FCC Test Report (WLAN)

Report No.:	RF180830E03E
FCC ID:	2APLE18300398
Test Model:	VMB5000
Revision:	Rev 5
Received Date:	Apr. 29, 2019
Test Date:	May 06 to 15, 2019
Issued Date:	May 22, 2019
Applicant:	Arlo Technologies, Inc.
Address:	2200 Faraday Ave. Suite 150, Carlsbad, CA 92008, United States
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF180830E03E	Original release.	May 22, 2019

1 Certificate of Conformity

Product:	Alro Gen5 Entry Hub
Brand:	Arlo
Test Model:	VMB5000
Revision:	Rev 5
Sample Status:	Pre Production Unit
Applicant:	Arlo Technologies, Inc.
Test Date:	May 06 to 15, 2019
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:** May 22, 2019

Cindy Hsin / Specialist

Approved by : _____ , **Date:** May 22, 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 -13.21dB at 0.15000MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB 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	Antenna connector is i-pex not a standard connector.

Note:
Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	1.8 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.9 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	4.9 dB
	18GHz ~ 40GHz	5.2 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	Alro Gen5 Entry Hub
Brand	Arlo
Test Model	VMB5000
Revision	Rev 5
S/N	5GH2917EA29A4
Status of EUT	Pre Production Unit
Power Supply Rating	12Vdc 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 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.412 ~ 2.462GHz:** 966.14mW **5.18 ~ 5.24GHz:** 571.179mW **5.745 ~ 5.825GHz:** 490.624mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	NA

Note:

1. There are WLAN, Z-Wave, Zigbee and Sub-GHz technology used for the EUT. The EUT has below radios as following table:

Radio 1	Radio 2	Radio 3	Radio 4
WLAN (2.4GHz+5GHz band)	Z-Wave	Zigbee	Sub-GHz

2. Simultaneously transmission condition.

Condition	Technology				
1	WLAN 2.4GHz	WLAN 5GHz	Z-Wave	Zigbee	Sub-GHz
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 and following different models could be chosen as following table:

No.	Brand	Model No.	Spec.
1	Arlo	AD2076F10	Input: 100-120Vac, 0.56A, 50/60Hz Output: 12Vdc, 1.5A DC output cable (Unshielded, 1.8m)
2	Arlo	AD2067M20	Input: 100-240Vac, 1.0A, 50/60Hz Output: 12Vdc, 2.5A DC output cable (Unshielded, 1.8m)
3	Arlo	2ABB018F 1 NJ	Input: 100-120Vac, 0.6A, 50/60Hz Output: 12Vdc, 1.5A DC output cable (Unshielded, 1.8m)
4	Arlo	P030WM1251	Input: 100-240Vac, 1.0A, 50/60Hz Output: 12Vdc, 2.5A DC output cable (Unshielded, 1.8m)
Note: From the above models, the worst radiated emission and AC power conducted emission test was found in **Adapter 2**. Therefore only the test data of the modes were recorded in this report.			

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

Sub-GHz

Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (MHz)	Antenna type	Connector type
1	NA	902P00214N0	1.5	860~930	PIFA	NA

Z-Wave

Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (MHz)	Antenna type	Connector type
1	NA	902P00213N0	2.5	860~930	PIFA	NA

Zigbee

Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	INPAQ TECHNOLOGY CO., LTD.	ACA-5036-A2-CC-S	3.5	2.4~2.4835	CHIP	NA

WLAN

Ant No.	Brand	Model	Antenna Net Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type	Cable Length (mm)
1	NA	9 07X01052X0	2.5	2.4~2.4835	Dipole	i-pex	75
			1.8	5.15~5.25			
			2	5.25~5.35			
			2.2	5.47~5.725			
			1.6	5.725~5.85			
2	NA	9 07X00747X19	2.5	2.4~2.4835	Dipole	i-pex	90
			2.2	5.15~5.25			
			1.2	5.25~5.35			
			3.2	5.47~5.725			
			3.5	5.725~5.85			

5. The EUT incorporates a MIMO function.

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

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≥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

Radiated Emission Test (Above 1GHz):

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

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

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

Radiated Emission Test (Below 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	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, 6, 9	OFDM	BPSK	13.5

Test Condition:

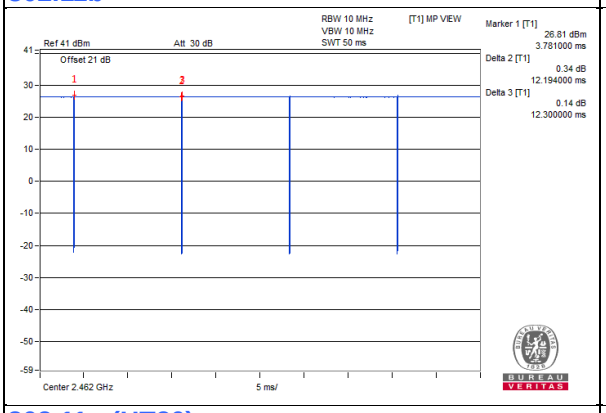
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Ryan Du
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
PLC	25deg. C, 68%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

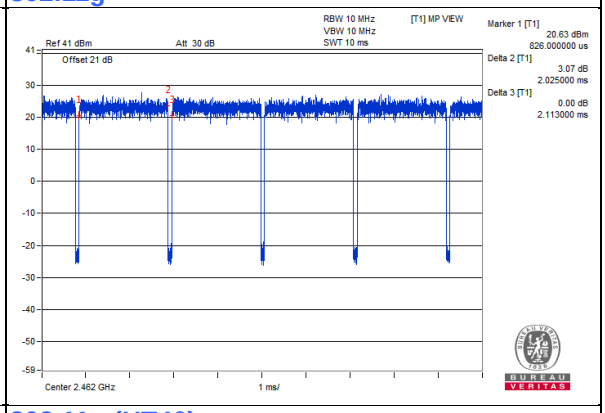
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.194 ms/12.3 ms = 0.991
802.11g: Duty cycle = 2.025 ms/2.113 ms = 0.958, Duty factor = 10 * log (1/Duty cycle) = 0.18
802.11n (HT20): Duty cycle = 4.958 ms/5.043 ms = 0.983
802.11n (HT40): Duty cycle = 2.406 ms/2.496 ms = 0.964, Duty factor = 10 * log (1/Duty cycle) = 0.16

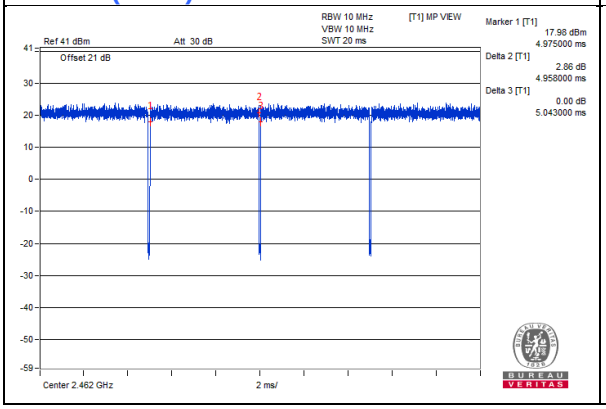
802.11b



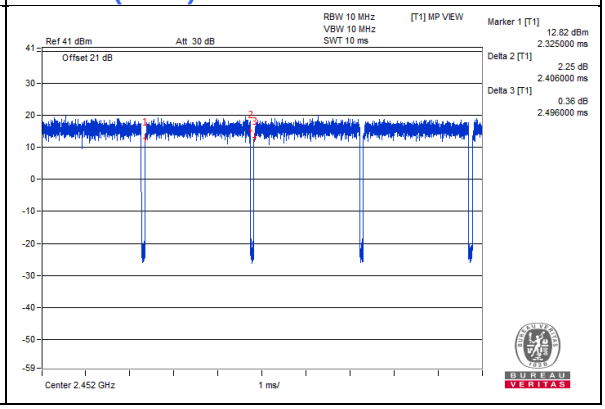
802.11g



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.

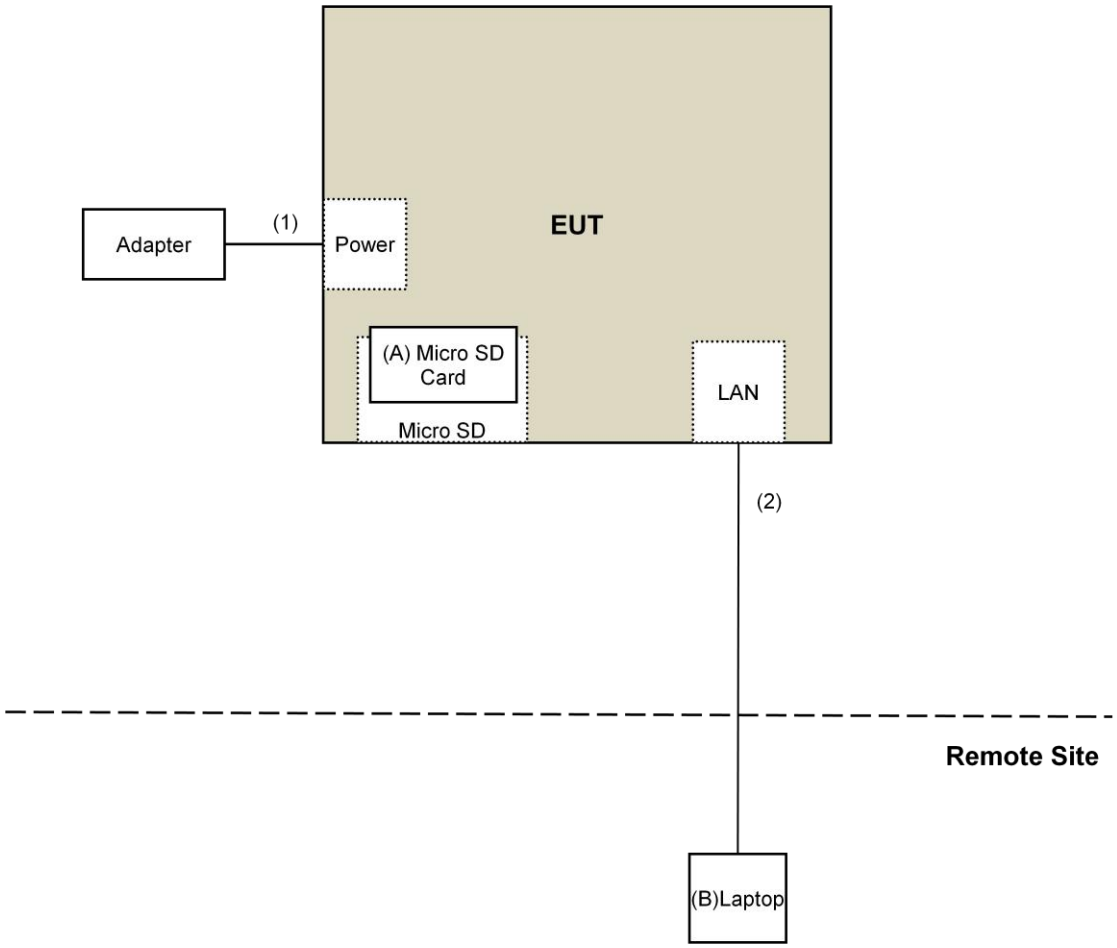
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	MicroSD Card	SanDisk	8GB	NA	NA	Provided by Lab
B.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

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	1.8	No	0	Supplied by client
2.	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 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01
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 30dB below the highest level of the desired power:

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

Note:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 05, 2018	July 04, 2019
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Oct. 30, 2018	Oct. 29, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 22, 2018	Nov. 21, 2019
RF Cable	8D	966-4-1	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-2	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-3	Mar. 19, 2019	Mar. 18, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Sep. 27, 2018	Sep. 26, 2019
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980385	Aug. 16, 2018	Aug. 15, 2019
RF Cable	EMC104-SM-SM-1200	160923	Jan. 28, 2019	Jan. 27, 2020
RF Cable	104 RF cable	131215	Jan. 10, 2019	Jan. 09, 2020
RF Cable	EMC104-SM-SM-6000	180418	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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 test was performed in 966 Chamber No. 4.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: May 06, 2019

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:

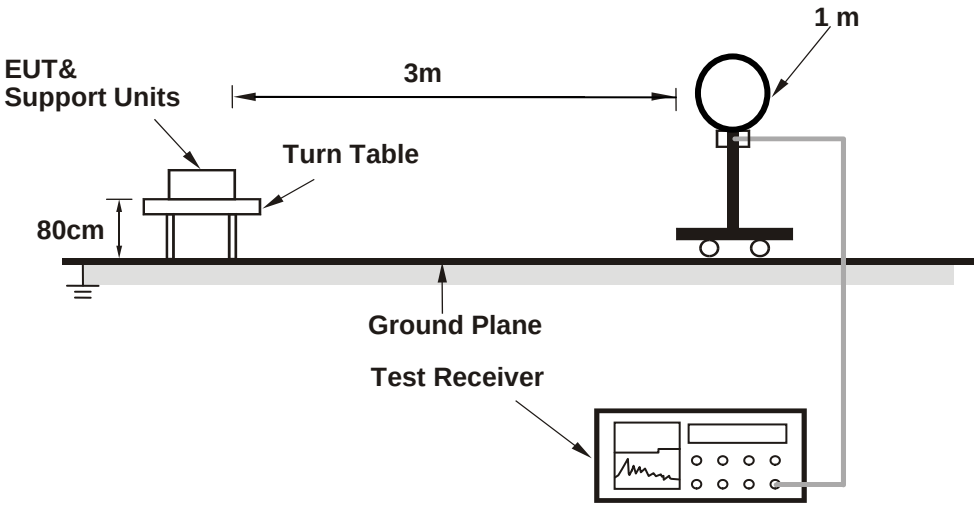
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

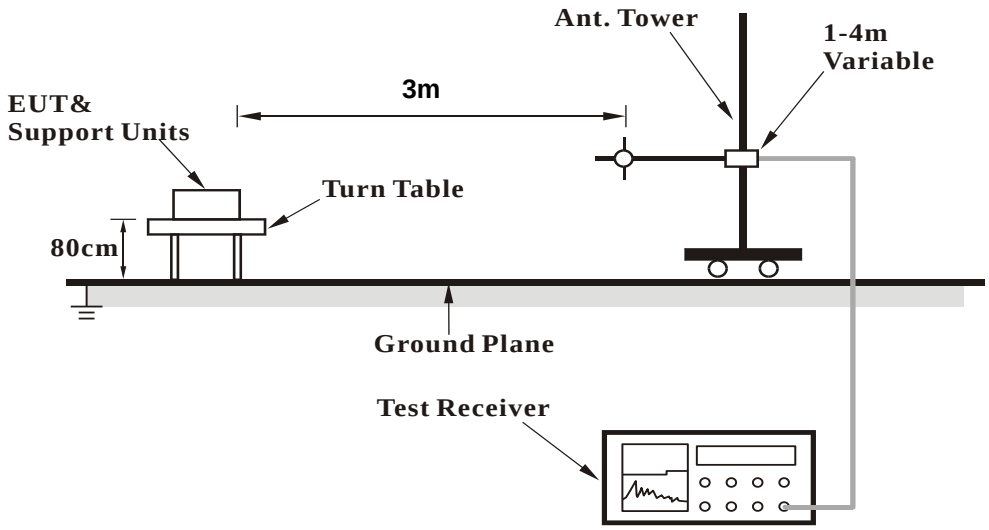
No deviation.

4.1.5 Test Setup

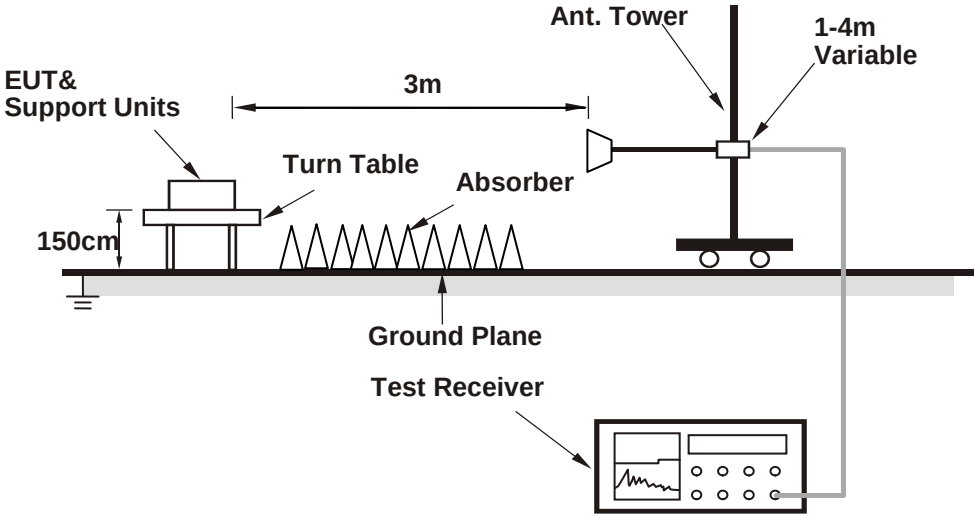
For Radiated emission below 30MHz



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 (QDART-Connectivity (1.0.40)) 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	65.3 PK	74.0	-8.7	1.25 H	183	67.5	-2.2
2	2390.00	48.7 AV	54.0	-5.3	1.25 H	183	50.9	-2.2
3	*2412.00	112.8 PK			1.25 H	183	115.1	-2.3
4	*2412.00	110.3 AV			1.25 H	183	112.6	-2.3
5	4824.00	48.4 PK	74.0	-25.6	1.01 H	149	46.7	1.7
6	4824.00	46.3 AV	54.0	-7.7	1.01 H	149	44.6	1.7
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	60.8 PK	74.0	-13.2	2.03 V	244	63.0	-2.2
2	2390.00	53.7 AV	54.0	-0.3	2.03 V	244	55.9	-2.2
3	*2412.00	121.0 PK			2.03 V	244	123.3	-2.3
4	*2412.00	118.7 AV			2.03 V	244	121.0	-2.3
5	4824.00	47.6 PK	74.0	-26.4	2.05 V	348	45.9	1.7
6	4824.00	45.0 AV	54.0	-9.0	2.05 V	348	43.3	1.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.7 PK			1.25 H	156	114.1	-2.4
2	*2437.00	110.4 AV			1.25 H	156	112.8	-2.4
3	4874.00	49.8 PK	74.0	-24.2	2.11 H	84	48.1	1.7
4	4874.00	48.4 AV	54.0	-5.6	2.11 H	84	46.7	1.7
5	7311.00	44.1 PK	74.0	-29.9	1.00 H	280	35.9	8.2
6	7311.00	34.3 AV	54.0	-19.7	1.00 H	280	26.1	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.1 PK			1.17 V	165	122.5	-2.4
2	*2437.00	118.0 AV			1.17 V	165	120.4	-2.4
3	4874.00	48.9 PK	74.0	-25.1	1.91 V	349	47.2	1.7
4	4874.00	47.1 AV	54.0	-6.9	1.91 V	349	45.4	1.7
5	7311.00	45.1 PK	74.0	-28.9	1.87 V	166	36.9	8.2
6	7311.00	37.5 AV	54.0	-16.5	1.87 V	166	29.3	8.2

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 other emission levels were very low against the limit.
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	111.4 PK			1.29 H	171	113.8	-2.4
2	*2462.00	108.0 AV			1.29 H	171	110.4	-2.4
3	2483.50	64.4 PK	74.0	-9.6	1.29 H	171	66.7	-2.3
4	2483.50	48.0 AV	54.0	-6.0	1.29 H	171	50.3	-2.3
5	4924.00	50.4 PK	74.0	-23.6	2.11 H	73	48.6	1.8
6	4924.00	48.8 AV	54.0	-5.2	2.11 H	73	47.0	1.8
7	7386.00	43.6 PK	74.0	-30.4	1.02 H	286	35.3	8.3
8	7386.00	33.9 AV	54.0	-20.1	1.02 H	286	25.6	8.3
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	118.9 PK			1.15 V	178	121.3	-2.4
2	*2462.00	116.4 AV			1.15 V	178	118.8	-2.4
3	2483.50	59.9 PK	74.0	-14.1	1.15 V	178	62.2	-2.3
4	2483.50	53.6 AV	54.0	-0.4	1.15 V	178	55.9	-2.3
5	4924.00	49.1 PK	74.0	-24.9	1.88 V	334	47.3	1.8
6	4924.00	47.2 AV	54.0	-6.8	1.88 V	334	45.4	1.8
7	7386.00	43.9 PK	74.0	-30.1	1.93 V	170	35.6	8.3
8	7386.00	32.9 AV	54.0	-21.1	1.93 V	170	24.6	8.3

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	1.26 H	159	68.3	-2.2
2	2390.00	50.2 AV	54.0	-3.8	1.26 H	159	52.4	-2.2
3	*2412.00	112.0 PK			1.26 H	159	114.3	-2.3
4	*2412.00	101.3 AV			1.26 H	159	103.6	-2.3
5	4824.00	51.0 PK	74.0	-23.0	2.12 H	84	49.3	1.7
6	4824.00	38.8 AV	54.0	-15.2	2.12 H	84	37.1	1.7
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	69.6 PK	74.0	-4.4	1.63 V	203	71.8	-2.2
2	**2390.00**	**53.8 AV**	**54.0**	**-0.2**	**1.63 V**	**203**	**56.0**	**-2.2**
3	*2412.00	120.0 PK			1.63 V	203	122.3	-2.3
4	*2412.00	108.9 AV			1.63 V	203	111.2	-2.3
5	4824.00	51.3 PK	74.0	-22.7	2.04 V	336	49.6	1.7
6	4824.00	38.9 AV	54.0	-15.1	2.04 V	336	37.2	1.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.2 PK	74.0	-15.8	1.20 H	172	60.4	-2.2
2	2390.00	43.5 AV	54.0	-10.5	1.20 H	172	45.7	-2.2
3	*2437.00	111.6 PK			1.20 H	172	114.0	-2.4
4	*2437.00	102.6 AV			1.20 H	172	105.0	-2.4
5	2483.50	56.0 PK	74.0	-18.0	1.20 H	172	58.3	-2.3
6	2483.50	42.2 AV	54.0	-11.8	1.20 H	172	44.5	-2.3
7	4874.00	51.2 PK	74.0	-22.8	2.16 H	69	49.5	1.7
8	4874.00	39.0 AV	54.0	-15.0	2.16 H	69	37.3	1.7
9	7311.00	44.0 PK	74.0	-30.0	1.07 H	300	35.8	8.2
10	7311.00	34.4 AV	54.0	-19.6	1.07 H	300	26.2	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.3 PK	74.0	-12.7	1.99 V	197	63.5	-2.2
2	2390.00	46.6 AV	54.0	-7.4	1.99 V	197	48.8	-2.2
3	*2437.00	119.9 PK			1.99 V	197	122.3	-2.4
4	*2437.00	110.7 AV			1.99 V	197	113.1	-2.4
5	2483.50	58.8 PK	74.0	-15.2	1.99 V	197	61.1	-2.3
6	2483.50	44.7 AV	54.0	-9.3	1.99 V	197	47.0	-2.3
7	4874.00	53.0 PK	74.0	-21.0	1.88 V	352	51.3	1.7
8	4874.00	41.5 AV	54.0	-12.5	1.88 V	352	39.8	1.7
9	7311.00	45.3 PK	74.0	-28.7	1.89 V	163	37.1	8.2
10	7311.00	37.4 AV	54.0	-16.6	1.89 V	163	29.2	8.2

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 other emission levels were very low against the limit.
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	109.4 PK			1.29 H	197	111.8	-2.4
2	*2462.00	99.1 AV			1.29 H	197	101.5	-2.4
3	2483.50	65.1 PK	74.0	-8.9	1.29 H	197	67.4	-2.3
4	2483.50	48.4 AV	54.0	-5.6	1.29 H	197	50.7	-2.3
5	4924.00	50.7 PK	74.0	-23.3	2.13 H	86	48.9	1.8
6	4924.00	38.6 AV	54.0	-15.4	2.13 H	86	36.8	1.8
7	7386.00	44.4 PK	74.0	-29.6	1.02 H	286	36.1	8.3
8	7386.00	34.5 AV	54.0	-19.5	1.02 H	286	26.2	8.3
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	116.9 PK			1.53 V	197	119.3	-2.4
2	*2462.00	107.1 AV			1.53 V	197	109.5	-2.4
3	2483.50	70.8 PK	74.0	-3.2	1.55 V	200	73.1	-2.3
4	2483.50	53.6 AV	54.0	-0.4	1.55 V	200	55.9	-2.3
5	4924.00	52.8 PK	74.0	-21.2	1.91 V	338	51.0	1.8
6	4924.00	41.1 AV	54.0	-12.9	1.91 V	338	39.3	1.8
7	7386.00	44.0 PK	74.0	-30.0	1.96 V	186	35.7	8.3
8	7386.00	32.8 AV	54.0	-21.2	1.96 V	186	24.5	8.3

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 other emission levels were very low against the limit.
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	66.4 PK	74.0	-7.6	1.28 H	147	68.6	-2.2
2	2390.00	50.5 AV	54.0	-3.5	1.28 H	147	52.7	-2.2
3	*2412.00	108.7 PK			1.28 H	147	111.0	-2.3
4	*2412.00	98.4 AV			1.28 H	147	100.7	-2.3
5	4824.00	50.8 PK	74.0	-23.2	2.17 H	77	49.1	1.7
6	4824.00	38.6 AV	54.0	-15.4	2.17 H	77	36.9	1.7
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	69.2 PK	74.0	-4.8	2.45 V	212	71.4	-2.2
2	**2390.00**	**53.8 AV**	**54.0**	**-0.2**	**2.45 V**	**212**	**56.0**	**-2.2**
3	*2412.00	116.9 PK			2.45 V	212	119.2	-2.3
4	*2412.00	105.7 AV			2.45 V	212	108.0	-2.3
5	4824.00	51.0 PK	74.0	-23.0	1.84 V	329	49.3	1.7
6	4824.00	38.7 AV	54.0	-15.3	1.84 V	329	37.0	1.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	58.4 PK	74.0	-15.6	1.33 H	133	60.6	-2.2
2	2390.00	43.7 AV	54.0	-10.3	1.33 H	133	45.9	-2.2
3	*2437.00	113.2 PK			1.33 H	133	115.6	-2.4
4	*2437.00	102.5 AV			1.33 H	133	104.9	-2.4
5	2483.50	55.7 PK	74.0	-18.3	1.33 H	133	58.0	-2.3
6	2483.50	41.7 AV	54.0	-12.3	1.33 H	133	44.0	-2.3
7	4874.00	51.0 PK	74.0	-23.0	2.20 H	81	49.3	1.7
8	4874.00	38.5 AV	54.0	-15.5	2.20 H	81	36.8	1.7
9	7311.00	43.7 PK	74.0	-30.3	1.10 H	310	35.5	8.2
10	7311.00	34.0 AV	54.0	-20.0	1.10 H	310	25.8	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.6 PK	74.0	-12.4	2.11 V	192	63.8	-2.2
2	2390.00	46.9 AV	54.0	-7.1	2.11 V	192	49.1	-2.2
3	*2437.00	121.6 PK			2.11 V	192	124.0	-2.4
4	*2437.00	110.8 AV			2.11 V	192	113.2	-2.4
5	2483.50	59.3 PK	74.0	-14.7	2.11 V	192	61.6	-2.3
6	2483.50	44.8 AV	54.0	-9.2	2.11 V	192	47.1	-2.3
7	4874.00	52.5 PK	74.0	-21.5	1.84 V	344	50.8	1.7
8	4874.00	40.7 AV	54.0	-13.3	1.84 V	344	39.0	1.7
9	7311.00	45.5 PK	74.0	-28.5	1.87 V	182	37.3	8.2
10	7311.00	37.7 AV	54.0	-16.3	1.87 V	182	29.5	8.2

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.3 PK			1.34 H	118	110.7	-2.4
2	*2462.00	97.2 AV			1.34 H	118	99.6	-2.4
3	2483.50	66.1 PK	74.0	-7.9	1.34 H	118	68.4	-2.3
4	2483.50	50.4 AV	54.0	-3.6	1.34 H	118	52.7	-2.3
5	4924.00	51.2 PK	74.0	-22.8	2.14 H	94	49.4	1.8
6	4924.00	38.6 AV	54.0	-15.4	2.14 H	94	36.8	1.8
7	7386.00	43.5 PK	74.0	-30.5	1.13 H	323	35.2	8.3
8	7386.00	33.8 AV	54.0	-20.2	1.13 H	323	25.5	8.3
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	115.7 PK			2.43 V	212	118.1	-2.4
2	*2462.00	104.8 AV			2.43 V	212	107.2	-2.4
3	2483.50	68.3 PK	74.0	-5.7	2.43 V	212	70.6	-2.3
4	2483.50	53.7 AV	54.0	-0.3	2.43 V	212	56.0	-2.3
5	4924.00	53.1 PK	74.0	-20.9	1.90 V	327	51.3	1.8
6	4924.00	41.2 AV	54.0	-12.8	1.90 V	327	39.4	1.8
7	7386.00	43.8 PK	74.0	-30.2	1.92 V	163	35.5	8.3
8	7386.00	32.6 AV	54.0	-21.4	1.92 V	163	24.3	8.3

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.3 PK	74.0	-7.7	1.24 H	160	68.5	-2.2
2	2390.00	50.4 AV	54.0	-3.6	1.24 H	160	52.6	-2.2
3	*2422.00	102.9 PK			1.24 H	160	105.2	-2.3
4	*2422.00	93.0 AV			1.24 H	160	95.3	-2.3
5	4844.00	50.7 PK	74.0	-23.3	2.14 H	67	49.1	1.6
6	4844.00	38.5 AV	54.0	-15.5	2.14 H	67	36.9	1.6
7	7266.00	43.5 PK	74.0	-30.5	1.13 H	288	35.3	8.2
8	7266.00	34.0 AV	54.0	-20.0	1.13 H	288	25.8	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.75 V	200	69.3	-2.2
2	2390.00	53.7 AV	54.0	-0.3	1.75 V	200	55.9	-2.2
3	*2422.00	109.9 PK			1.75 V	200	112.2	-2.3
4	*2422.00	100.1 AV			1.75 V	200	102.4	-2.3
5	4844.00	53.0 PK	74.0	-21.0	1.89 V	334	51.4	1.6
6	4844.00	41.1 AV	54.0	-12.9	1.89 V	334	39.5	1.6
7	7266.00	43.6 PK	74.0	-30.4	1.93 V	158	35.4	8.2
8	7266.00	32.6 AV	54.0	-21.4	1.93 V	158	24.4	8.2

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.6 PK	74.0	-7.4	1.33 H	106	68.8	-2.2
2	2390.00	50.6 AV	54.0	-3.4	1.33 H	106	52.8	-2.2
3	*2437.00	107.1 PK			1.33 H	106	109.5	-2.4
4	*2437.00	97.3 AV			1.33 H	106	99.7	-2.4
5	4874.00	50.9 PK	74.0	-23.1	2.12 H	84	49.2	1.7
6	4874.00	38.6 AV	54.0	-15.4	2.12 H	84	36.9	1.7
7	7311.00	43.6 PK	74.0	-30.4	1.12 H	314	35.4	8.2
8	7311.00	34.2 AV	54.0	-19.8	1.12 H	314	26.0	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.3 PK	74.0	-7.7	1.53 V	195	68.5	-2.2
2	2390.00	53.6 AV	54.0	-0.4	1.53 V	195	55.8	-2.2
3	*2437.00	115.1 PK			1.53 V	195	117.5	-2.4
4	*2437.00	105.3 AV			1.53 V	195	107.7	-2.4
5	4874.00	53.7 PK	74.0	-20.3	1.84 V	341	52.0	1.7
6	4874.00	41.5 AV	54.0	-12.5	1.84 V	341	39.8	1.7
7	7311.00	43.4 PK	74.0	-30.6	1.90 V	158	35.2	8.2
8	7311.00	32.5 AV	54.0	-21.5	1.90 V	158	24.3	8.2

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 other emission levels were very low against the limit.
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	102.1 PK			1.29 H	109	104.5	-2.4
2	*2452.00	92.3 AV			1.29 H	109	94.7	-2.4
3	2483.50	66.2 PK	74.0	-7.8	1.29 H	109	68.5	-2.3
4	2483.50	50.0 AV	54.0	-4.0	1.29 H	109	52.3	-2.3
5	4904.00	51.6 PK	74.0	-22.4	2.16 H	56	49.8	1.8
6	4904.00	39.1 AV	54.0	-14.9	2.16 H	56	37.3	1.8
7	7356.00	44.0 PK	74.0	-30.0	1.02 H	289	35.8	8.2
8	7356.00	34.2 AV	54.0	-19.8	1.02 H	289	26.0	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.9 PK			2.42 V	242	112.3	-2.4
2	*2452.00	99.9 AV			2.42 V	242	102.3	-2.4
3	2483.50	66.7 PK	74.0	-7.3	2.42 V	242	69.0	-2.3
4	2483.50	53.6 AV	54.0	-0.4	2.42 V	242	55.9	-2.3
5	4904.00	53.0 PK	74.0	-21.0	1.88 V	332	51.2	1.8
6	4904.00	41.0 AV	54.0	-13.0	1.88 V	332	39.2	1.8
7	7356.00	43.9 PK	74.0	-30.1	1.92 V	180	35.7	8.2
8	7356.00	33.1 AV	54.0	-20.9	1.92 V	180	24.9	8.2

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

Below 1GHz Data:

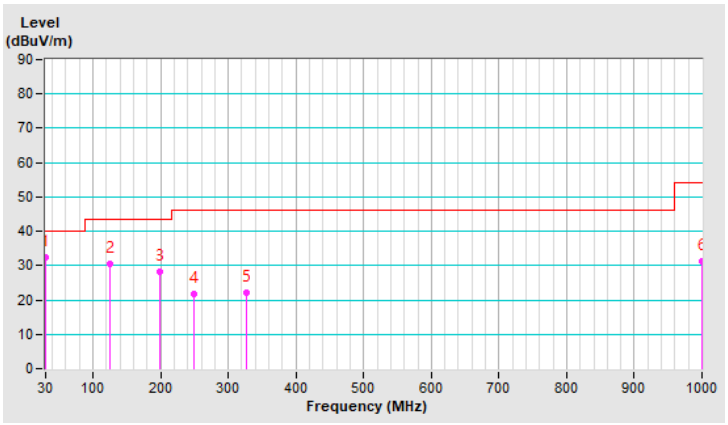
802.11g

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	30.34	32.3 QP	40.0	-7.7	2.00 H	360	47.0	-14.7
2	124.97	30.5 QP	43.5	-13.0	2.00 H	287	44.9	-14.4
3	198.74	28.2 QP	43.5	-15.3	1.00 H	280	43.6	-15.4
4	250.01	21.6 QP	46.0	-24.4	1.00 H	266	35.3	-13.7
5	326.54	22.2 QP	46.0	-23.8	1.00 H	334	33.4	-11.2
6	1000.00	31.4 QP	54.0	-22.6	2.00 H	58	28.9	2.5

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. 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.

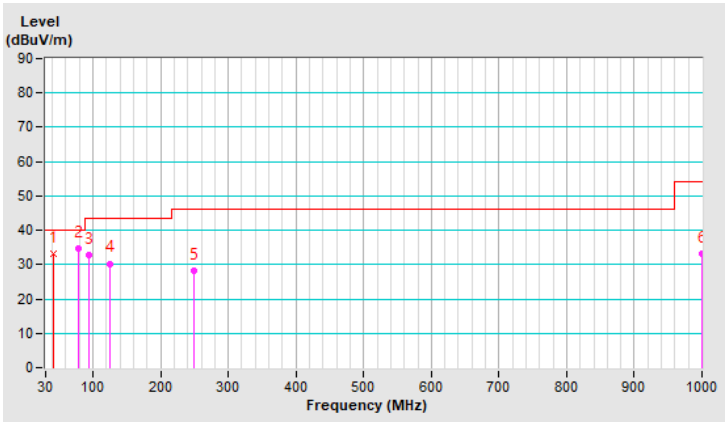


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	42.03	33.3 QP	40.0	-6.7	1.00 V	66	46.7	-13.4
2	79.23	34.6 QP	40.0	-5.4	2.00 V	102	52.3	-17.7
3	94.41	32.7 QP	43.5	-10.8	1.00 V	360	50.5	-17.8
4	124.97	30.3 QP	43.5	-13.2	1.00 V	299	44.7	-14.4
5	250.01	28.2 QP	46.0	-17.8	1.00 V	24	41.9	-13.7
6	1000.00	33.2 QP	54.0	-20.8	1.00 V	25	30.7	2.5

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. 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	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
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: May 15, 2019

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.

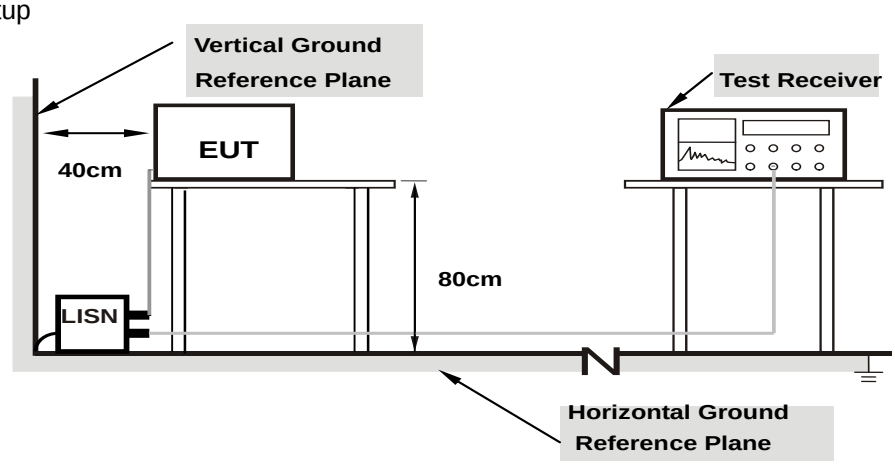
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

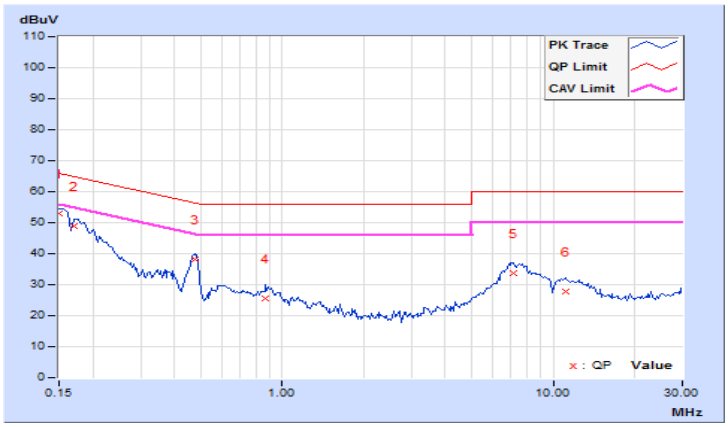
4.2.7 Test Results

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	**0.15000**	**10.03**	**42.76**	**26.13**	**52.79**	**36.16**	**66.00**	**56.00**	**-13.21**	**-19.84**
2	0.16956	10.04	38.91	21.26	48.95	31.30	64.98	54.98	-16.03	-23.68
3	0.47421	10.09	28.13	20.69	38.22	30.78	56.44	46.44	-18.22	-15.66
4	0.86873	10.12	15.46	11.58	25.58	21.70	56.00	46.00	-30.42	-24.30
5	7.09765	10.52	23.23	17.43	33.75	27.95	60.00	50.00	-26.25	-22.05
6	11.20312	10.78	17.06	10.26	27.84	21.04	60.00	50.00	-32.16	-28.96

Remarks:

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

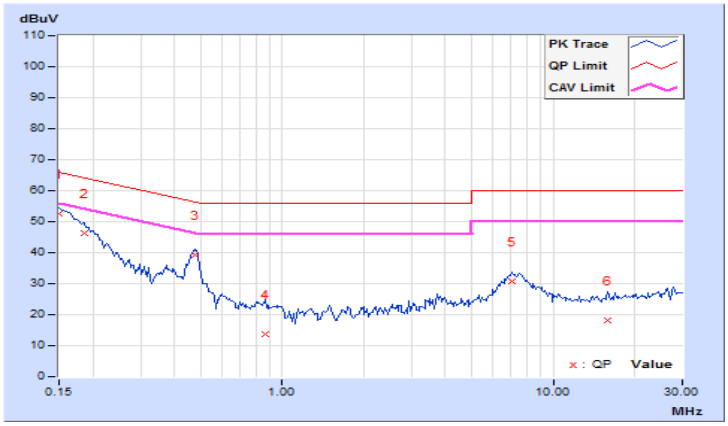


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.94	42.62	25.46	52.56	35.40	66.00	56.00	-13.44	-20.60
2	0.18515	9.95	36.46	19.51	46.41	29.46	64.25	54.25	-17.84	-24.79
3	0.47423	9.98	29.11	22.19	39.09	32.17	56.44	46.44	-17.35	-14.27
4	0.86095	10.00	3.65	-5.58	13.65	4.42	56.00	46.00	-42.35	-41.58
5	7.02345	10.35	20.51	15.02	30.86	25.37	60.00	50.00	-29.14	-24.63
6	15.99220	10.90	7.13	1.49	18.03	12.39	60.00	50.00	-41.97	-37.61

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

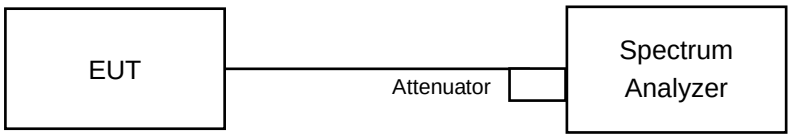


4.3 6dB Bandwidth Measurement

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 from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.13	8.06	0.5	Pass
6	2437	8.10	8.56	0.5	Pass
11	2462	8.09	8.09	0.5	Pass

802.11g

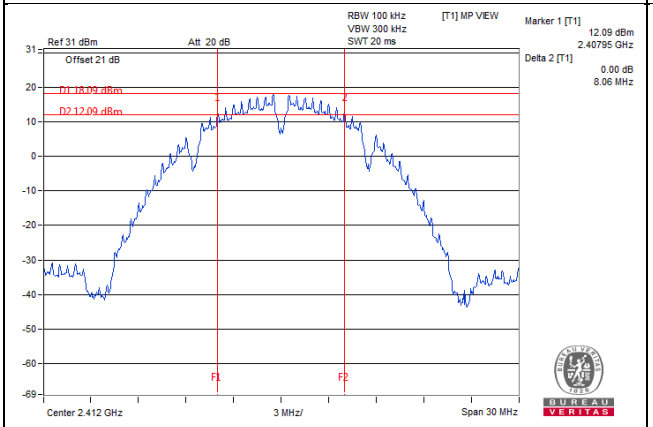
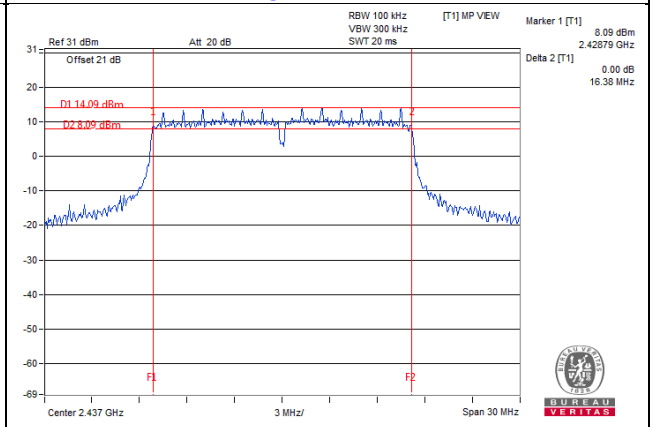
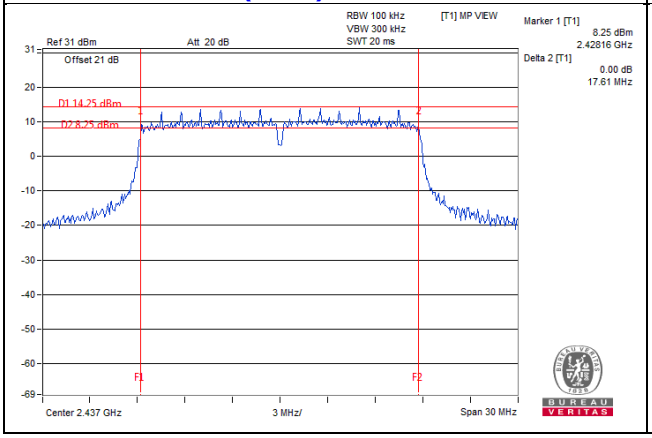
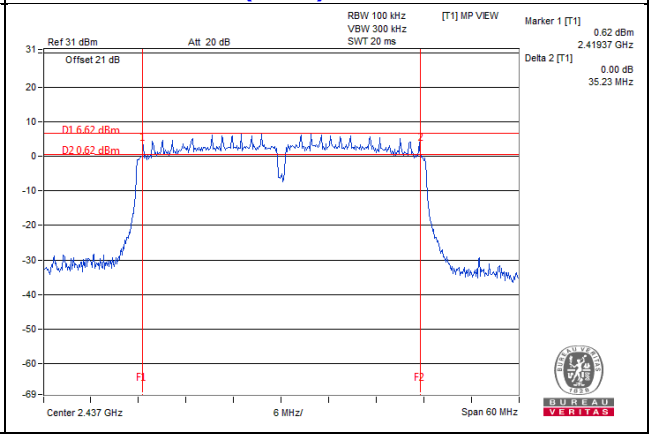
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.41	16.40	0.5	Pass
6	2437	16.38	16.39	0.5	Pass
11	2462	16.41	16.42	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.62	17.63	0.5	Pass
6	2437	17.61	17.64	0.5	Pass
11	2462	17.61	17.64	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.24	35.49	0.5	Pass
6	2437	35.23	35.39	0.5	Pass
9	2452	35.31	35.30	0.5	Pass

Spectrum Plot of Worst Value	
802.11b_Chain 1 / CH1	**802.11g_Chain 0 / CH6**
	
802.11n (HT20)_Chain 0 / CH6	**802.11n (HT40)_Chain 0 / CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

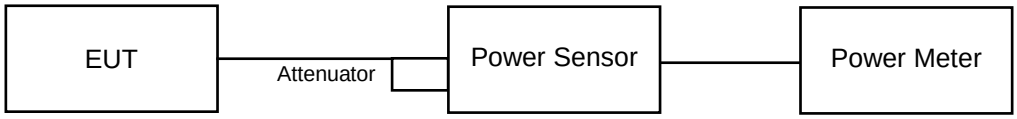
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	24.88	25.16	635.705	28.03	30	Pass
6	2437	26.81	26.87	966.14	29.85	30	Pass
11	2462	24.05	24.41	530.155	27.24	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.75	21.04	245.907	23.91	30	Pass
6	2437	24.88	25.07	628.976	27.99	30	Pass
11	2462	19.83	20.11	198.726	22.98	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.22	19.38	170.256	22.31	30	Pass
6	2437	24.83	25.01	621.046	27.93	30	Pass
11	2462	17.36	17.87	115.685	20.63	30	Pass

802.11n (HT40)

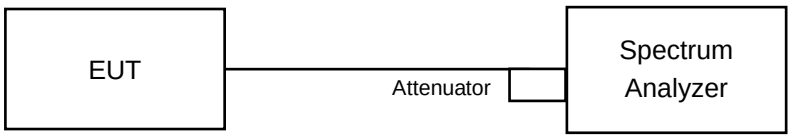
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	15.56	15.86	74.523	18.72	30	Pass
6	2437	20.82	21.02	247.255	23.93	30	Pass
9	2452	15.43	15.85	73.373	18.66	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm 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

For 802.11b, 802.11n (HT20)

a. Set instrument center frequency to DTS channel center frequency.
b. Set span to at least 1.5 times the OBW.
c. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d. Set VBW ≥3 x RBW.
e. Detector = power averaging (RMS) or sample detector (when RMS not available).
f. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g. Sweep time = auto couple.
h. Employ trace averaging (RMS) mode over a minimum of 100 traces.
i. Use the peak marker function to determine the maximum amplitude level.

For 802.11g, 802.11n (HT40)

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.03	3.01	-5.02	8	Pass
	6	2437	-6.11	3.01	-3.10	8	Pass
	11	2462	-9.04	3.01	-6.03	8	Pass
1	1	2412	-6.86	3.01	-3.85	8	Pass
	6	2437	-5.43	3.01	-2.42	8	Pass
	11	2462	-7.80	3.01	-4.79	8	Pass

Note: 1. The directional gain = 2.5dBi + 10log(2) = 5.51dBi < 6dBi, so the power density limit shall not be reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.31	3.01	0.18	-11.12	8	Pass
	6	2437	-10.07	3.01	0.18	-6.88	8	Pass
	11	2462	-15.44	3.01	0.18	-12.25	8	Pass
1	1	2412	-9.32	3.01	0.18	-6.13	8	Pass
	6	2437	-9.88	3.01	0.18	-6.69	8	Pass
	11	2462	-14.26	3.01	0.18	-11.07	8	Pass

Note: 1. The directional gain = 2.5dBi + 10log(2) = 5.51dBi < 6dBi, so the power density limit shall not be reduced.

2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-16.08	3.01	-13.07	8	Pass
	6	2437	-10.70	3.01	-7.69	8	Pass
	11	2462	-12.62	3.01	-9.61	8	Pass
1	1	2412	-10.26	3.01	-7.25	8	Pass
	6	2437	-10.08	3.01	-7.07	8	Pass
	11	2462	-17.54	3.01	-14.53	8	Pass

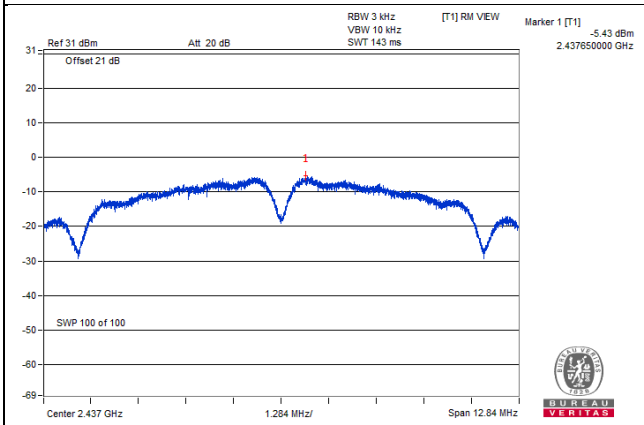
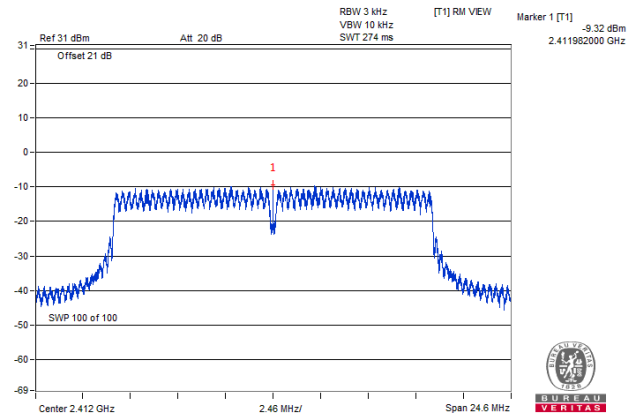
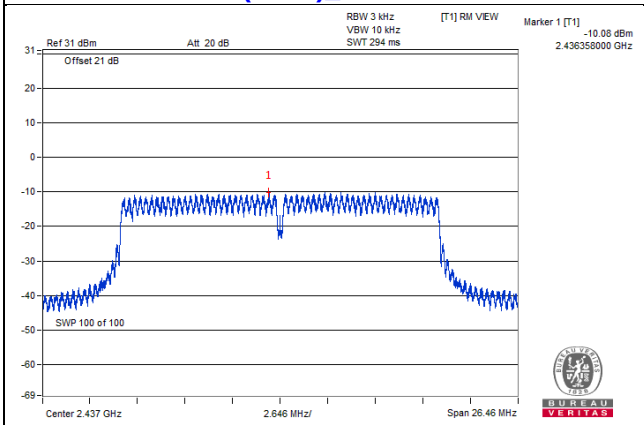
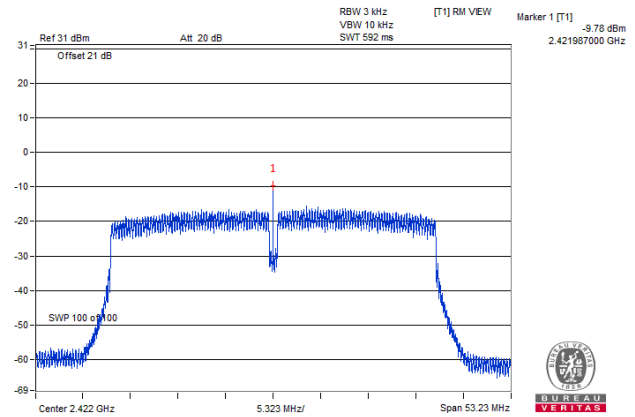
Note: 1. The directional gain = 2.5dBi + 10log(2) = 5.51dBi < 6dBi, so the power density limit shall not be reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-21.06	3.01	0.16	-17.89	8	Pass
	6	2437	-17.02	3.01	0.16	-13.85	8	Pass
	9	2452	-17.89	3.01	0.16	-14.72	8	Pass
1	3	2422	-9.78	3.01	0.16	-6.61	8	Pass
	6	2437	-15.56	3.01	0.16	-12.39	8	Pass
	9	2452	-21.09	3.01	0.16	-17.92	8	Pass

Note: 1. The directional gain = 2.5dBi + 10log(2) = 5.51dBi < 6dBi, so the power density limit shall not be reduced.

2. Refer to section 3.3 for duty cycle spectrum plot.

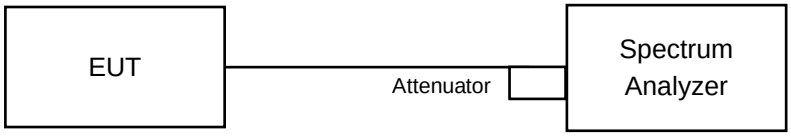
Spectrum Plot of Worst Value	
802.11b_Chain 1 / CH6	**802.11g_Chain 1 / CH1**
	
802.11n (HT20)_Chain 1 / CH6	**802.11n (HT40)_Chain 1 / CH3**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

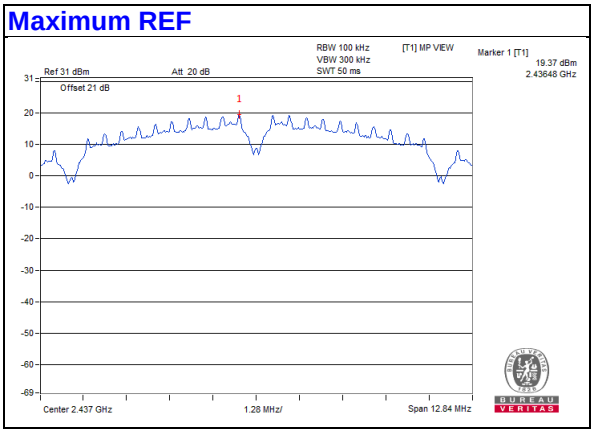
Same as Item 4.3.6

4.6.7 Test Results

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

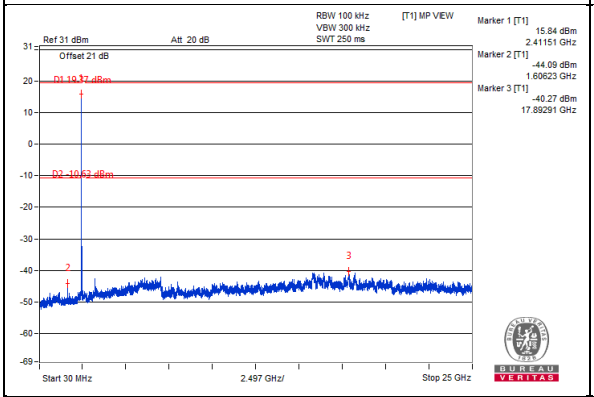
802.11b

Maximum REF

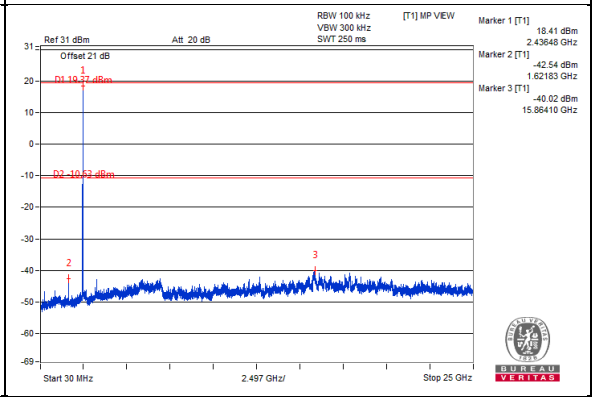


Chain 0

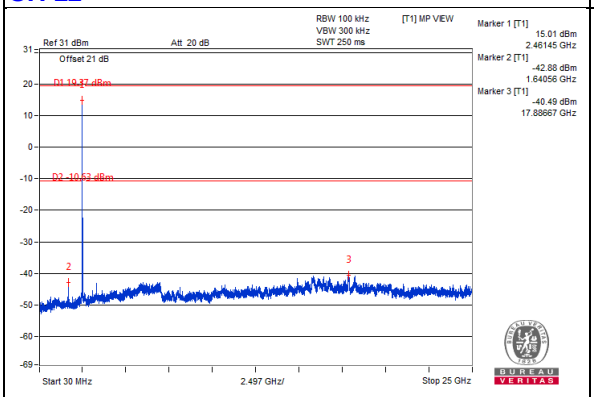
CH 1



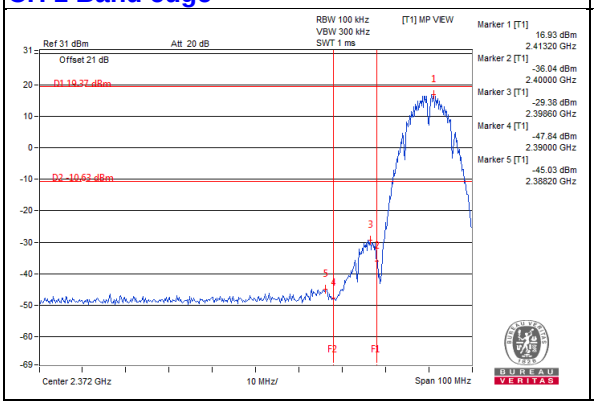
CH 6



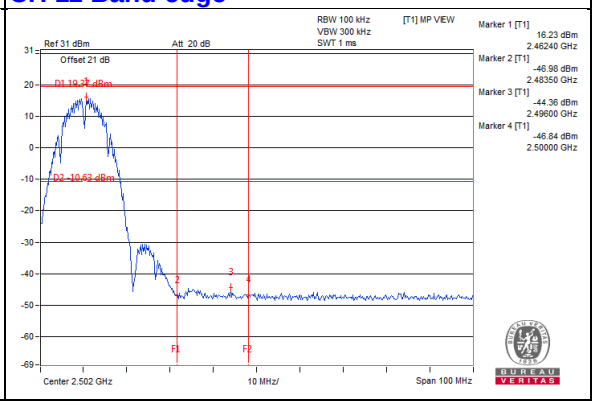
CH 11



CH 1 Band edge

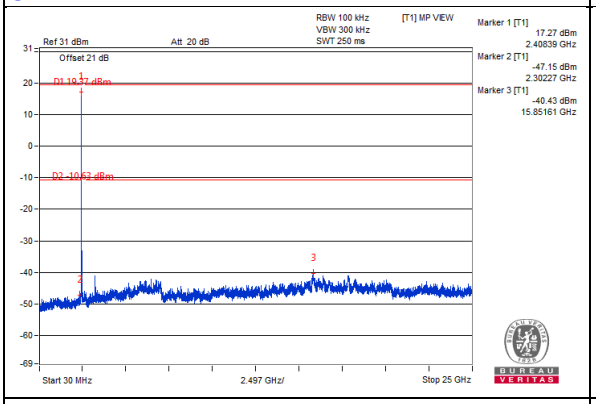


CH 11 Band edge

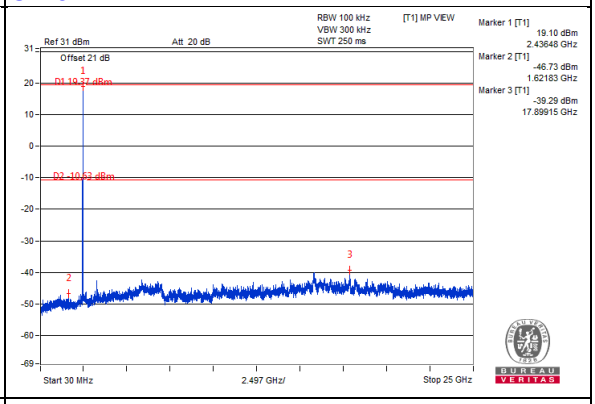


Chain 1

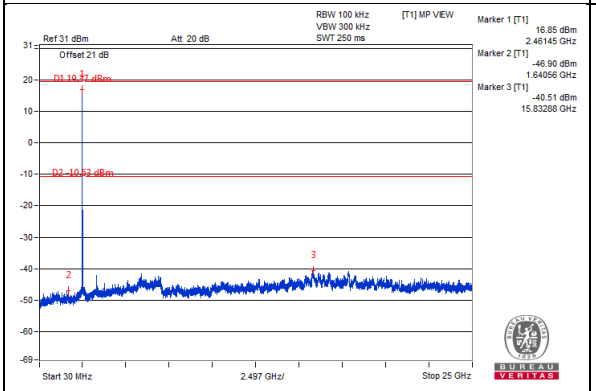
CH 1



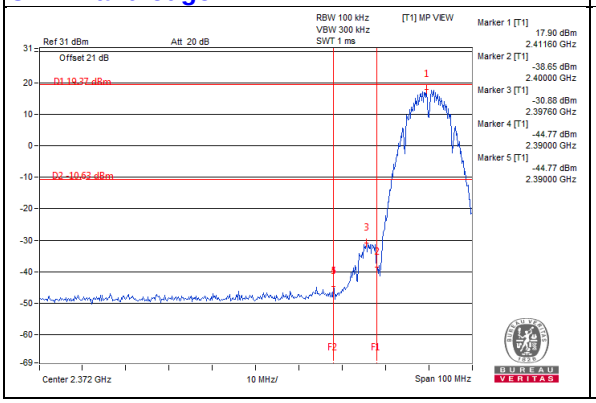
CH 6



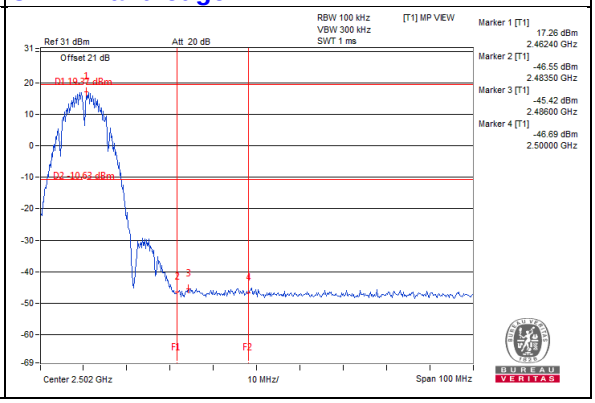
CH 11



CH 1 Band edge

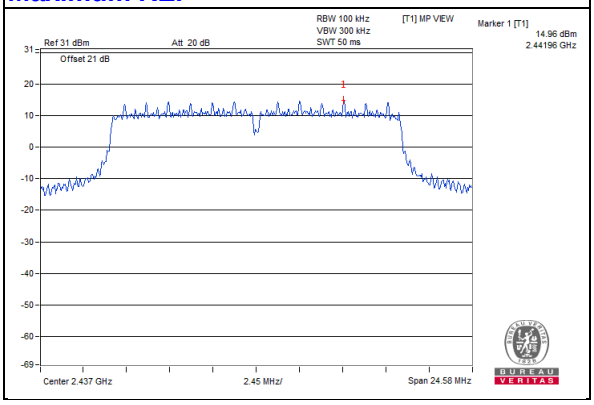


CH 11 Band edge



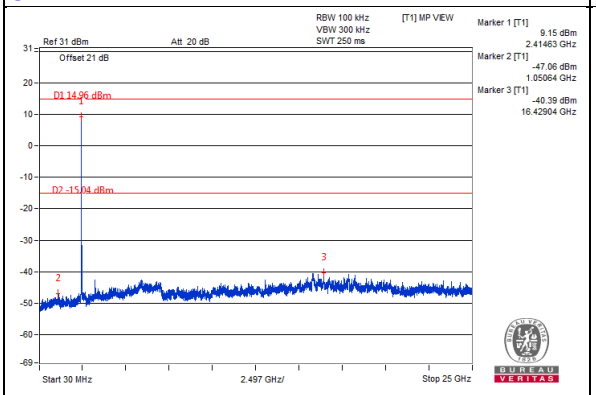
802.11g

Maximum REF

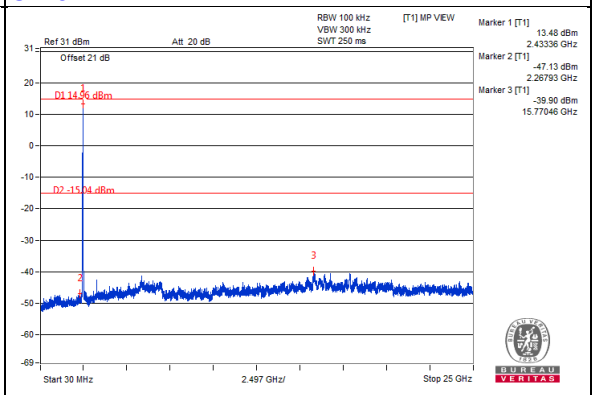


Chain 0

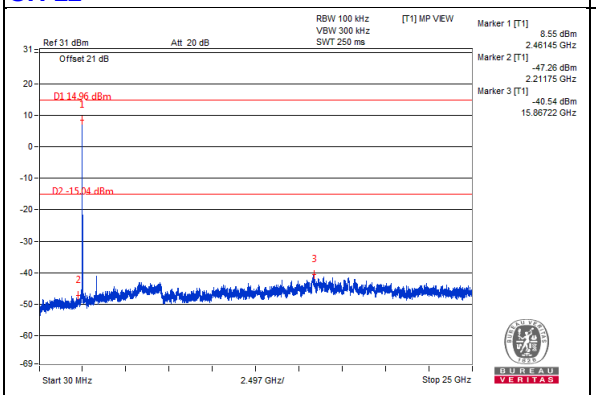
CH 1



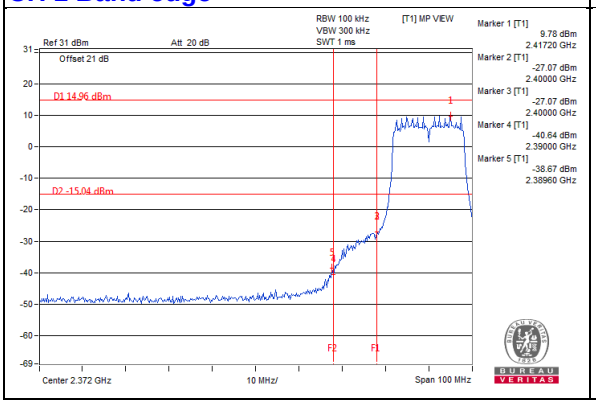
CH 6



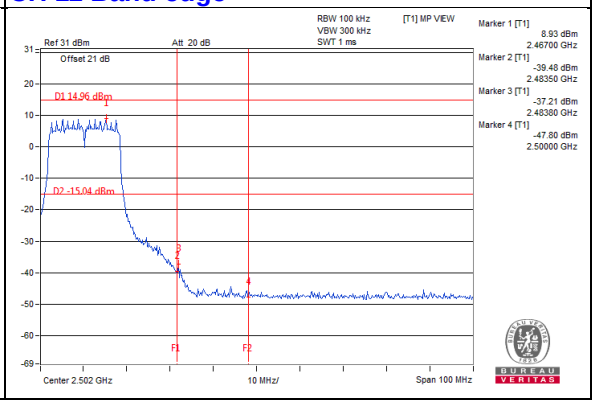
CH 11



CH 1 Band edge

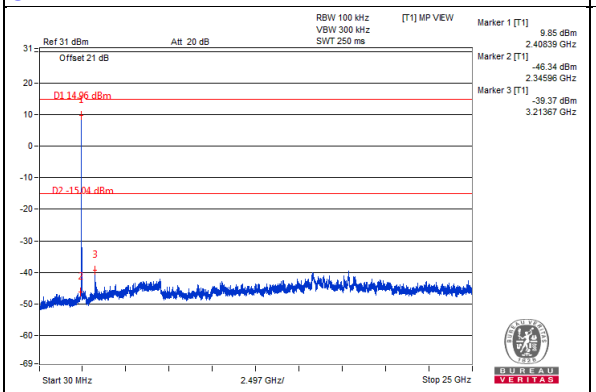


CH 11 Band edge

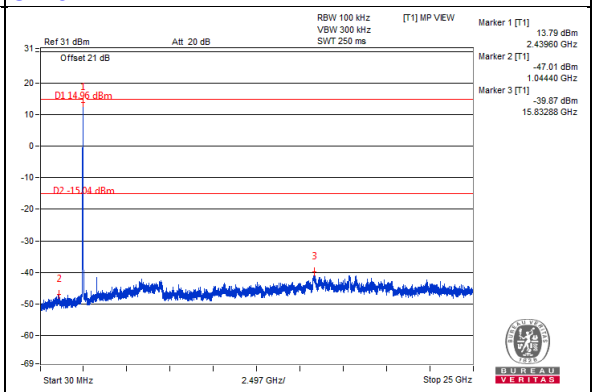


Chain 1

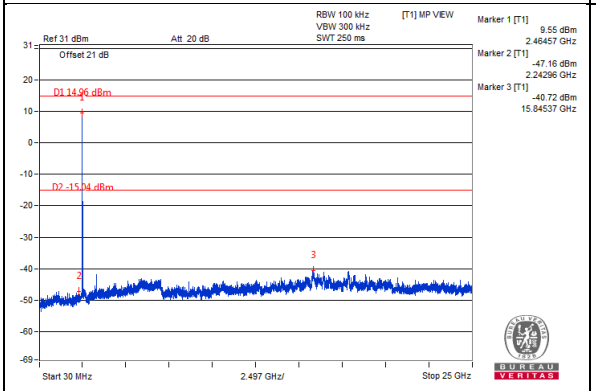
CH 1



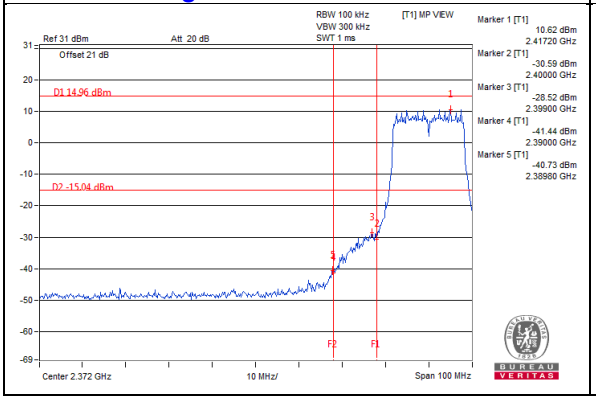
CH 6



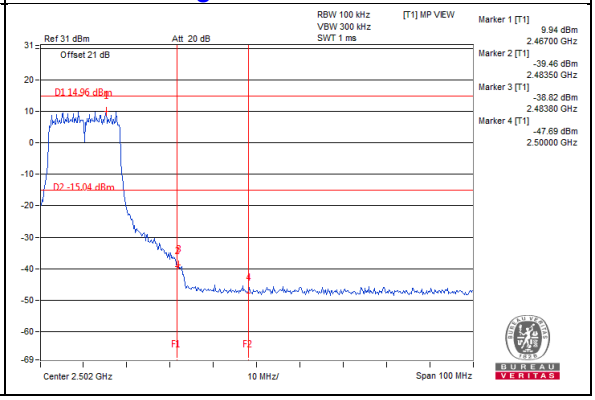
CH 11



CH 1 Band edge

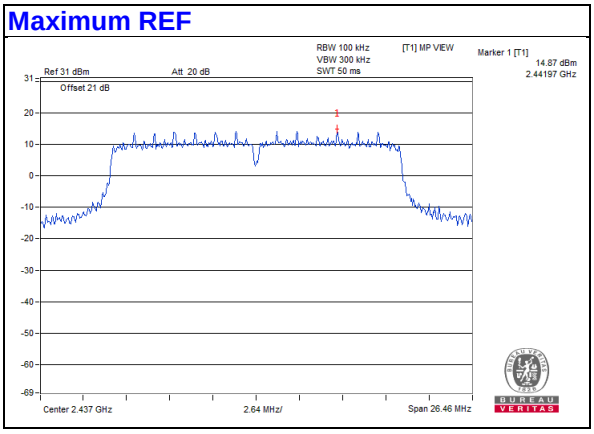


CH 11 Band edge



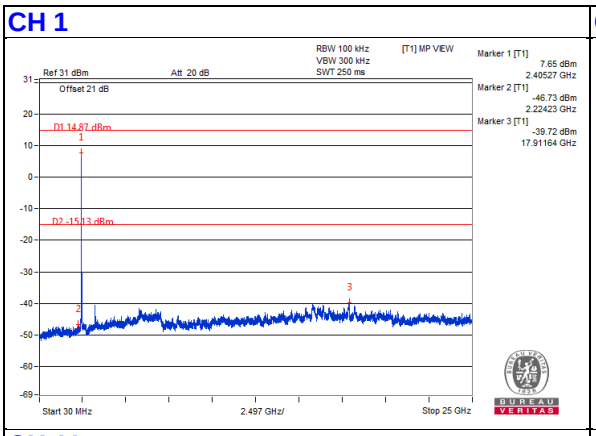
802.11n (HT20)

Maximum REF

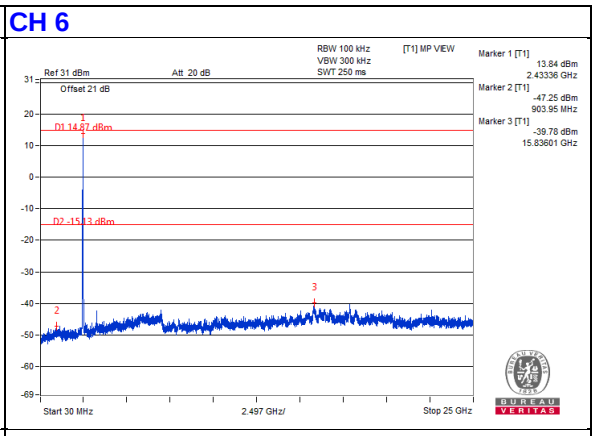


Chain 0

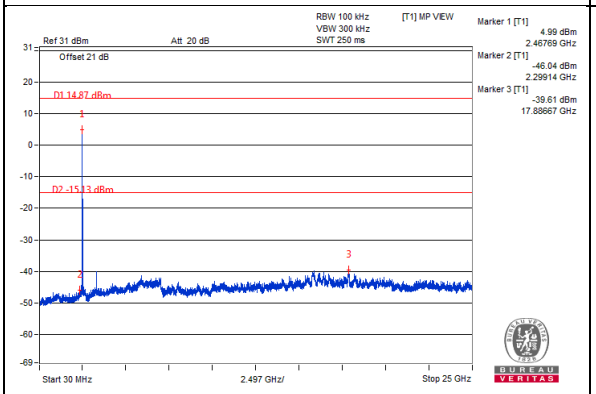
CH 1



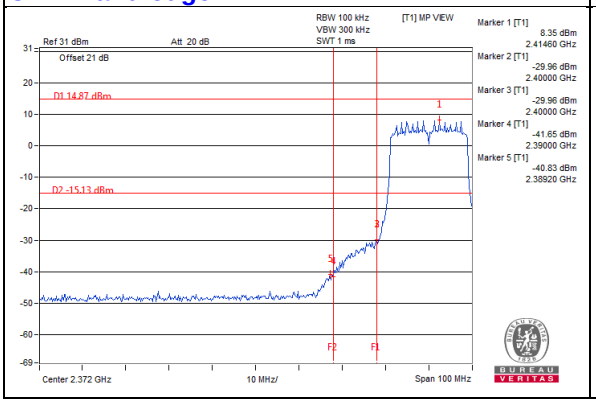
CH 6



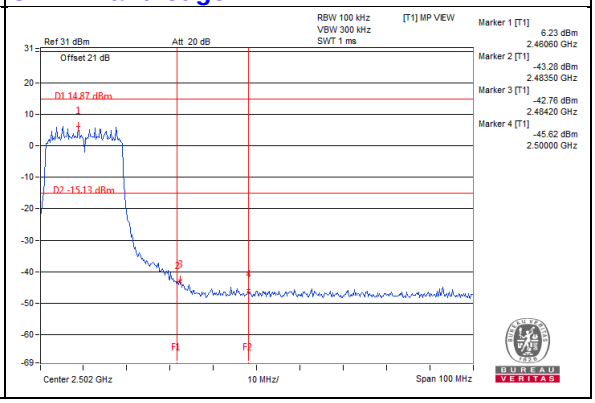
CH 11



CH 1 Band edge

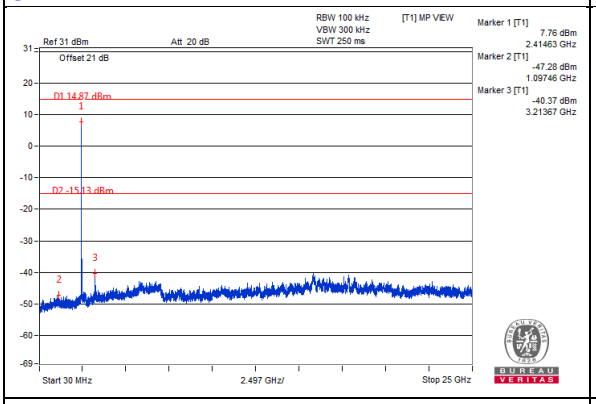


CH 11 Band edge

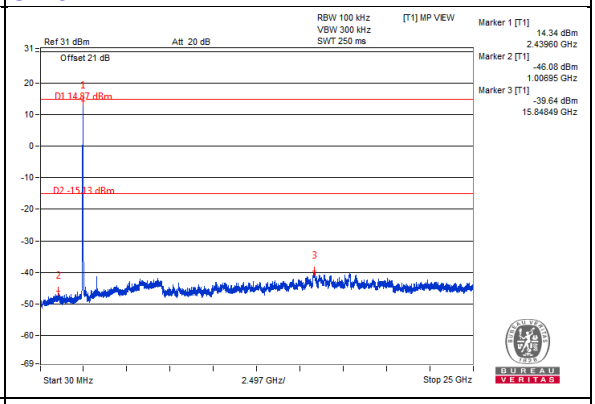


Chain 1

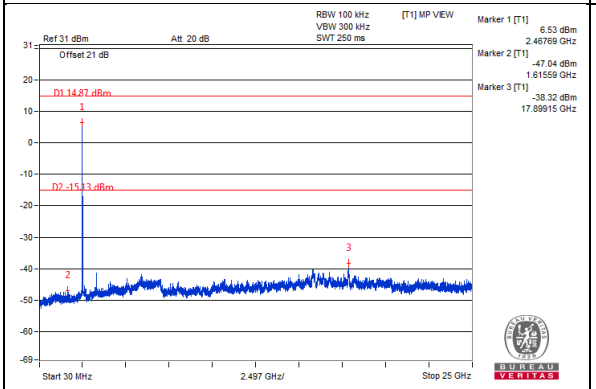
CH 1



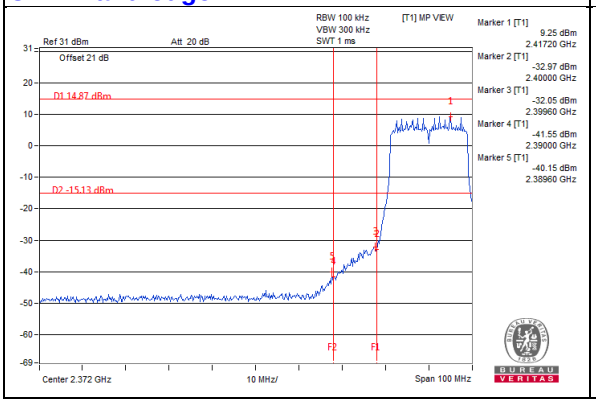
CH 6



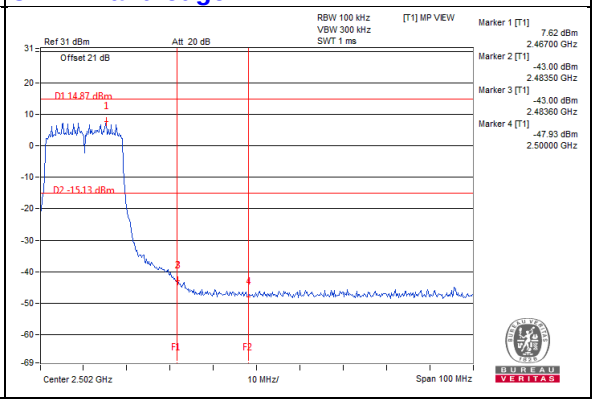
CH 11



CH 1 Band edge

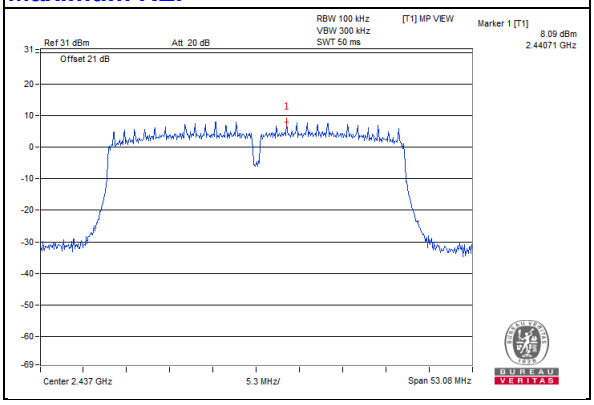


CH 11 Band edge



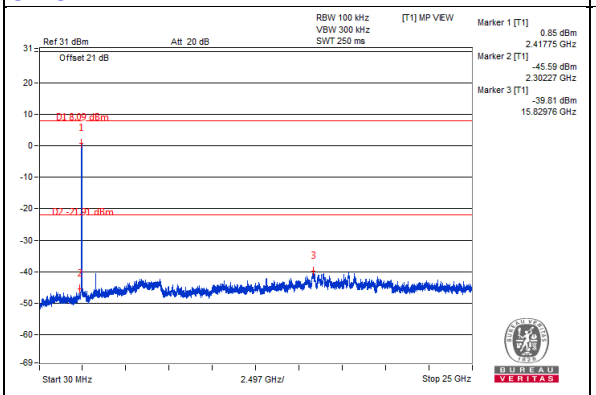
802.11n (HT40)

Maximum REF

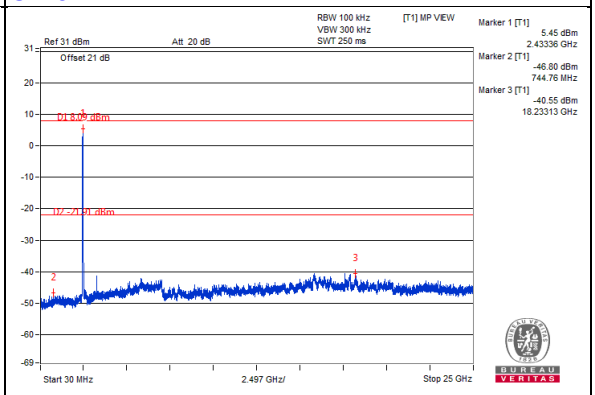


Chain 0

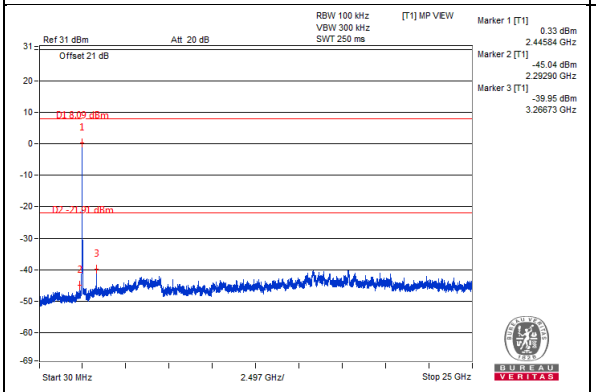
CH 3



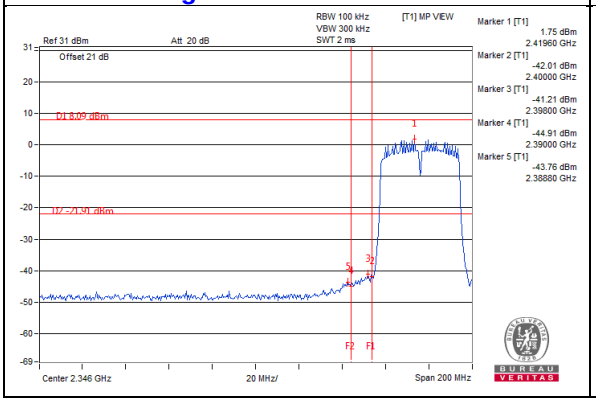
CH 6



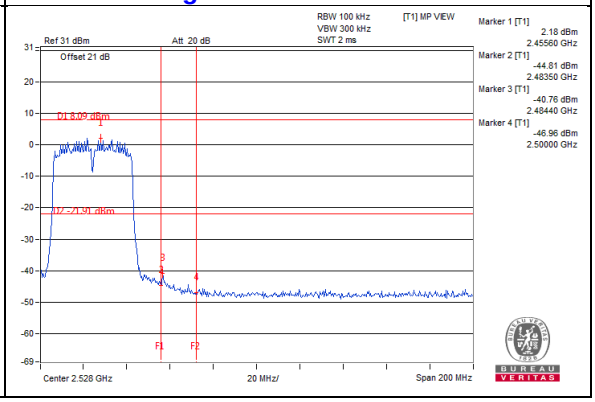
CH 9



CH 3 Band edge

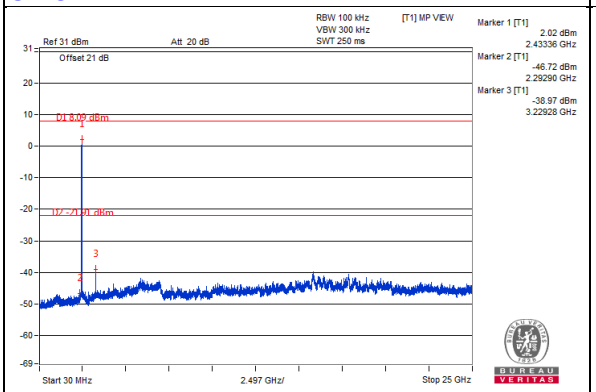


CH 9 Band edge

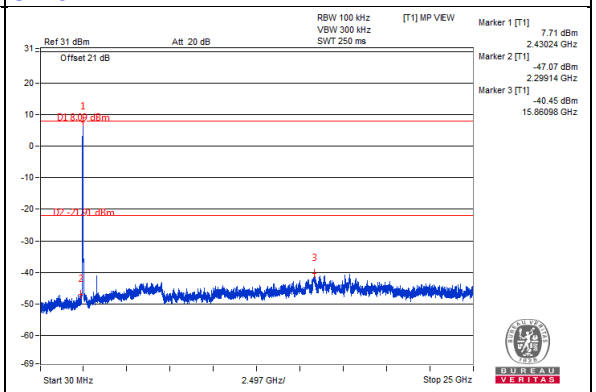


Chain 1

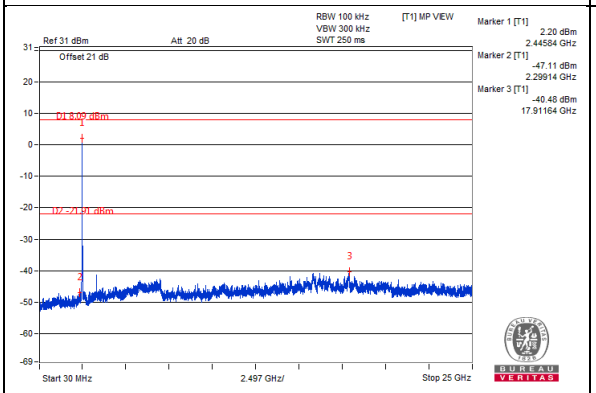
CH 3



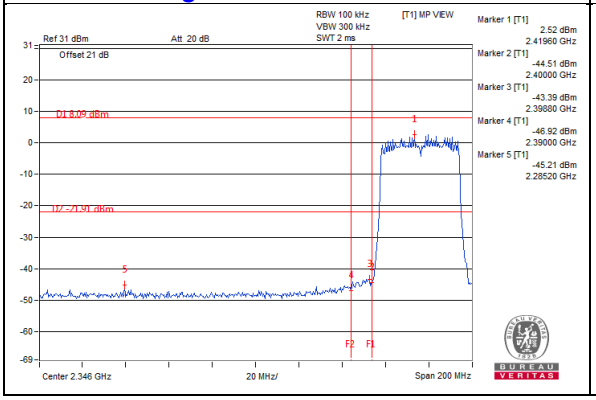
CH 6



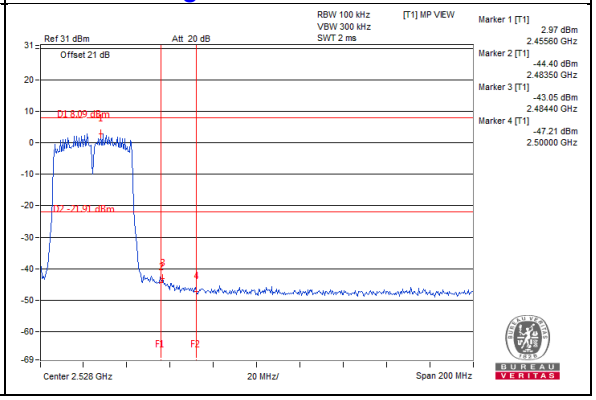
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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

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

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

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

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

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