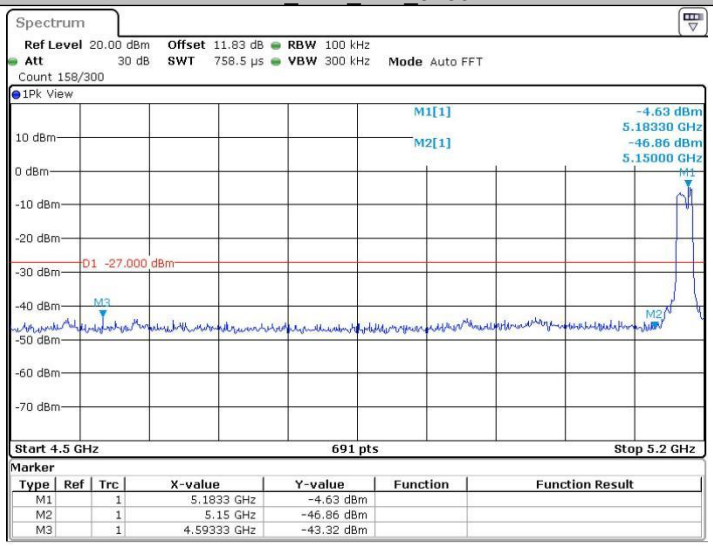
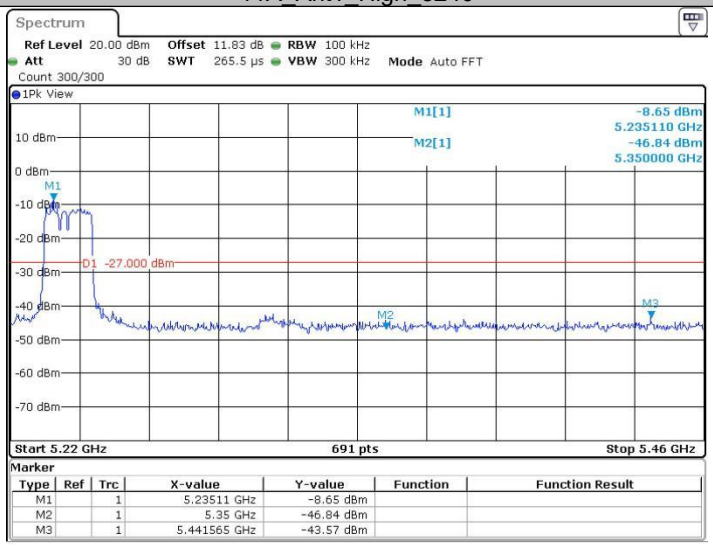
Test Result:

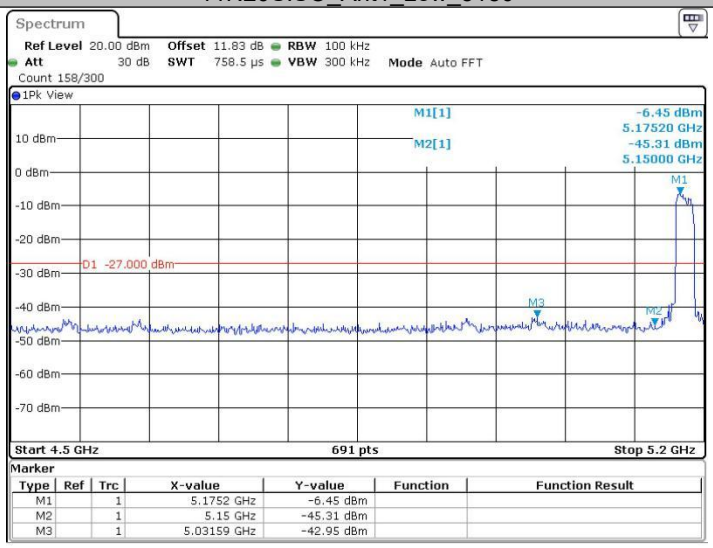
11A_Ant1_Low_5180



11A_Ant1_High_5240

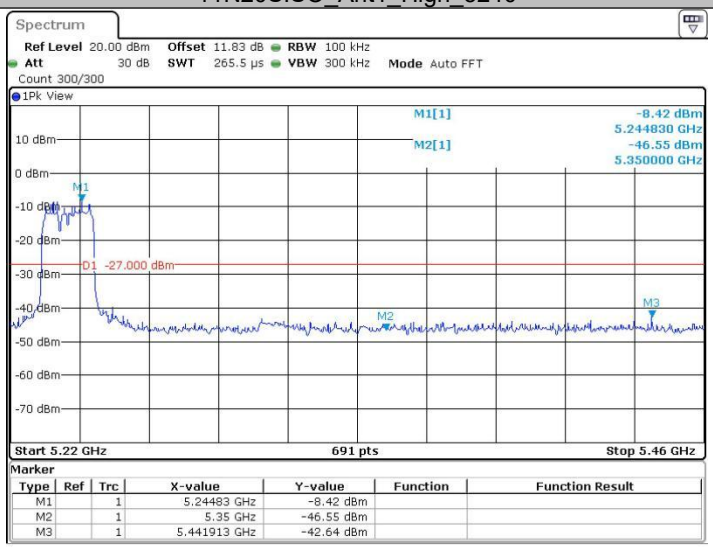


11N20SISO_Ant1_Low_5180



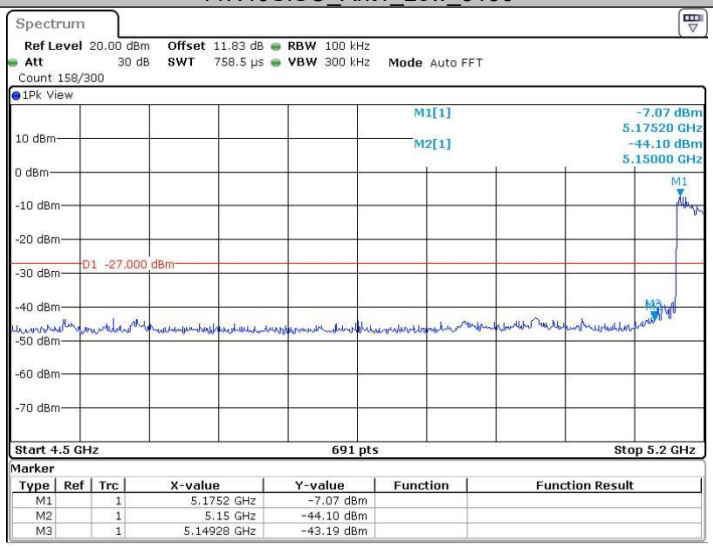
Date: 31.OCT.2023 10:06:01

11N20SISO_Ant1_High_5240



Date: 31.OCT.2023 10:09:54

11N40SISO_Ant1_Low_5190

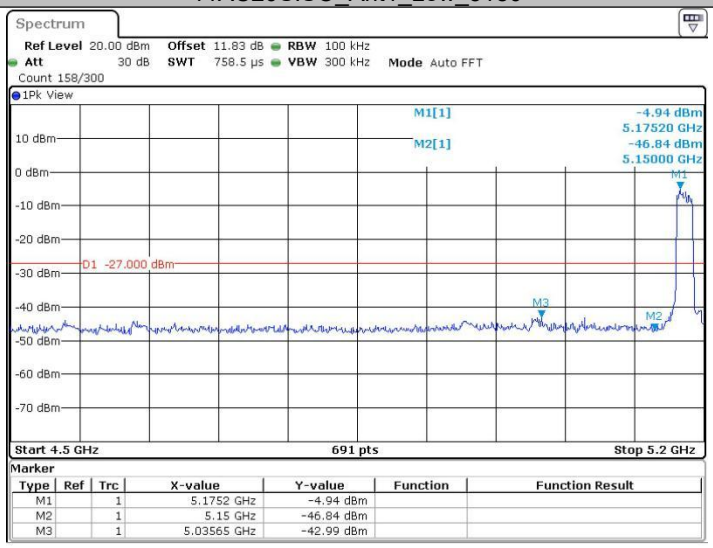


Date: 31.OCT.2023 10:19:52

11N40SISO_Ant1_High_5230

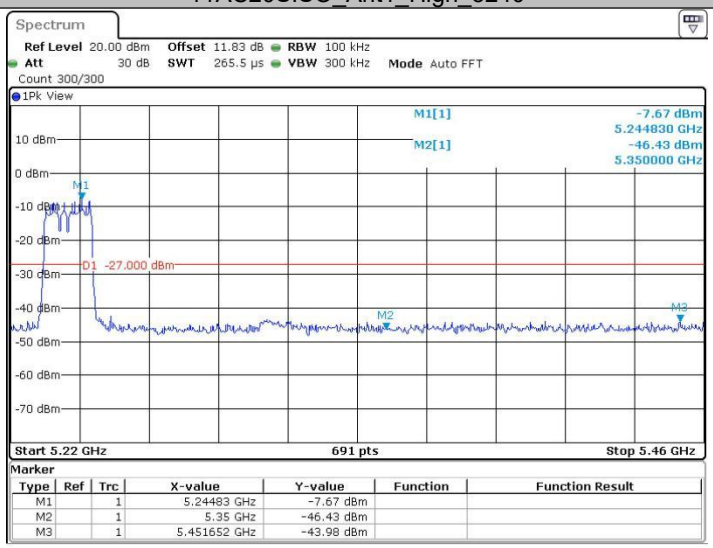
Date: 31.OCT.2023 10:24:20

11AC20SISO_Ant1_Low_5180



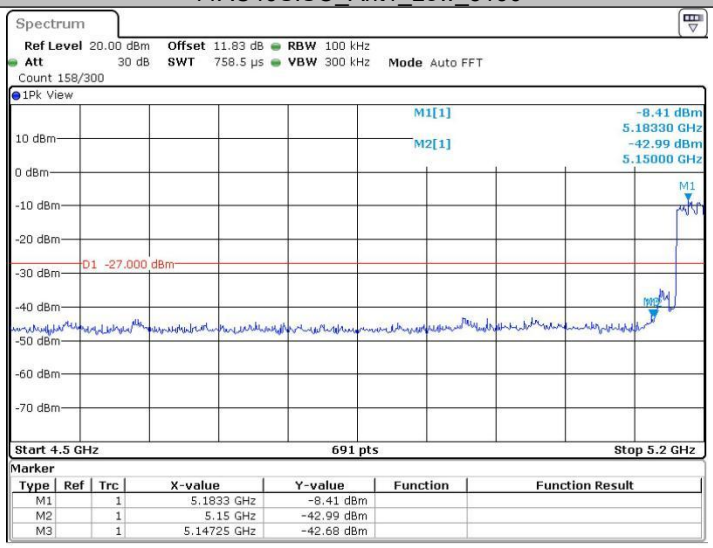
Date: 31.OCT.2023 10:31:57

11AC20SISO_Ant1_High_5240

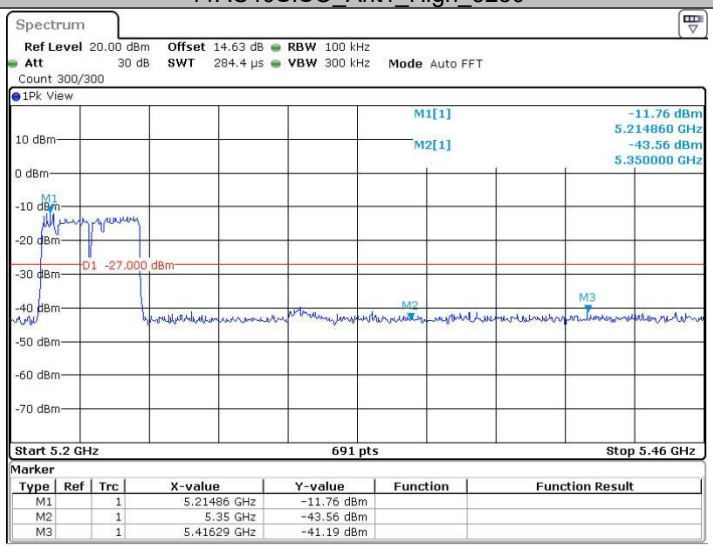


Date: 31.OCT.2023 10:35:43

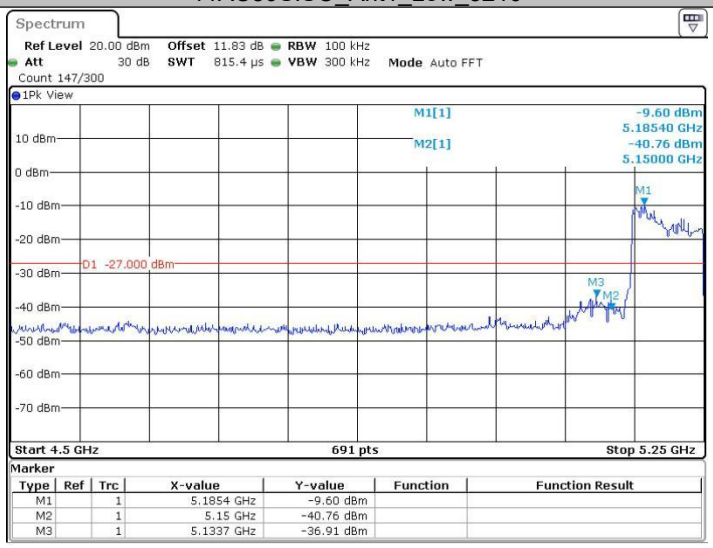
11AC40SISO_Ant1_Low_5190



11AC40SISO_Ant1_High_5230



11AC80SISO_Ant1_Low_5210

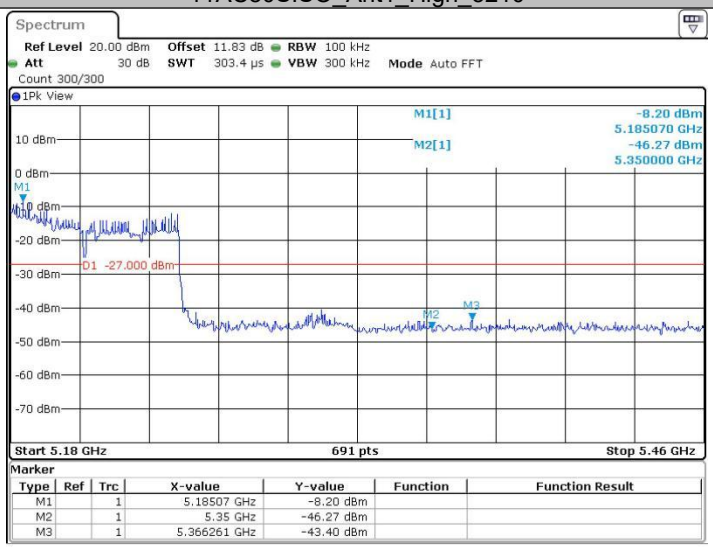


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.1854 GHz	-9.60 dBm		
M2		1	5.15 GHz	-40.76 dBm		
M3		1	5.1337 GHz	-36.91 dBm		

Date: 31.OCT.2023 10:54:00

11AC80SISO_Ant1_High_5210



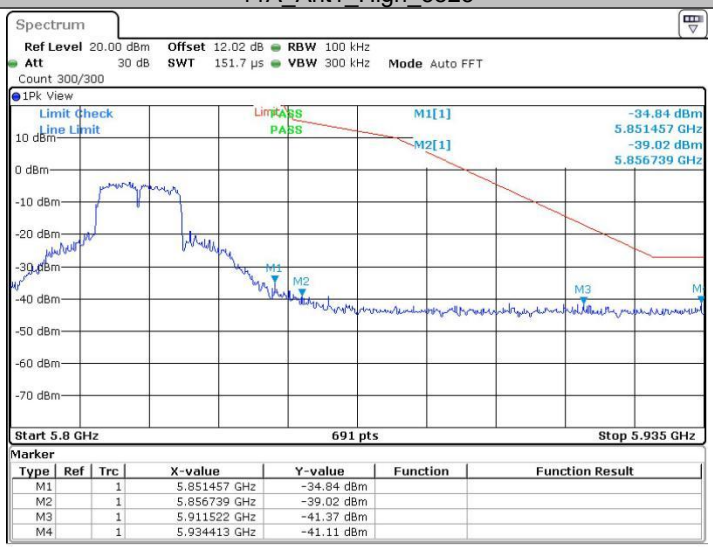
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.18507 GHz	-8.20 dBm		
M2		1	5.35 GHz	-46.27 dBm		
M3		1	5.366261 GHz	-43.40 dBm		

Date: 31.OCT.2023 10:54:15

11A_Ant1_Low_5745

11A_Ant1_High_5825



11N20SISO_Ant1_Low_5745

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.723167 GHz	-27.65 dBm		
M2		1	5.7185 GHz	-33.13 dBm		
M3		1	5.6995 GHz	-40.45 dBm		
M4		1	5.6485 GHz	-43.95 dBm		

Date: 31.OCT.2023 10:13:52

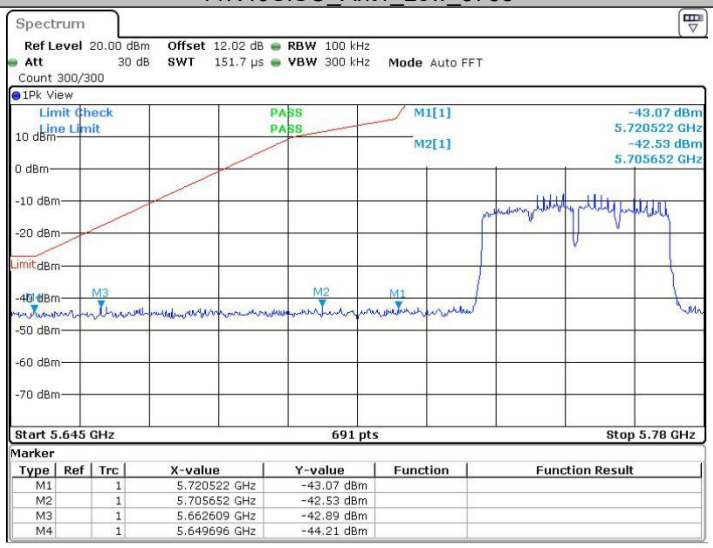
11N20SISO_Ant1_High_5825

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.850087 GHz	-34.49 dBm		
M2		1	5.856543 GHz	-37.26 dBm		
M3		1	5.905065 GHz	-41.70 dBm		
M4		1	5.926978 GHz	-41.92 dBm		

Date: 31.OCT.2023 10:17:32

11N40SISO_Ant1_Low_5755

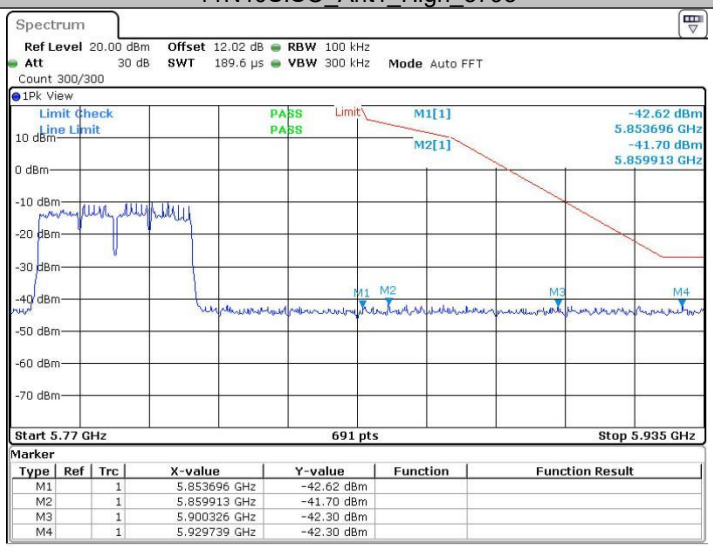


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.720522 GHz	-43.07 dBm		
M2		1	5.705652 GHz	-42.53 dBm		
M3		1	5.662609 GHz	-42.89 dBm		
M4		1	5.649696 GHz	-44.21 dBm		

Date: 31.OCT.2023 16:18:43

11N40SISO_Ant1_High_5795



Marker

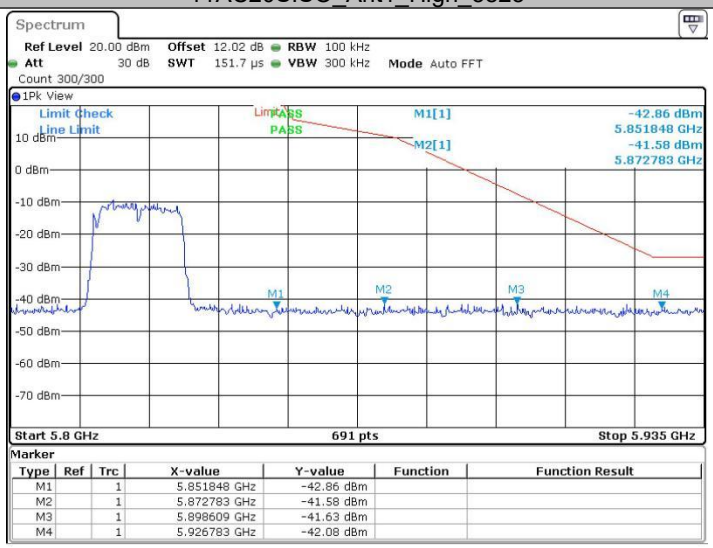
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.853696 GHz	-42.62 dBm		
M2		1	5.859913 GHz	-41.70 dBm		
M3		1	5.900326 GHz	-42.30 dBm		
M4		1	5.929739 GHz	-42.30 dBm		

Date: 31.OCT.2023 16:22:38

11AC20SISO_Ant1_Low_5745

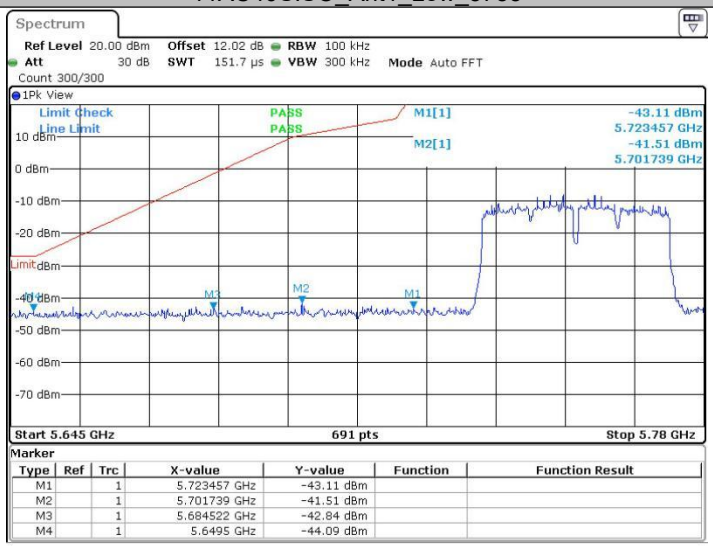
Date: 31.OCT.2023 16:26:16

11AC20SISO_Ant1_High_5825



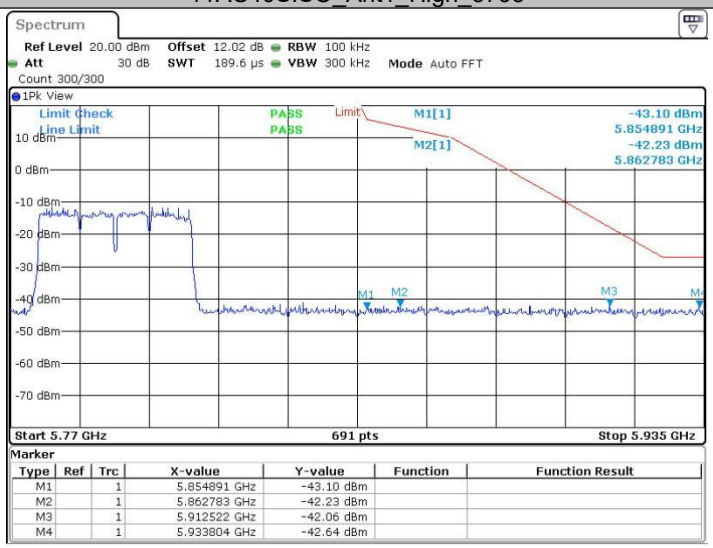
Date: 31.OCT.2023 16:32:05

11AC40SISO_Ant1_Low_5755



Date: 31.OCT.2023 16:36:02

11AC40SISO_Ant1_High_5795



Date: 31.OCT.2023 16:38:38

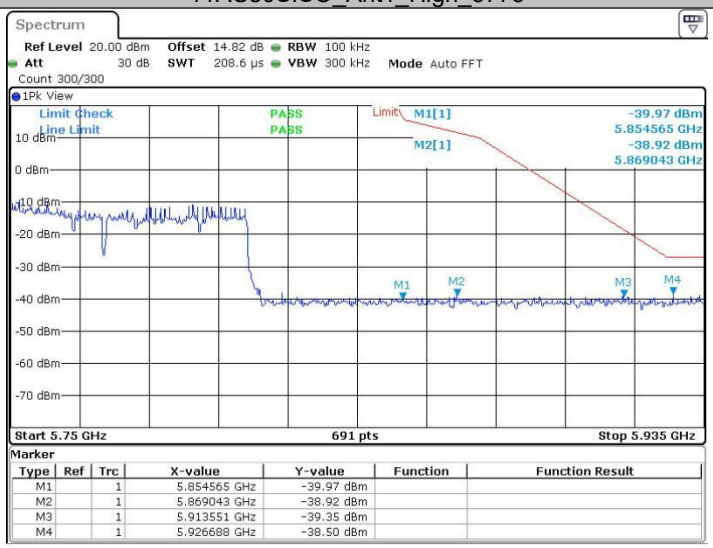
11AC80SISO_Ant1_Low_5775

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.721377 GHz	-43.36 dBm		
M2		1	5.709246 GHz	-42.51 dBm		
M3		1	5.655109 GHz	-42.93 dBm		
M4		1	5.645674 GHz	-42.74 dBm		

Date: 31.OCT.2023 16:41:23

11AC80SISO_Ant1_High_5775



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.854565 GHz	-39.97 dBm		
M2		1	5.869043 GHz	-38.92 dBm		
M3		1	5.913551 GHz	-39.35 dBm		
M4		1	5.926688 GHz	-38.50 dBm		

Date: 31.OCT.2023 16:41:41

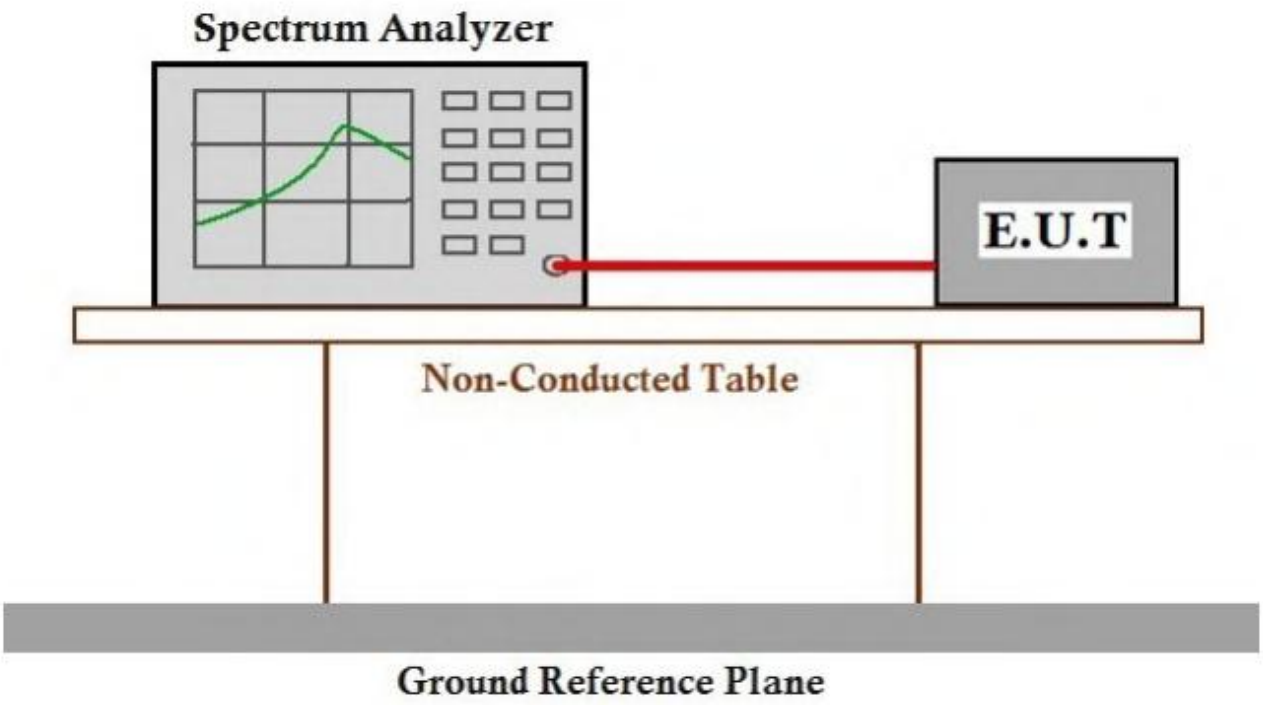
Appendix E): Frequency Stability

Test Requirement 47 CFR Part 15, Subpart C 15.407 (g)

Test Method: ANSI C63.10 (2013) Section 6.8

Limit:The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

Test Setup Diagram



Measurement Data

Frequency Stability Versus Temp.			
Operating Frequency: 5240 MHz			
Temp (℃)	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
50	VN	-39000.00	-7.442748
40		-39000.00	-7.442748
30		-39000.00	-7.442748
20		-39000.00	-7.442748
10		-39000.00	-7.442748
0		-39000.00	-7.442748

Frequency Stability Versus Temp.			
Operating Frequency: 5210 MHz			
Temp.	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
TN	VL	-39000.00	-7.485605
	VN	-39000.00	-7.485605
	VH	-39000.00	-7.485605

Frequency Stability Versus Temp.			
Operating Frequency: 5745 MHz			
Temp (℃)	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
50	VN	-43000.00	-7.484769
40		-43000.00	-7.484769
30		-44000.00	-7.658834
20		-43000.00	-7.484769
10		-43000.00	-7.484769
0		-44000.00	-7.658834

Frequency Stability Versus Temp.			
Operating Frequency: 5825 MHz			
Temp.	Volta ge	Deviation (Hz)	Frequency Drift (ppm)
TN	VL	-44000.00	-7.553648
	VN	-44000.00	-7.553648
	VH	-44000.00	-7.553648

Note: All the modulation and channels had been tested, but only the worst data recorded in the report.

Appendix F): Antenna Requirement

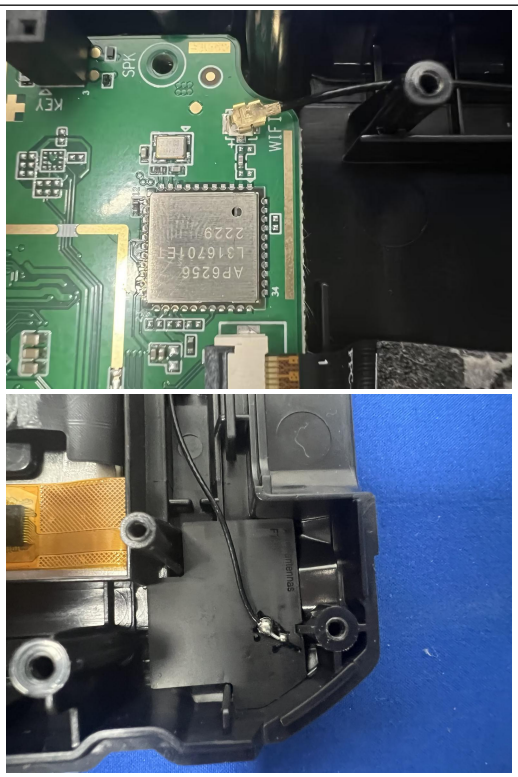
15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.407(a)(1) (2) requirement:

The conducted output power limit specified in paragraph (a) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (a) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:



The antenna is FPC antenna.The best case gain of the 5G WiFi antenna is 2.5dBi@Band 1, 4.58dBi@Band 4.

Appendix G): Operation in the absence of information to the transmit

15.407(c) requirement: 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 signal ling 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.
Operation in the absence of information to the transmit
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 signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission. (manufacturer declare)

Appendix H): AC Power Line Conducted Emission

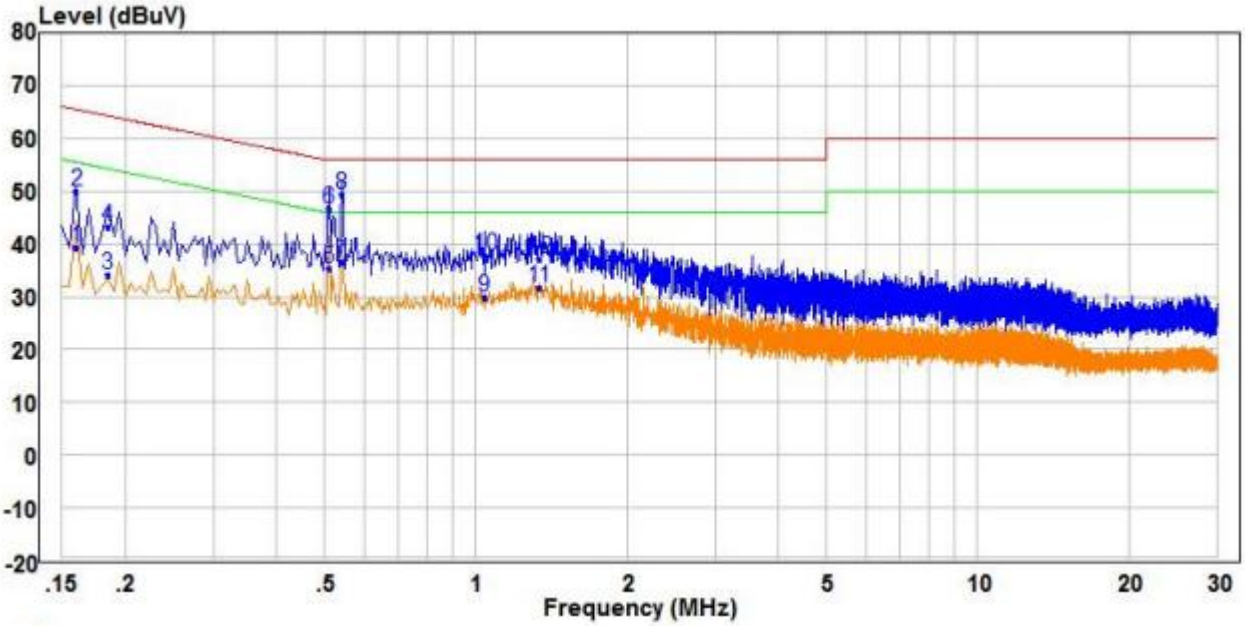
<table>
<tr><td>Test Procedure:</td><td>Test frequency range :150KHz-30MHz
1)The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr>
<tr><th>Quasi-peak</th><th>Average</th></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.
NOTE : The lower limit is applicable at the transition frequency</td></tr>
</table>

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

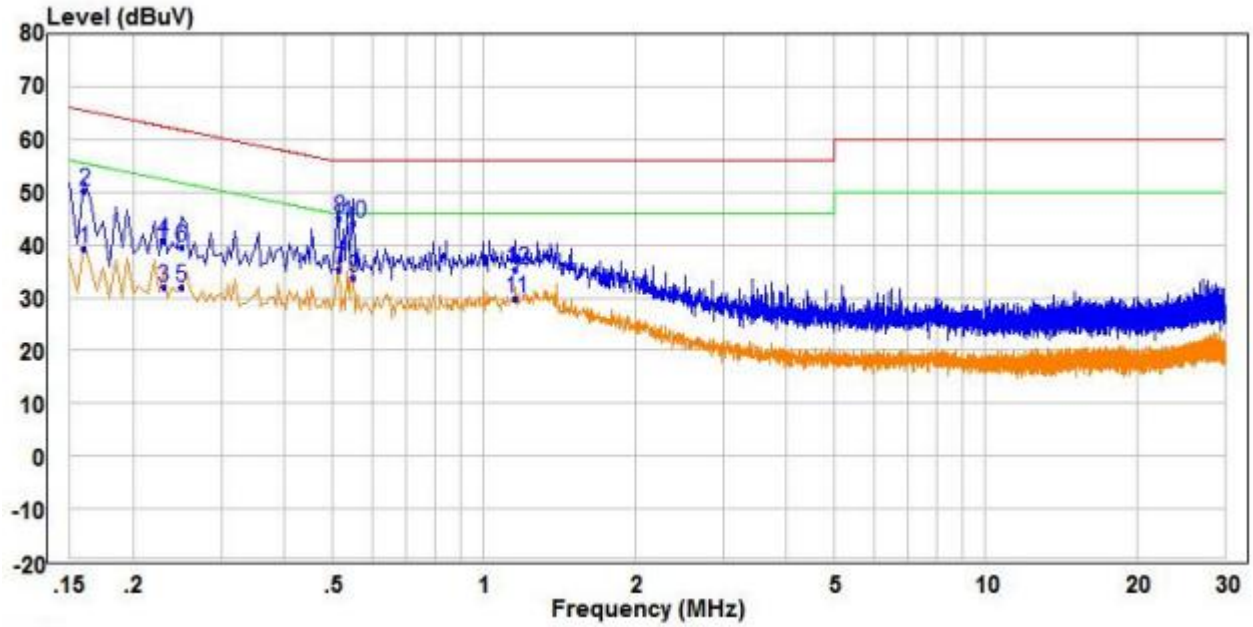
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.160	29.67	9.68	39.35	55.46	-16.11	Average	Line
2		0.160	40.27	9.68	49.95	65.46	-15.51	QP	Line
3		0.185	24.58	9.64	34.22	54.26	-20.04	Average	Line
4		0.185	33.70	9.64	43.34	64.26	-20.92	QP	Line
5		0.510	25.62	9.71	35.33	46.00	-10.67	Average	Line
6		0.510	36.79	9.71	46.50	56.00	-9.50	QP	Line
7	AV	0.540	26.81	9.74	36.55	46.00	-9.45	Average	Line
8	PP	0.540	39.66	9.74	49.40	56.00	-6.60	QP	Line
9		1.040	20.04	9.81	29.85	46.00	-16.15	Average	Line
10		1.040	27.88	9.81	37.69	56.00	-18.31	QP	Line
11		1.335	21.13	10.51	31.64	46.00	-14.36	Average	Line
12		1.335	26.78	10.51	37.29	56.00	-18.71	QP	Line

Neutral line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.160	29.51	9.68	39.19	55.46	-16.27	Average	Neutral
2		0.160	40.44	9.68	50.12	65.46	-15.34	QP	Neutral
3		0.230	22.31	9.56	31.87	52.45	-20.58	Average	Neutral
4		0.230	31.11	9.56	40.67	62.45	-21.78	QP	Neutral
5		0.250	22.33	9.54	31.87	51.76	-19.89	Average	Neutral
6		0.250	30.12	9.54	39.66	61.76	-22.10	QP	Neutral
7	PP	0.515	25.52	9.72	35.24	46.00	-10.76	Average	Neutral
8	QP	0.515	35.28	9.72	45.00	56.00	-11.00	QP	Neutral
9		0.550	23.96	9.75	33.71	46.00	-12.29	Average	Neutral
10		0.550	34.47	9.75	44.22	56.00	-11.78	QP	Neutral
11		1.160	20.14	9.71	29.85	46.00	-16.15	Average	Neutral
12		1.160	25.76	9.71	35.47	56.00	-20.53	QP	Neutral

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. The 6Mbps of rate of 802.11A_5240 is the worst case, only the worst data recorded in the report.

Appendix I): Restricted bands around fundamental frequency (Radiated Emission)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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 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 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. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
h. Test the EUT in the lowest channel , the Highest channel
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
j. Repeat above procedures until all frequencies measured was complete.

Limit:

Frequency	Limit (dBμV/m @3cm)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test plot as follows:

Worse case mode:		802.11a(6Mbps)		Test channel:		36	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	53.40	-3.63	49.77	74	-24.23	peak	H
5150.00	36.10	-3.63	32.47	54	-21.53	AVG	H
5150.00	51.48	-3.63	47.85	74	-26.15	peak	V
5150.00	37.64	-3.63	34.01	54	-19.99	AVG	V

Worse case mode:		802.11a(6Mbps)		Test channel:		48	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	54.40	-3.59	50.81	74	-23.19	peak	H
5350.00	39.89	-3.59	36.30	54	-17.70	AVG	H
5350.00	50.38	-3.59	46.79	74	-27.21	peak	V
5350.00	36.32	-3.59	32.73	54	-21.27	AVG	V

Worse case mode:		802.11a(6Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	51.43	-3.44	47.99	74	-26.01	peak	H
5725	37.46	-3.44	34.02	54	-19.98	AV	H
5725	49.06	-3.44	45.62	74	-28.38	peak	V
5725	35.56	-3.44	32.12	54	-21.88	AV	V

Worse case mode:		802.11a(6Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850	53.78	-3.42	50.36	74	-23.64	peak	H
5850	36.55	-3.42	33.13	54	-20.87	AV	H
5850	50.16	-3.42	46.74	74	-27.26	peak	V
5850	35.19	-3.42	31.77	54	-22.23	AV	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		36	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	54.00	-3.63	50.37	74	-23.63	peak	H
5150.00	37.27	-3.63	33.64	54	-20.36	AVG	H
5150.00	51.95	-3.63	48.32	74	-25.68	peak	V
5150.00	37.92	-3.63	34.29	54	-19.71	AVG	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		48	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	55.54	-3.59	51.95	74	-22.05	peak	H
5350.00	38.98	-3.59	35.39	54	-18.61	AVG	H
5350.00	51.25	-3.59	47.66	74	-26.34	peak	V
5350.00	35.92	-3.59	32.33	54	-21.67	AVG	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	52.46	-3.44	49.02	74	-24.98	peak	H
5725	37.83	-3.44	34.39	54	-19.61	AV	H
5725	49.94	-3.44	46.50	74	-27.50	peak	V
5725	35.71	-3.44	32.27	54	-21.73	AV	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850	54.09	-3.42	50.67	74	-23.33	peak	H
5850	37.70	-3.42	34.28	54	-19.72	AV	H
5850	49.59	-3.42	46.17	74	-27.83	peak	V
5850	35.29	-3.42	31.87	54	-22.13	AV	V

Worse case mode:		802.11n(HT40)(13.5Mbps)		Test channel:		38	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150	53.60	-3.63	49.97	74	-24.03	peak	H
5150	37.36	-3.63	33.73	54	-20.27	AVG	H
5150	52.02	-3.63	48.39	74	-25.61	peak	V
5150	37.53	-3.63	33.90	54	-20.10	AVG	V

Worse case mode:		802.11n(HT40)(13.5Mbps)		Test channel:		46	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	54.89	-3.59	51.30	74	-22.70	peak	H
5350.00	38.71	-3.59	35.12	54	-18.88	AVG	H
5350.00	51.99	-3.59	48.40	74	-25.60	peak	V
5350.00	35.32	-3.59	31.73	54	-22.27	AVG	V

Worse case mode:		802.11n(HT40)(13.5Mbps)		Test channel:		151	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	52.20	-3.44	48.76	74	-25.24	peak	H
5725	36.33	-3.44	32.89	54	-21.11	AV	H
5725	48.91	-3.44	45.47	74	-28.53	peak	V
5725	35.86	-3.44	32.42	54	-21.58	AV	V

Worse case mode:		802.11n(HT40)(13.5Mbps)		Test channel:		159	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850	53.24	-3.42	49.82	74	-24.18	peak	H
5850	37.49	-3.42	34.07	54	-19.93	AV	H
5850	49.23	-3.42	45.81	74	-28.19	peak	V
5850	35.03	-3.42	31.61	54	-22.39	AV	V

Worse case mode:		802.11ac(HT20)(6.5Mbps)		Test channel:		36	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	53.59	-3.63	49.96	74	-24.04	peak	H
5150.00	36.94	-3.63	33.31	54	-20.69	AVG	H
5150.00	51.78	-3.63	48.15	74	-25.85	peak	V
5150.00	37.88	-3.63	34.25	54	-19.75	AVG	V

Worse case mode:		802.11ac(HT20)(6.5Mbps)		Test channel:		48	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	55.43	-3.59	51.84	74	-22.16	peak	H
5350.00	38.31	-3.59	34.72	54	-19.28	AVG	H
5350.00	51.12	-3.59	47.53	74	-26.47	peak	V
5350.00	36.21	-3.59	32.62	54	-21.38	AVG	V

Worse case mode:		802.11ac(HT20)(6.5Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	51.63	-3.44	48.19	74	-25.81	peak	H
5725	37.11	-3.44	33.67	54	-20.33	AV	H
5725	48.99	-3.44	45.55	74	-28.45	peak	V
5725	36.09	-3.44	32.65	54	-21.35	AV	V

Worse case mode:		802.11ac(HT20)(6.5Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850	52.85	-3.42	49.43	74	-24.57	peak	H
5850	37.17	-3.42	33.75	54	-20.25	AV	H
5850	48.29	-3.42	44.87	74	-29.13	peak	V
5850	35.29	-3.42	31.87	54	-22.13	AV	V

Worse case mode:		802.11ac(VHT40)(13.5Mbps)		Test channel:		38	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	53.26	-3.63	49.63	74	-24.37	peak	H
5150.00	37.20	-3.63	33.57	54	-20.43	AVG	H
5150.00	51.57	-3.63	47.94	74	-26.06	peak	V
5150.00	37.09	-3.63	33.46	54	-20.54	AVG	V

Worse case mode:		802.11ac(VHT40)(13.5Mbps)		Test channel:		46	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	55.05	-3.59	51.46	74	-22.54	peak	H
5350.00	38.60	-3.59	35.01	54	-18.99	AVG	H
5350.00	50.47	-3.59	46.88	74	-27.12	peak	V
5350.00	35.23	-3.59	31.64	54	-22.36	AVG	V

Worse case mode:		802.11ac(VHT40)(13.5Mbps)		Test channel:		151	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	51.70	-3.44	48.26	74	-25.74	peak	H
5725	37.76	-3.44	34.32	54	-19.68	AV	H
5725	48.68	-3.44	45.24	74	-28.76	peak	V
5725	36.81	-3.44	33.37	54	-20.63	AV	V

Worse case mode:		802.11ac(VHT40)(13.5Mbps)		Test channel:		159	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
5850	54.17	-3.42	50.75	74	-23.25		H
5850	37.08	-3.42	33.66	54	-20.34	AV	H
5850	49.34	-3.42	45.92	74	-28.08	peak	V
5850	35.47	-3.42	32.05	54	-21.95	AV	V

Worse case mode:		802.11ac(VHT80)(29.3Mbps)		Test channel:		42	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	53.26	-3.63	49.63	74	-24.37	peak	H
5150.00	37.00	-3.63	33.37	54	-20.63	AVG	H
5150.00	50.30	-3.63	46.67	74	-27.33	peak	V
5150.00	38.77	-3.63	35.14	54	-18.86	AVG	V
5350.00	55.41	-3.59	51.82	74	-22.18	peak	H
5350.00	38.81	-3.59	35.22	54	-18.78	AVG	H
5350.00	51.75	-3.59	48.16	74	-25.84	peak	V
5350.00	35.33	-3.59	31.74	54	-22.26	AVG	V

Worse case mode:		802.11ac(VHT80)(29.3Mbps)		Test channel:		155	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	51.64	-3.44	48.20	74	-25.80	peak	H
5725	37.40	-3.44	33.96	54	-20.04	AV	H
5725	48.73	-3.44	45.29	74	-28.71	peak	V
5725	35.50	-3.44	32.06	54	-21.94	AV	V
5850	53.56	-3.42	50.14	74	-23.86	peak	H
5850	36.34	-3.42	32.92	54	-21.08	AV	H
5850	48.67	-3.42	45.25	74	-28.75	peak	V
5850	36.19	-3.42	32.77	54	-21.23	AV	V

Note:
1) Through Pre-scan transmitting mode with all kind of modulation and data rate, Only the worst case is recorded in the report.
2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading - Correct Factor
Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Appendix J): Radiated Spurious Emissions

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota 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.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre)
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
j. Repeat above procedures until all frequencies measured was complete.

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBμV/cm)	Remark	Measurement distance (cm)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

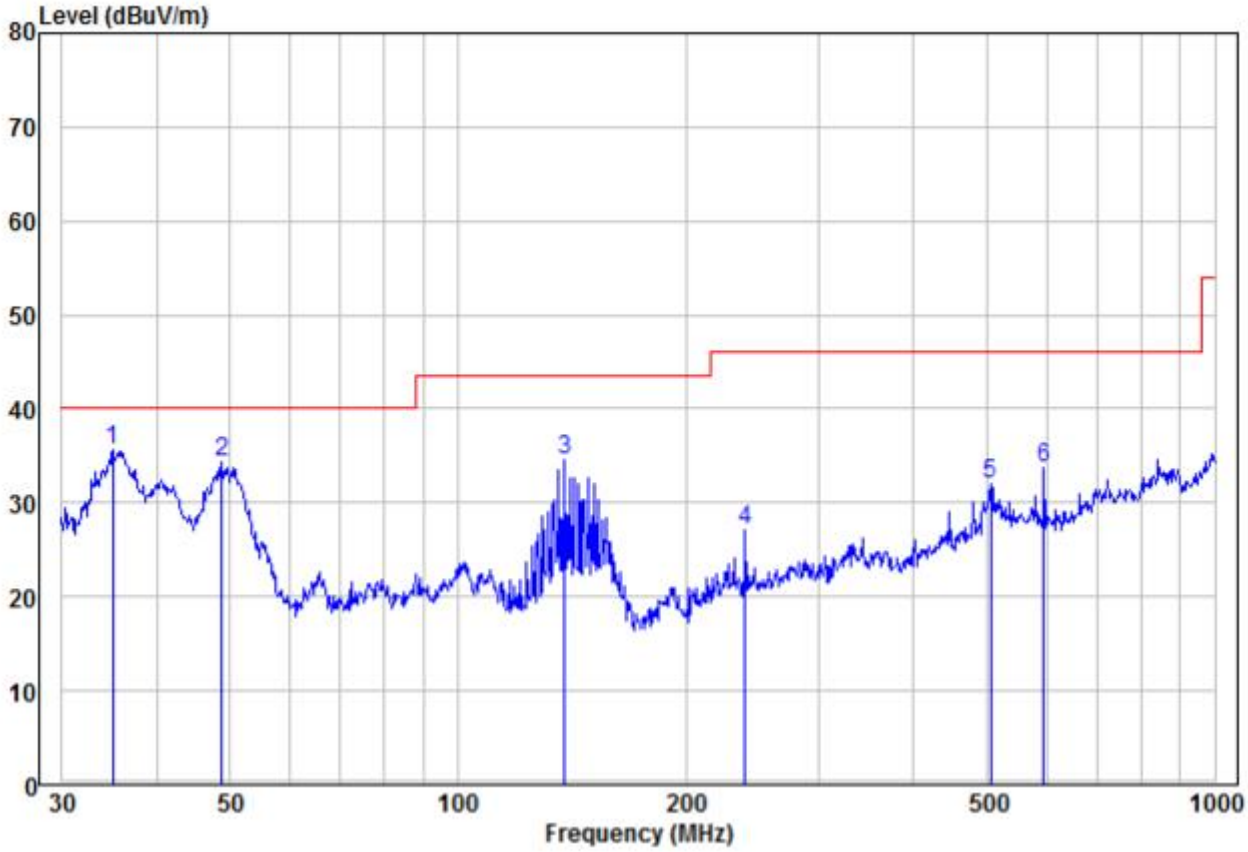
Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test result: PASS

Test Data:

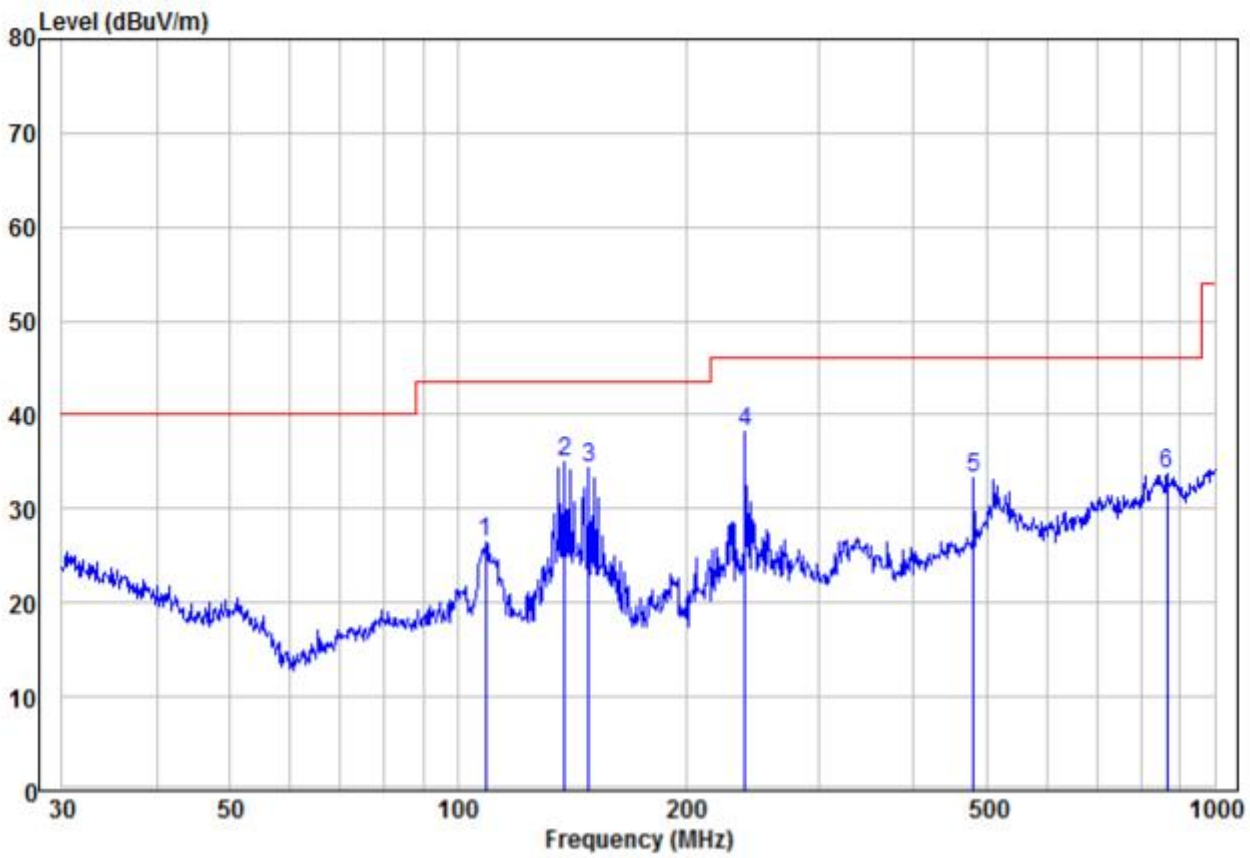
Radiated Emission below 1GHz

30MHz~1GHz		
Test mode:	Transmitting (802.11a 36CH)	Vertical



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1 pp	35.00	21.02	14.60	35.62	40.00	-4.38	Peak	VERTICAL
2	48.84	25.79	8.63	34.42	40.00	-5.58	Peak	VERTICAL
3	138.39	26.10	8.41	34.51	43.50	-8.99	Peak	VERTICAL
4	239.99	15.51	11.56	27.07	46.00	-18.93	Peak	VERTICAL
5	506.48	13.57	18.35	31.92	46.00	-14.08	Peak	VERTICAL
6	595.13	15.03	18.76	33.79	46.00	-12.21	Peak	VERTICAL

Test mode:	Transmitting (802.11a 36CH)	Horizontal



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	108.65	16.12	10.24	26.36	43.50	-17.14	Peak	HORIZONTAL
2	138.39	26.56	8.41	34.97	43.50	-8.53	Peak	HORIZONTAL
3	148.96	25.91	8.43	34.34	43.50	-9.16	Peak	HORIZONTAL
4 pp	239.99	26.68	11.56	38.24	46.00	-7.76	Peak	HORIZONTAL
5	480.53	15.64	17.68	33.32	46.00	-12.68	Peak	HORIZONTAL
6	866.09	9.64	23.98	33.62	46.00	-12.38	Peak	HORIZONTAL

Transmitter Emission above 1GHz

Test mode:	802.11a(6Mbps)			Test channel:		36 CH	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
10360	53.62	2.26	55.88	74	-18.12	peak	H
10360	36.89	2.26	39.15	54	-14.85	AVG	H
15540	52.24	3.75	55.99	74	-18.01	peak	H
15540	37.07	3.75	40.82	54	-13.18	AVG	H
10360	55.11	2.26	57.37	74	-16.63	peak	V
10360	39.66	2.26	41.92	54	-12.08	AVG	V
15540	50.57	3.75	54.32	74	-19.68	peak	V
15540	35.51	3.75	39.26	54	-14.74	AVG	V

Test mode:	802.11a(6Mbps)			Test channel:		48 CH	
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
10480	53.02	2.31	55.33	74	-18.67	peak	H
10480	37.96	2.31	40.27	54	-13.73	AVG	H
15720	49.12	3.79	52.91	74	-21.09	peak	H
15720	35.54	3.79	39.33	54	-14.67	AVG	H
10480	52.52	2.31	54.83	74	-19.17	peak	V
10480	36.71	2.31	39.02	54	-14.98	AVG	V
15720	49.76	3.79	53.55	74	-20.45	peak	V
15720	36.08	3.79	39.87	54	-14.13	AVG	V

Test mode:	802.11a(6Mbps)			Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
11490	52.18	2.54	54.72	74	-19.28	peak	H
11490	37.15	2.54	39.69	54	-14.31	AVG	H
17235	49.67	3.94	53.61	74	-20.39	peak	H
17235	36.70	3.94	40.64	54	-13.36	AVG	H
11490	53.44	2.54	55.98	74	-18.02	peak	V
11490	37.97	2.54	40.51	54	-13.49	AVG	V
17235	50.02	3.94	53.96	74	-20.04	peak	V
17235	37.32	3.94	41.26	54	-12.74	AVG	V

Test mode:	802.11a(6Mbps)			Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
11650	52.88	2.58	55.46	74	-18.54	peak	H
11650	37.14	2.58	39.72	54	-14.28	AVG	H
17475	51.15	4.02	55.17	74	-18.83	peak	H
17475	36.83	4.02	40.85	54	-13.15	AVG	H
11650	53.82	2.58	56.40	74	-17.60	peak	V
11650	37.38	2.58	39.96	54	-14.04	AVG	V
17475	50.67	4.02	54.69	74	-19.31	peak	V
17475	37.33	4.02	41.35	54	-12.65	AVG	V

Remark:

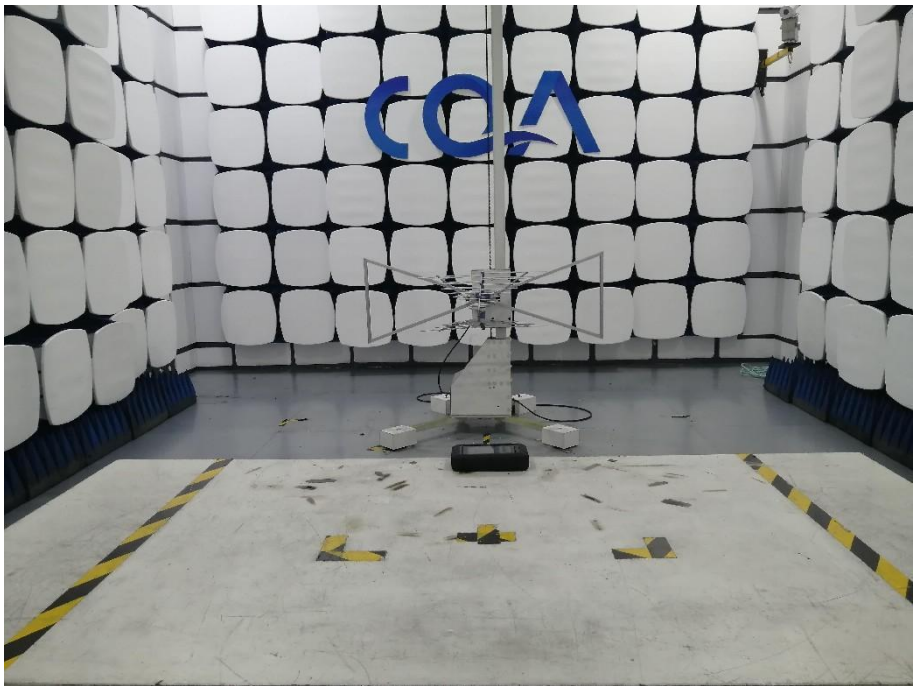
1) The 802.11a 6Mbps of rate is the worst case, only the worst data recorded in the report.
2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
   Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
3) Scan from 9kHz to 40GHz,The disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

8 Photographs - EUT Test Setup

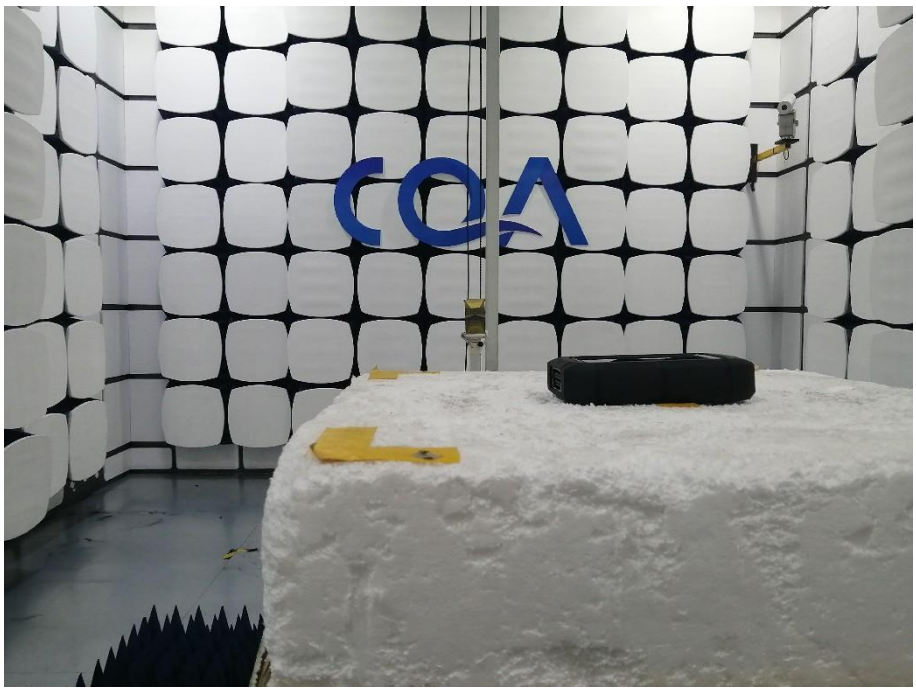
8.1 Radiated Spurious Emission

9kHz~30MHz:

30MHz~1GHz:



Above 1GHz:



8.2 Conducted Emission

9 Photographs - EUT Constructional Details

Refer to Photographs - EUT Constructional Details OF EUT for CQASZ20230901735E-01.

*** END OF REPORT ***