FCC Test Report

Report No.: RF171011E02

FCC ID: UXX-S5A750A

Test Model: S5A750A

Received Date: Oct. 11, 2017

Test Date: Nov. 06 to 22, 2017

Issued Date: Nov. 22, 2017

Applicant: Cradlepoint, Inc.

Address: 1111 W. Jefferson Street, Suite 400, Boise, ID 83702 USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

FCC Registration / Designation Number: 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF171011E02	Original release.	Nov. 22, 2017

1 Certificate of Conformity

Product: WiFi Access Point

Brand: cradlepoint

Test Model: S5A750A

Sample Status: ENGINEERING SAMPLE

Applicant: Cradlepoint, Inc.

Test Date: Nov. 06 to 22, 2017

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:** Nov. 22, 2017

Mary Ko / Specialist

Approved by : , **Date:** Nov. 22, 2017

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 -10.32dB at 0.15000MHz.
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 2390.00MHz, 2483.50MHz, 4834.00MHz, 4914.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.30 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.16 dB
	6GHz ~ 18GHz	4.91 dB
	18GHz ~ 40GHz	5.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	WiFi Access Point
Brand	cradlepoint
Test Model	S5A750A
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 48V from POE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: 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, 5.745 ~5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**Radio 1** **2.4GHz:** **CDD Mode:** 721.992mW **Beamforming Mode:**691.881 mW **Radio 2** **5.18 ~ 5.24GHz:** **CDD Mode:** 368.707mW **Beamforming Mode:** 368.707mW **5.745 ~ 5.825GHz:** **CDD Mode:** 424.356mW **Beamforming Mode:** 407.259mW **Radio 3** **2.4GHz:** 211.349mW **5.18 ~ 5.24GHz:** 75.858mW **5.745 ~ 5.825GHz:** 92.045mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. The EUT has three radios as following table:

Radio 1	Radio 2	Radio 3
WLAN - 2.4GHz	WLAN - 5GHz	WLAN - 2.4GHz+5 GHz

2. Simultaneously transmission condition.

Condition	Technology		
1	WLAN (Radio 1) (2.4GHz-2TX)	WLAN (Radio 2) (5GHz-2TX)	WLAN (Radio 3) (5GHz-1TX)
2	WLAN (Radio 1) (2.4GHz-2TX)	WLAN (Radio 2) (5GHz-2TX)	WLAN (Radio 3) (2.4GHz-1TX)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.			

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

Antenna No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type
1 (Radio 1, 2)	5.19	2.4~2.4835	PIFA	i-pex(MHF)
	4.81	5.15~5.25		
	5.91	5.25~5.35		
	4.90	5.47~5.725		
	6.69	5.725~5.85		
2 (Radio 1, 2)	3.04	2.4~2.4835	PIFA	i-pex(MHF)
	7.37	5.15~5.25		
	6.90	5.25~5.35		
	6.65	5.47~5.725		
	6.89	5.725~5.85		
3 (Radio 3)	3.89	2.4~2.4835	PIFA	i-pex(MHF)
	6.58	5.15~5.25		
	6.87	5.25~5.35		
	6.27	5.47~5.725		
	7.01	5.725~5.85		

4. The EUT incorporates a MIMO function:

2.4GHz Band (Radio 1)			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
5GHz Band (Radio 2)			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
802.11ac (VHT40)	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
802.11ac (VHT80)	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
2.4GHz Band (Radio 3)			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	1TX	1RX
802.11g	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX
5GHz Band (Radio 3)			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX
802.11ac (VHT20)	MCS 0~8, Nss=1	1TX	1RX
802.11ac (VHT40)	MCS 0~9, Nss=1	1TX	1RX
802.11ac (VHT80)	MCS 0~9, Nss=1	1TX	1RX

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.

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

3.2 Description of Test Modes

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

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	Radio 1
2	√	√	√	√	Radio 3

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

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

NOTE: 1. The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **Y-plane**.

Radiated Emission Test (Above 1GHz):

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

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

CDD Mode - Radio 1					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Radio 3					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 2, 6, 10, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 4, 6, 8, 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.

CDD Mode - Radio 1					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6
Radio 3					
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.

CDD Mode - Radio 1					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6
Radio 3					
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.

CDD Mode - Radio 1					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming Mode (Output power only - Radio 1)					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Radio 3					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 2, 6, 10, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 4, 6, 8, 9	OFDM	BPSK	13.5
Note: Ch 2, 4, 8, 10 are tested output power only.					

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (system)	TESTED BY
RE≥1G	22deg. C, 70%RH	120Vac, 60Hz	Rey Chen
RE<1G	25deg. C, 64%RH	120Vac, 60Hz	Rey Chen
PLC	24deg. C, 74%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen Robert Cheng

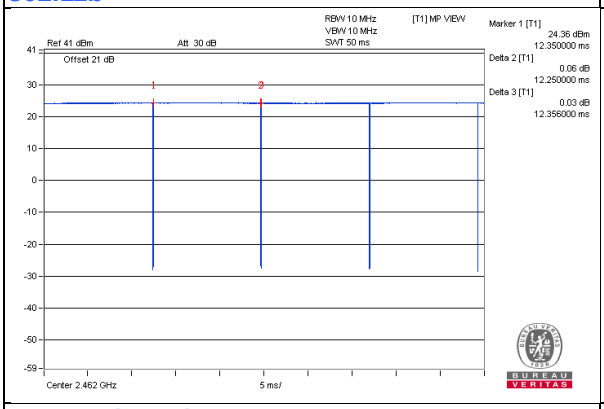
3.3 Duty Cycle of Test Signal

Radio 1

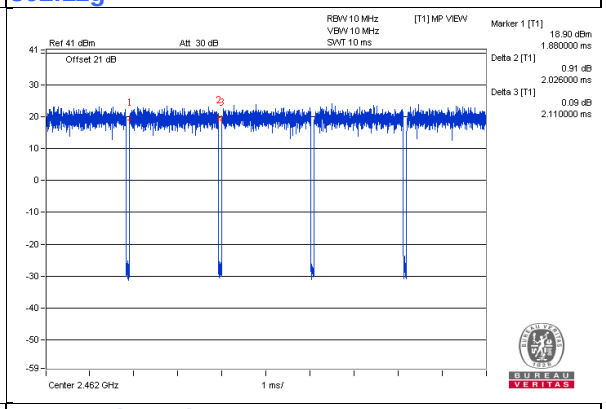
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.25/12.356 = 0.991
802.11g: Duty cycle = 2.026/2.11 = 0.96, Duty factor = 10 * log(1/0.96) = 0.18
802.11n (HT20): Duty cycle = 4.955/5.04 = 0.983
802.11n (HT40): Duty cycle = 4.951/5.058 = 0.979, Duty factor = 10 * log(1/0.979) = 0.09

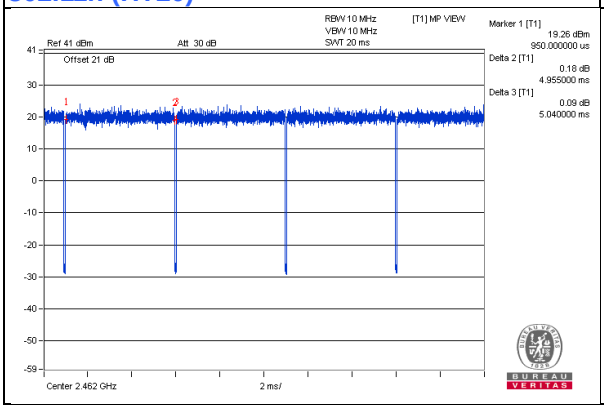
802.11b



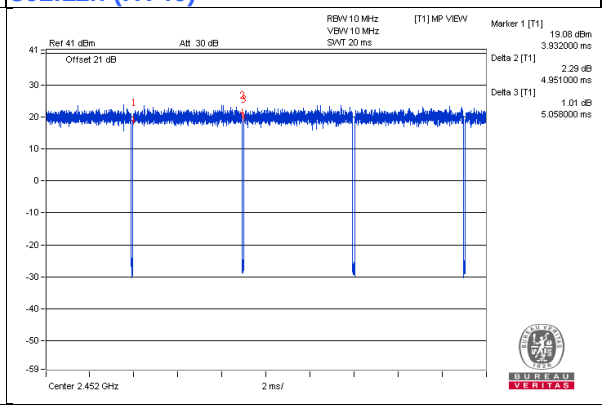
802.11g



802.11n (HT20)



802.11n (HT40)

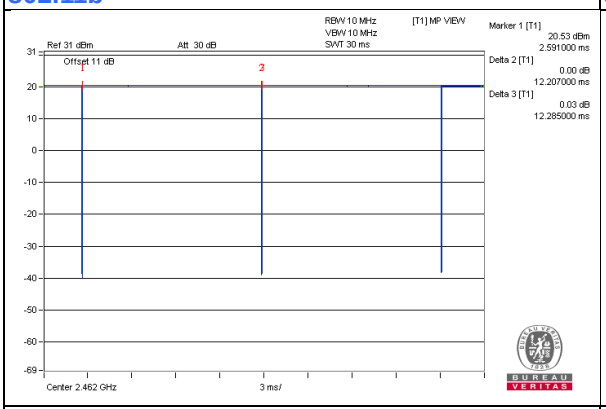


Radio 3

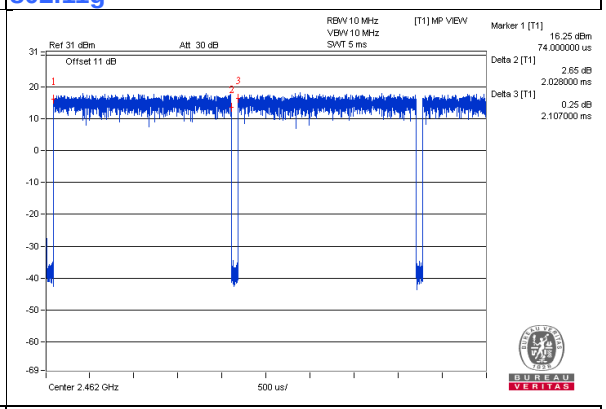
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.207/12.285 = 0.994
802.11g: Duty cycle = 2.028/2.107 = 0.963, Duty factor = 10 * log(1/0.963) = 0.17
802.11n (HT20): Duty cycle = 1.887/1.967 = 0.959, Duty factor = 10 * log(1/0.959) = 0.18
802.11n (HT40): Duty cycle = 0.926/1.011 = 0.916, Duty factor = 10 * log(1/0.916) = 0.38

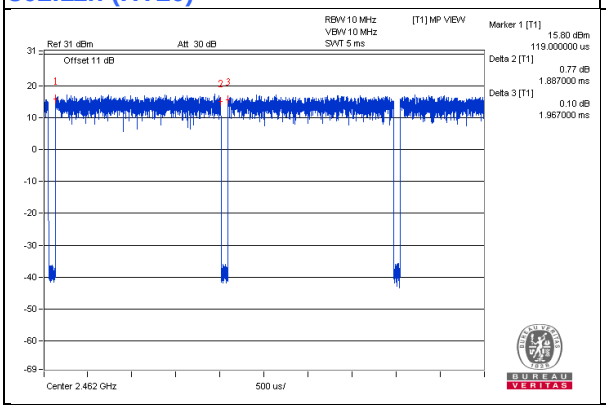
802.11b



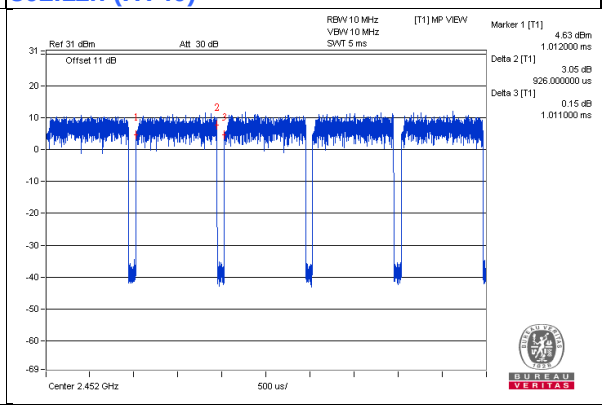
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

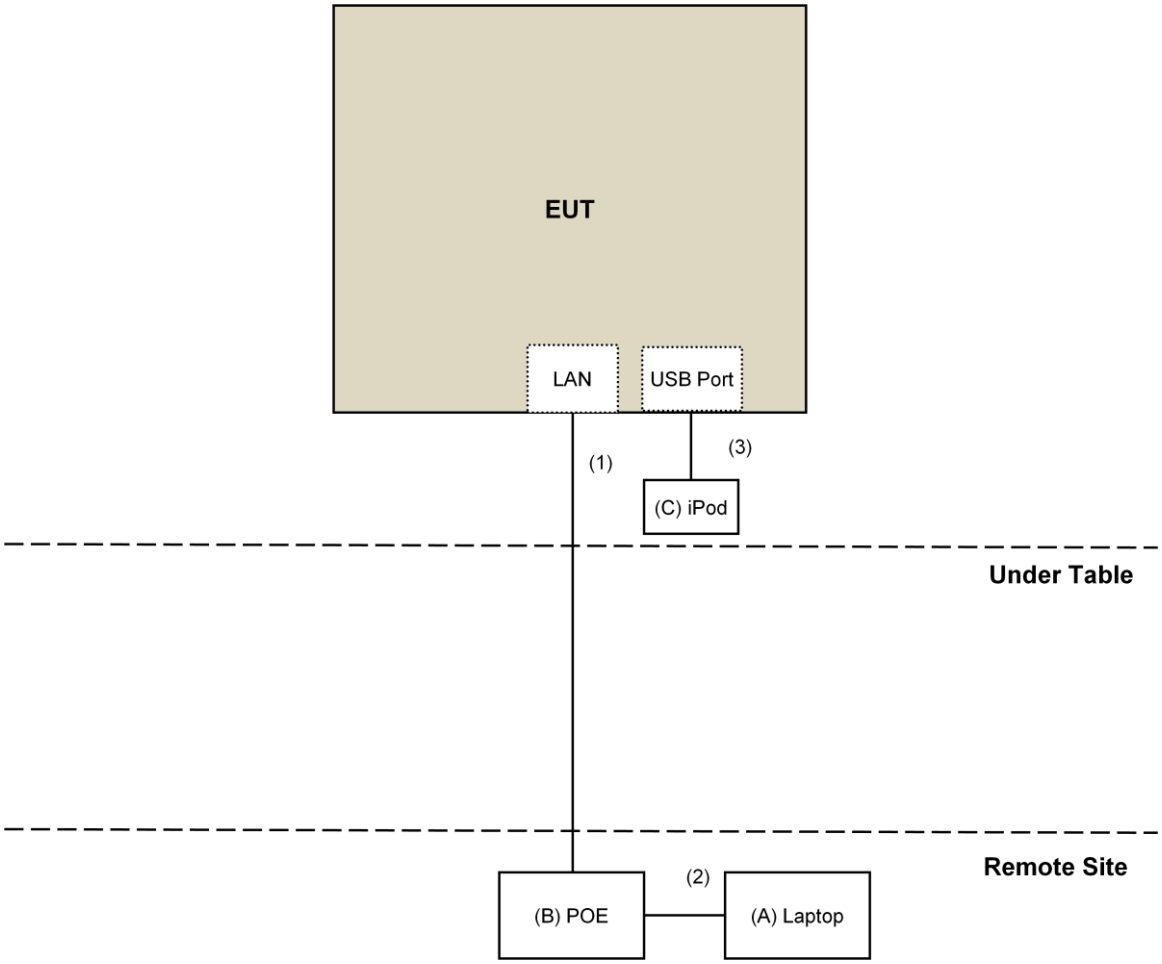
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	HP	Pavilion 14-ab023TU	5CD5340WXZ	NA	Provided by Lab
B.	POE	ELECTRONICS	PGSA20D01-480035	NA	NA	Supplied by client
C.	iPod	Apple	MD778TA/A	CC4JMH7LF4T1	NA	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	RJ-45 Cable	1	3	No	0	Provided by Lab
3.	USB Cable	1	0.1	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance 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

For radiated emission for Channel 2, 4, 8, 10:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 08, 2017	July 07, 2018
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 27, 2016	Dec. 26, 2017
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. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
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: Nov. 21, 2017

For power output test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	July 1, 2017	June 30, 2018
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. *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: Nov. 07 to 22, 2017

For other test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 08, 2017	July 07, 2018
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 17, 2017	Jan. 16, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 10, 2016	Nov. 09, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Dec. 13, 2016	Dec. 12, 2017
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. 27, 2016	Dec. 26, 2017
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. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
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: Nov. 06 to 08, 2017

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:

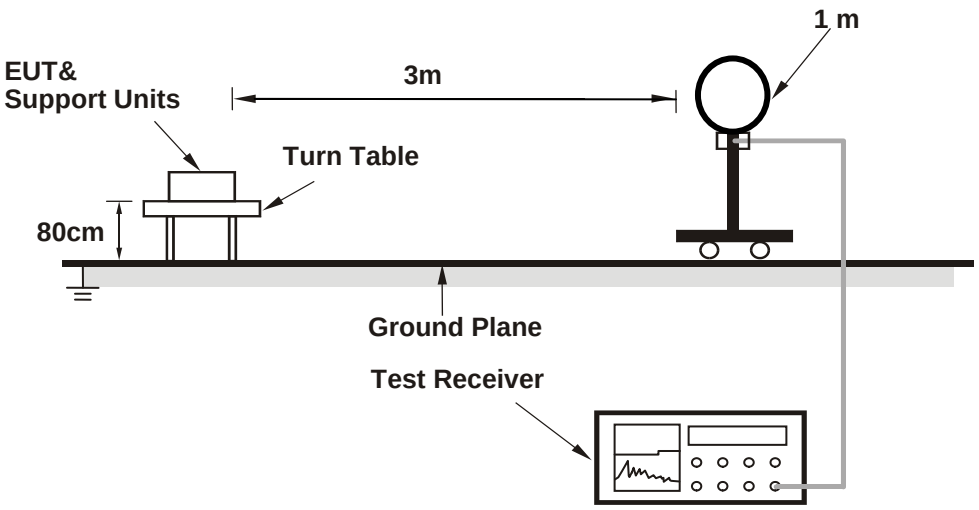
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

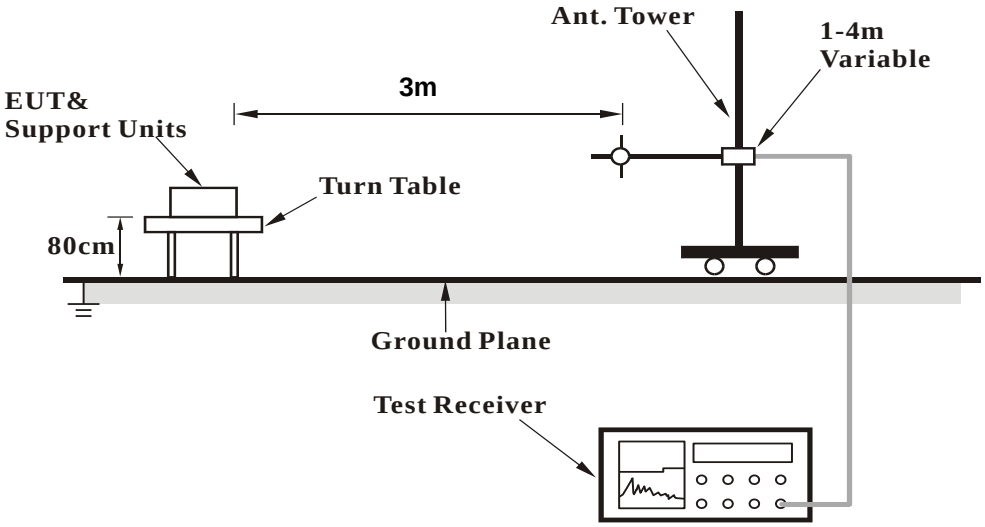
No deviation.

4.1.5 Test Setup

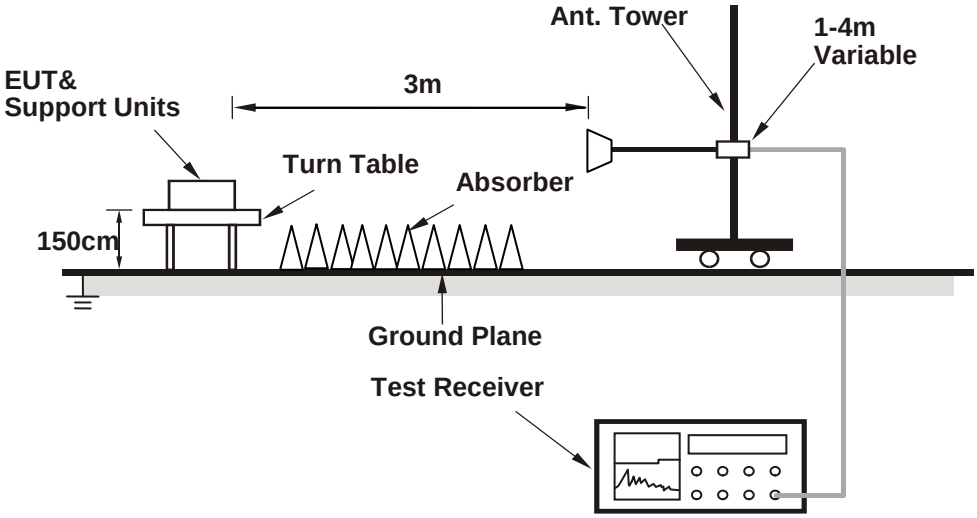
For Radiated emission below 30MHz



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

a. Connected the EUT with the Notebook Computer which is placed on remote site.
b. Controlling software (QRCT.EXE[Version3.0.264.0]) 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	58.6 PK	74.0	-15.4	1.04 H	312	59.9	-1.3
2	2390.00	50.1 AV	54.0	-3.9	1.04 H	312	51.4	-1.3
3	*2412.00	115.2 PK			1.04 H	312	116.3	-1.1
4	*2412.00	112.7 AV			1.04 H	312	113.8	-1.1
5	4824.00	46.7 PK	74.0	-27.3	1.75 H	28	43.5	3.2
6	4824.00	45.4 AV	54.0	-8.6	1.75 H	28	42.2	3.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	57.1 PK	74.0	-16.9	3.94 V	19	58.4	-1.3
2	2390.00	48.6 AV	54.0	-5.4	3.94 V	19	49.9	-1.3
3	*2412.00	112.0 PK			3.94 V	19	113.1	-1.1
4	*2412.00	109.2 AV			3.94 V	19	110.3	-1.1
5	4824.00	42.6 PK	74.0	-31.4	1.32 V	63	39.4	3.2
6	4824.00	41.3 AV	54.0	-12.7	1.32 V	63	38.1	3.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2375.70	59.5 PK	74.0	-14.5	2.05 H	319	60.9	-1.4
2	2375.70	50.4 AV	54.0	-3.6	2.05 H	319	51.8	-1.4
3	*2437.00	117.0 PK			2.05 H	319	118.2	-1.2
4	*2437.00	114.7 AV			2.05 H	319	115.9	-1.2
5	2496.60	58.8 PK	74.0	-15.2	2.05 H	319	59.7	-0.9
6	2496.60	50.6 AV	54.0	-3.4	2.05 H	319	51.5	-0.9
7	4874.00	48.2 PK	74.0	-25.8	1.72 H	29	44.9	3.3
8	4874.00	47.1 AV	54.0	-6.9	1.72 H	29	43.8	3.3
9	7311.00	45.7 PK	74.0	-28.3	1.51 H	311	35.9	9.8
10	7311.00	40.0 AV	54.0	-14.0	1.51 H	311	30.2	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	2375.70	58.0 PK	74.0	-16.0	3.99 V	12	59.4	-1.4
2	2375.70	48.9 AV	54.0	-5.1	3.99 V	12	50.3	-1.4
3	*2437.00	113.8 PK			3.99 V	12	115.0	-1.2
4	*2437.00	111.2 AV			3.99 V	12	112.4	-1.2
5	2483.50	57.3 PK	74.0	-16.7	3.99 V	12	58.3	-1.0
6	2483.50	49.1 AV	54.0	-4.9	3.99 V	12	50.1	-1.0
7	4874.00	43.9 PK	74.0	-30.1	1.28 V	62	40.6	3.3
8	4874.00	42.5 AV	54.0	-11.5	1.28 V	62	39.2	3.3
9	7311.00	46.5 PK	74.0	-27.5	3.95 V	360	36.7	9.8
10	7311.00	41.3 AV	54.0	-12.7	3.95 V	360	31.5	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 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.4 PK			1.94 H	319	115.5	-1.1
2	*2462.00	112.1 AV			1.94 H	319	113.2	-1.1
3	2483.50	59.2 PK	74.0	-14.8	1.94 H	319	60.2	-1.0
4	2483.50	53.8 AV	54.0	-0.2	1.94 H	319	54.8	-1.0
5	4924.00	47.0 PK	74.0	-27.0	1.77 H	15	43.5	3.5
6	4924.00	45.9 AV	54.0	-8.1	1.77 H	15	42.4	3.5
7	7386.00	44.2 PK	74.0	-29.8	1.56 H	302	34.3	9.9
8	7386.00	38.6 AV	54.0	-15.4	1.56 H	302	28.7	9.9
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	*2462.00	111.2 PK			3.89 V	11	112.3	-1.1
2	*2462.00	108.6 AV			3.89 V	11	109.7	-1.1
3	2483.50	57.7 PK	74.0	-16.3	3.89 V	11	58.7	-1.0
4	2483.50	52.3 AV	54.0	-1.7	3.89 V	11	53.3	-1.0
5	4924.00	42.4 PK	74.0	-31.6	1.33 V	49	38.9	3.5
6	4924.00	41.0 AV	54.0	-13.0	1.33 V	49	37.5	3.5
7	7386.00	45.5 PK	74.0	-28.5	4.00 V	360	35.6	9.9
8	7386.00	40.2 AV	54.0	-13.8	4.00 V	360	30.3	9.9

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.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.7 PK	74.0	-0.3	1.51 H	315	75.0	-1.3
2	2390.00	50.5 AV	54.0	-3.5	1.51 H	315	51.8	-1.3
3	*2412.00	112.9 PK			1.51 H	315	114.0	-1.1
4	*2412.00	100.4 AV			1.51 H	315	101.5	-1.1
5	4824.00	56.3 PK	74.0	-17.7	1.78 H	38	53.1	3.2
6	4824.00	45.2 AV	54.0	-8.8	1.78 H	38	42.0	3.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.7 PK	74.0	-2.3	3.85 V	25	73.0	-1.3
2	2390.00	48.5 AV	54.0	-5.5	3.85 V	25	49.8	-1.3
3	*2412.00	109.7 PK			3.85 V	25	110.8	-1.1
4	*2412.00	96.9 AV			3.85 V	25	98.0	-1.1
5	4824.00	52.1 PK	74.0	-21.9	1.31 V	56	48.9	3.2
6	4824.00	41.1 AV	54.0	-12.9	1.31 V	56	37.9	3.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.1 PK	74.0	-3.9	1.40 H	316	71.4	-1.3
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.40 H**	**316**	**55.2**	**-1.3**
3	*2437.00	120.1 PK			1.40 H	316	121.3	-1.2
4	*2437.00	107.4 AV			1.40 H	316	108.6	-1.2
5	2483.50	70.0 PK	74.0	-4.0	1.40 H	316	71.0	-1.0
6	2483.50	52.7 AV	54.0	-1.3	1.40 H	316	53.7	-1.0
7	4874.00	58.4 PK	74.0	-15.6	1.69 H	14	55.1	3.3
8	4874.00	47.5 AV	54.0	-6.5	1.69 H	14	44.2	3.3
9	7311.00	55.8 PK	74.0	-18.2	1.45 H	310	46.0	9.8
10	7311.00	40.3 AV	54.0	-13.7	1.45 H	310	30.5	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	68.1 PK	74.0	-5.9	3.80 V	18	69.4	-1.3
2	2390.00	51.9 AV	54.0	-2.1	3.80 V	18	53.2	-1.3
3	*2437.00	116.9 PK			3.80 V	18	118.1	-1.2
4	*2437.00	103.9 AV			3.80 V	18	105.1	-1.2
5	2483.50	71.7 PK	74.0	-2.3	3.80 V	18	72.7	-1.0
6	2483.50	48.5 AV	54.0	-5.5	3.80 V	18	49.5	-1.0
7	4874.00	53.9 PK	74.0	-20.1	1.32 V	46	50.6	3.3
8	4874.00	42.5 AV	54.0	-11.5	1.32 V	46	39.2	3.3
9	7311.00	56.4 PK	74.0	-17.6	3.90 V	360	46.6	9.8
10	7311.00	41.0 AV	54.0	-13.0	3.90 V	360	31.2	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 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.1 PK			1.57 H	318	114.2	-1.1
2	*2462.00	101.3 AV			1.57 H	318	102.4	-1.1
3	2484.80	73.8 PK	74.0	-0.2	1.57 H	318	74.8	-1.0
4	2484.80	51.2 AV	54.0	-2.8	1.57 H	318	52.2	-1.0
5	4924.00	57.2 PK	74.0	-16.8	1.76 H	3	53.7	3.5
6	4924.00	45.8 AV	54.0	-8.2	1.76 H	3	42.3	3.5
7	7386.00	54.2 PK	74.0	-19.8	1.51 H	307	44.3	9.9
8	7386.00	38.6 AV	54.0	-15.4	1.51 H	307	28.7	9.9
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	*2462.00	109.9 PK			3.85 V	34	111.0	-1.1
2	*2462.00	97.8 AV			3.85 V	34	98.9	-1.1
3	2483.50	71.8 PK	74.0	-2.2	3.85 V	34	72.8	-1.0
4	2483.50	49.2 AV	54.0	-4.8	3.85 V	34	50.2	-1.0
5	4924.00	52.7 PK	74.0	-21.3	1.34 V	34	49.2	3.5
6	4924.00	41.4 AV	54.0	-12.6	1.34 V	34	37.9	3.5
7	7386.00	55.8 PK	74.0	-18.2	4.00 V	360	45.9	9.9
8	7386.00	40.4 AV	54.0	-13.6	4.00 V	360	30.5	9.9

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.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.6 PK	74.0	-0.4	1.74 H	317	74.9	-1.3
2	2390.00	50.4 AV	54.0	-3.6	1.74 H	317	51.7	-1.3
3	*2412.00	112.1 PK			1.74 H	317	113.2	-1.1
4	*2412.00	101.2 AV			1.74 H	317	102.3	-1.1
5	4824.00	56.6 PK	74.0	-17.4	1.84 H	29	53.4	3.2
6	4824.00	45.5 AV	54.0	-8.5	1.84 H	29	42.3	3.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.6 PK	74.0	-2.4	3.86 V	27	72.9	-1.3
2	2390.00	48.4 AV	54.0	-5.6	3.86 V	27	49.7	-1.3
3	*2412.00	108.9 PK			3.86 V	27	110.0	-1.1
4	*2412.00	97.7 AV			3.86 V	27	98.8	-1.1
5	4824.00	52.1 PK	74.0	-21.9	1.30 V	52	48.9	3.2
6	4824.00	41.0 AV	54.0	-13.0	1.30 V	52	37.8	3.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.8 PK	74.0	-5.2	1.68 H	317	70.1	-1.3
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.68 H**	**317**	**55.2**	**-1.3**
3	*2437.00	118.7 PK			1.68 H	317	119.9	-1.2
4	*2437.00	107.8 AV			1.68 H	317	109.0	-1.2
5	2490.00	68.7 PK	74.0	-5.3	1.68 H	317	69.7	-1.0
6	2490.00	50.2 AV	54.0	-3.8	1.68 H	317	51.2	-1.0
7	4874.00	58.2 PK	74.0	-15.8	1.72 H	14	54.9	3.3
8	4874.00	47.5 AV	54.0	-6.5	1.72 H	14	44.2	3.3
9	7311.00	55.7 PK	74.0	-18.3	1.42 H	312	45.9	9.8
10	7311.00	39.9 AV	54.0	-14.1	1.42 H	312	30.1	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	66.8 PK	74.0	-7.2	3.85 V	17	68.1	-1.3
2	2390.00	51.9 AV	54.0	-2.1	3.85 V	17	53.2	-1.3
3	*2437.00	115.5 PK			3.85 V	17	116.7	-1.2
4	*2437.00	104.3 AV			3.85 V	17	105.5	-1.2
5	2483.50	66.7 PK	74.0	-7.3	3.85 V	17	67.7	-1.0
6	2483.50	48.2 AV	54.0	-5.8	3.85 V	17	49.2	-1.0
7	4874.00	54.0 PK	74.0	-20.0	1.28 V	59	50.7	3.3
8	4874.00	42.5 AV	54.0	-11.5	1.28 V	59	39.2	3.3
9	7311.00	56.6 PK	74.0	-17.4	3.90 V	360	46.8	9.8
10	7311.00	41.0 AV	54.0	-13.0	3.90 V	360	31.2	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 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.9 PK			1.75 H	317	114.0	-1.1
2	*2462.00	101.9 AV			1.75 H	317	103.0	-1.1
3	2483.50	73.8 PK	74.0	-0.2	1.75 H	317	74.8	-1.0
4	2483.50	52.8 AV	54.0	-1.2	1.75 H	317	53.8	-1.0
5	4924.00	57.3 PK	74.0	-16.7	1.80 H	8	53.8	3.5
6	4924.00	45.9 AV	54.0	-8.1	1.80 H	8	42.4	3.5
7	7386.00	54.8 PK	74.0	-19.2	1.54 H	319	44.9	9.9
8	7386.00	39.0 AV	54.0	-15.0	1.54 H	319	29.1	9.9
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	*2462.00	109.7 PK			3.89 V	19	110.8	-1.1
2	*2462.00	98.4 AV			3.89 V	19	99.5	-1.1
3	2483.50	71.8 PK	74.0	-2.2	3.89 V	19	72.8	-1.0
4	2483.50	50.8 AV	54.0	-3.2	3.89 V	19	51.8	-1.0
5	4924.00	52.7 PK	74.0	-21.3	1.38 V	49	49.2	3.5
6	4924.00	41.1 AV	54.0	-12.9	1.38 V	49	37.6	3.5
7	7386.00	56.1 PK	74.0	-17.9	4.00 V	360	46.2	9.9
8	7386.00	40.9 AV	54.0	-13.1	4.00 V	360	31.0	9.9

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.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**2390.00**	**73.9 PK**	**74.0**	**-0.1**	**1.46 H**	**316**	**75.2**	**-1.3**
2	2390.00	50.9 AV	54.0	-3.1	1.46 H	316	52.2	-1.3
3	*2422.00	109.7 PK			1.46 H	316	111.0	-1.3
4	*2422.00	98.9 AV			1.46 H	316	100.2	-1.3
5	4844.00	57.0 PK	74.0	-17.0	1.79 H	17	53.7	3.3
6	4844.00	45.7 AV	54.0	-8.3	1.79 H	17	42.4	3.3
7	7266.00	54.7 PK	74.0	-19.3	1.50 H	302	44.9	9.8
8	7266.00	38.9 AV	54.0	-15.1	1.50 H	302	29.1	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	71.9 PK	74.0	-2.1	3.83 V	36	73.2	-1.3
2	2390.00	48.9 AV	54.0	-5.1	3.83 V	36	50.2	-1.3
3	*2422.00	106.5 PK			3.83 V	36	107.8	-1.3
4	*2422.00	95.4 AV			3.83 V	36	96.7	-1.3
5	4844.00	52.1 PK	74.0	-21.9	1.36 V	70	48.8	3.3
6	4844.00	41.3 AV	54.0	-12.7	1.36 V	70	38.0	3.3
7	7266.00	55.2 PK	74.0	-18.8	3.97 V	360	45.4	9.8
8	7266.00	39.7 AV	54.0	-14.3	3.97 V	360	29.9	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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.8 PK	74.0	-4.2	1.49 H	330	71.1	-1.3
2	2390.00	52.9 AV	54.0	-1.1	1.49 H	330	54.2	-1.3
3	*2437.00	109.7 PK			1.49 H	330	110.9	-1.2
4	*2437.00	100.1 AV			1.49 H	330	101.3	-1.2
5	2483.50	71.9 PK	74.0	-2.1	1.49 H	330	72.9	-1.0
6	2483.50	49.4 AV	54.0	-4.6	1.49 H	330	50.4	-1.0
7	4874.00	58.3 PK	74.0	-15.7	1.68 H	0	55.0	3.3
8	4874.00	47.7 AV	54.0	-6.3	1.68 H	0	44.4	3.3
9	7311.00	55.5 PK	74.0	-18.5	1.51 H	297	45.7	9.8
10	7311.00	40.3 AV	54.0	-13.7	1.51 H	297	30.5	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	67.8 PK	74.0	-6.2	3.89 V	26	69.1	-1.3
2	2390.00	50.9 AV	54.0	-3.1	3.89 V	26	52.2	-1.3
3	*2437.00	106.5 PK			3.89 V	26	107.7	-1.2
4	*2437.00	96.6 AV			3.89 V	26	97.8	-1.2
5	2483.50	69.9 PK	74.0	-4.1	3.89 V	26	70.9	-1.0
6	2483.50	47.4 AV	54.0	-6.6	3.89 V	26	48.4	-1.0
7	4874.00	54.3 PK	74.0	-19.7	1.37 V	31	51.0	3.3
8	4874.00	42.9 AV	54.0	-11.1	1.37 V	31	39.6	3.3
9	7311.00	55.8 PK	74.0	-18.2	3.87 V	360	46.0	9.8
10	7311.00	40.5 AV	54.0	-13.5	3.87 V	360	30.7	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 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.1 PK			1.40 H	315	109.2	-1.1
2	*2452.00	98.2 AV			1.40 H	315	99.3	-1.1
3	2483.50	73.8 PK	74.0	-0.2	1.40 H	315	74.8	-1.0
4	2483.50	51.9 AV	54.0	-2.1	1.40 H	315	52.9	-1.0
5	4904.00	57.3 PK	74.0	-16.7	1.75 H	0	53.8	3.5
6	4904.00	45.7 AV	54.0	-8.3	1.75 H	0	42.2	3.5
7	7356.00	53.9 PK	74.0	-20.1	1.56 H	292	44.0	9.9
8	7356.00	38.4 AV	54.0	-15.6	1.56 H	292	28.5	9.9
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	*2452.00	104.9 PK			3.81 V	32	106.0	-1.1
2	*2452.00	94.7 AV			3.81 V	32	95.8	-1.1
3	2483.50	71.8 PK	74.0	-2.2	3.81 V	32	72.8	-1.0
4	2483.50	49.9 AV	54.0	-4.1	3.81 V	32	50.9	-1.0
5	4904.00	53.2 PK	74.0	-20.8	1.39 V	20	49.7	3.5
6	4904.00	41.8 AV	54.0	-12.2	1.39 V	20	38.3	3.5
7	7356.00	55.3 PK	74.0	-18.7	3.97 V	360	45.4	9.9
8	7356.00	39.9 AV	54.0	-14.1	3.97 V	360	30.0	9.9

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.

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	49.50	32.8 QP	40.0	-7.2	3.00 H	264	40.8	-8.0
2	64.17	34.6 QP	40.0	-5.4	2.00 H	32	43.3	-8.7
3	85.46	34.9 QP	40.0	-5.1	2.00 H	93	48.6	-13.7
4	98.22	36.8 QP	43.5	-6.7	2.00 H	118	49.8	-13.0
5	359.97	36.3 QP	46.0	-9.7	1.00 H	290	42.5	-6.2
6	625.00	39.3 QP	46.0	-6.7	1.00 H	360	39.4	-0.1
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	64.75	36.6 QP	40.0	-3.4	1.00 V	144	45.5	-8.9
2	85.65	36.7 QP	40.0	-3.3	3.50 V	5	50.4	-13.7
3	137.06	33.6 QP	43.5	-9.9	1.00 V	360	42.0	-8.4
4	198.13	29.9 QP	43.5	-13.6	1.00 V	338	41.4	-11.5
5	359.99	36.1 QP	46.0	-9.9	2.00 V	0	42.3	-6.2
6	440.02	32.5 QP	46.0	-13.5	1.00 V	11	36.3	-3.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.1.8 Test Results (Mode 2)

Above 1GHz Data：

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2388.00	59.1 PK	74.0	-14.9	1.54 H	320	60.4	-1.3
2	2388.00	50.6 AV	54.0	-3.4	1.54 H	320	51.9	-1.3
3	*2412.00	106.3 PK			1.54 H	320	107.4	-1.1
4	*2412.00	104.1 AV			1.54 H	320	105.2	-1.1
5	4824.00	51.9 PK	74.0	-22.1	1.47 H	21	48.7	3.2
6	4824.00	50.0 AV	54.0	-4.0	1.47 H	21	46.8	3.2
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	2388.00	60.2 PK	74.0	-13.8	2.19 V	334	61.5	-1.3
2	2388.00	52.6 AV	54.0	-1.4	2.19 V	334	53.9	-1.3
3	*2412.00	107.4 PK			2.19 V	334	108.5	-1.1
4	*2412.00	105.3 AV			2.19 V	334	106.4	-1.1
5	4824.00	55.2 PK	74.0	-18.8	1.91 V	312	52.0	3.2
6	4824.00	53.6 AV	54.0	-0.4	1.91 V	312	50.4	3.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 2	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2388.00	56.8 PK	74.0	-17.2	1.60 H	310	58.1	-1.3
2	2388.00	48.4 AV	54.0	-5.6	1.60 H	310	49.7	-1.3
3	*2417.00	108.1 PK			1.60 H	310	109.3	-1.2
4	*2417.00	105.4 AV			1.60 H	310	106.6	-1.2
5	4834.00	52.5 PK	74.0	-21.5	1.50 H	25	49.2	3.3
6	4834.00	50.3 AV	54.0	-3.7	1.50 H	25	47.0	3.3
7	7251.00	56.5 PK	74.0	-17.5	2.77 H	304	46.8	9.7
8	7251.00	52.9 AV	54.0	-1.1	2.77 H	304	43.2	9.7
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	2388.00	58.9 PK	74.0	-15.1	2.19 V	344	60.2	-1.3
2	2388.00	50.5 AV	54.0	-3.5	2.19 V	344	51.8	-1.3
3	*2417.00	109.2 PK			2.19 V	344	110.4	-1.2
4	*2417.00	106.6 AV			2.19 V	344	107.8	-1.2
5	4834.00	55.9 PK	74.0	-18.1	1.91 V	316	52.6	3.3
6	**4834.00**	**53.9 AV**	**54.0**	**-0.1**	**1.91 V**	**316**	**50.6**	**3.3**
7	7251.00	53.9 PK	74.0	-20.1	1.88 V	7	44.2	9.7
8	7251.00	49.4 AV	54.0	-4.6	1.88 V	7	39.7	9.7

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.8 PK			1.53 H	335	107.0	-1.2
2	*2437.00	103.6 AV			1.53 H	335	104.8	-1.2
3	4874.00	52.4 PK	74.0	-21.6	1.50 H	31	49.1	3.3
4	4874.00	50.4 AV	54.0	-3.6	1.50 H	31	47.1	3.3
5	7311.00	56.5 PK	74.0	-17.5	2.81 H	308	46.7	9.8
6	7311.00	53.0 AV	54.0	-1.0	2.81 H	308	43.2	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	*2437.00	107.3 PK			2.22 V	320	108.5	-1.2
2	*2437.00	105.1 AV			2.22 V	320	106.3	-1.2
3	4874.00	55.1 PK	74.0	-18.9	1.91 V	310	51.8	3.3
4	4874.00	53.5 AV	54.0	-0.5	1.91 V	310	50.2	3.3
5	7311.00	53.5 PK	74.0	-20.5	1.89 V	19	43.7	9.8
6	7311.00	49.0 AV	54.0	-5.0	1.89 V	19	39.2	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 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	108.3 PK			1.55 H	302	109.4	-1.1
2	*2457.00	105.7 AV			1.55 H	302	106.8	-1.1
3	2483.50	58.5 PK	74.0	-15.5	1.55 H	302	59.5	-1.0
4	2483.50	50.6 AV	54.0	-3.4	1.55 H	302	51.6	-1.0
5	4914.00	52.6 PK	74.0	-21.4	1.50 H	34	49.1	3.5
6	4914.00	50.7 AV	54.0	-3.3	1.50 H	34	47.2	3.5
7	7371.00	56.6 PK	74.0	-17.4	2.86 H	314	46.7	9.9
8	7371.00	53.3 AV	54.0	-0.7	2.86 H	314	43.4	9.9
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	*2457.00	109.3 PK			2.19 V	348	110.4	-1.1
2	*2457.00	106.9 AV			2.19 V	348	108.0	-1.1
3	2483.50	60.3 PK	74.0	-13.7	2.19 V	348	61.3	-1.0
4	2483.50	52.5 AV	54.0	-1.5	2.19 V	348	53.5	-1.0
5	4914.00	55.8 PK	74.0	-18.2	1.91 V	305	52.3	3.5
6	**4914.00**	**53.9 AV**	**54.0**	**-0.1**	**1.91 V**	**305**	**50.4**	**3.5**
7	7371.00	53.0 PK	74.0	-21.0	1.87 V	21	43.1	9.9
8	7371.00	48.8 AV	54.0	-5.2	1.87 V	21	38.9	9.9

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.0 PK			1.48 H	321	107.1	-1.1
2	*2462.00	103.8 AV			1.48 H	321	104.9	-1.1
3	2483.50	58.8 PK	74.0	-15.2	1.48 H	321	59.8	-1.0
4	2483.50	51.6 AV	54.0	-2.4	1.48 H	321	52.6	-1.0
5	4924.00	51.3 PK	74.0	-22.7	1.53 H	31	47.8	3.5
6	4924.00	49.5 AV	54.0	-4.5	1.53 H	31	46.0	3.5
7	7386.00	55.1 PK	74.0	-18.9	2.84 H	292	45.2	9.9
8	7386.00	51.7 AV	54.0	-2.3	2.84 H	292	41.8	9.9
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	*2462.00	107.5 PK			1.88 V	338	108.6	-1.1
2	*2462.00	105.3 AV			1.88 V	338	106.4	-1.1
3	2483.50	60.8 PK	74.0	-13.2	1.88 V	338	61.8	-1.0
4	2483.50	53.6 AV	54.0	-0.4	1.88 V	338	54.6	-1.0
5	4924.00	54.0 PK	74.0	-20.0	1.86 V	323	50.5	3.5
6	4924.00	52.2 AV	54.0	-1.8	1.86 V	323	48.7	3.5
7	7386.00	53.1 PK	74.0	-20.9	1.83 V	29	43.2	9.9
8	7386.00	48.4 AV	54.0	-5.6	1.83 V	29	38.5	9.9

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.0 PK	74.0	-5.0	1.45 H	326	70.3	-1.3
2	2390.00	51.5 AV	54.0	-2.5	1.45 H	326	52.8	-1.3
3	*2412.00	104.8 PK			1.45 H	326	105.9	-1.1
4	*2412.00	94.7 AV			1.45 H	326	95.8	-1.1
5	4824.00	56.4 PK	74.0	-17.6	1.73 H	50	53.2	3.2
6	4824.00	45.2 AV	54.0	-8.8	1.73 H	50	42.0	3.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.1 PK	74.0	-3.9	2.19 V	333	71.4	-1.3
2	2390.00	53.5 AV	54.0	-0.5	2.19 V	333	54.8	-1.3
3	*2412.00	106.3 PK			2.19 V	333	107.4	-1.1
4	*2412.00	96.2 AV			2.19 V	333	97.3	-1.1
5	4824.00	52.5 PK	74.0	-21.5	1.28 V	48	49.3	3.2
6	4824.00	41.4 AV	54.0	-12.6	1.28 V	48	38.2	3.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 2	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.6 PK	74.0	-6.4	1.45 H	322	68.9	-1.3
2	2390.00	51.2 AV	54.0	-2.8	1.45 H	322	52.5	-1.3
3	*2417.00	108.4 PK			1.45 H	322	109.6	-1.2
4	*2417.00	98.5 AV			1.45 H	322	99.7	-1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.5 PK	74.0	-4.5	2.39 V	329	70.8	-1.3
2	2390.00	53.3 AV	54.0	-0.7	2.39 V	329	54.6	-1.3
3	*2417.00	109.9 PK			2.39 V	329	111.1	-1.2
4	*2417.00	100.0 AV			2.39 V	329	101.2	-1.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.4 PK	74.0	-4.6	1.54 H	321	70.7	-1.3
2	2390.00	51.5 AV	54.0	-2.5	1.54 H	321	52.8	-1.3
3	*2437.00	110.3 PK			1.54 H	321	111.5	-1.2
4	*2437.00	99.7 AV			1.54 H	321	100.9	-1.2
5	2483.50	69.8 PK	74.0	-4.2	1.54 H	321	70.8	-1.0
6	2483.50	51.9 AV	54.0	-2.1	1.54 H	321	52.9	-1.0
7	4874.00	58.6 PK	74.0	-15.4	1.68 H	9	55.3	3.3
8	4874.00	47.8 AV	54.0	-6.2	1.68 H	9	44.5	3.3
9	7311.00	55.3 PK	74.0	-18.7	1.40 H	308	45.5	9.8
10	7311.00	40.0 AV	54.0	-14.0	1.40 H	308	30.2	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	70.5 PK	74.0	-3.5	2.19 V	344	71.8	-1.3
2	2390.00	53.5 AV	54.0	-0.5	2.19 V	344	54.8	-1.3
3	*2437.00	111.8 PK			2.19 V	344	113.0	-1.2
4	*2437.00	101.2 AV			2.19 V	344	102.4	-1.2
5	2483.50	70.9 PK	74.0	-3.1	2.19 V	344	71.9	-1.0
6	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.19 V**	**344**	**54.9**	**-1.0**
7	4874.00	54.4 PK	74.0	-19.6	1.38 V	46	51.1	3.3
8	4874.00	42.9 AV	54.0	-11.1	1.38 V	46	39.6	3.3
9	7311.00	56.0 PK	74.0	-18.0	3.95 V	360	46.2	9.8
10	7311.00	40.7 AV	54.0	-13.3	3.95 V	360	30.9	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 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	107.5 PK			1.47 H	325	108.6	-1.1
2	*2457.00	97.6 AV			1.47 H	325	98.7	-1.1
3	2483.50	68.0 PK	74.0	-6.0	1.47 H	325	69.0	-1.0
4	2483.50	51.7 AV	54.0	-2.3	1.47 H	325	52.7	-1.0
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	*2457.00	109.2 PK			2.39 V	347	110.3	-1.1
2	*2457.00	99.0 AV			2.39 V	347	100.1	-1.1
3	2483.50	70.0 PK	74.0	-4.0	2.39 V	347	71.0	-1.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.39 V**	**347**	**54.9**	**-1.0**

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.6 PK			1.42 H	316	105.7	-1.1
2	*2462.00	94.5 AV			1.42 H	316	95.6	-1.1
3	2483.50	69.7 PK	74.0	-4.3	1.42 H	316	70.7	-1.0
4	2483.50	51.9 AV	54.0	-2.1	1.42 H	316	52.9	-1.0
5	4924.00	56.7 PK	74.0	-17.3	1.70 H	12	53.2	3.5
6	4924.00	45.5 AV	54.0	-8.5	1.70 H	12	42.0	3.5
7	7386.00	54.5 PK	74.0	-19.5	1.45 H	296	44.6	9.9
8	7386.00	38.9 AV	54.0	-15.1	1.45 H	296	29.0	9.9
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	*2462.00	106.1 PK			1.92 V	338	107.2	-1.1
2	*2462.00	96.0 AV			1.92 V	338	97.1	-1.1
3	2483.50	70.8 PK	74.0	-3.2	1.92 V	338	71.8	-1.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.92 V**	**338**	**54.9**	**-1.0**
5	4924.00	52.2 PK	74.0	-21.8	1.30 V	26	48.7	3.5
6	4924.00	41.1 AV	54.0	-12.9	1.30 V	26	37.6	3.5
7	7386.00	56.4 PK	74.0	-17.6	3.96 V	360	46.5	9.9
8	7386.00	40.7 AV	54.0	-13.3	3.96 V	360	30.8	9.9

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.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.44 H	313	68.3	-1.3
2	2390.00	51.3 AV	54.0	-2.7	1.44 H	313	52.6	-1.3
3	*2412.00	103.9 PK			1.44 H	313	105.0	-1.1
4	*2412.00	93.8 AV			1.44 H	313	94.9	-1.1
5	4824.00	56.6 PK	74.0	-17.4	1.80 H	48	53.4	3.2
6	4824.00	45.5 AV	54.0	-8.5	1.80 H	48	42.3	3.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.1 PK	74.0	-5.9	2.19 V	334	69.4	-1.3
2	2390.00	53.3 AV	54.0	-0.7	2.19 V	334	54.6	-1.3
3	*2412.00	105.4 PK			2.19 V	334	106.5	-1.1
4	*2412.00	95.3 AV			2.19 V	334	96.4	-1.1
5	4824.00	52.4 PK	74.0	-21.6	1.35 V	44	49.2	3.2
6	4824.00	41.3 AV	54.0	-12.7	1.35 V	44	38.1	3.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 2	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.1 PK	74.0	-5.9	1.44 H	307	69.4	-1.3
2	2390.00	51.8 AV	54.0	-2.2	1.44 H	307	53.1	-1.3
3	*2417.00	107.2 PK			1.44 H	307	108.4	-1.2
4	*2417.00	97.0 AV			1.44 H	307	98.2	-1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.9 PK	74.0	-4.1	2.39 V	328	71.2	-1.3
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.39 V**	**328**	**55.2**	**-1.3**
3	*2417.00	108.5 PK			2.39 V	328	109.7	-1.2
4	*2417.00	98.5 AV			2.39 V	328	99.7	-1.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.4 PK	74.0	-5.6	1.46 H	328	69.7	-1.3
2	2390.00	51.0 AV	54.0	-3.0	1.46 H	328	52.3	-1.3
3	*2437.00	109.8 PK			1.46 H	328	111.0	-1.2
4	*2437.00	99.1 AV			1.46 H	328	100.3	-1.2
5	2483.50	70.7 PK	74.0	-3.3	1.46 H	328	71.7	-1.0
6	2483.50	51.9 AV	54.0	-2.1	1.46 H	328	52.9	-1.0
7	4874.00	58.7 PK	74.0	-15.3	1.68 H	29	55.4	3.3
8	4874.00	47.8 AV	54.0	-6.2	1.68 H	29	44.5	3.3
9	7311.00	55.1 PK	74.0	-18.9	1.49 H	321	45.3	9.8
10	7311.00	39.8 AV	54.0	-14.2	1.49 H	321	30.0	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	69.5 PK	74.0	-4.5	2.19 V	339	70.8	-1.3
2	2390.00	53.0 AV	54.0	-1.0	2.19 V	339	54.3	-1.3
3	*2437.00	111.3 PK			2.19 V	339	112.5	-1.2
4	*2437.00	100.6 AV			2.19 V	339	101.8	-1.2
5	2483.50	71.8 PK	74.0	-2.2	2.19 V	339	72.8	-1.0
6	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.19 V**	**339**	**54.9**	**-1.0**
7	4874.00	53.3 PK	74.0	-20.7	1.27 V	50	50.0	3.3
8	4874.00	42.1 AV	54.0	-11.9	1.27 V	50	38.8	3.3
9	7311.00	55.8 PK	74.0	-18.2	3.86 V	360	46.0	9.8
10	7311.00	40.5 AV	54.0	-13.5	3.86 V	360	30.7	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 10	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2457.00	106.8 PK			1.40 H	300	107.9	-1.1
2	*2457.00	96.6 AV			1.40 H	300	97.7	-1.1
3	2483.50	65.4 PK	74.0	-8.6	1.40 H	300	66.4	-1.0
4	2483.50	51.6 AV	54.0	-2.4	1.40 H	300	52.6	-1.0
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	*2457.00	108.2 PK			3.29 V	349	109.3	-1.1
2	*2457.00	98.0 AV			3.29 V	349	99.1	-1.1
3	2483.50	67.5 PK	74.0	-6.5	3.29 V	349	68.5	-1.0
4	2483.50	53.5 AV	54.0	-0.5	3.29 V	349	54.5	-1.0

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.2 PK			1.43 H	311	104.3	-1.1
2	*2462.00	93.2 AV			1.43 H	311	94.3	-1.1
3	2483.50	68.3 PK	74.0	-5.7	1.43 H	311	69.3	-1.0
4	2483.50	51.9 AV	54.0	-2.1	1.43 H	311	52.9	-1.0
5	4924.00	57.6 PK	74.0	-16.4	1.73 H	0	54.1	3.5
6	4924.00	46.3 AV	54.0	-7.7	1.73 H	0	42.8	3.5
7	7386.00	53.9 PK	74.0	-20.1	1.46 H	291	44.0	9.9
8	7386.00	38.4 AV	54.0	-15.6	1.46 H	291	28.5	9.9
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	*2462.00	104.7 PK			1.92 V	338	105.8	-1.1
2	*2462.00	94.7 AV			1.92 V	338	95.8	-1.1
3	2483.50	69.4 PK	74.0	-4.6	1.92 V	338	70.4	-1.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.92 V**	**338**	**54.9**	**-1.0**
5	4924.00	52.9 PK	74.0	-21.1	1.36 V	28	49.4	3.5
6	4924.00	41.5 AV	54.0	-12.5	1.36 V	28	38.0	3.5
7	7386.00	56.1 PK	74.0	-17.9	4.00 V	360	46.2	9.9
8	7386.00	40.4 AV	54.0	-13.6	4.00 V	360	30.5	9.9

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.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.7 PK	74.0	-8.3	1.48 H	320	67.0	-1.3
2	2390.00	51.9 AV	54.0	-2.1	1.48 H	320	53.2	-1.3
3	*2422.00	100.3 PK			1.48 H	320	101.6	-1.3
4	*2422.00	90.1 AV			1.48 H	320	91.4	-1.3
5	4844.00	57.1 PK	74.0	-16.9	1.75 H	21	53.8	3.3
6	4844.00	45.5 AV	54.0	-8.5	1.75 H	21	42.2	3.3
7	7266.00	54.4 PK	74.0	-19.6	1.54 H	290	44.6	9.8
8	7266.00	38.5 AV	54.0	-15.5	1.54 H	290	28.7	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	66.8 PK	74.0	-7.2	2.19 V	335	68.1	-1.3
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.19 V**	**335**	**55.2**	**-1.3**
3	*2422.00	101.8 PK			2.19 V	335	103.1	-1.3
4	*2422.00	91.6 AV			2.19 V	335	92.9	-1.3
5	4844.00	52.5 PK	74.0	-21.5	1.32 V	75	49.2	3.3
6	4844.00	41.6 AV	54.0	-12.4	1.32 V	75	38.3	3.3
7	7266.00	55.5 PK	74.0	-18.5	3.91 V	360	45.7	9.8
8	7266.00	39.8 AV	54.0	-14.2	3.91 V	360	30.0	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 4	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.6 PK	74.0	-9.4	1.36 H	316	65.9	-1.3
2	2390.00	51.6 AV	54.0	-2.4	1.36 H	316	52.9	-1.3
3	*2427.00	102.7 PK			1.36 H	316	103.9	-1.2
4	*2427.00	92.5 AV			1.36 H	316	93.7	-1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.5 PK	74.0	-7.5	3.26 V	328	67.8	-1.3
2	2390.00	53.5 AV	54.0	-0.5	3.26 V	328	54.8	-1.3
3	*2427.00	104.2 PK			3.26 V	328	105.4	-1.2
4	*2427.00	94.1 AV			3.26 V	328	95.3	-1.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	1.45 H	309	61.3	-1.3
2	2390.00	46.5 AV	54.0	-7.5	1.45 H	309	47.8	-1.3
3	*2437.00	103.8 PK			1.45 H	309	105.0	-1.2
4	*2437.00	93.9 AV			1.45 H	309	95.1	-1.2
5	2483.50	64.6 PK	74.0	-9.4	1.45 H	309	65.6	-1.0
6	2483.50	51.5 AV	54.0	-2.5	1.45 H	309	52.5	-1.0
7	4874.00	58.2 PK	74.0	-15.8	1.69 H	26	54.9	3.3
8	4874.00	47.4 AV	54.0	-6.6	1.69 H	26	44.1	3.3
9	7311.00	56.0 PK	74.0	-18.0	1.42 H	299	46.2	9.8
10	7311.00	40.3 AV	54.0	-13.7	1.42 H	299	30.5	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	61.1 PK	74.0	-12.9	2.19 V	335	62.4	-1.3
2	2390.00	48.5 AV	54.0	-5.5	2.19 V	335	49.8	-1.3
3	*2437.00	105.3 PK			2.19 V	335	106.5	-1.2
4	*2437.00	95.4 AV			2.19 V	335	96.6	-1.2
5	2483.50	65.7 PK	74.0	-8.3	2.19 V	335	66.7	-1.0
6	2483.50	53.5 AV	54.0	-0.5	2.19 V	335	54.5	-1.0
7	4874.00	53.8 PK	74.0	-20.2	1.31 V	51	50.5	3.3
8	4874.00	42.5 AV	54.0	-11.5	1.31 V	51	39.2	3.3
9	7311.00	56.2 PK	74.0	-17.8	3.89 V	360	46.4	9.8
10	7311.00	40.8 AV	54.0	-13.2	3.89 V	360	31.0	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 8	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2447.00	100.8 PK			1.37 H	324	101.9	-1.1
2	*2447.00	91.2 AV			1.37 H	324	92.3	-1.1
3	2483.50	65.9 PK	74.0	-8.1	1.37 H	324	66.9	-1.0
4	2483.50	51.7 AV	54.0	-2.3	1.37 H	324	52.7	-1.0
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	*2447.00	102.2 PK			3.26 V	328	103.3	-1.1
2	*2447.00	92.8 AV			3.26 V	328	93.9	-1.1
3	2483.50	67.8 PK	74.0	-6.2	3.26 V	328	68.8	-1.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**3.26 V**	**328**	**54.9**	**-1.0**

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	97.0 PK			1.53 H	318	98.1	-1.1
2	*2452.00	87.4 AV			1.53 H	318	88.5	-1.1
3	2483.50	64.7 PK	74.0	-9.3	1.53 H	318	65.7	-1.0
4	2483.50	51.6 AV	54.0	-2.4	1.53 H	318	52.6	-1.0
5	4904.00	57.4 PK	74.0	-16.6	1.75 H	8	53.9	3.5
6	4904.00	46.2 AV	54.0	-7.8	1.75 H	8	42.7	3.5
7	7356.00	54.2 PK	74.0	-19.8	1.53 H	307	44.3	9.9
8	7356.00	38.7 AV	54.0	-15.3	1.53 H	307	28.8	9.9
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	*2452.00	98.5 PK			1.92 V	336	99.6	-1.1
2	*2452.00	88.9 AV			1.92 V	336	90.0	-1.1
3	2483.50	65.8 PK	74.0	-8.2	1.92 V	336	66.8	-1.0
4	2483.50	53.6 AV	54.0	-0.4	1.92 V	336	54.6	-1.0
5	4904.00	52.8 PK	74.0	-21.2	1.34 V	44	49.3	3.5
6	4904.00	41.7 AV	54.0	-12.3	1.34 V	44	38.2	3.5
7	7356.00	55.5 PK	74.0	-18.5	3.99 V	360	45.6	9.9
8	7356.00	40.3 AV	54.0	-13.7	3.99 V	360	30.4	9.9

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.

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	31.87	36.7 QP	40.0	-3.3	1.00 H	360	46.1	-9.4
2	98.12	37.7 QP	43.5	-5.8	2.00 H	94	50.7	-13.0
3	359.99	37.5 QP	46.0	-8.5	1.00 H	306	43.7	-6.2
4	480.01	33.8 QP	46.0	-12.2	1.00 H	360	36.8	-3.0
5	624.97	38.4 QP	46.0	-7.6	1.00 H	360	38.5	-0.1
6	680.02	34.9 QP	46.0	-11.1	1.00 H	360	34.4	0.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	84.81	34.0 QP	40.0	-6.0	2.00 V	360	47.8	-13.8
2	137.06	31.6 QP	43.5	-11.9	2.00 V	360	40.0	-8.4
3	196.94	29.7 QP	43.5	-13.8	1.00 V	336	41.1	-11.4
4	359.99	35.6 QP	46.0	-10.4	1.00 V	3	41.8	-6.2
5	440.02	32.9 QP	46.0	-13.1	1.00 V	12	36.7	-3.8
6	624.97	31.7 QP	46.0	-14.3	1.00 V	40	31.8	-0.1

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May. 09, 2017	May. 08, 2018
Line-Impedance Stabilization Network (for EUT) R&S	NSLK-8127	8127-522	Aug. 31, 2017	Aug. 30, 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: Nov. 09, 2017

4.2.3 Test Procedures

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

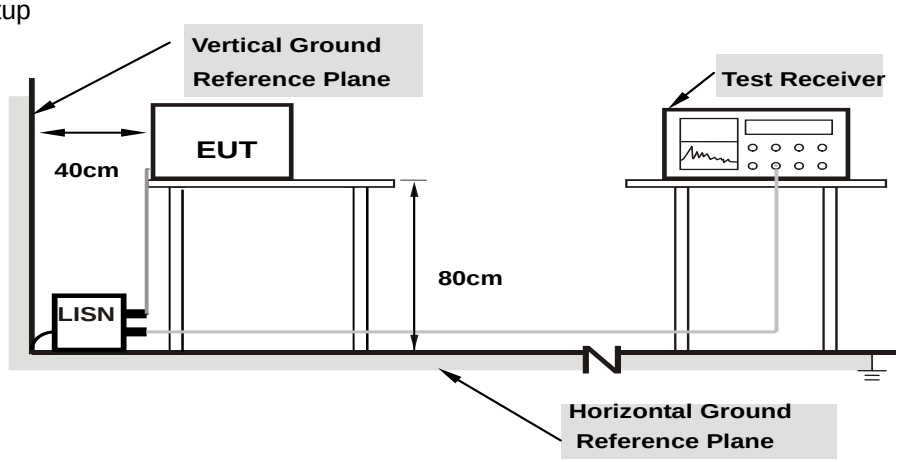
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

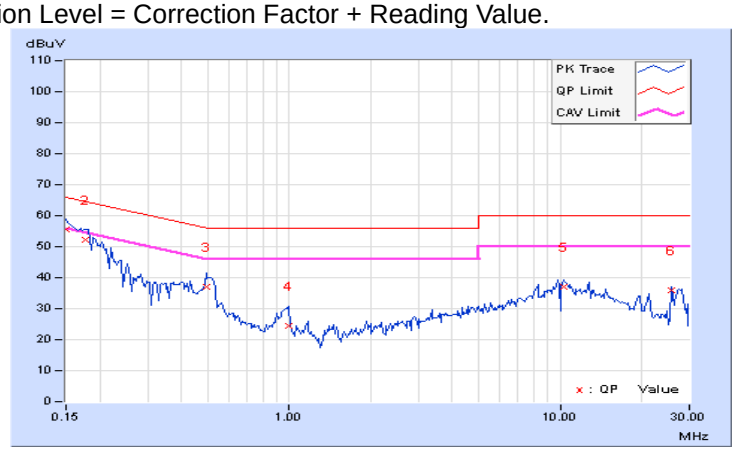
4.2.7 Test Results (Mode 1)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15000**	**9.67**	**46.01**	**29.57**	**55.68**	**39.24**	**66.00**	**56.00**	**-10.32**	**-16.76**
2	0.17734	9.71	42.38	26.92	52.09	36.63	64.61	54.61	-12.52	-17.98
3	0.49375	9.74	27.20	21.10	36.94	30.84	56.10	46.10	-19.16	-15.26
4	0.98984	9.71	14.85	8.54	24.56	18.25	56.00	46.00	-31.44	-27.75
5	10.36719	9.88	27.17	21.19	37.05	31.07	60.00	50.00	-22.95	-18.93
6	25.87109	10.00	25.83	25.00	35.83	35.00	60.00	50.00	-24.17	-15.00

REMARKS:

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

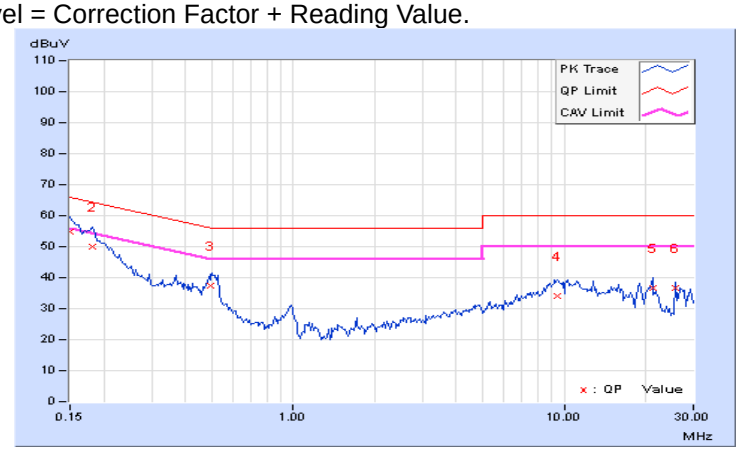


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.70	45.22	28.66	54.92	38.36	66.00	56.00	-11.08	-17.64
2	0.18125	9.72	40.18	25.56	49.90	35.28	64.43	54.43	-14.53	-19.15
3	0.49375	9.71	27.63	21.38	37.34	31.09	56.10	46.10	-18.76	-15.01
4	9.49609	9.94	24.18	18.53	34.12	28.47	60.00	50.00	-25.88	-21.53
5	21.16797	10.22	26.50	25.83	36.72	36.05	60.00	50.00	-23.28	-13.95
6	25.87500	10.28	26.30	26.02	36.58	36.30	60.00	50.00	-23.42	-13.70

REMARKS:

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



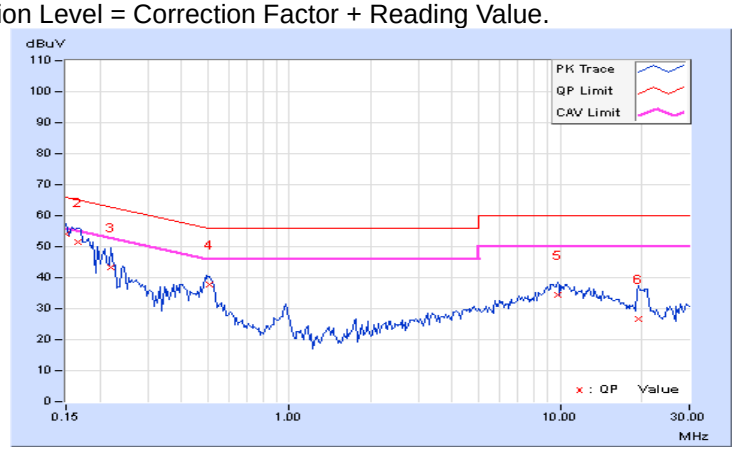
4.2.8 Test Results (Mode 2)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.67	44.49	28.23	54.16	37.90	66.00	56.00	-11.84	-18.10
2	0.16562	9.69	41.88	24.78	51.57	34.47	65.18	55.18	-13.61	-20.71
3	0.22031	9.75	33.70	16.50	43.45	26.25	62.81	52.81	-19.36	-26.56
4	0.50938	9.73	28.14	21.36	37.87	31.09	56.00	46.00	-18.13	-14.91
5	9.82031	9.88	24.44	18.87	34.32	28.75	60.00	50.00	-25.68	-21.25
6	19.44922	9.93	16.63	11.85	26.56	21.78	60.00	50.00	-33.44	-28.22

REMARKS:

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

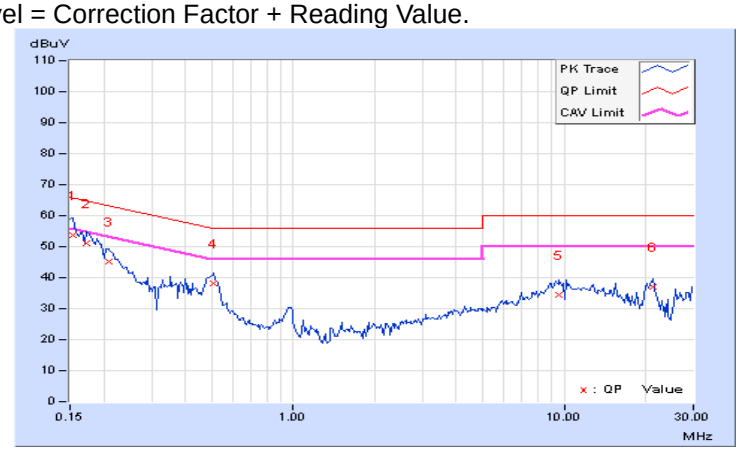


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.70	43.92	27.03	53.62	36.73	65.79	55.79	-12.17	-19.06
2	0.17344	9.72	41.29	26.46	51.01	36.18	64.79	54.79	-13.78	-18.61
3	0.20859	9.74	35.41	21.02	45.15	30.76	63.26	53.26	-18.11	-22.50
4	0.50938	9.71	28.33	21.68	38.04	31.39	56.00	46.00	-17.96	-14.61
5	9.60938	9.94	24.44	18.86	34.38	28.80	60.00	50.00	-25.62	-21.20
6	21.16797	10.22	26.87	25.32	37.09	35.54	60.00	50.00	-22.91	-14.46

REMARKS:

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

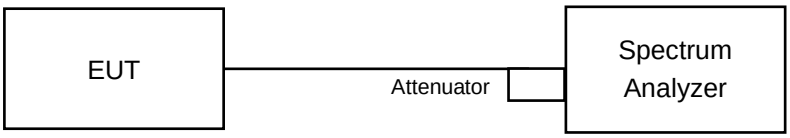


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result (Mode 1)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	9.05	9.02	0.5	PASS
6	2437	10.07	10.11	0.5	PASS
11	2462	8.63	8.56	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.45	16.45	0.5	PASS
6	2437	16.38	16.39	0.5	PASS
11	2462	16.38	16.40	0.5	PASS

802.11n (HT20)

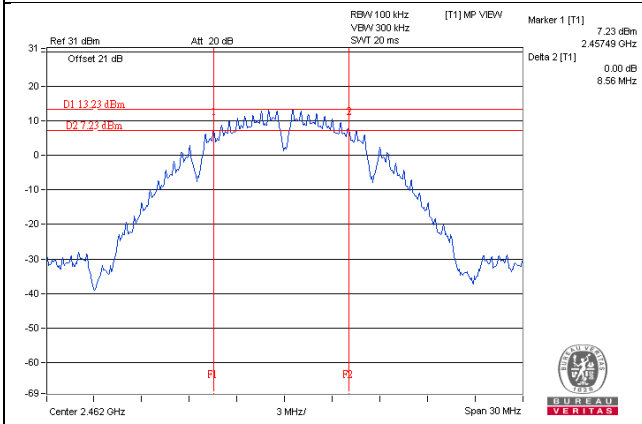
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.67	17.66	0.5	Pass
6	2437	17.65	17.65	0.5	Pass
11	2462	17.68	17.67	0.5	Pass

802.11n (HT40)

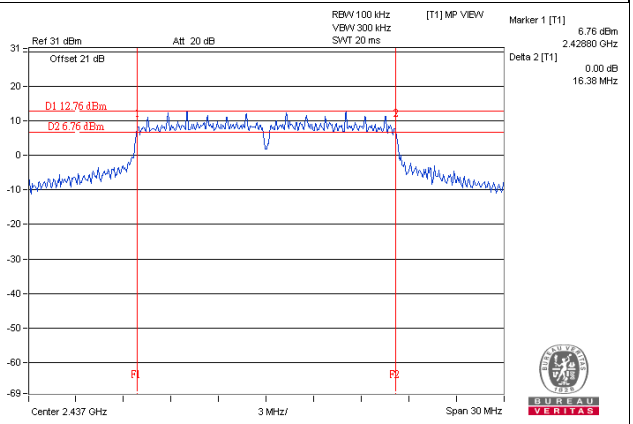
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.41	36.43	0.5	Pass
6	2437	36.45	36.50	0.5	Pass
9	2452	36.42	36.50	0.5	Pass

Spectrum Plot of Worst Value

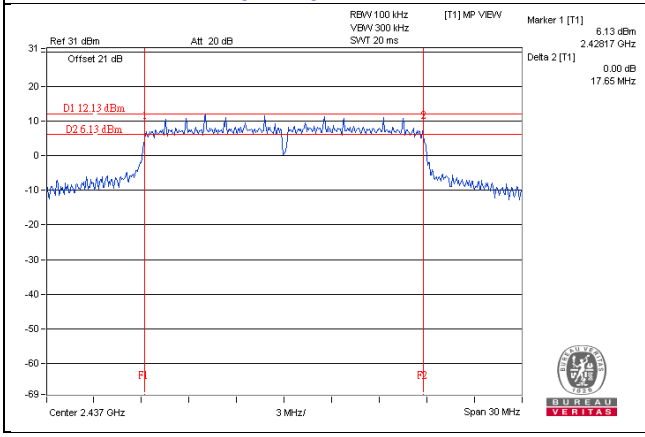
802.11b / Chain 1 : CH11



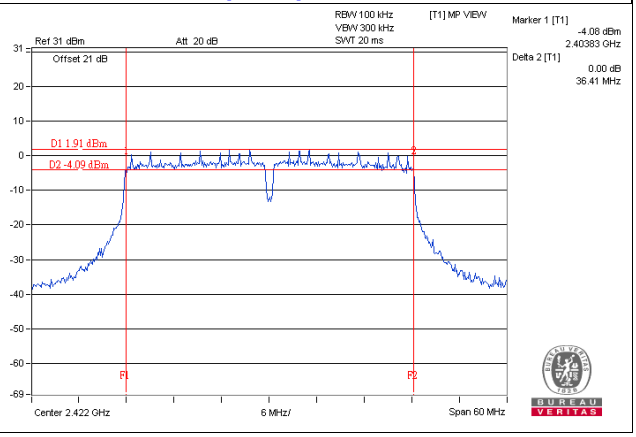
802.11g / Chain 0 : CH6



802.11n (HT20) / Chain 0 : CH6



802.11n (HT40) / Chain 0 : CH3



4.3.8 Test Result (Mode 2)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.10	0.5	PASS
6	2437	8.61	0.5	PASS
11	2462	7.53	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.40	0.5	PASS
6	2437	15.80	0.5	PASS
11	2462	15.76	0.5	PASS

802.11n (HT20)

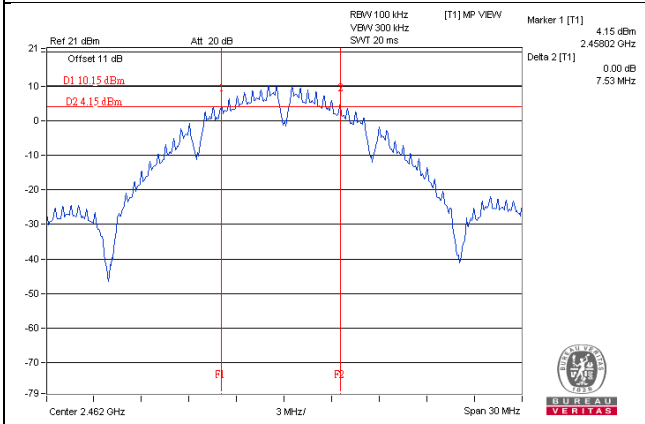
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.63	0.5	Pass
6	2437	17.01	0.5	Pass
11	2462	15.74	0.5	Pass

802.11n (HT40)

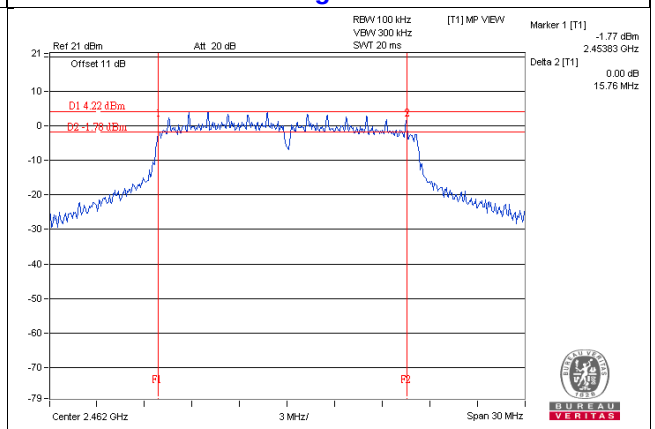
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.22	0.5	Pass
6	2437	34.03	0.5	Pass
9	2452	35.89	0.5	Pass

Spectrum Plot of Worst Value

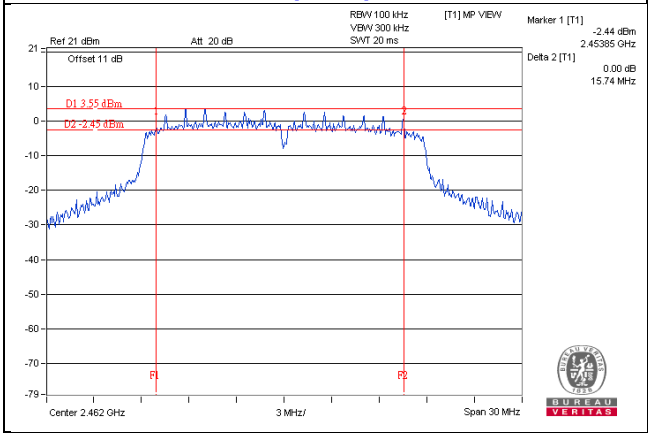
802.11b : CH11



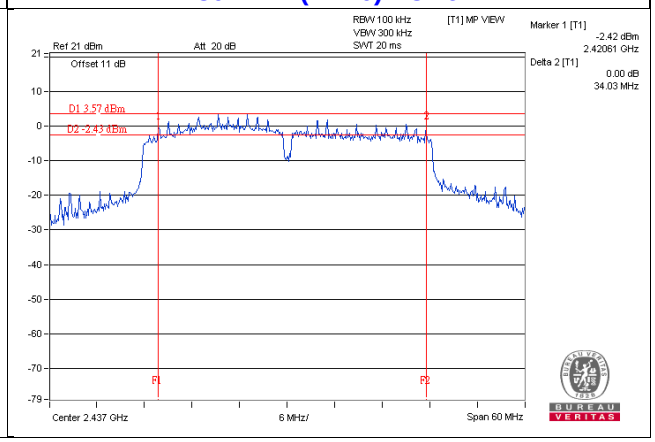
802.11g : CH11



802.11n (HT20) : CH11



802.11n (HT40) : CH6



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

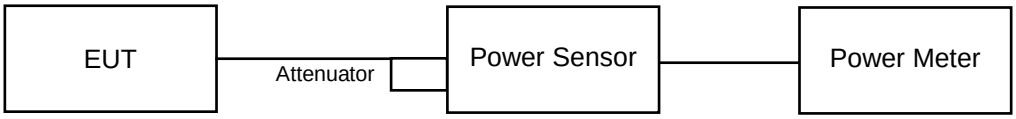
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results (Mode 1)

CDD Mode

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	24.02	23.88	496.691	26.96	30	Pass
6	2437	25.30	25.23	672.27	28.28	30	Pass
11	2462	23.44	23.26	432.636	26.36	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	24.42	24.11	534.326	27.28	30	Pass
6	2437	25.59	25.56	721.992	28.59	30	Pass
11	2462	24.60	24.38	562.56	27.50	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	24.14	23.99	510.029	27.08	30	Pass
6	2437	25.38	25.40	691.881	28.40	30	Pass
11	2462	24.38	24.41	550.215	27.41	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	23.96	23.90	494.357	26.94	30	Pass
6	2437	24.66	24.48	572.958	27.58	30	Pass
9	2452	23.26	22.88	405.925	26.08	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	22.00	21.84	311.246	24.93
6	2437	23.85	23.74	479.253	26.81
11	2462	21.38	21.20	269.23	24.30

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	16.39	16.22	85.43	19.32
6	2437	22.83	22.73	379.366	25.79
11	2462	17.26	17.20	105.692	20.24

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	15.91	15.64	75.638	18.79
6	2437	22.35	22.36	343.978	25.37
11	2462	17.17	17.22	104.842	20.21

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	15.59	15.56	72.199	18.59
6	2437	16.62	16.61	91.734	19.63
9	2452	14.63	14.38	56.456	17.52

Beamforming Mode

FOR PEAK POWER

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	24.14	23.99	510.029	27.08	28.81	Pass
6	2437	25.38	25.40	691.881	28.40	28.81	Pass
11	2462	24.38	24.41	550.215	27.41	28.81	Pass

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.19dBi > 6dBi , so the power limit shall be reduced to 30-(7.19-6) = 28.81dBm.

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	23.96	23.90	494.357	26.94	28.81	Pass
6	2437	24.66	24.48	572.958	27.58	28.81	Pass
9	2452	23.26	22.88	405.925	26.08	28.81	Pass

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.19dBi > 6dBi , so the power limit shall be reduced to 30-(7.19-6) = 28.81dBm.

FOR AVERAGE POWER

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	15.91	15.64	75.638	18.79
6	2437	22.35	22.36	343.978	25.37
11	2462	17.17	17.22	104.842	20.21

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	15.59	15.56	72.199	18.59
6	2437	16.62	16.61	91.734	19.63
9	2452	14.63	14.38	56.456	17.52

4.4.8 Test Results (Mode 2)

FOR PEAK POWER

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	156.315	21.94	30	Pass
2	2417	154.17	21.88	30	Pass
6	2437	146.218	21.65	30	Pass
10	2457	139.637	21.45	30	Pass
11	2462	121.339	20.84	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	82.035	19.14	30	Pass
2	2417	151.705	21.81	30	Pass
6	2437	211.349	23.25	30	Pass
10	2457	113.501	20.55	30	Pass
11	2462	67.608	18.30	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	70.958	18.51	30	Pass
2	2417	150.661	21.78	30	Pass
6	2437	201.837	23.05	30	Pass
10	2457	105.925	20.25	30	Pass
11	2462	57.81	17.62	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	56.494	17.52	30	Pass
4	2427	82.224	19.15	30	Pass
6	2437	121.339	20.84	30	Pass
8	2447	50.119	17.00	30	Pass
9	2452	34.041	15.32	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	97.949	19.91
2	2417	98.855	19.95
6	2437	95.499	19.80
10	2457	92.683	19.67
11	2462	72.611	18.61

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	35.892	15.55
2	2417	65.313	18.15
6	2437	116.413	20.66
10	2457	51.404	17.11
11	2462	28.973	14.62

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	29.376	14.68
2	2417	64.269	18.08
6	2437	107.647	20.32
10	2457	46.452	16.67
11	2462	22.909	13.60

802.11n (HT40)

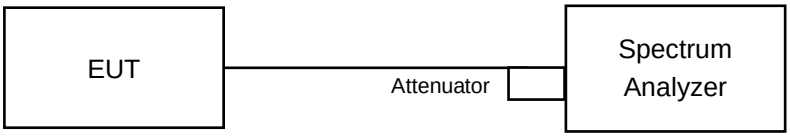
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	17.338	12.39
4	2427	26.915	14.30
6	2437	45.814	16.61
8	2447	19.409	12.88
9	2452	11.967	10.78

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

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results (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	-0.27	3.01	2.74	6.81	Pass
	6	2437	1.20	3.01	4.21	6.81	Pass
	11	2462	-1.20	3.01	1.81	6.81	Pass
1	1	2412	-0.12	3.01	2.89	6.81	Pass
	6	2437	0.34	3.01	3.35	6.81	Pass
	11	2462	-2.08	3.01	0.93	6.81	Pass

Note: 1. Max. gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.19dBi > 6dBi , so the power density limit shall be reduced to 8-(7.19-6) = 6.81dBm

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	-8.69	3.01	-5.68	6.81	Pass
	6	2437	-3.36	3.01	-0.35	6.81	Pass
	11	2462	-7.80	3.01	-4.79	6.81	Pass
1	1	2412	-9.03	3.01	-6.02	6.81	Pass
	6	2437	-2.78	3.01	0.23	6.81	Pass
	11	2462	-9.04	3.01	-6.03	6.81	Pass

Note: 1. Max. gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.19dBi > 6dBi , so the power density limit shall be reduced to 8-(7.19-6) = 6.81dBm

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-9.85	3.01	-6.84	6.81	Pass
	6	2437	-3.43	3.01	-0.42	6.81	Pass
	11	2462	-8.44	3.01	-5.43	6.81	Pass
1	1	2412	-10.84	3.01	-7.83	6.81	Pass
	6	2437	-3.43	3.01	-0.42	6.81	Pass
	11	2462	-8.07	3.01	-5.06	6.81	Pass

Note: 1. Max. gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.19dBi > 6dBi , so the power density limit shall be reduced to 8-(7.19-6) = 6.81dBm

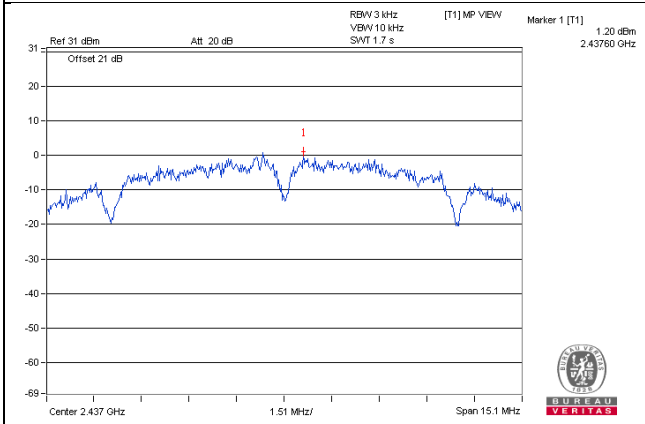
802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-13.39	3.01	-10.38	6.81	Pass
	6	2437	-11.29	3.01	-8.28	6.81	Pass
	9	2452	-14.10	3.01	-11.09	6.81	Pass
1	3	2422	-13.16	3.01	-10.15	6.81	Pass
	6	2437	-12.23	3.01	-9.22	6.81	Pass
	9	2452	-14.47	3.01	-11.46	6.81	Pass

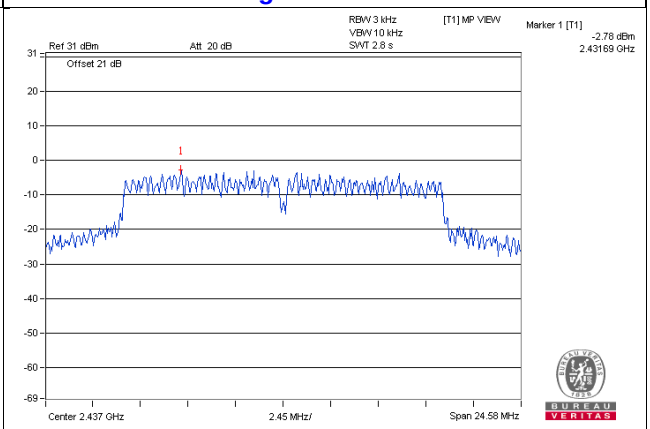
Note: 1. Max. gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.19dBi > 6dBi , so the power density limit shall be reduced to 8-(7.19-6) = 6.81dBm

Spectrum Plot of Worst Value

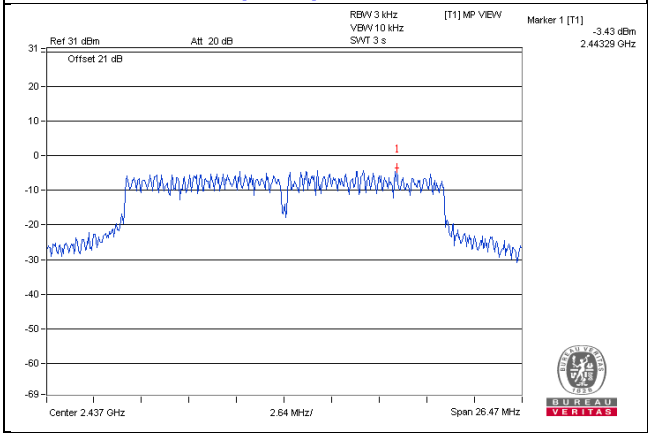
802.11b / Chain 0 : CH6



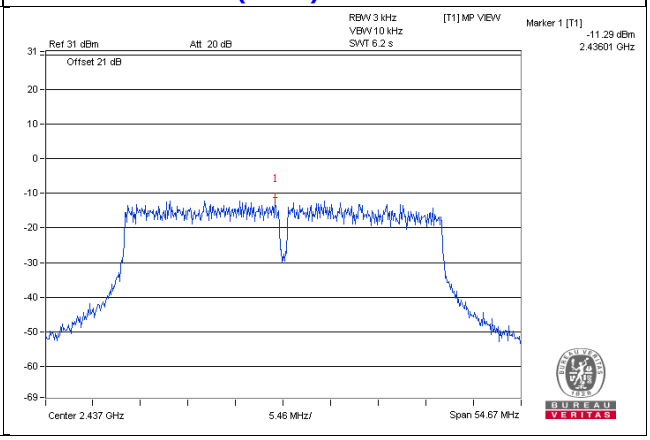
802.11g / Chain 1 : CH6



802.11n (HT20) / Chain 0 : CH6



802.11n (HT40) / Chain 0 : CH6



4.5.8 Test Results (Mode 2)

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-3.72	8.00	Pass
6	2437	-2.82	8.00	Pass
11	2462	-3.19	8.00	Pass

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-11.43	8.00	Pass
6	2437	-5.98	8.00	Pass
11	2462	-11.49	8.00	Pass

802.11n (HT20)

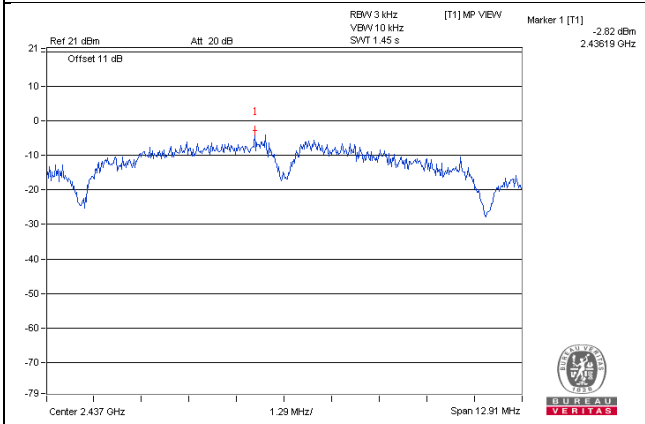
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-12.13	8.00	Pass
6	2437	-5.20	8.00	Pass
11	2462	-12.89	8.00	Pass

802.11n (HT40)

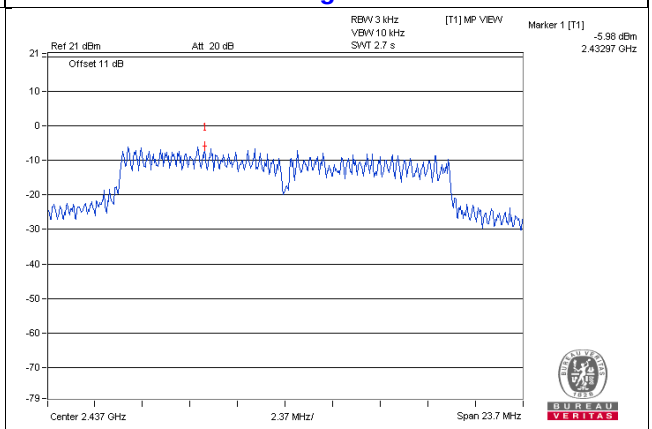
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-14.41	8.00	Pass
6	2437	-11.66	8.00	Pass
9	2452	-17.82	8.00	Pass

Spectrum Plot of Worst Value

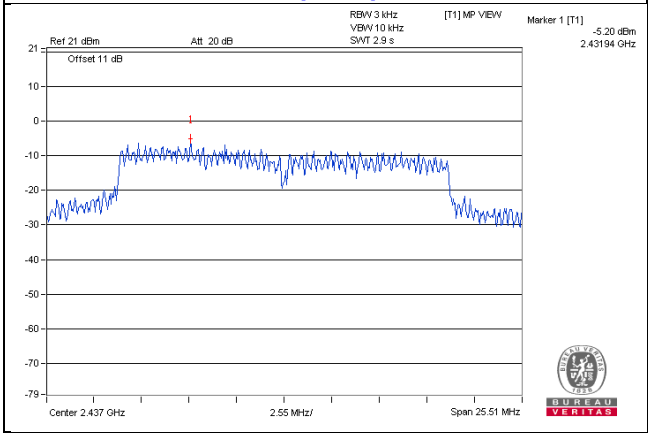
802.11b : CH6



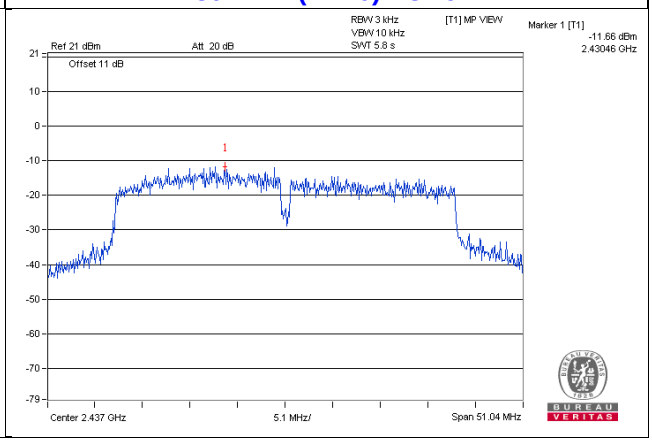
802.11g : CH6



802.11n (HT20) : CH6



802.11n (HT40) : CH6

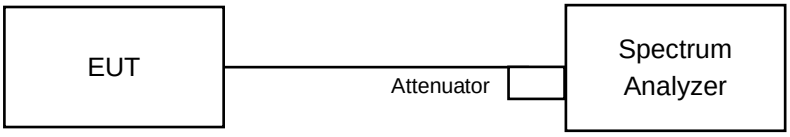


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

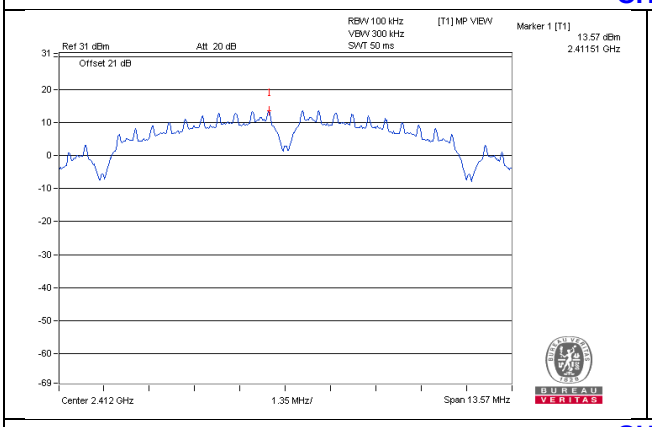
Same as Item 4.3.6

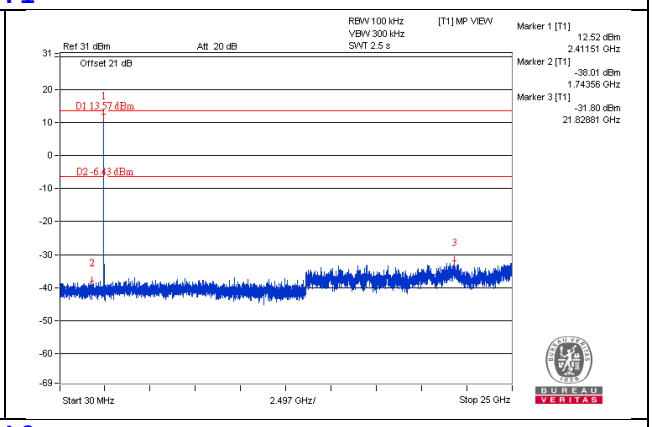
4.6.7 Test Results (Mode 1)

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.

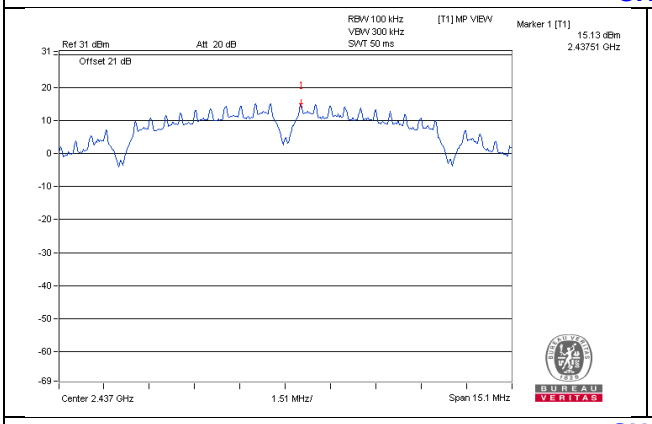
802.11b
Chain 0

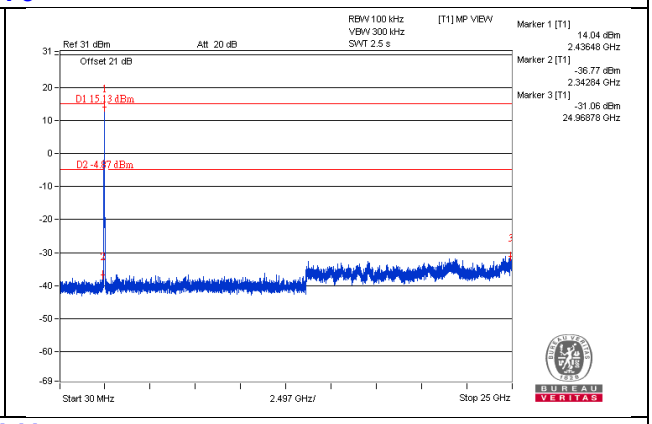
CH 1



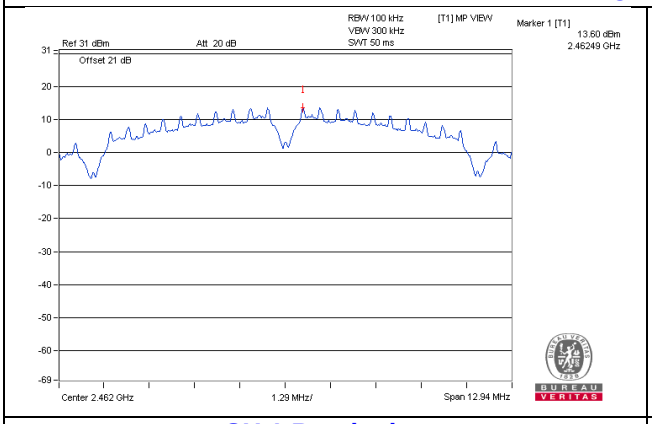


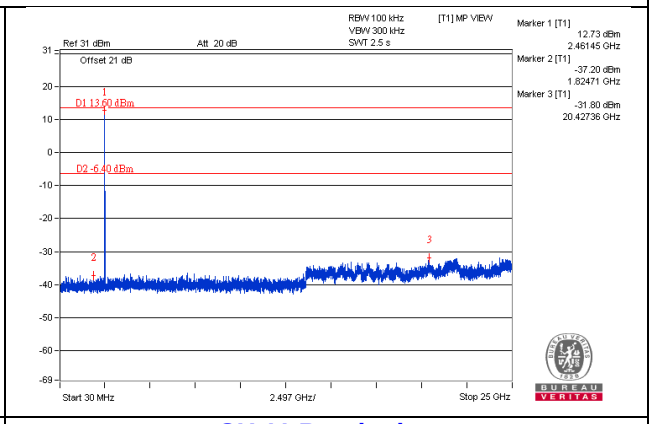
CH 6



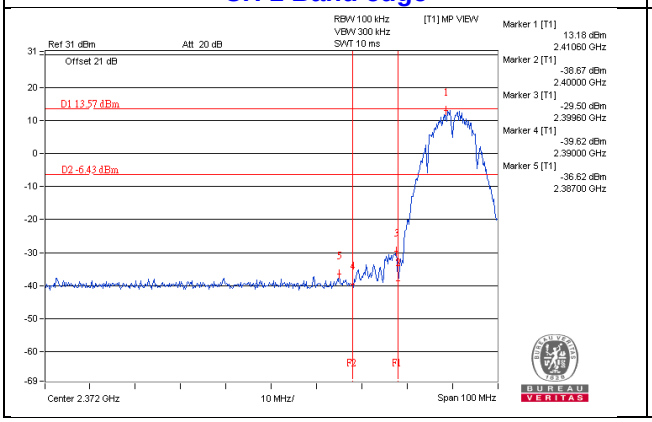


CH 11

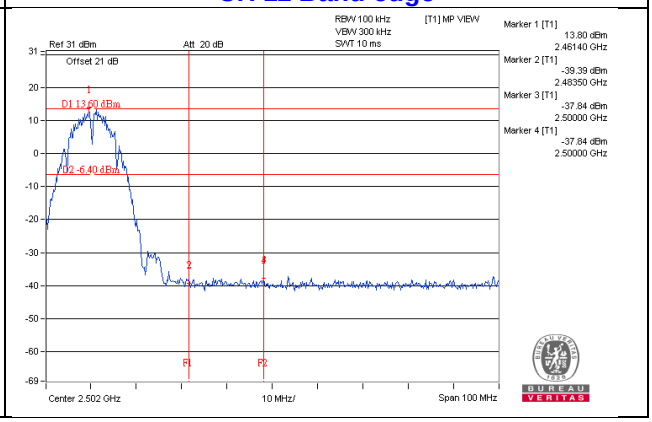




CH 1 Band edge

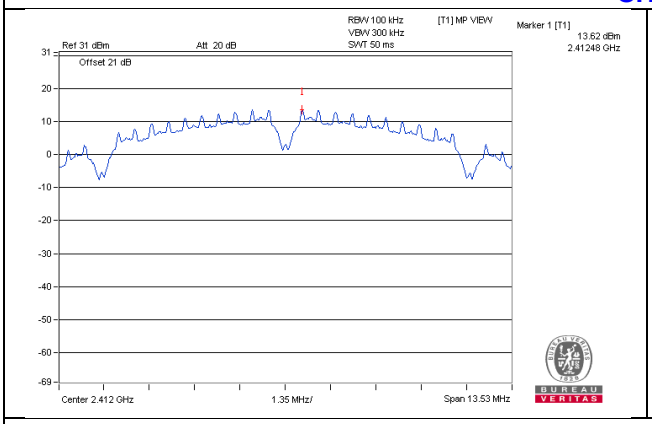


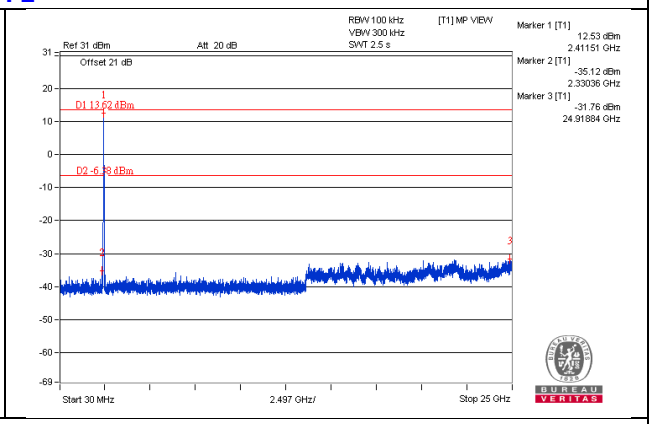
CH 11 Band edge



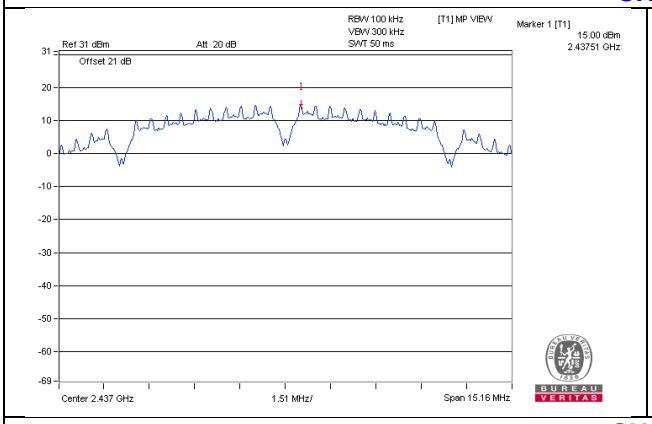
Chain 1

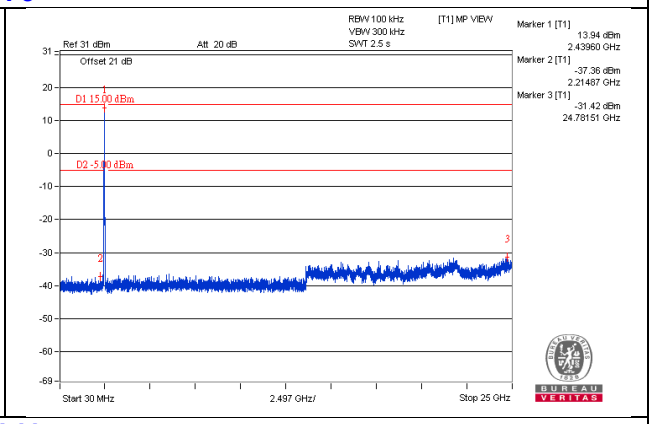
CH 1



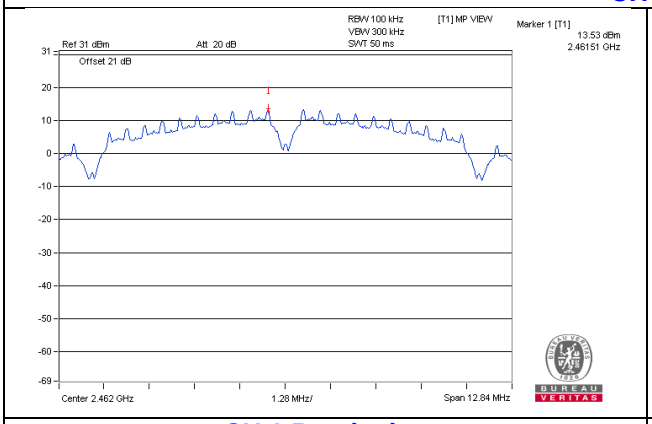


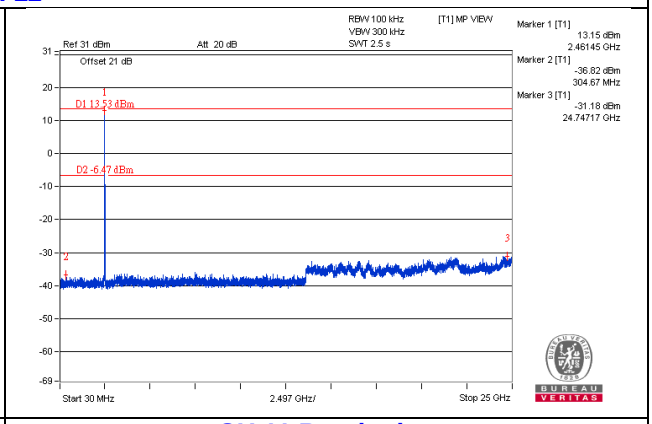
CH 6



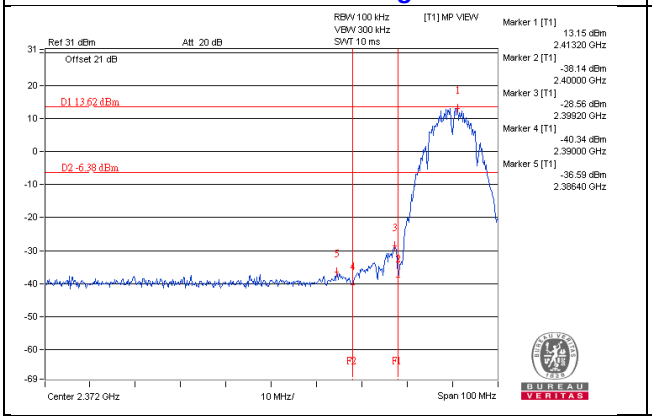


CH 11

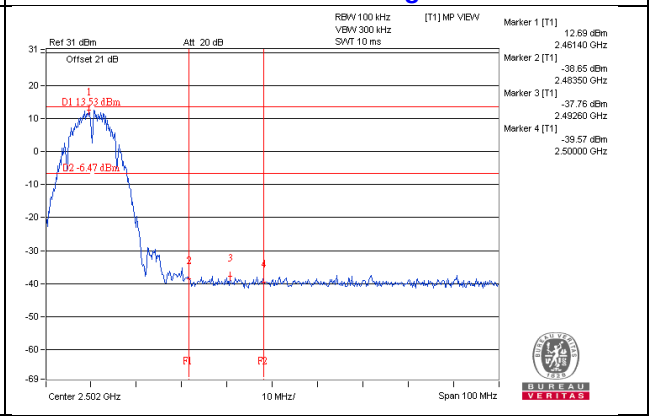




CH 1 Band edge

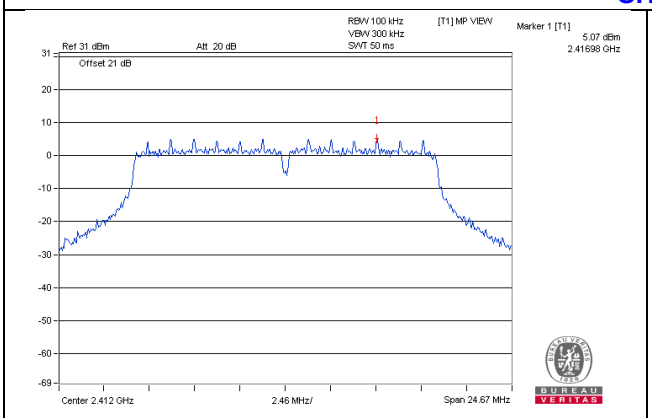


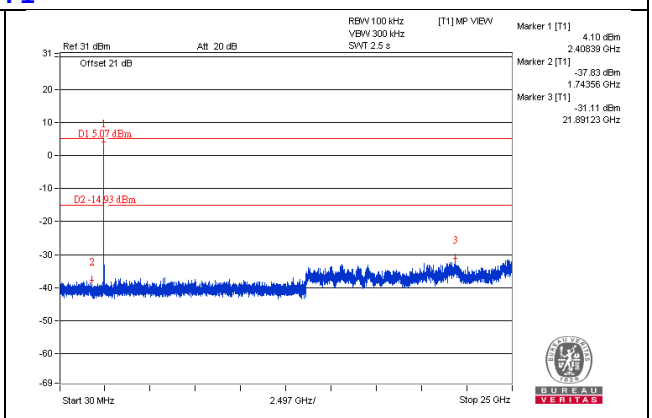
CH 11 Band edge



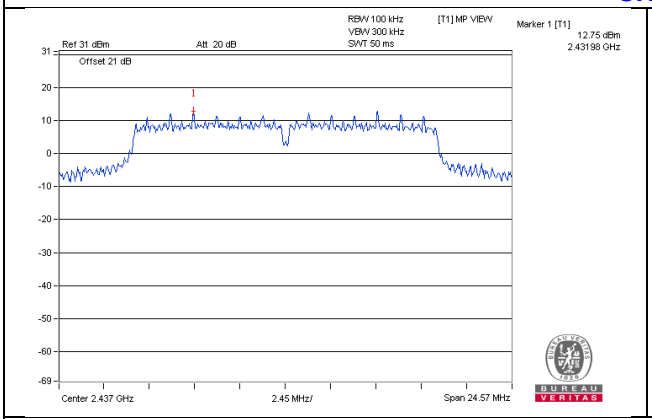
802.11g
Chain 0

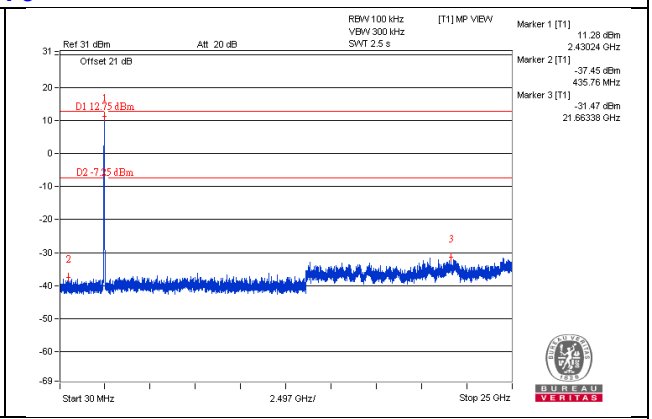
CH 1



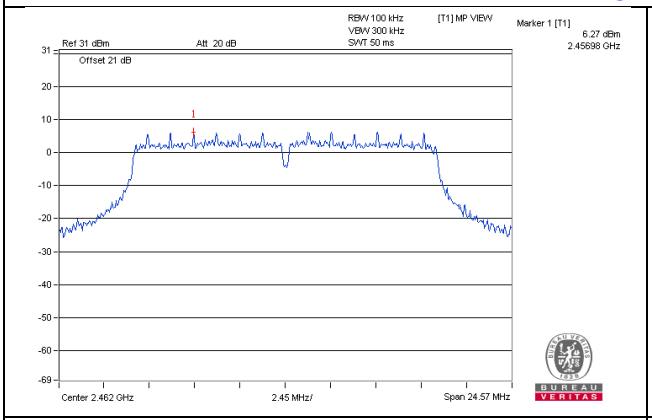


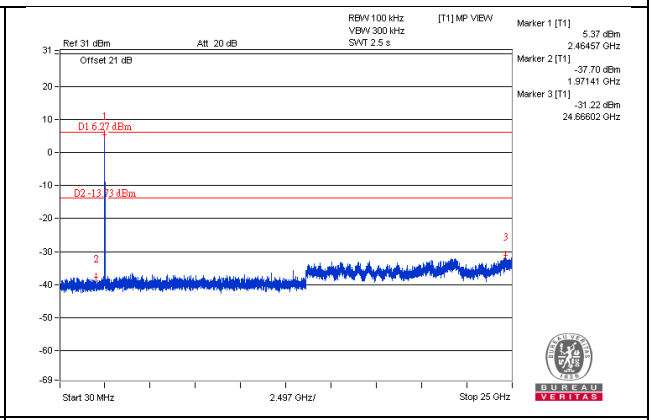
CH 6



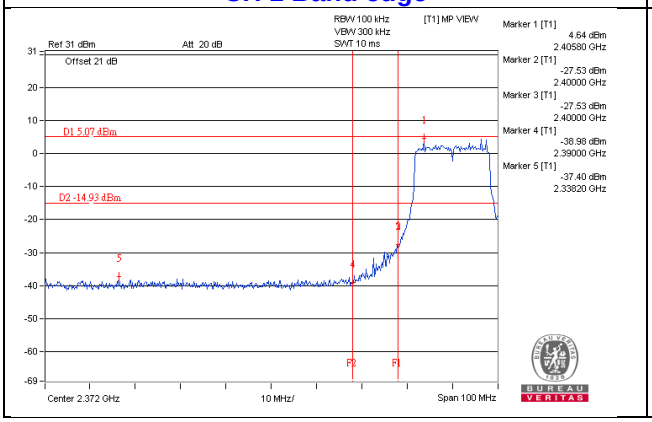


CH 11

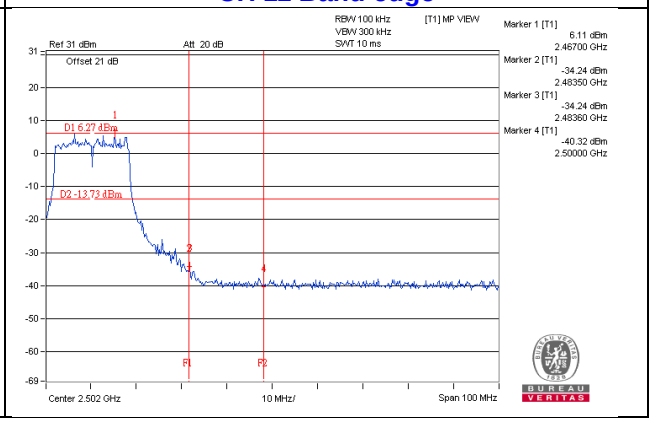




CH 1 Band edge

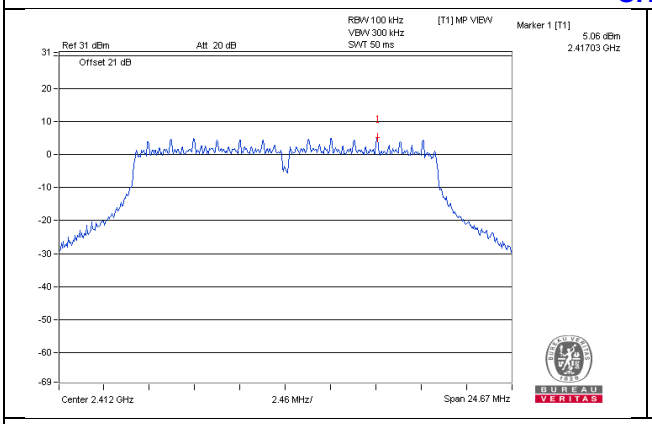


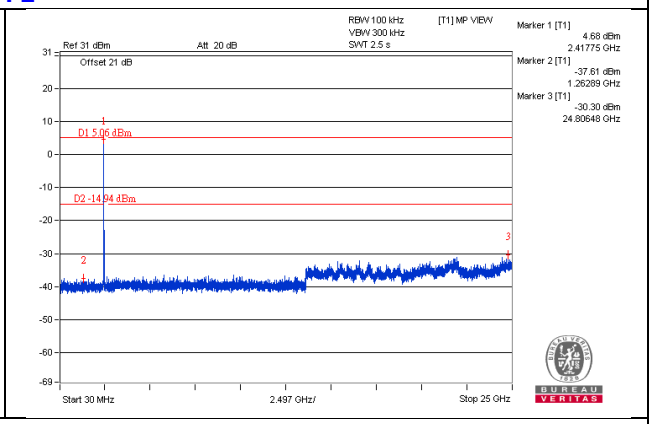
CH 11 Band edge



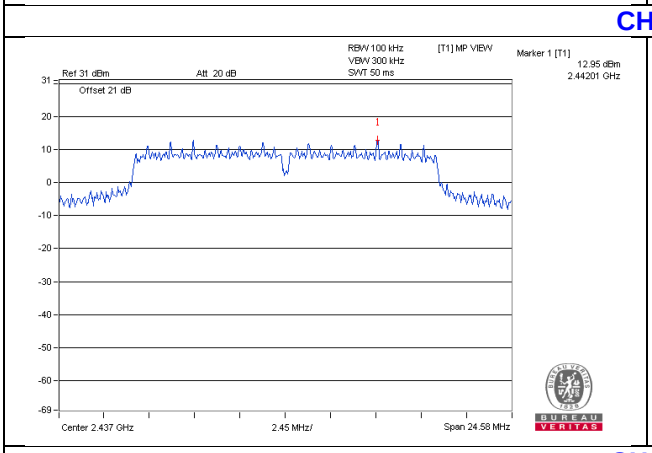
Chain 1

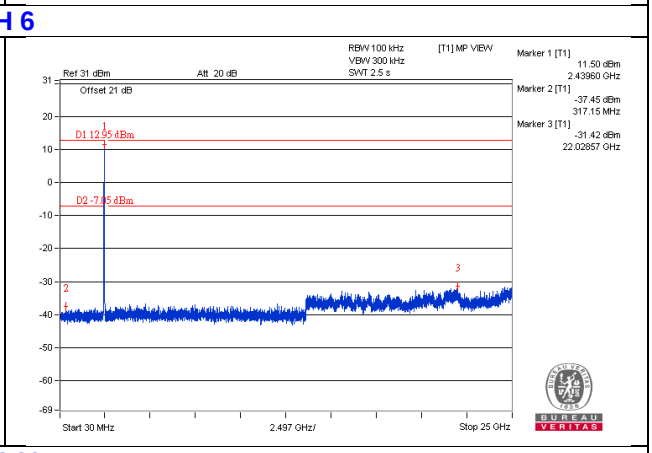
CH 1



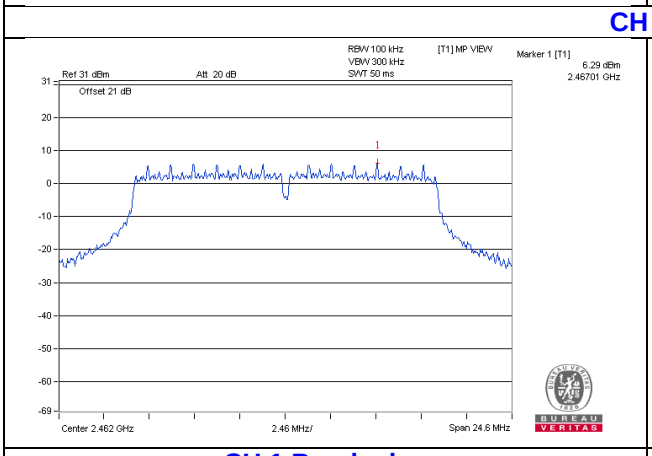


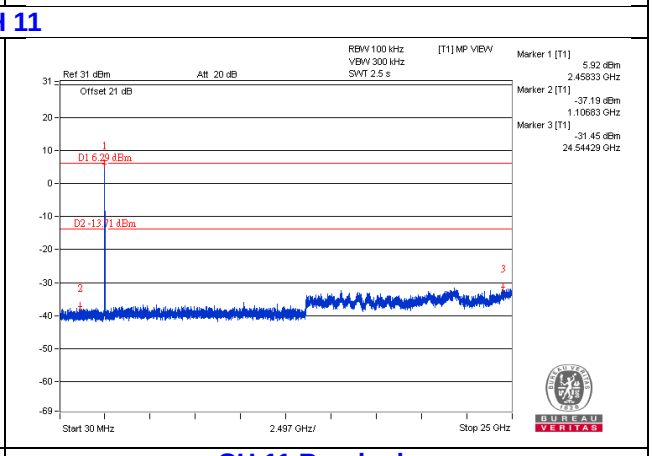
CH 6



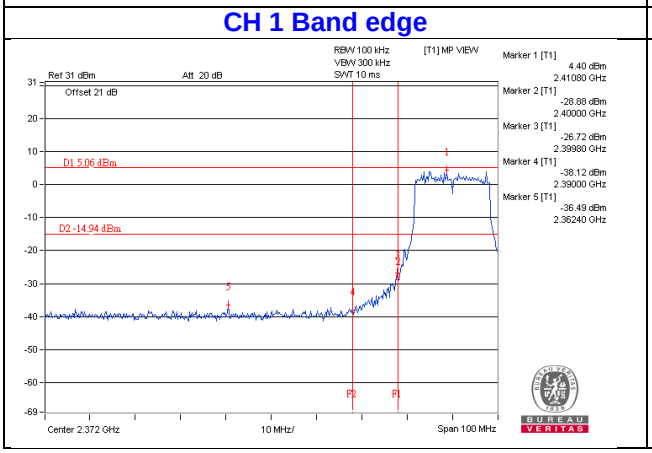


CH 11

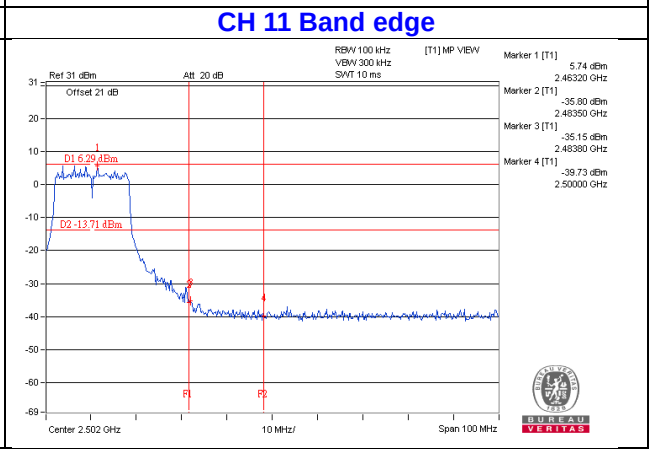




CH 1 Band edge

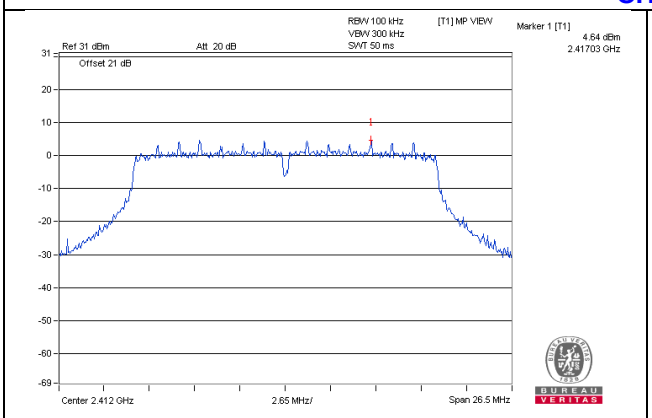


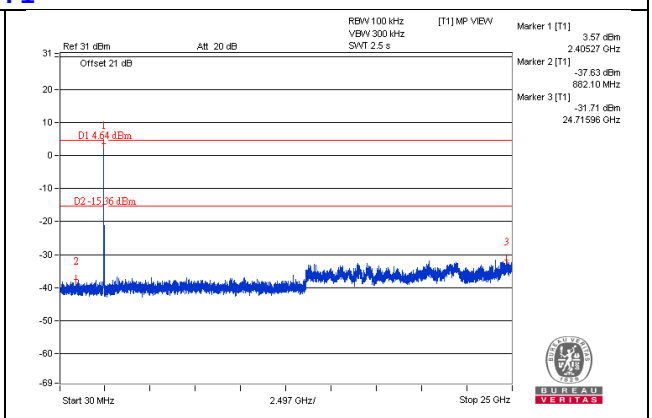
CH 11 Band edge



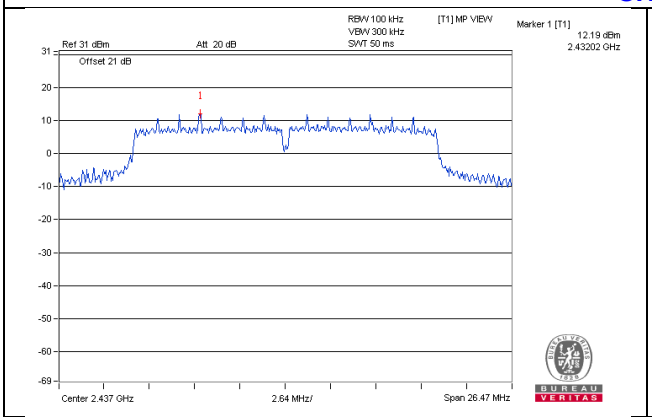
802.11n (HT20)
Chain 0

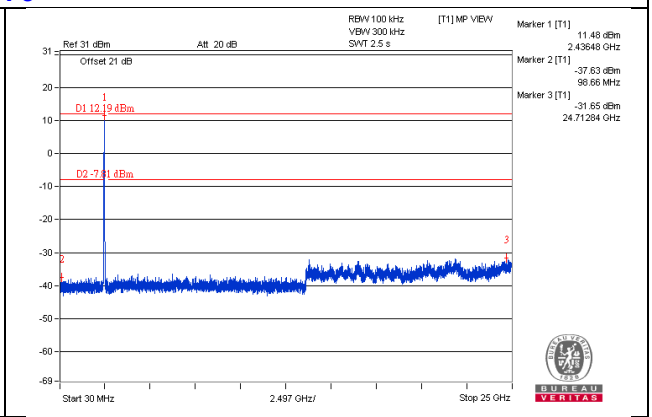
CH 1



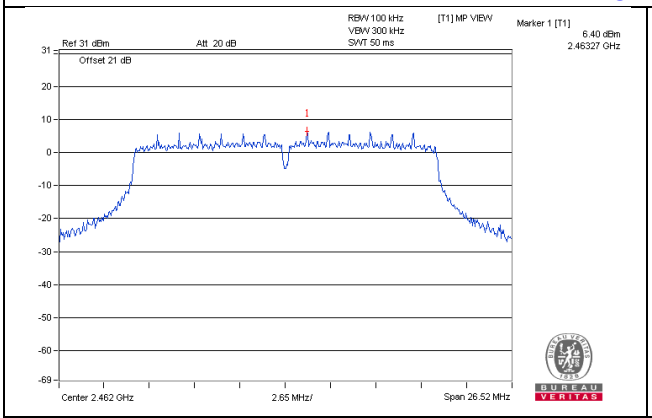


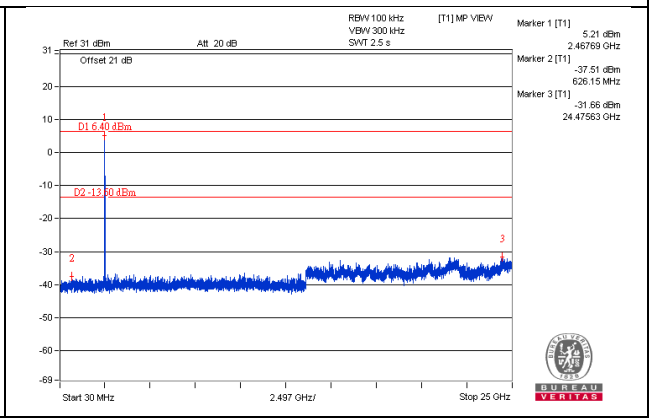
CH 6



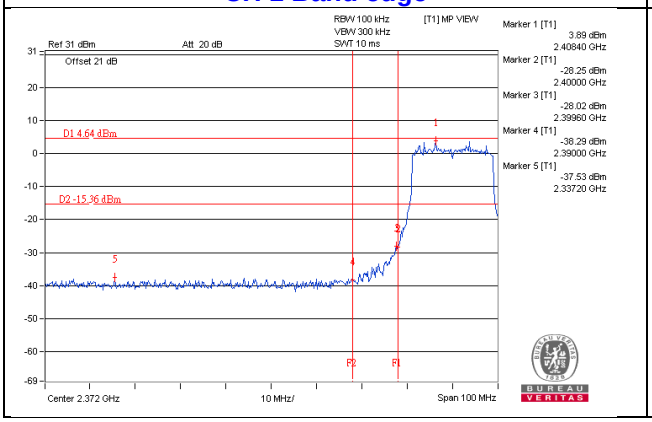


CH 11

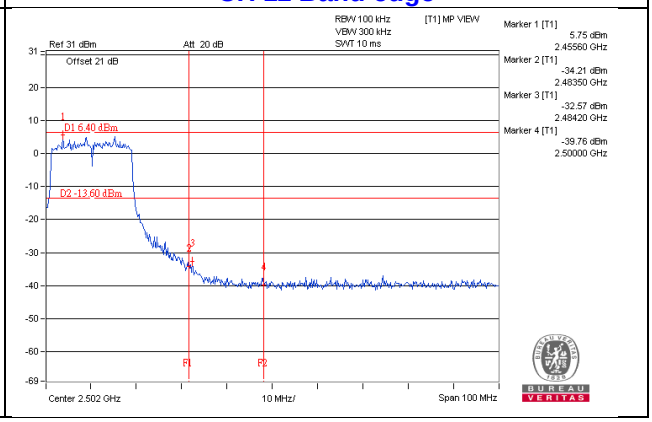




CH 1 Band edge

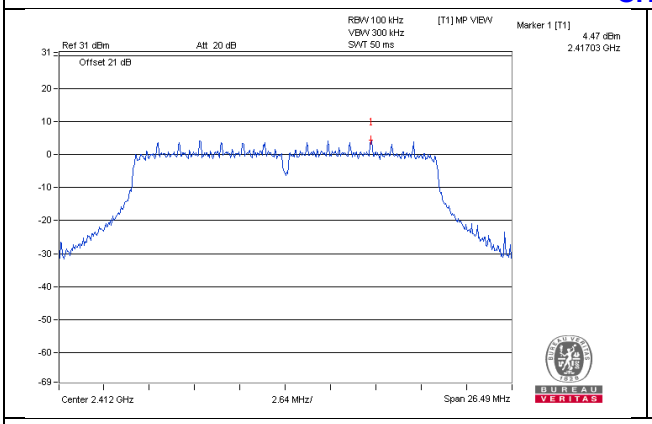


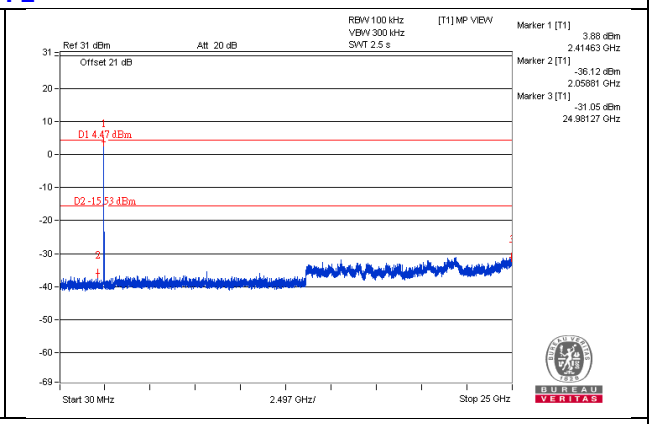
CH 11 Band edge



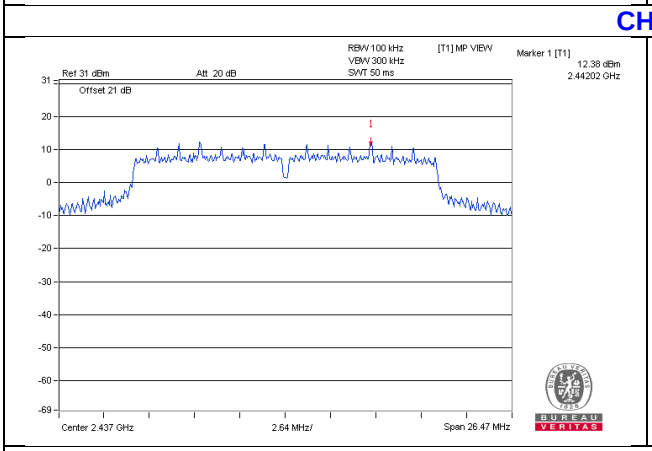
Chain 1

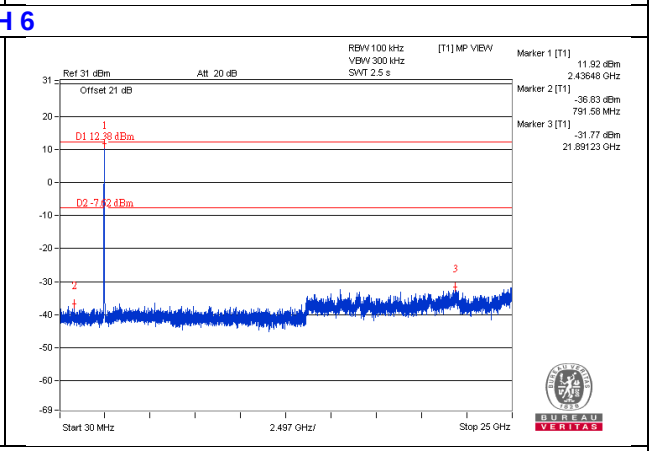
CH 1



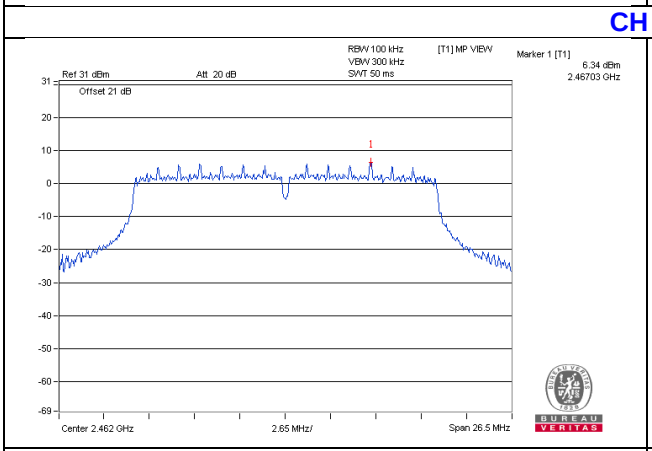


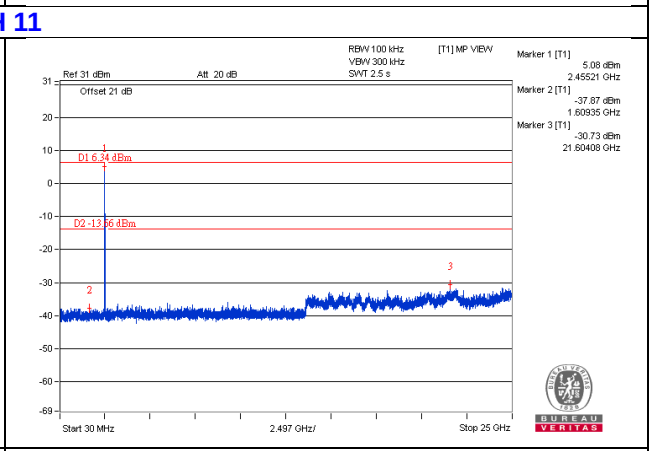
CH 6



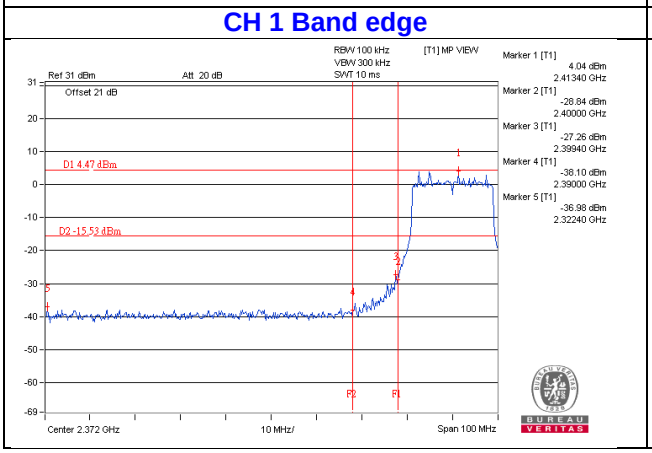


CH 11

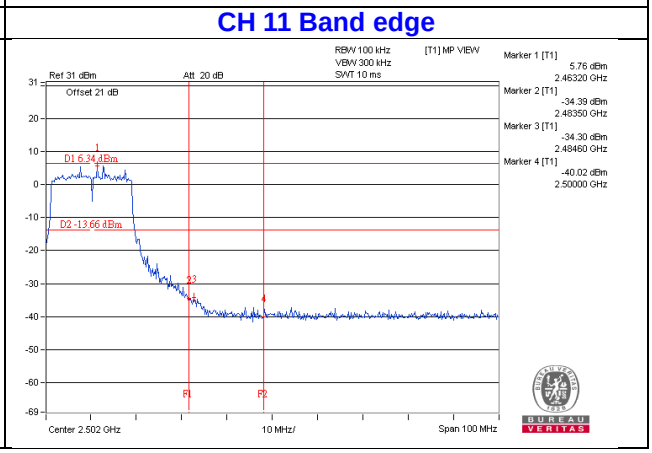




CH 1 Band edge

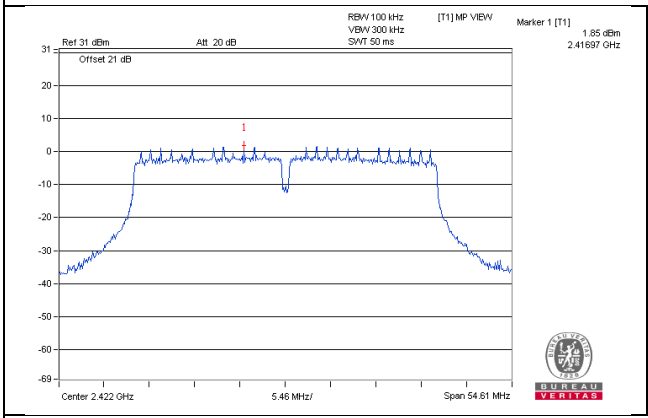


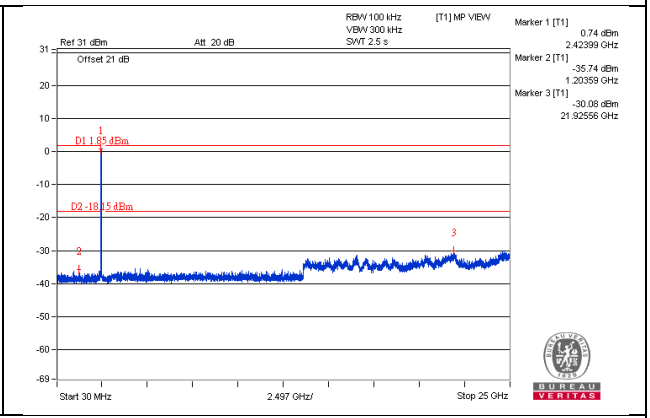
CH 11 Band edge



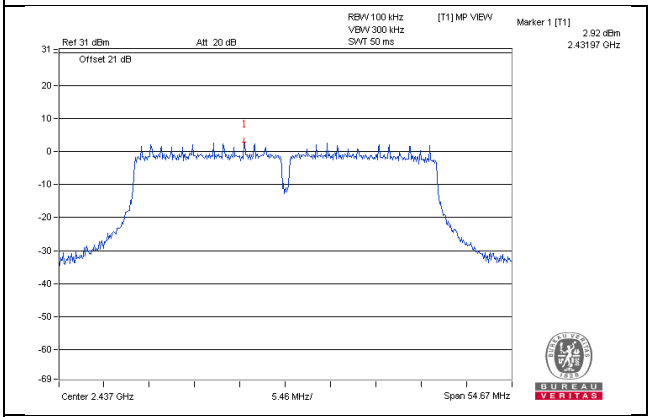
802.11n (HT40)
Chain 0

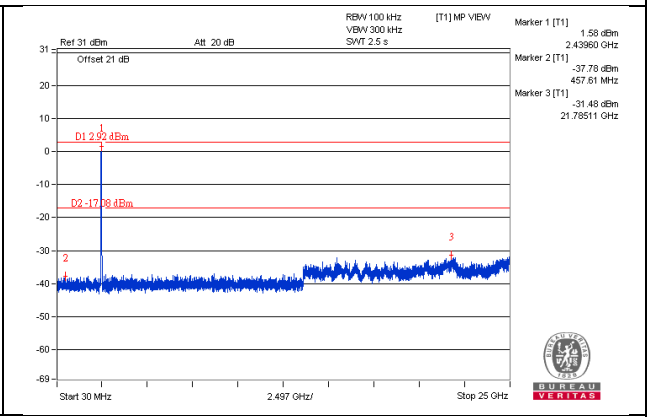
CH 3



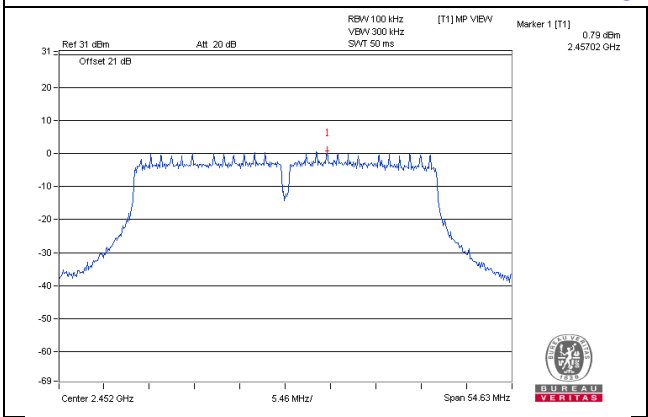


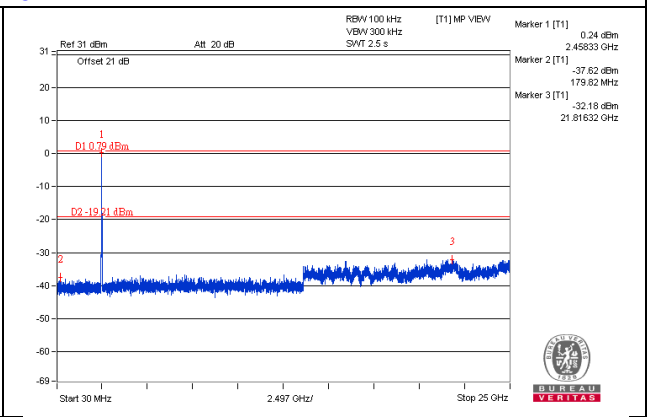
CH 6



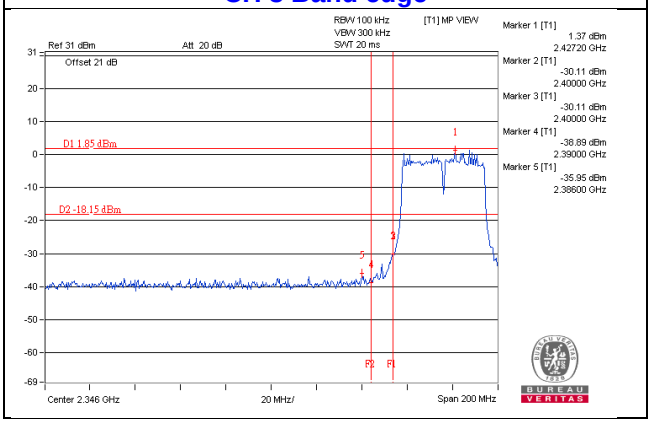


CH 9

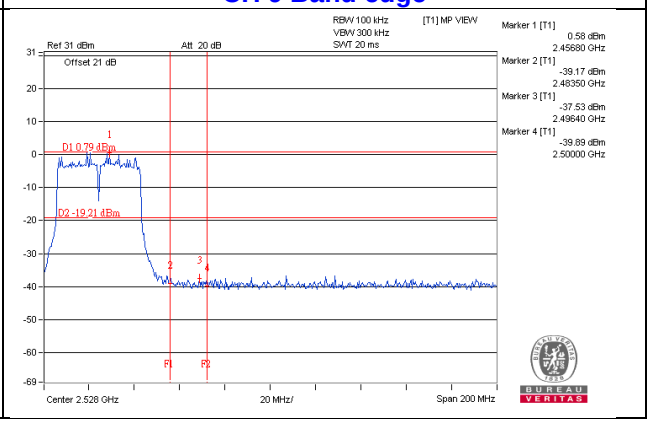




CH 3 Band edge

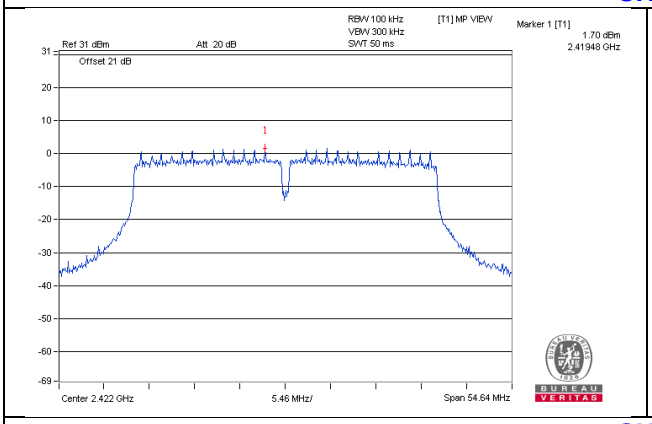


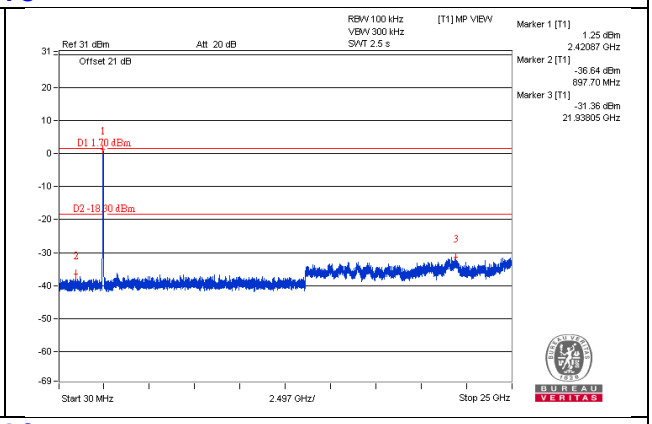
CH 9 Band edge



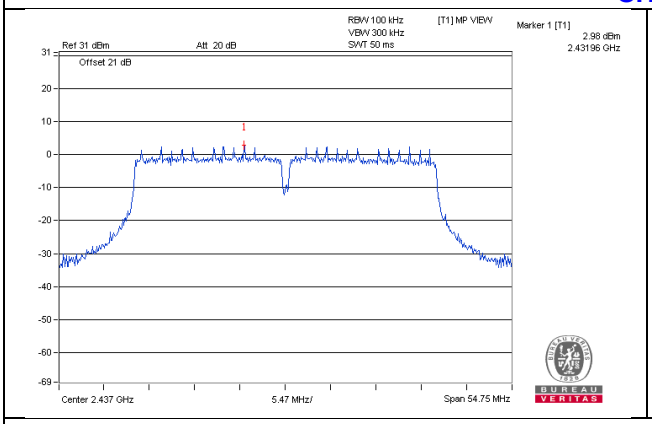
Chain 1

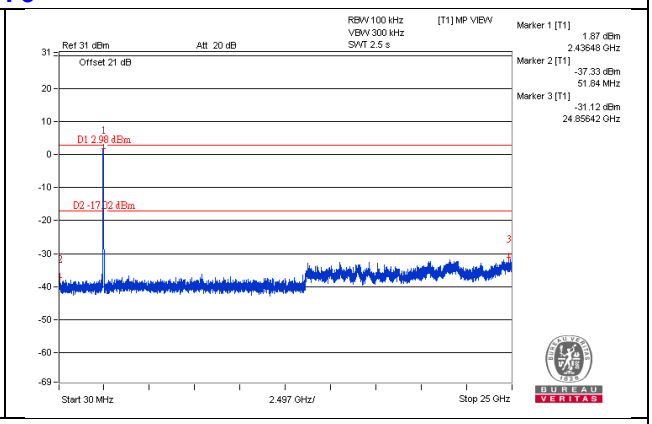
CH 3



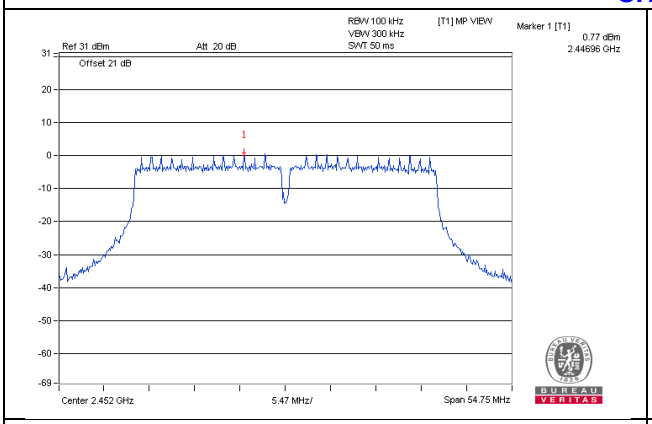


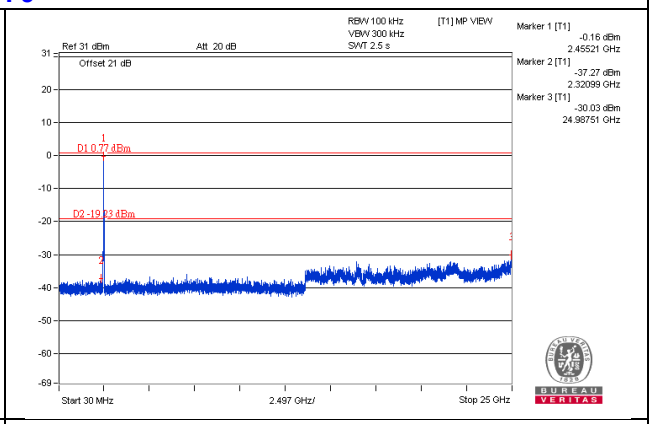
CH 6



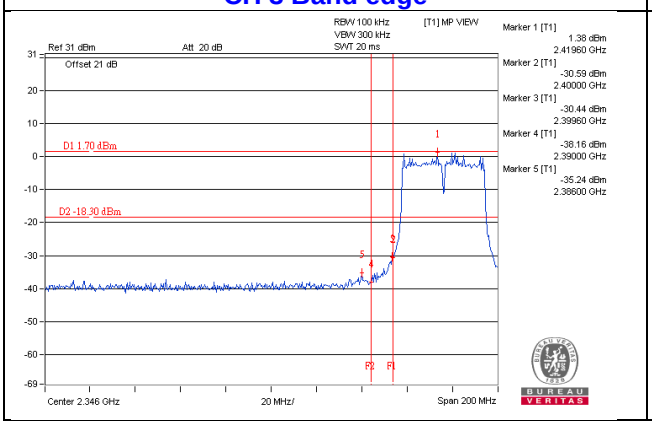


CH 9

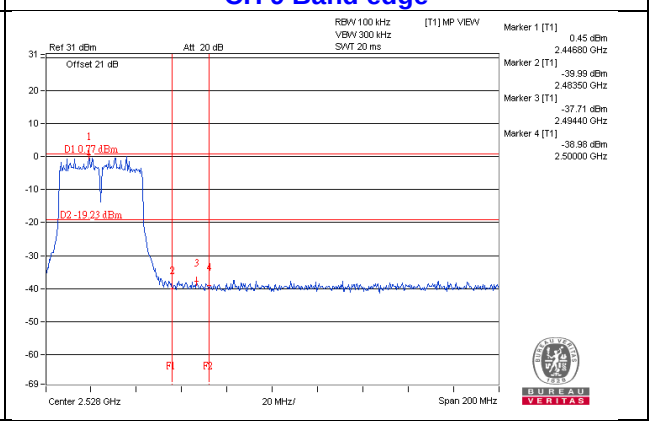




CH 3 Band edge



CH 9 Band edge

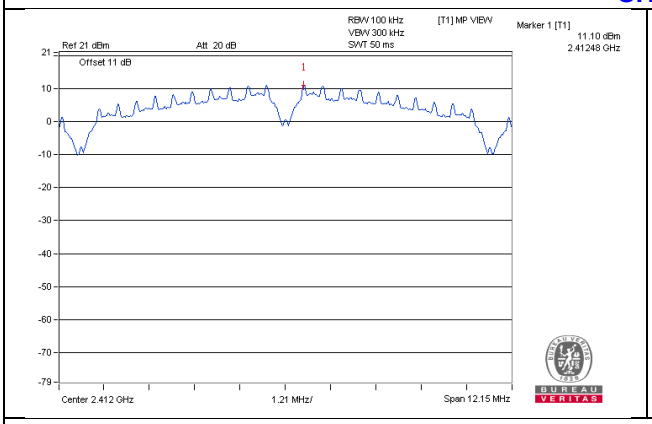


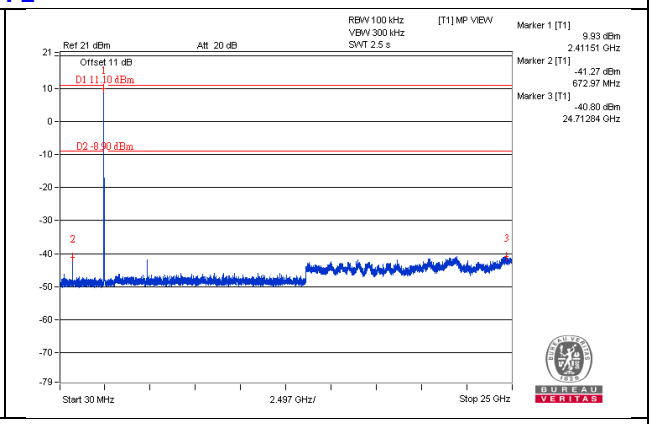
4.6.8 Test Results (Mode 2)

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

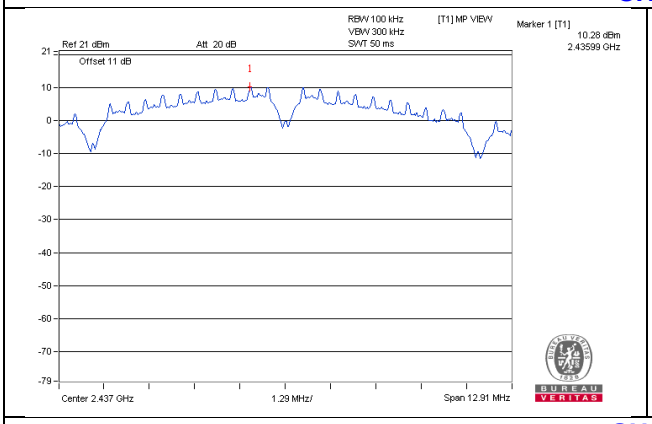
802.11b

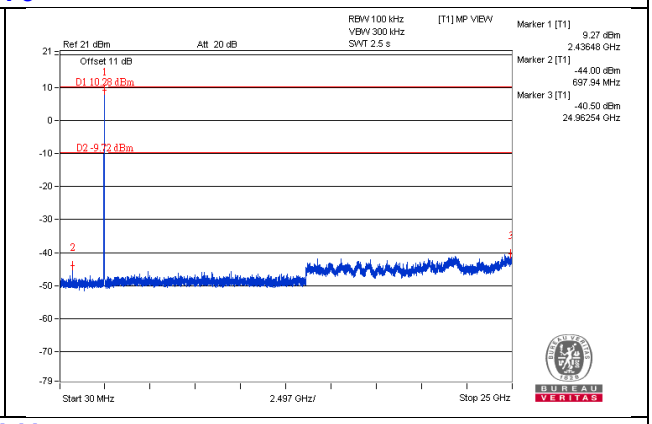
CH 1



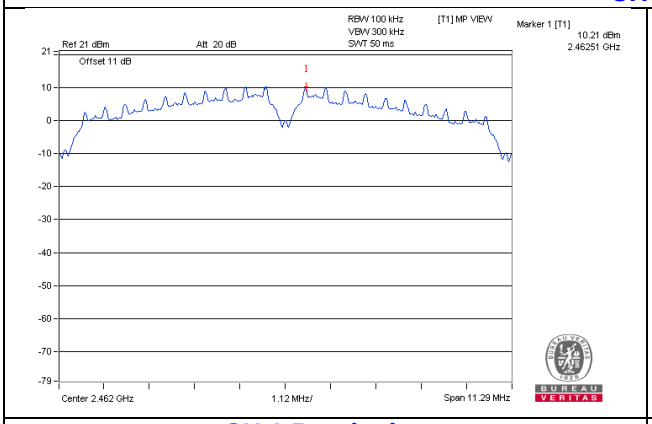


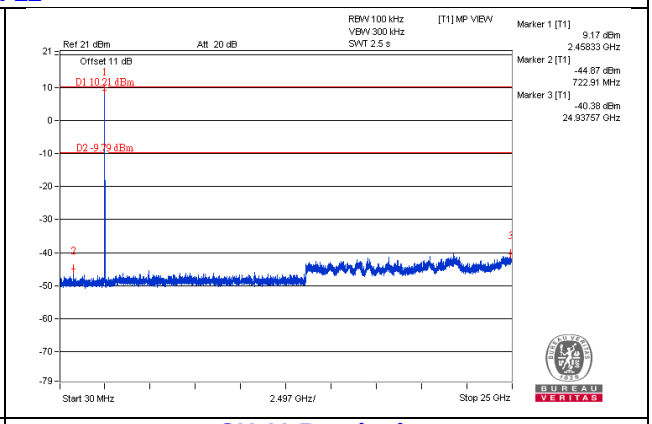
CH 6



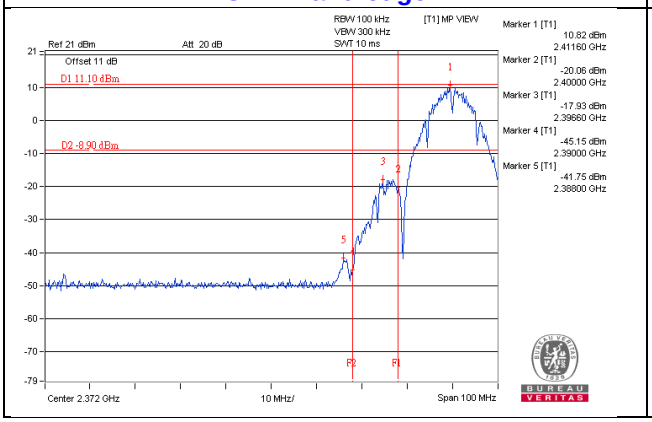


CH 11

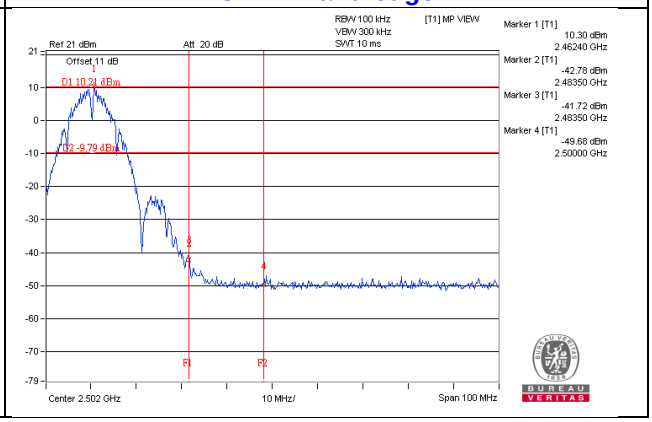




CH 1 Band edge

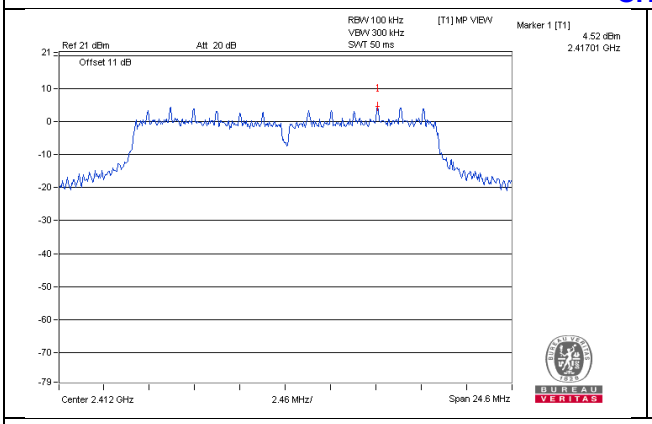


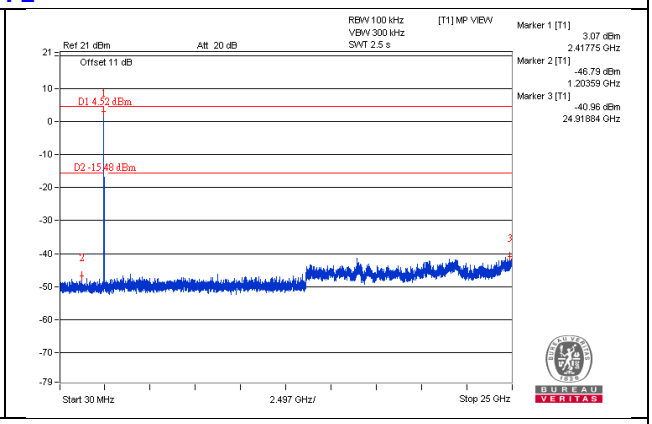
CH 11 Band edge



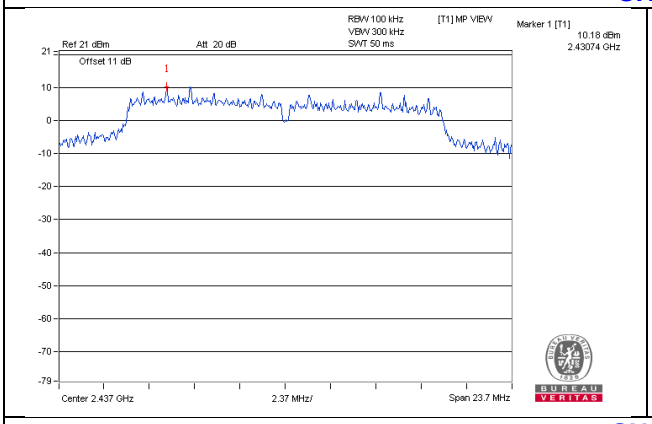
802.11g

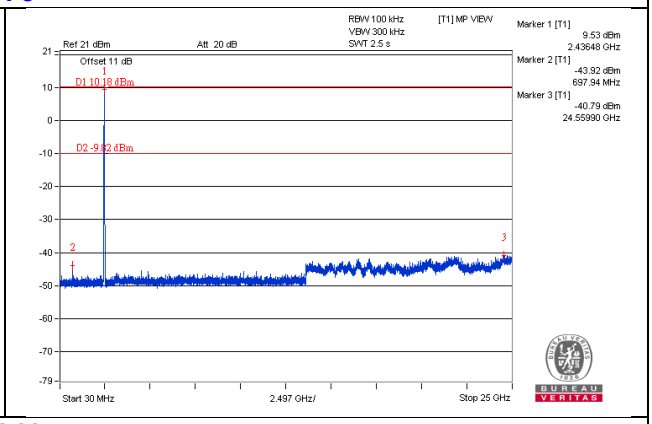
CH 1



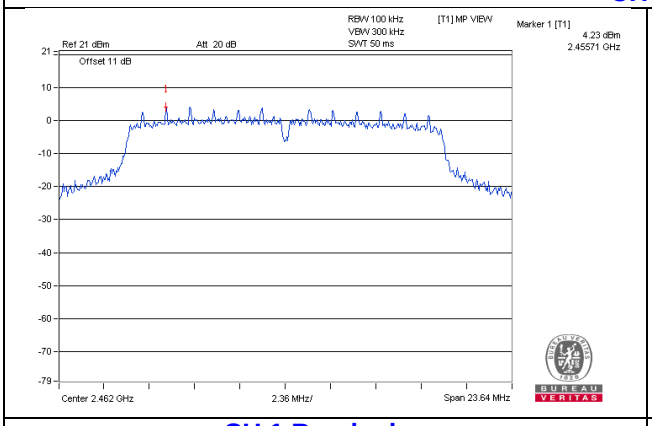


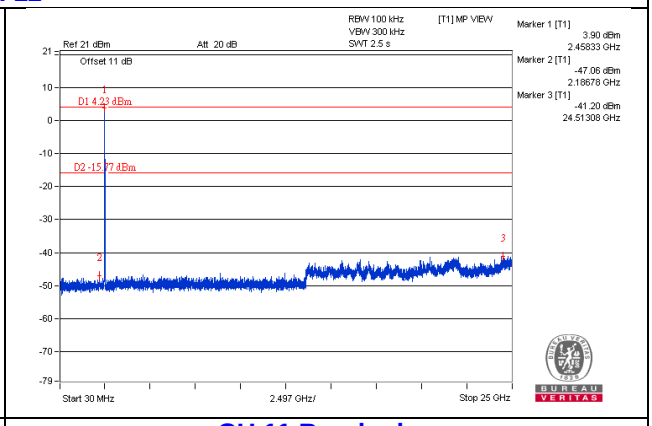
CH 6



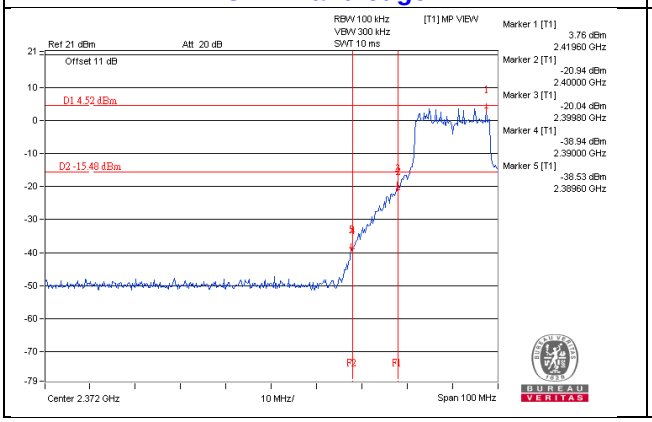


CH 11

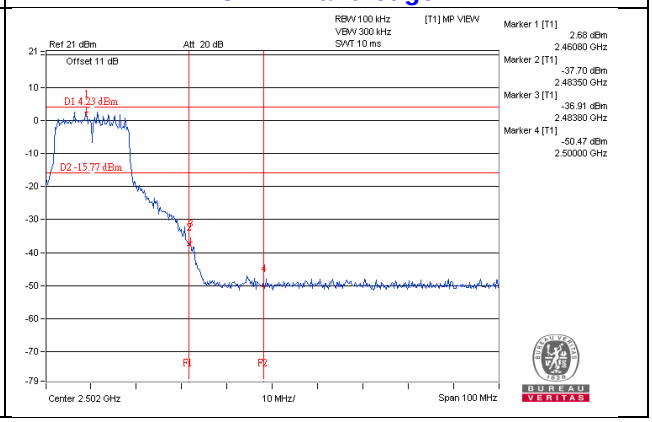




CH 1 Band edge

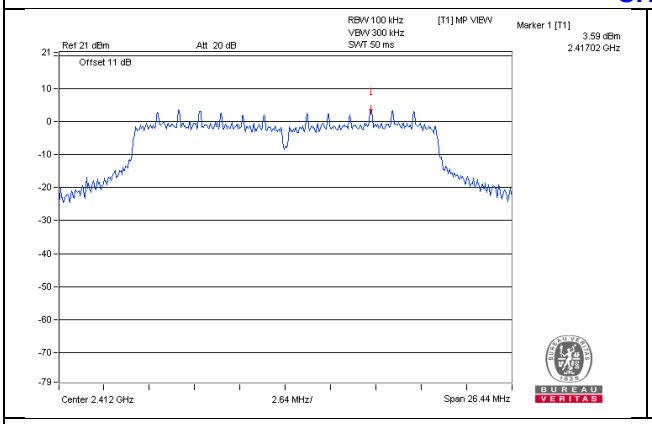


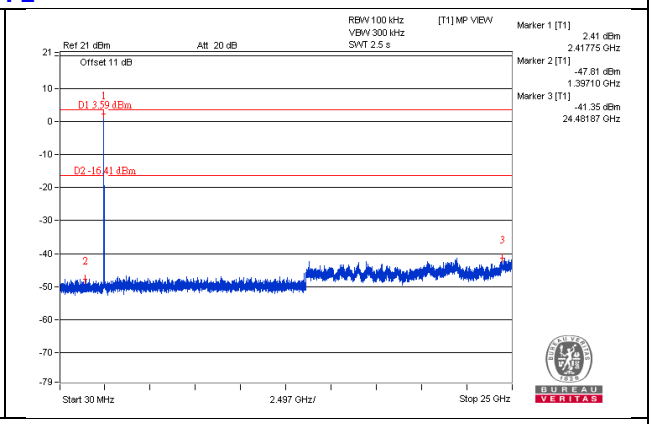
CH 11 Band edge



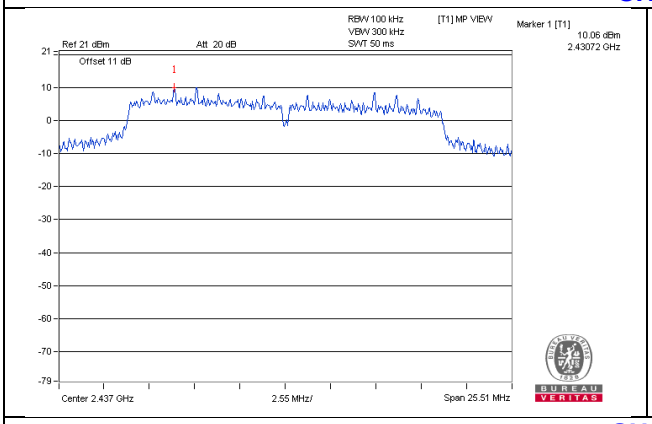
802.11n (HT20)

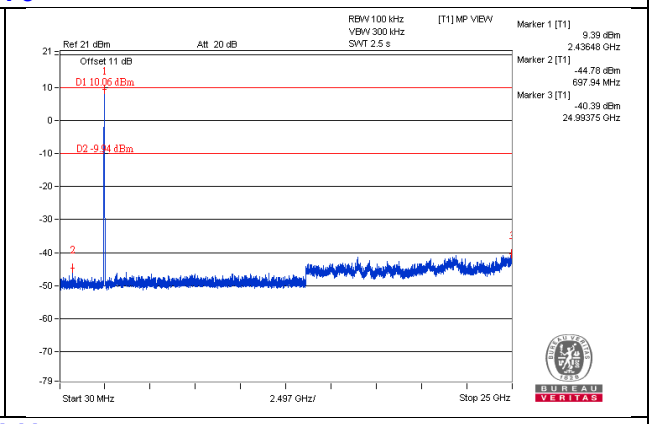
CH 1



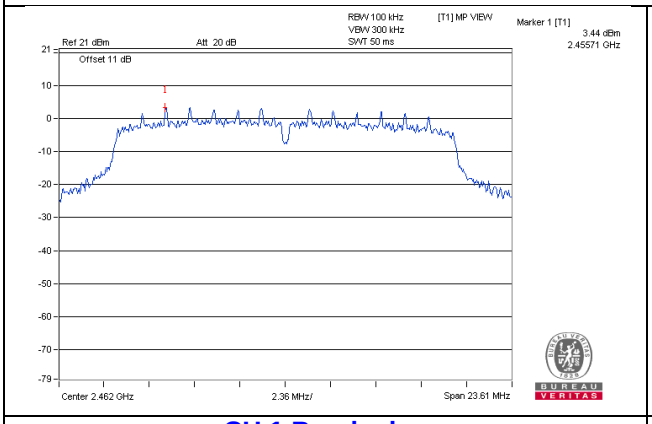


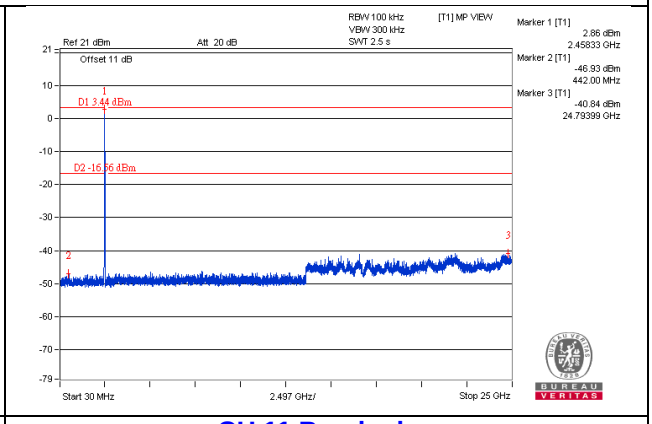
CH 6



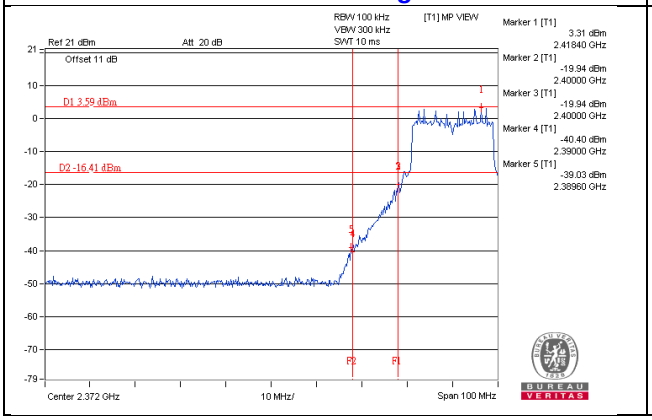


CH 11

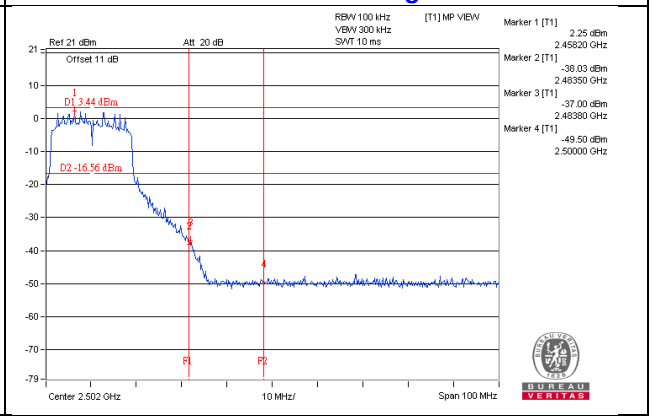




CH 1 Band edge

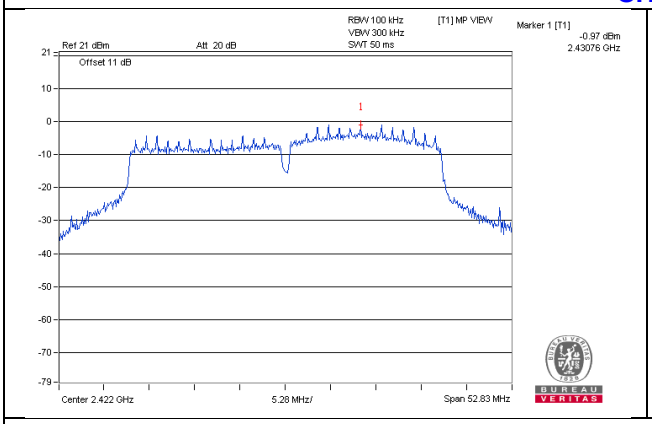


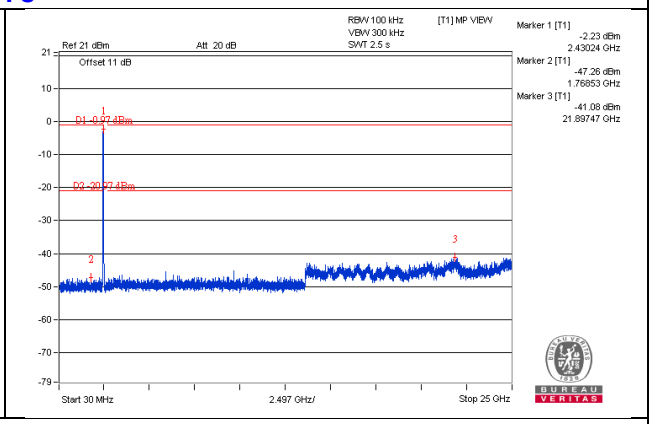
CH 11 Band edge



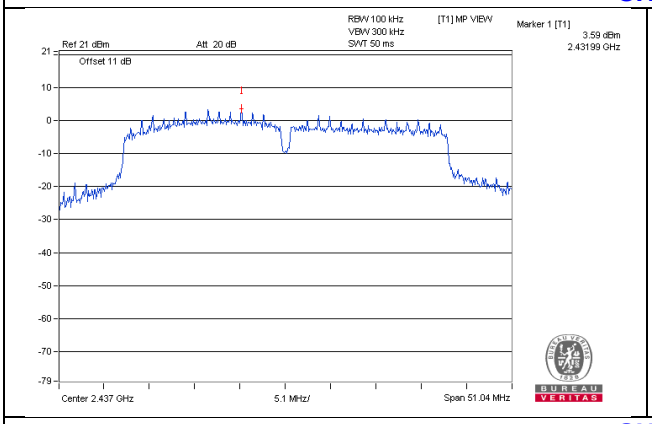
802.11n (HT40)

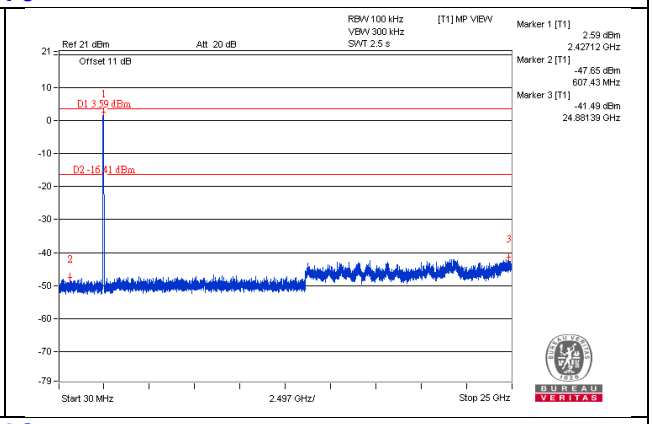
CH 3



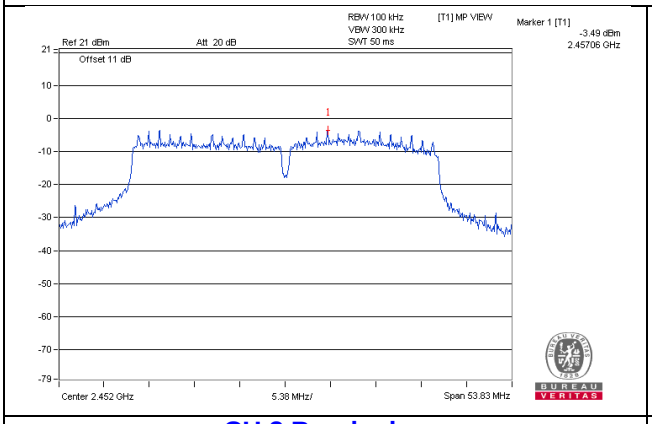


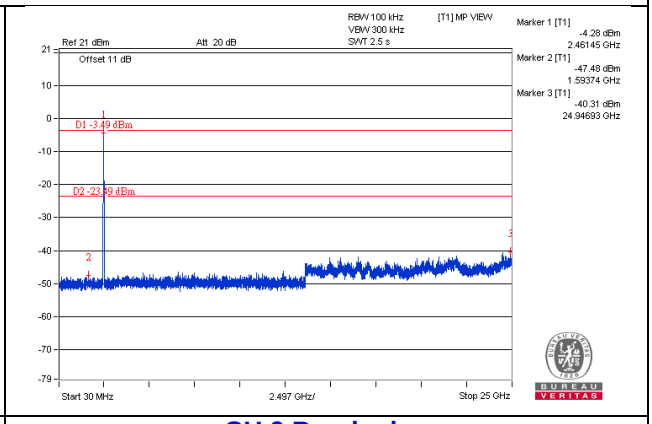
CH 6



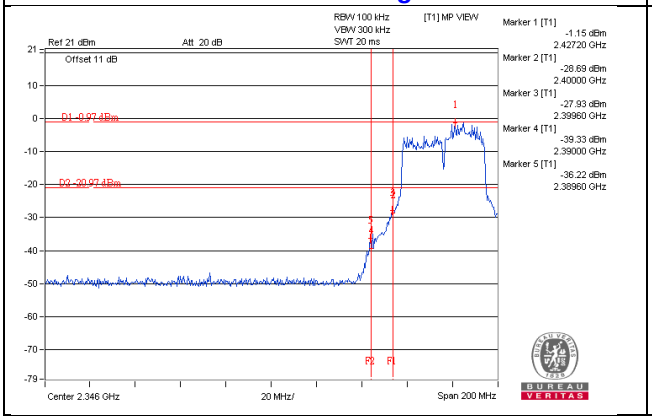


CH 9

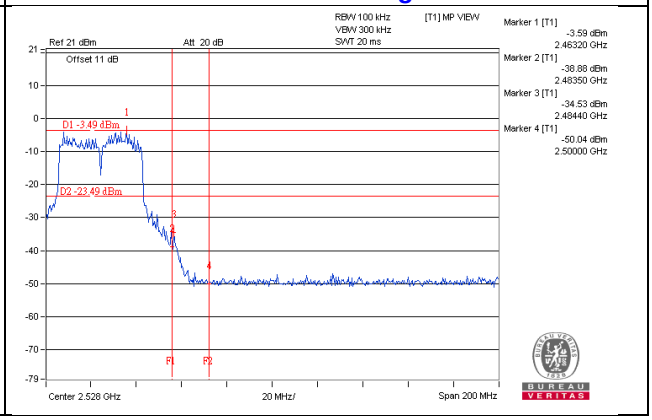




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are 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:

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

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

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

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

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

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