

FCC Test Report (WLAN)

Report No.: RF180928E04

FCC ID: JNZNR0017

Test Model: N-R0017

Received Date: Sep. 28, 2018

Test Date: Oct. 06 to 20, 2018

Issued Date: Jan. 14, 2019

Applicant: LOGITECH FAR EAST LTD.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
RF180928E04	Original release.	Jan. 14, 2019

1 Certificate of Conformity

Product: Universal hub

Brand: Logitech

Test Model: N-R0017

Sample Status: ENGINEERING SAMPLE

Applicant: LOGITECH FAR EAST LTD.

Test Date: Oct. 06 to 20, 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 : Phoenix Huang , **Date:** Jan. 14, 2019
Phoenix Huang / Specialist

Approved by : May Chen , **Date:** Jan. 14, 2019
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 -4.61dB at 0.56797MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -3.1dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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) (\pm)
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 (WLAN)

Product	Universal hub
PMN	Harmony Express
Brand	Logitech
Test Model	N-R0017
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	5Vdc from power adapter
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 802.11a/g: up to 54Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps
Operating Frequency	2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5 ~ 5.7GHz, 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): 24 802.11n (HT40), 802.11ac (VHT40): 11 802.11ac (VHT80): 5
Output Power	2.412 ~ 2.462GHz: 242.103mW 5.18 ~ 5.24GHz: 30.409mW 5.26 ~ 5.32GHz: 29.107mW 5.5 ~ 5.7GHz: 37.931mW 5.745 ~ 5.825GHz: 36.392mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1 IR x1
Data Cable Supplied	IR Cable x1 (Unshielded, 2m)

Note:

1. The EUT may have a lot of colors for marketing requirement.
2. Simultaneously transmission condition. (2.4G/5G WLAN can't transmission simultaneously)

Condition	Technology	
	1	WLAN(2.4GHz)
2	WLAN(5GHz)	Bluetooth

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

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

Brand	Model No.	Spec.
Blue Iron Holdings Limited	BI12T-050150-BdU	Input: 100-240Vac, 0.5A, 50/60Hz Output: 5Vdc, 1.5A DC output cable: Unshielded, 2m

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

Transmitter Circuit	Antenna Gain with cable loss (dBi)	Frequency range (GHz)	Antenna Type	Antenna Connector
Chain 0	3.5	2.4~2.4835	Monopole (PCB)	NA
	3.8	5.15~5.35		
	4	5.5~5.85		
Chain 1	2.9	2.4~2.4835	Monopole (PCB)	NA
	3	5.15~5.35		
	4.5	5.5~5.85		

Note: Max. gain was selected for the final test.

5. The EUT incorporates a SISO function:

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

Radiated Emission Test (Above 1GHz):

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

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

Radiated Emission Test (Below 1GHz):

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

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

Power Line Conducted Emission Test:

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

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

Antenna Port Conducted Measurement:

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

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

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	22deg. C, 65%RH	120Vac, 60Hz	Rey Chen
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Frank Chuang
PLC	24deg. C, 76%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

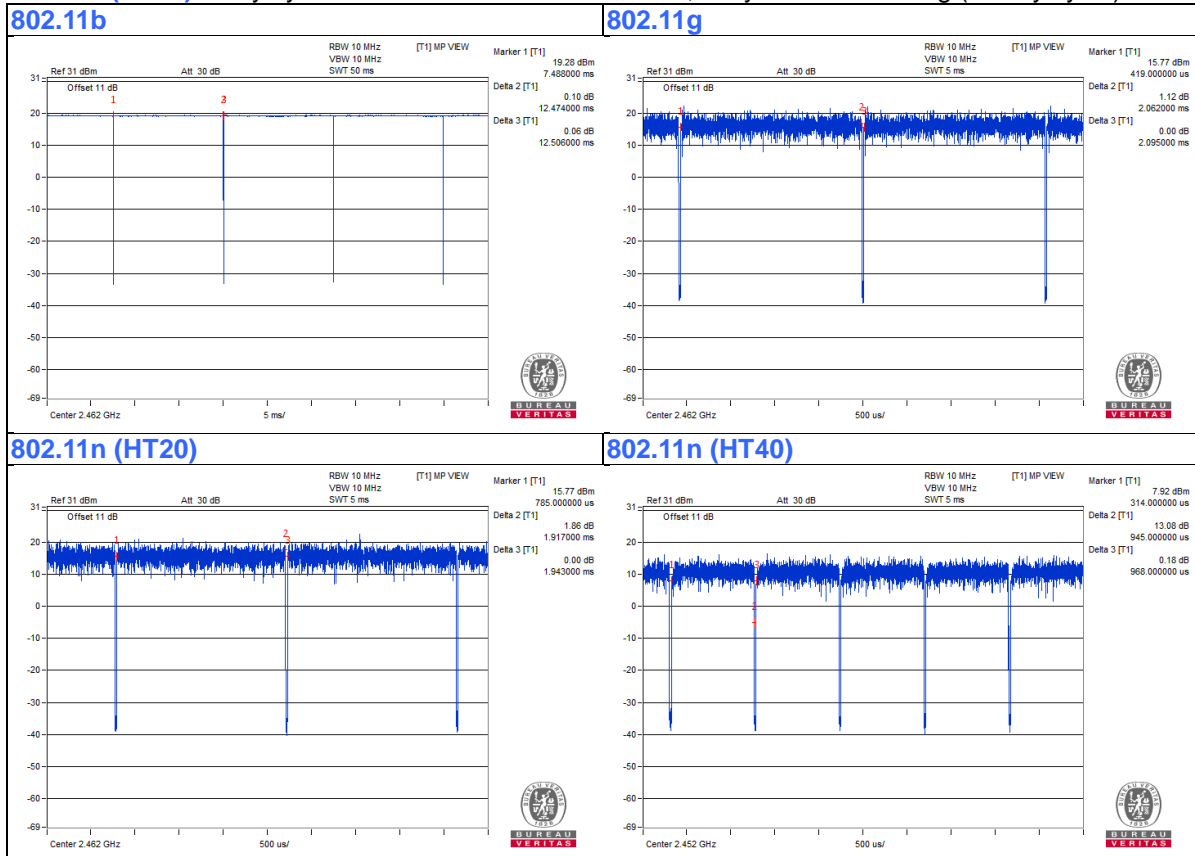
If duty cycle of test signal is $\geq 98\%$, duty factor is not required.
 If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11b: Duty cycle = 12.474 ms/12.506 ms = 0.997

802.11g: Duty cycle = 2.062 ms/2.095 ms = 0.984

802.11n (HT20): Duty cycle = 1.917 ms/1.943 ms = 0.987

802.11n (HT40): Duty cycle = 0.945 ms/0.968 ms = 0.976, Duty factor = $10 * \log(1/\text{Duty cycle}) = 0.1$

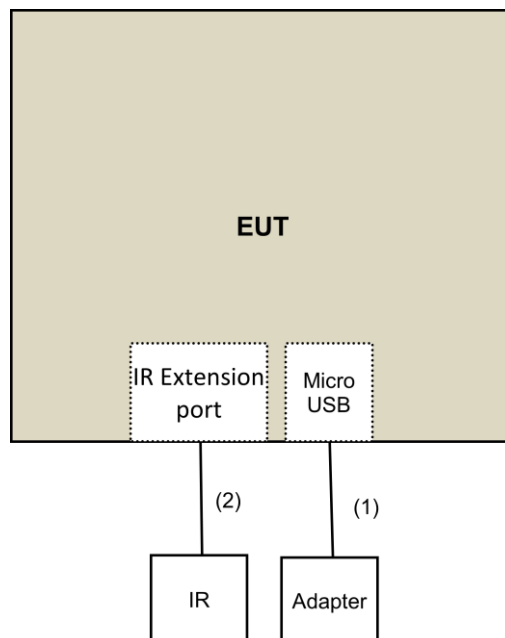


3.4 Description of Support Units

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	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	2	No	0	Supplied by client
2.	IR Cable	1	2	No	0	Supplied by client

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 15.247 Meas Guidance v05

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, 2018	July 11, 2019
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	Jan. 15, 2018	Jan. 14, 2019
RF Cable	NA	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	Mar. 20, 2018	Mar. 19, 2019
RF Cable	8D	966-3-2	Mar. 20, 2018	Mar. 19, 2019
RF Cable	8D	966-3-3	Mar. 20, 2018	Mar. 19, 2019
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 27, 2018	Sep. 26, 2019
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	160922	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-2000	150317	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-5000	150322	Jan. 29, 2018	Jan. 28, 2019
Spectrum Analyzer Keysight	N9030A	MY54490679	July 23, 2018	July 22, 2019
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
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Power meter Anritsu	ML2495A	1014008	May 09, 2018	May 08, 2019
Power sensor Anritsu	MA2411B	0917122	May 09, 2018	May 08, 2019

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: Oct. 15 to 20, 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:

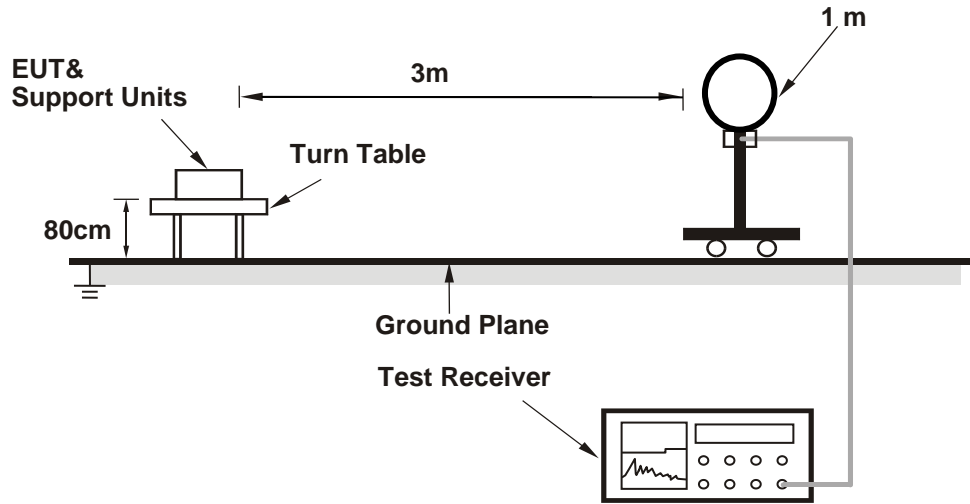
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

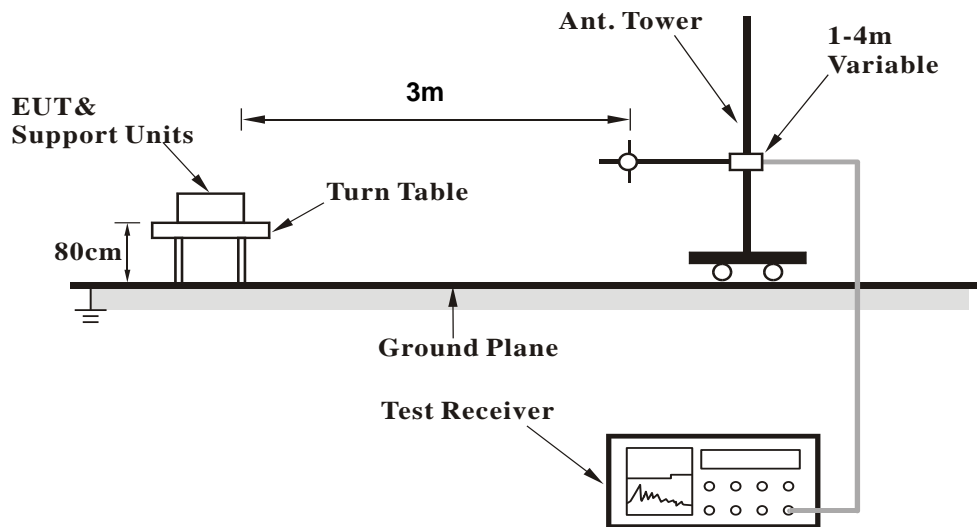
No deviation.

4.1.5 Test Setup

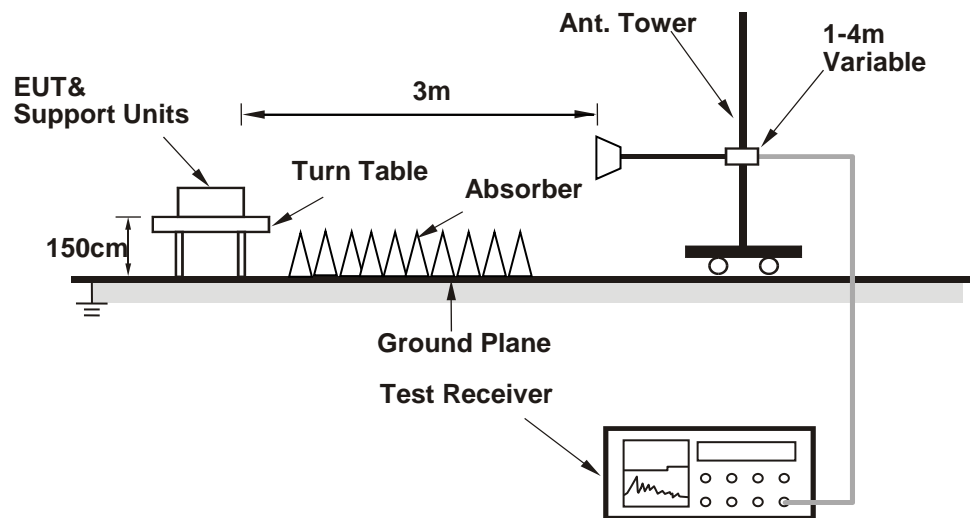
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Controlling software (Pavarotti_HUB_Eng_Tool_1.9.exe) has been activated to set the EUT under transmission/receiving condition continuously.

4.1.7 Test Results

Above 1GHz Data :

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.1 PK	74.0	-15.9	1.48 H	351	60.8	-2.7
2	2390.00	44.5 AV	54.0	-9.5	1.48 H	351	47.2	-2.7
3	*2412.00	104.9 PK			1.48 H	351	107.6	-2.7
4	*2412.00	102.5 AV			1.48 H	351	105.2	-2.7
5	4824.00	38.8 PK	74.0	-35.2	2.03 H	211	37.2	1.6
6	4824.00	28.8 AV	54.0	-25.2	2.03 H	211	27.2	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	57.1 PK	74.0	-16.9	3.83 V	354	59.8	-2.7
2	2390.00	44.4 AV	54.0	-9.6	3.83 V	354	47.1	-2.7
3	*2412.00	96.4 PK			3.83 V	354	99.1	-2.7
4	*2412.00	94.1 AV			3.83 V	354	96.8	-2.7
5	4824.00	37.8 PK	74.0	-36.2	1.99 V	266	36.2	1.6
6	4824.00	26.5 AV	54.0	-27.5	1.99 V	266	24.9	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 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	58.6 PK	74.0	-15.4	1.77 H	105	61.3	-2.7
2	2390.00	44.5 AV	54.0	-9.5	1.77 H	105	47.2	-2.7
3	*2437.00	104.9 PK			1.77 H	105	107.9	-3.0
4	*2437.00	102.5 AV			1.77 H	105	105.5	-3.0
5	2483.50	57.7 PK	74.0	-16.3	1.77 H	105	60.7	-3.0
6	2483.50	44.2 AV	54.0	-9.8	1.77 H	105	47.2	-3.0
7	4874.00	38.3 PK	74.0	-35.7	2.07 H	225	36.7	1.6
8	4874.00	28.6 AV	54.0	-25.4	2.07 H	225	27.0	1.6
9	7311.00	44.7 PK	74.0	-29.3	1.51 H	198	37.0	7.7
10	7311.00	33.6 AV	54.0	-20.4	1.51 H	198	25.9	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	58.6 PK	74.0	-15.4	3.86 V	339	61.3	-2.7
2	2390.00	44.4 AV	54.0	-9.6	3.86 V	339	47.1	-2.7
3	*2437.00	95.9 PK			3.86 V	339	98.9	-3.0
4	*2437.00	93.7 AV			3.86 V	339	96.7	-3.0
5	2483.50	57.6 PK	74.0	-16.4	3.86 V	339	60.6	-3.0
6	2483.50	44.1 AV	54.0	-9.9	3.86 V	339	47.1	-3.0
7	4874.00	37.4 PK	74.0	-36.6	1.98 V	274	35.8	1.6
8	4874.00	26.0 AV	54.0	-28.0	1.98 V	274	24.4	1.6
9	7311.00	44.3 PK	74.0	-29.7	1.39 V	337	36.6	7.7
10	7311.00	32.4 AV	54.0	-21.6	1.39 V	337	24.7	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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.8 PK			1.77 H	106	107.8	-3.0
2	*2462.00	102.5 AV			1.77 H	106	105.5	-3.0
3	2483.50	58.0 PK	74.0	-16.0	1.77 H	106	61.0	-3.0
4	2483.50	45.1 AV	54.0	-8.9	1.77 H	106	48.1	-3.0
5	4924.00	38.4 PK	74.0	-35.6	2.12 H	227	36.7	1.7
6	4924.00	28.8 AV	54.0	-25.2	2.12 H	227	27.1	1.7
7	7386.00	44.2 PK	74.0	-29.8	1.54 H	203	36.3	7.9
8	7386.00	33.2 AV	54.0	-20.8	1.54 H	203	25.3	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	95.9 PK			3.83 V	329	98.9	-3.0
2	*2462.00	93.7 AV			3.83 V	329	96.7	-3.0
3	2483.50	58.6 PK	74.0	-15.4	3.83 V	329	61.6	-3.0
4	2483.50	44.6 AV	54.0	-9.4	3.83 V	329	47.6	-3.0
5	4924.00	36.8 PK	74.0	-37.2	2.01 V	261	35.1	1.7
6	4924.00	25.6 AV	54.0	-28.4	2.01 V	261	23.9	1.7
7	7386.00	44.4 PK	74.0	-29.6	1.36 V	326	36.5	7.9
8	7386.00	32.8 AV	54.0	-21.2	1.36 V	326	24.9	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.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	1.47 H	349	68.8	-2.7
2	2390.00	50.9 AV	54.0	-3.1	1.47 H	349	53.6	-2.7
3	*2412.00	109.1 PK			1.47 H	349	111.8	-2.7
4	*2412.00	98.9 AV			1.47 H	349	101.6	-2.7
5	4824.00	38.4 PK	74.0	-35.6	2.08 H	224	36.8	1.6
6	4824.00	28.9 AV	54.0	-25.1	2.08 H	224	27.3	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	58.6 PK	74.0	-15.4	3.62 V	360	61.3	-2.7
2	2390.00	45.4 AV	54.0	-8.6	3.62 V	360	48.1	-2.7
3	*2412.00	108.6 PK			3.62 V	360	111.3	-2.7
4	*2412.00	88.7 AV			3.62 V	360	91.4	-2.7
5	4824.00	36.2 PK	74.0	-37.8	2.14 V	228	34.6	1.6
6	4824.00	26.6 AV	54.0	-27.4	2.14 V	228	25.0	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	58.9 PK	74.0	-15.1	2.85 H	108	61.6	-2.7
2	2390.00	45.7 AV	54.0	-8.3	2.85 H	108	48.4	-2.7
3	*2437.00	110.1 PK			2.85 H	108	113.1	-3.0
4	*2437.00	100.1 AV			2.85 H	108	103.1	-3.0
5	2483.50	58.5 PK	74.0	-15.5	2.85 H	108	61.5	-3.0
6	2483.50	45.8 AV	54.0	-8.2	2.85 H	108	48.8	-3.0
7	4874.00	38.2 PK	74.0	-35.8	2.13 H	219	36.6	1.6
8	4874.00	28.7 AV	54.0	-25.3	2.13 H	219	27.1	1.6
9	7311.00	43.3 PK	74.0	-30.7	1.53 H	207	35.6	7.7
10	7311.00	32.2 AV	54.0	-21.8	1.53 H	207	24.5	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	58.7 PK	74.0	-15.3	3.63 V	356	61.4	-2.7
2	2390.00	45.6 AV	54.0	-8.4	3.63 V	356	48.3	-2.7
3	*2437.00	101.3 PK			3.63 V	356	104.3	-3.0
4	*2437.00	91.3 AV			3.63 V	356	94.3	-3.0
5	2483.50	58.8 PK	74.0	-15.2	3.63 V	356	61.8	-3.0
6	2483.50	45.8 AV	54.0	-8.2	3.63 V	356	48.8	-3.0
7	4874.00	36.6 PK	74.0	-37.4	2.09 V	219	35.0	1.6
8	4874.00	26.8 AV	54.0	-27.2	2.09 V	219	25.2	1.6
9	7311.00	43.2 PK	74.0	-30.8	1.50 V	219	35.5	7.7
10	7311.00	32.0 AV	54.0	-22.0	1.50 V	219	24.3	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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.3 PK			2.68 H	107	112.3	-3.0
2	*2462.00	99.2 AV			2.68 H	107	102.2	-3.0
3	2483.50	66.9 PK	74.0	-7.1	2.68 H	107	69.9	-3.0
4	2483.50	50.8 AV	54.0	-3.2	2.68 H	107	53.8	-3.0
5	4924.00	38.4 PK	74.0	-35.6	2.11 H	203	36.7	1.7
6	4924.00	29.1 AV	54.0	-24.9	2.11 H	203	27.4	1.7
7	7386.00	43.6 PK	74.0	-30.4	1.49 H	197	35.7	7.9
8	7386.00	32.6 AV	54.0	-21.4	1.49 H	197	24.7	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	108.2 PK			3.64 V	344	111.2	-3.0
2	*2462.00	88.6 AV			3.64 V	344	91.6	-3.0
3	2483.50	59.0 PK	74.0	-15.0	3.64 V	344	62.0	-3.0
4	2483.50	45.8 AV	54.0	-8.2	3.64 V	344	48.8	-3.0
5	4924.00	36.9 PK	74.0	-37.1	2.09 V	212	35.2	1.7
6	4924.00	27.1 AV	54.0	-26.9	2.09 V	212	25.4	1.7
7	7386.00	43.3 PK	74.0	-30.7	1.56 V	220	35.4	7.9
8	7386.00	32.2 AV	54.0	-21.8	1.56 V	220	24.3	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)
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	70.3 PK	74.0	-3.7	2.62 H	104	73.0	-2.7
2	2390.00	50.2 AV	54.0	-3.8	2.62 H	104	52.9	-2.7
3	*2412.00	109.6 PK			2.62 H	104	112.3	-2.7
4	*2412.00	98.9 AV			2.62 H	104	101.6	-2.7
5	4824.00	37.7 PK	74.0	-36.3	1.74 H	111	36.1	1.6
6	4824.00	28.0 AV	54.0	-26.0	1.74 H	111	26.4	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	58.0 PK	74.0	-16.0	3.58 V	341	60.7	-2.7
2	2390.00	44.6 AV	54.0	-9.4	3.58 V	341	47.3	-2.7
3	*2412.00	101.1 PK			3.58 V	341	103.8	-2.7
4	*2412.00	90.7 AV			3.58 V	341	93.4	-2.7
5	4824.00	36.6 PK	74.0	-37.4	2.18 V	204	35.0	1.6
6	4824.00	26.5 AV	54.0	-27.5	2.18 V	204	24.9	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 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	58.0 PK	74.0	-16.0	2.52 H	104	60.7	-2.7
2	2390.00	44.5 AV	54.0	-9.5	2.52 H	104	47.2	-2.7
3	*2437.00	108.9 PK			2.52 H	104	111.9	-3.0
4	*2437.00	98.2 AV			2.52 H	104	101.2	-3.0
5	2483.50	57.3 PK	74.0	-16.7	2.52 H	104	60.3	-3.0
6	2483.50	44.4 AV	54.0	-9.6	2.52 H	104	47.4	-3.0
7	4874.00	38.0 PK	74.0	-36.0	2.16 H	214	36.4	1.6
8	4874.00	28.4 AV	54.0	-25.6	2.16 H	214	26.8	1.6
9	7311.00	43.0 PK	74.0	-31.0	1.48 H	219	35.3	7.7
10	7311.00	32.2 AV	54.0	-21.8	1.48 H	219	24.5	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	58.3 PK	74.0	-15.7	3.59 V	358	61.0	-2.7
2	2390.00	45.2 AV	54.0	-8.8	3.59 V	358	47.9	-2.7
3	*2437.00	100.4 PK			3.59 V	358	103.4	-3.0
4	*2437.00	90.3 AV			3.59 V	358	93.3	-3.0
5	2483.50	58.9 PK	74.0	-15.1	3.59 V	358	61.9	-3.0
6	2483.50	45.6 AV	54.0	-8.4	3.59 V	358	48.6	-3.0
7	4874.00	36.8 PK	74.0	-37.2	2.10 V	204	35.2	1.6
8	4874.00	27.0 AV	54.0	-27.0	2.10 V	204	25.4	1.6
9	7311.00	43.1 PK	74.0	-30.9	1.55 V	215	35.4	7.7
10	7311.00	31.8 AV	54.0	-22.2	1.55 V	215	24.1	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 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.1 PK			2.62 H	108	111.1	-3.0
2	*2462.00	98.1 AV			2.62 H	108	101.1	-3.0
3	2483.50	70.4 PK	74.0	-3.6	2.62 H	108	73.4	-3.0
4	2483.50	49.4 AV	54.0	-4.6	2.62 H	108	52.4	-3.0
5	4924.00	38.5 PK	74.0	-35.5	2.08 H	223	36.8	1.7
6	4924.00	29.1 AV	54.0	-24.9	2.08 H	223	27.4	1.7
7	7386.00	43.3 PK	74.0	-30.7	1.57 H	214	35.4	7.9
8	7386.00	32.0 AV	54.0	-22.0	1.57 H	214	24.1	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	100.7 PK			3.62 V	345	103.7	-3.0
2	*2462.00	90.6 AV			3.62 V	345	93.6	-3.0
3	2483.50	58.1 PK	74.0	-15.9	3.62 V	345	61.1	-3.0
4	2483.50	44.9 AV	54.0	-9.1	3.62 V	345	47.9	-3.0
5	4924.00	37.1 PK	74.0	-36.9	2.15 V	217	35.4	1.7
6	4924.00	27.0 AV	54.0	-27.0	2.15 V	217	25.3	1.7
7	7386.00	42.8 PK	74.0	-31.2	1.58 V	210	34.9	7.9
8	7386.00	31.7 AV	54.0	-22.3	1.58 V	210	23.8	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.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.8 PK	74.0	-12.2	2.79 H	108	64.5	-2.7
2	2390.00	50.8 AV	54.0	-3.2	2.79 H	108	53.5	-2.7
3	*2422.00	101.4 PK			2.79 H	108	104.3	-2.9
4	*2422.00	90.1 AV			2.79 H	108	93.0	-2.9
5	4844.00	38.0 PK	74.0	-36.0	1.77 H	99	36.4	1.6
6	4844.00	28.3 AV	54.0	-25.7	1.77 H	99	26.7	1.6
7	7266.00	43.3 PK	74.0	-30.7	1.68 H	305	35.5	7.8
8	7266.00	32.5 AV	54.0	-21.5	1.68 H	305	24.7	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	59.1 PK	74.0	-14.9	3.51 V	358	61.8	-2.7
2	2390.00	45.5 AV	54.0	-8.5	3.51 V	358	48.2	-2.7
3	*2422.00	94.2 PK			3.51 V	358	97.1	-2.9
4	*2422.00	83.3 AV			3.51 V	358	86.2	-2.9
5	4844.00	35.9 PK	74.0	-38.1	2.06 V	213	34.3	1.6
6	4844.00	26.5 AV	54.0	-27.5	2.06 V	213	24.9	1.6
7	7266.00	43.7 PK	74.0	-30.3	1.45 V	188	35.9	7.8
8	7266.00	32.7 AV	54.0	-21.3	1.45 V	188	24.9	7.8

REMARKS:

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

CHANNEL	TX Channel 4	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	2.74 H	92	69.1	-2.7
2	2390.00	50.7 AV	54.0	-3.3	2.74 H	92	53.4	-2.7
3	*2427.00	105.6 PK			2.74 H	92	108.5	-2.9
4	*2427.00	95.3 AV			2.74 H	92	98.2	-2.9
5	2483.50	55.3 PK	74.0	-18.7	2.74 H	92	58.3	-3.0
6	2483.50	43.4 AV	54.0	-10.6	2.74 H	92	46.4	-3.0
7	4854.00	37.7 PK	74.0	-36.3	1.76 H	88	36.1	1.6
8	4854.00	28.2 AV	54.0	-25.8	1.76 H	88	26.6	1.6
9	7281.00	44.0 PK	74.0	-30.0	1.67 H	307	36.1	7.9
10	7281.00	32.9 AV	54.0	-21.1	1.67 H	307	25.0	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	2390.00	58.8 PK	74.0	-15.2	3.54 V	349	61.5	-2.7
2	2390.00	45.5 AV	54.0	-8.5	3.54 V	349	48.2	-2.7
3	*2427.00	98.9 PK			3.54 V	349	101.8	-2.9
4	*2427.00	88.4 AV			3.54 V	349	91.3	-2.9
5	2483.50	58.9 PK	74.0	-15.1	3.54 V	349	61.9	-3.0
6	2483.50	45.4 AV	54.0	-8.6	3.54 V	349	48.4	-3.0
7	4854.00	36.3 PK	74.0	-37.7	2.05 V	204	34.7	1.6
8	4854.00	26.7 AV	54.0	-27.3	2.05 V	204	25.1	1.6
9	7281.00	42.7 PK	74.0	-31.3	1.49 V	201	34.8	7.9
10	7281.00	31.5 AV	54.0	-22.5	1.49 V	201	23.6	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.

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	66.0 PK	74.0	-8.0	2.83 H	106	68.7	-2.7
2	2390.00	50.8 AV	54.0	-3.2	2.83 H	106	53.5	-2.7
3	*2437.00	105.4 PK			2.83 H	106	108.4	-3.0
4	*2437.00	94.4 AV			2.83 H	106	97.4	-3.0
5	2483.50	64.7 PK	74.0	-9.3	2.83 H	106	67.7	-3.0
6	2483.50	48.1 AV	54.0	-5.9	2.83 H	106	51.1	-3.0
7	4874.00	38.5 PK	74.0	-35.5	1.76 H	103	36.9	1.6
8	4874.00	28.6 AV	54.0	-25.4	1.76 H	103	27.0	1.6
9	7311.00	43.5 PK	74.0	-30.5	1.63 H	318	35.8	7.7
10	7311.00	32.7 AV	54.0	-21.3	1.63 H	318	25.0	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	59.1 PK	74.0	-14.9	3.51 V	348	61.8	-2.7
2	2390.00	45.7 AV	54.0	-8.3	3.51 V	348	48.4	-2.7
3	*2437.00	99.2 PK			3.51 V	348	102.2	-3.0
4	*2437.00	87.5 AV			3.51 V	348	90.5	-3.0
5	2483.50	59.5 PK	74.0	-14.5	3.51 V	348	62.5	-3.0
6	2483.50	45.8 AV	54.0	-8.2	3.51 V	348	48.8	-3.0
7	4874.00	36.6 PK	74.0	-37.4	2.09 V	211	35.0	1.6
8	4874.00	26.9 AV	54.0	-27.1	2.09 V	211	25.3	1.6
9	7311.00	42.9 PK	74.0	-31.1	1.53 V	185	35.2	7.7
10	7311.00	31.7 AV	54.0	-22.3	1.53 V	185	24.0	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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	104.1 PK			2.71 H	109	107.1	-3.0
2	*2452.00	92.9 AV			2.71 H	109	95.9	-3.0
3	2483.50	68.8 PK	74.0	-5.2	2.71 H	109	71.8	-3.0
4	2483.50	50.8 AV	54.0	-3.2	2.71 H	109	53.8	-3.0
5	4904.00	37.9 PK	74.0	-36.1	1.76 H	105	36.2	1.7
6	4904.00	28.2 AV	54.0	-25.8	1.76 H	105	26.5	1.7
7	7356.00	43.4 PK	74.0	-30.6	1.70 H	295	35.5	7.9
8	7356.00	32.8 AV	54.0	-21.2	1.70 H	295	24.9	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	95.7 PK			3.56 V	343	98.7	-3.0
2	*2452.00	85.4 AV			3.56 V	343	88.4	-3.0
3	2483.50	58.8 PK	74.0	-15.2	3.56 V	343	61.8	-3.0
4	2483.50	45.4 AV	54.0	-8.6	3.56 V	343	48.4	-3.0
5	4904.00	36.2 PK	74.0	-37.8	2.06 V	209	34.5	1.7
6	4904.00	26.6 AV	54.0	-27.4	2.06 V	209	24.9	1.7
7	7356.00	43.2 PK	74.0	-30.8	1.48 V	181	35.3	7.9
8	7356.00	32.2 AV	54.0	-21.8	1.48 V	181	24.3	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:

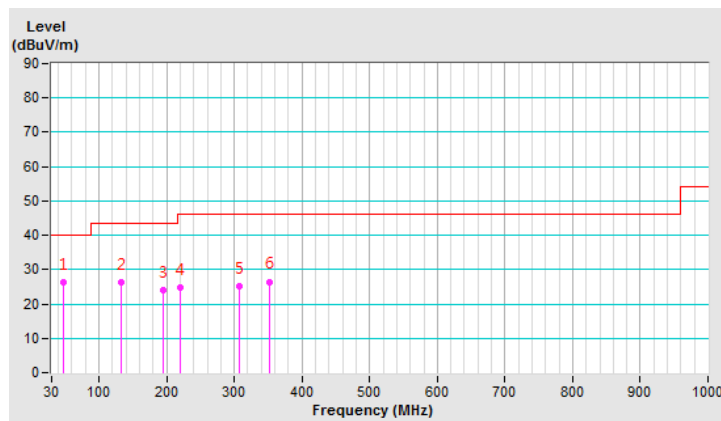
802.11g

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	48.19	26.3 QP	40.0	-13.7	1.50 H	132	34.3	-8.0
2	132.02	26.4 QP	43.5	-17.1	3.00 H	293	35.2	-8.8
3	194.95	23.8 QP	43.5	-19.7	2.00 H	1	34.5	-10.7
4	220.00	24.7 QP	46.0	-21.3	1.00 H	287	35.5	-10.8
5	308.00	25.0 QP	46.0	-21.0	1.50 H	321	31.6	-6.6
6	352.02	26.5 QP	46.0	-19.5	1.00 H	318	32.1	-5.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



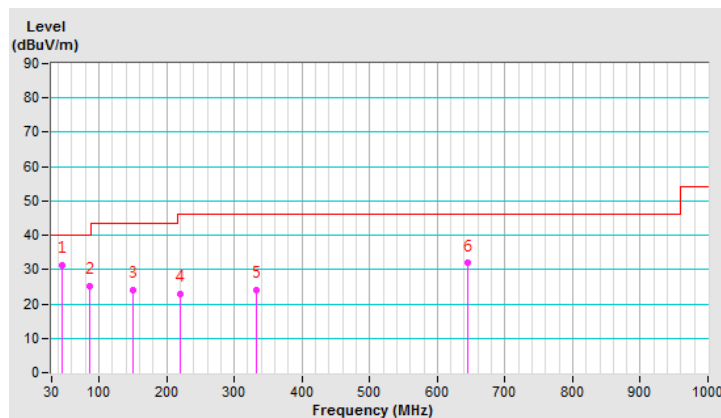
CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	44.65	31.4 QP	40.0	-8.6	1.00 V	313	39.5	-8.1
2	85.92	25.1 QP	40.0	-14.9	1.00 V	50	38.8	-13.7
3	151.01	23.9 QP	43.5	-19.6	1.00 V	360	31.4	-7.5
4	220.02	22.9 QP	46.0	-23.1	1.00 V	360	33.7	-10.8
5	332.76	24.1 QP	46.0	-21.9	2.00 V	349	29.9	-5.8
6	644.35	31.8 QP	46.0	-14.2	3.00 V	0	30.6	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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



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-04	Nov. 01, 2017	Oct. 31, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
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: Oct. 18, 2018

4.2.3 Test Procedures

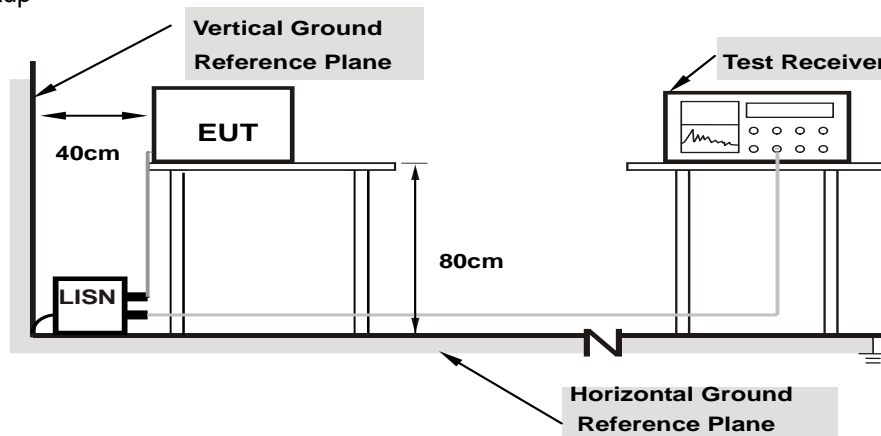
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

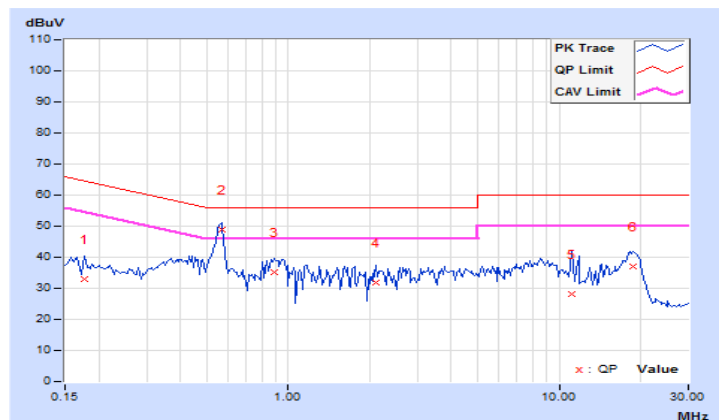
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	10.04	22.98	11.81	33.02	21.85	64.61	54.61	-31.59	-32.76
2	0.56797	10.09	38.83	31.30	48.92	41.39	56.00	46.00	-7.08	-4.61
3	0.88438	10.12	25.03	11.75	35.15	21.87	56.00	46.00	-20.85	-24.13
4	2.11719	10.20	21.70	13.75	31.90	23.95	56.00	46.00	-24.10	-22.05
5	11.13672	10.78	17.27	8.13	28.05	18.91	60.00	50.00	-31.95	-31.09
6	18.85547	11.28	25.78	15.28	37.06	26.56	60.00	50.00	-22.94	-23.44

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

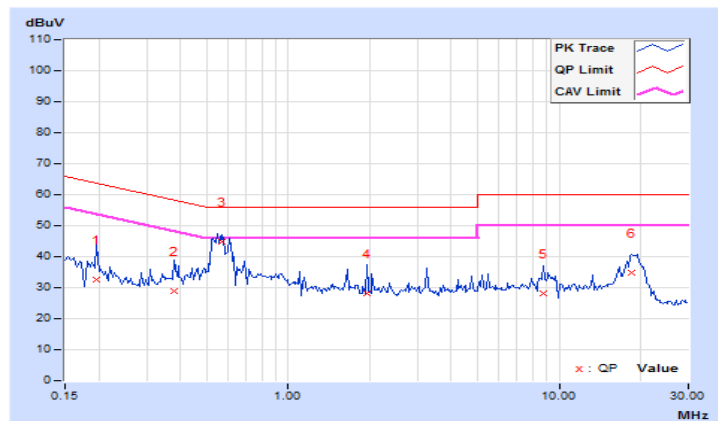


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	9.95	22.64	3.75	32.59	13.70	63.74	53.74	-31.15	-40.04
2	0.38047	9.98	19.05	15.34	29.03	25.32	58.27	48.27	-29.24	-22.95
3	0.56594	9.99	34.89	30.51	44.88	40.50	56.00	46.00	-11.12	-5.50
4	1.94531	10.07	18.23	10.32	28.30	20.39	56.00	46.00	-27.70	-25.61
5	8.72656	10.45	17.86	6.17	28.31	16.62	60.00	50.00	-31.69	-33.38
6	18.58594	11.05	23.65	7.14	34.70	18.19	60.00	50.00	-25.30	-31.81

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

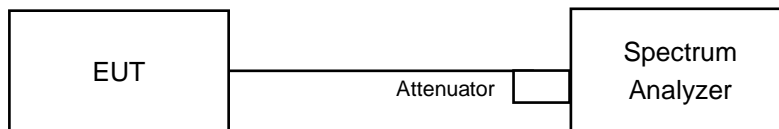


4.3 6dB Bandwidth Measurement

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) $\geq 3 \times$ RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.62	0.5	Pass
6	2437	9.07	0.5	Pass
11	2462	9.11	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.78	0.5	Pass
6	2437	16.36	0.5	Pass
11	2462	15.77	0.5	Pass

802.11n (HT20)

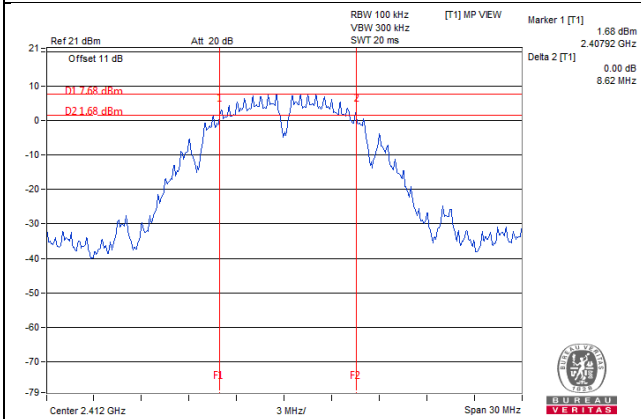
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.36	0.5	Pass
6	2437	17.23	0.5	Pass
11	2462	16.01	0.5	Pass

802.11n (HT40)

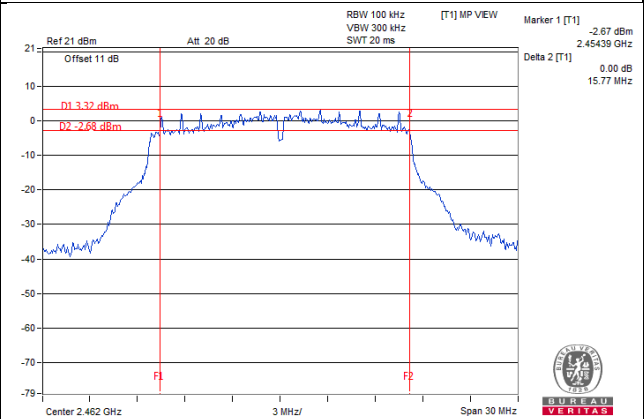
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.29	0.5	Pass
4	2427	35.59	0.5	Pass
6	2437	35.97	0.5	Pass
9	2452	35.84	0.5	Pass

Spectrum Plot of Worst Value

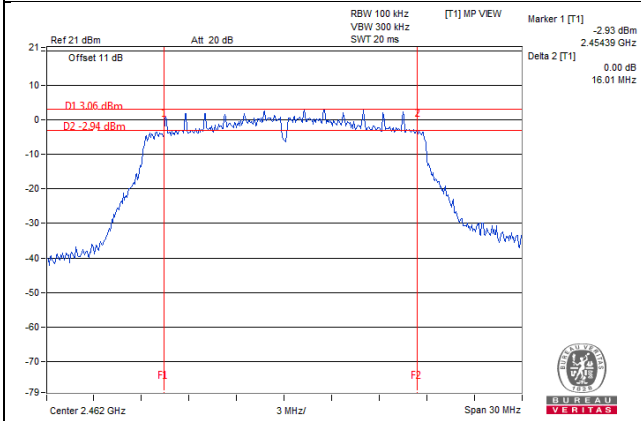
802.11b / CH1



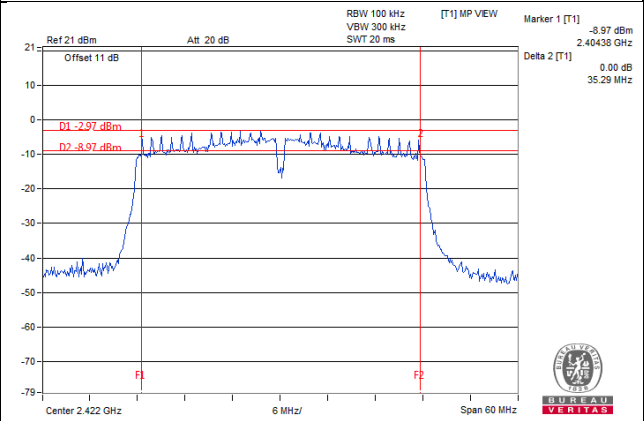
802.11g / CH11



802.11n (HT20) / CH11



802.11n (HT40) / CH3

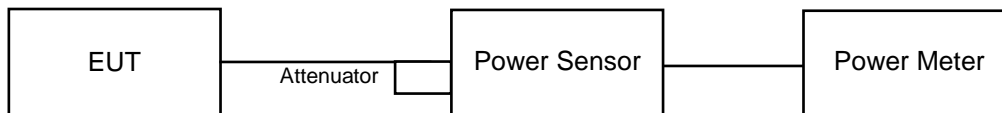


4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

A peak 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	78.343	18.94	30	Pass
6	2437	79.799	19.02	30	Pass
11	2462	82.985	19.19	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	207.014	23.16	30	Pass
6	2437	242.103	23.84	30	Pass
11	2462	207.491	23.17	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	199.986	23.01	30	Pass
6	2437	215.278	23.33	30	Pass
11	2462	206.538	23.15	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	79.068	18.98	30	Pass
4	2427	155.955	21.93	30	Pass
6	2437	176.198	22.46	30	Pass
9	2452	124.451	20.95	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	41.21	16.15
6	2437	42.658	16.30
11	2462	43.954	16.43

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	26.485	14.23
6	2437	41.976	16.23
11	2462	28.119	14.49

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	24.889	13.96
6	2437	26.182	14.18
11	2462	26.062	14.16

802.11n (HT40)

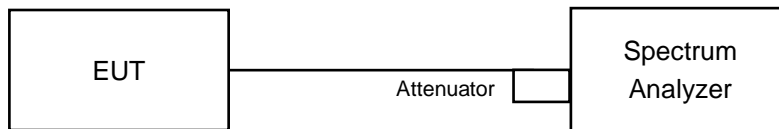
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	11.376	10.56
4	2427	22.336	13.49
6	2437	26.424	14.22
9	2452	17.179	12.35

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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d. Set the VBW $\geq 3 \times \text{RBW}$.
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-5.83	8	Pass
6	2437	-6.74	8	Pass
11	2462	-6.10	8	Pass

802.11g

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-9.81	8	Pass
6	2437	-8.49	8	Pass
11	2462	-9.74	8	Pass

802.11n (HT20)

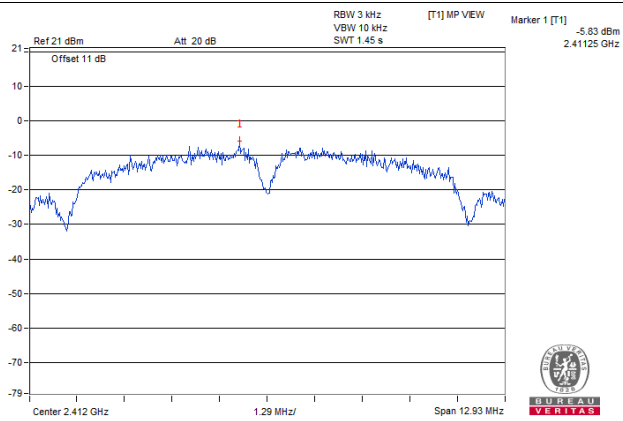
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-11.02	8	Pass
6	2437	-11.43	8	Pass
11	2462	-10.26	8	Pass

802.11n (HT40)

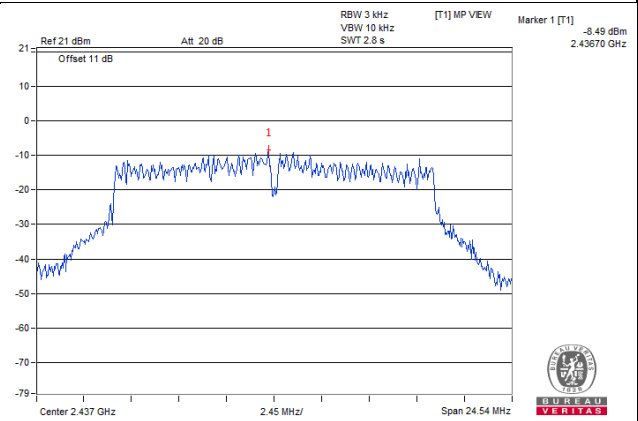
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-15.43	8	Pass
4	2427	-14.59	8	Pass
6	2437	-15.24	8	Pass
9	2452	-16.25	8	Pass

Spectrum Plot of Worst Value

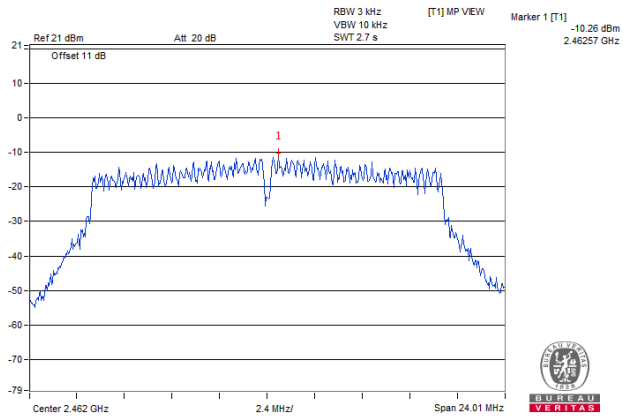
802.11b / CH1



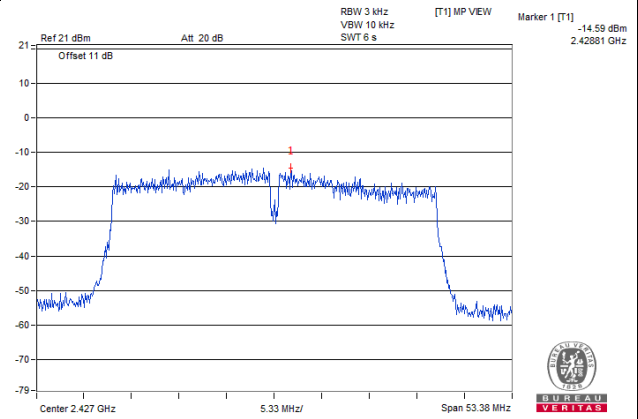
802.11g / CH6



802.11n (HT20) / CH11



802.11n (HT40) / CH4

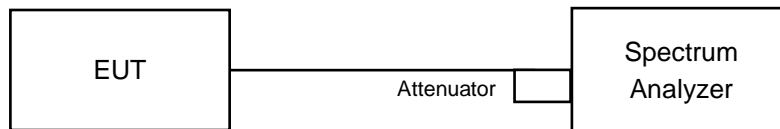


4.6 Conducted Out of Band Emission Measurement

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

MEASUREMENT PROCEDURE OOB

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

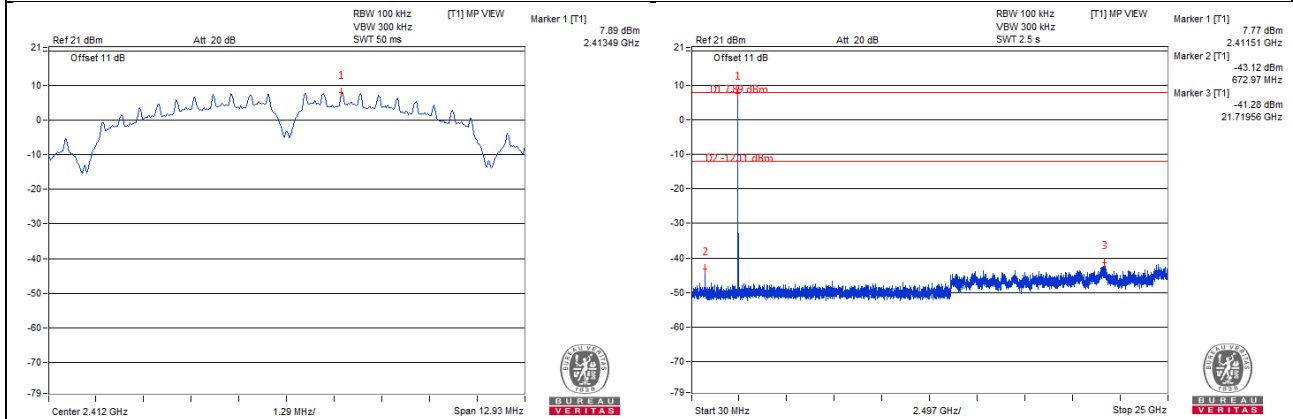
Same as Item 4.3.6

4.6.7 Test Results

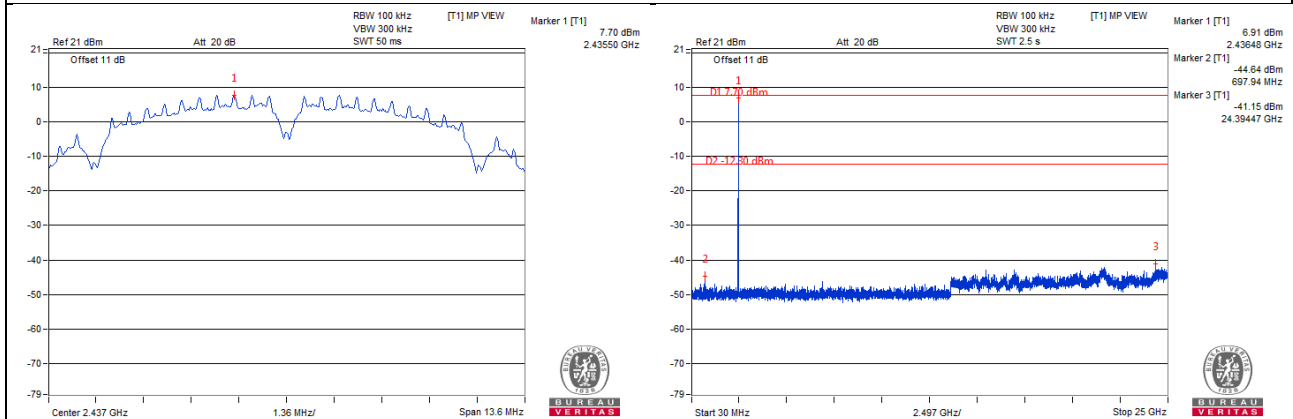
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b

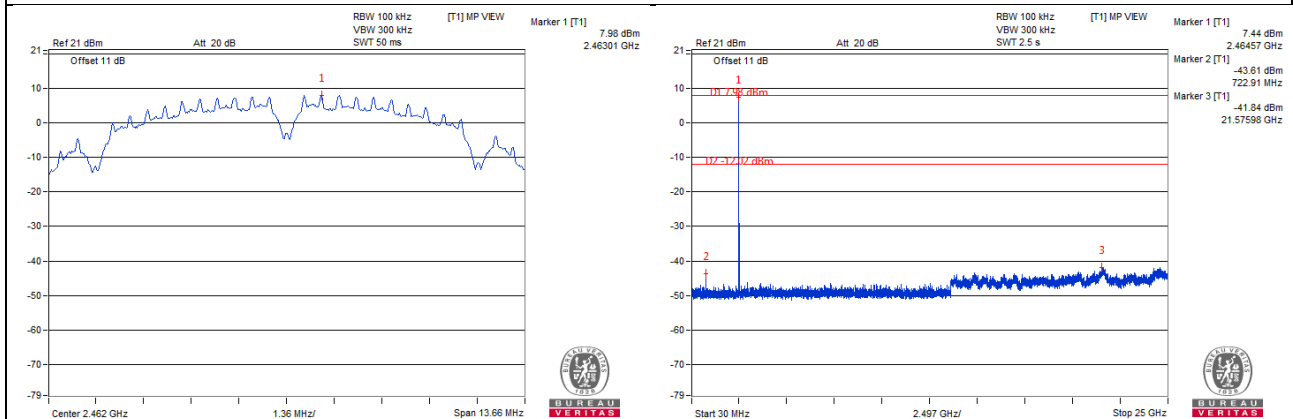
CH 1



CH 6

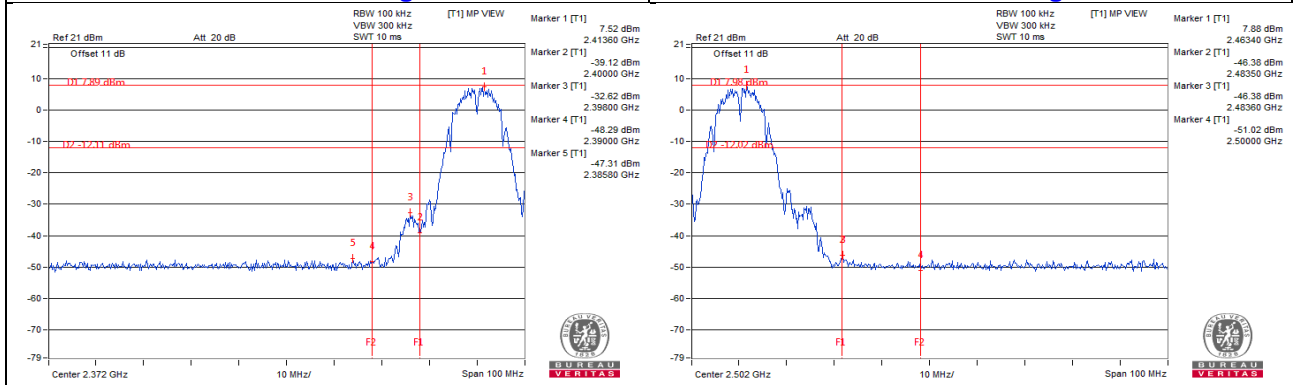


CH 11



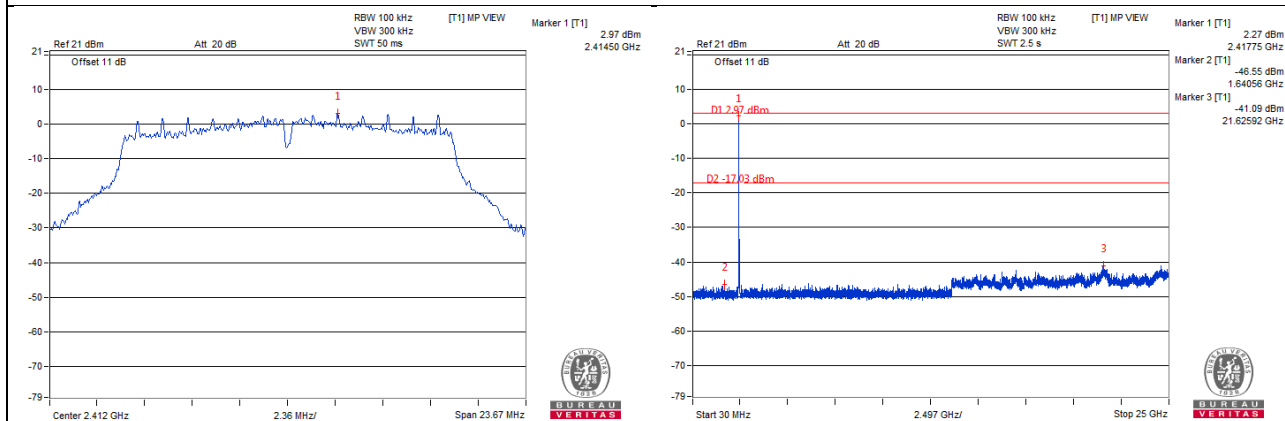
CH 1 Band edge

CH 11 Band edge

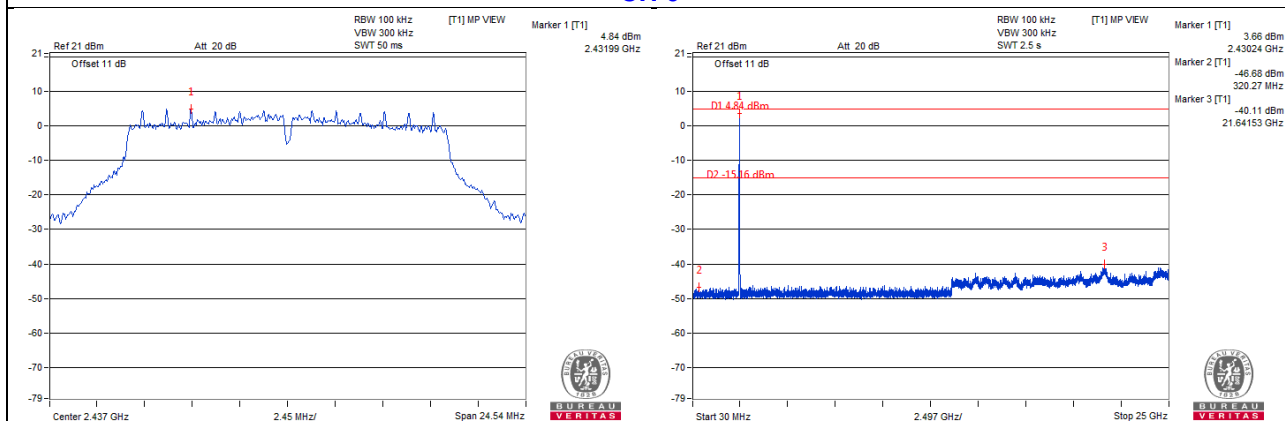


802.11g

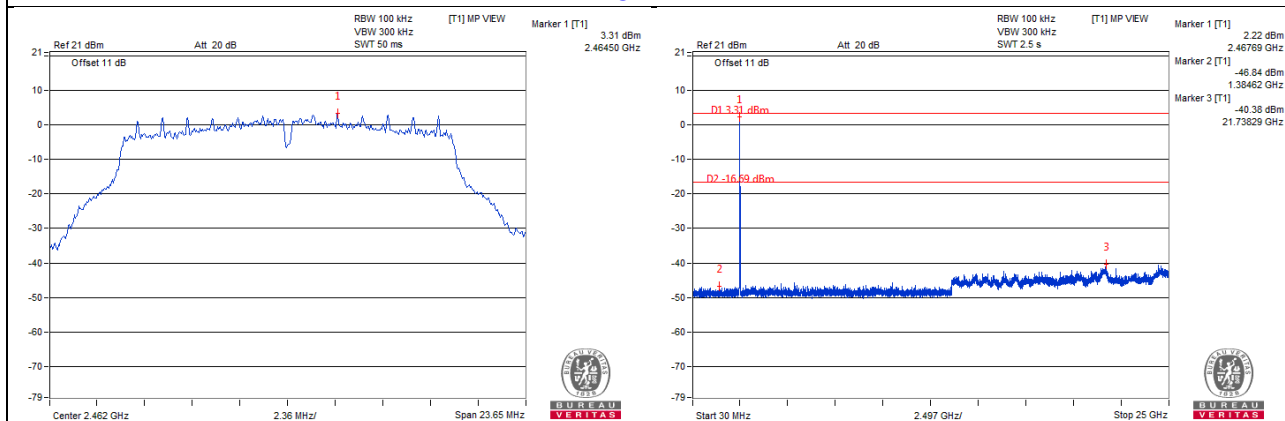
CH 1



CH 6

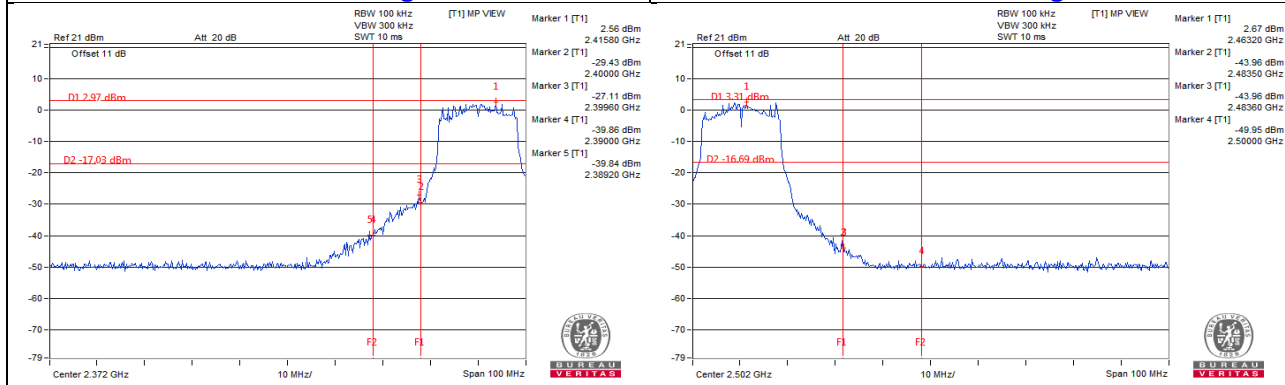


CH 11



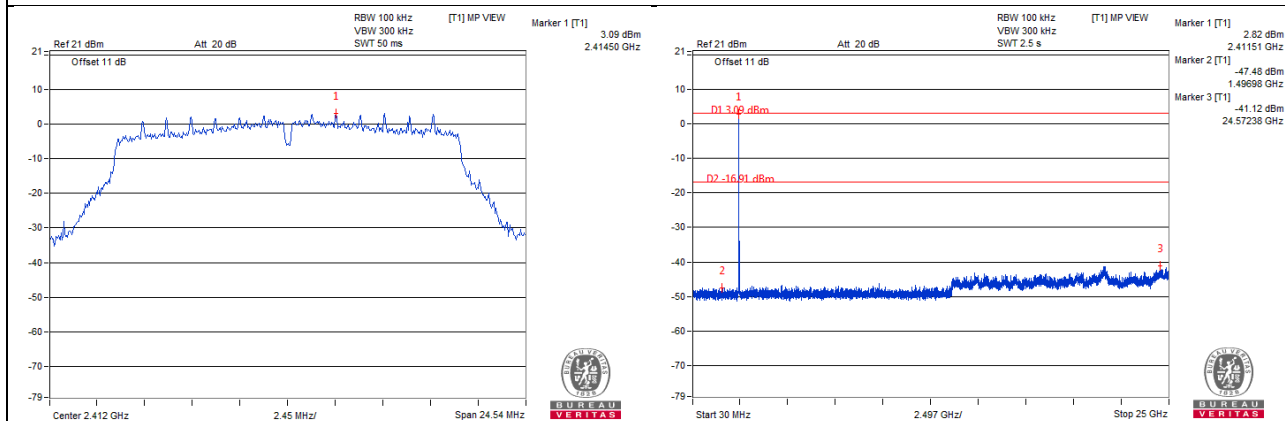
CH 1 Band edge

CH 11 Band edge

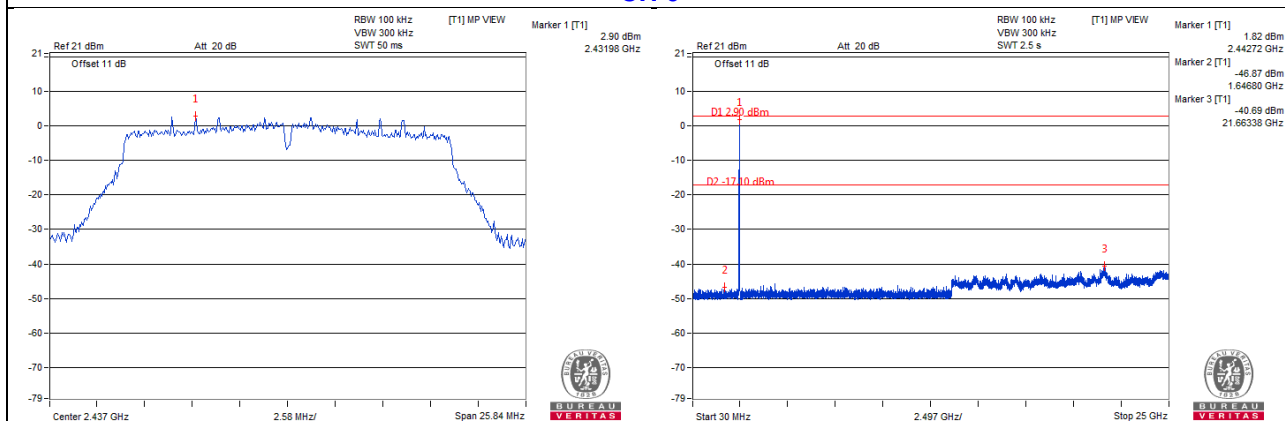


802.11n (HT20)

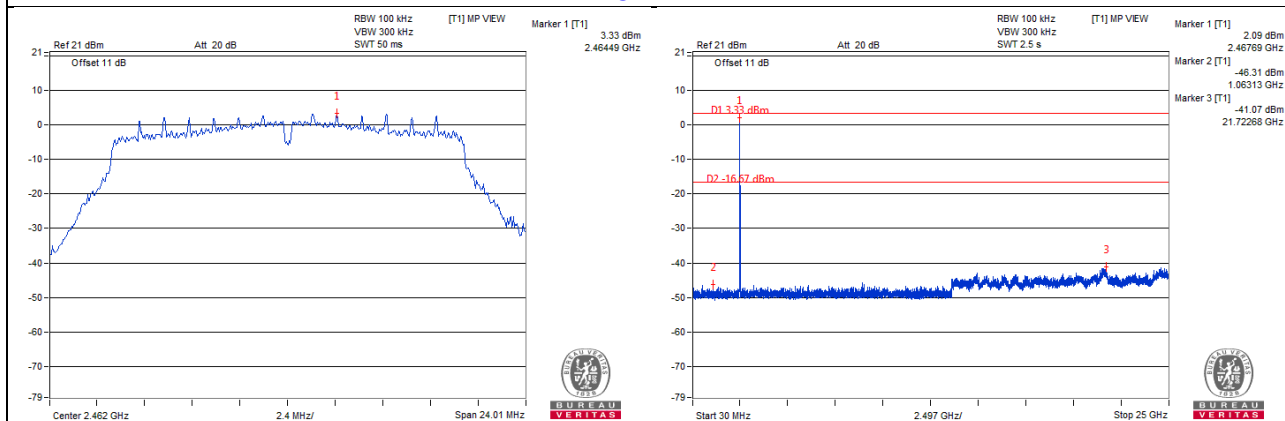
CH 1



CH 6

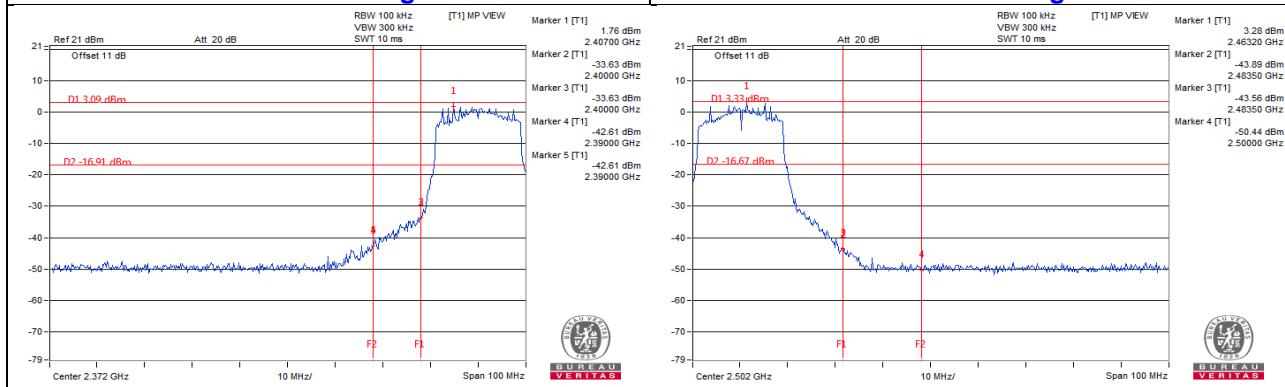


CH 11



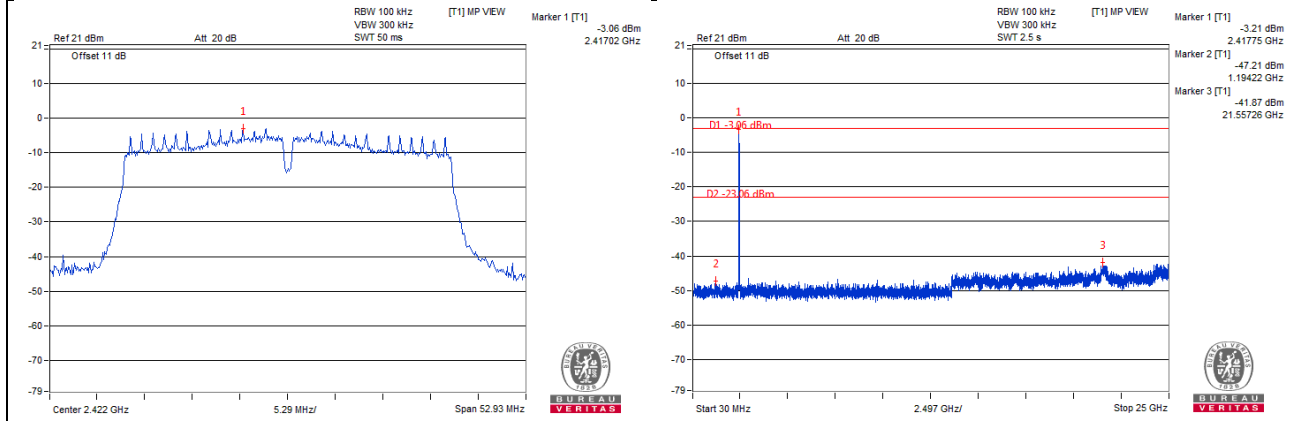
CH 1 Band edge

CH 11 Band edge

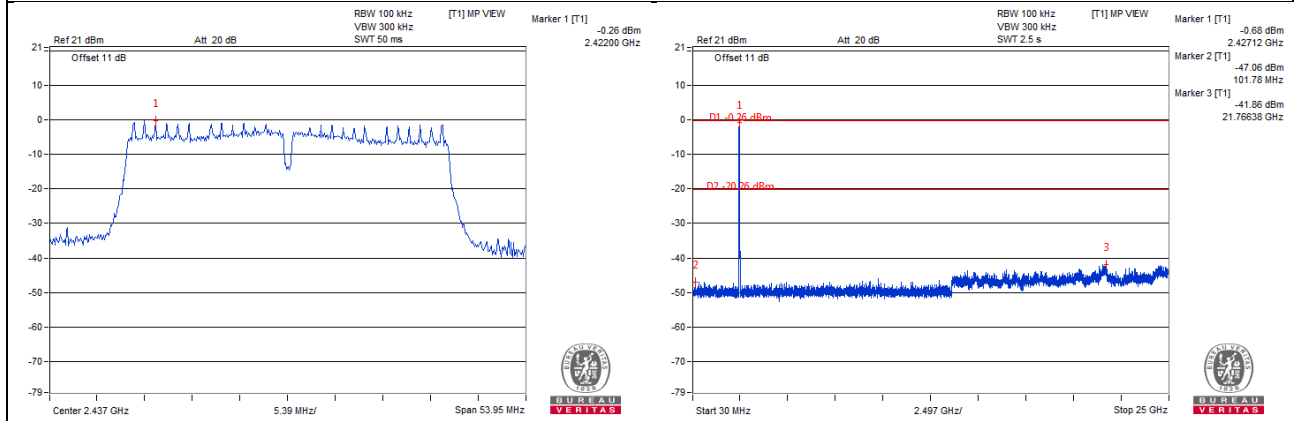


802.11n (HT40)

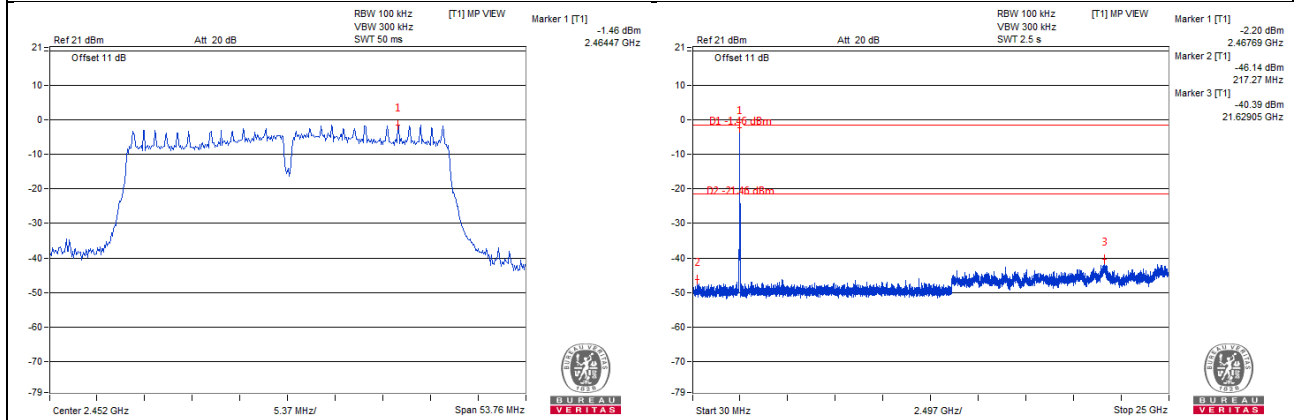
CH 3



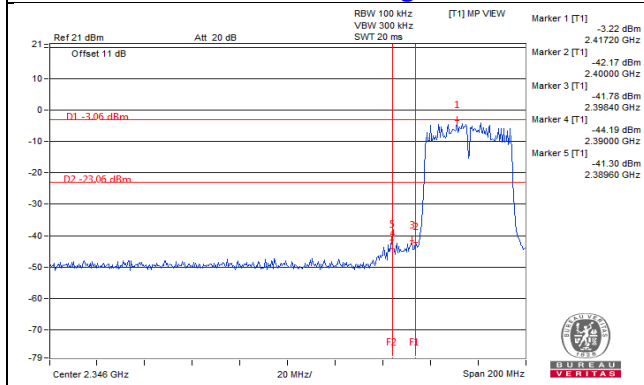
CH 6



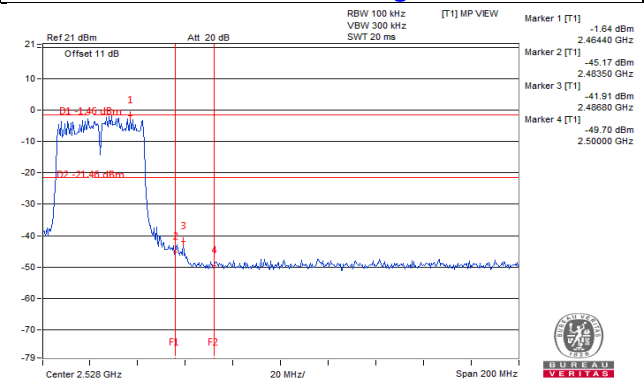
CH 9



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.

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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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