

TEST REPORT

Applicant	Sunita Telecom.Co.,Ltd.
Address	4E23,No.5,Hsin Yi Road,Sec.5,Taipei,Taiwan

Manufacturer or Supplier	Dong guan City Baoyide Industrial Co.,LTD
Address	A - 105A, bairun high end industrial park, changping town, dongguan city, guangdong province, China
Product Name	5G Wi - Fi Flash Disk
Brand Name	V-smart
Model	FD - 100
Additional Model & Model Difference	N/A
Date of tests	Aug. 17, 2017 ~ Sep. 26, 2017

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: Oct. 26, 2017

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Test Report No.: RF170817N033-2

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170817N033-2	Original release.	Oct. 26, 2017



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	PASS	Meet the requirement of limit.
15.407(b)(4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit.
15.407(a)(3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	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
Conducted emissions	9kHz~30MHz	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.83dB
	1GHz ~ 18GHz	4.93dB
	18GHz ~ 40GHz	4.80dB

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	5G Wi - Fi Flash Disk
MODEL NO.	FD - 100
FCC ID	2ANUBVSMARTFD100
POWER SUPPLY	DC 3.7V from Li-ion Battery or DC 5V from Unit Host
OPERATING TEMPERATURE RANGE	0 ~ +40°C
MODULATION TYPE	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 802.11n: up to 300.0Mbps 802.11ac 40: up to 433.3Mbps
OPERATING FREQUENCY	5745 ~ 5825MHz
NUMBER OF CHANNEL	5 for 802.11a, 802.11ac (20MHz), 802.11n (20MHz) 2 for 802.11ac (40MHz), 802.11n (40MHz),
PEAK OUTPUT POWER	7.48 dBm (Maximum AVG Power)
ANTENNA TYPE	PCB Antenna, with 1.5dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

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

MODULATION MODE	TX FUNCTION
802.11a	1TX/1RX
802.11ac (20MHz)	1TX/1RX
802.11ac (40MHz)	1TX/1RX
802.11n (20MHz)	1TX/1RX
802.11n (40MHz)	1TX/1RX

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.
4. Please refer to the EUT photo document (Reference No.: 170817N033) for detailed product photo.

2.2 DESCRIPTION OF TEST MODES

3 channels are provided for 802.11a, 802.11ac (20MHz), 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	157	5785MHz
165	5825MHz	--	--

2 channels are provided for 802.11ac (40MHz), 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

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
B	√	√	√	-	Powered by Adapter 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 **Z-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)
B	802.11a	5725-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
B	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
B	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
B	802.11ac (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
B	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0

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)
B	802.11a	5725-5850	149 to 165	149	OFDM	BPSK	6.0

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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B	802.11a	5725-5850	149 to 165	149	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	5725-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
A	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
A	802.11ac (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
A	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	25deg. C, 55%RH	DC 5V from Adapter	Arnold
RE≥1G	25deg. C, 55%RH	DC 5V from Adapter	Arnold
PLC	20deg. C, 56%RH	DC 5V from Adapter	Yang
APCM	20deg. C, 55%RH	DC 3.7V from Battery	Sen He

**2.3 DUTY CYCLE OF TEST SIGNAL**

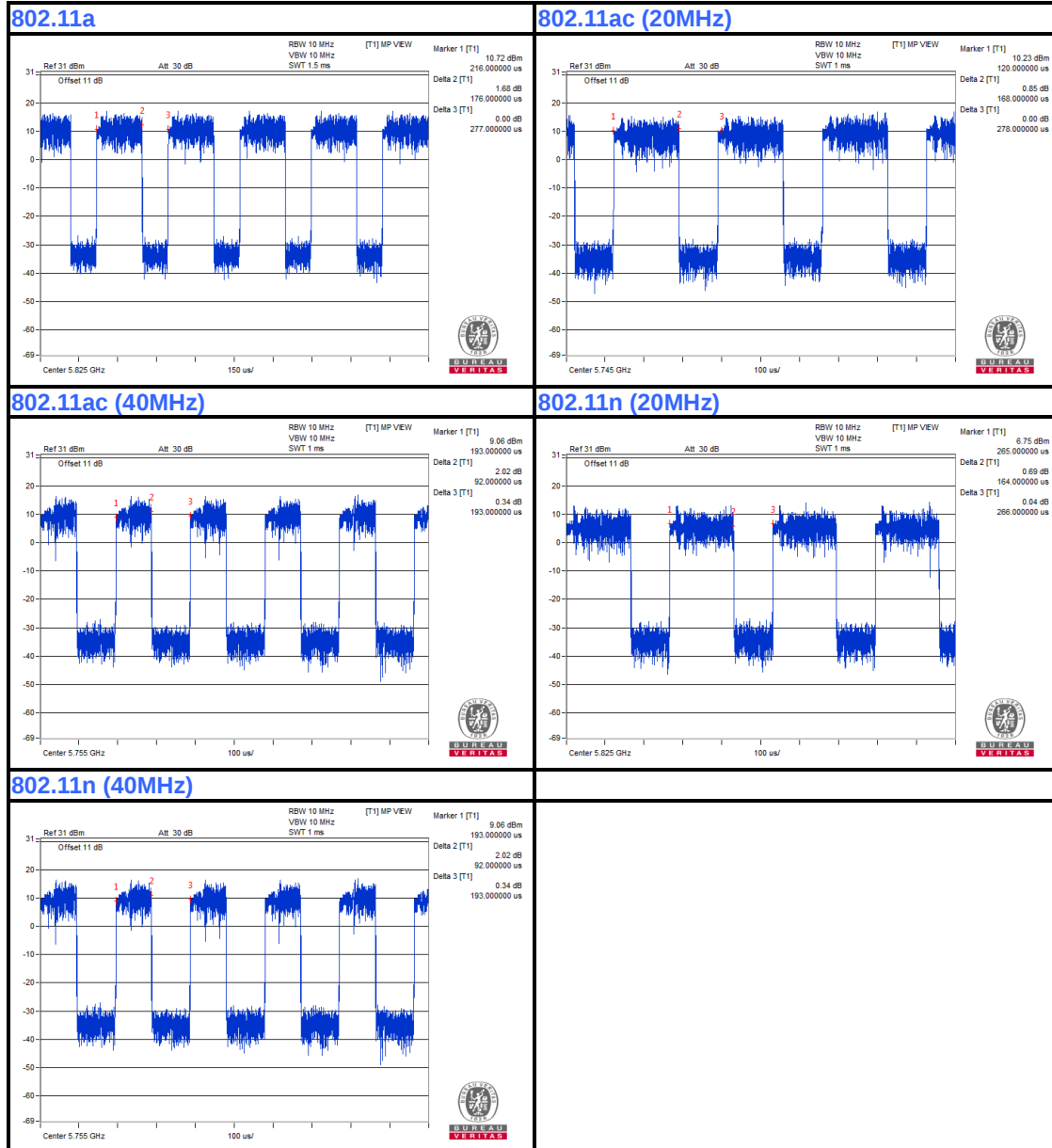
802.11a: Duty cycle = $0.176/0.277 = 0.64$, Duty factor = $10 * \log(1/0.80) = 1.938$

802.11ac (20MHz): Duty cycle = $0.168/0.278 = 0.60$, Duty factor = $10 * \log(1/0.91) = 2.218$

802.11n (20MHz): Duty cycle = $0.164/0.266 = 0.62$, Duty factor = $10 * \log(1/0.91) = 2.076$

802.11ac (40MHz): Duty cycle = $0.092/0.193 = 0.48$, Duty factor = $10 * \log(1/0.67) = 3.188$

802.11n (40MHz): Duty cycle = $0.092/0.193 = 0.48$, Duty factor = $10 * \log(1/0.67) = 3.188$



2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as a dependent 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	DC source	LONG WEI	PS-6403D	010934269	N/A
2	Adapter	Lenovo	C-P30	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0cm
2	USB Line: Unshielded, Detachable 0.8cm

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

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 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:

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:

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



3.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 12,17	Mar. 11,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Bilog Antenna (30MHz~1GHz)	Teseq	CBL 6111D	30643	Jul. 14, 17	Jul. 13, 18
Loop antenna (9KHz ~30MHz)	Daze	ZN30900A	0708	Mar. 12,17	Mar. 11,18
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 18,17	May 17,18
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 17	Aug. 07, 18
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 12,17	Mar. 11,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (18GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 15,17	Mar. 14,18
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,17	Mar. 03, 18
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Mar. 09,17	Mar. 08,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 08,17	Aug. 07,18

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. 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.

NOTE:

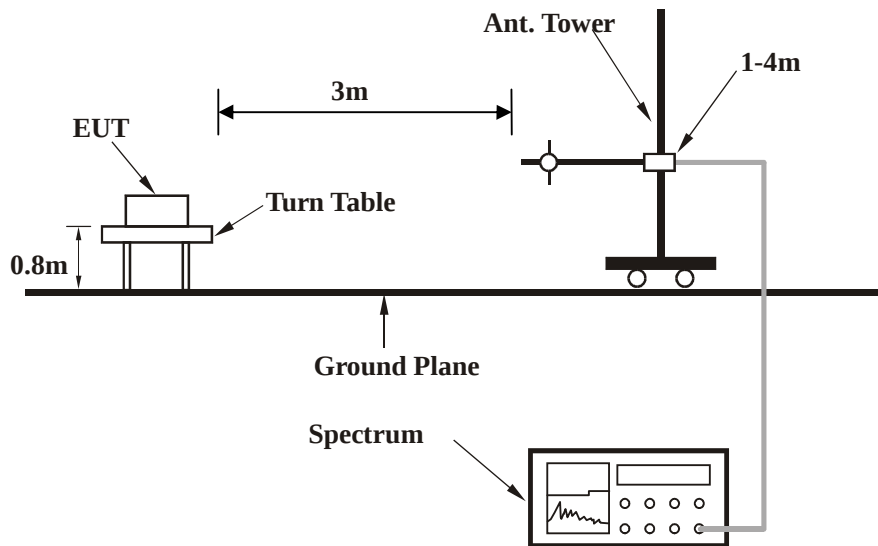
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

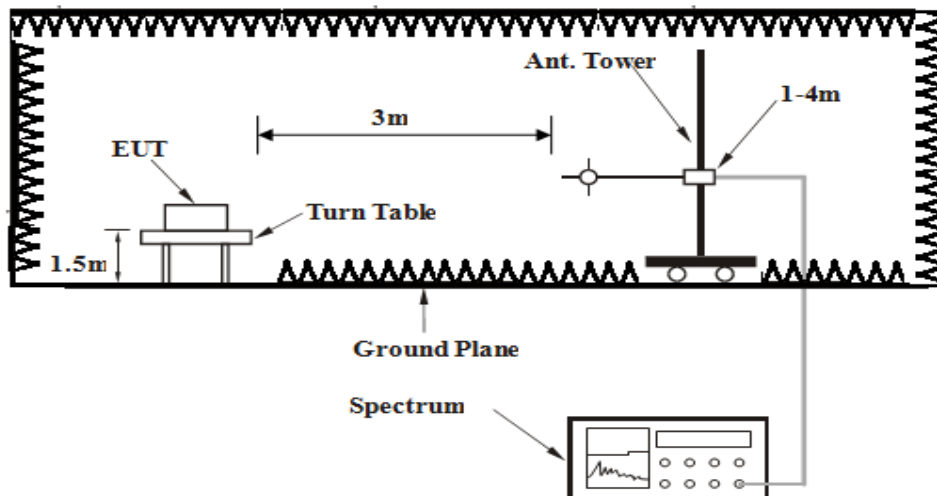
3.1.6 TEST SETUP

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

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

3.1.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

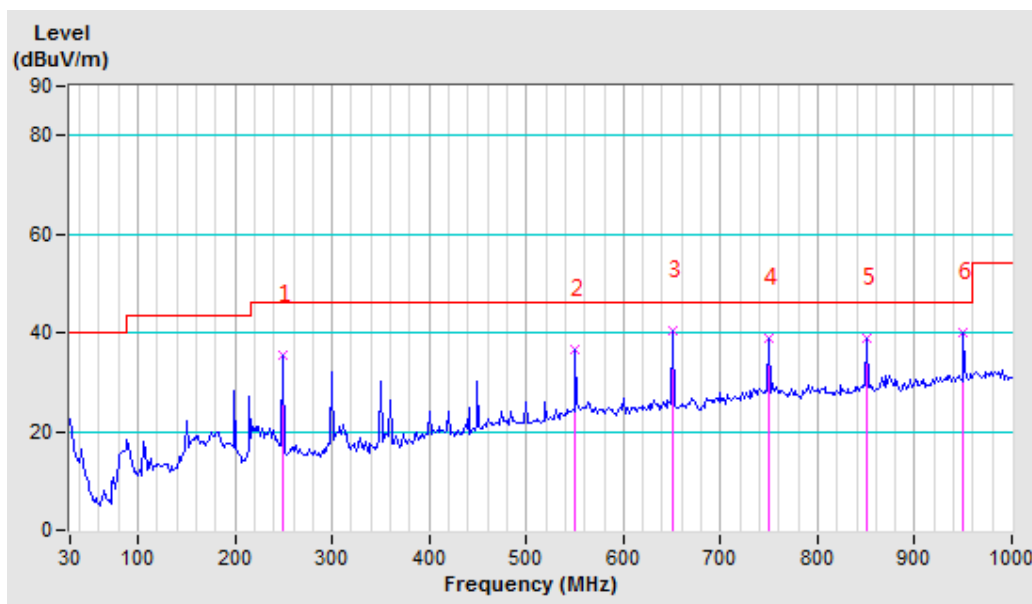
802.11a

CHANNEL	TX Channel 149	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 (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	249.18	35.30 OP	40.00	-10.70	2.00 H	304	50.42	-15.12
2	550.75	36.44 OP	40.00	-9.56	2.00 H	297	40.41	-3.97
3	650.24	40.56 OP	46.00	-5.44	2.00 H	139	43.51	-2.95
4	749.73	38.88 OP	46.00	-7.12	2.00 H	207	38.96	-0.08
5	850.77	38.92 OP	46.00	-7.08	2.00 H	182	38.14	0.78
6	950.26	40.11 OP	46.00	-5.89	2.00 H	251	37.83	2.28

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.

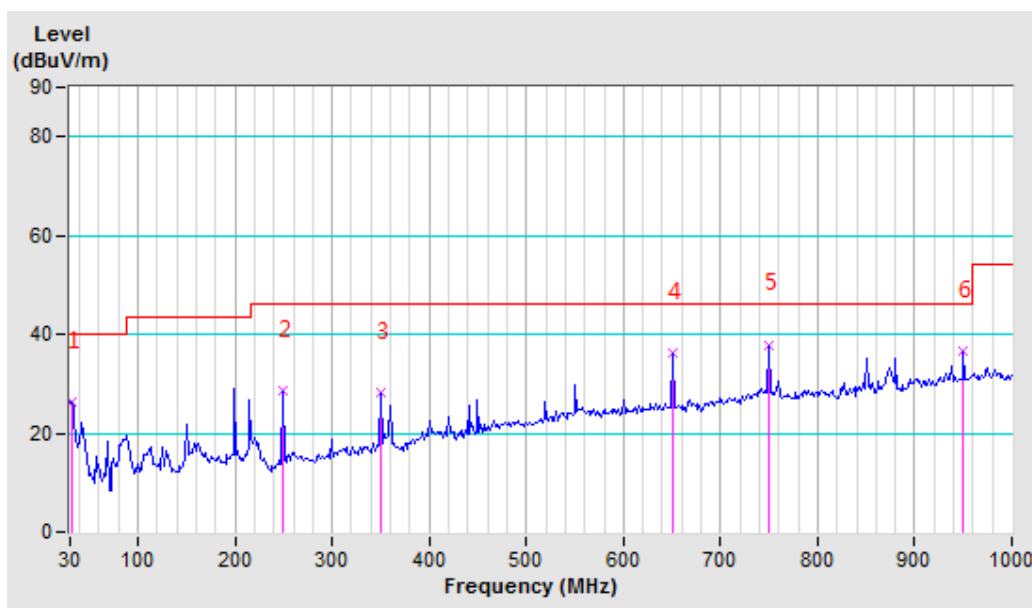


CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

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	31.55	26.37	40.00	-13.63	1.00 V	246	38.40	-12.03
2	249.18	28.58	46.00	-17.42	1.00 V	203	43.70	-15.12
3	350.22	28.35	46.00	-17.65	1.00 V	305	39.25	-10.90
4	650.24	36.33	46.00	-9.67	1.00 V	221	39.28	-2.95
5	749.73	37.93	46.00	-8.07	1.00 V	293	38.01	-0.08
6	950.26	36.57	46.00	-9.43	1.00 V	172	34.29	2.28

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.



ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 149	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	#5650.00	39.29 PK	68.2	-28.91	1.00 H	43	32.01	7.28
2	#5700.00	41.54 PK	105.2	-63.66	1.00 H	43	34.08	7.46
3	#5720.00	54.49 PK	110.8	-56.31	1.00 H	43	46.95	7.54
4	#5725.00	58.33 PK	122.2	-63.87	1.00 H	43	50.78	7.55
5	*5745.00	94.02 PK			1.00 H	43	86.39	7.63
6	*5745.00	71.54 AV			1.00 H	43	63.91	7.63
7	11490.00	48.16 PK	74	-25.84	1.00 H	188	29.77	18.39
8	11490.00	37.05 AV	54	-16.95	1.00 H	188	18.66	18.39
9	#17235.00	57.23 PK	74	-16.77	1.00 H	190	30.33	26.9
10	#17235.00	47.08 AV	54	-6.92	1.00 H	190	20.18	26.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5650.00	40.25 PK	68.2	-27.95	1.00 V	188	32.97	7.28
2	#5700.00	41.37 PK	105.2	-63.83	1.00 V	188	33.91	7.46
3	#5720.00	52.39 PK	110.8	-58.41	1.00 V	189	44.85	7.54
4	#5725.00	56.27 PK	122.2	-65.93	1.00 V	188	48.72	7.55
5	*5745.00	89.13 PK			1.00 V	280	81.5	7.63
6	*5745.00	69.32 AV			1.00 V	280	61.69	7.63
7	11490.00	52.89 PK	74	-21.11	1.00 V	230	34.5	18.39
8	11490.00	43.27 AV	54	-10.73	1.00 V	230	24.88	18.39
9	#17235.00	62.43 PK	74	-11.57	1.00 V	167	35.53	26.9
10	#17235.00	49.59 AV	54	-4.41	1.00 V	167	22.69	26.9

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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 157	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	#5650.00	33.87 PK	68.2	-34.33	1.00 H	309	26.59	7.28
2	#5700.00	33.98 PK	105.2	-71.22	1.00 H	309	26.52	7.46
3	#5720.00	31.27 PK	110.8	-79.53	1.00 H	312	23.73	7.54
4	#5725.00	34.27 PK	122.2	-87.93	1.00 H	312	26.72	7.55
5	*5785.00	82.96 PK			1.00 H	332	75.19	7.77
6	*5785.00	63.65 AV			1.00 H	332	55.88	7.77
7	#5850.00	34.85 PK	122.2	-87.35	1.00 H	300	26.84	8.01
8	#5855.00	34.32 PK	110.8	-76.48	1.00 H	303	26.29	8.03
9	#5875.00	35.58 PK	105.2	-69.62	1.00 H	300	27.48	8.1
10	#5925.00	34.83 PK	68.2	-33.37	1.00 H	300	26.55	8.28
11	11570.00	48.28 PK	74	-25.72	1.00 H	176	29.82	18.46
12	11570.00	38.59 AV	54	-15.41	1.00 H	176	20.13	18.46
13	#17355.00	54.29 PK	74	-19.71	1.20 H	50	27.55	26.74
14	#17355.00	45.18 AV	54	-8.82	1.20 H	50	18.44	26.74
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	#5650.00	33.33 PK	68.2	-34.87	1.00 V	99	26.05	7.28
2	#5700.00	31.76 PK	105.2	-73.44	1.00 V	99	24.3	7.46
3	#5720.00	33.69 PK	110.8	-77.11	1.00 V	90	26.15	7.54
4	#5725.00	33.39 PK	122.2	-88.81	1.00 V	90	25.84	7.55
5	*5785.00	80.55 PK			1.00 V	90	72.78	7.77
6	*5785.00	62.32 AV			1.00 V	90	54.55	7.77
7	#5850.00	32.17 PK	122.2	-90.03	1.45 V	160	24.16	8.01
8	#5855.00	33.42 PK	110.8	-77.38	1.00 V	160	25.39	8.03
9	#5875.00	33.86 PK	105.2	-71.34	1.00 V	160	25.76	8.10
10	#5925.00	35.77 PK	68.2	-32.43	3.00 V	160	27.49	8.28
11	11570.00	47.48 PK	74	-26.52	2.00 V	201	29.02	18.46
12	11570.00	39.52 AV	54	-14.48	2.00 V	201	21.06	18.46
13	#17355.00	53.79 PK	74	-20.21	1.00 V	183	27.05	26.74
14	#17355.00	44.93 AV	54	-9.07	1.00 V	183	18.19	26.74

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 165	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	*5825.00	77.71 PK			1.00 H	180	69.79	7.92
2	*5825.00	58.03 AV			1.00 H	180	50.11	7.92
3	#5850.00	39.32 PK	122.2	-82.88	1.00 H	180	31.31	8.01
4	#5855.00	35.38 PK	110.8	-75.42	1.00 H	180	27.35	8.03
5	#5875.00	33.23 PK	105.2	-71.97	1.00 H	175	25.13	8.1
6	#5925.00	34.11 PK	68.2	-34.09	1.00 H	175	25.83	8.28
7	11650.00	48.65 PK	74	-25.35	1.00 H	185	30.1	18.55
8	11650.00	34.43 AV	54	-19.57	1.00 H	185	15.88	18.55
9	#17475.00	56.28 PK	74	-17.72	1.00 H	210	29.71	26.57
10	#17475.00	43.47 AV	54	-10.53	1.00 H	210	16.9	26.57
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	*5825.00	73.73 PK			1.00 V	125	65.81	7.92
2	*5825.00	55.18 AV			1.00 V	125	47.26	7.92
3	#5850.00	35.83 PK	122.2	-86.37	1.00 V	125	27.82	8.01
4	#5855.00	34.55 PK	110.8	-76.25	1.00 V	156	26.52	8.03
5	#5875.00	33.76 PK	105.2	-71.44	1.00 V	177	25.66	8.1
6	#5925.00	33.28 PK	68.2	-34.92	1.00 V	177	25	8.28
7	11650.00	48.86 PK	74	-25.14	1.00 V	163	30.31	18.55
8	11650.00	33.34 AV	54	-20.66	1.00 V	163	14.79	18.55
9	#17475.00	56.19 PK	74	-17.81	1.00 V	164	29.62	26.57
10	#17475.00	45.00 AV	54	-9.00	1.00 V	164	18.43	26.57

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.

802.11ac (20MHz)

CHANNEL	TX Channel 149	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	#5650.00	38.65 PK	68.2	-29.55	1.00 H	30	31.37	7.28
2	#5700.00	42.36 PK	105.2	-62.84	1.00 H	30	34.9	7.46
3	#5720.00	55.02 PK	110.8	-55.78	1.00 H	30	47.48	7.54
4	#5725.00	57.68 PK	122.2	-64.52	1.00 H	30	50.13	7.55
5	*5745.00	93.65 PK			1.00 H	30	86.02	7.63
6	*5745.00	70.48 AV			1.00 H	30	62.85	7.63
7	11490.00	47.87 PK	74	-26.13	1.00 H	188	29.48	18.39
8	11490.00	38.43 AV	54	-15.57	1.00 H	188	20.04	18.39
9	#17235.00	56.89 PK	74	-17.11	1.00 H	159	29.99	26.9
10	#17235.00	47.43 AV	54	-6.57	1.00 H	159	20.53	26.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5650.00	41.03 PK	68.2	-27.17	1.00 V	249	33.75	7.28
2	#5700.00	40.67 PK	105.2	-64.53	1.00 V	249	33.21	7.46
3	#5720.00	52.31 PK	110.8	-58.49	1.00 V	249	44.77	7.54
4	#5725.00	55.54 PK	122.2	-66.66	1.00 V	249	47.99	7.55
5	*5745.00	90.02 PK			1.00 V	266	82.39	7.63
6	*5745.00	68.65 AV			1.00 V	266	61.02	7.63
7	11490.00	53.03 PK	74	-20.97	1.00 V	189	34.64	18.39
8	11490.00	43.43 AV	54	-10.57	1.00 V	189	25.04	18.39
9	#17235.00	63.05 PK	74	-10.95	1.00 V	164	36.15	26.9
10	#17235.00	48.33 AV	54	-5.67	1.00 V	164	21.43	26.9

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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 157	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	#5650.00	34.16 PK	68.2	-34.04	1.00 H	270	26.88	7.28
2	#5700.00	34.33 PK	105.2	-70.87	1.00 H	270	26.87	7.46
3	#5720.00	30.98 PK	110.8	-79.82	1.00 H	245	23.44	7.54
4	#5725.00	33.53 PK	122.2	-88.67	1.00 H	245	25.98	7.55
5	*5785.00	81.05 PK			1.00 H	245	73.28	7.77
6	*5785.00	61.65 AV			1.00 H	245	53.88	7.77
7	#5850.00	33.32 PK	122.2	-88.88	1.00 H	165	25.31	8.01
8	#5855.00	33.79 PK	110.8	-77.01	1.00 H	165	25.76	8.03
9	#5875.00	35.08 PK	105.2	-70.12	1.00 H	165	26.98	8.1
10	#5925.00	34.66 PK	68.2	-33.54	1.00 H	165	26.38	8.28
11	11570.00	48.68 PK	74	-25.32	1.00 H	183	30.22	18.46
12	11570.00	38.84 AV	54	-15.16	1.00 H	183	20.38	18.46
13	#17355.00	54.59 PK	74	-19.41	1.20 H	54	27.85	26.74
14	#17355.00	45.22 AV	54	-8.78	1.20 H	54	18.48	26.74
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	#5650.00	33.48 PK	68.2	-34.72	1.00 V	188	26.2	7.28
2	#5700.00	31.98 PK	105.2	-73.22	1.00 V	188	24.52	7.46
3	#5720.00	33.86 PK	110.8	-76.94	1.00 V	188	26.32	7.54
4	#5725.00	33.59 PK	122.2	-88.61	1.00 V	180	26.04	7.55
5	*5785.00	80.18 PK			1.00 V	180	72.41	7.77
6	*5785.00	61.24 AV			1.00 V	180	53.47	7.77
7	#5850.00	32.68 PK	122.2	-89.52	1.45 V	99	24.67	8.01
8	#5855.00	33.56 PK	110.8	-77.24	1.00 V	99	25.53	8.03
9	#5875.00	33.59 PK	105.2	-71.61	1.00 V	99	25.49	8.1
10	#5925.00	35.94 PK	68.2	-32.26	3.00 V	99	27.66	8.28
11	11570.00	47.95 PK	74	-26.05	2.00 V	163	29.49	18.46
12	11570.00	39.59 AV	54	-14.41	2.00 V	163	21.13	18.46
13	#17355.00	53.76 PK	74	-20.24	1.00 V	155	27.02	26.74
14	#17355.00	44.83 AV	54	-9.17	1.00 V	155	18.09	26.74

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 165	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	*5825.00	77.68 PK			1.00 H	311	69.76	7.92
2	*5825.00	58.45 AV			1.00 H	311	50.53	7.92
3	#5850.00	39.65 PK	122.2	-82.55	1.00 H	180	31.64	8.01
4	#5855.00	35.32 PK	110.8	-75.48	1.00 H	180	27.29	8.03
5	#5875.00	33.67 PK	105.2	-71.53	1.00 H	180	25.57	8.1
6	#5925.00	34.33 PK	68.2	-33.87	1.00 H	180	26.05	8.28
7	11650.00	48.02 PK	74	-25.98	1.00 H	199	29.47	18.55
8	11650.00	34.22 AV	54	-19.78	1.00 H	199	15.67	18.55
9	#17475.00	56.03 PK	74	-17.97	1.00 H	230	29.46	26.57
10	#17475.00	43.43 AV	54	-10.57	1.00 H	230	16.86	26.57
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	*5825.00	73.89 PK			1.00 V	168	65.97	7.92
2	*5825.00	55.04 AV			1.00 V	168	47.12	7.92
3	#5850.00	35.76 PK	122.2	-86.44	1.00 V	168	27.75	8.01
4	#5855.00	34.67 PK	110.8	-76.13	1.00 V	168	26.64	8.03
5	#5875.00	33.97 PK	105.2	-71.23	1.00 V	168	25.87	8.1
6	#5925.00	33.32 PK	68.2	-34.88	1.00 V	168	25.04	8.28
7	11650.00	48.65 PK	74	-25.35	1.00 V	155	30.1	18.55
8	11650.00	33.79 AV	54	-20.21	1.00 V	155	15.24	18.55
9	#17475.00	56.54 PK	74	-17.46	1.00 V	257	29.97	26.57
10	#17475.00	42.49 AV	54	-11.51	1.00 V	257	15.92	26.57

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



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Test Report No.: RF170817N033-2

802.11n (20MHz)

CHANNEL	TX Channel 149	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	#5650.00	39.25 PK	68.20	-28.95	1.00 H	38	31.97	7.28
2	#5700.00	41.74 PK	105.20	-63.46	1.00 H	38	34.28	7.46
3	#5720.00	54.54 PK	110.80	-56.26	1.00 H	38	47.00	7.54
4	#5725.00	57.45 PK	122.20	-64.75	1.00 H	38	49.90	7.55
5	*5745.00	93.26 PK			1.00 H	38	85.63	7.63
6	*5745.00	71.06 AV			1.00 H	38	63.43	7.63
7	11490.00	47.98 PK	74.00	-26.02	1.00 H	164	29.59	18.39
8	11490.00	36.59 AV	54.00	-17.41	1.00 H	164	18.20	18.39
9	#17235.00	56.39 PK	74.00	-17.61	1.00 H	135	29.49	26.90
10	#17235.00	45.68 AV	54.00	-8.32	1.00 H	135	18.78	26.90
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	#5650.00	39.45 PK	68.20	-28.75	1.00 V	231	32.17	7.28
2	#5700.00	41.22 PK	105.20	-63.98	1.00 V	231	33.76	7.46
3	#5720.00	52.30 PK	110.80	-58.50	1.00 V	231	44.76	7.54
4	#5725.00	55.95 PK	122.20	-66.25	1.00 V	231	48.40	7.55
5	*5745.00	89.44 PK			1.00 V	231	81.81	7.63
6	*5745.00	68.86 AV			1.00 V	231	61.23	7.63
7	11490.00	52.68 PK	74.00	-21.32	1.00 V	230	34.29	18.39
8	11490.00	42.65 AV	54.00	-11.35	1.00 V	230	24.26	18.39
9	#17235.00	60.26 PK	74.00	-13.74	1.00 V	164	33.36	26.90
10	#17235.00	49.08 AV	54.00	-4.92	1.00 V	164	22.18	26.90

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 Shenzhen Co., Ltd.
Dongguan Branch

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

Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



CHANNEL	TX Channel 157	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	#5650.00	36.06 PK	68.20	-32.14	1.00 H	265	28.78	7.28
2	#5700.00	38.50 PK	105.20	-66.70	1.00 H	265	31.04	7.46
3	#5720.00	36.74 PK	110.80	-74.06	1.00 H	265	29.20	7.54
4	#5725.00	37.25 PK	122.20	-84.95	1.00 H	265	29.70	7.55
5	*5785.00	82.72 PK			1.00 H	265	74.95	7.77
6	*5785.00	65.98 AV			1.00 H	265	58.21	7.77
7	#5850.00	37.63 PK	122.20	-84.57	1.00 H	265	29.62	8.01
8	#5855.00	38.30 PK	110.80	-72.50	1.00 H	265	30.27	8.03
9	#5875.00	37.77 PK	105.20	-67.43	1.00 H	265	29.67	8.10
10	#5925.00	37.15 PK	68.20	-31.05	1.00 H	265	28.87	8.28
11	11570.00	45.79 PK	74.00	-28.21	1.00 H	135	27.33	18.46
12	11570.00	32.10 AV	54.00	-21.90	1.00 H	135	13.64	18.46
13	#17355.00	51.29 PK	74.00	-22.71	1.00 H	134	24.55	26.74
14	#17355.00	40.76 AV	54.00	-13.24	1.00 H	134	14.02	26.74
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	#5650.00	43.06 PK	68.20	-25.14	1.00 V	195	35.78	7.28
2	#5700.00	41.97 PK	105.20	-63.23	1.00 V	195	34.51	7.46
3	#5720.00	41.02 PK	110.80	-69.78	1.00 V	195	33.48	7.54
4	#5725.00	42.01 PK	122.20	-80.19	1.00 V	195	34.46	7.55
5	*5785.00	79.65 PK			1.00 V	195	71.88	7.77
6	*5785.00	60.89 AV			1.00 V	195	53.12	7.77
7	#5850.00	42.99 PK	122.20	-79.21	1.00 V	195	34.98	8.01
8	#5855.00	42.49 PK	110.80	-68.31	1.00 V	159	34.46	8.03
9	#5875.00	42.45 PK	105.20	-62.75	1.00 V	195	34.35	8.10
10	#5925.00	43.08 PK	68.20	-25.12	1.00 V	195	34.80	8.28
11	11570.00	46.20 PK	74.00	-27.80	1.00 V	157	27.74	18.46
12	11570.00	32.09 AV	54.00	-21.91	1.00 V	157	13.63	18.46
13	#17355.00	55.26 PK	74.00	-18.74	1.00 V	187	28.52	26.74
14	#17355.00	40.81 AV	54.00	-13.19	1.00 V	187	14.07	26.74

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 165	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	*5825.00	77.40 PK			1.00 H	185	69.48	7.92
2	*5825.00	58.25 AV			1.00 H	185	50.33	7.92
3	#5850.00	38.53 PK	122.20	-83.67	1.00 H	185	30.52	8.01
4	#5855.00	34.54 PK	110.80	-76.26	1.00 H	185	26.51	8.03
5	#5875.00	32.23 PK	105.20	-72.97	1.00 H	185	24.13	8.10
6	#5925.00	33.16 PK	68.20	-35.04	1.00 H	185	24.88	8.28
7	11650.00	47.13 PK	74.00	-26.87	1.00 H	187	28.58	18.55
8	11650.00	33.63 AV	54.00	-20.37	1.00 H	187	15.08	18.55
9	#17475.00	55.35 PK	74.00	-18.65	1.00 H	185	28.78	26.57
10	#17475.00	42.37 AV	54.00	-11.63	1.00 H	185	15.80	26.57
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	*5825.00	73.32 PK			1.00 V	124	65.40	7.92
2	*5825.00	54.50 AV			1.00 V	124	46.58	7.92
3	#5850.00	35.57 PK	122.20	-86.63	1.00 V	124	27.56	8.01
4	#5855.00	33.45 PK	110.80	-77.35	1.00 V	124	25.42	8.03
5	#5875.00	32.34 PK	105.20	-72.86	1.00 V	124	24.24	8.10
6	#5925.00	32.98 PK	68.20	-35.22	1.00 V	124	24.70	8.28
7	11650.00	47.69 PK	74.00	-26.31	1.00 V	163	29.14	18.55
8	11650.00	33.70 AV	54.00	-20.30	1.00 V	163	15.15	18.55
9	#17475.00	56.21 PK	74.00	-17.79	1.00 V	164	29.64	26.57
10	#17475.00	42.33 AV	54.00	-11.67	1.00 V	164	15.76	26.57

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.

802.11ac (40MHz)

CHANNEL	TX Channel 151	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	#5650.00	33.87 PK	68.2	-34.33	1.00 H	183	26.59	7.28
2	#5700.00	37.75 PK	105.2	-67.45	1.00 H	183	30.29	7.46
3	#5720.00	38.65 PK	110.8	-72.15	1.00 H	183	31.11	7.54
4	#5725.00	40.28 PK	122.2	-81.92	1.00 H	183	32.73	7.55
5	*5755.00	75.17 PK			1.00 H	183	67.51	7.66
6	*5755.00	48.33 AV			1.00 H	183	40.67	7.66
7	11510.00	47.56 PK	74	-26.44	1.00 H	20	29.17	18.39
8	11510.00	35.63 AV	54	-18.37	1.00 H	20	17.24	18.39
9	#17265.00	57.89 PK	74	-16.11	1.00 H	36	31.03	26.86
10	#17265.00	44.36 AV	54	-9.64	1.00 H	36	17.5	26.86
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	#5650.00	31.47 PK	68.2	-36.73	1.00 V	157	24.19	7.28
2	#5700.00	34.23 PK	105.2	-70.97	1.00 V	157	26.77	7.46
3	#5720.00	35.99 PK	110.8	-74.81	1.00 V	28	28.45	7.54
4	#5725.00	36.89 PK	122.2	-85.31	1.00 V	28	29.34	7.55
5	*5755.00	67.22 PK			1.00 V	28	59.56	7.66
6	*5755.00	44.53 AV			1.00 V	28	36.87	7.66
7	11510.00	44.21 PK	74	-29.79	1.00 V	26	25.82	18.39
8	11510.00	34.76 AV	54	-19.24	1.00 V	26	16.37	18.39
9	#17265.00	54.99 PK	74	-19.01	1.00 V	48	28.13	26.86
10	#17265.00	43.23 AV	54	-10.77	1.00 V	48	16.37	26.86

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 159	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	1159.00	45.53 PK	74	-28.47	1.00 H	155	49.01	-3.48
2	1159.00	36.23 AV	54	-17.77	1.00 H	155	39.71	-3.48
3	*5795.00	71.88 PK			1.00 H	27	64.07	7.81
4	*5795.00	46.79 AV			1.00 H	27	38.98	7.81
5	#5850.00	32.32 PK	122.2	-89.88	1.00 H	160	24.31	8.01
6	#5855.00	32.25 PK	110.8	-78.55	1.00 H	160	24.22	8.03
7	#5875.00	32.27 PK	105.2	-72.93	1.00 H	189	24.17	8.1
8	#5925.00	32.48 PK	68.2	-35.72	1.00 H	189	24.2	8.28
9	#17385.00	57.83 PK	74	-16.17	1.00 H	162	31.14	26.69
10	#17385.00	44.54 AV	54	-9.46	1.00 H	162	17.85	26.69
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	*5795.00	64.63 PK			1.00 V	98	56.82	7.81
2	*5795.00	42.98 AV			1.00 V	98	35.17	7.81
3	#5850.00	32.69 PK	122.2	-89.51	1.00 V	98	24.68	8.01
4	#5855.00	32.32 PK	110.8	-78.48	1.00 V	98	24.29	8.03
5	#5875.00	32.18 PK	105.2	-73.02	1.00 V	85	24.08	8.1
6	#5925.00	33.66 PK	68.2	-34.54	1.00 V	85	25.38	8.28
7	11590.00	46.47 PK	74	-27.53	1.00 V	169	27.99	18.48
8	11590.00	35.28 AV	54	-18.72	1.00 V	169	16.8	18.48
9	#17385.00	56.58 PK	74	-17.42	1.00 V	170	29.89	26.69
10	#17385.00	43.29 AV	54	-10.71	1.00 V	170	16.6	26.69

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.: RF170817N033-2

802.11n (40MHz)

CHANNEL	TX Channel 151	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	#5650.00	32.30 PK	68.20	-35.90	1.00 H	165	25.02	7.28
2	#5700.00	37.80 PK	105.20	-67.40	1.00 H	165	30.34	7.46
3	#5720.00	38.45 PK	110.80	-72.35	1.00 H	165	30.91	7.54
4	#5725.00	40.64 PK	122.20	-81.56	1.00 H	165	33.09	7.55
5	*5755.00	74.98 PK			1.00 H	165	67.32	7.66
6	*5755.00	47.89 AV			1.00 H	165	40.23	7.66
7	11510.00	46.23 PK	74.00	-27.77	1.00 H	187	27.84	18.39
8	11510.00	34.26 AV	54.00	-19.74	1.00 H	187	15.87	18.39
9	#17265.00	56.23 PK	74.00	-17.77	1.00 H	185	29.37	26.86
10	#17265.00	43.26 AV	54.00	-10.74	1.00 H	185	16.40	26.86
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	#5650.00	31.68 PK	68.20	-36.52	1.00 V	142	24.40	7.28
2	#5700.00	33.34 PK	105.20	-71.86	1.00 V	142	25.88	7.46
3	#5720.00	34.33 PK	110.80	-76.47	1.00 V	142	26.79	7.54
4	#5725.00	35.47 PK	122.20	-86.73	1.00 V	142	27.92	7.55
5	*5755.00	68.39 PK			1.00 V	142	60.73	7.66
6	*5755.00	43.62 AV			1.00 V	142	35.96	7.66
7	11510.00	45.58 PK	74.00	-28.42	1.00 V	167	27.19	18.39
8	11510.00	35.24 AV	54.00	-18.76	1.00 V	167	16.85	18.39
9	#17265.00	55.89 PK	74.00	-18.11	1.00 V	132	29.03	26.86
10	#17265.00	42.98 AV	54.00	-11.02	1.00 V	132	16.12	26.86

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 Shenzhen Co., Ltd.
Dongguan Branch

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

Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

CHANNEL	TX Channel 159	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	1159.00	45.17 PK	74.00	-28.83	1.00 H	174	48.65	-3.48
2	1159.00	36.04 AV	54.00	-17.96	1.00 H	174	39.52	-3.48
3	*5795.00	71.91 PK			1.00 H	187	64.10	7.81
4	*5795.00	46.32 AV			1.00 H	187	38.51	7.81
5	#5850.00	32.13 PK	122.20	-90.07	1.00 H	187	24.12	8.01
6	#5855.00	32.28 PK	110.80	-78.52	1.00 H	187	24.25	8.03
7	#5875.00	32.23 PK	105.20	-72.97	1.00 H	187	24.13	8.10
8	#5925.00	32.91 PK	68.20	-35.29	1.00 H	187	24.63	8.28
9	#17385.00	56.07 PK	74.00	-17.93	1.00 H	162	29.38	26.69
10	#17385.00	44.86 AV	54.00	-9.14	1.00 H	162	18.17	26.69
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	*5795.00	64.75 PK			1.00 V	108	56.94	7.81
2	*5795.00	42.35 AV			1.00 V	108	34.54	7.81
3	#5850.00	32.12 PK	122.20	-90.08	1.00 V	108	24.11	8.01
4	#5855.00	32.11 PK	110.80	-78.69	1.00 V	108	24.08	8.03
5	#5875.00	32.49 PK	105.20	-72.71	1.00 V	108	24.39	8.10
6	#5925.00	33.59 PK	68.20	-34.61	1.00 V	108	25.31	8.28
7	11590.00	46.21 PK	74.00	-27.79	1.00 V	178	27.73	18.48
8	11590.00	35.89 AV	54.00	-18.11	1.00 V	178	17.41	18.48
9	#17385.00	56.28 PK	74.00	-17.72	1.00 V	195	29.59	26.69
10	#17385.00	43.61 AV	54.00	-10.39	1.00 V	195	16.92	26.69

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.

3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	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.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 05,17	Apr. 04,18
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 06,17	Mar. 05,18
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Apr. 05,17	Apr. 04,18
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Jan. 04,17	Jan. 03,18
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

- NOTE:**
1. The test was performed in shielded room 553.
 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.

3.2.3 TEST PROCEDURES

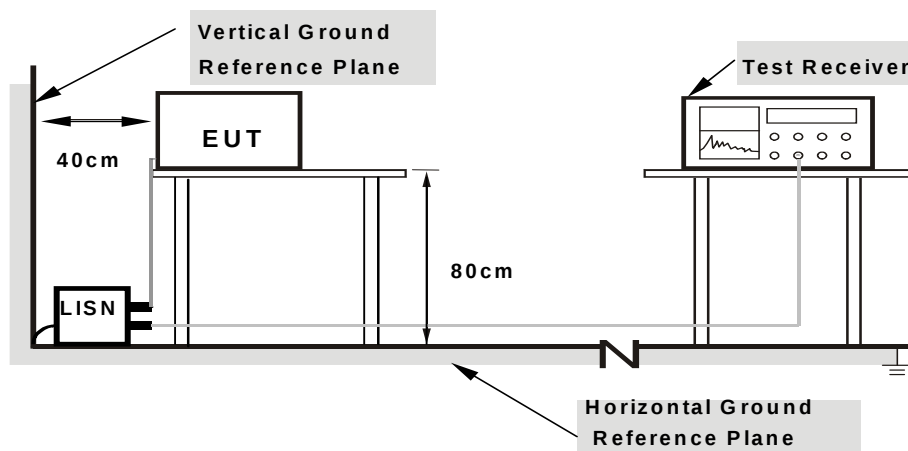
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

3.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.6

3.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11a

PHASE	Line	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	38.48	25.55	48.14	35.21	66.00	56.00	-17.86	-20.79
2	0.23290	9.74	31.55	19.41	41.29	29.15	62.35	52.35	-21.06	-23.20
3	0.27797	9.76	27.78	16.18	37.54	25.94	60.88	50.88	-23.34	-24.94
4	0.58066	9.83	22.32	17.78	32.15	27.61	56.00	46.00	-23.85	-18.39
5	3.68700	9.92	22.64	16.14	32.56	26.06	56.00	46.00	-23.44	-19.94
6	22.52850	9.72	31.87	30.65	41.59	40.37	60.00	50.00	-18.41	-9.63

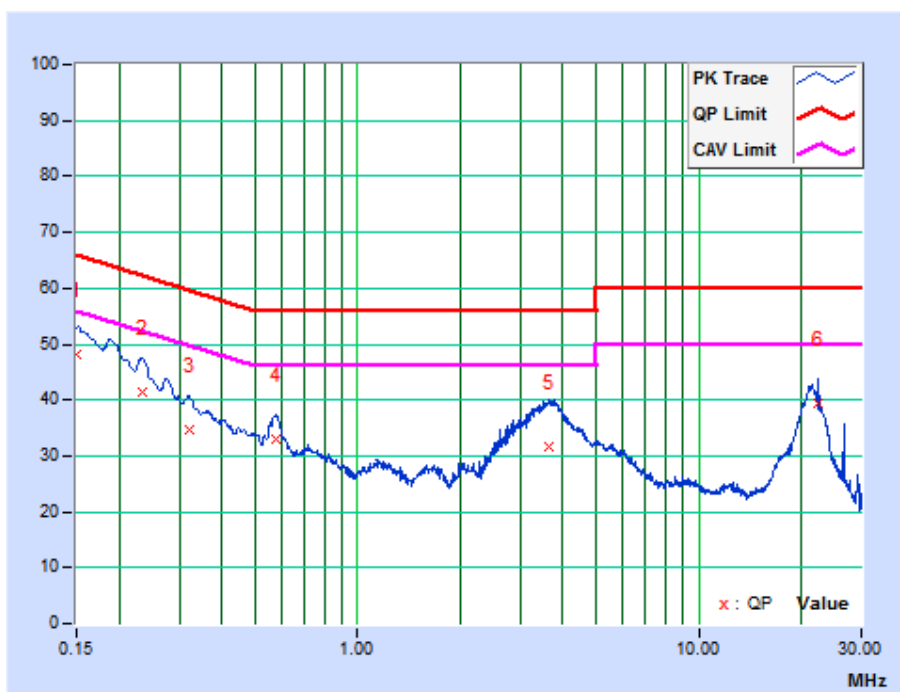
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Neutral	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.83	38.46	25.86	48.29	35.69	66.00	56.00	-17.71	-20.31
2	0.23290	9.87	31.55	19.37	41.42	29.24	62.35	52.35	-20.92	-23.10
3	0.31972	9.73	24.94	12.30	34.67	22.03	59.71	49.71	-25.04	-27.68
4	0.57761	10.00	23.02	18.31	33.02	28.31	56.00	46.00	-22.98	-17.69
5	3.64200	9.91	21.65	15.06	31.56	24.97	56.00	46.00	-24.44	-21.03
6	22.52850	10.01	29.47	28.28	39.48	38.29	60.00	50.00	-20.52	-11.71

- 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.

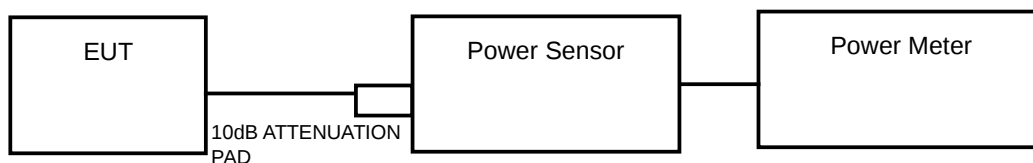


3.3 TRANSMIT POWER MEASUREMENT

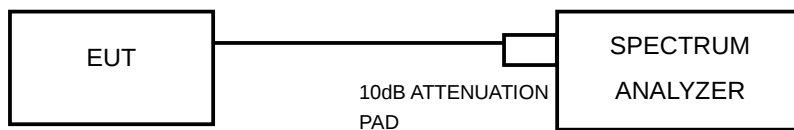
3.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT

Operation Band	EUT Category	LIMIT
U-NII-3	√	1 Watt (30 dBm)

3.3.2 TEST SETUP



FOR 6 BANDWIDTH



3.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	May 19,17	May 18,18
Power Sensor	Keysight	U2021XA	MY55060018	May 19,17	May 18,18
Power Meter	Anritsu	ML2495A	1139001	Nov. 04,16	Nov. 03,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 17	Aug.07, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 10,17	Apr. 09,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 17	Aug.07, 18
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A

NOTE:

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, GREGT/CHINA and NIM/CHINA.

3.3.4 TEST PROCEDURE

FOR OUTPUT 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 6dB BANDWIDTH

- 1) Set RBW = 100 kHz.
- 2) Set the video bandwidth (VBW) ≥ 3 RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Sweep = auto couple.
- 6) Allow the trace to stabilize.
- 7) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



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3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

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

**3.3.7 TEST RESULTS****OUTPUT POWER:****802.11a**

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	7.03	30.00	PASS
157	5785	7.08	30.00	PASS
165	5825	7.48	30.00	PASS

802.11ac (20MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	7.35	30.00	PASS
157	5785	7.28	30.00	PASS
165	5825	7.31	30.00	PASS

802.11n (20MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	7.22	30.00	PASS
157	5785	7.08	30.00	PASS
165	5825	7.37	30.00	PASS



802.11ac (40MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
151	5755	6.99	30.00	PASS
159	5795	7.25	30.00	PASS

802.11n (40MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
151	5755	7.02	30.00	PASS
159	5795	7.26	30.00	PASS

6dB BANDWIDTH

802.11a

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
149	5745	16.42	PASS
157	5785	16.44	PASS
165	5825	16.43	PASS

802.11ac (20M)

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
149	5745	17.74	PASS
157	5785	17.74	PASS
165	5825	17.72	PASS

802.11ac (40M)

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
151	5755	36.49	PASS
159	5795	35.97	PASS

802.11n (20M)

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
149	5745	17.76	PASS
157	5785	17.71	PASS
165	5825	17.73	PASS

802.11n (40M)

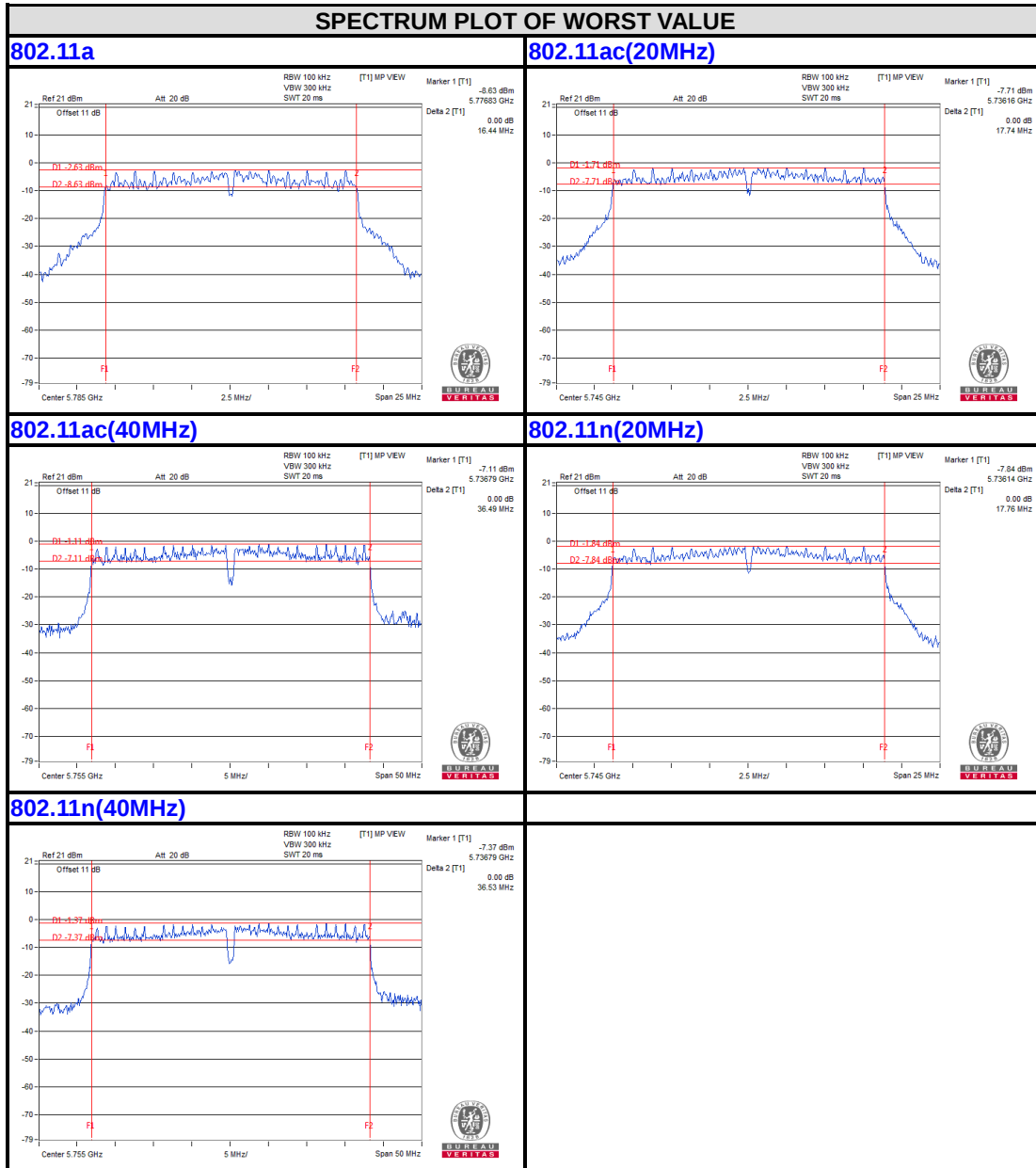
Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
151	5755	36.53	PASS
159	5795	36.51	PASS



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6dB BANDWIDTH



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

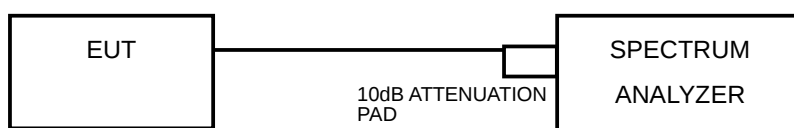
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

3.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

3.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category	LIMIT
U-NII-3	√	30dBm/ 500kHz

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 PROCEDURES

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW = 1 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)

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

Same as 3.3.6



3.4.7 TEST RESULTS

802.11a

Channel Number	Frequency (MHz)	RF Power Level in 300kHz BW (dBm)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
149	5745	-12.68	-10.46	30.00	PASS
157	5785	-12.27	-10.05	30.00	PASS
165	5825	-11.60	-9.38	30.00	PASS

802.11n (20MHz)

Channel Number	Frequency (MHz)	RF Power Level in 300kHz BW (dBm)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
149	5745	-12.23	-10.01	30.00	PASS
157	5785	-12.88	-10.66	30.00	PASS
165	5825	-12.36	-10.14	30.00	PASS

802.11n (40MHz)

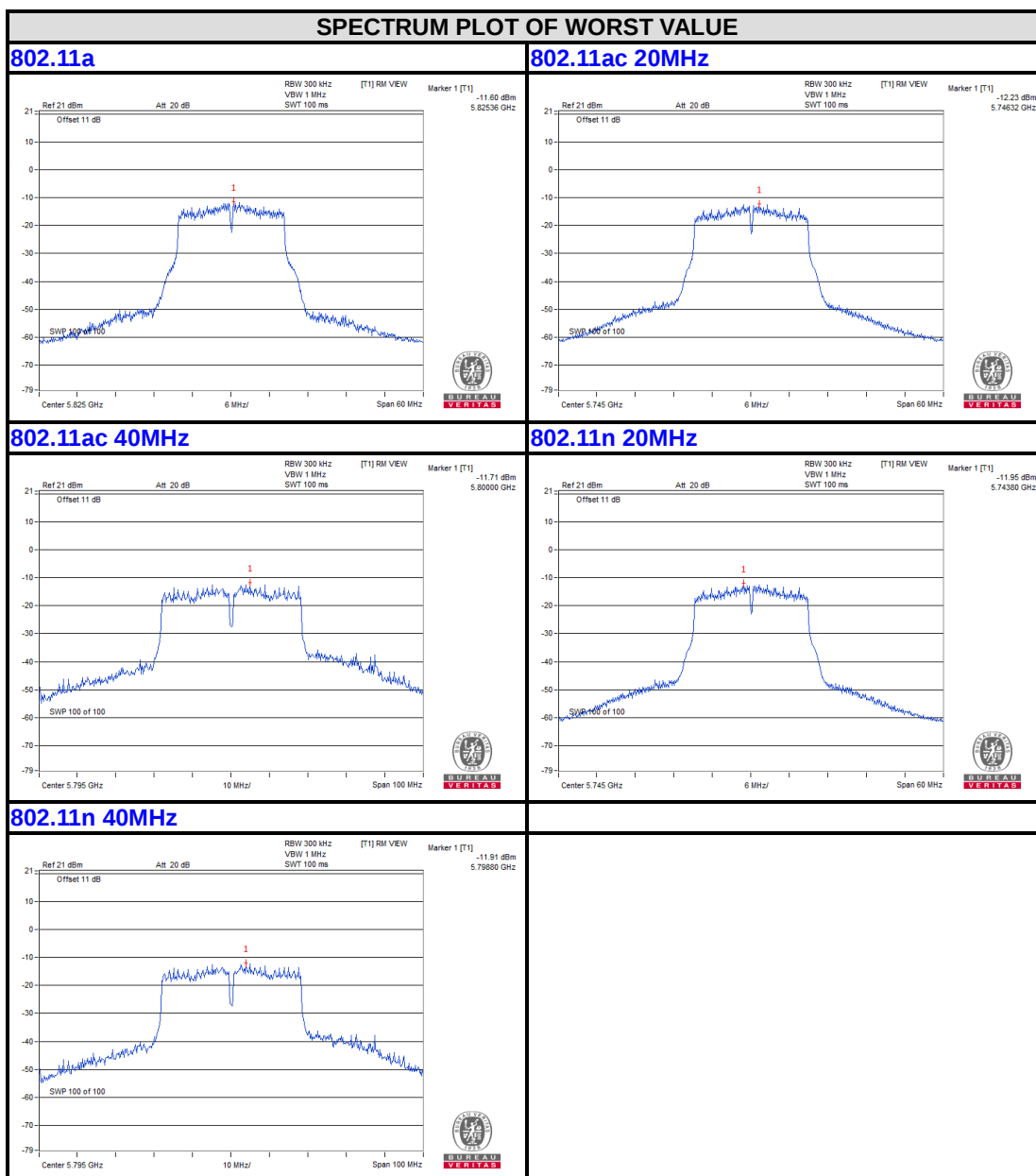
Channel Number	Frequency (MHz)	RF Power Level in 300kHz BW (dBm)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
151	5755	-12.73	-10.51	30.00	PASS
159	5795	-11.71	-9.49	30.00	PASS

802.11n (20MHz)

Channel Number	Frequency (MHz)	RF Power Level in 300kHz BW (dBm)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
149	5745	-11.95	-9.73	30.00	PASS
157	5785	-12.85	-10.63	30.00	PASS
165	5825	-12.06	-9.84	30.00	PASS

802.11n (40MHz)

Channel Number	Frequency (MHz)	RF Power Level in 300kHz BW (dBm)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
151	5755	-12.97	-10.75	30.00	PASS
159	5795	-11.91	-9.69	30.00	PASS

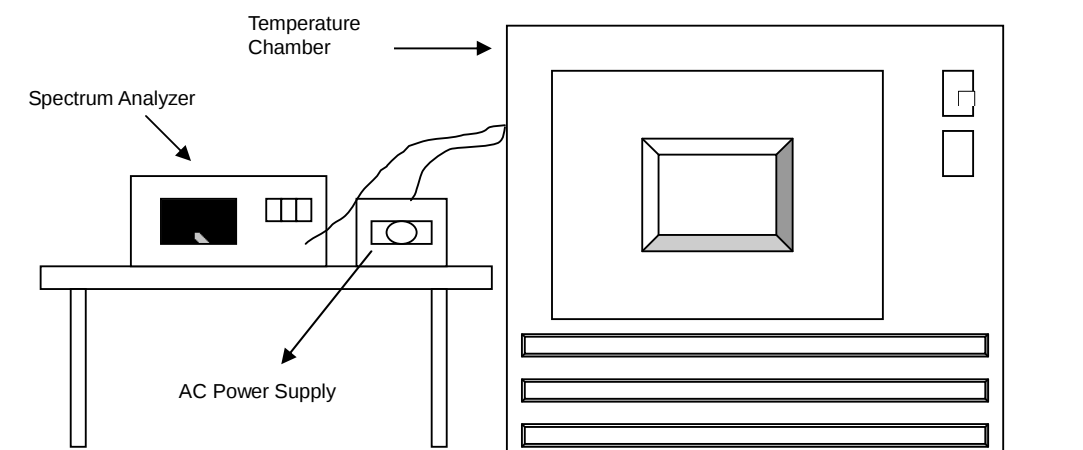


3.5 FREQUENCY STABILITY

3.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.5.4 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.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

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



3.5.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5745MHz									
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
40	3.7V	5745.0055	0.00010	5745.0027	0.00005	5745.007	0.00012	5745.0061	0.00011
30	3.7V	5744.9769	-0.00040	5744.9798	-0.00035	5744.9784	-0.00038	5744.9789	-0.00037
20	3.7V	5745.0085	0.00015	5745.008	0.00014	5745.0066	0.00011	5745.0055	0.00010
10	3.7V	5744.9913	-0.00015	5744.9944	-0.00010	5744.9933	-0.00012	5744.9936	-0.00011
0	3.7V	5745.0245	0.00043	5745.0198	0.00034	5745.0208	0.00036	5745.0228	0.00040

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	3.7	5745.0085	0.00015	5745.008	0.00014	5745.0066	0.00011	5745.0055	0.00010
	2.85	5744.9907	-0.00016	5744.9895	-0.00018	5744.9894	-0.00018	5744.993	-0.00012



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4. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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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---