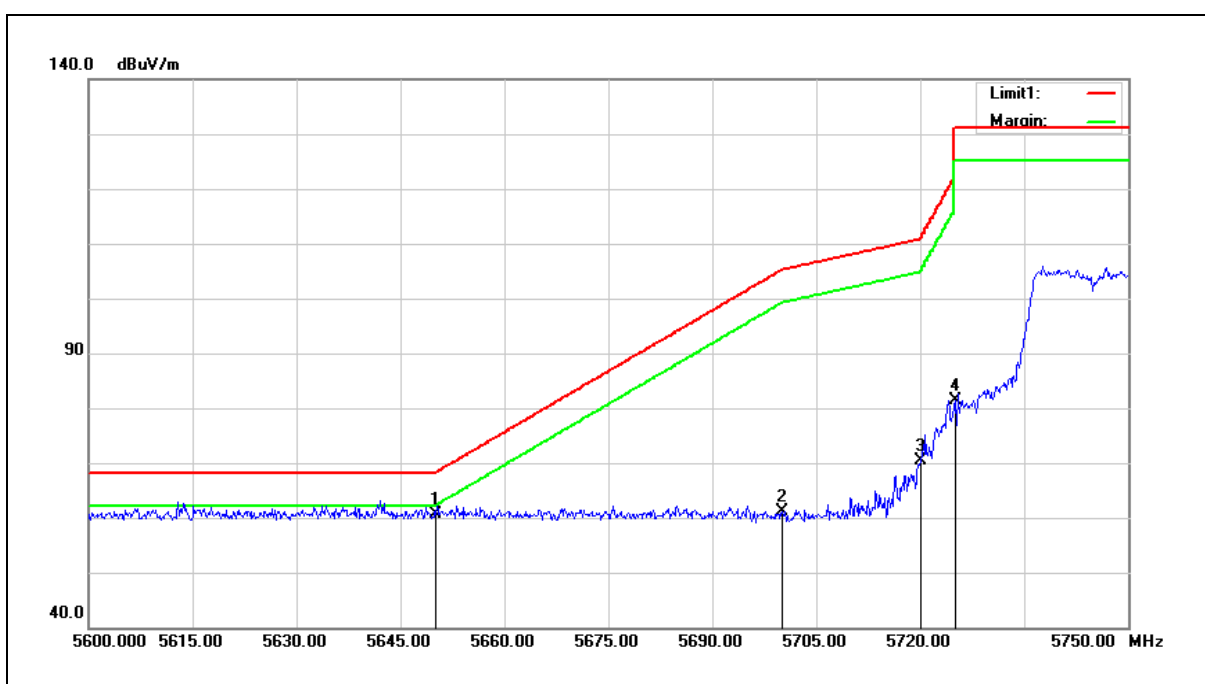


Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5745MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	64.29	-3.61	60.68	68.20	-7.52	peak
2	5700.000	64.67	-3.56	61.11	105.20	-44.09	peak
3	5720.000	73.83	-3.55	70.28	110.80	-40.52	peak
4	5725.000	84.99	-3.54	81.45	122.20	-40.75	peak

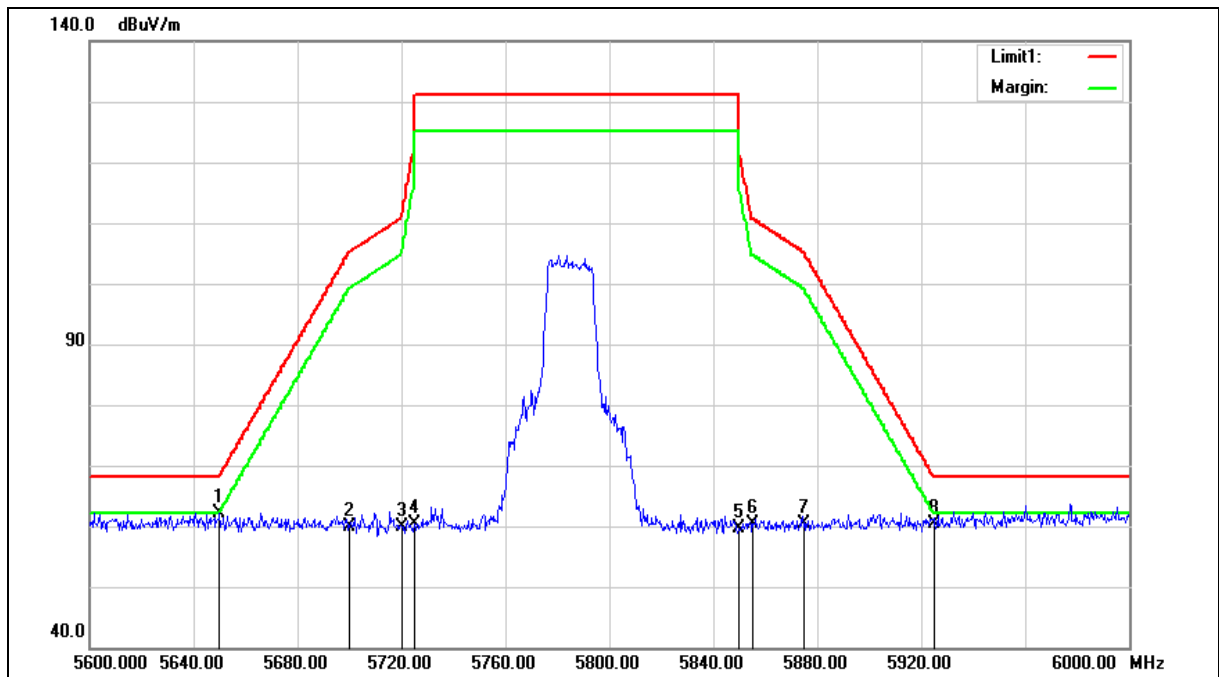
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Horizontal		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	65.72	-3.61	62.11	68.20	-6.09	peak
2	5700.000	63.37	-3.56	59.81	105.20	-45.39	peak
3	5720.000	63.39	-3.55	59.84	110.80	-50.96	peak
4	5725.000	64.02	-3.54	60.48	122.20	-61.72	peak
5	5850.000	62.81	-3.17	59.64	122.20	-62.56	peak
6	5855.000	63.43	-3.16	60.27	110.80	-50.53	peak
7	5875.000	63.49	-3.08	60.41	105.20	-44.79	peak
8	5925.000	63.20	-2.91	60.29	68.20	-7.91	peak

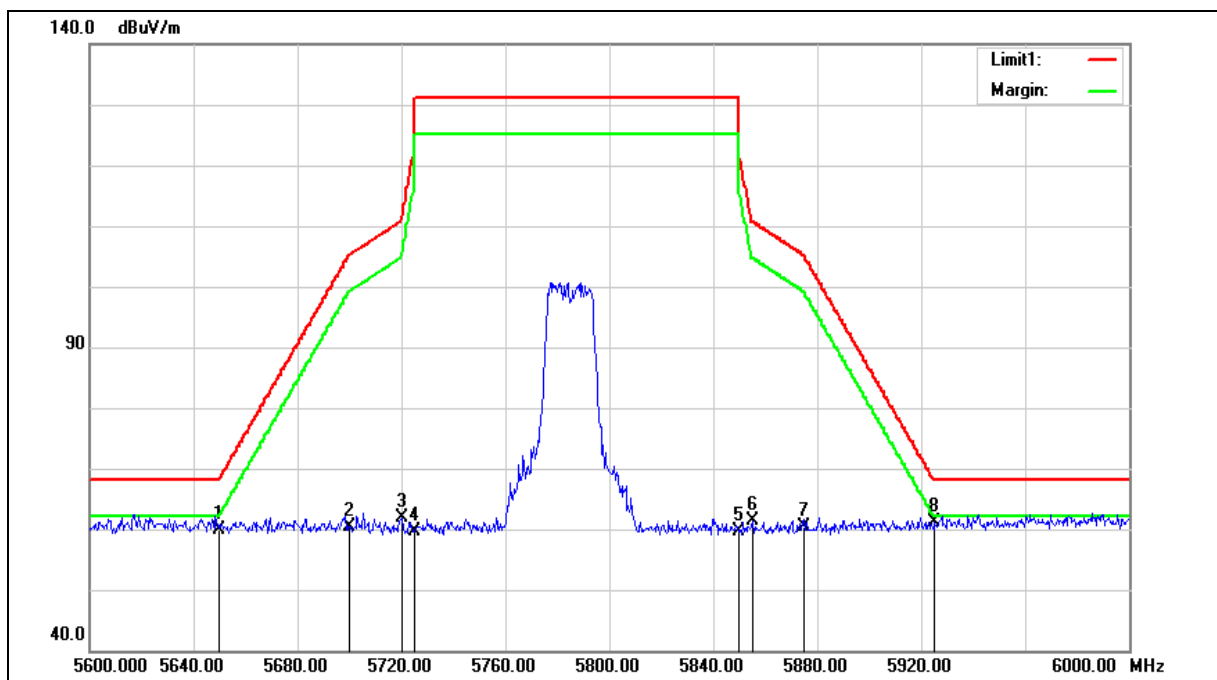
Note:1. Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Vertical		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5785MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Vertical		

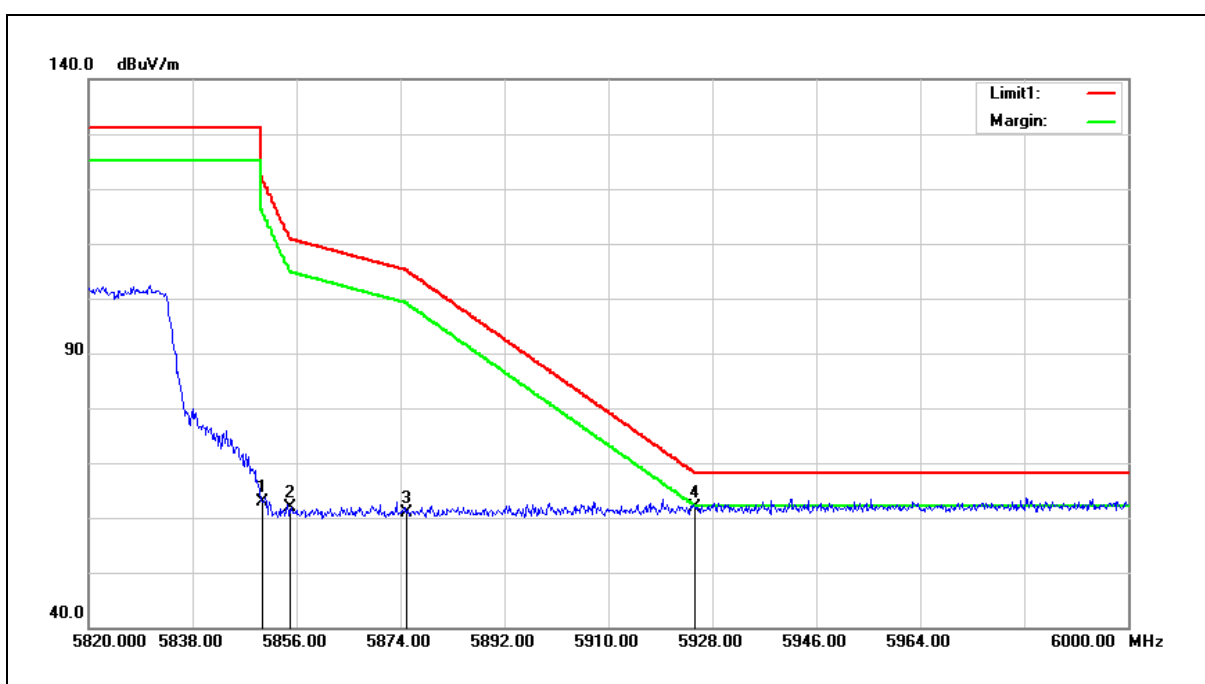
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	63.61	-3.61	60.00	68.20	-8.20	peak
2	5700.000	63.86	-3.56	60.30	105.20	-44.90	peak
3	5720.000	65.38	-3.55	61.83	110.80	-48.97	peak
4	5725.000	63.27	-3.54	59.73	122.20	-62.47	peak
5	5850.000	62.68	-3.17	59.51	122.20	-62.69	peak
6	5855.000	64.43	-3.16	61.27	110.80	-49.53	peak
7	5875.000	63.48	-3.08	60.40	105.20	-44.80	peak
8	5925.000	64.12	-2.91	61.21	68.20	-6.99	peak

Note:1. Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Horizontal		



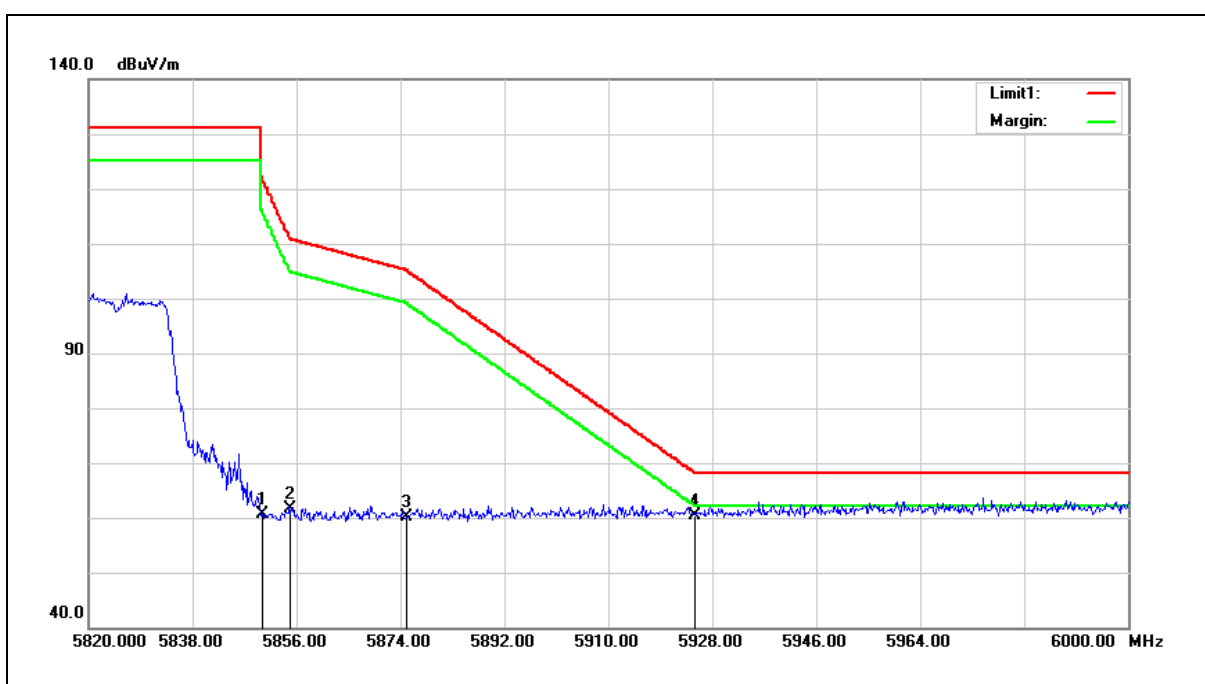
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	66.16	-3.17	62.99	122.20	-59.21	peak
2	5855.000	65.05	-3.16	61.89	110.80	-48.91	peak
3	5875.000	64.05	-3.08	60.97	105.20	-44.23	peak
4	5925.000	64.84	-2.91	61.93	68.20	-6.27	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5825MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	63.88	-3.17	60.71	122.20	-61.49	peak
2	5855.000	64.69	-3.16	61.53	110.80	-49.27	peak
3	5875.000	63.25	-3.08	60.17	105.20	-45.03	peak
4	5925.000	63.24	-2.91	60.33	68.20	-7.87	peak

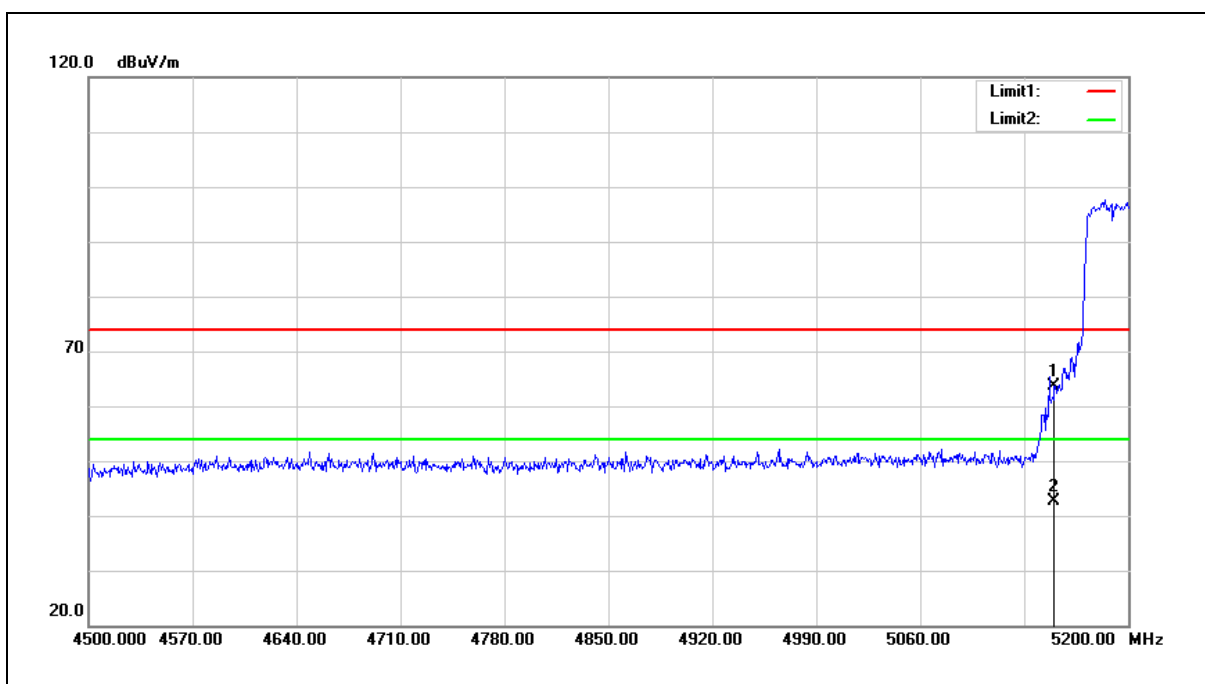
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	67.75	-4.24	63.51	74.00	-10.49	peak
2	5150.000	46.92	-4.24	42.68	54.00	-11.32	AVG

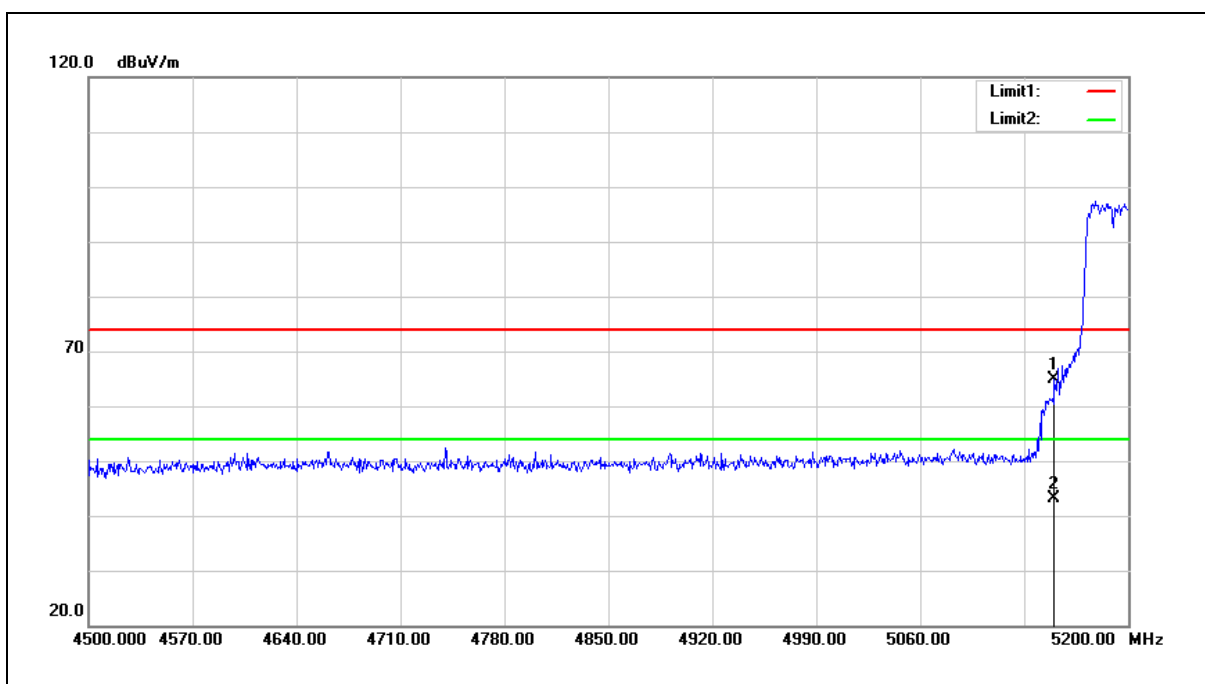
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5190MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	69.08	-4.24	64.84	74.00	-9.16	peak
2	5150.000	47.25	-4.24	43.01	54.00	-10.99	AVG

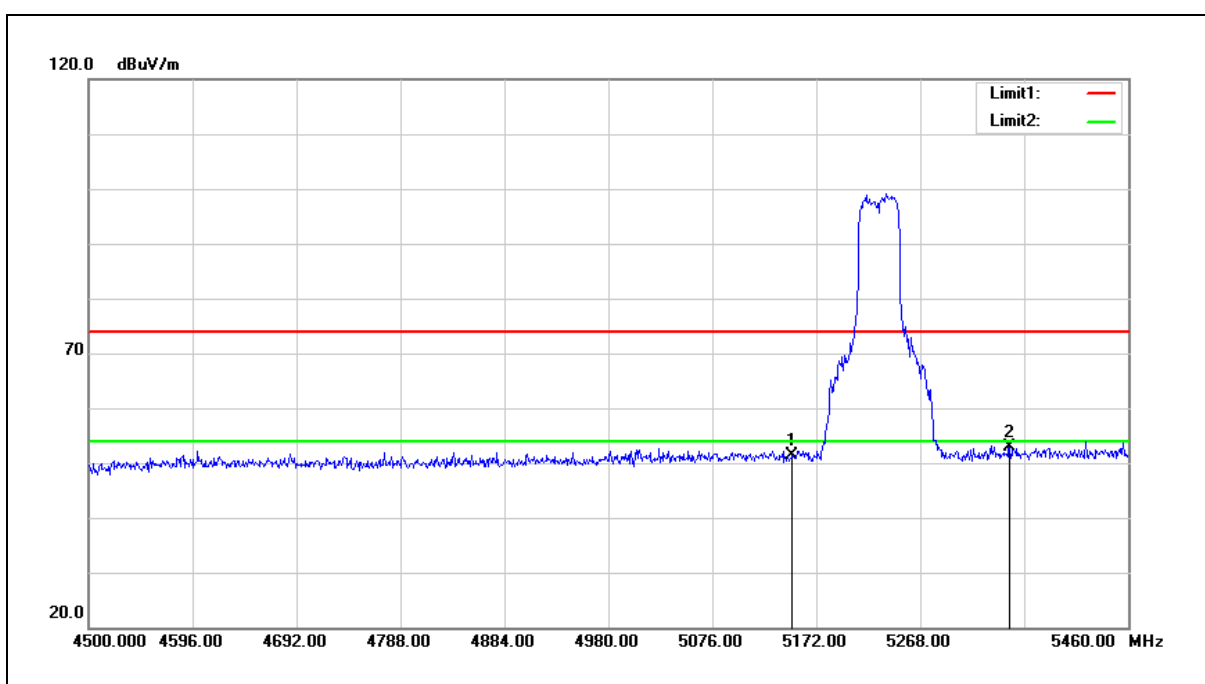
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	55.67	-4.24	51.43	74.00	-22.57	peak
2	5350.000	56.54	-3.76	52.78	74.00	-21.22	peak

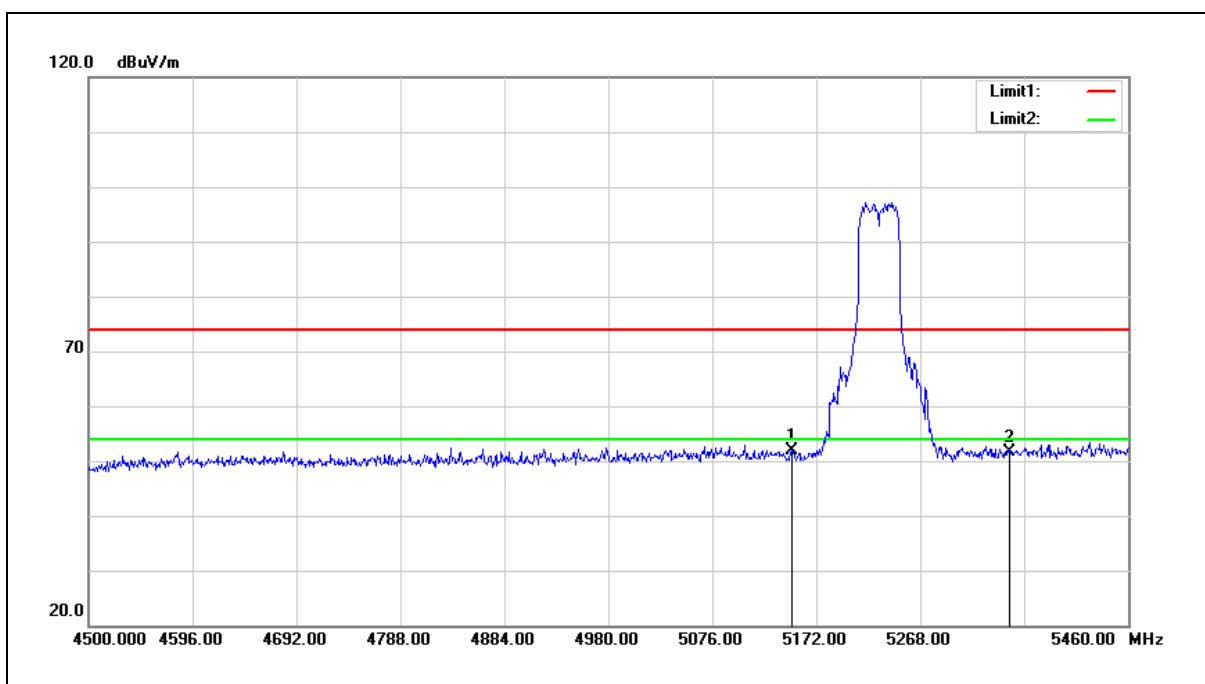
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5230MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Vertical		



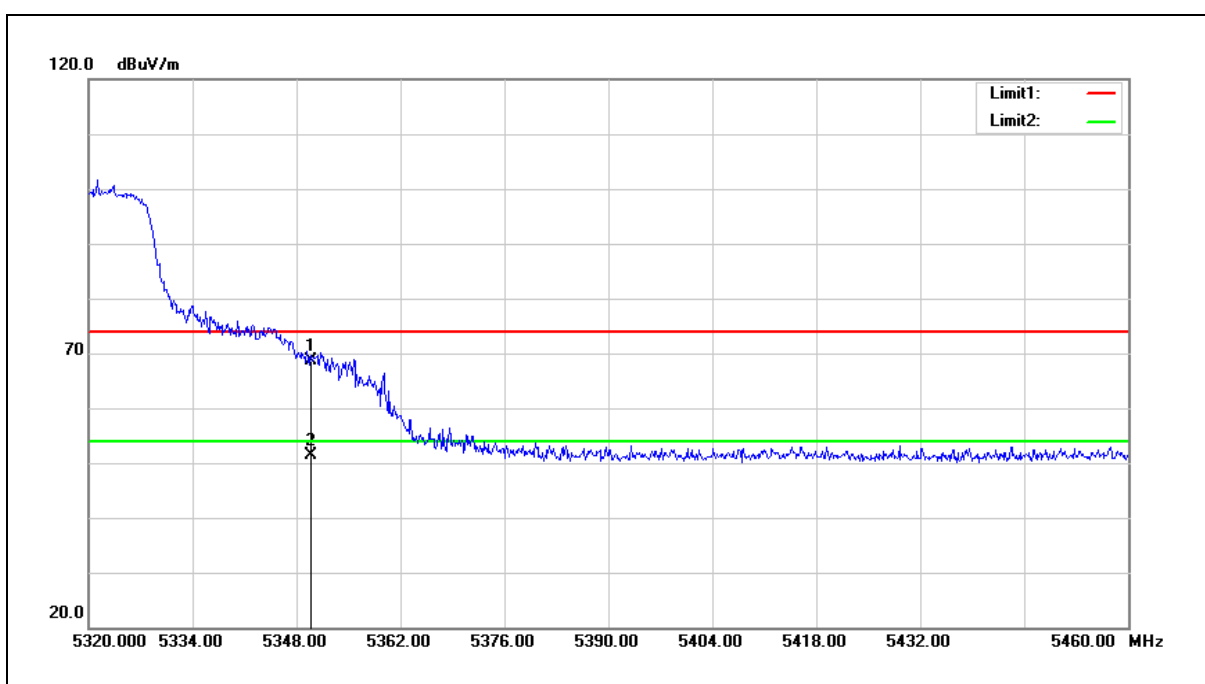
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	56.06	-4.24	51.82	74.00	-22.18	peak
2	5350.000	55.45	-3.76	51.69	74.00	-22.31	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5310MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Horizontal		



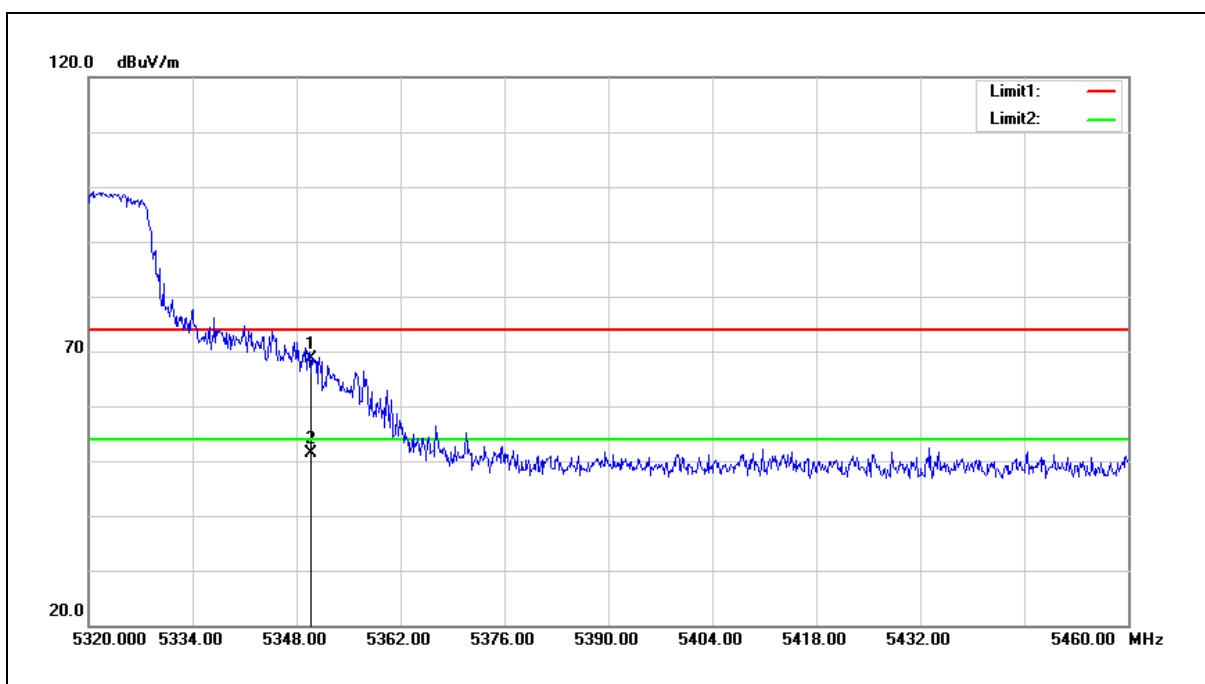
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	72.29	-3.76	68.53	74.00	-5.47	peak
2	5350.000	55.15	-3.76	51.39	54.00	-2.61	AVG

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5310MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	72.36	-3.76	68.60	74.00	-5.40	peak
2	5350.000	55.22	-3.76	51.46	54.00	-2.54	AVG

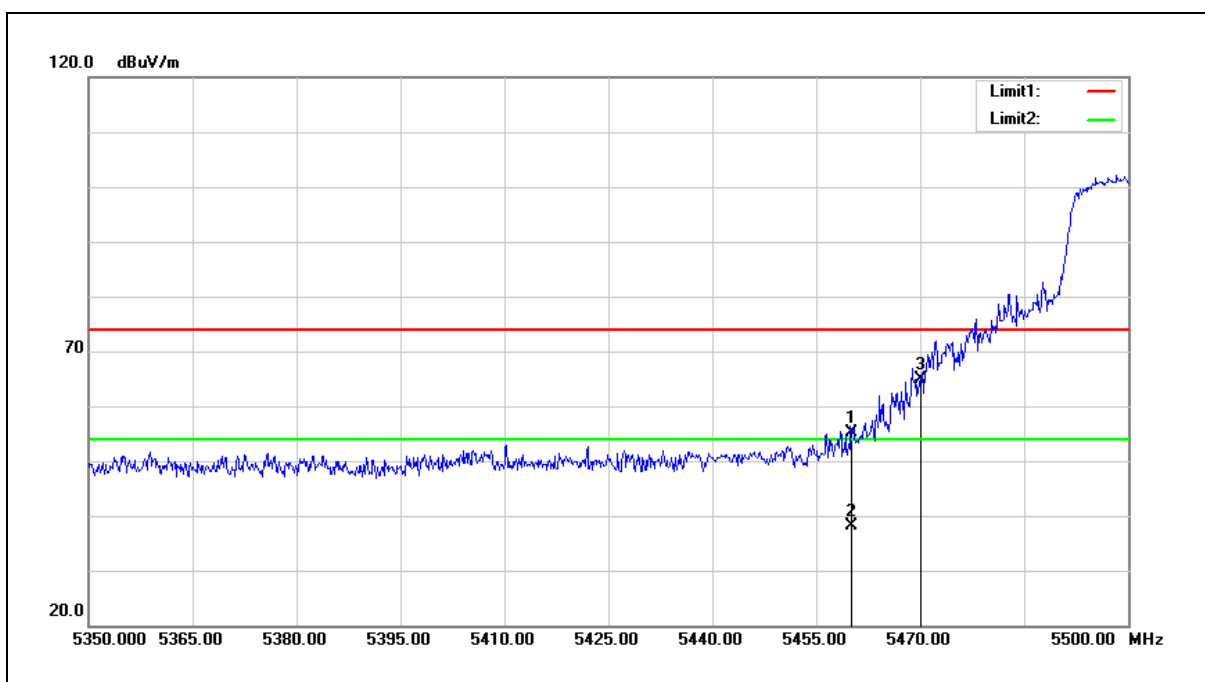
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5510MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5460.000	58.88	-3.71	55.17	74.00	-18.83	peak
2	5460.000	41.79	-3.71	38.08	54.00	-15.92	AVG
3	5470.000	68.63	-3.72	64.91	74.00	-9.09	peak

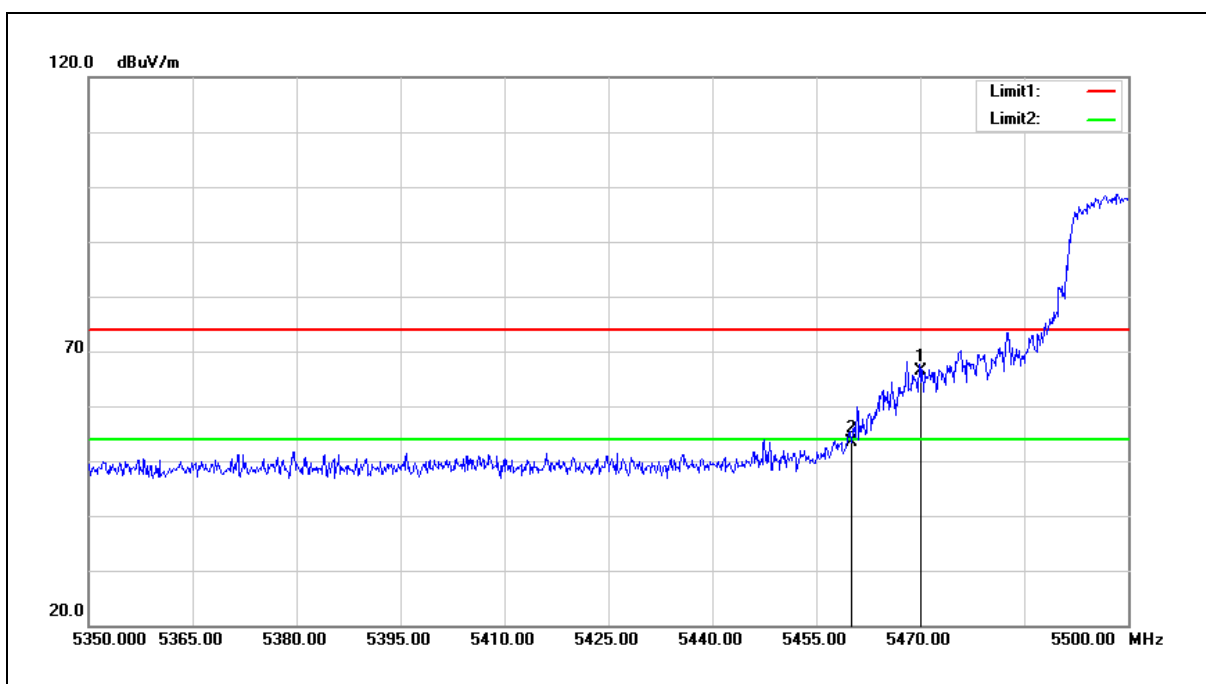
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5510MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5470.000	70.03	-3.72	66.31	74.00	-7.69	peak
2	5460.000	56.97	-3.71	53.26	74.00	-20.74	peak

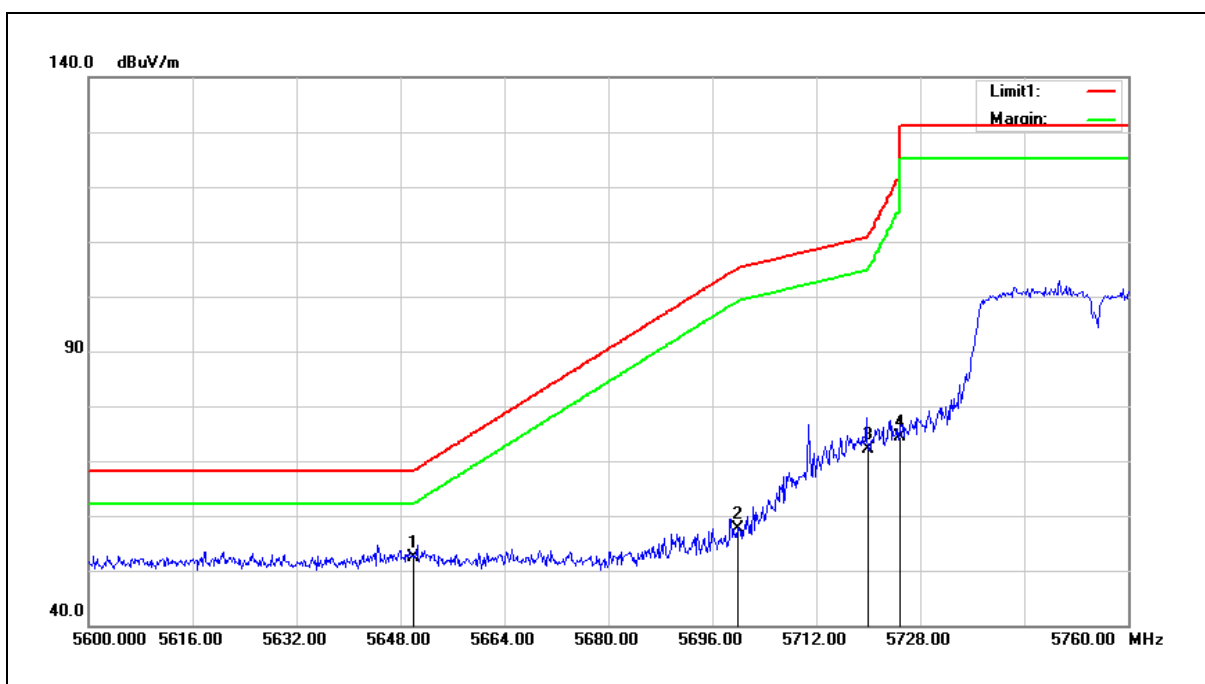
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Horizontal		



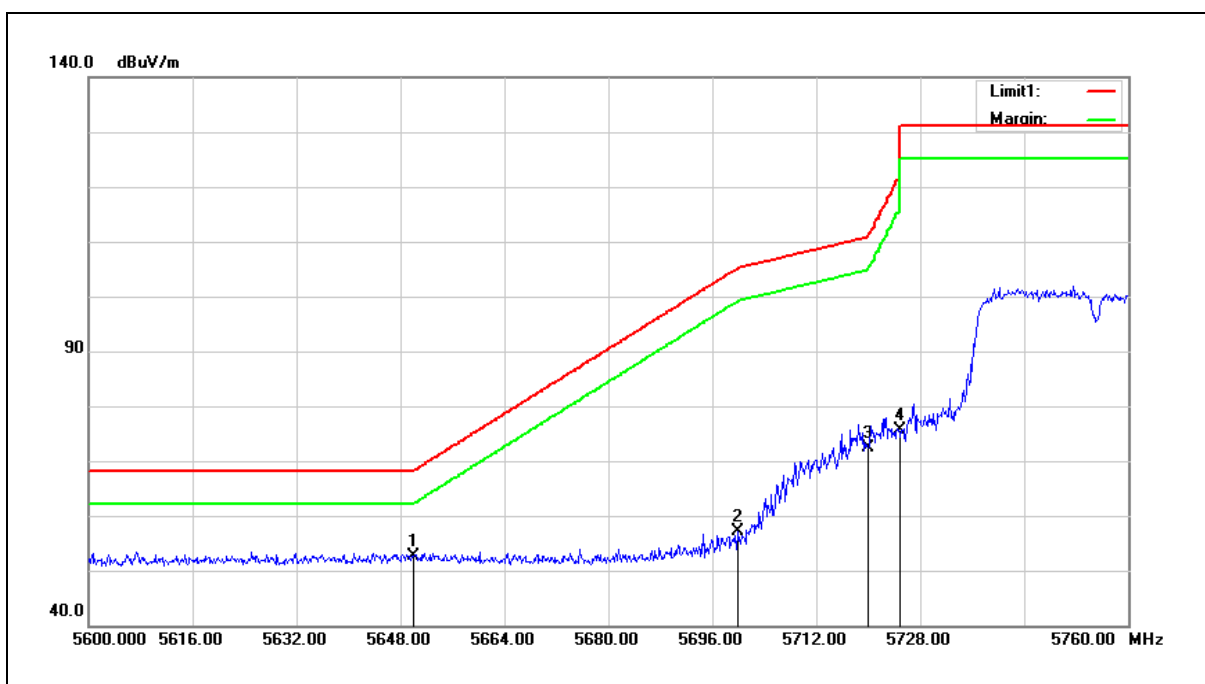
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	56.05	-3.61	52.44	68.20	-15.76	peak
2	5700.000	61.31	-3.56	57.75	105.20	-47.45	peak
3	5720.000	75.64	-3.55	72.09	110.80	-38.71	peak
4	5725.000	77.96	-3.54	74.42	122.20	-47.78	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5755MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	56.13	-3.61	52.52	68.20	-15.68	peak
2	5700.000	60.78	-3.56	57.22	105.20	-47.98	peak
3	5720.000	75.87	-3.55	72.32	110.80	-38.48	peak
4	5725.000	79.19	-3.54	75.65	122.20	-46.55	peak

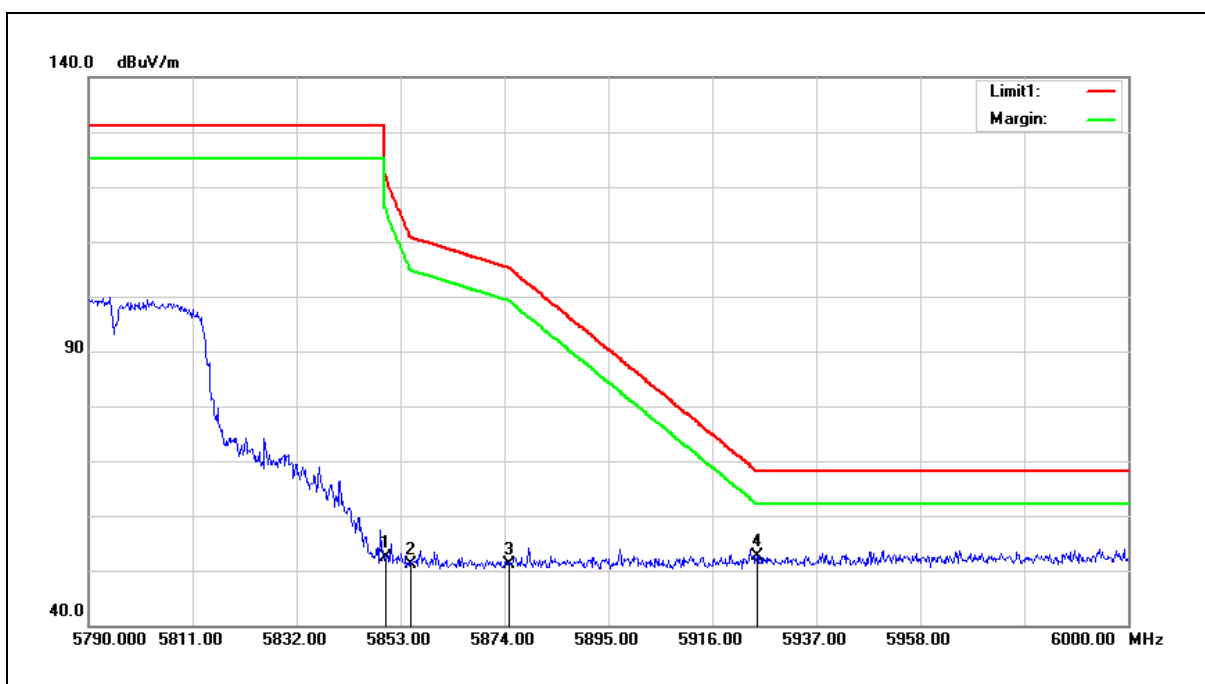
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	55.67	-3.17	52.50	122.20	-69.70	peak
2	5855.000	54.27	-3.16	51.11	110.80	-59.69	peak
3	5875.000	54.09	-3.08	51.01	105.20	-54.19	peak
4	5925.000	55.46	-2.91	52.55	68.20	-15.65	peak

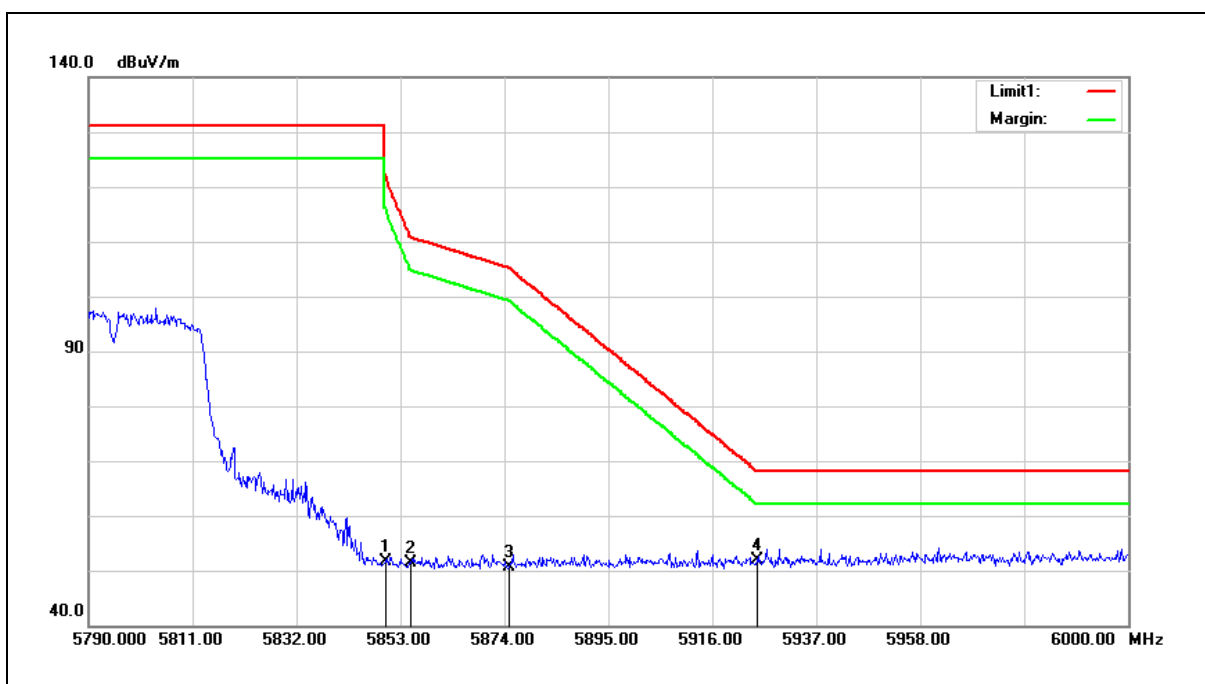
Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5795MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	54.70	-3.17	51.53	122.20	-70.67	peak
2	5855.000	54.58	-3.16	51.42	110.80	-59.38	peak
3	5875.000	53.83	-3.08	50.75	105.20	-54.45	peak
4	5925.000	54.78	-2.91	51.87	68.20	-16.33	peak

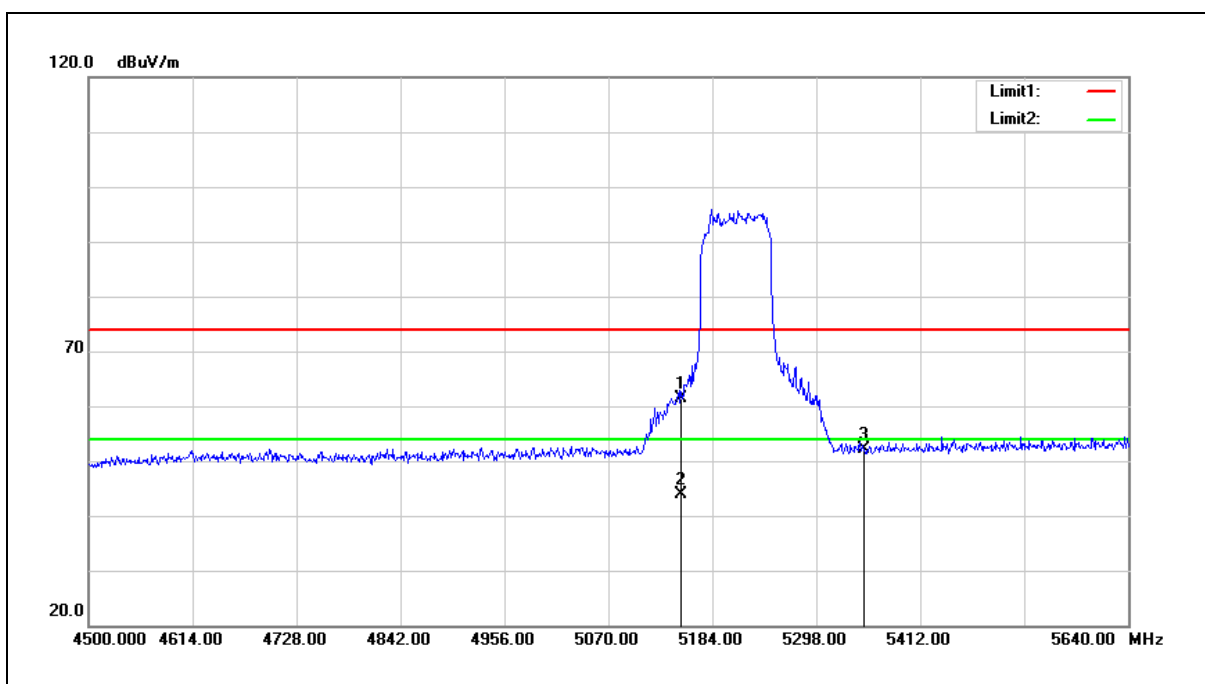
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Horizontal		



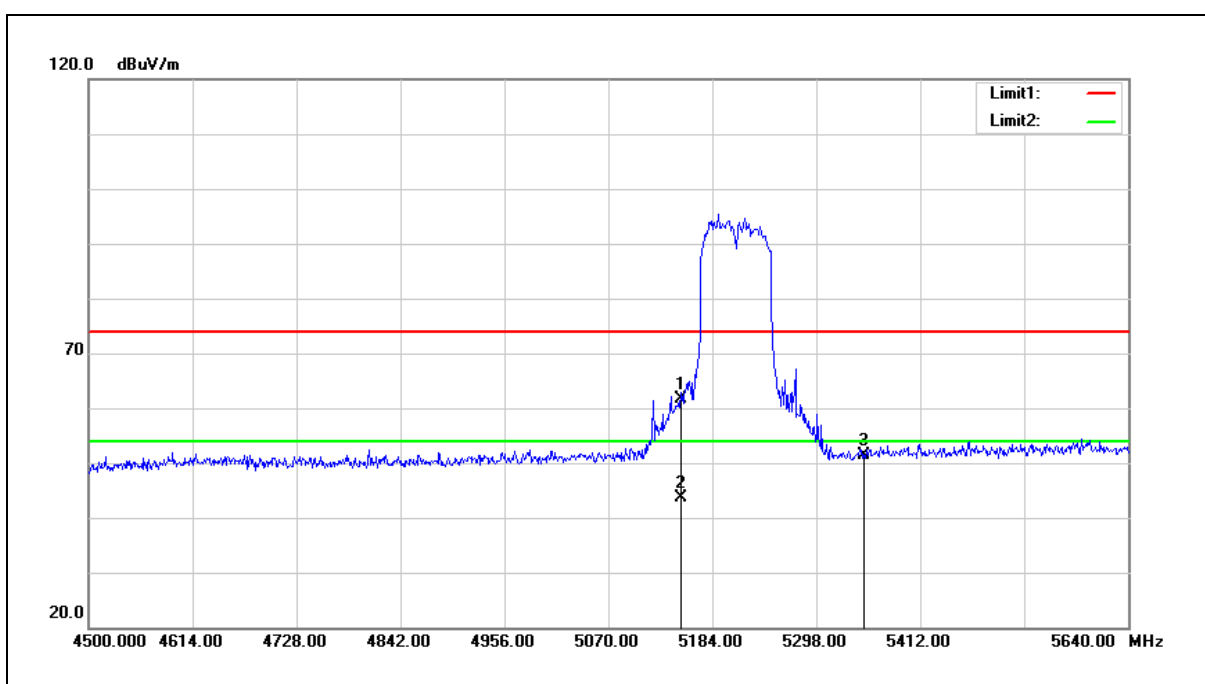
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	65.51	-4.24	61.27	74.00	-12.73	peak
2	5150.000	48.20	-4.24	43.96	54.00	-10.04	AVG
3	5350.000	55.80	-3.76	52.04	74.00	-21.96	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5210MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Vertical		



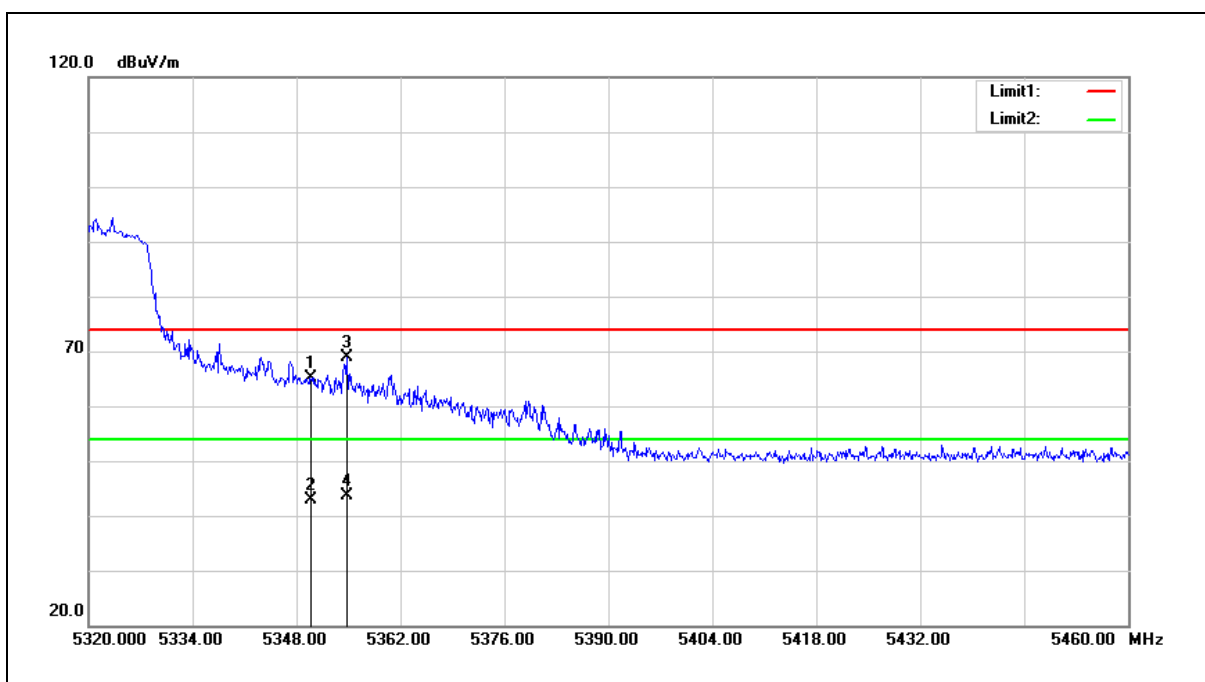
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	65.80	-4.24	61.56	74.00	-12.44	peak
2	5150.000	47.89	-4.24	43.65	54.00	-10.35	AVG
3	5350.000	55.04	-3.76	51.28	74.00	-22.72	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5290MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	68.96	-3.76	65.20	74.00	-8.80	peak
2	5350.000	46.72	-3.76	42.96	54.00	-11.04	AVG
3	5354.720	72.61	-3.75	68.86	74.00	-5.14	peak
4	5354.720	47.43	-3.75	43.68	54.00	-10.32	AVG

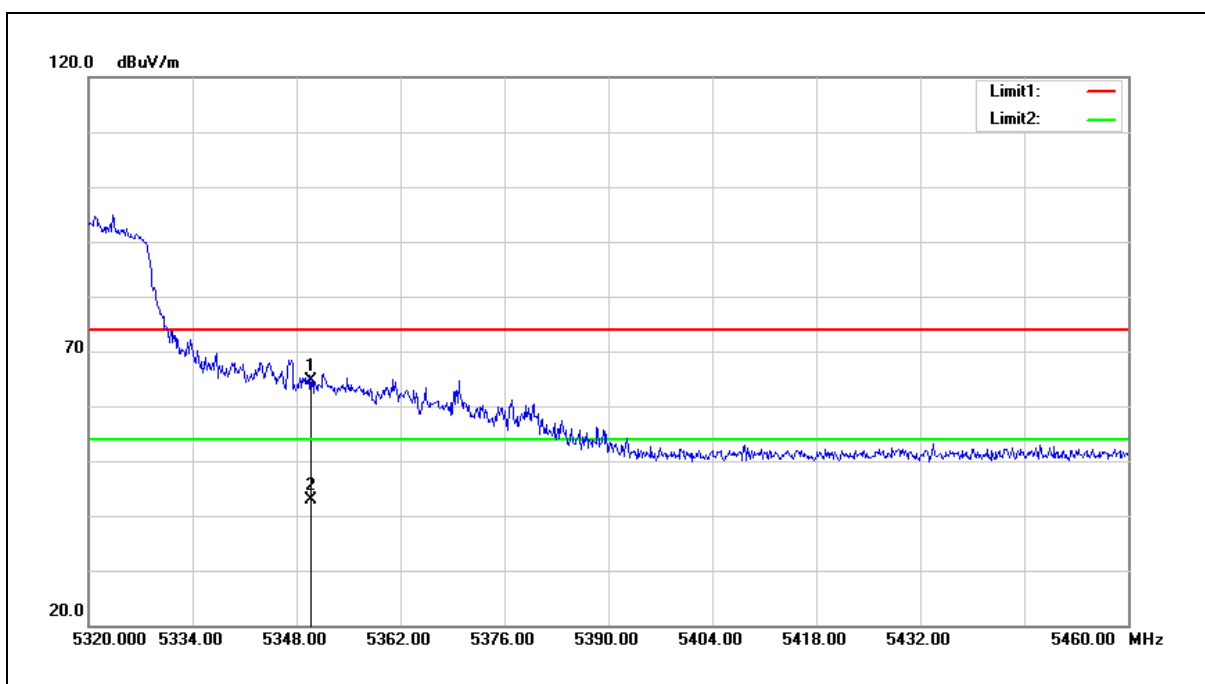
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5290MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	68.31	-3.76	64.55	74.00	-9.45	peak
2	5350.000	46.52	-3.76	42.76	54.00	-11.24	AVG

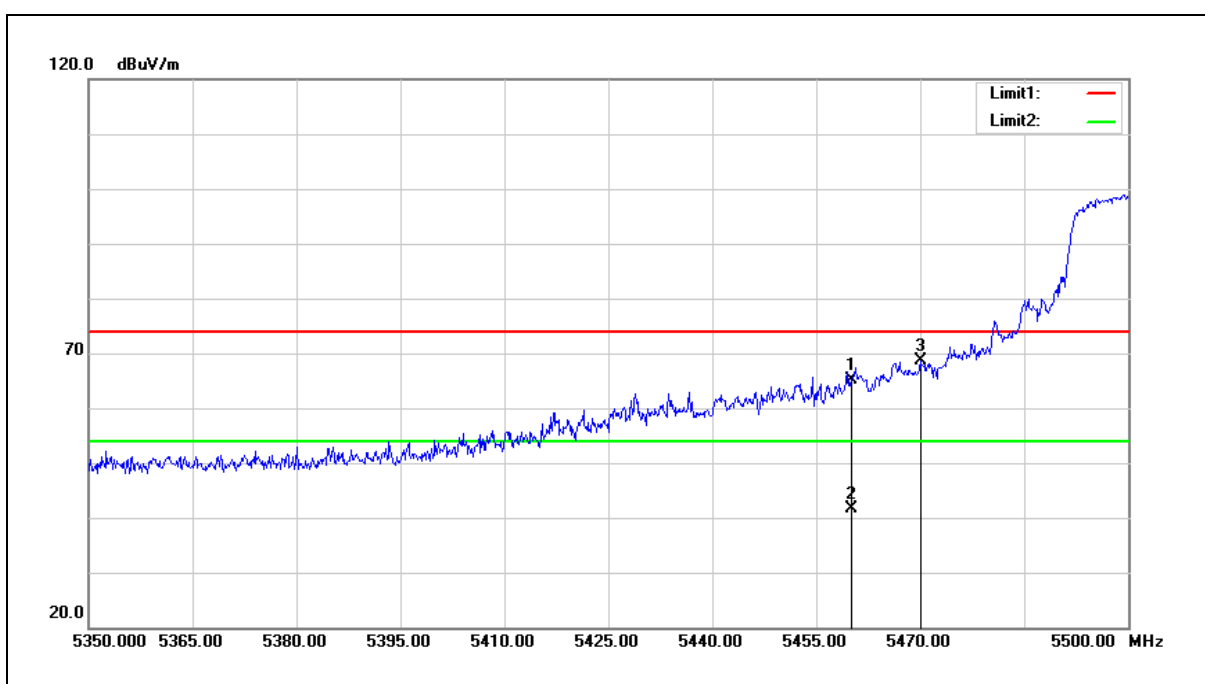
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5530MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5460.000	68.84	-3.71	65.13	74.00	-8.87	peak
2	5460.000	45.39	-3.71	41.68	54.00	-12.32	AVG
3	5470.000	72.30	-3.72	68.58	74.00	-5.42	peak

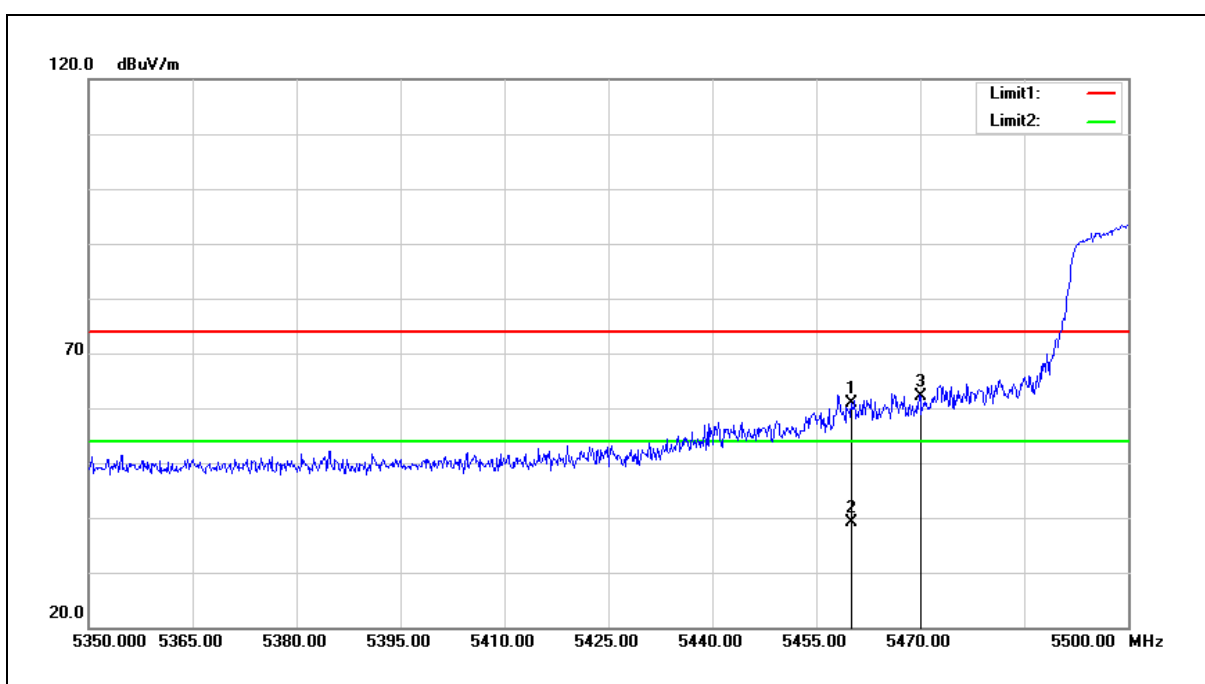
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5530MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5460.000	64.48	-3.71	60.77	74.00	-13.23	peak
2	5460.000	42.77	-3.71	39.06	54.00	-14.94	AVG
3	5470.000	65.92	-3.72	62.20	74.00	-11.80	peak

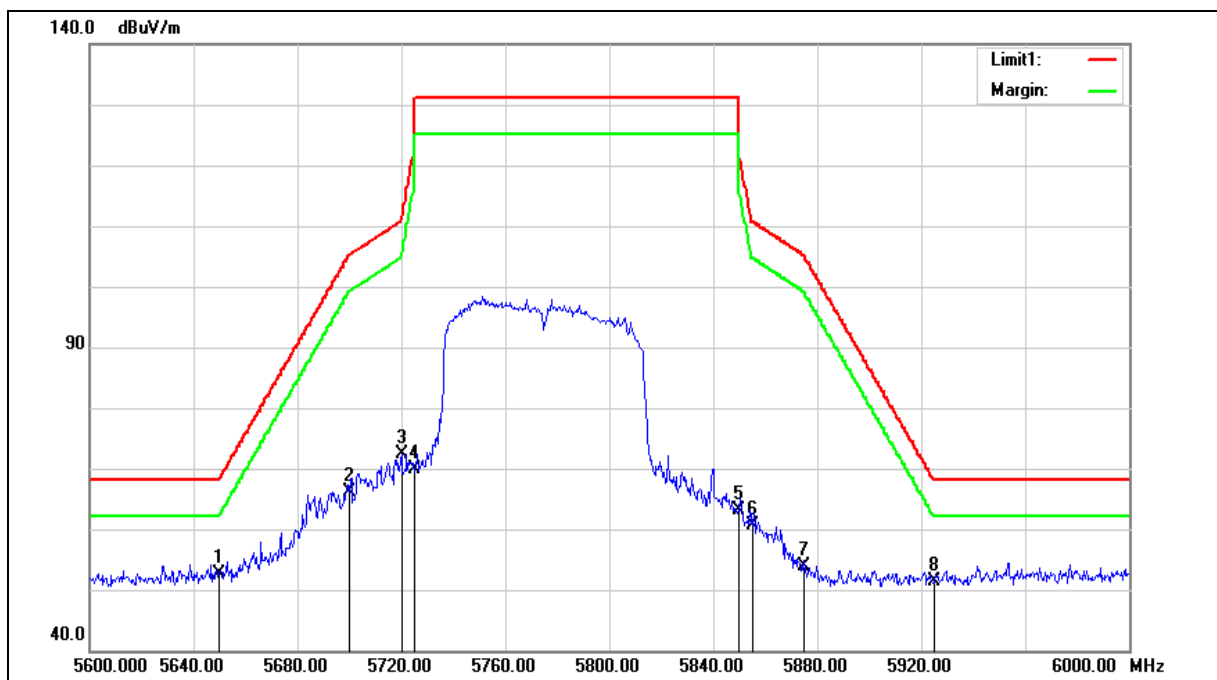
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Horizontal		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	56.25	-3.61	52.64	68.20	-15.56	peak
2	5700.000	69.73	-3.56	66.17	105.20	-39.03	peak
3	5720.000	76.01	-3.55	72.46	110.80	-38.34	peak
4	5725.000	73.42	-3.54	69.88	122.20	-52.32	peak
5	5850.000	66.22	-3.17	63.05	122.20	-59.15	peak
6	5855.000	63.87	-3.16	60.71	110.80	-50.09	peak
7	5875.000	56.96	-3.08	53.88	105.20	-51.32	peak
8	5925.000	54.17	-2.91	51.26	68.20	-16.94	peak

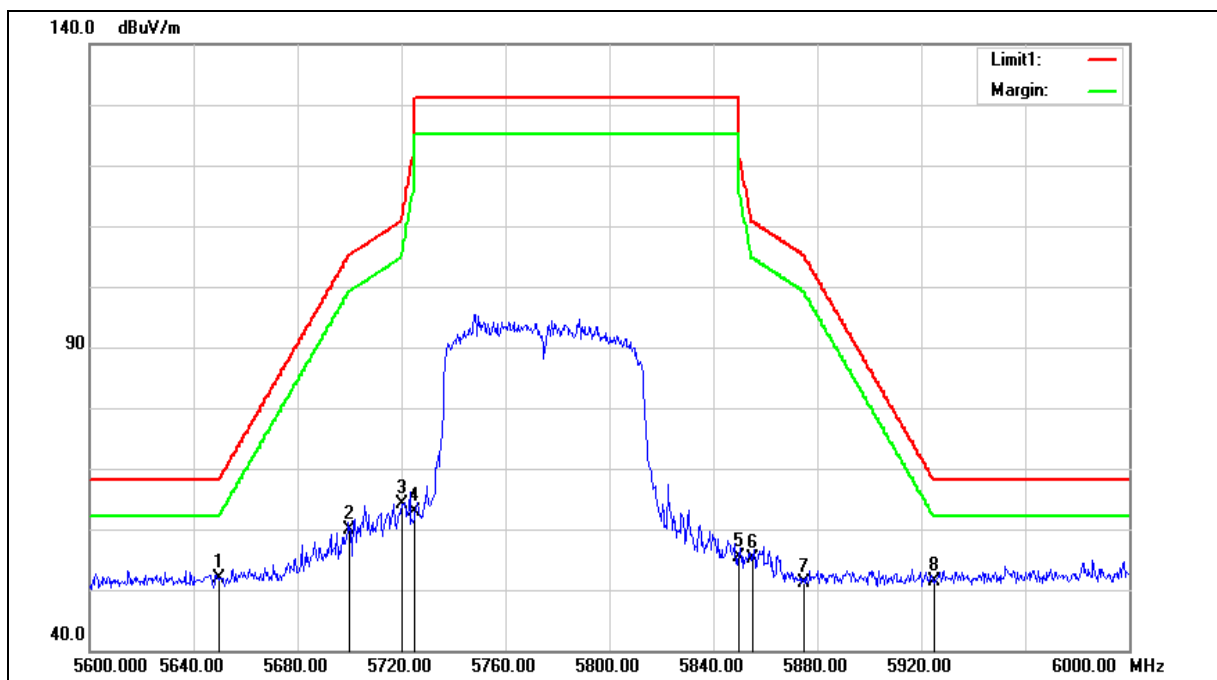
Note:1. Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Vertical		





Standard:	FCC Part 15.407	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	5775MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	09/28/2017
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5650.000	55.61	-3.61	52.00	68.20	-16.20	peak
2	5700.000	63.34	-3.56	59.78	105.20	-45.42	peak
3	5720.000	67.61	-3.55	64.06	110.80	-46.74	peak
4	5725.000	66.40	-3.54	62.86	122.20	-59.34	peak
5	5850.000	58.63	-3.17	55.46	122.20	-66.74	peak
6	5855.000	58.18	-3.16	55.02	110.80	-55.78	peak
7	5875.000	54.17	-3.08	51.09	105.20	-54.11	peak
8	5925.000	54.28	-2.91	51.37	68.20	-16.83	peak

Note:1. Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

4.4. Maximum Conducted Output Power Measurement

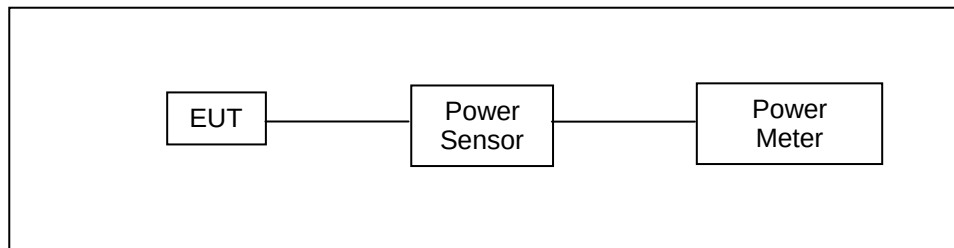
■ Limit

Frequency Range (MHz)	FCC Maximum Conducted Output Power Limit
	Client
5.150 ~ 5.250 GHz	The lesser of 250mW (24dBm)
5.250 ~ 5.350 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.470 ~ 5.725 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.725 ~ 5.850 GHz	The lesser of 1W (30dBm)

According FCC KDB 662911 D01 v02r01 – for power measurements on IEEE802.11 devices,

* Max. Gain = 1.5 dBi < 6dBi

■ Test Setup



■ Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices

Section (E) Maximum Conducted Output Power

3. Measurement using a Power Meter (PM)

b) Method PM-G (Measurement using a gated RF average power meter)

Test Result

Test Item		Maximum Conducted Output Power		
Test Mode		Mode 2: IEEE 802.11a Continuous TX mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	6M	16.14	0.041	≤ 24
5200		15.90	0.039	
5220		15.80	0.038	
5240		14.85	0.031	
5260		14.73	0.030	≤ 24
5280		14.40	0.028	
5300		14.33	0.027	
5320		14.31	0.027	
5500		15.96	0.039	≤ 24
5520		16.32	0.043	
5540		16.41	0.044	
5560		16.28	0.042	
5580		15.82	0.038	
5660		14.57	0.029	
5680		14.88	0.031	
5700		15.06	0.032	
5745		15.94	0.039	≤ 30
5765		16.06	0.040	
5785		16.35	0.043	
5805		16.13	0.041	
5825		15.93	0.039	

Note: The relevant measured result has the offset with cable loss already.

Test Item		Maximum Conducted Output Power		
Test Mode		Mode 2: IEEE 802.11a Continuous TX mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	54M	12.94	0.020	≤ 24
5200		12.70	0.019	
5220		12.60	0.018	
5240		12.94	0.020	
5260		12.82	0.019	
5280		12.49	0.018	≤ 24
5300		12.42	0.017	
5320		12.40	0.017	
5500		12.95	0.020	
5520		13.31	0.021	≤ 24
5540		13.40	0.022	
5560		13.27	0.021	
5580		12.81	0.019	
5660		12.60	0.018	
5680		12.91	0.020	
5700		13.09	0.020	
5745		13.05	0.020	≤ 30
5765		13.17	0.021	
5785		13.46	0.022	
5805		13.24	0.021	
5825		13.04	0.020	

Note: The relevant measured result has the offset with cable loss already.



Test Item		Maximum Conducted Output Power		
Test Mode		Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	6.5M	14.75	0.030	≤ 24
5200		14.51	0.028	
5220		14.41	0.028	
5240		14.92	0.031	
5260		14.80	0.030	≤ 24
5280		14.47	0.028	
5300		14.40	0.028	
5320		14.38	0.027	
5500		15.12	0.033	≤ 24
5520		15.48	0.035	
5540		15.57	0.036	
5560		15.44	0.035	
5580		14.98	0.031	
5660		14.62	0.029	
5680		14.93	0.031	
5700		15.11	0.032	
5745		15.13	0.033	≤ 30
5765		15.07	0.032	
5785		15.36	0.034	
5805		15.14	0.033	
5825		14.94	0.031	

Note: The relevant measured result has the offset with cable loss already.



Test Item		Maximum Conducted Output Power		
Test Mode		Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5180	72.2M	12.05	0.016	≤ 24
5200		11.81	0.015	
5220		11.71	0.015	
5240		12.05	0.016	
5260		11.93	0.016	
5280		11.60	0.014	≤ 24
5300		11.53	0.014	
5320		11.79	0.015	
5500		11.84	0.015	
5520		12.20	0.017	≤ 24
5540		12.29	0.017	
5560		11.85	0.015	
5580		11.39	0.014	
5660		11.18	0.013	
5680		11.49	0.014	
5700		11.67	0.015	
5745		11.63	0.015	≤ 30
5765		11.79	0.015	
5785		12.08	0.016	
5805		11.86	0.015	
5825		11.66	0.015	

Note: The relevant measured result has the offset with cable loss already.



Test Item		Maximum Conducted Output Power		
Test Mode		Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5190	13.5M	15.83	0.038	≤ 24
5230		15.59	0.036	
5270		15.53	0.036	
5310		15.12	0.033	
5510		15.00	0.032	
5550		15.15	0.033	
5670		15.77	0.038	
5755		15.93	0.039	≤ 30
5795		16.02	0.040	
5190	150M	12.46	0.018	≤ 24
5230		12.43	0.017	
5270		12.15	0.016	
5310		11.86	0.015	
5510		11.73	0.015	
5550		12.04	0.016	
5670		12.72	0.019	
5755		13.01	0.020	≤ 30
5795		12.79	0.019	

Note: The relevant measured result has the offset with cable loss already.



Test Item		Maximum Conducted Output Power		
Test Mode		Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode		
Frequency (MHz)	Data Rate	ANT-0		FCC Limit (dBm)
		Max. Output Power		
		(dBm)	(W)	
5210	29.3M	15.21	0.033	≤ 24
5290		14.81	0.030	
5530		14.38	0.027	
5775		13.96	0.025	≤ 30
5210	433.3M	11.39	0.014	≤ 24
5290		11.51	0.014	
5530		11.80	0.015	
5775		11.38	0.014	≤ 30

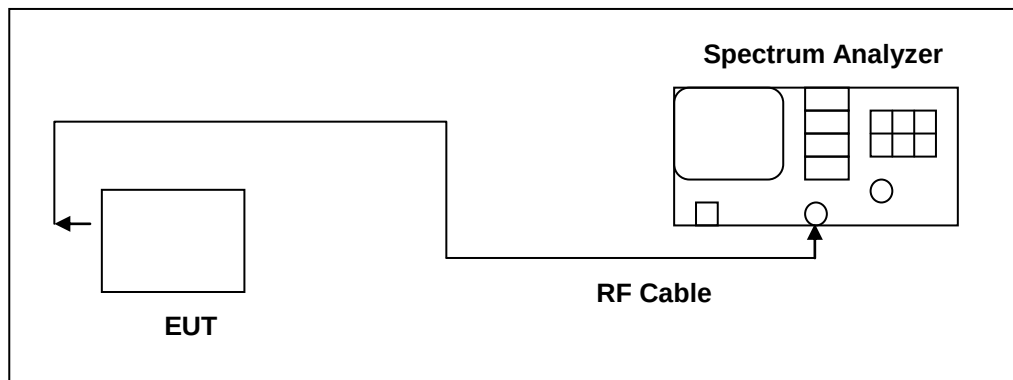
Note: The relevant measured result has the offset with cable loss already.

4.5. 26dB RF Bandwidth Measurement

■ Limit

N/A

■ Test Setup



■ Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	>26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto



■ Test Result

Test Item	26dB RF Bandwidth Measurement
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode
Frequency (MHz)	Ant-0
	26dB Bandwidth (MHz)
5180	21.690
5200	21.480
5240	20.990
5260	22.730
5280	22.440
5320	22.260
5500	22.490
5560	22.170
5700	22.340

Test Item	26dB RF Bandwidth Measurement
Test Mode	Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode
Frequency (MHz)	Ant-0
	26dB Bandwidth (MHz)
5180	22.020
5200	21.850
5240	21.470
5260	22.930
5280	22.710
5320	22.600
5500	23.180
5560	22.690
5700	22.450



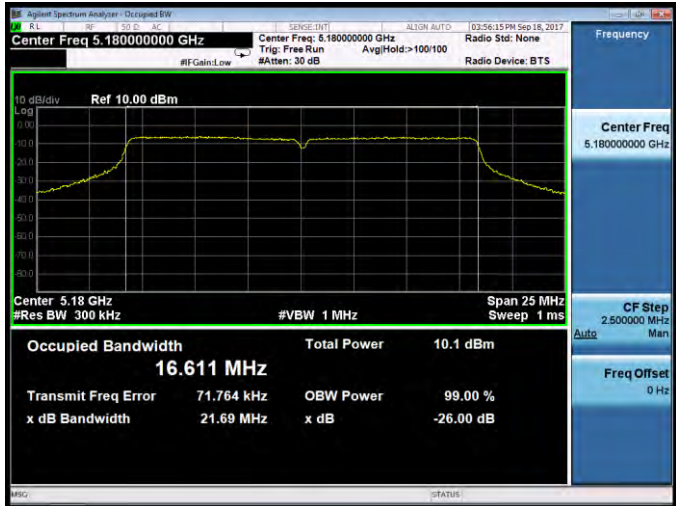
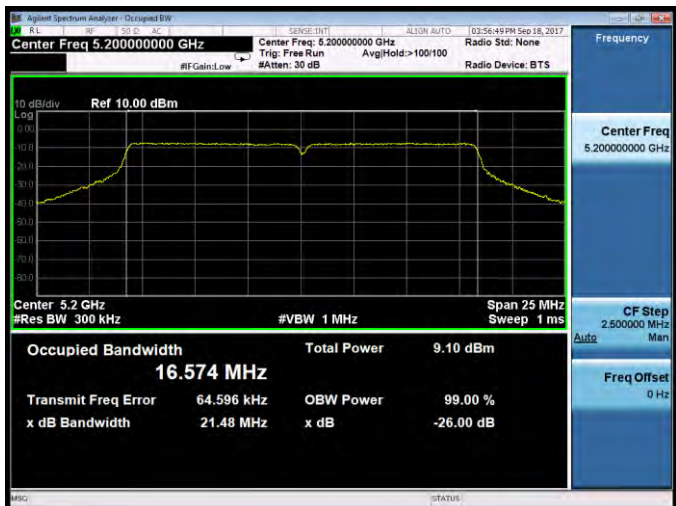
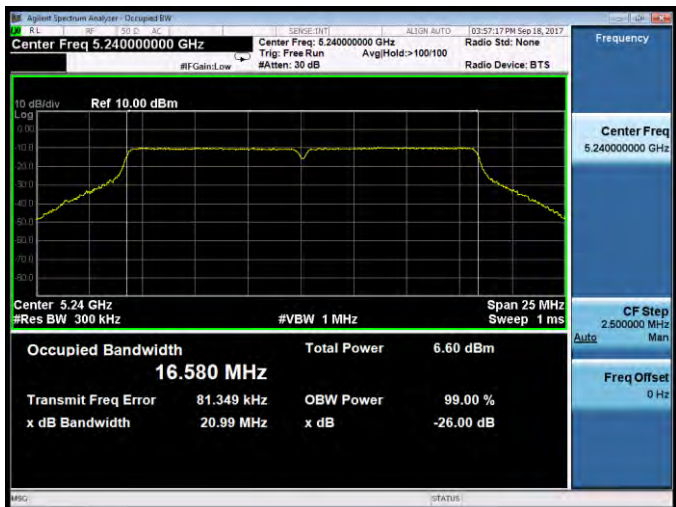
Test Item	26dB RF Bandwidth Measurement
Test Mode	Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode
Frequency (MHz)	Ant-0
	26dB Bandwidth (MHz)
5190	49.130
5230	48.360
5270	40.830
5310	41.230
5510	41.520
5550	41.410
5670	48.500

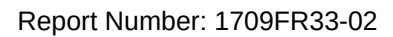
Test Item	26dB RF Bandwidth Measurement
Test Mode	Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode
Frequency (MHz)	Ant-0
	26dB Bandwidth (MHz)
5210	82.140
5290	84.350
5530	84.220



■ Test Graphs

Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

5180 MHz	 Center Freq 5.180000000 GHz Center Freq: 5.180000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 10.00 dBm Center 5.18 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.611 MHz Total Power 10.1 dBm Transmit Freq Error 71.764 kHz OBW Power 99.00 % x dB Bandwidth 21.69 MHz x dB -26.00 dB
5200 MHz	 Center Freq 5.200000000 GHz Center Freq: 5.200000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 10.00 dBm Center 5.2 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.574 MHz Total Power 9.10 dBm Transmit Freq Error 64.596 kHz OBW Power 99.00 % x dB Bandwidth 21.48 MHz x dB -26.00 dB
5240 MHz	 Center Freq 5.240000000 GHz Center Freq: 5.240000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 10.00 dBm Center 5.24 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 16.580 MHz Total Power 6.60 dBm Transmit Freq Error 81.349 kHz OBW Power 99.00 % x dB Bandwidth 20.99 MHz x dB -26.00 dB

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Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

5500 MHz	 Center Freq 5.500000000 GHz Center Freq: 5.500000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.5 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 17.041 MHz Total Power 21.5 dBm Transmit Freq Error 89.522 kHz OBW Power 99.00 % x dB Bandwidth 22.49 MHz x dB -26.00 dB
5560 MHz	 Center Freq 5.560000000 GHz Center Freq: 5.560000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.56 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 17.056 MHz Total Power 20.8 dBm Transmit Freq Error 76.730 kHz OBW Power 99.00 % x dB Bandwidth 22.17 MHz x dB -26.00 dB
5700 MHz	 Center Freq 5.700000000 GHz Center Freq: 5.700000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.7 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 17.005 MHz Total Power 21.0 dBm Transmit Freq Error 68.058 kHz OBW Power 99.00 % x dB Bandwidth 22.34 MHz x dB -26.00 dB

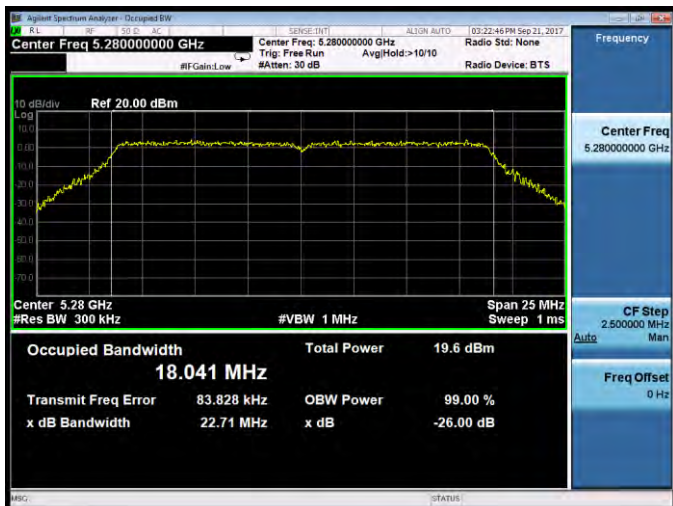


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode_ANT-0

5180 MHz	Center Freq 5.180000000 GHz Center Freq: 5.180000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 10.00 dBm Center 5.18 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 17.745 MHz Total Power 10.1 dBm Transmit Freq Error 69.327 kHz OBW Power 99.00 % x dB Bandwidth 22.02 MHz x dB -26.00 dB
5200 MHz	Center Freq 5.200000000 GHz Center Freq: 5.200000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 10.00 dBm Center 5.2 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 17.755 MHz Total Power 8.95 dBm Transmit Freq Error 84.412 kHz OBW Power 99.00 % x dB Bandwidth 21.85 MHz x dB -26.00 dB
5240 MHz	Center Freq 5.240000000 GHz Center Freq: 5.240000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 10.00 dBm Center 5.24 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 17.736 MHz Total Power 6.46 dBm Transmit Freq Error 75.876 kHz OBW Power 99.00 % x dB Bandwidth 21.47 MHz x dB -26.00 dB

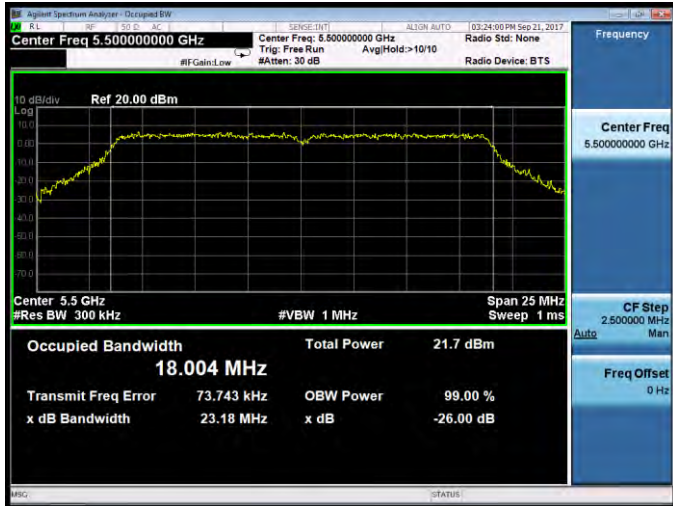
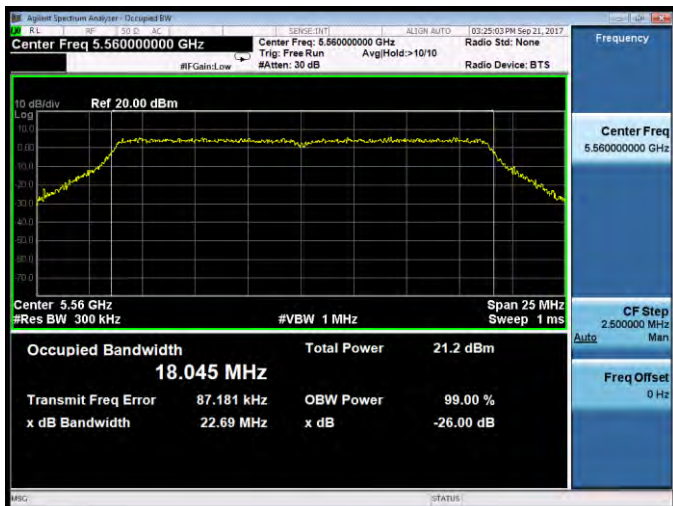
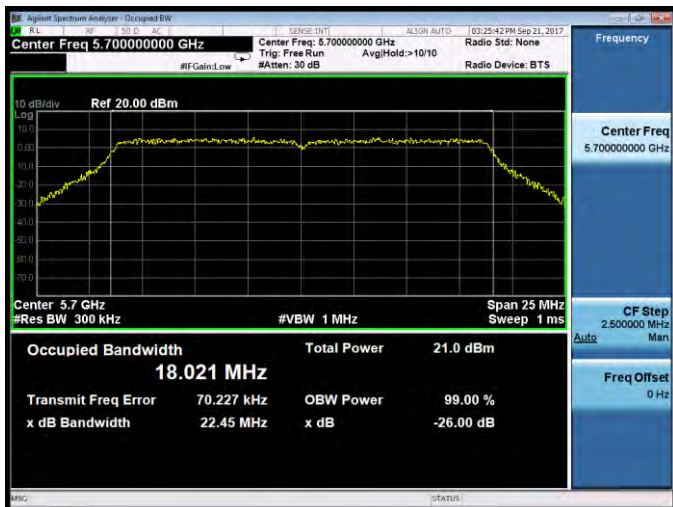


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode_ANT-0

5260 MHz	 Center Freq 5.260000000 GHz Center Freq: 5.260000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.26 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 18.099 MHz Total Power 20.0 dBm Transmit Freq Error 74.924 kHz OBW Power 99.00 % x dB Bandwidth 22.93 MHz x dB -26.00 dB
5280 MHz	 Center Freq 5.280000000 GHz Center Freq: 5.280000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.28 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 18.041 MHz Total Power 19.6 dBm Transmit Freq Error 83.828 kHz OBW Power 99.00 % x dB Bandwidth 22.71 MHz x dB -26.00 dB
5320 MHz	 Center Freq 5.320000000 GHz Center Freq: 5.320000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.32 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 18.055 MHz Total Power 19.9 dBm Transmit Freq Error 61.688 kHz OBW Power 99.00 % x dB Bandwidth 22.60 MHz x dB -26.00 dB

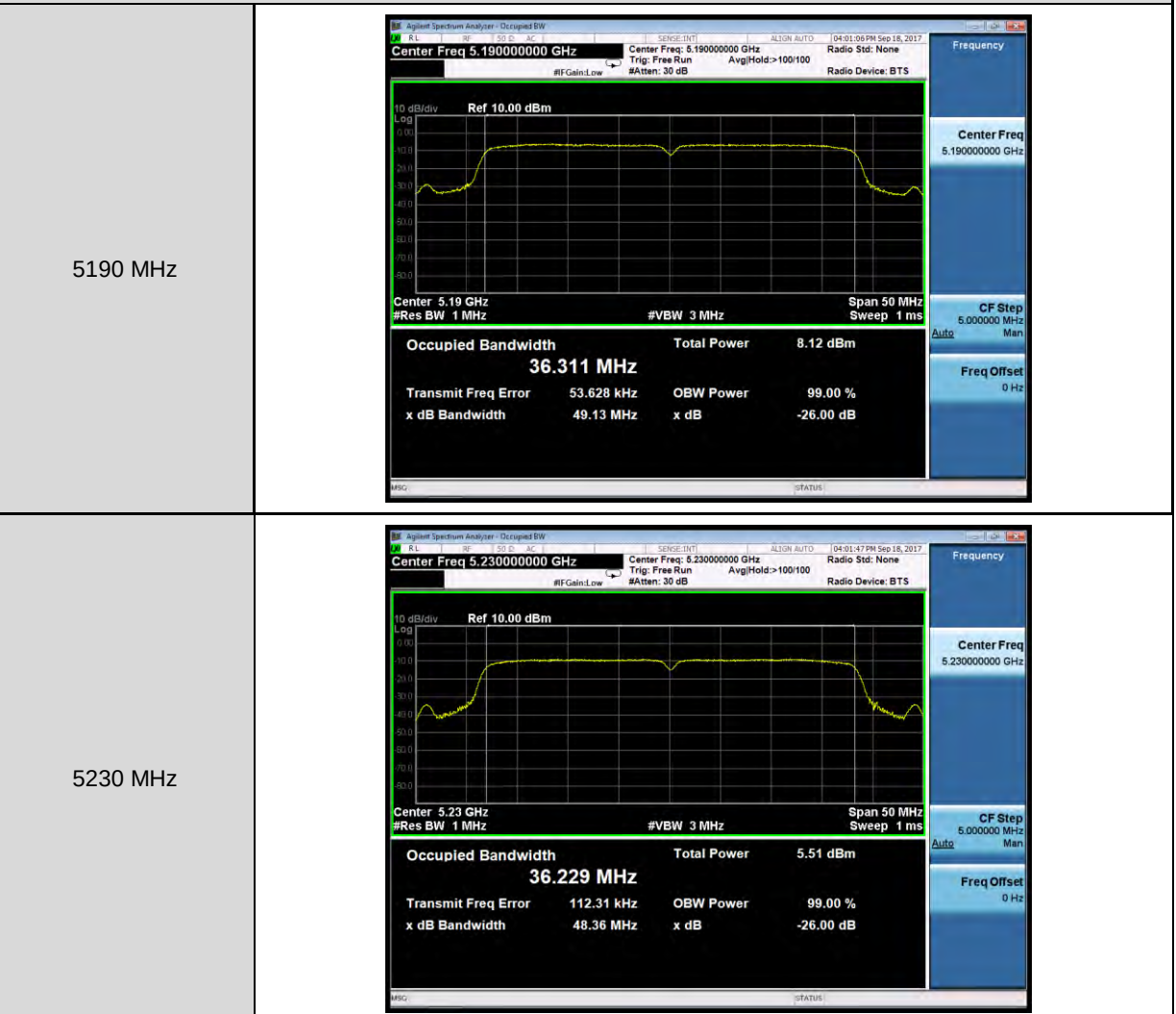


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode_ANT-0

5500 MHz	 Center Freq 5.500000000 GHz Center Freq: 5.500000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.5 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 18.004 MHz Total Power 21.7 dBm Transmit Freq Error 73.743 kHz OBW Power 99.00 % x dB Bandwidth 23.18 MHz x dB -26.00 dB
5560 MHz	 Center Freq 5.560000000 GHz Center Freq: 5.560000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.56 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 18.045 MHz Total Power 21.2 dBm Transmit Freq Error 87.181 kHz OBW Power 99.00 % x dB Bandwidth 22.69 MHz x dB -26.00 dB
5700 MHz	 Center Freq 5.700000000 GHz Center Freq: 5.700000000 GHz Trig: Free Run Avg/Hold: >10/10 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.7 GHz #Res BW 300 kHz #VBW 1 MHz Span 25 MHz Sweep 1 ms Occupied Bandwidth 18.021 MHz Total Power 21.0 dBm Transmit Freq Error 70.227 kHz OBW Power 99.00 % x dB Bandwidth 22.45 MHz x dB -26.00 dB

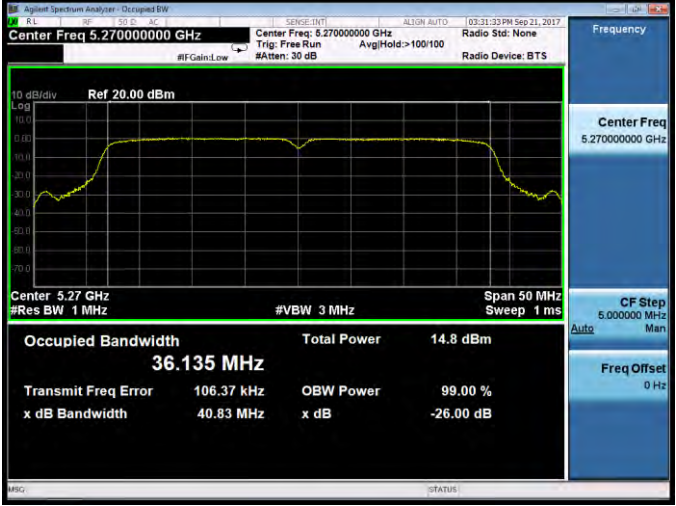
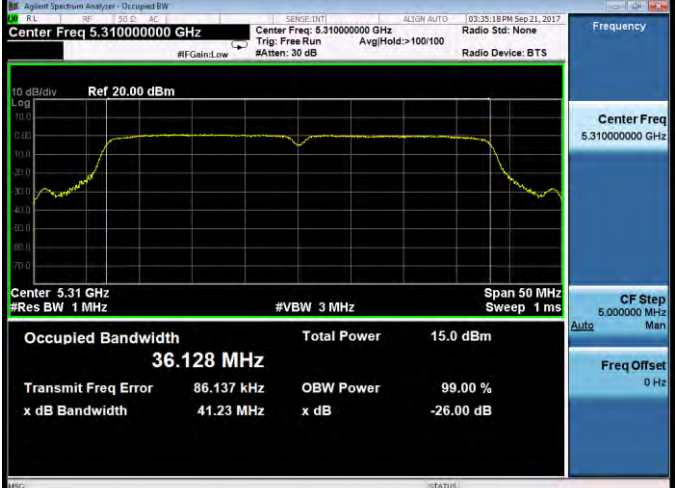


Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ ANT-0



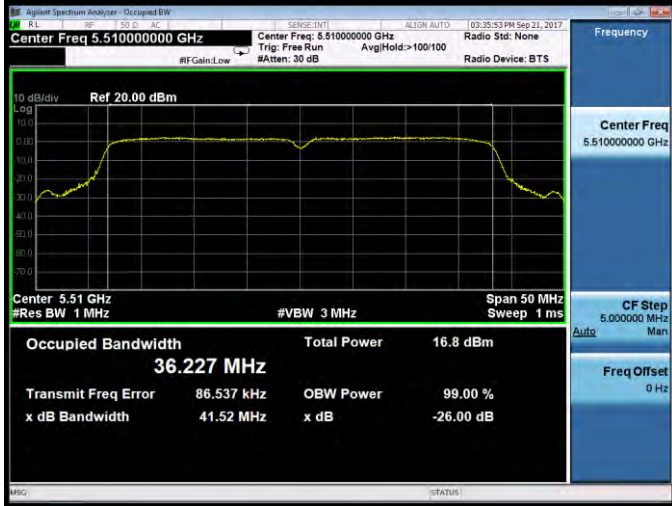
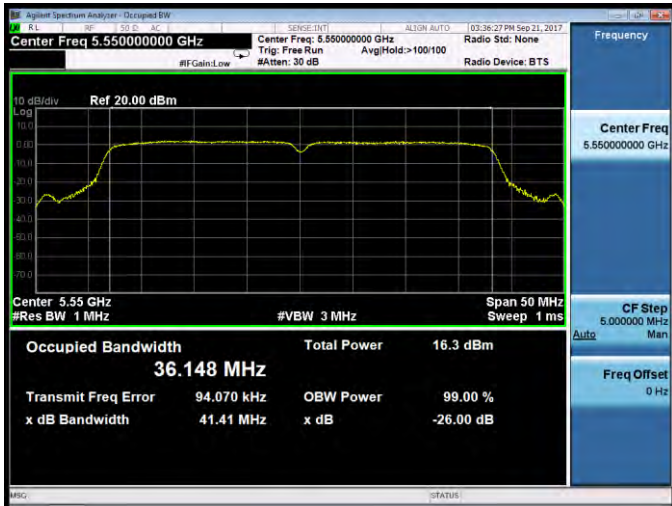
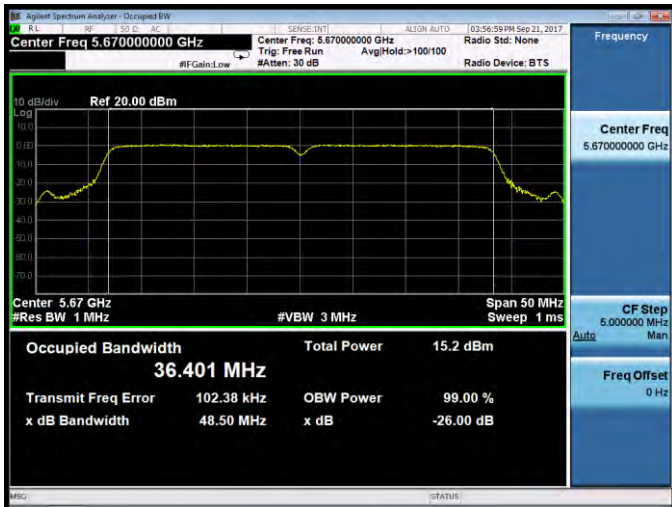


Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ANT-0

5270 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq 5.270000000 GHz Center Freq: 5.270000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.27 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms Occupied Bandwidth 36.135 MHz Total Power 14.8 dBm Transmit Freq Error 106.37 kHz OBW Power 99.00 % x dB Bandwidth 40.83 MHz x dB -26.00 dB
5310 MHz	 Agilent Spectrum Analyzer - Occupied BW Center Freq 5.310000000 GHz Center Freq: 5.310000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.31 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms Occupied Bandwidth 36.128 MHz Total Power 15.0 dBm Transmit Freq Error 86.137 kHz OBW Power 99.00 % x dB Bandwidth 41.23 MHz x dB -26.00 dB

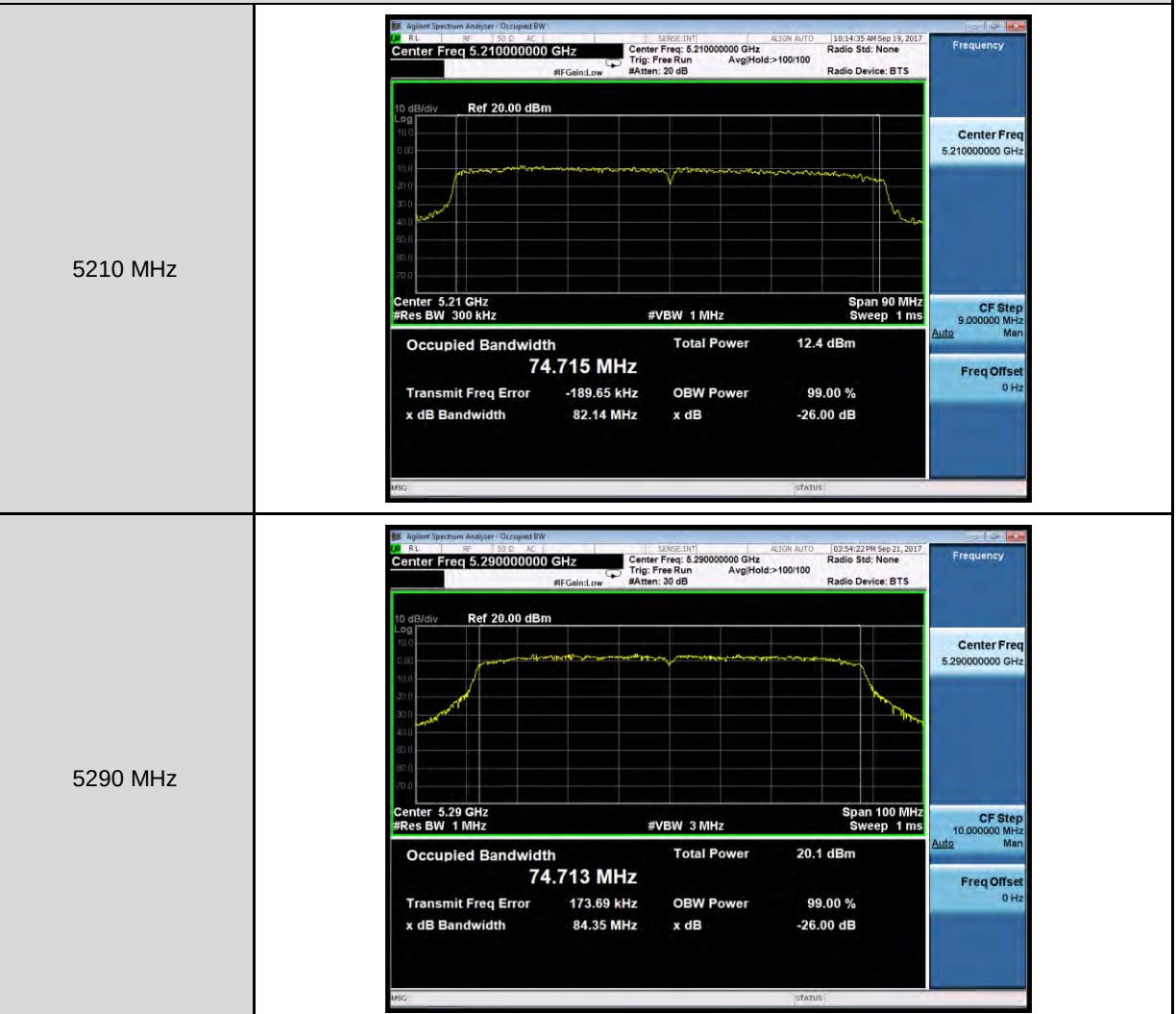


Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ ANT-0

5510 MHz	 Center Freq 5.510000000 GHz Center Freq: 5.510000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.51 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms Occupied Bandwidth 36.227 MHz Total Power 16.8 dBm Transmit Freq Error 86.537 kHz OBW Power 99.00 % x dB Bandwidth 41.52 MHz x dB -26.00 dB
5550 MHz	 Center Freq 5.550000000 GHz Center Freq: 5.550000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.55 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms Occupied Bandwidth 36.148 MHz Total Power 16.3 dBm Transmit Freq Error 94.070 kHz OBW Power 99.00 % x dB Bandwidth 41.41 MHz x dB -26.00 dB
5670 MHz	 Center Freq 5.670000000 GHz Center Freq: 5.670000000 GHz Trig: Free Run Avg/Hold: >100/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.67 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms Occupied Bandwidth 36.401 MHz Total Power 15.2 dBm Transmit Freq Error 102.38 kHz OBW Power 99.00 % x dB Bandwidth 48.50 MHz x dB -26.00 dB



Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode_ ANT-0





Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode_ ANT-0

5530 MHz



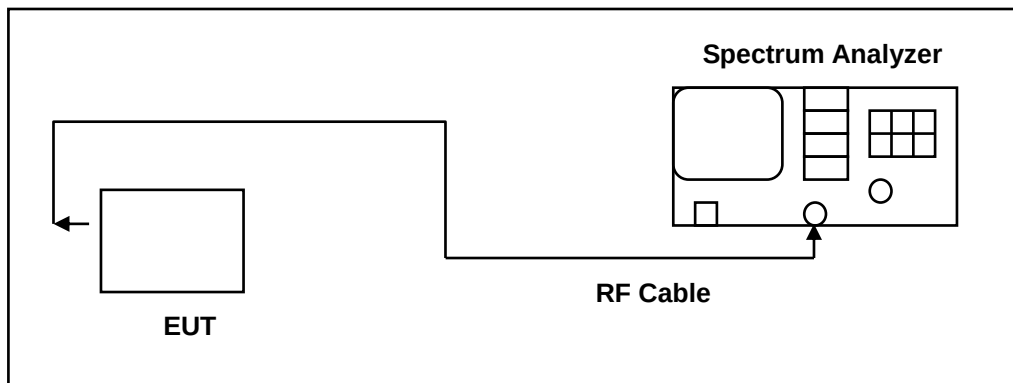
4.6. 6dB RF Bandwidth Measurement

■ Limit

6dB RF Bandwidth

Systems using digital modulation techniques may operate in the 5725~5850MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

■ Test Setup



■ Test Procedure

6dB RF Bandwidth

The EUT tested to UNII test procedure of KDB789033 D02 v01r04 for compliance to FCC 47CFR 15.407 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels.

Test Result

Test Item	6dB RF Bandwidth	
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5745	16570	> 500
5785	16580	> 500
5825	16580	> 500

Test Item	6dB RF Bandwidth	
Test Mode	Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5745	17790	> 500
5785	17790	> 500
5825	17770	> 500

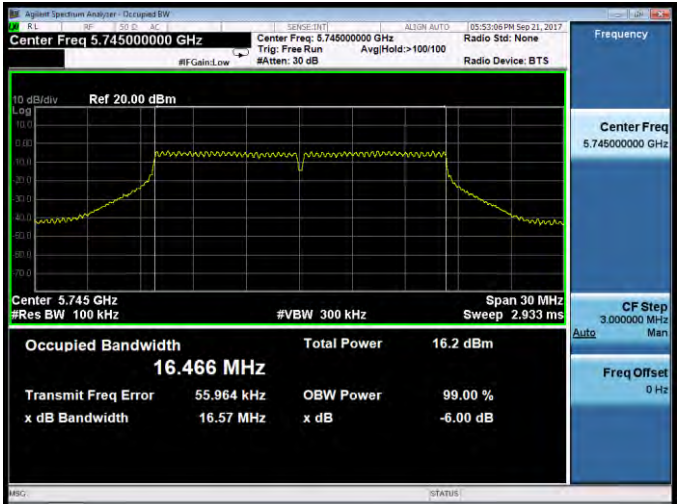
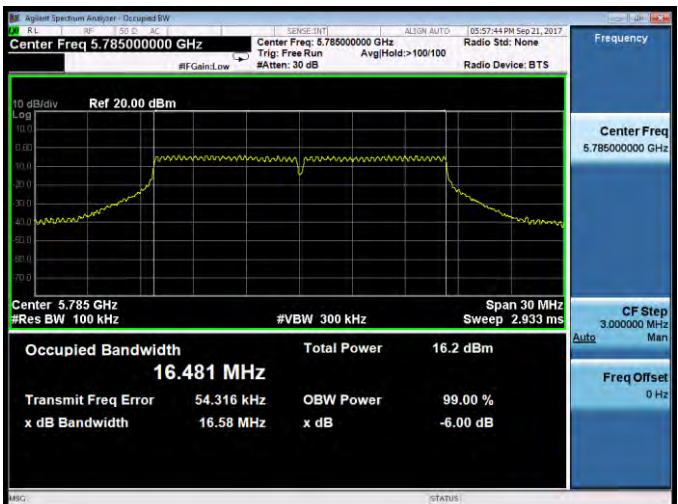
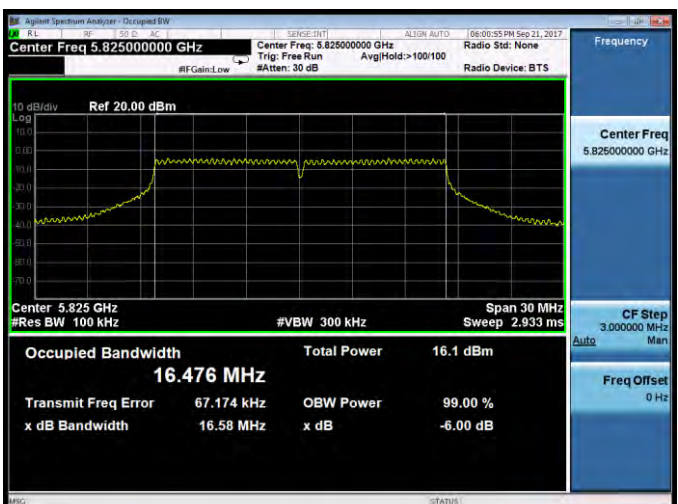
Test Item	6dB RF Bandwidth	
Test Mode	Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5755	36450	> 500
5795	36450	> 500

Test Item	6dB RF Bandwidth	
Test Mode	Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode	
Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)
	ANT-0	
5775	75140	> 500



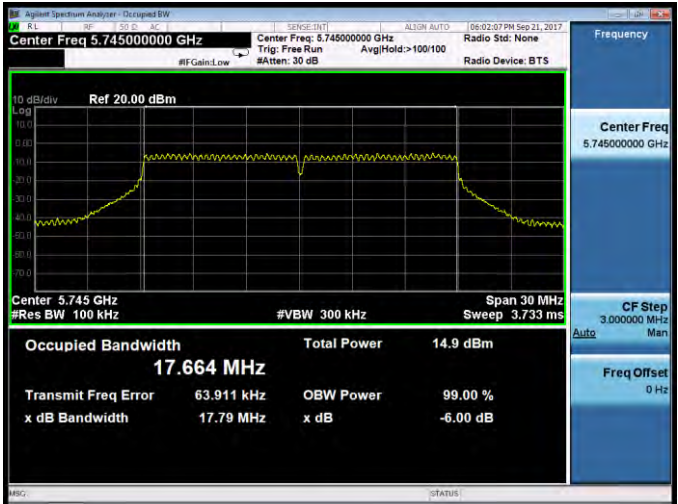
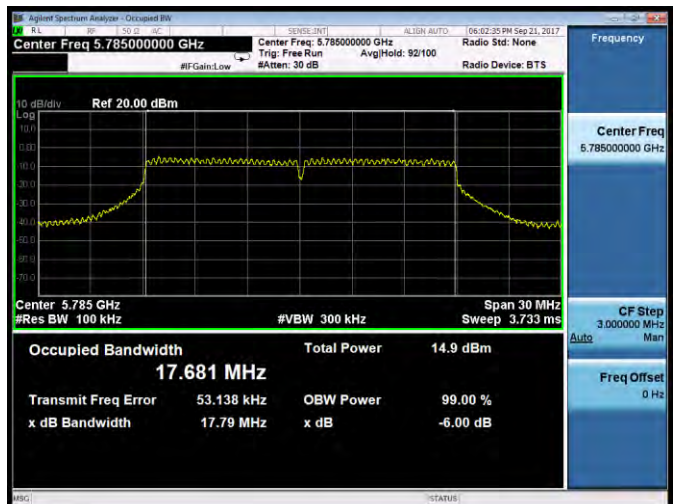
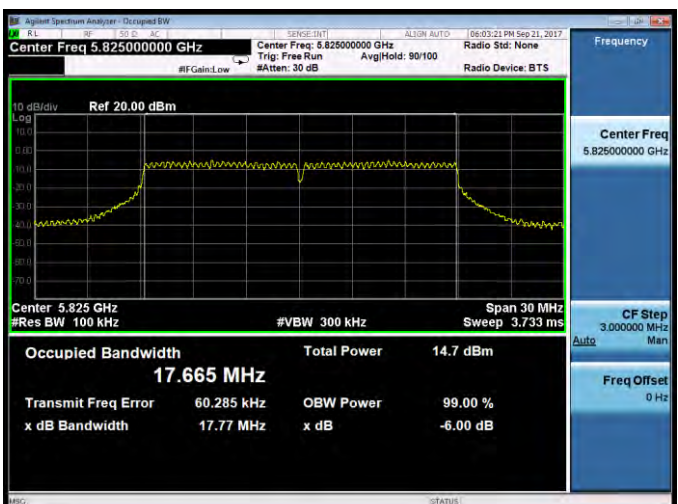
■ Test Graphs

Mode 2: IEEE 802.11a Link Mode_ ANT-0

5745 MHz	
5785 MHz	
5825 MHz	

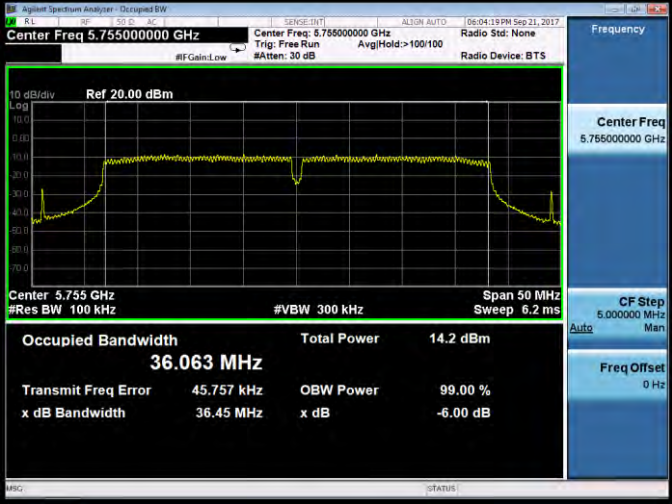
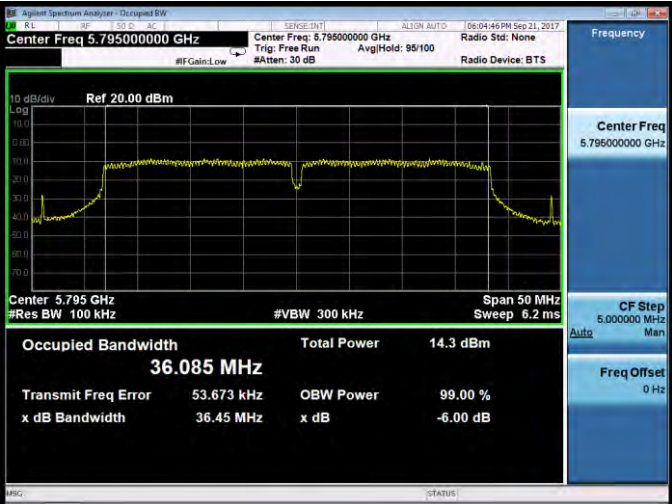


Mode 3: IEEE 802.11ac 20MHz Link Mode_ANT-0

5745 MHz	 Center Freq 5.745000000 GHz Center Freq: 5.745000000 GHz Trig: Free Run Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.745 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 3.733 ms Occupied Bandwidth 17.664 MHz Total Power 14.9 dBm Transmit Freq Error 63.911 kHz OBW Power 99.00 % x dB Bandwidth 17.79 MHz x dB -6.00 dB Frequency Center Freq 5.745000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
5785 MHz	 Center Freq 5.785000000 GHz Center Freq: 5.785000000 GHz Trig: Free Run Avg/Hold: 92/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.785 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 3.733 ms Occupied Bandwidth 17.681 MHz Total Power 14.9 dBm Transmit Freq Error 53.138 kHz OBW Power 99.00 % x dB Bandwidth 17.79 MHz x dB -6.00 dB Frequency Center Freq 5.785000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
5825 MHz	 Center Freq 5.825000000 GHz Center Freq: 5.825000000 GHz Trig: Free Run Avg/Hold: 90/100 Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 5.825 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 3.733 ms Occupied Bandwidth 17.665 MHz Total Power 14.7 dBm Transmit Freq Error 60.285 kHz OBW Power 99.00 % x dB Bandwidth 17.77 MHz x dB -6.00 dB Frequency Center Freq 5.825000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz



Mode 4: IEEE 802.11ac 40MHz Link Mode_ANT-0

5755 MHz	 Center Freq 5.755 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz Sweep 6.2 ms Occupied Bandwidth 36.063 MHz Total Power 14.2 dBm Transmit Freq Error 45.757 kHz OBW Power 99.00 % x dB Bandwidth 36.45 MHz x dB -6.00 dB
5795 MHz	 Center Freq 5.795 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz Sweep 6.2 ms Occupied Bandwidth 36.085 MHz Total Power 14.3 dBm Transmit Freq Error 53.673 kHz OBW Power 99.00 % x dB Bandwidth 36.45 MHz x dB -6.00 dB

Mode 5: IEEE 802.11ac 80MHz Link Mode_ANT-0

5775 MHz	 Center Freq 5.775 GHz #Res BW 100 kHz #VBW 300 kHz Span 100 MHz Sweep 12.4 ms Occupied Bandwidth 74.774 MHz Total Power 12.4 dBm Transmit Freq Error -52.452 kHz OBW Power 99.00 % x dB Bandwidth 75.14 MHz x dB -6.00 dB
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4.7. Maximum Power Spectral Density Measurement

■ Limit

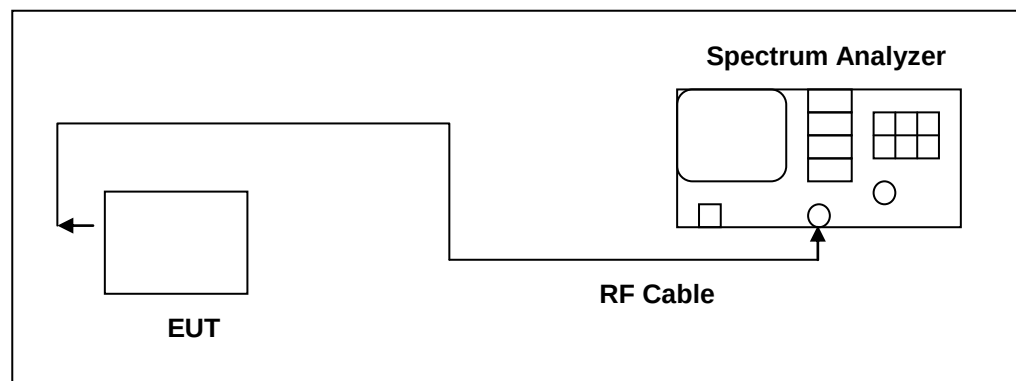
Conducted power spectral density

Frequency Range (MHz)	FCC Limit
	Client
5.150 ~ 5.250 GHz	11 dBm/MHz
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.725 GHz	11 dBm/MHz
5.725 ~ 5.850 GHz	30 dBm/500KHz

According FCC KDB 662911 D01 v02r01 – for power measurements on IEEE802.11 devices,

* Max. Gain = 1.5 dBi < 6dBi

■ Test Setup



**■ Test Procedure**

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz (5725 ~ 5850MHz use 100 kHz)
VBW	3 MHz (5725 ~ 5850MHz use 300 kHz)
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/100\text{kHz})$ to the measured result.	

Test Result

Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	2.819	0.498	3.317	≤ 11
5200	2.017	0.498	2.515	
5240	1.088	0.498	1.586	
5260	1.043	0.498	1.541	
5280	1.189	0.498	1.687	
5320	1.711	0.498	2.209	
5500	3.189	0.498	3.687	
5560	2.587	0.498	3.085	
5700	2.462	0.498	2.960	

Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-5.48	0.498	2.01	≤ 30
5785	-5.77	0.498	1.72	
5825	-5.38	0.498	2.11	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	2.389	0.493	2.882	≤ 11
5200	2.224	0.493	2.717	
5240	0.644	0.493	1.137	
5260	0.546	0.493	1.039	
5280	0.671	0.493	1.164	
5320	0.805	0.493	1.298	
5500	3.002	0.493	3.495	
5560	1.958	0.493	2.451	
5700	1.730	0.493	2.223	

Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-5.85	0.493	1.63	≤ 30
5785	-5.70	0.493	1.78	
5825	-6.01	0.493	1.48	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-0.832	0.930	0.098	≤ 11
5230	-1.102	0.930	-0.172	
5270	-2.150	0.930	-1.220	
5310	-2.280	0.930	-1.350	
5510	-0.571	0.930	0.359	
5550	-0.764	0.930	0.166	
5670	-1.869	0.930	-0.939	

Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-8.82	0.930	-0.90	≤ 30
5795	-9.15	0.930	-1.23	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-6.572	2.121	-4.451	≤ 11
5290	-7.498	2.121	-5.377	
5530	-5.857	2.121	-3.736	

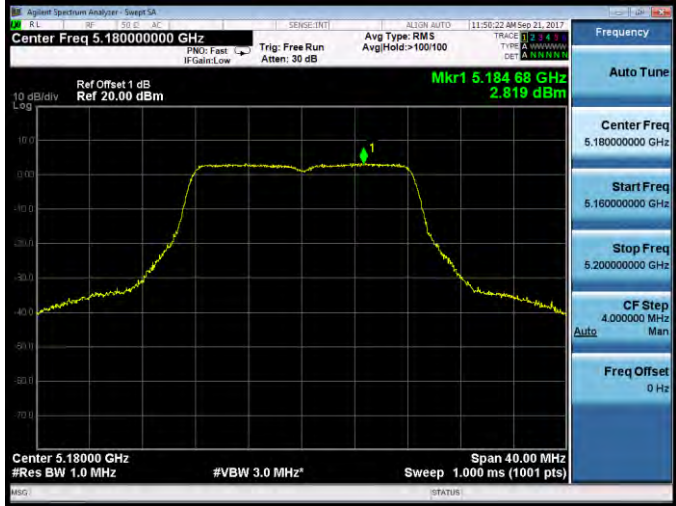
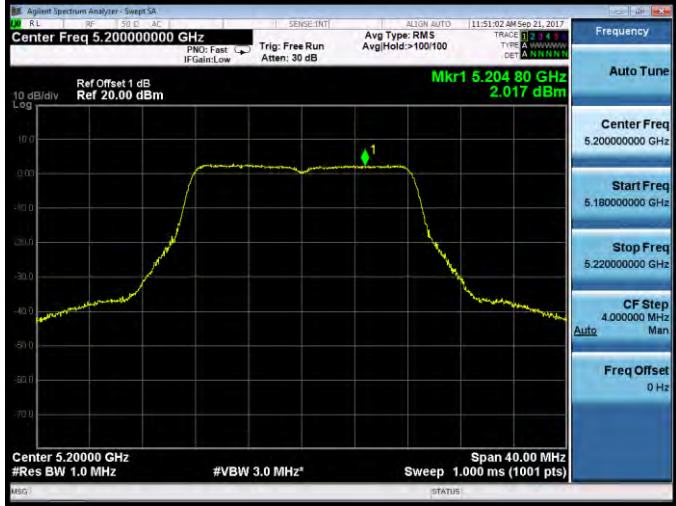
Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-13.73	2.121	-4.62	≤ 30

Note: Method SA-2, Power density = measured result + $10\log(1/\text{duty cycle})$ + Conversion ratio = measured result + duty factor.

Conversion ratio = $10*\log(500\text{k}/100\text{k})$

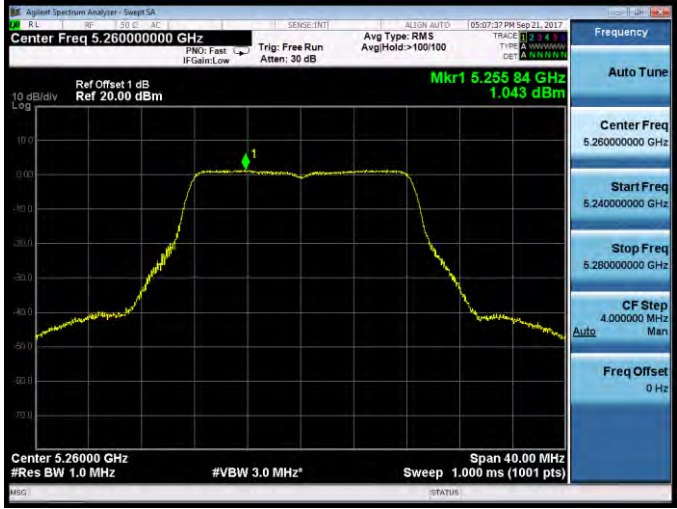
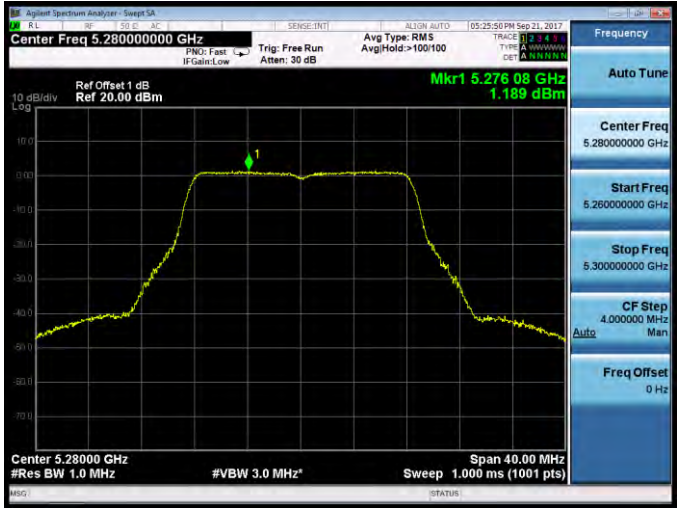
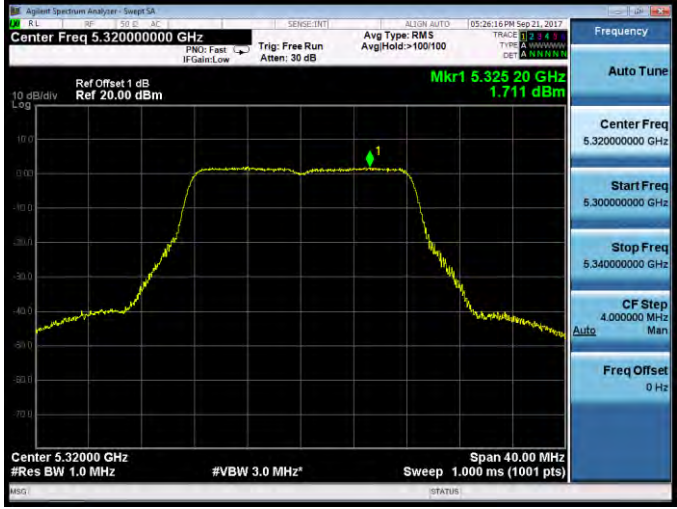
Test Graphs

Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

5180 MHz	
5200 MHz	
5240 MHz	

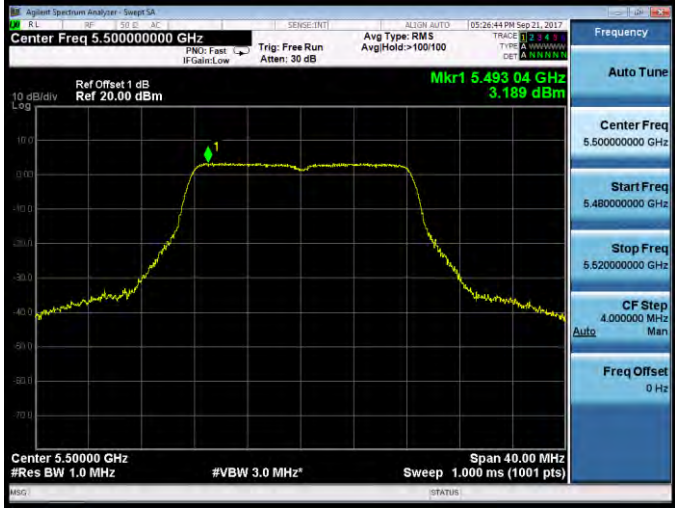
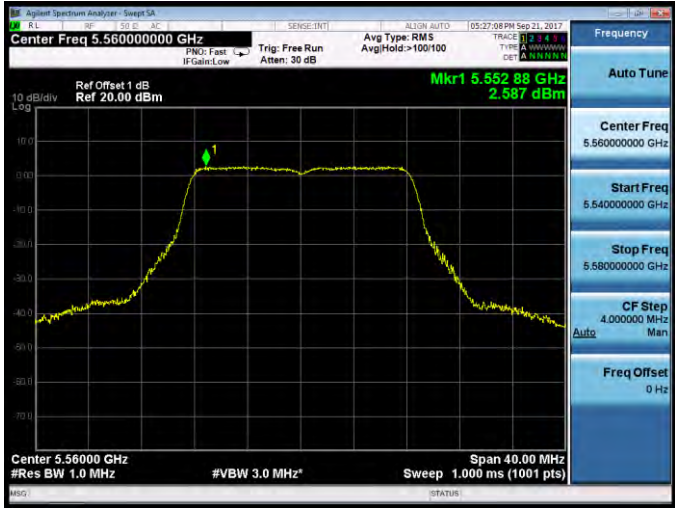
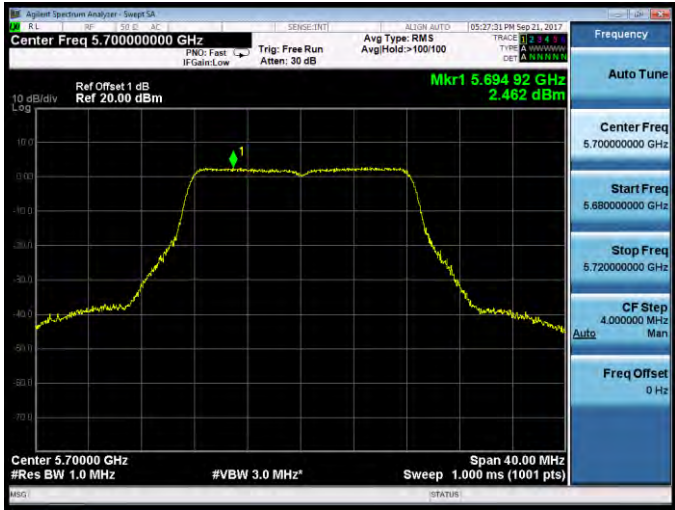


Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

5260 MHz	
5280 MHz	
5320 MHz	

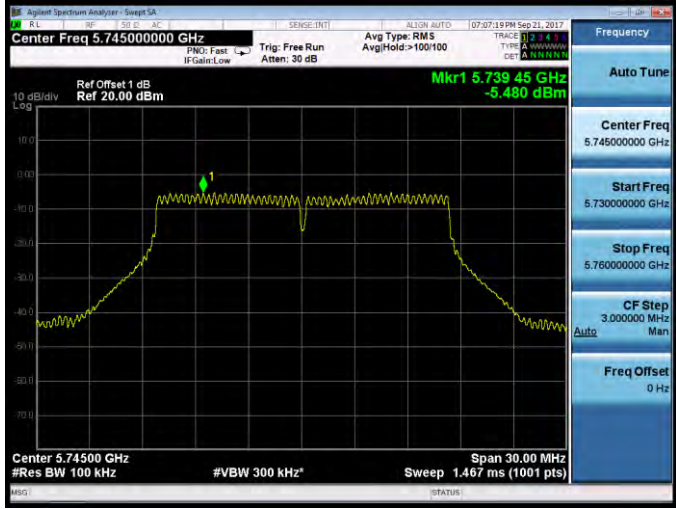
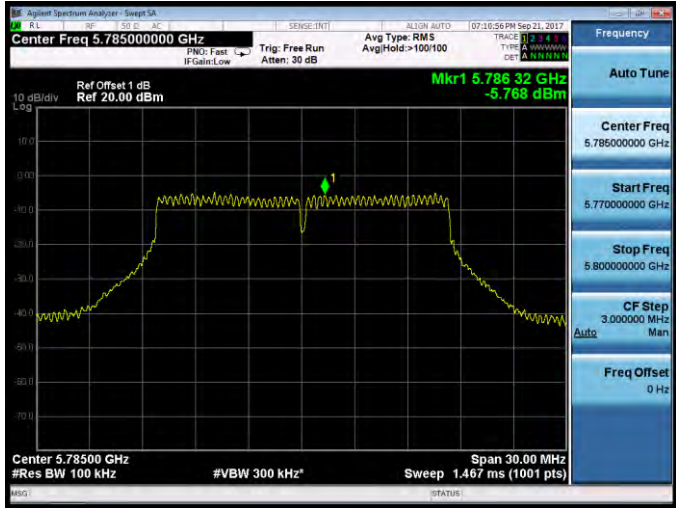
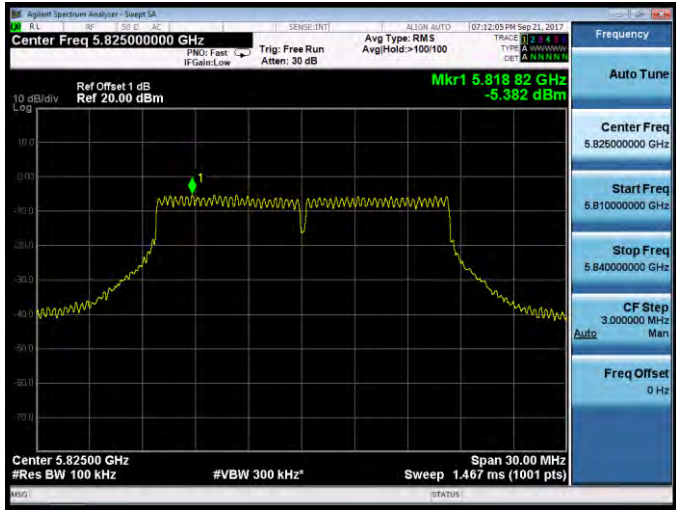


Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

5500 MHz	
5560 MHz	
5700 MHz	



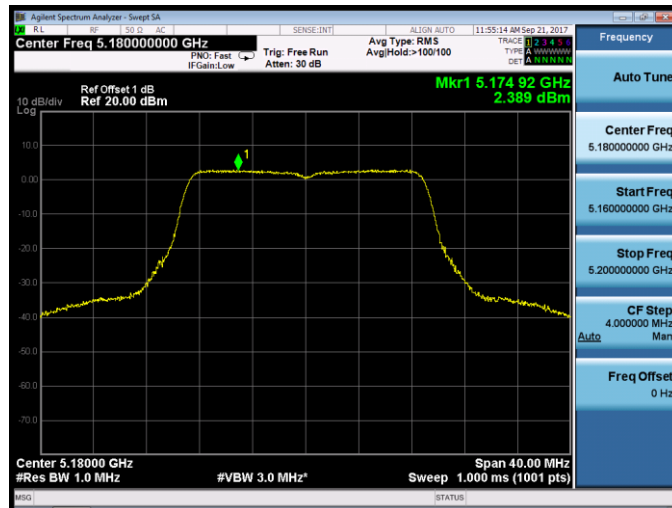
Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0

5745 MHz	
5785 MHz	
5825 MHz	

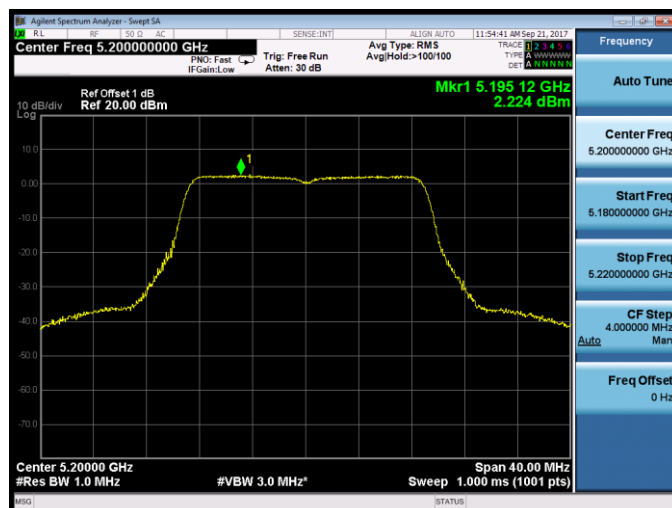


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode _ ANT-0

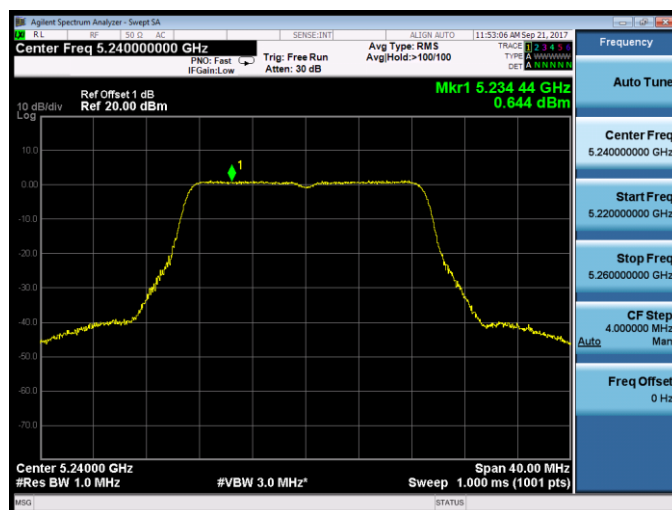
5180 MHz



5200 MHz



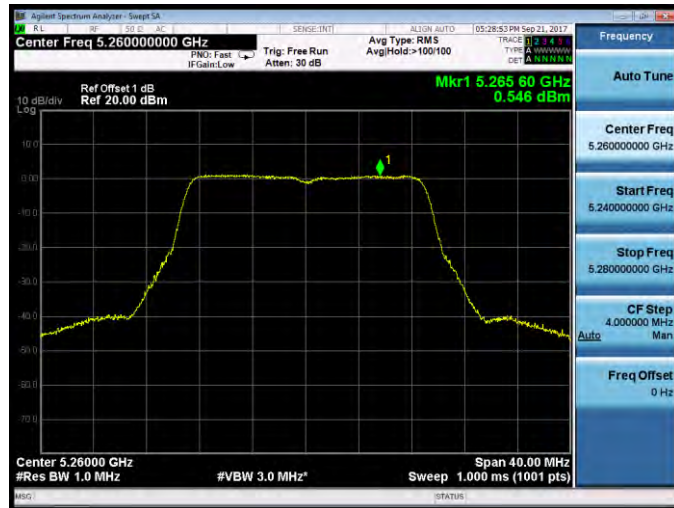
5240 MHz



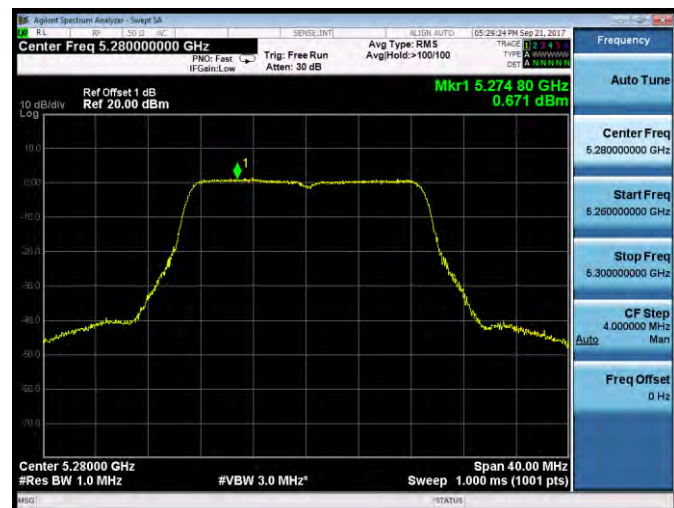


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode _ ANT-0

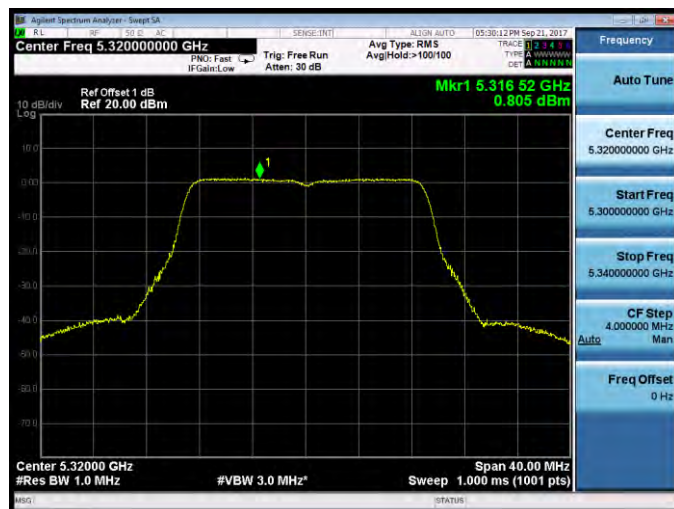
5260 MHz



5280 MHz

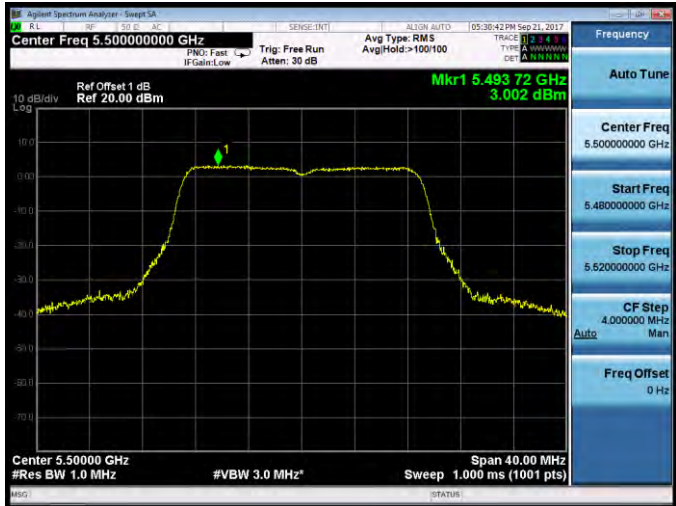
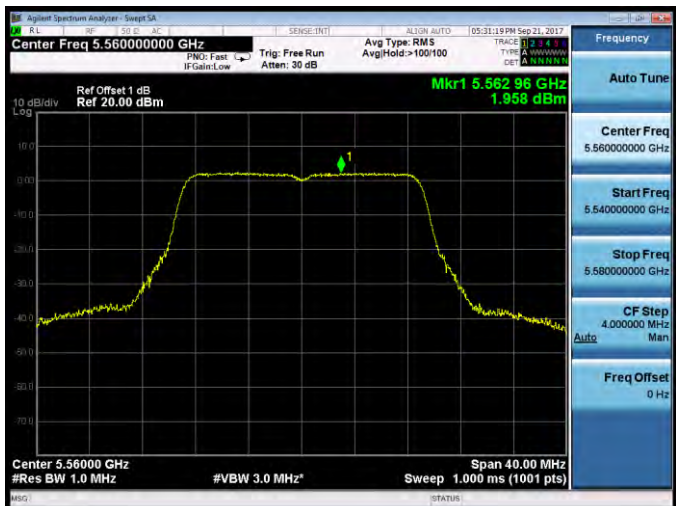
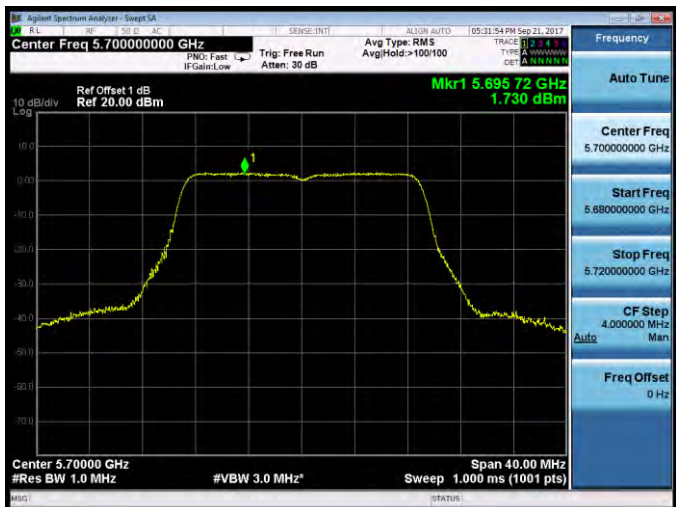


5320 MHz



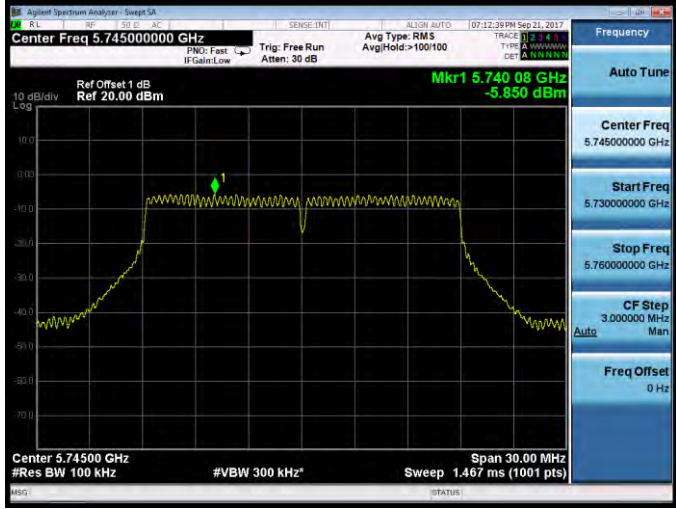
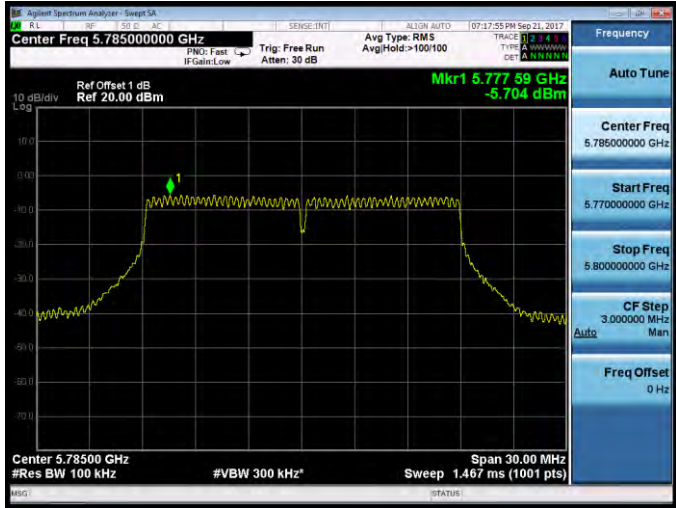
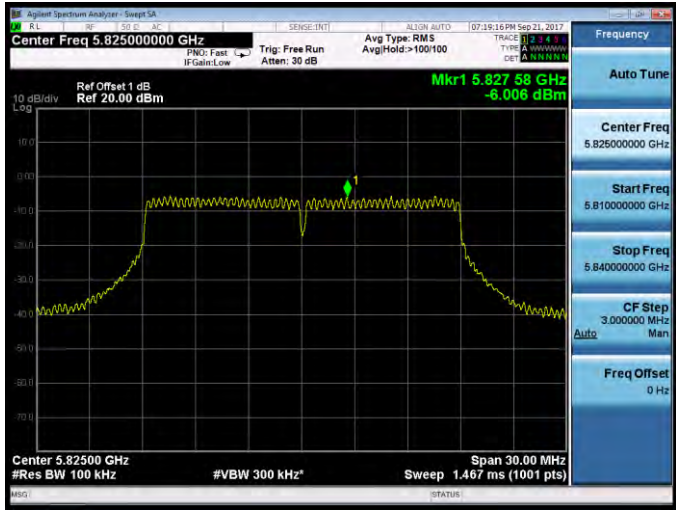


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode _ ANT-0

5500 MHz	
5560 MHz	
5700 MHz	

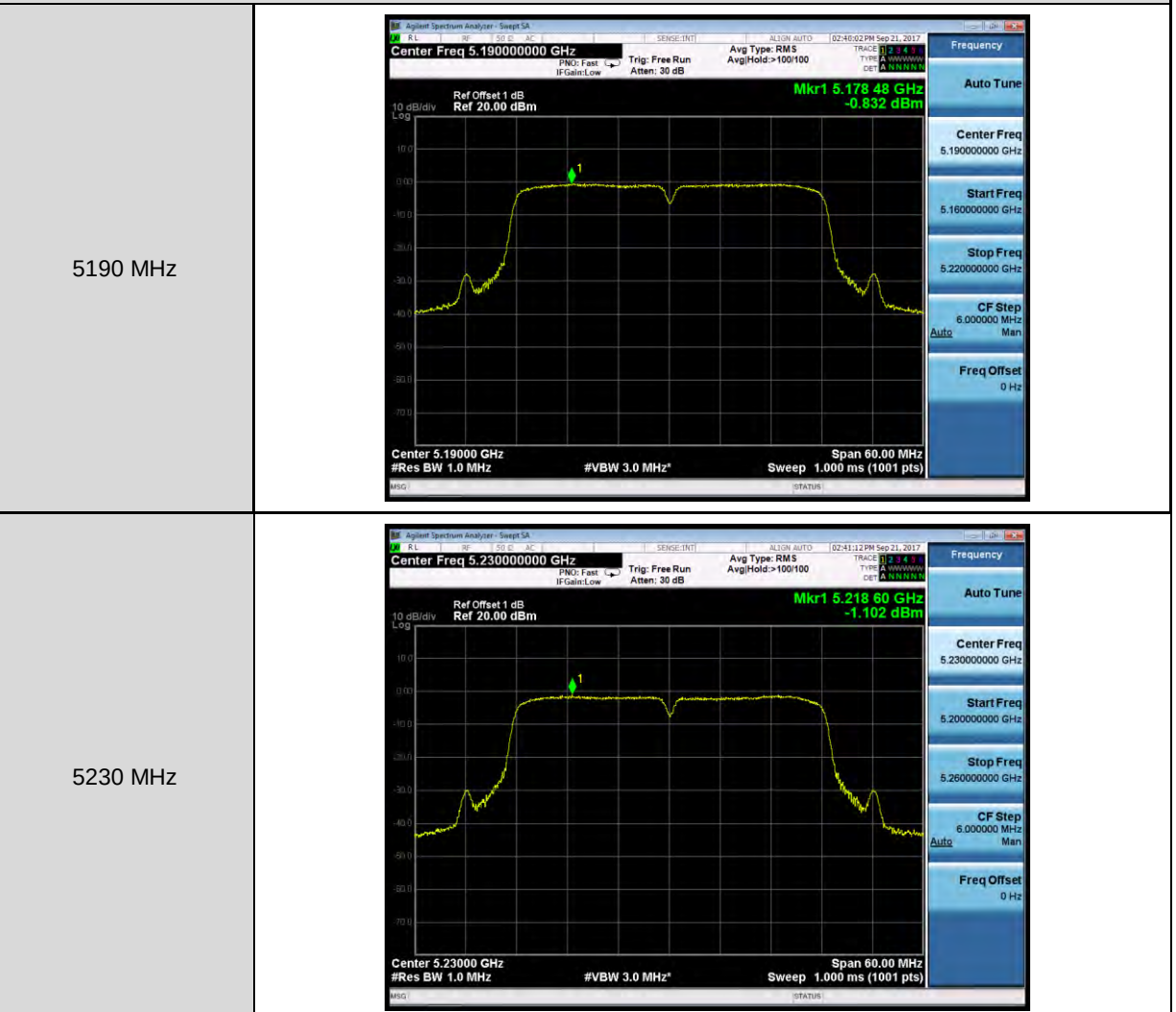


Mode 3: IEEE 802.11ac 20 MHz Continuous TX mode _ ANT-0

5745 MHz	
5785 MHz	
5825 MHz	

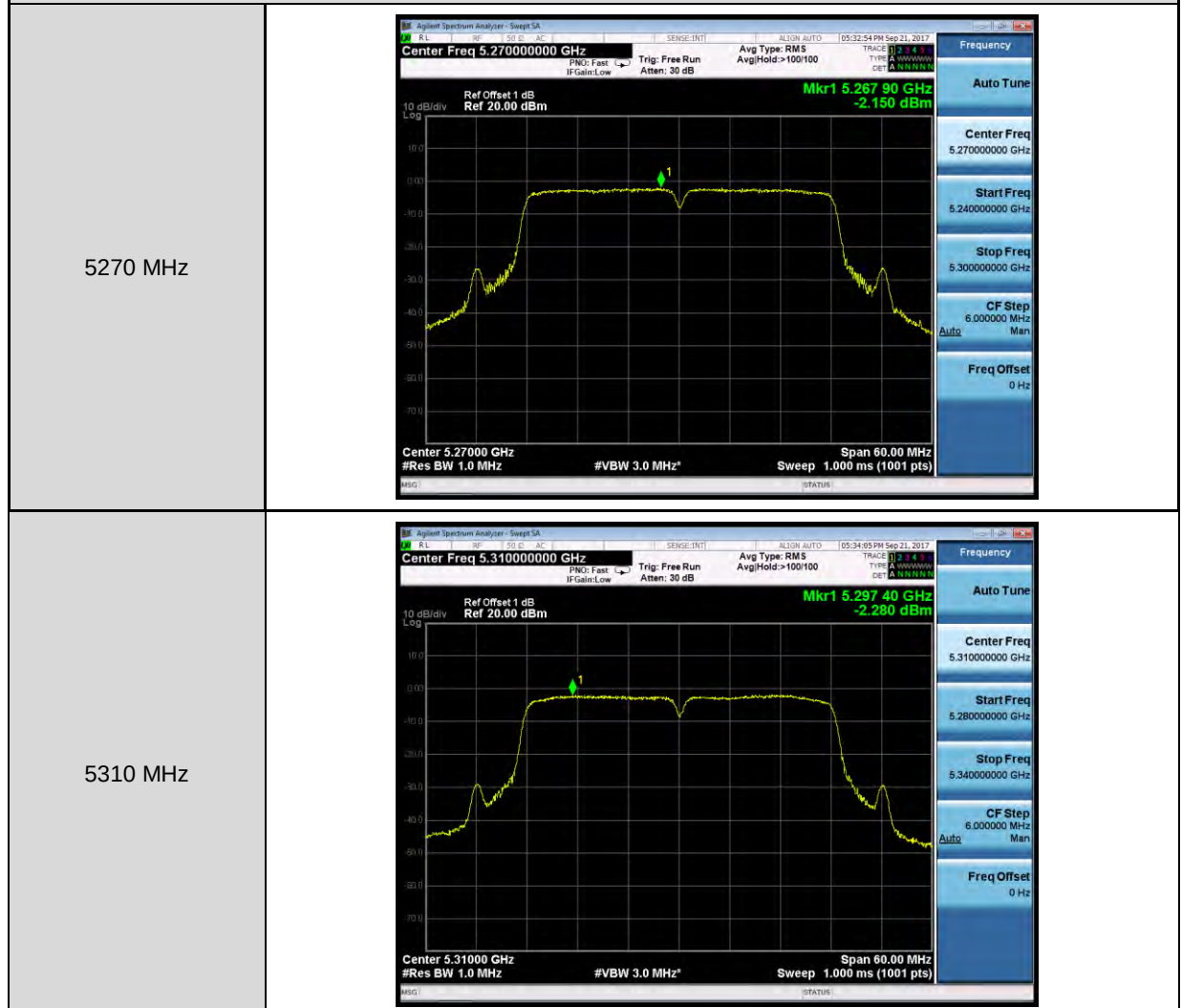


Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ ANT-0



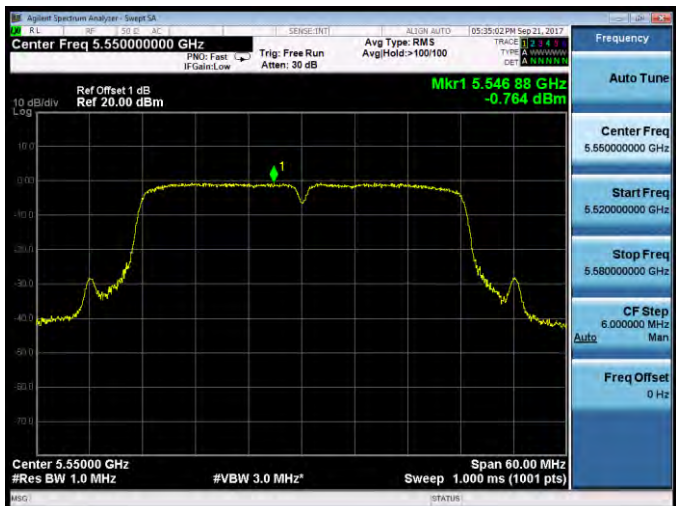
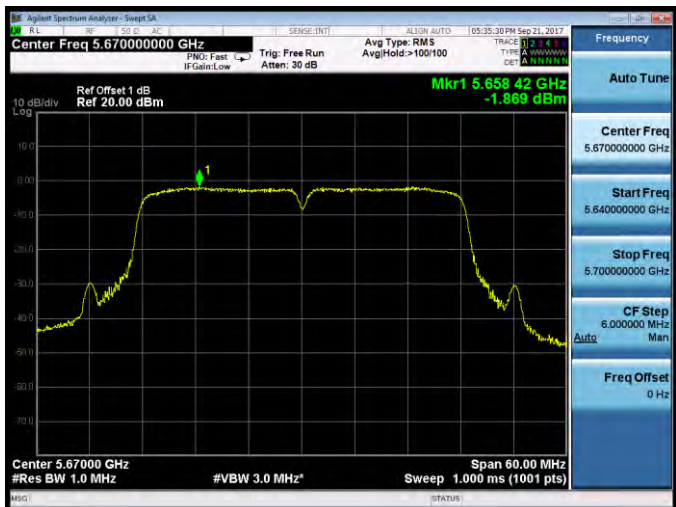


Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ ANT-0



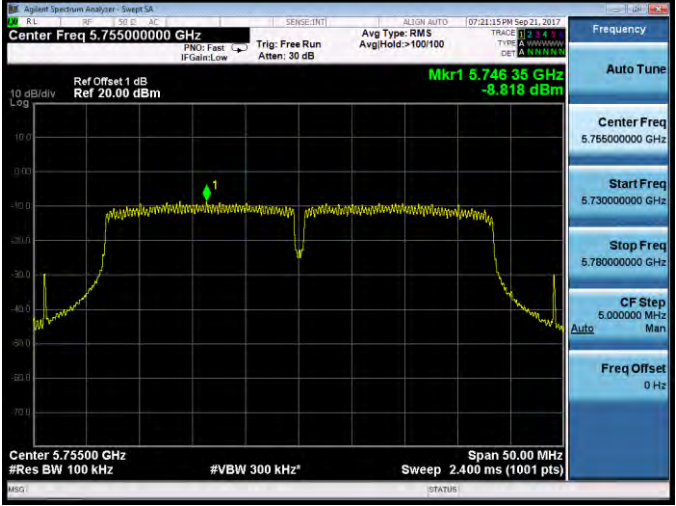
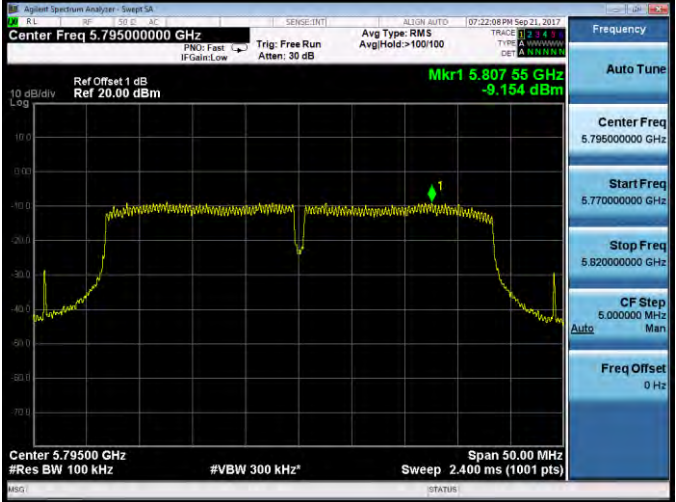


Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ ANT-0

5510 MHz	
5550 MHz	
5670 MHz	



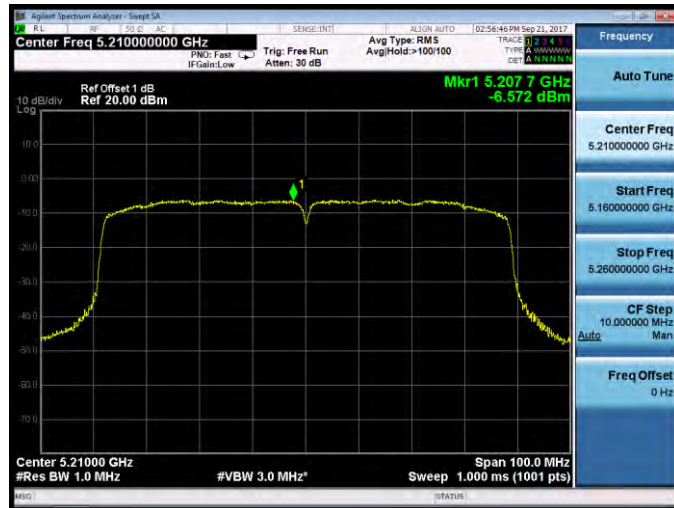
Mode 4: IEEE 802.11ac 40 MHz Continuous TX mode_ ANT-0

5755 MHz	
5795 MHz	



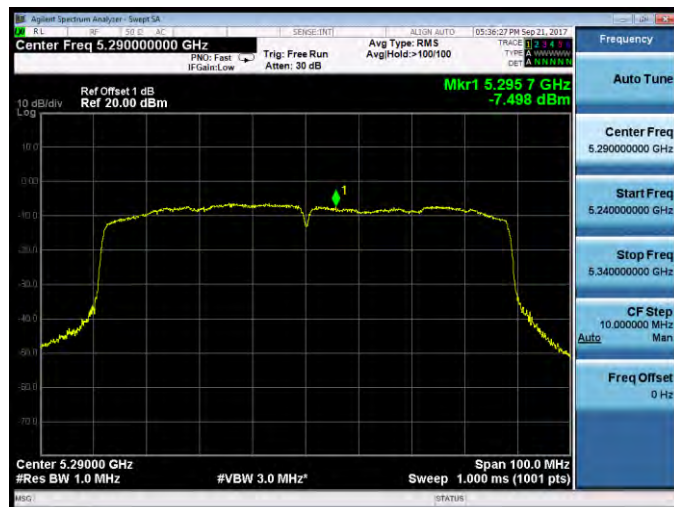
Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode _ ANT-0

5210 MHz



Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode _ ANT-0

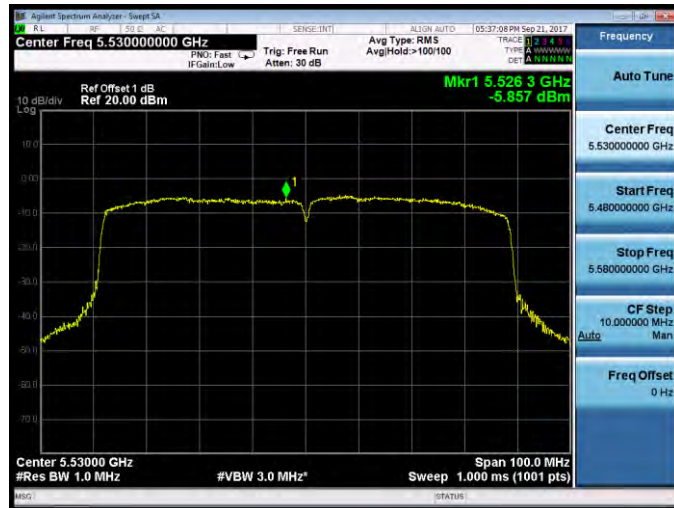
5290 MHz





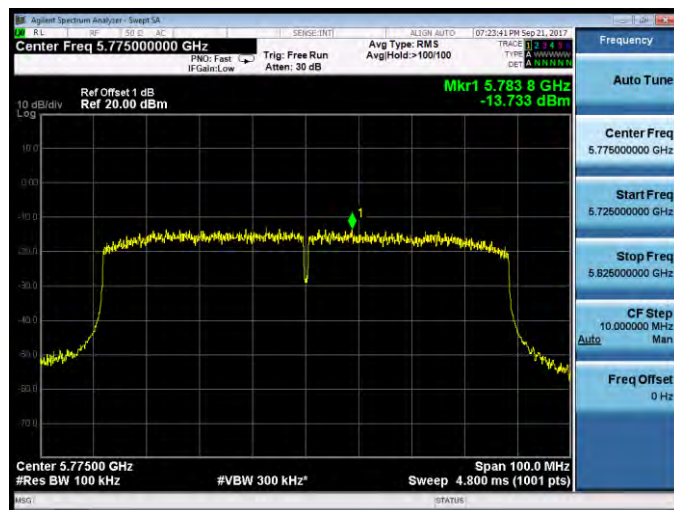
Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode _ ANT-0

5530 MHz



Mode 5: IEEE 802.11ac 80 MHz Continuous TX mode _ ANT-0

5775 MHz

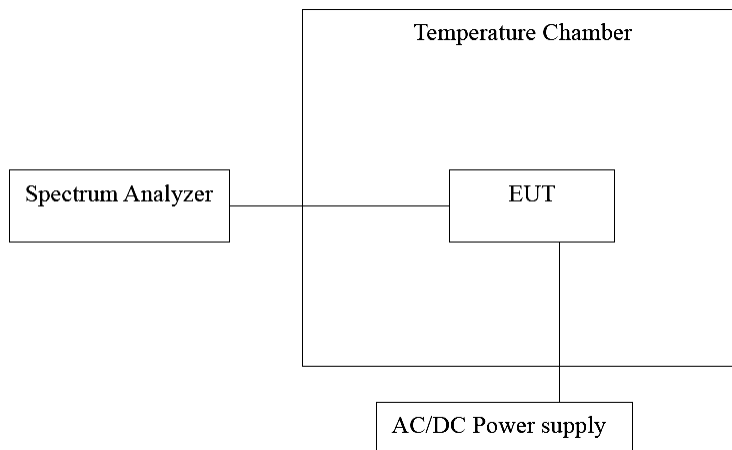


4.8. Frequency Stability Measurement

■ 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 users manual.

■ Test Setup



■ Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.



■ Test Result

Temperature Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	-30	3.8	5199.972	-28000	-5.385	Pass
	-20		5199.981	-19000	-3.654	Pass
	-10		5199.997	-3000	-0.577	Pass
	0		5199.987	-13000	-2.500	Pass
	10		5199.931	-69000	-13.269	Pass
	20		5199.956	-44000	-8.462	Pass
	30		5199.96	-40000	-7.692	Pass
	40		5199.912	-88000	-16.923	Pass
	50		5199.985	-15000	-2.885	Pass
5280 MHz	-30	3.8	5279.961	-39000	-7.386	Pass
	-20		5279.979	-21000	-3.977	Pass
	-10		5279.918	-82000	-15.530	Pass
	0		5279.932	-68000	-12.879	Pass
	10		5279.993	-7000	-1.326	Pass
	20		5279.965	-35000	-6.629	Pass
	30		5279.958	-42000	-7.955	Pass
	40		5279.981	-19000	-3.598	Pass
	50		5279.987	-13000	-2.462	Pass
5560 MHz	-30	3.8	5559.9737	-26300	-4.730	Pass
	-20		5559.9749	-25100	-4.514	Pass
	-10		5559.9803	-19700	-3.543	Pass
	0		5559.9685	-31500	-5.665	Pass
	10		5559.977	-23000	-4.137	Pass
	20		5559.9845	-15500	-2.788	Pass
	30		5559.9859	-14100	-2.536	Pass
	40		5559.9871	-12900	-2.320	Pass
	50		5559.9926	-7400	-1.331	Pass
5785 MHz	-30	3.8	5784.9626	-37400	-6.465	Pass
	-20		5784.963	-37000	-6.396	Pass
	-10		5784.9687	-31300	-5.411	Pass
	0		5784.957	-43000	-7.433	Pass
	10		5784.9656	-34400	-5.946	Pass
	20		5784.9732	-26800	-4.633	Pass
	30		5784.9747	-25300	-4.373	Pass
	40		5784.976	-24000	-4.149	Pass
	50		5784.9816	-18400	-3.181	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

**Voltage Variations**

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	20	4.35	5199.918	-82000	-15.769	Pass
		3.8	5199.962	-38000	-7.308	Pass
		3.6	5199.965	-35000	-6.731	Pass
5280 MHz	20	4.35	5280.01	10000	1.894	Pass
		3.8	5279.98	-20000	-3.788	Pass
		3.6	5279.971	-29000	-5.492	Pass
5560 MHz	20	4.35	5559.98	-20000	-3.597	Pass
		3.8	5559.94	-60000	-10.791	Pass
		3.6	5559.9	-100000	-17.986	Pass
5785 MHz	20	4.35	5784.971	-29000	-5.013	Pass
		3.8	5784.965	-35000	-6.050	Pass
		3.6	5784.98	-20000	-3.457	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.



4.9. Automatically discontinue transmission

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 signalling 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.

■ Test Result

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving.

4.10. Antenna Requirement

■ Limit

For intentional device, according to 15.203, 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.

And According to 15.407 (a), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

■ Antenna Connector Construction

See section 2 – antenna information.