

5500-5700MHz
ANT1

802.11a-5500



802.11a-5580



802.11a-5700



802.11n(HT20)-5500



802.11n(HT20)-5580



802.11n(HT20)-5700



802.11n(HT40)-5510

802.11n(HT40)-5670





ANT2

802.11a-5500



802.11a-5580



802.11a-5700



802.11n(HT20)-5500



802.11n(HT20)-5580



802.11n(HT20)-5700



802.11n(HT40)-5510



802.11n(HT40)-5670





802.11ac(VH20)-5500



802.11ac(VH20)-5580



802.11ac(VH20)-5700



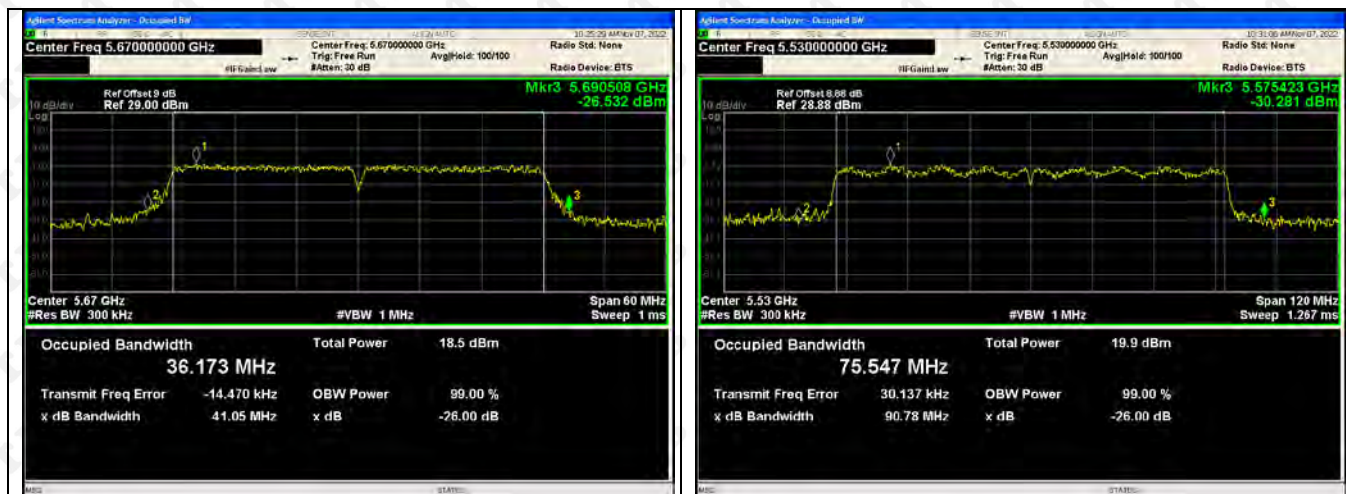
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802.11ac(VH40)-5670



802.11ac(VH80)-5530



5745-5825MHz
ANT1





802.11ac(VH20)-5745



802.11ac(VH20)-5785



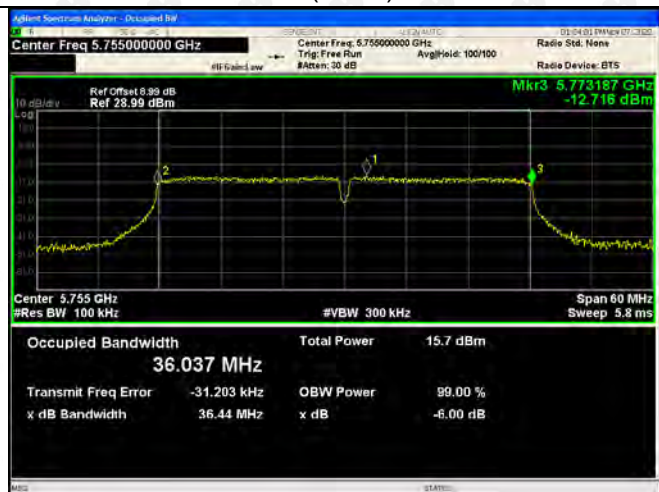
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802.11ac(VH40)-5755



802.11ac(VH40)-5795



802.11ac(VH80)-5775

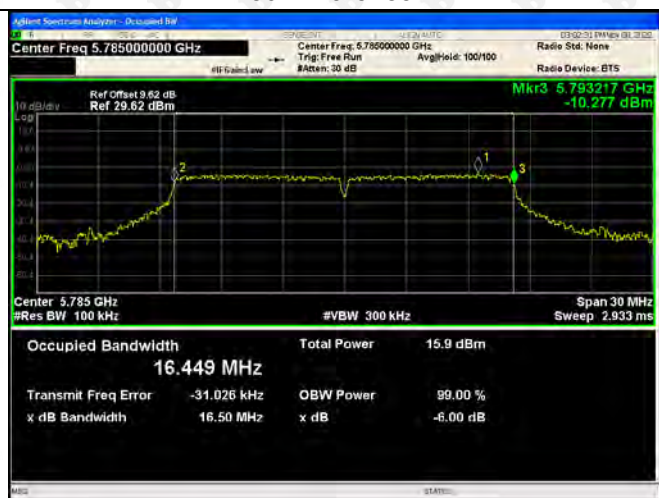


ANT2

802.11a-5745



802.11a-5785



802.11a-5825



802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



802.11n(HT40)-5755

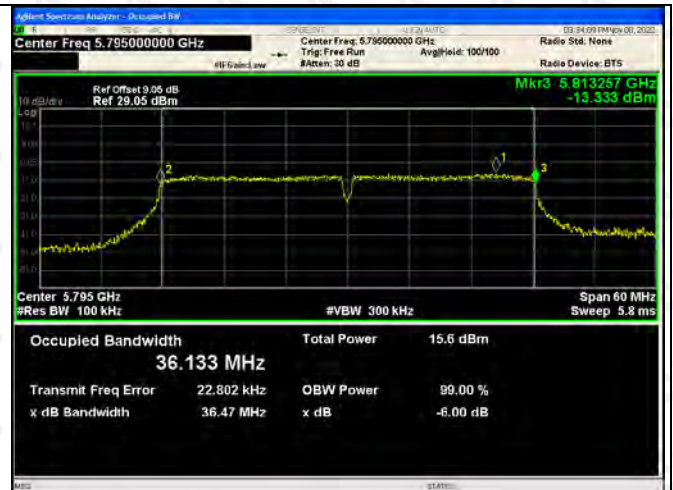


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802.11ac(VH20)-5745



802.11ac(VH20)-5785



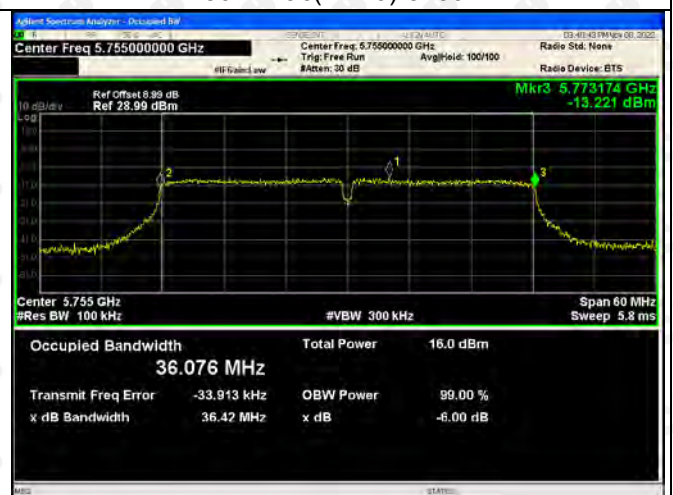
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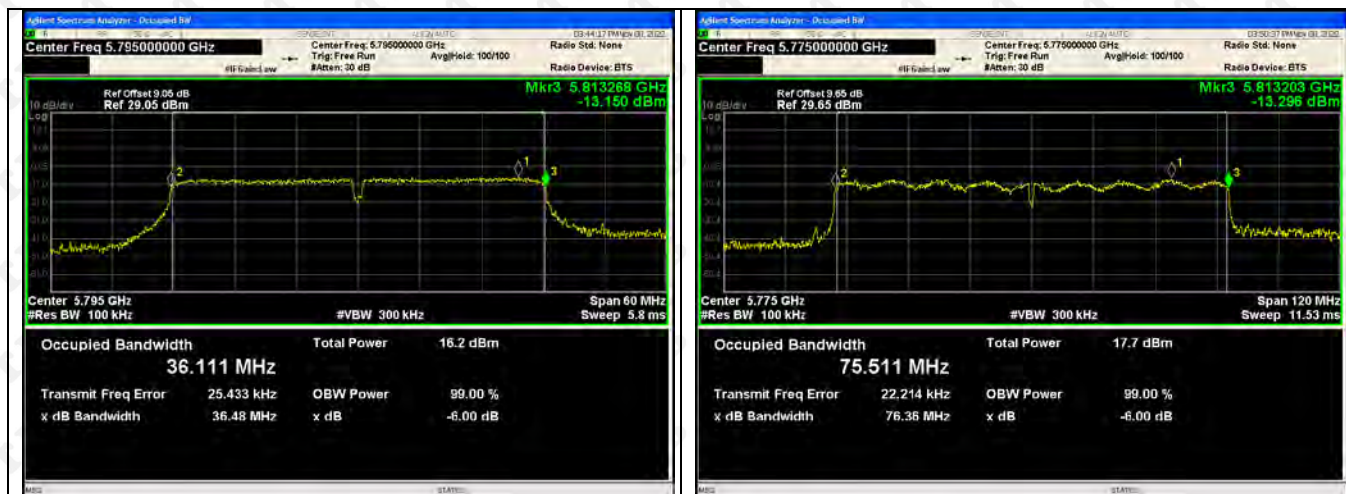
802.11ac(VH40)-5755



802.11ac(VH40)-5795

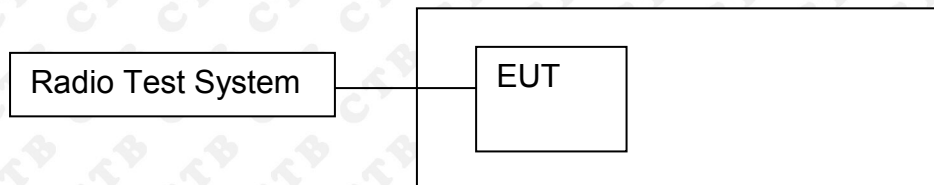


802.11ac(VH80)-5775



11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

(1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

11.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

For devices operating in the bands 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.47–5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725–5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set $\text{RBW} \geq 1/T$, where T is defined in II.B.I.a).

b) Set $\text{VBW} \geq 3 \text{ RBW}$.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/\text{RBW})$ to the measured result, whereas RBW ($< 1 \text{ MHz}$) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

11.4 Test Result

5180-5240MHz

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5180	6.619	6.898	/	11	Pass
	5200	6.987	6.516	/	11	Pass
	5240	6.848	6.976	/	11	Pass
802.11n(HT20)	5180	6.353	6.219	9.771	11	Pass
	5200	6.56	6.704	9.768	11	Pass
	5240	7.037	7.217	9.923	11	Pass
802.11n(HT40)	5190	4.545	3.964	9.297	11	Pass
	5230	4.297	4.745	9.643	11	Pass
802.11ac(VH20)	5210	2.603	2.689	10.138	11	Pass
	5180	6.445	7.019	7.275	11	Pass
	5200	6.946	6.64	7.537	11	Pass
802.11ac(VH40)	5240	7.166	6.88	5.657	11	Pass
	5190	3.964	4.111	9.752	11	Pass
802.11ac(VH80)	5230	4.357	4.314	9.806	11	Pass

5260-5320MHz

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5260	7.111	7.265	/	10.86	Pass
	5280	7.037	6.68	/	10.86	Pass
	5320	7.453	6.727	/	10.86	Pass
802.11n(HT20)	5260	6.762	6.975	9.880	10.86	Pass
	5280	6.663	6.58	9.632	10.86	Pass
	5320	6.377	6.339	9.368	10.86	Pass
802.11n(HT40)	5270	3.735	4.157	6.961	10.86	Pass
	5310	4.298	4.248	7.283	10.86	Pass
802.11ac(VH20)	5260	2.775	2.691	5.744	10.86	Pass
	5280	6.692	6.705	9.709	10.86	Pass
	5320	6.735	6.71	9.733	10.86	Pass
802.11ac(VH40)	5270	6.517	6.688	9.614	10.86	Pass
	5310	6.418	3.856	10.199	10.86	Pass
802.11ac(VH80)	5290	4.384	4.672	9.872	10.86	Pass

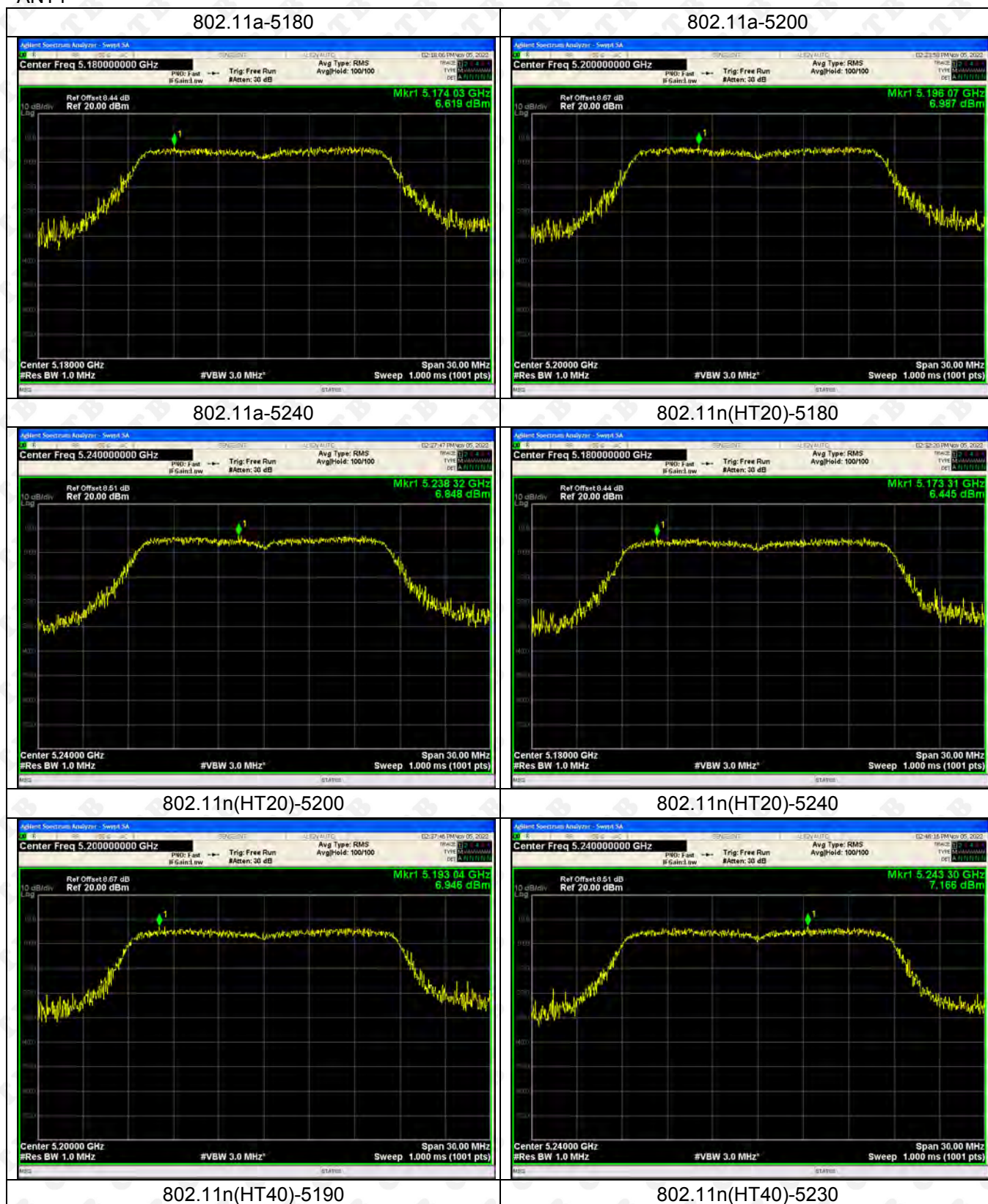
5500-5700MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5500	6.548	7.13	/	10.63	Pass
	5580	7.351	7.374	/	10.63	Pass
	5700	6.47	6.971	/	10.63	Pass
802.11n(HT20)	5500	6.795	6.834	9.825	10.63	Pass
	5580	6.694	6.366	9.543	10.63	Pass
	5700	5.958	6.005	8.992	10.63	Pass
802.11n(HT40)	5510	4.619	4.757	7.699	10.63	Pass
	5670	4.354	4.062	7.221	10.63	Pass
802.11ac(VH20)	5530	1.61	3.172	5.471	10.63	Pass
	5500	7.385	7.233	10.320	10.63	Pass
	5580	6.662	6.64	9.661	10.63	Pass
802.11ac(VH40)	5700	5.956	6.192	9.086	10.63	Pass
	5510	4.406	3.864	9.825	10.63	Pass
802.11ac(VH80)	5670	4.078	3.445	9.543	10.63	Pass

5745-5825MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/500kHz] ANT 1	PSD [dBm/500kHz] ANT 2	PSD [dBm/500kHz] Total	Limit (dBm)	Result
802.11a	5745	4.088	1.436	/	29.85	Pass
	5785	3.827	1.629	/	29.85	Pass
	5825	4.742	3.954	/	29.85	Pass
802.11n(HT20)	5745	3.926	2.788	6.404	29.85	Pass
	5785	2.282	1.807	5.061	29.85	Pass
	5825	3.562	3.594	6.588	29.85	Pass
802.11n(HT40)	5755	-1.422	-1.165	1.719	29.85	Pass
	5795	-1.212	-0.272	2.294	29.85	Pass
802.11ac(VH20)	5745	-2.801	-1.273	1.040	29.85	Pass
	5785	3.355	1.829	5.669	29.85	Pass
	5825	3.645	2.139	5.967	29.85	Pass
802.11ac(VH40)	5755	4.847	3.897	7.408	29.85	Pass
	5795	-1.081	-0.19	6.404	29.85	Pass
802.11ac(VH80)	5775	-1.355	-1.429	5.061	29.85	Pass

5180-5240MHz
ANT1





802.11ac(VH20)-5180



802.11ac(VH20)-5200



802.11ac(VH20)-5240



802.11ac(VH40)-5190



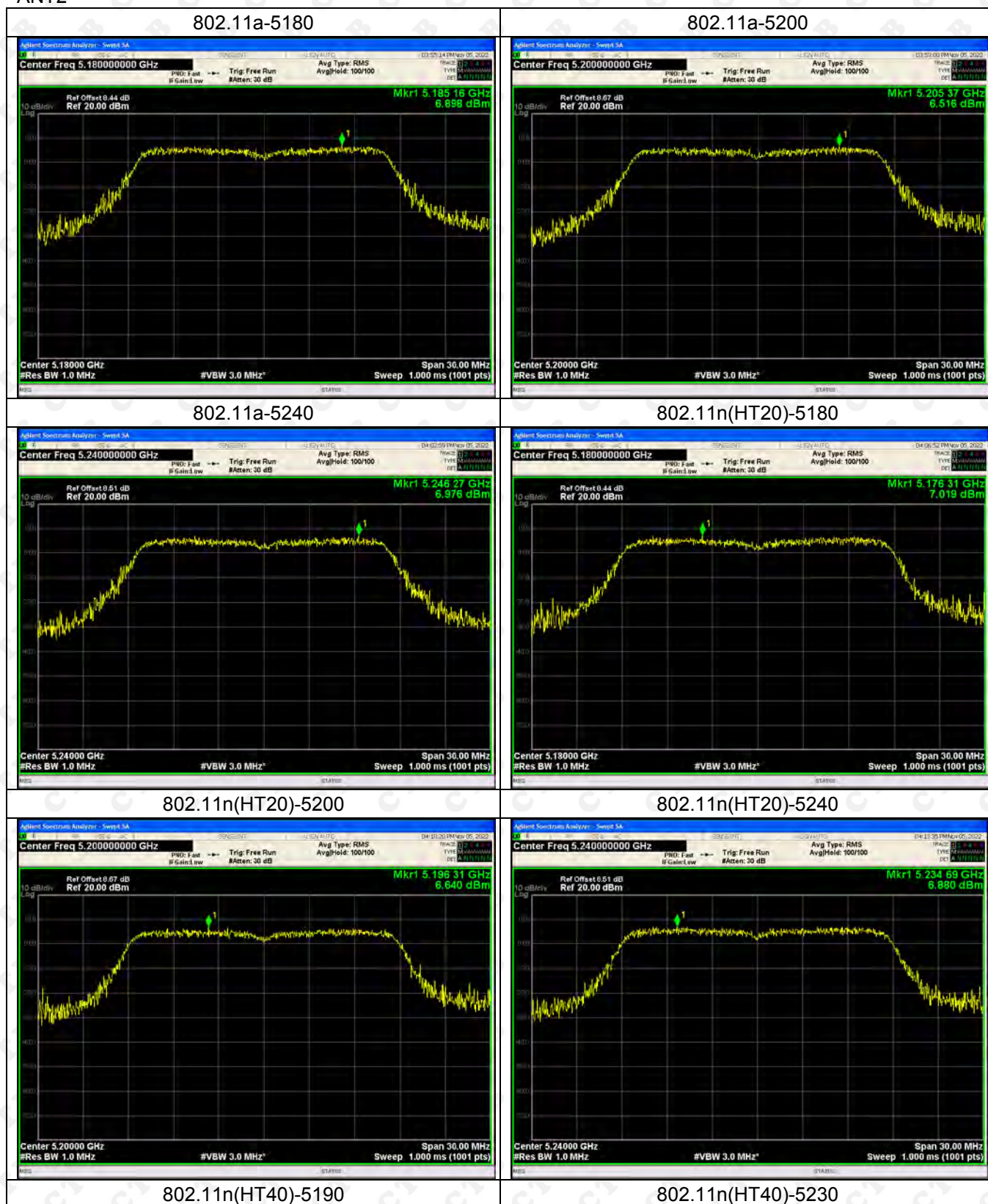
802.11ac(VH40)-5230



802.11ac(VH80)-5210



ANT2





802.11ac(VH20)-5180



802.11ac(VH20)-5200



802.11ac(VH20)-5240



802.11ac(VH40)-5190



802.11ac(VH40)-5230



802.11ac(VH80)-5210



5260-5320MHz

ANT1

802.11a-5260



802.11a-5280



802.11a-5320



802.11ac(VH20)-5260



802.11ac(VH20)-5280

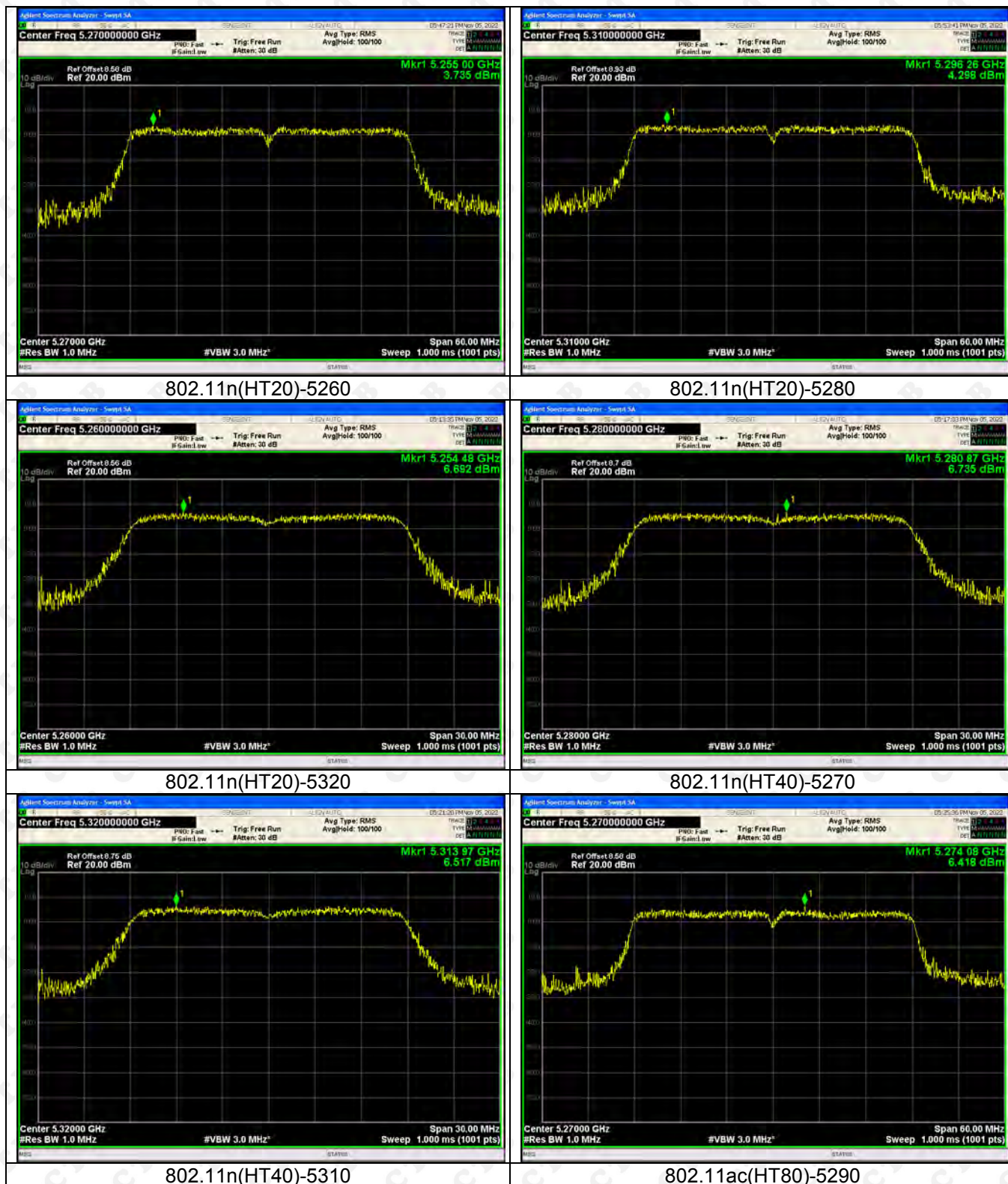


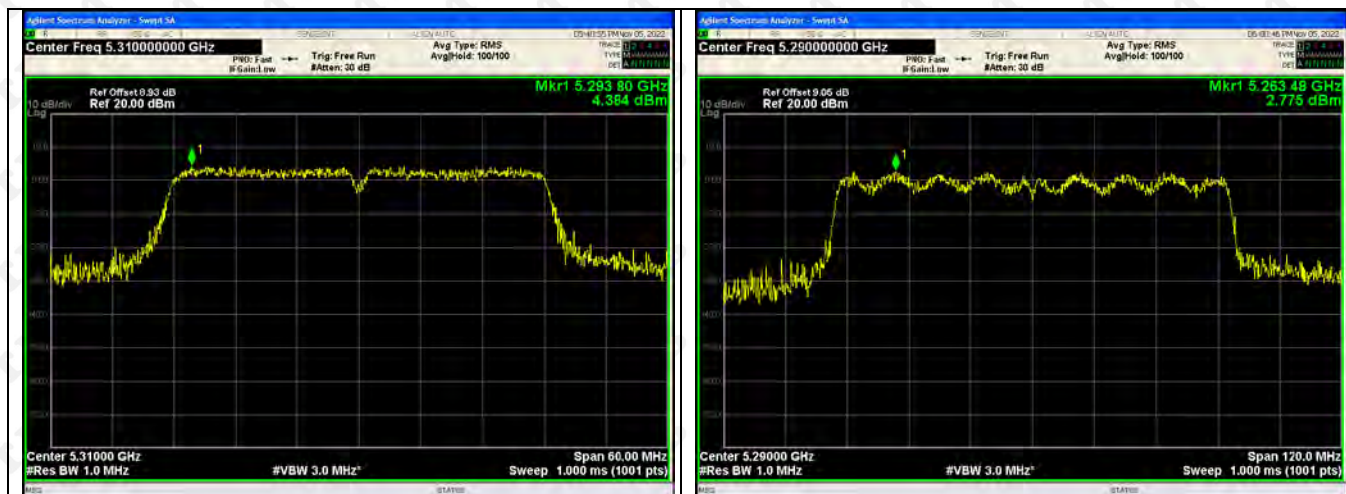
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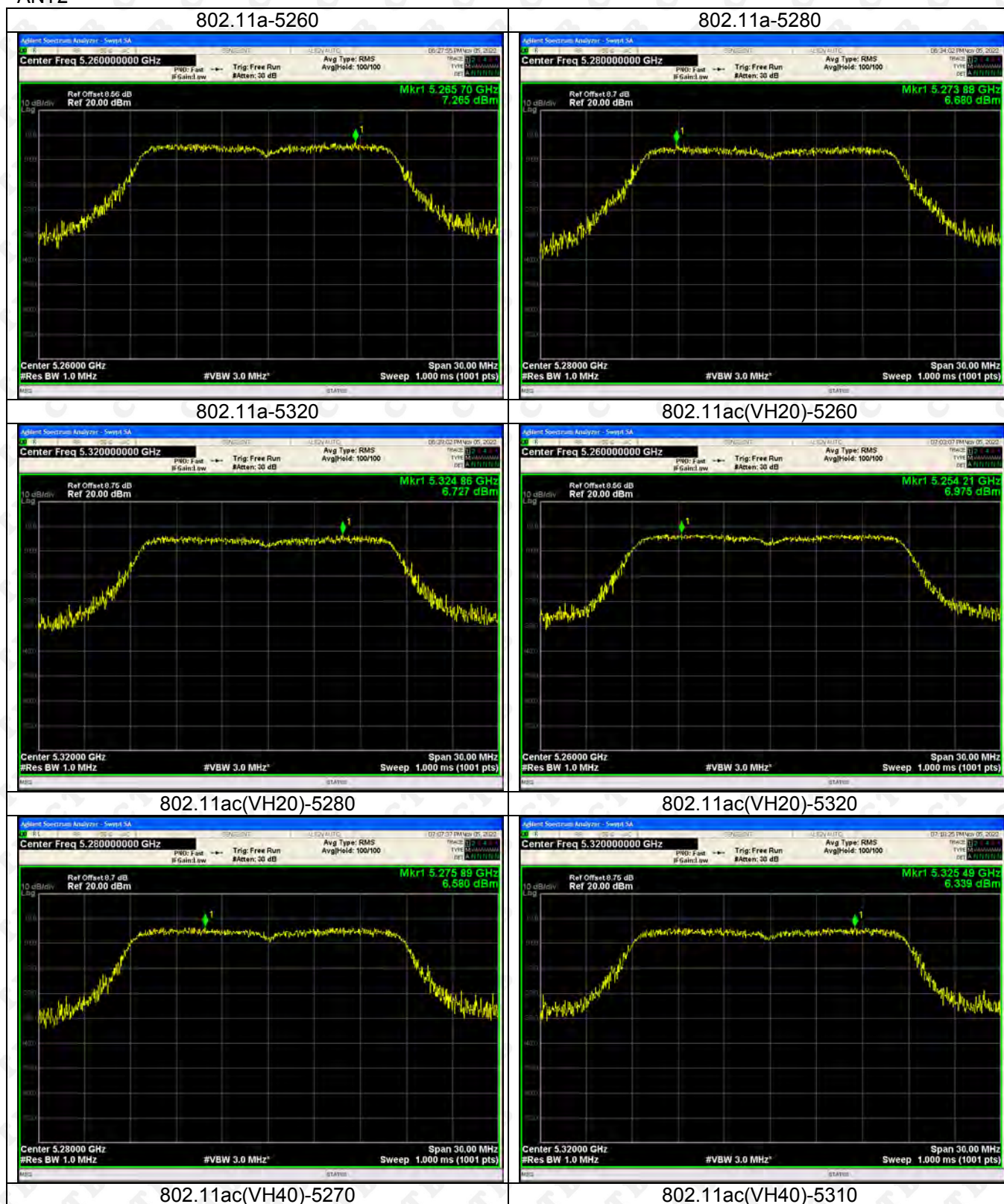
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802.11ac(VH40)-5310





ANT2





802.11n(HT20)-5260



802.11n(HT20)-5280



802.11n(HT20)-5320



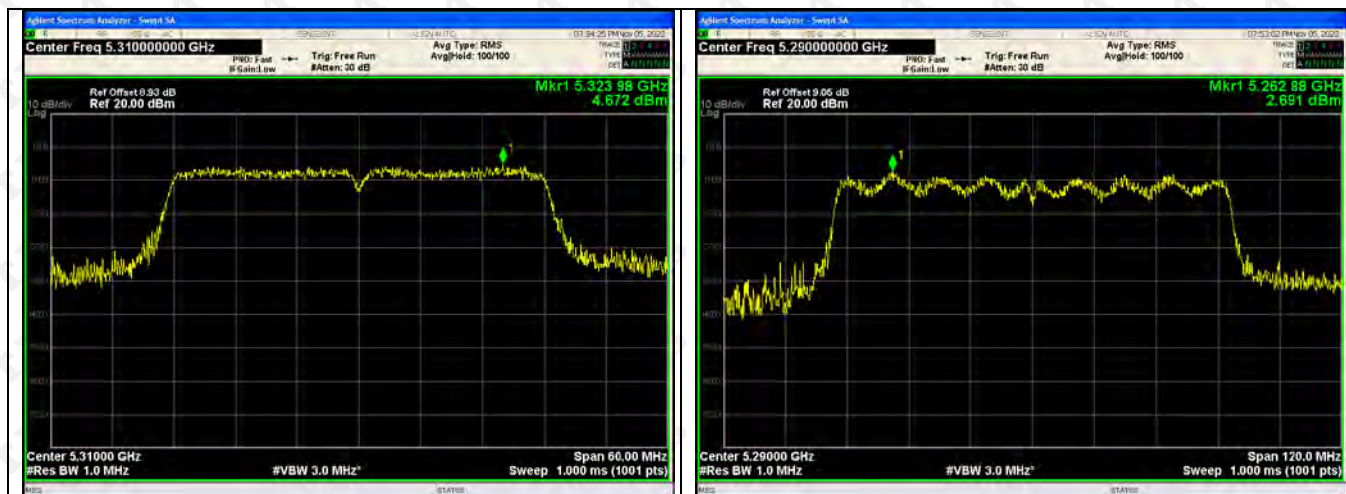
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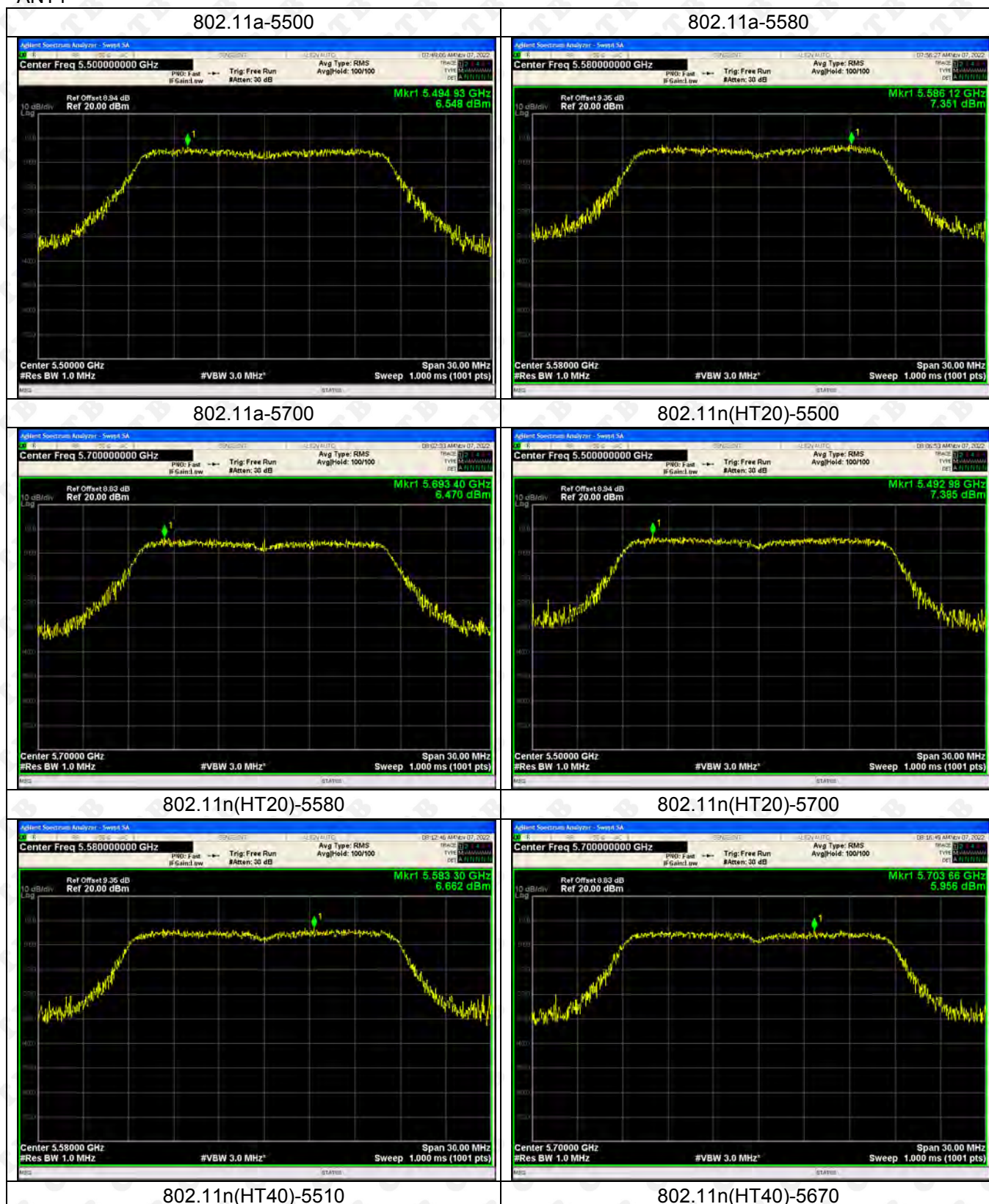
802.11n(HT40)-5310



802.11ac(HT80)-5290



5500-5700MHz
ANT1





802.11ac(VH20)-5500



802.11ac(VH20)-5580



802.11ac(VH20)-5700



802.11ac(VH40)-5510



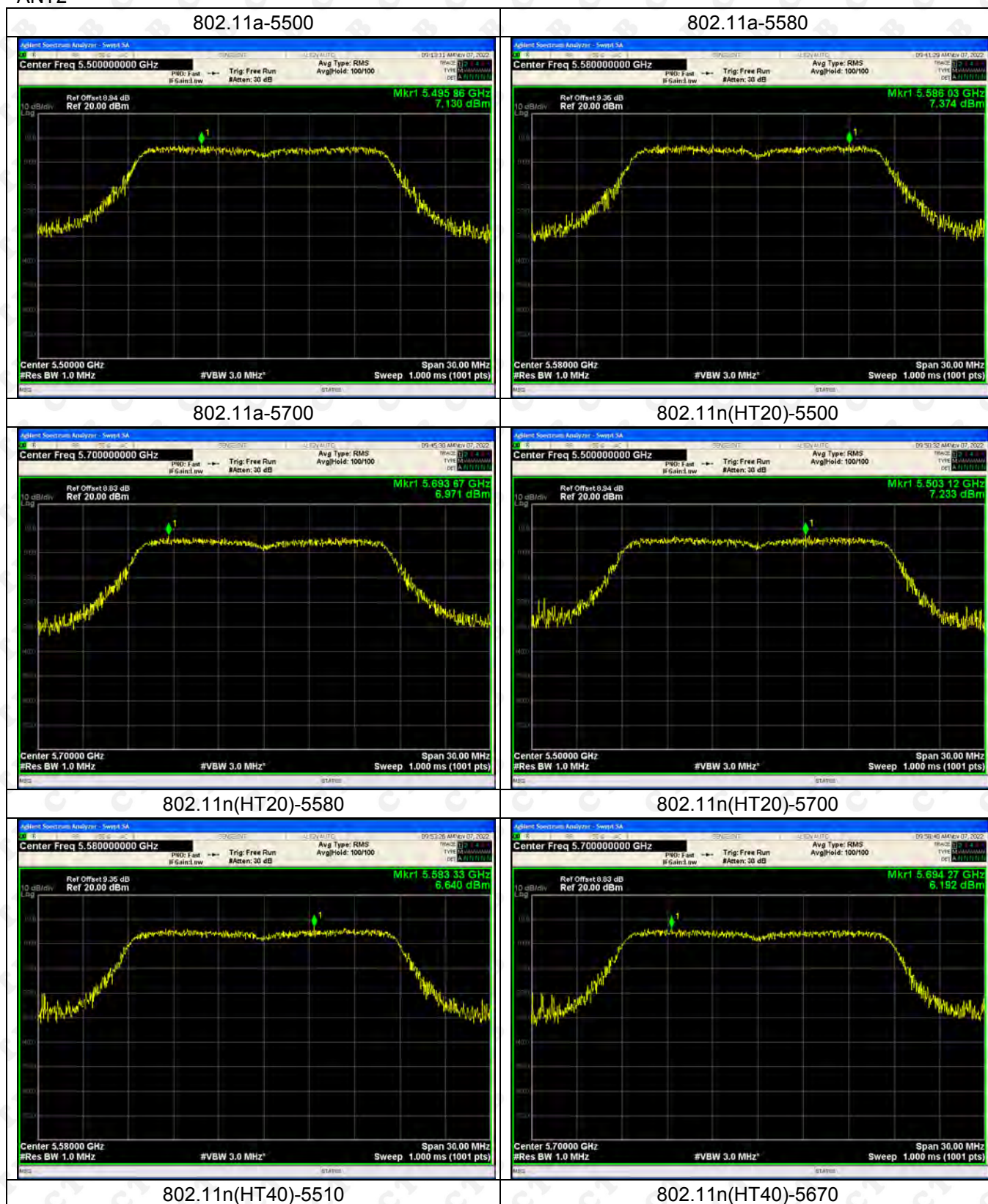
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802.11ac(VH80)-5530



ANT2





802.11ac(VH20)-5500



802.11ac(VH20)-5580



802.11ac(VH20)-5700



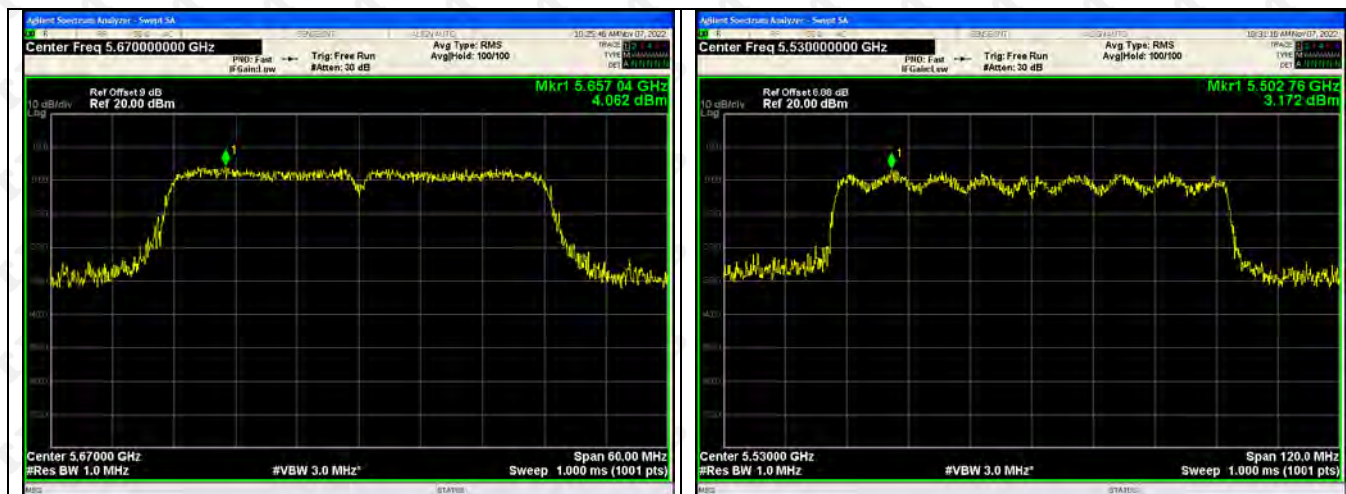
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802.11ac(VH40)-5670

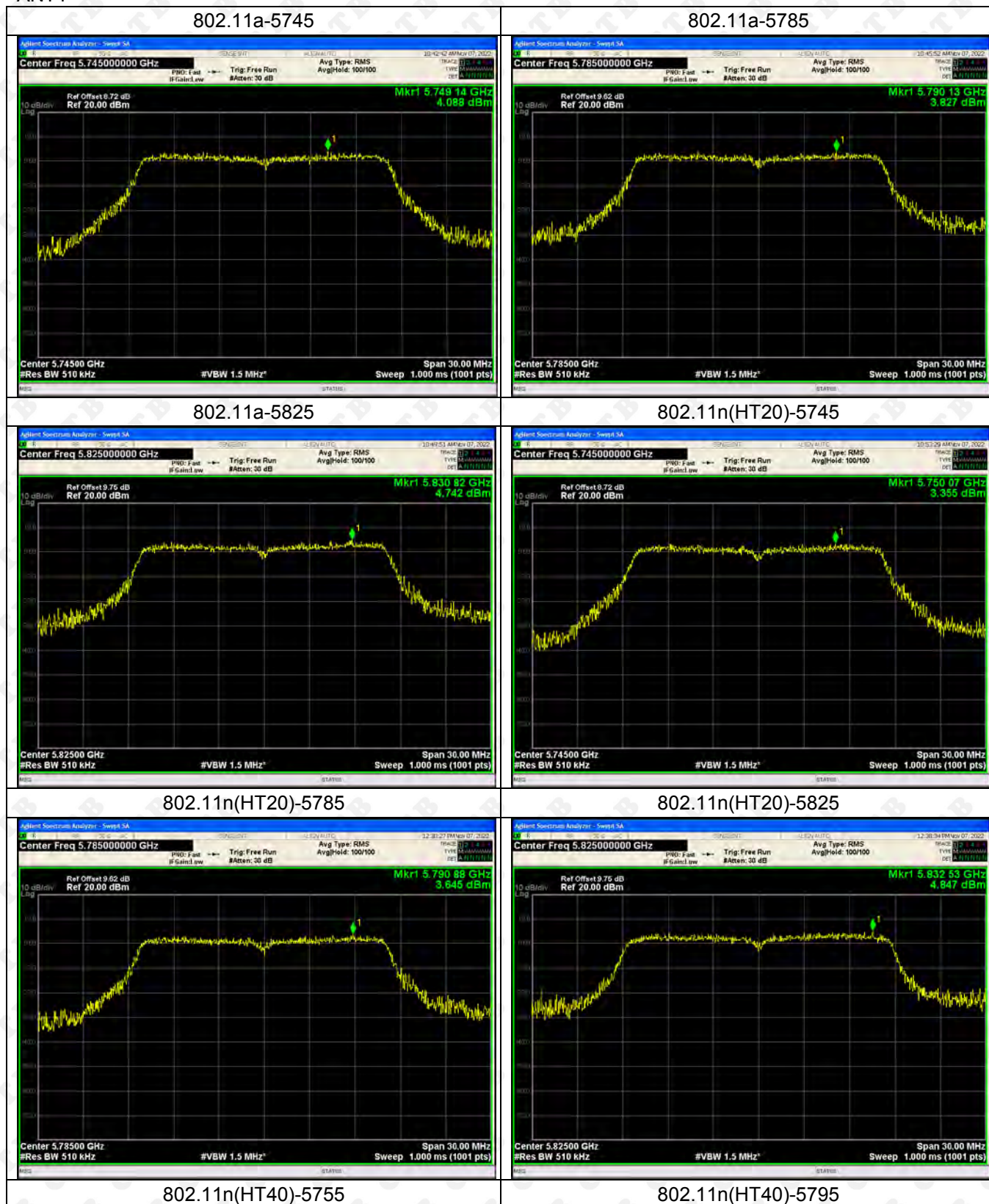


802.11ac(VH80)-5530



5745-5825MHz

ANT1





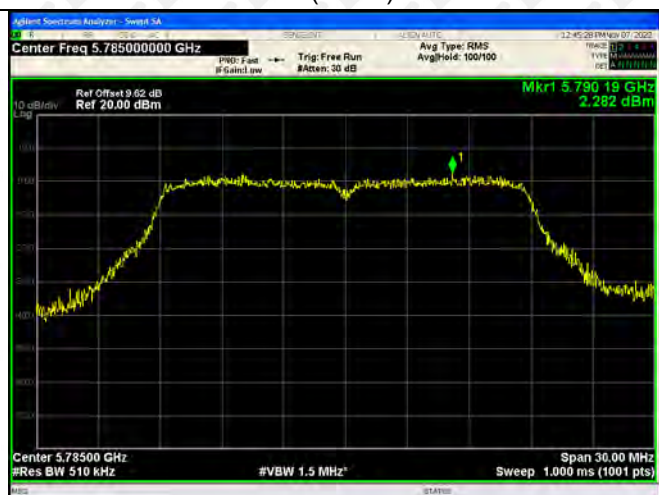
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802.11ac(VH20)-5785



802.11ac(VH20)-5825



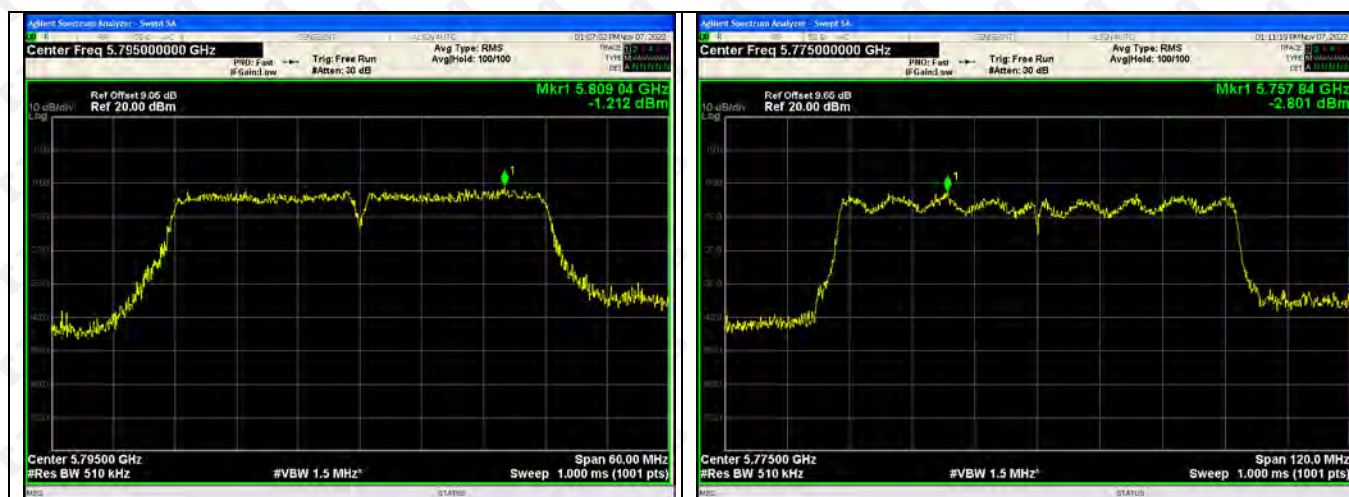
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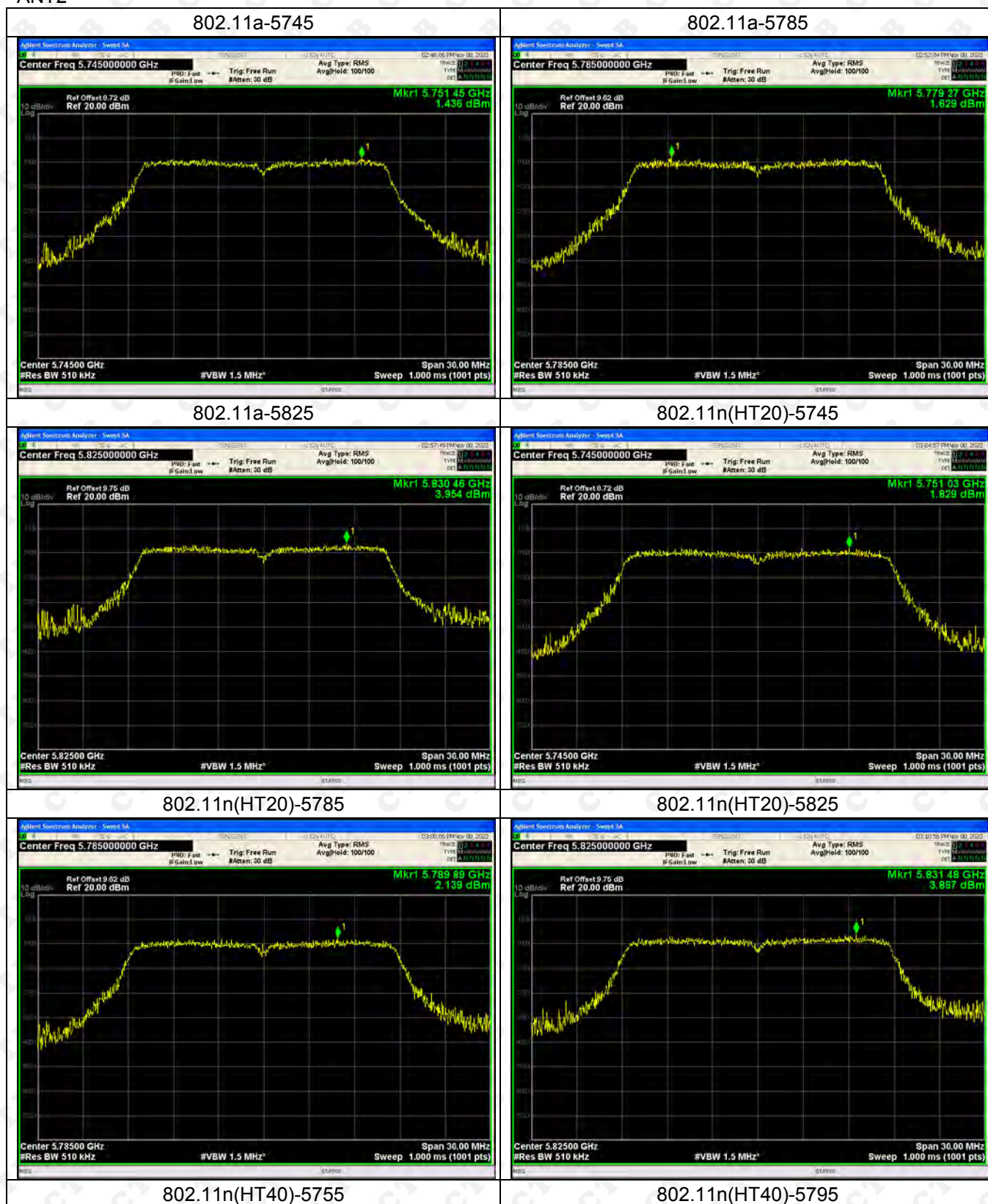
802.11ac(VH40)-5795



802.11ac(VH80)-5775



ANT2





802.11ac(VH20)-5745



802.11ac(VH20)-5785



802.11ac(VH20)-5825



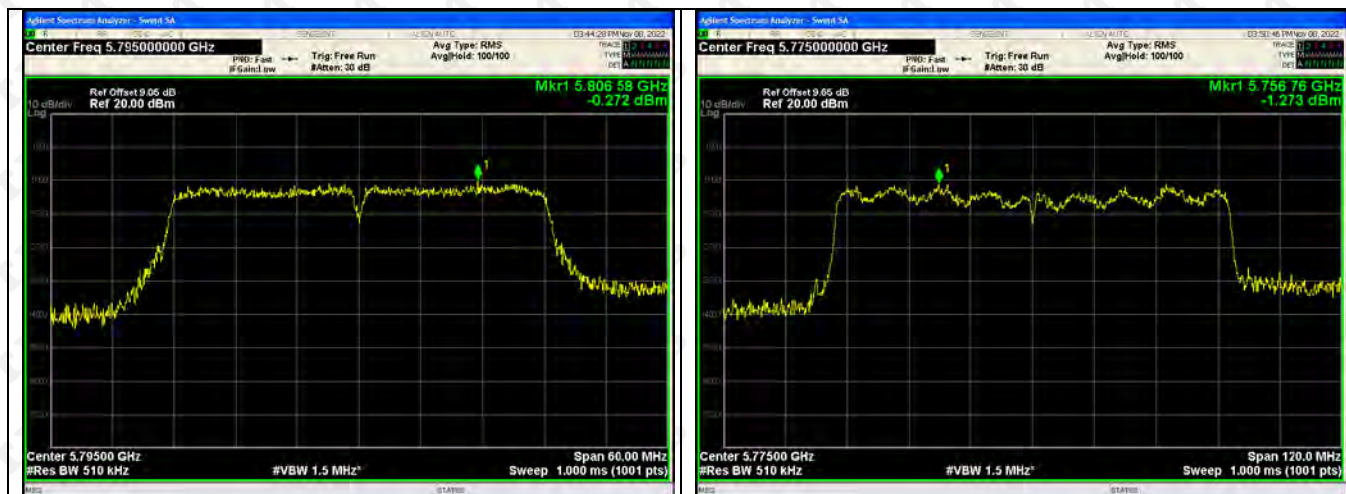
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802.11ac(VH40)-5795

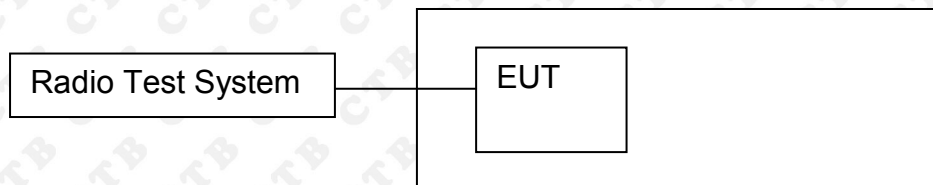


802.11ac(VH80)-5775



12. FREQUENCY STABILITY

12.1 Block Diagram Of Test Setup



12.2 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

12.3 Test procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

12.4 Test Result

TX Frequency (5150-5250MHz)

ANT1

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5180.0201	5180	0.0201	3.8833
		V max (V)	132	5180.0764	5180	0.0764	14.7521
		V min (V)	108	5180.1211	5180	0.1211	23.3878
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5180.0494	5180	0.0494	9.5392
		T (°C)	10	5180.0345	5180	0.0345	6.6526
		T (°C)	20	5180.0114	5180	0.0114	2.1946
		T (°C)	30	5180.0103	5180	0.0103	1.9816
		T (°C)	40	5180.0255	5180	0.0255	4.9199
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5200.0011	5200	0.0011	0.2031
		V max (V)	132	5200.0140	5200	0.0140	2.7017
		V min (V)	108	5200.0374	5200	0.0374	7.1970
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5200.0040	5200	0.0040	0.7765
		T (°C)	10	5200.0165	5200	0.0165	3.1787
		T (°C)	20	5200.0121	5200	0.0121	2.3183
		T (°C)	30	5200.0433	5200	0.0433	8.3274
		T (°C)	40	5200.0194	5200	0.0194	3.7283
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5240.0167	5240	0.0167	3.1964
		V max (V)	132	5240.0299	5240	0.0299	5.7127
		V min (V)	108	5240.0178	5240	0.0178	3.3902
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5240.0476	5240	0.0476	9.0810
		T (°C)	10	5240.0515	5240	0.0515	9.8261
		T (°C)	20	5240.0188	5240	0.0188	3.5950
		T (°C)	30	5240.0534	5240	0.0534	10.1888
		T (°C)	40	5240.0263	5240	0.0263	5.0114
Limits				±20ppm			
Result				Complies			

TX Frequency (5250-5350MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5260.0244	5260	0.0244	4.6311
		V max (V)	132	5260.0167	5260	0.0167	3.1659
		V min (V)	108	5260.0132	5260	0.0132	2.5059
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5260.0686	5260	0.0686	13.0440
		T (°C)	10	5260.0139	5260	0.0139	2.6459
		T (°C)	20	5260.0844	5260	0.0844	16.0373
		T (°C)	30	5260.0293	5260	0.0293	5.5679
		T (°C)	40	5260.0271	5260	0.0271	5.1440
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5280.0114	5280	0.0114	2.1549
		V max (V)	132	5280.0101	5280	0.0101	1.9072
		V min (V)	108	5280.0097	5280	0.0097	1.8397
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5280.0014	5280	0.0014	0.2727
		T (°C)	10	5280.0796	5280	0.0796	15.0676
		T (°C)	20	5280.0047	5280	0.0047	0.8832
		T (°C)	30	5280.0153	5280	0.0153	2.8886
		T (°C)	40	5280.0007	5280	0.0007	0.1281
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5320.0314	5320	0.0314	5.8981
		V max (V)	132	5320.0885	5320	0.0885	16.6264
		V min (V)	108	5320.0392	5320	0.0392	7.3752
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5320.0600	5320	0.0600	11.2760
		T (°C)	10	5320.0067	5320	0.0067	1.2568
		T (°C)	20	5320.0254	5320	0.0254	4.7687
		T (°C)	30	5320.0617	5320	0.0617	11.6043
		T (°C)	40	5320.0095	5320	0.0095	1.7861
Limits				±20ppm			
Result				Complies			

TX Frequency (5470-5725MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5550.0103	5500	50.0103	9092.7771
		V max (V)	132	5550.0212	5500	50.0212	9094.7597
		V min (V)	108	5550.0583	5500	50.0583	9101.5036
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5500.0532	5500	0.0532	9.6779
		T (°C)	10	5500.0933	5500	0.0933	16.9655
		T (°C)	20	5500.0024	5500	0.0024	0.4343
		T (°C)	30	5500.0007	5500	0.0007	0.1261
		T (°C)	40	5500.0810	5500	0.0810	14.7335
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5580.0662	5580	0.0662	11.8592
		V max (V)	132	5580.0633	5580	0.0633	11.3526
		V min (V)	108	5580.0036	5580	0.0036	0.6404
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5580.0782	5580	0.0782	14.0063
		T (°C)	10	5580.0903	5580	0.0903	16.1823
		T (°C)	20	5580.0001	5580	0.0001	0.0219
		T (°C)	30	5580.0140	5580	0.0140	2.5048
		T (°C)	40	5580.0842	5580	0.0842	15.0948
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5700.0040	5700	0.0040	0.6975
		V max (V)	132	5700.0541	5700	0.0541	9.4987
		V min (V)	108	5700.0088	5700	0.0088	1.5476
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5700.0690	5700	0.0690	12.1105
		T (°C)	10	5700.0264	5700	0.0264	4.6318
		T (°C)	20	5700.0557	5700	0.0557	9.7730
		T (°C)	30	5700.0911	5700	0.0911	15.9793
		T (°C)	40	5700.0594	5700	0.0594	10.4159
Limits				±20ppm			
Result				Complies			

TX Frequency (5725-5850MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5745.0431	5745	0.0431	7.4956
		V max (V)	132	5745.0089	5745	0.0089	1.5569
		V min (V)	108	5745.0431	5745	0.0431	7.4956
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5745.0063	5745	0.0063	1.0901
		T (°C)	10	5745.0088	5745	0.0088	1.5367
		T (°C)	20	5745.0352	5745	0.0352	6.1232
		T (°C)	30	5745.0409	5745	0.0409	7.1135
		T (°C)	40	5745.0384	5745	0.0384	6.6894
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5785.0925	5785	0.0925	15.9931
		V max (V)	132	5785.0186	5785	0.0186	3.2191
		V min (V)	108	5785.0916	5785	0.0916	15.8368
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5785.0605	5785	0.0605	10.4611
		T (°C)	10	5785.0622	5785	0.0622	10.7436
		T (°C)	20	5785.0240	5785	0.0240	4.1418
		T (°C)	30	5785.0270	5785	0.0270	4.6699
		T (°C)	40	5785.0847	5785	0.0847	14.6445
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5825.0189	5825	0.0189	3.2468
		V max (V)	132	5825.0389	5825	0.0389	6.6813
		V min (V)	108	5825.0914	5825	0.0914	15.6869
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5825.0356	5825	0.0356	6.1036
		T (°C)	10	5825.0755	5825	0.0755	12.9597
		T (°C)	20	5825.0634	5825	0.0634	10.8782
		T (°C)	30	5825.0097	5825	0.0097	1.6651
		T (°C)	40	5825.0228	5825	0.0228	3.9217
Limits				±20ppm			
Result				Complies			

ANT2:

TX Frequency (5150-5250MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5180.0041	5180	0.0041	0.7971
		V max (V)	132	5180.0066	5180	0.0066	1.2737
		V min (V)	108	5180.0909	5180	0.0909	17.5414
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5180.0541	5180	0.0541	10.4381
		T (°C)	10	5180.0858	5180	0.0858	16.5555
		T (°C)	20	5180.0109	5180	0.0109	2.1094
		T (°C)	30	5180.0640	5180	0.0640	12.3499
		T (°C)	40	5180.0405	5180	0.0405	7.8105
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5200.0504	5200	0.0504	9.6967
		V max (V)	132	5200.0186	5200	0.0186	3.5779
		V min (V)	108	5200.0799	5200	0.0799	15.3660
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5200.0856	5200	0.0856	16.4531
		T (°C)	10	5200.0642	5200	0.0642	12.3418
		T (°C)	20	5200.0175	5200	0.0175	3.3729
		T (°C)	30	5200.0925	5200	0.0925	17.7876
		T (°C)	40	5200.0687	5200	0.0687	13.2137
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5240.0055	5240	0.0055	1.0435
		V max (V)	132	5240.0269	5240	0.0269	5.1272
		V min (V)	108	5240.0750	5240	0.0750	14.3142
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5240.0662	5240	0.0662	12.6328
		T (°C)	10	5240.0301	5240	0.0301	5.7527
		T (°C)	20	5240.0137	5240	0.0137	2.6052
		T (°C)	30	5240.0850	5240	0.0850	16.2280
		T (°C)	40	5240.0827	5240	0.0827	15.7803
Limits				±20ppm			
Result				Complies			

TX Frequency (5250-5350MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5260.0915	5260	0.0915	17.4000
		V max (V)	132	5260.0713	5260	0.0713	13.5558
		V min (V)	108	5260.0930	5260	0.0930	17.6791
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5260.0353	5260	0.0353	6.7070
		T (°C)	10	5260.0649	5260	0.0649	12.3331
		T (°C)	20	5260.0801	5260	0.0801	15.2247
		T (°C)	30	5260.0655	5260	0.0655	12.4513
		T (°C)	40	5260.0108	5260	0.0108	2.0601
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5280.0127	5280	0.0127	2.4023
		V max (V)	132	5280.0269	5280	0.0269	5.0860
		V min (V)	108	5280.0719	5280	0.0719	13.6107
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5280.0441	5280	0.0441	8.3431
		T (°C)	10	5280.0302	5280	0.0302	5.7257
		T (°C)	20	5280.0772	5280	0.0772	14.6300
		T (°C)	30	5280.0229	5280	0.0229	4.3334
		T (°C)	40	5280.0436	5280	0.0436	8.2559
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5320.0076	5320	0.0076	1.4331
		V max (V)	132	5320.0612	5320	0.0612	11.5123
		V min (V)	108	5320.0405	5320	0.0405	7.6197
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5320.0075	5320	0.0075	1.4128
		T (°C)	-10	5320.0571	5320	0.0571	10.7393
		T (°C)	0	5320.0348	5320	0.0348	6.5374
		T (°C)	10	5320.0620	5320	0.0620	11.6566
		T (°C)	20	5320.0158	5320	0.0158	2.9718
		T (°C)	30	5320.0787	5320	0.0787	14.7934
		T (°C)	40	5320.0107	5320	0.0107	2.0060
		T (°C)	50	5320.0417	5320	0.0417	7.8338
		T (°C)	60	5320.0410	5320	0.0410	7.7078
		T (°C)	70	5320.0932	5320	0.0932	17.5143
Limits				±20ppm			
Result				Complies			

TX Frequency (5470-5725MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5500.0135	5500	0.0135	2.4519
		V max (V)	132	5500.0061	5500	0.0061	1.1171
		V min (V)	108	5500.0214	5500	0.0214	3.8913
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5500.0173	5500	0.0173	3.1496
		T (°C)	10	5500.0091	5500	0.0091	1.6503
		T (°C)	20	5500.0147	5500	0.0147	2.6653
		T (°C)	30	5500.0930	5500	0.0930	16.9167
		T (°C)	40	5500.0747	5500	0.0747	13.5776
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5580.0934	5580	0.0934	16.7455
		V max (V)	132	5580.0531	5580	0.0531	9.5218
		V min (V)	108	5580.0370	5580	0.0370	6.6385
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5580.0141	5580	0.0141	2.5258
		T (°C)	10	5580.0197	5580	0.0197	3.5229
		T (°C)	20	5580.0004	5580	0.0004	0.0678
		T (°C)	30	5580.0352	5580	0.0352	6.3016
		T (°C)	40	5580.0166	5580	0.0166	2.9753
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5700.0124	5700	0.0124	2.1752
		V max (V)	132	5700.0752	5700	0.0752	13.1963
		V min (V)	108	5700.0443	5700	0.0443	7.7700
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5700.0873	5700	0.0873	15.3094
		T (°C)	10	5700.0028	5700	0.0028	0.4902
		T (°C)	20	5700.0683	5700	0.0683	11.9825
		T (°C)	30	5700.0668	5700	0.0668	11.7279
		T (°C)	40	5700.0261	5700	0.0261	4.5766
Limits				±20ppm			
Result				Complies			

TX Frequency (5725-5850MHz)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5745.0365	5745	0.0365	6.3607
		V max (V)	132	5745.0666	5745	0.0666	11.5937
		V min (V)	108	5745.0253	5745	0.0253	4.4024
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5745.0550	5745	0.0550	9.5723
		T (°C)	10	5745.0133	5745	0.0133	2.3081
		T (°C)	20	5745.0584	5745	0.0584	10.1694
		T (°C)	30	5745.0187	5745	0.0187	3.2630
		T (°C)	40	5745.0877	5745	0.0877	15.2613
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5785.0628	5785	0.0628	10.8642
		V max (V)	132	5785.0077	5785	0.0077	1.3243
		V min (V)	108	5785.0007	5785	0.0007	0.1162
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5785.0571	5785	0.0571	9.8696
		T (°C)	10	5785.0524	5785	0.0524	9.0649
		T (°C)	20	5785.0133	5785	0.0133	2.2970
		T (°C)	30	5785.0209	5785	0.0209	3.6047
		T (°C)	40	5785.0121	5785	0.0121	2.0887
		T (°C)	50	5785.0812	5785	0.0812	14.0345
Limits				±20ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120	5825.0580	5825	0.0580	9.9526
		V max (V)	132	5825.0542	5825	0.0542	9.3092
		V min (V)	108	5825.0141	5825	0.0141	2.4205
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	0	5825.0763	5825	0.0763	13.0953
		T (°C)	10	5825.0449	5825	0.0449	7.7160
		T (°C)	20	5825.0594	5825	0.0594	10.2049
		T (°C)	30	5825.0481	5825	0.0481	8.2505
		T (°C)	40	5825.0377	5825	0.0377	6.4652
Limits				±20ppm			
Result				Complies			

13. OPERATION IN THE ABSENCE OF INFORMATION TO THE TRANSMIT

13.1 Requirement

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.

13.2 Test Results

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)

14. 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is PIFA antenna and no consideration of replacement. The best case gain of the antenna is 5.2G 5.2G:2.88dBi, 5.3G:3.13dBi, 5.6G:3.36dBi, 5.8G:3.14dBi.

15. EUT PHOTOGRAPHS**EUT Photo 1****EUT Photo 2**

16. EUT TEST SETUP PHOTOGRAPHS

Spurious emissions

Below 1GHz



Above 1GHz



Conducted Emission



***** END OF REPORT *****