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7.9.2 Test Mode Description

Mode Pre-scan / Final test Code

Description

Final test 05

Final test

Final test

TX mode (U-NII-1) Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

07

06

TX mode (U-NII-2C) Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Final test 80 TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.



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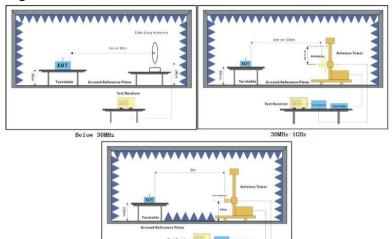


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7.9.3 Test Setup Diagram





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7.9.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. 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.
- e. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- 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 the worst case.
- j. Repeat above procedures until all frequencies measured was complete.
- k: For WLAN radiated test, according to the conducted power and verify test the SISO & MIMO mode, the worst-case is SISO mode for 802.11a, MIMO mode for 802.11n/ac, therefore, all final test are performed in SISO & MIMO mode and reported.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



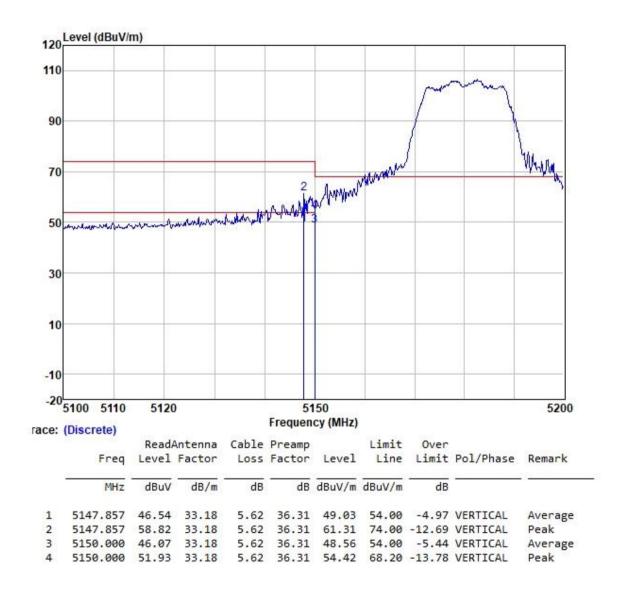


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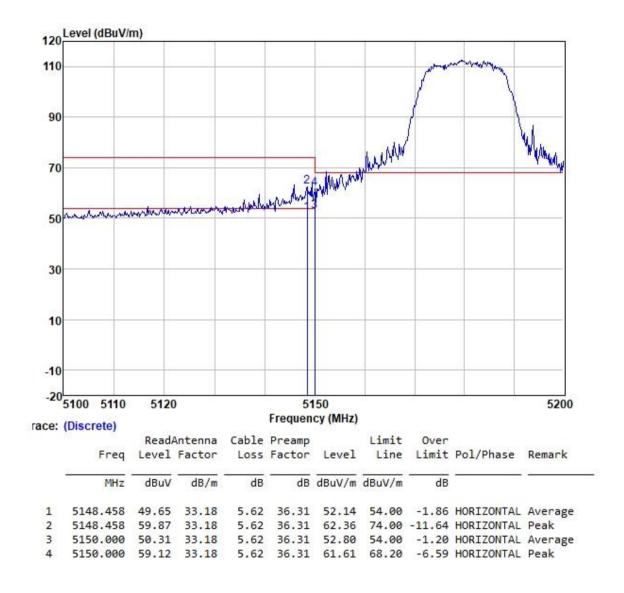


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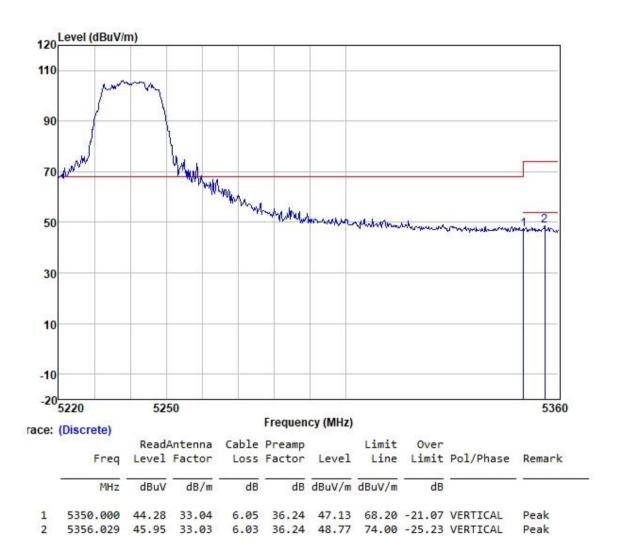


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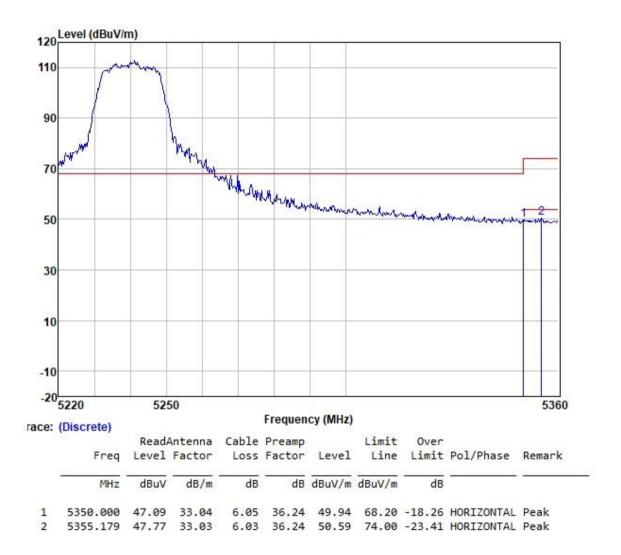


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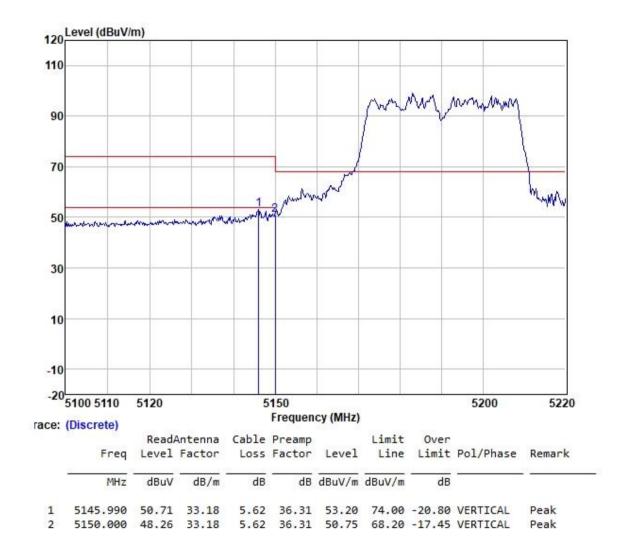


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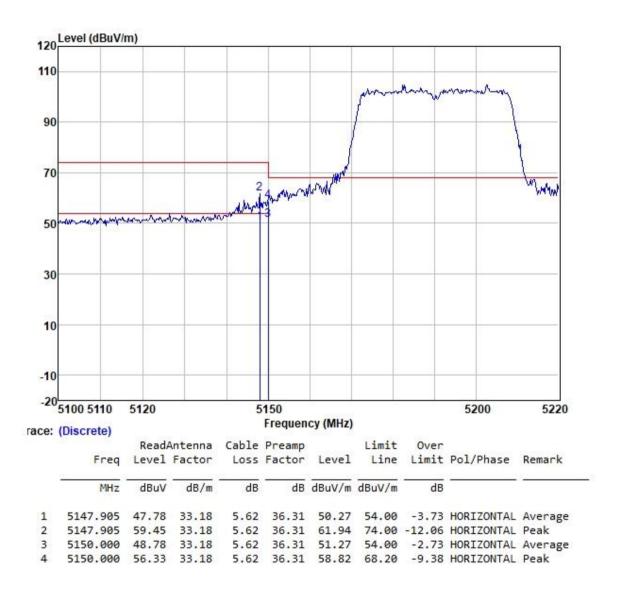


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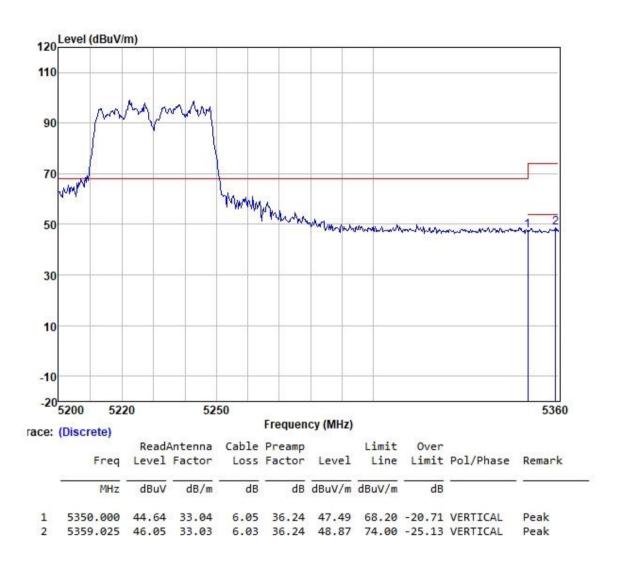


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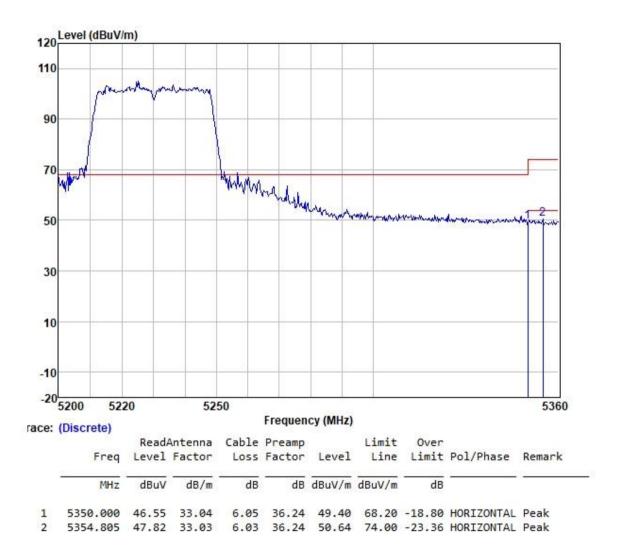


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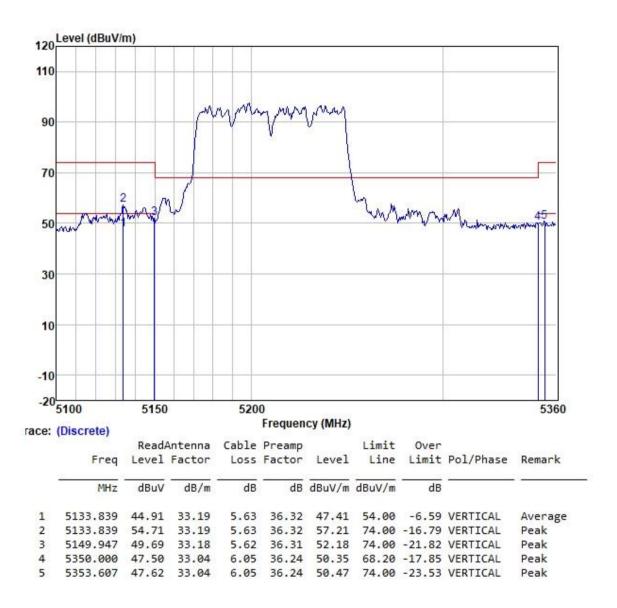


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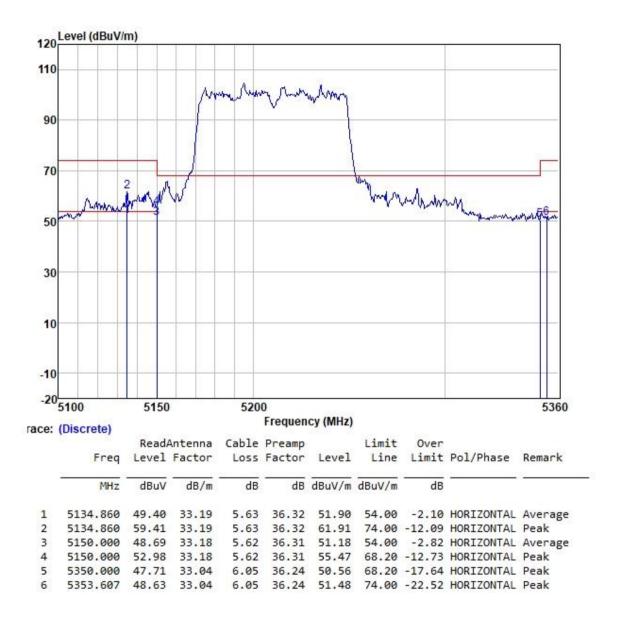


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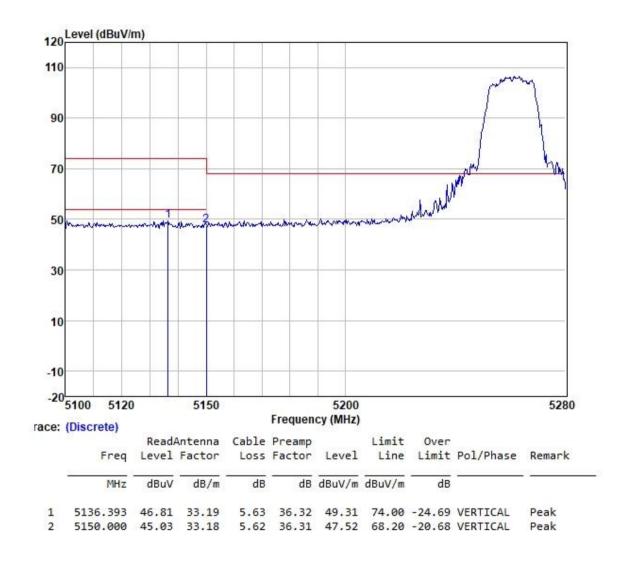


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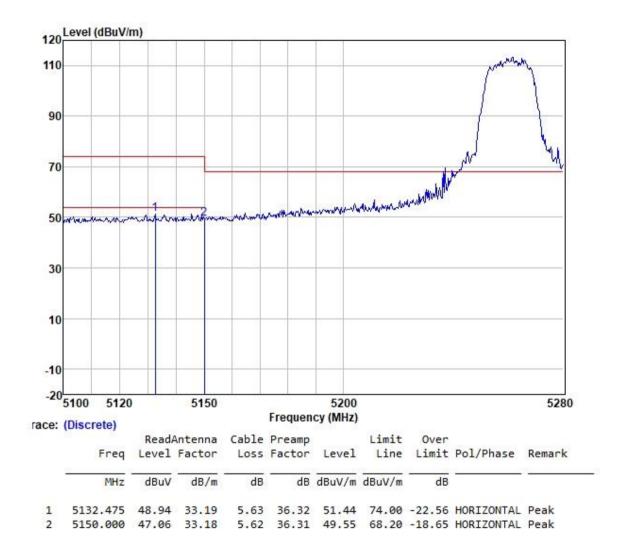


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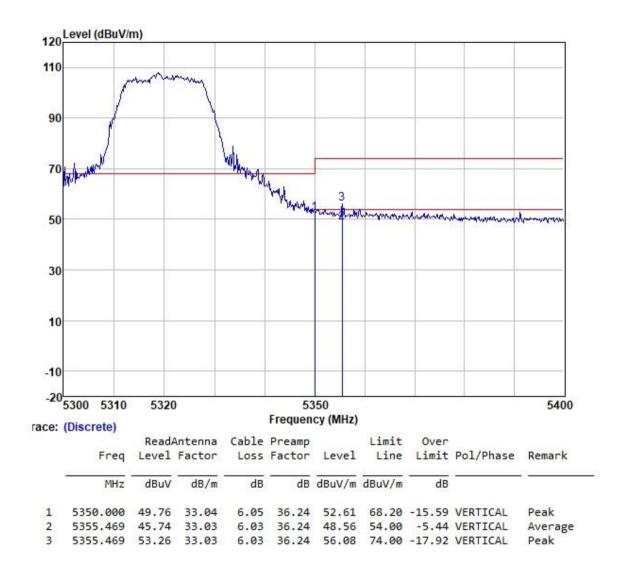


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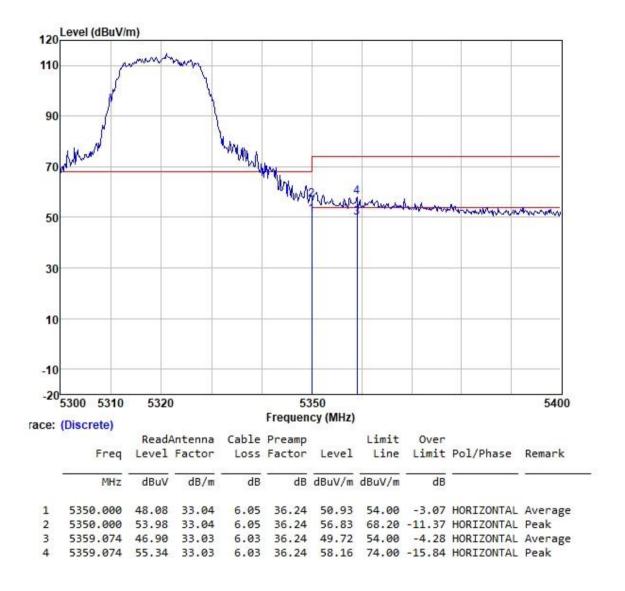


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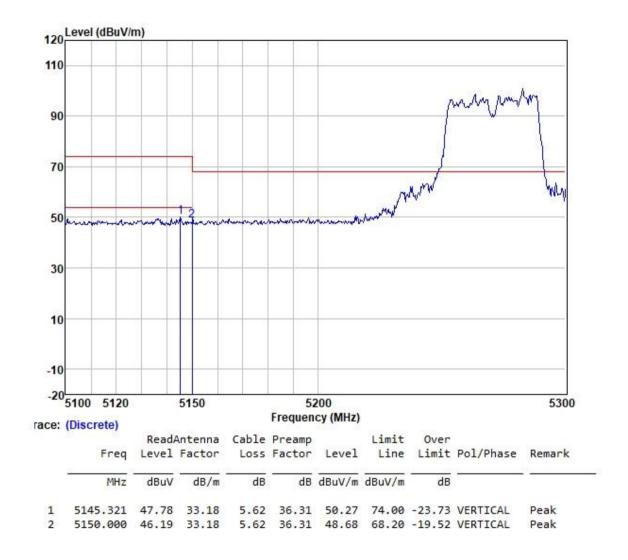


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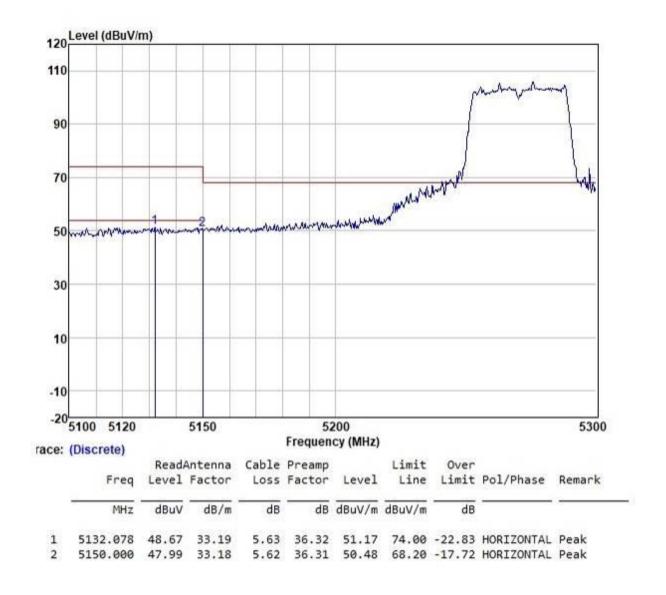


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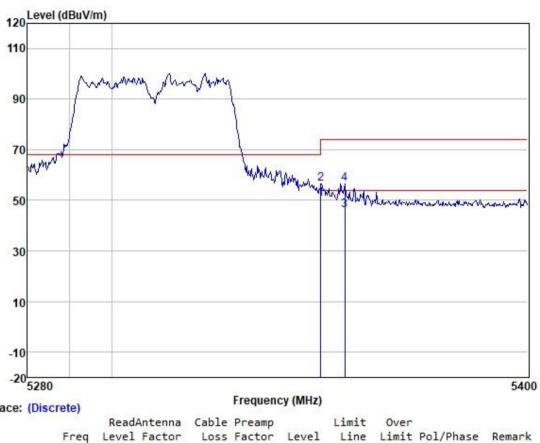


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race:	(Discrete)				requen	Cy (IMITZ)					
	Freq		Antenna Factor				Limit Line		Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			-
1	5350.000	47.71	33.04	6.05	36.24	50.56	54.00	-3.44	VERTICAL	Average	
2	5350.000	53.62	33.04	6.05	36.24	56.47	68.20	-11.73	VERTICAL	Peak	
3	5355.767	43.41	33.03	6.03	36.24	46.23	54.00	-7.77	VERTICAL	Average	
4	5355.767	53.81	33.03	6.03	36.24	56.63	74.00	-17.37	VERTICAL	Peak	



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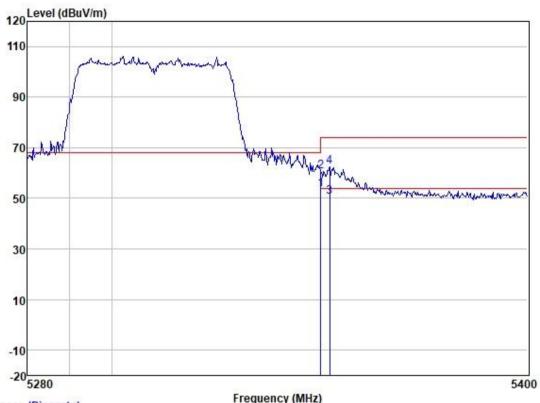


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гасе:	(Discrete)				Frequen	cy (MHz)				
	Freq			enna Cable tor Loss			Limit Line			Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		8/4
1	5350.000	50.58	33.04	6.05	36.24	53.43	54.00	-0.57	HORIZONTAL	Average
2	5350.000	57.75	33.04	6.05	36.24	60.60	68.20	-7.60	HORIZONTAL	Peak
3	5352.157	47.80	33.04	6.05	36.24	50.65	54.00	-3.35	HORIZONTAL	Average
4	5352.157	59.54	33.04	6.05	36.24	62.39	74.00	-11.61	HORTZONTAL	Peak



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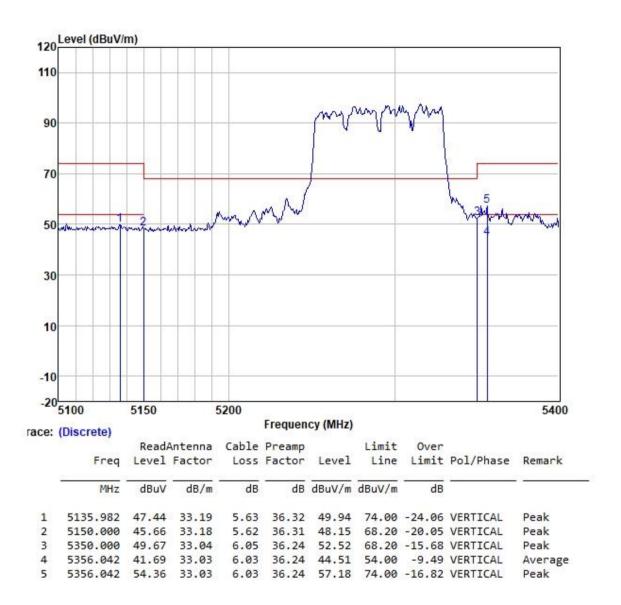


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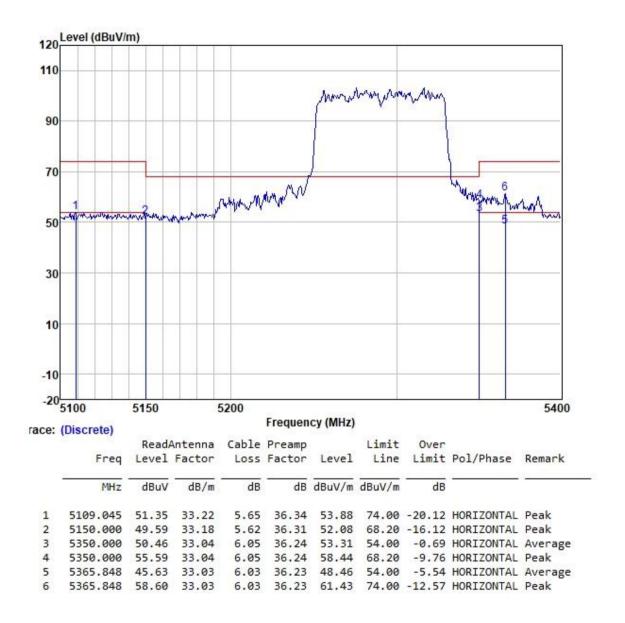


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Test Mode: 06; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low





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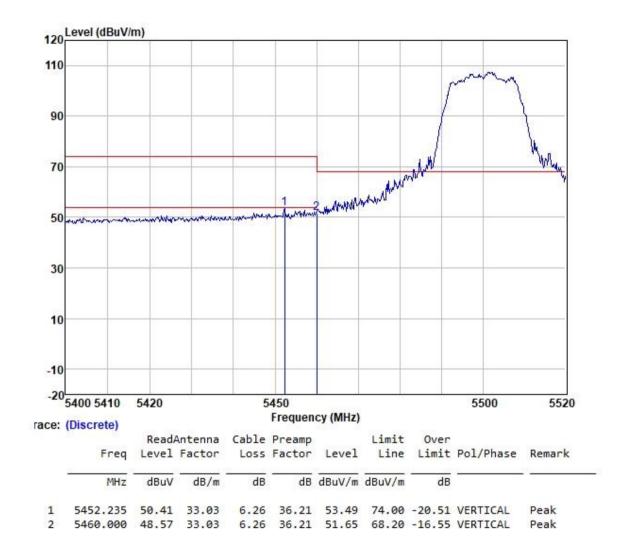


EMC-TRF-01 Rev 1.1

Report No.: GZCR220600077105

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Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low





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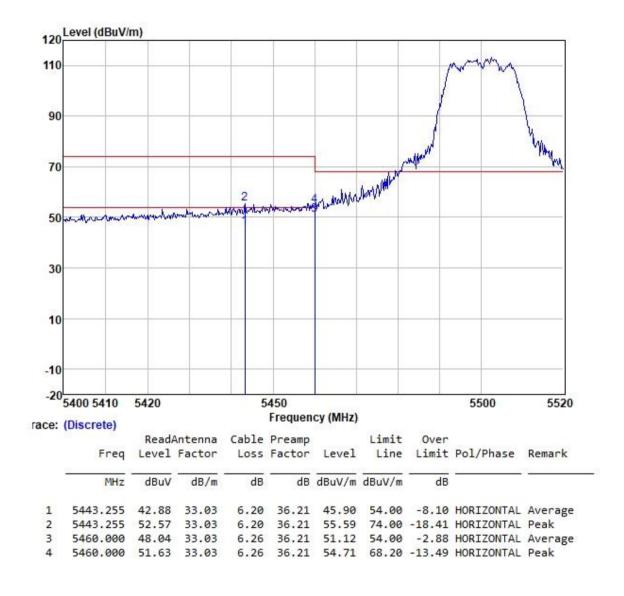


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Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low





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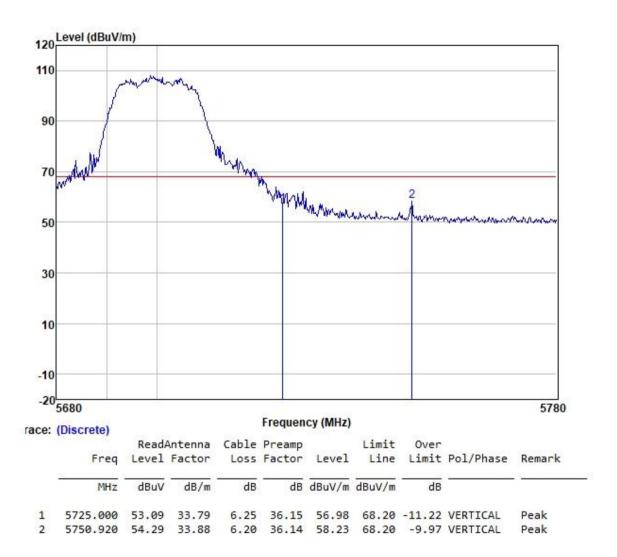


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Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High





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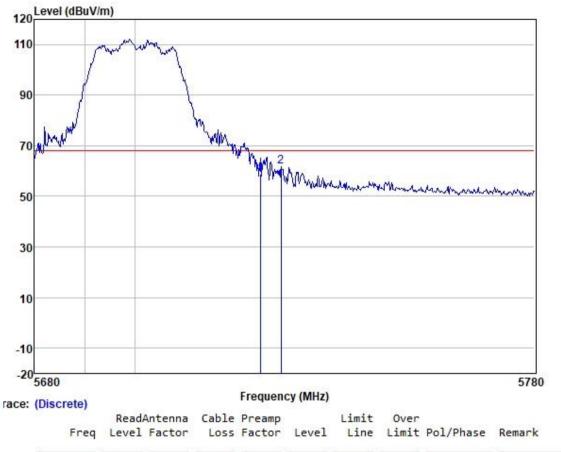


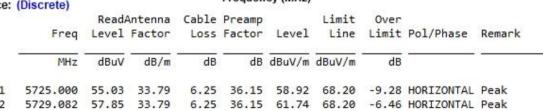
EMC-TRF-01 Rev 1.1

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Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High







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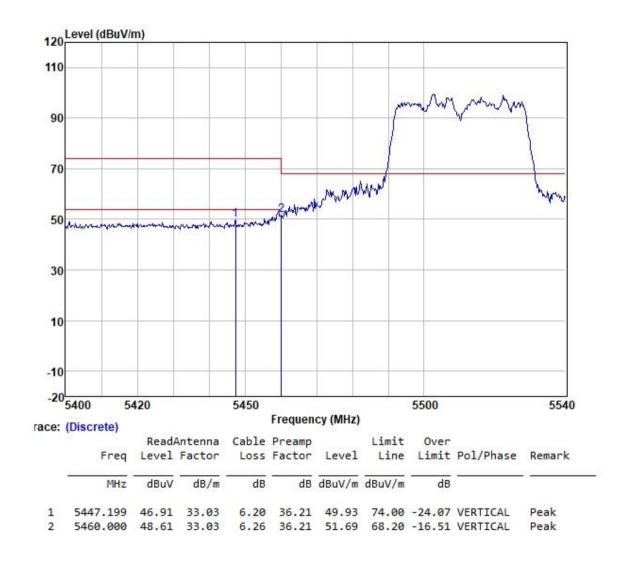


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Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low





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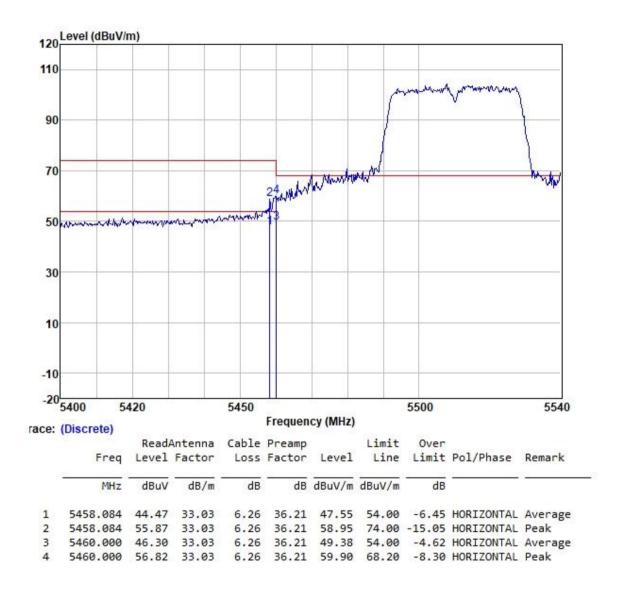


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Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low





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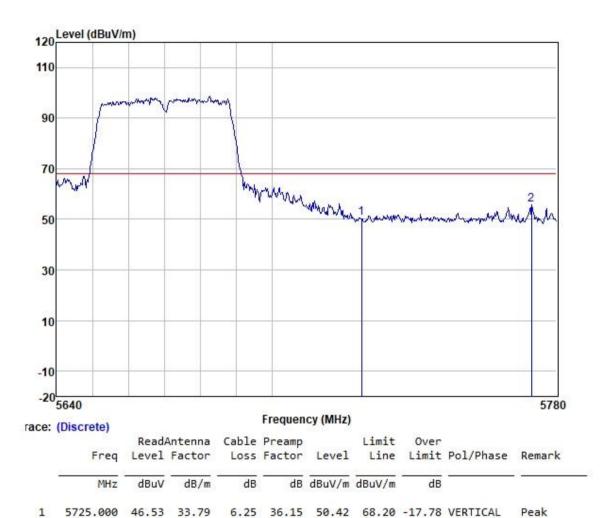


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Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



5772.918 51.61 34.05 6.10 36.14 55.62 68.20 -12.58 VERTICAL



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Peak

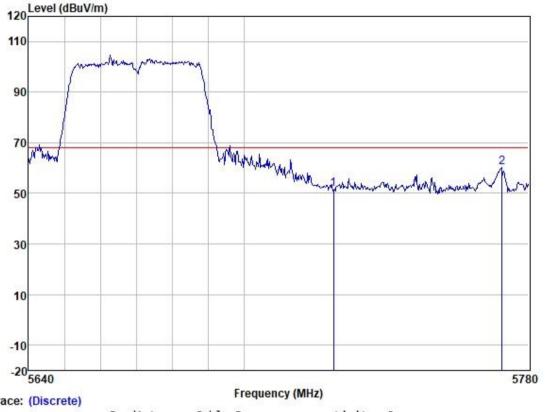


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Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race:	(Discrete)				requen	Cy (IMITZ)				
		Read	Antenna	Cable	Preamp		Limit	0ver		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Y	<u> </u>
1	5725.000	47.73	33.79	6.25	36.15	51.62	68.20	-16.58	HORIZONTAL	Peak

5772.494 56.41 34.05 6.10 36.14 60.42 68.20 -7.78 HORIZONTAL Peak



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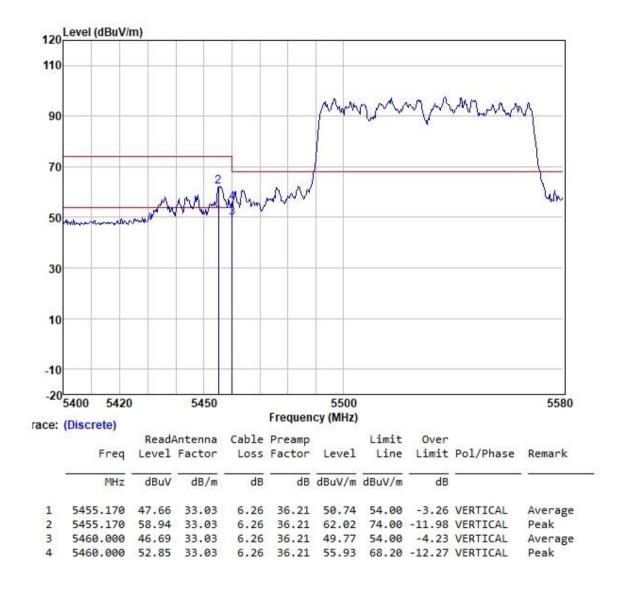


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Test Mode: 07; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low





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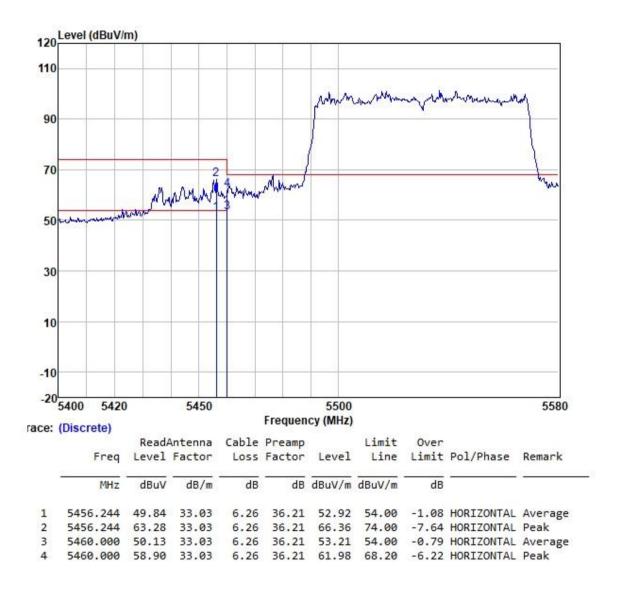


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Test Mode: 07; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low





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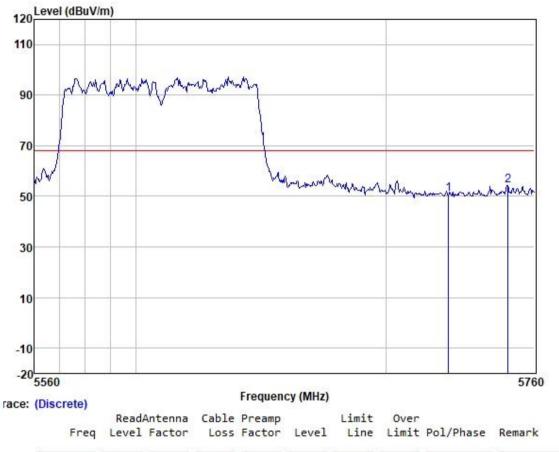


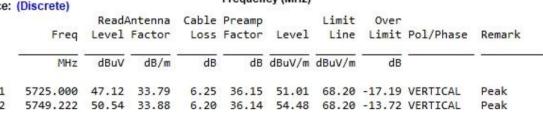
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Test Mode: 07; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:High







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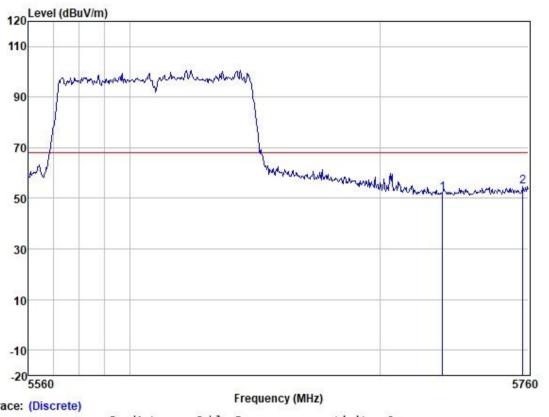


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Test Mode: 07; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:High



race:	(Discrete)				Frequen	cy (MHz)				
	2) 2)		Antenna Factor				Limit Line		Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Y	
1	5725.000	48.22	33.79	6.25	36.15	52.11	68.20	-16.09	HORIZONTAL	Peak
2	5757.558	50.74	33.97	6.15	36.14	54.72	68.20	-13.48	HORIZONTAL	Peak



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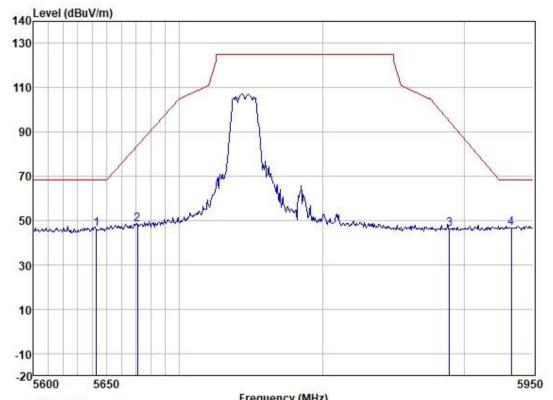


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Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race:	(Discrete)				rrequen							
	Freq	Freq			a Cable r Loss			Limit Line	- LOUIS NO. 10	Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			_	
1	5642.940	43.97	31.95	6.35	36.16	46.11	68.20	-22.09	VERTICAL	Peak		
2	5671.063	46.14	31.97	6.37	36.16	48.32	83.83	-35.51	VERTICAL	Peak		
3	5889.707	43.91	32.29	5.93	36.12	46.01	94.33	-48.32	VERTICAL	Peak		
4	5933.790	44.51	32.34	6.00	36.11	46.74	68.20	-21.46	VERTICAL	Peak		



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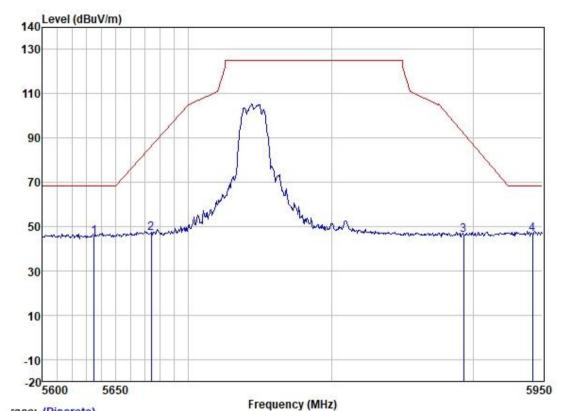


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Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



ace.	(Discrete) Freq				Cable Preamp Limit Loss Factor Level Line					Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		5/4
1	5635.078	43.38	31.93	6.33	36.17	45.47	68.20	-22.73	HORIZONTAL	Peak
2	5674.158	44.92	31.99	6.38	36.16	47.13	86.12	-38.99	HORIZONTAL	Peak
3	5893.279	44.15	32.31	5.90	36.12	46.24	91.68	-45.44	HORIZONTAL	Peak

5942.790 44.36 32.36 6.05 36.11 46.66 68.20 -21.54 HORIZONTAL Peak



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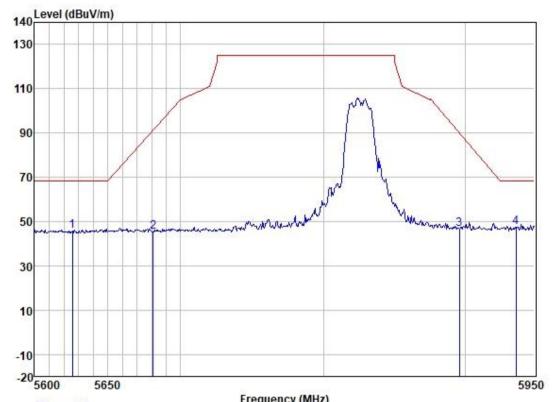


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Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race:	(Discrete)				requen						
	Freq		Antenna Factor				Limit Line		Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			_
1	5625.861	43.46	31.93	6.33	36.17	45.55	68.20	-22.65	VERTICAL	Peak	
2	5681.042	43.21	31.99	6.38	36.16	45.42	91.21	-45.79	VERTICAL	Peak	
3	5896.138	44.45	32.31	5.90	36.12	46.54	89.56	-43.02	VERTICAL	Peak	
4	5936.668	45.15	32.34	6.00	36.11	47.38	68.20	-20.82	VERTICAL	Peak	



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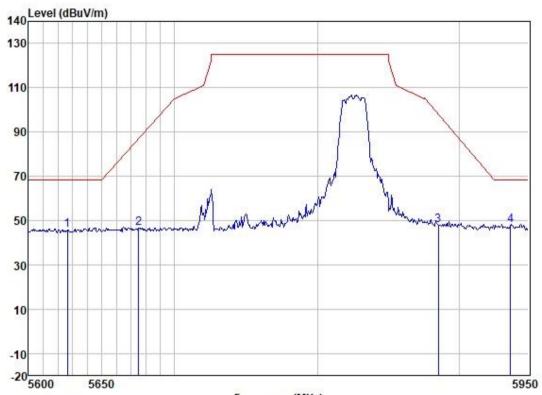


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Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



4.5	1700		Frequency	(MHz)
race: (D	iscrete)			

	10	Dead	Antenna	Cable	Dreamn	amp Limit		Over		
	Freq								Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		84
1	5626.543	43.41	31.93	6.33	36.17	45.50	68.20	-22.70	HORIZONTAL	Peak
2	5675.190	44.45	31.99	6.38	36.16	46.66	86.88	-40.22	HORIZONTAL	Peak
3	5885.067	45.88	32.29	5.93	36.12	47.98	97.78	-49.80	HORIZONTAL	Peak
4	5937.028	45.47	32.34	6.00	36.11	47.70	68.20	-20.50	HORIZONTAL	Peak



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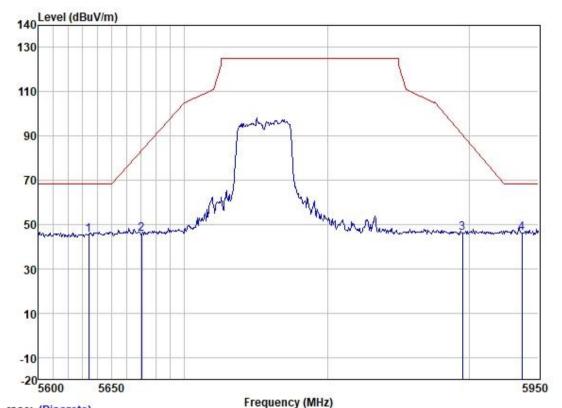


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Test Mode: 08; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



	ReadAntenna	Cable Preamp		Limit	Over		
Freq	Level Factor	Loss Factor	Level	Line	Limit	Pol/Phase	Remark

	МПZ	авич	QD/M	аь	аь	abuv/m	abuv/m	аь			
1	5634.053	43.38	31.93	6.33	36.17	45.47	68.20	-22.73	VERTICAL	Peak	
2	5670.375	43.32	31.97	6.37	36.16	45.50	83.32	-37.82	VERTICAL	Peak	
3	5895.423	44.13	32.31	5.90	36.12	46.22	90.09	-43.87	VERTICAL	Peak	
4	5938.108	43.77	32.34	6.00	36.11	46.00	68.20	-22.20	VERTICAL	Peak	



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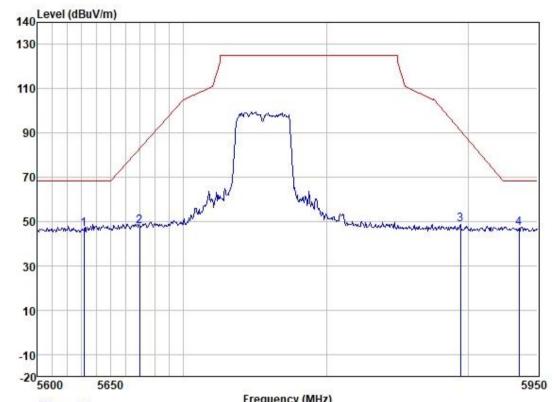


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Test Mode: 08; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race	(Discrete)				rrequen	Cy (minz)				
	Freq		Antenna Factor				Limit Line		Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		3. <u>1</u>
1	5631.663	44.39	31.93	6.33	36.17	46.48	68.20	-21.72	HORIZONTAL	Peak
2	5669.688	45.74	31.97	6.37	36.16	47.92	82.81	-34.89	HORIZONTAL	Peak
3	5894.708	46.60	32.31	5.90	36.12	48.69	90.62	-41.93	HORIZONTAL	Peak
4	5936.668	44.74	32.34	6.00	36.11	46.97	68.20	-21.23	HORIZONTAL	Peak



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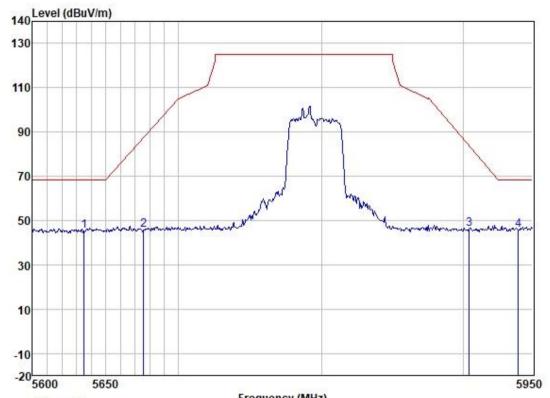


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Test Mode: 08; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race:	(Discrete)									
	20		Antenna Factor				Limit Line		Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5635.078	43.08	31.93	6.33	36.17	45.17	68.20	-23.03	VERTICAL	Peak
2	5675.878	43.48	31.99	6.38	36.16	45.69	87.39	-41.70	VERTICAL	Peak
3	5904.365	44.09	32.31	5.90	36.12	46.18	83.46	-37.28	VERTICAL	Peak
4	5939.548	43.52	32.34	6.00	36.11	45.75	68.20	-22.45	VERTICAL	Peak



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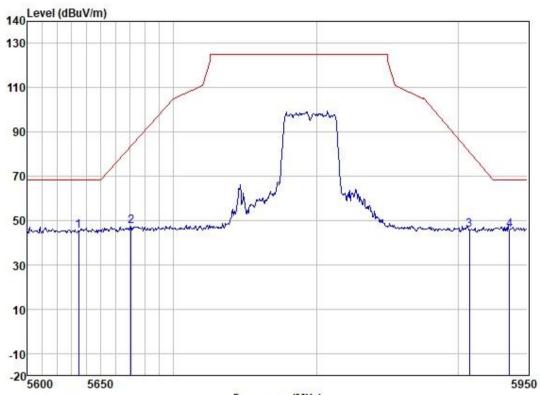


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Test Mode: 08; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)	Frequency (MHz)
ace. (Discrete)	

- W		ReadAntenna			Preamp		Limit	Over			
	Freq	Level Factor								Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	3	84	
1	5634.736	43.29	31.93	6.33	36.17	45.38	68.20	-22.82	HORIZONTAL	Peak	
2	5670.719	45.05	31.97	6.37	36.16	47.23	83.57	-36.34	HORIZONTAL	Peak	
3	5908.304	43.61	32.33	5.95	36.12	45.77	80.54	-34.77	HORIZONTAL	Peak	
4	5937.028	43.65	32.34	6.00	36.11	45.88	68.20	-22.32	HORIZONTAL	Peak	



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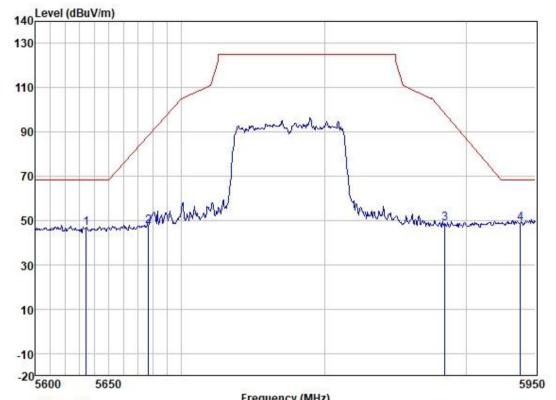


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Test Mode: 08; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race	: (Discrete)										
	Freq		Antenna Factor				Limit Line		Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			_
1	5634.395	44.54	31.93	6.33	36.17	46.63	68.20	-21.57	VERTICAL	Peak	
2	5677.254	45.30	31.99	6.38	36.16	47.51	88.41	-40.90	VERTICAL	Peak	
3	5884.710	46.41	32.29	5.93	36.12	48.51	98.05	-49.54	VERTICAL	Peak	
4	5938.828	46.48	32.34	6.00	36.11	48.71	68.20	-19.49	VERTICAL	Peak	



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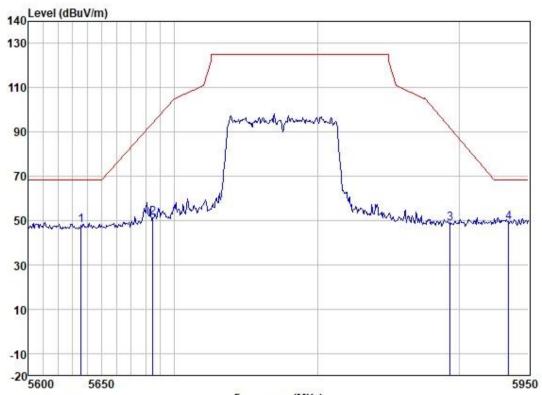


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Test Mode: 08; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



	2 2222
ace: (Discrete)	Frequency (MHz)
ace. (Discrete)	

	Freq		Antenna Factor						Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5635.761	45.60	31.93	6.33	36.17	47.69	68.20	-20.51	HORIZONTAL	Peak
2	5685.176	48.99	31.99	6.38	36.16	51.20	94.26	-43.06	HORIZONTAL	Peak
3	5893.636	46.69	32.31	5.90	36.12	48.78	91.42	-42.64	HORIZONTAL	Peak
4	5935.589	46.96	32.34	6.00	36.11	49.19	68.20	-19.01	HORIZONTAL	Peak



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7.10 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart E 15.407 (g)
Test Method: ANSI C63.10 (2013) Section 6.8

7.10.1 E.U.T. Operation

Operating Environment:

Temperature: 27.4 °C Humidity: 47.6 % RH Atmospheric Pressure: 1015 mbar

7.10.2 Test Mode Description

Pre-scan / Mode Final test Code

Description

TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Final test 05

Final test 06

Final test 07

Final test 08

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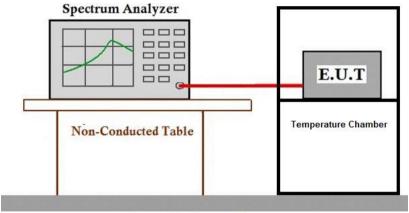


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7.10.3 Test Setup Diagram



Ground Reference Plane

7.10.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.11 Radiated Emissions (Below 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

Frequency (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
960-1000	500	3

7.11.1 E.U.T. Operation

Operating Environment:

Temperature: 23.9 °C Humidity: 52 % RH Atmospheric Pressure: 1006 mbar

7.11.2 Test Mode Description

Pre-scan / Mode Final test Code

Description

Final test 05

TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and

Pre-scan 07

Pre-scan

06

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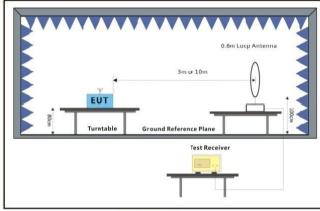
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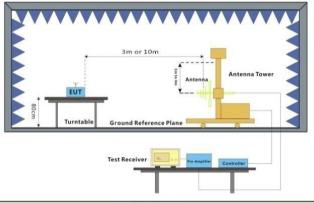
worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Pre-scan 08

7.11.3 Test Setup Diagram





Below 30MHz

30MHz-1GHz



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7.11.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 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 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 quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

- 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
- 3. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 4. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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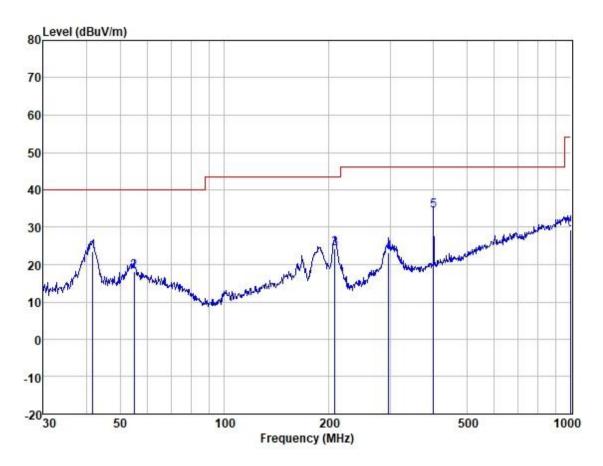


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Test Mode: 05; Polarity: Horizontal



Site : SGS
Job :
Model :
Power :
Test Mode :

	Freq				- C. C. C. S. S. C. C. S. S. C.	Measured Level				Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	41.713	36.26	13.66	1.11	27.61	23.42	40.00	-16.58	HORIZONTAL	QP
2	54.835	30.62	13.81	1.19	27.60	18.02	40.00	-21.98	HORIZONTAL	QP
3	207.850	38.99	9.99	2.57	27.30	24.25	43.50	-19.25	HORIZONTAL	QP
4	297.224	33.88	13.34	3.16	27.20	23.18	46.00	-22.82	HORIZONTAL	QP
5	400.432	42.83	15.56	3.93	28.00	34.32	46.00	-11.68	HORIZONTAL	QP
6	1000.000	25.75	24.12	7.43	28.00	29.30	54.00	-24.70	HORIZONTAL	QP



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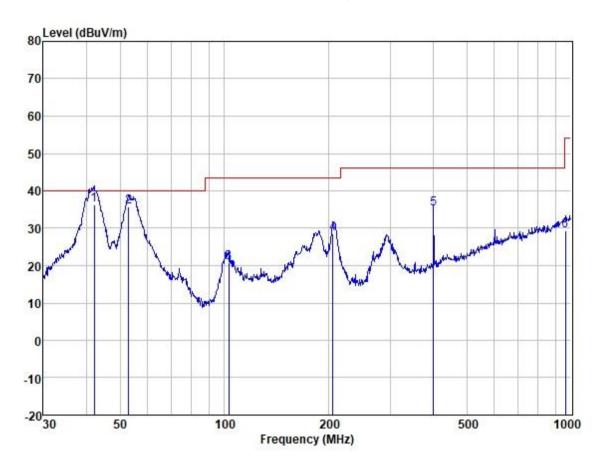


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Test Mode: 05; Polarity: Vertical



Site : SGS
Job :
Model :
Power :
Test Mode :

	Freq				- 100 CO	Measured Level		Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		·
1	42.154	49.08	13.75	1.11	27.61	36.33	40.00	-3.67	VERTICAL	QP
2	52.945	48.39	13.90	1.17	27.60	35.86	40.00	-4.14	VERTICAL	QP
3	102.719	37.31	9.42	1.74	27.60	20.87	43.50	-22.63	VERTICAL	QP
4	205.675	43.36	10.01	2.56	27.30	28.63	43.50	-14.87	VERTICAL	QP
5	400.432	43.72	15.56	3.93	28.00	35.21	46.00	-10.79	VERTICAL	QP
6	962.162	25.83	24.39	7.25	28.06	29.41	54.00	-24.59	VERTICAL	QP



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for GZCR220600077105



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9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2206000771AT



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10 Appendix

1. Duty Cycle

1.1 Ant1

1.1.1 Test Result

	Ant1									
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)			
		5180	1.309	1.407	93.03	0.31	0.03			
		5200	1.396	1.495	93.38	0.30	0.03			
		5240	1.396	1.846	75.62	1.21	0.06			
		5260	1.397	1.846	75.68	1.21	0.07			
		5300	1.396	1.846	75.62	1.21	0.05			
802.11a	SISO	5320	1.396	1.845	75.66	1.21	0.07			
002.11a	3130	5500	1.397	2.017	69.26	1.60	6.51			
		5580	1.397	1.845	75.72	1.21	0.04			
		5700	1.396	1.495	93.38	0.30	0.03			
		5745	1.396	1.846	75.62	1.21	0.06			
		5785	1.396	1.845	75.66	1.21	0.03			
		5825	1.396	1.495	93.38	0.30	0.04			
		5180	0.165	0.263	62.74	2.02	0.15			
	МІМО	5200	0.165	0.263	62.74	2.02	0.14			
		5240	0.165	0.263	62.74	2.02	0.21			
		5260	1.308	1.407	92.96	0.32	0.03			
		5300	1.308	1.407	92.96	0.32	0.07			
802.11n		5320	1.308	1.407	92.96	0.32	0.03			
(HT20)		5500	1.308	1.407	92.96	0.32	0.03			
		5580	1.309	1.407	93.03	0.31	0.03			
		5700	1.308	1.407	92.96	0.32	0.03			
		5745	1.309	1.407	93.03	0.31	0.03			
		5785	100.000	100.000	100.00	0.00	0.00			
		5825	1.308	1.407	92.96	0.32	0.03			
		5190	0.651	0.748	87.03	0.60	0.04			
000.44		5230	0.652	0.747	87.28	0.59	0.11			
802.11n (HT40)	MIMO	5270	0.659	1.320	49.92	3.02	0.09			
(11170)		5310	0.649	0.747	86.88	0.61	0.07			
		5510	100.000	100.000	100.00	0.00	0.00			



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		5550	0.659	0.868	75.92	1.20	0.12
		5670	0.647	1.320	49.02	3.10	0.03
		5755	0.649	0.747	86.88	0.61	0.14
		5795	0.648	0.747	86.75	0.62	0.04
		5180	1.316	1.933	68.08	1.67	24.97
		5200	1.316	1.415	93.00	0.32	0.03
		5240	1.316	1.415	93.00	0.32	0.07
		5260	1.316	1.415	93.00	0.32	0.00
		5300	1.316	1.415	93.00	0.32	0.03
802.11ac	MIMO	5320	1.316	1.414	93.07	0.31	0.03
(VHT20)	IVIIIVIO	5500	1.316	1.415	93.00	0.32	0.03
		5580	1.316	1.415	93.00	0.32	0.03
		5700	1.316	1.415	93.00	0.32	0.03
		5745	1.316	1.415	93.00	0.32	0.03
		5785	1.316	1.415	93.00	0.32	0.07
		5825	1.316	1.415	93.00	0.32	0.03
	MIMO	5190	0.656	0.755	86.89	0.61	0.04
		5230	0.661	0.755	87.55	0.58	0.13
		5270	0.661	0.755	87.55	0.58	0.04
		5310	0.656	0.755	86.89	0.61	0.10
802.11ac (VHT40)		5510	0.656	0.755	86.89	0.61	0.11
((((((((((((((((((((5550	0.656	0.755	86.89	0.61	0.07
		5670	0.660	0.755	87.42	0.58	0.08
		5755	0.661	0.755	87.55	0.58	0.13
		5795	0.661	0.756	87.43	0.58	0.11
		5210	0.324	0.423	76.60	1.16	0.13
000.44		5290	0.328	0.423	77.54	1.10	0.12
802.11ac (VHT80)	MIMO	5530	0.324	0.424	76.42	1.17	0.07
((((((((((((((((((((5610	0.324	0.424	76.42	1.17	0.07
		5775	0.324	0.423	76.60	1.16	0.03



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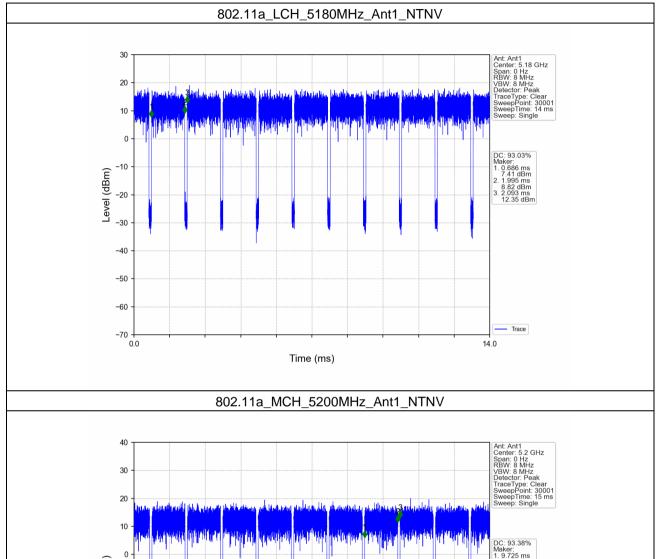


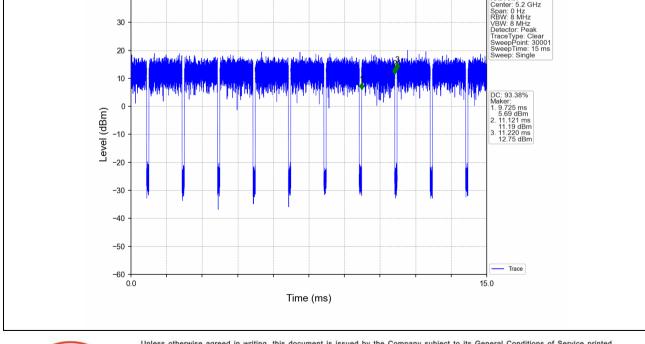
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1.1.2 Test Graph







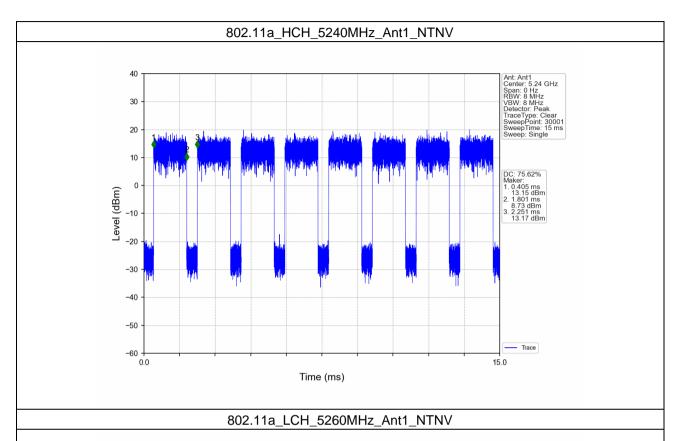
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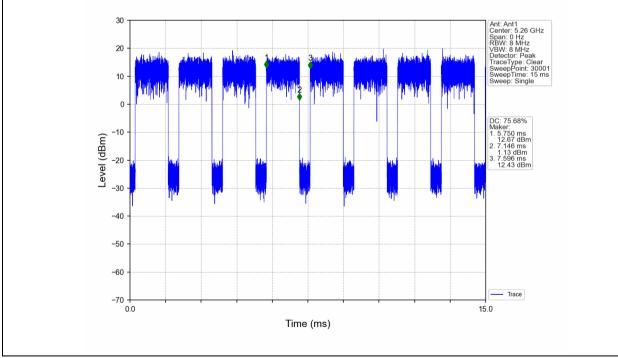


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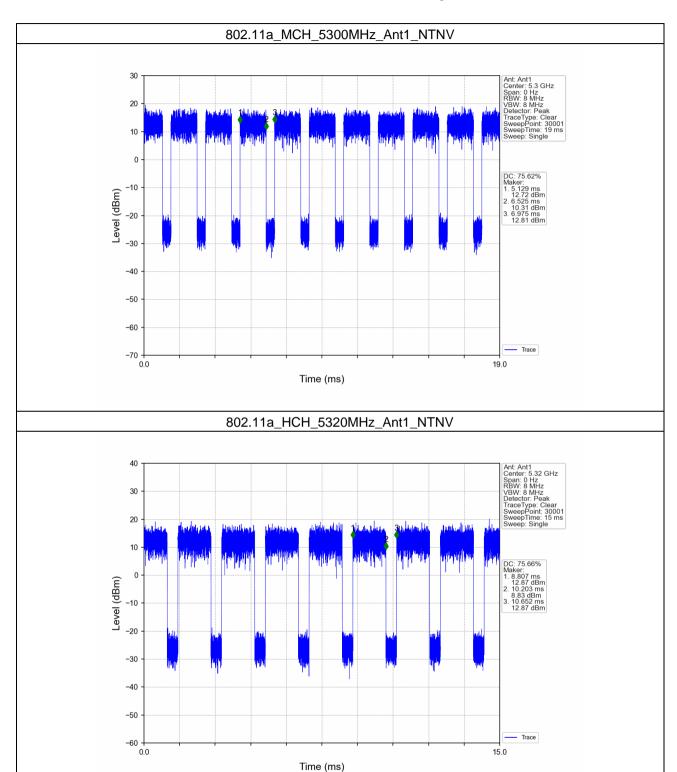
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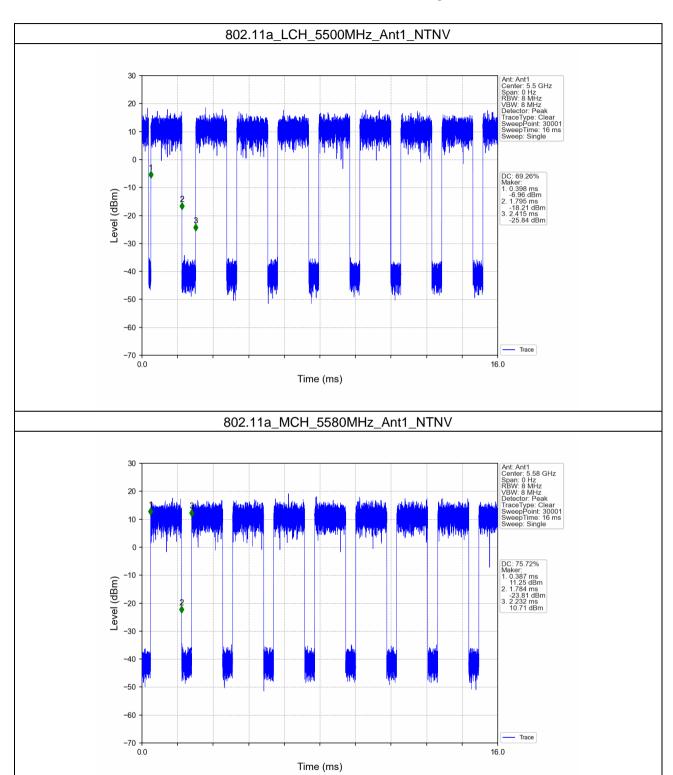
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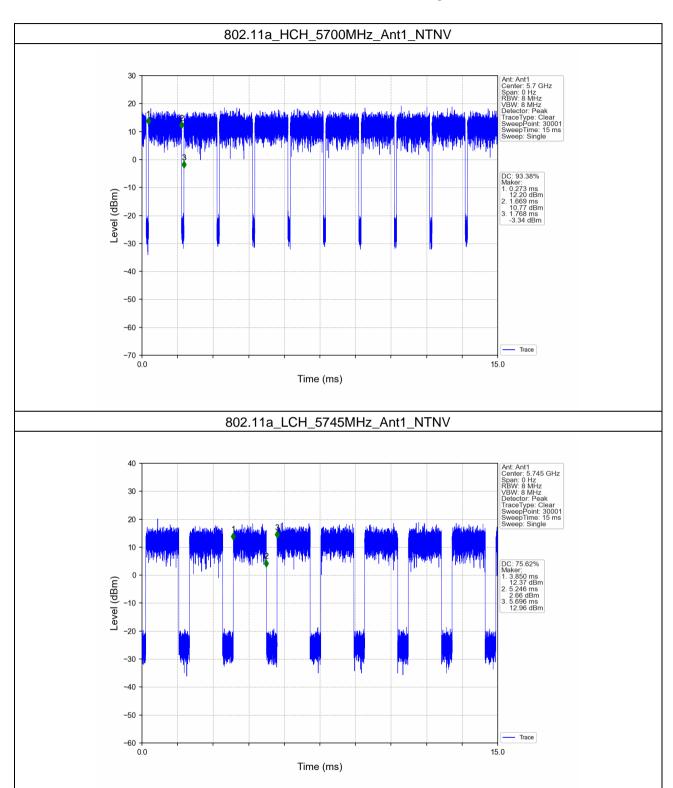
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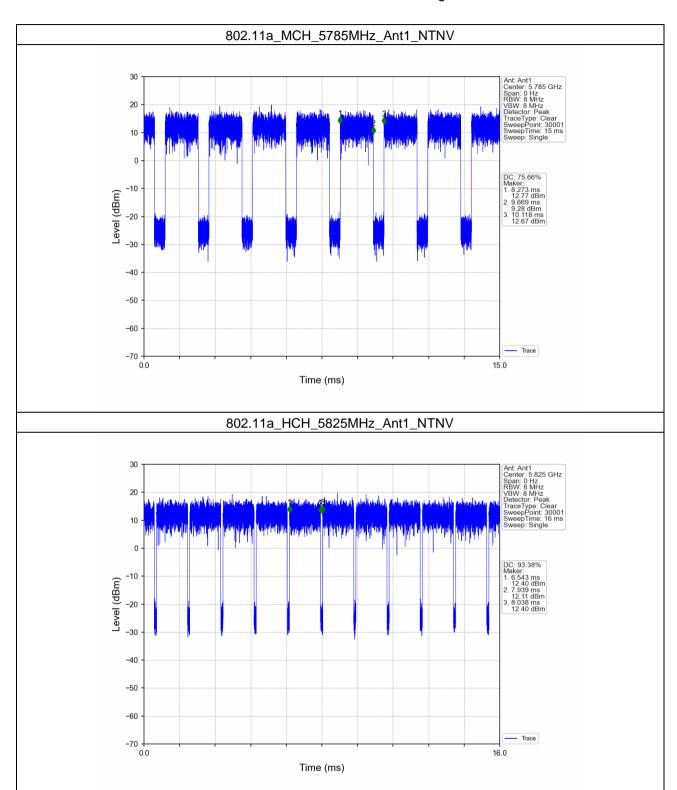
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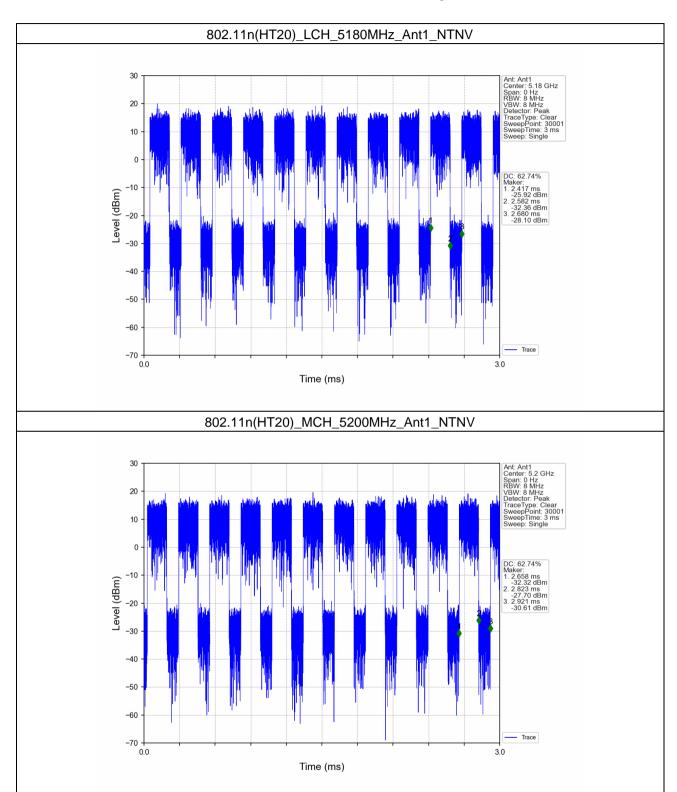
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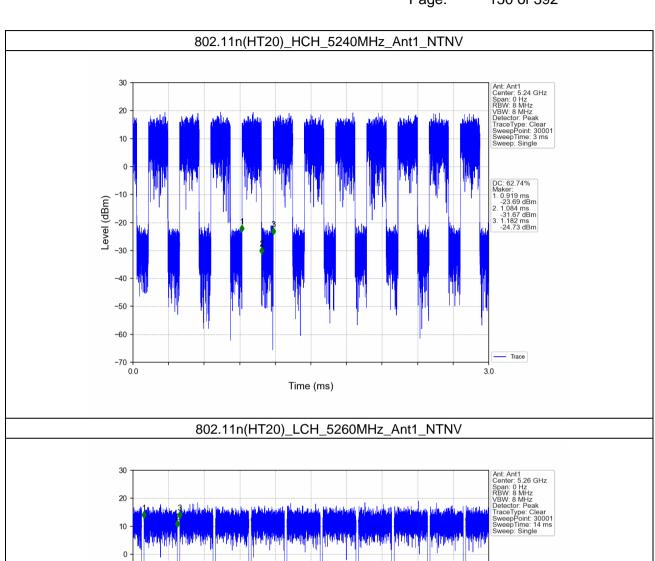
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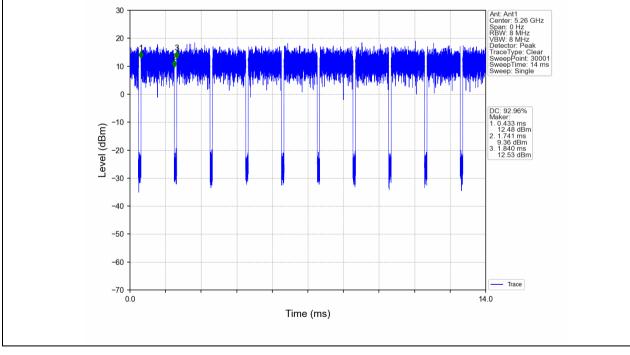


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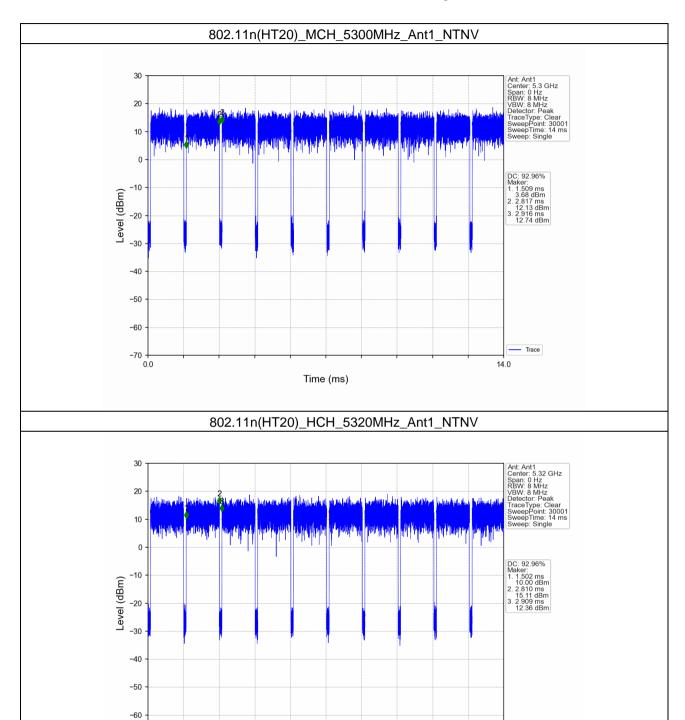
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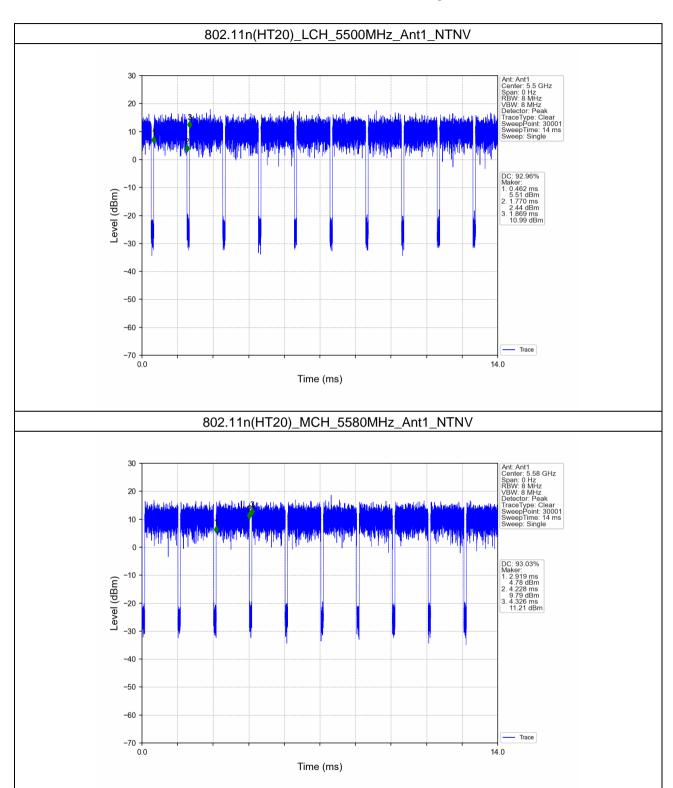
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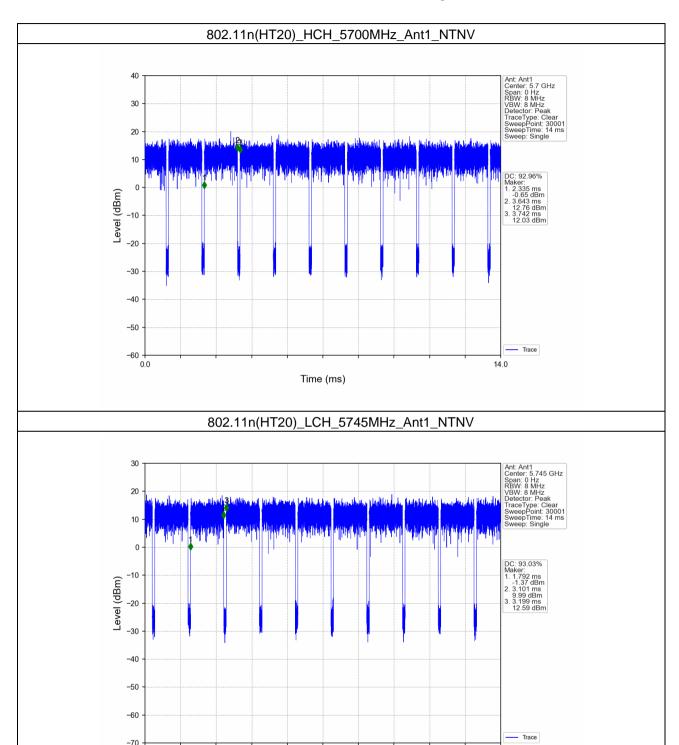
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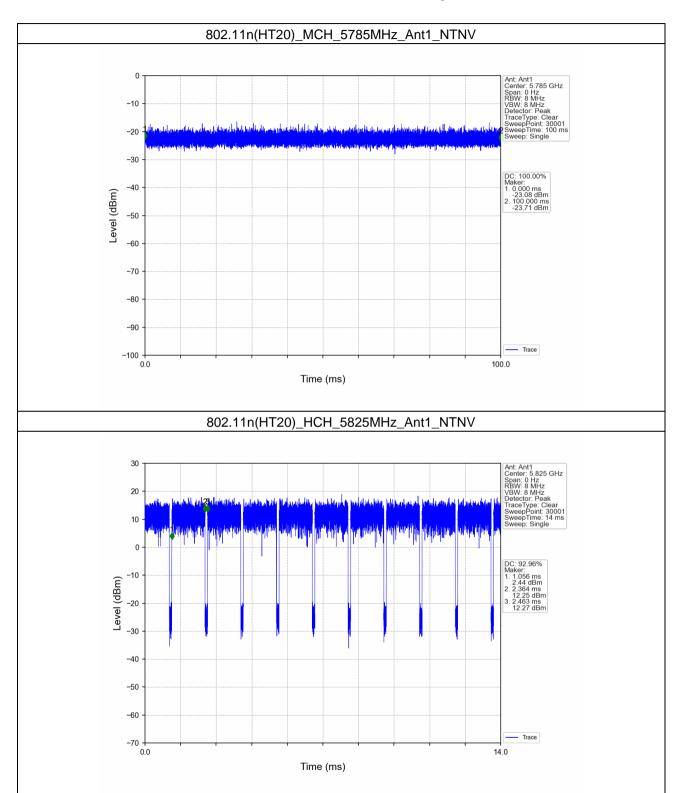
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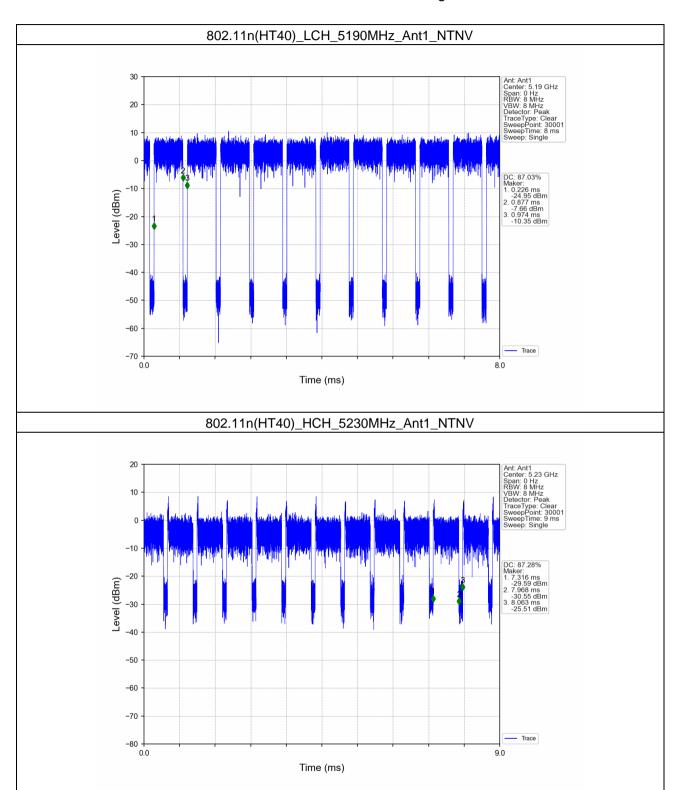
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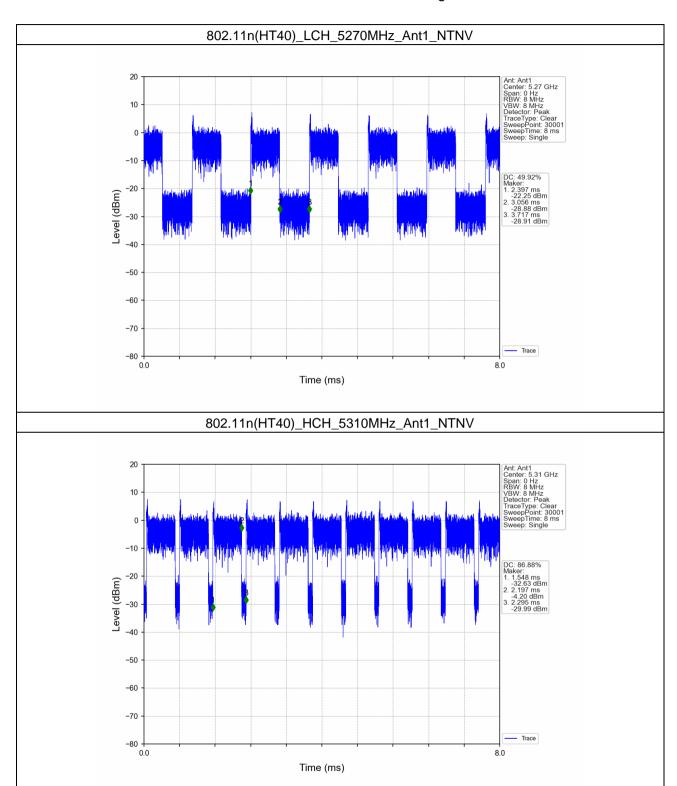
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