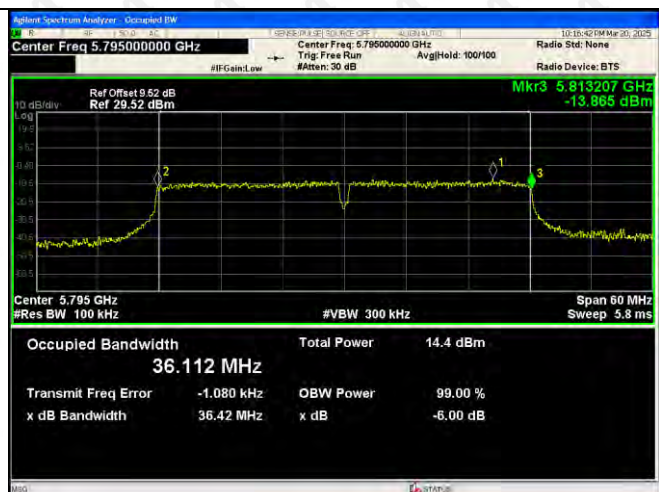


ANT3:





802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



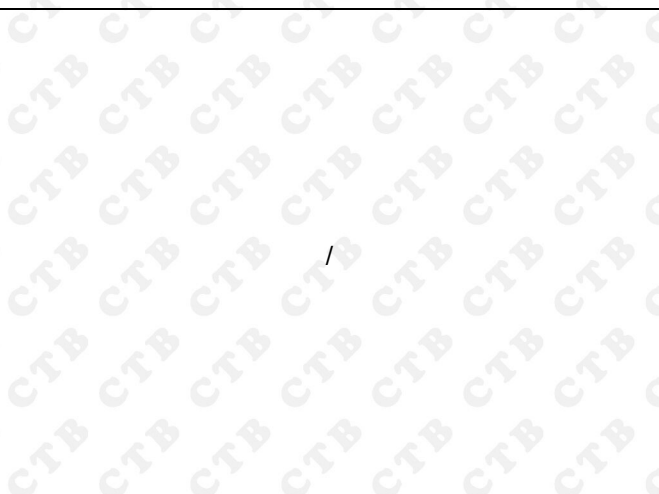
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802.11n(HT40)-5795



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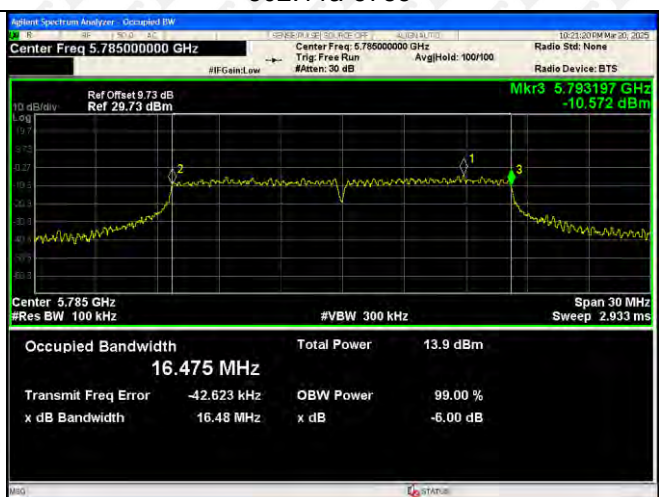


ANT4:

802.11a-5745



802.11a-5785



802.11a-5825



802.11ac(VH20)-5745



802.11ac(VH20)-5785

802.11ac(VH20)-5825



802.11ac(VH40)-5755



802.11ac(VH40)-5795



802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



5802.11n(HT40)-5755



802.11n(HT40)-5795

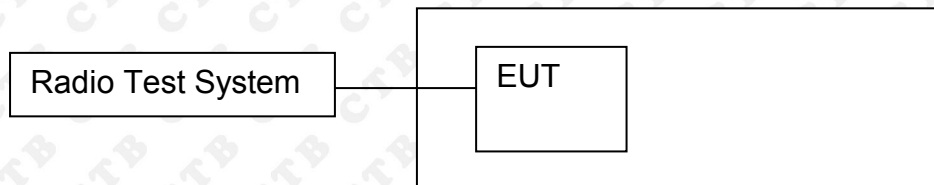
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11. POWER SPECTRAL DENSITY

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 ($< 1 \text{ MHz}$, or $< 500 \text{ kHz}$) 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 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

ANT 1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm/MHz)	Result
802.11a	5180	-3.896	-3.728	/	11	Pass
	5200	-3.726	-3.442	/	11	Pass
	5240	-2.761	-3.193	/	11	Pass
802.11ac(VH20)	5180	-4.046	-3.367	-0.683	11	Pass
	5200	-4.084	-3.180	-0.598	11	Pass
	5240	-2.924	-3.054	0.022	11	Pass
802.11ac(VH40)	5190	-6.991	-6.953	-3.962	11	Pass
	5230	-6.286	-6.618	-3.439	11	Pass
802.11n(VH20)	5180	-3.736	-4.509	-1.095	11	Pass
	5200	-3.949	-3.824	-0.876	11	Pass
	5240	-2.831	-3.759	-0.260	11	Pass
802.11n(VH40)	5190	-7.134	-7.264	-4.188	11	Pass
	5230	-5.770	-6.449	-3.086	11	Pass

ANT 3+ANT4

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 3	PSD [dBm/MHz] ANT 4	PSD [dBm/MHz] Total	Limit (dBm/MHz)	Result
802.11a	5180	-3.390	-3.263	/	11	Pass
	5200	-2.873	-3.054	/	11	Pass
	5240	-2.736	-2.891	/	11	Pass
802.11ac(VH20)	5180	-3.734	-3.859	-0.786	11	Pass
	5200	-3.260	-3.530	-0.383	11	Pass
	5240	-3.104	-3.233	-0.158	11	Pass
802.11ac(VH40)	5190	-7.162	-7.053	-4.097	11	Pass
	5230	-6.652	-6.725	-3.678	11	Pass
802.11n(VH20)	5180	-3.529	-3.769	-0.637	11	Pass
	5200	-3.401	-3.194	-0.286	11	Pass
	5240	-2.841	-2.850	0.165	11	Pass
802.11n(VH40)	5190	-7.064	-7.010	-4.027	11	Pass
	5230	-6.799	-6.830	-3.804	11	Pass

ANT 1+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	5745	-5.511	-6.592	/	30	Pass
	5785	-3.970	-5.779	/	30	Pass
	5825	-5.155	-6.372	/	30	Pass
802.11ac(VH20)	5745	-6.577	-6.789	-3.671	30	Pass
	5785	-6.332	-6.355	-3.333	30	Pass
	5825	-6.731	-6.749	-3.730	30	Pass
802.11ac(VH40)	5755	-9.744	-9.359	-6.537	30	Pass
	5795	-9.227	-9.115	-6.160	30	Pass
802.11n(VH20)	5775	-6.847	-6.812	-3.819	30	Pass
	5745	-6.405	-6.400	-3.392	30	Pass
	5785	-6.409	-6.928	-3.650	30	Pass
802.11n(VH40)	5825	-9.561	-9.425	-6.482	30	Pass
	5755	-9.166	-9.363	-6.253	30	Pass

ANT 3+ANT4

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5745	-6.681	-6.483	/	30	Pass
	5785	-6.088	-6.145	/	30	Pass
	5825	-6.487	-6.361	/	30	Pass
802.11ac(VH20)	5745	-6.901	-6.950	-3.915	30	Pass
	5785	-6.294	-6.508	-3.389	30	Pass
	5825	-6.560	-6.928	-3.730	30	Pass
802.11ac(VH40)	5755	-9.694	-9.664	-6.669	30	Pass
	5795	-9.255	-9.422	-6.327	30	Pass
802.11n(VH20)	5775	-6.843	-6.607	-3.713	30	Pass
	5745	-6.240	-6.394	-3.306	30	Pass
	5785	-6.728	-6.820	-3.763	30	Pass
802.11n(VH40)	5825	-9.548	-9.607	-6.567	30	Pass
	5755	-9.321	-9.291	-6.296	30	Pass

5180-5240MHz

ANT 1

802.11a-5180



802.11a-5200



802.11a-5240



802.11ac(VH20)-5180



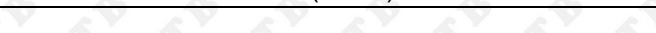
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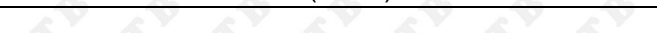
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802.11ac(VH40)-5190



802.11ac(VH40)-5230





802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



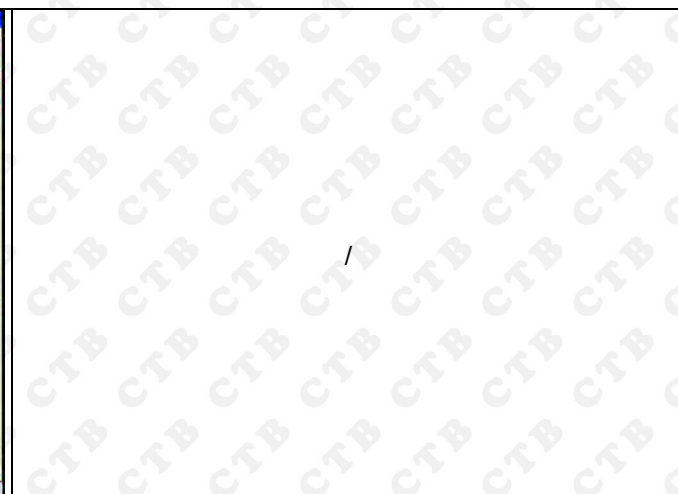
802.11n(HT40)-5190



802.11n(HT40)-5230



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ANT2

802.11a-5180



802.11a-5200



802.11a-5240



802.11ac(VH20)-5180



802.11ac(VH20)-5200

802.11ac(VH20)-5240



802.11ac(VH40)-5190



802.11ac(VH40)-5230



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



802.11n(HT40)-5190



802.11n(HT40)-5230

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ANT 3





802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



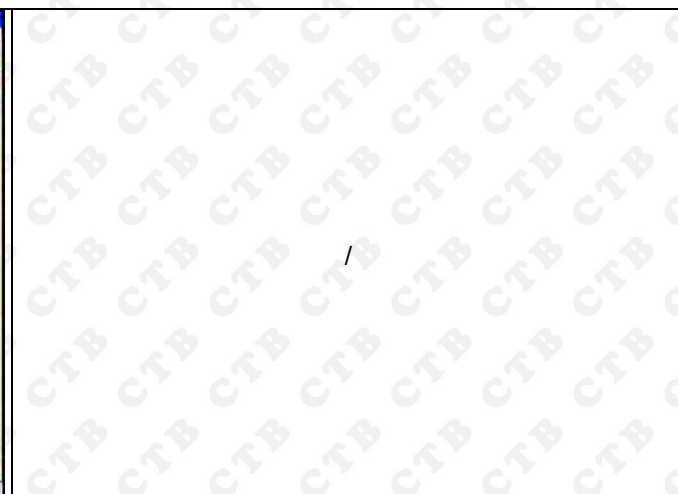
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802.11n(HT40)-5230



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ANT4

802.11a-5180



802.11a-5200



802.11a-5240



802.11ac(VH20)-5180



802.11ac(VH20)-5200

802.11ac(VH20)-5240



802.11ac(VH40)-5190



802.11ac(VH40)-5230



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



802.11n(HT40)-5190



802.11n(HT40)-5230

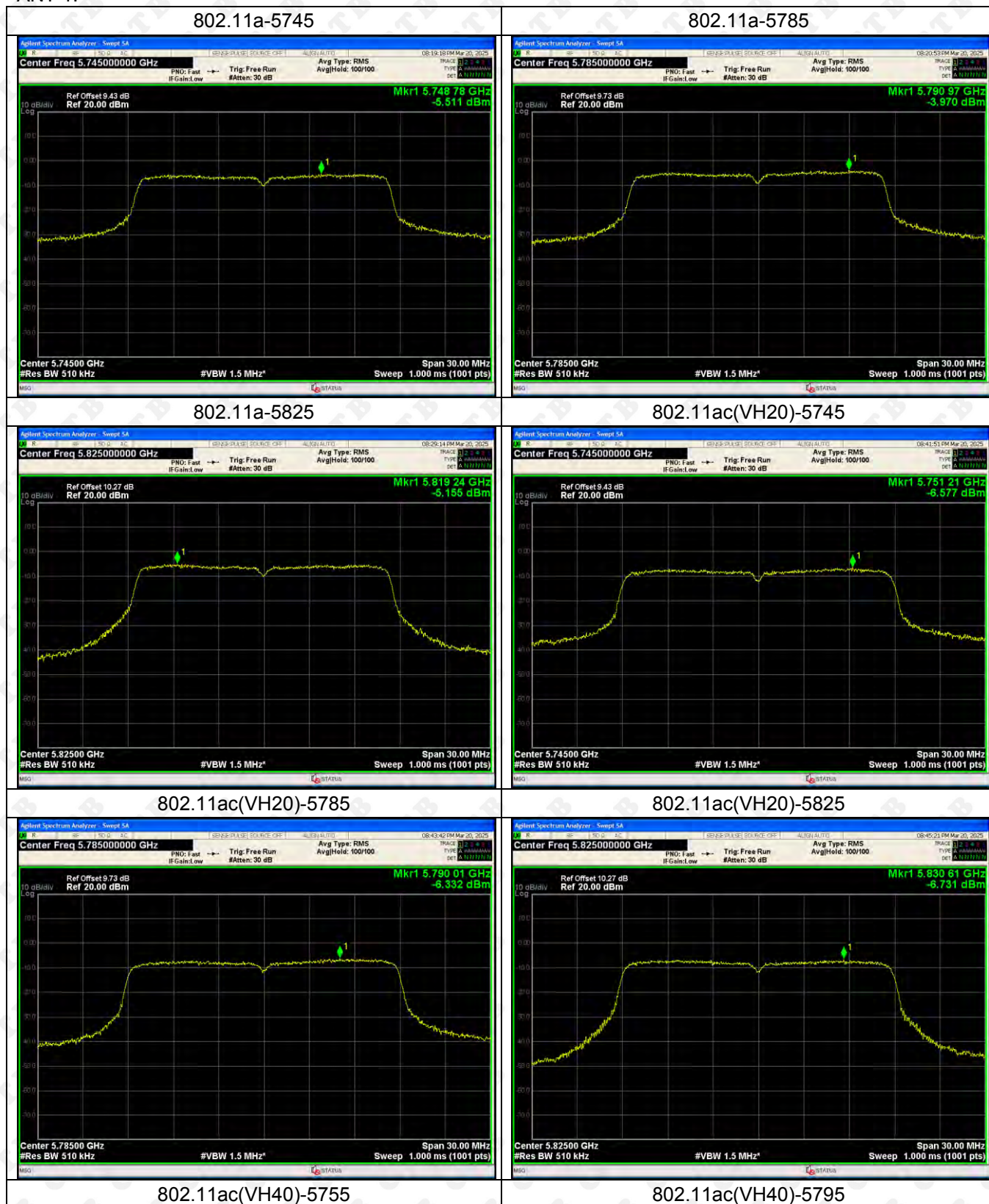
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5745-5825MHz

ANT 1:





802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



5802.11n(HT40)-5755



802.11n(HT40)-5795



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ANT2:

802.11a-5745



802.11a-5785



802.11a-5825



802.11ac(VH20)-5745



802.11ac(VH20)-5785

802.11ac(VH20)-5825



802.11ac(VH40)-5755



802.11ac(VH40)-5795



802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



5802.11n(HT40)-5755



802.11n(HT40)-5795

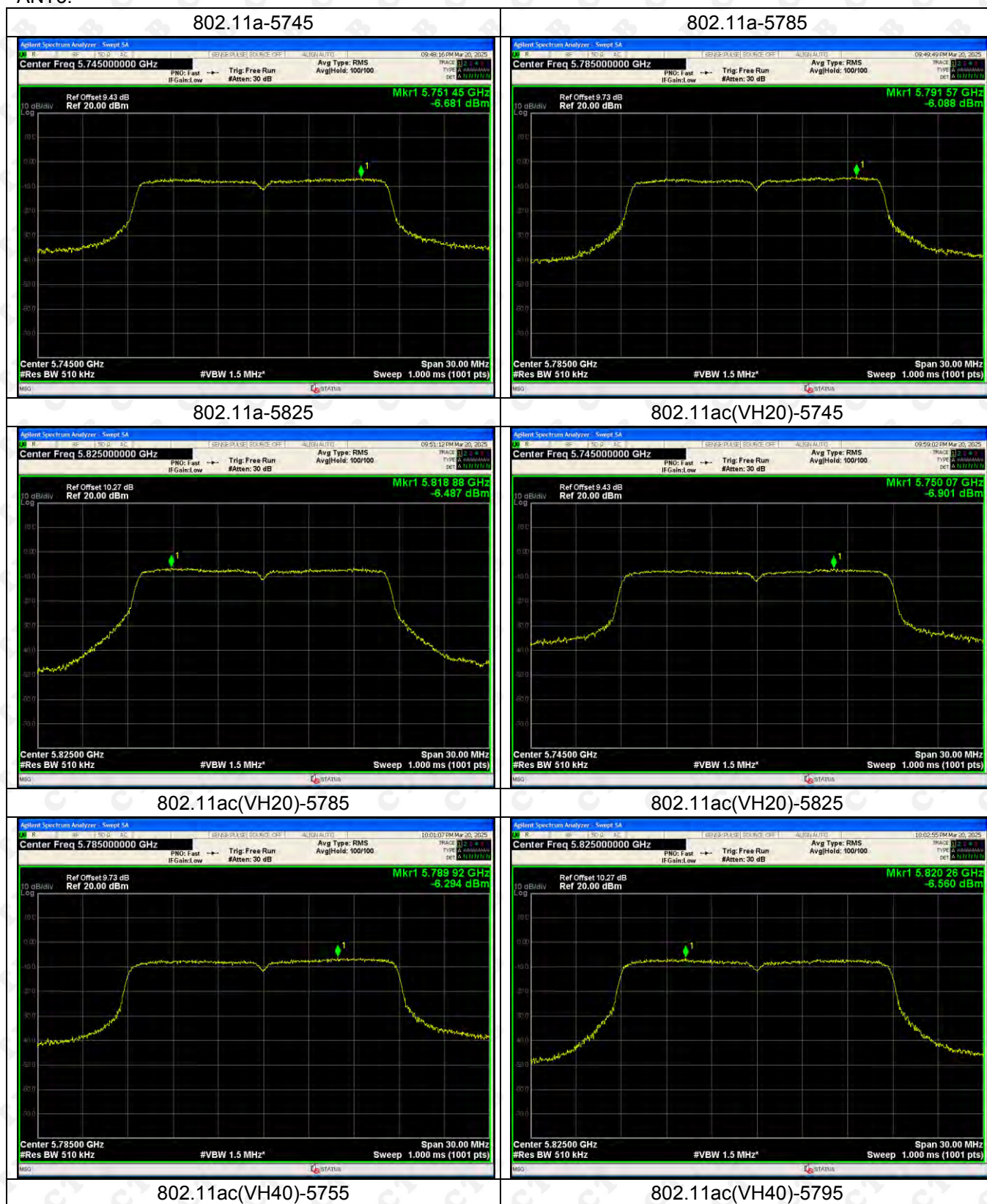


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ANT3:





802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



5802.11n(HT40)-5755



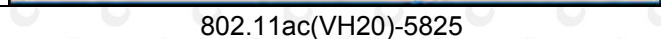
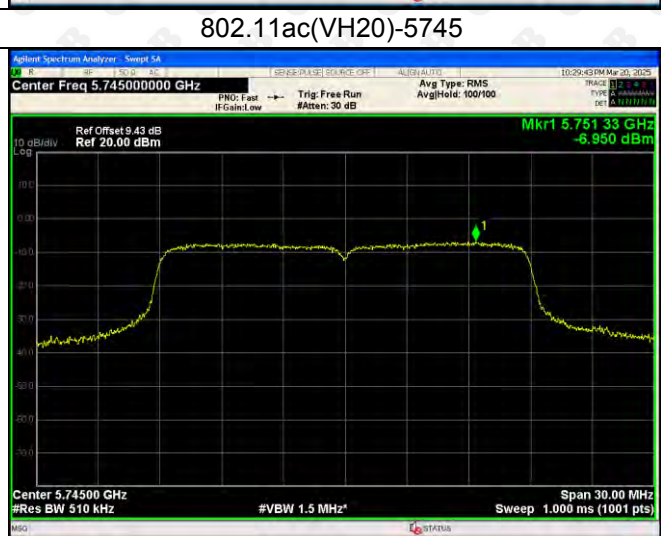
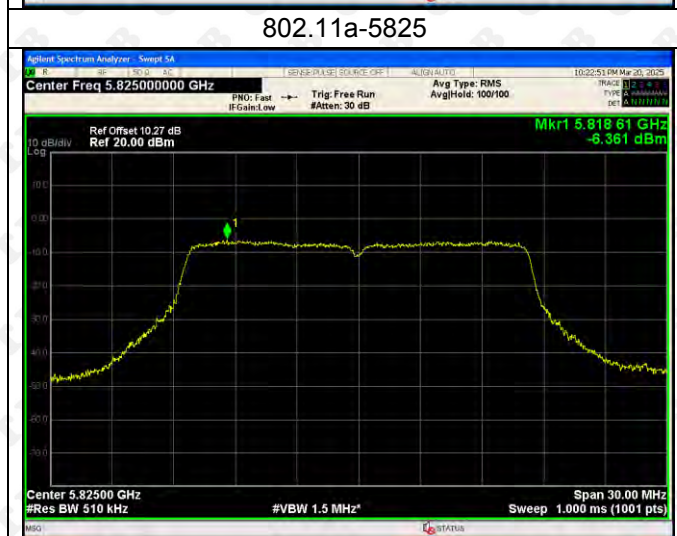
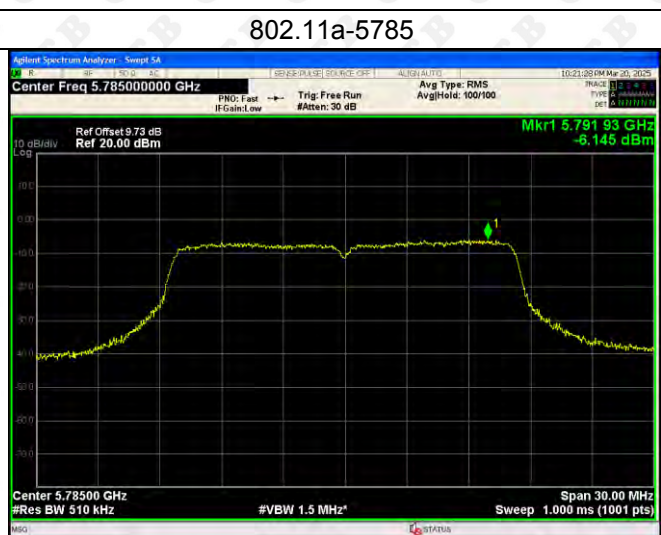
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ANT4:





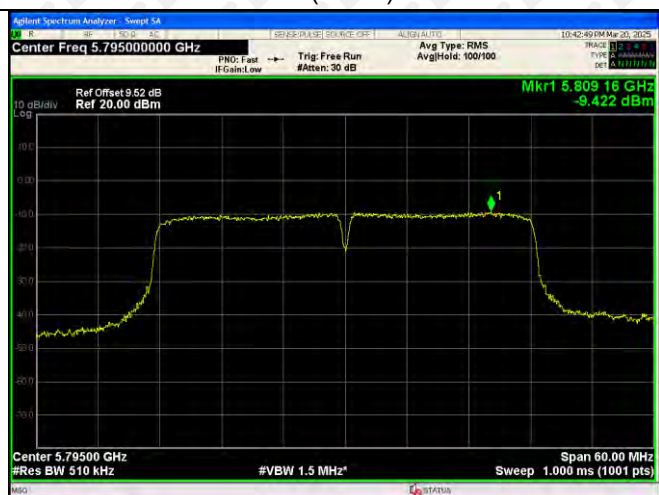
802.11ac(VH40)-5755



802.11ac(VH40)-5795



802.11n(HT20)-5745



802.11n(HT20)-5785



802.11n(HT20)-5825



5802.11n(HT40)-5755



802.11n(HT40)-5795



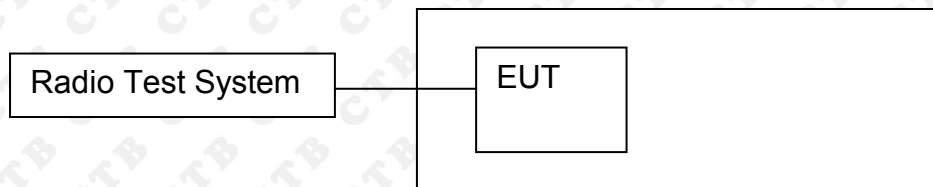
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12. FREQUENCY STABILITY

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

ANT1:

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)	48.00	5180.0166	5180	0.0166	3.2022
		V max (V)	52.80	5180.0057	5180	0.0057	1.1003
		V min (V)	43.20	5180.0918	5180	0.0918	17.7280
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5180.0392	5180	0.0392	7.5658
		T (°C)	10	5180.0118	5180	0.0118	2.2869
		T (°C)	20	5180.0380	5180	0.0380	7.3391
		T (°C)	30	5180.0025	5180	0.0025	0.4741
		T (°C)	40	5180.0018	5180	0.0018	0.3487
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)	48.00	5200.0302	5200	0.0302	5.7997
		V max (V)	52.80	5200.0113	5200	0.0113	2.1762
		V min (V)	43.20	5200.0030	5200	0.0030	0.5839
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5200.0237	5200	0.0237	4.5602
		T (°C)	10	5200.0263	5200	0.0263	5.0567
		T (°C)	20	5200.0015	5200	0.0015	0.2843
		T (°C)	30	5200.0124	5200	0.0124	2.3857
		T (°C)	40	5200.0013	5200	0.0013	0.2588
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)	48.00	5240.0225	5240	0.0225	4.2896
		V max (V)	52.80	5240.0017	5240	0.0017	0.3315
		V min (V)	43.20	5240.0141	5240	0.0141	2.6998
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5240.0525	5240	0.0525	10.0128
		T (°C)	10	5240.0349	5240	0.0349	6.6620
		T (°C)	20	5240.0015	5240	0.0015	0.2893
		T (°C)	30	5240.0286	5240	0.0286	5.4544
		T (°C)	40	5240.0303	5240	0.0303	5.7734
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)	48.00	5180.0177	5180	0.0177	3.4213
		V max (V)	52.80	5180.0215	5180	0.0215	4.1441
		V min (V)	43.20	5180.0011	5180	0.0011	0.2143
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5180.0036	5180	0.0036	0.6979
		T (°C)	10	5180.0035	5180	0.0035	0.6830
		T (°C)	20	5180.0213	5180	0.0213	4.1203
		T (°C)	30	5180.0649	5180	0.0649	12.5369
		T (°C)	40	5180.0536	5180	0.0536	10.3495
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)	48.00	5200.0867	5200	0.0867	16.6651
		V max (V)	52.80	5200.0669	5200	0.0669	12.8577
		V min (V)	43.20	5200.0661	5200	0.0661	12.7055
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5200.0000	5200	0.0000	0.0036
		T (°C)	10	5200.0802	5200	0.0802	15.4221
		T (°C)	20	5200.0841	5200	0.0841	16.1717
		T (°C)	30	5200.0549	5200	0.0549	10.5596
		T (°C)	40	5200.0628	5200	0.0628	12.0850
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)	48.00	5240.0734	5240	0.0734	14.0153
		V max (V)	52.80	5240.0081	5240	0.0081	1.5426
		V min (V)	43.20	5240.0902	5240	0.0902	17.2206
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5240.0011	5240	0.0011	0.2147
		T (°C)	10	5240.0814	5240	0.0814	15.5385
		T (°C)	20	5240.0580	5240	0.0580	11.0736
		T (°C)	30	5240.0757	5240	0.0757	14.4543
		T (°C)	40	5240.0799	5240	0.0799	15.2542
Limits				±20ppm			
Result				Complies			

ANT3:

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)	48.00	5180.0222	5180	0.0222	4.2924
		V max (V)	52.80	5180.0153	5180	0.0153	2.9534
		V min (V)	43.20	5180.0629	5180	0.0629	12.1351
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5180.0018	5180	0.0018	0.3439
		T (°C)	10	5180.0415	5180	0.0415	8.0061
		T (°C)	20	5180.0318	5180	0.0318	6.1325
		T (°C)	30	5180.0082	5180	0.0082	1.5836
		T (°C)	40	5180.0281	5180	0.0281	5.4297
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)	48.00	5200.0448	5200	0.0448	8.6188
		V max (V)	52.80	5200.0159	5200	0.0159	3.0632
		V min (V)	43.20	5200.0311	5200	0.0311	5.9721
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5200.0105	5200	0.0105	2.0158
		T (°C)	10	5200.0289	5200	0.0289	5.5585
		T (°C)	20	5200.0011	5200	0.0011	0.2104
		T (°C)	30	5200.0214	5200	0.0214	4.1202
		T (°C)	40	5200.0416	5200	0.0416	7.9998
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)	48.00	5240.0081	5240	0.0081	1.5545
		V max (V)	52.80	5240.0113	5240	0.0113	2.1618
		V min (V)	43.20	5240.0142	5240	0.0142	2.7156
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5240.0278	5240	0.0278	5.2975
		T (°C)	10	5240.0414	5240	0.0414	7.9013
		T (°C)	20	5240.0264	5240	0.0264	5.0342
		T (°C)	30	5240.0524	5240	0.0524	10.0037
		T (°C)	40	5240.0523	5240	0.0523	9.9806
Limits				±20ppm			
Result				Complies			

ANT4:

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)	48.00	5180.0699	5180	0.0699	13.4921
		V max (V)	52.80	5180.0416	5180	0.0416	8.0227
		V min (V)	43.20	5180.0424	5180	0.0424	8.1787
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5180.0296	5180	0.0296	5.7187
		T (°C)	10	5180.0418	5180	0.0418	8.0704
		T (°C)	20	5180.0819	5180	0.0819	15.8113
		T (°C)	30	5180.0432	5180	0.0432	8.3382
		T (°C)	40	5180.0710	5180	0.0710	13.7126
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)	48.00	5200.0148	5200	0.0148	2.8400
		V max (V)	52.80	5200.0086	5200	0.0086	1.6633
		V min (V)	43.20	5200.0633	5200	0.0633	12.1664
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5200.0467	5200	0.0467	8.9712
		T (°C)	10	5200.0607	5200	0.0607	11.6682
		T (°C)	20	5200.0489	5200	0.0489	9.3993
		T (°C)	30	5200.0547	5200	0.0547	10.5256
		T (°C)	40	5200.0784	5200	0.0784	15.0828
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)	48.00	5240.0877	5240	0.0877	16.7413
		V max (V)	52.80	5240.0296	5240	0.0296	5.6439
		V min (V)	43.20	5240.0314	5240	0.0314	5.9985
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5240.0346	5240	0.0346	6.6109
		T (°C)	10	5240.0091	5240	0.0091	1.7394
		T (°C)	20	5240.0555	5240	0.0555	10.5870
		T (°C)	30	5240.0858	5240	0.0858	16.3828
		T (°C)	40	5240.0477	5240	0.0477	9.1120
Limits				±20ppm			
Result				Complies			

ANT1:

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)	48.00	5745.0413	5745	0.0413	7.1877
		V max (V)	52.80	5745.0518	5745	0.0518	9.0094
		V min (V)	43.20	5745.0413	5745	0.0413	7.1877
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5745.0273	5745	0.0273	4.7507
		T (°C)	10	5745.0026	5745	0.0026	0.4526
		T (°C)	20	5745.0370	5745	0.0370	6.4372
		T (°C)	30	5745.0422	5745	0.0422	7.3511
		T (°C)	40	5745.0653	5745	0.0653	11.3689
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)	48.00	5785.0053	5785	0.0053	0.9208
		V max (V)	52.80	5785.0485	5785	0.0485	8.3840
		V min (V)	43.20	5785.0703	5785	0.0703	12.1498
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5785.0794	5785	0.0794	13.7320
		T (°C)	10	5785.0619	5785	0.0619	10.7017
		T (°C)	20	5785.0340	5785	0.0340	5.8717
		T (°C)	30	5785.0370	5785	0.0370	6.3988
		T (°C)	40	5785.0516	5785	0.0516	8.9164
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)	48.00	5825.0845	5825	0.0845	14.5049
		V max (V)	52.80	5825.0012	5825	0.0012	0.1974
		V min (V)	43.20	5825.0474	5825	0.0474	8.1330
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5825.0596	5825	0.0596	10.2239
		T (°C)	10	5825.0824	5825	0.0824	14.1436
		T (°C)	20	5825.0768	5825	0.0768	13.1876
		T (°C)	30	5825.0094	5825	0.0094	1.6126
		T (°C)	40	5825.0193	5825	0.0193	3.3065
Limits				±20ppm			
Result				Complies			

ANT2:

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)	48.00	5745.0179	5745	0.0179	3.1118
		V max (V)	52.80	5745.0576	5745	0.0576	10.0333
		V min (V)	43.20	5745.0098	5745	0.0098	1.7031
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5745.0289	5745	0.0289	5.0316
		T (°C)	10	5745.0770	5745	0.0770	13.4045
		T (°C)	20	5745.0201	5745	0.0201	3.4923
		T (°C)	30	5745.0490	5745	0.0490	8.5266
		T (°C)	40	5745.0928	5745	0.0928	16.1535
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)	48.00	5785.0041	5785	0.0041	0.7137
		V max (V)	52.80	5785.0757	5785	0.0757	13.0846
		V min (V)	43.20	5785.0314	5785	0.0314	5.4200
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5785.0473	5785	0.0473	8.1728
		T (°C)	10	5785.0616	5785	0.0616	10.6504
		T (°C)	20	5785.0912	5785	0.0912	15.7621
		T (°C)	30	5785.0125	5785	0.0125	2.1529
		T (°C)	40	5785.0357	5785	0.0357	6.1672
		T (°C)	50	5785.0666	5785	0.0666	11.5167
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)	48.00	5825.0835	5825	0.0835	14.3385
		V max (V)	52.80	5825.0586	5825	0.0586	10.0629
		V min (V)	43.20	5825.0141	5825	0.0141	2.4245
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5825.0100	5825	0.0100	1.7138
		T (°C)	10	5825.0790	5825	0.0790	13.5565
		T (°C)	20	5825.0715	5825	0.0715	12.2679
		T (°C)	30	5825.0407	5825	0.0407	6.9931
		T (°C)	40	5825.0562	5825	0.0562	9.6459
Limits				±20ppm			
Result				Complies			

ANT3:

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)	48.00	5745.0098	5745	0.0098	1.7140
		V max (V)	52.80	5745.0846	5745	0.0846	14.7228
		V min (V)	43.20	5745.0098	5745	0.0098	1.7140
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5745.0174	5745	0.0174	3.0243
		T (°C)	10	5745.0174	5745	0.0174	3.0291
		T (°C)	20	5745.0398	5745	0.0398	6.9317
		T (°C)	30	5745.0622	5745	0.0622	10.8221
		T (°C)	40	5745.0892	5745	0.0892	15.5308
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)	48.00	5785.0793	5785	0.0793	13.7077
		V max (V)	52.80	5785.0833	5785	0.0833	14.4015
		V min (V)	43.20	5785.0720	5785	0.0720	12.4393
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5785.0326	5785	0.0326	5.6332
		T (°C)	10	5785.0733	5785	0.0733	12.6690
		T (°C)	20	5785.0219	5785	0.0219	3.7787
		T (°C)	30	5785.0907	5785	0.0907	15.6842
		T (°C)	40	5785.0753	5785	0.0753	13.0162
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)	48.00	5825.0677	5825	0.0677	11.6267
		V max (V)	52.80	5825.0615	5825	0.0615	10.5643
		V min (V)	43.20	5825.0026	5825	0.0026	0.4470
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5825.0532	5825	0.0532	9.1393
		T (°C)	10	5825.0377	5825	0.0377	6.4755
		T (°C)	20	5825.0780	5825	0.0780	13.3904
		T (°C)	30	5825.0728	5825	0.0728	12.5004
		T (°C)	40	5825.0703	5825	0.0703	12.0699
Limits				±20ppm			
Result				Complies			

ANT4:

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)	48.00	5745.0241	5745	0.0241	4.1996
		V max (V)	52.80	5745.0932	5745	0.0932	16.2235
		V min (V)	43.20	5745.0498	5745	0.0498	8.6679
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5745.0651	5745	0.0651	11.3279
		T (°C)	10	5745.0838	5745	0.0838	14.5837
		T (°C)	20	5745.0520	5745	0.0520	9.0516
		T (°C)	30	5745.0677	5745	0.0677	11.7920
		T (°C)	40	5745.0357	5745	0.0357	6.2077
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)	48.00	5785.0572	5785	0.0572	9.8957
		V max (V)	52.80	5785.0061	5785	0.0061	1.0592
		V min (V)	43.20	5785.0918	5785	0.0918	15.8640
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5785.0183	5785	0.0183	3.1605
		T (°C)	10	5785.0217	5785	0.0217	3.7549
		T (°C)	20	5785.0216	5785	0.0216	3.7290
		T (°C)	30	5785.0472	5785	0.0472	8.1670
		T (°C)	40	5785.0323	5785	0.0323	5.5846
		T (°C)	50	5785.0192	5785	0.0192	3.3162
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)	48.00	5825.0099	5825	0.0099	1.7028
		V max (V)	52.80	5825.0916	5825	0.0916	15.7266
		V min (V)	43.20	5825.0310	5825	0.0310	5.3208
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	48	T (°C)	0	5825.0753	5825	0.0753	12.9215
		T (°C)	10	5825.0868	5825	0.0868	14.9045
		T (°C)	20	5825.0901	5825	0.0901	15.4721
		T (°C)	30	5825.0017	5825	0.0017	0.2876
		T (°C)	40	5825.0018	5825	0.0018	0.3062
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 Internal antenna and no consideration of replacement. The best case gain of the 5.2G antenna is 4.65dBi, 5.8G antenna is 4.37dBi.

15. EUT PHOTOGRAPHS

External Photos

EUT Photo 1



16. EUT TEST SETUP PHOTOGRAPHS

Spurious emissions

Below 1GHz



Above 1GHz



Conducted Emission



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