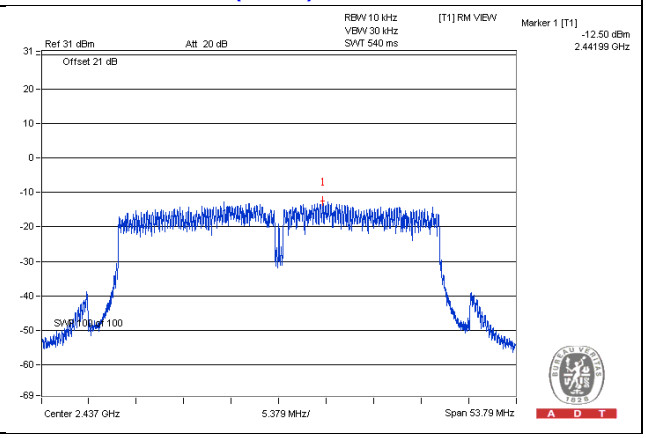
Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.61dBi < 6dBi , so the power density limit shall not be reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	**3**	2422	-14.70	3.01	0.1	-11.59	8	Pass
	6	2437	-13.17	3.01	0.1	-10.06	8	Pass
	9	2452	-15.15	3.01	0.1	-12.04	8	Pass
1	**3**	2422	-14.11	3.01	0.1	-11.00	8	Pass
	6	2437	-12.50	3.01	0.1	-9.39	8	Pass
	9	2452	-15.89	3.01	0.1	-12.78	8	Pass

Note:

1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.61dBi < 6dBi , so the power density limit shall not be reduced.
2. Refer to section 3.3 for duty cycle spectrum plot.

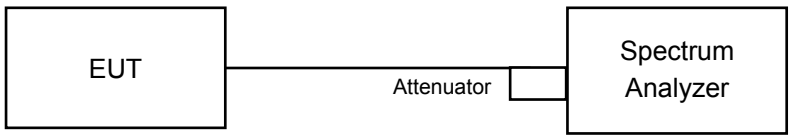
Spectrum Plot of Worst Value	
802.11b / CH6	**802.11g / CH6**
	
802.11n (HT20) / Chain 0 : CH6	**802.11n (HT40) / Chain 1 : CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = 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

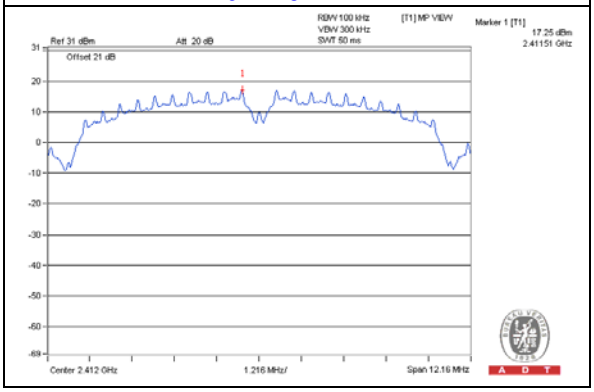
Same as Item 4.3.6

4.6.7 Test Results

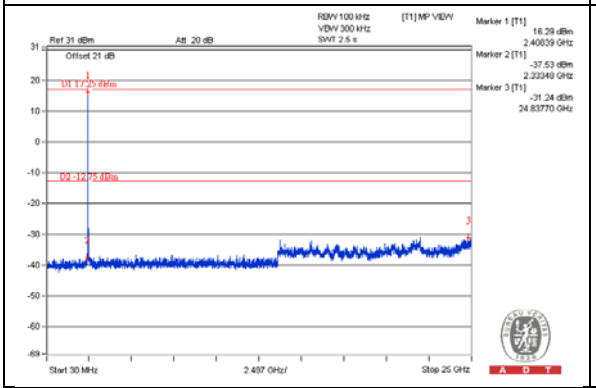
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

802.11b

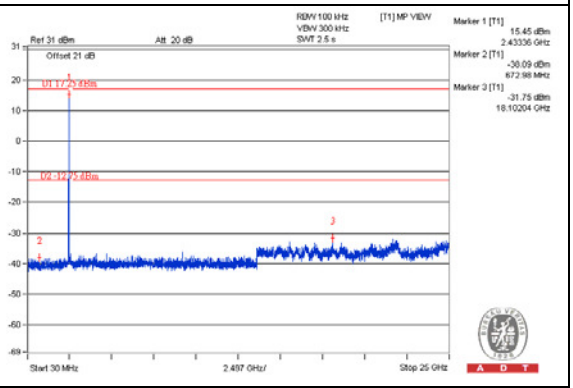
Maximum REF



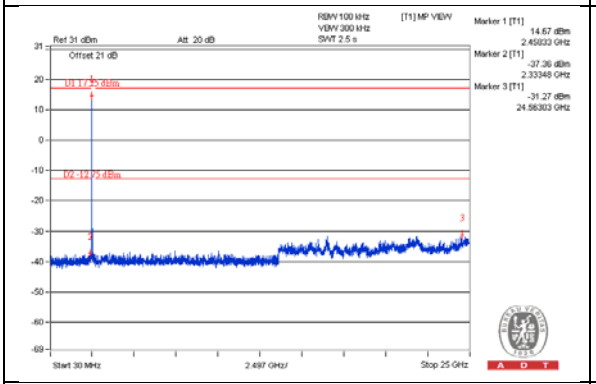
CH 1



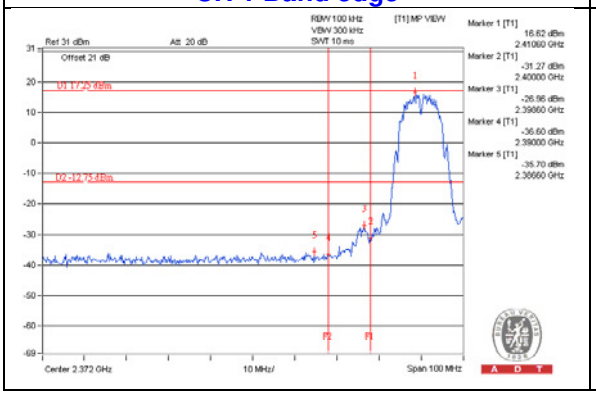
CH 6



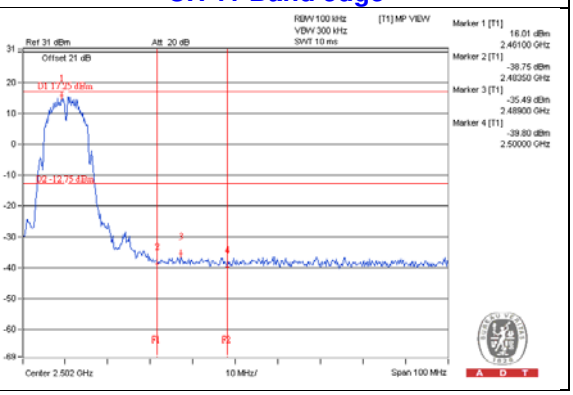
CH 11



CH 1 Band edge

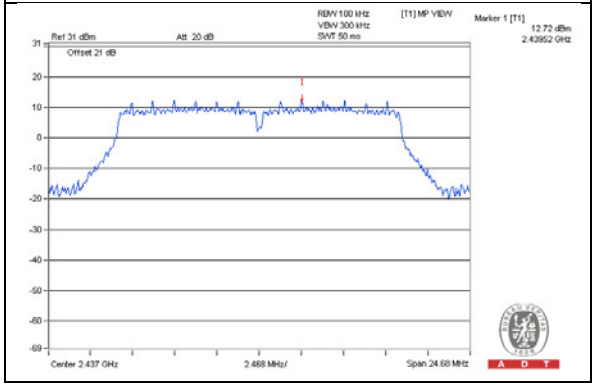


CH 11 Band edge

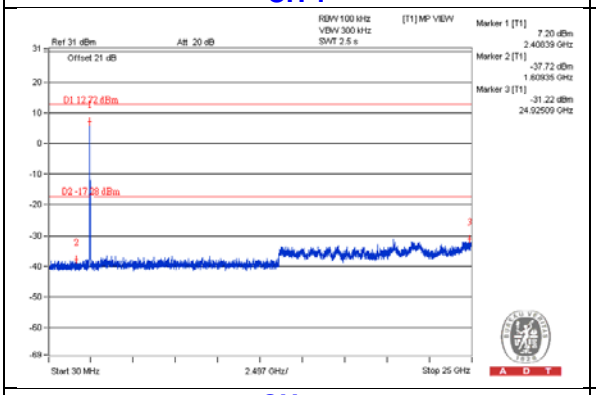


802.11g

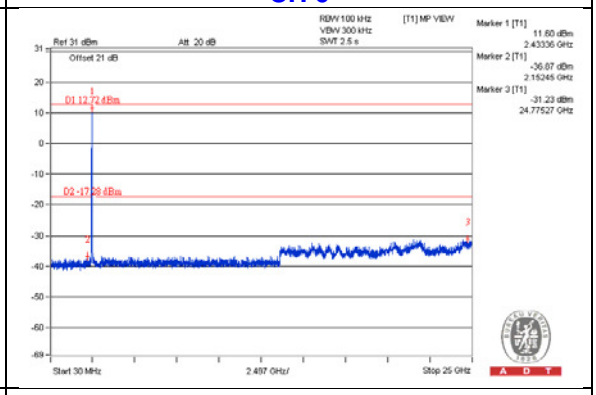
Maximum REF



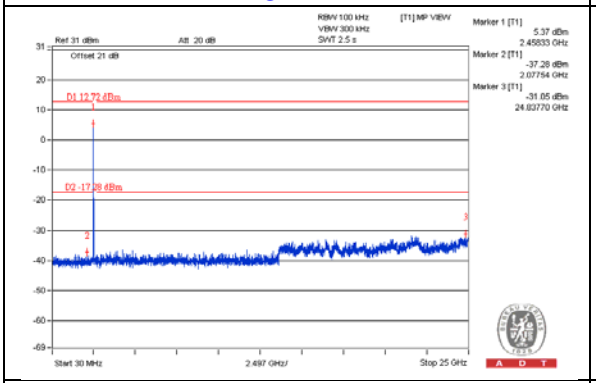
CH 1



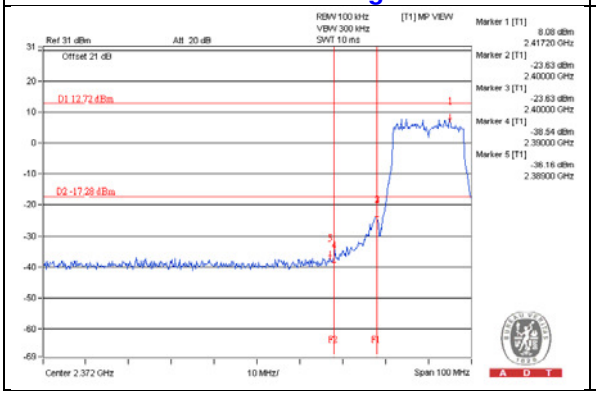
CH 6



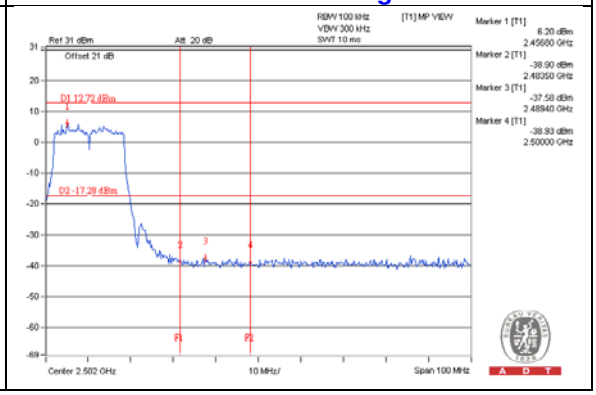
CH 11



CH 1 Band edge

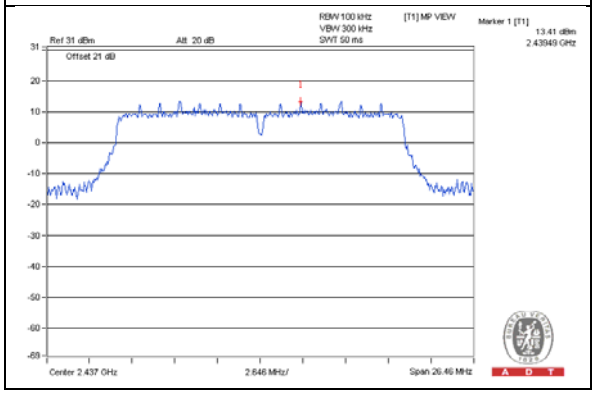


CH 11 Band edge



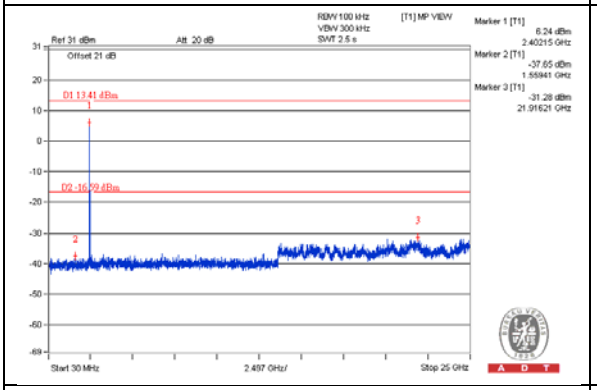
802.11n (HT20)

Maximum REF

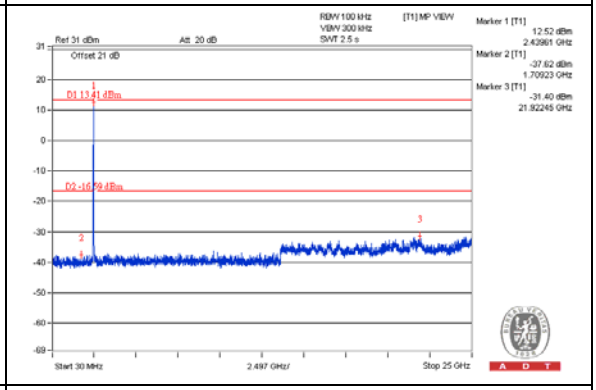


CHAIN 0

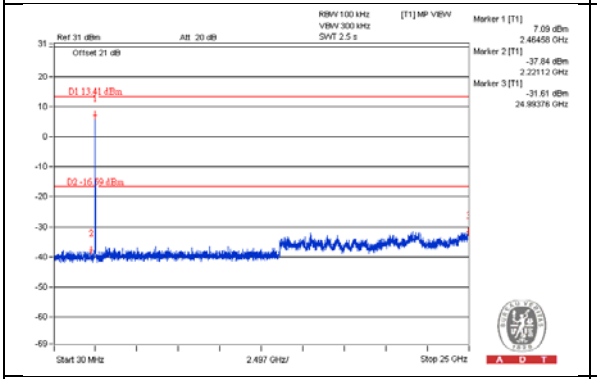
CH 1



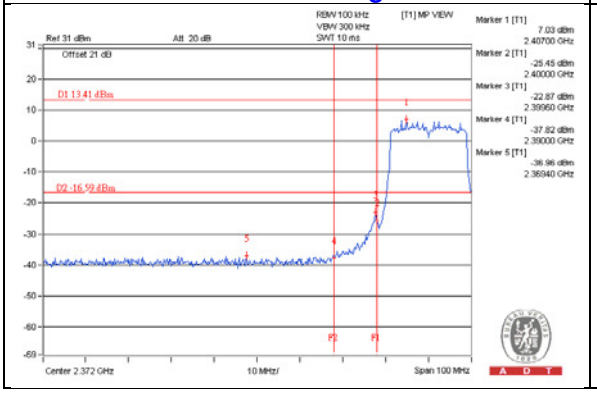
CH 6



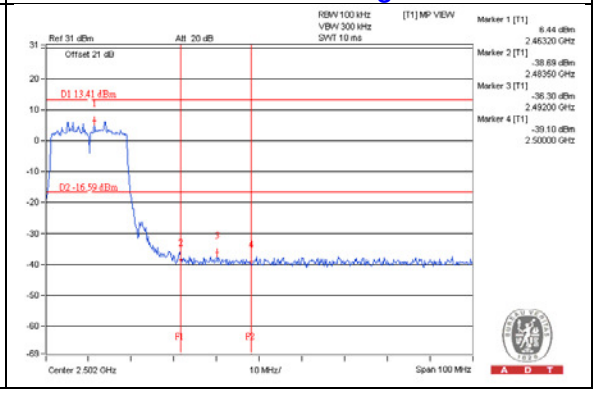
CH 11



CH 1 Band edge

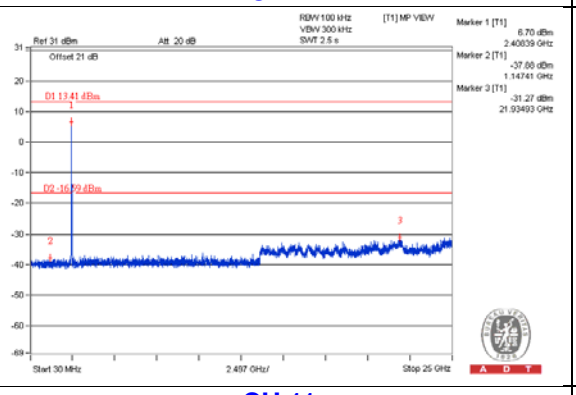


CH 11 Band edge

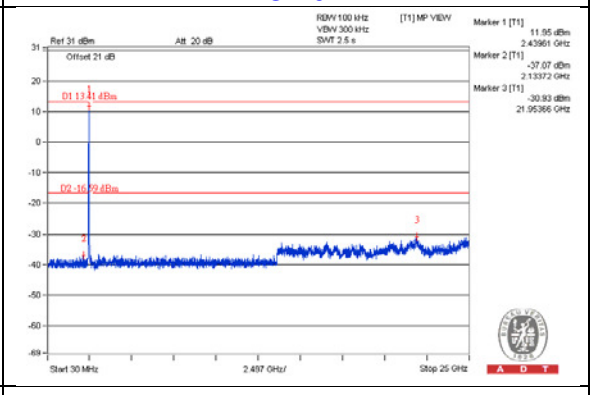


CHAIN 1

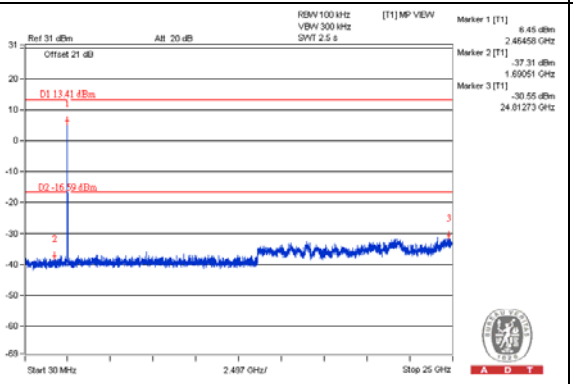
CH 1



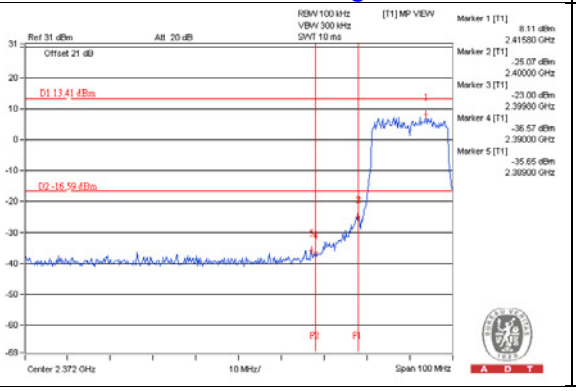
CH 6



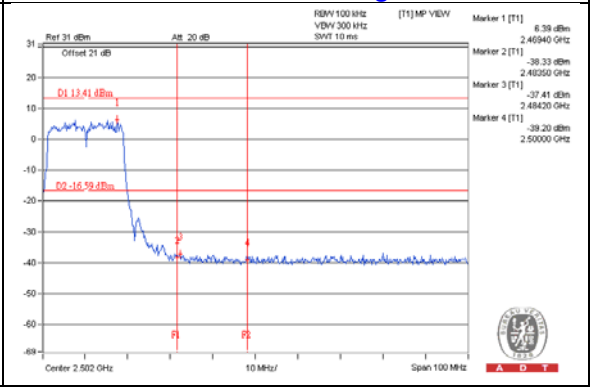
CH 11



CH 1 Band edge

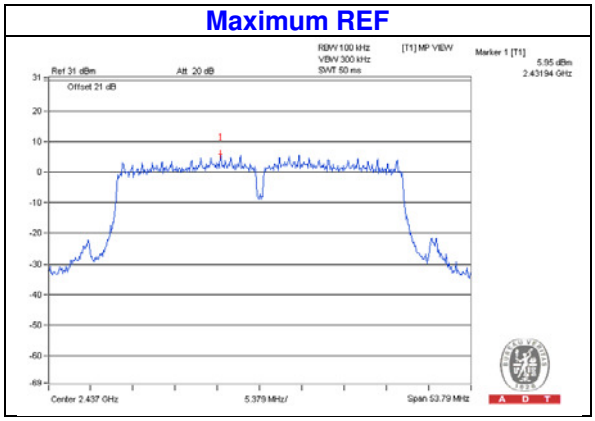


CH 11 Band edge



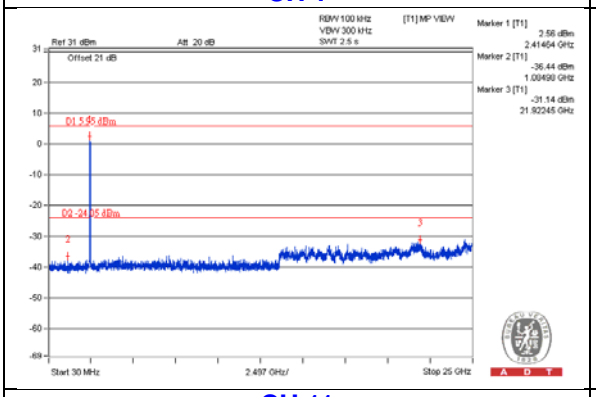
802.11n (HT40)

Maximum REF

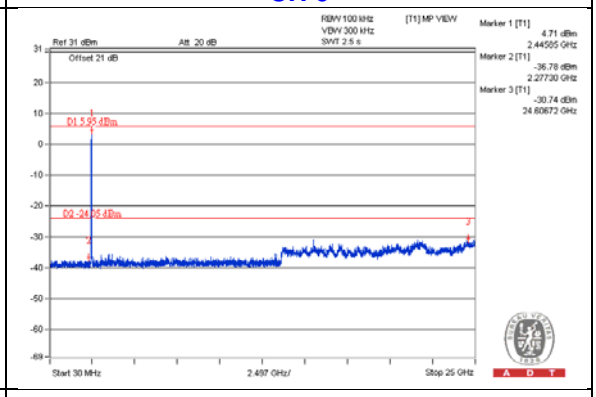


CHAIN 0

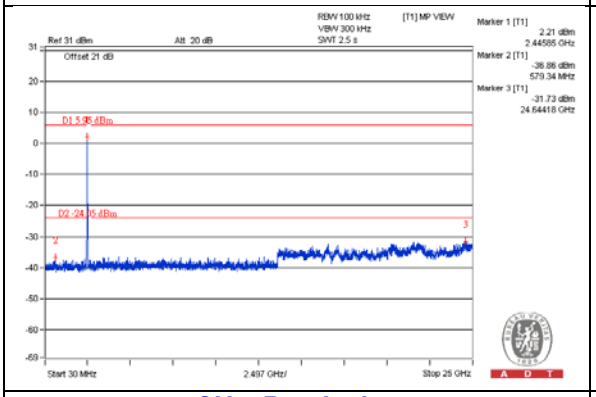
CH 1



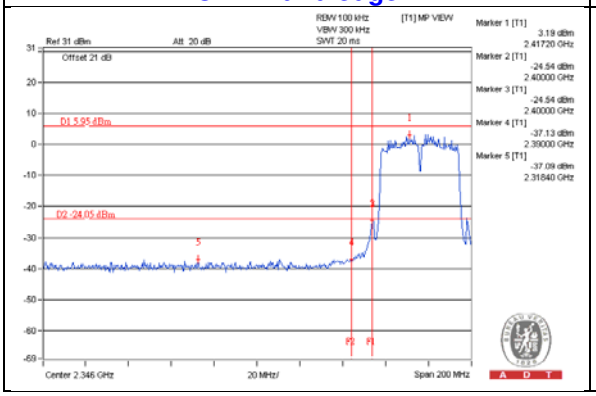
CH 6



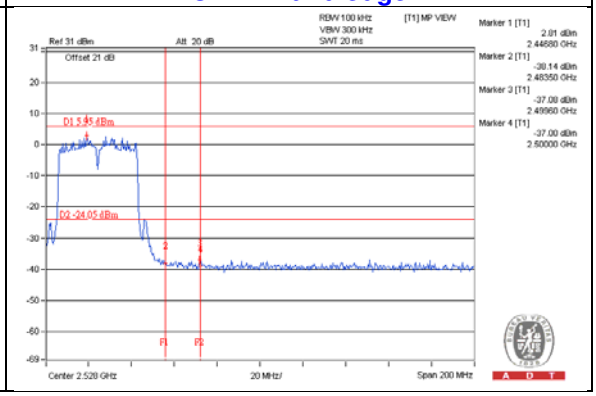
CH 11



CH 1 Band edge

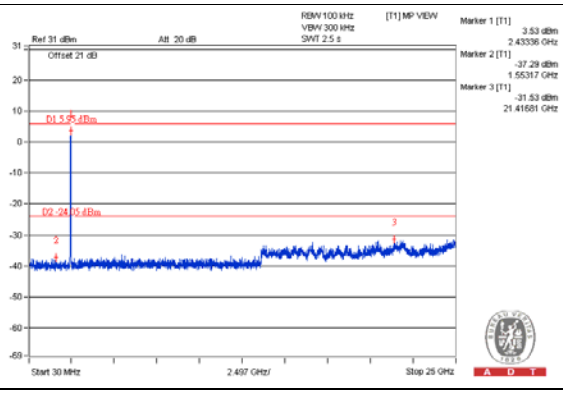


CH 11 Band edge

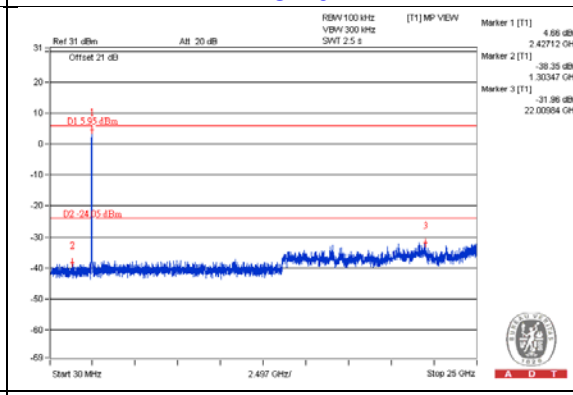


CHAIN 1

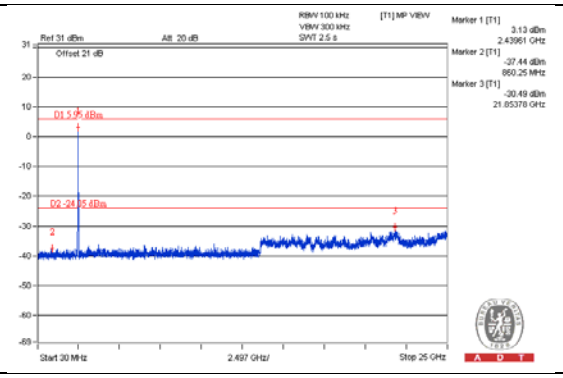
CH 1



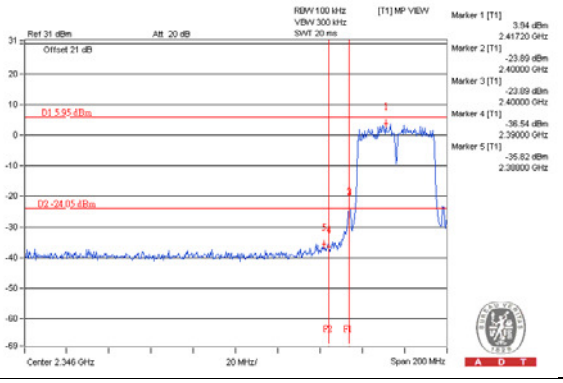
CH 6



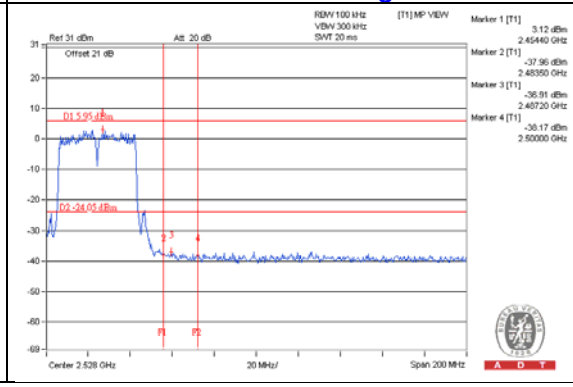
CH 11



CH 1 Band edge



CH 11 Band edge



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
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

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

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

--- END ---