

FCC TEST REPORT

(Part 15, Subpart E)

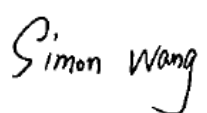
Applicant:	TYCO SAFETY PRODUCTS / KANTECH
Address:	9995L de Chateaufneuf Ave, Brossard, J4Z 3V7, Canada

Manufacturer or Supplier:	TYCO SAFETY PRODUCTS / KANTECH
Address:	9995L de Chateaufneuf Ave, Brossard, J4Z 3V7, Canada
Product:	KT-4 Ethernet Ready Four Door Controller
Brand Name:	KANTECH
Model Name:	KT-4
FCC ID:	V85KT4
Date of tests:	Nov. 25, 2022 ~ Feb. 22, 2023

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Feb. 22, 2023	 Date: Feb. 22, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22110033RF03	Original release	Feb. 22, 2023

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E		
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT
15.407(b)(6)	AC Power Conducted Emission	Compliance
15.407(b) (1/2/3/4/5)	Radiated Emission & Band Edge Measurement	Compliance
15.407(a/1/2/3)	Maximum conducted output Power	Compliance
15.407(a/1/2/3)	Peak Power Spectral Density	Compliance
15.407(i)	26 dB Bandwidth	Compliance
15.407(e)	6 dB Bandwidth	Compliance
15.203	Antenna Requirement	Compliance

NOTE:

1. Except the data of Radiated Emission & Band Edge Measurement, other data of 802.11a & 802.11n (20/40) & 802.11ac 80 please refer to the appendix.
2. Only the worse data were reported.

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	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

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	KT-4 Ethernet Ready Four Door Controller
BRAND NAME	KANTECH
MODEL NAME	KT-4
NOMINAL VOLTAGE	16.0Vdc(Transformer) 12Vdc (Lead Acid) DC24V
MODULATION	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 150.0Mbps 802.11ac: up to 433.3Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz 5745 ~ 5825MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802. 802.11ac(80MHz) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802.11ac (80MHz)
AVERAGE POWER	34.20mW for 5180 ~ 5240MHz 38.11mW for 5745 ~ 5825MHz
ANTENNA TYPE	Dipole Antenna
ANTENNA GAIN	2dBi for 5180 ~ 5240MHz 2dBi for 5745 ~ 5825MHz
HW VERSION	UA763
SW VERSION	1.00.07
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11a	1TX /1RX
802.11n (20MHz)	1TX /1RX
802.11n (40MHz)	1TX /1RX
802.11ac (80MHz)	1TX /1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessory:

ACCESSORIES	BRAND	MODEL	SPECIFICATION
Battery	Power Kingdom	PS7-12	Capacity: 12Vdc, 7000mAh
Transformer	Hammond	BF2F	SECONDARY 16V 75VA

2.2 DESCRIPTION OF TEST MODES

FOR 5180 ~ 5240MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
42	5210 MHz		

FOR 5745 ~ 5825MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
155	5775 MHz



2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by Adapter with wifi(5G) link
B	-	-	-	-	Powered by Battery with wifi(5G) link
C	-	-	-	-	Powered by USB with wifi(5G) link

Where

RE $\geq$ 1G: Radiated Emission above 1GHz**RE<1G:** Radiated Emission below 1GHz**PLC:** Power Line Conducted Emission**APCM:** Antenna Port Conducted Measurement**NOTE:**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 (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	DATA RATE (Mbps)
A	802.11ac (80MHz)	5745-5825	155	155	OFDM	MCS0

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	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	MCS0
A	802.11ac (80MHz)		42	42	OFDM	MCS0
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
A	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	MCS0
A	802.11n (40MHz)		151 to 159	151, 159	OFDM	MCS0
A	802.11ac (80MHz)		155	155	OFDM	MCS0

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	DATA RATE (Mbps)
A	802.11ac (80MHz)	5745-5825	155	155	OFDM	MCS0

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	MCS0
A	802.11ac (80MHz)		42	42	OFDM	MCS0
A	802.11a	5745-5825	149 to 165	149, 157,165	OFDM	6.0
A	802.11n (20MHz)		149 to 165	149, 157,165	OFDM	MCS0
A	802.11n (40MHz)		151 to 159	151, 159	OFDM	MCS0
A	802.11ac (80MHz)		155	155	OFDM	MCS0

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	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	MCS0
A	802.11ac (80MHz)		42	42	OFDM	MCS0
A	802.11a	5745-5825	149 to 165	149, 157,165	OFDM	6.0
A	802.11n (20MHz)		149 to 165	149, 157,165	OFDM	MCS0
A	802.11n (40MHz)		151 to 159	151, 159	OFDM	MCS0
A	802.11ac (80MHz)		155	155	OFDM	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	23deg. C, 56%RH	DC 16V By Transformer	Jace Hu
RE≥1G	23deg. C, 56%RH	DC 16V By Transformer	Jace Hu
PLC	25deg. C, 52%RH	DC 16V By Transformer	James Fu
APCM	25deg. C, 60%RH	DC 16V By Transformer	James Fu

2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix A Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1
5GHZ	11a	100.00
	11n20	100.00
	11n40	100.00
	11ac80	100.00

Note:

Duty cycle of test signal is 100%, so the duty cycle factor needn't to be considered.

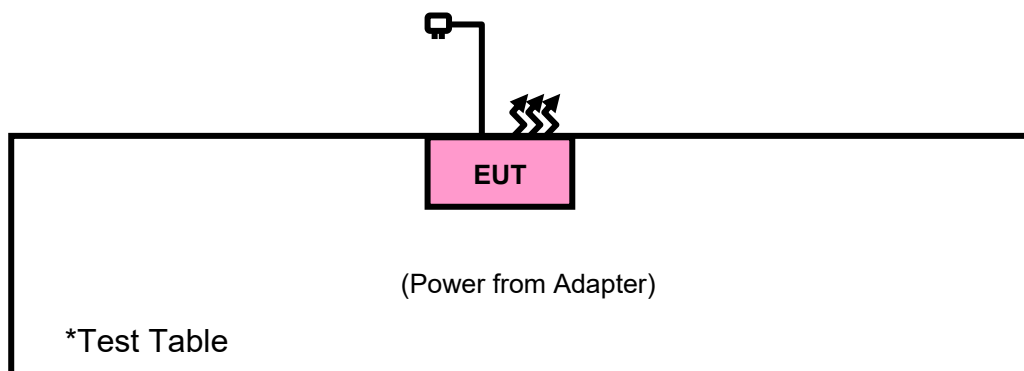
2.4 DESCRIPTION OF SUPPORT UNITS

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	Desktop	Lenovo	M73 SFF	PC04GRQV	N/A
2	Desktop	Lenovo	M73 SFF	PC06CS27	N/A
3	Laptop	Lenovo	Thinkpad L440	R90FTFKN	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m
2	AC Line: Unshielded, Detachable 1.5m
3	AC Line: Unshielded, Detachable 1.5m
4	DC Line: Unshielded, Detachable 1.0m

2.4.1 CONFIGURATION OF SYSTEM UNDER TEST



2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

ANSI C63.10-2013

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

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 20dB under any condition of modulation.

3.1.2 LIMITS OF UNWANTED EMISSION

RESTRICTED BANDS	APPLICABLE TO	LIMIT	
	789033 D02 General UNII Test Procedures New Rules v02r01	FIELD STRENGTH AT 3m (dBµV/m)	
		PK : 74	AV : 54
OUT OF THE RESTRICTED BANDS	APPLICABLE TO	EIRP LIMIT (dBm/MHz)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m)
	15.407(b)(1)	PK : -27	PK : 68.2
	15.407(b)(2)		
	15.407(b)(3)		
	15.407(b)(4)	See note 2 (FCC 16-24)	

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

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

2. 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.

3.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 06,22	Mar. 05,23
Horn Antenna	ETS-LINDGREN	3117	00168692	Mar. 06,22	Mar. 05,23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 27, 22	Aug. 26, 23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120-3	3.2.06	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 02,22	Jun. 01,23
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 21,22	Feb. 20,23
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 20,23	Feb. 19,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 21,22	Feb.20,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 20,23	Feb. 19,24
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 23,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 22,22	Feb. 21,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 21,23	Feb. 20,24
Power Sensor	Anritsu	MA2411B	1339352	May. 14,22	May. 13,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep. 04,22	Sep. 03,23

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

3.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The 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:

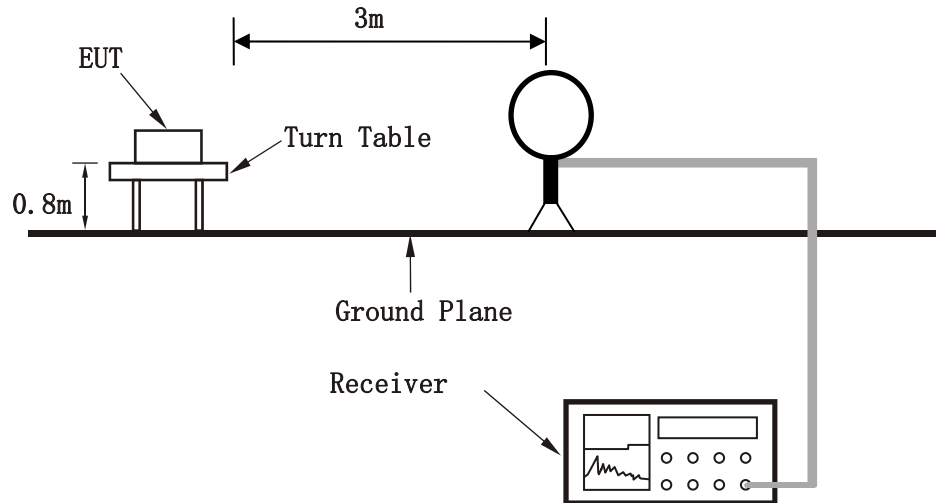
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.1.5 DEVIATION FROM TEST STANDARD

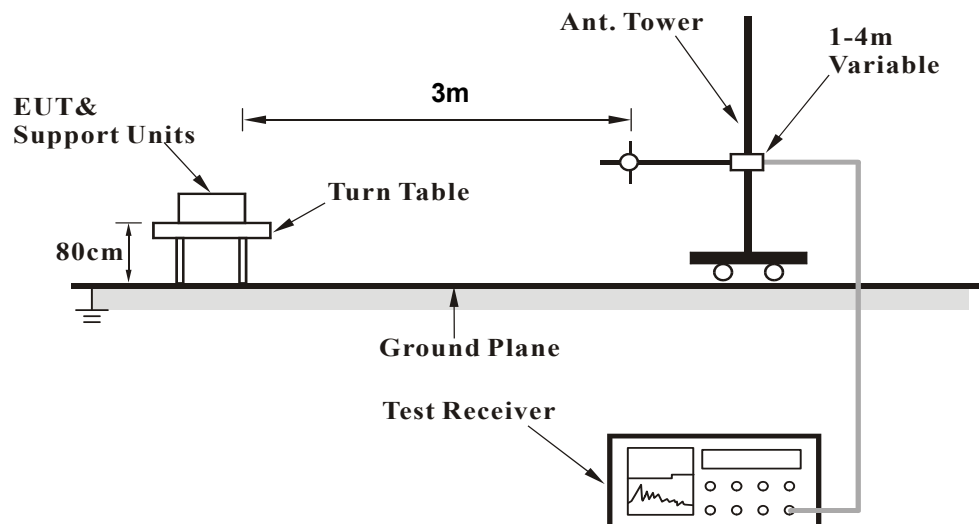
No deviation.

3.1.6 TEST SETUP

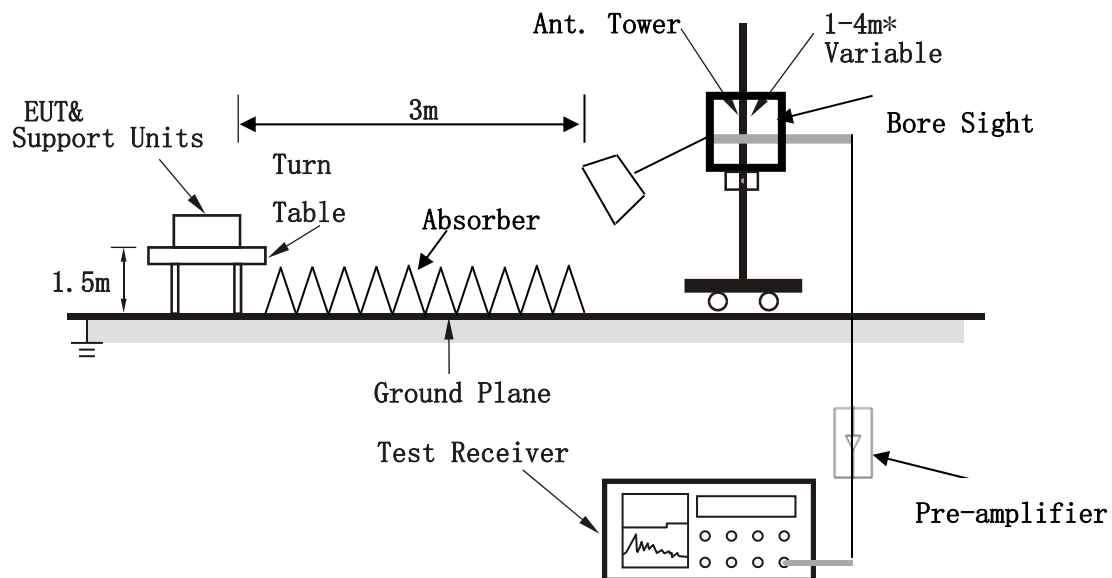
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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

30 MHz – 1GHz data:

BELOW 1GHz WORST-CASE DATA:

Note: 1. For radiated emissions testing, the full testing range of different modes have been scanned, only the worst case harmonic data is reported in the sheet.

2. The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

3.Pre-scan 16.0Vdc(Transformer) and 12Vdc (Lead Acid),worse case is 16.0Vdc(Transformer)

Band 4

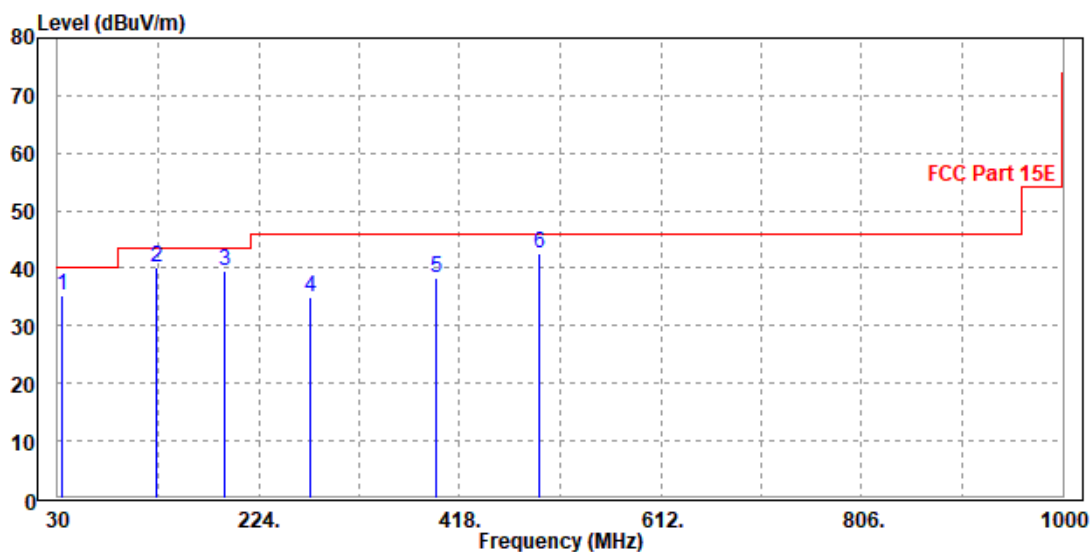
802.11ac (80MHz)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
33.88	35.25	53.23	40	-4.75	19.07	0.33	37.38	121	155	QP
126.03	40	67.17	43.5	-3.5	8.92	0.6	36.69	141	70	QP
191.02	39.41	63.69	43.5	-4.09	11.34	0.72	36.34	144	174	QP
273.47	34.97	56.64	46	-11.03	13.73	0.87	36.27	128	332	QP
395.69	38.22	57.45	46	-7.78	16.11	1.07	36.41	163	188	QP
494.63	42.57	59.97	46	-3.43	18	1.21	36.61	132	169	QP

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

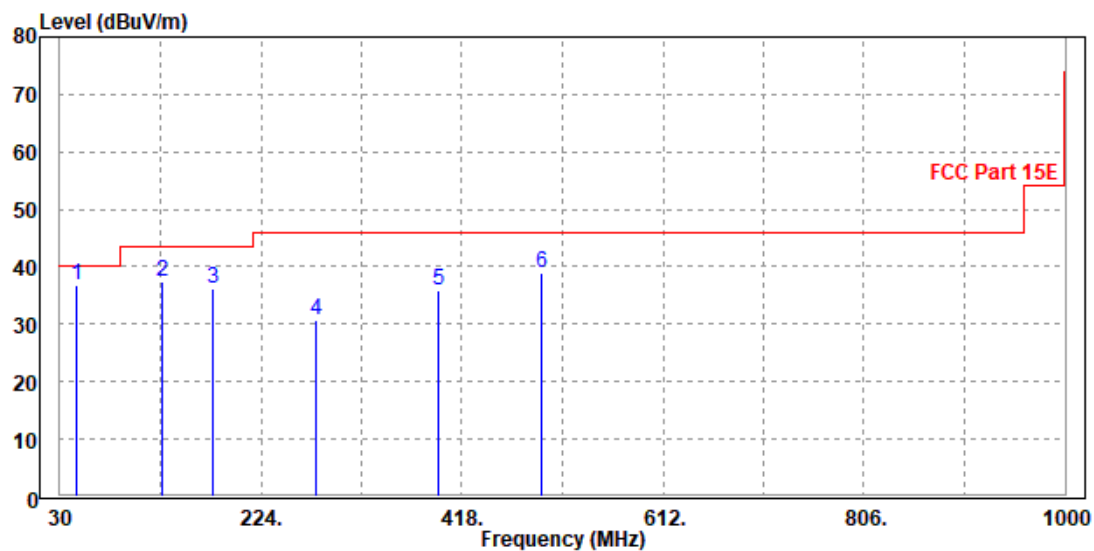


CHANNEL	Channel 155	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
45.52	36.93	62.35	40	-3.07	11.31	0.37	37.1	184	31	QP
127.97	37.35	65.17	43.5	-6.15	8.26	0.6	36.68	184	55	QP
177.44	36.21	60.76	43.5	-7.29	11.16	0.7	36.41	144	55	QP
276.38	30.83	52.89	46	-15.17	13.34	0.87	36.27	192	153	QP
395.69	35.99	55.13	46	-10.01	16.2	1.07	36.41	146	155	QP
494.63	38.91	56.78	46	-7.09	17.53	1.21	36.61	189	103	QP

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



**ABOVE 1GHz WORST-CASE DATA:**

Note: 1. For radiated emissions testing, the full testing range of different modes have been scanned, only the worst case harmonic data is reported in the sheet.

2. All other emissions were greater than 20dB below the limit is not recorded

3. Pre-scan 16.0Vdc(Transformer) and 12Vdc (Lead Acid), worse case is 16.0Vdc(Transformer)

Band 1**802.11a**

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	55.30	56.37	74.00	-18.70	34.52	9.92	45.51	200	115	Peak
5150	48.75	49.82	54.00	-5.25	34.52	9.92	45.51	200	115	Average
5180	96.42	97.48	/	/	34.54	9.91	45.51	200	115	Peak
5180	85.91	86.97	/	/	34.54	9.91	45.51	200	115	Average
5350	53.65	54.63	74.00	-20.35	34.68	9.85	45.51	200	115	Peak
5350	47.41	48.39	54.00	-6.59	34.68	9.85	45.51	200	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	53.45	54.44	74.00	-20.55	34.60	9.92	45.51	200	330	Peak
5150	48.58	49.57	54.00	-5.42	34.60	9.92	45.51	200	330	Average
5180	102.87	103.87	/	/	34.60	9.91	45.51	200	330	Peak
5180	94.58	95.58	/	/	34.60	9.91	45.51	200	330	Average
5350	54.02	55.08	74.00	-19.98	34.60	9.85	45.51	200	330	Peak
5350	47.70	48.76	54.00	-6.30	34.60	9.85	45.51	200	330	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5180MHz: Fundamental frequency.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	53.45	54.52	74.00	-20.55	34.52	9.92	45.51	200	115	Peak
5150	48.83	49.90	54.00	-5.17	34.52	9.92	45.51	200	115	Average
5200	95.52	96.57	/	/	34.56	9.90	45.51	200	115	Peak
5200	87.14	88.19	/	/	34.56	9.90	45.51	200	115	Average
5350	53.39	54.37	74.00	-20.61	34.68	9.85	45.51	200	115	Peak
5350	46.73	47.71	54.00	-7.27	34.68	9.85	45.51	200	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.13	55.12	74.00	-19.87	34.60	9.92	45.51	200	330	Peak
5150	49.41	50.40	54.00	-4.59	34.60	9.92	45.51	200	330	Average
5200	103.57	104.58	/	/	34.60	9.90	45.51	200	330	Peak
5200	95.64	96.65	/	/	34.60	9.90	45.51	200	330	Average
5350	53.80	54.86	74.00	-20.20	34.60	9.85	45.51	200	330	Peak
5350	47.66	48.72	54.00	-6.34	34.60	9.85	45.51	200	330	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5200MHz: Fundamental frequency.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	53.19	54.26	74.00	-20.81	34.52	9.92	45.51	200	115	Peak
5150	48.22	49.29	54.00	-5.78	34.52	9.92	45.51	200	115	Average
5240	96.24	97.27	/	/	34.59	9.89	45.51	200	115	Peak
5240	85.45	86.48	/	/	34.59	9.89	45.51	200	115	Average
5350	52.83	53.81	74.00	-21.17	34.68	9.85	45.51	200	115	Peak
5350	47.22	48.20	54.00	-6.78	34.68	9.85	45.51	200	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.85	55.84	74.00	-19.15	34.60	9.92	45.51	200	330	Peak
5150	48.63	49.62	54.00	-5.37	34.60	9.92	45.51	200	330	Average
5240	102.32	103.34	/	/	34.60	9.89	45.51	200	330	Peak
5240	93.91	94.93	/	/	34.60	9.89	45.51	200	330	Average
5350	54.49	55.55	74.00	-19.51	34.60	9.85	45.51	200	330	Peak
5350	47.86	48.92	54.00	-6.14	34.60	9.85	45.51	200	330	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5240MHz: Fundamental frequency.



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										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	55.91	56.98	74.00	-18.09	34.52	9.92	45.51	200	115	Peak
5150	48.65	49.72	54.00	-5.35	34.52	9.92	45.51	200	115	Average
5180	93.65	94.71	/	/	34.54	9.91	45.51	200	115	Peak
5180	85.68	86.74	/	/	34.54	9.91	45.51	200	115	Average
5350	53.00	53.98	74.00	-21.00	34.68	9.85	45.51	200	115	Peak
5350	47.39	48.37	54.00	-6.61	34.68	9.85	45.51	200	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	55.32	56.31	74.00	-18.68	34.60	9.92	45.51	200	330	Peak
5150	49.13	50.12	54.00	-4.87	34.60	9.92	45.51	200	330	Average
5180	103.11	104.11	/	/	34.60	9.91	45.51	200	330	Peak
5180	94.75	95.75	/	/	34.60	9.91	45.51	200	330	Average
5350	53.48	54.54	74.00	-20.52	34.60	9.85	45.51	200	330	Peak
5350	47.20	48.26	54.00	-6.80	34.60	9.85	45.51	200	330	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5180MHz: Fundamental frequency.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.46	55.53	74.00	-19.54	34.52	9.92	45.51	200	115	Peak
5150	48.57	49.64	54.00	-5.43	34.52	9.92	45.51	200	115	Average
5200	95.53	96.58	/	/	34.56	9.90	45.51	200	115	Peak
5200	87.33	88.38	/	/	34.56	9.90	45.51	200	115	Average
5350	54.28	55.26	74.00	-19.72	34.68	9.85	45.51	200	115	Peak
5350	48.17	49.15	54.00	-5.83	34.68	9.85	45.51	200	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.98	55.97	74.00	-19.02	34.60	9.92	45.51	200	330	Peak
5150	49.02	50.01	54.00	-4.98	34.60	9.92	45.51	200	330	Average
5200	103.03	104.04	/	/	34.60	9.90	45.51	200	330	Peak
5200	96.49	97.50	/	/	34.60	9.90	45.51	200	330	Average
5350	52.80	53.86	74.00	-21.20	34.60	9.85	45.51	200	330	Peak
5350	46.79	47.85	54.00	-7.21	34.60	9.85	45.51	200	330	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5200MHz: Fundamental frequency.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	53.58	54.65	74.00	-20.42	34.52	9.92	45.51	200	115	Peak
5150	49.08	50.15	54.00	-4.92	34.52	9.92	45.51	200	115	Average
5240	94.03	95.06	/	/	34.59	9.89	45.51	200	115	Peak
5240	87.33	88.36	/	/	34.59	9.89	45.51	200	115	Average
5350	53.22	54.20	74.00	-20.78	34.68	9.85	45.51	200	115	Peak
5350	48.86	49.84	54.00	-5.14	34.68	9.85	45.51	200	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	57.63	58.62	74.00	-16.37	34.60	9.92	45.51	200	330	Peak
5150	49.52	50.51	54.00	-4.48	34.60	9.92	45.51	200	330	Average
5240	102.00	103.02	/	/	34.60	9.89	45.51	200	330	Peak
5240	95.24	96.26	/	/	34.60	9.89	45.51	200	330	Average
5350	54.48	55.54	74.00	-19.52	34.60	9.85	45.51	200	330	Peak
5350	47.50	48.56	54.00	-6.50	34.60	9.85	45.51	200	330	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5240MHz: Fundamental frequency.



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										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	55.78	56.85	74.00	-18.22	34.52	9.92	45.51	200	330	Peak
5150	49.66	50.73	54.00	-4.34	34.52	9.92	45.51	200	330	Average
5190	88.74	89.79	/	/	34.55	9.91	45.51	200	330	Peak
5190	82.21	83.26	/	/	34.55	9.91	45.51	200	330	Average
5350	53.62	54.60	74.00	-20.38	34.68	9.85	45.51	200	330	Peak
5350	47.59	48.57	54.00	-6.41	34.68	9.85	45.51	200	330	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.58	55.57	74.00	-19.42	34.60	9.92	45.51	200	330	Peak
5150	50.36	51.35	54.00	-3.64	34.60	9.92	45.51	200	330	Average
5190	98.13	99.13	/	/	34.60	9.91	45.51	200	330	Peak
5190	90.99	91.99	/	/	34.60	9.91	45.51	200	330	Average
5350	53.67	54.73	74.00	-20.33	34.60	9.85	45.51	200	330	Peak
5350	47.01	48.07	54.00	-6.99	34.60	9.85	45.51	200	330	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5190MHz: Fundamental frequency.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.37	55.44	74.00	-19.63	34.52	9.92	45.51	200	330	Peak
5150	49.37	50.44	54.00	-4.63	34.52	9.92	45.51	200	330	Average
5230	88.52	89.56	/	/	34.58	9.89	45.51	200	330	Peak
5230	81.42	82.46	/	/	34.58	9.89	45.51	200	330	Average
5350	53.43	54.41	74.00	-20.57	34.68	9.85	45.51	200	330	Peak
5350	48.17	49.15	54.00	-5.83	34.68	9.85	45.51	200	330	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	55.43	56.42	74.00	-18.57	34.60	9.92	45.51	200	330	Peak
5150	48.68	49.67	54.00	-5.32	34.60	9.92	45.51	200	330	Average
5230	97.34	98.36	/	/	34.60	9.89	45.51	200	330	Peak
5230	91.06	92.08	/	/	34.60	9.89	45.51	200	330	Average
5350	53.76	54.82	74.00	-20.24	34.60	9.85	45.51	200	330	Peak
5350	48.89	49.95	54.00	-5.11	34.60	9.85	45.51	200	330	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5230MHz: Fundamental frequency.

802.11ac (80MHz)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	53.65	54.72	74.00	-20.35	34.52	9.92	45.51	200	330	Peak
5150	49.44	50.51	54.00	-4.56	34.52	9.92	45.51	200	330	Average
5210	82.61	83.65	/	/	34.57	9.90	45.51	200	330	Peak
5210	75.68	76.72	/	/	34.57	9.90	45.51	200	330	Average
5350	53.84	54.82	74.00	-20.16	34.68	9.85	45.51	200	330	Peak
5350	48.05	49.03	54.00	-5.95	34.68	9.85	45.51	200	330	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	54.95	55.94	74.00	-19.05	34.60	9.92	45.51	200	330	Peak
5150	50.87	51.86	54.00	-3.13	34.60	9.92	45.51	200	330	Average
5210	90.99	92.00	/	/	34.60	9.90	45.51	200	330	Peak
5210	84.32	85.33	/	/	34.60	9.90	45.51	200	330	Average
5350	52.21	53.27	74.00	-21.79	34.60	9.85	45.51	200	330	Peak
5350	47.96	49.02	54.00	-6.04	34.60	9.85	45.51	200	330	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5210MHz: Fundamental frequency.

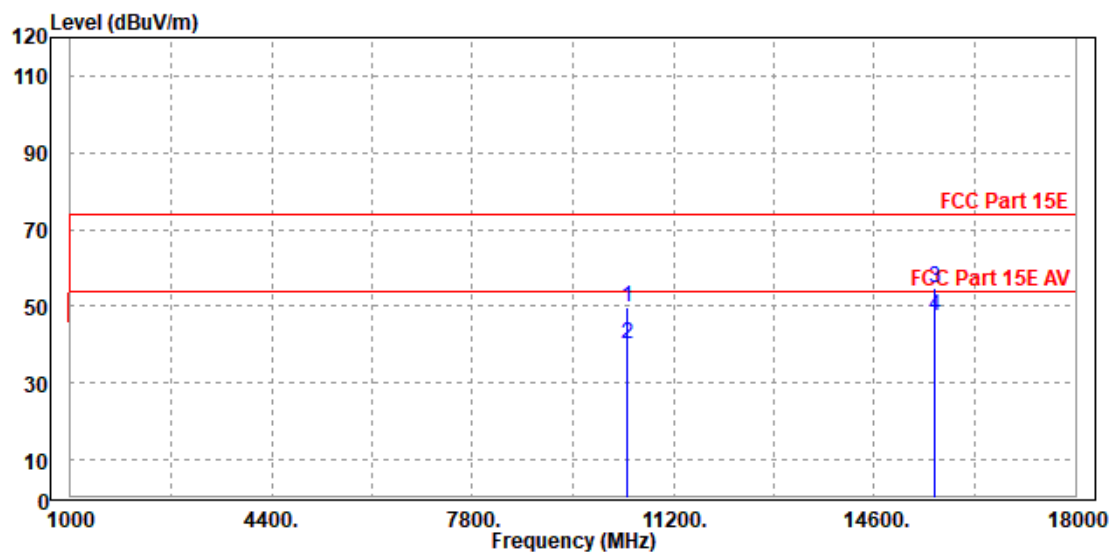
Worst case harmonic:

802.11ac 80MHz

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

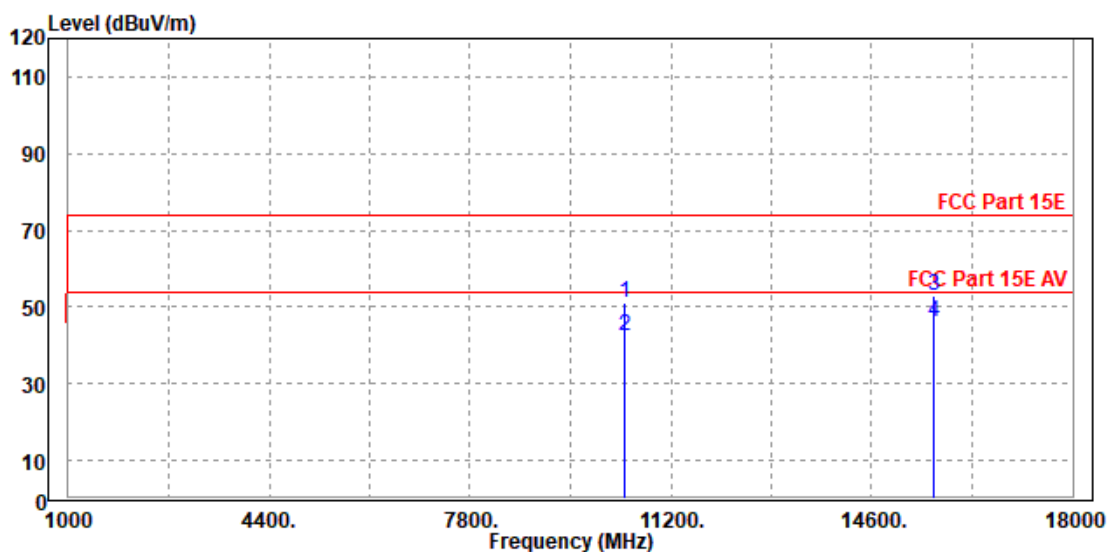
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	10418.000	49.75	42.85	74.00	-24.25	6.90	Peak	Horizontal
2	10418.000	40.05	33.15	54.00	-13.95	6.90	Average	Horizontal
3	PK15630.000	54.85	41.75	74.00	-19.15	13.10	Peak	Horizontal
4	PP15630.000	47.34	34.24	54.00	-6.66	13.10	Average	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	10420.000	51.19	43.07	74.00	-22.81	8.12	Peak	Vertical
2	10420.000	42.41	34.29	54.00	-11.59	8.12	Average	Vertical
3	PK15637.000	53.02	40.98	74.00	-20.98	12.04	Peak	Vertical
4	PP15637.000	45.89	33.85	54.00	-8.11	12.04	Average	Vertical



REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5210MHz: Fundamental frequency.
- For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

Band 4:

802.11a

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5745	99.13	99.66	/	/	35.09	9.88	45.5	100	110	Peak
5745	91.37	91.9	/	/	35.09	9.88	45.5	100	110	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5745	103.77	104.5	/	/	34.89	9.88	45.5	200	15	Peak
5745	96.5	97.23	/	/	34.89	9.88	45.5	200	15	Average

REMARKS:

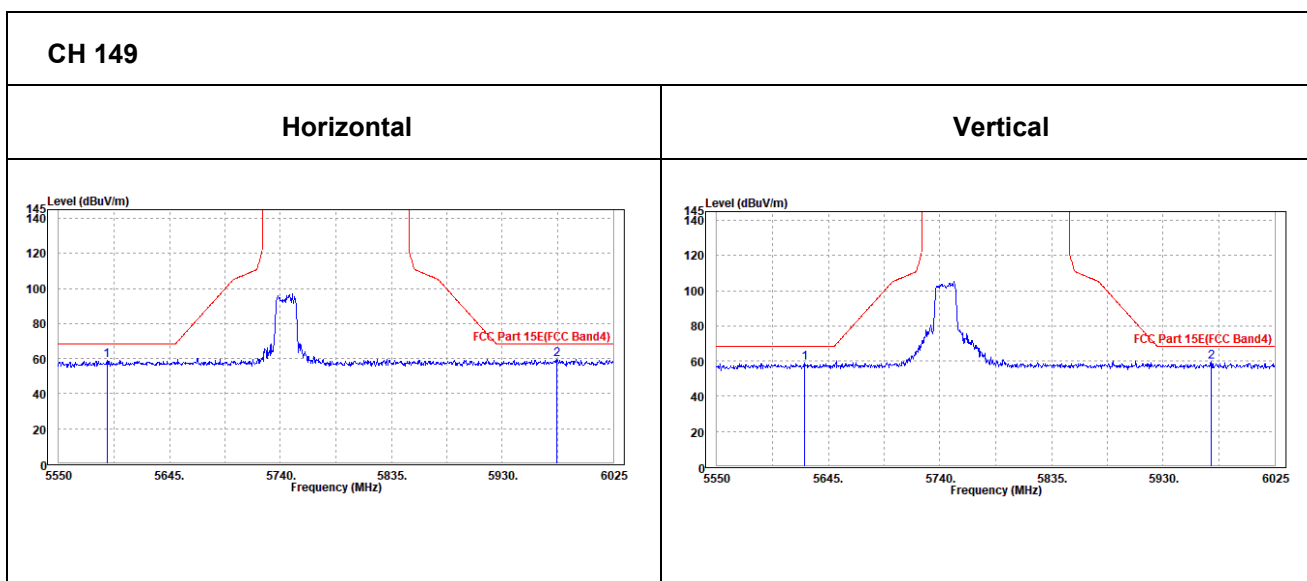
- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5745MHz: Fundamental frequency.



OOBE DATA

802.11a

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5591.325	58.9	59.66	68.2	-9.3	34.91	9.83	45.5	200	0	Peak
5976.55	59.35	59.52	68.2	-8.85	35.37	9.96	45.5	200	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5625.05	59.06	59.97	68.2	-9.14	34.75	9.84	45.5	200	360	Peak
5970.85	59.39	59.76	68.2	-8.81	35.17	9.96	45.5	200	360	Peak





CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5785	99.48	99.94	/	/	35.14	9.9	45.5	125	110	Peak
5785	92.09	92.55	/	/	35.14	9.9	45.5	125	110	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5785	104	104.66	/	/	34.94	9.9	45.5	200	15	Peak
5785	95.92	96.58	/	/	34.94	9.9	45.5	200	15	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5785MHz: Fundamental frequency.



**BUREAU
VERITAS**

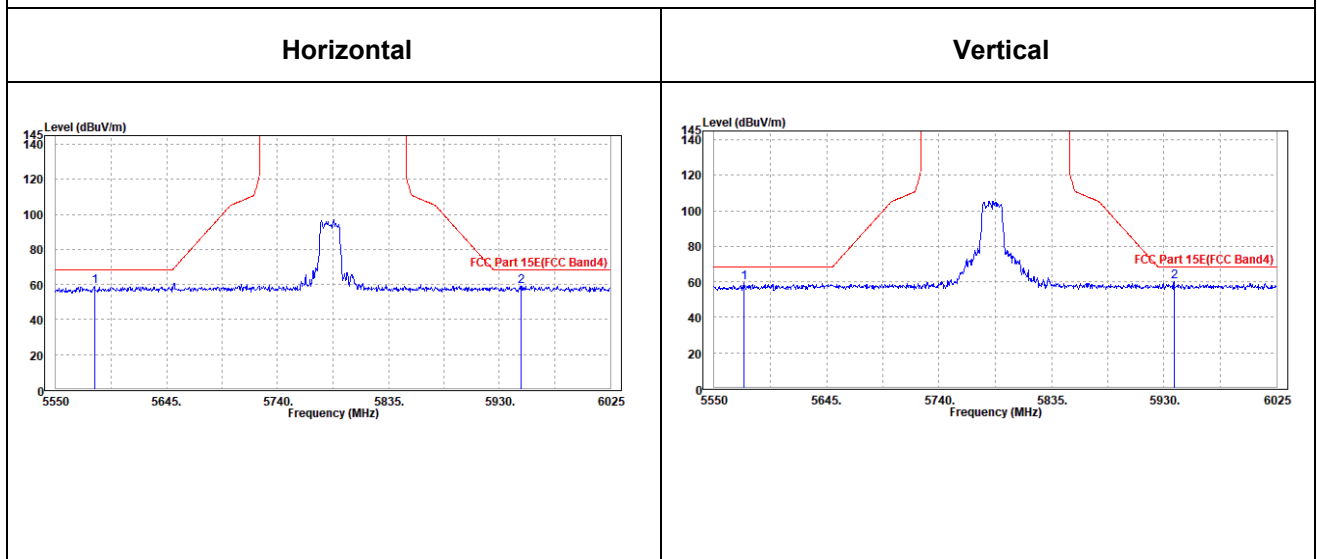
Test Report No.: W7L-P22110033RF03

Oobe Data

802.11a

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5583.25	58.79	59.56	68.2	-9.41	34.9	9.83	45.5	200	360	Peak
5948.525	59.2	59.41	68.2	-9	35.34	9.95	45.5	200	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5575.175	59.39	60.37	68.2	-8.81	34.69	9.83	45.5	200	0	Peak
5938.55	60.04	60.46	68.2	-8.16	35.13	9.95	45.5	200	0	Peak

CH 157





CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5825	99.44	99.84	/	/	35.19	9.91	45.5	110	125	Peak
5825	91.72	92.12	/	/	35.19	9.91	45.5	110	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5825	106.94	107.54	/	/	34.99	9.91	45.5	200	50	Peak
5825	99.81	100.41	/	/	34.99	9.91	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5825MHz: Fundamental frequency.

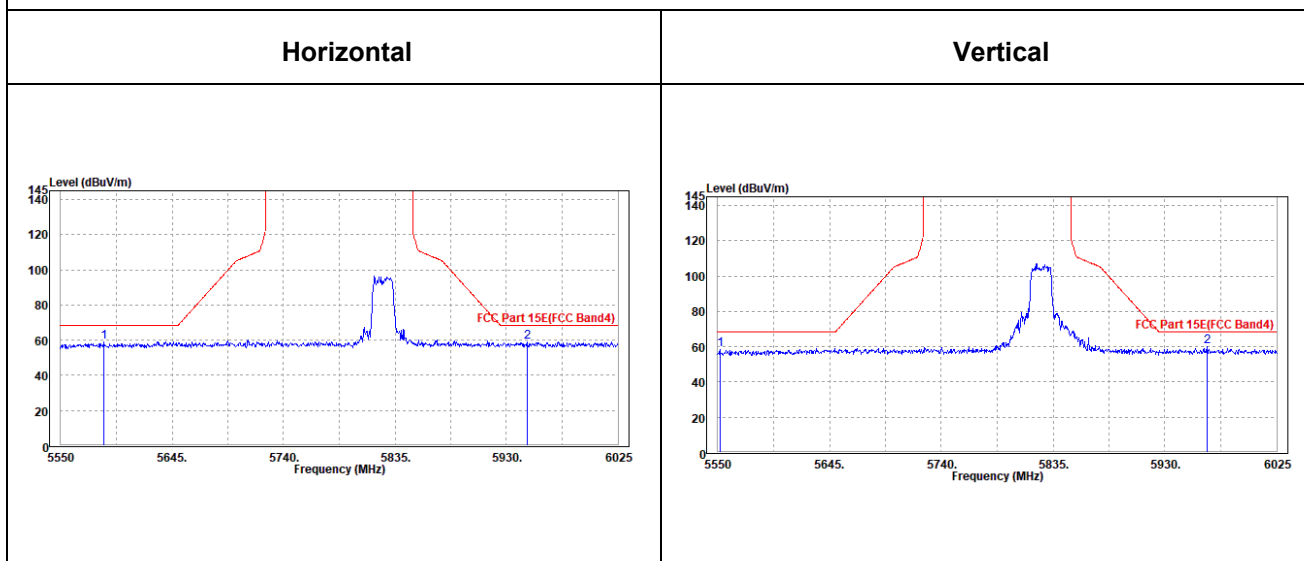


OOBE DATA

802.11a

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5587.05	58.79	59.56	68.2	-9.41	34.9	9.83	45.5	200	0	Peak
5947.575	58.73	58.94	68.2	-9.47	35.34	9.95	45.5	200	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5551.9	58.32	59.34	68.2	-9.88	34.66	9.82	45.5	200	360	Peak
5965.625	59.96	60.34	68.2	-8.24	35.16	9.96	45.5	200	360	Peak

CH 165





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										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5745	99.16	99.69	/	/	35.09	9.88	45.5	110	125	Peak
5745	90.94	91.47	/	/	35.09	9.88	45.5	110	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5745	106.44	107.17	/	/	34.89	9.88	45.5	200	50	Peak
5745	99.24	99.97	/	/	34.89	9.88	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5745MHz: Fundamental frequency.

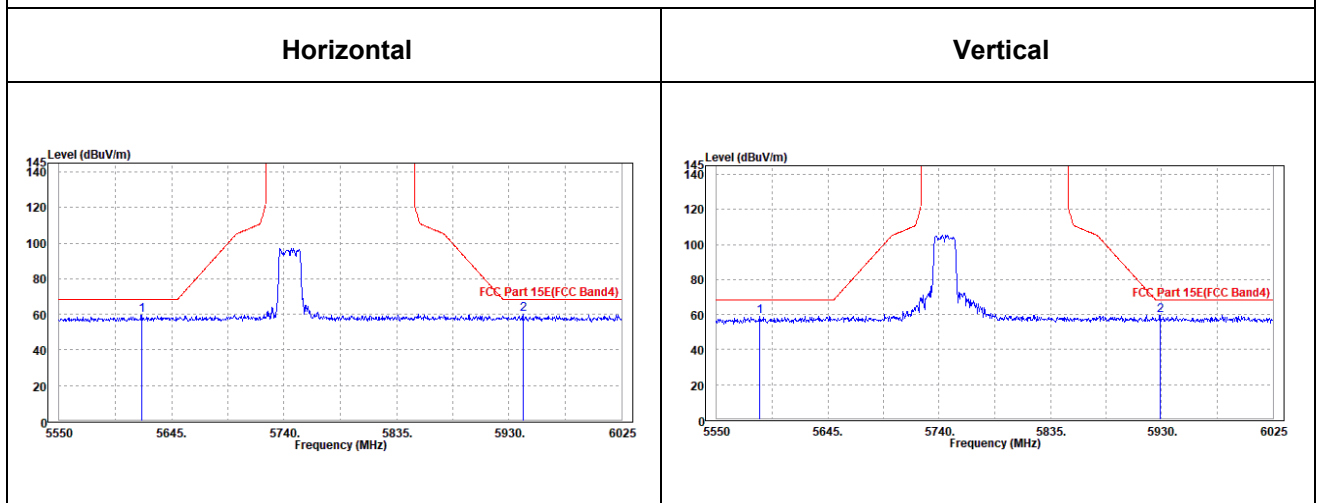


Oobe Data

802.11n (20MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5619.825	59.46	60.18	68.2	-8.74	34.94	9.84	45.5	200	360	Peak
5941.875	60.01	60.23	68.2	-8.19	35.33	9.95	45.5	200	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5587.05	58.84	59.81	68.2	-9.36	34.7	9.83	45.5	200	0	Peak
5928.575	59.42	59.86	68.2	-8.78	35.11	9.95	45.5	200	0	Peak

CH 149





CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5785	98.25	98.71	/	/	35.14	9.9	45.5	100	125	Peak
5785	89.78	90.24	/	/	35.14	9.9	45.5	100	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5785	107.25	107.91	/	/	34.94	9.9	45.5	200	50	Peak
5785	99.88	100.54	/	/	34.94	9.9	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5785MHz: Fundamental frequency.

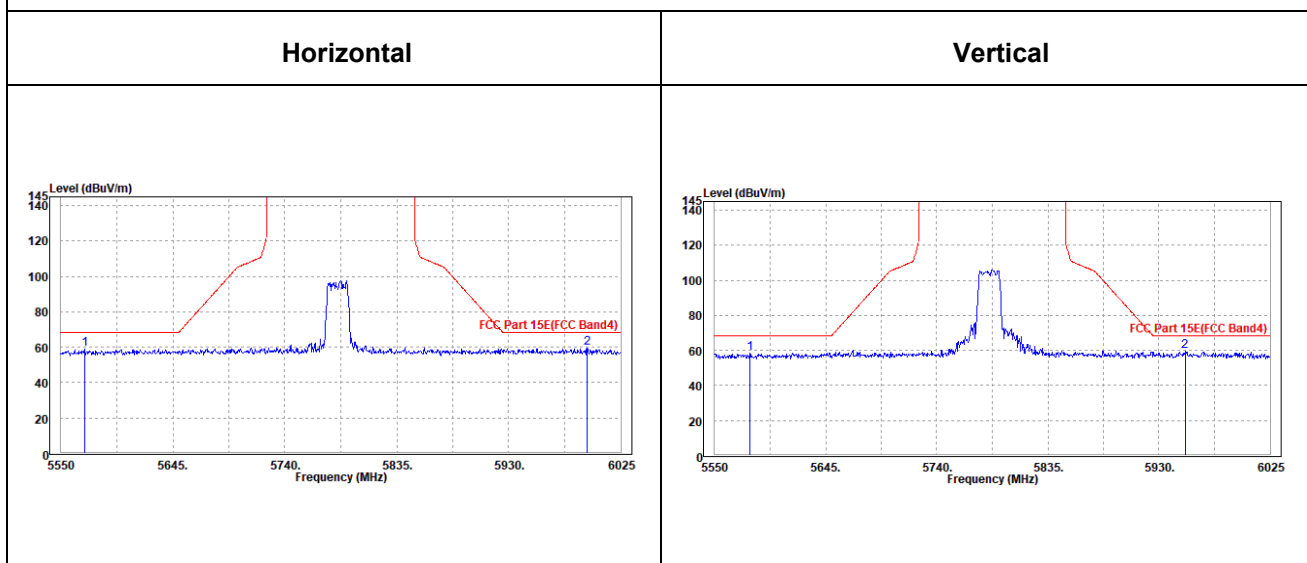


OOBE DATA

802.11n (20MHZ)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV /m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5569.95	59.08	59.88	68.2	-9.12	34.88	9.82	45.5	200	0	Peak
5996.5	59.37	59.5	68.2	-8.83	35.4	9.97	45.5	200	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV /m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5579.925	58.26	59.23	68.2	-9.94	34.7	9.83	45.5	200	360	Peak
5952.325	59.71	60.12	68.2	-8.49	35.14	9.95	45.5	200	360	Peak

CH 157





CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5825	99.02	99.42	/	/	35.19	9.91	45.5	110	125	Peak
5825	91.17	91.57	/	/	35.19	9.91	45.5	110	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5825	106.74	107.34	/	/	34.99	9.91	45.5	200	50	Peak
5825	99.16	99.76	/	/	34.99	9.91	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5825MHz: Fundamental frequency.

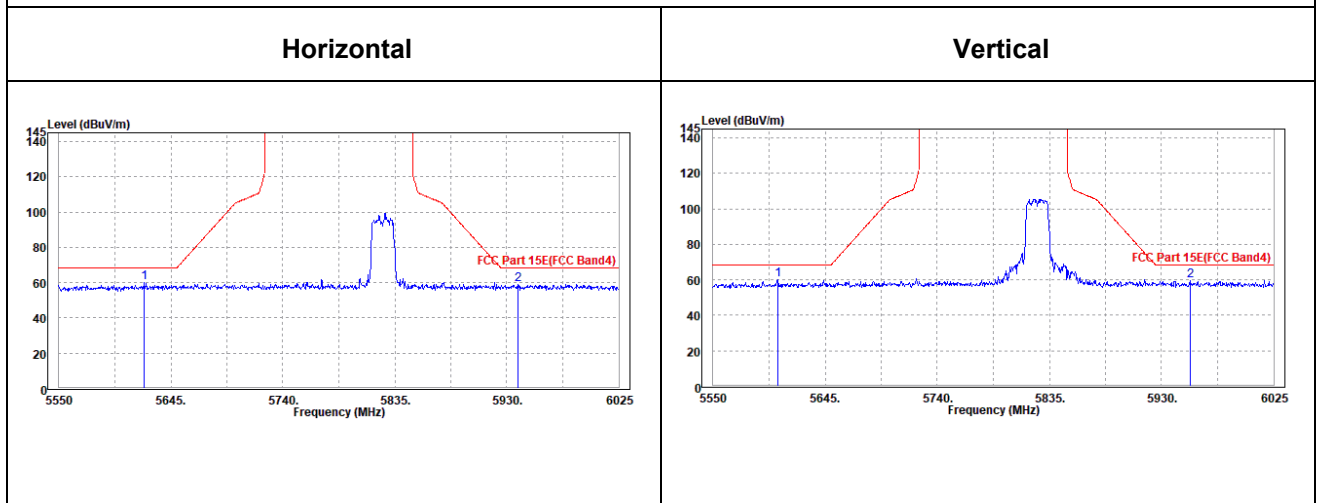


Oobe Data

802.11n (20MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5622.675	59.91	60.62	68.2	-8.29	34.95	9.84	45.5	200	360	Peak
5939.5	59.02	59.24	68.2	-9.18	35.33	9.95	45.5	200	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5604.625	60.11	61.04	68.2	-8.09	34.73	9.84	45.5	200	0	Peak
5954.225	59.28	59.68	68.2	-8.92	35.15	9.95	45.5	200	0	Peak

CH 165





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										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5755	94.64	95.14	/	/	35.11	9.89	45.5	100	115	Peak
5755	87.82	88.32	/	/	35.11	9.89	45.5	100	115	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5755	100.53	101.23	/	/	34.91	9.89	45.5	200	50	Peak
5755	94.43	95.13	/	/	34.91	9.89	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5755MHz: Fundamental frequency.

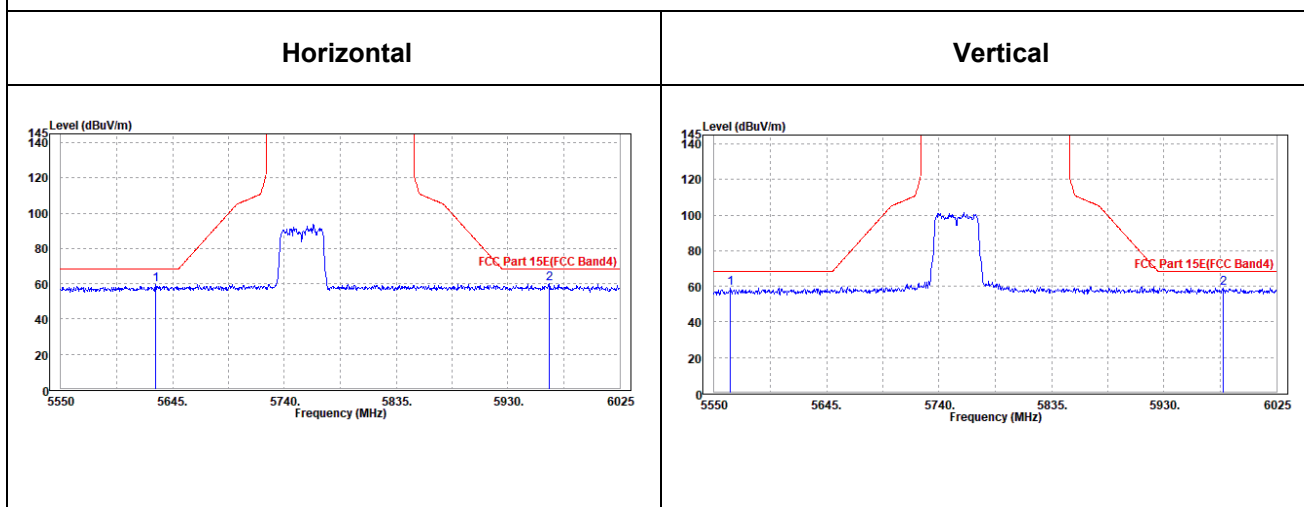


OOBE DATA

802.11n (40MHZ)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5630.275	59.67	60.37	68.2	-8.53	34.96	9.84	45.5	200	0	Peak
5965.15	60.27	60.45	68.2	-7.93	35.36	9.96	45.5	200	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5563.775	58.86	59.86	68.2	-9.34	34.68	9.82	45.5	200	360	Peak
5980.35	59.14	59.5	68.2	-9.06	35.18	9.96	45.5	200	360	Peak

CH 151



CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5795	94.96	95.41	/	/	35.15	9.9	45.5	110	125	Peak
5795	87.06	87.51	/	/	35.15	9.9	45.5	110	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5795	102.17	102.82	/	/	34.95	9.9	45.5	200	50	Peak
5795	94.85	95.5	/	/	34.95	9.9	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5795MHz: Fundamental frequency.

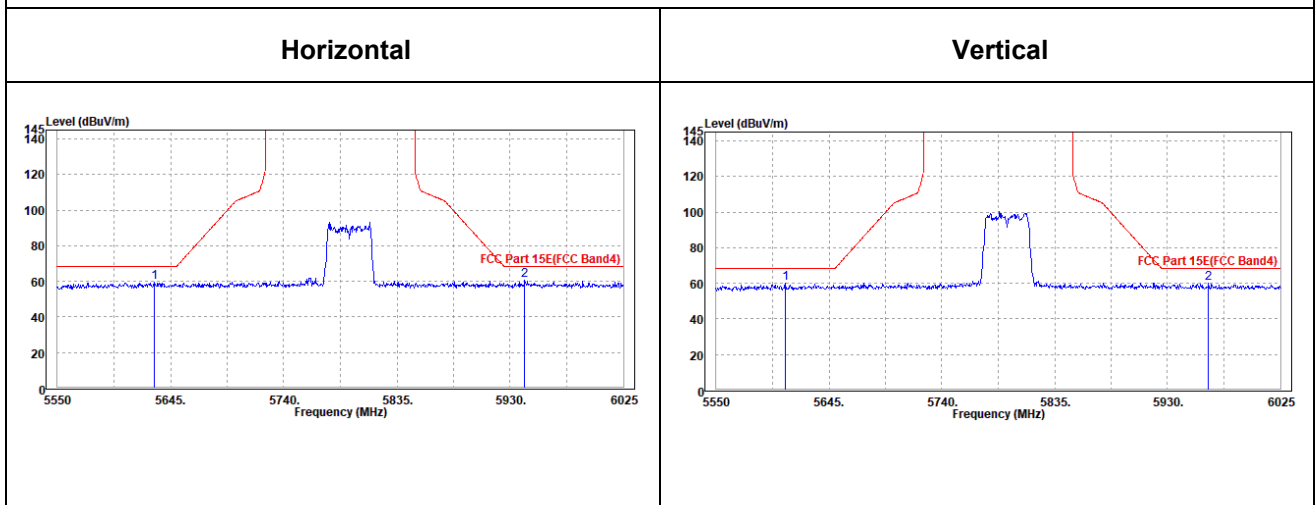


Oobe Data

802.11n (40MHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5631.225	59.68	60.38	68.2	-8.52	34.96	9.84	45.5	200	360	Peak
5942.35	60.47	60.69	68.2	-7.73	35.33	9.95	45.5	200	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5607.95	59.95	60.88	68.2	-8.25	34.73	9.84	45.5	200	0	Peak
5964.675	60.04	60.42	68.2	-8.16	35.16	9.96	45.5	200	0	Peak

CH 159





802.11ac (80MHz)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5775	90.06	90.54	/	/	35.13	9.89	45.5	110	125	Peak
5775	84.1	84.58	/	/	35.13	9.89	45.5	110	125	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5775	95.59	96.27	/	/	34.93	9.89	45.5	200	50	Peak
5775	89.59	90.27	/	/	34.93	9.89	45.5	200	50	Average

REMARKS:

- Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
- 5775MHz: Fundamental frequency.

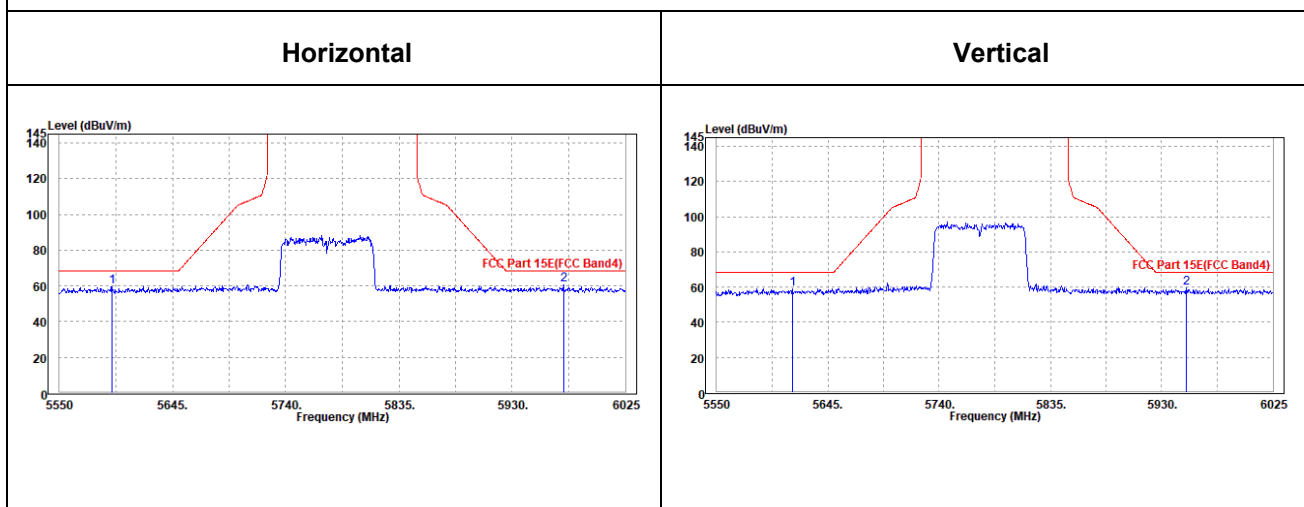


OOBE DATA

802.11ac (80MHZ)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5594.175	59.54	60.3	68.2	-8.66	34.91	9.83	45.5	200	0	Peak
5973.225	60.51	60.68	68.2	-7.69	35.37	9.96	45.5	200	0	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5614.6	59.21	60.13	68.2	-8.99	34.74	9.84	45.5	200	360	Peak
5951.375	59.41	59.82	68.2	-8.79	35.14	9.95	45.5	200	360	Peak

CH 155





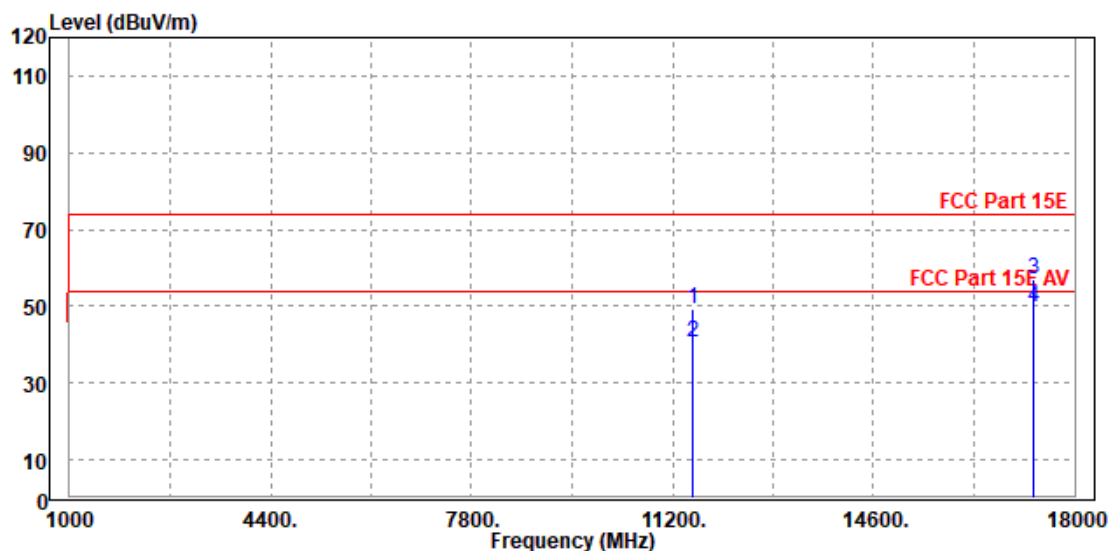
802.11ac (80MHZ)

Worst case harmonic:

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

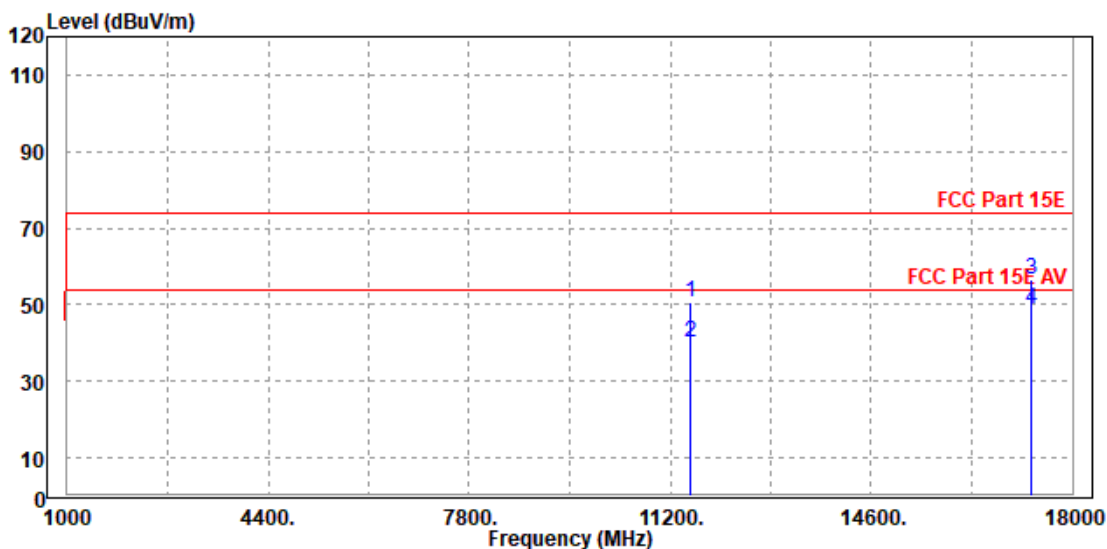
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	11550.000	49.42	40.21	74.00	-24.58	9.21	Peak	Horizontal
2	11550.000	40.80	31.59	54.00	-13.20	9.21	Average	Horizontal
3	PK17320.000	57.08	38.81	74.00	-16.92	18.27	Peak	Horizontal
4	PP17320.000	49.93	31.66	54.00	-4.07	18.27	Average	Horizontal



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	11550.000	50.75	41.00	74.00	-23.25	9.75	Peak	Vertical
2	11550.000	40.01	30.26	54.00	-13.99	9.75	Average	Vertical
3	PK17320.000	56.42	39.44	74.00	-17.58	16.98	Peak	Vertical
4	PP17320.000	49.04	32.06	54.00	-4.96	16.98	Average	Vertical



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
Margin value = Emission level – Limit value.
2. 5775MHz: Fundamental frequency.
3. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

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	ESR3	101900	Feb. 15,22	Feb. 14,23
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Feb. 14,23	Feb. 13,24
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Mar. 04,22	Mar. 03,23

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

3.2.3 TEST PROCEDURES

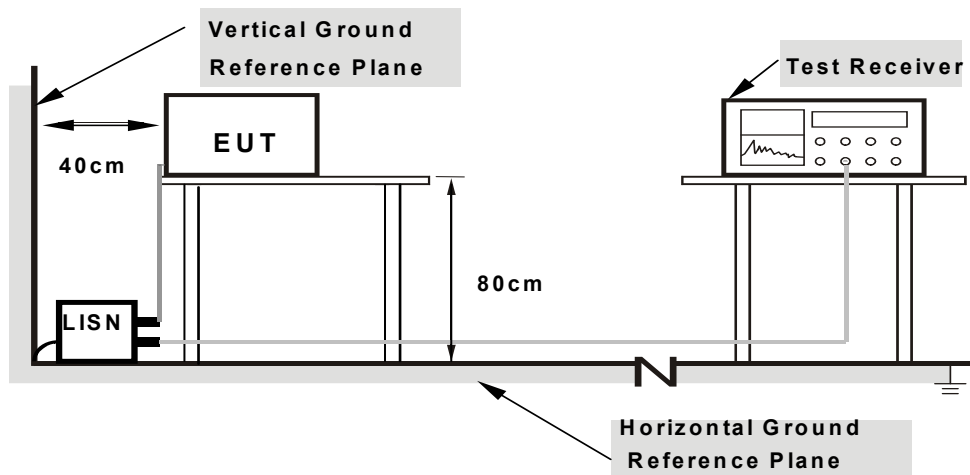
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

NOTE: 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 cm 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 3.1.7.

3.2.7 TEST RESULTS

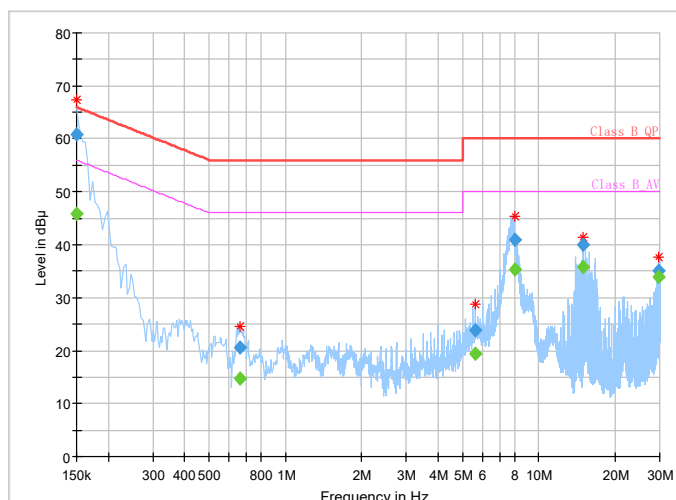
CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	45.81	56.00	10.19	L1	ON	9.7
0.150000	60.87	---	66.00	5.13	L1	ON	9.7
0.664000	---	14.64	46.00	31.36	L1	ON	9.7
0.664000	20.67	---	56.00	35.33	L1	ON	9.7
5.624000	---	19.52	50.00	30.48	L1	ON	9.7
5.624000	23.85	---	60.00	36.15	L1	ON	9.7
8.000000	---	35.27	50.00	14.73	L1	ON	9.7
8.000000	41.04	---	60.00	18.96	L1	ON	9.7
15.000000	---	35.74	50.00	14.26	L1	ON	9.8
15.000000	39.98	---	60.00	20.02	L1	ON	9.8
29.748000	---	33.81	50.00	16.19	L1	ON	9.8
29.748000	35.05	---	60.00	24.95	L1	ON	9.8

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

Full Spectrum

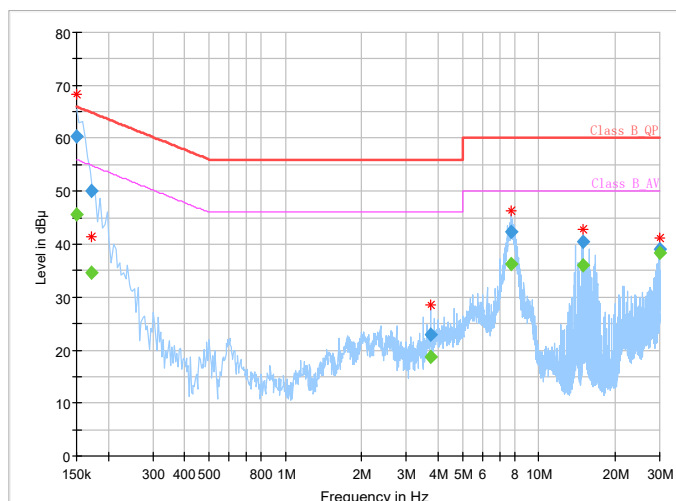


Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	26deg. C, 51%RH
Tested By	Carl Xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	45.67	56.00	10.33	N	ON	9.7
0.150000	60.44	---	66.00	5.56	N	ON	9.7
0.172000	---	34.55	54.86	20.31	N	ON	9.7
0.172000	49.94	---	64.86	14.92	N	ON	9.7
3.748000	---	18.60	46.00	27.40	N	ON	9.8
3.748000	22.88	---	56.00	33.12	N	ON	9.8
7.752000	---	36.37	50.00	13.63	N	ON	9.8
7.752000	42.41	---	60.00	17.59	N	ON	9.8
15.000000	---	36.14	50.00	13.86	N	ON	9.8
15.000000	40.43	---	60.00	19.57	N	ON	9.8
29.996000	---	38.28	50.00	11.72	N	ON	9.9
29.996000	39.18	---	60.00	20.82	N	ON	9.9

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

Full Spectrum



3.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

3.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

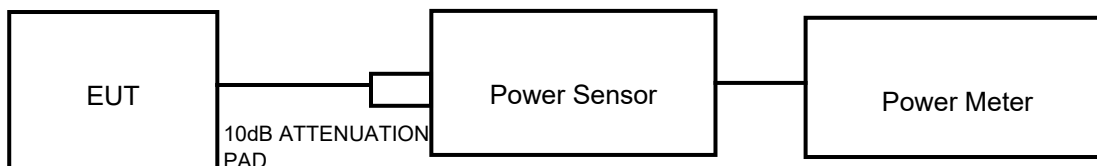
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Client devices	250mW (24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

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

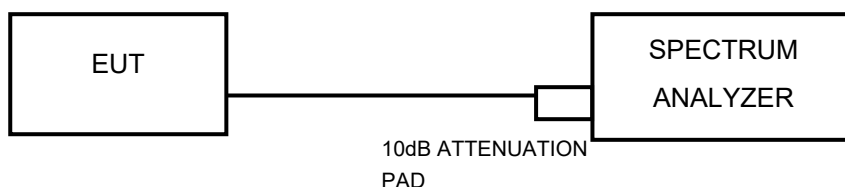
3.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT

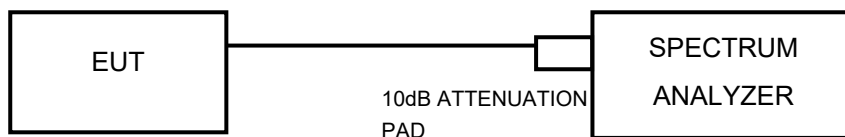
802.11a, 802.11n (20MHz), 802.11 n (40MHz) TEST CONFIGURATION



11ac (80MHz) TEST CONFIGURATION



FOR 26dB BANDWIDTH



3.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	ANRITSU	ML2495A	1506002	Feb. 22,22	Feb. 21,23
Power Meter	ANRITSU	ML2495A	1506002	Feb. 21,23	Feb. 20,24
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 18,22	Feb. 17,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 17,23	Feb. 16,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Power Sensor	ANRITSU	MA2411B	1339352	May. 06,22	May. 05,23

NOTE:

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

3.3.4 TEST PROCEDURE

FOR POWER MEASUREMENT

For 802.11a, 802.11 n (20MHz), 802.11 n (40MHz)

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 802.11ac (80MHz)

1. Measure the duty cycle, x , of the transmitter output signal as described in II.B.
2. Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
3. Set RBW = 1 MHz.
4. Set VBW $\geq$ 3 MHz.
5. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto.
7. Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
8. Do not use sweep triggering. Allow the sweep to “free run.”
9. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
10. Add $10 \log (1/x)$, where x is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \log (1/0.25) = 6 \text{ dB}$ if the duty cycle is 25%.

FOR 99 PERCENT OCCUPIED BANDWIDTH

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

FOR 26dB BANDWIDTH

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 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%.

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.

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.



Test Report No.: W7L-P22110033RF03

3.3.7 TEST RESULTS

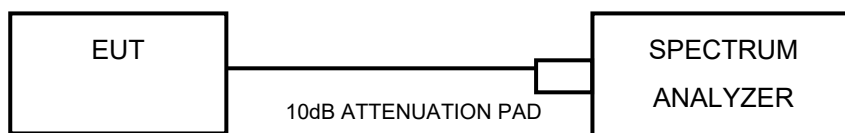
Please Refer to Appendix A Of this test report.

3.4 MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT

3.4.1 LIMITS OF MAXIMUM 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	
	√	Client devices	11dBm/ MHz
U-NII-2A			11dBm/ MHz
U-NII-2C			11dBm/ MHz
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 = 1 MHz, Set VBW $\geq$ 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) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission).
- 7) Record the max value

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

Same as 3.1.7.



Test Report No.: W7L-P22110033RF03

3.4.7 TEST RESULTS

Please Refer to Appendix A Of this test report.

3.5 AUTOMATICALLY DISCONTINUE TRANSMISSION

3.5.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

3.5.2 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.5.3 TEST RESULT

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: W7L-P22110033RF03

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

6 APPENDIX A

EMISSION BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.800	5170.280	5190.080	---	---
		5200	19.600	5190.280	5209.880	---	---
		5240	19.960	5230.240	5250.200	---	---
11N20SISO	Ant1	5180	20.200	5169.880	5190.080	---	---
		5200	20.000	5190.000	5210.000	---	---
		5240	20.040	5229.960	5250.000	---	---
11N40SISO	Ant1	5190	40.080	5169.920	5210.000	---	---
		5230	40.640	5209.680	5250.320	---	---
11AC80SISO	Ant1	5210	81.280	5169.360	5250.640	---	---

TEST GRAPHS

11A_Ant1_5180



11A_Ant1_5200



11A_Ant1_5240



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5240



11N40SISO_Ant1_5190



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N40SISO_Ant1_5230



11AC80SISO_Ant1_5210



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	16.946	5171.5909	5188.5369	---	---
		5200	16.935	5191.5934	5208.5284	---	---
		5240	16.874	5231.6183	5248.4923	---	---
		5745	16.995	5736.5371	5753.5321	---	---
		5785	16.991	5776.5339	5793.5249	---	---
		5825	17.012	5816.5247	5833.5367	---	---
11N20SISO	Ant1	5180	17.781	5171.1158	5188.8968	---	---
		5200	17.782	5191.1108	5208.8928	---	---
		5240	17.788	5231.1043	5248.8923	---	---
		5745	17.790	5736.0899	5753.8799	---	---
		5785	17.784	5776.0824	5793.8664	---	---
		5825	17.797	5816.0868	5833.8838	---	---
11N40SISO	Ant1	5190	36.471	5171.8169	5208.2879	---	---
		5230	36.394	5211.8448	5248.2388	---	---
		5755	36.453	5736.8132	5773.2662	---	---
		5795	36.455	5776.7782	5813.2332	---	---
11AC80SISO	Ant1	5210	76.976	5171.5238	5248.4998	---	---
		5775	76.720	5736.5897	5813.3097	---	---

TEST GRAPHS

11A_Ant1_5180



11A_Ant1_5200



11A_Ant1_5240

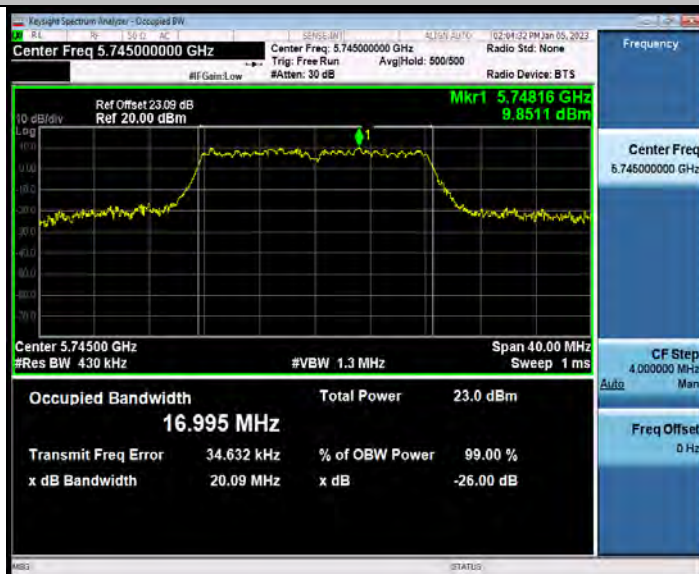


BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11A_Ant1_5745



11A_Ant1_5785



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VERITAS

Test Report No.: W7L-P22110033RF03



11A_Ant1_5825



11N20SISO_Ant1_5180



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11N20SISO_Ant1_5200



11N20SISO_Ant1_5240

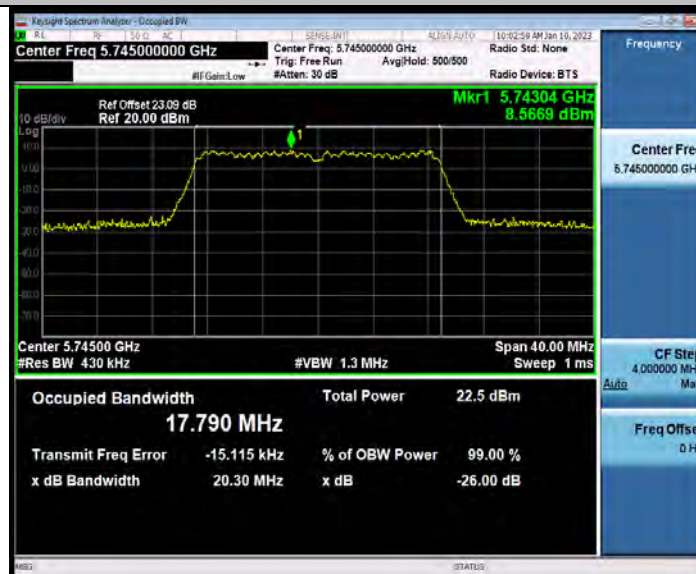


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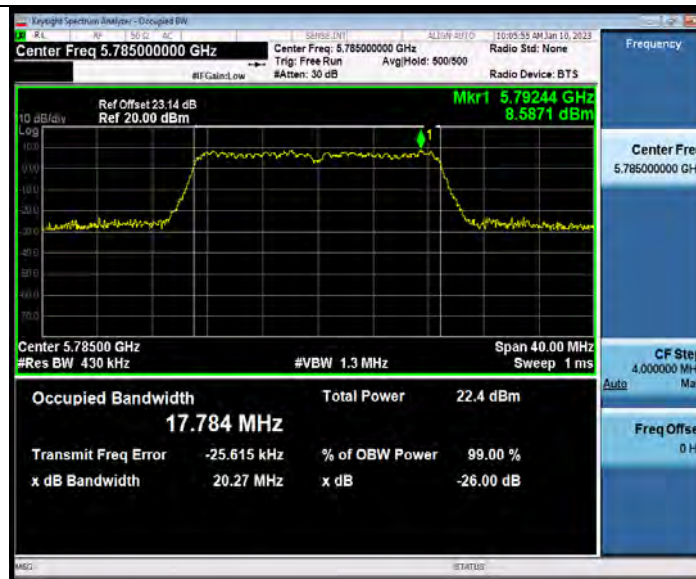
Test Report No.: W7L-P22110033RF03



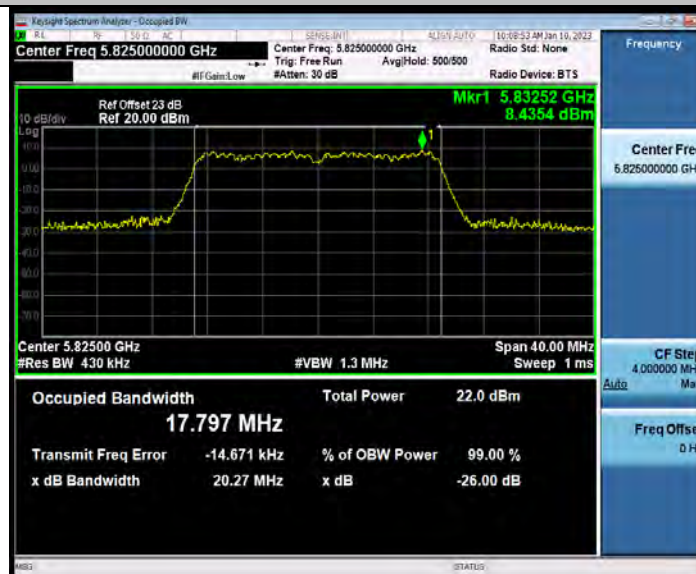
11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



11N20SISO_Ant1_5825



11N40SISO_Ant1_5190

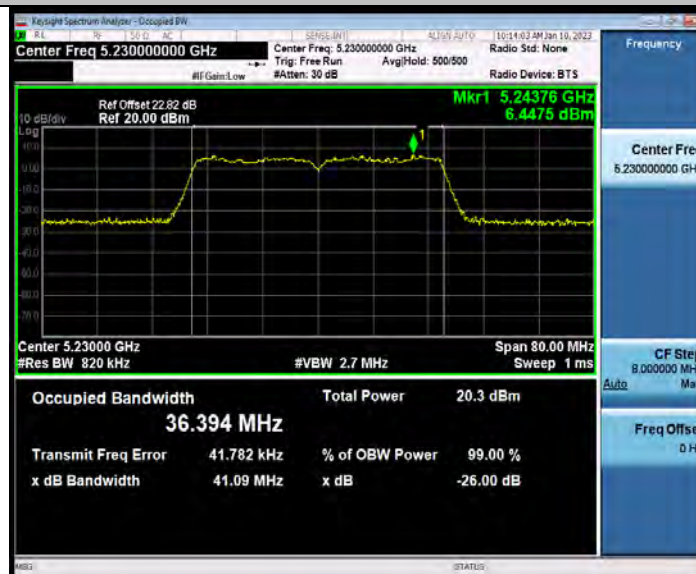


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11N40SISO_Ant1_5230



11N40SISO_Ant1_5755

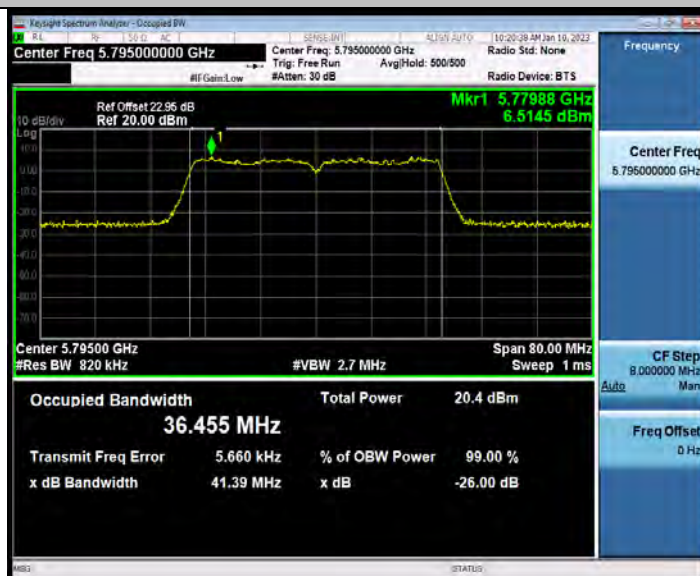


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11N40SISO_Ant1_5795



11AC80SISO_Ant1_5210

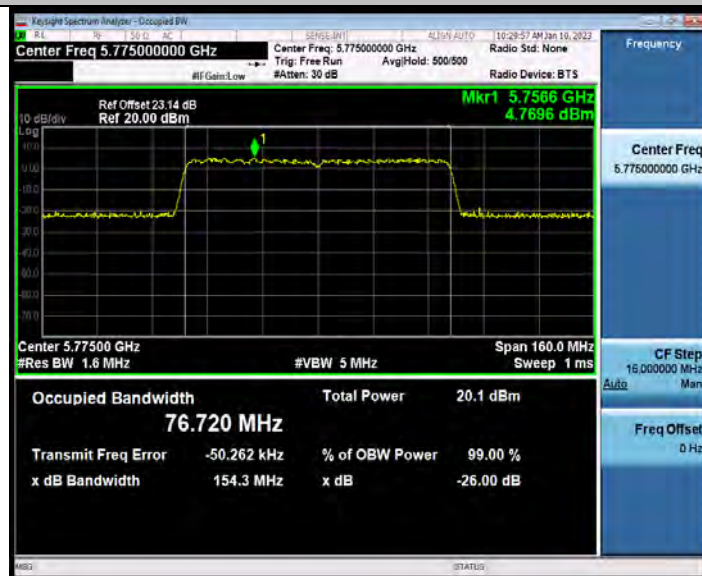


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VERITAS

Test Report No.: W7L-P22110033RF03



11AC80SISO_Ant1_5775



MIN EMISSION BANDWIDTH

TEST RESULT B4

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.480	5736.760	5753.240	0.5	PASS
		5785	16.560	5776.720	5793.280	0.5	PASS
		5825	16.560	5816.720	5833.280	0.5	PASS
11N20SISO	Ant1	5745	17.680	5736.120	5753.800	0.5	PASS
		5785	17.680	5776.120	5793.800	0.5	PASS
		5825	17.680	5816.120	5833.800	0.5	PASS
11N40SISO	Ant1	5755	36.320	5736.840	5773.160	0.5	PASS
		5795	36.400	5776.760	5813.160	0.5	PASS
11AC80SISO	Ant1	5775	76.480	5736.760	5813.240	0.5	PASS

TEST GRAPHS B4

11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



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VERITAS

Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5825



11N40SISO_Ant1_5755



BUREAU
VERITAS

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11N40SISO_Ant1_5795



11AC80SISO_Ant1_5775



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VERITAS

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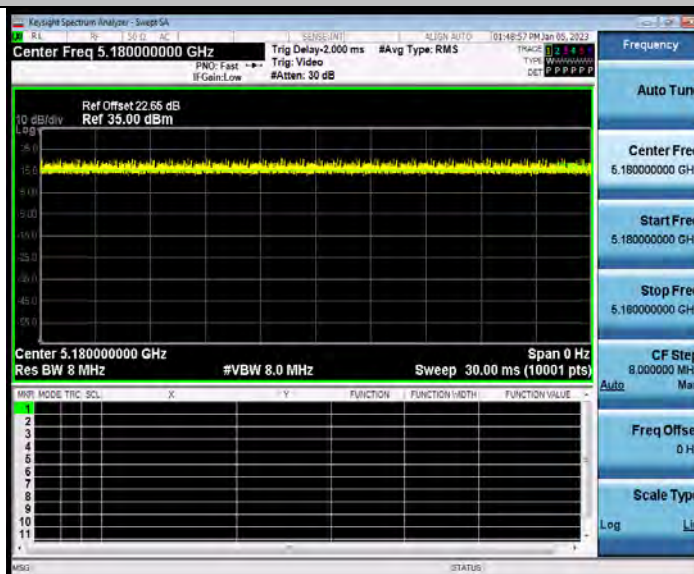


DUTY CYCLE TEST RESULT

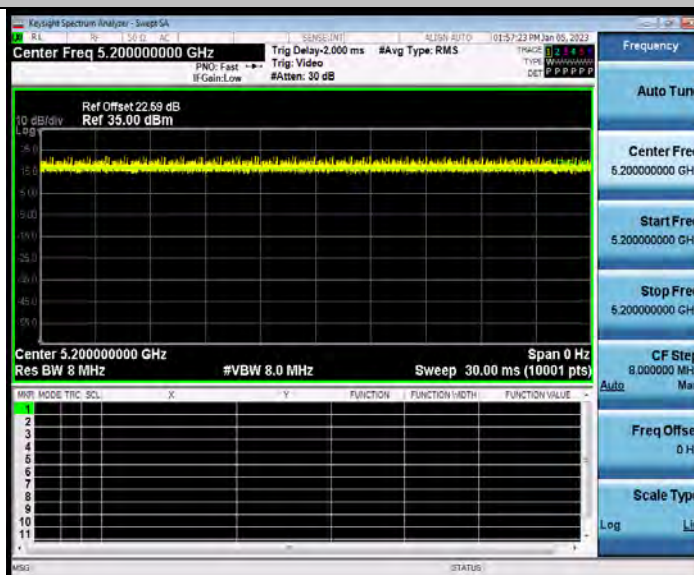
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	30.00	30.00	100.00
		5200	30.00	30.00	100.00
		5240	30.00	30.00	100.00
		5745	30.00	30.00	100.00
		5785	30.00	30.00	100.00
		5825	30.00	30.00	100.00
11N20SISO	Ant1	5180	30.00	30.00	100.00
		5200	30.00	30.00	100.00
		5240	30.00	30.00	100.00
		5745	30.00	30.00	100.00
		5785	30.00	30.00	100.00
		5825	30.00	30.00	100.00
11N40SISO	Ant1	5190	30.00	30.00	100.00
		5230	30.00	30.00	100.00
		5755	30.00	30.00	100.00
		5795	30.00	30.00	100.00
11AC80SISO	Ant1	5210	30.00	30.00	100.00
		5775	30.00	30.00	100.00

TEST GRAPHS

11A_Ant1_5180



11A_Ant1_5200

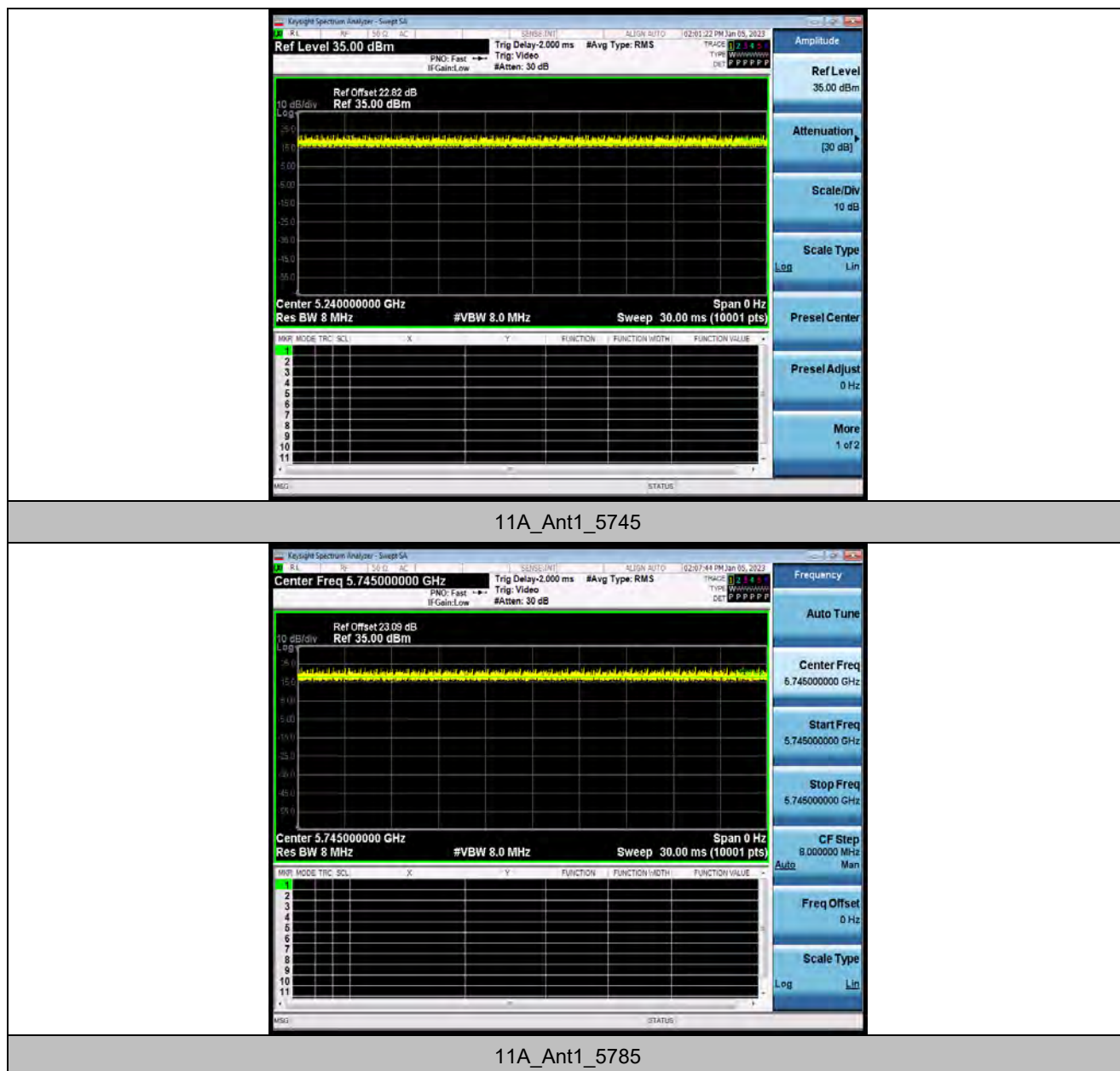


11A_Ant1_5240



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Test Report No.: W7L-P22110033RF03





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VERITAS

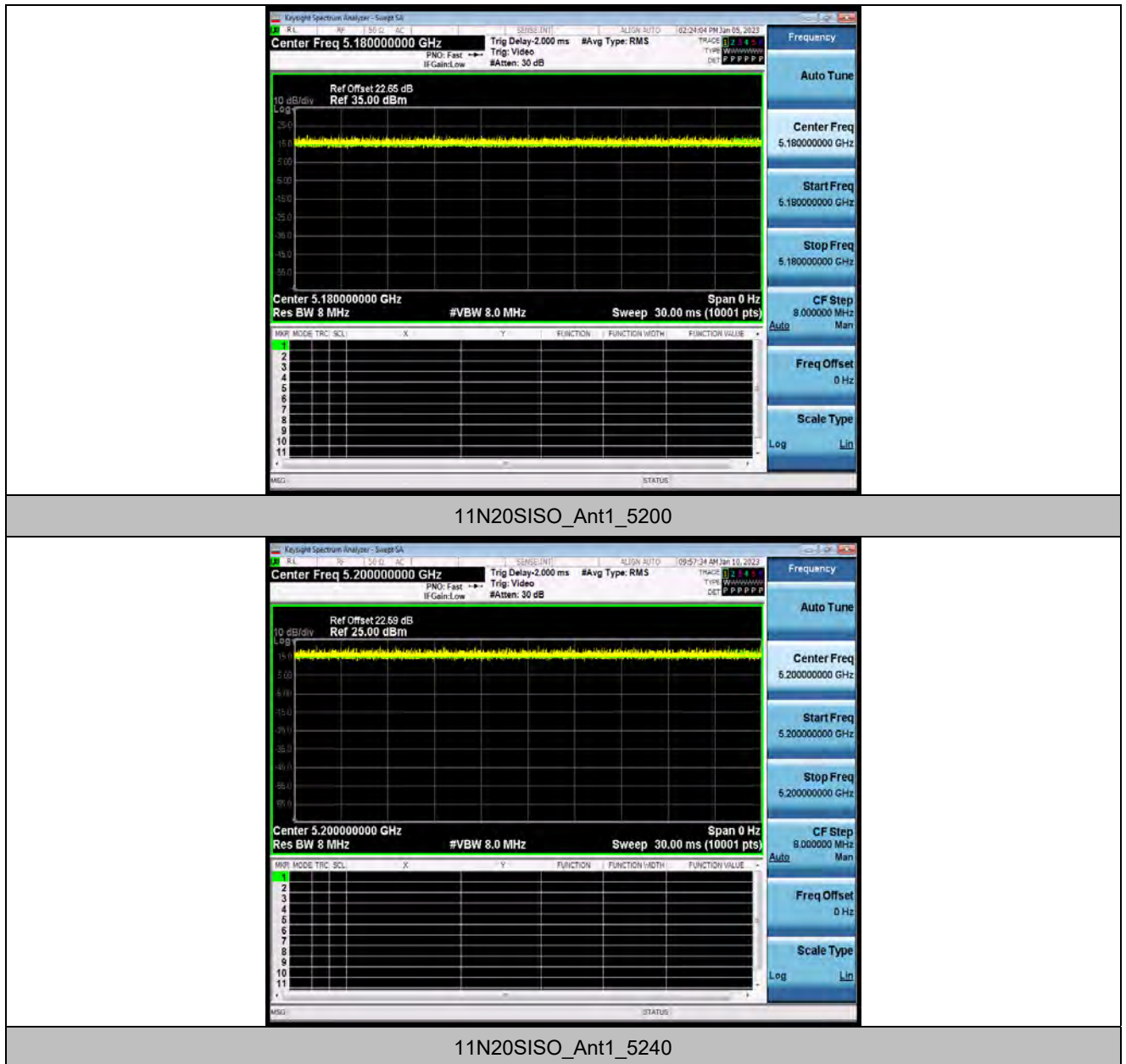
Test Report No.: W7L-P22110033RF03





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VERITAS

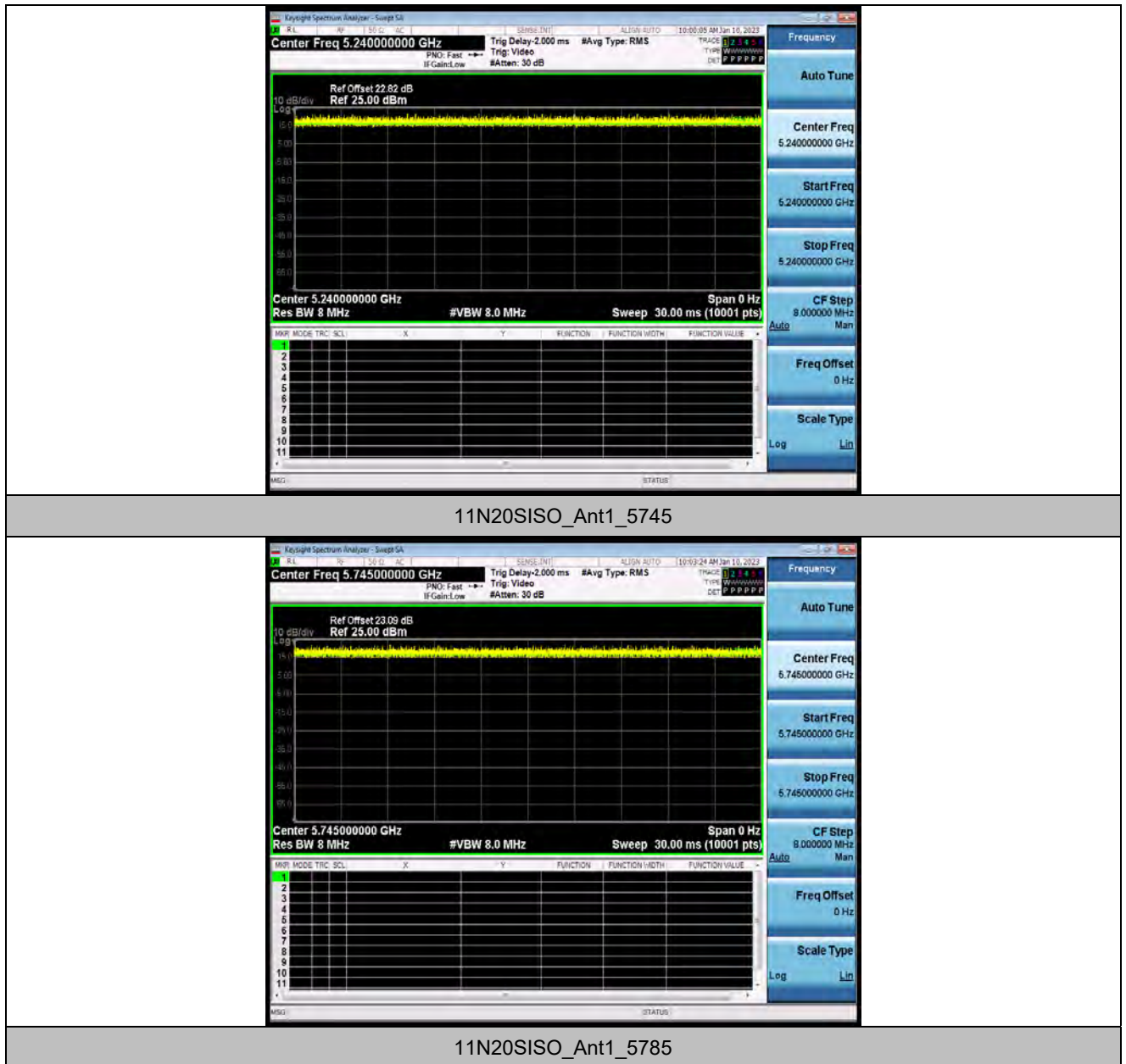
Test Report No.: W7L-P22110033RF03





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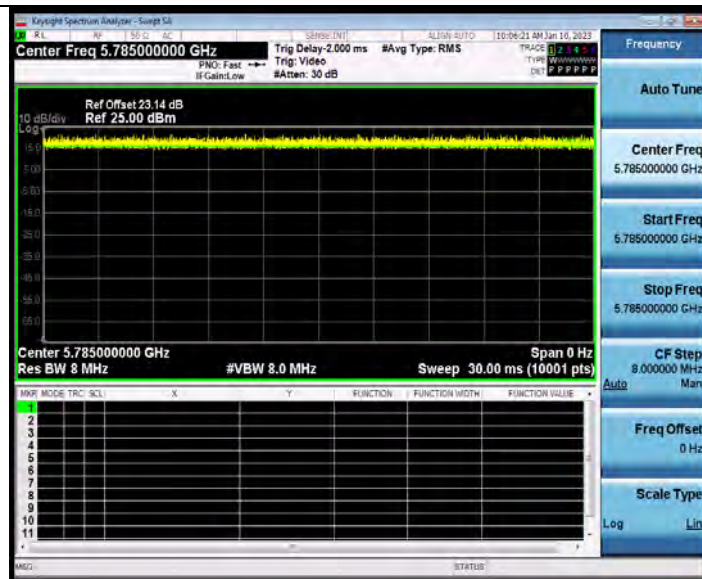
Test Report No.: W7L-P22110033RF03





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Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5825

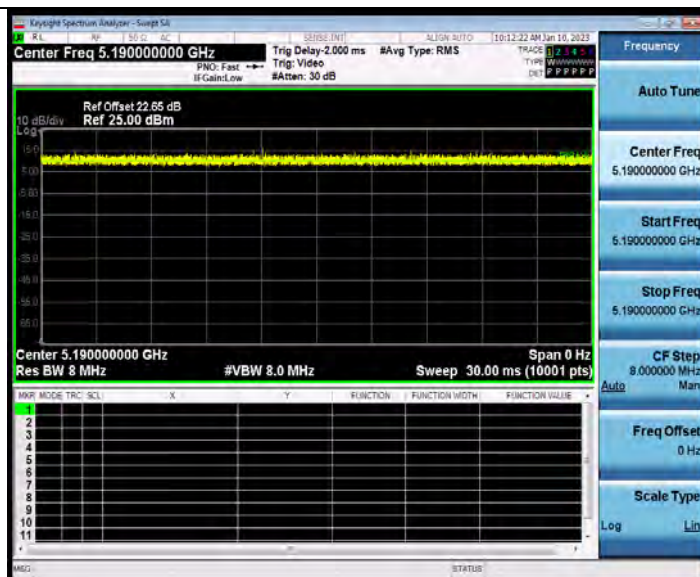


11N40SISO_Ant1_5190



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VERITAS

Test Report No.: W7L-P22110033RF03



11N40SISO_Ant1_5230

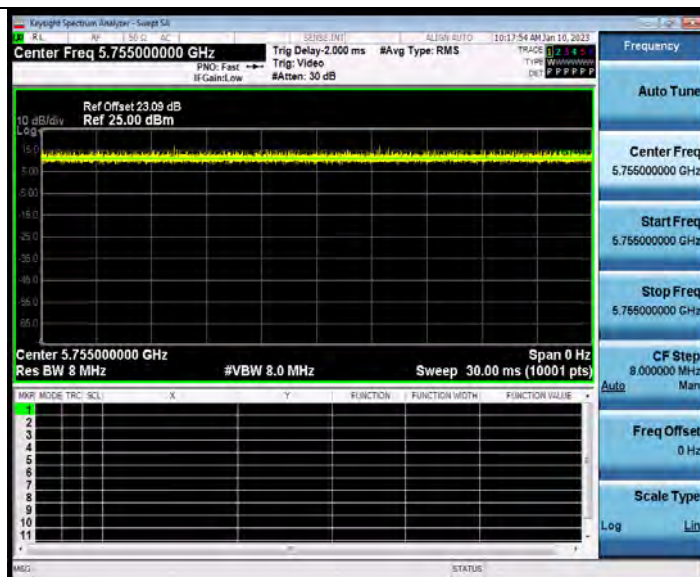


11N40SISO_Ant1_5755

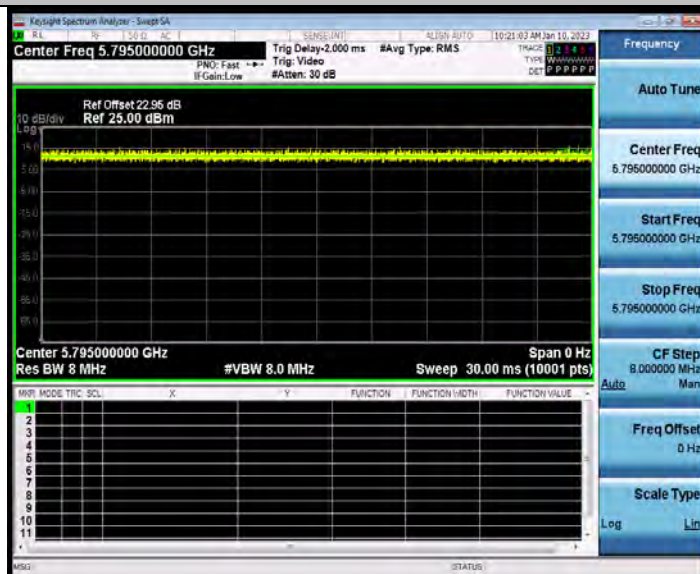


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VERITAS

Test Report No.: W7L-P22110033RF03



11N40SISO_Ant1_5795



11AC80SISO_Ant1_5210



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT

Mode	TX Type	Freq. (MHz)	Maximum Conducted Power (dBm)	FCC Limit (dBm)	IC Limit (dBm)	EIRP (dBm)	FCC EIRP Limit (dBm)	IC EIRP Limit (dBm)	Verdict	Power setting
802.11a	SISO	5180	13.85	≤24.00	/	15.85	≤36	≤22.29	Pass	0
		5200	15.15	≤24.00	/	17.15	≤36	≤22.29	Pass	3
		5240	15.25	≤24.00	/	17.25	≤36	≤22.27	Pass	3
		5745	15.63	≤30.00	≤30.00	17.63	≤36	/	Pass	2
		5785	15.57	≤30.00	≤30.00	17.57	≤36	/	Pass	2
		5825	15.71	≤30.00	≤30.00	17.71	≤36	/	Pass	2
802.11n (HT20)	SISO	5180	13.90	≤24.00	/	15.9	≤36	≤22.50	Pass	0
		5200	15.34	≤24.00	/	17.34	≤36	≤22.50	Pass	3
		5240	15.29	≤24.00	/	17.29	≤36	≤22.51	Pass	3
		5745	15.61	≤30.00	≤30.00	17.61	≤36	/	Pass	2
		5785	15.72	≤30.00	≤30.00	17.72	≤36	/	Pass	2
		5825	15.81	≤30.00	≤30.00	17.81	≤36	/	Pass	2
802.11n (HT40)	SISO	5190	12.83	≤24.00	/	14.83	≤36	≤23.01	Pass	0
		5230	13.31	≤24.00	/	15.31	≤36	≤23.01	Pass	3
		5755	13.50	≤30.00	≤30.00	15.5	≤36	/	Pass	2
		5795	13.54	≤30.00	≤30.00	15.54	≤36	/	Pass	2
802.11ac (VHT80)	SISO	5210	10.27	≤24.00	/	12.27	≤36	≤23.01	Pass	0
		5775	11.96	≤30.00	≤30.00	13.96	≤36	/	Pass	2

MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	EIRP PSD [dBm/MHz]	PSD Limit [dBm/MHz]	Verdict
11A	Ant1	5180	2.94	≤11.00	4.94	≤10.00	PASS
		5200	3.59	≤11.00	5.59	≤10.00	PASS
		5240	4.59	≤11.00	6.59	≤10.00	PASS
		5745	2.21	≤30.00	4.21	-----	PASS
		5785	1.89	≤30.00	3.89	-----	PASS
		5825	1.49	≤30.00	3.49	-----	PASS
11N20SISO	Ant1	5180	2.61	≤11.00	4.61	≤10.00	PASS
		5200	3.1	≤11.00	5.1	≤10.00	PASS
		5240	3.96	≤11.00	5.96	≤10.00	PASS
		5745	1.5	≤30.00	3.5	-----	PASS
		5785	1.12	≤30.00	3.12	-----	PASS
		5825	0.59	≤30.00	2.59	-----	PASS
11N40SISO	Ant1	5190	-1.95	≤11.00	0.05	≤10.00	PASS
		5230	-1.32	≤11.00	0.68	≤10.00	PASS
		5755	-3.7	≤30.00	-1.7	-----	PASS
		5795	-4.17	≤30.00	-2.17	-----	PASS
11AC80SISO	Ant1	5210	-7.95	≤11.00	-5.95	≤10.00	PASS
		5775	-9.18	≤30.00	-7.18	-----	PASS

Note: 1. The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2. The Duty Cycle Factor and RBW Factor is compensated in the graph.

TEST GRAPHS

11A_Ant1_5180



11A_Ant1_5200



11A_Ant1_5240



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Test Report No.: W7L-P22110033RF03



11A_Ant1_5745



11A_Ant1_5785



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Test Report No.: W7L-P22110033RF03



11A_Ant1_5825



11N20SISO_Ant1_5180



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5200



11N20SISO_Ant1_5240



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5745



11N20SISO_Ant1_5785



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N20SISO_Ant1_5825



11N40SISO_Ant1_5190



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N40SISO_Ant1_5230



11N40SISO_Ant1_5755



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



11N40SISO_Ant1_5795



11AC80SISO_Ant1_5210



BUREAU
VERITAS

Test Report No.: W7L-P22110033RF03



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