FCC TEST REPORT

(Part 15, Subpart E)

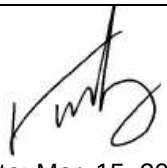
Applicant:	DataRemote Incorporated
Address:	18001 Old Cutler Rd. Suite 600, Miami, FL 33157

Manufacturer or Supplier:	DataRemote Incorporated
Address:	18001 Old Cutler Rd. Suite 600, Miami, FL 33157
Product:	LTE Cellular Router
Brand Name:	DataRemote
Model Name:	CDS-9090
FCC ID:	2AJLF-CDS-9090
Date of tests:	Feb. 15, 2019 ~ Mar. 11, 2019

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

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

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

Prepared by Roger Li Engineer / Mobile Department	Approved by Sam Tung Manager / Mobile Department
 Date: Mar. 15, 2019	 Date: Mar. 15, 2019

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF190128W002-9	Original release	Mar. 15, 2019

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.72dB at 0.170000MHz.
15.407(b) (1/2/3/4/6)	Radiated Emission & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1 dB at 5150MHz.
15.407(a/1/2/3)	Maximum conducted output Power	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
All Radiated emissions	±4.48dB
Conducted emissions	±2 dB
Occupied Channel Bandwidth	±21.7KHz
Conducted Output power	±1.03 dB
Power Spectral Density	±0.95 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

EUT	LTE Cellular Router
MODEL NO.	CDS-9090
POWER SUPPLY	15.0Vdc (adapter or host equipment) 7.4Vdc (Li-ion, battery)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
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 MCS7 802.11ac: up to 390.0Mbps
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 802.11ac (80MHz) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802.11ac (80MHz)
AVERAGE POWER	82.99mW for 5180 ~ 5240MHz 82.22mW for 5745 ~ 5825MHz
ANTENNA TYPE	5180 ~ 5240MHz: PCB Antenna with 2dBi gain 5745 ~ 5825MHz: PCB Antenna with 2.2dBi gain
HW VERSION	V1.2
SW VERSION	V0.5.5
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 was powered by the following adapter:

ADAPTER	
BRAND:	Shenzhen Mass Power Electronic Limited
MODEL:	NBS40C150200B3
INPUT:	AC 100-240V, 1A
OUTPUT:	DC 15V, 2A

3. The EUT matched the following Ethernet Cable and Telephone Cables:

ETHERNET CABLE	
BRAND:	Shenzhen Eternity Ju Electronic Co., Ltd
MODEL:	RJ45-8P8C
SIGNAL LINE:	1500±20mm

TELEPHONE CABLE 1	
BRAND:	Shenzhen Eternity Ju Electronic Co., Ltd
MODEL:	RJ11-6P2C
SIGNAL LINE:	1500±20mm

TELEPHONE CABLE 2	
BRAND:	Shenzhen Eternity Ju Electronic Co., Ltd
MODEL:	RJ11-6P2C
SIGNAL LINE:	1500±20mm

4. The EUT incorporates MIMO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11a	1TX /1RX
802.11n (20MHz)	2TX /2RX
802.11n (40MHz)	2TX /2RX
802.11ac (80MHz)	2TX /2RX

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

2.2 DESCRIPTION OF TEST MODES

FOR 5150 ~ 5250MHz

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 5725 ~ 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	CHANNEL	FREQUENCY
155	5775 MHz		

2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	**-**	**Powered by Adapter with wifi(5G) link**
B	-	-	-	√	Powered by Battery with wifi(5G) link
C	-	-	-	-	Powered by USB 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:
The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**
NOTE: "-"means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	MCS0
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
A	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
A	802.11a	5725-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
A	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
A	802.11ac (80MHz)		155	155	OFDM	BPSK	V0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (40MHz)	5180-5240	38 to 46	38	OFDM	BPSK	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 TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (40MHz)	5180-5240	38 to 46	38	OFDM	BPSK	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 TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5180-5240	36 to 48	36, 48	OFDM	BPSK	6.0
A	802.11n (20MHz)		36 to 48	36, 48	OFDM	BPSK	MCS0
A	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
A	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
A	802.11a	5725-5825	149 to 165	149, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)		149 to 165	149, 165	OFDM	BPSK	MCS0
A	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
A	802.11ac (80MHz)		155	155	OFDM	BPSK	V0

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)
B	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0
B	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	MCS0
B	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
B	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
B	802.11a	5725-5825	149 to 165	149, 165	OFDM	BPSK	6.0
B	802.11n (20MHz)		149 to 165	149, 165	OFDM	BPSK	MCS0
B	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
B	802.11ac (80MHz)		155	155	OFDM	BPSK	V0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	23deg. C, 62%RH	DC 15V from adaptor	Rose Ma
RE≥1G	23deg. C, 62%RH	DC 15V from adaptor	Rose Ma
PLC	24deg. C, 61%RH	DC 15V from adaptor	John Wen
APCM	23.5deg. C, 60%RH	7.4Vdc from battery	Rain Wang

2.3 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is < 98%, duty factor shall be considered.

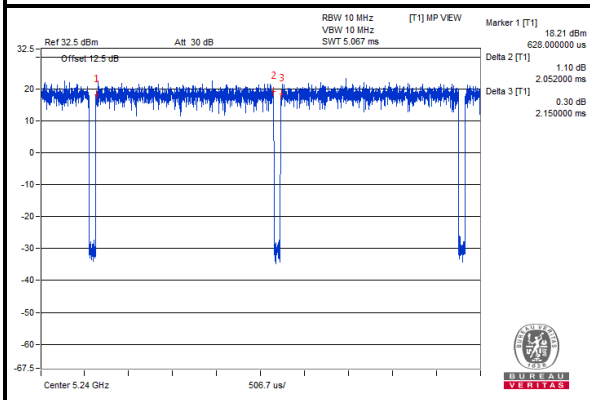
802.11a: Duty cycle = 2.052/2.150 = 0.954, Duty factor = 10 * log(1/0.954) = 0.605

802.11n (20MHz): Duty cycle = 4.991/5.082 = 0.982, Duty factor is not required.

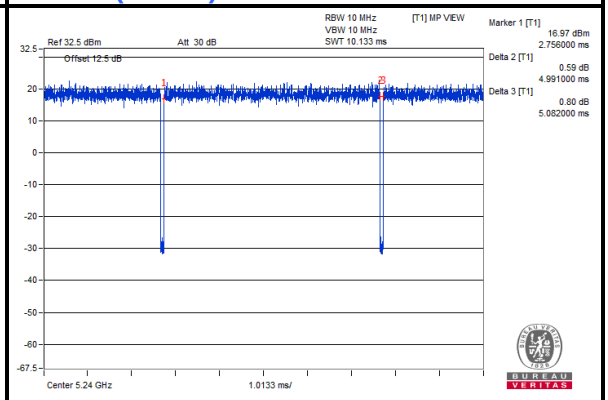
802.11n (40MHz): Duty cycle = 2.420/2.506 = 0.966, Duty factor = 10 * log(1/0.966) = 0.152

802.11ac (80MHz): Duty cycle = 1.141/1.221 = 0.934, Duty factor = 10 * log(1/0.934) = 0.294

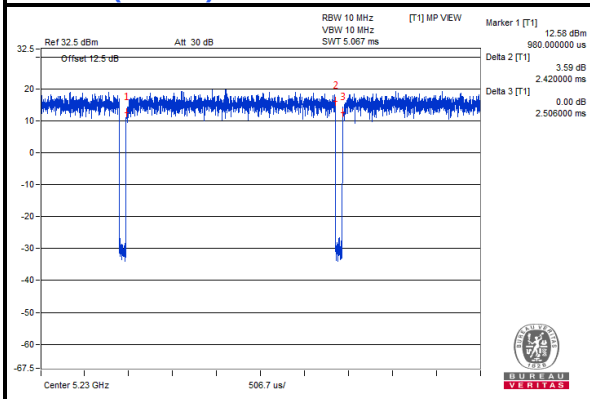
802.11a



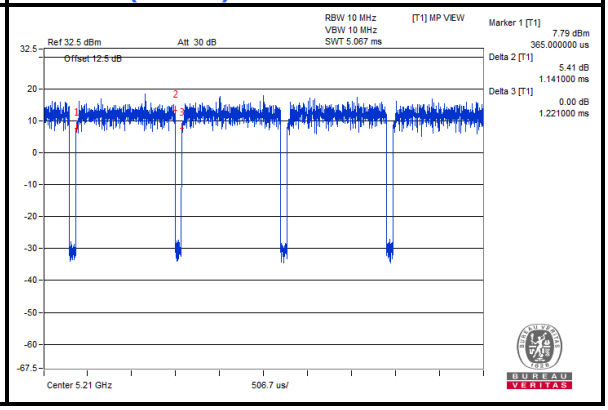
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



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.

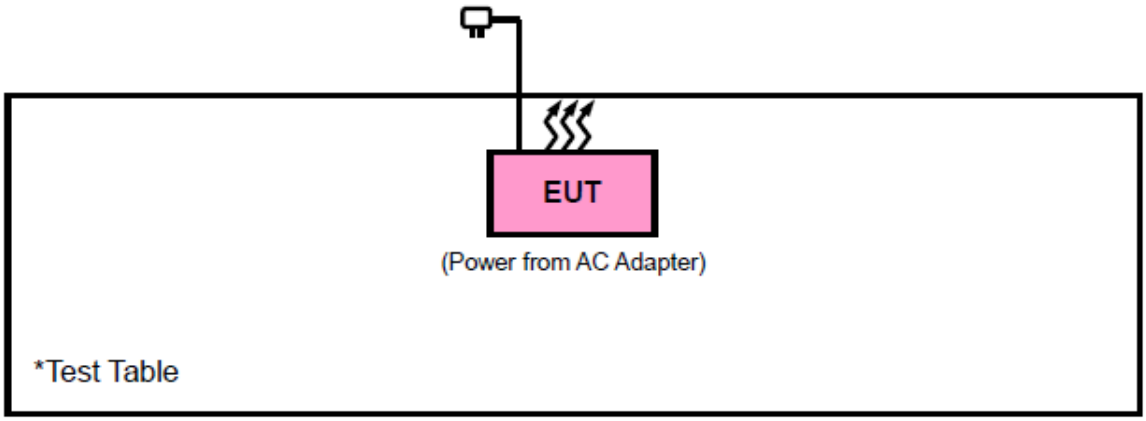
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PC	HP	A6608CN	3CR83825X3	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m

NOTE:

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

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 (SDOC). 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 v01r02	**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 : 68.3
	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:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P 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	Apr. 21,18	Apr. 20,19
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 15,18	Mar. 14,19
Horn Antenna	ETS-LINDGREN	3117	00168728	Mar. 15,18	Mar. 14,19
Loop antenna	Daze	ZN30900A	0708	Oct. 23,18	Oct. 22, 19
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Nov. 21, 18	Nov. 20, 19
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jul. 09,18	Jul. 08,19
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 16,18	Mar. 15,19
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jul. 09,18	Jul. 08,19
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jul. 09,18	Jul. 08,19
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Jul. 09,18	Jul. 08,19

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 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:

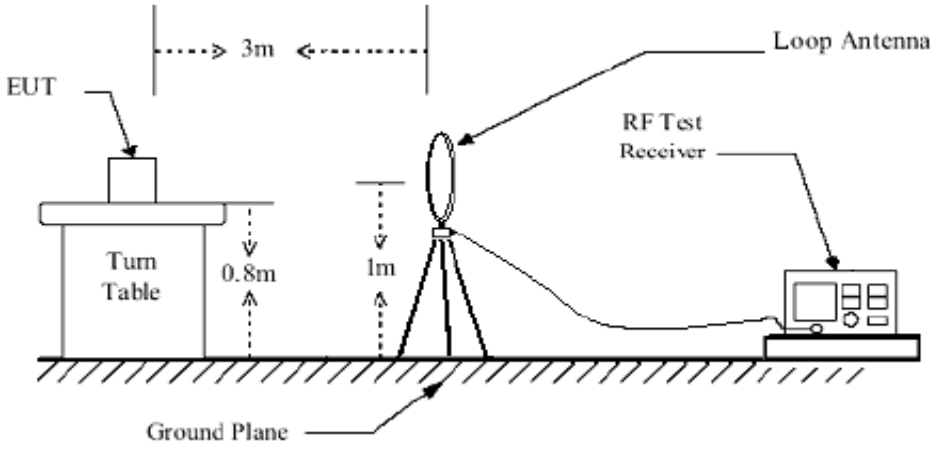
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz 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

< Frequency Range below 30MHz>



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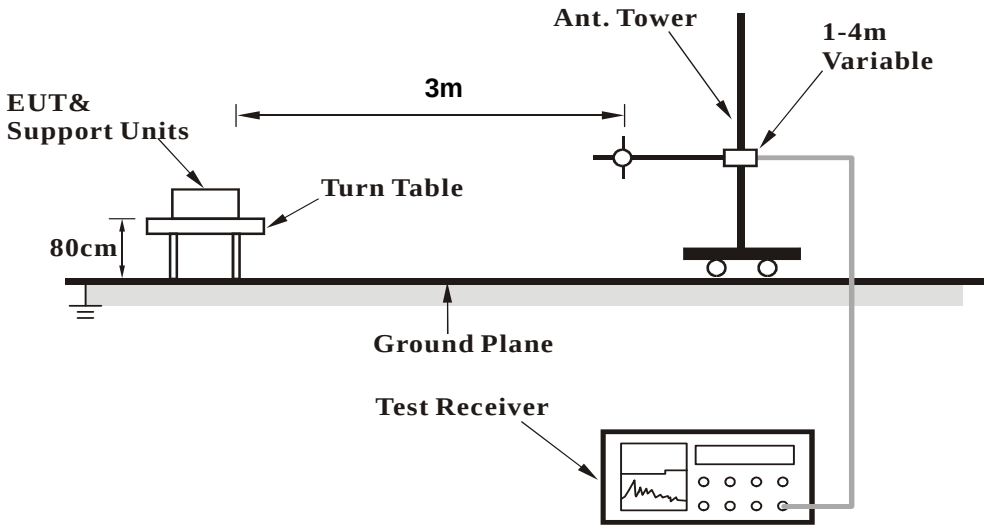
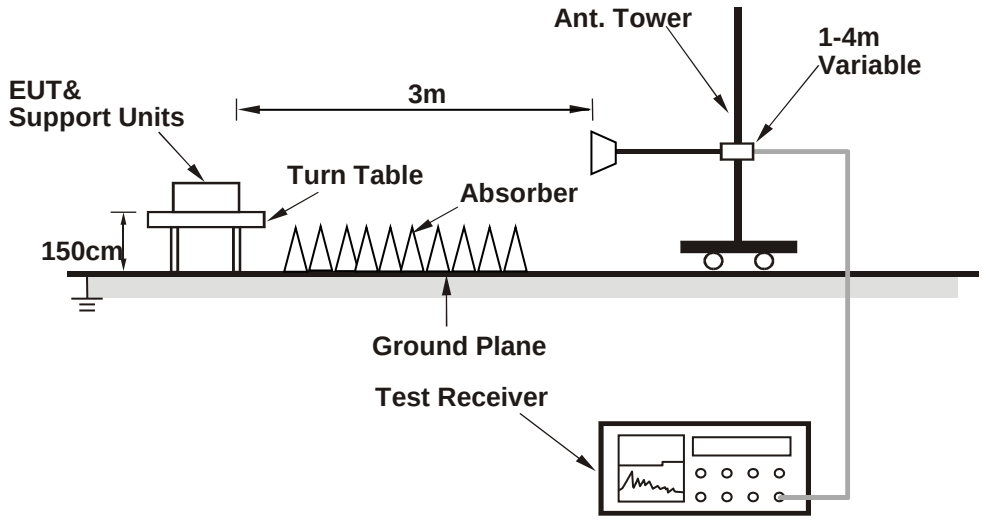


<Frequency Range above 1GHz>



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

3.1.7 EUT OPERATING CONDITION

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.1.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

9 KHz – 30 MHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

30 MHz – 1GHz data:

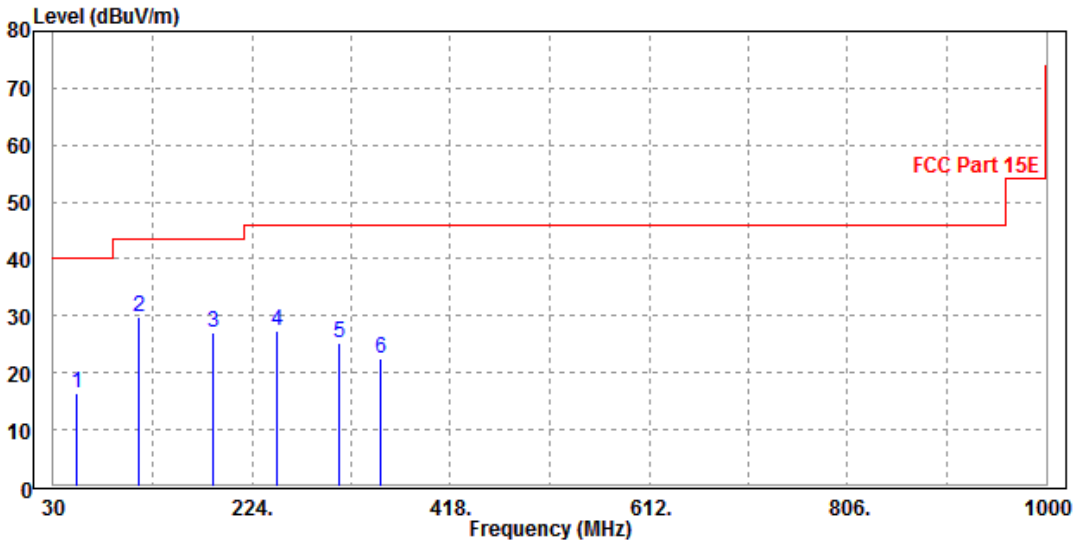
802.11n (40MHz)

CHANNEL	TX Channel 38	**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
52.46	16.33	46.12	40	-23.67	6.48	1.1	37.37	100	217	QP
113.65	29.88	57.68	43.5	-13.62	7.52	1.64	36.96	100	78	QP
186.53	27.06	51.63	43.5	-16.44	9.97	2.1	36.64	100	146	QP
248.74	27.22	48.96	46	-18.78	12.34	2.44	36.52	100	259	QP
309.67	25.38	45.73	46	-20.62	13.41	2.76	36.52	100	308	QP
348.92	22.64	41.27	46	-23.36	15.05	2.93	36.61	100	226	QP

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

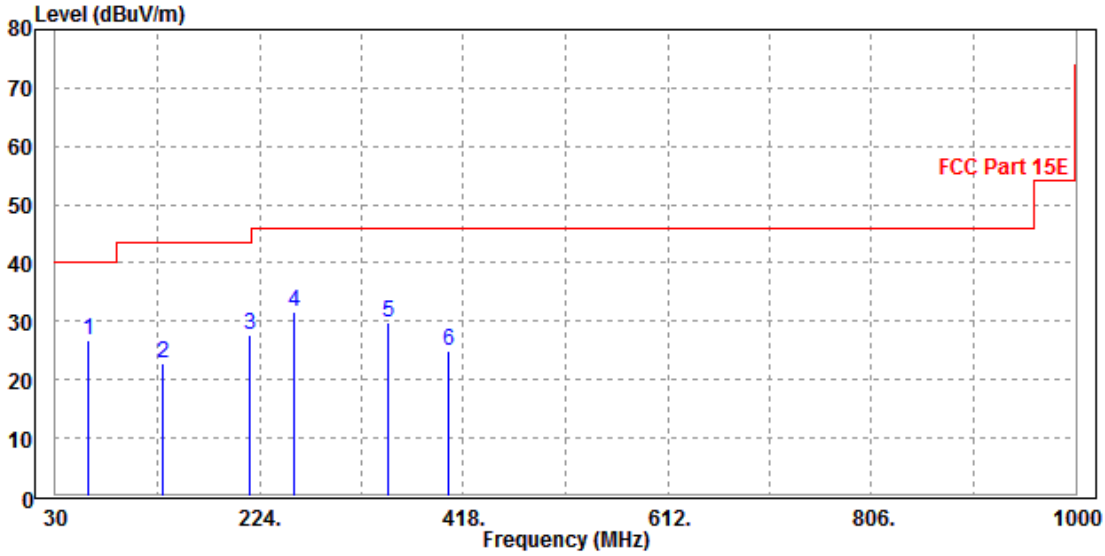


CHANNEL	Channel 38	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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
61.23	26.8	56.46	40	-13.2	6.46	1.19	37.31	100	216	QP
132.17	22.83	50.25	43.5	-20.67	7.69	1.77	36.88	100	319	QP
214.89	27.72	51.22	43.5	-15.78	10.78	2.25	36.53	100	46	QP
256.87	31.61	53.16	46	-14.39	12.48	2.49	36.52	100	123	QP
345.62	29.8	48.56	46	-16.2	14.92	2.92	36.6	100	187	QP
403.63	24.91	41.24	46	-21.09	17.24	3.16	36.73	100	145	QP

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



ABOVE 1GHz WORST-CASE DATA:

Note: For higher frequency, the emission is too low to be detected.

Band 1

802.11a

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

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	50.18	51.85	54	-3.82	37.26	7.42	46.35	130	305	Average
5150	58.69	60.36	74	-15.31	37.26	7.42	46.35	130	305	Peak
5180	101.77	103.42			37.27	7.43	46.35	130	305	Average
5180	109.81	111.46			37.27	7.43	46.35	130	305	Peak
5350	48.39	49.88	54	-5.61	37.34	7.47	46.3	130	305	Average
5350	57.17	58.66	74	-16.83	37.34	7.47	46.3	130	305	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**
5150	50.82	52.49	54	-3.18	37.26	7.42	46.35	100	141	Average
5150	58.71	60.38	74	-15.29	37.26	7.42	46.35	100	141	Peak
5180	105.05	106.7			37.27	7.43	46.35	100	141	Average
5180	116.45	118.1			37.27	7.43	46.35	100	141	Peak
5350	48.55	50.04	54	-5.45	37.34	7.47	46.3	100	141	Average
5350	59.87	61.36	74	-14.13	37.34	7.47	46.3	100	141	Peak

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	49.85	51.52	54	-4.15	37.26	7.42	46.35	141	307	Average
5150	58.29	59.96	74	-15.71	37.26	7.42	46.35	141	307	Peak
5200	102.42	104.05			37.28	7.43	46.34	141	307	Average
5200	111.04	112.67			37.28	7.43	46.34	141	307	Peak
5350	48.52	50.01	54	-5.48	37.34	7.47	46.3	141	307	Average
5350	58.02	59.51	74	-15.98	37.34	7.47	46.3	141	307	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
5150	51.02	52.69	54	-2.98	37.26	7.42	46.35	110	312	Average
5150	60.32	61.99	74	-13.68	37.26	7.42	46.35	110	312	Peak
5200	108.91	110.54			37.28	7.43	46.34	110	312	Average
5200	117.46	119.09			37.28	7.43	46.34	110	312	Peak
5350	49.05	50.54	54	-4.95	37.34	7.47	46.3	110	312	Average
5350	58.39	59.88	74	-15.61	37.34	7.47	46.3	110	312	Peak

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	49.51	51.18	54	-4.49	37.26	7.42	46.35	133	304	Average
5150	58.98	60.65	74	-15.02	37.26	7.42	46.35	133	304	Peak
5240	101.22	102.81			37.3	7.44	46.33	133	304	Average
5240	109.83	111.42			37.3	7.44	46.33	133	304	Peak
5350	48.24	49.73	54	-5.76	37.34	7.47	46.3	133	304	Average
5350	57.53	59.02	74	-16.47	37.34	7.47	46.3	133	304	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
5150	49.89	51.56	54	-4.11	37.26	7.42	46.35	109	311	Average
5150	59.18	60.85	74	-14.82	37.26	7.42	46.35	109	311	Peak
5240	110	111.59			37.3	7.44	46.33	109	311	Average
5240	117.92	119.51			37.3	7.44	46.33	109	311	Peak
5350	48.67	50.16	54	-5.33	37.34	7.47	46.3	109	311	Average
5350	58.58	60.07	74	-15.42	37.34	7.47	46.3	109	311	Peak

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	49.79	51.46	54	-4.21	37.26	7.42	46.35	100	152	Average
5150	58.91	60.58	74	-15.09	37.26	7.42	46.35	100	152	Peak
5180	97.69	99.34			37.27	7.43	46.35	100	152	Average
5180	107.2	108.85			37.27	7.43	46.35	100	152	Peak
5350	48.25	49.74	54	-5.75	37.34	7.47	46.3	100	152	Average
5350	58.75	60.24	74	-15.25	37.34	7.47	46.3	100	152	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
5150	51.45	53.12	54	-2.55	37.26	7.42	46.35	132	317	Average
5150	59.94	61.61	74	-14.06	37.26	7.42	46.35	132	317	Peak
5180	109.17	110.82			37.27	7.43	46.35	132	317	Average
5180	117.83	119.48			37.27	7.43	46.35	132	317	Peak
5350	48.78	50.27	54	-5.22	37.34	7.47	46.3	132	317	Average
5350	58.32	59.81	74	-15.68	37.34	7.47	46.3	132	317	Peak

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	49.64	51.31	54	-4.36	37.26	7.42	46.35	100	152	Average
5150	58.51	60.18	74	-15.49	37.26	7.42	46.35	100	152	Peak
5200	94.98	96.61			37.28	7.43	46.34	100	152	Average
5200	106.93	108.56			37.28	7.43	46.34	100	152	Peak
5350	48.22	49.71	54	-5.78	37.34	7.47	46.3	100	152	Average
5350	58.02	59.51	74	-15.98	37.34	7.47	46.3	100	152	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
5150	50.2	51.87	54	-3.8	37.26	7.42	46.35	142	132	Average
5150	59.61	61.28	74	-14.39	37.26	7.42	46.35	142	132	Peak
5200	107.93	109.56			37.28	7.43	46.34	142	132	Average
5200	117.04	118.67			37.28	7.43	46.34	142	132	Peak
5350	48.9	50.39	54	-5.1	37.34	7.47	46.3	142	132	Average
5350	57.87	59.36	74	-16.13	37.34	7.47	46.3	142	132	Peak

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	49.54	51.21	54	-4.46	37.26	7.42	46.35	100	152	Average
5150	59.66	61.33	74	-14.34	37.26	7.42	46.35	100	152	Peak
5240	96.87	98.46			37.3	7.44	46.33	100	152	Average
5240	106.48	108.07			37.3	7.44	46.33	100	152	Peak
5350	48.24	49.73	54	-5.76	37.34	7.47	46.3	100	152	Average
5350	57.32	58.81	74	-16.68	37.34	7.47	46.3	100	152	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
5150	50.05	51.72	54	-3.95	37.26	7.42	46.35	123	317	Average
5150	59.44	61.11	74	-14.56	37.26	7.42	46.35	123	317	Peak
5240	110.27	111.86			37.3	7.44	46.33	123	317	Average
5240	118.94	120.53			37.3	7.44	46.33	123	317	Peak
5350	48.62	50.11	54	-5.38	37.34	7.47	46.3	123	317	Average
5350	57.87	59.36	74	-16.13	37.34	7.47	46.3	123	317	Peak

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	49.81	51.48	54	-4.19	37.26	7.42	46.35	100	162	Average
5150	59.24	60.91	74	-14.76	37.26	7.42	46.35	100	162	Peak
5190	90.47	92.1			37.28	7.43	46.34	100	162	Average
5190	97	98.63			37.28	7.43	46.34	100	162	Peak
5350	48.17	49.66	54	-5.83	37.34	7.47	46.3	100	162	Average
5350	58.57	60.06	74	-15.43	37.34	7.47	46.3	100	162	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
5150	**53**	**54.67**	**54**	**-1**	**37.26**	**7.42**	**46.35**	**136**	**135**	**Average**
5150	59.31	60.98	74	-14.69	37.26	7.42	46.35	136	135	Peak
5190	101.09	102.72			37.28	7.43	46.34	136	135	Average
5190	107.01	108.64			37.28	7.43	46.34	136	135	Peak
5350	48.98	50.47	54	-5.02	37.34	7.47	46.3	136	135	Average
5350	58.78	60.27	74	-15.22	37.34	7.47	46.3	136	135	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5190MHz: Fundamental frequency.

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

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	49.61	51.28	54	-4.39	37.26	7.42	46.35	163	312	Average
5150	58.78	60.45	74	-15.22	37.26	7.42	46.35	163	312	Peak
5230	98.21	99.81			37.29	7.44	46.33	163	312	Average
5230	104.38	105.98			37.29	7.44	46.33	163	312	Peak
5350	48.25	49.74	54	-5.75	37.34	7.47	46.3	163	312	Average
5350	57.92	59.41	74	-16.08	37.34	7.47	46.3	163	312	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
5150	50.3	51.97	54	-3.7	37.26	7.42	46.35	122	318	Average
5150	58.56	60.23	74	-15.44	37.26	7.42	46.35	122	318	Peak
5230	106.59	108.19			37.29	7.44	46.33	122	318	Average
5230	113.97	115.57			37.29	7.44	46.33	122	318	Peak
5350	48.65	50.14	54	-5.35	37.34	7.47	46.3	122	318	Average
5350	57.43	58.92	74	-16.57	37.34	7.47	46.3	122	318	Peak

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	49.8	51.47	54	-4.2	37.26	7.42	46.35	157	310	Average
5150	61.99	63.66	74	-12.01	37.26	7.42	46.35	157	310	Peak
5210	87.59	89.21			37.28	7.44	46.34	157	310	Average
5210	95.8	97.42			37.28	7.44	46.34	157	310	Peak
5350	48.43	49.92	54	-5.57	37.34	7.47	46.3	157	310	Average
5350	57.5	58.99	74	-16.5	37.34	7.47	46.3	157	310	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
5150	52.78	54.45	54	-1.22	37.26	7.42	46.35	125	318	Average
5150	62.88	64.55	74	-11.12	37.26	7.42	46.35	125	318	Peak
5210	95.6	97.22			37.28	7.44	46.34	125	318	Average
5210	101.94	103.56			37.28	7.44	46.34	125	318	Peak
5350	48.8	50.29	54	-5.2	37.34	7.47	46.3	125	318	Average
5350	57.44	58.93	74	-16.56	37.34	7.47	46.3	125	318	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5210MHz: Fundamental frequency.

Band 4

802.11a

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

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	97.25	98.13			37.55	7.75	46.18	100	311	Average
5745	106.14	107.02			37.55	7.75	46.18	100	311	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
5745	104.48	105.36			37.55	7.75	46.18	100	11	Average
5745	113.55	114.43			37.55	7.75	46.18	100	11	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5745MHz: Fundamental frequency.

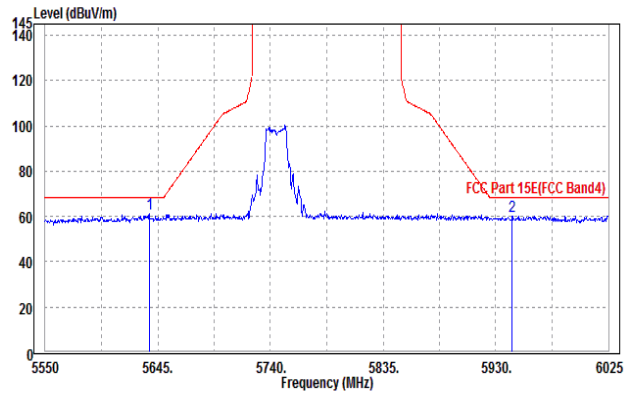
OOBE DATA

802.11a

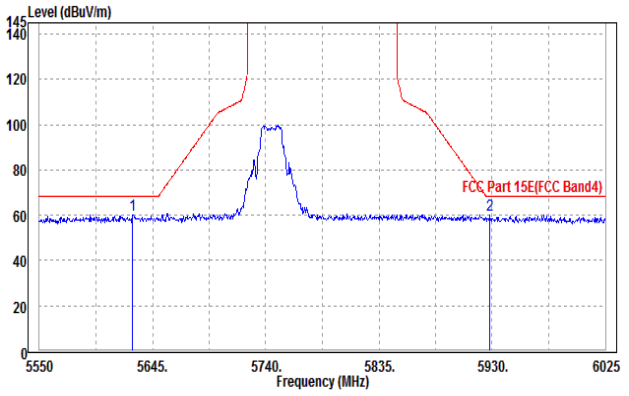
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5637.88	60.95	62.04	68.3	-7.35	37.48	7.64	46.21	200	360	Peak
5943.78	60.29	60.8	68.3	-8.01	37.67	7.95	46.13	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
5628.38	60.31	61.41	68.3	-7.99	37.48	7.63	46.21	100	360	Peak
5928.1	60.37	60.9	68.3	-7.93	37.66	7.94	46.13	100	360	Peak

CH 149

Horiontal



Vertical



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	97	97.81			37.57	7.79	46.17	100	172	Average
5785	106.65	107.46			37.57	7.79	46.17	100	172	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
5785	107.16	108.87			36.67	7.79	46.17	152	323	Average
5785	115.4	117.11			36.67	7.79	46.17	152	323	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5785MHz: Fundamental frequency.

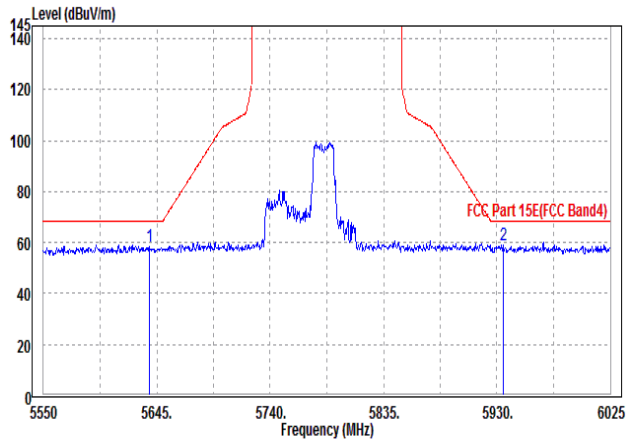
OOBE DATA

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
5638.83	58.5	59.59	68.3	-9.8	37.48	7.64	46.21	100	360	Peak
5935.7	58.89	59.42	68.3	-9.41	37.66	7.94	46.13	100	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
5635.03	59.84	60.93	68.3	-8.46	37.48	7.64	46.21	100	0	Peak
5949.95	59.35	59.84	68.3	-8.95	37.67	7.96	46.12	100	0	Peak

CH 157

Horiontal



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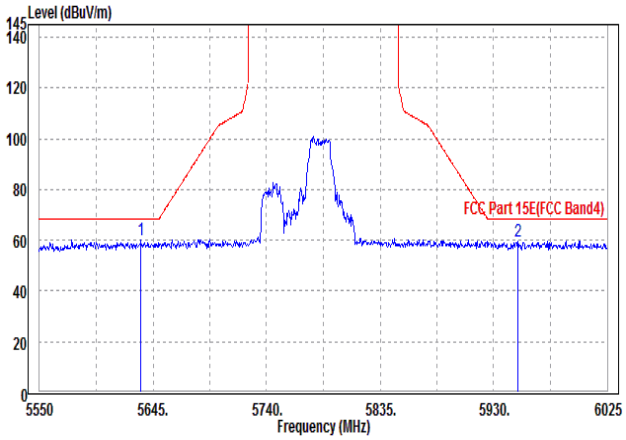


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	97.59	98.32			37.6	7.83	46.16	100	305	Average
5825	106.19	106.92			37.6	7.83	46.16	100	305	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
5825	106.03	106.76			37.6	7.83	46.16	104	68	Average
5825	114.24	114.97			37.6	7.83	46.16	104	68	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5825MHz: Fundamental frequency.

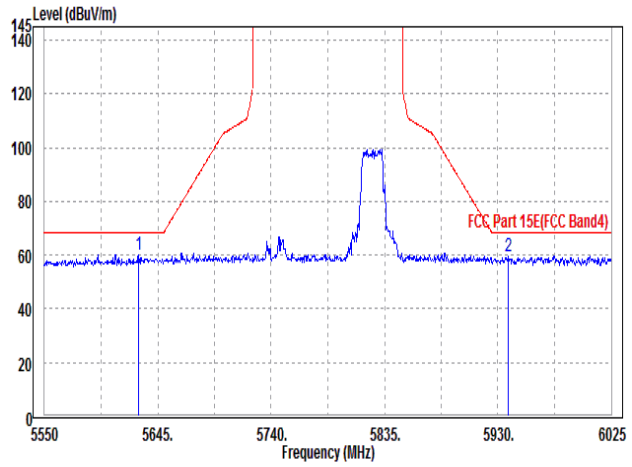
OOBE DATA

802.11a

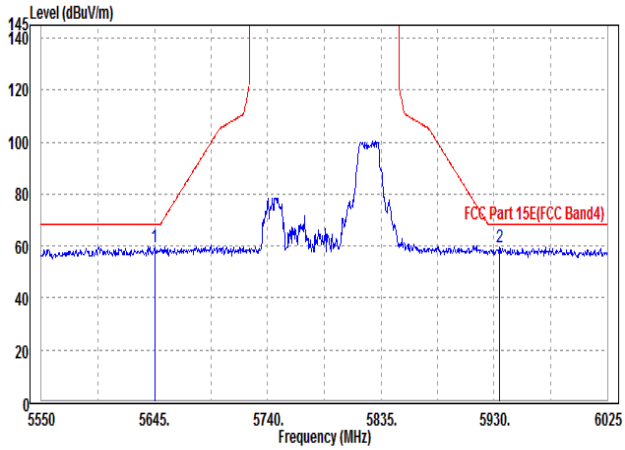
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5628.85	59.9	61	68.3	-8.4	37.48	7.63	46.21	100	0	Peak
5938.55	59.41	59.93	68.3	-8.89	37.66	7.95	46.13	100	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
5645	59.81	60.88	68.3	-8.49	37.49	7.65	46.21	100	360	Peak
5934.28	59.34	59.87	68.3	-8.96	37.66	7.94	46.13	100	360	Peak

CH 165

Horiontal



Vertical



802.11n (20MHz)

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

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	95.7	96.58			37.55	7.75	46.18	100	342	Average
5745	104.89	105.77			37.55	7.75	46.18	100	342	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
5745	101.69	102.57			37.55	7.75	46.18	100	23	Average
5745	112.41	113.29			37.55	7.75	46.18	100	23	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5745MHz: Fundamental frequency.

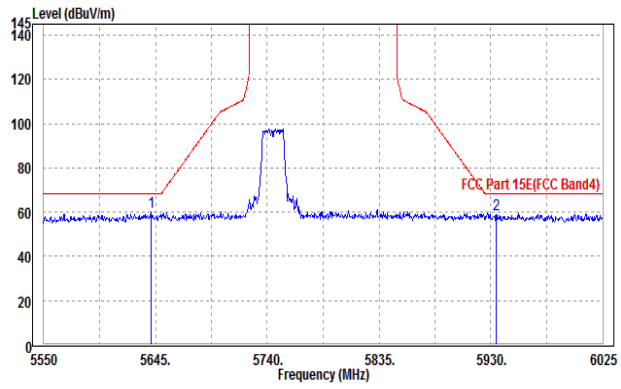
OOBE DATA

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
5641.68	59.99	61.07	68.3	-8.31	37.49	7.64	46.21	100	0	Peak
5934.28	59.06	59.59	68.3	-9.24	37.66	7.94	46.13	100	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
5627.43	58.55	60.55	68.3	-9.75	36.58	7.63	46.21	100	360	Peak
5939.03	58.67	60.09	68.3	-9.63	36.76	7.95	46.13	100	360	Peak

CH 149

Horiontal



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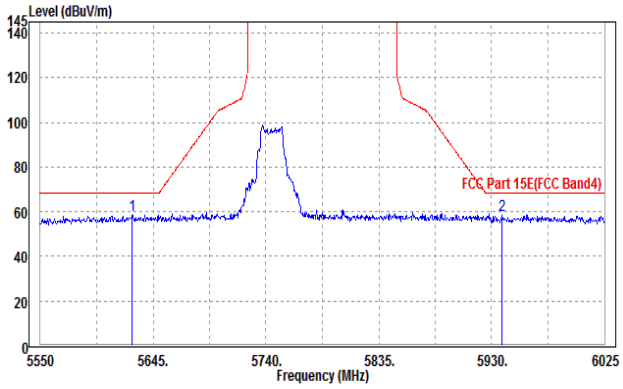


CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	95.03	95.84			37.57	7.79	46.17	100	177	Average
5785	103.51	104.32			37.57	7.79	46.17	100	177	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
5785	105.96	107.67			36.67	7.79	46.17	148	315	Average
5785	113.18	114.89			36.67	7.79	46.17	148	315	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5785MHz: Fundamental frequency.

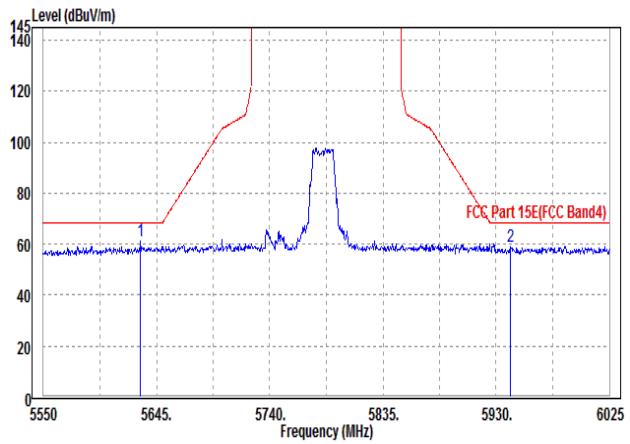
OOBE DATA

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
5631.7	61.15	62.25	68.3	-7.15	37.48	7.63	46.21	100	0	Peak
5941.88	58.87	59.38	68.3	-9.43	37.67	7.95	46.13	100	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
5636.93	59.83	60.92	68.3	-8.47	37.48	7.64	46.21	100	360	Peak
5937.13	60.36	60.88	68.3	-7.94	37.66	7.95	46.13	100	360	Peak

CH 157

Horiontal



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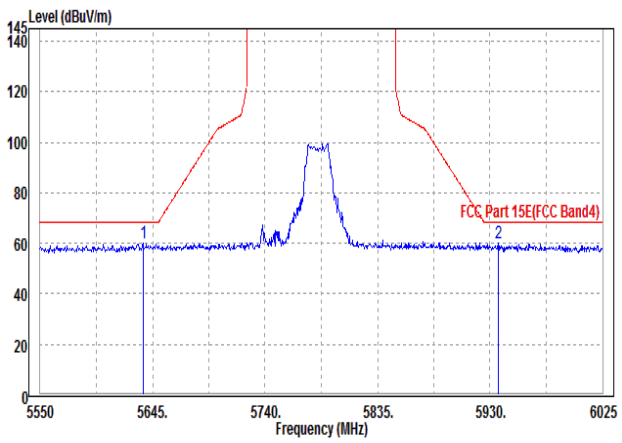


CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	95.79	96.52			37.6	7.83	46.16	100	304	Average
5825	105.06	105.79			37.6	7.83	46.16	100	304	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
5825	102.55	103.28			37.6	7.83	46.16	108	79	Average
5825	112.21	112.94			37.6	7.83	46.16	108	79	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5825MHz: Fundamental frequency.

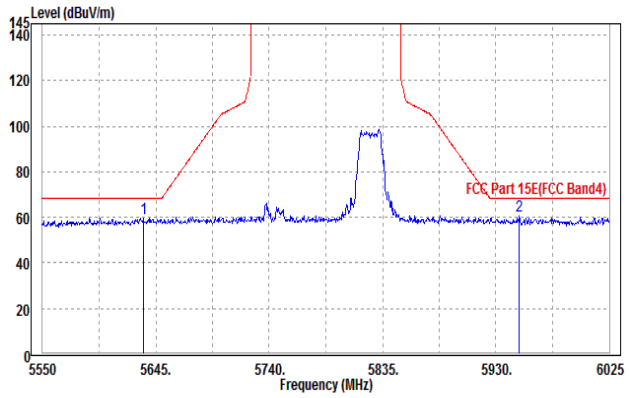
OOBE DATA

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
5634.55	59.59	60.68	68.3	-8.71	37.48	7.64	46.21	100	360	Peak
5949.48	60.38	60.87	68.3	-7.92	37.67	7.96	46.12	100	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
5637.88	58.74	59.83	68.3	-9.56	37.48	7.64	46.21	100	0	Peak
5943.3	59.03	59.54	68.3	-9.27	37.67	7.95	46.13	100	0	Peak

CH 165

Horiontal



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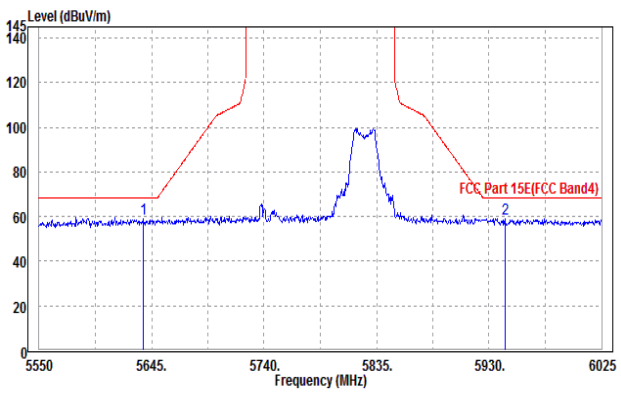


802.11n (40MHz)

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	95.71	96.58			37.55	7.76	46.18	100	309	Average
5755	101.82	102.69			37.55	7.76	46.18	100	309	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
5755	104.44	106.21			36.65	7.76	46.18	183	321	Average
5755	109.94	111.71			36.65	7.76	46.18	183	321	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5755MHz: Fundamental frequency.

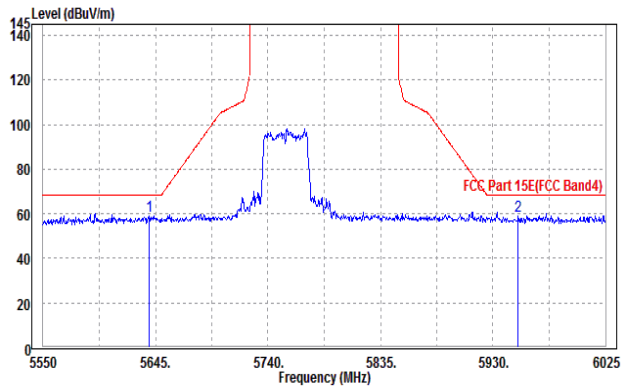
OOBE DATA

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
5639.78	59.07	60.16	68.3	-9.23	37.48	7.64	46.21	100	0	Peak
5951.38	58.98	59.47	68.3	-9.32	37.67	7.96	46.12	100	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
5632.18	58.97	60.07	68.3	-9.33	37.48	7.63	46.21	100	360	Peak
5944.25	58.6	59.11	68.3	-9.7	37.67	7.95	46.13	100	360	Peak

CH 151

Horiontal



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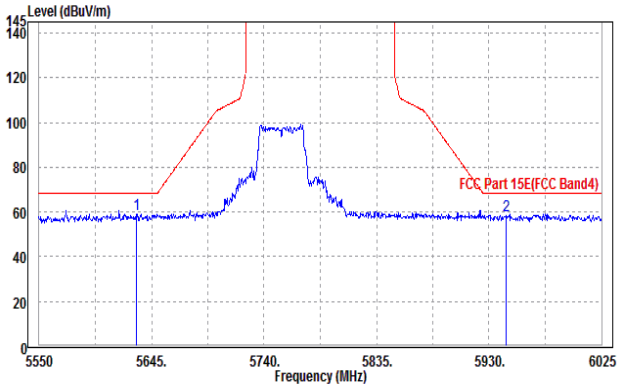


CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	95.75			37.58	7.8	46.17	100	308	Average
5795	101.18	101.97			37.58	7.8	46.17	100	308	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
5795	105.47	106.26			37.58	7.8	46.17	175	321	Average
5795	111.62	112.41			37.58	7.8	46.17	175	321	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5795MHz: Fundamental frequency.

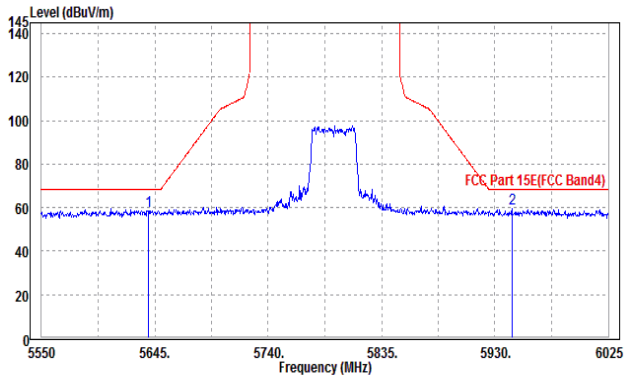
OOBE DATA

802.11n (40MHZ)

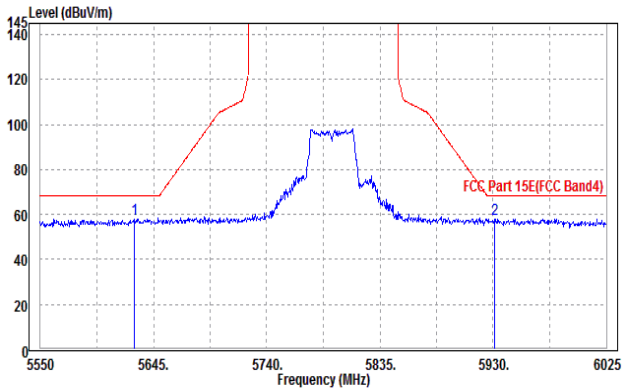
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5639.3	58.61	59.7	68.3	-9.69	37.48	7.64	46.21	100	360	Peak
5944.25	59.5	60.01	68.3	-8.8	37.67	7.95	46.13	100	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
5628.85	58.07	60.07	68.3	-10.23	36.58	7.63	46.21	100	0	Peak
5931.43	57.94	59.37	68.3	-10.36	36.76	7.94	46.13	100	0	Peak

CH 159

Horiontal



Vertical



802.11ac (80MHz)

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

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	91.49	92.31			37.57	7.78	46.17	100	308	Average
5775	98.32	99.14			37.57	7.78	46.17	100	308	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
5775	99.48	101.2			36.67	7.78	46.17	162	323	Average
5775	106.58	108.3			36.67	7.78	46.17	162	323	Peak

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 5775MHz: Fundamental frequency.

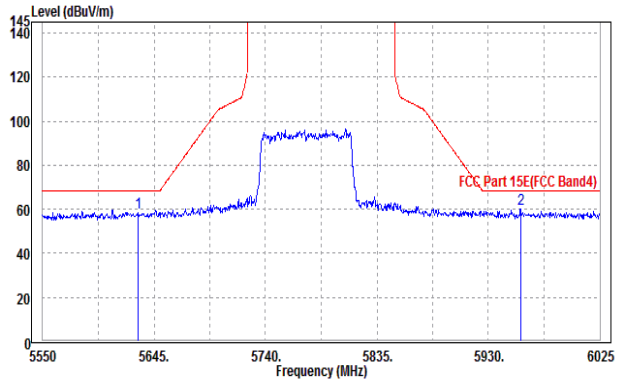
OOBE DATA

802.11ac (80MHZ)

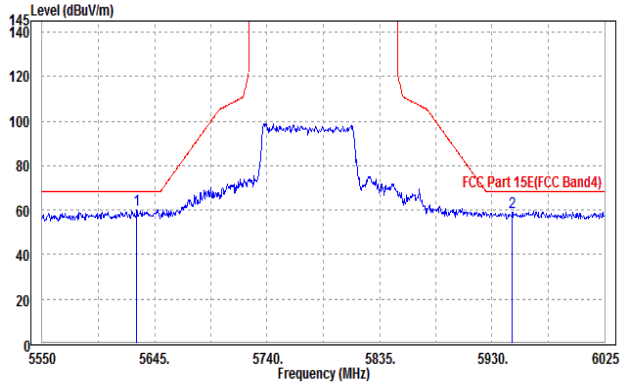
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5631.7	58.43	59.53	68.3	-9.87	37.48	7.63	46.21	100	0	Peak
5957.55	60.05	60.53	68.3	-8.25	37.67	7.97	46.12	100	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
5629.8	59.96	61.06	68.3	-8.34	37.48	7.63	46.21	100	360	Peak
5947.1	58.87	59.36	68.3	-9.43	37.67	7.96	46.12	100	360	Peak

CH 155

Horiontal



Vertical



3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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. 26,19	Feb. 25, 20
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Feb. 26,19	Feb. 25, 20

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.

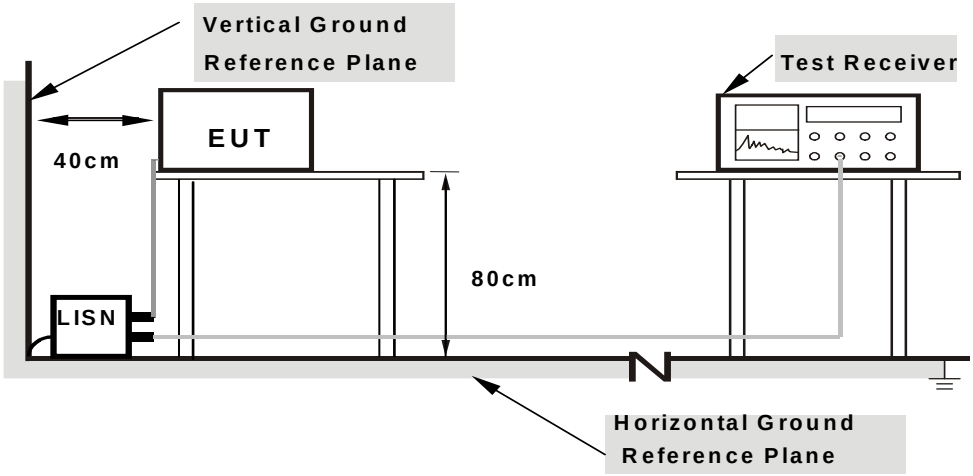
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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 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

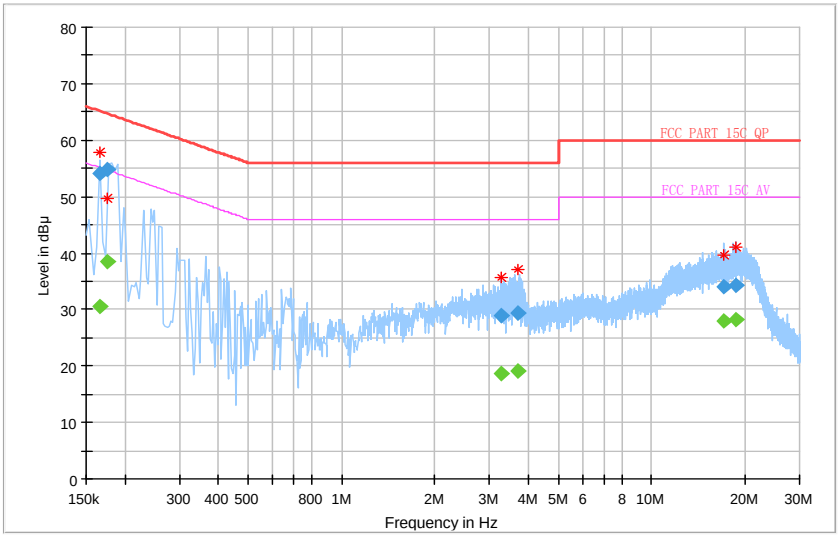
CONDUCTED WORST-CASE DATA：

Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	24deg. C, 55RH
Tested By	John Wen	**TEST DATE**	2019/02/19

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.166000	---	30.62	55.16	-24.53	L1	ON	9.7
0.166000	54.02	---	65.16	-11.14	L1	ON	9.7
0.176000	---	38.47	54.67	-16.20	L1	ON	9.7
0.176000	54.84	---	64.67	-9.84	L1	ON	9.7
3.284000	---	18.72	46.00	-27.28	L1	ON	9.7
3.284000	28.99	---	56.00	-27.01	L1	ON	9.7
3.692000	---	19.11	46.00	-26.89	L1	ON	9.7
3.692000	29.37	---	56.00	-26.63	L1	ON	9.7
17.080000	---	27.98	50.00	-22.02	L1	ON	10.0
17.080000	34.15	---	60.00	-25.85	L1	ON	10.0
18.768000	---	28.24	50.00	-21.76	L1	ON	9.9
18.768000	34.29	---	60.00	-25.71	L1	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 = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

Full Spectrum

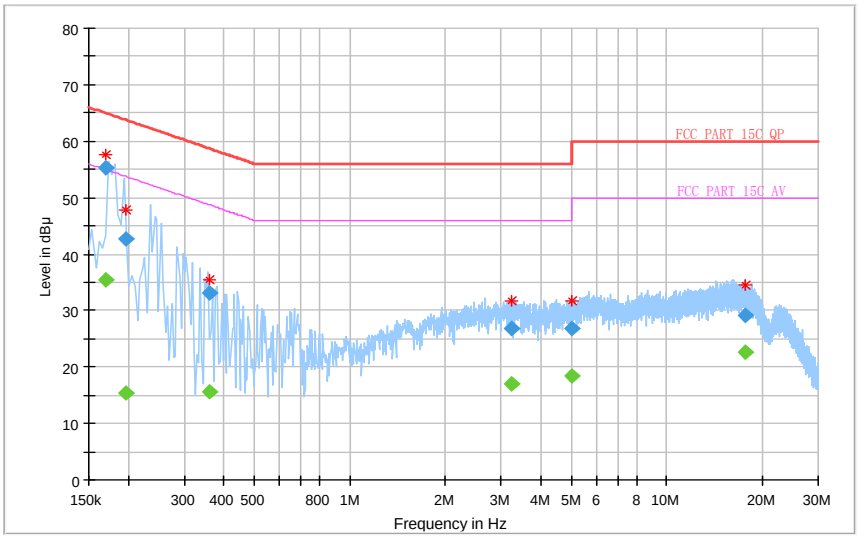


Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	24deg. C, 55RH
Tested By	John Wen	TEST DATE	2019/02/19

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	---	35.35	54.96	-19.61	N	ON	10.2
0.170000	**55.24**	**---**	**64.96**	**-9.72**	**N**	**ON**	**10.2**
0.196000	---	15.51	53.78	-38.27	N	ON	9.9
0.196000	42.64	---	63.78	-21.13	N	ON	9.9
0.360000	---	15.55	48.73	-33.18	N	ON	10.0
0.360000	33.22	---	58.73	-25.51	N	ON	10.0
3.248000	---	17.12	46.00	-28.88	N	ON	9.8
3.248000	26.73	---	56.00	-29.27	N	ON	9.8
5.004000	---	18.54	50.00	-31.46	N	ON	9.8
5.004000	26.76	---	60.00	-33.24	N	ON	9.8
17.640000	---	22.64	50.00	-27.36	N	ON	10.0
17.640000	29.07	---	60.00	-30.93	N	ON	10.0

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 = Emission level - Limit value
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

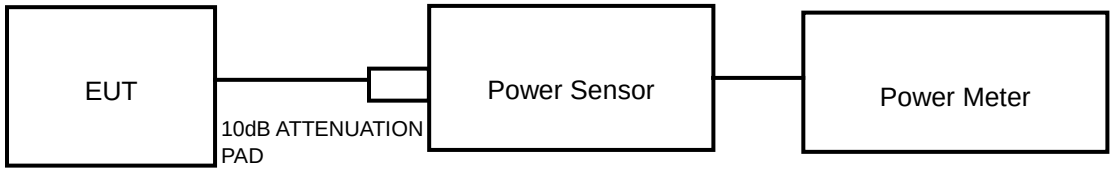
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Client devices	250mW (24 dBm)
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.

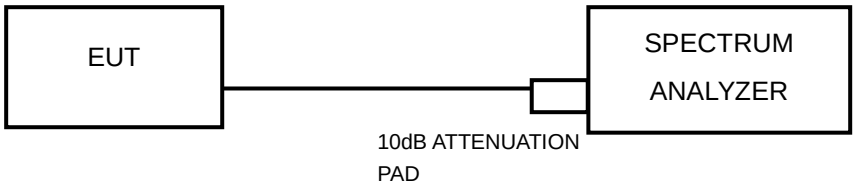
3.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT

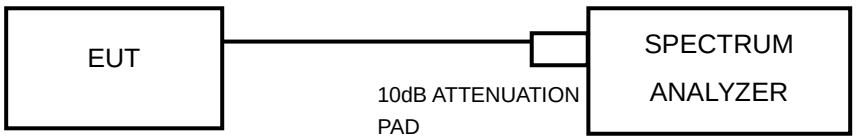
802.11a, 802.11n (20MHz), 802.11n (40MHz) TEST CONFIGURATION



11ac 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. 26,19	Feb. 25, 20
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510523	Mar. 16,18	Mar. 15,19
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510332	Mar. 16,18	Mar. 15,19
Power Sensor	ANRITSU	MA2411B	1339352	Mar. 16,18	Mar. 15,19

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, 802.11n (20MHz), 802.11n (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 ≥ 3 MHz.
5. Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ 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 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 ≥ 3 · 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.

3.3.7 TEST RESULTS

OUTPUT POWER:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	16.22	41.88	30	PASS
40	5200	16.07	40.46	30	PASS
48	5240	16.13	41.02	30	PASS
149	5745	16.13	41.02	30	PASS
157	5785	16.24	42.07	30	PASS
165	5825	16.05	40.27	30	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	POWER LIMIT (dBm)	PASS/FAIL
		CHAIN0	CHAIN1				
36	5180	16.11	15.93	19.03	79.98	30	PASS
44	5220	15.91	16.12	19.03	79.98	30	PASS
48	5240	16.05	16.11	19.09	81.10	30	PASS
149	5745	15.87	16.17	19.03	79.98	30	PASS
157	5785	16.10	16.12	19.12	81.66	30	PASS
165	5825	15.93	15.99	18.97	78.89	30	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	POWER LIMIT (dBm)	PASS/FAIL
		CHAIN0	CHAIN1				
38	5190	12.92	12.96	15.95	39.36	30	PASS
46	5230	16.14	16.22	19.19	82.99	30	PASS
151	5755	15.98	16.14	19.07	80.72	30	PASS
159	5795	16.25	16.02	19.15	82.22	30	PASS

802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER(dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	POWER LIMIT (dBm)	PASS/FAIL
		CHAIN0	CHAIN1				
42	5210	9.22	9.30	12.27	16.87	30	PASS
155	5775	15.94	16.02	18.99	79.25	30	PASS

99% OCCUPIED BANDWIDTH & 26dB BANDWIDTH/6dB BANDWIDTH:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH	26dB BANDWIDTH (MHz)	PASS/FAIL
36	5180	16.38	19.34	PASS
40	5200	16.38	19.20	PASS
48	5240	16.38	19.15	PASS
CHANNEL	**CHANNEL FREQUENCY (MHz)**	**99% OCCUPIED BANDWIDTH**	**6dB BANDWIDTH (MHz)**	**PASS/FAIL**
149	5745	16.38	16.29	PASS
157	5785	16.32	16.32	PASS
165	5825	16.44	16.32	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH	26dB BANDWIDTH (MHz)	PASS/FAIL
36	5180	17.58	19.95	PASS
40	5200	17.58	20.06	PASS
48	5240	17.64	20.07	PASS
CHANNEL	**CHANNEL FREQUENCY (MHz)**	**99% OCCUPIED BANDWIDTH**	**6dB BANDWIDTH (MHz)**	**PASS/FAIL**
149	5745	17.52	16.28	PASS
157	5785	17.52	16.54	PASS
165	5825	17.58	17.17	PASS

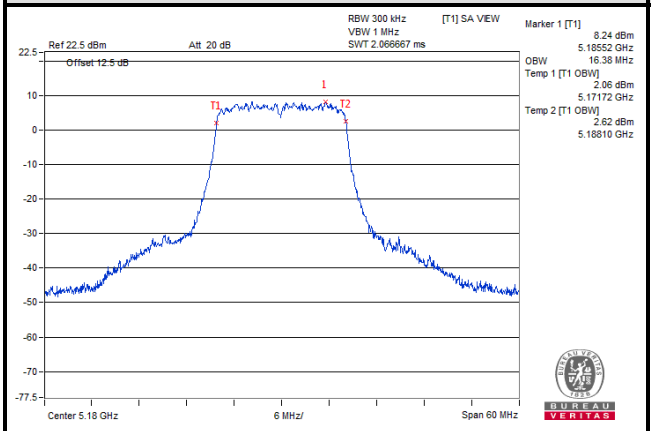
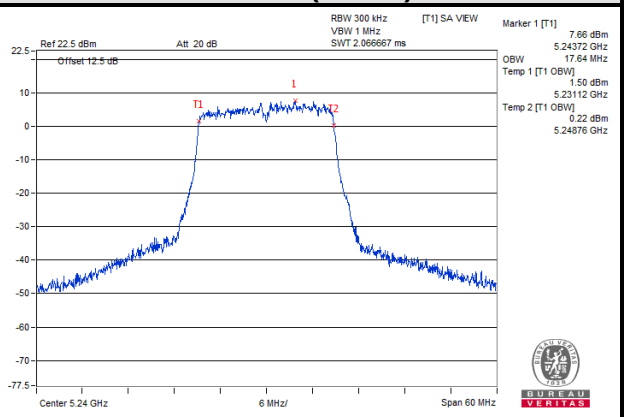
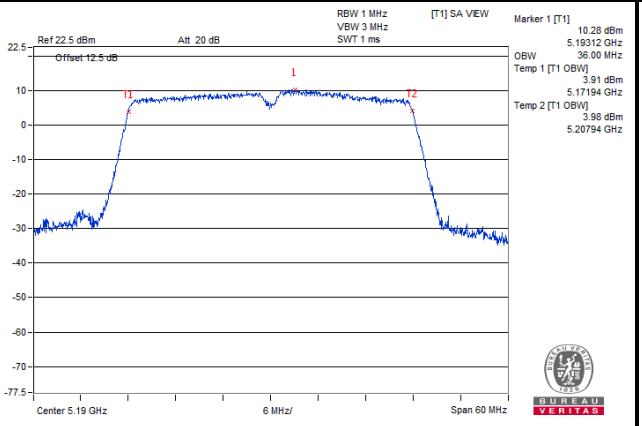
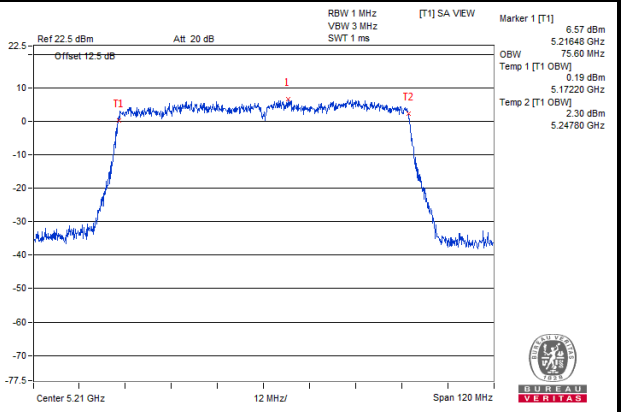
802.11n (40MHz)

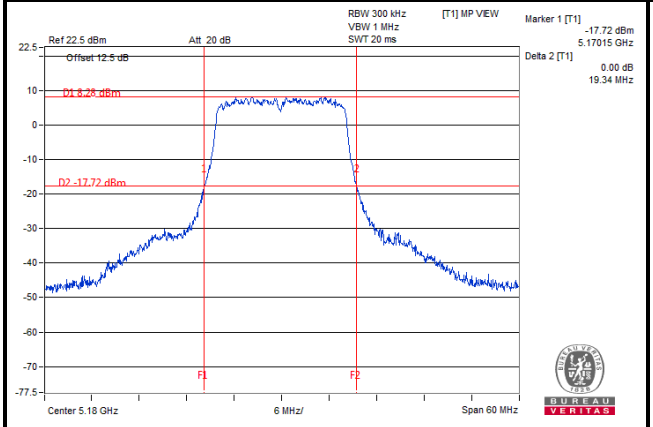
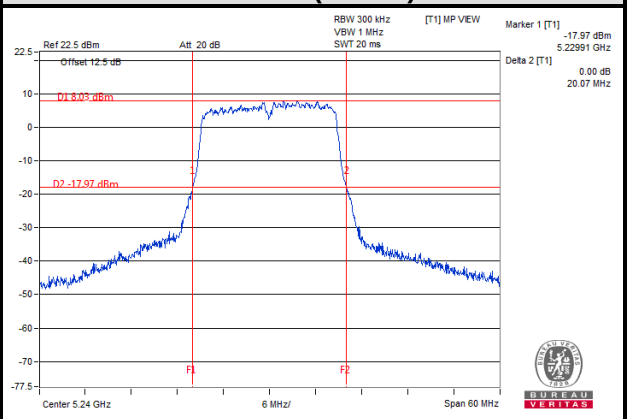
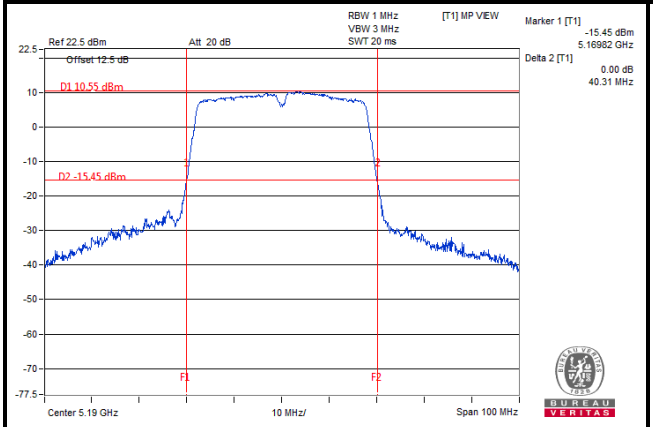
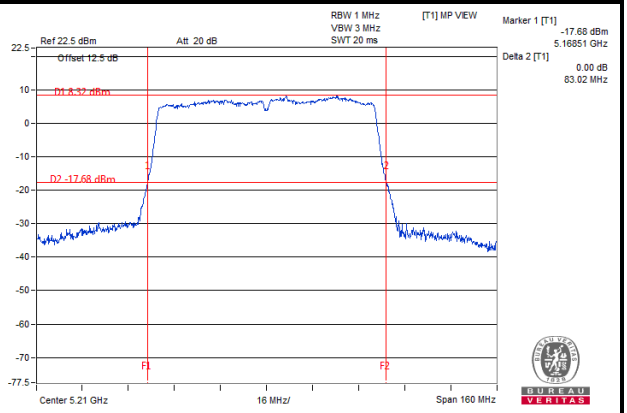
CHANNEL	CHANNEL FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH	26dB BANDWIDTH (MHz)	PASS/FAIL
38	5190	36.00	40.31	PASS
46	5230	36.00	40.11	PASS
CHANNEL	**CHANNEL FREQUENCY (MHz)**	**99% OCCUPIED BANDWIDTH**	**6dB BANDWIDTH (MHz)**	**PASS/FAIL**
151	5755	36.18	35.07	PASS
159	5795	36.12	35.09	PASS

802.11ac (80MHz)

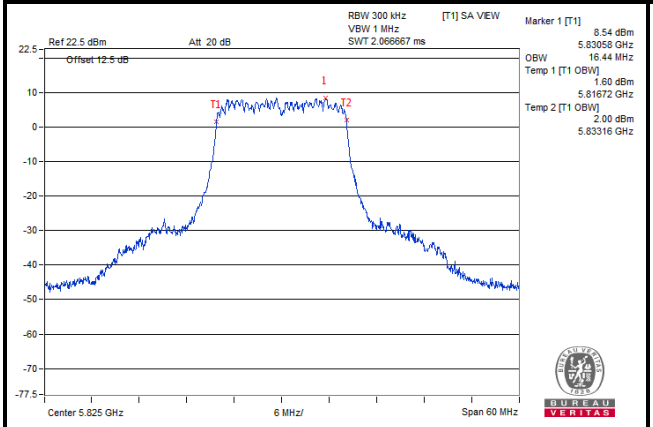
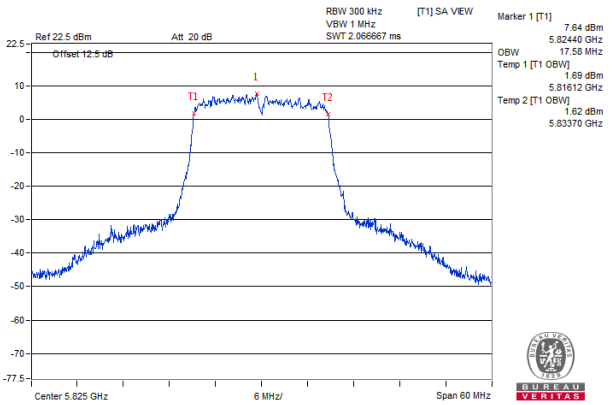
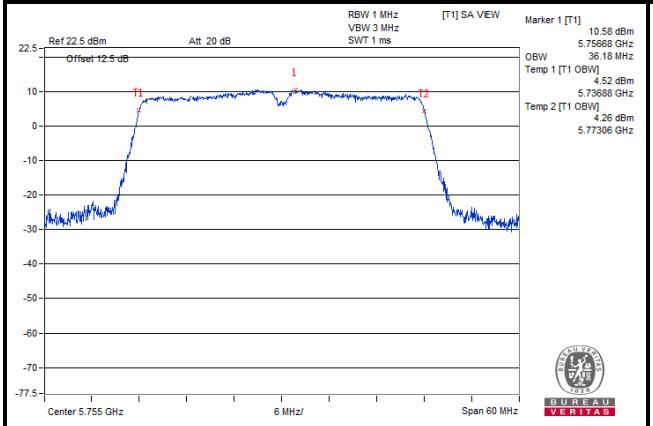
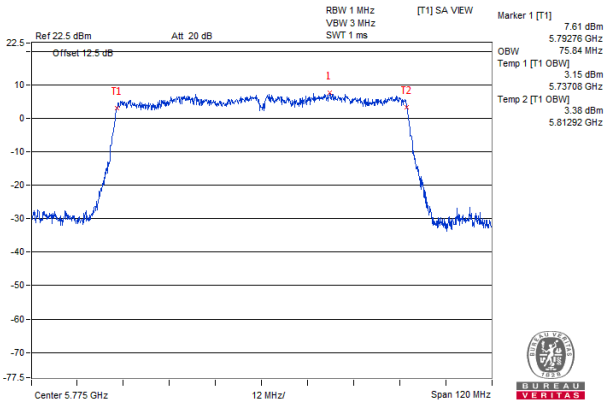
CHANNEL	CHANNEL FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH	26dB BANDWIDTH (MHz)	PASS/FAIL
42	5210	75.60	83.02	PASS
CHANNEL	**CHANNEL FREQUENCY (MHz)**	**99% OCCUPIED BANDWIDTH**	**6dB BANDWIDTH (MHz)**	**PASS/FAIL**
155	5775	75.80	75.68	PASS

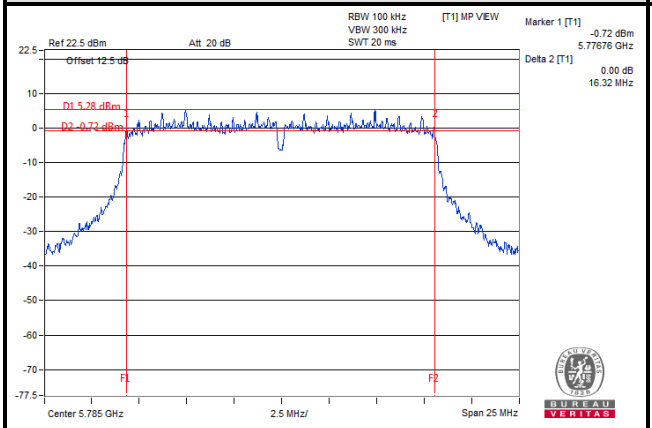
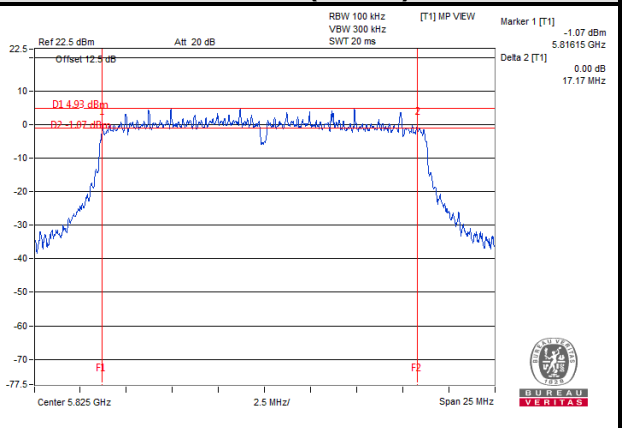
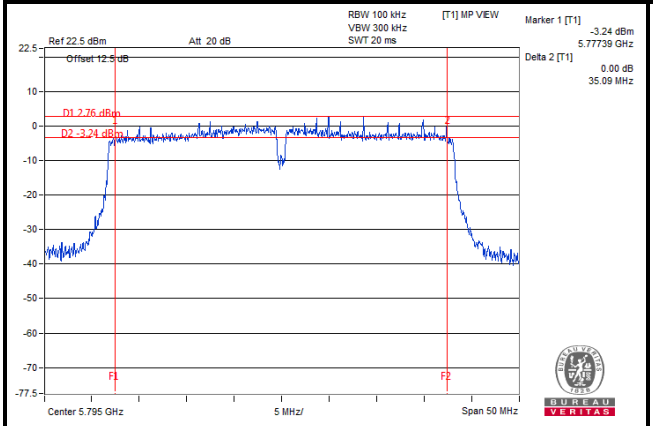
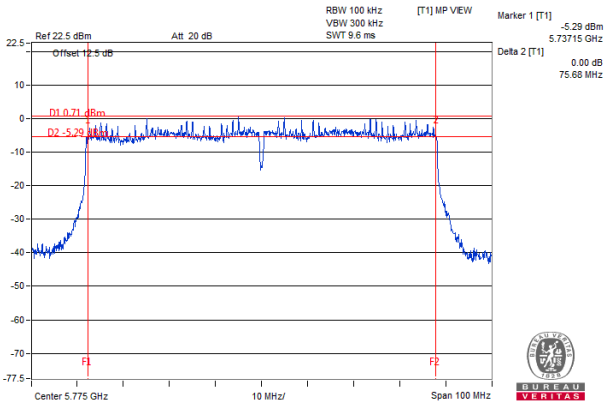
For U-NII-1:

SPECTRUM PLOT OF WORST VALUE of 99% OCCUPIED BANDWIDTH	
802.11a	802.11n (20MHz)
	
802.11n (40MHz)	802.11ac (80MHz)
	

SPECTRUM PLOT OF WORST VALUE of 26dB Bandwidth	
802.11a	**802.11n (20MHz)**
	
802.11n (40MHz)	**802.11ac (80MHz)**
	

For U-NII-3:

SPECTRUM PLOT OF WORST VALUE of 99% OCCUPIED BANDWIDTH	
802.11a	802.11n (20MHz)
	
802.11n (40MHz)	802.11ac (80MHz)
	

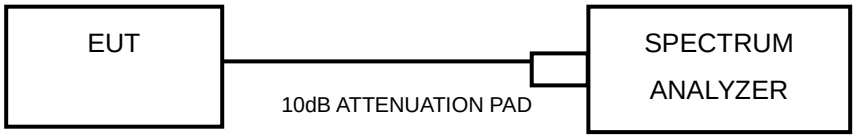
SPECTRUM PLOT OF WORST VALUE of 6dB Bandwidth	
802.11a	802.11n (20MHz)
	
802.11n (40MHz)	802.11ac (80MHz)
	

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 ≥ 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 3.1.6.

3.4.7 TEST RESULTS

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

802.11a

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor	PSD with Duty Factor (dBm/MHz)	MAXIMUM LIMIT (dBm/MHz)	PASS/FAIL
36	5180	4.58	0.61	5.19	17	PASS
40	5200	4.64	0.61	5.25	17	PASS
48	5240	4.94	0.61	5.55	17	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor	PSD with Duty Factor (dBm/MHz)	MAXIMUM LIMIT (dBm/MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1				
36	5180	4.24	4.41	0	7.34	17	PASS
40	5200	4.45	4.26	0	7.37	17	PASS
48	5240	4.35	4.22	0	7.30	17	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor	PSD with Duty Factor (dBm/MHz)	MAXIMUM LIMIT (dBm/MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1				
38	5190	-2.05	-2.29	0.15	0.99	17	PASS
46	5230	-1.81	0.92	0.15	2.93	17	PASS

802.11ac (80MHz)

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor	PSD with Duty Factor (dBm/MHz)	MAXIMUM LIMIT (dBm/MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1				
42	5210	-9.08	-9.59	0.29	-6.03	17	PASS

For U-NII-3:

802.11a

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)	PSD w/o Duty Factor (dBm/500kHz)	Duty Factor	PSD with Duty Factor (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
149	5745	5.03	2.02	0.61	2.63	30	PASS
157	5785	5.86	2.85	0.61	3.46	30	PASS
165	5825	6.07	3.06	0.61	3.67	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/500kHz)		Duty Factor	PSD with Duty Factor (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
		CHAIN 0	CHAIN 1				
149	5745	2.09	2.50	0	5.31	30	PASS
157	5785	2.92	3.31	0	6.13	30	PASS
165	5825	2.76	3.54	0	6.18	30	PASS

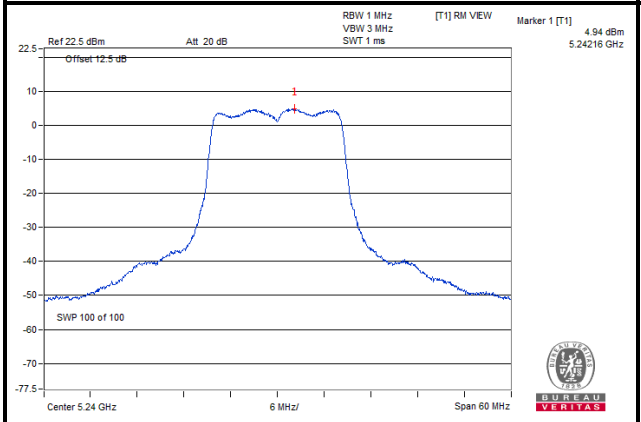
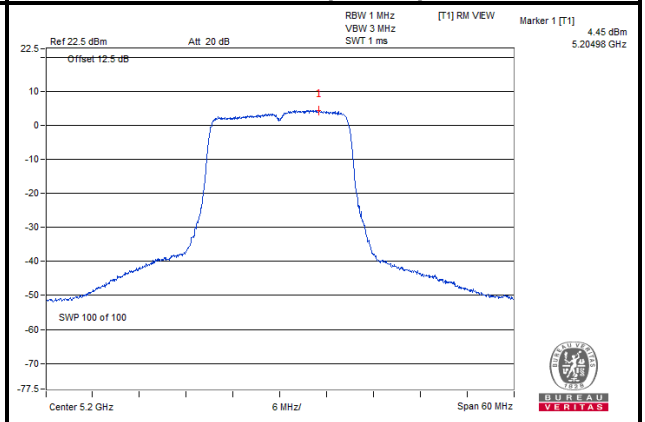
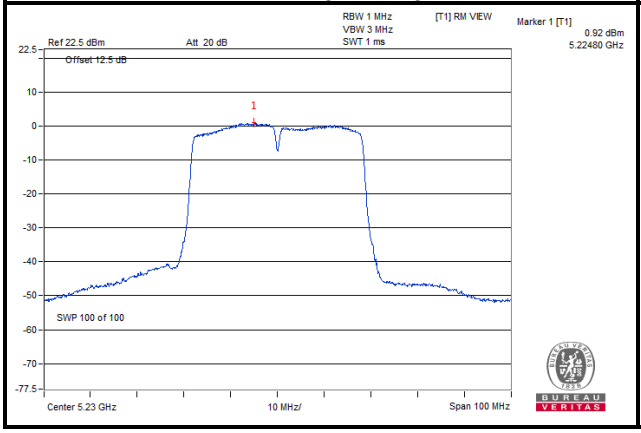
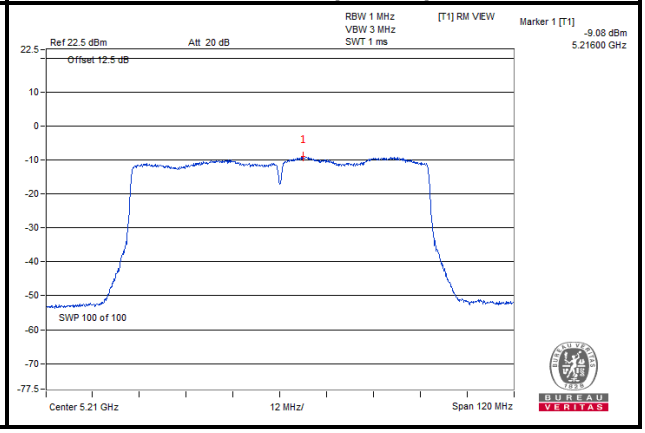
802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)	PSD w/o Duty Factor (dBm/500kHz)	Duty Factor	PSD with Duty Factor (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
151	5755	-0.27	0.27	0.15	3.17	30	PASS
159	5795	0.53	0.86	0.15	3.86	30	PASS

802.11ac (80MHz)

CHANNEL	FREQUENCY (MHz)	PSD w/o Duty Factor (dBm/MHz)	PSD w/o Duty Factor (dBm/500kHz)	Duty Factor	PSD with Duty Factor (dBm/500kHz)	LIMIT (dBm/500kHz)	PASS /FAIL
155	5775	-3.78	-3.27	0.29	-0.22	30	PASS

For 5180~5240MHz

PSD w/o Duty Factor	
802.11a	802.11n (20MHz)
	
802.11n (40MHz)	802.11ac (80MHz)
	

For 5745~5825MHz

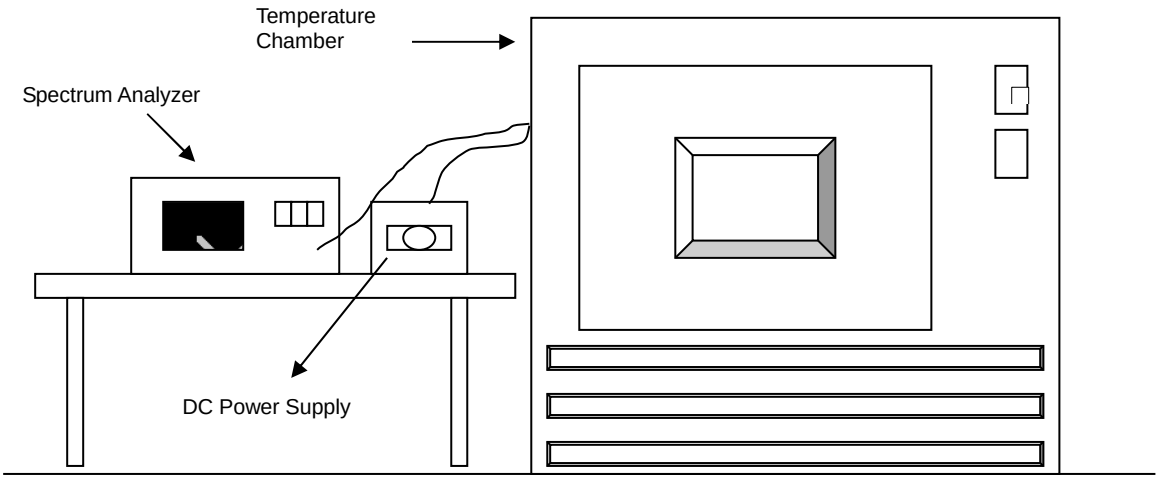
PSD w/o Duty Factor	
802.11a	802.11n (20MHz)
	
802.11n (40MHz)	802.11ac (80MHz)
	

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 DC 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

FREQUEMCY STABILITY VERSUS TEMP.										RESULT
OPERATING FREQUENCY: 5180MHz										
TEMP. (℃)	Power Supply (Vdc)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTE		
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	
50	120	5180.0183	3.533	5180.0184	3.552	5180.0233	4.498	5180.0222	4.286	PASS
40	120	5179.9763	-4.575	5179.976	-4.633	5179.9821	-3.456	5179.9789	-4.073	PASS
30	120	5179.9764	-4.556	5179.9771	-4.421	5179.972	-5.405	5179.9715	-5.502	PASS
20	120	5179.9783	-4.189	5179.9841	-3.069	5179.9813	-3.610	5179.985	-2.896	PASS
10	120	5180.0034	0.656	5180.0003	0.058	5179.9955	-0.869	5179.999	-0.193	PASS
0	120	5179.9712	-5.560	5179.973	-5.212	5179.9715	-5.502	5179.9711	-5.579	PASS
-10	120	5180.0179	3.456	5180.0071	1.371	5180.0136	2.625	5180.0147	2.838	PASS
-20	120	5180.0147	2.838	5180.0158	3.050	5180.011	2.124	5180.0148	2.857	PASS
-30	120	5179.9764	-4.556	5179.9744	-4.942	5179.9731	-5.193	5179.9819	-3.494	PASS

FREQUEMCY STABILITY VERSUS VOLTAGE										RESULT
OPERATING FREQUENCY: 5180MHz										
TEMP. (℃)	Power Supply (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE		
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	
20	138	5179.978	-4.247	5179.9843	-3.031	5179.9798	-3.900	5179.9849	-2.915	PASS
	120	5179.9783	-4.189	5179.9841	-3.069	5179.9813	-3.610	5179.985	-2.896	PASS
	102	5179.9771	-4.421	5179.9827	-3.340	5179.9795	-3.958	5179.9862	-2.664	PASS

FREQUEMCY STABILITY VERSUS TEMP.										RESULT
OPERATING FREQUENCY: 5825MHz										
TEMP. (℃)	Power Supply (Vdc)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTE		
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	
50	120	5824.9783	-3.725	5824.9785	-3.691	5824.9829	-2.936	5824.9804	-3.365	PASS
40	120	5824.9772	-3.914	5824.9702	-5.116	5824.9789	-3.622	5824.9702	-5.116	PASS
30	120	5825.0164	2.815	5825.0199	3.416	5825.0239	4.103	5825.0207	3.554	PASS
20	120	5825.0183	3.142	5825.0194	3.330	5825.0238	4.086	5825.0159	2.730	PASS
10	120	5825.007	1.202	5825.0095	1.631	5825.0086	1.476	5825.0014	0.240	PASS
0	120	5824.9769	-3.966	5824.9792	-3.571	5824.9813	-3.210	5824.9798	-3.468	PASS
-10	120	5824.9707	-5.030	5824.9752	-4.258	5824.9759	-4.137	5824.9726	-4.704	PASS
-20	120	5824.9734	-4.567	5824.9683	-5.442	5824.9706	-5.047	5824.971	-4.979	PASS
-30	120	5825.0269	4.618	5825.0328	5.631	5825.031	5.322	5825.0313	5.373	PASS

FREQUEMCY STABILITY VERSUS VOLTAGE										RESULT
OPERATING FREQUENCY: 5180MHz										
TEMP. (℃)	Power Supply (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE		
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	
20	138	5825.0177	3.039	5825.0195	3.348	5825.0238	4.086	5825.016	2.747	PASS
	120	5825.0183	3.142	5825.0194	3.330	5825.0238	4.086	5825.0159	2.730	PASS
	102	5825.018	3.090	5825.0189	3.245	5825.023	3.948	5825.0151	2.592	PASS

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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---