



**CTC Laboratories, Inc.**

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China  
Tel: +86-755- 27521059 Fax: +86-755- 27521011 Http://www.sz-ctc.org.cn

## **Appendix for 5G WIFI**

**Applicant: Fanvil Technology Co., LTD.**

**Address: 10/F Block A, Dualshine Global Science Innovation  
Center, Honglang North 2nd Road, Bao'an District, Shenzhen,  
China**

**Product Name: Smart Indoor Station**

**Model: i57A, i55A**

**FCC ID: 2APPZ-I57A**

## TABLE OF CONTENTS

Appendix A1: Emission Bandwidth .....	3
Appendix A2: Occupied channel bandwidth.....	10
Appendix A3: Min emission bandwidth .....	17
Appendix B: Maximum conducted output power.....	21
Appendix C: Maximum power spectral density .....	22
Appendix D: Frequency Stability.....	29
Appendix E: Duty Cycle .....	31

## Appendix A1: Emission Bandwidth

### Test Result

Test Mode	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
802.11a	5180	21.560	5169.520	5191.080	PASS
	5200	21.160	5189.480	5210.640	PASS
	5240	21.720	5229.320	5251.040	PASS
	5745	20.960	5734.480	5755.440	PASS
	5785	21.080	5774.440	5795.520	PASS
	5825	21.000	5814.440	5835.440	PASS
802.11n(HT20)	5180	21.320	5169.200	5190.520	PASS
	5200	20.840	5189.600	5210.440	PASS
	5240	20.960	5229.560	5250.520	PASS
	5745	21.000	5734.480	5755.480	PASS
	5785	20.720	5774.720	5795.440	PASS
	5825	20.920	5814.520	5835.440	PASS
802.11ac(VHT20)	5180	21.000	5169.440	5190.440	PASS
	5200	20.920	5189.320	5210.240	PASS
	5240	21.280	5229.280	5250.560	PASS
	5745	21.160	5734.480	5755.640	PASS
	5785	21.320	5774.360	5795.680	PASS
	5825	21.120	5814.320	5835.440	PASS

Test Graphs

802.11a\_5180



802.11a\_5200



802.11a\_5240



802.11a\_5745



802.11a\_5785



802.11a\_5825



802.11n(HT20)\_5180



802.11n(HT20)\_5200



802.11n(HT20)\_5240



802.11n(HT20)\_5745



802.11n(HT20)\_5785



802.11n(HT20)\_5825



802.11ac(VHT20)\_5180



802.11ac(VHT20)\_5200



802.11ac(VHT20)\_5240



802.11ac(VHT20)\_5745





802.11ac(VHT20)\_5785



802.11ac(VHT20)\_5825



## Appendix A2: Occupied channel bandwidth

### Test Result

Test Mode	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
802.11a	5180	17.551	5171.213	5188.764	PASS
	5200	17.457	5191.308	5208.765	PASS
	5240	17.695	5231.104	5248.799	PASS
	5745	17.286	5736.336	5753.622	PASS
	5785	17.362	5776.220	5793.582	PASS
	5825	17.346	5816.241	5833.587	PASS
802.11n(HT20)	5180	18.150	5170.942	5189.092	PASS
	5200	18.060	5191.016	5209.076	PASS
	5240	18.021	5230.996	5249.017	PASS
	5745	18.033	5736.030	5754.063	PASS
	5785	18.073	5775.978	5794.051	PASS
	5825	18.064	5816.002	5834.066	PASS
802.11ac(VHT20)	5180	18.284	5170.803	5189.087	PASS
	5200	18.185	5190.874	5209.059	PASS
	5240	18.207	5230.843	5249.050	PASS
	5745	18.126	5735.897	5754.023	PASS
	5785	18.179	5775.883	5794.062	PASS
	5825	18.207	5815.866	5834.073	PASS

Test Graphs

802.11a\_5180



802.11a\_5200



802.11a\_5240



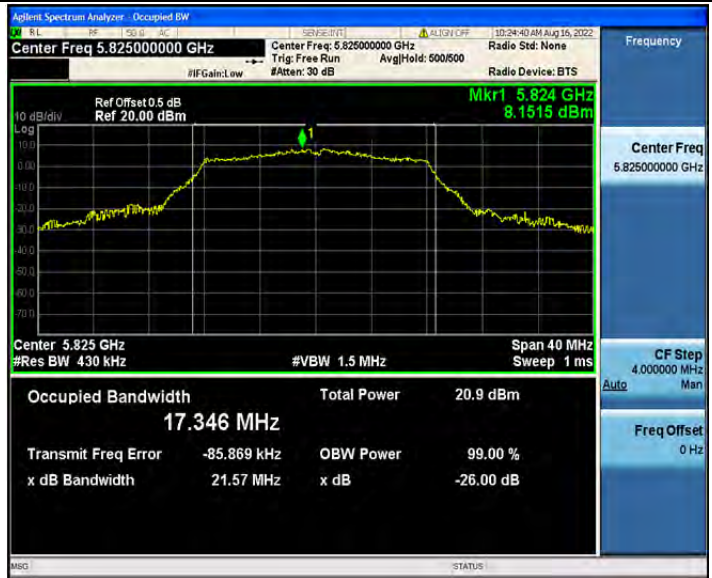
802.11a\_5745



802.11a\_5785



802.11a\_5825



802.11n(HT20)\_5180



802.11n(HT20)\_5200



802.11n(HT20)\_5240



802.11n(HT20)\_5745



802.11n(HT20)\_5785



802.11n(HT20)\_5825



802.11ac(VHT20)\_5180



802.11ac(VHT20)\_5200



802.11ac(VHT20)\_5240



802.11ac(VHT20)\_5745



802.11ac(VHT20)\_5785



802.11ac(VHT20)\_5825





## Appendix A3: Min emission bandwidth

### Test Result

Test Mode	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
802.11a	5745	15.400	5737.200	5752.600	>0.5	PASS
	5785	15.800	5776.880	5792.680	>0.5	PASS
	5825	15.160	5817.440	5832.600	>0.5	PASS
802.11n(HT20)	5745	16.000	5737.440	5753.440	>0.5	PASS
	5785	17.160	5776.280	5793.440	>0.5	PASS
	5825	17.520	5816.280	5833.800	>0.5	PASS
802.11ac(VHT20)	5745	17.240	5736.560	5753.800	>0.5	PASS
	5785	16.320	5776.520	5792.840	>0.5	PASS
	5825	15.960	5816.640	5832.600	>0.5	PASS

Test Graphs

802.11a\_5745



802.11a\_5785



802.11a\_5825



802.11n(HT20)\_5745



802.11n(HT20)\_5785



802.11n(HT20)\_5825



802.11ac(VHT20)\_5745



802.11ac(VHT20)\_5785



802.11ac(VHT20)\_5825



## Appendix B: Maximum conducted output power

### Test Result

Test Mode	Channel	Result Average[dBm]	Limit[dBm]	Verdict
802.11a	5180	15.12	<=24	PASS
	5200	14.16	<=24	PASS
	5240	14.68	<=24	PASS
	5745	14.78	<=30	PASS
	5785	14.39	<=30	PASS
	5825	14.01	<=30	PASS
802.11n(HT20)	5180	13.13	<=24	PASS
	5200	12.97	<=24	PASS
	5240	12.41	<=24	PASS
	5745	12.60	<=30	PASS
	5785	12.23	<=30	PASS
	5825	12.86	<=30	PASS
802.11ac(VHT20)	5180	13.12	<=24	PASS
	5200	13.31	<=24	PASS
	5240	13.64	<=24	PASS
	5745	13.54	<=30	PASS
	5785	13.14	<=30	PASS
	5825	12.94	<=30	PASS

*Note: Test results increased RF cable loss by 0.5dB.*

## Appendix C: Maximum power spectral density

### Test Result

Test Mode	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
802.11a	5180	10.69	<=11	PASS
	5200	9.81	<=11	PASS
	5240	10.38	<=11	PASS
	5745	2.72	<=30	PASS
	5785	2.73	<=30	PASS
	5825	2.16	<=30	PASS
802.11n(HT20)	5180	10.39	<=11	PASS
	5200	9.67	<=11	PASS
	5240	10.11	<=11	PASS
	5745	0.22	<=30	PASS
	5785	-0.13	<=30	PASS
	5825	0.21	<=30	PASS
802.11ac(VHT20)	5180	10.96	<=11	PASS
	5200	10.71	<=11	PASS
	5240	10.81	<=11	PASS
	5745	0.76	<=30	PASS
	5785	-0.51	<=30	PASS
	5825	0.04	<=30	PASS

Note: 1. The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.  
 2. The Duty Cycle Factor and RBW Factor is compensated in the graph.

Test Graphs

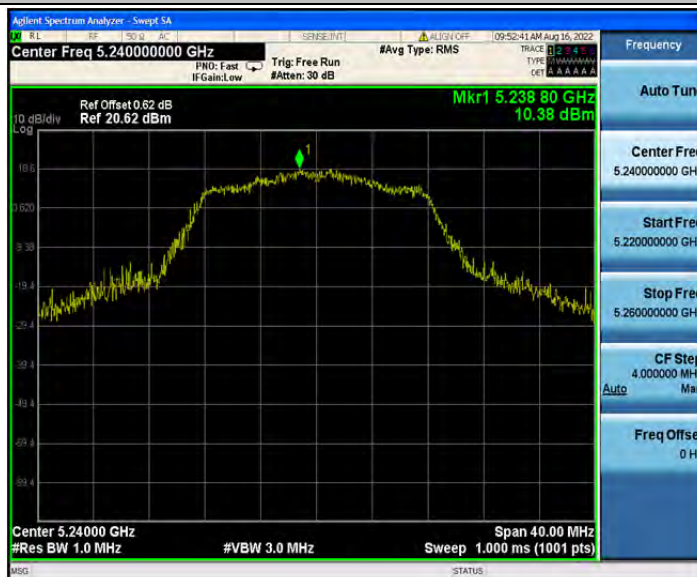
802.11a\_5180



802.11a\_5200



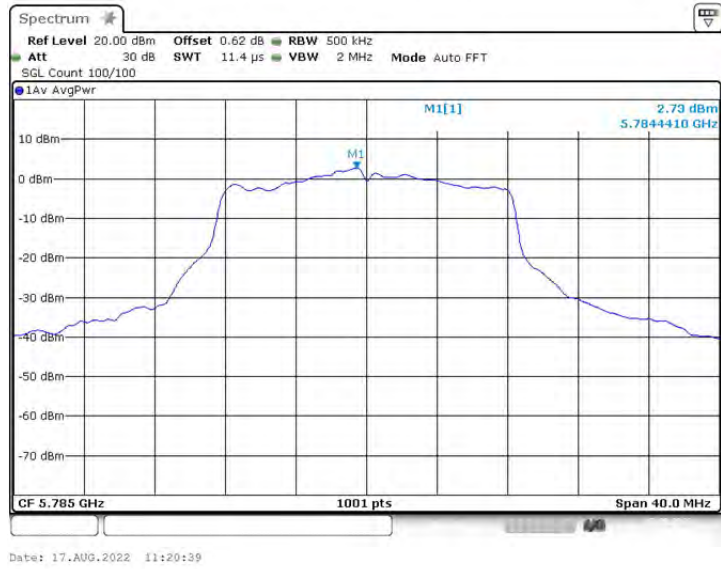
802.11a\_5240



802.11a\_5745



802.11a\_5785



802.11a\_5825



802.11n(HT20)\_5180





802.11n(HT20)\_5200



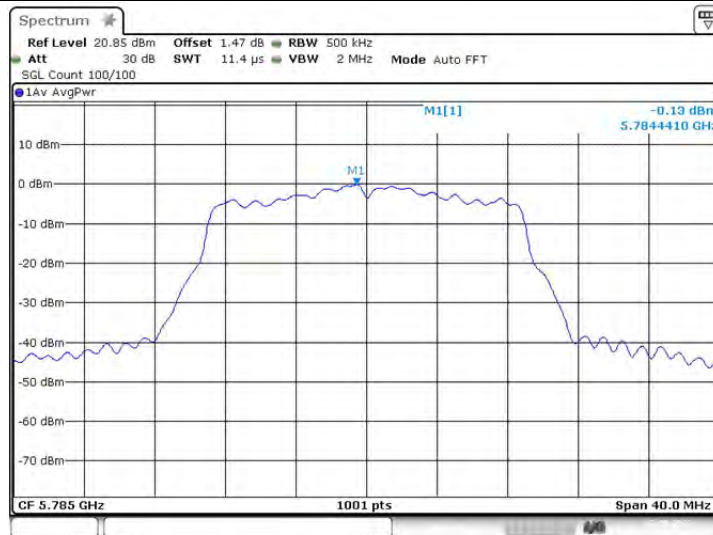
802.11n(HT20)\_5240



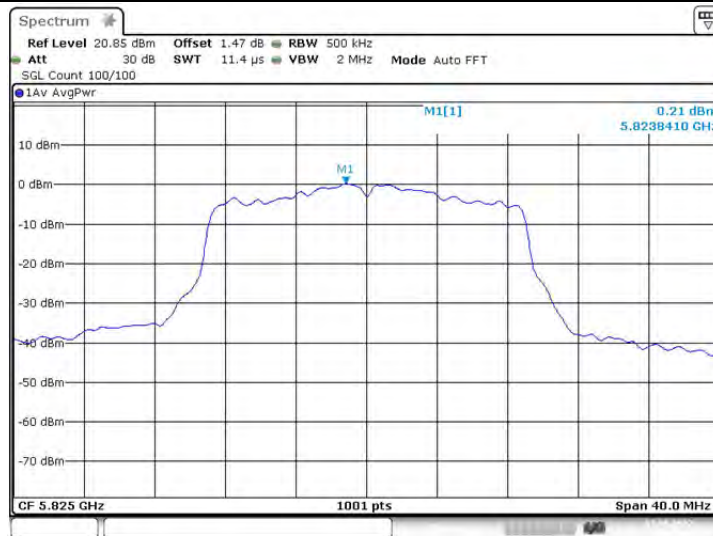
802.11n(HT20)\_5745



802.11n(HT20)\_5785



802.11n(HT20)\_5825



802.11ac(VHT20)\_5180



802.11ac(VHT20)\_5200



802.11ac(VHT20)\_5240

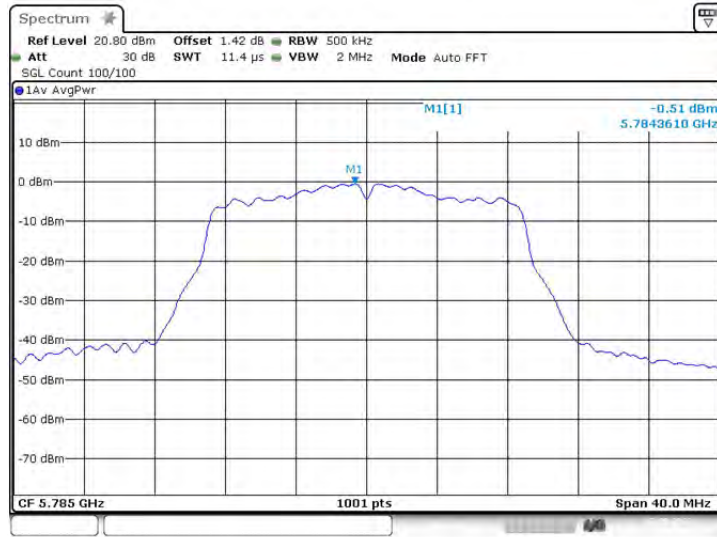


802.11ac(VHT20)\_5745



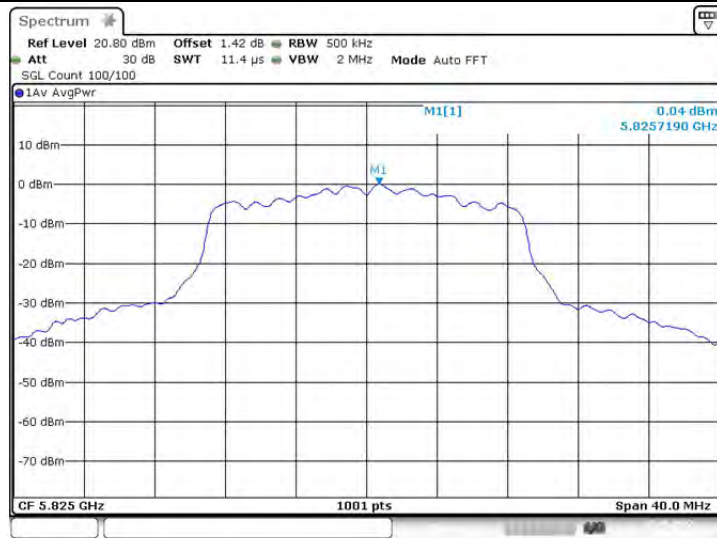
Date: 17.AUG.2022 11:30:09

802.11ac(VHT20)\_5785



Date: 17.AUG.2022 11:30:49

802.11ac(VHT20)\_5825



Date: 17.AUG.2022 11:29:22

## Appendix D: Frequency Stability

### Test Result

Voltage							
Test Mode	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20MHz	5180	NV	NT	0	0	20	PASS
		LV	NT	18000	3.474903	20	PASS
		HV	NT	18500	3.571429	20	PASS
	5200	NV	NT	0	0	20	PASS
		LV	NT	18000	3.461538	20	PASS
		HV	NT	18000	3.461538	20	PASS
	5240	NV	NT	0	0	20	PASS
		LV	NT	18500	3.530534	20	PASS
		HV	NT	18500	3.530534	20	PASS
	5745	NV	NT	0	0	20	PASS
		LV	NT	20500	3.56832	20	PASS
		HV	NT	20500	3.56832	20	PASS
	5785	NV	NT	0	0	20	PASS
		LV	NT	20000	3.457217	20	PASS
		HV	NT	19500	3.370787	20	PASS
	5825	NV	NT	19000	3.261803	20	PASS
		LV	NT	19500	3.347639	20	PASS
		HV	NT	19500	3.347639	20	PASS

Temperature							
TestMode	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20MHz	5180	NV	-10	18000	3.474903	20	PASS
		NV	0	18000	3.474903	20	PASS
		NV	10	18000	3.474903	20	PASS
		NV	20	18000	3.474903	20	PASS
		NV	30	18500	3.571429	20	PASS
		NV	40	18500	3.571429	20	PASS
		NV	50	18000	3.474903	20	PASS
	5200	NV	-10	18000	3.461538	20	PASS
		NV	0	18000	3.461538	20	PASS
		NV	10	18000	3.461538	20	PASS
		NV	20	18000	3.461538	20	PASS
		NV	30	18000	3.461538	20	PASS
		NV	40	18000	3.461538	20	PASS
		NV	50	18000	3.461538	20	PASS
	5240	NV	-10	18000	3.461538	20	PASS
		NV	0	18500	3.530534	20	PASS
		NV	10	18500	3.530534	20	PASS
		NV	20	19000	3.625954	20	PASS
		NV	30	18500	3.530534	20	PASS
		NV	40	18500	3.530534	20	PASS
		NV	50	18500	3.530534	20	PASS
	5745	NV	-10	20000	3.481288	20	PASS
		NV	0	20000	3.481288	20	PASS
		NV	10	20000	3.481288	20	PASS
		NV	20	19500	3.394256	20	PASS
		NV	30	20000	3.481288	20	PASS
		NV	40	19500	3.394256	20	PASS
		NV	50	19500	3.394256	20	PASS
	5785	NV	-10	19500	3.370787	20	PASS
		NV	0	19500	3.370787	20	PASS
		NV	10	19000	3.284356	20	PASS
		NV	20	19000	3.284356	20	PASS
		NV	30	19000	3.284356	20	PASS
		NV	40	19000	3.284356	20	PASS
		NV	50	19000	3.284356	20	PASS
	5825	NV	-10	19000	3.261803	20	PASS
		NV	0	19000	3.261803	20	PASS
		NV	10	19000	3.261803	20	PASS
		NV	20	19000	3.261803	20	PASS
		NV	30	19000	3.261803	20	PASS
		NV	40	19000	3.261803	20	PASS
		NV	50	19000	3.261803	20	PASS
		NV	-10	19000	3.261803	20	PASS

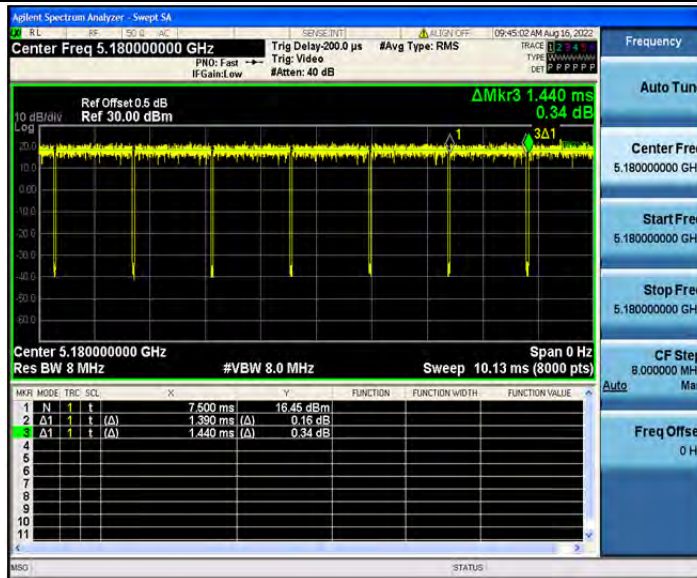
## Appendix E: Duty Cycle

### Test Result

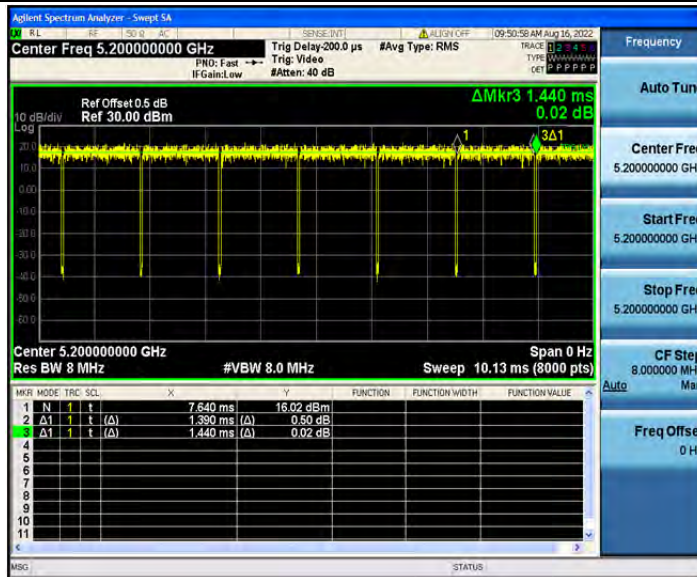
Test Mode	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)	Duty factor (dB)
802.11a	5180	1.39	1.44	96.53	0.72	1	0.15
	5200	1.39	1.44	96.53	0.72	1	0.15
	5240	1.40	1.44	97.22	0.71	1	0.12
	5745	1.40	1.44	97.22	0.71	1	0.12
	5785	1.40	1.44	97.22	0.71	1	0.12
	5825	1.39	1.43	97.20	0.72	1	0.12
802.11n(HT20)	5180	0.17	0.21	80.95	5.88	10	0.92
	5200	0.17	0.21	80.95	5.88	10	0.92
	5240	0.16	0.20	80.00	6.25	10	0.97
	5745	0.17	0.21	80.95	5.88	10	0.92
	5785	0.16	0.20	80.00	6.25	10	0.97
	5825	0.16	0.20	80.00	6.25	10	0.97
802.11ac(VHT20)	5180	0.17	0.21	80.95	5.88	10	0.92
	5200	0.16	0.21	76.19	6.25	10	1.18
	5240	0.17	0.21	80.95	5.88	10	0.92
	5745	0.17	0.21	80.95	5.88	10	0.92
	5785	0.17	0.21	80.95	5.88	10	0.92
	5825	0.17	0.21	80.95	5.88	10	0.92

Test Graphs

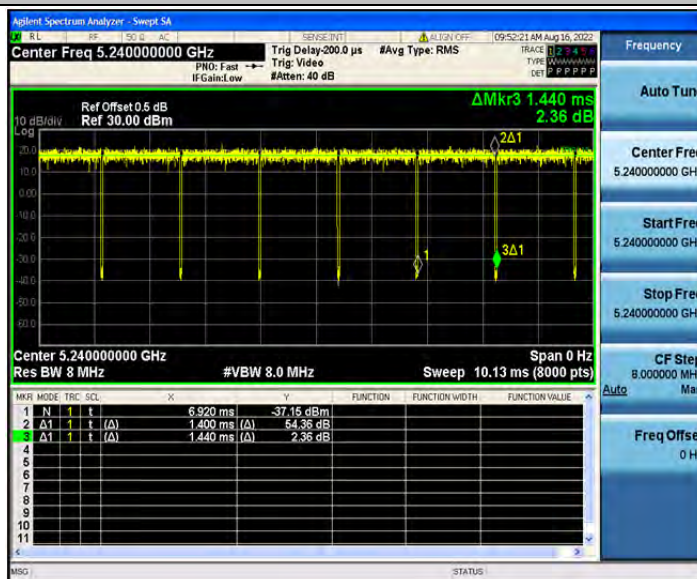
802.11a\_5180



802.11a\_5200

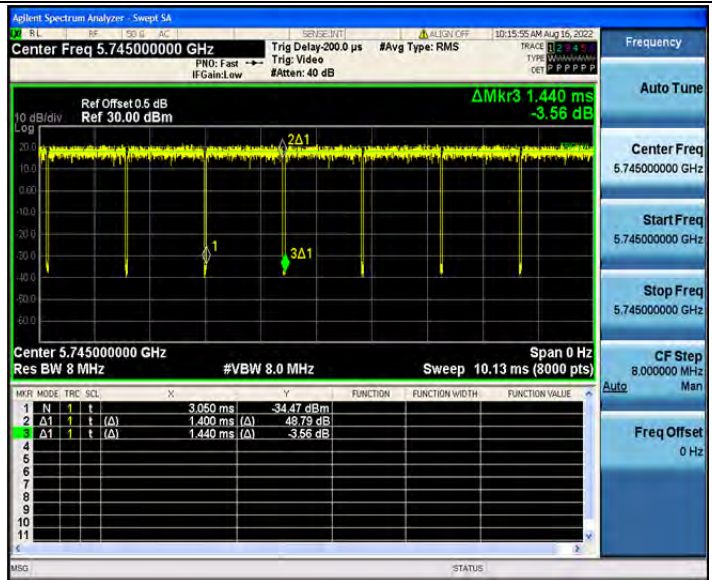


802.11a\_5240

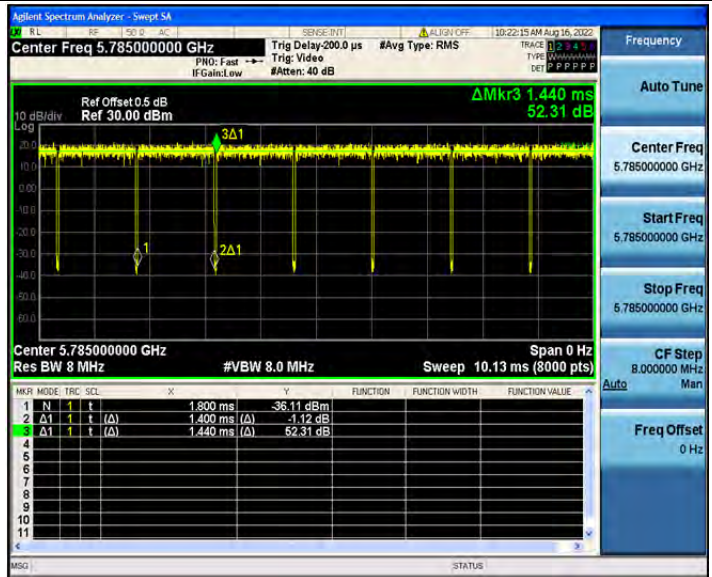


802.11a\_5745

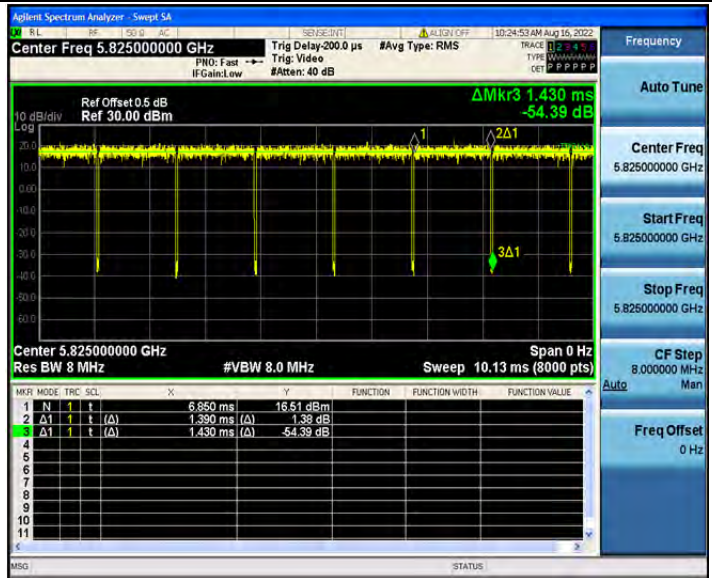




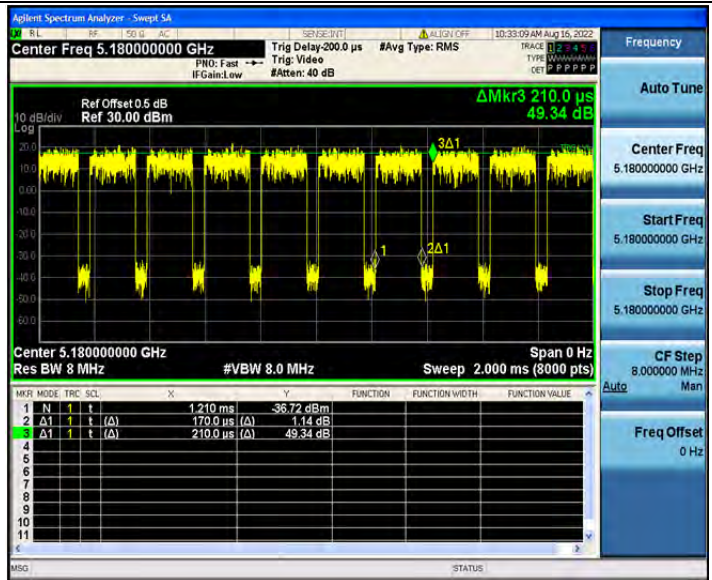
802.11a\_5785



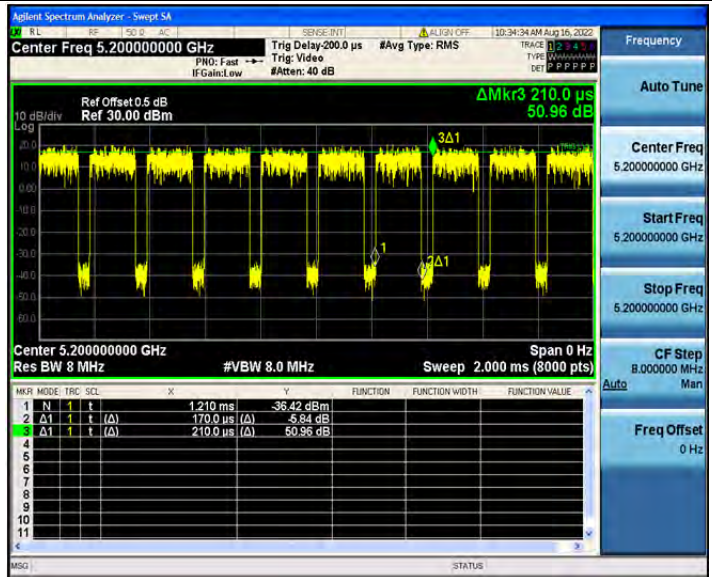
802.11a\_5825



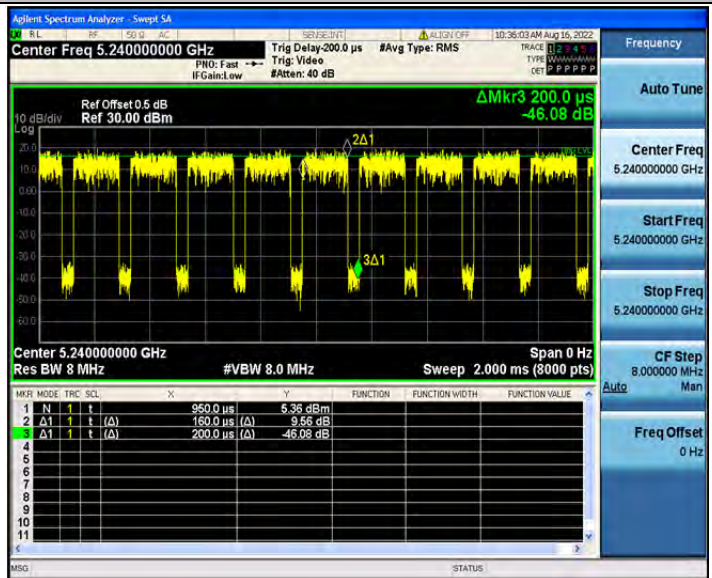
802.11n(HT20)\_5180



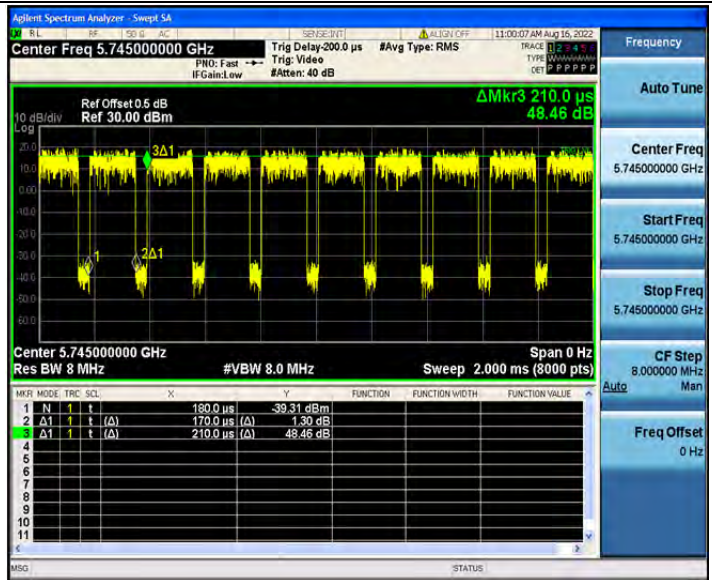
802.11n(HT20)\_5200



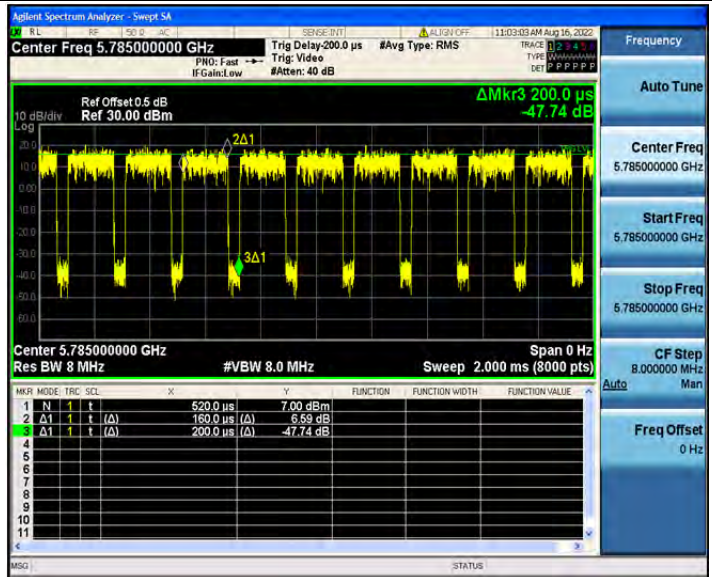
802.11n(HT20)\_5240



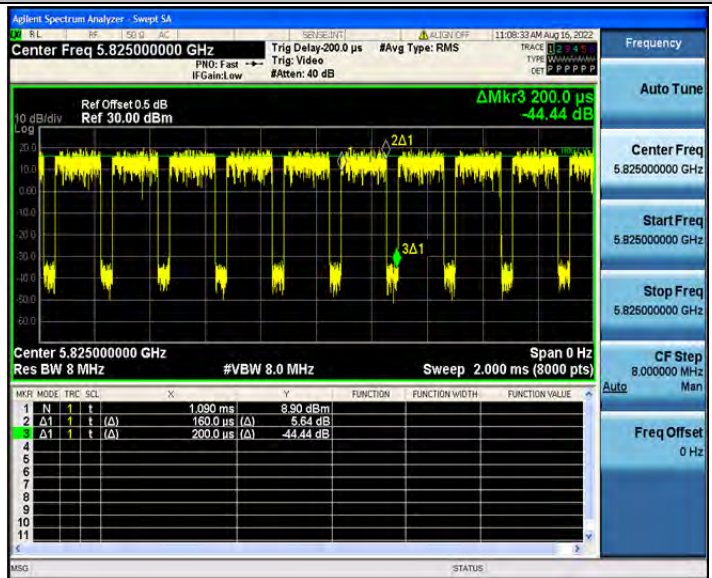
802.11n(HT20)\_5745



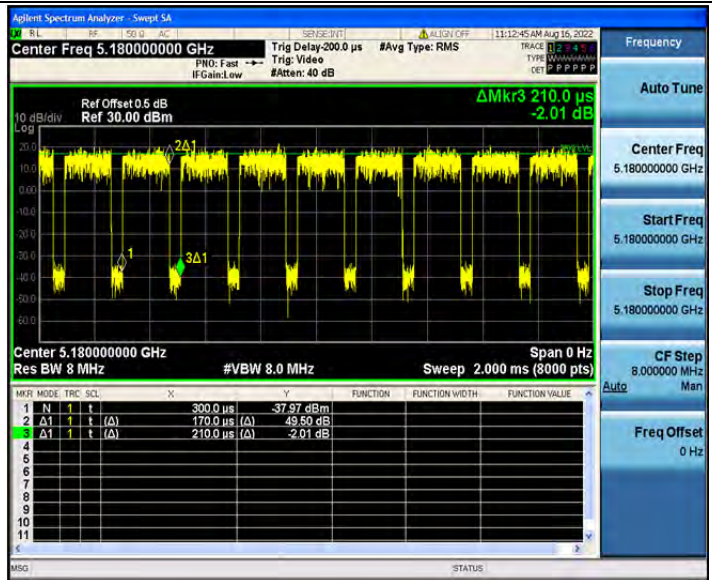
802.11n(HT20)\_5785



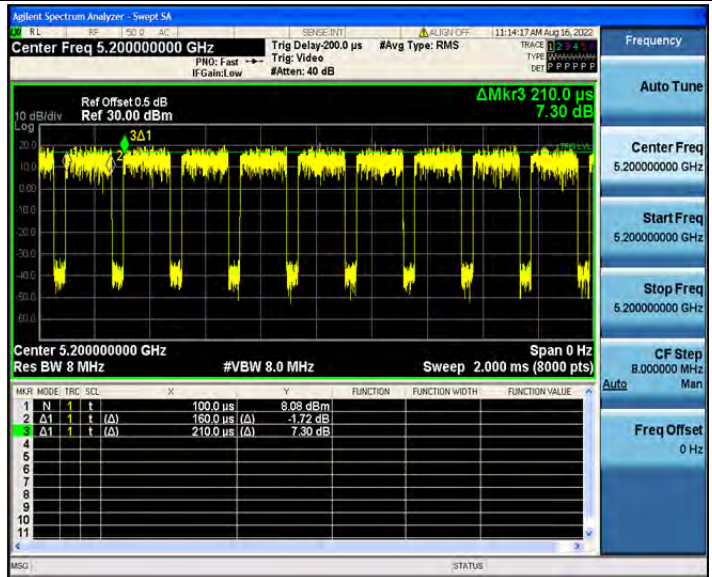
802.11n(HT20)\_5825



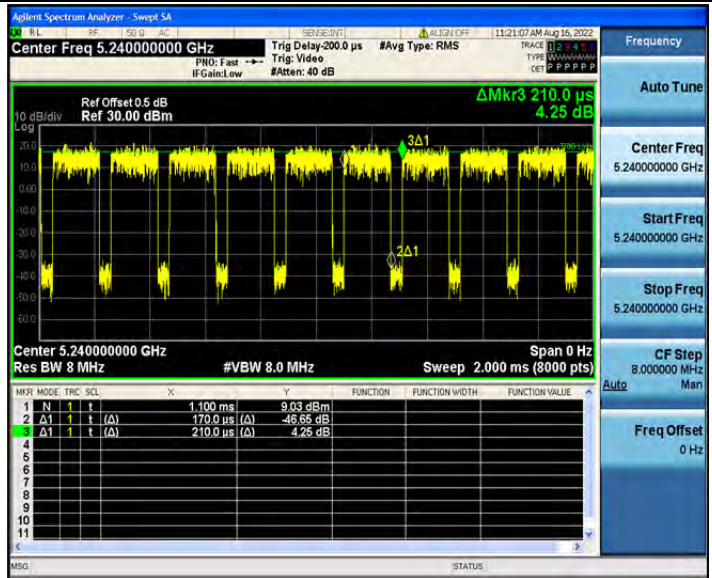
802.11ac(VHT20)\_5180



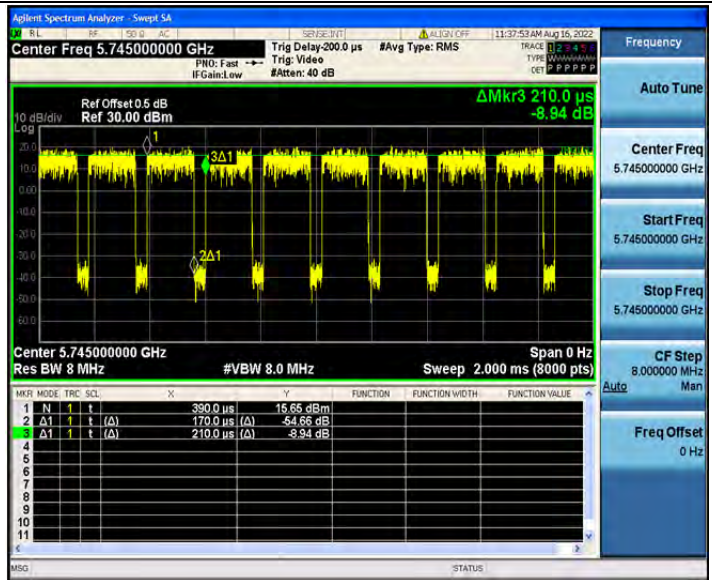
802.11ac(VHT20)\_5200



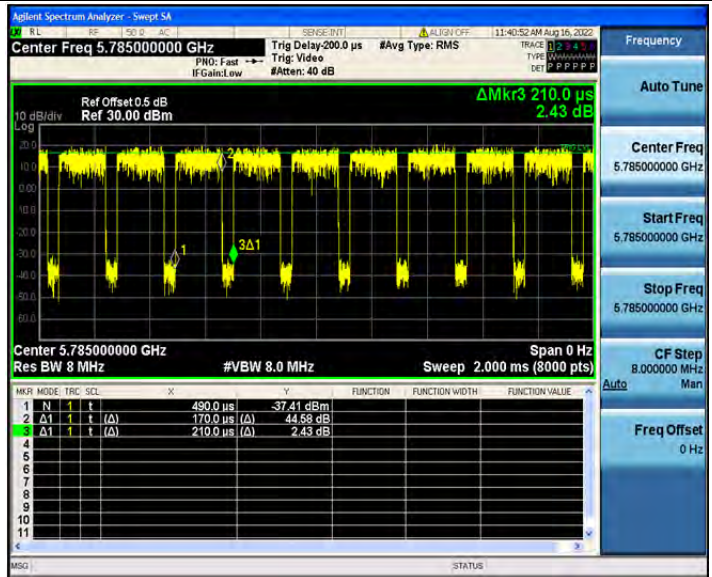
802.11ac(VHT20)\_5240



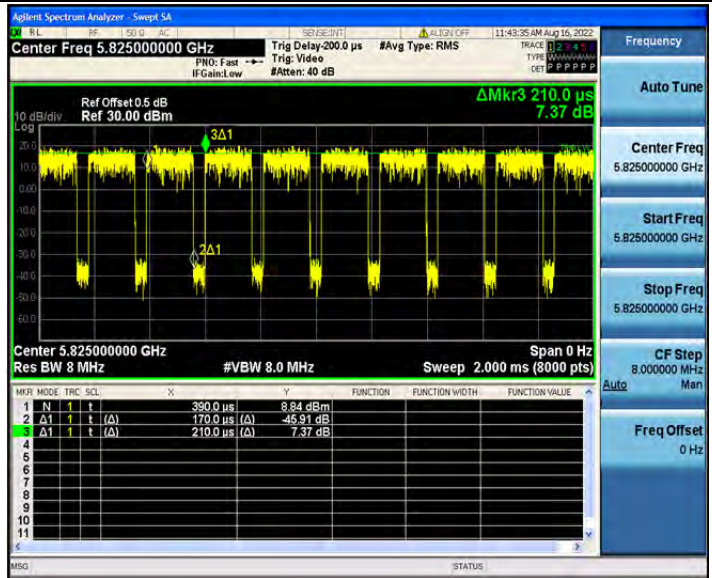
802.11ac(VHT20)\_5745



802.11ac(VHT20)\_5785



802.11ac(VHT20)\_5825



-----End-----