FCC Test Report

Report No.:	RF180522E31
FCC ID:	PBLISL500001
Test Model:	IDG500
Series Model:	IDG400, IOP500, IOP560, IOG500, IOG400
Received Date:	May 22, 2018
Test Date:	May 26 to June 29, 2018
Issued Date:	July 13, 2018
Applicant:	AMIT Wireless Inc.
Address:	No.28, Lane 31, Sec. 1, Huandong Rd., Sinshih District., Tainan City 74146, Taiwan (R.O.C.)
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

Testing Laboratory
2022

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Release Control Record

Issue No.	Description	Date Issued
RF180522E31	Original release.	July 13, 2018

1 Certificate of Conformity

Product:	IIoT 4G
Brand:	AMIT
Test Model:	IDG500
Series Model:	IDG400, IOP500, IOP560, IOG500, IOG400
Sample Status:	ENGINEERING SAMPLE
Applicant:	AMIT Wireless Inc.
Test Date:	May 26 to June 29, 2018
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** July 13, 2018

Cindy Hsin / Specialist

Approved by : _____ , **Date:** July 13, 2018

May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.62dB at 0.27500MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2483.50MHz
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 R-SMA 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	5.53 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.08 dB
	6GHz ~ 18GHz	4.98 dB
	18GHz ~ 40GHz	5.19 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	IIoT 4G
Brand	AMIT
Test Model	IDG500
Series Model	IDG400, IOP500, IOP560, IOG500, IOG400
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 5V from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 150Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	802.11b/g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	99.312mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. All models are listed as below.

Brand	Product name	Model	Difference
AMIT	IIoT 4G	IDG500	For Marketing purpose
		IDG400,	
		IOP500	
		IOP560	
		IOG500	
		IOG400	

From the above models, model: IDG500 was selected as representative model for the test and its data was recorded in this report.

2. There are WLAN and WWAN technology used for the EUT. The EUT has below radios as following table:

Radio 1	**Radio 2**
WLAN	WWAN (LTE + WCDMA)

3. The EUT contains certified 3G/LTE modular. (FCC ID: XMR201605EC25A).

4. Simultaneously transmission condition.

Condition	**Technology**	
1	WLAN 2.4GHz	WWAN (LTE + WCDMA)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

5. The EUT must be supplied with a power adapter as following table:

Brand	Model No.	Spec.
AMIGO	AMS135-0502000FU	AC Input: 100-240Vac, 0.5A, 50/60Hz DC Output: 5V, 2A DC Output cable: Unshielded, 1.2m

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

Antenna No.	Transmitter Circuit	Frequency range (GHz)	Ant. Net Gain (dBi)	Antenna Type	Antenna Connector
1	Chain0	2.4 ~ 2.4835	4.04	Dipole	R-SMA
2	Chain0	2.4 ~ 2.4835	2.38	Dipole	R-SMA

Note: 1. This report chose the Antenna No. 1 to do final test.

7. The EUT incorporates a SISO function:

2.4GHz WLAN			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	1TX Fixed Chan 0	1RX Fixed Chain 0
802.11g	6 ~ 54Mbps	1TX Fixed Chan 0	1RX Fixed Chain 0
802.11n (HT20)	MCS 0~7	1TX Fixed Chan 0	1RX Fixed Chain 0
802.11n (HT40)	MCS 0~7	1TX Fixed Chan 0	1RX Fixed Chain 0

8. 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	
-	√	√	√	√	-

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

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

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, 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, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

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

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

Power Line Conducted Emission Test:

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

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

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

Antenna Port Conducted Measurement:

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

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

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

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

Test Condition:

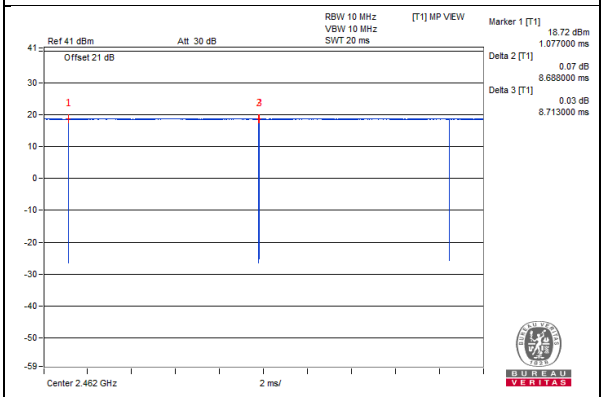
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	22deg. C, 63%RH	120Vac, 60Hz	Robert Cheng
RE<1G	21deg. C, 60%RH	120Vac, 60Hz	Eason Tseng
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

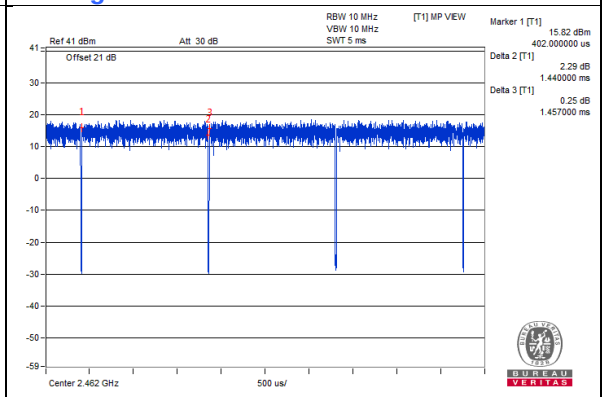
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 8.688/8.713 = 0.997
802.11g: Duty cycle = 1.44/1.457 = 0.988
802.11n (HT20): Duty cycle = 1.347/1.377 = 0.978, Duty factor = 10 * log(1/0.978) = 0.1
802.11n (HT40): Duty cycle = 0.666/0.683 = 0.975, Duty factor = 10 * log(1/0.975) = 0.11

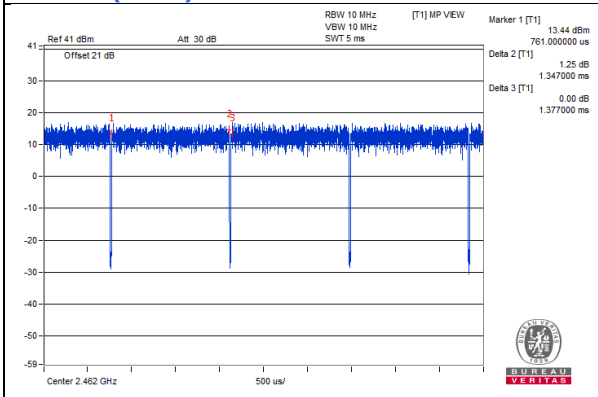
802.11b



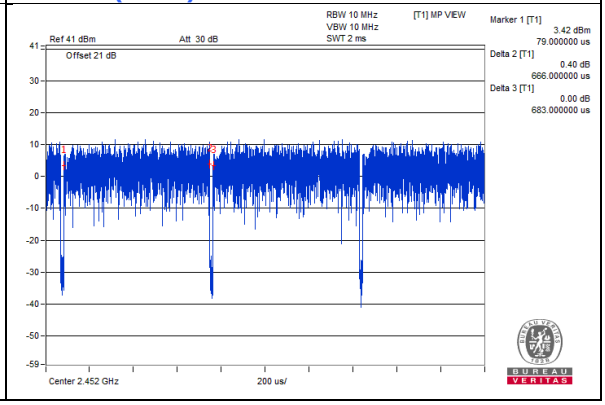
802.11g



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.

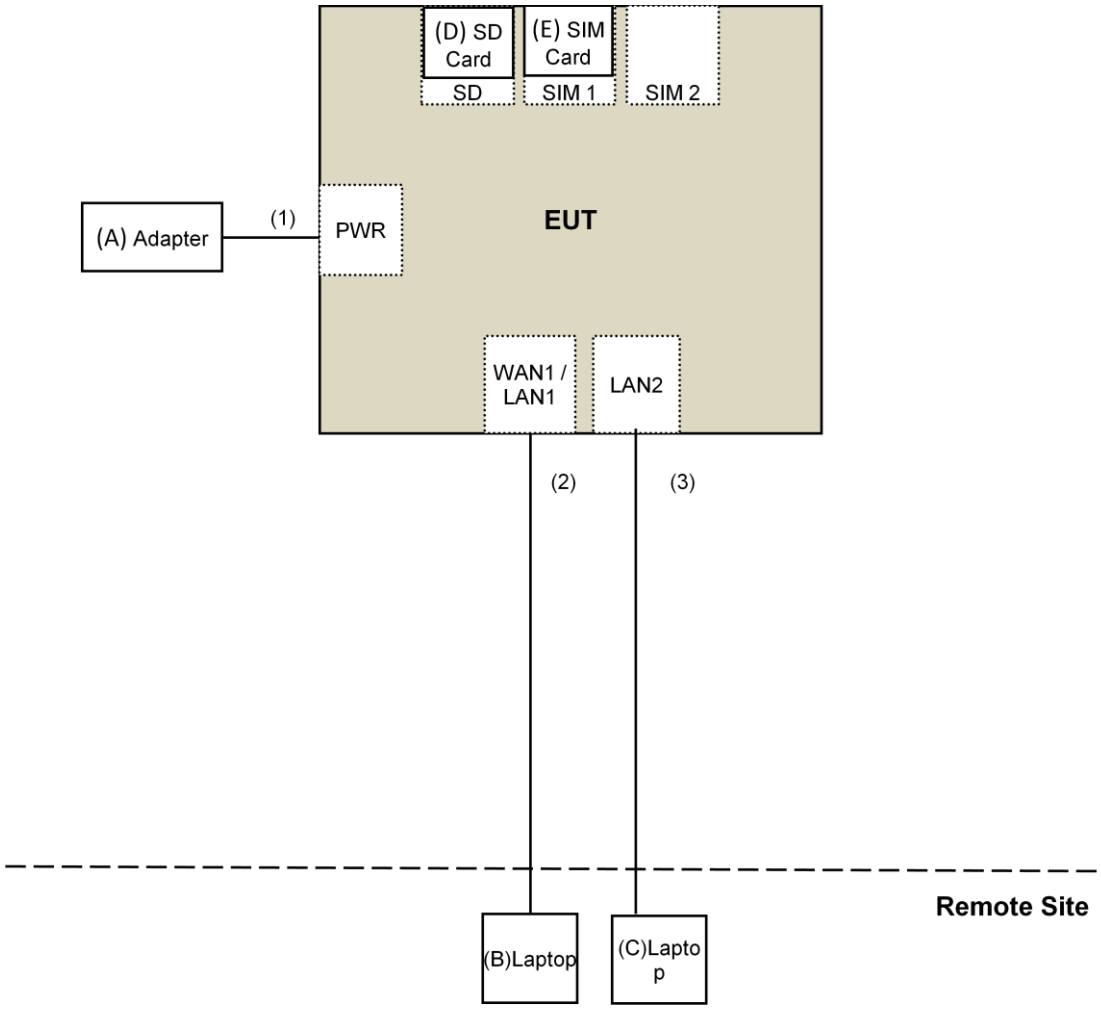
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	AMIGO	AMS135-0502000FU	NA	NA	Provided by Lab
B.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
C.	Laptop	DELL	E6420	482T3R1	FCC DoC	Provided by Lab
D.	SD card	NA	NA	NA	NA	Provided by Lab
E.	SIM card	NA	NA	NA	NA	Provided by Lab

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.	DC Cable	1	1.2	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RJ-45 Cable	1	10	No	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance v04
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

NOTE:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2017	July 11, 2018
Pre-Amplifier EMCI	EMC001340	980142	Feb. 09, 2018	Feb. 08, 2019
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 15, 2018	Jan. 14, 2019
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	May 05, 2018	May 04, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-3-1 966-3-2 966-3-3	Mar. 20, 2018	Mar. 19, 2019
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160922 150317 150322	Jan. 29, 2018	Jan. 28, 2019
Spectrum Analyzer Keysight	N9030A	MY54490679	July 25, 2017	July 24, 2018
Pre-Amplifier EMCI	EMC184045SE	980386	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	EMC102-KM-KM-1200	160924	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The 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. 3.
4. The CANADA Site Registration No. is 20331-1
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date:May 26 to June 26, 2018

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. Parallel, perpendicular, and ground-parallel orientations 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:

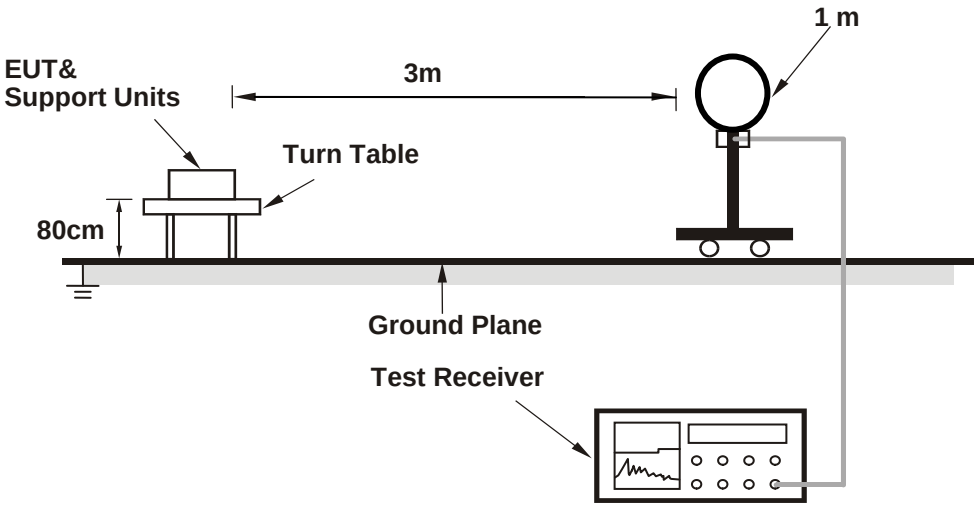
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

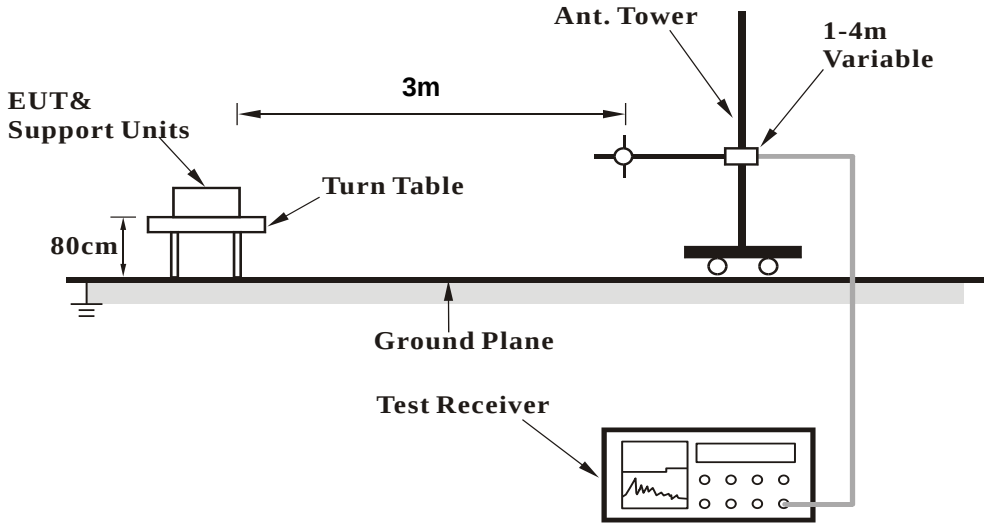
No deviation.

4.1.5 Test Setup

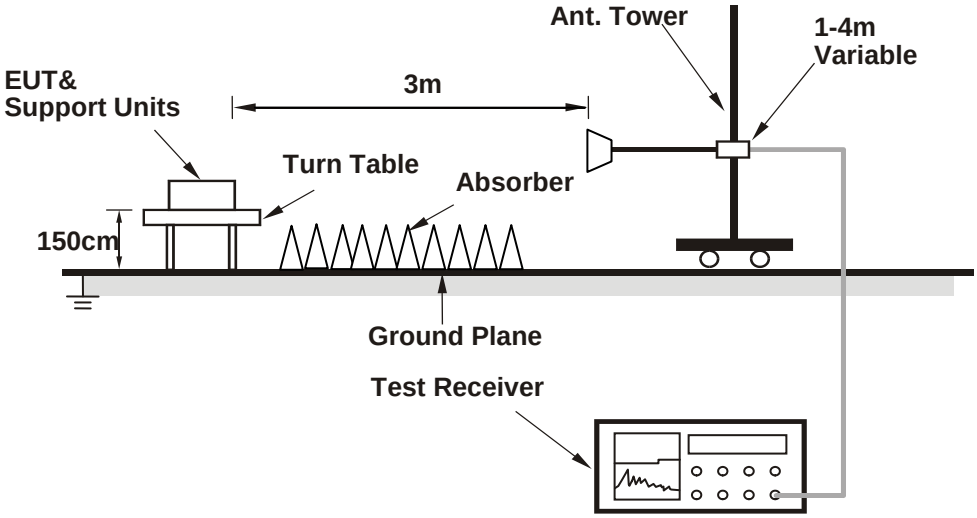
For Radiated emission below 30MHz



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 Laptop which is placed on remote site.
b. Controlling software (MT7620 QA V1.0.6.0) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data：

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	61.9 PK	74.0	-12.1	2.60 H	233	64.6	-2.7
2	2390.00	51.9 AV	54.0	-2.1	2.60 H	233	54.6	-2.7
3	*2412.00	103.6 PK			2.60 H	233	106.3	-2.7
4	*2412.00	101.2 AV			2.60 H	233	103.9	-2.7
5	4824.00	43.2 PK	74.0	-30.8	1.00 H	360	41.6	1.6
6	4824.00	39.2 AV	54.0	-14.8	1.00 H	360	37.6	1.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	60.3 PK	74.0	-13.7	2.29 V	119	63.0	-2.7
2	2390.00	53.4 AV	54.0	-0.6	2.29 V	119	56.1	-2.7
3	*2412.00	107.6 PK			2.29 V	119	110.3	-2.7
4	*2412.00	105.1 AV			2.29 V	119	107.8	-2.7
5	4824.00	47.9 PK	74.0	-26.1	1.11 V	29	46.3	1.6
6	4824.00	44.9 AV	54.0	-9.1	1.11 V	29	43.3	1.6

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	52.3 PK	74.0	-21.7	2.60 H	220	55.0	-2.7
2	2390.00	40.2 AV	54.0	-13.8	2.60 H	220	42.9	-2.7
3	*2437.00	103.2 PK			2.60 H	220	106.2	-3.0
4	*2437.00	100.8 AV			2.60 H	220	103.8	-3.0
5	2483.50	57.3 PK	74.0	-16.7	2.60 H	220	60.3	-3.0
6	2483.50	49.6 AV	54.0	-4.4	2.60 H	220	52.6	-3.0
7	4874.00	43.5 PK	74.0	-30.5	1.00 H	356	41.9	1.6
8	4874.00	39.6 AV	54.0	-14.4	1.00 H	356	38.0	1.6
9	7311.00	42.3 PK	74.0	-31.7	1.52 H	65	34.6	7.7
10	7311.00	35.1 AV	54.0	-18.9	1.52 H	65	27.4	7.7
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	2390.00	56.7 PK	74.0	-17.3	2.29 V	119	59.4	-2.7
2	2390.00	44.9 AV	54.0	-9.1	2.29 V	119	47.6	-2.7
3	*2437.00	108.1 PK			2.29 V	119	111.1	-3.0
4	*2437.00	105.3 AV			2.29 V	119	108.3	-3.0
5	2483.50	60.5 PK	74.0	-13.5	2.29 V	119	63.5	-3.0
6	2483.50	52.2 AV	54.0	-1.8	2.29 V	119	55.2	-3.0
7	4874.00	47.9 PK	74.0	-26.1	1.17 V	34	46.3	1.6
8	4874.00	45.1 AV	54.0	-8.9	1.17 V	34	43.5	1.6
9	7311.00	49.1 PK	74.0	-24.9	1.00 V	215	41.4	7.7
10	7311.00	42.0 AV	54.0	-12.0	1.00 V	215	34.3	7.7

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 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	101.7 PK			2.65 H	236	104.7	-3.0
2	*2462.00	99.2 AV			2.65 H	236	102.2	-3.0
3	2483.50	60.6 PK	74.0	-13.4	2.65 H	236	63.6	-3.0
4	2483.50	50.8 AV	54.0	-3.2	2.65 H	236	53.8	-3.0
5	4924.00	43.2 PK	74.0	-30.8	1.00 H	358	41.5	1.7
6	4924.00	39.6 AV	54.0	-14.4	1.00 H	358	37.9	1.7
7	7386.00	42.4 PK	74.0	-31.6	1.52 H	58	34.5	7.9
8	7386.00	35.2 AV	54.0	-18.8	1.52 H	58	27.3	7.9
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	106.2 PK			2.29 V	119	109.2	-3.0
2	*2462.00	103.8 AV			2.29 V	119	106.8	-3.0
3	2483.50	64.2 PK	74.0	-9.8	2.29 V	119	67.2	-3.0
4	2483.50	52.6 AV	54.0	-1.4	2.29 V	119	55.6	-3.0
5	4924.00	48.2 PK	74.0	-25.8	1.21 V	36	46.5	1.7
6	4924.00	45.1 AV	54.0	-8.9	1.21 V	36	43.4	1.7
7	7386.00	48.9 PK	74.0	-25.1	1.00 V	229	41.0	7.9
8	7386.00	41.8 AV	54.0	-12.2	1.00 V	229	33.9	7.9

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	70.1 PK	74.0	-3.9	2.59 H	236	72.8	-2.7
2	2390.00	52.0 AV	54.0	-2.0	2.59 H	236	54.7	-2.7
3	*2412.00	102.9 PK			2.59 H	236	105.6	-2.7
4	*2412.00	92.9 AV			2.59 H	236	95.6	-2.7
5	4824.00	48.7 PK	74.0	-25.3	1.04 H	355	47.1	1.6
6	4824.00	37.0 AV	54.0	-17.0	1.04 H	355	35.4	1.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.0 PK	74.0	-2.0	2.28 V	175	74.7	-2.7
2	2390.00	53.7 AV	54.0	-0.3	2.28 V	175	56.4	-2.7
3	*2412.00	107.1 PK			2.28 V	175	109.8	-2.7
4	*2412.00	97.5 AV			2.28 V	175	100.2	-2.7
5	4824.00	48.4 PK	74.0	-25.6	1.20 V	21	46.8	1.6
6	4824.00	36.9 AV	54.0	-17.1	1.20 V	21	35.3	1.6

REMARKS:

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

CHANNEL	TX Channel 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	70.1 PK	74.0	-3.9	2.58 H	239	72.8	-2.7
2	2390.00	52.3 AV	54.0	-1.7	2.58 H	239	55.0	-2.7
3	*2417.00	106.4 PK			2.58 H	239	109.2	-2.8
4	*2417.00	95.8 AV			2.58 H	239	98.6	-2.8
5	4834.00	48.4 PK	74.0	-25.6	1.03 H	360	46.8	1.6
6	4834.00	37.0 AV	54.0	-17.0	1.03 H	360	35.4	1.6
7	7251.00	50.9 PK	74.0	-23.1	1.53 H	58	43.1	7.8
8	7251.00	39.1 AV	54.0	-14.9	1.53 H	58	31.3	7.8
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	71.1 PK	74.0	-2.9	2.28 V	175	73.8	-2.7
2	2390.00	53.7 AV	54.0	-0.3	2.28 V	175	56.4	-2.7
3	*2417.00	110.2 PK			2.28 V	175	113.0	-2.8
4	*2417.00	100.3 AV			2.28 V	175	103.1	-2.8
5	4834.00	48.3 PK	74.0	-25.7	1.12 V	47	46.7	1.6
6	4834.00	36.7 AV	54.0	-17.3	1.12 V	47	35.1	1.6
7	7251.00	51.2 PK	74.0	-22.8	1.02 V	212	43.4	7.8
8	7251.00	39.2 AV	54.0	-14.8	1.02 V	212	31.4	7.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	2.57 H	239	62.8	-2.7
2	2390.00	42.6 AV	54.0	-11.4	2.57 H	239	45.3	-2.7
3	*2437.00	107.2 PK			2.57 H	239	110.2	-3.0
4	*2437.00	96.4 AV			2.57 H	239	99.4	-3.0
5	2483.50	70.4 PK	74.0	-3.6	2.57 H	239	73.4	-3.0
6	2483.50	52.4 AV	54.0	-1.6	2.57 H	239	55.4	-3.0
7	4874.00	48.8 PK	74.0	-25.2	1.01 H	360	47.2	1.6
8	4874.00	37.1 AV	54.0	-16.9	1.01 H	360	35.5	1.6
9	7311.00	51.7 PK	74.0	-22.3	1.48 H	80	44.0	7.7
10	7311.00	39.4 AV	54.0	-14.6	1.48 H	80	31.7	7.7
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	2390.00	65.1 PK	74.0	-8.9	2.28 V	175	67.8	-2.7
2	2390.00	47.2 AV	54.0	-6.8	2.28 V	175	49.9	-2.7
3	*2437.00	111.5 PK			2.28 V	175	114.5	-3.0
4	*2437.00	101.6 AV			2.28 V	175	104.6	-3.0
5	2483.50	71.6 PK	74.0	-2.4	2.28 V	175	74.6	-3.0
6	2483.50	53.8 AV	54.0	-0.2	2.28 V	175	56.8	-3.0
7	4874.00	48.1 PK	74.0	-25.9	1.16 V	36	46.5	1.6
8	4874.00	36.3 AV	54.0	-17.7	1.16 V	36	34.7	1.6
9	7311.00	51.0 PK	74.0	-23.0	1.00 V	222	43.3	7.7
10	7311.00	38.8 AV	54.0	-15.2	1.00 V	222	31.1	7.7

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 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	104.2 PK			2.61 H	238	107.2	-3.0
2	*2457.00	94.1 AV			2.61 H	238	97.1	-3.0
3	2483.50	70.3 PK	74.0	-3.7	2.61 H	238	73.3	-3.0
4	2483.50	52.3 AV	54.0	-1.7	2.61 H	238	55.3	-3.0
5	4914.00	49.0 PK	74.0	-25.0	1.00 H	360	47.3	1.7
6	4914.00	37.1 AV	54.0	-16.9	1.00 H	360	35.4	1.7
7	7371.00	51.3 PK	74.0	-22.7	1.54 H	71	43.5	7.8
8	7371.00	39.4 AV	54.0	-14.6	1.54 H	71	31.6	7.8
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	*2457.00	108.8 PK			2.26 V	181	111.8	-3.0
2	*2457.00	98.8 AV			2.26 V	181	101.8	-3.0
3	2483.50	71.8 PK	74.0	-2.2	2.26 V	181	74.8	-3.0
4	2483.50	53.8 AV	54.0	-0.2	2.26 V	181	56.8	-3.0
5	4914.00	48.0 PK	74.0	-26.0	1.22 V	43	46.3	1.7
6	4914.00	36.3 AV	54.0	-17.7	1.22 V	43	34.6	1.7
7	7371.00	51.2 PK	74.0	-22.8	1.00 V	207	43.4	7.8
8	7371.00	39.0 AV	54.0	-15.0	1.00 V	207	31.2	7.8

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	102.1 PK			2.57 H	241	105.1	-3.0
2	*2462.00	92.2 AV			2.57 H	241	95.2	-3.0
3	2483.50	70.4 PK	74.0	-3.6	2.57 H	241	73.4	-3.0
4	2483.50	52.4 AV	54.0	-1.6	2.57 H	241	55.4	-3.0
5	4924.00	48.4 PK	74.0	-25.6	1.00 H	360	46.7	1.7
6	4924.00	36.8 AV	54.0	-17.2	1.00 H	360	35.1	1.7
7	7386.00	51.5 PK	74.0	-22.5	1.50 H	68	43.6	7.9
8	7386.00	39.5 AV	54.0	-14.5	1.50 H	68	31.6	7.9
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	106.4 PK			2.26 V	182	109.4	-3.0
2	*2462.00	96.5 AV			2.26 V	182	99.5	-3.0
3	2483.50	72.4 PK	74.0	-1.6	2.26 V	182	75.4	-3.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.26 V**	**182**	**56.9**	**-3.0**
5	4924.00	48.6 PK	74.0	-25.4	1.21 V	33	46.9	1.7
6	4924.00	36.8 AV	54.0	-17.2	1.21 V	33	35.1	1.7
7	7386.00	51.0 PK	74.0	-23.0	1.01 V	215	43.1	7.9
8	7386.00	38.9 AV	54.0	-15.1	1.01 V	215	31.0	7.9

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	69.6 PK	74.0	-4.4	2.63 H	225	72.3	-2.7
2	2390.00	51.6 AV	54.0	-2.4	2.63 H	225	54.3	-2.7
3	*2412.00	101.3 PK			2.63 H	225	104.0	-2.7
4	*2412.00	91.1 AV			2.63 H	225	93.8	-2.7
5	4824.00	48.2 PK	74.0	-25.8	1.00 H	359	46.6	1.6
6	4824.00	36.8 AV	54.0	-17.2	1.00 H	359	35.2	1.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.9 PK	74.0	-3.1	2.33 V	180	73.6	-2.7
2	2390.00	53.6 AV	54.0	-0.4	2.33 V	180	56.3	-2.7
3	*2412.00	105.7 PK			2.33 V	180	108.4	-2.7
4	*2412.00	95.8 AV			2.33 V	180	98.5	-2.7
5	4824.00	47.9 PK	74.0	-26.1	1.14 V	29	46.3	1.6
6	4824.00	36.5 AV	54.0	-17.5	1.14 V	29	34.9	1.6

REMARKS:

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

CHANNEL	TX Channel 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	70.0 PK	74.0	-4.0	2.58 H	221	72.7	-2.7
2	2390.00	51.8 AV	54.0	-2.2	2.58 H	221	54.5	-2.7
3	*2417.00	105.2 PK			2.58 H	221	108.0	-2.8
4	*2417.00	94.9 AV			2.58 H	221	97.7	-2.8
5	4834.00	48.5 PK	74.0	-25.5	1.00 H	356	46.9	1.6
6	4834.00	36.7 AV	54.0	-17.3	1.00 H	356	35.1	1.6
7	7251.00	50.9 PK	74.0	-23.1	1.53 H	60	43.1	7.8
8	7251.00	39.1 AV	54.0	-14.9	1.53 H	60	31.3	7.8
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	72.6 PK	74.0	-1.4	2.37 V	184	75.3	-2.7
2	2390.00	53.7 AV	54.0	-0.3	2.37 V	184	56.4	-2.7
3	*2417.00	109.2 PK			2.37 V	184	112.0	-2.8
4	*2417.00	99.2 AV			2.37 V	184	102.0	-2.8
5	4834.00	48.3 PK	74.0	-25.7	1.11 V	25	46.7	1.6
6	4834.00	36.7 AV	54.0	-17.3	1.11 V	25	35.1	1.6
7	7251.00	51.7 PK	74.0	-22.3	1.00 V	221	43.9	7.8
8	7251.00	39.5 AV	54.0	-14.5	1.00 V	221	31.7	7.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.3 PK	74.0	-13.7	2.59 H	246	63.0	-2.7
2	2390.00	42.6 AV	54.0	-11.4	2.59 H	246	45.3	-2.7
3	*2437.00	107.3 PK			2.59 H	246	110.3	-3.0
4	*2437.00	96.1 AV			2.59 H	246	99.1	-3.0
5	2483.50	70.0 PK	74.0	-4.0	2.59 H	246	73.0	-3.0
6	2483.50	51.8 AV	54.0	-2.2	2.59 H	246	54.8	-3.0
7	4874.00	48.9 PK	74.0	-25.1	1.00 H	350	47.3	1.6
8	4874.00	37.1 AV	54.0	-16.9	1.00 H	350	35.5	1.6
9	7311.00	51.3 PK	74.0	-22.7	1.48 H	64	43.6	7.7
10	7311.00	39.2 AV	54.0	-14.8	1.48 H	64	31.5	7.7
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	2390.00	67.2 PK	74.0	-6.8	2.33 V	180	69.9	-2.7
2	2390.00	47.0 AV	54.0	-7.0	2.33 V	180	49.7	-2.7
3	*2437.00	111.2 PK			2.33 V	180	114.2	-3.0
4	*2437.00	100.5 AV			2.33 V	180	103.5	-3.0
5	2483.50	72.7 PK	74.0	-1.3	2.33 V	180	75.7	-3.0
6	2483.50	53.8 AV	54.0	-0.2	2.33 V	180	56.8	-3.0
7	4874.00	48.0 PK	74.0	-26.0	1.18 V	26	46.4	1.6
8	4874.00	36.2 AV	54.0	-17.8	1.18 V	26	34.6	1.6
9	7311.00	51.4 PK	74.0	-22.6	1.00 V	205	43.7	7.7
10	7311.00	39.1 AV	54.0	-14.9	1.00 V	205	31.4	7.7

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 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	103.8 PK			2.66 H	224	106.8	-3.0
2	*2457.00	93.8 AV			2.66 H	224	96.8	-3.0
3	2483.50	70.4 PK	74.0	-3.6	2.66 H	224	73.4	-3.0
4	2483.50	52.1 AV	54.0	-1.9	2.66 H	224	55.1	-3.0
5	4914.00	48.1 PK	74.0	-25.9	1.06 H	349	46.4	1.7
6	4914.00	36.4 AV	54.0	-17.6	1.06 H	349	34.7	1.7
7	7371.00	51.1 PK	74.0	-22.9	1.50 H	57	43.3	7.8
8	7371.00	38.9 AV	54.0	-15.1	1.50 H	57	31.1	7.8
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	*2457.00	108.3 PK			2.38 V	211	111.3	-3.0
2	*2457.00	98.2 AV			2.38 V	211	101.2	-3.0
3	2483.50	73.1 PK	74.0	-0.9	2.38 V	211	76.1	-3.0
4	2483.50	53.4 AV	54.0	-0.6	2.38 V	211	56.4	-3.0
5	4914.00	48.8 PK	74.0	-25.2	1.18 V	48	47.1	1.7
6	4914.00	36.9 AV	54.0	-17.1	1.18 V	48	35.2	1.7
7	7371.00	51.5 PK	74.0	-22.5	1.01 V	212	43.7	7.8
8	7371.00	39.3 AV	54.0	-14.7	1.01 V	212	31.5	7.8

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	101.2 PK			2.55 H	225	104.2	-3.0
2	*2462.00	91.2 AV			2.55 H	225	94.2	-3.0
3	2483.50	69.8 PK	74.0	-4.2	2.55 H	225	72.8	-3.0
4	2483.50	51.6 AV	54.0	-2.4	2.55 H	225	54.6	-3.0
5	4924.00	48.6 PK	74.0	-25.4	1.00 H	341	46.9	1.7
6	4924.00	36.7 AV	54.0	-17.3	1.00 H	341	35.0	1.7
7	7386.00	51.0 PK	74.0	-23.0	1.53 H	55	43.1	7.9
8	7386.00	39.2 AV	54.0	-14.8	1.53 H	55	31.3	7.9
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	105.5 PK			2.38 V	211	108.5	-3.0
2	*2462.00	95.5 AV			2.38 V	211	98.5	-3.0
3	2483.50	72.2 PK	74.0	-1.8	2.38 V	211	75.2	-3.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.38 V**	**211**	**56.9**	**-3.0**
5	4924.00	48.5 PK	74.0	-25.5	1.13 V	23	46.8	1.7
6	4924.00	36.6 AV	54.0	-17.4	1.13 V	23	34.9	1.7
7	7386.00	51.4 PK	74.0	-22.6	1.06 V	204	43.5	7.9
8	7386.00	39.7 AV	54.0	-14.3	1.06 V	204	31.8	7.9

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 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	70.1 PK	74.0	-3.9	2.65 H	239	72.8	-2.7
2	2390.00	51.8 AV	54.0	-2.2	2.65 H	239	54.5	-2.7
3	*2422.00	98.7 PK			2.65 H	239	101.6	-2.9
4	*2422.00	89.1 AV			2.65 H	239	92.0	-2.9
5	4844.00	47.6 PK	74.0	-26.4	1.00 H	354	46.0	1.6
6	4844.00	36.2 AV	54.0	-17.8	1.00 H	354	34.6	1.6
7	7266.00	50.7 PK	74.0	-23.3	1.49 H	76	42.9	7.8
8	7266.00	38.9 AV	54.0	-15.1	1.49 H	76	31.1	7.8
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	68.5 PK	74.0	-5.5	2.21 V	251	71.2	-2.7
2	2390.00	53.8 AV	54.0	-0.2	2.21 V	251	56.5	-2.7
3	*2422.00	103.0 PK			2.21 V	251	105.9	-2.9
4	*2422.00	93.3 AV			2.21 V	251	96.2	-2.9
5	4844.00	48.0 PK	74.0	-26.0	1.12 V	26	46.4	1.6
6	4844.00	36.6 AV	54.0	-17.4	1.12 V	26	35.0	1.6
7	7266.00	51.6 PK	74.0	-22.4	1.05 V	220	43.8	7.8
8	7266.00	39.5 AV	54.0	-14.5	1.05 V	220	31.7	7.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.5 PK	74.0	-14.5	2.60 H	246	62.2	-2.7
2	2390.00	42.2 AV	54.0	-11.8	2.60 H	246	44.9	-2.7
3	*2437.00	108.4 PK			2.60 H	246	111.4	-3.0
4	*2437.00	88.2 AV			2.60 H	246	91.2	-3.0
5	2483.50	70.2 PK	74.0	-3.8	2.60 H	246	73.2	-3.0
6	2483.50	52.1 AV	54.0	-1.9	2.60 H	246	55.1	-3.0
7	4874.00	48.8 PK	74.0	-25.2	1.06 H	355	47.2	1.6
8	4874.00	37.0 AV	54.0	-17.0	1.06 H	355	35.4	1.6
9	7311.00	51.7 PK	74.0	-22.3	1.51 H	60	44.0	7.7
10	7311.00	39.6 AV	54.0	-14.4	1.51 H	60	31.9	7.7
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	2390.00	59.0 PK	74.0	-15.0	2.22 V	250	61.7	-2.7
2	2390.00	44.7 AV	54.0	-9.3	2.22 V	250	47.4	-2.7
3	*2437.00	103.2 PK			2.22 V	250	106.2	-3.0
4	*2437.00	92.5 AV			2.22 V	250	95.5	-3.0
5	2483.50	69.2 PK	74.0	-4.8	2.22 V	250	72.2	-3.0
6	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**2.22 V**	**250**	**56.9**	**-3.0**
7	4874.00	47.9 PK	74.0	-26.1	1.16 V	40	46.3	1.6
8	4874.00	36.3 AV	54.0	-17.7	1.16 V	40	34.7	1.6
9	7311.00	51.7 PK	74.0	-22.3	1.04 V	213	44.0	7.7
10	7311.00	39.5 AV	54.0	-14.5	1.04 V	213	31.8	7.7

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 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	94.5 PK			2.63 H	232	97.5	-3.0
2	*2452.00	84.8 AV			2.63 H	232	87.8	-3.0
3	2483.50	70.5 PK	74.0	-3.5	2.63 H	232	73.5	-3.0
4	2483.50	52.2 AV	54.0	-1.8	2.63 H	232	55.2	-3.0
5	4904.00	48.1 PK	74.0	-25.9	1.00 H	353	46.4	1.7
6	4904.00	36.4 AV	54.0	-17.6	1.00 H	353	34.7	1.7
7	7356.00	51.2 PK	74.0	-22.8	1.54 H	61	43.3	7.9
8	7356.00	39.3 AV	54.0	-14.7	1.54 H	61	31.4	7.9
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	99.3 PK			2.36 V	227	102.3	-3.0
2	*2452.00	89.1 AV			2.36 V	227	92.1	-3.0
3	2483.50	68.3 PK	74.0	-5.7	2.36 V	227	71.3	-3.0
4	2483.50	53.3 AV	54.0	-0.7	2.36 V	227	56.3	-3.0
5	4904.00	48.2 PK	74.0	-25.8	1.12 V	31	46.5	1.7
6	4904.00	36.8 AV	54.0	-17.2	1.12 V	31	35.1	1.7
7	7356.00	51.0 PK	74.0	-23.0	1.01 V	229	43.1	7.9
8	7356.00	39.3 AV	54.0	-14.7	1.01 V	229	31.4	7.9

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:

802.11n (HT20)

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	90.14	29.8 QP	43.5	-13.7	1.77 H	214	43.4	-13.6
2	144.46	31.4 QP	43.5	-12.1	2.10 H	360	39.2	-7.8
3	177.44	30.2 QP	43.5	-13.3	1.84 H	295	39.2	-9.0
4	266.68	29.6 QP	46.0	-16.4	1.27 H	36	37.8	-8.2
5	676.02	30.0 QP	46.0	-16.0	2.82 H	221	28.5	1.5
6	790.48	32.9 QP	46.0	-13.1	2.14 H	316	29.3	3.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	43.58	34.7 QP	40.0	-5.3	2.01 V	318	42.8	-8.1
2	68.80	31.4 QP	40.0	-8.6	1.94 V	61	41.2	-9.8
3	142.52	30.4 QP	43.5	-13.1	1.01 V	219	38.3	-7.9
4	249.22	29.3 QP	46.0	-16.7	3.18 V	241	38.3	-9.0
5	644.98	30.6 QP	46.0	-15.4	2.09 V	127	29.4	1.2
6	802.12	32.8 QP	46.0	-13.2	2.97 V	31	29.1	3.7

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Nov. 01, 2017	Oct. 31, 2018
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 2017	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 04, 2018	June 03, 2019
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
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 16, 2018	Mar. 15, 2019
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 Conduction 1.
3 Tested Date: June 05, 2018

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.

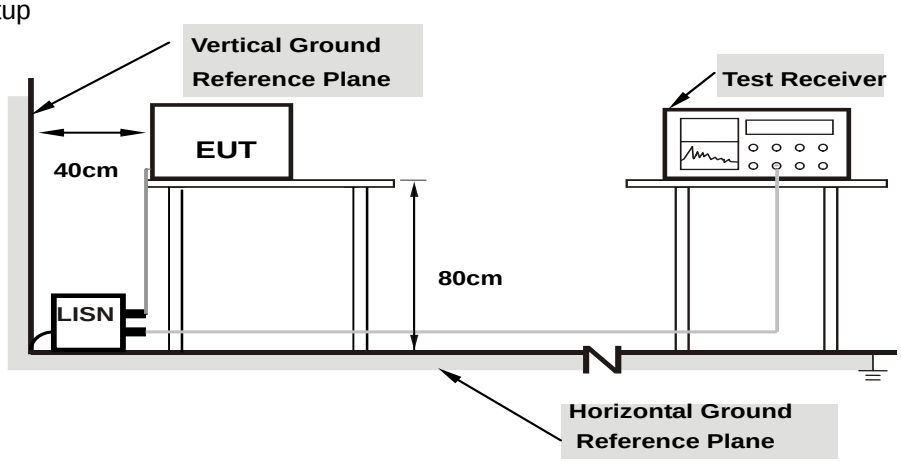
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

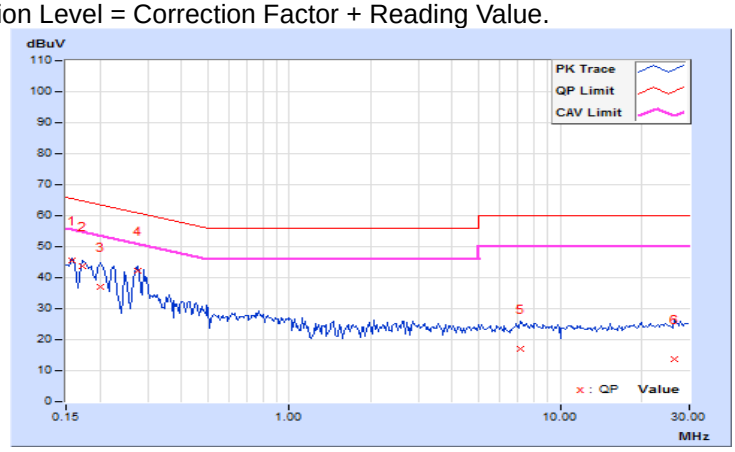
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.05	35.65	20.54	45.70	30.59	65.58	55.58	-19.88	-24.99
2	0.17344	10.06	33.55	19.43	43.61	29.49	64.79	54.79	-21.18	-25.30
3	0.20078	10.07	27.07	11.17	37.14	21.24	63.58	53.58	-26.44	-32.34
4	**0.27500**	**10.09**	**32.28**	**26.26**	**42.37**	**36.35**	**60.97**	**50.97**	**-18.60**	**-14.62**
5	7.15234	10.53	6.56	0.70	17.09	11.23	60.00	50.00	-42.91	-38.77
6	26.56250	11.52	2.30	-5.00	13.82	6.52	60.00	50.00	-46.18	-43.48

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.

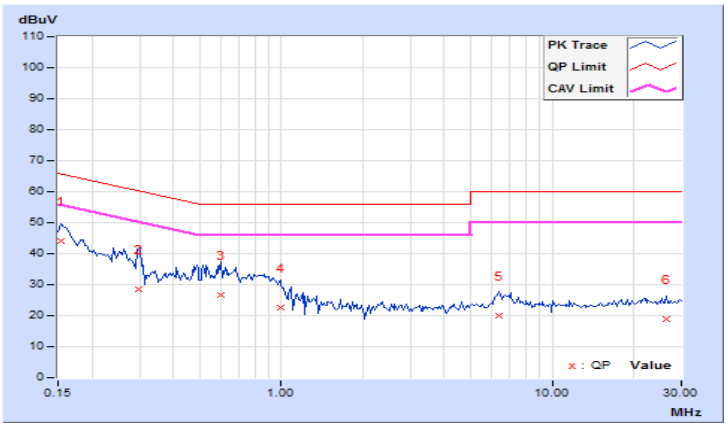


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15391	9.96	34.06	17.03	44.02	26.99	65.79	55.79	-21.77	-28.80
2	0.29844	9.99	18.49	2.31	28.48	12.30	60.29	50.29	-31.81	-37.99
3	0.59922	10.03	16.61	2.68	26.64	12.71	56.00	46.00	-29.36	-33.29
4	0.99375	10.04	12.51	-2.40	22.55	7.64	56.00	46.00	-33.45	-38.36
5	6.36719	10.33	9.70	-4.08	20.03	6.25	60.00	50.00	-39.97	-43.75
6	26.48828	11.25	7.66	-4.72	18.91	6.53	60.00	50.00	-41.09	-43.47

REMARKS:

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

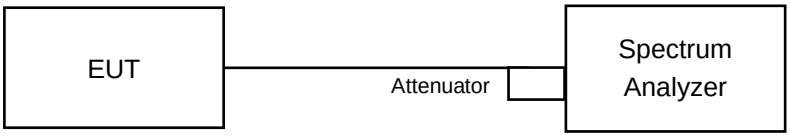


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	10.10	0.5	Pass
6	2437	10.13	0.5	Pass
11	2462	9.63	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.42	0.5	Pass
2	2417	16.13	0.5	Pass
6	2437	16.41	0.5	Pass
10	2457	16.01	0.5	Pass
11	2462	16.39	0.5	Pass

802.11n (HT20)

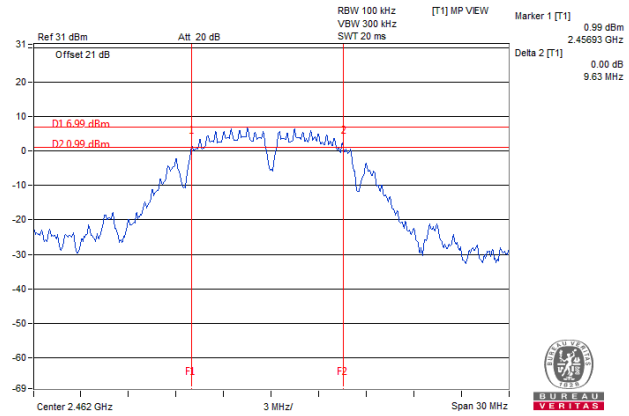
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.13	0.5	Pass
2	2417	17.14	0.5	Pass
6	2437	17.13	0.5	Pass
10	2457	16.71	0.5	Pass
11	2462	16.72	0.5	Pass

802.11n (HT40)

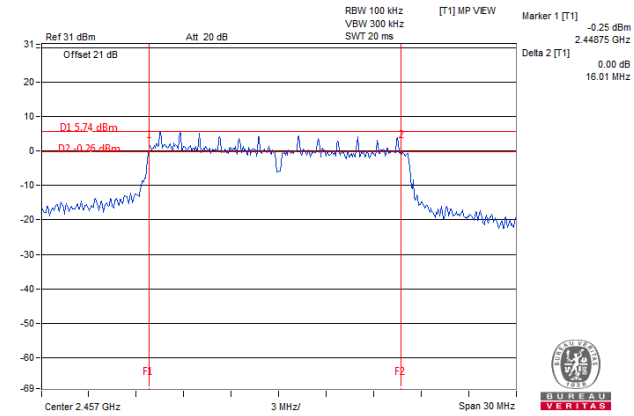
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.90	0.5	Pass
6	2437	35.43	0.5	Pass
9	2452	35.58	0.5	Pass

Spectrum Plot of Worst Value

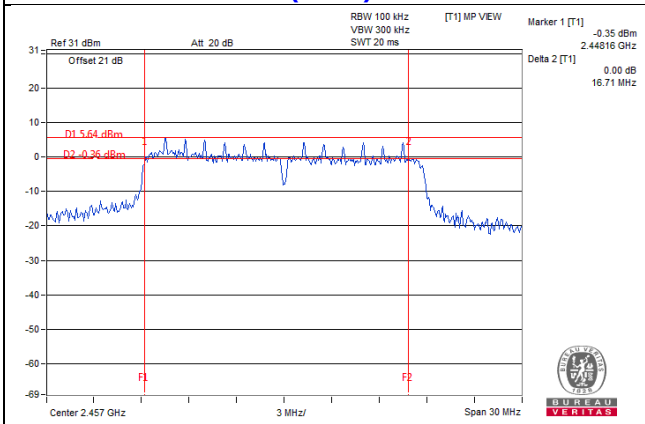
802.11b : CH11



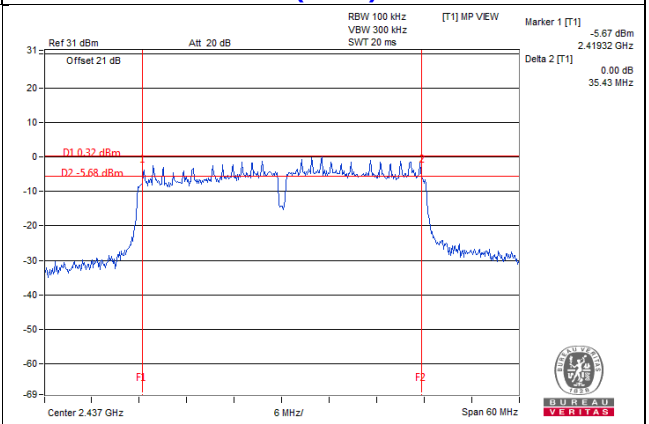
802.11g : CH10



802.11n (HT20) : CH10



802.11n (HT40) : CH6

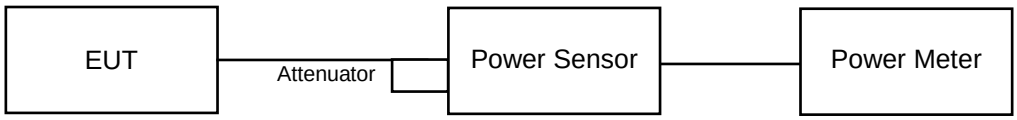


4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value..

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

FOR PEAK POWER

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	80.353	19.05	30	Pass
6	2437	93.325	19.70	30	Pass
11	2462	69.183	18.40	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	80.724	19.07	30	Pass
2	2417	93.541	19.71	30	Pass
6	2437	98.175	19.92	30	Pass
10	2457	80.168	19.04	30	Pass
11	2462	68.391	18.35	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	74.989	18.75	30	Pass
2	2417	93.756	19.72	30	Pass
6	2437	99.312	19.97	30	Pass
10	2457	79.068	18.98	30	Pass
11	2462	67.453	18.29	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	73.114	18.64	30	Pass
6	2437	72.778	18.62	30	Pass
9	2452	54.45	17.36	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	53.58	17.29
6	2437	73.79	18.68
11	2462	42.17	16.25

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	25.293	14.03
2	2417	43.351	16.37
6	2437	69.663	18.43
10	2457	34.995	15.44
11	2462	17.701	12.48

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	18.793	12.74
2	2417	39.084	15.92
6	2437	65.163	18.14
10	2457	32.734	15.15
11	2462	16.52	12.18

802.11n (HT40)

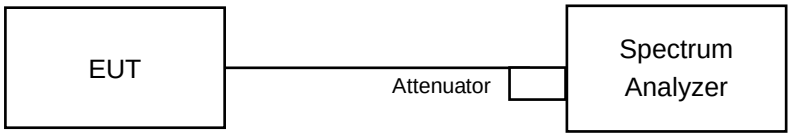
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	16.634	12.21
6	2437	18.75	12.73
9	2452	9.506	9.78

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

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-7.90	8	Pass
6	2437	-6.05	8	Pass
11	2462	-10.03	8	Pass

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-13.23	8	Pass
2	2417	-10.97	8	Pass
6	2437	-8.66	8	Pass
10	2457	-10.20	8	Pass
11	2462	-13.01	8	Pass

802.11n (HT20)

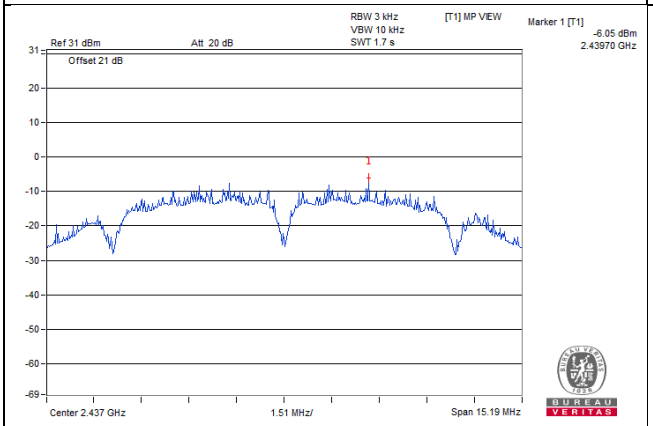
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-13.09	8	Pass
2	2417	-9.74	8	Pass
6	2437	-8.02	8	Pass
10	2457	-11.21	8	Pass
11	2462	-12.25	8	Pass

802.11n (HT40)

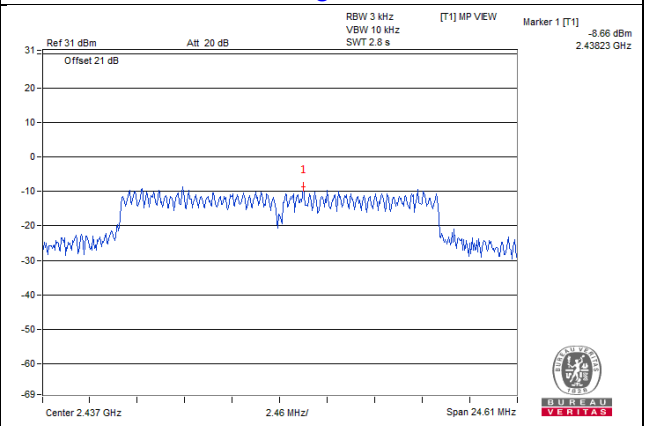
Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-15.24	8	Pass
6	2437	-16.12	8	Pass
9	2452	-19.36	8	Pass

Spectrum Plot of Worst Value

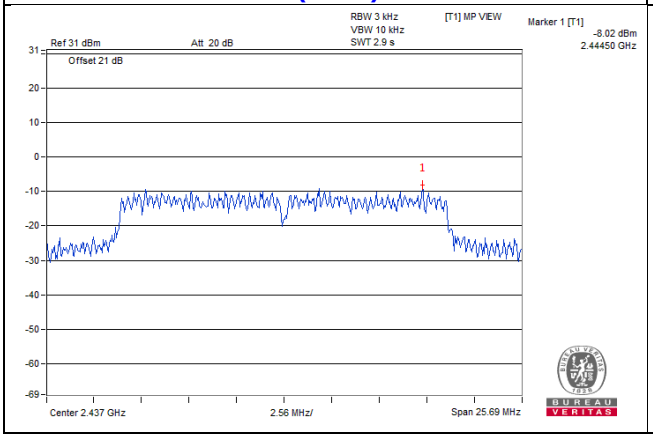
802.11b : CH6



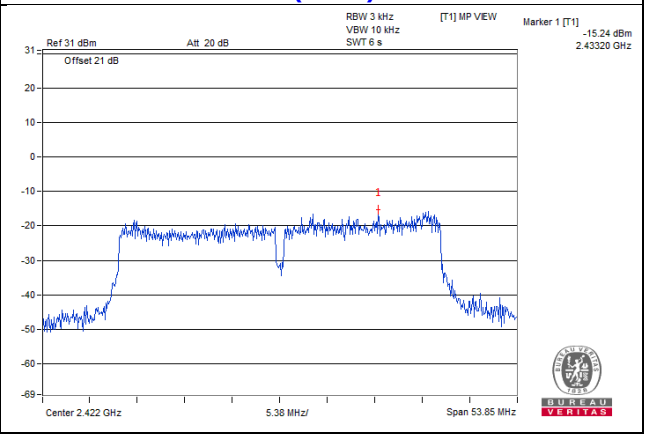
802.11g : CH6



802.11n (HT20) : CH6



802.11n (HT40) : CH3

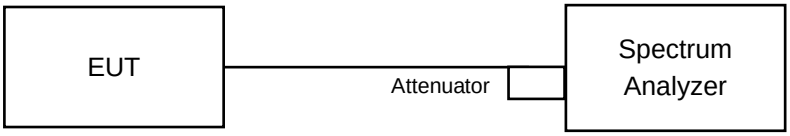


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

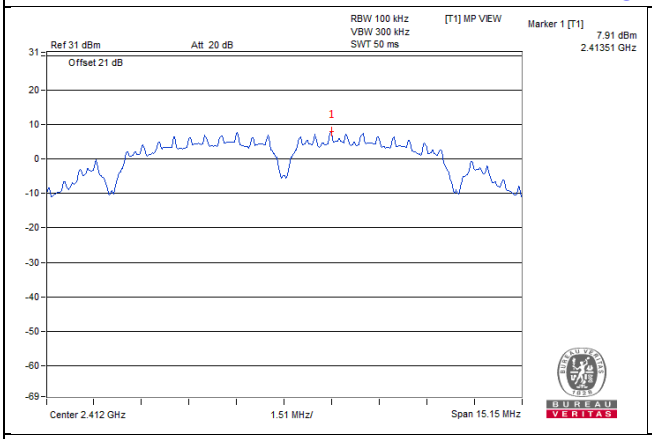
Same as Item 4.3.6

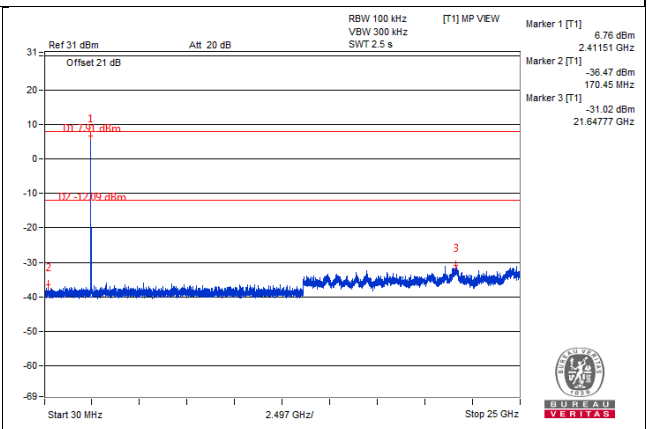
4.6.7 Test Results

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

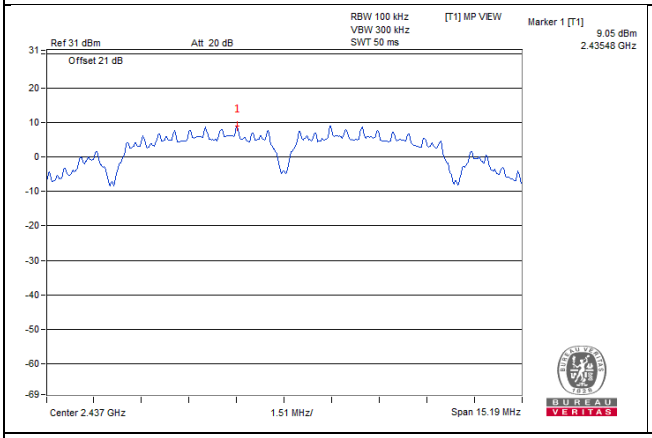
802.11b

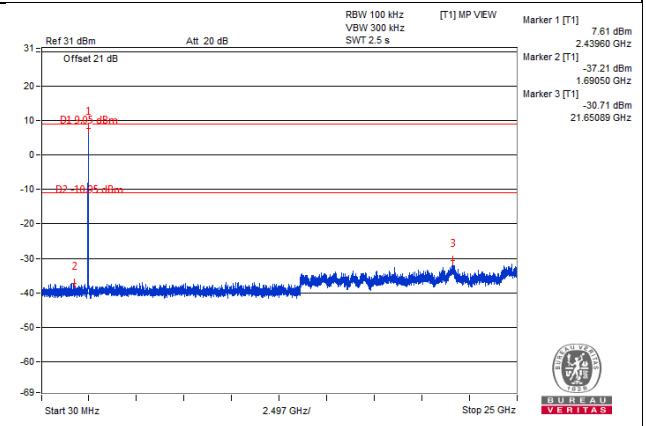
CH 1



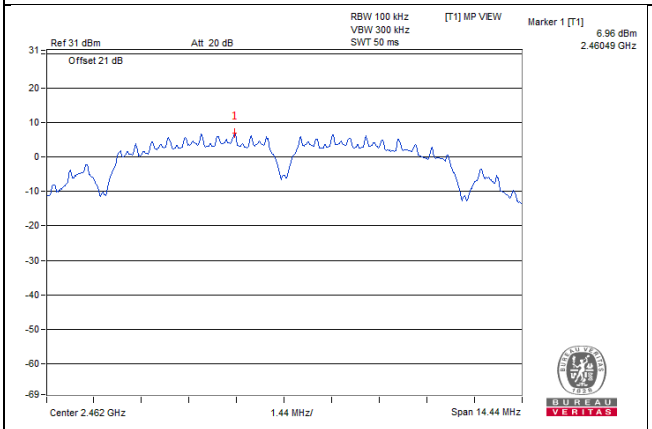


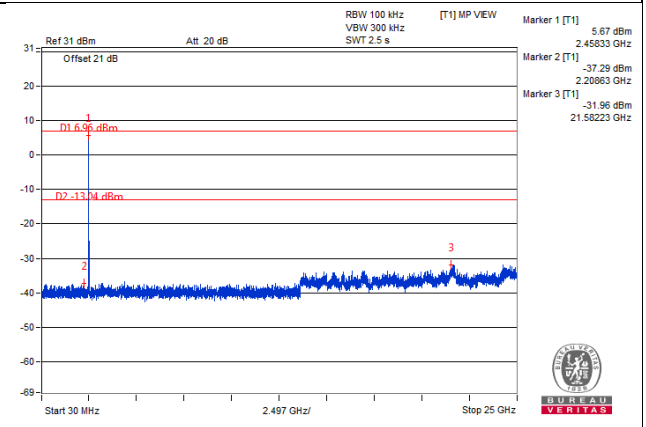
CH 6



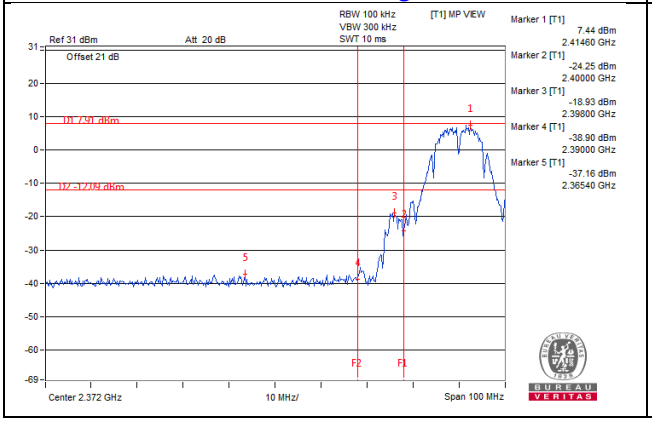


CH 11

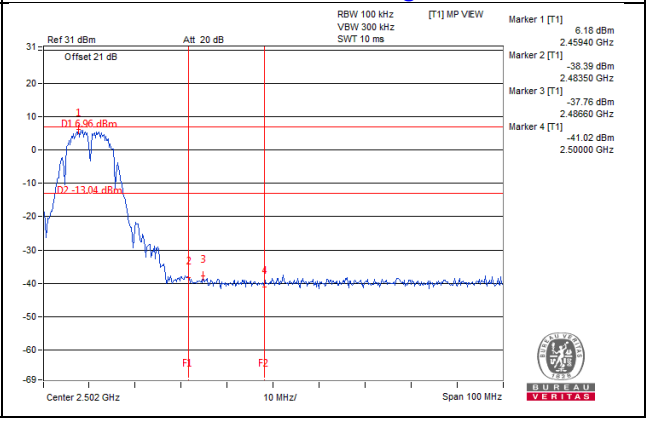




CH 1 Band edge

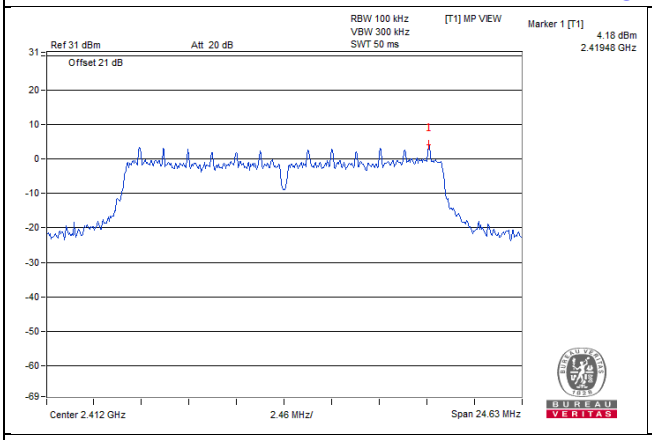


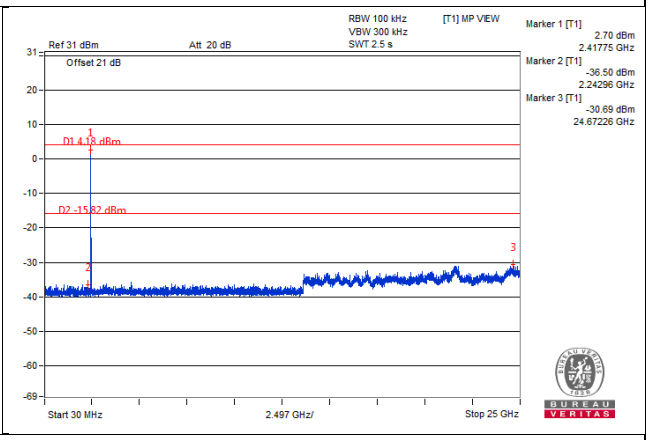
CH 11 Band edge



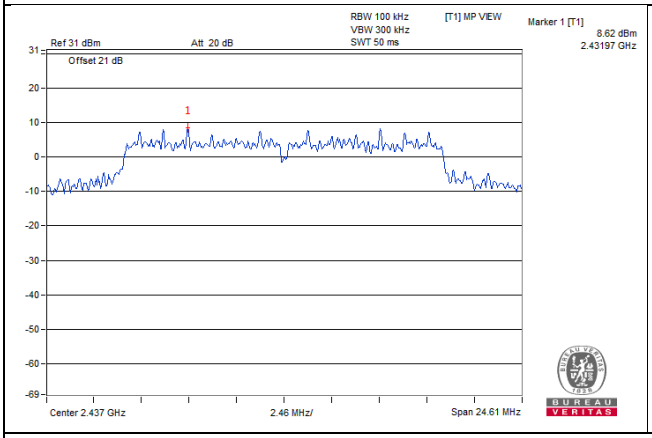
802.11g

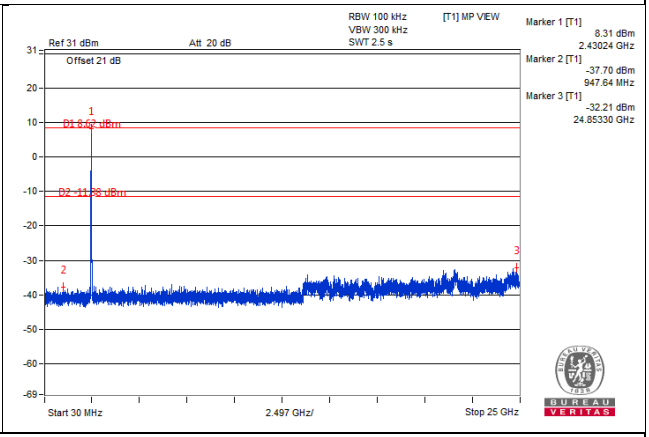
CH 1



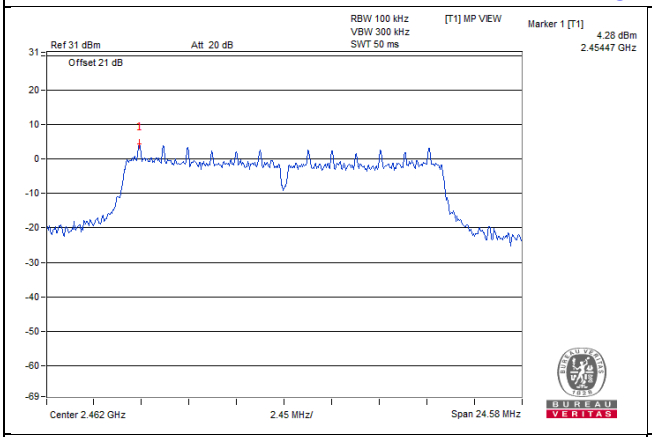


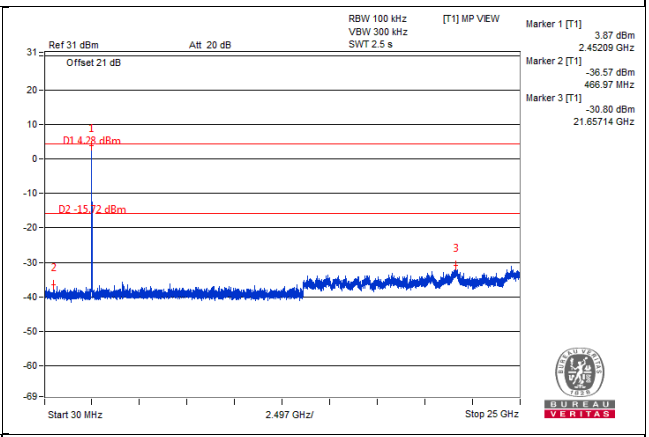
CH 6



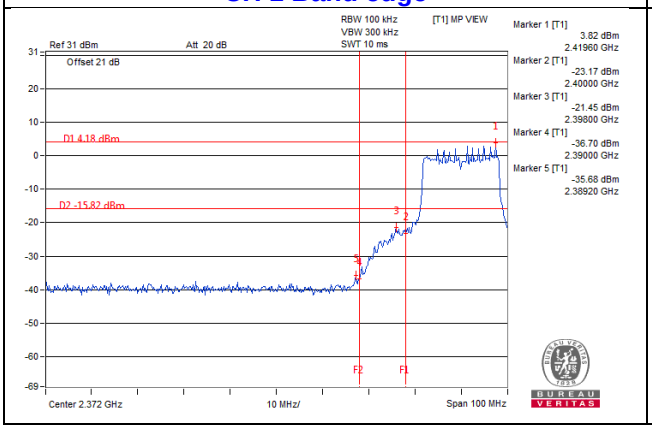


CH 11

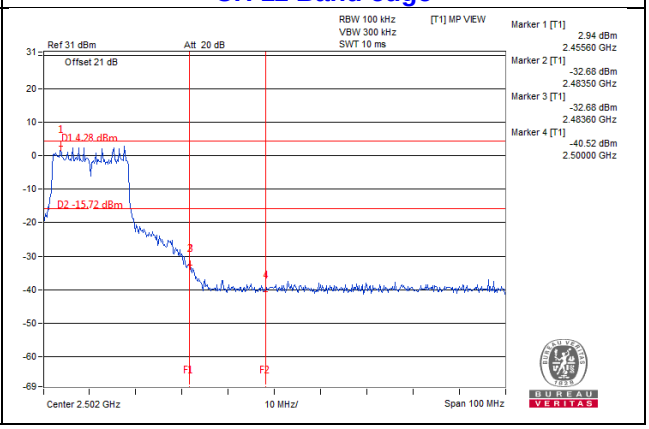




CH 1 Band edge

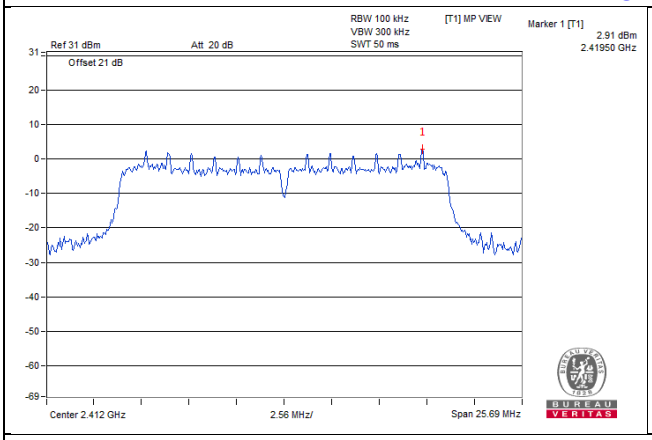


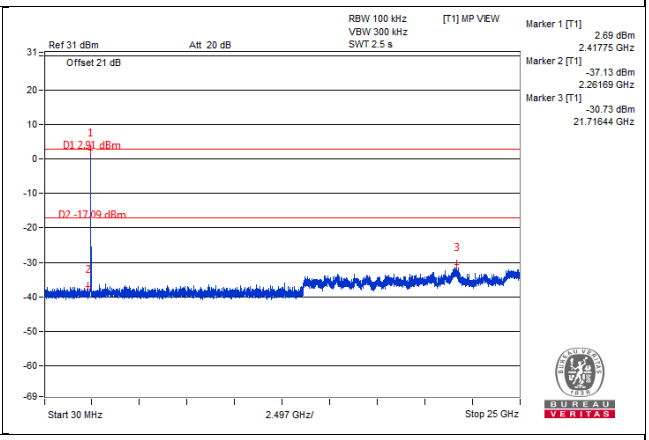
CH 11 Band edge



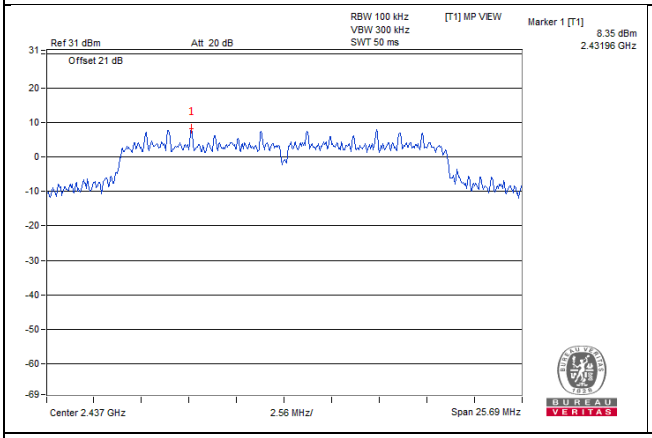
802.11n (HT20)

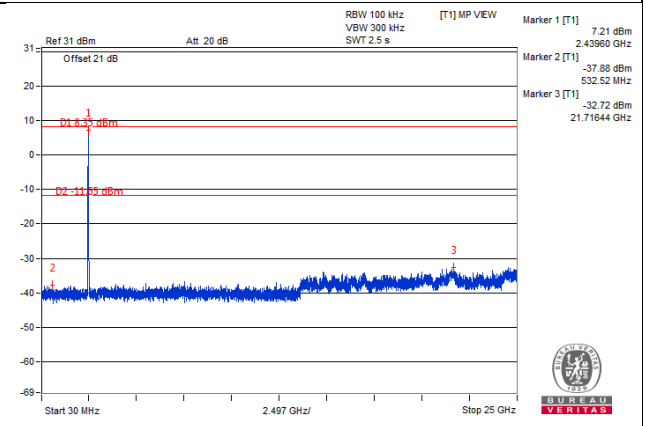
CH 1



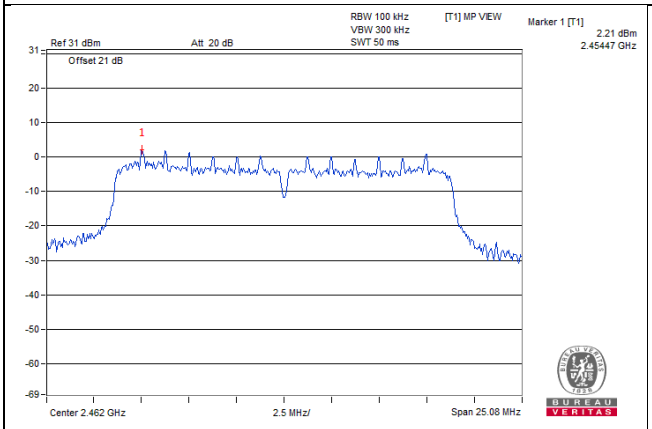


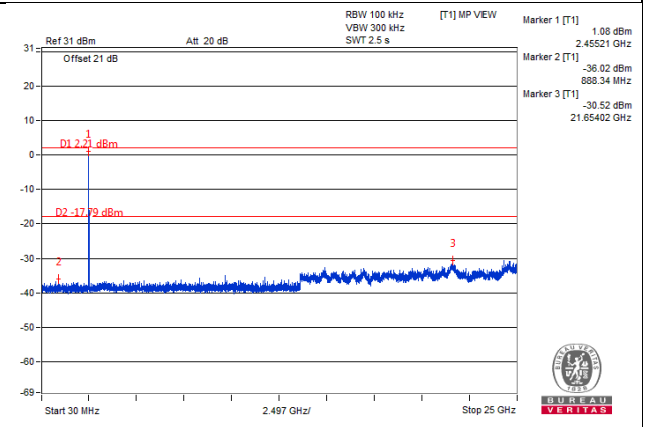
CH 6



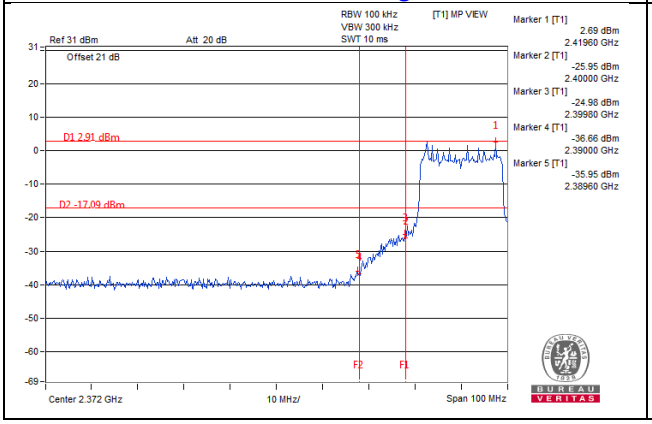


CH 11

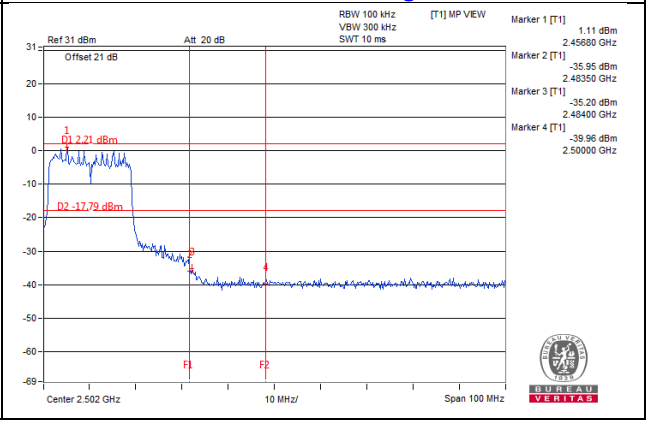




CH 1 Band edge

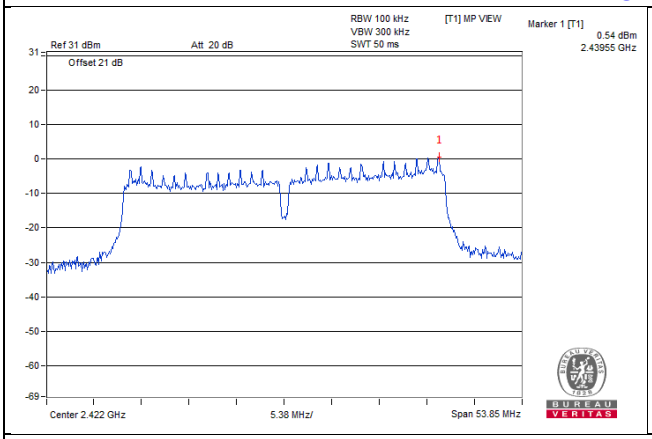


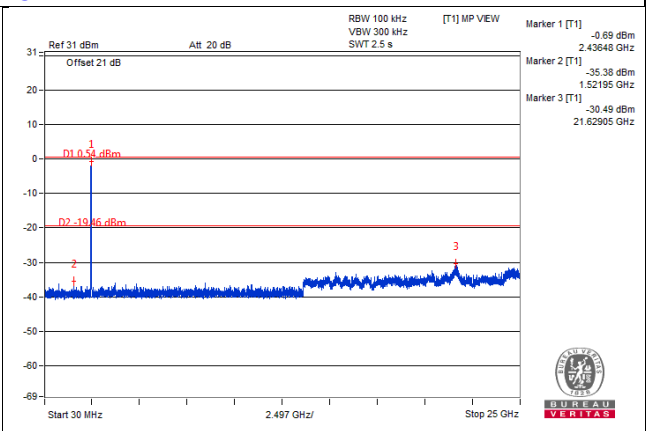
CH 11 Band edge



802.11n (HT40)

CH 3





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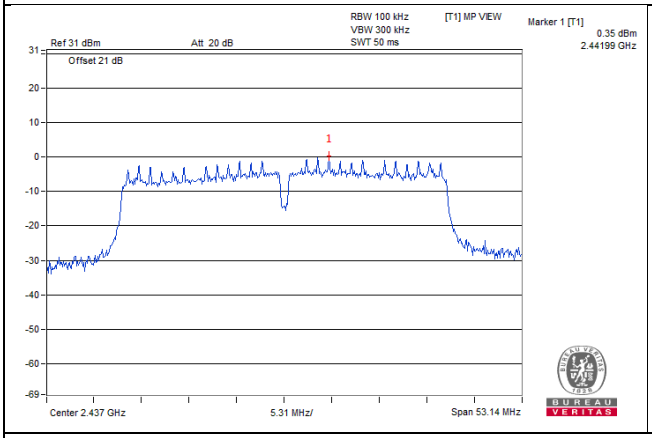
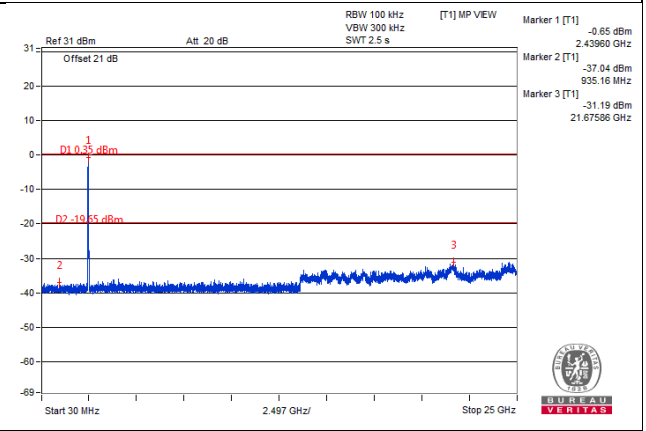
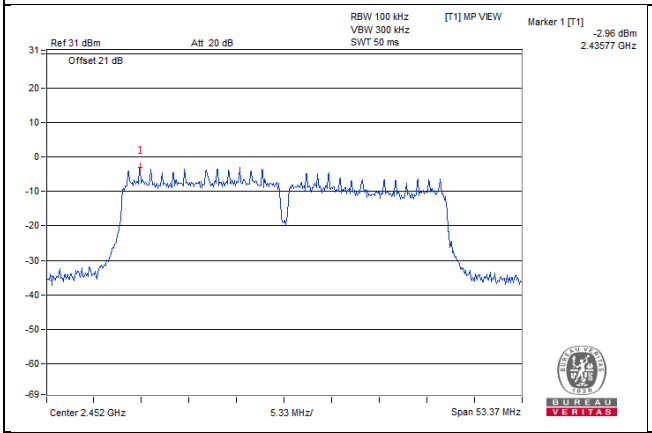
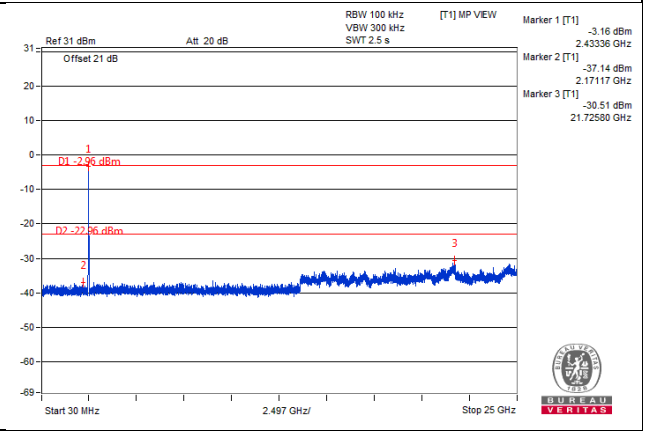


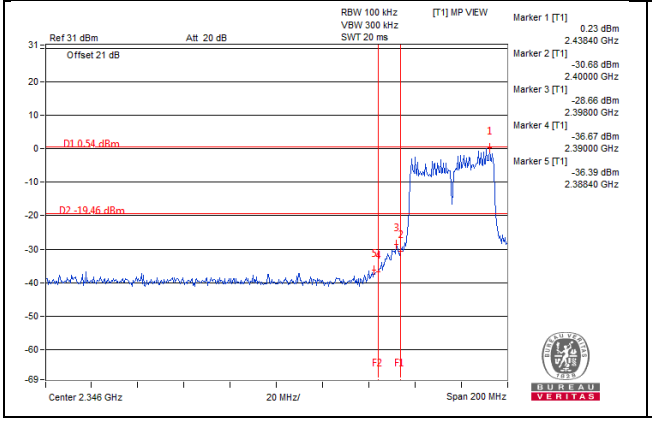


CH 9

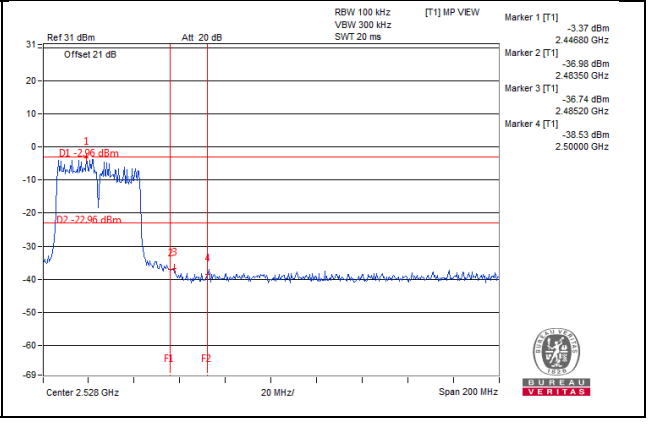




CH 3 Band edge



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.

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Web Site: www.bureauveritas-adt.com

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

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