

TEST REPORT

Applicant	Edesix Ltd
Address	16 Forth Street Edinburgh EH1 3LH United Kingdom

Manufacturer or Supplier	E-Song Digital Limited
Address	6F West, Block B, Jintai Industrial Area, Gushu Hangcheng Avenue, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China.
Product Name	VideoBadge
Brand Name	Edesix
Model	VB-400
Additional Model & Model Difference	N/A
Date of tests	May 22, 2019 ~ Jul. 25, 2019

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart E, Section 15.407**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Andy Zhu Project Engineer/ EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: Sep. 05, 2019

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF190522N063-3	Original release.	Sep. 05, 2019

1. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407 UNDER NEW RULE)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emissions	N/A	Power by Battery
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

1.1 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	UNCERTAINTY
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.76dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	4.96dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT NAME	VideoBadge
MODEL NO.	VB-400
FCC ID	2AM8QVB400
POWER SUPPLY	DC 3.7V Supplied by Li-ion Battery, DC 5V Charged by the Solo Docking Station
MODULATION TYPE	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11ac: up to 200Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 channels for 802.11a, 802.11n(HT20),11ac (VHT20) 2 channels for 802.11n,11ac (40MHz) 5260 ~ 5320MHz: 4 channels for 802.11a, 802.11n(HT20),11ac (VHT20) 2 channels for 802.11n,11ac (40MHz)
CONDUCTED OUTPUT POWER	10.36dBm for 5150 ~ 5250MHz (Maximum AVG Power) 9.64dBm for 5250 ~ 5350MHz (Maximum AVG Power)
ANTENNA TYPE	5180 ~ 5240MHz: PCB antenna with 1.25dBi gain 5260 ~ 5320MHz: PCB antenna with 1.25dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable : Shielded, detachable, 1.0m

NOTES:

1. The EUT incorporates a SISO function. Physically, the EUT provides 1 completed transmitter and 1 receiver.

MODULATION MODE	FUNCTION
802.11a	1TX
802.11n (HT20) 802.11ac (VHT20)	1TX
802.11n (HT40) 802.11ac (VHT40)	1TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case for final test were chosen 802.11n (HT20/HT40) and record in the report.

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



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4. Please refer to the EUT photo document (Reference No.: 190522N063) for detailed product photo.
5. When the EUT charging that wireless function can't working, the charging mode was tested in the FCC SDoc report.(report no.: FS190522N063).

2.2 DESCRIPTION OF TEST MODES

FOR 5150 ~ 5250MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac(VHT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	40	5200 MHz
44	5220 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac(VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5250 ~ 5350MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac(VHT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac(VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	-	√	Powered by Battery with wifi(5G) link

Where **RE≥1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

NOTE: "-" means no effect.

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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11a	5250-5350	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
	802.11n (40MHz)		54 to 62	54, 62	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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5150-5250	36 to 48	36	OFDM	BPSK	6.0

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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11a	5250-5350	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	24deg. C, 55%RH	DC 3.7V From Fully Battery	Daniel
RE≥1G	24deg. C, 55%RH	DC 3.7V From Fully Battery	Daniel
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 3.7V From Fully Battery	Robert Cheng



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2.3 DUTY CYCLE OF TEST SIGNAL

802.11a: Duty cycle = 100 %

802.11n (20MHz): Duty cycle =100 %

802.11n (40MHz): Duty cycle =100 %



2.4 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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01r03

ANSI C63.10-2013

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

3. TEST TYPES AND RESULTS

3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.1.1 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:

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

NOTES:

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 30dB under any condition of modulation.

3.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01r03	FIELD STRENGTH AT 3m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	Note	Note

NOTE: For transmitters operating in the 5.725-5.85 GHz band:

Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the alternative limit.

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where } P \text{ is the eirp (Watts).}$$

3.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 12,19	Mar. 11,20
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Aug. 02,18	Aug. 01,19
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 04,19	May 03,20
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Apr. 17,19	Apr. 18,20
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	Aug. 11, 18	Aug. 10, 19
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	Jul. 21, 19	Jul. 20, 20
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	May 05,19	May 04,20
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Feb. 10,19	Feb. 09,20
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Apr. 17,19	Apr. 18,20
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 09,18	Nov. 08,19
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A

NOTES:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.
2. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
3. The FCC Site Registration No. is 749762.

3.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. 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 antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTES:

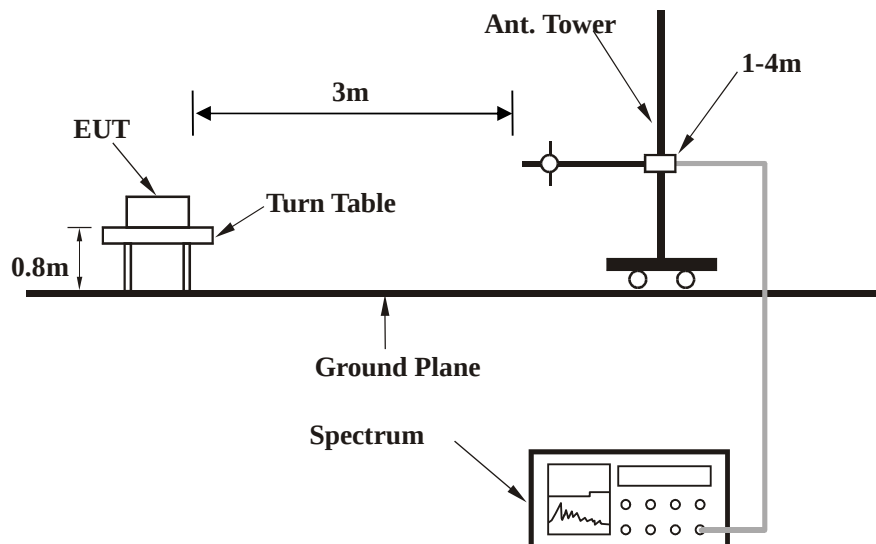
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

3.1.5 DEVIATION FROM TEST STANDARD

No deviation.

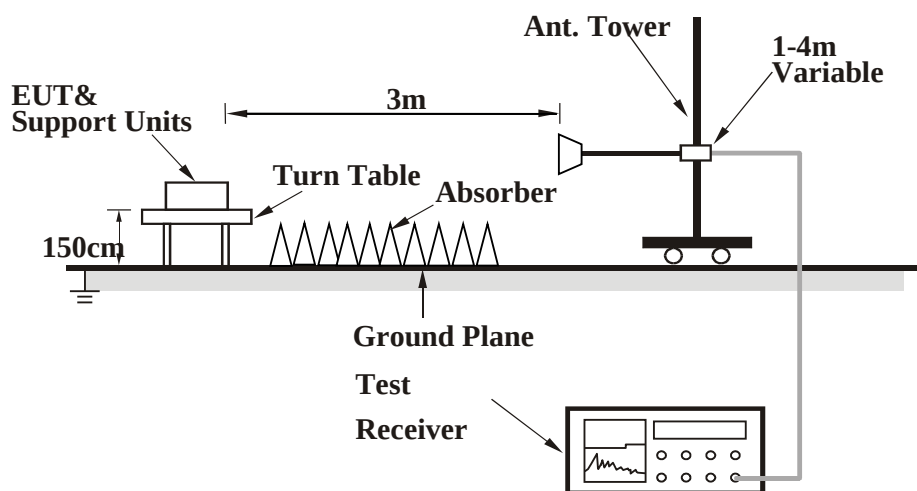
3.1.6 TEST SETUP

Below 1GHz test setup



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

Above 1GHz test setup



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



3.1.7 EUT OPERATING CONDITION

- a. Set the EUT under full load condition and placed them on a testing table.
- b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the EUT in full functions.

3.1.8 FTEST RESULTS

BELOW 1GHz WORST-CASE DATA

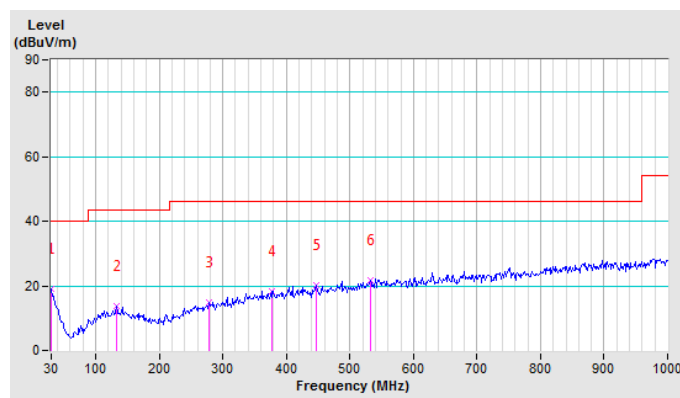
802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	30.00	19.20 QP	40.00	-20.80	1.00 H	152	29.30	-10.10
2	132.60	13.69 QP	43.50	-29.81	1.00 H	303	29.82	-16.13
3	278.72	14.85 QP	46.00	-31.15	1.00 H	179	28.51	-13.66
4	376.65	18.15 QP	46.00	-27.85	1.00 H	204	28.08	-9.93
5	446.60	20.27 QP	46.00	-25.73	1.00 H	82	28.86	-8.59
6	532.10	21.82 QP	46.00	-24.18	1.00 H	77	28.45	-6.63

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

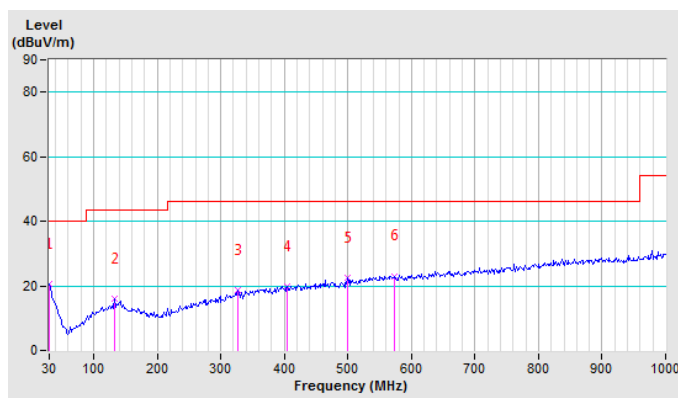


CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	30.00	20.71 QP	40.00	-19.29	1.00 V	192	30.81	-10.10
2	132.60	15.86 QP	43.50	-27.64	1.00 V	47	31.99	-16.13
3	326.91	18.62 QP	46.00	-27.38	1.00 V	122	30.12	-11.50
4	404.63	19.80 QP	46.00	-26.20	1.00 V	208	29.10	-9.30
5	499.46	22.51 QP	46.00	-23.49	1.00 V	242	30.24	-7.73
6	572.52	23.05 QP	46.00	-22.95	1.00 V	301	29.04	-5.99

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



Band 1 (5150-5250MHz):

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5147.61	53.08 PK	74.00	-20.92	1.01 H	105	46.87	6.21
2	5147.61	36.50 AV	54.00	-17.50	1.01 H	105	30.29	6.21
3	5150.00	57.08 PK	74.00	-16.92	1.01 H	105	50.86	6.22
4	5150.00	37.31 AV	54.00	-16.69	1.01 H	105	31.09	6.22
5	*5180.00	100.34 PK			1.01 H	105	93.99	6.35
6	*5180.00	89.31 AV			1.01 H	105	82.96	6.35
7	#10360.00	55.07 PK	68.20	-13.13	1.00 H	0	40.69	14.38
8	15540.00	64.17 PK	74.00	-9.83	1.00 H	0	43.06	21.11
9	15540.00	49.42 AV	54.00	-4.58	1.00 H	0	28.31	21.11
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	5148.21	47.39 PK	74.00	-26.61	1.43 V	107	41.18	6.21
2	5148.21	34.56 AV	54.00	-19.44	1.43 V	107	28.35	6.21
3	5150.00	54.27 PK	74.00	-19.73	1.43 V	107	48.05	6.22
4	5150.00	34.95 AV	54.00	-19.05	1.43 V	107	28.73	6.22
5	*5180.00	94.06 PK			1.43 V	107	87.71	6.35
6	*5180.00	83.27 AV			1.43 V	107	76.92	6.35
7	#10360.00	56.04 PK	68.20	-12.16	1.00 V	0	41.66	14.38
8	15540.00	64.18 PK	74.00	-9.82	1.00 V	0	43.07	21.11
9	15540.00	49.24 AV	54.00	-4.76	1.00 V	0	28.13	21.11

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5146.56	45.52 PK	74.00	-28.48	1.00 H	108	39.31	6.21
2	5146.56	33.92 AV	54.00	-20.08	1.00 H	108	27.71	6.21
3	5150.00	46.34 PK	74.00	-27.66	1.00 H	108	40.12	6.22
4	5150.00	33.88 AV	54.00	-20.12	1.00 H	108	27.66	6.22
5	*5200.00	101.72 PK			1.00 H	108	95.28	6.44
6	*5200.00	90.67 AV			1.00 H	108	84.23	6.44
7	#10400.00	56.38 PK	68.20	-11.82	1.00 H	0	41.91	14.47
8	15600.00	64.48 PK	74.00	-9.52	1.00 H	0	43.19	21.29
9	15600.00	49.16 AV	54.00	-4.84	1.00 H	0	27.87	21.29
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	5143.97	45.01 PK	74.00	-28.99	1.45 V	113	38.82	6.19
2	5143.97	33.54 AV	54.00	-20.46	1.45 V	113	27.35	6.19
3	5150.00	46.07 PK	74.00	-27.93	1.45 V	113	39.85	6.22
4	5150.00	33.51 AV	54.00	-20.49	1.45 V	113	27.29	6.22
5	*5200.00	94.55 PK			1.45 V	113	88.11	6.44
6	*5200.00	83.60 AV			1.45 V	113	77.16	6.44
7	#10400.00	56.75 PK	68.20	-11.45	1.00 V	0	42.28	14.47
8	15600.00	64.85 PK	74.00	-9.15	1.00 V	0	43.56	21.29
9	15600.00	49.72 AV	54.00	-4.28	1.00 V	0	28.43	21.29

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5146.92	45.74 PK	74.00	-28.26	1.57 H	106	39.53	6.21
2	5146.92	33.81 AV	54.00	-20.19	1.57 H	106	27.60	6.21
3	5150.00	45.56 PK	74.00	-28.44	1.57 H	106	39.34	6.22
4	5150.00	33.72 AV	54.00	-20.28	1.57 H	106	27.50	6.22
5	*5240.00	100.35 PK			1.57 H	106	93.73	6.62
6	*5240.00	89.30 AV			1.57 H	106	82.68	6.62
7	#5256.22	47.84 PK	68.20	-20.36	1.57 H	106	41.15	6.69
8	#5256.22	35.98 AV	54.00	-18.02	1.57 H	106	29.29	6.69
9	5350.00	47.52 PK	74.00	-26.48	1.57 H	106	40.41	7.11
10	5350.00	35.74 AV	54.00	-18.26	1.57 H	106	28.63	7.11
11	#10480.00	56.97 PK	68.20	-11.23	1.00 H	0	42.32	14.65
12	15720.00	64.98 PK	74.00	-9.02	1.00 H	0	43.33	21.65
13	15720.00	49.86 AV	54.00	-4.14	1.00 H	0	28.21	21.65
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	5147.91	45.17 PK	74.00	-28.83	1.45 V	114	38.96	6.21
2	5147.91	33.57 AV	54.00	-20.43	1.45 V	114	27.36	6.21
3	5150.00	45.43 PK	74.00	-28.57	1.45 V	114	39.21	6.22
4	5150.00	33.49 AV	54.00	-20.51	1.45 V	114	27.27	6.22
5	*5240.00	94.67 PK			1.45 V	114	88.05	6.62
6	*5240.00	83.63 AV			1.45 V	114	77.01	6.62
7	5350.00	48.20 PK	74.00	-25.80	1.45 V	114	41.09	7.11
8	5350.00	35.55 AV	54.00	-18.45	1.45 V	114	28.44	7.11
9	5364.59	47.88 PK	74.00	-26.12	1.45 V	114	40.71	7.17
10	5364.59	35.91 AV	54.00	-18.09	1.45 V	114	28.74	7.17
11	#10480.00	56.61 PK	68.20	-11.59	1.00 V	0	41.96	14.65
12	15720.00	64.85 PK	74.00	-9.15	1.00 V	0	43.20	21.65
13	15720.00	49.68 AV	54.00	-4.32	1.00 V	0	28.03	21.65

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5148.11	54.20 PK	74.00	-19.80	1.35 H	100	47.99	6.21
2	5148.11	36.86 AV	54.00	-17.14	1.35 H	100	30.65	6.21
3	5150.00	53.66 PK	74.00	-20.34	1.35 H	100	47.44	6.22
4	5150.00	37.36 AV	54.00	-16.64	1.35 H	100	31.14	6.22
5	*5180.00	100.47 PK			1.35 H	100	94.12	6.35
6	*5180.00	89.26 AV			1.35 H	100	82.91	6.35
7	#10360.00	56.26 PK	68.20	-11.94	1.00 H	0	41.88	14.38
8	15540.00	64.52 PK	74.00	-9.48	1.00 H	0	43.41	21.11
9	15540.00	49.38 AV	54.00	-4.62	1.00 H	0	28.27	21.11
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	5147.08	50.89 PK	74.00	-23.11	1.63 V	108	44.68	6.21
2	5147.08	34.19 AV	54.00	-19.81	1.63 V	108	27.98	6.21
3	5150.00	48.24 PK	74.00	-25.76	1.63 V	108	42.02	6.22
4	5150.00	34.48 AV	54.00	-19.52	1.63 V	108	28.26	6.22
5	*5180.00	93.66 PK			1.63 V	108	87.31	6.35
6	*5180.00	82.16 AV			1.63 V	108	75.81	6.35
7	#10360.00	56.21 PK	68.20	-11.99	1.00 V	0	41.83	14.38
8	15540.00	64.25 PK	74.00	-9.75	1.00 V	0	43.14	21.11
9	15540.00	49.42 AV	54.00	-4.58	1.00 V	0	28.31	21.11

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5145.45	45.57 PK	74.00	-28.43	1.00 H	106	39.37	6.20
2	5145.45	33.89 AV	54.00	-20.11	1.00 H	106	27.69	6.20
3	5150.00	46.42 PK	74.00	-27.58	1.00 H	106	40.20	6.22
4	5150.00	33.80 AV	54.00	-20.20	1.00 H	106	27.58	6.22
5	*5200.00	101.55 PK			1.00 H	106	95.11	6.44
6	*5200.00	90.09 AV			1.00 H	106	83.65	6.44
7	#10400.00	56.43 PK	68.20	-11.77	1.00 H	0	41.96	14.47
8	15600.00	64.57 PK	74.00	-9.43	1.00 H	0	43.28	21.29
9	15600.00	49.72 AV	54.00	-4.28	1.00 H	0	28.43	21.29
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	5145.57	45.73 PK	74.00	-28.27	1.37 V	107	39.53	6.20
2	5145.57	33.66 AV	54.00	-20.34	1.37 V	107	27.46	6.20
3	5150.00	45.33 PK	74.00	-28.67	1.37 V	107	39.11	6.22
4	5150.00	33.59 AV	54.00	-20.41	1.37 V	107	27.37	6.22
5	*5200.00	94.37 PK			1.37 V	107	87.93	6.44
6	*5200.00	82.84 AV			1.37 V	107	76.40	6.44
7	#10400.00	56.42 PK	68.20	-11.78	1.00 V	0	41.95	14.47
8	15600.00	64.35 PK	74.00	-9.65	1.00 V	0	43.06	21.29
9	15600.00	49.31 AV	54.00	-4.69	1.00 V	0	28.02	21.29

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5144.75	45.91 PK	74.00	-28.09	1.00 H	108	39.71	6.20
2	5144.75	33.96 AV	54.00	-20.04	1.00 H	108	27.76	6.20
3	5150.00	45.25 PK	74.00	-28.75	1.00 H	108	39.03	6.22
4	5150.00	33.95 AV	54.00	-20.05	1.00 H	108	27.73	6.22
5	*5240.00	100.17 PK			1.00 H	108	93.55	6.62
6	*5240.00	88.54 AV			1.00 H	108	81.92	6.62
7	5350.00	48.16 PK	74.00	-25.84	1.00 H	108	41.05	7.11
8	5350.00	35.86 AV	54.00	-18.14	1.00 H	108	28.75	7.11
9	5353.95	48.62 PK	74.00	-25.38	1.00 H	108	41.49	7.13
10	5353.95	36.03 AV	54.00	-17.97	1.00 H	108	28.90	7.13
11	#10480.00	56.57 PK	68.20	-11.63	1.00 H	0	41.92	14.65
12	15720.00	64.68 PK	74.00	-9.32	1.00 H	0	43.03	21.65
13	15720.00	49.74 AV	54.00	-4.26	1.00 H	0	28.09	21.65
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	5144.75	44.76 PK	74.00	-29.24	1.00 V	189	38.56	6.20
2	5144.75	33.73 AV	54.00	-20.27	1.00 V	189	27.53	6.20
3	5150.00	45.53 PK	74.00	-28.47	1.00 V	189	39.31	6.22
4	5150.00	33.74 AV	54.00	-20.26	1.00 V	189	27.52	6.22
5	*5240.00	92.75 PK			1.00 V	189	86.13	6.62
6	*5240.00	81.09 AV			1.00 V	189	74.47	6.62
7	5350.00	49.58 PK	74.00	-24.42	1.00 V	189	42.47	7.11
8	5350.00	35.68 AV	54.00	-18.32	1.00 V	189	28.57	7.11
9	5357.34	47.61 PK	74.00	-26.39	1.00 V	189	40.47	7.14
10	5357.34	35.87 AV	54.00	-18.13	1.00 V	189	28.73	7.14
11	#10480.00	56.43 PK	68.20	-11.77	1.00 V	0	41.78	14.65
12	15720.00	64.62 PK	74.00	-9.38	1.00 V	0	42.97	21.65
13	15720.00	49.74 AV	54.00	-4.26	1.00 V	0	28.09	21.65

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (40MHz)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5145.08	61.28 PK	74.00	-12.72	1.00 H	106	55.08	6.20
2	5145.08	42.86 AV	54.00	-11.14	1.00 H	106	36.66	6.20
3	5150.00	63.20 PK	74.00	-10.80	1.00 H	106	56.98	6.22
4	5150.00	45.90 AV	54.00	-8.10	1.00 H	106	39.68	6.22
5	*5190.00	95.69 PK			1.00 H	106	89.29	6.40
6	*5190.00	83.76 AV			1.00 H	106	77.36	6.40
7	#10380.00	56.26 PK	68.20	-11.94	1.00 H	0	41.84	14.42
8	15570.00	64.37 PK	74.00	-9.63	1.00 H	0	43.17	21.20
9	15570.00	49.15 AV	54.00	-4.85	1.00 H	0	27.95	21.20
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	5147.17	54.55 PK	74.00	-19.45	1.00 V	115	48.34	6.21
2	5147.17	39.43 AV	54.00	-14.57	1.00 V	115	33.22	6.21
3	5150.00	58.10 PK	74.00	-15.90	1.00 V	115	51.88	6.22
4	5150.00	40.96 AV	54.00	-13.04	1.00 V	115	34.74	6.22
5	*5190.00	89.29 PK			1.00 V	115	82.89	6.40
6	*5190.00	77.51 AV			1.00 V	115	71.11	6.40
7	#10380.00	56.03 PK	68.20	-12.17	1.00 V	0	41.61	14.42
8	15570.00	64.13 PK	74.00	-9.87	1.00 V	0	42.93	21.20
9	15570.00	49.22 AV	54.00	-4.78	1.00 V	0	28.02	21.20

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5145.66	45.91 PK	74.00	-28.09	1.04 H	108	39.71	6.20
2	5145.66	34.17 AV	54.00	-19.83	1.04 H	108	27.97	6.20
3	5150.00	45.72 PK	74.00	-28.28	1.04 H	108	39.50	6.22
4	5150.00	34.18 AV	54.00	-19.82	1.04 H	108	27.96	6.22
5	*5230.00	95.71 PK			1.04 H	108	89.14	6.57
6	*5230.00	83.95 AV			1.04 H	108	77.38	6.57
7	#10460.00	56.45 PK	68.20	-11.75	1.00 H	0	41.85	14.60
8	15690.00	64.58 PK	74.00	-9.42	1.00 H	0	43.02	21.56
9	15690.00	49.84 AV	54.00	-4.16	1.00 H	0	28.28	21.56
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	5143.31	46.21 PK	74.00	-27.79	1.22 V	106	40.02	6.19
2	5143.31	33.75 AV	54.00	-20.25	1.22 V	106	27.56	6.19
3	5150.00	45.40 PK	74.00	-28.60	1.22 V	106	39.18	6.22
4	5150.00	33.82 AV	54.00	-20.18	1.22 V	106	27.60	6.22
5	*5230.00	89.76 PK			1.22 V	106	83.19	6.57
6	*5230.00	77.22 AV			1.22 V	106	70.65	6.57
7	#10460.00	56.53 PK	68.20	-11.67	1.00 V	0	41.93	14.60
8	15690.00	64.76 PK	74.00	-9.24	1.00 V	0	43.20	21.56
9	15690.00	49.68 AV	54.00	-4.32	1.00 V	0	28.12	21.56

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



**BUREAU
VERITAS**

Test Report No.: RF190522N063-3

Band 2 (5250-5350MHz):

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5144.12	46.39 PK	74.00	-27.61	1.36 H	307	40.19	6.20
2	5144.12	33.78 AV	54.00	-20.22	1.36 H	307	27.58	6.20
5	*5260.00	96.20 PK			1.36 H	307	89.49	6.71
6	*5260.00	85.09 AV			1.36 H	307	78.38	6.71
7	5350.00	47.98 PK	74.00	-26.02	1.36 H	307	40.87	7.11
8	5350.00	35.71 AV	54.00	-18.29	1.36 H	307	28.60	7.11
9	5356.77	48.35 PK	74.00	-25.65	1.36 H	307	41.21	7.14
10	5356.77	35.89 AV	54.00	-18.11	1.36 H	307	28.75	7.14
11	#10520.00	56.59 PK	68.20	-11.61	1.00 H	0	41.86	14.73
12	15780.00	64.69 PK	74.00	-9.31	1.00 H	0	42.87	21.82
13	15780.00	49.85 AV	54.00	-4.15	1.00 H	0	28.03	21.82
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	5142.03	45.11 PK	74.00	-28.89	1.02 V	106	38.92	6.19
2	5142.03	33.67 AV	54.00	-20.33	1.02 V	106	27.48	6.19
5	*5260.00	93.74 PK			1.02 V	106	87.03	6.71
6	*5260.00	82.65 AV			1.02 V	106	75.94	6.71
7	5350.00	48.65 PK	74.00	-25.35	1.02 V	106	41.54	7.11
8	5350.00	35.70 AV	54.00	-18.30	1.02 V	106	28.59	7.11
9	5356.58	47.77 PK	74.00	-26.23	1.02 V	106	40.63	7.14
10	5356.58	35.86 AV	54.00	-18.14	1.02 V	106	28.72	7.14
11	#10520.00	56.43 PK	68.20	-11.77	1.00 V	0	41.70	14.73
12	15780.00	64.72 PK	74.00	-9.28	1.00 V	0	42.90	21.82
13	15780.00	49.46 AV	54.00	-4.54	1.00 V	0	27.64	21.82

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie
Town, Dongguan City,
Guangdong 523942, China

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5300.00	101.11 PK			1.59 H	101	94.22	6.89
2	*5300.00	89.97 AV			1.59 H	101	83.08	6.89
3	5350.00	48.26 PK	74.00	-25.74	1.59 H	101	41.15	7.11
4	5350.00	35.93 AV	54.00	-18.07	1.59 H	101	28.82	7.11
5	5355.64	48.29 PK	74.00	-25.71	1.59 H	101	41.16	7.13
6	5355.64	36.13 AV	54.00	-17.87	1.59 H	101	29.00	7.13
7	10600.00	56.31 PK	74.00	-17.69	1.00 H	0	41.41	14.90
8	10600.00	44.86 AV	54.00	-9.14	1.00 H	0	29.96	14.90
9	15900.00	64.42 PK	74.00	-9.58	1.00 H	0	42.24	22.18
10	15900.00	49.17 AV	54.00	-4.83	1.00 H	0	26.99	22.18
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	*5300.00	94.50 PK			1.49 V	115	87.61	6.89
2	*5300.00	83.55 AV			1.49 V	115	76.66	6.89
3	5350.00	48.09 PK	74.00	-25.91	1.49 V	115	40.98	7.11
4	5350.00	35.75 AV	54.00	-18.25	1.49 V	115	28.64	7.11
5	5359.22	48.88 PK	74.00	-25.12	1.49 V	115	41.73	7.15
6	5359.22	35.87 AV	54.00	-18.13	1.49 V	115	28.72	7.15
7	10600.00	56.39 PK	74.00	-17.61	1.00 V	0	41.49	14.90
8	10600.00	44.72 AV	54.00	-9.28	1.00 V	0	29.82	14.90
9	15900.00	64.31 PK	74.00	-9.69	1.00 V	0	42.13	22.18
10	15900.00	49.45 AV	54.00	-4.55	1.00 V	0	27.27	22.18

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5320.00	101.49 PK			1.06 H	106	94.51	6.98
2	*5320.00	90.35 AV			1.06 H	106	83.37	6.98
3	5350.00	52.30 PK	74.00	-21.70	1.06 H	106	45.19	7.11
4	5350.00	36.91 AV	54.00	-17.09	1.06 H	106	29.80	7.11
5	5353.26	51.35 PK	74.00	-22.65	1.06 H	106	44.23	7.12
6	5353.26	36.95 AV	54.00	-17.05	1.06 H	106	29.83	7.12
7	10640.00	56.21 PK	74.00	-17.79	1.00 H	0	41.22	14.99
8	10640.00	45.17 AV	54.00	-8.83	1.00 H	0	30.18	14.99
9	15960.00	64.28 PK	74.00	-9.72	1.00 H	0	41.92	22.36
10	15960.00	49.16 AV	54.00	-4.84	1.00 H	0	26.80	22.36
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	*5320.00	95.53 PK			1.00 V	113	88.55	6.98
2	*5320.00	84.25 AV			1.00 V	113	77.27	6.98
3	5350.00	51.02 PK	74.00	-22.98	1.00 V	113	43.91	7.11
4	5350.00	36.32 AV	54.00	-17.68	1.00 V	113	29.21	7.11
5	5352.26	48.94 PK	74.00	-25.06	1.00 V	113	41.82	7.12
6	5352.26	36.36 AV	54.00	-17.64	1.00 V	113	29.24	7.12
7	10640.00	56.37 PK	74.00	-17.63	1.00 V	0	41.38	14.99
8	10640.00	45.02 AV	54.00	-8.98	1.00 V	0	30.03	14.99
9	15960.00	64.58 PK	74.00	-9.42	1.00 V	0	42.22	22.36
10	15960.00	49.43 AV	54.00	-4.57	1.00 V	0	27.07	22.36

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



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Test Report No.: RF190522N063-3

802.11n (20MHz)

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5146.43	46.07 PK	74.00	-27.93	1.59 H	102	39.87	6.20
2	5146.43	33.92 AV	54.00	-20.08	1.59 H	102	27.72	6.20
3	5150.00	45.07 PK	74.00	-28.93	1.59 H	102	38.85	6.22
4	5150.00	33.91 AV	54.00	-20.09	1.59 H	102	27.69	6.22
5	*5260.00	99.83 PK			1.59 H	102	93.12	6.71
6	*5260.00	88.32 AV			1.59 H	102	81.61	6.71
7	5350.00	48.38 PK	74.00	-25.62	1.59 H	102	41.27	7.11
8	5350.00	35.87 AV	54.00	-18.13	1.59 H	102	28.76	7.11
9	5364.30	47.82 PK	74.00	-26.18	1.59 H	102	40.65	7.17
10	5364.30	36.10 AV	54.00	-17.90	1.59 H	102	28.93	7.17
11	#10520.00	56.45 PK	68.20	-11.75	1.00 H	0	41.72	14.73
12	15780.00	64.19 PK	74.00	-9.81	1.00 H	0	42.37	21.82
13	15780.00	49.34 AV	54.00	-4.66	1.00 H	0	27.52	21.82
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	5140.98	45.79 PK	74.00	-28.21	1.38 V	108	39.61	6.18
2	5140.98	33.66 AV	54.00	-20.34	1.38 V	108	27.48	6.18
3	5150.00	45.81 PK	74.00	-28.19	1.38 V	108	39.59	6.22
4	5150.00	33.80 AV	54.00	-20.20	1.38 V	108	27.58	6.22
5	*5260.00	93.26 PK			1.38 V	108	86.55	6.71
6	*5260.00	81.62 AV			1.38 V	108	74.91	6.71
7	5350.00	48.34 PK	74.00	-25.66	1.38 V	108	41.23	7.11
8	5350.00	35.69 AV	54.00	-18.31	1.38 V	108	28.58	7.11
9	5355.27	48.34 PK	74.00	-25.66	1.38 V	108	41.21	7.13
10	5355.27	35.86 AV	54.00	-18.14	1.38 V	108	28.73	7.13
11	#10520.00	56.22 PK	68.20	-11.98	1.00 V	0	41.49	14.73
12	15780.00	64.47 PK	74.00	-9.53	1.00 V	0	42.65	21.82
13	15780.00	49.61 AV	54.00	-4.39	1.00 V	0	27.79	21.82

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie
Town, Dongguan City,
Guangdong 523942, China

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5300.00	101.21 PK			1.59 H	98	94.32	6.89
2	*5300.00	89.55 AV			1.59 H	98	82.66	6.89
3	5350.00	48.61 PK	74.00	-25.39	1.59 H	98	41.50	7.11
4	5350.00	36.00 AV	54.00	-18.00	1.59 H	98	28.89	7.11
5	5354.52	48.70 PK	74.00	-25.30	1.59 H	98	41.57	7.13
6	5354.52	36.14 AV	54.00	-17.86	1.59 H	98	29.01	7.13
7	10600.00	56.05 PK	74.00	-17.95	1.00 H	0	41.15	14.90
8	10600.00	44.96 AV	54.00	-9.04	1.00 H	0	30.06	14.90
9	15900.00	64.25 PK	74.00	-9.75	1.00 H	0	42.07	22.18
10	15900.00	49.32 AV	54.00	-4.68	1.00 H	0	27.14	22.18
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	*5300.00	95.27 PK			1.49 V	117	88.38	6.89
2	*5300.00	83.53 AV			1.49 V	117	76.64	6.89
3	5350.00	47.54 PK	74.00	-26.46	1.49 V	117	40.43	7.11
4	5350.00	35.74 AV	54.00	-18.26	1.49 V	117	28.63	7.11
5	5354.52	47.41 PK	74.00	-26.59	1.49 V	117	40.28	7.13
6	5354.52	35.85 AV	54.00	-18.15	1.49 V	117	28.72	7.13
7	10600.00	56.16 PK	74.00	-17.84	1.00 V	0	41.26	14.90
8	10600.00	44.97 AV	54.00	-9.03	1.00 V	0	30.07	14.90
9	15900.00	64.01 PK	74.00	-9.99	1.00 V	0	41.83	22.18
10	15900.00	49.24 AV	54.00	-4.76	1.00 V	0	27.06	22.18

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5320.00	102.24 PK			1.04 H	105	95.26	6.98
2	*5320.00	90.49 AV			1.04 H	105	83.51	6.98
3	5350.00	57.61 PK	74.00	-16.39	1.04 H	105	50.50	7.11
4	5350.00	37.79 AV	54.00	-16.21	1.04 H	105	30.68	7.11
5	5352.07	51.44 PK	74.00	-22.56	1.04 H	105	44.32	7.12
6	5352.07	37.72 AV	54.00	-16.28	1.04 H	105	30.60	7.12
7	10640.00	56.68 PK	74.00	-17.32	1.00 H	0	41.69	14.99
8	10640.00	45.17 AV	54.00	-8.83	1.00 H	0	30.18	14.99
9	15960.00	64.38 PK	74.00	-9.62	1.00 H	0	42.02	22.36
10	15960.00	49.67 AV	54.00	-4.33	1.00 H	0	27.31	22.36
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	*5320.00	95.29 PK			1.46 V	114	88.31	6.98
2	*5320.00	83.69 AV			1.46 V	114	76.71	6.98
3	5350.00	51.99 PK	74.00	-22.01	1.46 V	114	44.88	7.11
4	5350.00	36.73 AV	54.00	-17.27	1.46 V	114	29.62	7.11
5	5352.26	49.67 PK	74.00	-24.33	1.46 V	114	42.55	7.12
6	5352.26	36.64 AV	54.00	-17.36	1.46 V	114	29.52	7.12
7	10640.00	56.37 PK	74.00	-17.63	1.00 V	0	41.38	14.99
8	10640.00	45.12 AV	54.00	-8.88	1.00 V	0	30.13	14.99
9	15960.00	64.06 PK	74.00	-9.94	1.00 V	0	41.70	22.36
10	15960.00	49.83 AV	54.00	-4.17	1.00 V	0	27.47	22.36

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

802.11n (40MHz)

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5270.00	94.63 PK			1.94 H	105	87.87	6.76
2	*5270.00	82.33 AV			1.94 H	105	75.57	6.76
3	5350.00	48.06 PK	74.00	-25.94	1.94 H	105	40.95	7.11
4	5350.00	35.83 AV	54.00	-18.17	1.94 H	105	28.72	7.11
5	5355.46	48.66 PK	74.00	-25.34	1.94 H	105	41.53	7.13
6	5355.46	36.04 AV	54.00	-17.96	1.94 H	105	28.91	7.13
7	#10540.00	56.43 PK	68.20	-11.77	1.00 H	0	41.65	14.78
8	15810.00	64.14 PK	74.00	-9.86	1.00 H	0	42.23	21.91
9	15810.00	49.26 AV	54.00	-4.74	1.00 H	0	27.35	21.91
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	*5270.00	88.39 PK			1.23 V	117	81.63	6.76
2	*5270.00	76.53 AV			1.23 V	117	69.77	6.76
3	5350.00	48.11 PK	74.00	-25.89	1.23 V	117	41.00	7.11
4	5350.00	35.76 AV	54.00	-18.24	1.23 V	117	28.65	7.11
5	5356.77	47.49 PK	74.00	-26.51	1.23 V	117	40.35	7.14
6	5356.77	35.90 AV	54.00	-18.10	1.23 V	117	28.76	7.14
7	#10540.00	56.83 PK	68.20	-11.37	1.00 V	0	42.05	14.78
8	15810.00	64.25 PK	74.00	-9.75	1.00 V	0	42.34	21.91
9	15810.00	49.84 AV	54.00	-4.16	1.00 V	0	27.93	21.91

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5310.00	94.58 PK			1.76 H	102	87.65	6.93
2	*5310.00	82.26 AV			1.76 H	102	75.33	6.93
3	5350.00	60.18 PK	74.00	-13.82	1.76 H	102	53.07	7.11
4	5350.00	42.03 AV	54.00	-11.97	1.76 H	102	34.92	7.11
5	5353.76	56.32 PK	74.00	-17.68	1.76 H	102	49.19	7.13
6	5353.76	40.66 AV	54.00	-13.34	1.76 H	102	33.53	7.13
7	10620.00	56.12 PK	74.00	-17.88	1.00 H	0	41.18	14.94
8	10620.00	44.96 AV	54.00	-9.04	1.00 H	0	30.02	14.94
9	15930.00	63.59 PK	74.00	-10.41	1.00 H	0	41.32	22.27
10	15930.00	49.02 AV	54.00	-4.98	1.00 H	0	26.75	22.27
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	*5310.00	88.27 PK			1.28 V	118	81.34	6.93
2	*5310.00	76.82 AV			1.28 V	118	69.89	6.93
3	5350.00	54.56 PK	74.00	-19.44	1.28 V	118	47.45	7.11
4	5350.00	38.82 AV	54.00	-15.18	1.28 V	118	31.71	7.11
5	5356.96	52.09 PK	74.00	-21.91	1.28 V	118	44.95	7.14
6	5356.96	36.89 AV	54.00	-17.11	1.28 V	118	29.75	7.14
7	10620.00	56.21 PK	74.00	-17.79	1.00 V	0	41.27	14.94
8	10620.00	44.36 AV	54.00	-9.64	1.00 V	0	29.42	14.94
9	15930.00	64.02 PK	74.00	-9.98	1.00 V	0	41.75	22.27
10	15930.00	48.75 AV	54.00	-5.25	1.00 V	0	26.48	22.27

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).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

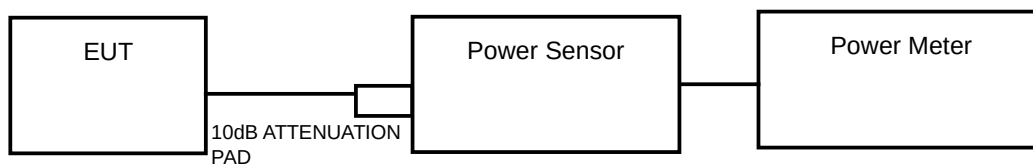
3.2 TRANSMIT POWER MEASUREMENT

3.2.1 LIMITS OF TRANSMIT POWER MEASUREMENT

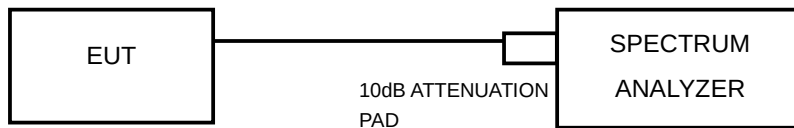
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√		250mW(24dBm) or 11 dBm+10LogB*
U-NII-2C			250mW(24dBm) or 11 dBm+10LogB*
U-NII-3			1 Watt (30 dBm)

NOTE: 1. Where B is the 26dB emission bandwidth in MHz.

3.2.2 TEST SETUP



FOR 26dB BANDWIDTH



3.2.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Jun. 13,19	Jun. 12,20
Power Sensor	Keysight	U2021XA	MY55060018	Jun. 13,19	Jun. 12,20
Power Meter	Anritsu	ML2495A	1139001	Mar. 12,19	Mar. 11,20
Power Sensor	Anritsu	MA2411B	1531155	Mar. 12,19	Mar. 11,20
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 17, 18	Oct.16, 19
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Nov.15,18	Nov. 14,19
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 09,18	Nov. 08,19
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Aug. 02,18	Aug. 01,19
Signal Generator	Agilent	N5183A	MY50140980	Dec. 07,18	Dec. 06,19
Agile Signal Generator	Agilent	8645A	Agilent	Oct.27, 18	Oct.26, 19
Spectrum Analyzer	Keysight	N9020A	MY55400499	Mar. 12,19	Mar. 11,20
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec. 07, 18	Dec. 06, 19
Attenuator	MINI	BW-S10W2 +	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

NOTES:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.2.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

Method PM is 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.

FOR 26dB BANDWIDTH

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = RMS.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.



Test Report No.: RF190522N063-3

3.2.5 DEVIATION FROM TEST STANDARD

No deviation.

3.2.6 EUT OPERATING CONDITIONS

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

3.2.7 TEST RESULTS

OUTPUT POWER:

802.11a

CHANNEL NUMBER	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	AVG. CONDUCTED POWER (mW)	LIMIT (dBm)	PASS /FAIL
36	5180	9.48	8.872	24.00	PASS
40	5200	10.23	10.544	24.00	PASS
48	5240	10.36	10.864	24.00	PASS
52	5260	9.05	8.035	24.00	PASS
60	5300	9.37	8.650	24.00	PASS
64	5320	9.33	8.570	24.00	PASS

Note:

Max. Gain = 1.25dBi < 6dBi, so the limit no ned to be reduced.

For 5260 ~ 5320MHz

1. $11\text{dBm} + 10\log(26.34) = 25.21\text{dBm} > 24\text{dBm}$
2. $11\text{dBm} + 10\log(24.74) = 24.93\text{dBm} > 24\text{dBm}$
3. $11\text{dBm} + 10\log(26.80) = 25.28\text{dBm} > 24\text{dBm}$

802.11n (20MHz)

CHANNEL NUMBER	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	AVG. CONDUCTED POWER (mW)	LIMIT (dBm)	PASS /FAIL
36	5180	8.75	7.499	24.00	PASS
40	5200	9.47	8.851	24.00	PASS
48	5240	9.56	9.036	24.00	PASS
52	5260	9.16	8.241	24.00	PASS
60	5300	9.58	9.078	24.00	PASS
64	5320	9.64	9.204	24.00	PASS

Note:

Max. Gain = 1.25dBi < 6dBi, so the limit no ned to be reduced.

For 5260 ~ 5320MHz

$$11\text{dBm} + 10\log (28.15) = 25.49\text{dBm} > 24\text{dBm}$$

$$11\text{dBm} + 10\log (26.49) = 25.23\text{dBm} > 24\text{dBm}$$

$$11\text{dBm} + 10\log (28.80) = 25.59\text{dBm} > 24\text{dBm}$$

802.11n (40MHz)

CHANNEL NUMBER	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	AVG. CONDUCTED POWER (mW)	LIMIT (dBm)	PASS /FAIL
38	5190	6.40	4.365	24.00	PASS
46	5230	6.63	4.603	24.00	PASS
54	5270	6.35	4.315	24.00	PASS
62	5310	4.90	3.090	24.00	PASS

Note:

Max. Gain = 1.25dBi < 6dBi, so the limit no ned to be reduced.

For 5260 ~ 5320MHz

$11\text{dBm} + 10\log(46.03) = 27.63\text{dBm} > 24\text{dBm}$

$11\text{dBm} + 10\log(42.58) = 27.29\text{dBm} > 24\text{dBm}$

26dB BANDWIDTH:

802.11a

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	PASS /FAIL
36	5180	28.90	PASS
40	5200	30.29	PASS
48	5240	30.13	PASS
52	5260	26.34	PASS
60	5300	24.74	PASS
64	5320	26.80	PASS

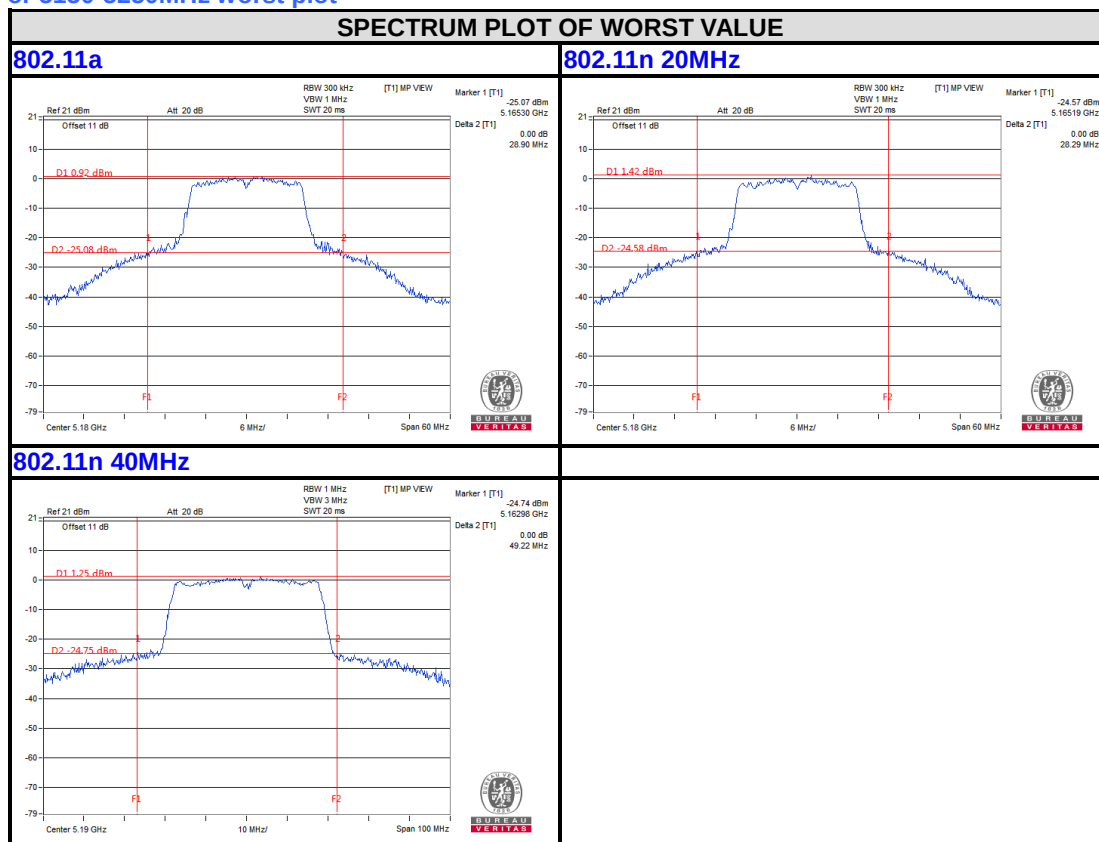
802.11n (20MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	PASS /FAIL
36	5180	28.29	PASS
40	5200	30.76	PASS
48	5240	32.00	PASS
52	5260	28.15	PASS
60	5300	26.49	PASS
64	5320	28.80	PASS

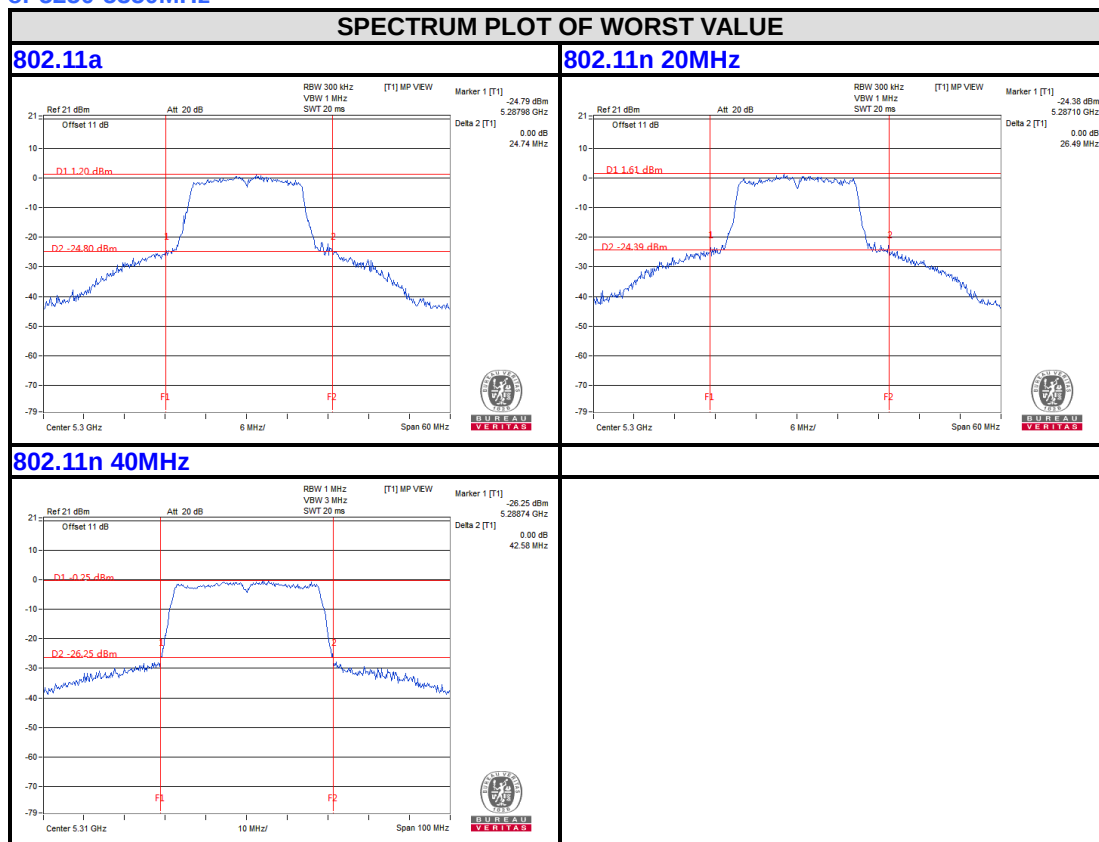
802.11n (40MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	PASS /FAIL
38	5190	49.22	PASS
46	5230	54.38	PASS
54	5270	46.03	PASS
62	5310	42.58	PASS

**26dB bandwidth Test Plot
For 5150-5250MHz worst plot**



For 5250-5350MHz

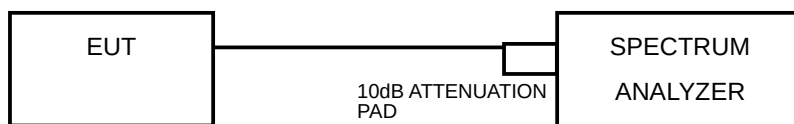


3.3 PEAK POWER SPECTRAL DENSITY MEASUREMENT

3.3.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C			11dBm/ MHz
U-NII-3			30dBm/ 500kHz

3.3.2 TEST SETUP



3.3.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.3.4 TEST PROCEDURES

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW =3 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to “free run”.
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)



Test Report No.: RF190522N063-3

3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

Same as 3.3.6

3.3.7 TEST RESULTS

For U-NII-1, U-NII-2A:

802.11a

Channel Number	Frequency (MHz)	RF Power Level in 1MHz BW (dBm)	RF Power Level in 1MHz BW (mW)	MAX. Limit (dBm/MHz)	PASS / FAIL
36	5180	-3.54	0.4426	11.00	PASS
40	5200	-2.62	0.5470	11.00	PASS
48	5240	-2.52	0.5598	11.00	PASS
52	5260	-3.86	0.4111	11.00	PASS
60	5300	-3.42	0.4550	11.00	PASS
64	5320	-3.45	0.4519	11.00	PASS

802.11n (20MHz)

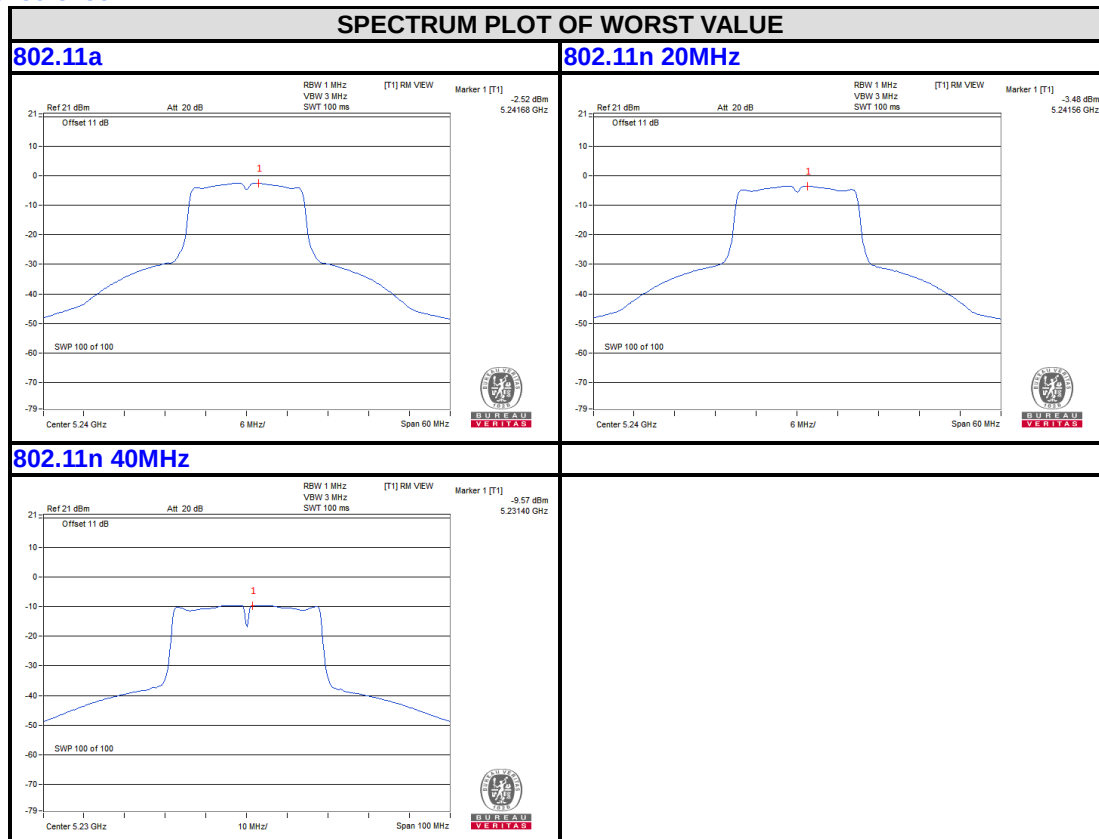
Channel Number	Frequency (MHz)	RF Power Level in 1MHz BW (dBm)	RF Power Level in 1MHz BW (mW)	MAX. Limit (dBm/MHz)	PASS / FAIL
36	5180	-4.18	0.3819	11.00	PASS
40	5200	-3.67	0.4295	11.00	PASS
48	5240	-3.48	0.4487	11.00	PASS
52	5260	-3.87	0.4102	11.00	PASS
60	5300	-3.47	0.4498	11.00	PASS
64	5320	-3.48	0.4487	11.00	PASS

802.11n (40MHz)

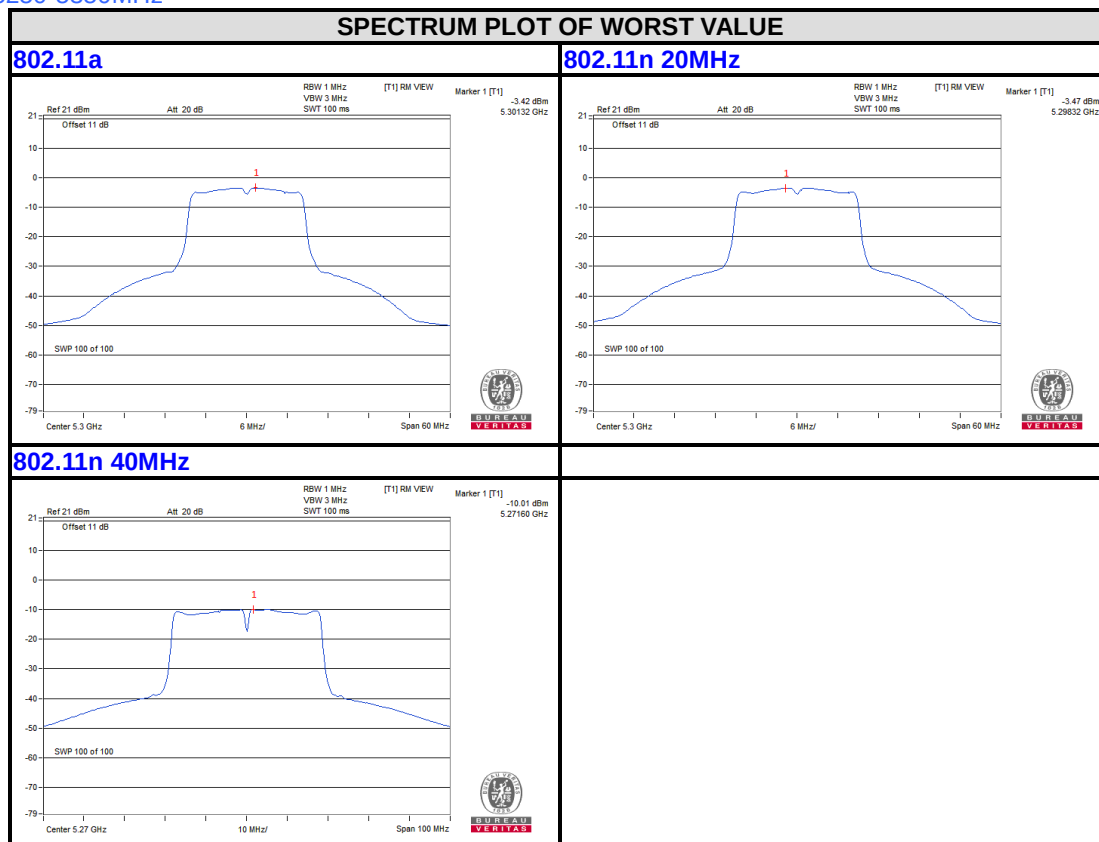
Channel Number	Frequency (MHz)	RF Power Level in 1MHz BW (dBm)	RF Power Level in 1MHz BW (mW)	MAX. Limit (dBm/MHz)	PASS / FAIL
38	5190	-9.92	0.1019	11.00	PASS
46	5230	-9.57	0.1104	11.00	PASS
54	5270	-10.01	0.0998	11.00	PASS
62	5310	-11.32	0.0738	11.00	PASS

PSD Test Plot

BAND 1
5150-5250MHz



BAND 2
5250-5350MHz

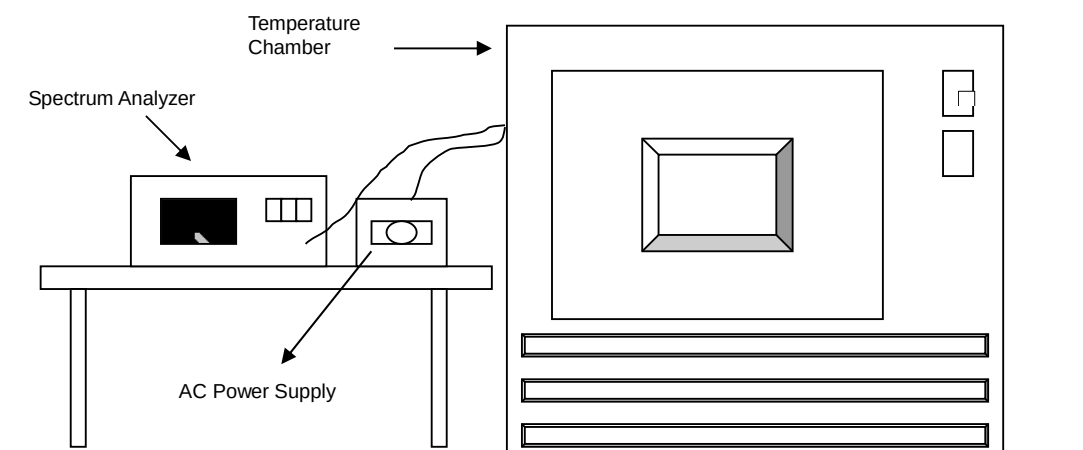


3.4 FREQUENCY STABILITY

3.4.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation.

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.4.4 TEST PROCEDURE

- a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

3.4.7 TEST RESULTS

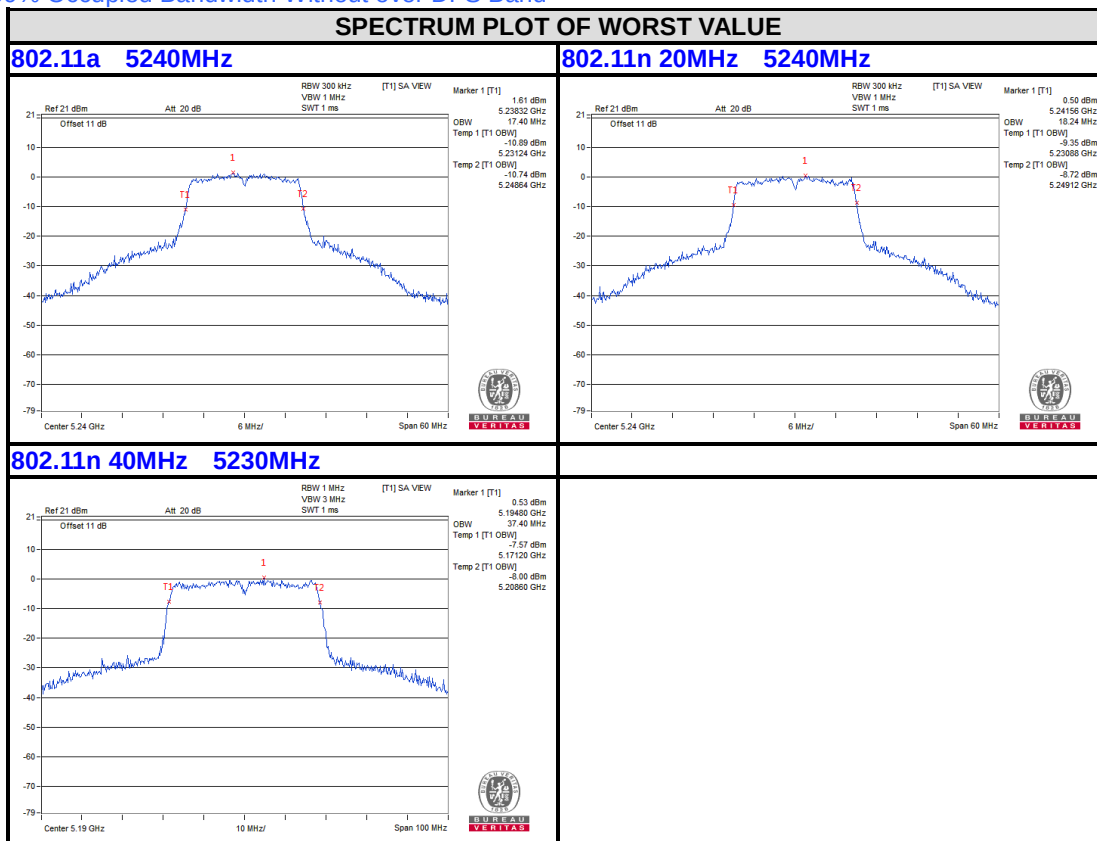
FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift
50	3.7	5179.9992	-0.00002	5180.0003	0.00001	5179.9974	-0.00005	5179.9992	-0.00002
40	3.7	5180.0208	0.00040	5180.0179	0.00035	5180.0188	0.00036	5180.02	0.00039
30	3.7	5179.9822	-0.00034	5179.9833	-0.00032	5179.9808	-0.00037	5179.983	-0.00033
20	3.7	5179.9805	-0.00038	5179.9814	-0.00036	5179.9806	-0.00037	5179.9806	-0.00037
10	3.7	5179.999	-0.00002	5179.9974	-0.00005	5179.9998	0.00000	5179.9993	-0.00001
0	3.7	5179.9829	-0.00033	5179.9825	-0.00034	5179.9822	-0.00034	5179.9836	-0.00032
-10	3.7	5180.0219	0.00042	5180.0203	0.00039	5180.0218	0.00042	5180.0241	0.00047
-20	3.7	5179.9899	-0.00019	5179.9903	-0.00019	5179.9872	-0.00025	5179.9897	-0.00020
-30	3.7	5179.9888	-0.00022	5179.9867	-0.00026	5179.9903	-0.00019	5179.9874	-0.00024

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift
20	4.07	5179.9806	-0.00037	5179.9808	-0.00037	5179.9803	-0.00038	5179.9799	-0.00039
	3.7	5179.9805	-0.00038	5179.9814	-0.00036	5179.9806	-0.00037	5179.9806	-0.00037
	3.33	5179.9809	-0.00037	5179.9821	-0.00035	5179.9813	-0.00036	5179.9798	-0.00039



Test Report No.: RF190522N063-3

Band 1
5150-5250MHz
99% Occupied Bandwidth Without over DFS Band

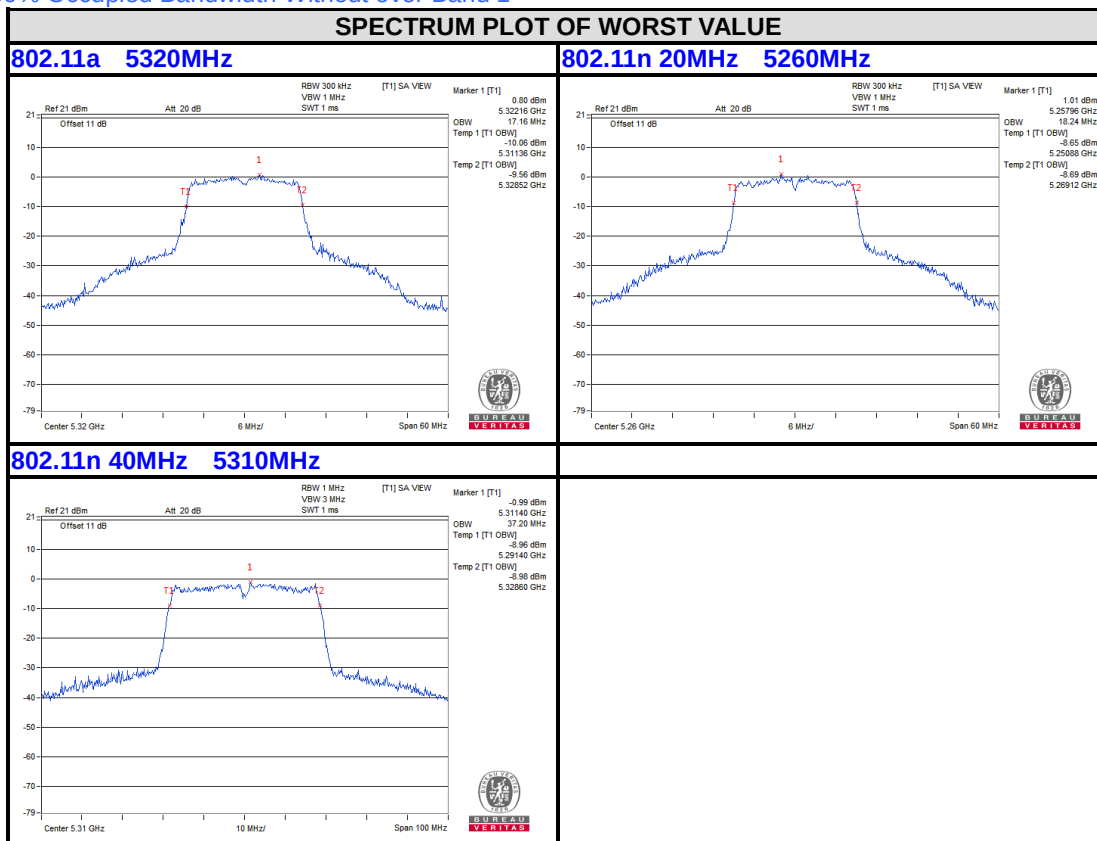


Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie
Town, Dongguan City,
Guangdong 523942, China

Tel: +86 769 8998 2098
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

Band 2
5250-5350MHz
99% Occupied Bandwidth Without over Band 1





Test Report No.: RF190522N063-3

4. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF190522N063-3

5. APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

---END---