

FCC Test Report (WLAN)

Report No.: RF140808E04X

FCC ID: 2AN9V-DVTRF001

Test Model: DVTRF001

Received Date: Aug. 08, 2014

Test Date: Oct. 07, 2014; May 08 to 13, 2015; Dec. 11 to 15, 2017; Jan. 23 to 25, 2018

Issued Date: Mar. 28, 2018

Applicant: Devialet

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FCC Registration / 723255 / TW2022 for Test Location (1)
Designation Number: 736135 / TW0004 for Test Location (2)



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Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information	7
3.1 General Description of EUT (WLAN)	7
3.2 Description of Antenna	9
3.3 Description of Test Modes	10
3.3.1 Test Mode Applicability and Tested Channel Detail	11
3.4 Duty Cycle of Test Signal	13
3.5 Description of Support Units	14
3.5.1 Configuration of System under Test	14
3.6 General Description of Applied Standards	15
4 Test Types and Results	16
4.1 Radiated Emission and Bandedge Measurement	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement	16
4.1.2 Test Instruments	17
4.1.3 Test Procedures	21
4.1.4 Deviation from Test Standard	21
4.1.5 Test Setup	22
4.1.6 EUT Operating Conditions	23
4.1.7 Test Results (Mode 1)	24
4.1.8 Test Results (Mode 2)	37
4.2 Conducted Emission Measurement	50
4.2.1 Limits of Conducted Emission Measurement	50
4.2.2 Test Instruments	50
4.2.3 Test Procedures	51
4.2.4 Deviation from Test Standard	51
4.2.5 Test Setup	51
4.2.6 EUT Operating Conditions	51
4.2.7 Test Results (Mode 1)	52
4.3 6dB Bandwidth Measurement	54
4.3.1 Limits of 6dB Bandwidth Measurement	54
4.3.2 Test Setup	54
4.3.3 Test Instruments	54
4.3.4 Test Procedure	54
4.3.5 Deviation from Test Standard	54
4.3.6 EUT Operating Conditions	54
4.3.7 Test Result (Mode 1)	55
4.4 Conducted Output Power Measurement	57
4.4.1 Limits of Conducted Output Power Measurement	57
4.4.2 Test Setup	57
4.4.3 Test Instruments	58
4.4.4 Test Procedures	58
4.4.5 Deviation from Test Standard	58
4.4.6 EUT Operating Conditions	58
4.4.7 Test Results (Mode 1)	59
4.5 Power Spectral Density Measurement	62
4.5.1 Limits of Power Spectral Density Measurement	62
4.5.2 Test Setup	62
4.5.3 Test Instruments	62
4.5.4 Test Procedure	62

4.5.5	Deviation from Test Standard	62
4.5.6	EUT Operating Condition	62
4.5.7	Test Results (Mode 1).....	63
4.6	Conducted Out of Band Emission Measurement.....	66
4.6.1	Limits of Conducted Out of Band Emission Measurement.....	66
4.6.2	Test Setup.....	66
4.6.3	Test Instruments	66
4.6.4	Test Procedure	67
4.6.5	Deviation from Test Standard	67
4.6.6	EUT Operating Condition	67
4.6.7	Test Results (Mode 1).....	67
5	Pictures of Test Arrangements.....	76
	Appendix – Information on the Testing Laboratories	77

Release Control Record

Issue No.	Description	Date Issued
RF140808E04X	Original release.	Mar. 28, 2018

1 Certificate of Conformity

Product: WCBN3507A-D6

Brand: Devialet

Test Model: DVTRF001

Sample Status: R&D SAMPLE

Applicant: Devialet

Test Date: Oct. 07, 2014; May 08 to 13, 2015; Dec. 11 to 15, 2017; Jan. 23 to 25, 2018

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 : Mary Ko , **Date:** Mar. 28, 2018
Mary Ko / Specialist

Approved by : May Chen , **Date:** Mar. 28, 2018
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 -8.68dB at 0.20859MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 4874.00MHz, 4924.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

2.1 Measurement Uncertainty

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

For mode 1

Measurement	Frequency	Expanded Uncertainty (k=2) (±)	
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB	
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 dB	
Measurement	Frequency	Expanded Uncertainty (k=2) (±)	
		966 Chamber No. H	966 Chamber No. 3
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB	5.14 dB
	6GHz ~ 18GHz	4.00 dB	5.04 dB
	18GHz ~ 40GHz	4.11 dB	5.25 dB

For mode 2

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.33 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.10 dB
	6GHz ~ 18GHz	4.85 dB
	18GHz ~ 40GHz	5.24 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	WCBN3507A-D6
Brand	Devialet
Test Model	DVTRF001
Status of EUT	R&D SAMPLE
Power Supply Rating	3.3Vdc form host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.72GHz, 5.745 ~ 5.825GHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 5GHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	2.4GHz: 469.401mW 5.18 ~ 5.24GHz: 77.033mW 5.26 ~ 5.32GHz: 72.825mW 5.5 ~ 5.72GHz: 74.001mW 5.745 ~ 5.825GHz: 61.885 mW
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. There are Bluetooth technology and WLAN technology used for the EUT.
2. WLAN <5GHz> and Bluetooth technology can transmit at same time.

3. The EUT incorporates a 2T2R function with beamforming.

For 2.4G Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20) & 802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
VHT20	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
VHT40	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
For 5G Band			
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20) & 802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
802.11ac (VHT40) & 802.11ac (VHT80)	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX

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

Test Mode	Data rate
Mode A	400ns GI
Mode B	800ns GI

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

5. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Antenna set 1									
Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	5G Cable Loss (dB)	Connector Type	Cable Length (mm)
Chain (0)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band 1&2:1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300
Chain (1)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band 1&2:1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300
Antenna set 2									
Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	Cable Loss (dB)	Connector Type	Cable Length (mm)	
Chain (0)	Tongda	T-543-8201044-A (Ant 1)	PIFA	3.572	Band 1&2: 3.002 Band 3: 4.546 Band 4: 4.416	NA	IPEX	77	
Chain (1)	Tongda	T-543-8201044-A (Ant 2)	PIFA	3.325	Band 1&2: 2.942 Band 3: 4.622 Band 4: 4.586	NA	IPEX	61	
Antenna set 3									
Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	Cable Loss (dB)	Connector Type		
Chain (0)	ethertronics	M830520	chip	1.1	3.2	NA	IPEX		
Chain (1)	ethertronics	M830520	chip	1.1	3.2	NA	IPEX		
Antenna set 4									
Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	Cable Loss (dB)	Connector Type		
Chain (0)	ethertronics	1002298	PIFA	3.6	5.1	NA	IPEX		
Chain (1)	ethertronics	1002298	PIFA	3.6	5.1	NA	IPEX		

- Note:
1. Above antenna gains of antenna are Total (H+V).
 2. All of antenna can be application for WLAN and Bluetooth.
 3. Max. gain was selected for the final test.

3.3 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), VHT20:

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), VHT40:

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

3.3.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
1	√	√	√	√	Antenna set 1
2	√	√	-	-	Antenna set 3

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement
RE<1G: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission
APCM: Antenna Port Conducted Measurement

NOTE:

- Mode 1: The antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
- Mode 2: The antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
- "-" means no effect.

Radiated Emission Test (Above 1GHz):

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

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
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

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

Power Line Conducted Emission Test:

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

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

Antenna Port Conducted Measurement:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	24deg. C, 71%RH 25deg. C, 72%RH	120Vac, 60Hz	Gary Cheng Rey Chen
RE<1G	23deg. C, 68%RH 23deg. C, 66%RH 22deg. C, 65%RH	120Vac, 60Hz	Robert Cheng Andy Ho Weiwei Lo
PLC	23deg. C, 76%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen Andy Ho James Chan

3.4 Duty Cycle of Test Signal

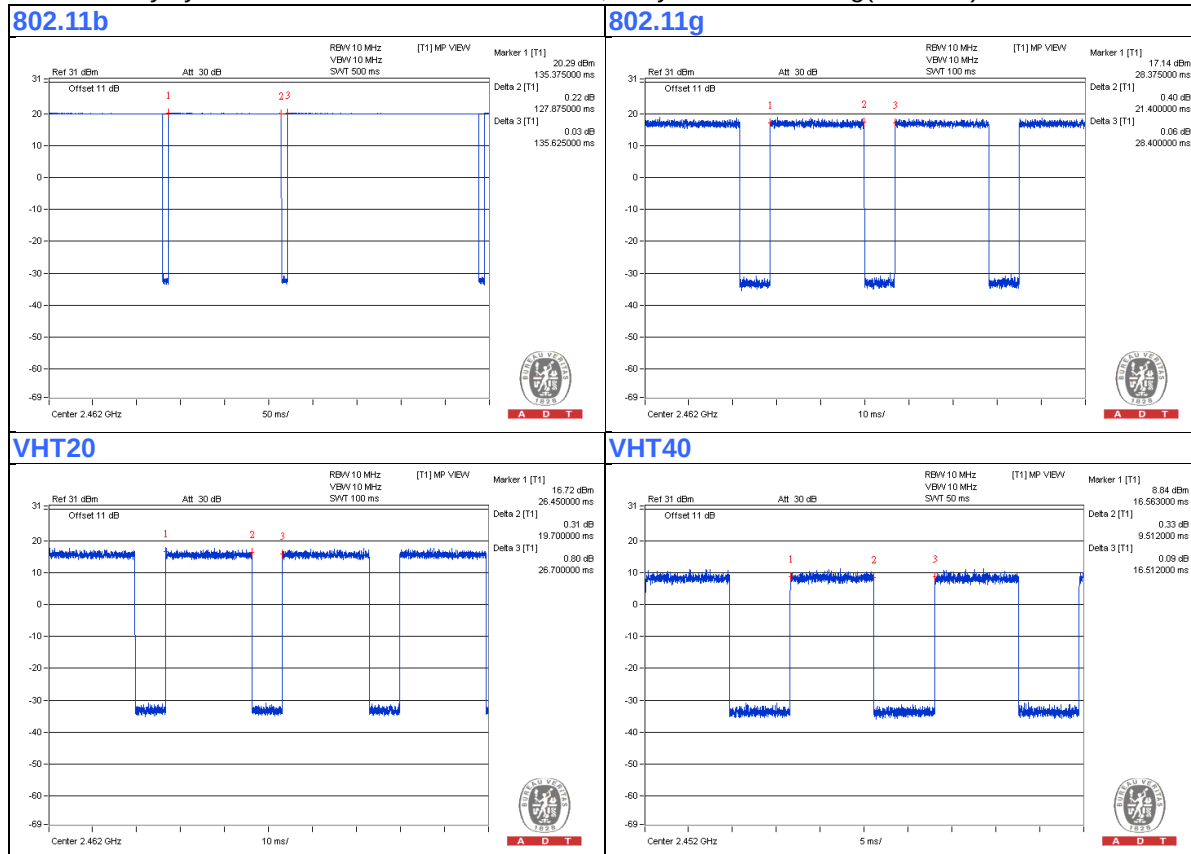
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 127.875 ms/135.625 ms = 0.943, Duty factor = $10 * \log(1/0.943) = 0.25$

802.11g: Duty cycle = 21.4 ms/28.4 ms = 0.754, Duty factor = $10 * \log(1/0.754) = 1.2$

VHT20: Duty cycle = 19.7 ms/26.7 ms = 0.738, Duty factor = $10 * \log(1/0.738) = 1.3$

VHT40: Duty cycle = 9.512 ms/16.512 ms = 0.576, Duty factor = $10 * \log(1/0.576) = 2.4$



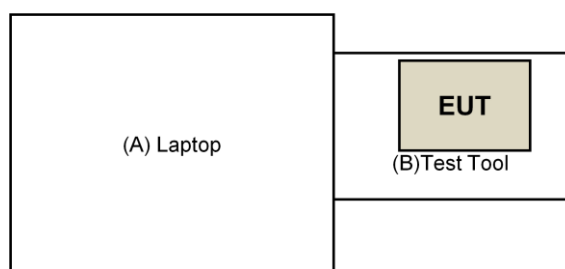
3.5 Description of Support Units

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.	Laptop	DELL	E6420	482T3R1	FCC DoC	Provided by Lab
B.	Test Tool	NA	NA	NA	NA	Supplied by client

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

3.5.1 Configuration of System under Test



3.6 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 v04
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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 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

Antenna set 1

802.11b

For above 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2017	July 11, 2018
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 28, 2016	Dec. 27, 2017
Pre-Amplifier EMCI	EMC12630SE	980384	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200	160922	Feb. 02, 2017	Feb. 01, 2018
	EMC104-SM-SM-2000	150317	Mar. 29, 2017	Mar. 28, 2018
	EMC104-SM-SM-5000	150322	Mar. 29, 2017	Mar. 28, 2018
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. The CANADA Site Registration No. is 20331-1
4. Tested Date: Dec. 12, 2017

Other mode

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 06, 2015	Feb. 05, 2016
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. H.
3. The CANADA Site Registration No. is IC 7450H-3.
4. Tested Date: May 08, 2015

For below 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 21, 2014	July 20, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2015	Jan. 17, 2016
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. G.
3. The CANADA Site Registration No. is IC 7450H-2.
4. Tested Date: May 08, 2015

Antenna set 3

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 08, 2017	July 07, 2018
Loop Antenna ^(*) TESEQ	HLA 6121	45745	May 19, 2017	May 18, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 09, 2017	Nov. 08, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCi	EMC12630SE	980385	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160923 150318 150321	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Pre-Amplifier EMCi	EMC184045SE	980387	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 11, 2018	Jan. 10, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. Loop antenna was used for all emissions below 30 MHz.
5. The CANADA Site Registration No. is 20331-2
6. Tested Date: Jan. 23 to 25, 2018

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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. Both X and Y axes of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case 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.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 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 detects 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:

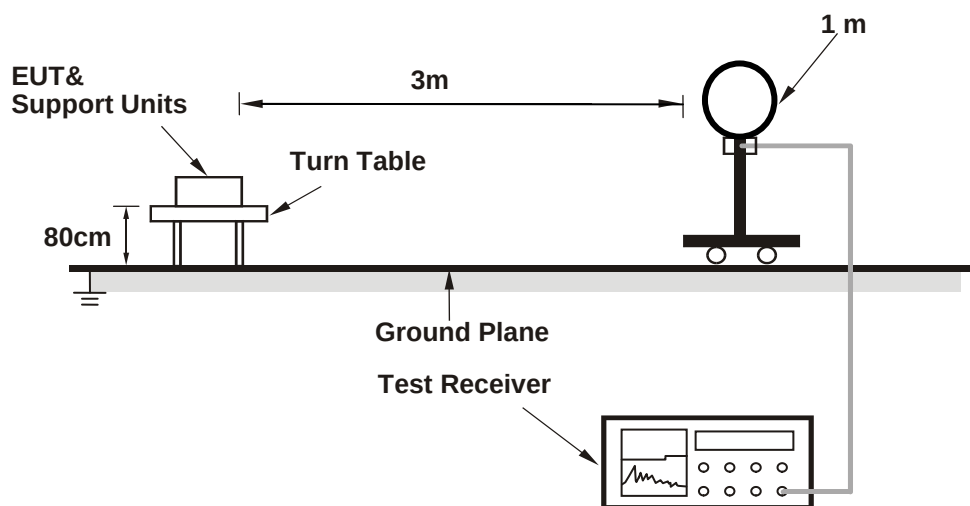
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

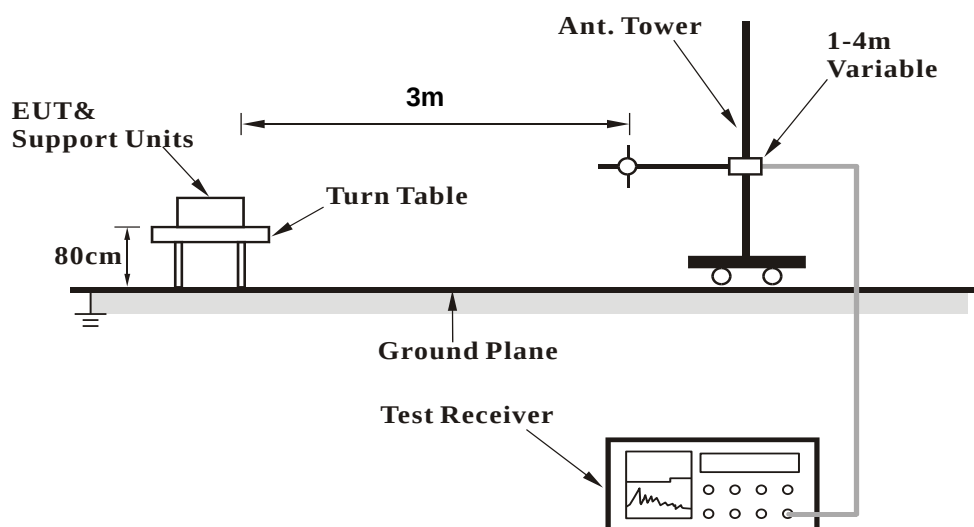
No deviation.

4.1.5 Test Setup

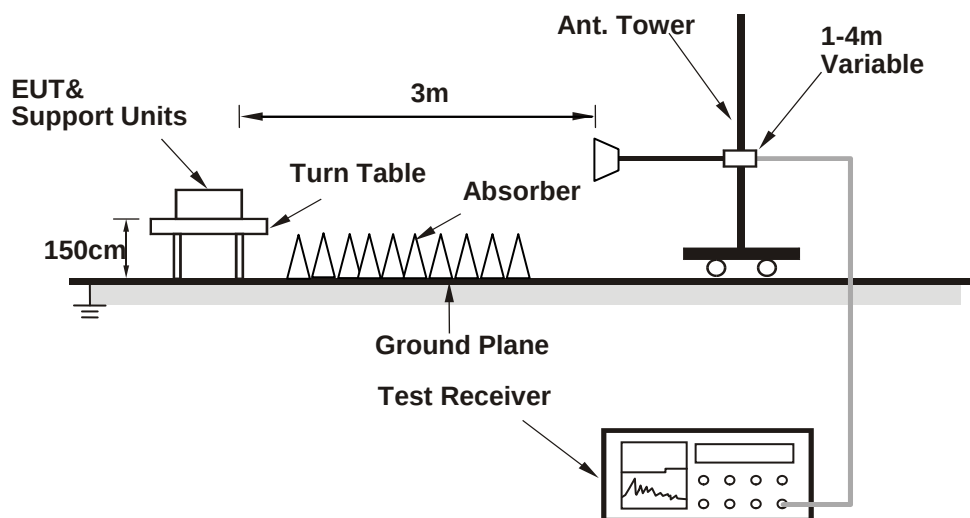
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Controlling software (QCART_Version:3.0.29.0) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

Above 1GHz Data

802.11b

CHANNEL	TX Channel 1	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	53.5 PK	74.0	-20.5	1.94 H	354	55.1	-1.6
2	2390.00	41.3 AV	54.0	-12.7	1.94 H	354	42.9	-1.6
3	*2412.00	108.9 PK			1.94 H	354	110.4	-1.5
4	*2412.00	106.6 AV			1.94 H	354	108.1	-1.5
5	4824.00	55.2 PK	74.0	-18.8	1.90 H	241	52.2	3.0
6	4824.00	53.6 AV	54.0	-0.4	1.90 H	241	50.6	3.0
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	2390.00	53.1 PK	74.0	-20.9	1.93 V	350	54.7	-1.6
2	2390.00	41.2 AV	54.0	-12.8	1.93 V	350	42.8	-1.6
3	*2412.00	108.8 PK			1.93 V	350	110.3	-1.5
4	*2412.00	106.6 AV			1.93 V	350	108.1	-1.5
5	4824.00	55.5 PK	74.0	-18.5	1.50 V	354	52.5	3.0
6	4824.00	53.5 AV	54.0	-0.5	1.50 V	354	50.5	3.0

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.

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	*2437.00	108.7 PK			1.49 H	273	110.2	-1.5
2	*2437.00	106.8 AV			1.49 H	273	108.3	-1.5
3	4874.00	55.2 PK	74.0	-18.8	1.50 H	256	52.0	3.2
4	4874.00	53.9 AV	54.0	-0.1	1.50 H	256	50.7	3.2
5	7311.00	40.9 PK	74.0	-33.1	1.46 H	220	32.0	8.9
6	7311.00	31.4 AV	54.0	-22.6	1.46 H	220	22.5	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.6 PK			1.88 V	354	110.1	-1.5
2	*2437.00	106.5 AV			1.88 V	354	108.0	-1.5
3	4874.00	55.1 PK	74.0	-18.9	1.23 V	355	51.9	3.2
4	4874.00	53.8 AV	54.0	-0.2	1.23 V	355	50.6	3.2
5	7311.00	46.3 PK	74.0	-27.7	1.47 V	223	37.4	8.9
6	7311.00	33.1 AV	54.0	-20.9	1.47 V	223	24.2	8.9

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)
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	*2462.00	109.6 PK			1.44 H	289	111.0	-1.4
2	*2462.00	107.0 AV			1.44 H	289	108.4	-1.4
3	2483.50	58.3 PK	74.0	-15.7	1.44 H	289	59.7	-1.4
4	2483.50	47.7 AV	54.0	-6.3	1.44 H	289	49.1	-1.4
5	4924.00	55.4 PK	74.0	-18.6	1.75 H	219	52.1	3.3
6	4924.00	53.9 AV	54.0	-0.1	1.75 H	219	50.6	3.3
7	7386.00	41.7 PK	74.0	-32.3	1.50 H	212	32.6	9.1
8	7386.00	31.6 AV	54.0	-22.4	1.50 H	212	22.5	9.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.8 PK			1.98 V	360	110.2	-1.4
2	*2462.00	106.7 AV			1.98 V	360	108.1	-1.4
3	2483.50	58.2 PK	74.0	-15.8	1.98 V	360	59.6	-1.4
4	2483.50	47.4 AV	54.0	-6.6	1.98 V	360	48.8	-1.4
5	4924.00	55.3 PK	74.0	-18.7	2.00 V	141	52.0	3.3
6	4924.00	53.8 AV	54.0	-0.2	2.00 V	141	50.5	3.3
7	7386.00	45.9 PK	74.0	-28.1	1.50 V	224	36.8	9.1
8	7386.00	33.4 AV	54.0	-20.6	1.50 V	224	24.3	9.1

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)
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	54.2 PK	74.0	-19.8	1.48 H	45	57.39	-3.19
2	2390.00	42.8 AV	54.0	-11.2	1.48 H	45	45.99	-3.19
3	*2412.00	106.7 PK			1.48 H	45	109.83	-3.13
4	*2412.00	96.4 AV			1.48 H	45	99.53	-3.13
5	4824.00	56.2 PK	74.0	-17.8	1.43 H	344	50.23	5.97
6	4824.00	43.5 AV	54.0	-10.5	1.43 H	344	37.53	5.97
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	62.4 PK	74.0	-11.6	1.57 V	266	65.59	-3.19
2	2390.00	47.6 AV	54.0	-6.4	1.57 V	266	50.79	-3.19
3	*2412.00	110.3 PK			1.57 V	266	113.43	-3.13
4	*2412.00	99.2 AV			1.57 V	266	102.33	-3.13
5	4824.00	55.9 PK	74.0	-18.1	1.28 V	101	49.93	5.97
6	4824.00	43.2 AV	54.0	-10.8	1.28 V	101	37.23	5.97

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	*2437.00	110.2 PK			1.46 H	46	113.24	-3.04
2	*2437.00	99.7 AV			1.46 H	46	102.74	-3.04
3	4874.00	57.3 PK	74.0	-16.7	1.40 H	326	51.25	6.05
4	4874.00	45.3 AV	54.0	-8.7	1.40 H	326	39.25	6.05
5	7311.00	59.1 PK	74.0	-14.9	1.60 H	303	48.16	10.94
6	7311.00	47.4 AV	54.0	-6.6	1.60 H	303	36.46	10.94
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	113.5 PK			1.58 V	262	116.54	-3.04
2	*2437.00	102.9 AV			1.58 V	262	105.94	-3.04
3	4874.00	58.7 PK	74.0	-15.3	1.29 V	121	52.65	6.05
4	4874.00	46.0 AV	54.0	-8.0	1.29 V	121	39.95	6.05
5	7311.00	61.4 PK	74.0	-12.6	1.06 V	304	50.46	10.94
6	7311.00	48.4 AV	54.0	-5.6	1.06 V	304	37.46	10.94

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)
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	*2462.00	107.2 PK			1.43 H	46	110.14	-2.94
2	*2462.00	96.6 AV			1.43 H	46	99.54	-2.94
3	2483.50	54.2 PK	74.0	-19.8	1.43 H	46	57.07	-2.87
4	2483.50	42.1 AV	54.0	-11.9	1.43 H	46	44.97	-2.87
5	4924.00	56.3 PK	74.0	-17.7	1.41 H	342	50.23	6.07
6	4924.00	43.4 AV	54.0	-10.6	1.41 H	342	37.33	6.07
7	7386.00	57.4 PK	74.0	-16.6	1.63 H	302	45.98	11.42
8	7386.00	45.6 AV	54.0	-8.4	1.63 H	302	34.18	11.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.8 PK			1.63 V	262	111.74	-2.94
2	*2462.00	98.2 AV			1.63 V	262	101.14	-2.94
3	2483.50	61.5 PK	74.0	-12.5	1.63 V	262	64.37	-2.87
4	2483.50	46.4 AV	54.0	-7.6	1.63 V	262	49.27	-2.87
5	4924.00	56.5 PK	74.0	-17.5	1.29 V	106	50.43	6.07
6	4924.00	43.6 AV	54.0	-10.4	1.29 V	106	37.53	6.07
7	7386.00	57.4 PK	74.0	-16.6	1.06 V	305	45.98	11.42
8	7386.00	45.4 AV	54.0	-8.6	1.06 V	305	33.98	11.42

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.

VHT20

CHANNEL	TX Channel 1	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	54.4 PK	74.0	-19.6	1.52 H	51	57.59	-3.19
2	2390.00	43.0 AV	54.0	-11.0	1.52 H	51	46.19	-3.19
3	*2412.00	106.5 PK			1.52 H	51	109.63	-3.13
4	*2412.00	96.3 AV			1.52 H	51	99.43	-3.13
5	4824.00	56.4 PK	74.0	-17.6	1.38 H	343	50.43	5.97
6	4824.00	43.9 AV	54.0	-10.1	1.38 H	343	37.93	5.97
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	63.1 PK	74.0	-10.9	1.53 V	264	66.29	-3.19
2	2390.00	48.0 AV	54.0	-6.0	1.53 V	264	51.19	-3.19
3	*2412.00	110.8 PK			1.53 V	264	113.93	-3.13
4	*2412.00	99.5 AV			1.53 V	264	102.63	-3.13
5	4824.00	55.6 PK	74.0	-18.4	1.27 V	109	49.63	5.97
6	4824.00	43.0 AV	54.0	-11.0	1.27 V	109	37.03	5.97

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	*2437.00	110.2 PK			1.45 H	42	113.24	-3.04
2	*2437.00	99.5 AV			1.45 H	42	102.54	-3.04
3	4874.00	57.2 PK	74.0	-16.8	1.44 H	330	51.15	6.05
4	4874.00	45.5 AV	54.0	-8.5	1.44 H	330	39.45	6.05
5	7311.00	58.8 PK	74.0	-15.2	1.57 H	316	47.86	10.94
6	7311.00	47.2 AV	54.0	-6.8	1.57 H	316	36.26	10.94
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	113.5 PK			1.63 V	259	116.54	-3.04
2	*2437.00	102.7 AV			1.63 V	259	105.74	-3.04
3	4874.00	58.7 PK	74.0	-15.3	1.28 V	125	52.65	6.05
4	4874.00	45.8 AV	54.0	-8.2	1.28 V	125	39.75	6.05
5	7311.00	61.3 PK	74.0	-12.7	1.05 V	316	50.36	10.94
6	7311.00	48.4 AV	54.0	-5.6	1.05 V	316	37.46	10.94

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)
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	*2462.00	104.3 PK			1.38 H	53	107.24	-2.94
2	*2462.00	94.3 AV			1.38 H	53	97.24	-2.94
3	2483.50	54.2 PK	74.0	-19.8	1.38 H	53	57.07	-2.87
4	2483.50	42.6 AV	54.0	-11.4	1.38 H	53	45.47	-2.87
5	4924.00	55.8 PK	74.0	-18.2	1.43 H	332	49.73	6.07
6	4924.00	42.9 AV	54.0	-11.1	1.43 H	332	36.83	6.07
7	7386.00	57.9 PK	74.0	-16.1	1.58 H	309	46.48	11.42
8	7386.00	46.0 AV	54.0	-8.0	1.58 H	309	34.58	11.42
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	106.2 PK			1.72 V	262	109.14	-2.94
2	*2462.00	96.3 AV			1.72 V	262	99.24	-2.94
3	2483.50	57.3 PK	74.0	-16.7	1.72 V	262	60.17	-2.87
4	2483.50	44.3 AV	54.0	-9.7	1.72 V	262	47.17	-2.87
5	4924.00	56.9 PK	74.0	-17.1	1.24 V	95	50.83	6.07
6	4924.00	44.0 AV	54.0	-10.0	1.24 V	95	37.93	6.07
7	7386.00	57.1 PK	74.0	-16.9	1.12 V	314	45.68	11.42
8	7386.00	45.2 AV	54.0	-8.8	1.12 V	314	33.78	11.42

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.

VHT40

CHANNEL	TX Channel 3	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	56.5 PK	74.0	-17.5	1.38 H	50	59.69	-3.19
2	2390.00	45.4 AV	54.0	-8.6	1.38 H	50	48.59	-3.19
3	*2422.00	101.3 PK			1.38 H	50	104.39	-3.09
4	*2422.00	91.4 AV			1.38 H	50	94.49	-3.09
5	4844.00	56.2 PK	74.0	-17.8	1.46 H	324	50.21	5.99
6	4844.00	43.4 AV	54.0	-10.6	1.46 H	324	37.41	5.99
7	7266.00	58.5 PK	74.0	-15.5	1.59 H	307	47.61	10.89
8	7266.00	46.4 AV	54.0	-7.6	1.59 H	307	35.51	10.89
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	61.8 PK	74.0	-12.2	1.57 V	263	64.99	-3.19
2	2390.00	48.4 AV	54.0	-5.6	1.57 V	263	51.59	-3.19
3	*2422.00	104.4 PK			1.57 V	263	107.49	-3.09
4	*2422.00	94.4 AV			1.57 V	263	97.49	-3.09
5	4844.00	56.6 PK	74.0	-17.4	1.24 V	97	50.61	5.99
6	4844.00	43.6 AV	54.0	-10.4	1.24 V	97	37.61	5.99
7	7266.00	57.3 PK	74.0	-16.7	1.14 V	303	46.41	10.89
8	7266.00	45.4 AV	54.0	-8.6	1.14 V	303	34.51	10.89

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	57.6 PK	74.0	-16.4	1.30 H	52	60.79	-3.19
2	2390.00	43.3 AV	54.0	-10.7	1.30 H	52	46.49	-3.19
3	*2437.00	104.4 PK			1.30 H	52	107.44	-3.04
4	*2437.00	94.2 AV			1.30 H	52	97.24	-3.04
5	2483.50	56.8 PK	74.0	-17.2	1.30 H	52	59.67	-2.87
6	2483.50	42.4 AV	54.0	-11.6	1.30 H	52	45.27	-2.87
7	4874.00	56.3 PK	74.0	-17.7	1.45 H	330	50.25	6.05
8	4874.00	43.4 AV	54.0	-10.6	1.45 H	330	37.35	6.05
9	7311.00	58.4 PK	74.0	-15.6	1.62 H	301	47.46	10.94
10	7311.00	46.3 AV	54.0	-7.7	1.62 H	301	35.36	10.94

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	60.5 PK	74.0	-13.5	1.61 V	264	63.69	-3.19
2	2390.00	47.3 AV	54.0	-6.7	1.61 V	264	50.49	-3.19
3	*2437.00	107.7 PK			1.61 V	264	110.74	-3.04
4	*2437.00	97.1 AV			1.61 V	264	100.14	-3.04
5	2483.50	60.6 PK	74.0	-13.4	1.61 V	264	63.47	-2.87
6	2483.50	46.3 AV	54.0	-7.7	1.61 V	264	49.17	-2.87
7	4874.00	57.0 PK	74.0	-17.0	1.22 V	105	50.95	6.05
8	4874.00	44.2 AV	54.0	-9.8	1.22 V	105	38.15	6.05
9	7311.00	57.2 PK	74.0	-16.8	1.15 V	322	46.26	10.94
10	7311.00	45.1 AV	54.0	-8.9	1.15 V	322	34.16	10.94

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)
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	*2452.00	98.2 PK			1.42 H	56	101.18	-2.98
2	*2452.00	87.0 AV			1.42 H	56	89.98	-2.98
3	2483.50	59.6 PK	74.0	-14.4	1.42 H	56	62.47	-2.87
4	2483.50	41.3 AV	54.0	-12.7	1.42 H	56	44.17	-2.87
5	4904.00	55.6 PK	74.0	-18.4	1.48 H	336	49.52	6.08
6	4904.00	42.6 AV	54.0	-11.4	1.48 H	336	36.52	6.08
7	7356.00	57.5 PK	74.0	-16.5	1.56 H	301	46.28	11.22
8	7356.00	45.8 AV	54.0	-8.2	1.56 H	301	34.58	11.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.6 PK			1.53 V	262	104.58	-2.98
2	*2452.00	90.4 AV			1.53 V	262	93.38	-2.98
3	2483.50	62.6 PK	74.0	-11.4	1.53 V	262	65.47	-2.87
4	2483.50	44.6 AV	54.0	-9.4	1.53 V	262	47.47	-2.87
5	4904.00	56.7 PK	74.0	-17.3	1.18 V	105	50.62	6.08
6	4904.00	43.5 AV	54.0	-10.5	1.18 V	105	37.42	6.08
7	7356.00	57.1 PK	74.0	-16.9	1.17 V	307	45.88	11.22
8	7356.00	45.1 AV	54.0	-8.9	1.17 V	307	33.88	11.22

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

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	215.17	39.2 QP	43.5	-4.3	1.50 H	106	55.03	-15.87
2	230.89	38.0 QP	46.0	-8.0	1.00 H	278	53.46	-15.45
3	287.92	38.5 QP	46.0	-7.5	1.00 H	89	50.96	-12.42
4	323.91	41.2 QP	46.0	-4.8	1.00 H	311	52.39	-11.22
5	431.87	36.4 QP	46.0	-9.6	2.00 H	252	44.59	-8.21
6	896.31	38.6 QP	46.0	-7.4	1.50 H	109	37.94	0.63
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	134.76	31.4 QP	43.5	-12.1	1.00 V	279	45.01	-13.64
2	215.90	38.7 QP	43.5	-4.8	1.50 V	213	54.50	-15.83
3	287.87	36.1 QP	46.0	-9.9	1.15 V	339	48.54	-12.42
4	322.72	41.5 QP	46.0	-4.5	1.00 V	332	52.72	-11.26
5	359.85	42.5 QP	46.0	-3.5	1.00 V	325	53.04	-10.55
6	430.32	39.3 QP	46.0	-6.7	1.00 V	345	47.57	-8.25

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

4.1.8 Test Results (Mode 2)

Above 1GHz Data

802.11b

CHANNEL	TX Channel 1	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	53.8 PK	74.0	-20.2	1.06 H	66	54.8	-1.0
2	2390.00	42.9 AV	54.0	-11.1	1.06 H	66	43.9	-1.0
3	*2412.00	109.9 PK			1.06 H	66	110.9	-1.0
4	*2412.00	107.6 AV			1.06 H	66	108.6	-1.0
5	4824.00	55.9 PK	74.0	-18.1	1.54 H	277	52.8	3.1
6	4824.00	53.7 AV	54.0	-0.3	1.54 H	277	50.6	3.1
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	50.8 PK	74.0	-23.2	3.26 V	114	51.8	-1.0
2	2390.00	38.7 AV	54.0	-15.3	3.26 V	114	39.7	-1.0
3	*2412.00	105.3 PK			3.26 V	114	106.3	-1.0
4	*2412.00	103.2 AV			3.26 V	114	104.2	-1.0
5	4824.00	50.1 PK	74.0	-23.9	2.17 V	174	47.0	3.1
6	4824.00	48.8 AV	54.0	-5.2	2.17 V	174	45.7	3.1

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	*2437.00	112.9 PK			1.01 H	20	114.3	-1.4
2	*2437.00	110.8 AV			1.01 H	20	112.2	-1.4
3	4874.00	55.4 PK	74.0	-18.6	1.54 H	277	52.1	3.3
4	4874.00	53.8 AV	54.0	-0.2	1.54 H	277	50.5	3.3
5	7311.00	36.8 PK	74.0	-37.2	1.70 H	338	26.8	10.0
6	7311.00	24.9 AV	54.0	-29.1	1.70 H	338	14.9	10.0
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	*2437.00	105.2 PK			3.25 V	99	106.6	-1.4
2	*2437.00	103.0 AV			3.25 V	99	104.4	-1.4
3	4874.00	50.0 PK	74.0	-24.0	2.12 V	175	46.7	3.3
4	4874.00	49.2 AV	54.0	-4.8	2.12 V	175	45.9	3.3
5	7311.00	36.1 PK	74.0	-37.9	1.60 V	81	26.1	10.0
6	7311.00	24.5 AV	54.0	-29.5	1.60 V	81	14.5	10.0

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.

CHANNEL	TX Channel 11	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	*2462.00	112.6 PK			1.03 H	33	114.0	-1.4
2	*2462.00	110.5 AV			1.03 H	33	111.9	-1.4
3	2483.50	55.6 PK	74.0	-18.4	1.03 H	33	56.8	-1.2
4	2483.50	43.8 AV	54.0	-10.2	1.03 H	33	45.0	-1.2
5	4924.00	55.2 PK	74.0	-18.8	1.50 H	282	51.7	3.5
6	4924.00	53.8 AV	54.0	-0.2	1.50 H	282	50.3	3.5
7	7386.00	36.9 PK	74.0	-37.1	1.65 H	349	26.7	10.2
8	7386.00	25.1 AV	54.0	-28.9	1.65 H	349	14.9	10.2
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	*2462.00	105.4 PK			3.25 V	120	106.8	-1.4
2	*2462.00	103.1 AV			3.25 V	120	104.5	-1.4
3	2483.50	50.5 PK	74.0	-23.5	3.25 V	120	51.7	-1.2
4	2483.50	38.6 AV	54.0	-15.4	3.25 V	120	39.8	-1.2
5	4924.00	50.2 PK	74.0	-23.8	2.16 V	183	46.7	3.5
6	4924.00	49.1 AV	54.0	-4.9	2.16 V	183	45.6	3.5
7	7386.00	36.6 PK	74.0	-37.4	1.55 V	79	26.4	10.2
8	7386.00	24.9 AV	54.0	-29.1	1.55 V	79	14.7	10.2

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.

802.11g

CHANNEL	TX Channel 1	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	53.3 PK	74.0	-20.7	1.51 H	49	54.3	-1.0
2	2390.00	42.5 AV	54.0	-11.5	1.51 H	49	43.5	-1.0
3	*2412.00	116.5 PK			1.46 H	51	117.5	-1.0
4	*2412.00	106.9 AV			1.46 H	51	107.9	-1.0
5	4824.00	59.7 PK	74.0	-14.3	1.43 H	295	56.6	3.1
6	4824.00	48.3 AV	54.0	-5.7	1.43 H	295	45.2	3.1
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	50.3 PK	74.0	-23.7	3.24 V	141	51.3	-1.0
2	2390.00	38.5 AV	54.0	-15.5	3.24 V	141	39.5	-1.0
3	*2412.00	112.1 PK			3.24 V	141	113.1	-1.0
4	*2412.00	102.6 AV			3.24 V	141	103.6	-1.0
5	4824.00	54.4 PK	74.0	-19.6	2.16 V	173	51.3	3.1
6	4824.00	43.4 AV	54.0	-10.6	2.16 V	173	40.3	3.1

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	56.3 PK	74.0	-17.7	1.49 H	47	57.3	-1.0
2	2390.00	43.9 AV	54.0	-10.1	1.49 H	47	44.9	-1.0
3	*2437.00	121.9 PK			1.49 H	47	123.3	-1.4
4	*2437.00	112.3 AV			1.49 H	47	113.7	-1.4
5	2483.50	60.2 PK	74.0	-13.8	1.49 H	47	61.4	-1.2
6	2483.50	47.4 AV	54.0	-6.6	1.49 H	47	48.6	-1.2
7	4874.00	59.2 PK	74.0	-14.8	1.40 H	283	55.9	3.3
8	4874.00	47.9 AV	54.0	-6.1	1.40 H	283	44.6	3.3
9	7311.00	37.6 PK	74.0	-36.4	1.66 H	302	27.6	10.0
10	7311.00	25.6 AV	54.0	-28.4	1.66 H	302	15.6	10.0

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	2390.00	53.3 PK	74.0	-20.7	3.28 V	125	54.3	-1.0
2	2390.00	39.7 AV	54.0	-14.3	3.28 V	125	40.7	-1.0
3	*2437.00	117.6 PK			3.28 V	125	119.0	-1.4
4	*2437.00	108.3 AV			3.28 V	125	109.7	-1.4
5	2483.50	56.3 PK	74.0	-17.7	3.28 V	125	57.5	-1.2
6	2483.50	43.2 AV	54.0	-10.8	3.28 V	125	44.4	-1.2
7	4874.00	54.3 PK	74.0	-19.7	2.17 V	188	51.0	3.3
8	4874.00	43.2 AV	54.0	-10.8	2.17 V	188	39.9	3.3
9	7311.00	37.2 PK	74.0	-36.8	1.69 V	224	27.2	10.0
10	7311.00	24.8 AV	54.0	-29.2	1.69 V	224	14.8	10.0

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.

CHANNEL	TX Channel 11	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	*2462.00	116.0 PK			1.44 H	53	117.4	-1.4
2	*2462.00	106.6 AV			1.44 H	53	108.0	-1.4
3	2483.50	53.3 PK	74.0	-20.7	1.44 H	53	54.5	-1.2
4	2483.50	42.3 AV	54.0	-11.7	1.44 H	53	43.5	-1.2
5	4924.00	59.2 PK	74.0	-14.8	1.45 H	278	55.7	3.5
6	4924.00	47.9 AV	54.0	-6.1	1.45 H	278	44.4	3.5
7	7386.00	37.5 PK	74.0	-36.5	1.62 H	291	27.3	10.2
8	7386.00	25.2 AV	54.0	-28.8	1.62 H	291	15.0	10.2
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	*2462.00	111.9 PK			3.20 V	131	113.3	-1.4
2	*2462.00	102.4 AV			3.20 V	131	103.8	-1.4
3	2483.50	50.9 PK	74.0	-23.1	3.20 V	131	52.1	-1.2
4	2483.50	38.8 AV	54.0	-15.2	3.20 V	131	40.0	-1.2
5	4924.00	53.6 PK	74.0	-20.4	2.19 V	177	50.1	3.5
6	4924.00	42.7 AV	54.0	-11.3	2.19 V	177	39.2	3.5
7	7386.00	37.3 PK	74.0	-36.7	1.70 V	229	27.1	10.2
8	7386.00	24.8 AV	54.0	-29.2	1.70 V	229	14.6	10.2

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.

VHT20

CHANNEL	TX Channel 1	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	53.3 PK	74.0	-20.7	1.40 H	46	54.3	-1.0
2	2390.00	42.1 AV	54.0	-11.9	1.40 H	46	43.1	-1.0
3	*2412.00	116.0 PK			1.40 H	46	117.0	-1.0
4	*2412.00	106.5 AV			1.40 H	46	107.5	-1.0
5	4824.00	59.2 PK	74.0	-14.8	1.43 H	287	56.1	3.1
6	4824.00	47.4 AV	54.0	-6.6	1.43 H	287	44.3	3.1
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	50.3 PK	74.0	-23.7	3.23 V	129	51.3	-1.0
2	2390.00	38.6 AV	54.0	-15.4	3.23 V	129	39.6	-1.0
3	*2412.00	111.9 PK			3.23 V	129	112.9	-1.0
4	*2412.00	102.7 AV			3.23 V	129	103.7	-1.0
5	4824.00	53.3 PK	74.0	-20.7	2.28 V	191	50.2	3.1
6	4824.00	42.3 AV	54.0	-11.7	2.28 V	191	39.2	3.1

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	56.9 PK	74.0	-17.1	1.50 H	39	57.9	-1.0
2	2390.00	44.4 AV	54.0	-9.6	1.50 H	39	45.4	-1.0
3	*2437.00	122.3 PK			1.49 H	55	123.7	-1.4
4	*2437.00	112.5 AV			1.49 H	55	113.9	-1.4
5	2483.50	60.1 PK	74.0	-13.9	1.48 H	37	61.3	-1.2
6	2483.50	47.3 AV	54.0	-6.7	1.48 H	37	48.5	-1.2
7	4874.00	59.5 PK	74.0	-14.5	1.39 H	282	56.2	3.3
8	4874.00	48.0 AV	54.0	-6.0	1.39 H	282	44.7	3.3
9	7311.00	37.7 PK	74.0	-36.3	1.69 H	288	27.7	10.0
10	7311.00	25.5 AV	54.0	-28.5	1.69 H	288	15.5	10.0

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	2390.00	53.5 PK	74.0	-20.5	3.32 V	120	54.5	-1.0
2	2390.00	40.1 AV	54.0	-13.9	3.32 V	120	41.1	-1.0
3	*2437.00	117.3 PK			3.27 V	118	118.7	-1.4
4	*2437.00	108.0 AV			3.27 V	118	109.4	-1.4
5	2483.50	56.4 PK	74.0	-17.6	3.33 V	121	57.6	-1.2
6	2483.50	43.5 AV	54.0	-10.5	3.33 V	121	44.7	-1.2
7	4874.00	54.0 PK	74.0	-20.0	2.22 V	180	50.7	3.3
8	4874.00	42.9 AV	54.0	-11.1	2.22 V	180	39.6	3.3
9	7311.00	37.9 PK	74.0	-36.1	1.68 V	233	27.9	10.0
10	7311.00	25.2 AV	54.0	-28.8	1.68 V	233	15.2	10.0

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.

CHANNEL	TX Channel 11	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	*2462.00	114.2 PK			1.44 H	47	115.6	-1.4
2	*2462.00	105.4 AV			1.44 H	47	106.8	-1.4
3	2483.50	53.0 PK	74.0	-21.0	1.44 H	47	54.2	-1.2
4	2483.50	41.9 AV	54.0	-12.1	1.44 H	47	43.1	-1.2
5	4924.00	59.4 PK	74.0	-14.6	1.38 H	280	55.9	3.5
6	4924.00	47.6 AV	54.0	-6.4	1.38 H	280	44.1	3.5
7	7386.00	38.3 PK	74.0	-35.7	1.72 H	301	28.1	10.2
8	7386.00	25.9 AV	54.0	-28.1	1.72 H	301	15.7	10.2
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	*2462.00	110.2 PK			3.18 V	143	111.6	-1.4
2	*2462.00	100.7 AV			3.18 V	143	102.1	-1.4
3	2483.50	50.1 PK	74.0	-23.9	3.18 V	143	51.3	-1.2
4	2483.50	38.5 AV	54.0	-15.5	3.18 V	143	39.7	-1.2
5	4924.00	53.7 PK	74.0	-20.3	2.22 V	184	50.2	3.5
6	4924.00	42.5 AV	54.0	-11.5	2.22 V	184	39.0	3.5
7	7386.00	37.4 PK	74.0	-36.6	1.67 V	227	27.2	10.2
8	7386.00	24.8 AV	54.0	-29.2	1.67 V	227	14.6	10.2

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.

VHT40

CHANNEL	TX Channel 3	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	66.5 PK	74.0	-7.5	1.51 H	49	67.5	-1.0
2	2390.00	52.6 AV	54.0	-1.4	1.51 H	49	53.6	-1.0
3	*2422.00	111.4 PK			1.51 H	49	112.7	-1.3
4	*2422.00	100.9 AV			1.51 H	49	102.2	-1.3
5	4844.00	59.5 PK	74.0	-14.5	1.43 H	290	56.4	3.1
6	4844.00	47.8 AV	54.0	-6.2	1.43 H	290	44.7	3.1
7	7266.00	38.0 PK	74.0	-36.0	1.71 H	286	28.2	9.8
8	7266.00	25.8 AV	54.0	-28.2	1.71 H	286	16.0	9.8
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	2390.00	50.4 PK	74.0	-23.6	2.62 V	28	51.4	-1.0
2	2390.00	38.9 AV	54.0	-15.1	2.62 V	28	39.9	-1.0
3	*2422.00	95.9 PK			2.62 V	28	97.2	-1.3
4	*2422.00	85.9 AV			2.62 V	28	87.2	-1.3
5	4844.00	54.1 PK	74.0	-19.9	2.19 V	185	51.0	3.1
6	4844.00	42.7 AV	54.0	-11.3	2.19 V	185	39.6	3.1
7	7266.00	37.7 PK	74.0	-36.3	1.63 V	229	27.9	9.8
8	7266.00	24.8 AV	54.0	-29.2	1.63 V	229	15.0	9.8

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
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	56.6 PK	74.0	-17.4	1.37 H	51	57.6	-1.0
2	2390.00	44.1 AV	54.0	-9.9	1.37 H	51	45.1	-1.0
3	*2437.00	113.7 PK			1.37 H	51	115.1	-1.4
4	*2437.00	103.2 AV			1.37 H	51	104.6	-1.4
5	2483.50	60.8 PK	74.0	-13.2	1.37 H	51	62.0	-1.2
6	2483.50	47.8 AV	54.0	-6.2	1.37 H	51	49.0	-1.2
7	4874.00	59.7 PK	74.0	-14.3	1.34 H	296	56.4	3.3
8	4874.00	47.7 AV	54.0	-6.3	1.34 H	296	44.4	3.3
9	7311.00	38.3 PK	74.0	-35.7	1.72 H	292	28.3	10.0
10	7311.00	26.2 AV	54.0	-27.8	1.72 H	292	16.2	10.0

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	2390.00	53.2 PK	74.0	-20.8	2.64 V	34	54.2	-1.0
2	2390.00	39.8 AV	54.0	-14.2	2.64 V	34	40.8	-1.0
3	*2437.00	99.0 PK			2.64 V	34	100.4	-1.4
4	*2437.00	89.1 AV			2.64 V	34	90.5	-1.4
5	2483.50	56.6 PK	74.0	-17.4	2.64 V	34	57.8	-1.2
6	2483.50	43.8 AV	54.0	-10.2	2.64 V	34	45.0	-1.2
7	4874.00	54.3 PK	74.0	-19.7	2.25 V	173	51.0	3.3
8	4874.00	43.0 AV	54.0	-11.0	2.25 V	173	39.7	3.3
9	7311.00	37.6 PK	74.0	-36.4	1.70 V	221	27.6	10.0
10	7311.00	25.0 AV	54.0	-29.0	1.70 V	221	15.0	10.0

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.

CHANNEL	TX Channel 9	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	*2452.00	109.1 PK			1.42 H	58	110.5	-1.4
2	*2452.00	98.9 AV			1.42 H	58	100.3	-1.4
3	2483.50	67.4 PK	74.0	-6.6	1.42 H	58	68.6	-1.2
4	2483.50	50.4 AV	54.0	-3.6	1.42 H	58	51.6	-1.2
5	4904.00	58.7 PK	74.0	-15.3	1.44 H	287	55.2	3.5
6	4904.00	47.1 AV	54.0	-6.9	1.44 H	287	43.6	3.5
7	7356.00	38.3 PK	74.0	-35.7	1.70 H	315	28.1	10.2
8	7356.00	25.8 AV	54.0	-28.2	1.70 H	315	15.6	10.2
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	93.6 PK			2.66 V	41	95.0	-1.4
2	*2452.00	83.9 AV			2.66 V	41	85.3	-1.4
3	2483.50	49.6 PK	74.0	-24.4	2.66 V	41	50.8	-1.2
4	2483.50	37.1 AV	54.0	-16.9	2.66 V	41	38.3	-1.2
5	4904.00	53.8 PK	74.0	-20.2	2.19 V	174	50.3	3.5
6	4904.00	42.8 AV	54.0	-11.2	2.19 V	174	39.3	3.5
7	7356.00	37.2 PK	74.0	-36.8	1.63 V	212	27.0	10.2
8	7356.00	24.5 AV	54.0	-29.5	1.63 V	212	14.3	10.2

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 Data

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	138.24	29.0 QP	43.5	-14.5	1.00 H	222	37.3	-8.3
2	166.75	31.8 QP	43.5	-11.7	1.50 H	130	40.1	-8.3
3	199.96	32.1 QP	43.5	-11.4	1.50 H	243	43.5	-11.4
4	233.44	27.9 QP	46.0	-18.1	1.50 H	259	38.3	-10.4
5	597.84	29.8 QP	46.0	-16.2	2.00 H	312	30.3	-0.5
6	720.03	32.5 QP	46.0	-13.5	1.00 H	311	31.4	1.1
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	44.14	36.9 QP	40.0	-3.1	1.50 V	184	44.6	-7.7
2	137.94	31.0 QP	43.5	-12.5	1.00 V	159	39.2	-8.2
3	166.78	31.5 QP	43.5	-12.0	1.50 V	204	39.8	-8.3
4	276.53	29.0 QP	46.0	-17.0	1.00 V	19	37.2	-8.2
5	455.93	29.5 QP	46.0	-16.5	1.50 V	231	33.0	-3.5
6	828.67	31.1 QP	46.0	-14.9	1.00 V	60	28.1	3.0

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

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	847124/029	Nov. 01, 2017	Oct. 31, 2018
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 2017	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 29, 2017	Sep. 28, 2018
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
Software BVADT	BVADT_Cond_ V7.3.7.4	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. 1.
3. Tested Date: Dec. 15, 2017

4.2.3 Test Procedures

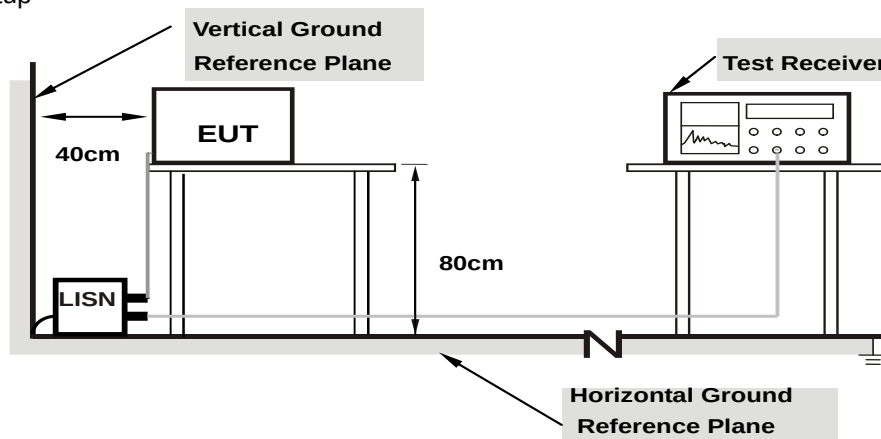
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 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.

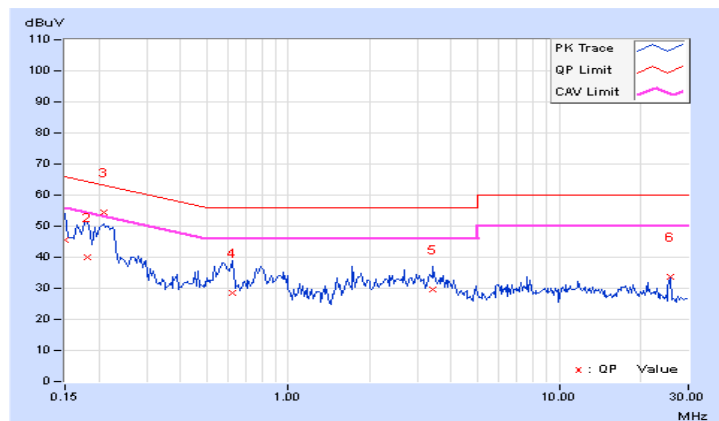
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.08	35.33	17.99	45.41	28.07	66.00	56.00	-20.59	-27.93
2	0.18125	10.07	29.91	13.13	39.98	23.20	64.43	54.43	-24.45	-31.23
3	0.20859	10.06	44.52	31.58	54.58	41.64	63.26	53.26	-8.68	-11.62
4	0.61875	10.12	18.46	9.78	28.58	19.90	56.00	46.00	-27.42	-26.10
5	3.43750	10.25	19.38	13.94	29.63	24.19	56.00	46.00	-26.37	-21.81
6	25.87500	11.34	22.48	21.69	33.82	33.03	60.00	50.00	-26.18	-16.97

Remarks:

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

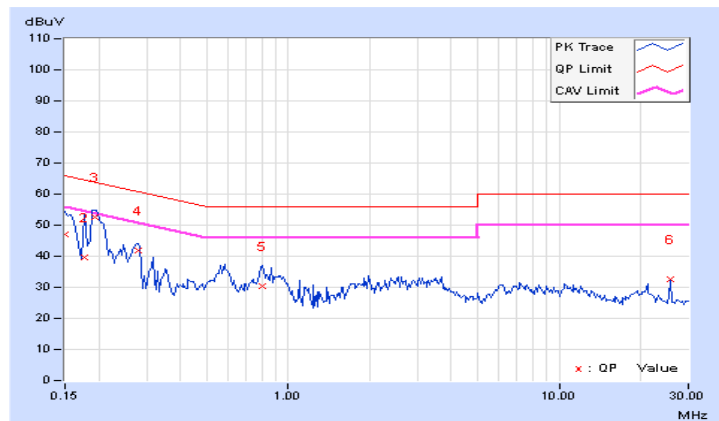


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [MHz]	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.07	37.15	25.66	47.22	35.73	66.00	56.00	-18.78	-20.27
2	0.17734	10.05	29.67	12.66	39.72	22.71	64.61	54.61	-24.89	-31.90
3	0.19444	10.03	42.58	30.80	52.61	40.83	63.84	53.84	-11.23	-13.01
4	0.27891	10.06	31.61	19.45	41.67	29.51	60.85	50.85	-19.18	-21.34
5	0.80625	10.11	20.18	9.70	30.29	19.81	56.00	46.00	-25.71	-26.19
6	25.87334	10.97	21.72	20.99	32.69	31.96	60.00	50.00	-27.31	-18.04

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

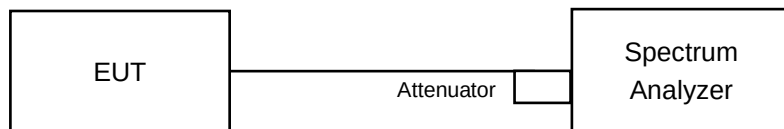


4.3 6dB Bandwidth Measurement

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

802.11b

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	July 01, 2017	June 30, 2018

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. Tested date: Dec. 11, 2017

Other mode

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2014	May 07, 2015

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. Tested date: Oct. 07, 2014

4.3.4 Test Procedure

- a. Set resolution bandwidth (RBW) = 100kHz
- b. Set the video bandwidth (VBW) $\geq 3 \times$ 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 (Mode 1)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.07	8.09	0.5	PASS
6	2437	8.07	8.05	0.5	PASS
11	2462	8.06	8.09	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.49	16.34	0.5	PASS
6	2437	15.61	15.12	0.5	PASS
11	2462	15.38	15.19	0.5	PASS

VHT20

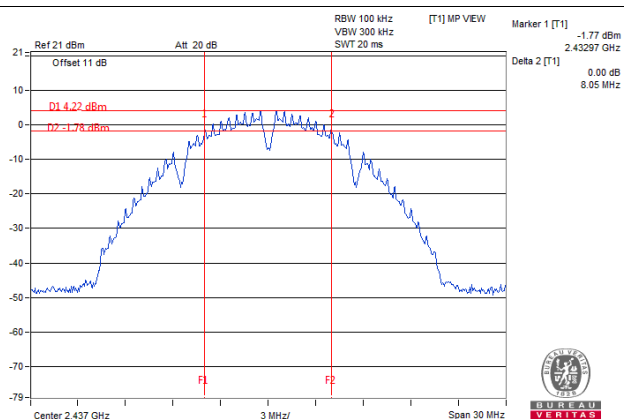
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	14.86	16.27	0.5	Pass
6	2437	16.35	15.42	0.5	Pass
11	2462	15.94	16.31	0.5	Pass

VHT40

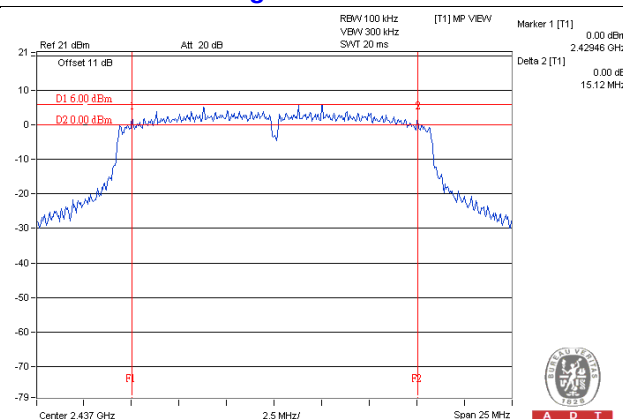
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	34.26	34.51	0.5	Pass
6	2437	34.18	31.55	0.5	Pass
9	2452	34.15	32.07	0.5	Pass

Spectrum Plot of Worst Value

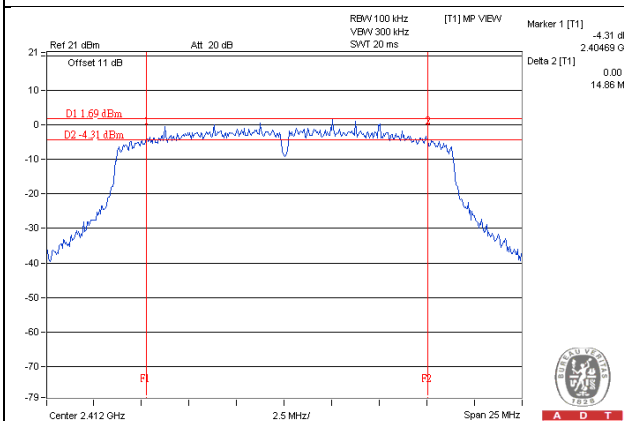
802.11b / Chain 1 : CH6



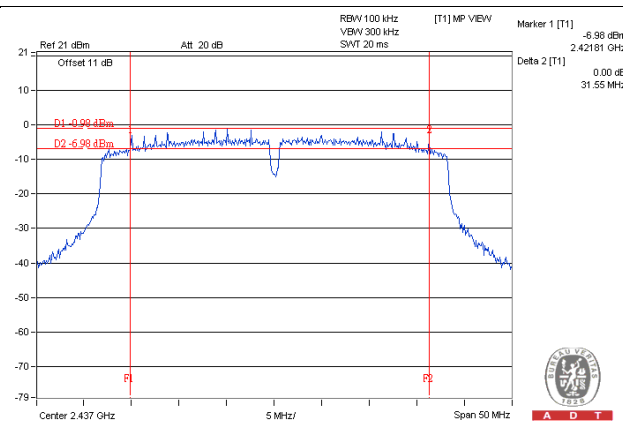
802.11g / Chain 1 : CH6



VHT20 / Chain 0 : CH1



VHT40 / Chain 1 : CH6



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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

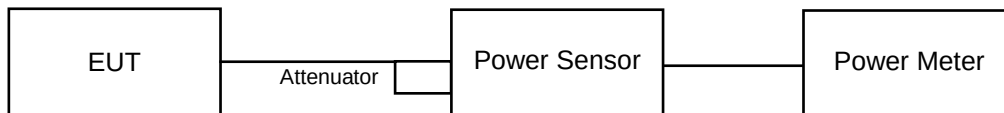
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.4.2 Test Setup



4.4.3 Test Instruments

802.11b

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 2018

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. Tested date: Dec. 11, 2017

Other mode

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	0824006	May 22, 2014	May 21, 2015
Power sensor Anritsu	MA2411B	0738172	May 22, 2014	May 21, 2015

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. Tested date : May 13, 2015

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 (Mode 1)

FOR PEAK POWER

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.89	14.06	49.959	16.99	29.37	Pass
6	2437	13.61	14.10	48.665	16.87	29.37	Pass
11	2462	13.26	14.15	47.186	16.74	29.37	Pass

NOTE: Max. gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.62	19.28	176.345	22.46	29.37	Pass
6	2437	23.38	23.85	460.432	26.63	29.37	Pass
11	2462	19.46	19.72	182.064	22.60	29.37	Pass

NOTE: Max. gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

VHT20

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.07	18.93	158.887	22.01	29.37	Pass
6	2437	23.67	23.74	469.401	26.72	29.37	Pass
11	2462	18.70	19.02	153.93	21.87	29.37	Pass

NOTE: Max. gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , therefore the limit needs to reduce, so the power limit shall be reduced to 30-(6.63-6) = 29.37dBm.

VHT40

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.23	17.12	104.368	20.19	29.37	Pass
6	2437	19.00	20.98	204.747	23.11	29.37	Pass
9	2452	14.96	14.88	62.094	17.93	29.37	Pass

NOTE: Max. gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, therefore the limit needs to reduce, so the power limit shall be reduced to $30 - (6.63 - 6) = 29.37\text{dBm}$.

FOR AVERAGE POWER

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	11.49	11.98	29.869	14.75
6	2437	11.41	11.78	28.902	14.61
11	2462	11.26	12.11	29.621	14.72

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.42	13.40	43.857	16.42
6	2437	18.03	18.10	128.098	21.08
11	2462	13.43	13.60	44.938	16.53

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.30	12.38	38.678	15.87
6	2437	18.00	18.04	126.776	21.03
11	2462	12.32	12.31	34.083	15.33

VHT40

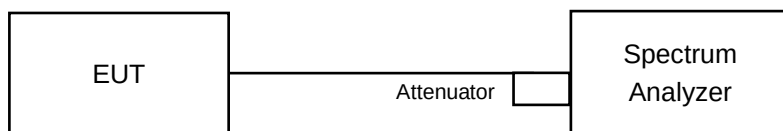
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	11.06	10.64	24.352	13.87
6	2437	14.25	14.76	56.53	17.52
9	2452	8.30	8.22	13.398	11.27

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

802.11b

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	July 1, 2017	June 30, 2018

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. Tested date: Dec. 11, 2017

Other mode

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2014	May 07, 2015

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. Tested date :Oct. 07, 2014

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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d. Set the VBW $\geq 3 \times \text{RBW}$.
- 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 (Mode 1)

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-11.95	3.01	-8.94	7.37	Pass
	6	2437	-10.97	3.01	-7.96	7.37	Pass
	11	2462	-10.82	3.01	-7.81	7.37	Pass
1	1	2412	-11.19	3.01	-8.18	7.37	Pass
	6	2437	-10.83	3.01	-7.82	7.37	Pass
	11	2462	-11.47	3.01	-8.46	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-11.89	3.01	-8.88	7.37	Pass
	6	2437	-8.02	3.01	-5.01	7.37	Pass
	11	2462	-13.22	3.01	-10.21	7.37	Pass
1	1	2412	-10.90	3.01	-7.89	7.37	Pass
	6	2437	-8.72	3.01	-5.71	7.37	Pass
	11	2462	-13.54	3.01	-10.53	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

VHT20

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-12.80	3.01	-9.79	7.37	Pass
	6	2437	-8.49	3.01	-5.48	7.37	Pass
	11	2462	-14.60	3.01	-11.59	7.37	Pass
1	1	2412	-14.42	3.01	-11.41	7.37	Pass
	6	2437	-8.99	3.01	-5.98	7.37	Pass
	11	2462	-14.80	3.01	-11.79	7.37	Pass

NOTE: Directional gain = 3.62dBi + 10log(2) = 6.63dBi > 6dBi , so the power density limit shall be reduced to 8-(6.63-6) = 7.37dBm.

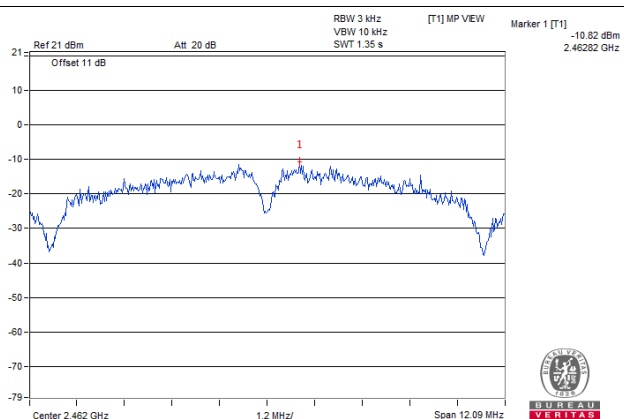
VHT40

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-18.20	3.01	-15.19	7.37	Pass
	6	2437	-15.95	3.01	-12.94	7.37	Pass
	9	2452	-20.75	3.01	-17.74	7.37	Pass
1	3	2422	-18.18	3.01	-15.17	7.37	Pass
	6	2437	-15.77	3.01	-12.76	7.37	Pass
	9	2452	-21.89	3.01	-18.88	7.37	Pass

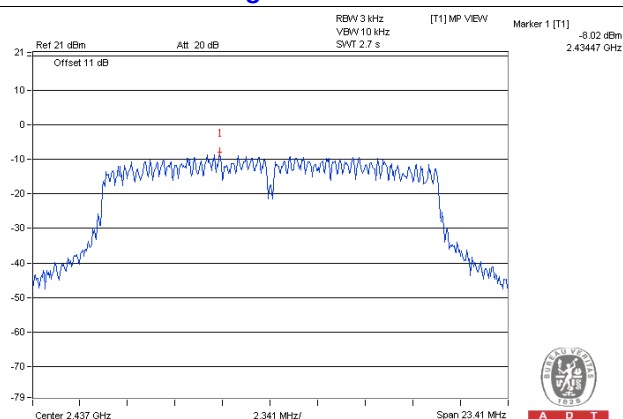
NOTE: Directional gain = $3.62\text{dBi} + 10\log(2) = 6.63\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(6.63-6) = 7.37\text{dBm}$.

Spectrum Plot of Worst Value

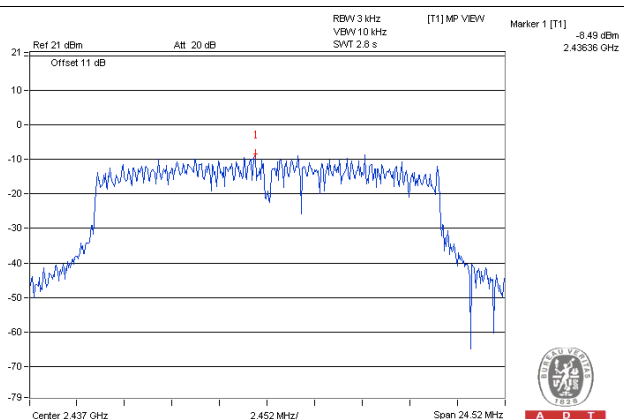
802.11b / Chain 0 : CH11



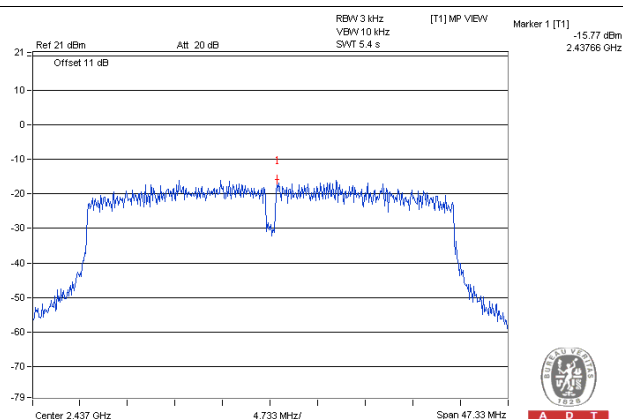
802.11g / Chain 0 : CH6



VHT20 / Chain 0 : CH6



VHT40 / Chain 1 : CH6

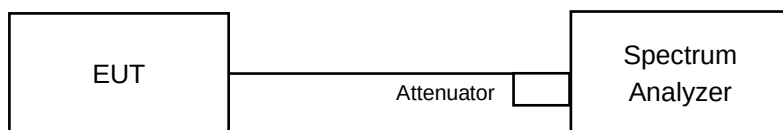


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

802.11b

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	July 1, 2017	June 30, 2018

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. Tested date: Dec. 11, 2017

Other mode

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2014	May 07, 2015

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. Tested date :Oct. 07, 2014

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 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 OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 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

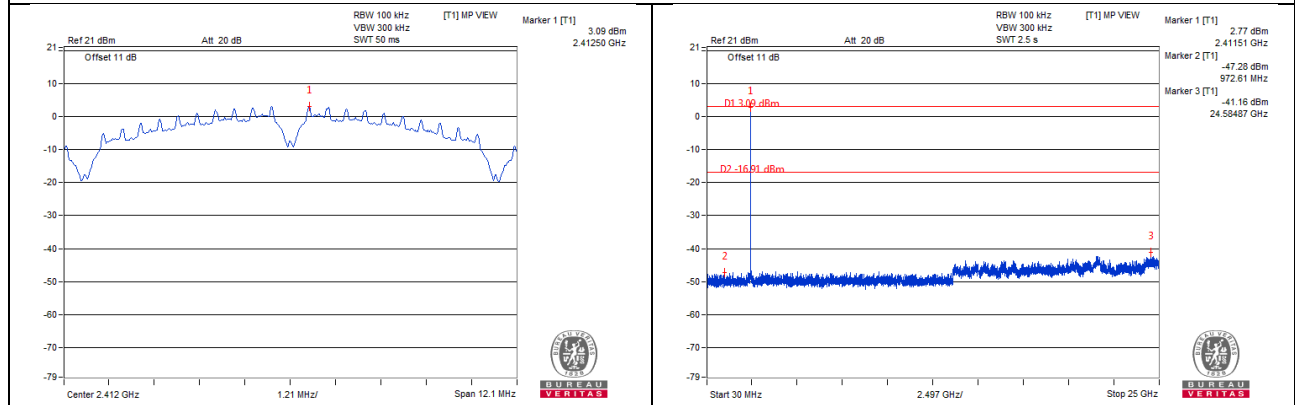
Same as Item 4.3.6

4.6.7 Test Results (Mode 1)

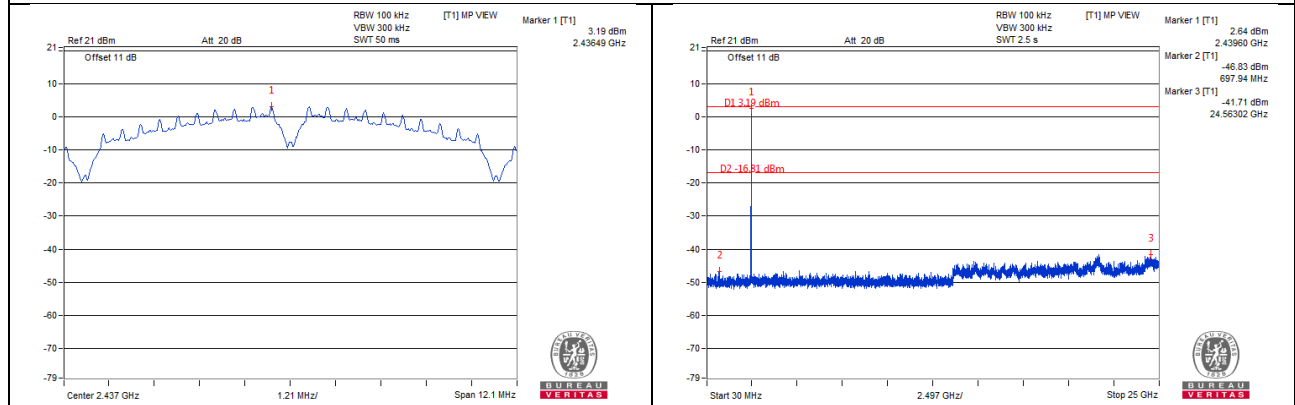
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b Chain 0

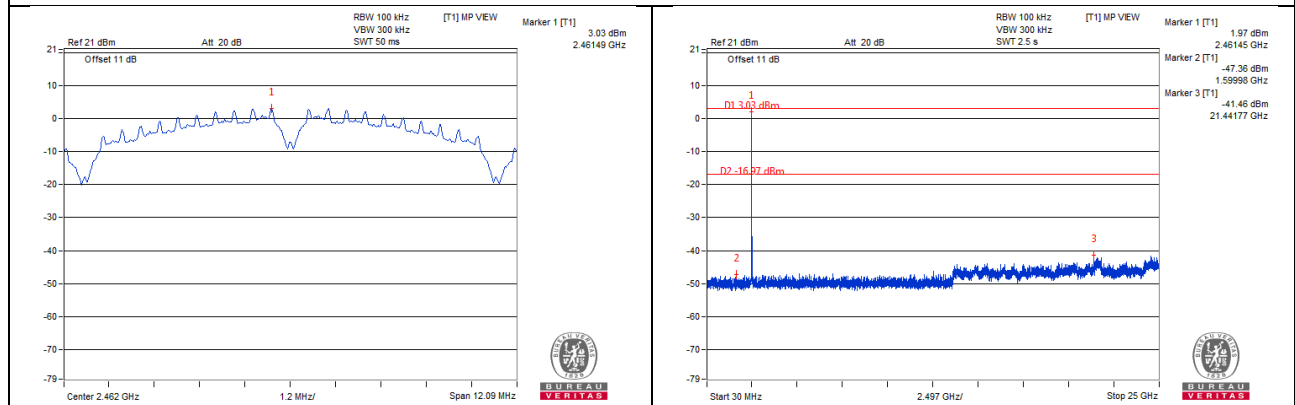
CH 1



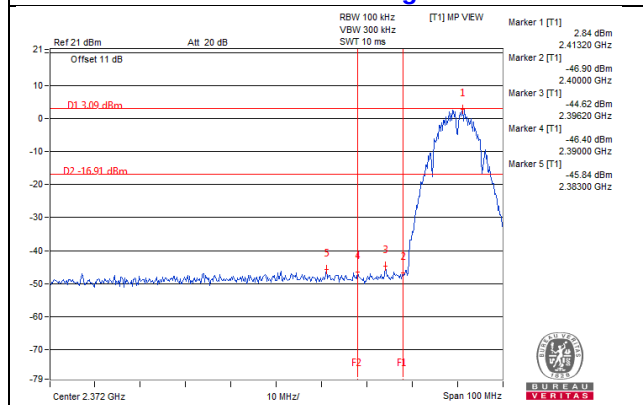
CH 6



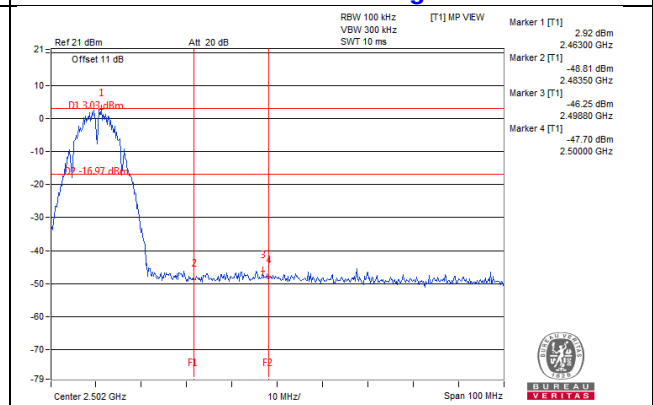
CH 11



CH 1 Band edge

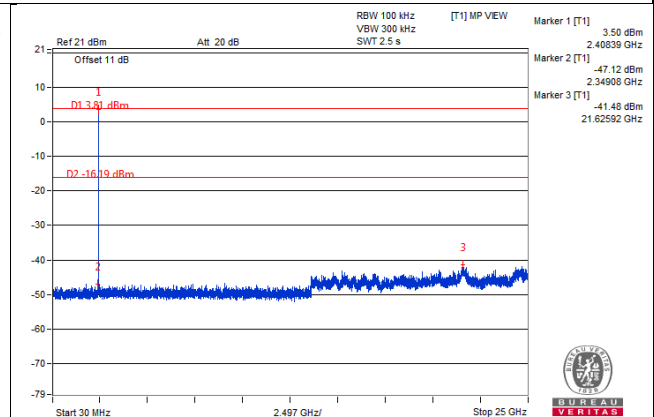
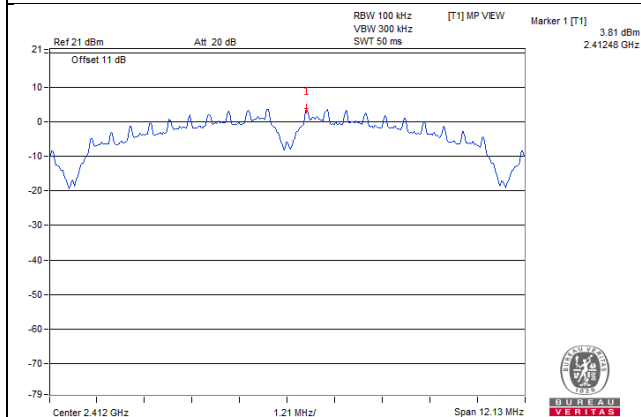


CH 11 Band edge

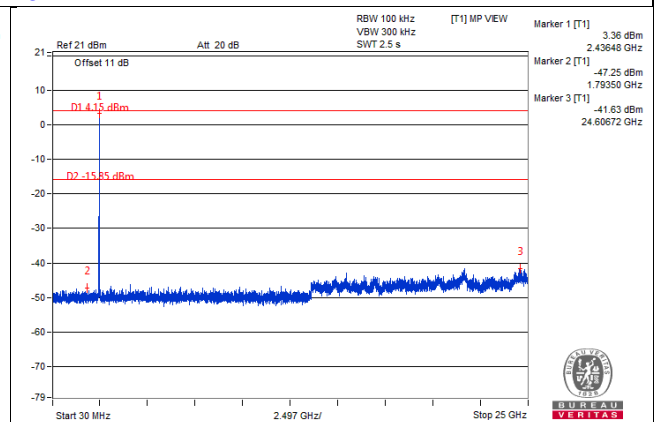
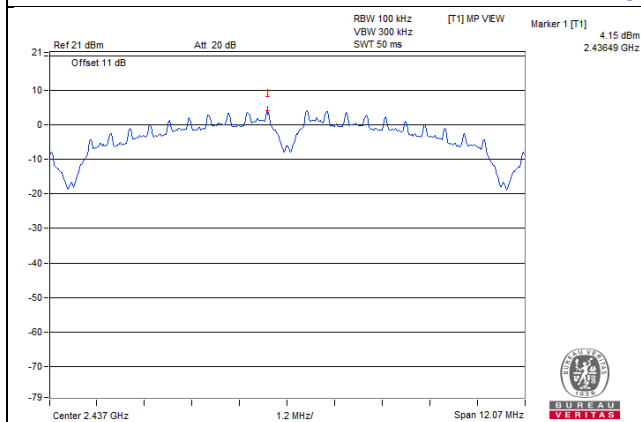


Chain 1

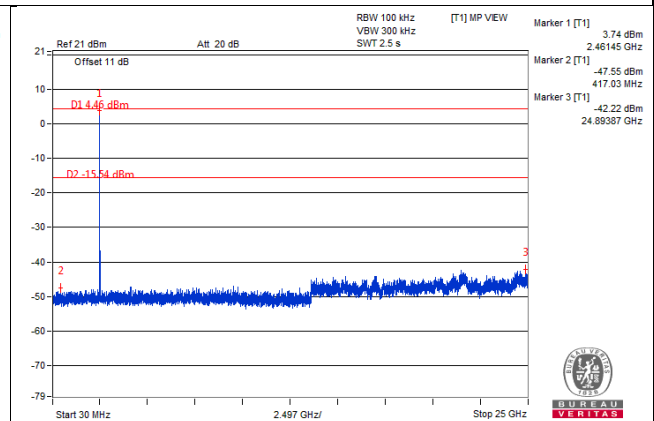
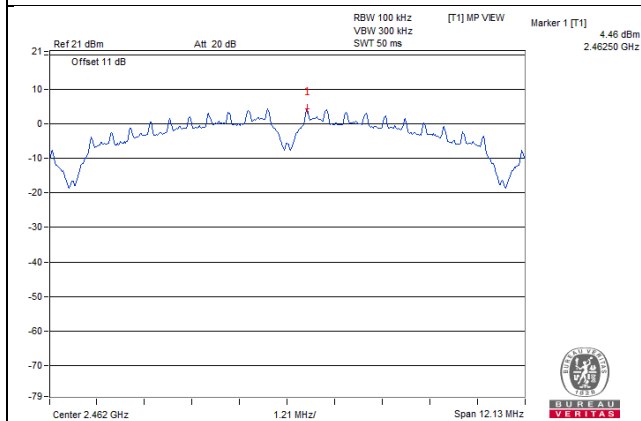
CH 1



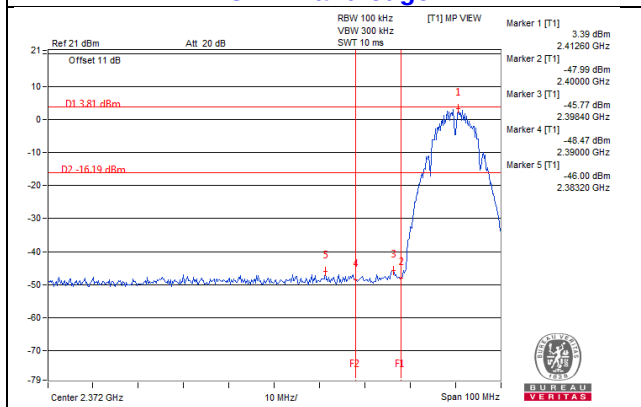
CH 6



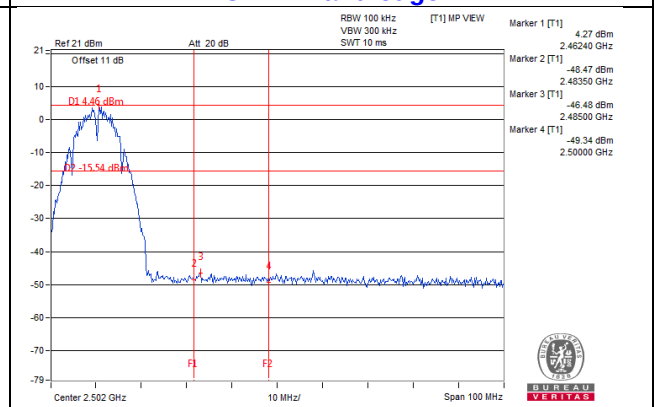
CH 11



CH 1 Band edge

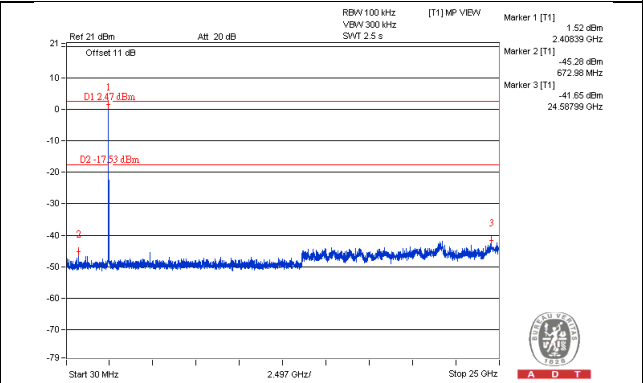
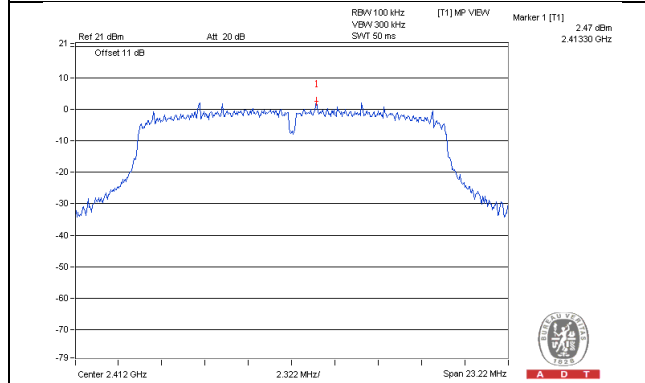


CH 11 Band edge

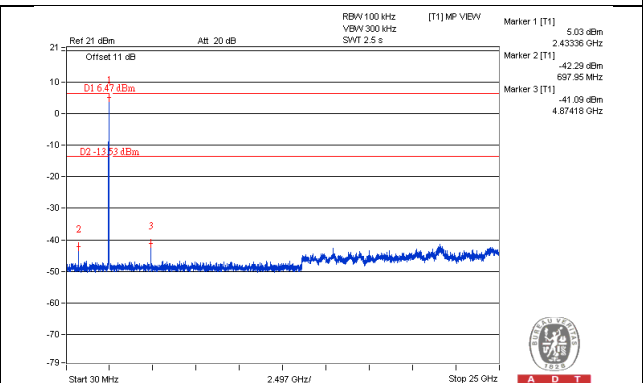
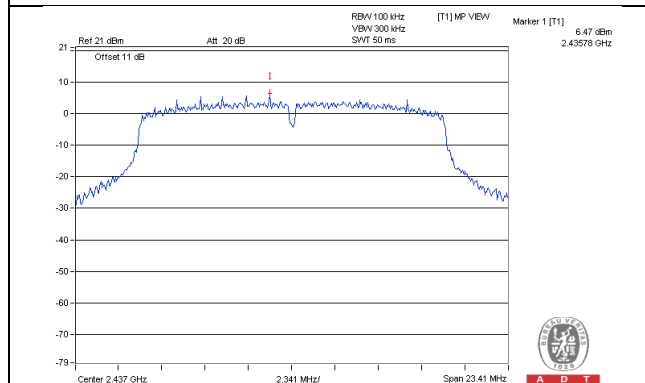


802.11g Chain 0

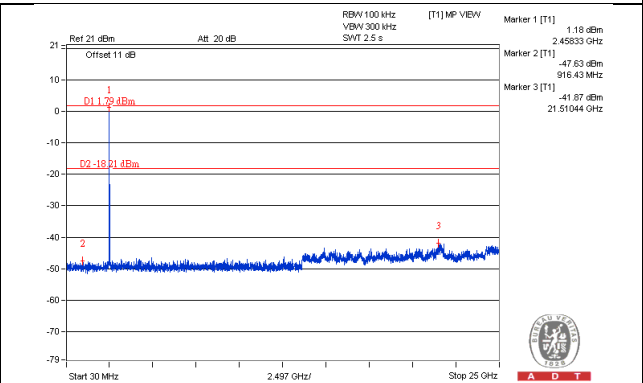
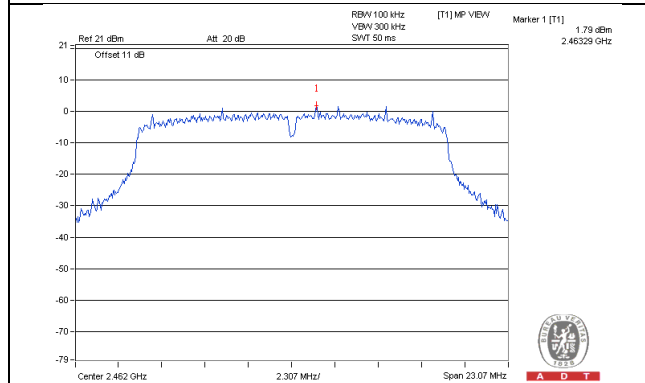
CH 1



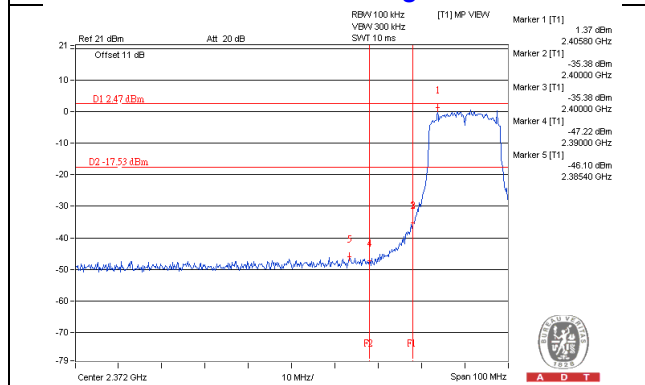
CH 6



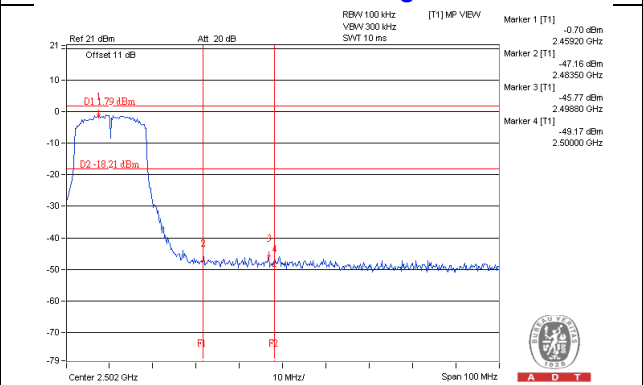
CH 11



CH 1 Band edge

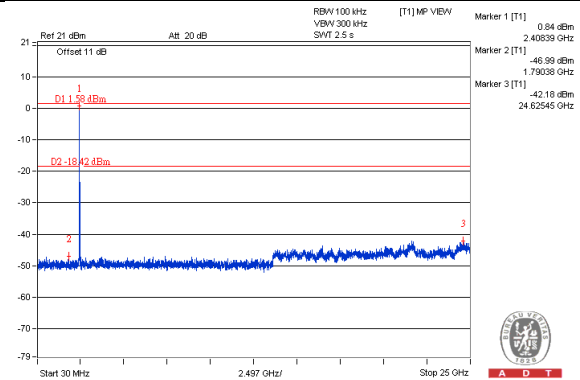
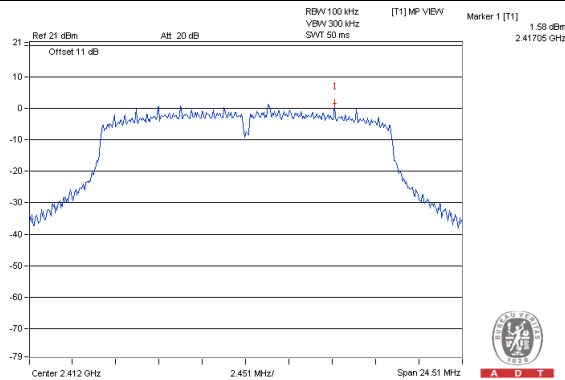


CH 11 Band edge

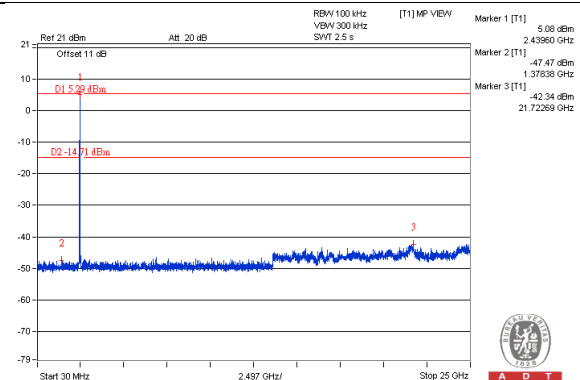
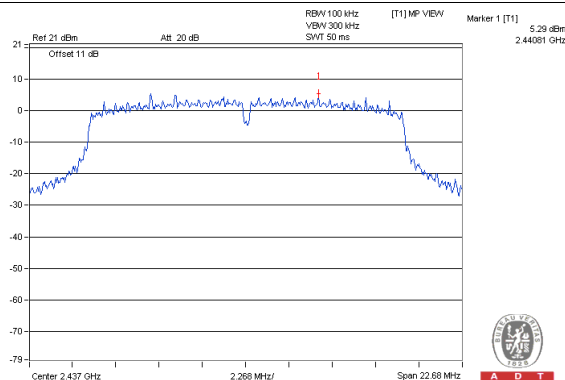


Chain 1

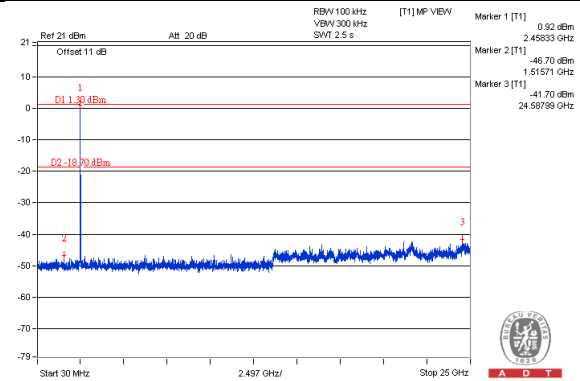
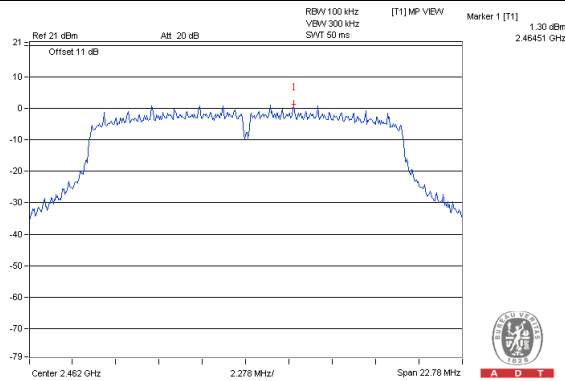
CH 1



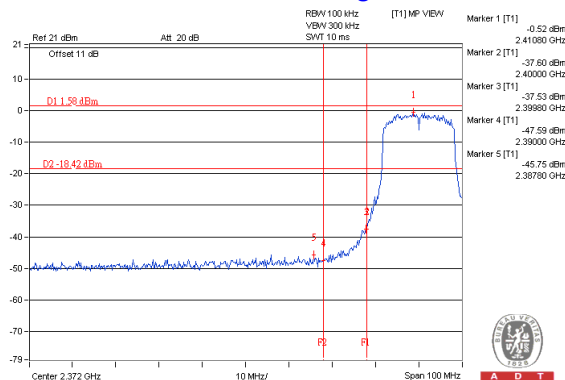
CH 6



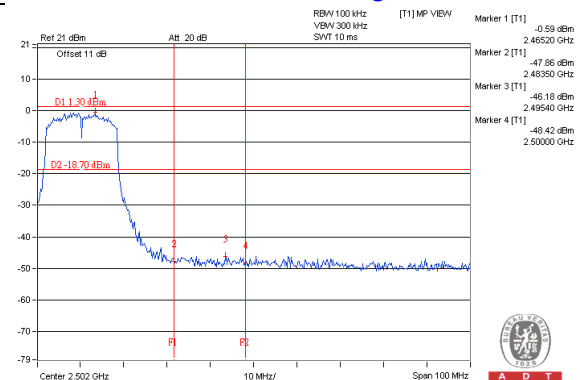
CH 11



CH 1 Band edge

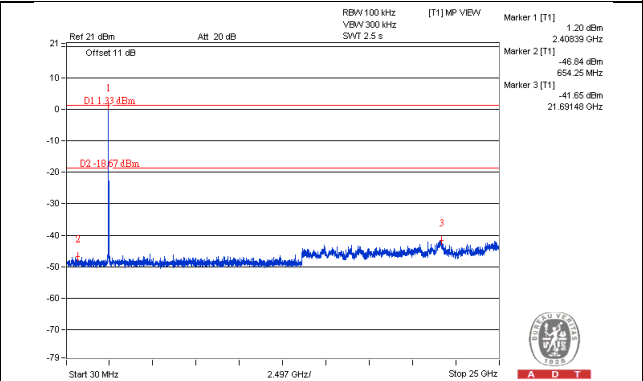
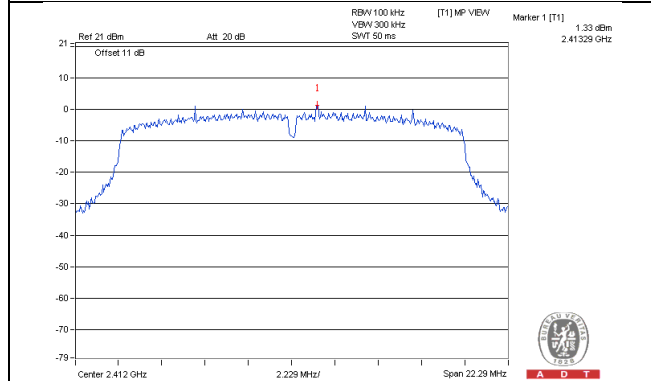


CH 11 Band edge

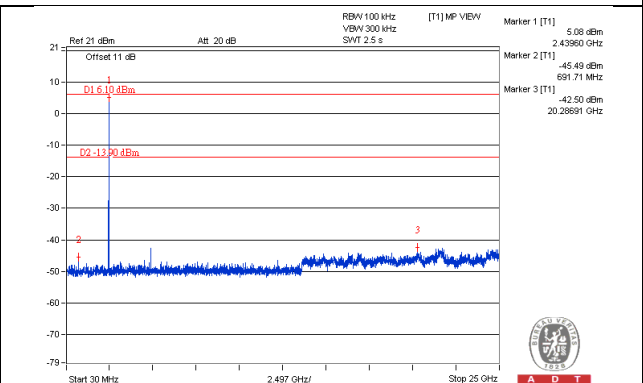
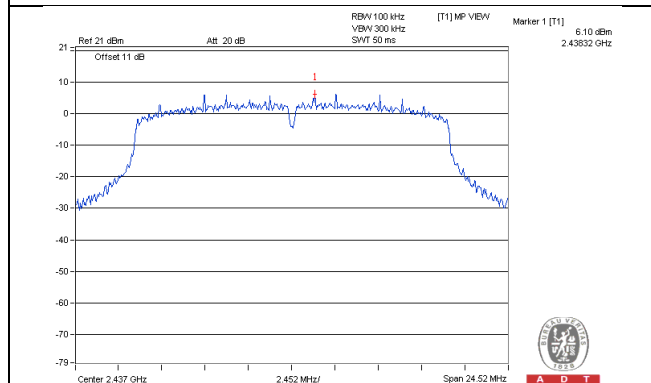


VHT20 Chain 0

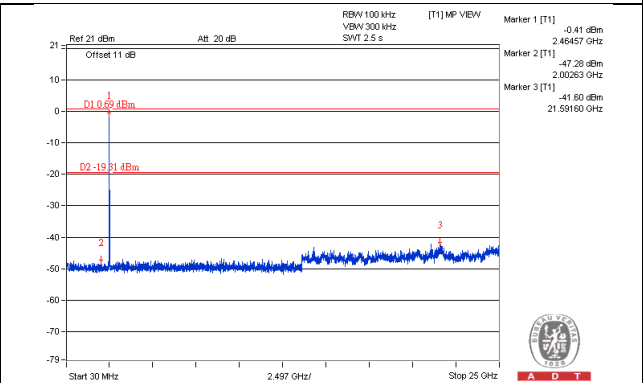
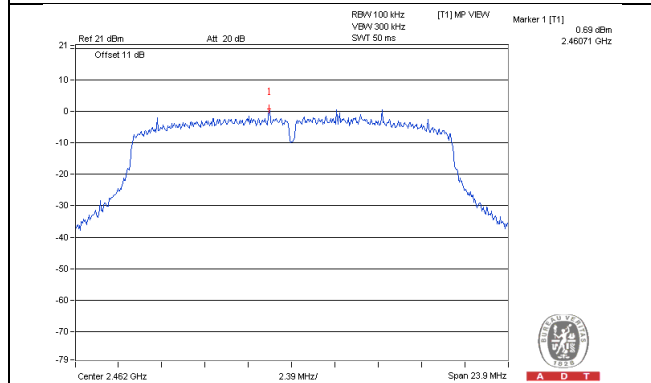
CH 1



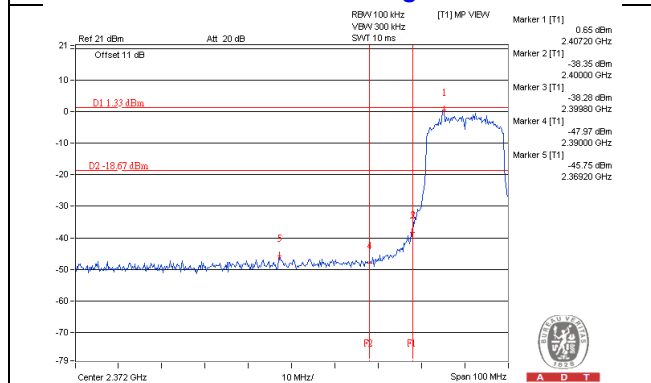
CH 6



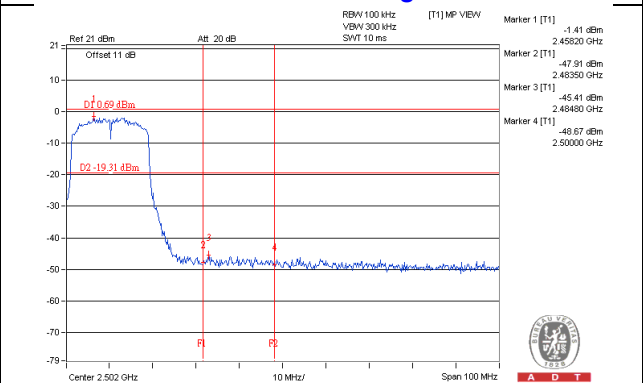
CH 11



CH 1 Band edge

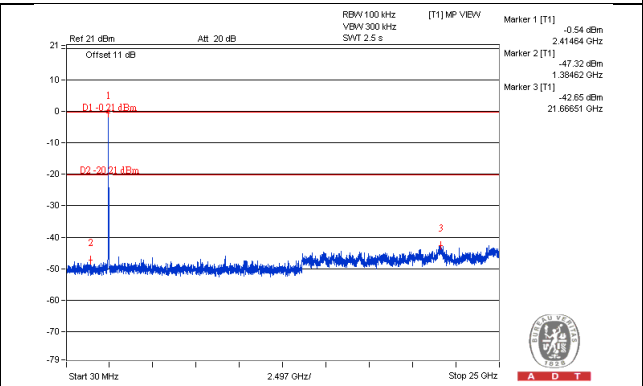
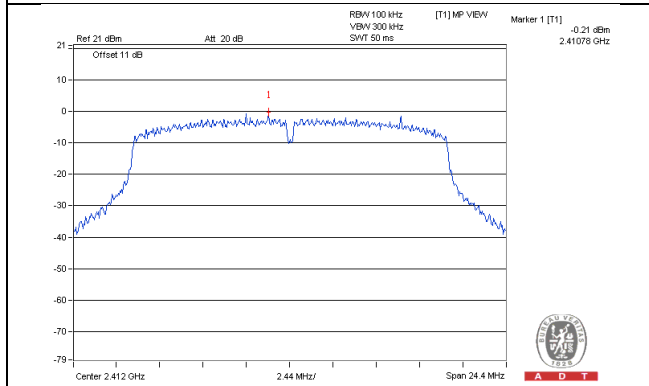


CH 11 Band edge

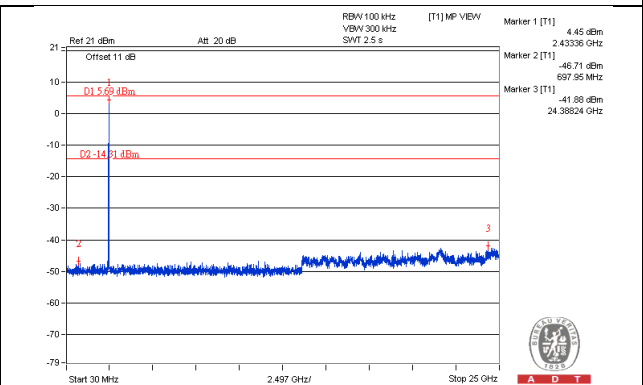
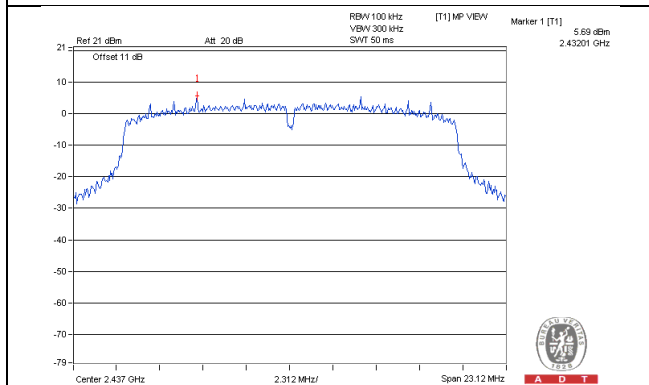


Chain 1

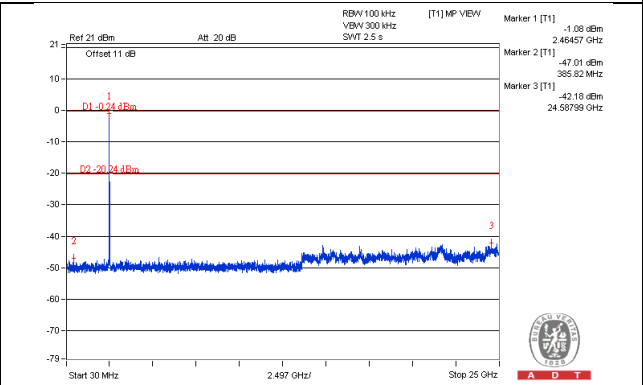
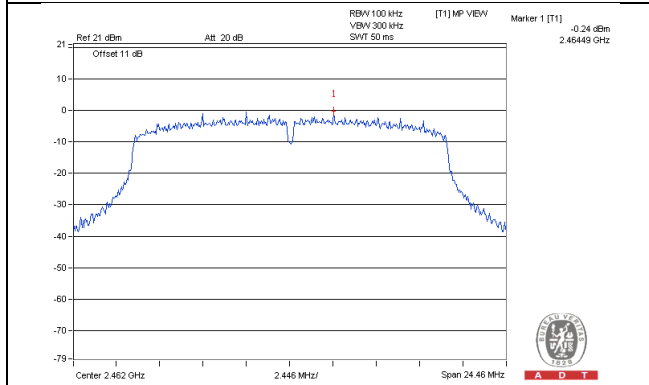
CH 1



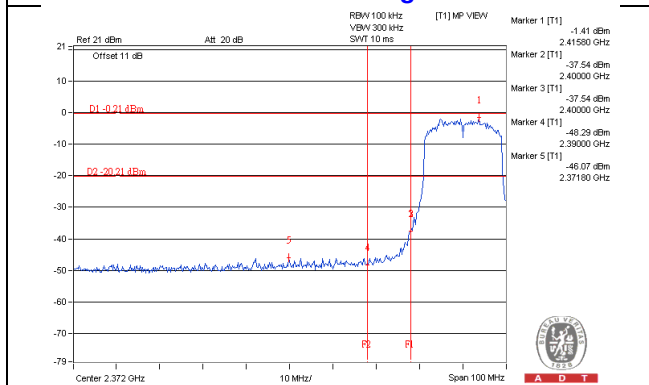
CH 6



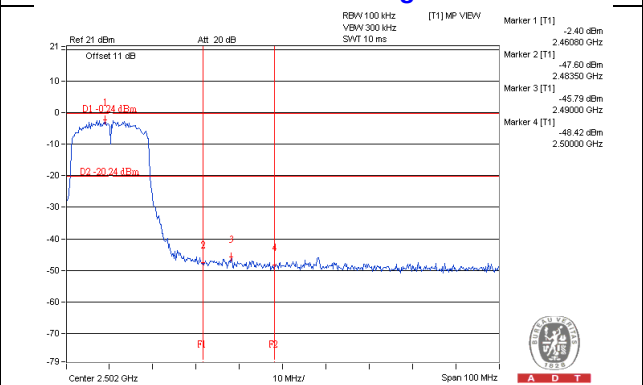
CH 11



CH 1 Band edge

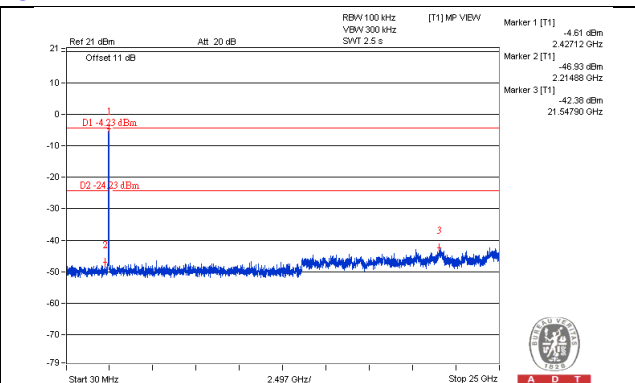
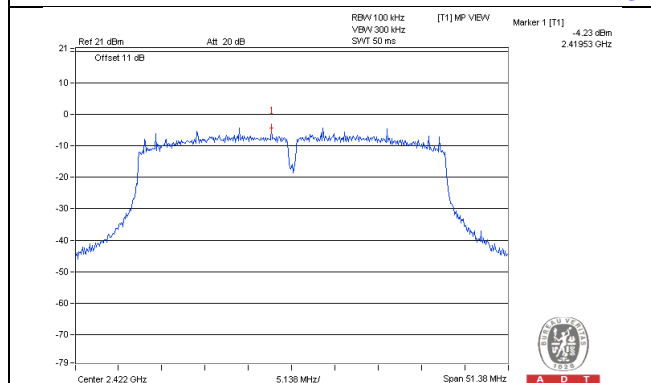


CH 11 Band edge

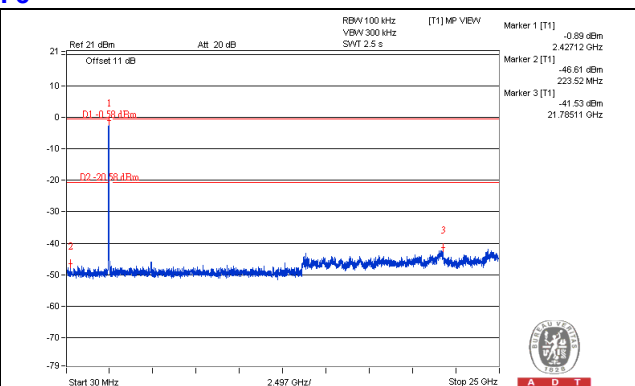
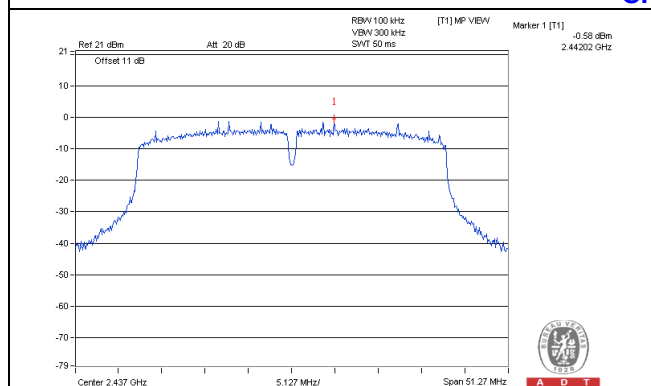


VHT40 Chain 0

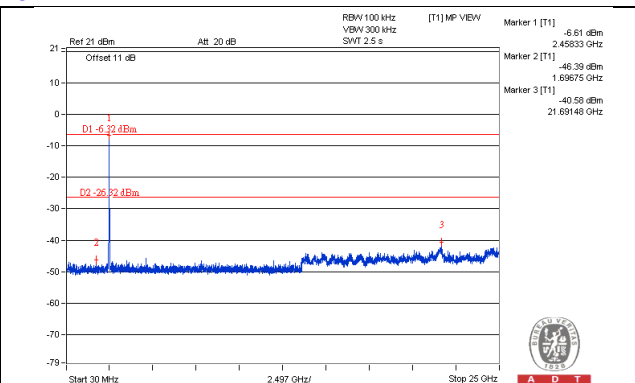
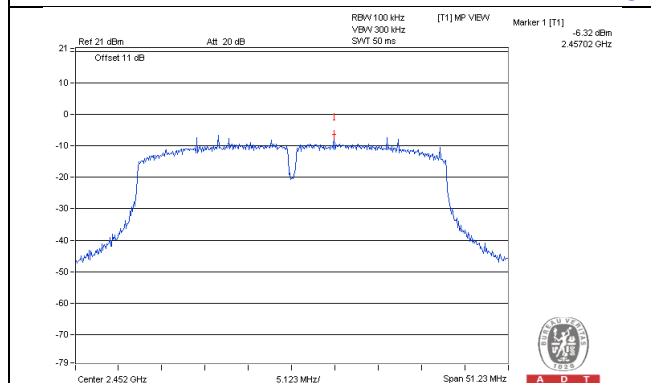
CH 3



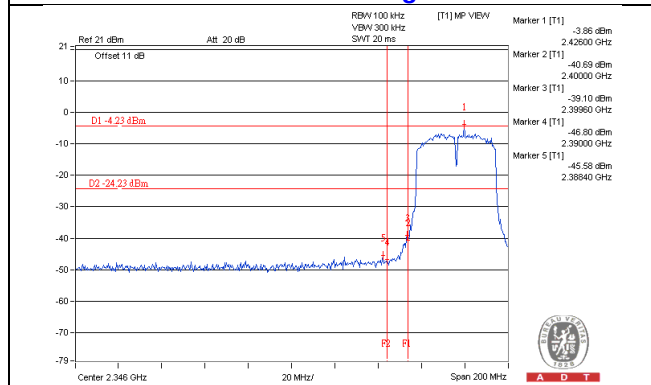
CH 6



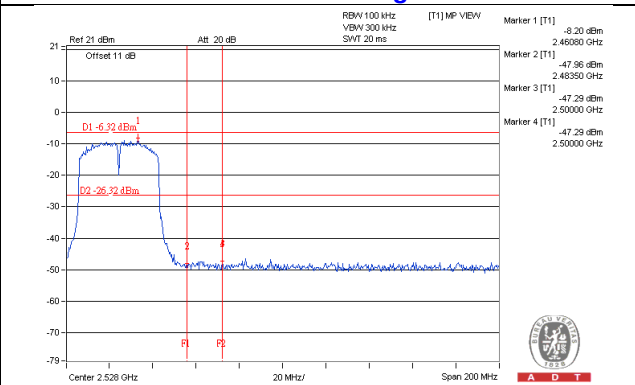
CH 9



CH 3 Band edge

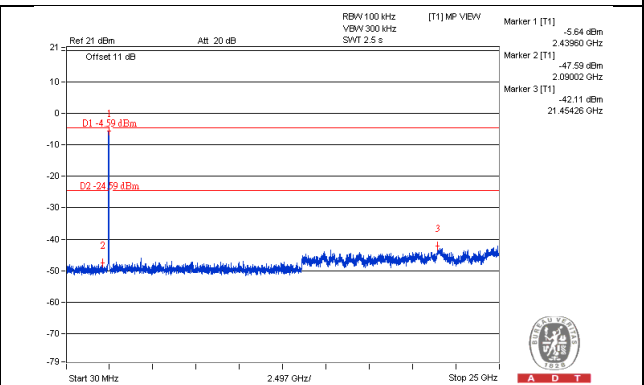
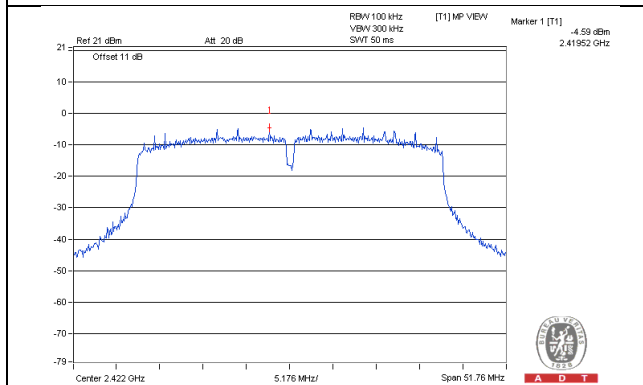


CH 9 Band edge

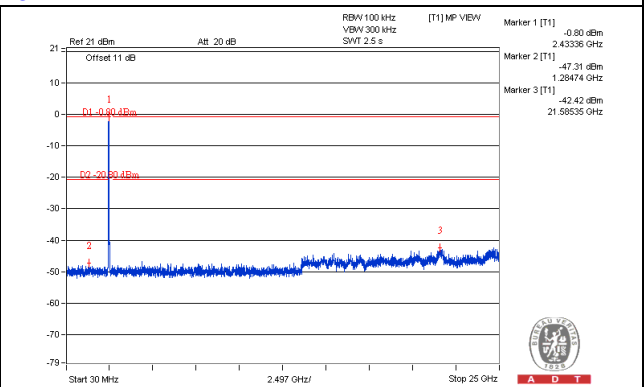
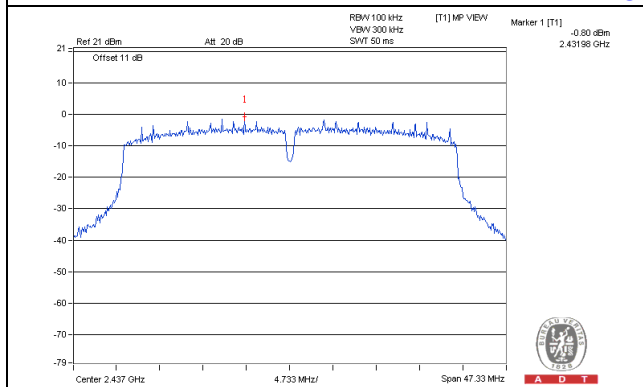


Chain 1

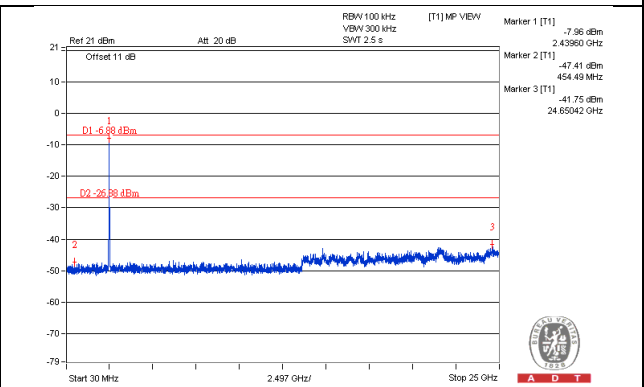
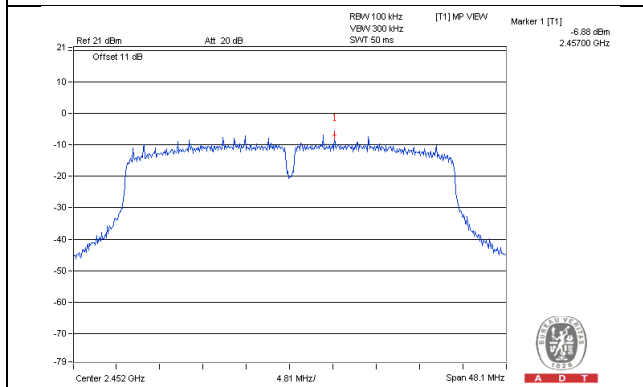
CH 3



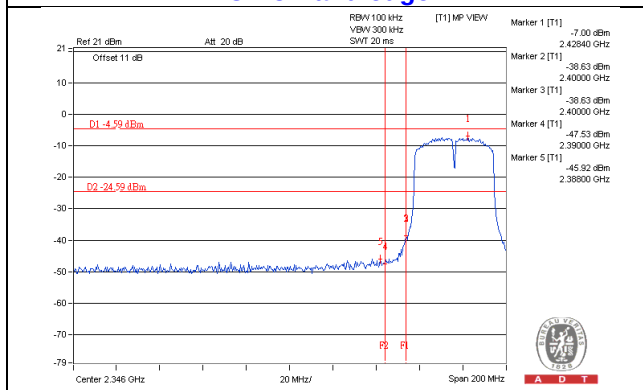
CH 6



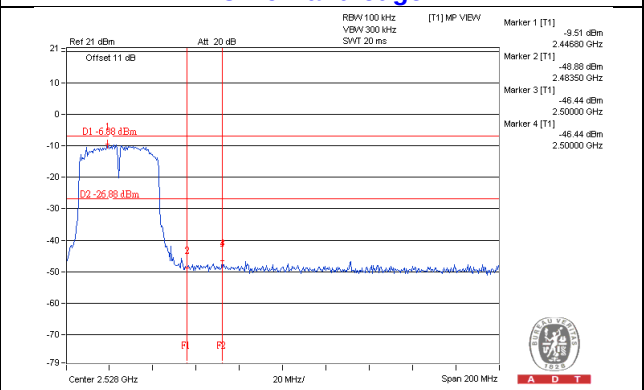
CH 9



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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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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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