FCC Test Report (WLAN)

Report No.:	RF171031D16C
FCC ID:	2AN9V-DVTRF001
Test Model:	DVTRF001
Received Date:	June 21, 2019
Test Date:	July 17 to 29, 2019
Issued Date:	Aug. 13, 2019
Applicant:	Devialet
Address:	10 Place Vendome 75001 Paris France
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
RF171031D16C	Original release.	Aug. 13, 2019

1 Certificate of Conformity

Product:	WCBN3507A-D6
Brand:	Devialet
Test Model:	DVTRF001
Sample Status:	R&D SAMPLE
Applicant:	Devialet
Test Date:	July 17 to 29, 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 : Phoenix Huang / Specialist , **Date:** Aug. 13, 2019

Approved by : May Chen / Manager , **Date:** Aug. 13, 2019

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 -11.53dB at 0.18516MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.

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	4.8 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.0 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	WCBN3507A-D6
Brand	Devialet
Test Model	DVTRF001
Status of EUT	R&D SAMPLE
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n : up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462 GHz **5GHz:** 5.18 ~ 5.24 GHz, 5.26 ~ 5.32 GHz, 5.5 ~ 5.72 GHz, 5.745 ~ 5.825 GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	**2.412 ~ 2.462 GHz:** 457.696 mW **5.18 ~ 5.24 GHz:** 75.441 mW **5.26 ~ 5.32 GHz:** 69.782 mW **5.5 ~ 5.72 GHz:** 70.99 mW **5.745 ~ 5.825 GHz:** 60.97 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC class II change. The difference compared with the Report No.: RF140808E04X as the following:

   ◆ Add one antenna set.

Original

Antenna set 1

Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain <with cable loss> (dBi)	5GHz Gain <with cable loss> (dBi)	2.4GHz Cable Loss (dB)	5G Cable Loss (dB)	Connector Type	Cable Length (mm)
Chain (0)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band 1&2:1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300
Chain (1)	WNC	81-EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band 1&2:1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300

Antenna set 2

Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain <with cable loss> (dBi)	5GHz Gain <with cable loss> (dBi)	Cable Loss (dB)	Connector Type	Cable Length (mm)
Chain (0)	Tongda	T-543-82010 44-A (Ant 1)	PIFA	3.572	Band 1&2: 3.002 Band 3: 4.546 Band 4: 4.416	NA	IPEX	77
Chain (1)	Tongda	T-543-82010 44-A (Ant 2)	PIFA	3.325	Band 1&2: 2.942 Band 3: 4.622 Band 4: 4.586	NA	IPEX	61

Antenna set 3

Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain <with cable loss> (dBi)	5GHz Gain <with cable loss> (dBi)	Cable Loss (dB)	Connector Type
Chain (0)	ethertronics	M830520	chip	1.1	3.2	NA	IPEX
Chain (1)	ethertronics	M830520	chip	1.1	3.2	NA	IPEX

Antenna set 4

Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain <with cable loss> (dBi)	5GHz Gain <with cable loss> (dBi)	Cable Loss (dB)	Connector Type
Chain (0)	ethertronics	1002298	PIFA	3.6	5.1	NA	IPEX
Chain (1)	ethertronics	1002298	PIFA	3.6	5.1	NA	IPEX

Newly

Antenna set 5

Transmitter Circuit	Brand	Model	Antenna Type	2.4GHz Gain <with cable loss> (dBi)	5GHz Gain <with cable loss> (dBi)	2.4GHz Cable Loss (dB)	5G Cable Loss (dB)	Connector Type	Cable Length (mm)
Chain (0)	Devialet	DVT-BA-M-1311-P	Monopole G	3.4	5.8	0.8	1.5	IPEX	150
Chain (1)	Devialet	DVT-BA-PF-1408-P	IFA	5.2	3.3	0.8	1.5	IPEX	150

Note:
1. All of antenna can be application for WLAN and Bluetooth.
2. The Bluetooth technology will fix transmission on Chain (0)

2. According to above condition, only AC Power Conducted Emission, Radiated Emissions and Conducted power test items of newly antenna set 5 need to be performed. And all data were verified to meet the requirements.
3. There are Bluetooth technology and WLAN technology used for the EUT.
4. WLAN <5GHz> and Bluetooth technology can transmit at same time.

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

For 2.4G Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
For 5G Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX

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

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

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

7. 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), VHT20:

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), VHT40:

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

Note: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane** (below 1GHz) & **Z-plane** (above 1GHz).

Radiated Emission Test (Above 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 4, 6, 8, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

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

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:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 4, 6, 8, 9	OFDM	BPSK	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE≥1G	21deg. C, 66%RH	120Vac, 60Hz	Ryan Du
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
PLC	23deg. 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 ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

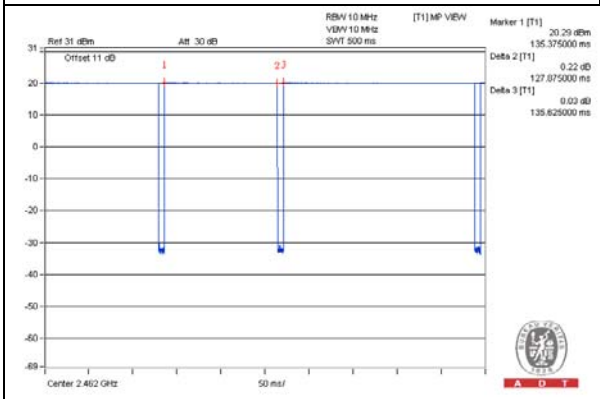
802.11b: Duty cycle = 127.875 ms/135.625 ms = 0.943, Duty factor = 10 * log(1/Duty cycle) = 0.25

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

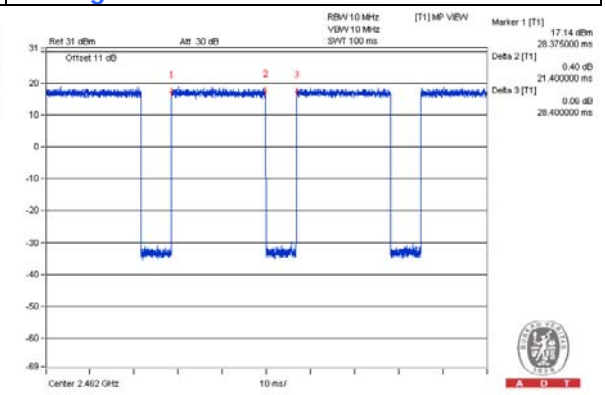
VHT20: Duty cycle = 19.7 ms/26.7 ms = 0.738, Duty factor = 10 * log(1/Duty cycle) = 1.3

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

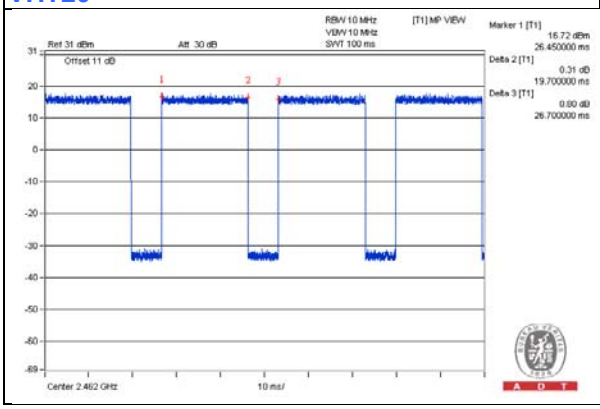
802.11b



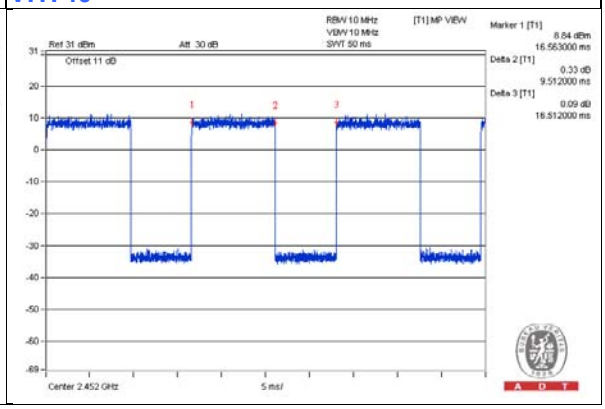
802.11g



VHT20



VHT40



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	lenovo	3000 N200	NA	NA	Provided by Lab (for other test)
B.	Test Tool	Lite-ON	NA	NA	NA	Supplied by client
C.	Adapter	lenovo	P2P1160	NA	NA	Provided by Lab
D.	Laptop	DELL	E5430	DM1SKV1	FCC DoC	Provided by Lab (for conduction emission test)
E.	Adapter	DELL	LA65NS2-01	NA	NA	Provided by Lab

Note:

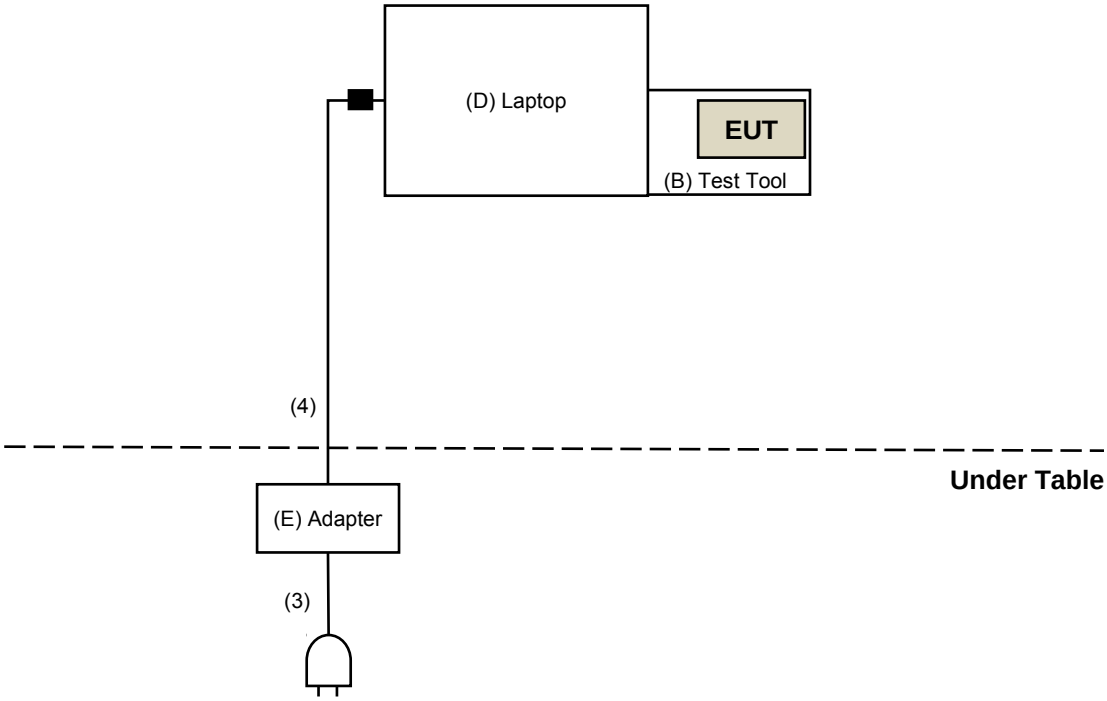
1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.9	No	1	Provided by Lab
2.	AC Cable	1	1.9	No	0	Provided by Lab
3.	AC Cable	1	0.8	No	0	Provided by Lab
4.	DC Cable	1	1.6	No	1	Provided by Lab

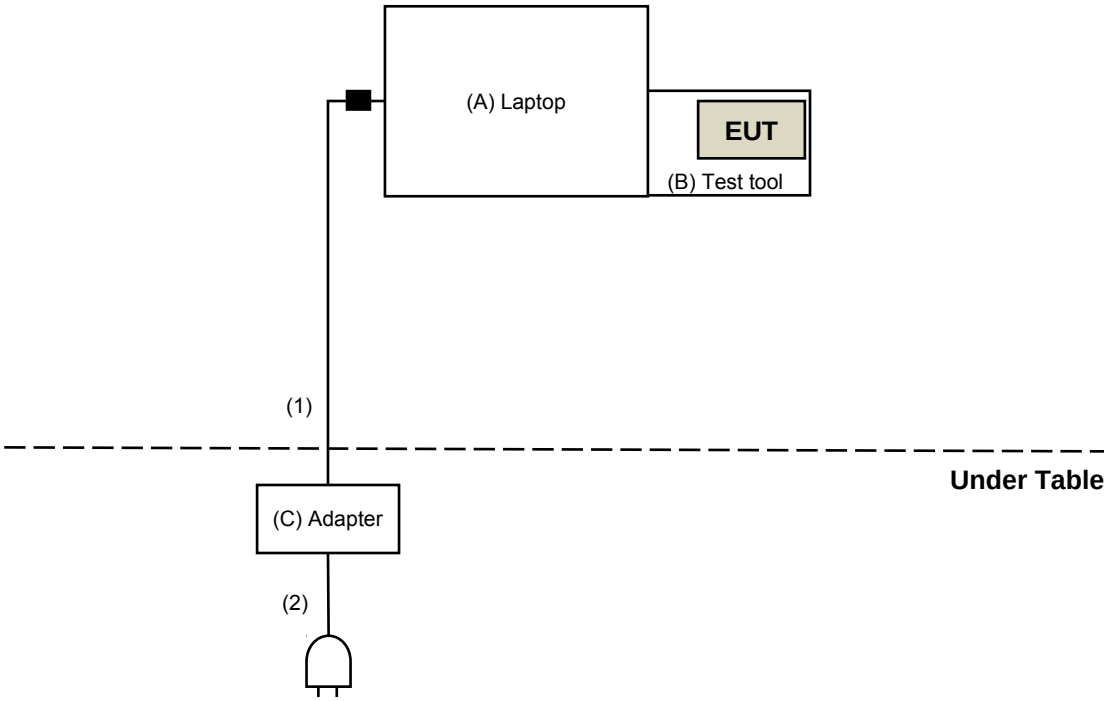
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

Power Line Conducted Emission test:



Other test items:



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 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 ESR7 R&S	ESR7	102026	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer Keysight	N9030B	MY57141948	May 25, 2019	May 24, 2020
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 EMCI	EMC330N	980538	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB9168	9168-0842	Nov. 21, 2018	Nov. 20, 2019
RF Cable	8D	966-5-1	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-2	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-3	May 03, 2019	May 02, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-1819	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980509	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-1500	180503	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-2000	180501	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-6000	180505	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 04, 2019	June 03, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

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. 5.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: July 17 to 29, 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:

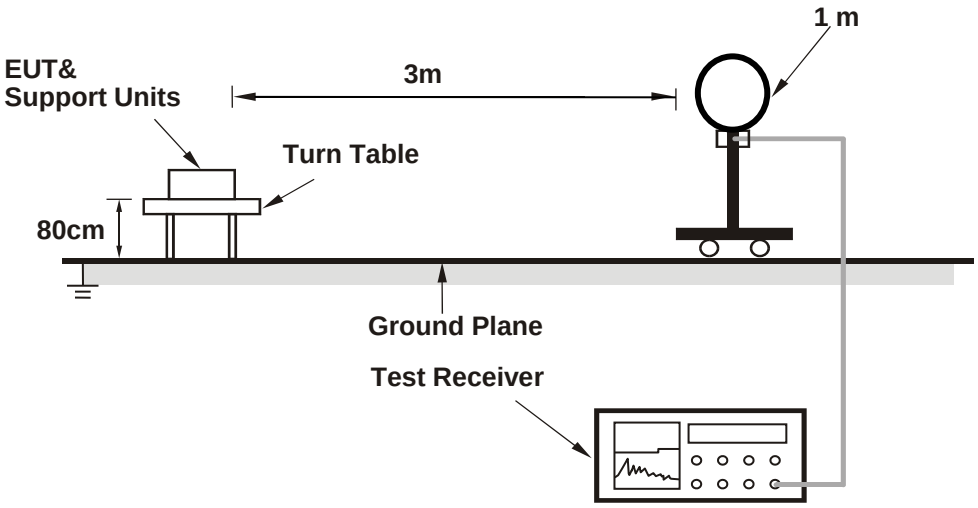
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

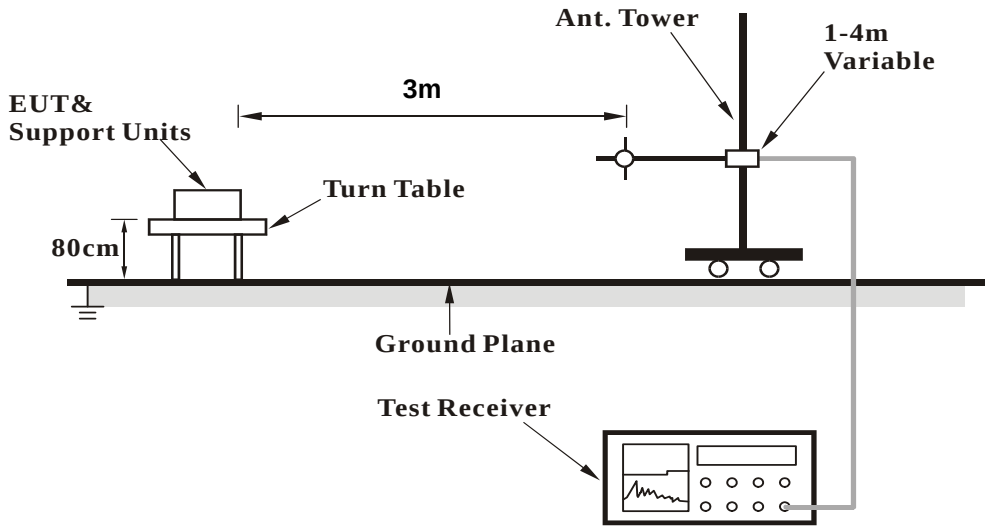
No deviation.

4.1.5 Test Setup

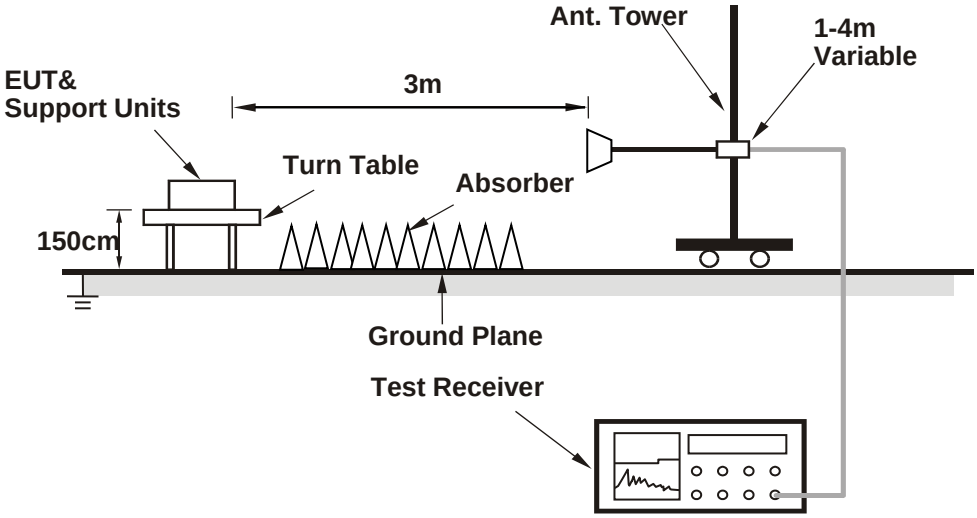
For Radiated emission below 30MHz



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 the testing table.
b. Controlling software (QRCT_CONNECTIVITY 3.0.33) has been activated to set the EUT under transmission condition continuously.

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	57.7 PK	74.0	-16.3	1.04 H	131	60.8	-3.1
2	2390.00	45.1 AV	54.0	-8.9	1.04 H	131	48.2	-3.1
3	*2412.00	105.7 PK			1.04 H	131	108.8	-3.1
4	*2412.00	103.5 AV			1.04 H	131	106.6	-3.1
5	4824.00	53.1 PK	74.0	-20.9	1.57 H	128	51.9	1.2
6	4824.00	51.8 AV	54.0	-2.2	1.57 H	128	50.6	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.3 PK	74.0	-15.7	2.22 V	96	61.4	-3.1
2	2390.00	45.5 AV	54.0	-8.5	2.22 V	96	48.6	-3.1
3	*2412.00	105.6 PK			2.22 V	96	108.7	-3.1
4	*2412.00	103.6 AV			2.22 V	96	106.7	-3.1
5	4824.00	55.2 PK	74.0	-18.8	1.23 V	47	54.0	1.2
6	4824.00	53.7 AV	54.0	-0.3	1.23 V	47	52.5	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 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	105.8 PK			1.80 H	141	108.9	-3.1
2	*2437.00	103.7 AV			1.80 H	141	106.8	-3.1
3	4874.00	52.8 PK	74.0	-21.2	1.52 H	139	51.6	1.2
4	4874.00	51.3 AV	54.0	-2.7	1.52 H	139	50.1	1.2
5	7311.00	44.4 PK	74.0	-29.6	1.60 H	342	37.2	7.2
6	7311.00	32.5 AV	54.0	-21.5	1.60 H	342	25.3	7.2
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	105.1 PK			2.13 V	78	108.2	-3.1
2	*2437.00	103.1 AV			2.13 V	78	106.2	-3.1
3	4874.00	56.1 PK	74.0	-17.9	1.21 V	127	54.9	1.2
4	4874.00	53.6 AV	54.0	-0.4	1.21 V	127	52.4	1.2
5	7311.00	43.7 PK	74.0	-30.3	1.23 V	106	36.5	7.2
6	7311.00	32.4 AV	54.0	-21.6	1.23 V	106	25.2	7.2

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	106.7 PK			1.71 H	140	109.8	-3.1
2	*2462.00	104.4 AV			1.71 H	140	107.5	-3.1
3	2483.50	60.2 PK	74.0	-13.8	1.71 H	140	63.3	-3.1
4	2483.50	48.0 AV	54.0	-6.0	1.71 H	140	51.1	-3.1
5	4924.00	52.6 PK	74.0	-21.4	1.54 H	129	51.3	1.3
6	4924.00	51.1 AV	54.0	-2.9	1.54 H	129	49.8	1.3
7	7386.00	44.5 PK	74.0	-29.5	1.54 H	334	37.2	7.3
8	7386.00	32.7 AV	54.0	-21.3	1.54 H	334	25.4	7.3
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	105.5 PK			2.16 V	88	108.6	-3.1
2	*2462.00	103.3 AV			2.16 V	88	106.4	-3.1
3	2483.50	57.7 PK	74.0	-16.3	2.16 V	88	60.8	-3.1
4	2483.50	45.2 AV	54.0	-8.8	2.16 V	88	48.3	-3.1
5	4924.00	55.2 PK	74.0	-18.8	1.24 V	13	53.9	1.3
6	4924.00	53.6 AV	54.0	-0.4	1.24 V	13	52.3	1.3
7	7386.00	43.9 PK	74.0	-30.1	1.20 V	125	36.6	7.3
8	7386.00	32.1 AV	54.0	-21.9	1.20 V	125	24.8	7.3

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.0 PK	74.0	-6.0	1.57 H	140	71.1	-3.1
2	2390.00	53.4 AV	54.0	-0.6	1.57 H	140	56.5	-3.1
3	*2412.00	113.8 PK			1.57 H	140	116.9	-3.1
4	*2412.00	104.2 AV			1.57 H	140	107.3	-3.1
5	4824.00	61.2 PK	74.0	-12.8	1.26 H	141	60.0	1.2
6	4824.00	48.9 AV	54.0	-5.1	1.26 H	141	47.7	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.9 PK	74.0	-8.1	2.13 V	93	69.0	-3.1
2	2390.00	50.2 AV	54.0	-3.8	2.13 V	93	53.3	-3.1
3	*2412.00	113.1 PK			2.13 V	93	116.2	-3.1
4	*2412.00	103.5 AV			2.13 V	93	106.6	-3.1
5	4824.00	61.2 PK	74.0	-12.8	1.86 V	49	60.0	1.2
6	4824.00	49.1 AV	54.0	-4.9	1.86 V	49	47.9	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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.7 PK	74.0	-5.3	1.58 H	153	71.8	-3.1
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.58 H**	**153**	**57.0**	**-3.1**
3	*2417.00	113.7 PK			1.58 H	153	116.8	-3.1
4	*2417.00	104.2 AV			1.58 H	153	107.3	-3.1
5	4834.00	61.1 PK	74.0	-12.9	1.31 H	118	59.9	1.2
6	4834.00	48.7 AV	54.0	-5.3	1.31 H	118	47.5	1.2
7	7251.00	45.9 PK	74.0	-28.1	1.48 H	341	38.8	7.1
8	7251.00	34.7 AV	54.0	-19.3	1.48 H	341	27.6	7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.2 PK	74.0	-8.8	2.19 V	96	68.3	-3.1
2	2390.00	49.7 AV	54.0	-4.3	2.19 V	96	52.8	-3.1
3	*2417.00	112.9 PK			2.19 V	96	116.0	-3.1
4	*2417.00	103.2 AV			2.19 V	96	106.3	-3.1
5	4834.00	61.6 PK	74.0	-12.4	1.36 V	144	60.4	1.2
6	4834.00	50.1 AV	54.0	-3.9	1.36 V	144	48.9	1.2
7	7251.00	46.8 PK	74.0	-27.2	1.69 V	27	39.7	7.1
8	7251.00	35.3 AV	54.0	-18.7	1.69 V	27	28.2	7.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	64.5 PK	74.0	-9.5	1.59 H	140	67.6	-3.1
2	2390.00	51.2 AV	54.0	-2.8	1.59 H	140	54.3	-3.1
3	*2437.00	119.8 PK			1.59 H	140	122.9	-3.1
4	*2437.00	109.7 AV			1.59 H	140	112.8	-3.1
5	2483.50	70.4 PK	74.0	-3.6	1.59 H	140	73.5	-3.1
6	2483.50	53.5 AV	54.0	-0.5	1.59 H	140	56.6	-3.1
7	4874.00	61.2 PK	74.0	-12.8	1.28 H	133	60.0	1.2
8	4874.00	49.0 AV	54.0	-5.0	1.28 H	133	47.8	1.2
9	7311.00	46.3 PK	74.0	-27.7	1.51 H	338	39.1	7.2
10	7311.00	34.9 AV	54.0	-19.1	1.51 H	338	27.7	7.2
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	60.8 PK	74.0	-13.2	2.12 V	79	63.9	-3.1
2	2390.00	47.8 AV	54.0	-6.2	2.12 V	79	50.9	-3.1
3	*2437.00	118.1 PK			2.12 V	79	121.2	-3.1
4	*2437.00	108.3 AV			2.12 V	79	111.4	-3.1
5	2483.50	66.5 PK	74.0	-7.5	2.12 V	79	69.6	-3.1
6	2483.50	49.3 AV	54.0	-4.7	2.12 V	79	52.4	-3.1
7	4874.00	62.5 PK	74.0	-11.5	1.38 V	129	61.3	1.2
8	4874.00	51.1 AV	54.0	-2.9	1.38 V	129	49.9	1.2
9	7311.00	46.9 PK	74.0	-27.1	1.64 V	23	39.7	7.2
10	7311.00	35.2 AV	54.0	-18.8	1.64 V	23	28.0	7.2

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 10	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	*2457.00	114.0 PK			1.53 H	131	117.1	-3.1
2	*2457.00	103.6 AV			1.53 H	131	106.7	-3.1
3	2483.50	71.1 PK	74.0	-2.9	1.53 H	131	74.2	-3.1
4	2483.50	53.5 AV	54.0	-0.5	1.53 H	131	56.6	-3.1
5	4914.00	61.5 PK	74.0	-12.5	1.34 H	145	60.2	1.3
6	4914.00	49.0 AV	54.0	-5.0	1.34 H	145	47.7	1.3
7	7371.00	46.0 PK	74.0	-28.0	1.49 H	334	38.8	7.2
8	7371.00	34.5 AV	54.0	-19.5	1.49 H	334	27.3	7.2
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	*2457.00	112.5 PK			2.14 V	105	115.6	-3.1
2	*2457.00	103.0 AV			2.14 V	105	106.1	-3.1
3	2483.50	66.2 PK	74.0	-7.8	2.14 V	105	69.3	-3.1
4	2483.50	50.5 AV	54.0	-3.5	2.14 V	105	53.6	-3.1
5	4914.00	61.9 PK	74.0	-12.1	1.36 V	124	60.6	1.3
6	4914.00	50.5 AV	54.0	-3.5	1.36 V	124	49.2	1.3
7	7371.00	47.1 PK	74.0	-26.9	1.68 V	24	39.9	7.2
8	7371.00	35.8 AV	54.0	-18.2	1.68 V	24	28.6	7.2

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	114.1 PK			1.52 H	139	117.2	-3.1
2	*2462.00	103.3 AV			1.52 H	139	106.4	-3.1
3	2483.50	71.6 PK	74.0	-2.4	1.52 H	139	74.7	-3.1
4	2483.50	53.7 AV	54.0	-0.3	1.52 H	139	56.8	-3.1
5	4924.00	61.2 PK	74.0	-12.8	1.29 H	140	59.9	1.3
6	4924.00	49.1 AV	54.0	-4.9	1.29 H	140	47.8	1.3
7	7386.00	46.2 PK	74.0	-27.8	1.50 H	326	38.9	7.3
8	7386.00	34.9 AV	54.0	-19.1	1.50 H	326	27.6	7.3
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	113.5 PK			2.10 V	104	116.6	-3.1
2	*2462.00	102.9 AV			2.10 V	104	106.0	-3.1
3	2483.50	66.2 PK	74.0	-7.8	2.10 V	104	69.3	-3.1
4	2483.50	50.7 AV	54.0	-3.3	2.10 V	104	53.8	-3.1
5	4924.00	62.0 PK	74.0	-12.0	1.35 V	129	60.7	1.3
6	4924.00	50.3 AV	54.0	-3.7	1.35 V	129	49.0	1.3
7	7386.00	47.1 PK	74.0	-26.9	1.72 V	18	39.8	7.3
8	7386.00	35.3 AV	54.0	-18.7	1.72 V	18	28.0	7.3

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.59 H	137	70.1	-3.1
2	2390.00	53.4 AV	54.0	-0.6	1.59 H	137	56.5	-3.1
3	*2412.00	112.6 PK			1.59 H	137	115.7	-3.1
4	*2412.00	102.6 AV			1.59 H	137	105.7	-3.1
5	4824.00	61.1 PK	74.0	-12.9	1.30 H	139	59.9	1.2
6	4824.00	48.7 AV	54.0	-5.3	1.30 H	139	47.5	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.0 PK	74.0	-8.0	2.14 V	88	69.1	-3.1
2	2390.00	50.2 AV	54.0	-3.8	2.14 V	88	53.3	-3.1
3	*2412.00	111.8 PK			2.08 V	87	114.9	-3.1
4	*2412.00	101.3 AV			2.08 V	87	104.4	-3.1
5	4824.00	61.7 PK	74.0	-12.3	1.84 V	47	60.5	1.2
6	4824.00	49.2 AV	54.0	-4.8	1.84 V	47	48.0	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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	1.55 H	140	69.5	-3.1
2	2390.00	53.0 AV	54.0	-1.0	1.55 H	140	56.1	-3.1
3	*2417.00	112.0 PK			1.55 H	140	115.1	-3.1
4	*2417.00	102.1 AV			1.55 H	140	105.2	-3.1
5	4834.00	61.5 PK	74.0	-12.5	1.32 H	156	60.3	1.2
6	4834.00	49.5 AV	54.0	-4.5	1.32 H	156	48.3	1.2
7	7251.00	46.5 PK	74.0	-27.5	1.50 H	315	39.4	7.1
8	7251.00	35.3 AV	54.0	-18.7	1.50 H	315	28.2	7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	2.17 V	100	68.7	-3.1
2	2390.00	50.1 AV	54.0	-3.9	2.17 V	100	53.2	-3.1
3	*2417.00	110.8 PK			2.17 V	100	113.9	-3.1
4	*2417.00	101.3 AV			2.17 V	100	104.4	-3.1
5	4834.00	62.3 PK	74.0	-11.7	1.40 V	151	61.1	1.2
6	4834.00	50.6 AV	54.0	-3.4	1.40 V	151	49.4	1.2
7	7251.00	47.2 PK	74.0	-26.8	1.66 V	34	40.1	7.1
8	7251.00	35.5 AV	54.0	-18.5	1.66 V	34	28.4	7.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	118.2 PK			1.56 H	141	121.3	-3.1
2	*2437.00	108.0 AV			1.56 H	141	111.1	-3.1
3	2483.50	67.4 PK	74.0	-6.6	1.56 H	141	70.5	-3.1
4	2483.50	53.6 AV	54.0	-0.4	1.56 H	141	56.7	-3.1
5	4874.00	61.0 PK	74.0	-13.0	1.26 H	152	59.8	1.2
6	4874.00	49.0 AV	54.0	-5.0	1.26 H	152	47.8	1.2
7	7311.00	46.9 PK	74.0	-27.1	1.48 H	321	39.7	7.2
8	7311.00	35.4 AV	54.0	-18.6	1.48 H	321	28.2	7.2
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	118.3 PK			2.10 V	68	121.4	-3.1
2	*2437.00	108.6 AV			2.10 V	68	111.7	-3.1
3	2483.50	64.3 PK	74.0	-9.7	2.10 V	68	67.4	-3.1
4	2483.50	50.3 AV	54.0	-3.7	2.10 V	68	53.4	-3.1
5	4874.00	62.1 PK	74.0	-11.9	1.38 V	140	60.9	1.2
6	4874.00	50.8 AV	54.0	-3.2	1.38 V	140	49.6	1.2
7	7311.00	46.3 PK	74.0	-27.7	1.64 V	20	39.1	7.2
8	7311.00	34.8 AV	54.0	-19.2	1.64 V	20	27.6	7.2

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 10	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	*2457.00	112.1 PK			1.52 H	152	115.2	-3.1
2	*2457.00	101.8 AV			1.52 H	152	104.9	-3.1
3	2483.50	67.5 PK	74.0	-6.5	1.52 H	152	70.6	-3.1
4	2483.50	53.2 AV	54.0	-0.8	1.52 H	152	56.3	-3.1
5	4914.00	61.0 PK	74.0	-13.0	1.24 H	147	59.7	1.3
6	4914.00	49.0 AV	54.0	-5.0	1.24 H	147	47.7	1.3
7	7371.00	46.3 PK	74.0	-27.7	1.47 H	328	39.1	7.2
8	7371.00	34.8 AV	54.0	-19.2	1.47 H	328	27.6	7.2
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	*2457.00	111.3 PK			2.08 V	92	114.4	-3.1
2	*2457.00	100.8 AV			2.08 V	92	103.9	-3.1
3	2483.50	65.7 PK	74.0	-8.3	2.08 V	92	68.8	-3.1
4	2483.50	49.9 AV	54.0	-4.1	2.08 V	92	53.0	-3.1
5	4914.00	61.1 PK	74.0	-12.9	1.32 V	154	59.8	1.3
6	4914.00	49.8 AV	54.0	-4.2	1.32 V	154	48.5	1.3
7	7371.00	47.3 PK	74.0	-26.7	1.69 V	33	40.1	7.2
8	7371.00	35.5 AV	54.0	-18.5	1.69 V	33	28.3	7.2

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	112.5 PK			1.56 H	140	115.6	-3.1
2	*2462.00	102.1 AV			1.56 H	140	105.2	-3.1
3	2483.50	67.8 PK	74.0	-6.2	1.56 H	140	70.9	-3.1
4	2483.50	53.7 AV	54.0	-0.3	1.56 H	140	56.8	-3.1
5	4924.00	61.7 PK	74.0	-12.3	1.24 H	155	60.4	1.3
6	4924.00	49.5 AV	54.0	-4.5	1.24 H	155	48.2	1.3
7	7386.00	45.6 PK	74.0	-28.4	1.46 H	325	38.3	7.3
8	7386.00	34.6 AV	54.0	-19.4	1.46 H	325	27.3	7.3
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	112.2 PK			2.10 V	97	115.3	-3.1
2	*2462.00	101.4 AV			2.10 V	97	104.5	-3.1
3	2483.50	65.8 PK	74.0	-8.2	2.10 V	97	68.9	-3.1
4	2483.50	50.2 AV	54.0	-3.8	2.10 V	97	53.3	-3.1
5	4924.00	61.5 PK	74.0	-12.5	1.37 V	153	60.2	1.3
6	4924.00	49.9 AV	54.0	-4.1	1.37 V	153	48.6	1.3
7	7386.00	46.8 PK	74.0	-27.2	1.71 V	26	39.5	7.3
8	7386.00	35.3 AV	54.0	-18.7	1.71 V	26	28.0	7.3

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.

VHT40

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	69.8 PK	74.0	-4.2	1.58 H	141	72.9	-3.1
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.58 H**	**141**	**57.0**	**-3.1**
3	*2422.00	108.6 PK			1.58 H	141	111.7	-3.1
4	*2422.00	98.2 AV			1.58 H	141	101.3	-3.1
5	4844.00	58.6 PK	74.0	-15.4	1.27 H	140	57.4	1.2
6	4844.00	46.2 AV	54.0	-7.8	1.27 H	140	45.0	1.2
7	7266.00	46.3 PK	74.0	-27.7	1.47 H	330	39.2	7.1
8	7266.00	35.0 AV	54.0	-19.0	1.47 H	330	27.9	7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.7 PK	74.0	-9.3	2.07 V	111	67.8	-3.1
2	2390.00	50.9 AV	54.0	-3.1	2.07 V	111	54.0	-3.1
3	*2422.00	107.4 PK			2.07 V	111	110.5	-3.1
4	*2422.00	97.2 AV			2.07 V	111	100.3	-3.1
5	4844.00	59.1 PK	74.0	-14.9	1.41 V	142	57.9	1.2
6	4844.00	47.3 AV	54.0	-6.7	1.41 V	142	46.1	1.2
7	7266.00	47.2 PK	74.0	-26.8	1.72 V	33	40.1	7.1
8	7266.00	35.5 AV	54.0	-18.5	1.72 V	33	28.4	7.1

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.6 PK	74.0	-4.4	1.60 H	154	72.7	-3.1
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.60 H**	**154**	**57.0**	**-3.1**
3	*2427.00	108.6 PK			1.60 H	129	111.7	-3.1
4	*2427.00	98.4 AV			1.60 H	129	101.5	-3.1
5	4854.00	59.0 PK	74.0	-15.0	1.24 H	146	57.9	1.1
6	4854.00	46.6 AV	54.0	-7.4	1.24 H	146	45.5	1.1
7	7281.00	46.7 PK	74.0	-27.3	1.48 H	340	39.5	7.2
8	7281.00	35.4 AV	54.0	-18.6	1.48 H	340	28.2	7.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.4 PK	74.0	-3.6	2.14 V	107	73.5	-3.1
2	2390.00	50.3 AV	54.0	-3.7	2.14 V	107	53.4	-3.1
3	*2427.00	107.3 PK			2.14 V	107	110.4	-3.1
4	*2427.00	97.1 AV			2.14 V	107	100.2	-3.1
5	4854.00	58.8 PK	74.0	-15.2	1.38 V	148	57.7	1.1
6	4854.00	46.9 AV	54.0	-7.1	1.38 V	148	45.8	1.1
7	7281.00	47.5 PK	74.0	-26.5	1.67 V	23	40.3	7.2
8	7281.00	35.8 AV	54.0	-18.2	1.67 V	23	28.6	7.2

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)
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	70.2 PK	74.0	-3.8	1.56 H	141	73.3	-3.1
2	2390.00	51.0 AV	54.0	-3.0	1.56 H	141	54.1	-3.1
3	*2437.00	109.9 PK			1.56 H	141	113.0	-3.1
4	*2437.00	100.1 AV			1.56 H	141	103.2	-3.1
5	2483.50	69.3 PK	74.0	-4.7	1.56 H	141	72.4	-3.1
6	2483.50	53.6 AV	54.0	-0.4	1.56 H	141	56.7	-3.1
7	4874.00	59.1 PK	74.0	-14.9	1.27 H	162	57.9	1.2
8	4874.00	46.6 AV	54.0	-7.4	1.27 H	162	45.4	1.2
9	7311.00	46.5 PK	74.0	-27.5	1.45 H	344	39.3	7.2
10	7311.00	35.4 AV	54.0	-18.6	1.45 H	344	28.2	7.2
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	67.2 PK	74.0	-6.8	2.06 V	98	70.3	-3.1
2	2390.00	47.6 AV	54.0	-6.4	2.06 V	98	50.7	-3.1
3	*2437.00	109.7 PK			2.06 V	98	112.8	-3.1
4	*2437.00	99.6 AV			2.06 V	98	102.7	-3.1
5	2483.50	66.3 PK	74.0	-7.7	2.06 V	98	69.4	-3.1
6	2483.50	50.8 AV	54.0	-3.2	2.06 V	98	53.9	-3.1
7	4874.00	59.2 PK	74.0	-14.8	1.43 V	132	58.0	1.2
8	4874.00	47.5 AV	54.0	-6.5	1.43 V	132	46.3	1.2
9	7311.00	47.3 PK	74.0	-26.7	1.74 V	38	40.1	7.2
10	7311.00	35.7 AV	54.0	-18.3	1.74 V	38	28.5	7.2

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 8	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2447.00	106.8 PK			1.60 H	125	109.9	-3.1
2	*2447.00	96.2 AV			1.60 H	125	99.3	-3.1
3	2483.50	70.3 PK	74.0	-3.7	1.60 H	130	73.4	-3.1
4	2483.50	53.5 AV	54.0	-0.5	1.60 H	130	56.6	-3.1
5	4894.00	59.3 PK	74.0	-14.7	1.26 H	152	58.0	1.3
6	4894.00	46.7 AV	54.0	-7.3	1.26 H	152	45.4	1.3
7	7341.00	46.9 PK	74.0	-27.1	1.52 H	341	39.7	7.2
8	7341.00	35.8 AV	54.0	-18.2	1.52 H	341	28.6	7.2
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	*2447.00	105.8 PK			2.06 V	105	108.9	-3.1
2	*2447.00	95.0 AV			2.06 V	105	98.1	-3.1
3	2483.50	64.9 PK	74.0	-9.1	2.06 V	105	68.0	-3.1
4	2483.50	51.0 AV	54.0	-3.0	2.06 V	105	54.1	-3.1
5	4894.00	58.8 PK	74.0	-15.2	1.43 V	129	57.5	1.3
6	4894.00	47.0 AV	54.0	-7.0	1.43 V	129	45.7	1.3
7	7341.00	46.8 PK	74.0	-27.2	1.68 V	45	39.6	7.2
8	7341.00	35.2 AV	54.0	-18.8	1.68 V	45	28.0	7.2

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	107.1 PK			1.56 H	140	110.2	-3.1
2	*2452.00	96.4 AV			1.56 H	140	99.5	-3.1
3	2483.50	69.7 PK	74.0	-4.3	1.56 H	140	72.8	-3.1
4	2483.50	53.7 AV	54.0	-0.3	1.56 H	140	56.8	-3.1
5	4904.00	59.3 PK	74.0	-14.7	1.24 H	141	58.0	1.3
6	4904.00	47.1 AV	54.0	-6.9	1.24 H	141	45.8	1.3
7	7356.00	46.0 PK	74.0	-28.0	1.47 H	354	38.8	7.2
8	7356.00	34.9 AV	54.0	-19.1	1.47 H	354	27.7	7.2
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	106.1 PK			2.10 V	100	109.2	-3.1
2	*2452.00	95.3 AV			2.10 V	100	98.4	-3.1
3	2483.50	64.5 PK	74.0	-9.5	2.10 V	100	67.6	-3.1
4	2483.50	50.7 AV	54.0	-3.3	2.10 V	100	53.8	-3.1
5	4904.00	58.7 PK	74.0	-15.3	1.40 V	156	57.4	1.3
6	4904.00	46.8 AV	54.0	-7.2	1.40 V	156	45.5	1.3
7	7356.00	47.0 PK	74.0	-27.0	1.73 V	44	39.8	7.2
8	7356.00	35.3 AV	54.0	-18.7	1.73 V	44	28.1	7.2

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:

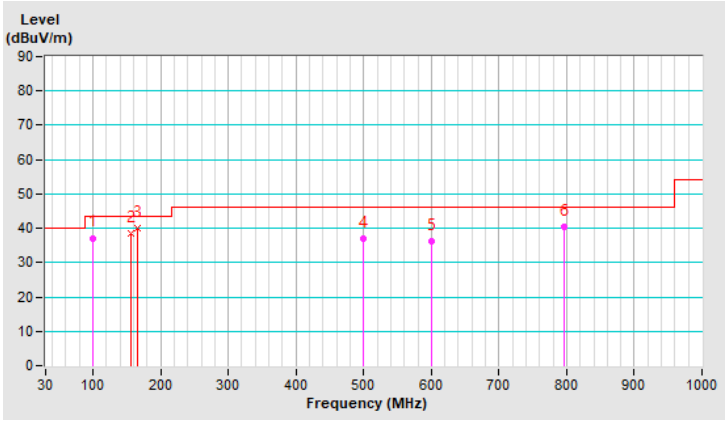
802.11g

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	99.89	37.2 QP	43.5	-6.3	3.00 H	1	54.5	-17.3
2	156.52	38.5 QP	43.5	-5.0	2.00 H	263	51.3	-12.8
3	164.98	40.0 QP	43.5	-3.5	1.50 H	51	53.2	-13.2
4	499.58	36.8 QP	46.0	-9.2	1.50 H	109	44.5	-7.7
5	599.49	36.1 QP	46.0	-9.9	1.50 H	207	41.5	-5.4
6	796.71	40.3 QP	46.0	-5.7	1.00 H	231	42.9	-2.6

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 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.

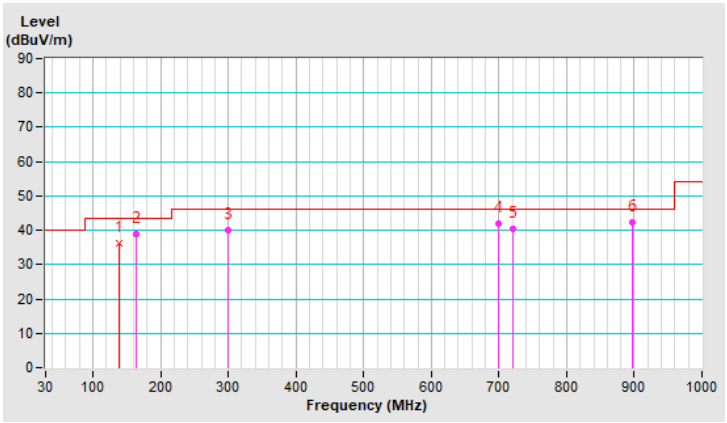


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	137.90	36.2 QP	43.5	-7.3	1.00 V	298	49.6	-13.4
2	164.44	38.8 QP	43.5	-4.7	1.00 V	53	51.9	-13.1
3	299.76	40.1 QP	46.0	-5.9	1.50 V	339	52.4	-12.3
4	699.32	41.8 QP	46.0	-4.2	1.50 V	315	45.8	-4.0
5	721.49	40.4 QP	46.0	-5.6	1.50 V	274	44.0	-3.6
6	896.23	42.2 QP	46.0	-3.8	2.50 V	288	43.7	-1.5

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: July 22, 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.

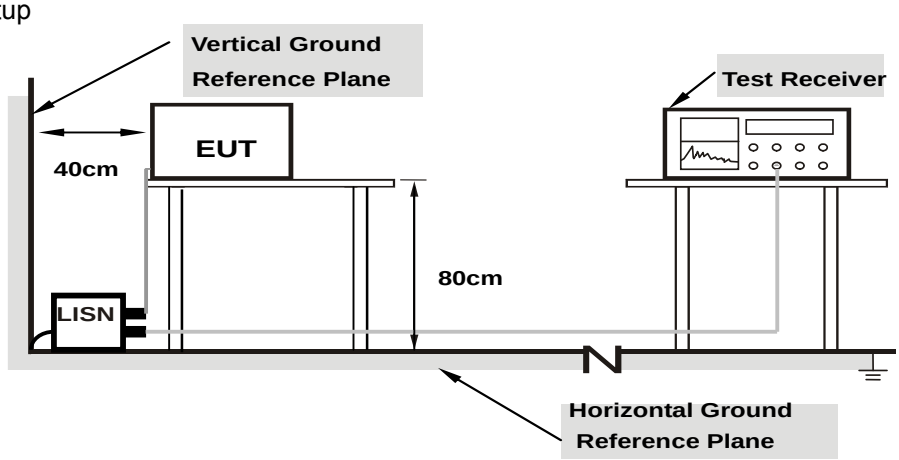
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

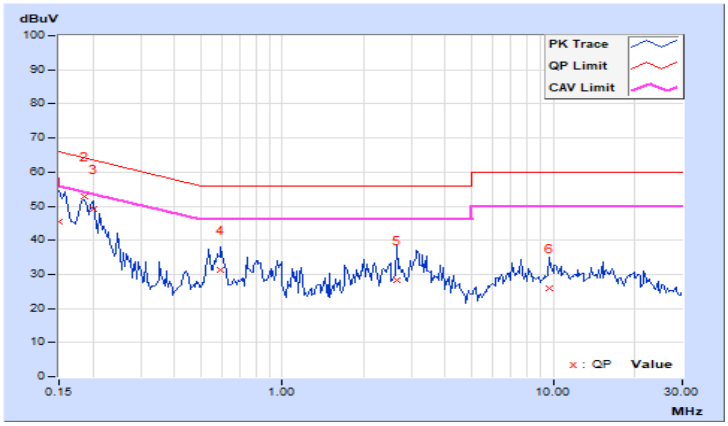
4.2.7 Test Results

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.94	35.54	21.36	45.48	31.30	66.00	56.00	-20.52	-24.70
2	**0.18516**	**9.95**	**42.77**	**25.17**	**52.72**	**35.12**	**64.25**	**54.25**	**-11.53**	**-19.13**
3	0.20078	9.95	39.25	23.32	49.20	33.27	63.58	53.58	-14.38	-20.31
4	0.59531	9.97	21.32	12.18	31.29	22.15	56.00	46.00	-24.71	-23.85
5	2.65234	10.09	18.06	12.51	28.15	22.60	56.00	46.00	-27.85	-23.40
6	9.68359	10.45	15.33	10.07	25.78	20.52	60.00	50.00	-34.22	-29.48

Remarks:

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

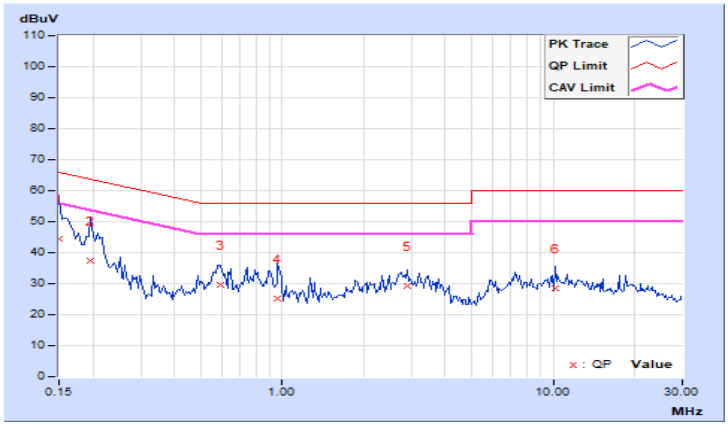


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.92	34.67	22.98	44.59	32.90	66.00	56.00	-21.41	-23.10
2	0.19687	9.93	27.60	15.95	37.53	25.88	63.74	53.74	-26.21	-27.86
3	0.59141	9.95	19.78	11.18	29.73	21.13	56.00	46.00	-26.27	-24.87
4	0.95859	9.98	15.04	7.32	25.02	17.30	56.00	46.00	-30.98	-28.70
5	2.89453	10.07	19.17	13.02	29.24	23.09	56.00	46.00	-26.76	-22.91
6	10.12891	10.37	18.09	12.62	28.46	22.99	60.00	50.00	-31.54	-27.01

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 Conducted Output Power Measurement

4.3.1 Limits of Conducted Output Power Measurement

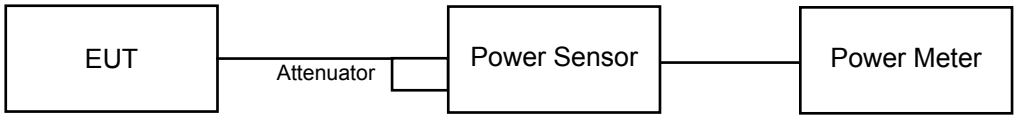
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test 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.

4.3.5 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 Results

FOR PEAK POWER

802.11b

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.72	13.59	46.406	16.67	28.64	Pass
6	2437	13.24	13.72	44.636	16.50	28.64	Pass
11	2462	13.17	13.70	44.191	16.45	28.64	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.36 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.36-6) = 28.64 dBm.

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.37	18.88	163.765	22.14	28.64	Pass
2	2417	24.08	23.05	457.696	26.61	28.64	Pass
6	2437	23.02	23.80	440.33	26.44	28.64	Pass
10	2457	22.00	21.24	291.534	24.65	28.64	Pass
11	2462	18.99	19.25	163.39	22.13	28.64	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.36 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.36-6) = 28.64 dBm.

VHT20

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.07	18.93	158.887	22.01	28.64	Pass
2	2417	21.65	21.77	296.532	24.72	28.64	Pass
6	2437	23.46	23.50	445.692	26.49	28.64	Pass
10	2457	21.97	22.31	327.614	25.15	28.64	Pass
11	2462	18.70	19.02	153.93	21.87	28.64	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.36 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.36-6) = 28.64 dBm.

VHT40

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.07	16.79	98.686	19.94	28.64	Pass
4	2427	21.90	21.50	296.136	24.71	28.64	Pass
6	2437	18.54	20.78	191.124	22.81	28.64	Pass
8	2447	20.25	20.34	214.068	23.31	28.64	Pass
9	2452	14.88	14.75	60.615	17.83	28.64	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.36 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.36-6) = 28.64 dBm.

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	11.05	11.64	27.323	14.37
6	2437	11.39	11.48	27.832	14.45
11	2462	11.23	12.03	29.233	14.66

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.20	13.01	40.892	16.12
2	2417	18.02	18.40	132.57	21.22
6	2437	17.70	17.64	116.96	20.68
10	2457	16.33	15.81	81.061	19.09
11	2462	13.39	13.19	42.672	16.30

VHT20

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.30	12.38	38.678	15.87
2	2417	15.59	15.29	70.03	18.45
6	2437	17.99	17.68	121.565	20.85
10	2457	15.39	16.45	78.751	18.96
11	2462	12.32	12.31	34.083	15.33

VHT40

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	10.96	10.17	22.873	13.59
4	2427	15.52	14.62	64.618	18.10
6	2437	14.22	14.62	55.397	17.43
8	2447	14.16	13.88	50.496	17.03
9	2452	8.25	8.10	13.14	11.19

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:

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

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