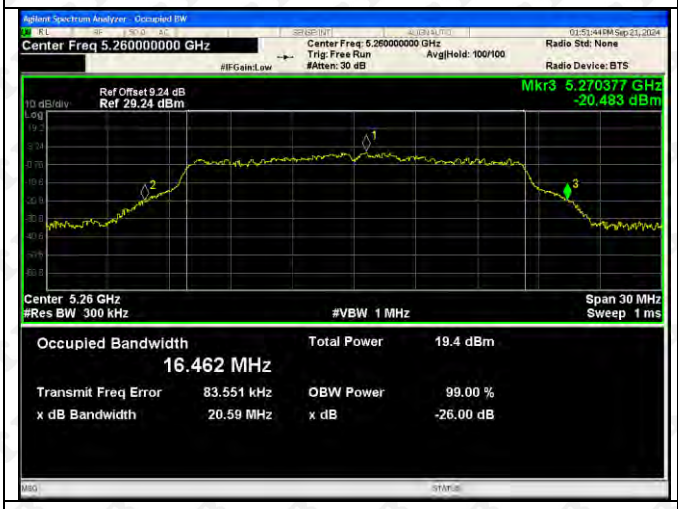
5250-5350MHz

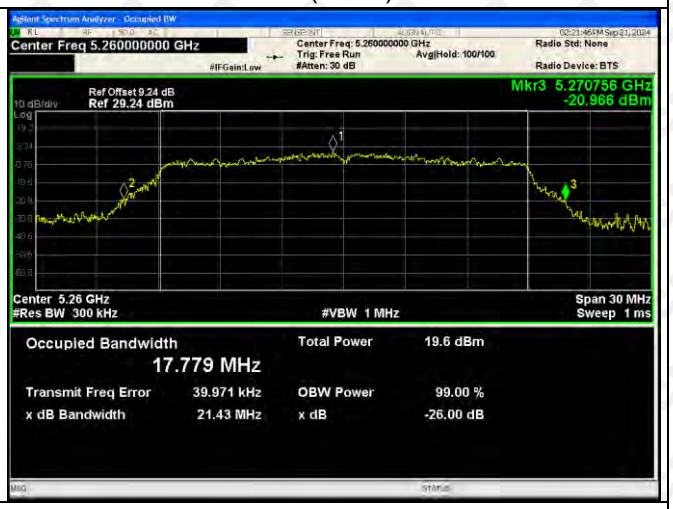
802.11a-5260



802.11a-5280

802.11a-5320

802.11ac(VH20)-5260



802.11ac(VH20)-5280

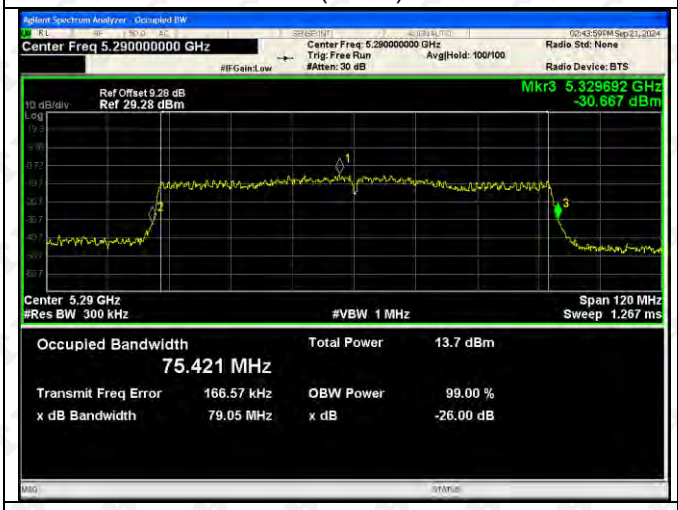
802.11ac(VH20)-5320

802.11ac(VH40)-5270

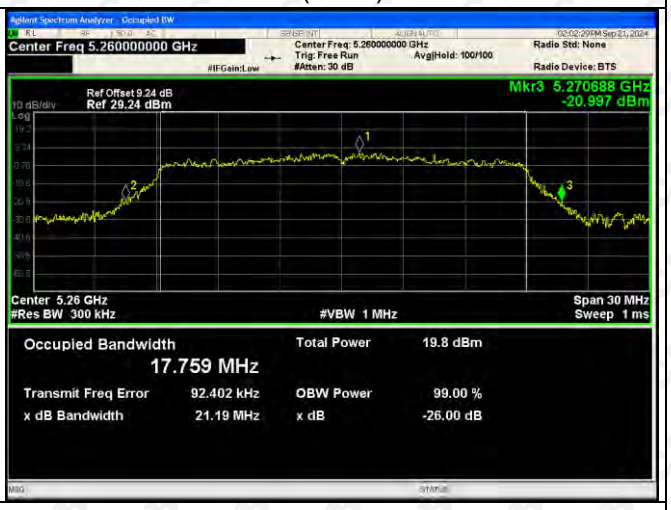
802.11ac(VH40)-5310

802.11ac(VH80)-5290

802.11n(HT20)-5260



802.11n(HT20)-5280

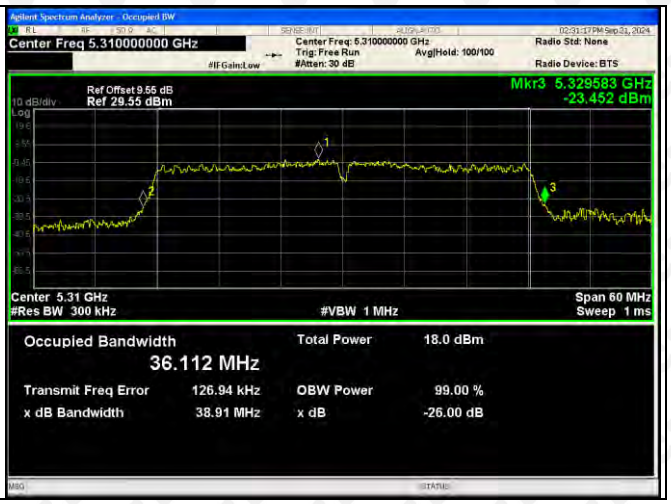


802.11n(HT20)-5320

802.11n(HT40)-5270

802.11n(HT40)-5310

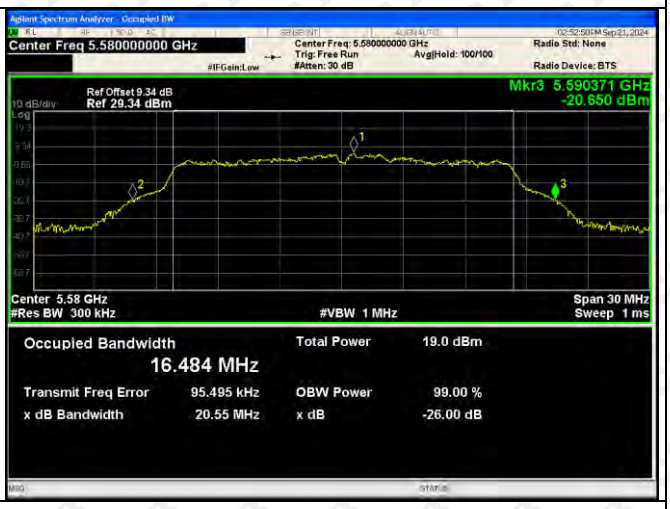
Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.270000000 GHz
Center Freq: 5.270000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 9.01 dB
10 dB/div
Ref 29.01 dBm
Mkr3 5.289422 GHz
-22.547 dBm
Center 5.27 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 60 MHz
Sweep 1 ms
Occupied Bandwidth
35.967 MHz
Total Power 19.1 dBm
Transmit Freq Error 128.57 kHz
OBW Power 99.00 %
x dB Bandwidth 38.59 MHz
x dB -26.00 dB


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.310000000 GHz
Center Freq: 5.310000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 9.55 dB
10 dB/div
Ref 29.55 dBm
Mkr3 5.329583 GHz
-23.452 dBm
Center 5.31 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 60 MHz
Sweep 1 ms
Occupied Bandwidth
36.112 MHz
Total Power 18.0 dBm
Transmit Freq Error 126.94 kHz
OBW Power 99.00 %
x dB Bandwidth 38.91 MHz
x dB -26.00 dB

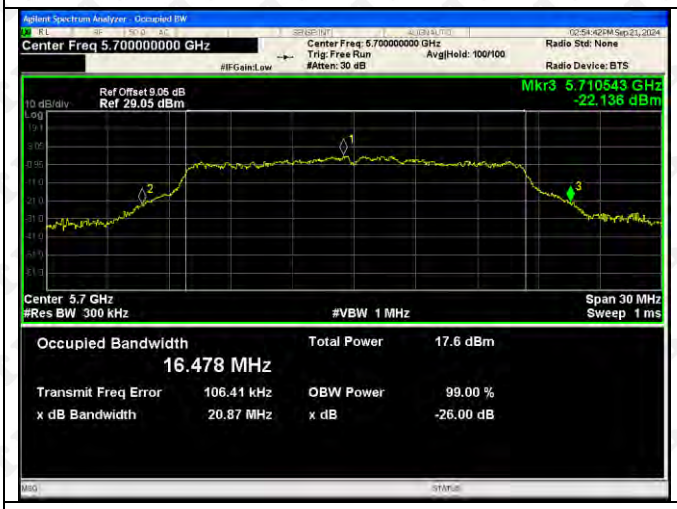
5470-5725MHz

802.11a-5500

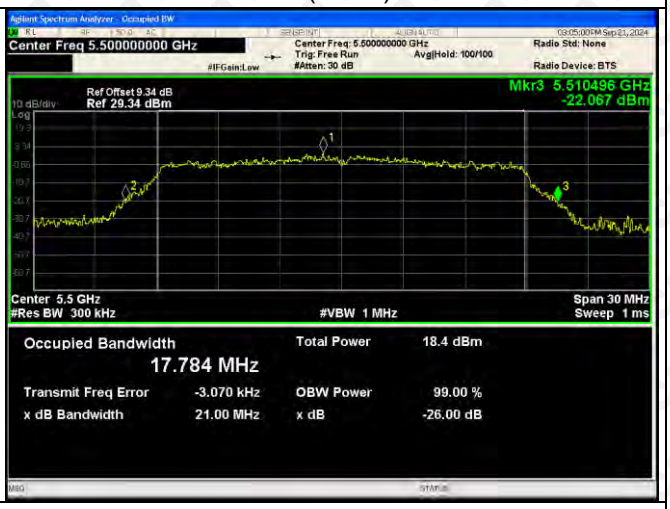
802.11a-5580



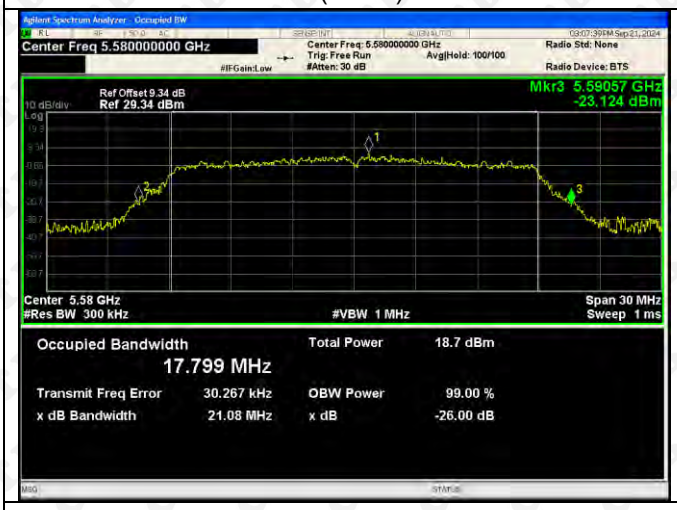
802.11a-5700



802.11ac(VH20)-5500



802.11ac(VH20)-5580

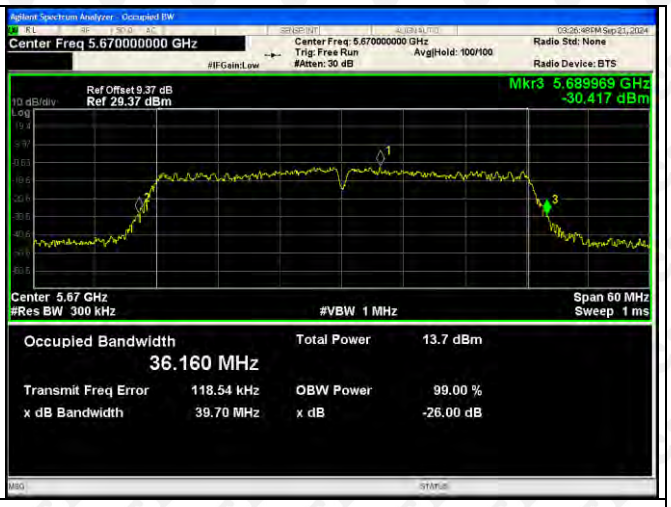


802.11ac(VH20)-5700

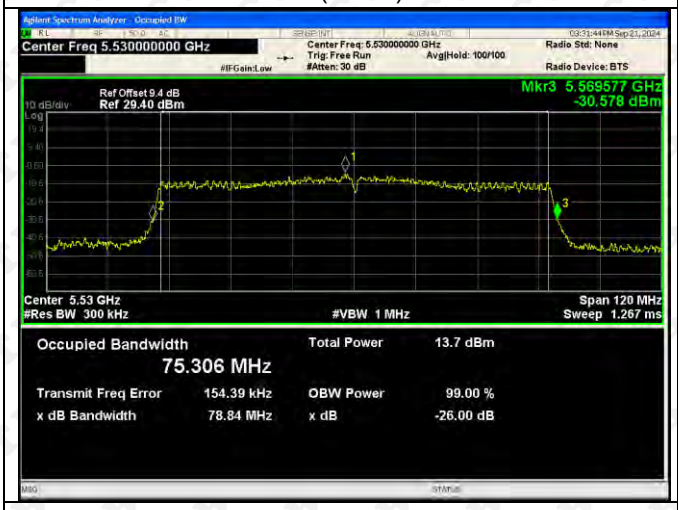
802.11ac(VH40)-5510

802.11ac(VH40)-5670

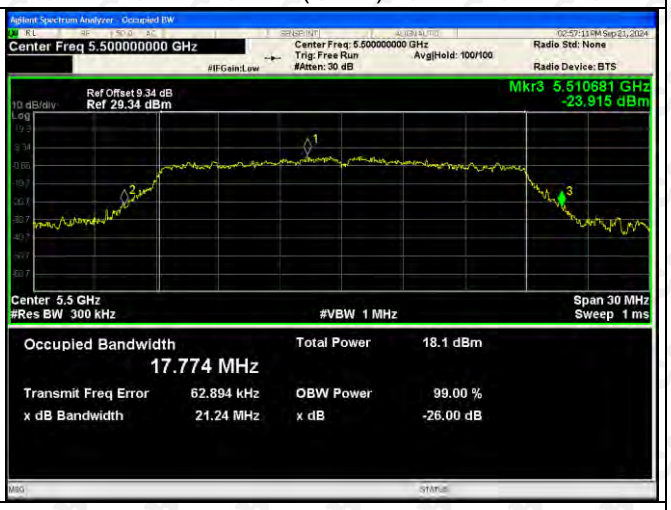
802.11ac(VH80)-5530



802.11n(HT20)-5500



802.11n(HT20)-5580

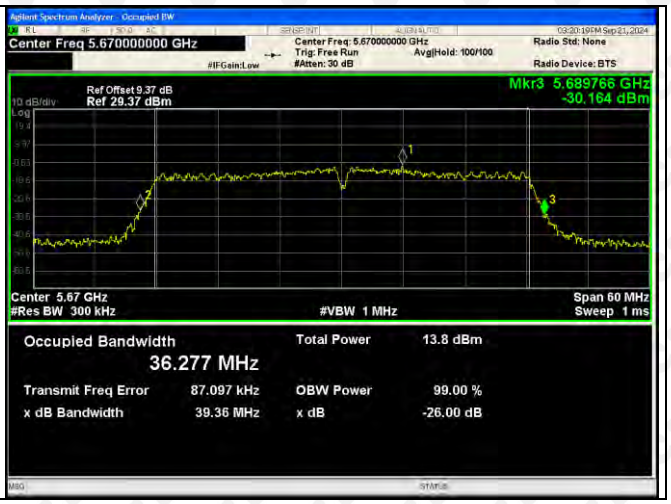


802.11n(HT20)-5700

802.11n(HT40)-5510

802.11n(HT40)-5670

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.510000000 GHz
Center Freq: 5.510000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 9.53 dB
10 dB/div
Ref 29.53 dBm
Mkr3 5.529847 GHz
-28.967 dBm
Center 5.51 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 60 MHz
Sweep 1 ms
Occupied Bandwidth
36.190 MHz
Total Power 14.4 dBm
Transmit Freq Error 48.216 kHz
OBW Power 99.00 %
x dB Bandwidth 39.60 MHz
x dB -26.00 dB


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.670000000 GHz
Center Freq: 5.670000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 9.37 dB
10 dB/div
Ref 29.37 dBm
Mkr3 5.689766 GHz
-30.164 dBm
Center 5.67 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 60 MHz
Sweep 1 ms
Occupied Bandwidth
36.277 MHz
Total Power 13.8 dBm
Transmit Freq Error 87.097 kHz
OBW Power 99.00 %
x dB Bandwidth 39.36 MHz
x dB -26.00 dB

5725-5850MHz

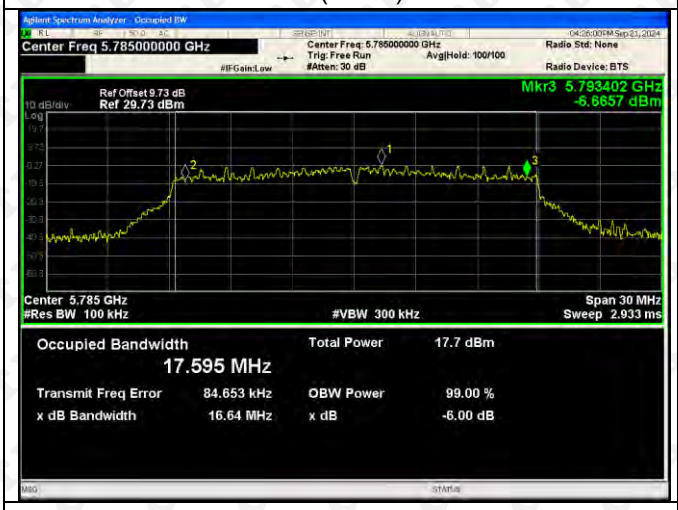
802.11a-5745

802.11a-5785

802.11a-5825

802.11ac(VH20)-5745

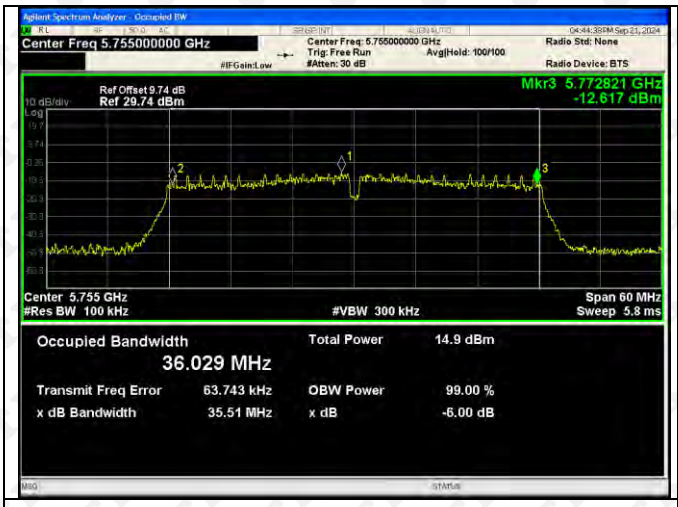
802.11ac(VH20)-5785



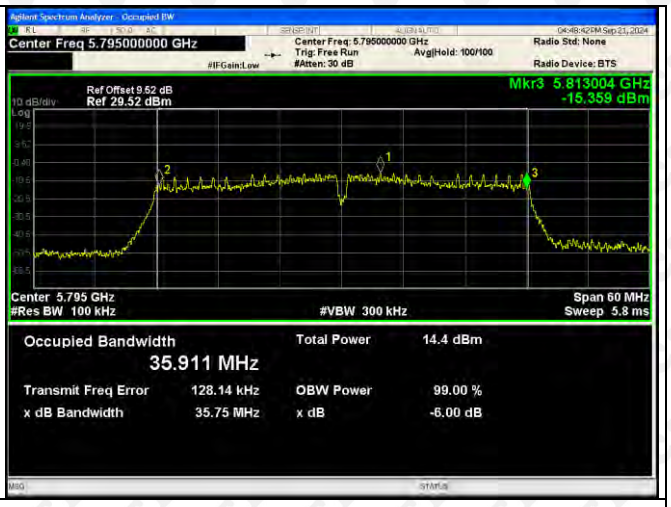
802.11ac(VH20)-5825

802.11ac(VH40)-5755

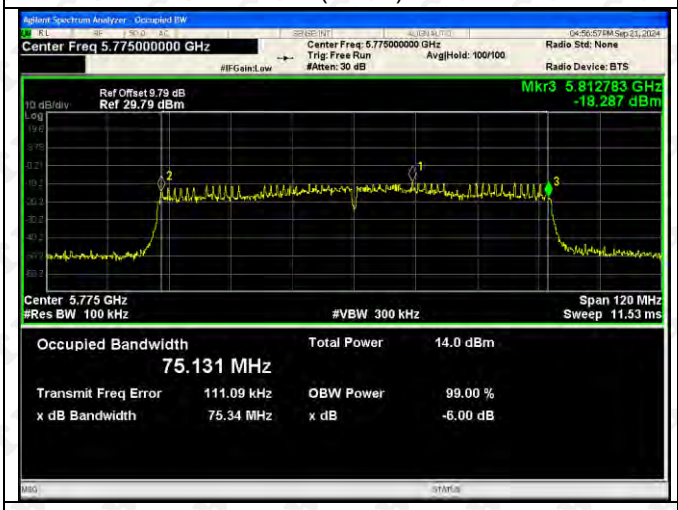
802.11ac(VH40)-5795



802.11ac(VH80)-5775

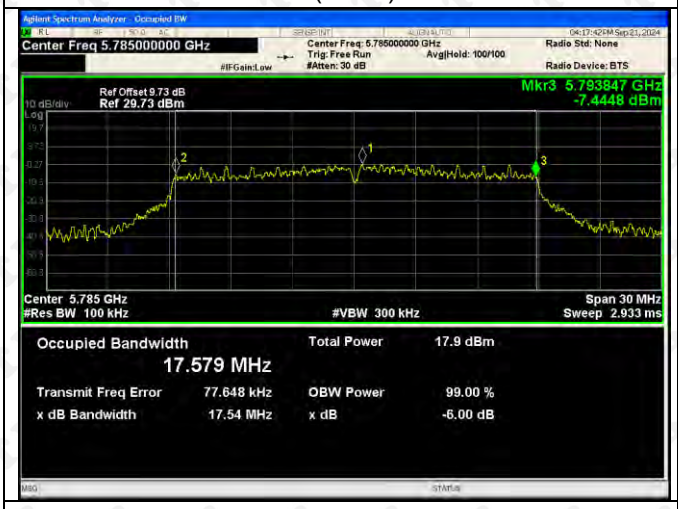


802.11n(HT20)-5745



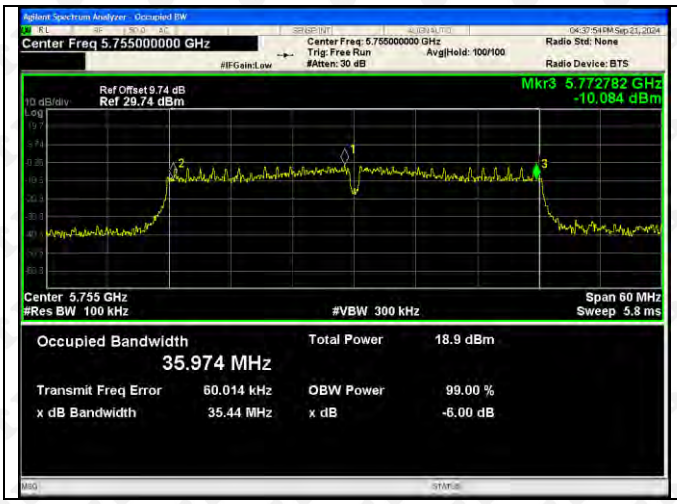
802.11n(HT20)-5785

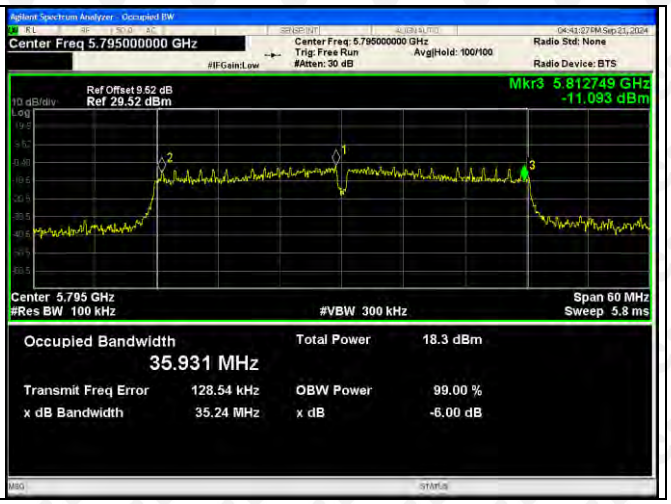
802.11n(HT20)-5825



802.11n(HT40)-5755

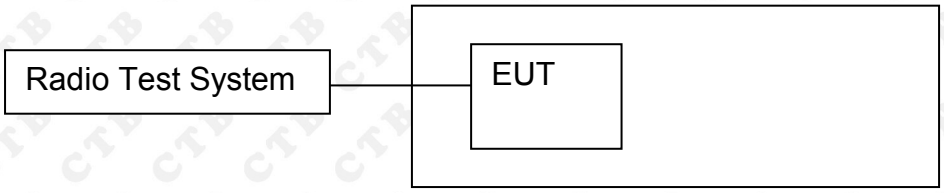
802.11n(HT40)-5795


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.755000000 GHz
Center Freq: 5.755000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 9.74 dB
10 dB/div
Ref 29.74 dBm
Mkr3 5.772782 GHz
-10.084 dBm
Center 5.755 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 60 MHz
Sweep 5.8 ms
Occupied Bandwidth
35.974 MHz
Total Power 18.9 dBm
Transmit Freq Error 60.014 kHz
OBW Power 99.00 %
x dB Bandwidth 35.44 MHz
x dB -6.00 dB


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.795000000 GHz
Center Freq: 5.795000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Ref Offset 9.52 dB
10 dB/div
Ref 29.52 dBm
Mkr3 5.812749 GHz
-11.093 dBm
Center 5.795 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 60 MHz
Sweep 5.8 ms
Occupied Bandwidth
35.931 MHz
Total Power 18.3 dBm
Transmit Freq Error 128.54 kHz
OBW Power 99.00 %
x dB Bandwidth 35.24 MHz
x dB -6.00 dB

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 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 RBW ≥ 1/*T*, where *T* is defined in II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/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 (1MHz/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

5150-5250MHz:

Test mode	Test Channel (MHz)	PSD [dBm/MHz]	Limit [dBm/MHz]	Result
802.11a	5180	3.908	11	Pass
	5200	3.513	11	Pass
	5240	3.912	11	Pass
802.11ac(VH20)	5180	3.090	11	Pass
	5200	3.134	11	Pass
	5240	3.144	11	Pass
802.11ac(VH40)	5190	-0.583	11	Pass
	5230	-0.805	11	Pass
802.11ac(VH80)	5210	-9.692	11	Pass
802.11n(HT20)	5180	3.210	11	Pass
	5200	3.115	11	Pass
	5240	2.816	11	Pass
802.11n(HT40)	5190	-0.589	11	Pass
	5230	-0.865	11	Pass

5250-5350 MHz

Test mode	Test Channel (MHz)	PSD [dBm/MHz]	Limit [dBm/MHz]	Result
802.11a	5260	3.609	11	Pass
	5280	3.262	11	Pass
	5320	1.829	11	Pass
802.11ac(VH20)	5260	2.861	11	Pass
	5280	2.299	11	Pass
	5320	1.600	11	Pass
802.11ac(VH40)	5270	-5.065	11	Pass
	5310	-6.853	11	Pass
802.11ac(VH80)	5260	-9.382	11	Pass
802.11n(HT20)	5280	2.593	11	Pass
	5320	2.248	11	Pass
	5270	1.222	11	Pass
802.11n(HT40)	5310	-1.392	11	Pass
	5290	-2.462	11	Pass

5500-5700MHz

Test mode	Test Channel (MHz)	PSD [dBm/MHz]	Limit [dBm/MHz]	Result
802.11a	5500	2.135	11	Pass
	5580	2.437	11	Pass
	5700	1.189	11	Pass
802.11ac(VH20)	5500	1.592	11	Pass
	5580	1.954	11	Pass
	5700	0.774	11	Pass
802.11ac(VH40)	5510	-6.189	11	Pass
	5670	-6.719	11	Pass
802.11ac(VH80)	5530	-9.536	11	Pass
802.11n(HT20)	5500	1.562	11	Pass
	5580	1.988	11	Pass
	5700	0.560	11	Pass
802.11n(HT40)	5510	-6.054	11	Pass
	5670	-6.865	11	Pass

5725-5850 MHz

Test mode	Test Channel (MHz)	PSD [dBm/500kHz]	Limit [dBm/MHz]	Result
802.11a	5745	-1.092	30	Pass
	5785	-1.320	30	Pass
	5825	-0.307	30	Pass
802.11ac(VH20)	5745	-1.029	30	Pass
	5785	-2.300	30	Pass
	5825	-0.876	30	Pass
802.11ac(VH40)	5755	-8.792	30	Pass
	5795	-9.787	30	Pass
802.11ac(VH80)	5775	-13.922	30	Pass
802.11n(HT20)	5745	-0.891	30	Pass
	5785	-2.551	30	Pass
	5825	-1.021	30	Pass
802.11n(HT40)	5755	-4.843	30	Pass
	5795	-5.247	30	Pass

Test Graph

5150-5250MHz

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

802.11ac(VH80)-5210

802.11n(HT20)-5180

802.11n(HT20)-5200

802.11n(HT20)-5240

802.11n(HT40)-5190

802.11n(HT40)-5230

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.190000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
01:35:15 PM Sep 21, 2024
Ref Offset 9.04 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.187 60 GHz
-0.589 dBm
Center 5.19000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.230000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
01:37:09 PM Sep 21, 2024
Ref Offset 8.96 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.227 30 GHz
-0.865 dBm
Center 5.23000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

5250-5350MHz

802.11a-5260

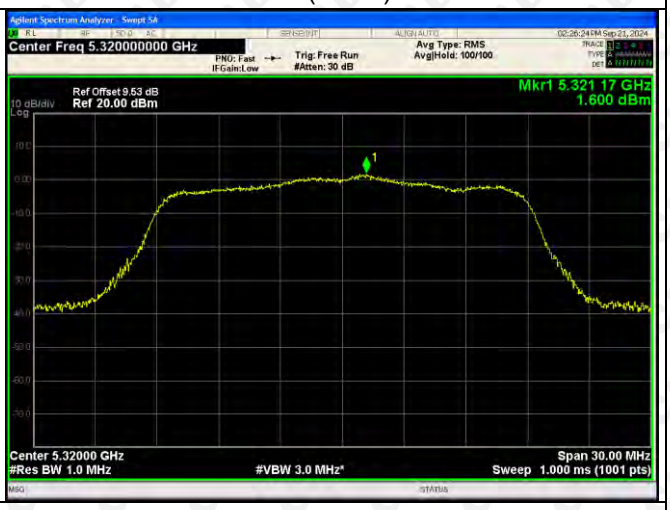
802.11a-5280

802.11a-5320

802.11ac(VH20)-5260

802.11ac(VH20)-5280

802.11ac(VH20)-5320



802.11ac(VH40)-5270

802.11ac(VH40)-5310

802.11ac(VH80)-5290

802.11n(HT20)-5260

802.11n(HT20)-5280

802.11n(HT20)-5320

802.11n(HT40)-5270

802.11n(HT40)-5310

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.270000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
02:29:16 PM Sep 21, 2024
Ref Offset 9.01 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 5.272 58 GHz
-1.392 dBm
Center 5.27000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.310000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
02:31:29 PM Sep 21, 2024
Ref Offset 9.55 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 5.307 78 GHz
-2.462 dBm
Center 5.31000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

5470-5725MHz

802.11a-5500

802.11a-5580

802.11a-5700

802.11ac(VH20)-5500

802.11ac(VH20)-5580

802.11ac(VH20)-5700

802.11ac(VH40)-5510

802.11ac(VH40)-5670

802.11ac(VH80)-5530

802.11n(HT20)-5500

802.11n(HT20)-5580

802.11n(HT20)-5700

802.11n(HT40)-5510

802.11n(HT40)-5670

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.510000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
03:12:38PM Sep 21, 2024
Ref Offset 9.53 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 5.512 76 GHz
-6.054 dBm
Center 5.51000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.670000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
03:20:35PM Sep 21, 2024
Ref Offset 9.37 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 5.667 84 GHz
-6.865 dBm
Center 5.67000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

5725-5850MHz

802.11a-5745

802.11a-5785

802.11a-5825

802.11ac(VH20)-5745

802.11ac(VH20)-5785

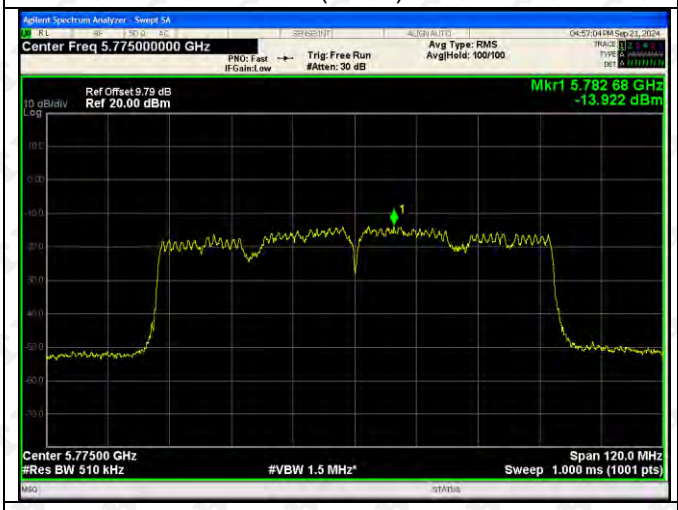
802.11ac(VH20)-5825

802.11ac(VH40)-5755

802.11ac(VH40)-5795

802.11ac(VH80)-5775

802.11n(HT20)-5745



802.11n(HT20)-5785

802.11n(HT20)-5825

802.11n(HT40)-5755

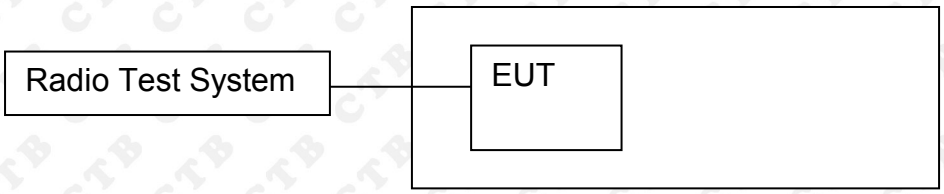
802.11n(HT40)-5795

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.755000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
04:34:17 PM Sep 21, 2024
Ref Offset 9.74 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.757 70 GHz
-4.843 dBm
Center 5.75500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.795000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: RMS
Avg|Hold: 100/100
04:41:50 PM Sep 21, 2024
Ref Offset 9.52 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.792 66 GHz
-5.247 dBm
Center 5.79500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 60.00 MHz
Sweep 1.000 ms (1001 pts)

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)

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	12.00	5180.1149	5180	0.1149	22.1843
		V max (V)	13.20	5180.0997	5180	0.0997	19.2471
		V min (V)	10.80	5180.0947	5180	0.0947	18.2867
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5180.0242	5180	0.0242	4.6671
		T (°C)	10	5180.0215	5180	0.0215	4.1566
		T (°C)	20	5180.0345	5180	0.0345	6.6550
		T (°C)	30	5180.0417	5180	0.0417	8.0478
		T (°C)	40	5180.0437	5180	0.0437	8.4312
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)	12.00	5200.0125	5200	0.0125	2.4130
		V max (V)	13.20	5200.0373	5200	0.0373	7.1824
		V min (V)	10.80	5200.0430	5200	0.0430	8.2661
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5200.0125	5200	0.0125	2.4075
		T (°C)	10	5200.0435	5200	0.0435	8.3661
		T (°C)	20	5200.0151	5200	0.0151	2.9018
		T (°C)	30	5200.0426	5200	0.0426	8.1997
		T (°C)	40	5200.0074	5200	0.0074	1.4209
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)	12.00	5240.0231	5240	0.0231	4.4014
		V max (V)	13.20	5240.0163	5240	0.0163	3.1156
		V min (V)	10.80	5240.0399	5240	0.0399	7.6092
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5240.0382	5240	0.0382	7.2893
		T (°C)	10	5240.0235	5240	0.0235	4.4942
		T (°C)	20	5240.0016	5240	0.0016	0.3012
		T (°C)	30	5240.0118	5240	0.0118	2.2456
		T (°C)	40	5240.0171	5240	0.0171	3.2726
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)	12.00	5260.0282	5260	0.0282	5.3665
		V max (V)	13.20	5260.0308	5260	0.0308	5.8567
		V min (V)	10.80	5260.0518	5260	0.0518	9.8385
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5260.0090	5260	0.0090	1.7117
		T (°C)	10	5260.0718	5260	0.0718	13.6568
		T (°C)	20	5260.0385	5260	0.0385	7.3157
		T (°C)	30	5260.0286	5260	0.0286	5.4359
		T (°C)	40	5260.0742	5260	0.0742	14.1120
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)	12.00	5280.0043	5280	0.0043	0.8200
		V max (V)	13.20	5280.0765	5280	0.0765	14.4943
		V min (V)	10.80	5280.0116	5280	0.0116	2.1997
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5280.0762	5280	0.0762	14.4308
		T (°C)	10	5280.0030	5280	0.0030	0.5713
		T (°C)	20	5280.0591	5280	0.0591	11.1897
		T (°C)	30	5280.0524	5280	0.0524	9.9202
		T (°C)	40	5280.0816	5280	0.0816	15.4476
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)	12.00	5320.0043	5320	0.0043	0.8011
		V max (V)	13.20	5320.0833	5320	0.0833	15.6575
		V min (V)	10.80	5320.0580	5320	0.0580	10.8968
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5320.0141	5320	0.0141	2.6551
		T (°C)	10	5320.0679	5320	0.0679	12.7577
		T (°C)	20	5320.0585	5320	0.0585	10.9924
		T (°C)	30	5320.0340	5320	0.0340	6.3833
		T (°C)	40	5320.0226	5320	0.0226	4.2431
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)	12.00	5550.0167	5500	50.0167	9093.9532
		V max (V)	13.20	5550.0304	5500	50.0304	9096.4355
		V min (V)	10.80	5550.0476	5500	50.0476	9099.5560
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5500.0906	5500	0.0906	16.4796
		T (°C)	10	5500.0307	5500	0.0307	5.5770
		T (°C)	20	5500.0103	5500	0.0103	1.8716
		T (°C)	30	5500.0538	5500	0.0538	9.7835
		T (°C)	40	5500.0734	5500	0.0734	13.3377
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)	12.00	5580.0736	5580	0.0736	13.1877
		V max (V)	13.20	5580.0252	5580	0.0252	4.5112
		V min (V)	10.80	5580.0646	5580	0.0646	11.5740
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5580.0901	5580	0.0901	16.1442
		T (°C)	10	5580.0561	5580	0.0561	10.0559
		T (°C)	20	5580.0543	5580	0.0543	9.7400
		T (°C)	30	5580.0701	5580	0.0701	12.5671
		T (°C)	40	5580.0590	5580	0.0590	10.5772
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)	12.00	5700.0591	5700	0.0591	10.3770
		V max (V)	13.20	5700.0278	5700	0.0278	4.8792
		V min (V)	10.80	5700.0232	5700	0.0232	4.0757
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5700.0854	5700	0.0854	14.9794
		T (°C)	10	5700.0496	5700	0.0496	8.6998
		T (°C)	20	5700.0001	5700	0.0001	0.0125
		T (°C)	30	5700.0112	5700	0.0112	1.9679
		T (°C)	40	5700.0470	5700	0.0470	8.2459
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)	12.00	5745.0477	5745	0.0477	8.3050
		V max (V)	13.20	5745.0107	5745	0.0107	1.8568
		V min (V)	10.80	5745.0477	5745	0.0477	8.3050
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5745.0604	5745	0.0604	10.5175
		T (°C)	10	5745.0211	5745	0.0211	3.6704
		T (°C)	20	5745.0689	5745	0.0689	11.9930
		T (°C)	30	5745.0174	5745	0.0174	3.0241
		T (°C)	40	5745.0219	5745	0.0219	3.8045
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)	12.00	5785.0873	5785	0.0873	15.0973
		V max (V)	13.20	5785.0593	5785	0.0593	10.2542
		V min (V)	10.80	5785.0816	5785	0.0816	14.0993
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5785.0933	5785	0.0933	16.1277
		T (°C)	10	5785.0086	5785	0.0086	1.4878
		T (°C)	20	5785.0756	5785	0.0756	13.0645
		T (°C)	30	5785.0509	5785	0.0509	8.7923
		T (°C)	40	5785.0645	5785	0.0645	11.1447
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)	12.00	5825.0484	5825	0.0484	8.3020
		V max (V)	13.20	5825.0542	5825	0.0542	9.3018
		V min (V)	10.80	5825.0154	5825	0.0154	2.6384
Limits				±20ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	0	5825.0121	5825	0.0121	2.0832
		T (°C)	10	5825.0442	5825	0.0442	7.5874
		T (°C)	20	5825.0639	5825	0.0639	10.9704
		T (°C)	30	5825.0360	5825	0.0360	6.1728
		T (°C)	40	5825.0844	5825	0.0844	14.4930
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 WLAN message transmitting from remote device and verify whether it shall reconnect. (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.

EUT Antenna:

The antenna is FPC Antenna and no consideration of replacement. The best case gain of the antenna is WiFi (5.2G) : 2.89dBi, WiFi (5.3G) : 2.89dBi, WiFi (5.6G) : 2.4dBi, WiFi (5.8G) : 2.1dBi.

15. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission

Below 1G

Above 1G

Conducted Emission

※※※※※ **END OF REPORT** ※※※※※