

TEST REPORT

Product Name : Wireless Repeater/Range Extender
Brand Mark : N/A
Model No. : RA1200
Extension Model : RA1200-FE, RA1200-A, RA1200-B, RA1200-C,
RA1200-D, RA1200-E, RA1200-F, RA300, RA1900,
RA2400
FCC ID : 2AZGQ-RA1200
Report Number : BLA-EMC-202107-A2802
Date of Sample Receipt : 2021/7/8
Date of Test : 2021/7/8 to 2021/8/4
Date of Issue : 2021/8/4
Test Standard : 47 CFR Part 15, Subpart E 15.407
Test Result : Pass

Prepared for:

Shenzhen Zoolan Technology Co., Ltd
Floor 4, Building A5, Silicon Valley Power Digital Industrial Park, No. 22,
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Date: 2021/8/4



REPORT REVISE RECORD

Version No.	Date	Description
00	2021/8/4	Original

BlueAsia

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1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Frequency Stability	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.407 (g)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Antenna Requirement	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Radiated Emissions	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Peak Power spectrum density	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II F	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II E	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 2	47 CFR Part 15, Subpart C 15.407 (e)	Pass
26dB Emission bandwidth	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 1	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207 & 15.407 b(6)	Pass

2 GENERAL INFORMATION

Applicant	Shenzhen Zoolan Technology Co.,Ltd
Address	Floor 4, Building A5, Silicon Valley Power Digital Industrial Park, No. 22, Dafu Industrial Zone, Dafu Community, Guanlan Street, Longhua District, Shenzhen, Guangdong
Manufacturer	Shenzhen Zoolan Technology Co.,Ltd
Address	Floor 4, Building A5, Silicon Valley Power Digital Industrial Park, No. 22, Dafu Industrial Zone, Dafu Community, Guanlan Street, Longhua District, Shenzhen,
Factory	Shenzhen Zoolan Technology Co.,Ltd
Address	Floor 4, Building A5, Silicon Valley Power Digital Industrial Park, No. 22, Dafu Industrial Zone, Dafu Community, Guanlan Street, Longhua District, Shenzhen,
Product Name	Wireless Repeater/Range Extender
Test Model No.	RA1200

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	V2.0
Software Version	V13
Operation Frequency:	Band 1 : 5180MHz-5240MHz; Band 4 : 5745MHz-5825MHz
Operation mode:	Indoor used
Channel numbers:	Band 1: 802.11a/802.11n(HT20)/802.11ac(HT20): 4, 802.11n(HT40)/802.11ac(HT40):2, 802.11ac(HT80): 1
	Band 4: 802.11a/802.11(HT20)/802.11ac(HT20): 5, 802.11n(HT40)/802.11ac(HT40): 2, 802.11ac(HT80): 1
Channel separation:	802.11a/n/ac(HT2): 20MHz, 802.11n/ac(HT40): 40MHz, 802.11ac(HT80): 80MHz
Modulation technology: (IEEE 802.11a/n/ac)	BPSK, QPSK,16-QAM, 64-QAM, 256-QAM
Data speed(IEEE 802.11a)	6Mbps, 9Mbps,12Mbps,18Mbps, 24Mbps,36Mbps,48Mbps, 54Mbps
Data speed (IEEE 802.11n/ac):	Up to 866.7Mbps
Antenna Type:	Patch Antenna
Antenna gain:	3 dBi
Power supply:	110-230V/0.03A
Remark:The Antenna Gain is supplied by the customer.BlueAsia is not responsible for this data	

4 TEST ENVIRONMENT

Environment	Temperature	Voltage
Normal	25°C	AC120V

5 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation.
Remark: Only the data of the worst mode would be recorded in this report.	

6 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB

7 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	HASEE	K610D	N/A	N/A

8 LABORATORY LOCATION

All tests were performed at:
BlueAsia of Technical Services(Shenzhen) Co., Ltd.
Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673
No tests were sub-contracted.

9 TEST INSTRUMENTS LIST

Test Equipment Of Frequency Stability					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Spectrum	Agilent	N9020A	MY49100060	2020/10/12	2021/10/11
Signal Generator	Agilent	N5182A	MY49060650	2020/10/12	2021/10/11
Signal Generator	Agilent	E8257D	MY44320250	2020/10/12	2021/10/11

Test Equipment Of Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	2020/11/10	2023/11/9
Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Receiver	R&S	ESR7	101199	2020/10/12	2021/10/11
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	2020/9/26	2022/9/25
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	2020/9/26	2022/9/25
Amplifier	SKET	PA-000318G-45	N/A	2020/10/16	2021/10/15
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2020/9/26	2022/9/25
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Test Equipment Of Antenna Requirement					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due

Test Equipment Of Radiated Emissions					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	2020/11/10	2023/11/9
Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Receiver	R&S	ESR7	101199	2020/10/12	2021/10/11
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	2020/9/26	2022/9/25
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	2020/9/26	2022/9/25
Amplifier	SKET	PA-000318G-45	N/A	2020/10/16	2021/10/15
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2020/9/26	2022/9/25
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Test Equipment Of Peak Power spectrum density					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Spectrum	Agilent	N9020A	MY49100060	2020/10/12	2021/10/11
Signal Generator	Agilent	N5182A	MY49060650	2020/10/12	2021/10/11
Signal Generator	Agilent	E8257D	MY44320250	2020/10/12	2021/10/11

Test Equipment Of Maximum Conducted output power					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due

Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Spectrum	Agilent	N9020A	MY49100060	2020/10/12	2021/10/11
Signal Generator	Agilent	N5182A	MY49060650	2020/10/12	2021/10/11
Signal Generator	Agilent	E8257D	MY44320250	2020/10/12	2021/10/11

Test Equipment Of Minimum 6 dB bandwidth (5.725-5.85 GHz band)

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Spectrum	Agilent	N9020A	MY49100060	2020/10/12	2021/10/11
Signal Generator	Agilent	N5182A	MY49060650	2020/10/12	2021/10/11
Signal Generator	Agilent	E8257D	MY44320250	2020/10/12	2021/10/11

Test Equipment Of 26dB Emission bandwidth

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	2020/10/12	2021/10/11
Spectrum	Agilent	N9020A	MY49100060	2020/10/12	2021/10/11
Signal Generator	Agilent	N5182A	MY49060650	2020/10/12	2021/10/11
Signal Generator	Agilent	E8257D	MY44320250	2020/10/12	2021/10/11

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Shield room	SKET	833	N/A	2020/11/25	2023/11/24
Receiver	R&S	ESPI3	101082	2020/10/12	2021/10/11

LISN	R&S	ENV216	3560.6550.15	2020/10/12	2021/10/11
LISN	AT	AT166-2	AKK1806000003	2020/10/12	2021/10/11
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A

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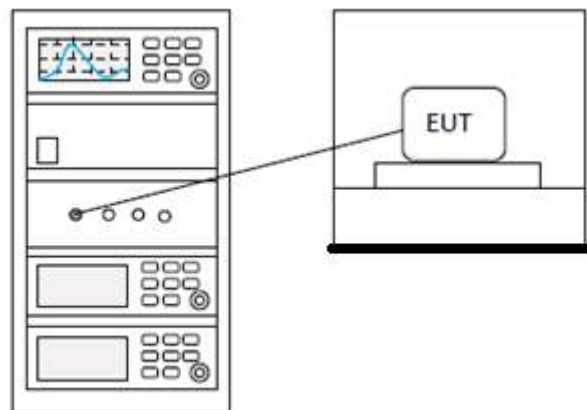
10 FREQUENCY STABILITY

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	ANSI C63.10 (2013) Section 6.8
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25°C
Humidity	52%

10.1 LIMITS

Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.
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10.2 BLOCK DIAGRAM OF TEST SETUP



10.3 TEST DATA

Pass: Please Refer To Appendix: For Details

11 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

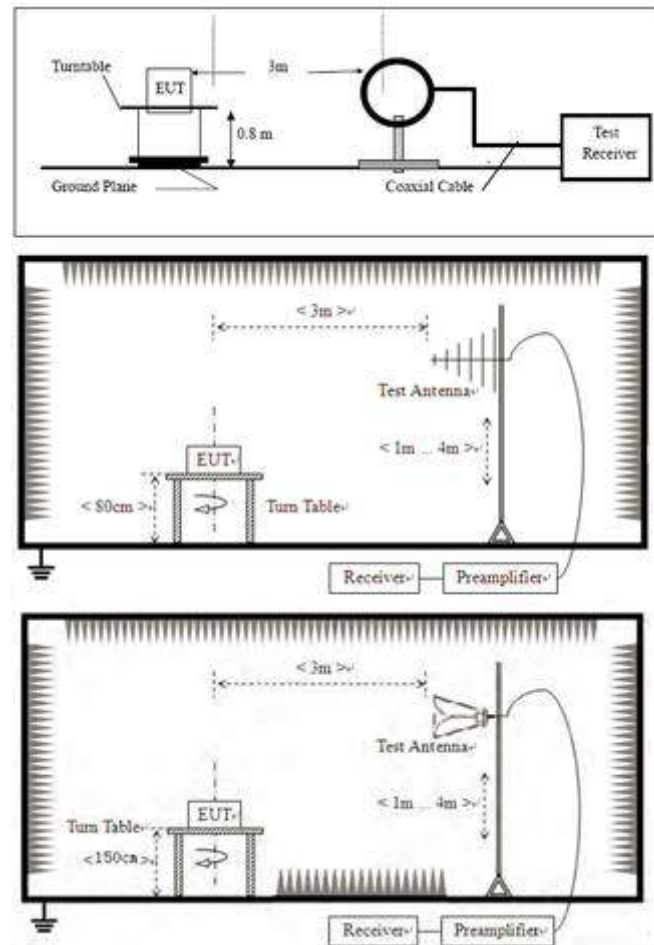
Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II G
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25℃
Humidity	52%

11.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

11.2 BLOCK DIAGRAM OF TEST SETUP



11.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
 - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
 - j. Repeat above procedures until all frequencies measured was complete.
- Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

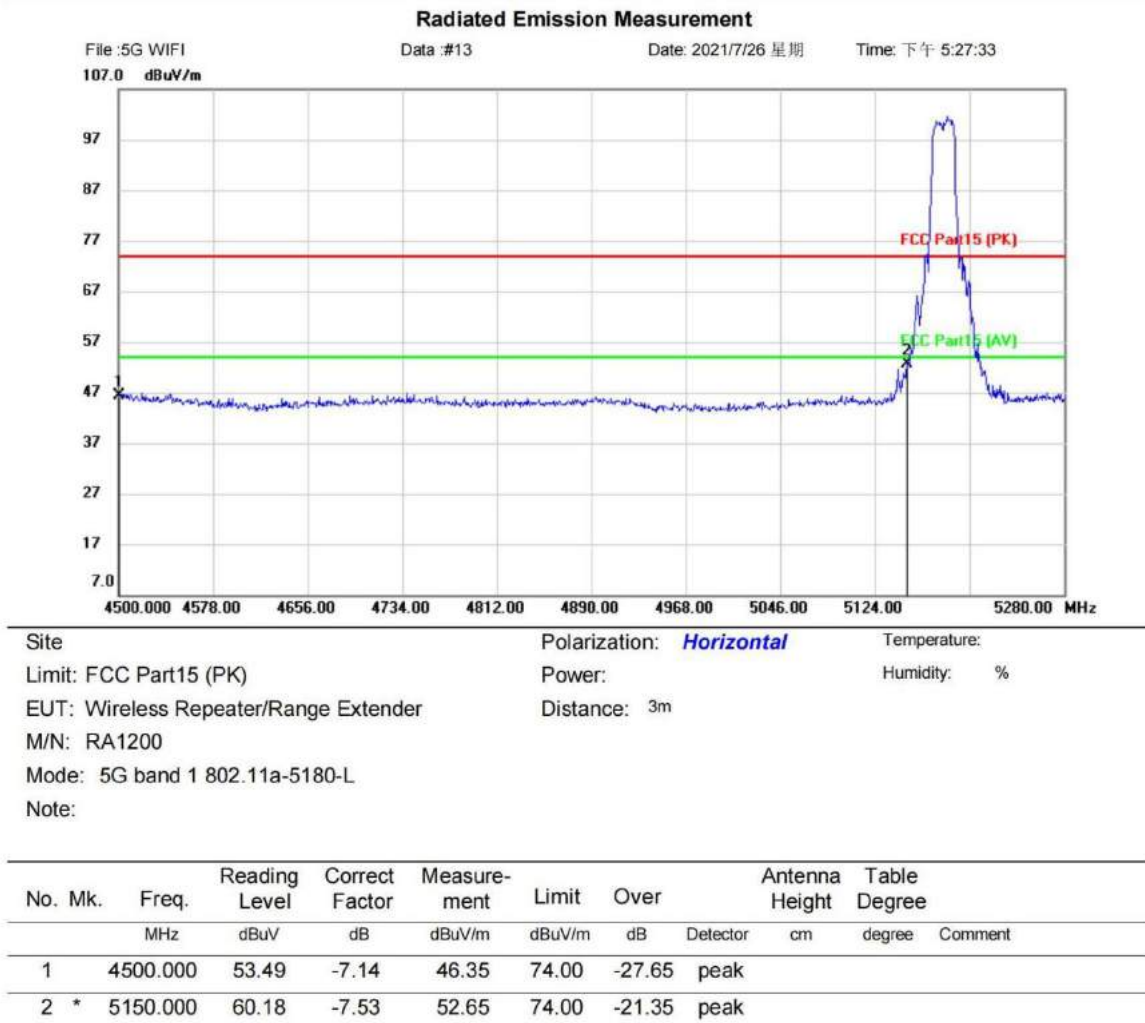
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11.4 TEST DATA

Remark: During the test, pre-scan the 802.11a/n/ac mode, and found the 802.11a mode which it is worse case.

BAND 1

[Test mode:802.11a-5180][Polarity: Horizontal]

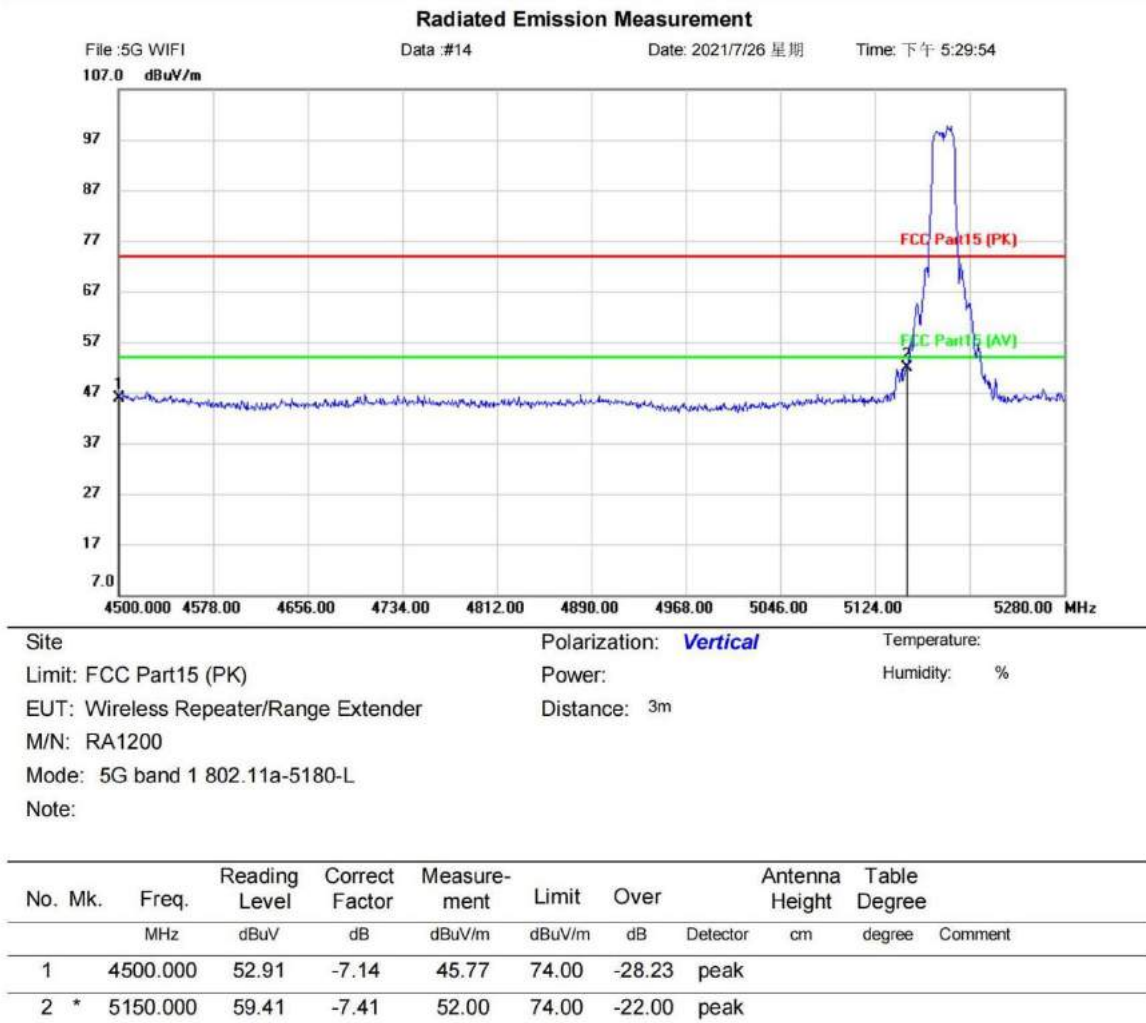


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5180][Polarity: Vertical]

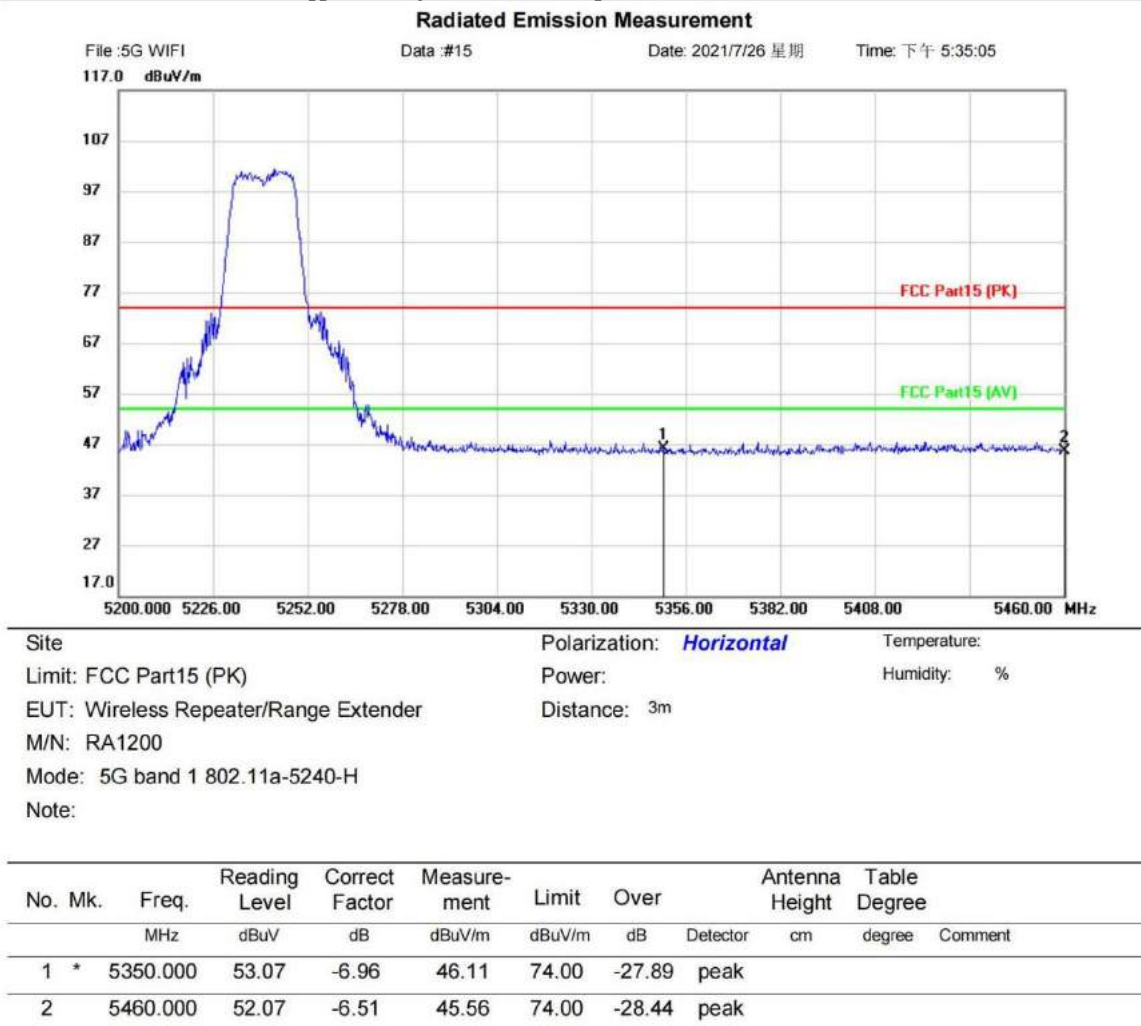


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5240][Polarity: Horizontal]

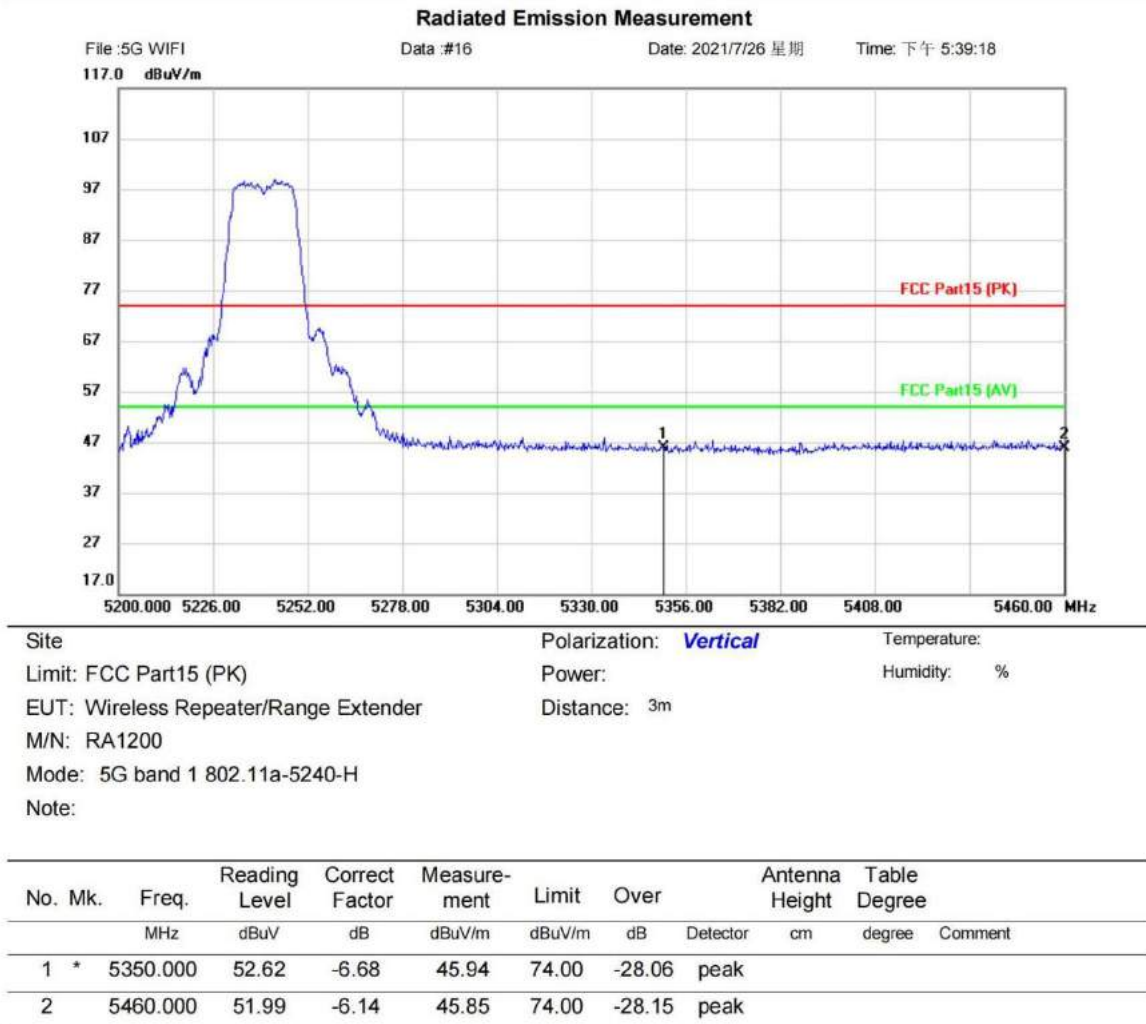


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5240][Polarity: Vertical]



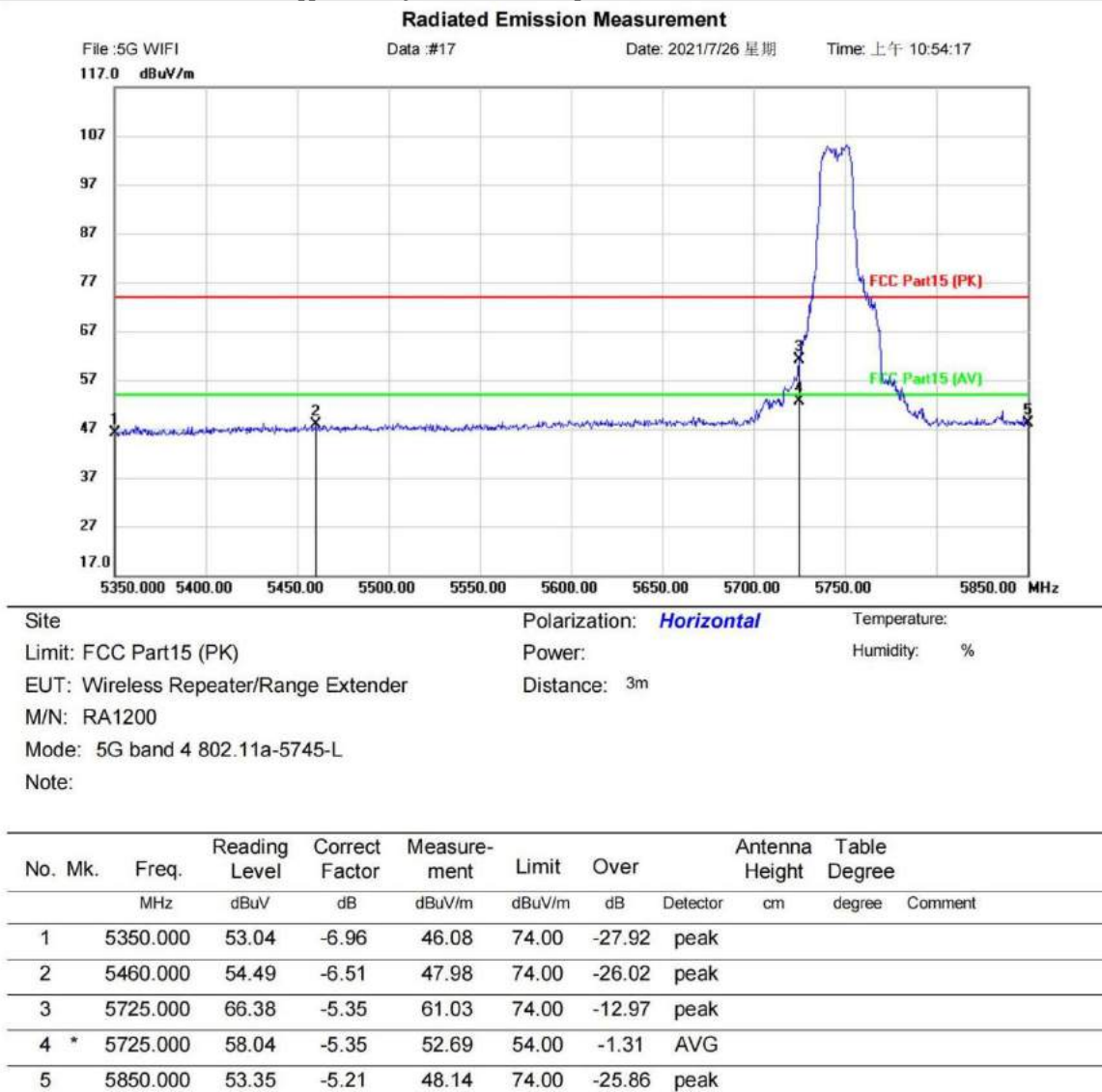
*:Maximum data x:Over limit !:over margin

<Reference Only

Test Result: Pass

BAND 4:

[Test mode:802.11a-5745][Polarity: Horizontal]

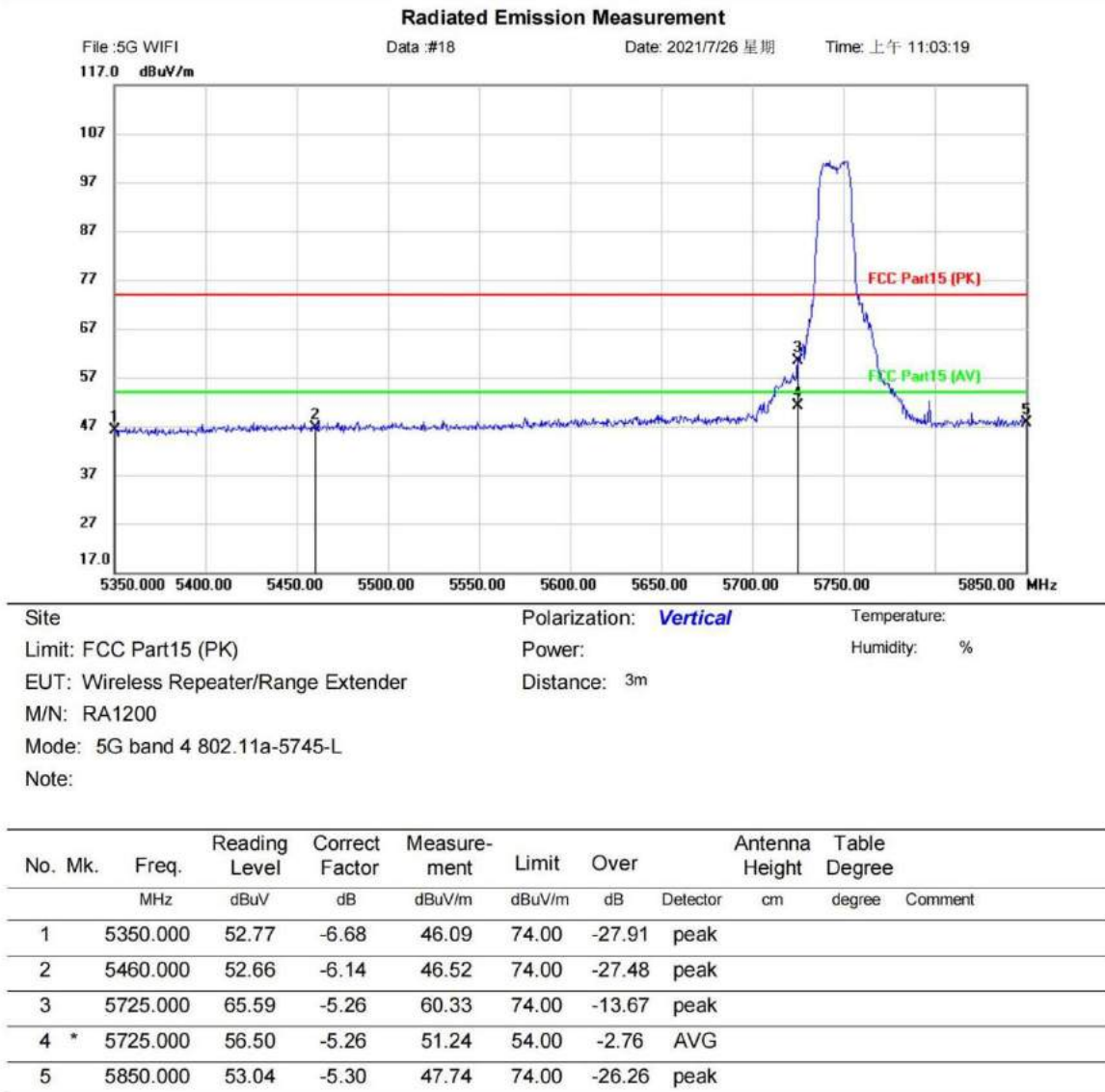


*:Maximum data x:Over limit !:over margin

<Reference Only

Test Result: Pass

[Test mode:802.11a-5745][Polarity: Vertical]

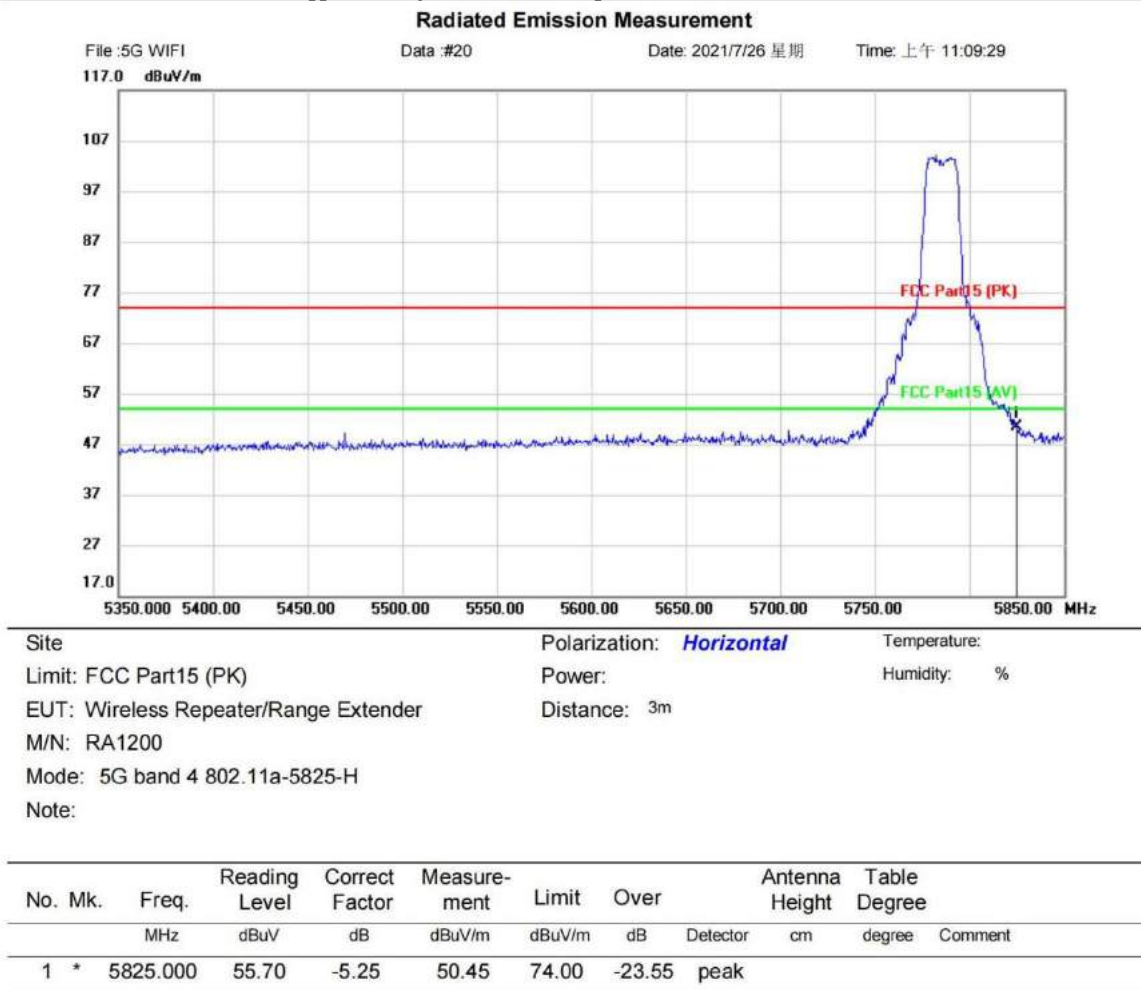


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5825][Polarity: Horizontal]

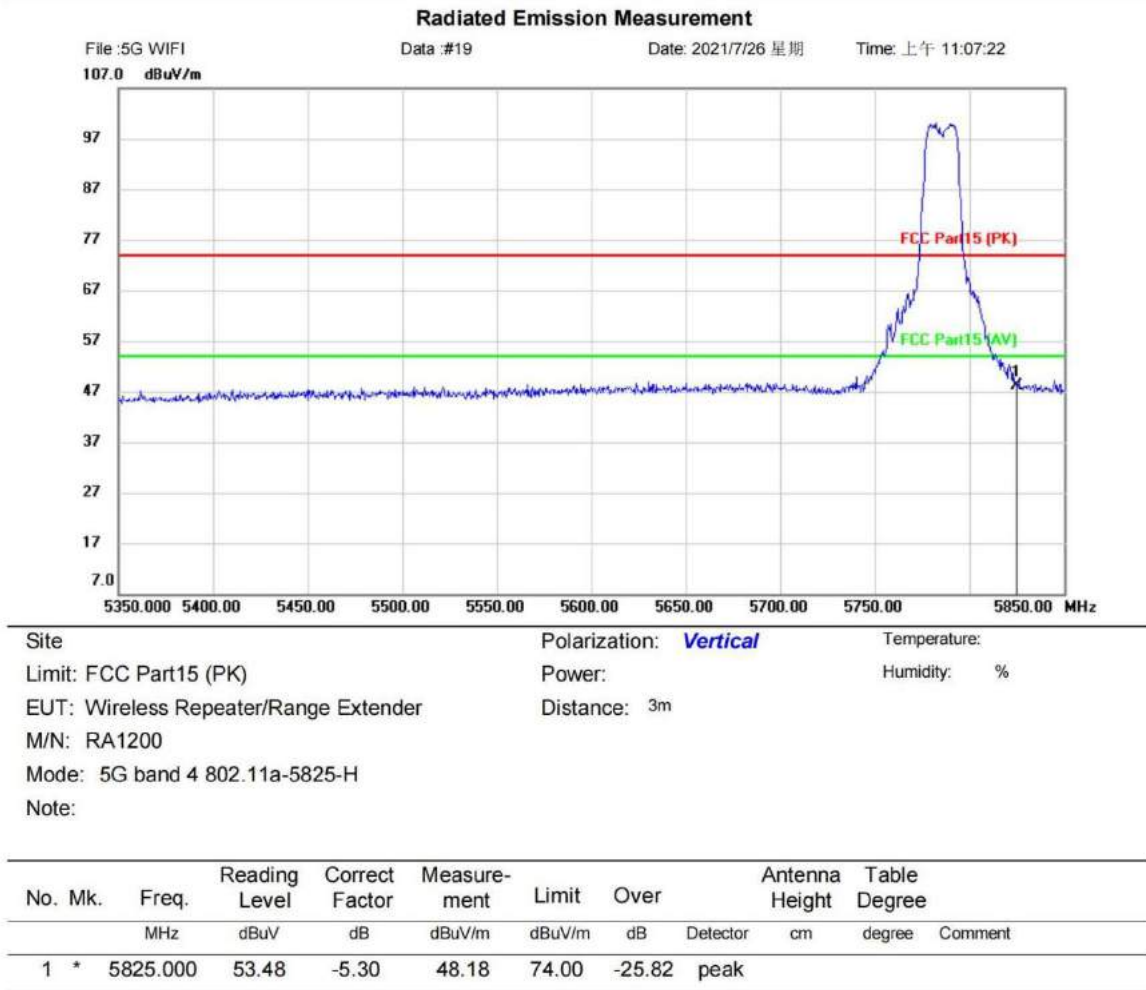


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5825][Polarity: Vertical]



*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

12 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	N/A

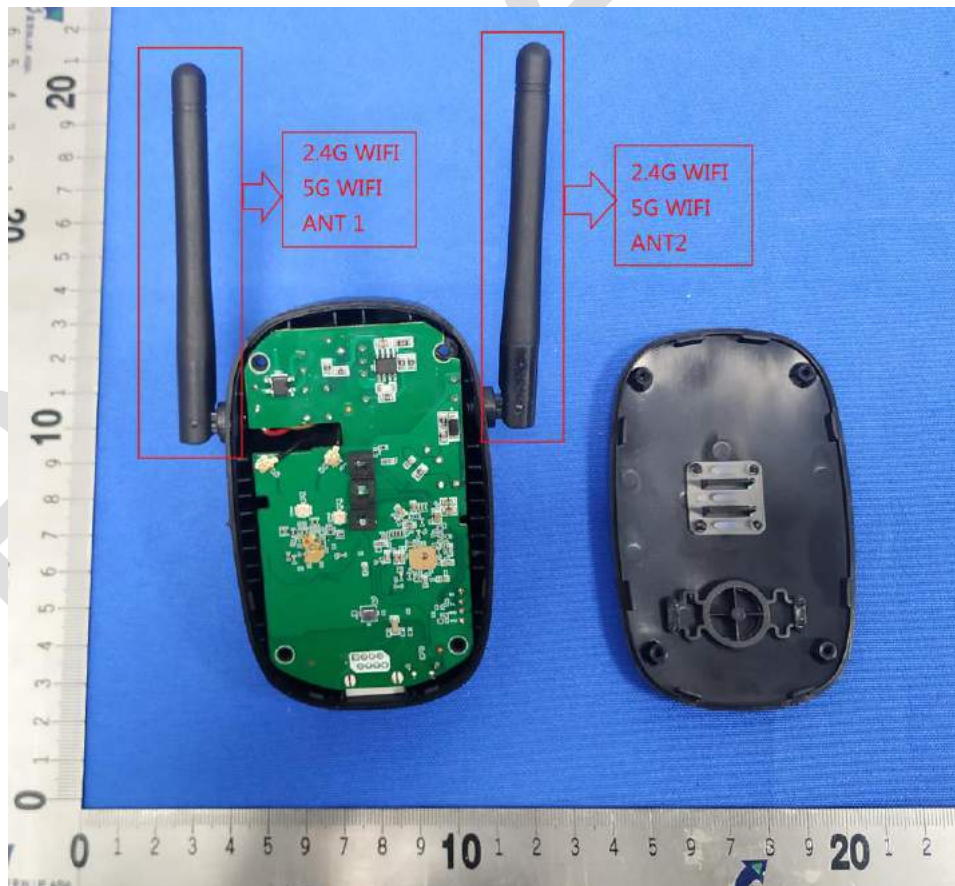
12.1 CONCLUSION

Standard 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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an 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:

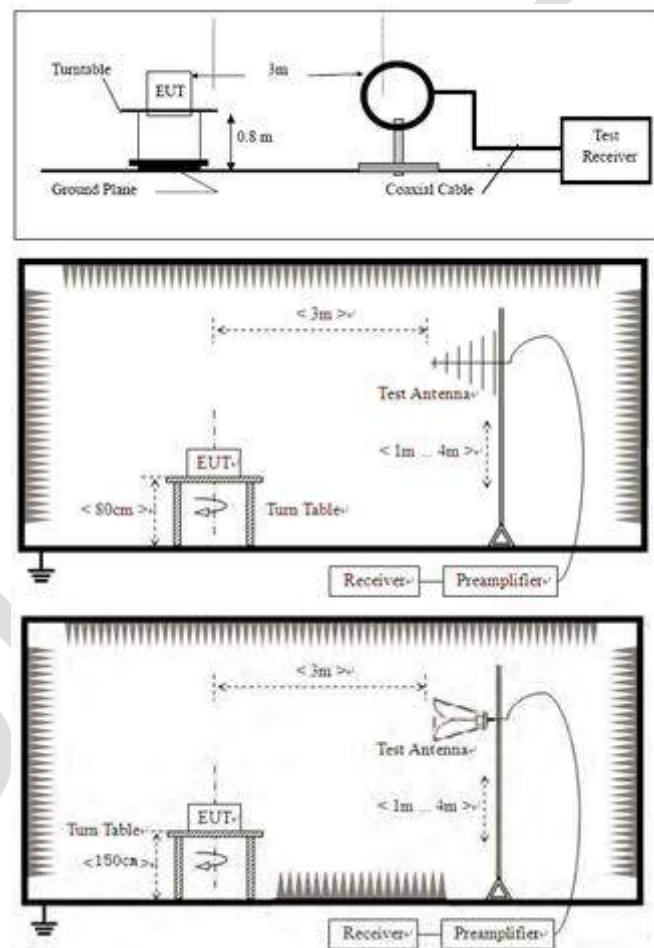
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 3 dBi.



13 RADIATED EMISSIONS

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II G
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25°C
Humidity	52%

13.1 BLOCK DIAGRAM OF TEST SETUP



13.2 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest

radiation.

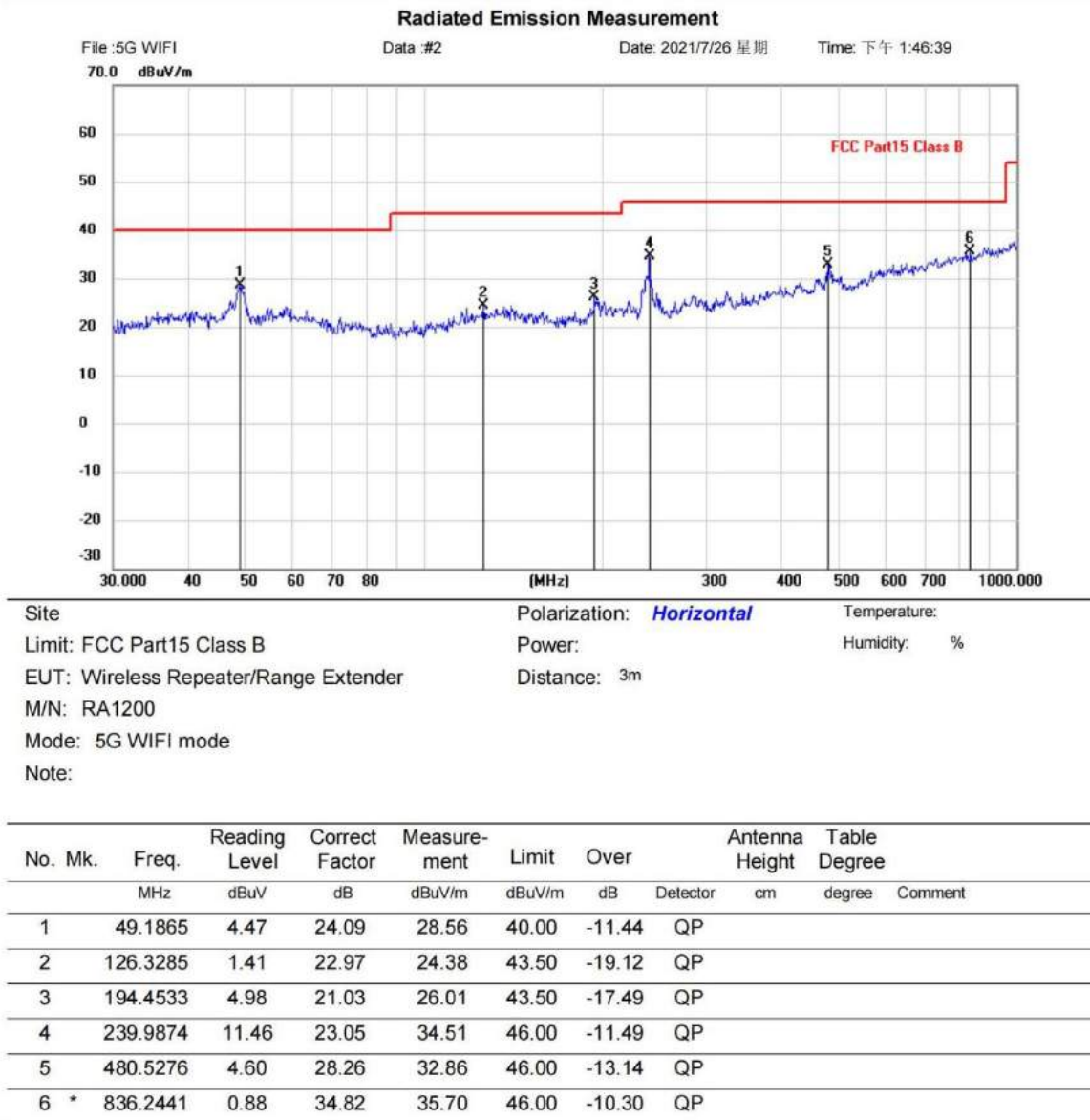
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark:

- 1. $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$
- 2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
- 3. Scan from 9kHz to 40GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. fundamental frequency is blocked by filter, and only spurious emission is shown.
- 4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

13.3 TEST DATA

[Test mode:TX mode][Polarity: Horizontal]

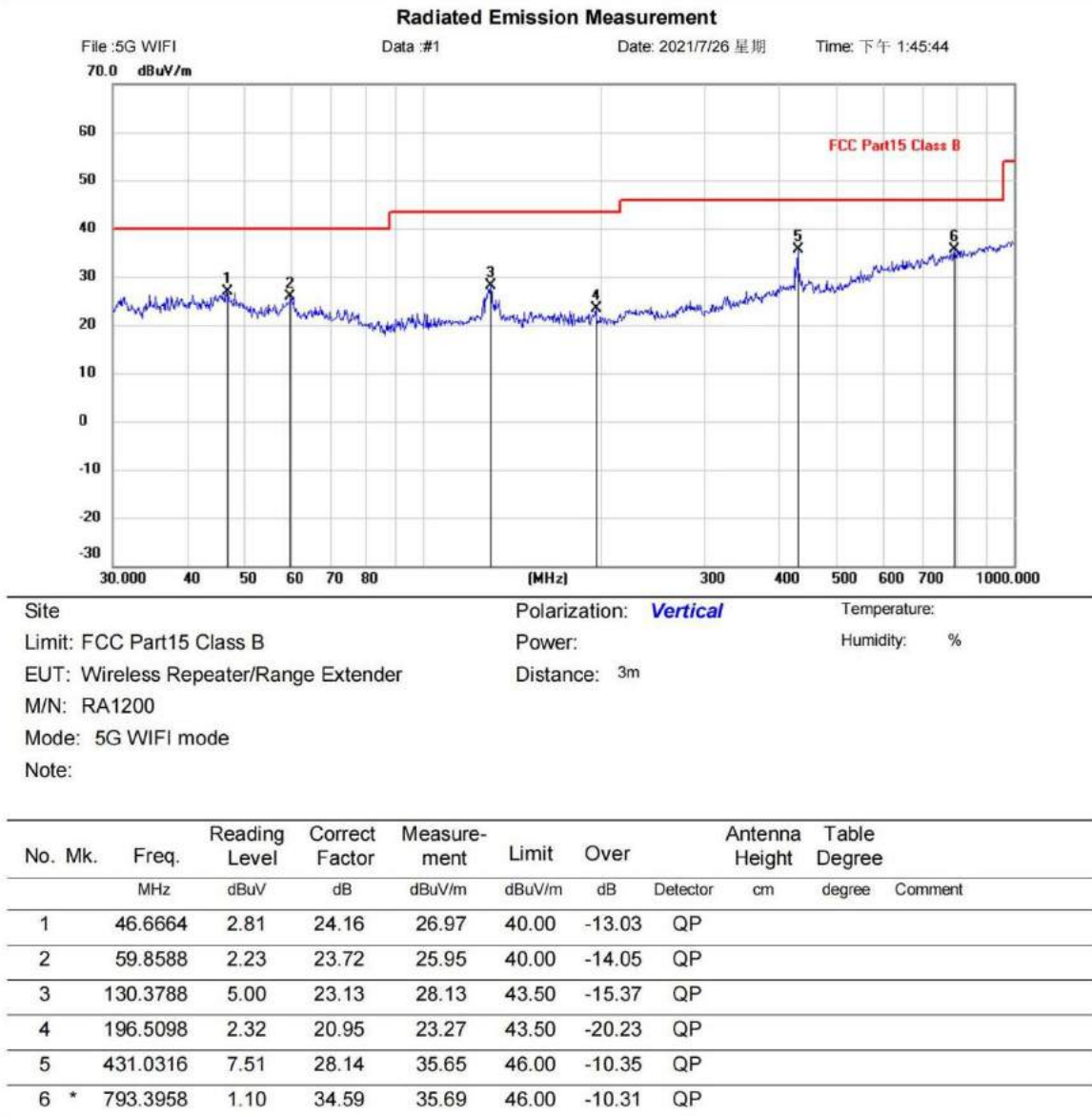


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:TX mode][Polarity: Vertical]



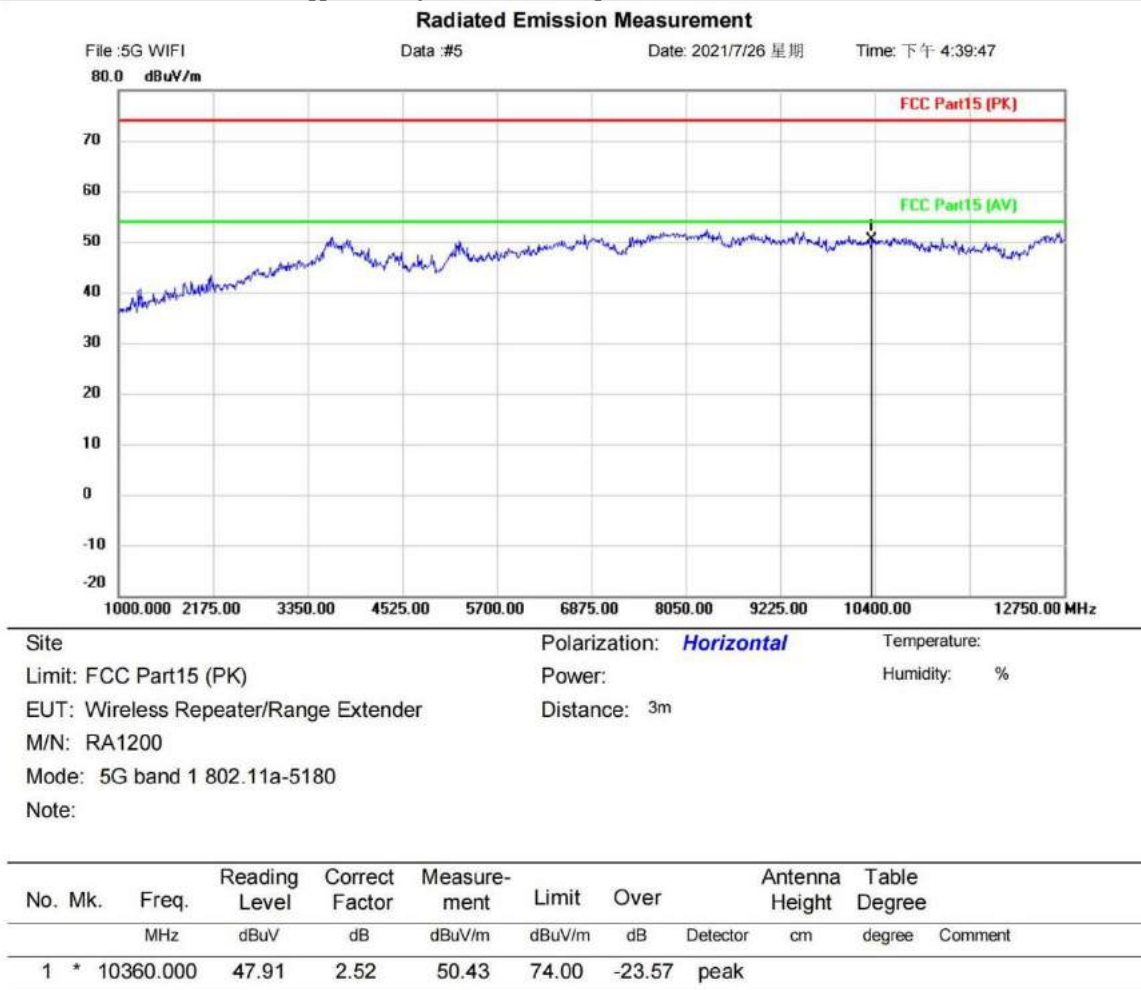
*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

BAND 1

[Test mode: 802.11a-5180][Polarity: Horizontal]

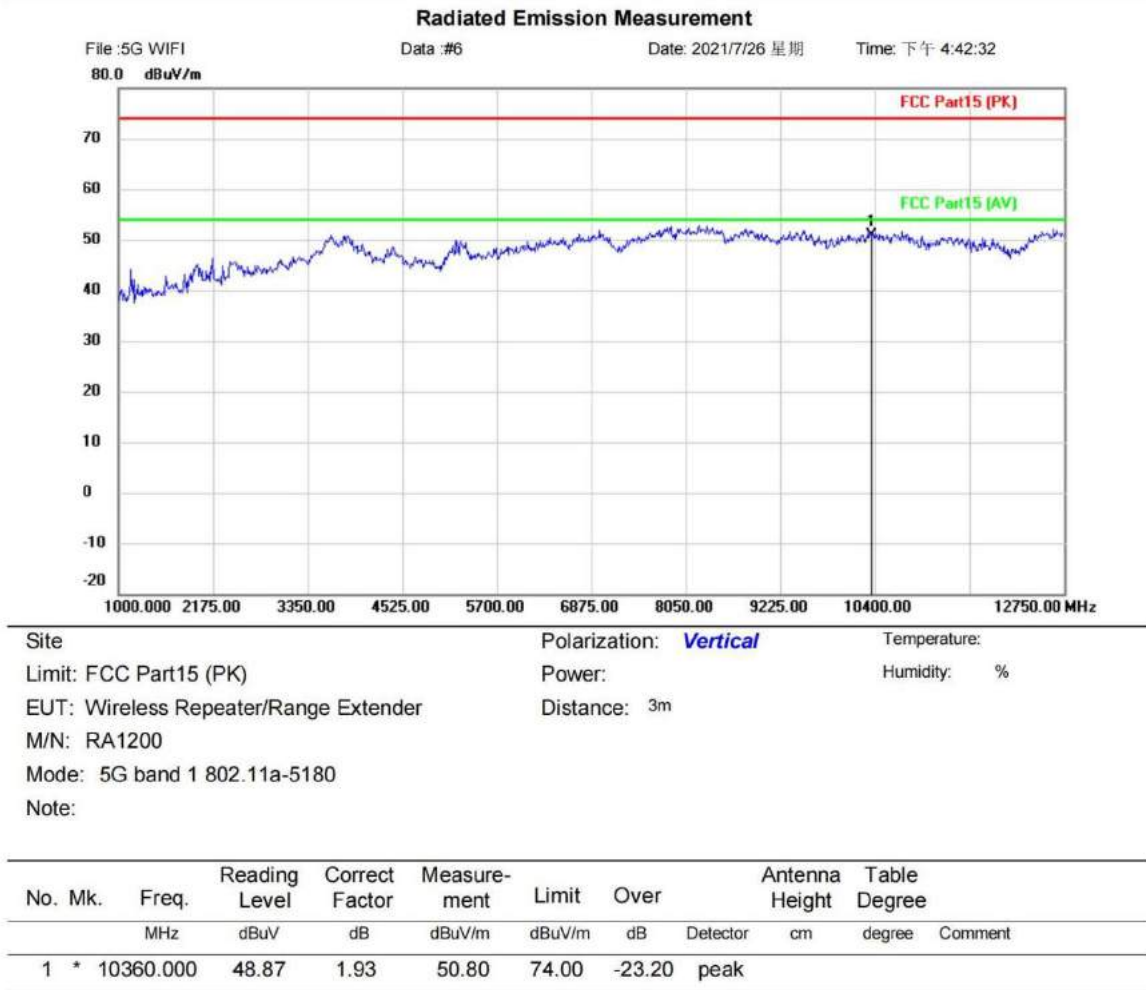


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5180][Polarity: Vertical]

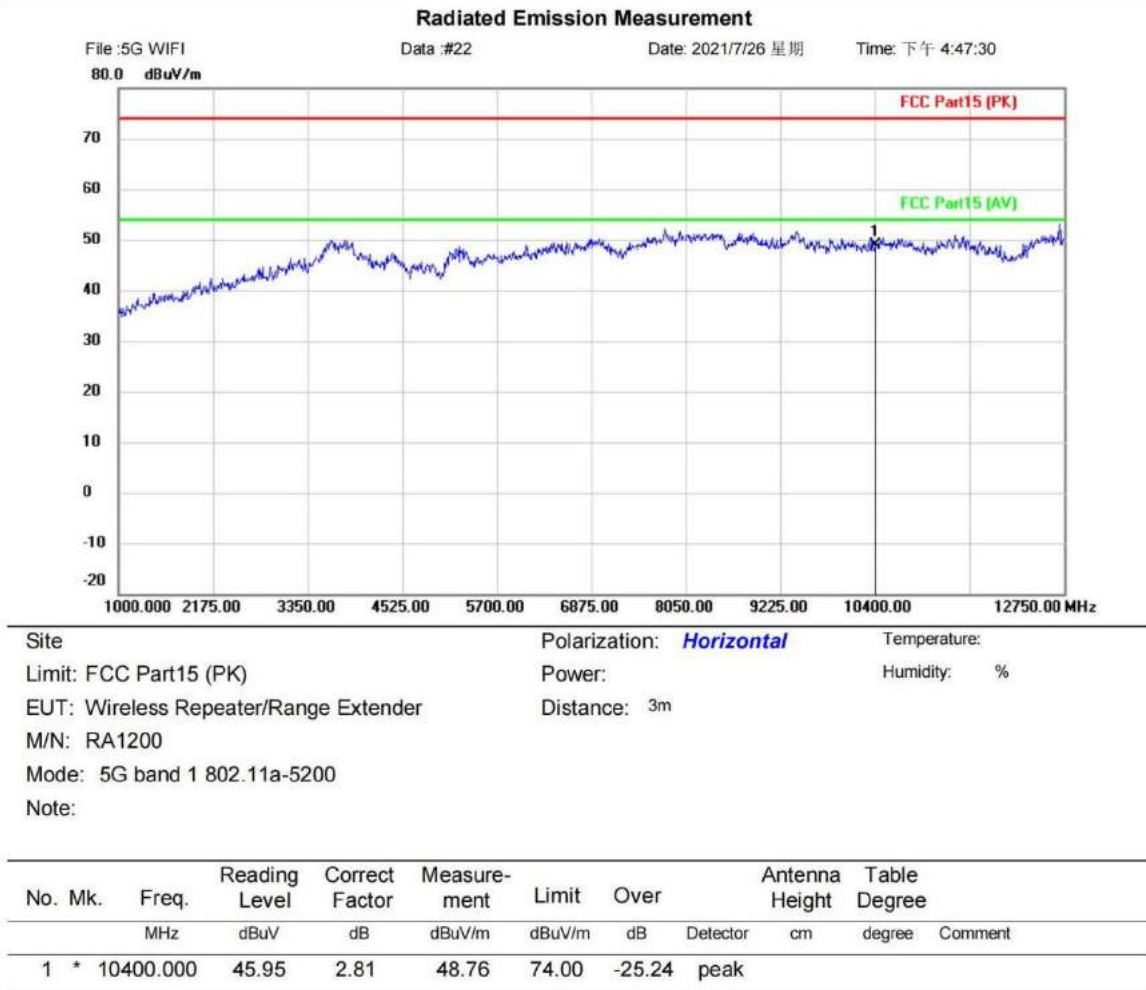


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5200][Polarity: Horizontal]

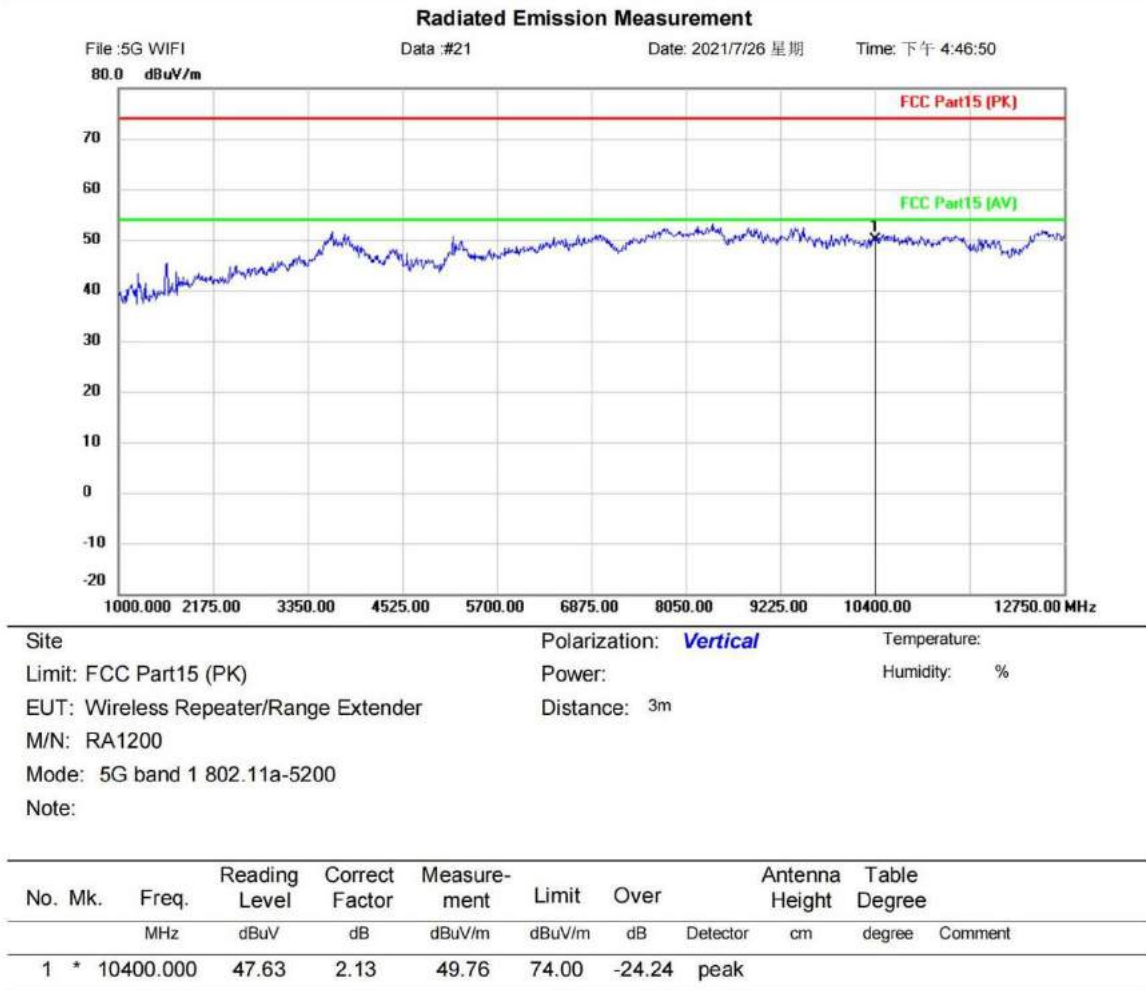


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5200][Polarity: Vertical]

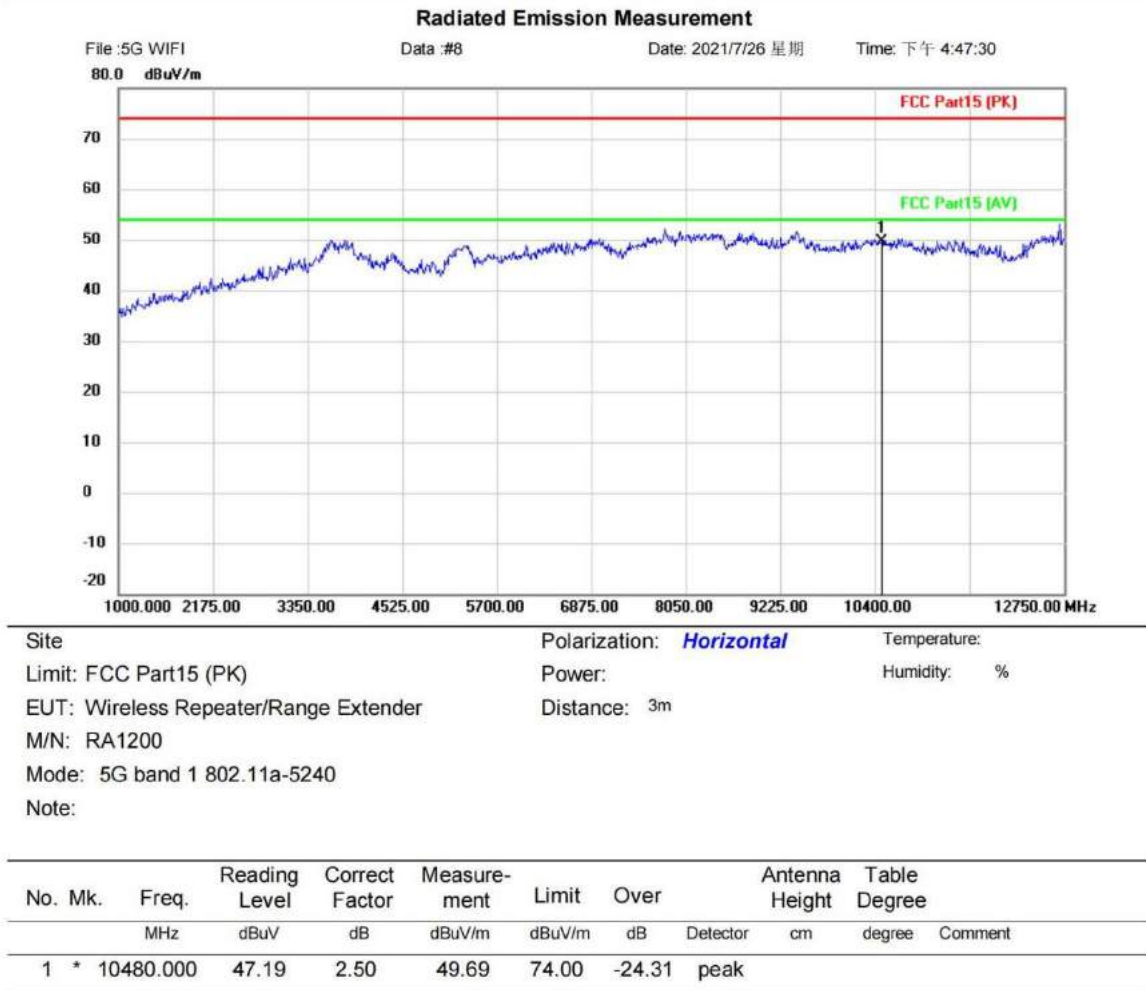


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5240][Polarity: Horizontal]

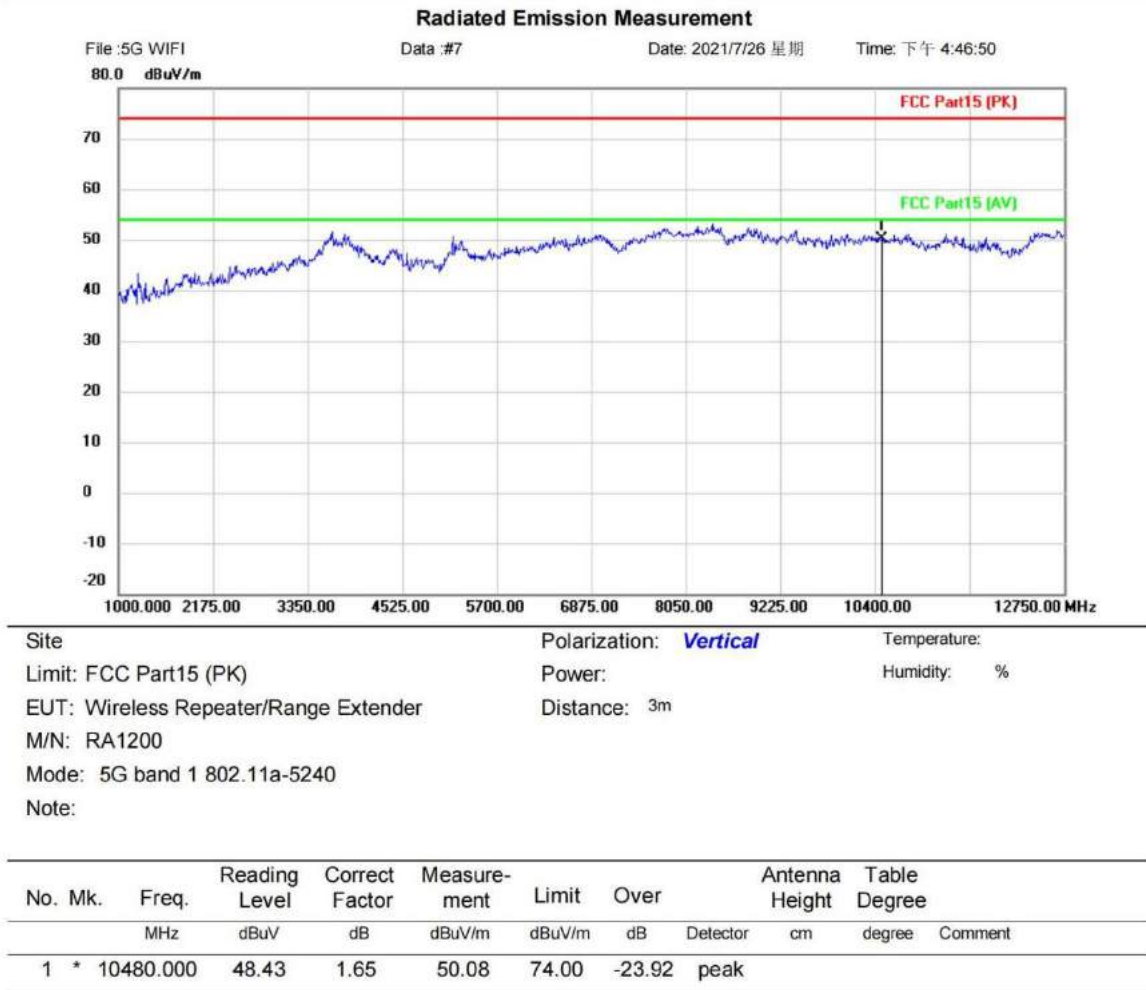


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5240][Polarity: Vertical]



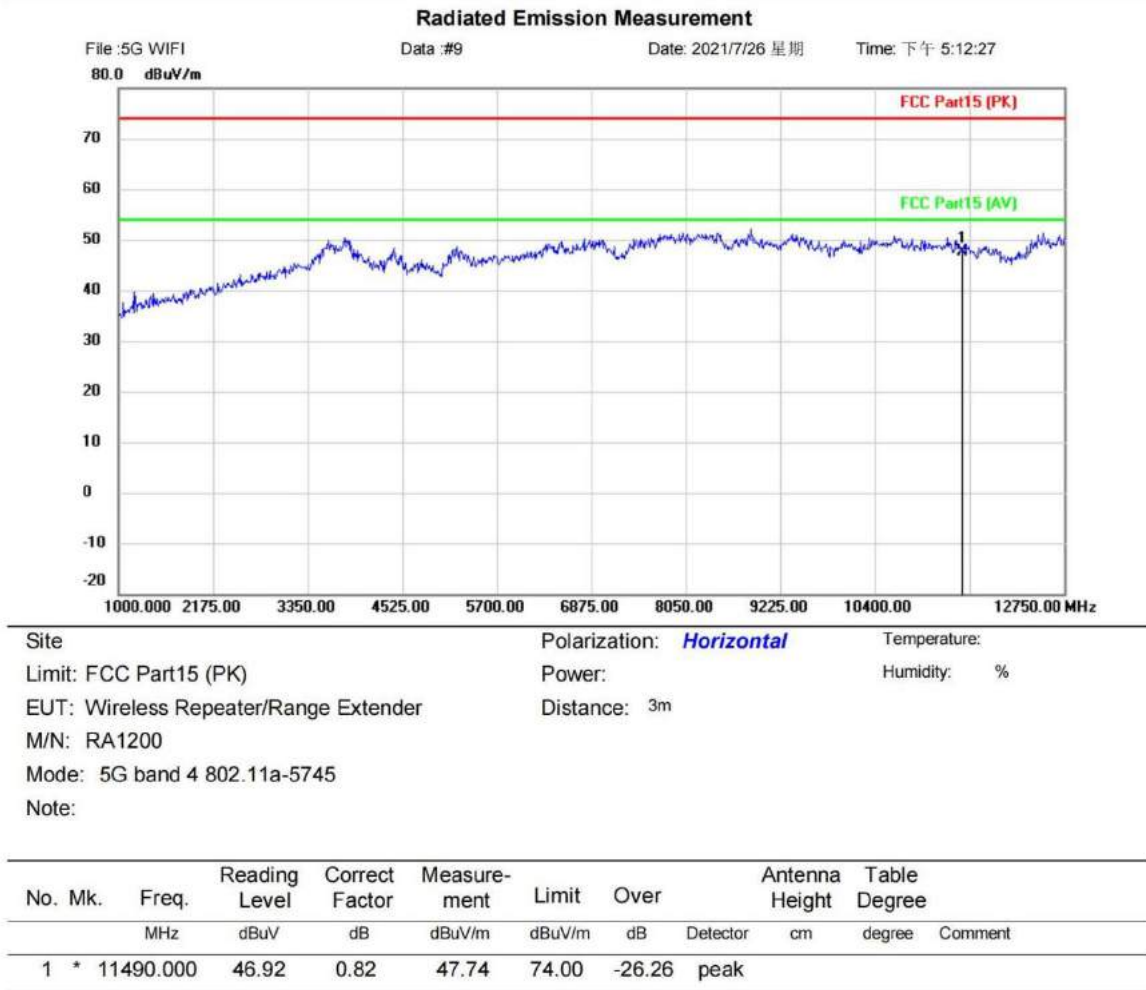
*:Maximum data x:Over limit !:over margin

<Reference Only

Test Result: Pass

BAND 4

[Test mode:802.11a-5745][Polarity: Horizontal]

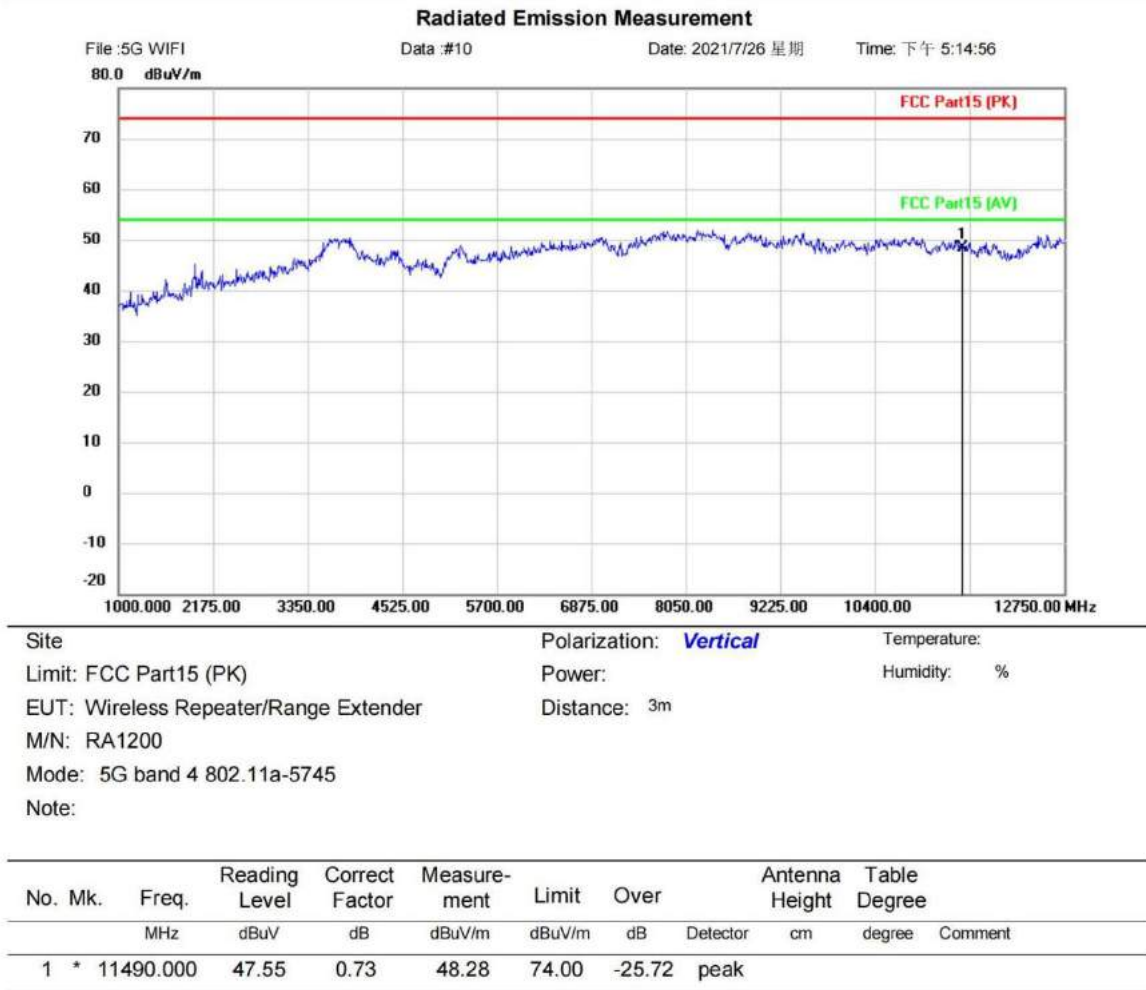


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5745][Polarity: Vertical]

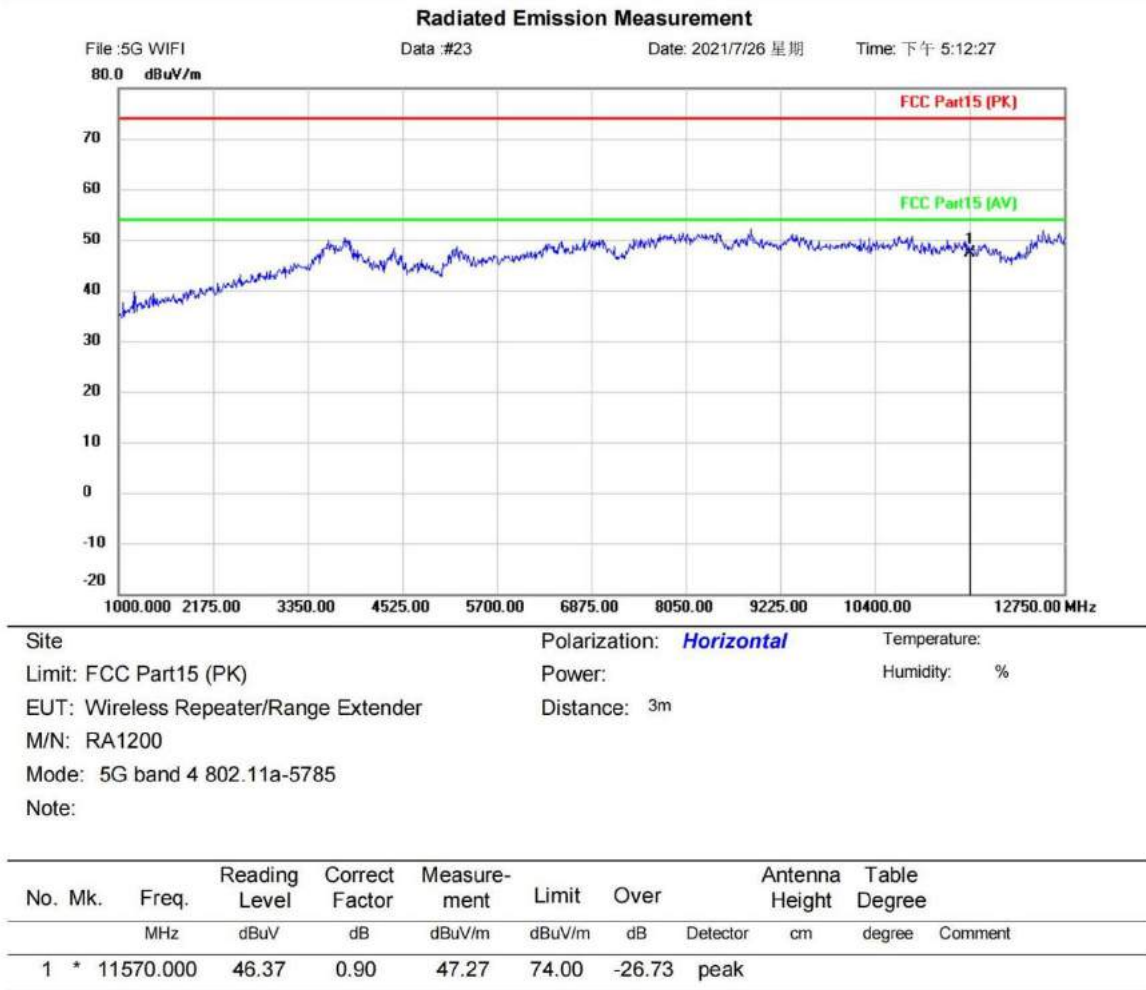


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5785][Polarity: Horizontal]

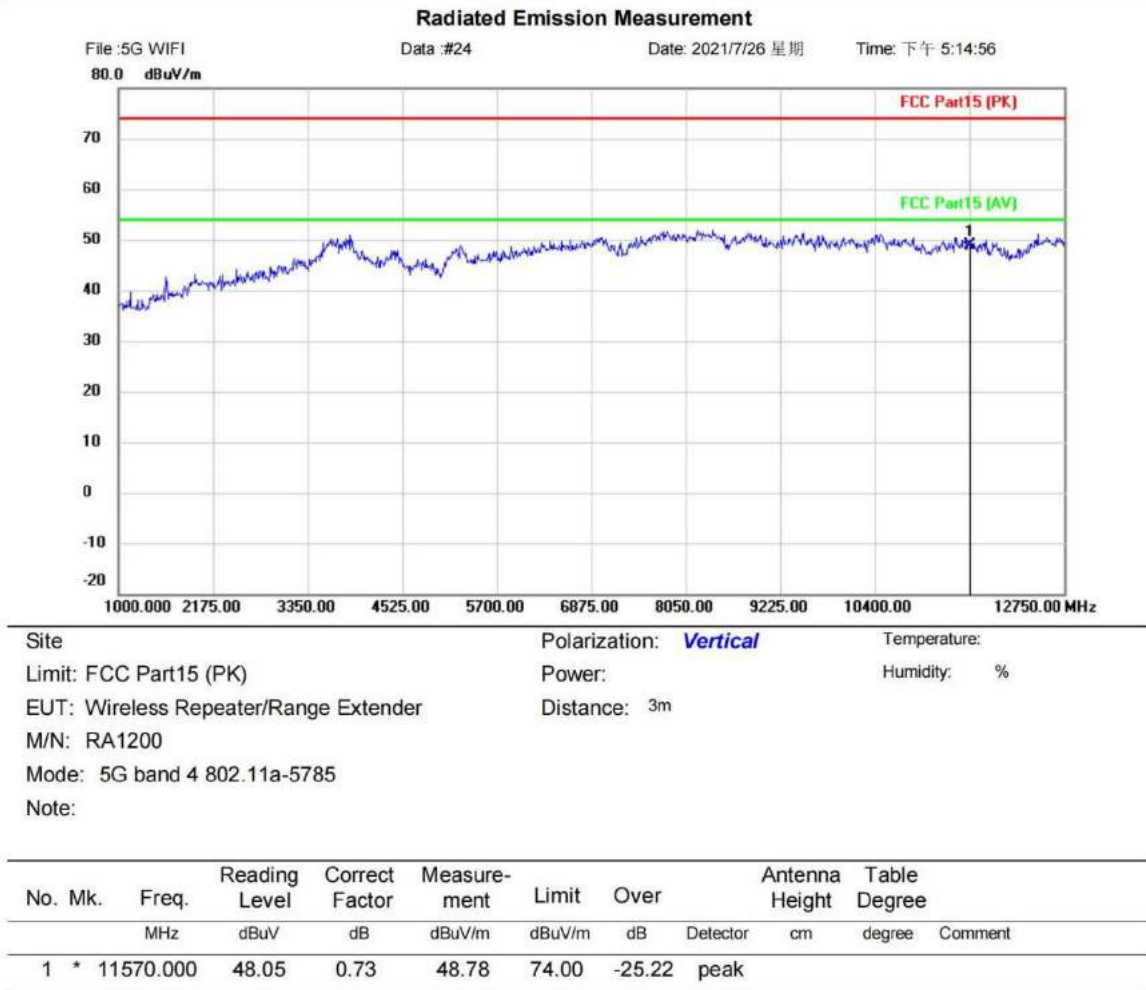


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5785][Polarity: Vertical]

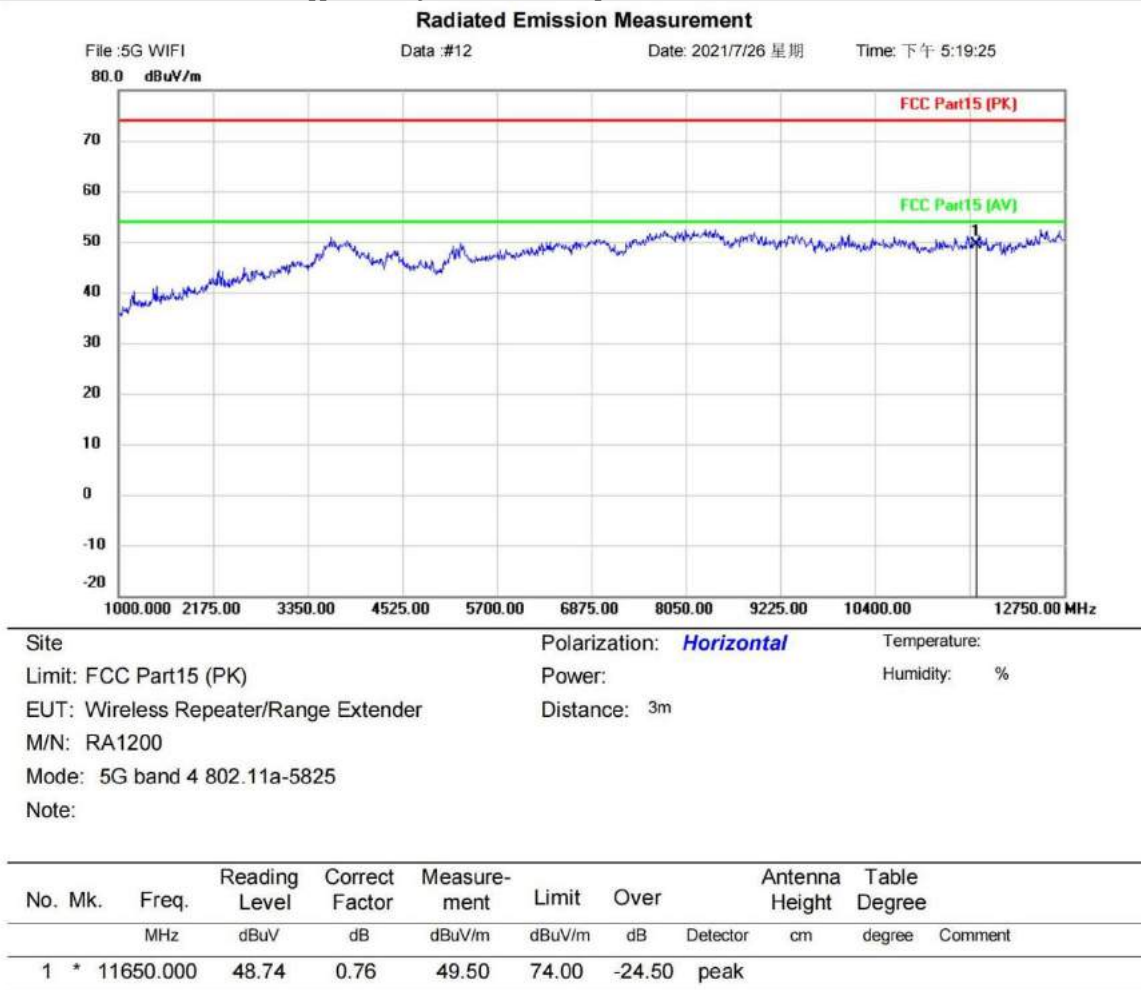


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5825][Polarity: Horizontal]

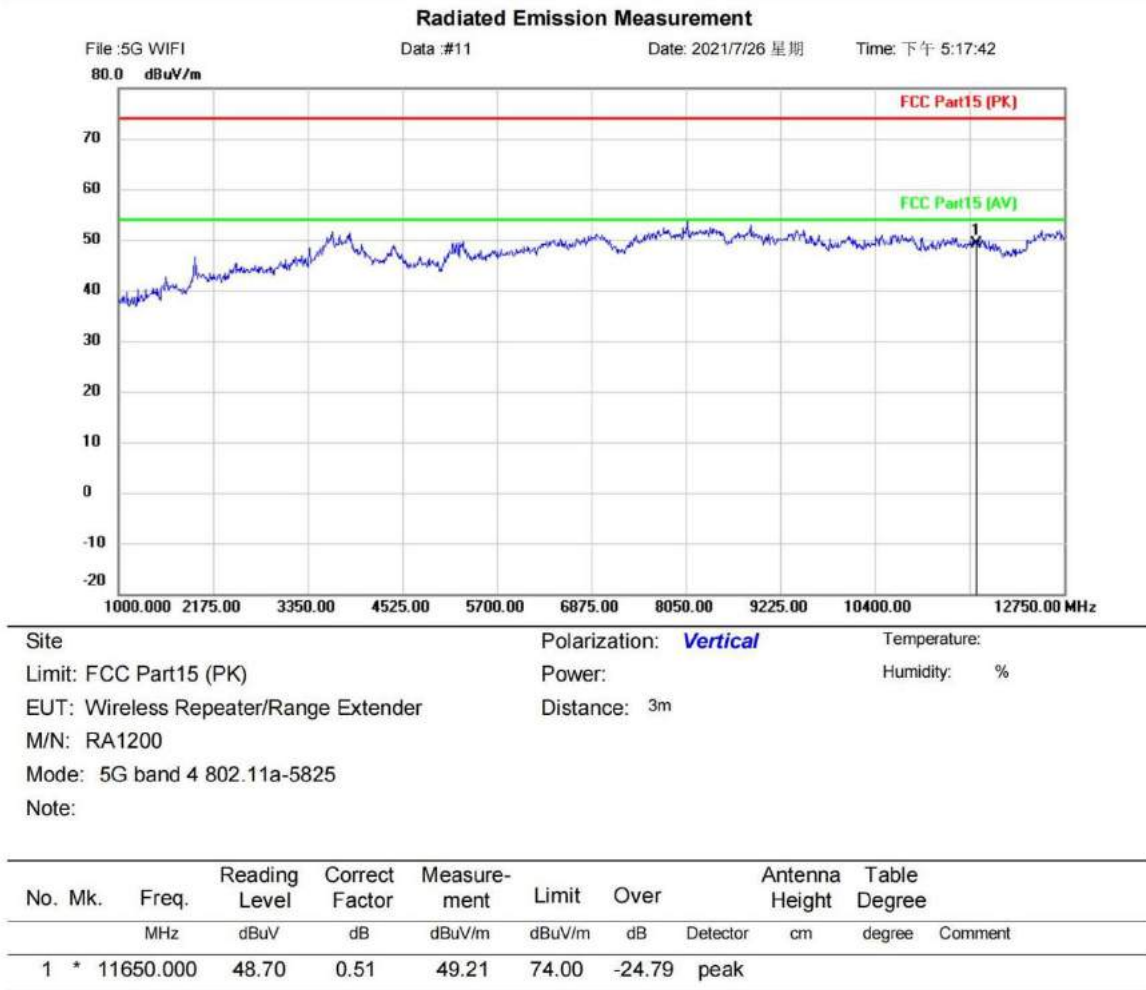


*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

[Test mode:802.11a-5825][Polarity: Vertical]



*:Maximum data x:Over limit !:over margin

⟨Reference Only

Test Result: Pass

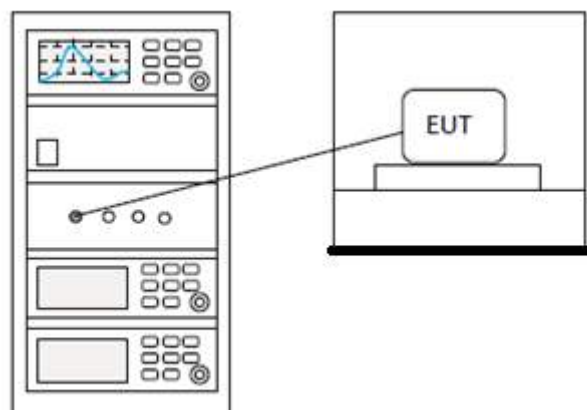
14 PEAK POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II F
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25℃
Humidity	52%

14.1 LIMITS

Frequency band(MHz)	Limit
5150-5250	$\leq 17\text{dBm}$ in 1MHz for master device
	$\leq 11\text{dBm}$ in 1MHz for client device
5250-5350	$\leq 11\text{dBm}$ in 1MHz for client device
5470-5725	$\leq 11\text{dBm}$ in 1MHz for client device
5725-5850	$\leq 30\text{dBm}$ in 500 kHz
Remark:	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.

14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 TEST DATA

Pass: Please Refer To Appendix: For Details

BlueAsia

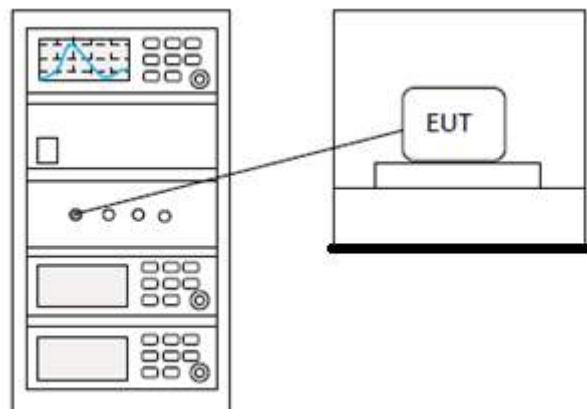
15 MAXIMUM CONDUCTED OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II E
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25℃
Humidity	52%

15.1 LIMITS

Frequency band(MHz)	Limit
5150-5250	$\leq 1\text{W}(30\text{dBm})$ for master device
	$\leq 250\text{mW}(24\text{dBm})$ for client device
5250-5350	$\leq 250\text{mW}(24\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$
5470-5725	$\leq 250\text{mW}(24\text{dBm})$ for client device or $11\text{dBm}+10\log B^*$
5725-5850	$\leq 1\text{W}(30\text{dBm})$
Remark:	* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA

Pass: Please Refer To Appendix: For Details

BlueAsia

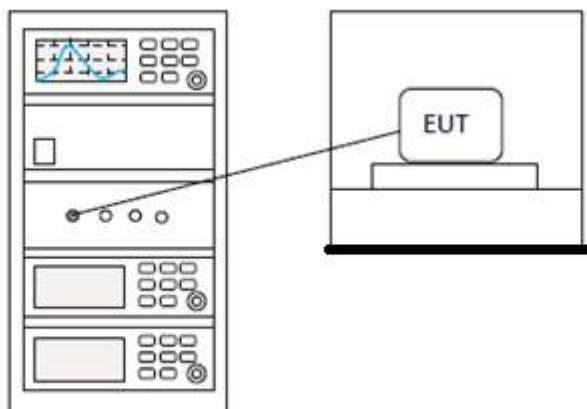
16 MINIMUM 6 DB BANDWIDTH (5.725-5.85 GHZ BAND)

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II C 2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25°C
Humidity	52%

16.1 LIMITS

Limit:	≥ 500 kHz
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16.2 BLOCK DIAGRAM OF TEST SETUP



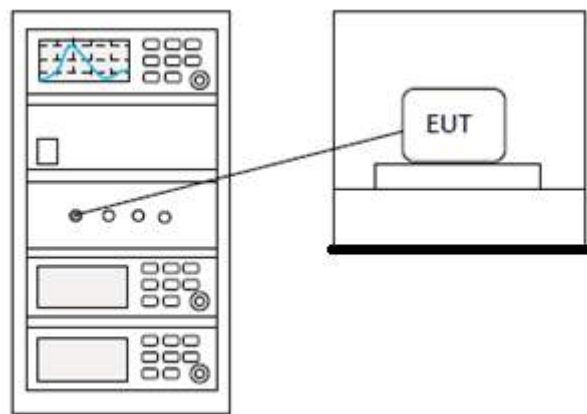
16.3 TEST DATA

Pass: Please Refer To Appendix: For Details

17 26DB EMISSION BANDWIDTH

Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	KDB 789033 D02 II C 1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25℃
Humidity	52%

17.1 BLOCK DIAGRAM OF TEST SETUP



17.2 TEST DATA

Pass: Please Refer To Appendix: For Details

18 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

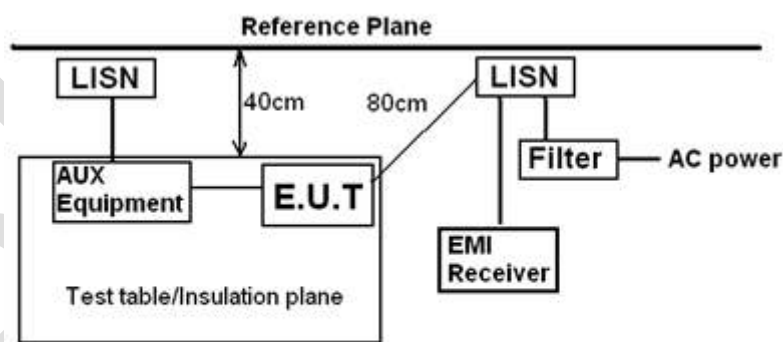
Test Standard	47 CFR Part 15, Subpart E 15.407
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25°C
Humidity	52%

18.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

18.2 BLOCK DIAGRAM OF TEST SETUP



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedance Stabilization Network
Test table height=0.8m

18.3 PROCEDURE

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

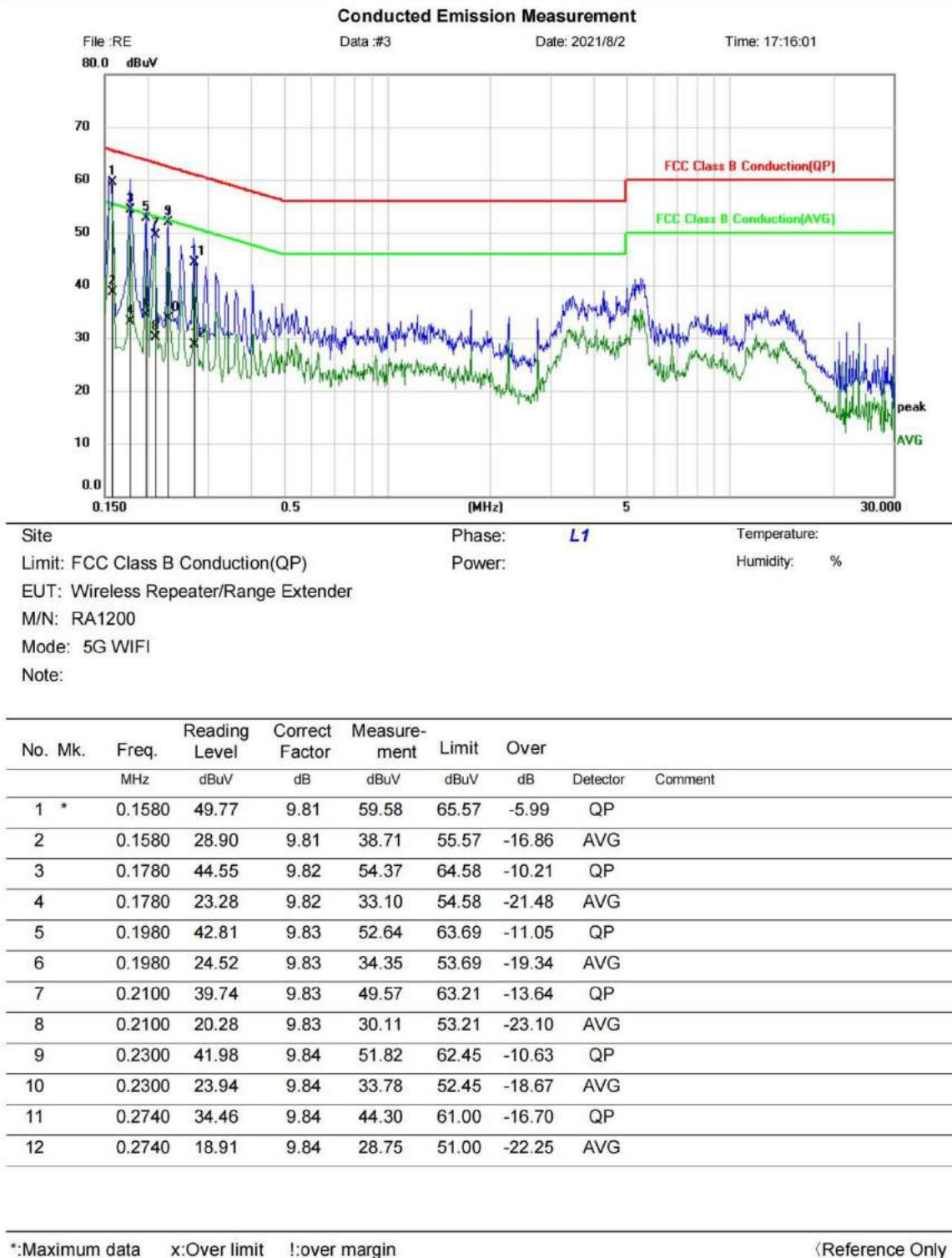
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: $LISN = Read\ Level + Cable\ Loss + LISN\ Factor$

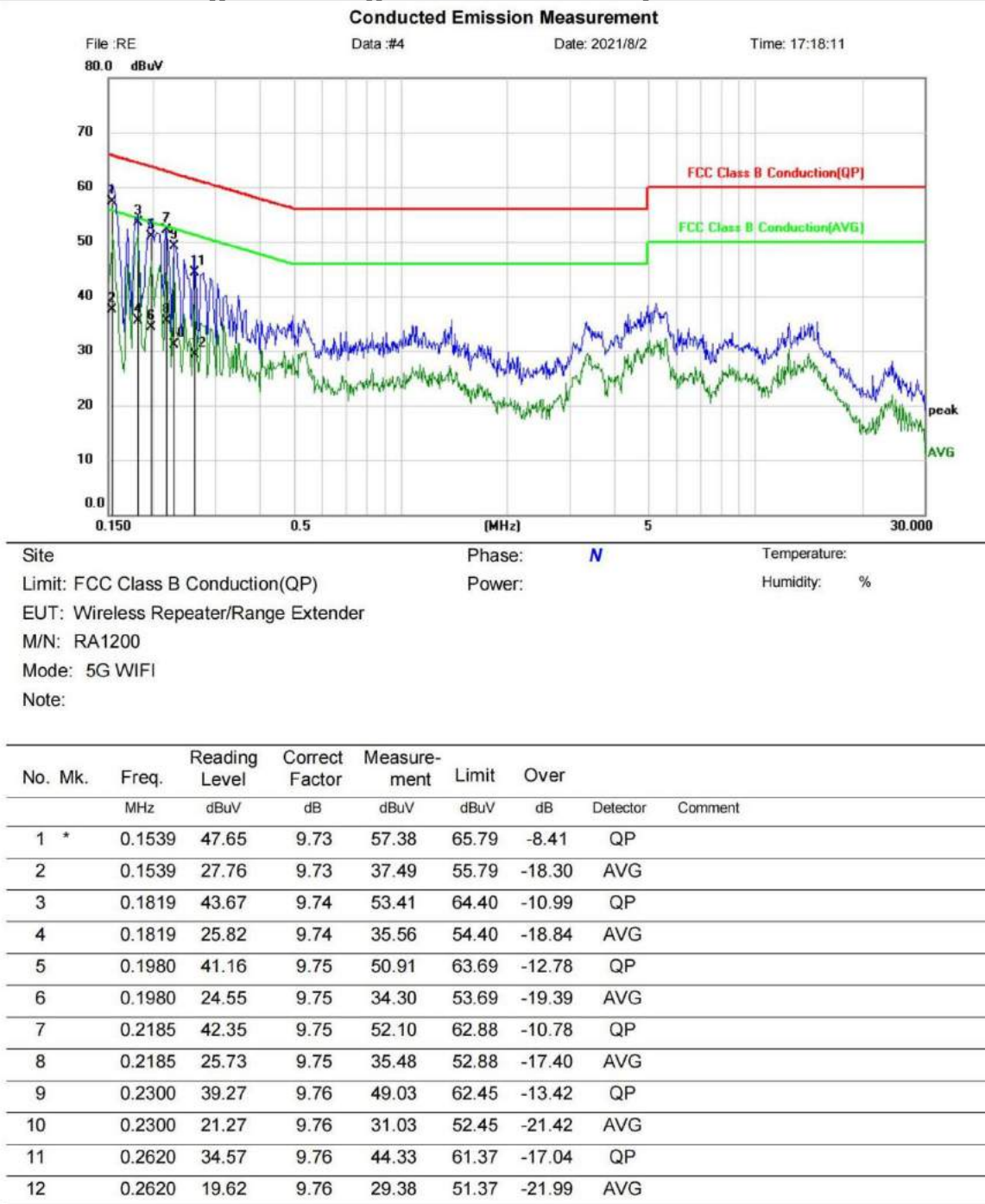
18.4 TEST DATA

[Test mode:TX mode][Line: Line][Power:AC120V/60Hz]



Test Result: Pass

[Test mode:TX mode][Line: Nutral][Power:AC120V/60Hz]



*:Maximum data x:Over limit !:over margin

(Reference Only)

Test Result: Pass

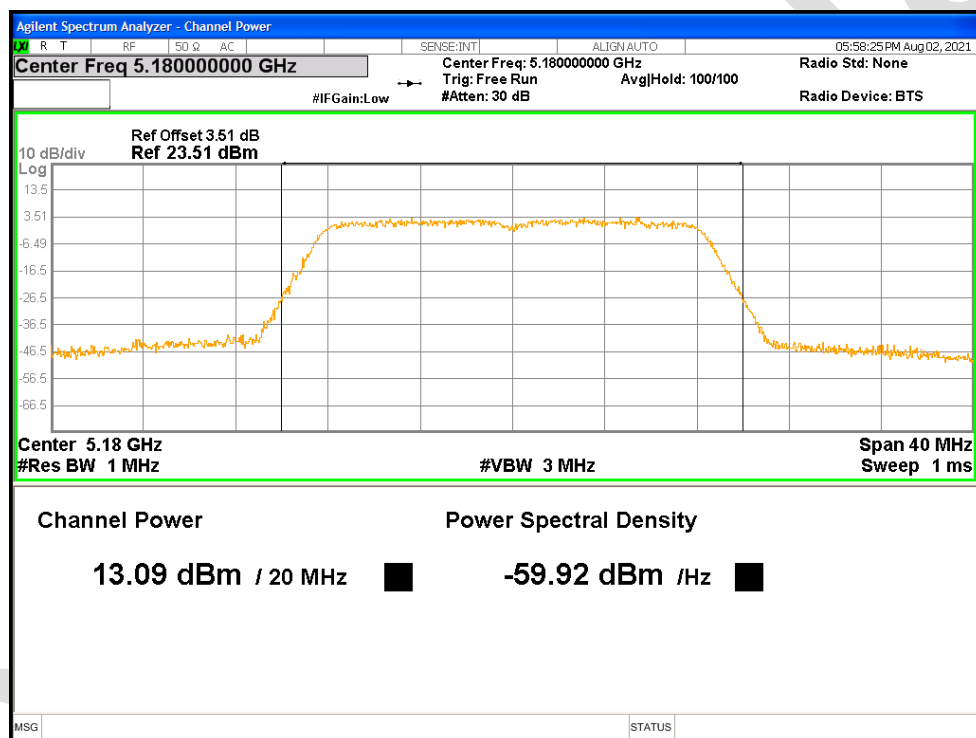
19 APPENDIX

Maximum Conducted Output Power

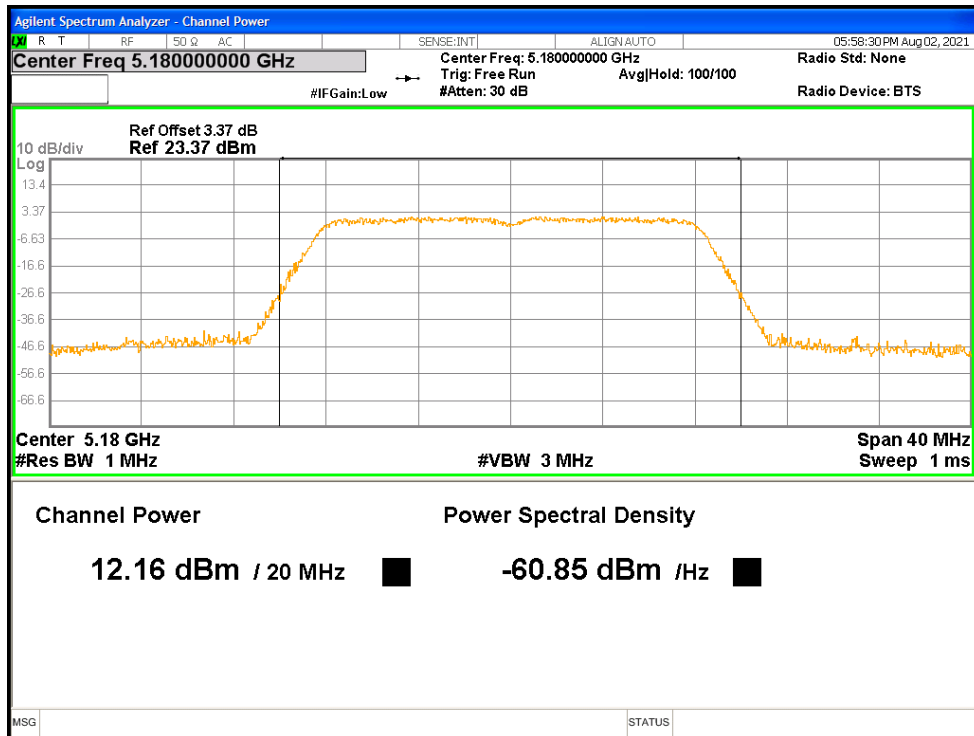
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	13.086	24	Pass
NVNT	a	5180	Ant2	12.164	24	Pass
NVNT	a	5180	Sum	15.66	24	Pass
NVNT	a	5200	Ant1	13.343	24	Pass
NVNT	a	5200	Ant2	12.493	24	Pass
NVNT	a	5200	Sum	15.949	24	Pass
NVNT	a	5240	Ant1	13.981	24	Pass
NVNT	a	5240	Ant2	12.929	24	Pass
NVNT	a	5240	Sum	16.497	24	Pass
NVNT	a	5745	Ant1	13.344	30	Pass
NVNT	a	5745	Ant2	11.939	30	Pass
NVNT	a	5745	Sum	15.708	30	Pass
NVNT	a	5785	Ant1	13.371	30	Pass
NVNT	a	5785	Ant2	11.776	30	Pass
NVNT	a	5785	Sum	15.657	30	Pass
NVNT	a	5825	Ant1	13.532	30	Pass
NVNT	a	5825	Ant2	12.194	30	Pass
NVNT	a	5825	Sum	15.925	30	Pass
NVNT	ac80	5210	Ant1	12.161	24	Pass
NVNT	ac80	5210	Ant2	11.689	24	Pass
NVNT	ac80	5210	Sum	14.942	24	Pass
NVNT	ac80	5775	Ant1	12.242	30	Pass
NVNT	ac80	5775	Ant2	11.003	30	Pass
NVNT	ac80	5775	Sum	14.677	30	Pass
NVNT	n20	5180	Ant1	12.942	24	Pass
NVNT	n20	5180	Ant2	12.275	24	Pass
NVNT	n20	5180	Sum	15.632	24	Pass
NVNT	n20	5200	Ant1	13.03	24	Pass
NVNT	n20	5200	Ant2	12.678	24	Pass
NVNT	n20	5200	Sum	15.868	24	Pass
NVNT	n20	5240	Ant1	13.38	24	Pass
NVNT	n20	5240	Ant2	12.565	24	Pass
NVNT	n20	5240	Sum	16.002	24	Pass
NVNT	n20	5745	Ant1	12.866	30	Pass
NVNT	n20	5745	Ant2	11.877	30	Pass
NVNT	n20	5745	Sum	15.41	30	Pass
NVNT	n20	5785	Ant1	13.072	30	Pass
NVNT	n20	5785	Ant2	11.952	30	Pass
NVNT	n20	5785	Sum	15.558	30	Pass
NVNT	n20	5825	Ant1	13.466	30	Pass
NVNT	n20	5825	Ant2	12.442	30	Pass
NVNT	n20	5825	Sum	15.994	30	Pass
NVNT	n40	5190	Ant1	12.686	24	Pass

NVNT	n40	5190	Ant2	12.099	24	Pass
NVNT	n40	5190	Sum	15.413	24	Pass
NVNT	n40	5230	Ant1	12.657	24	Pass
NVNT	n40	5230	Ant2	11.952	24	Pass
NVNT	n40	5230	Sum	15.329	24	Pass
NVNT	n40	5755	Ant1	12.356	30	Pass
NVNT	n40	5755	Ant2	11.148	30	Pass
NVNT	n40	5755	Sum	14.804	30	Pass
NVNT	n40	5795	Ant1	12.51	30	Pass
NVNT	n40	5795	Ant2	11.226	30	Pass
NVNT	n40	5795	Sum	14.926	30	Pass

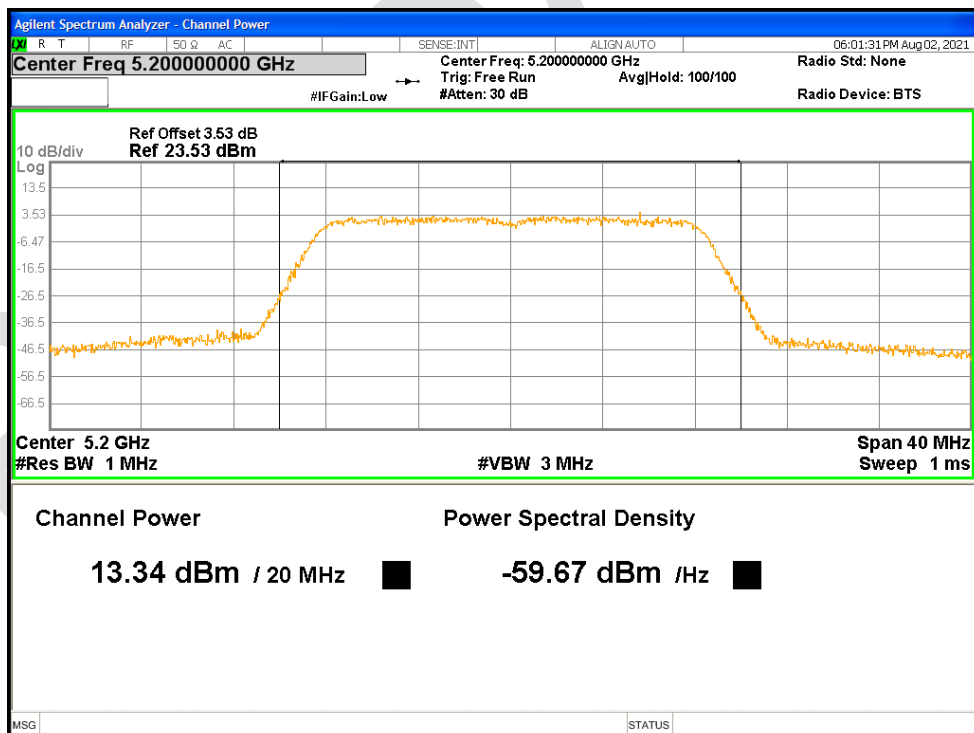
Power NVNT a 5180MHz Ant1



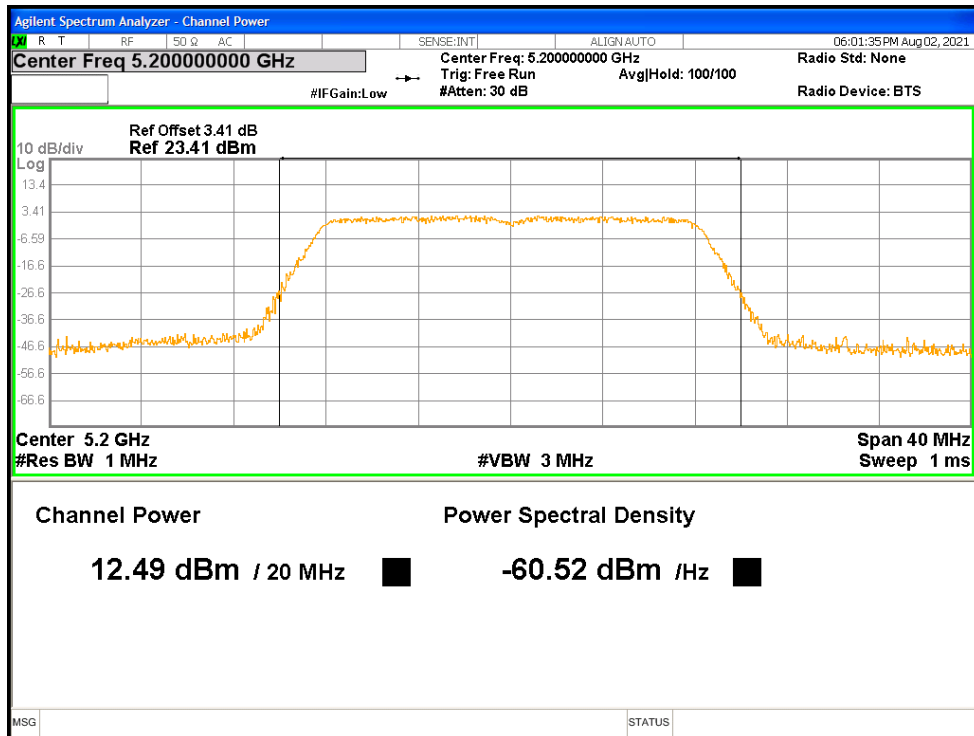
Power NVNT a 5180MHz Ant2



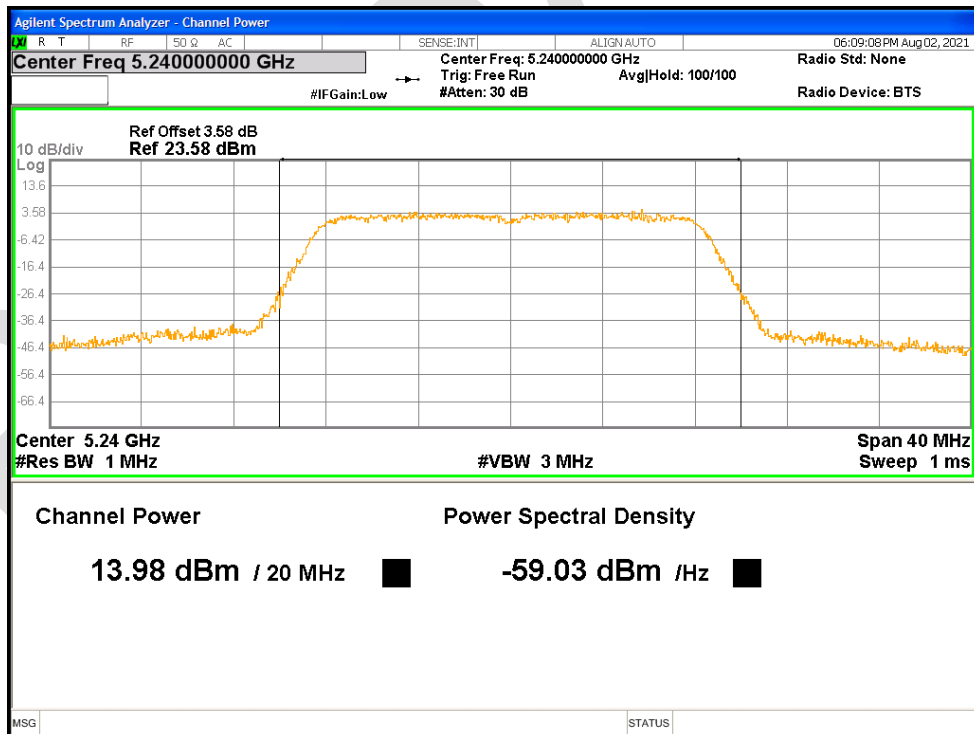
Power NVNT a 5200MHz Ant1



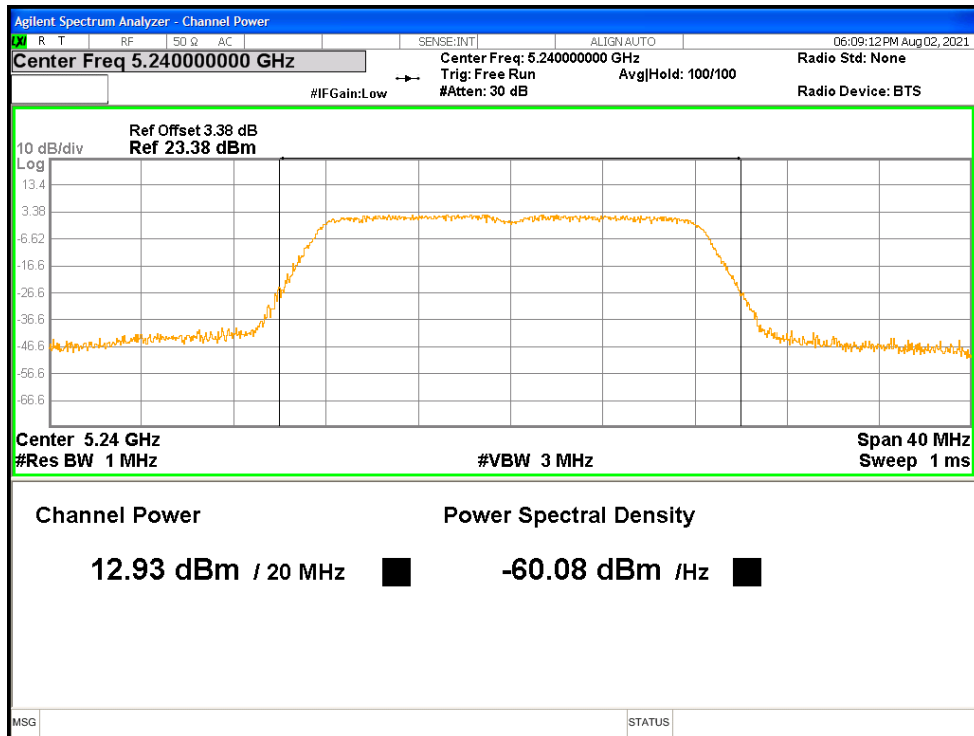
Power NVNT a 5200MHz Ant2



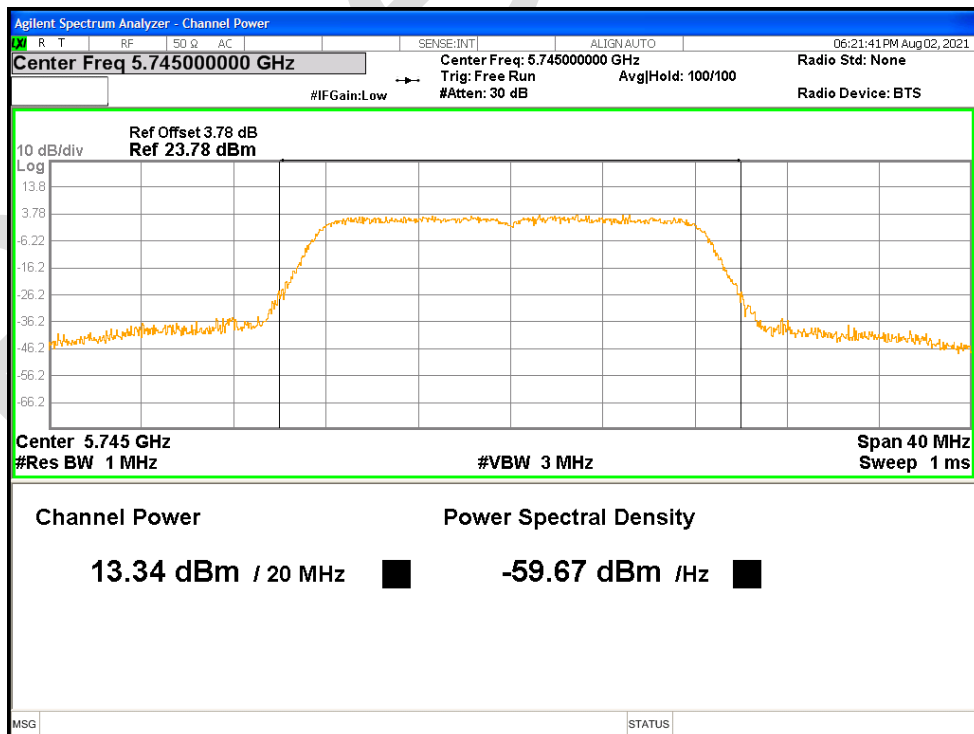
Power NVNT a 5240MHz Ant1



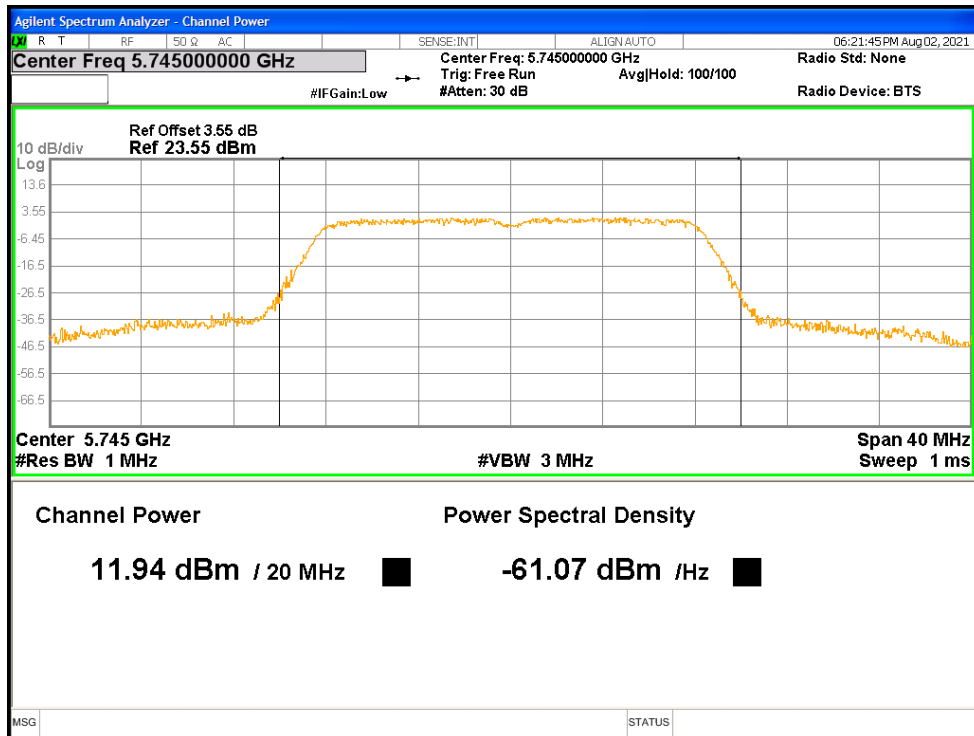
Power NVNT a 5240MHz Ant2



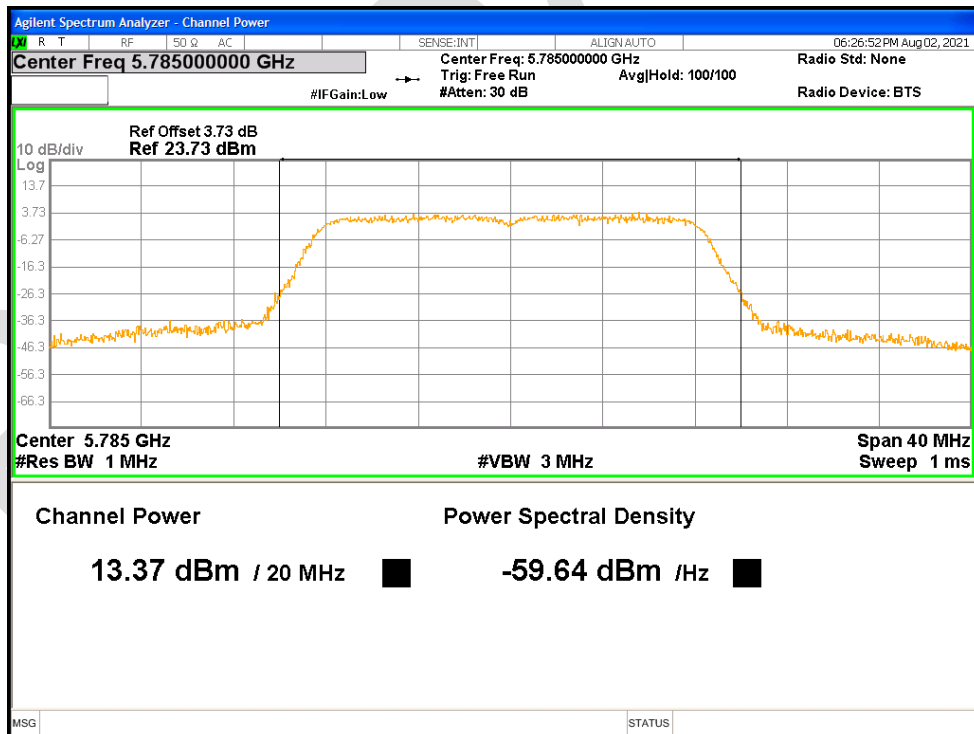
Power NVNT a 5745MHz Ant1



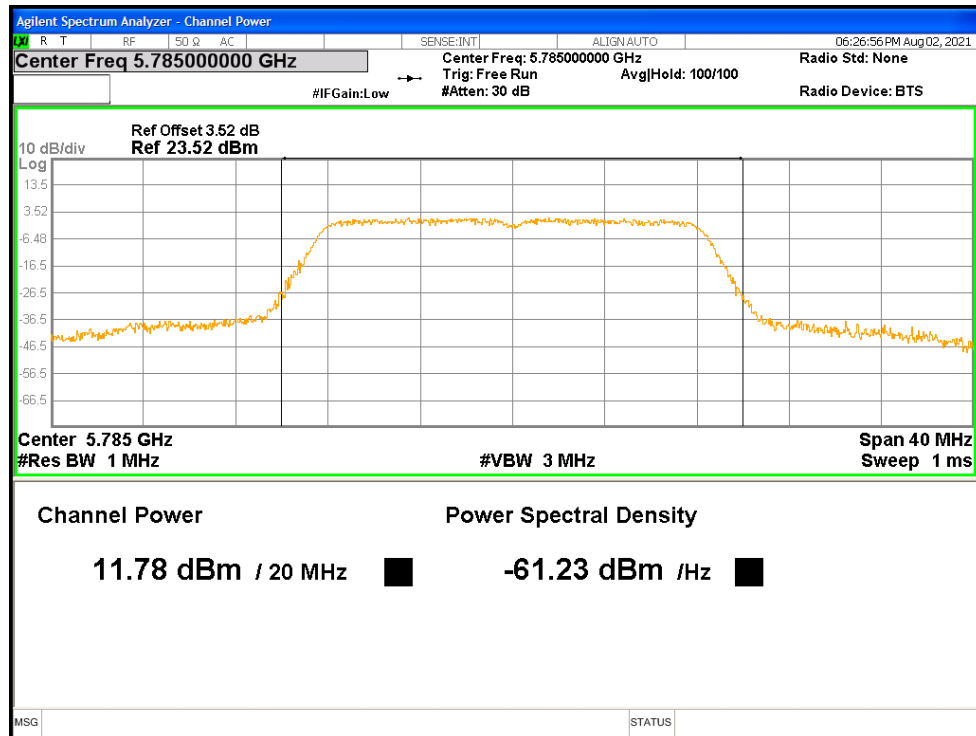
Power NVNT a 5745MHz Ant2



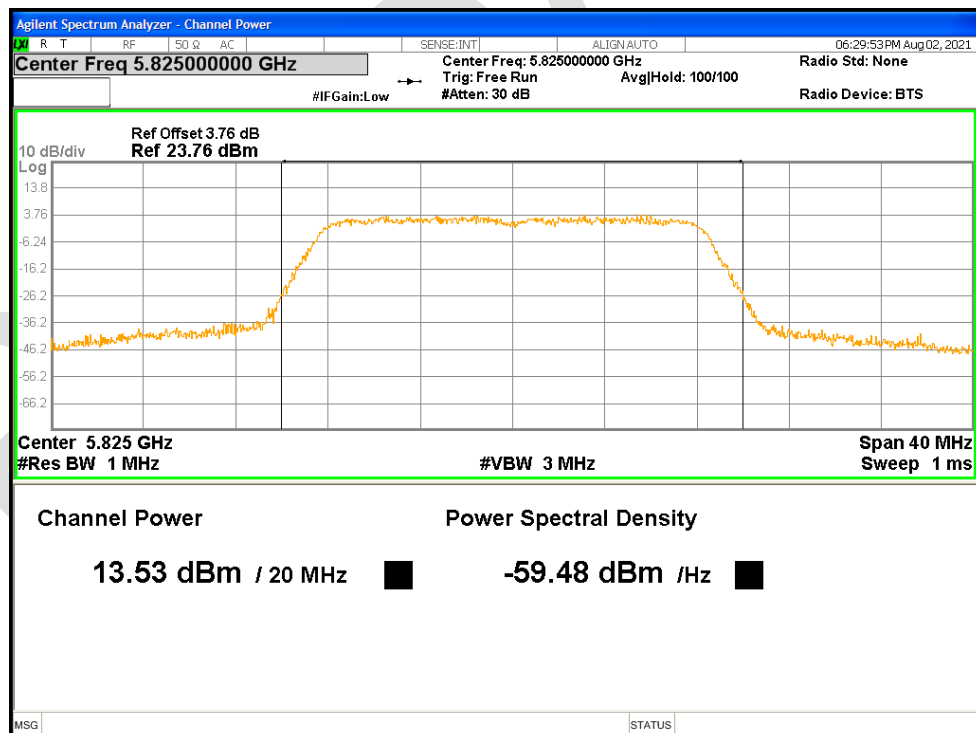
Power NVNT a 5785MHz Ant1



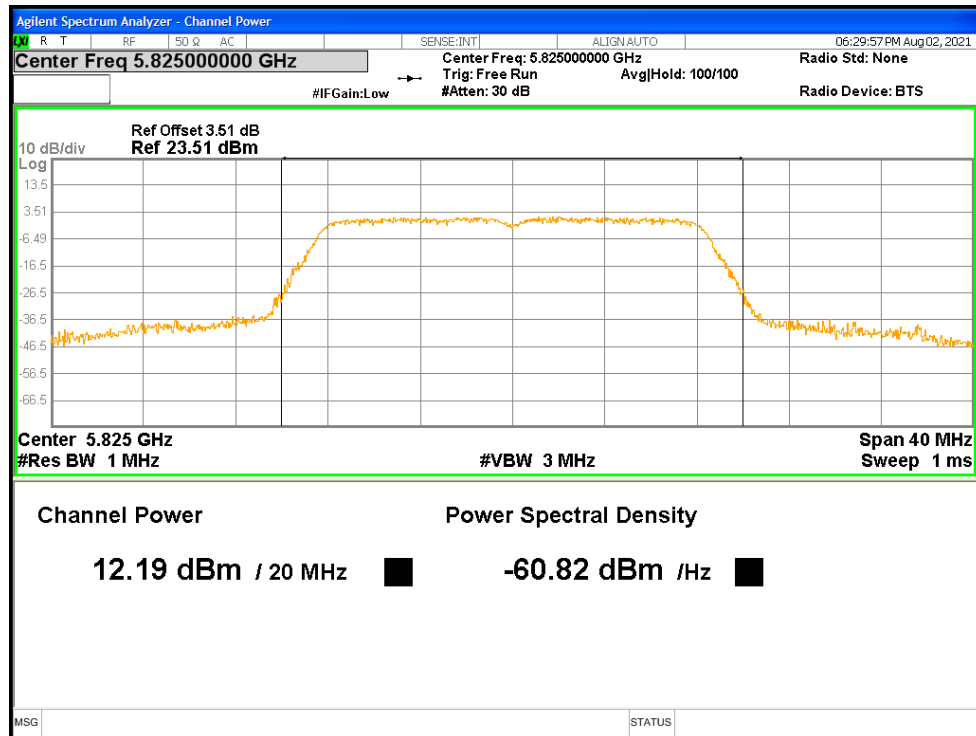
Power NVNT a 5785MHz Ant2



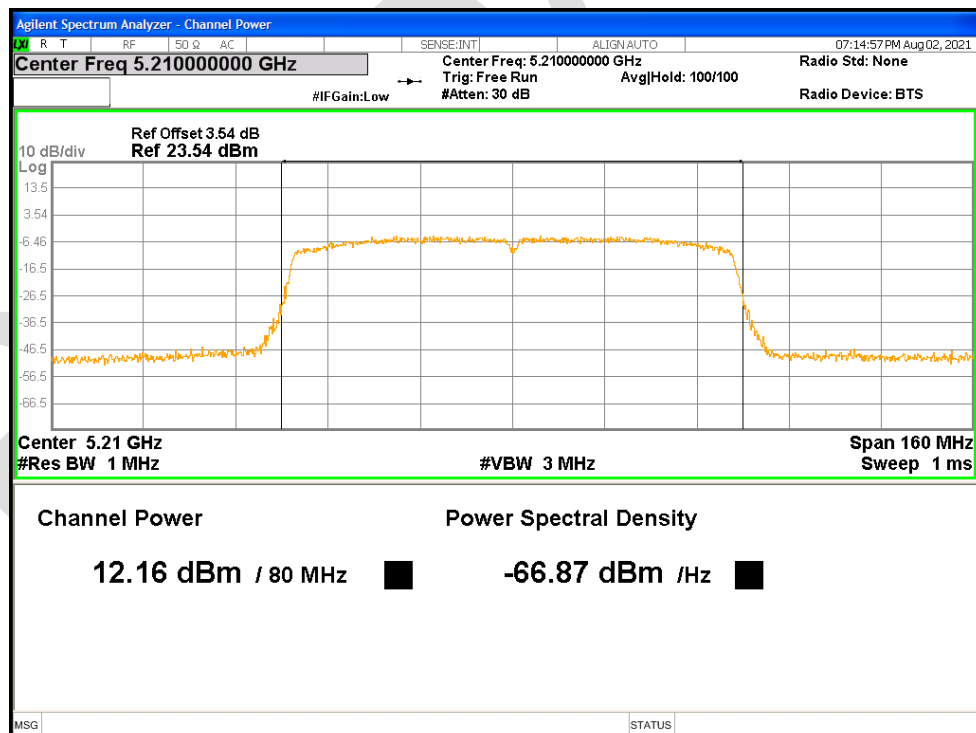
Power NVNT a 5825MHz Ant1



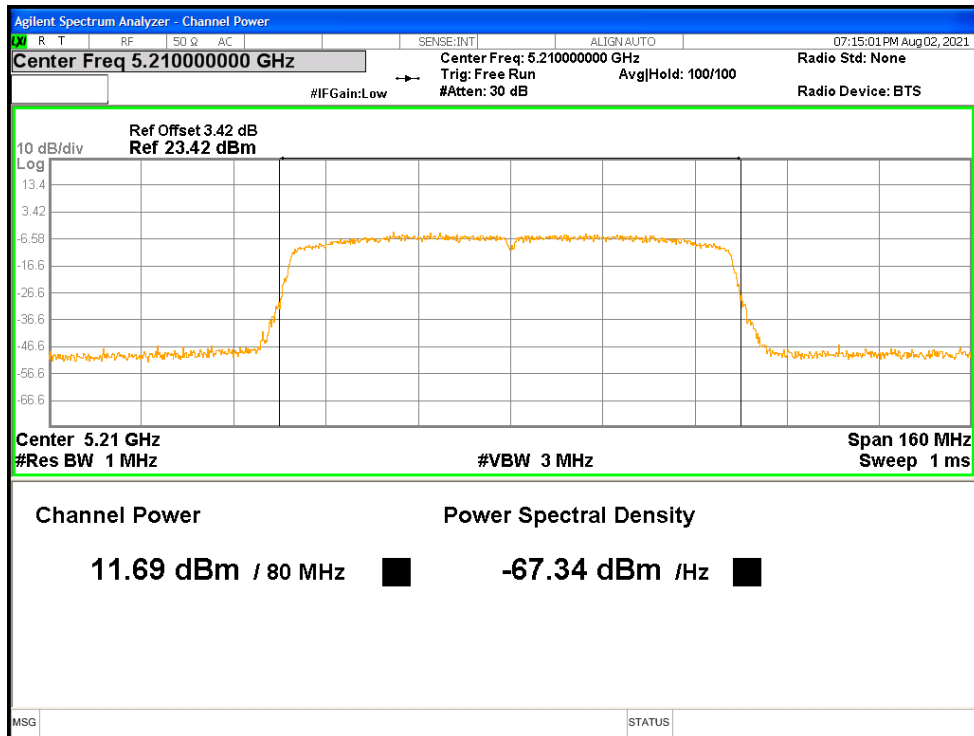
Power NVNT a 5825MHz Ant2



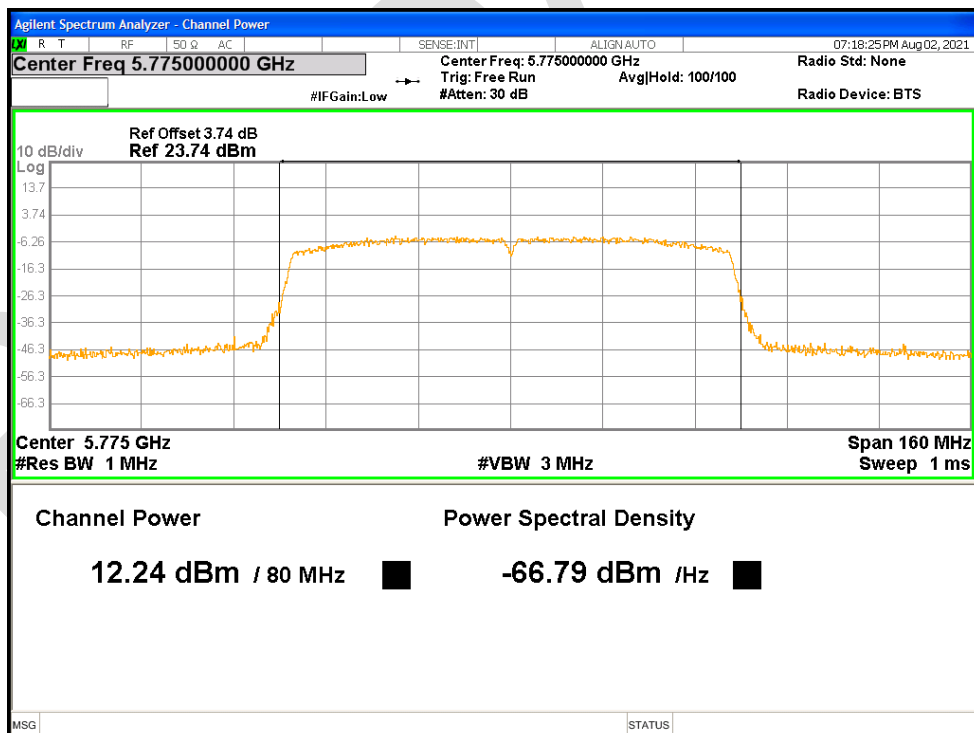
Power NVNT ac80 5210MHz Ant1



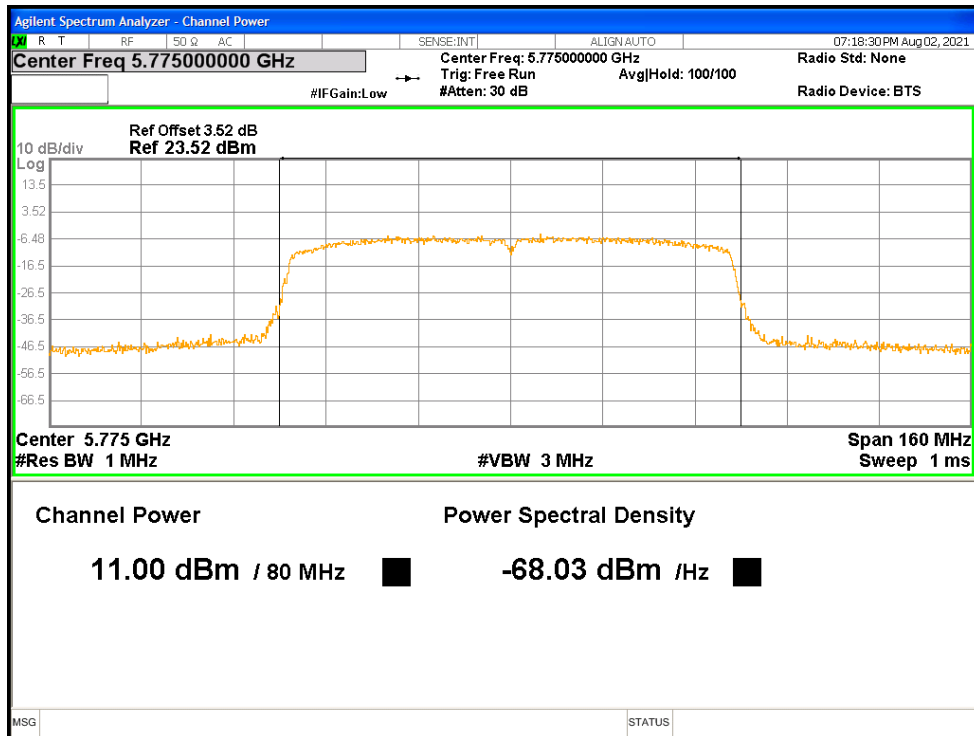
Power NVNT ac80 5210MHz Ant2



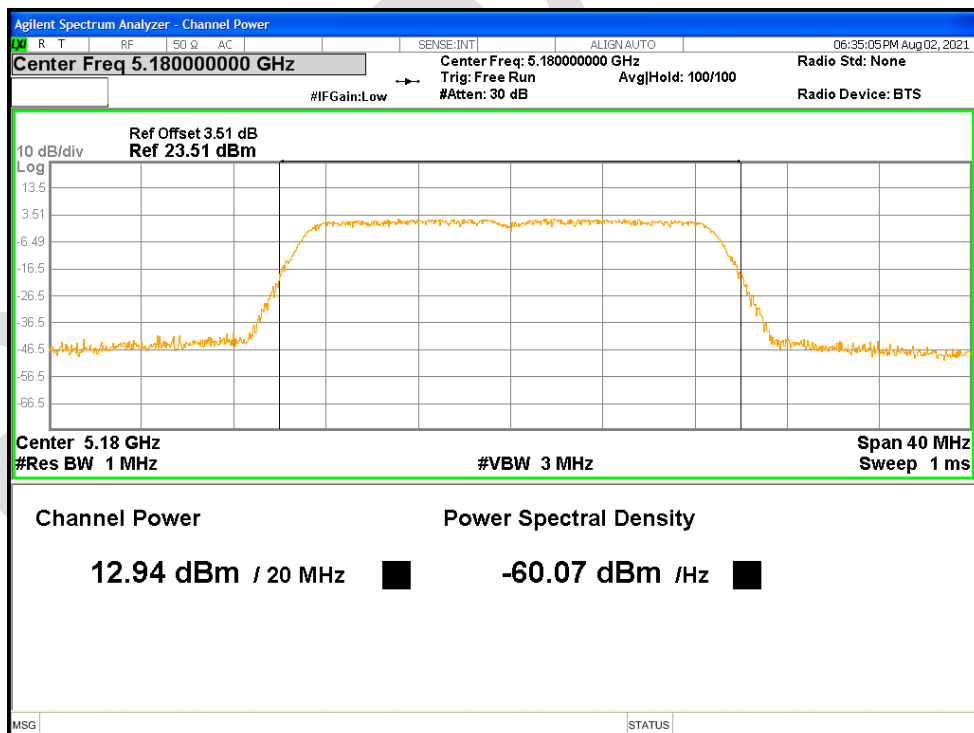
Power NVNT ac80 5775MHz Ant1



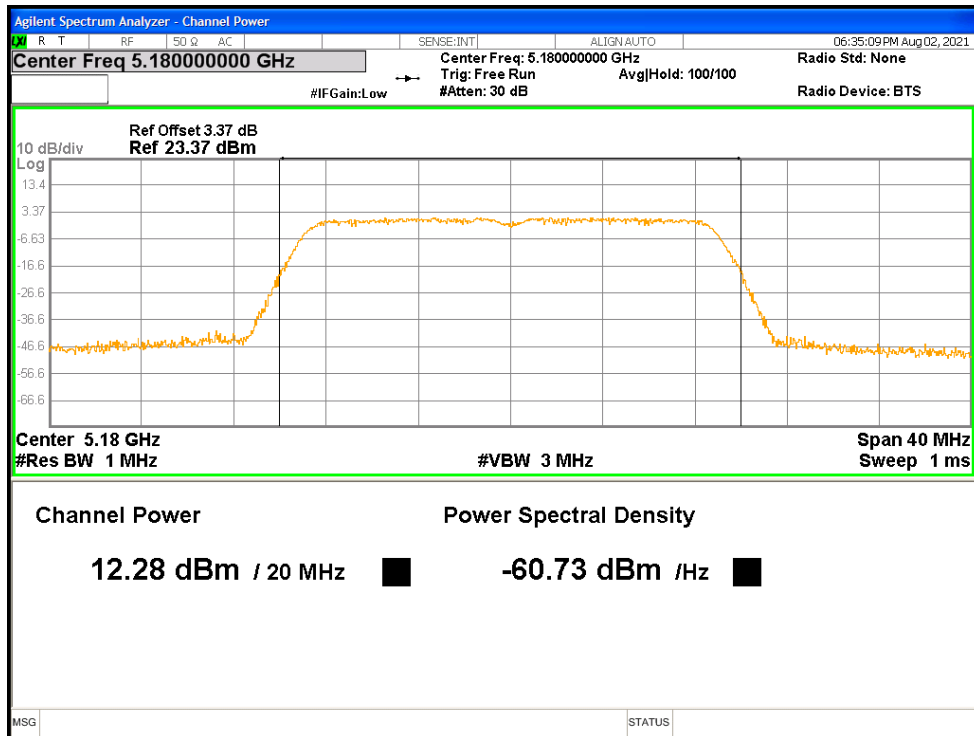
Power NVNT ac80 5775MHz Ant2



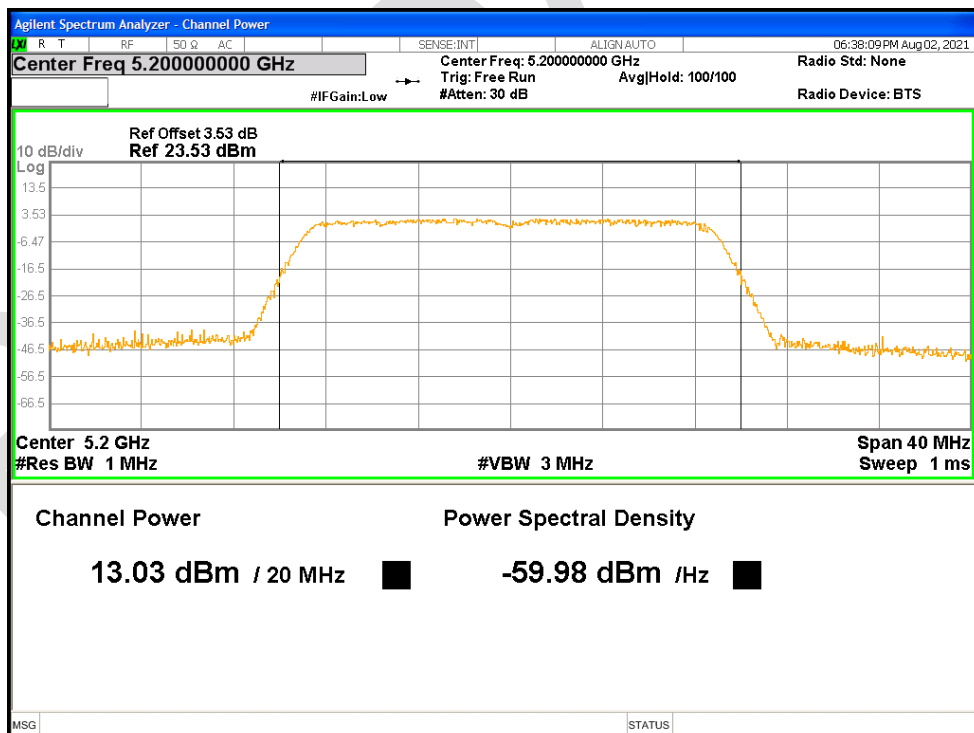
Power NVNT n20 5180MHz Ant1



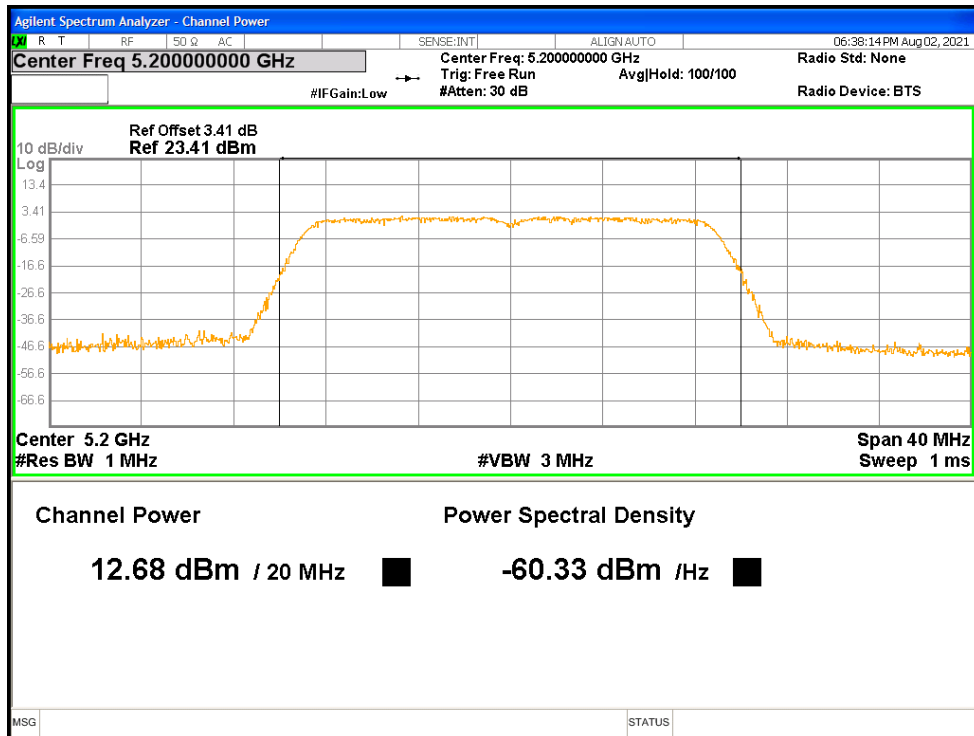
Power NVNT n20 5180MHz Ant2



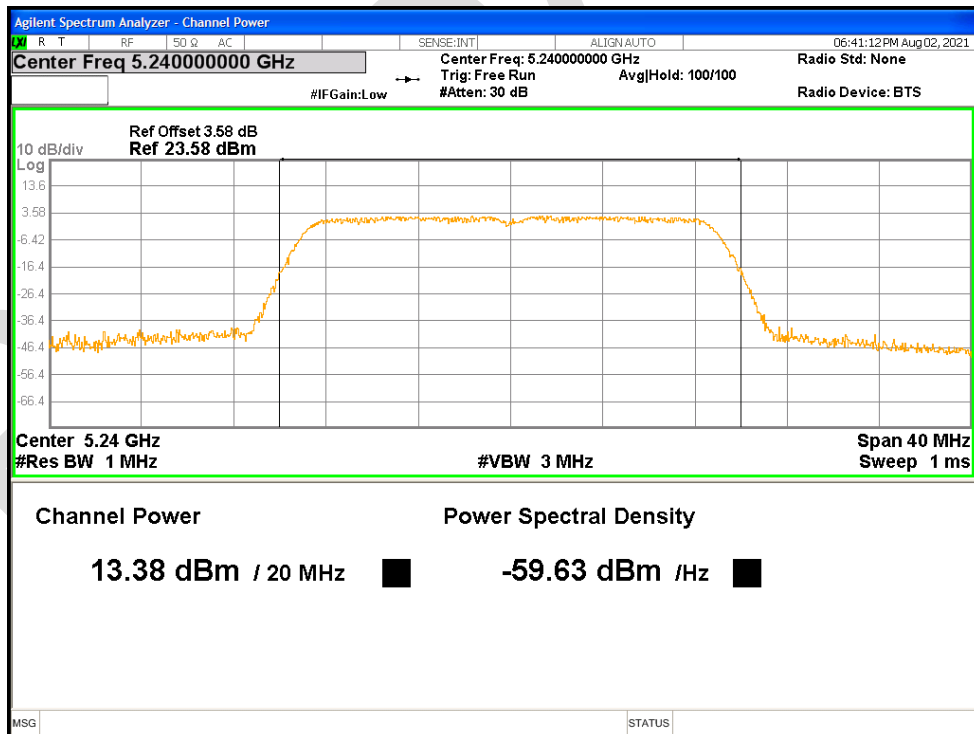
Power NVNT n20 5200MHz Ant1



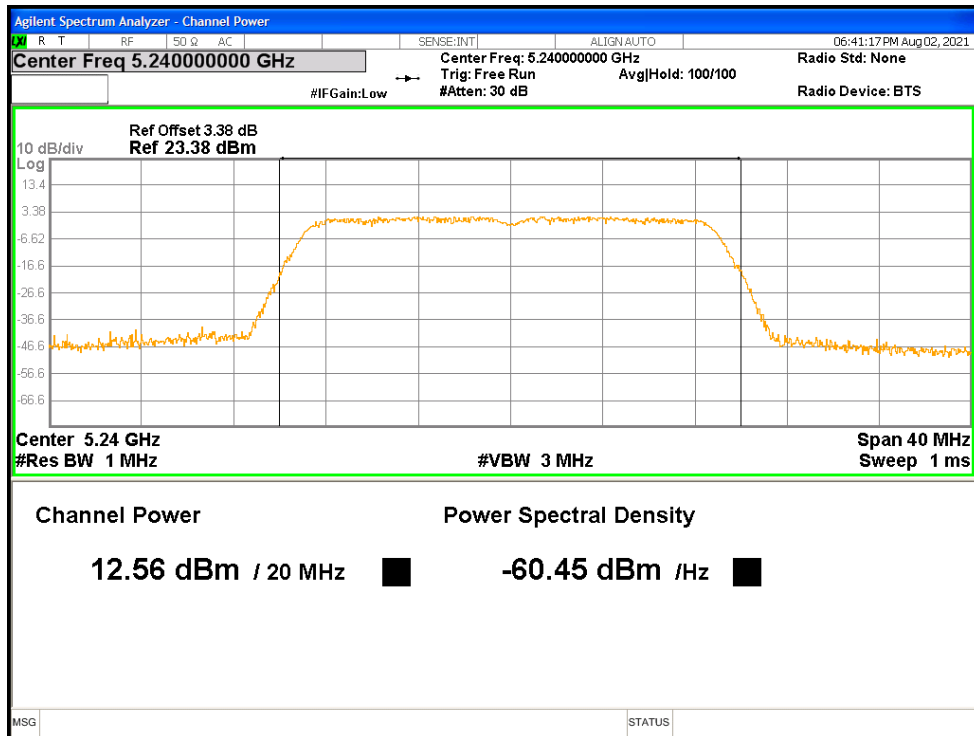
Power NVNT n20 5200MHz Ant2



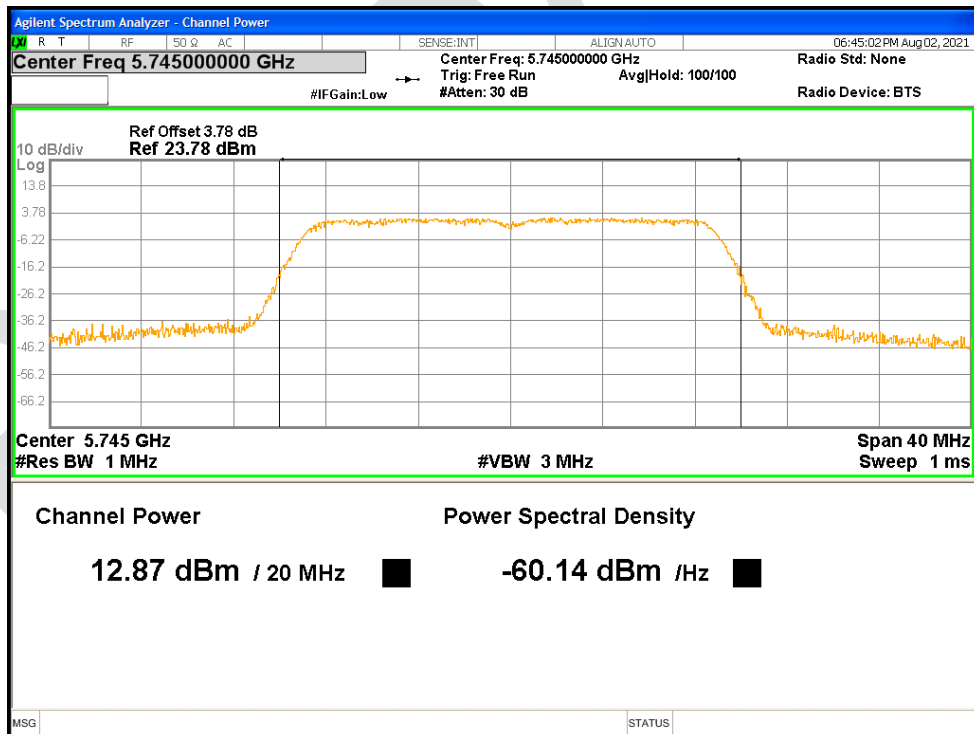
Power NVNT n20 5240MHz Ant1



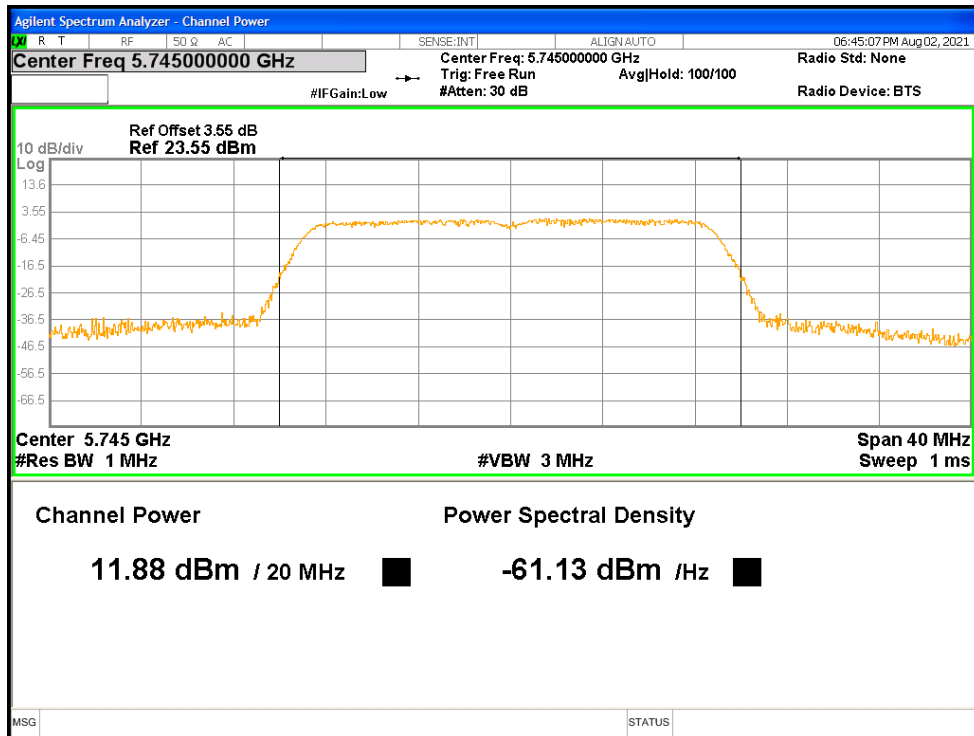
Power NVNT n20 5240MHz Ant2



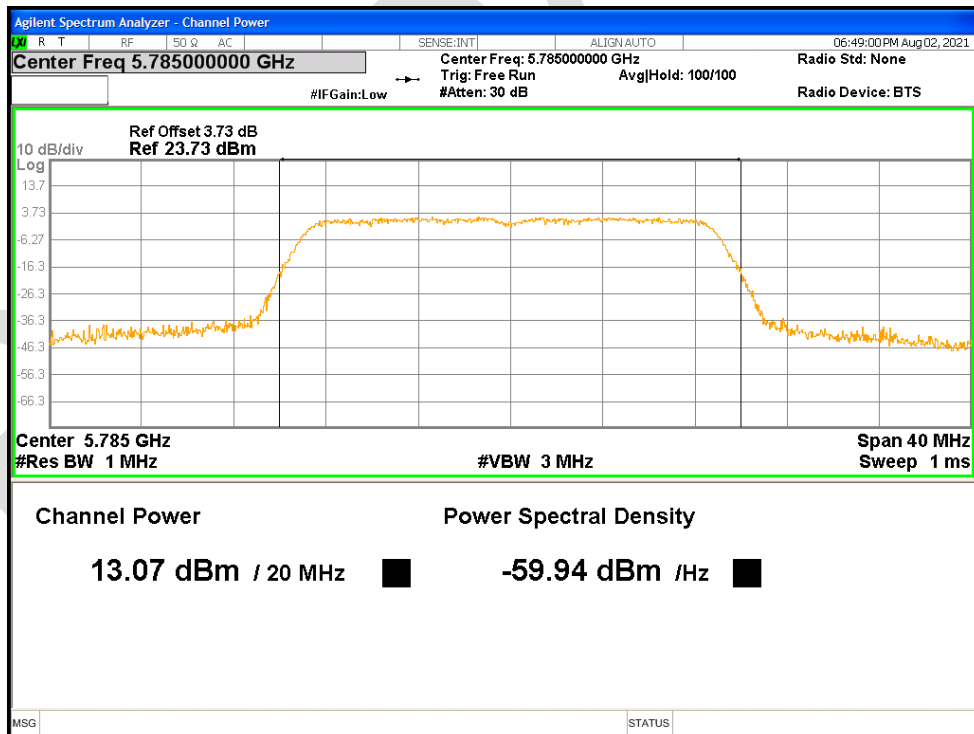
Power NVNT n20 5745MHz Ant1



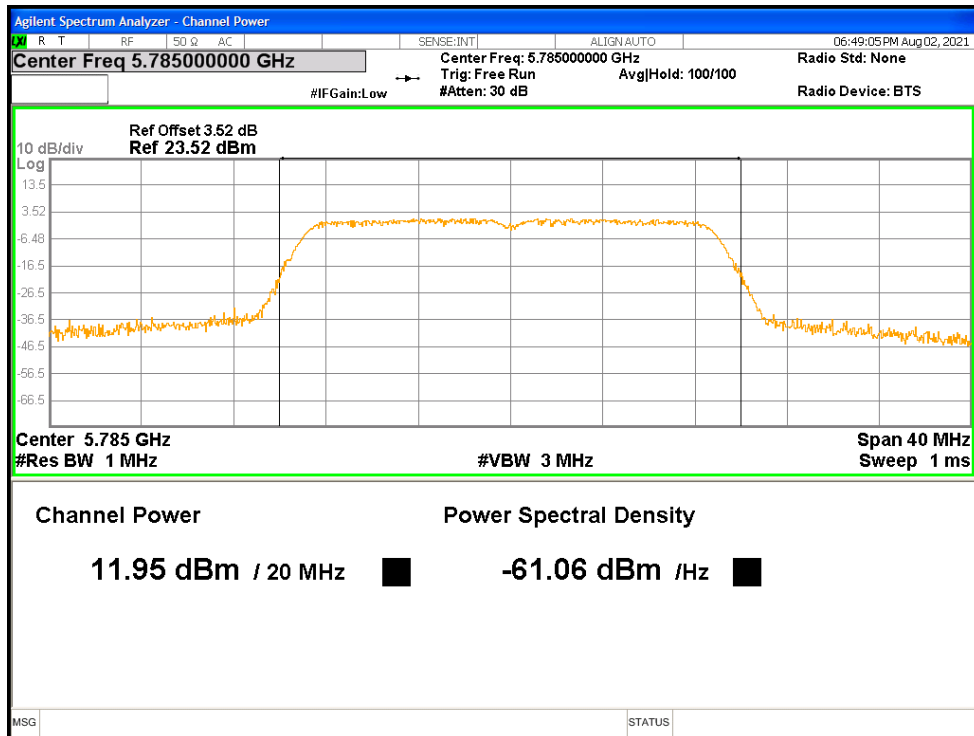
Power NVNT n20 5745MHz Ant2



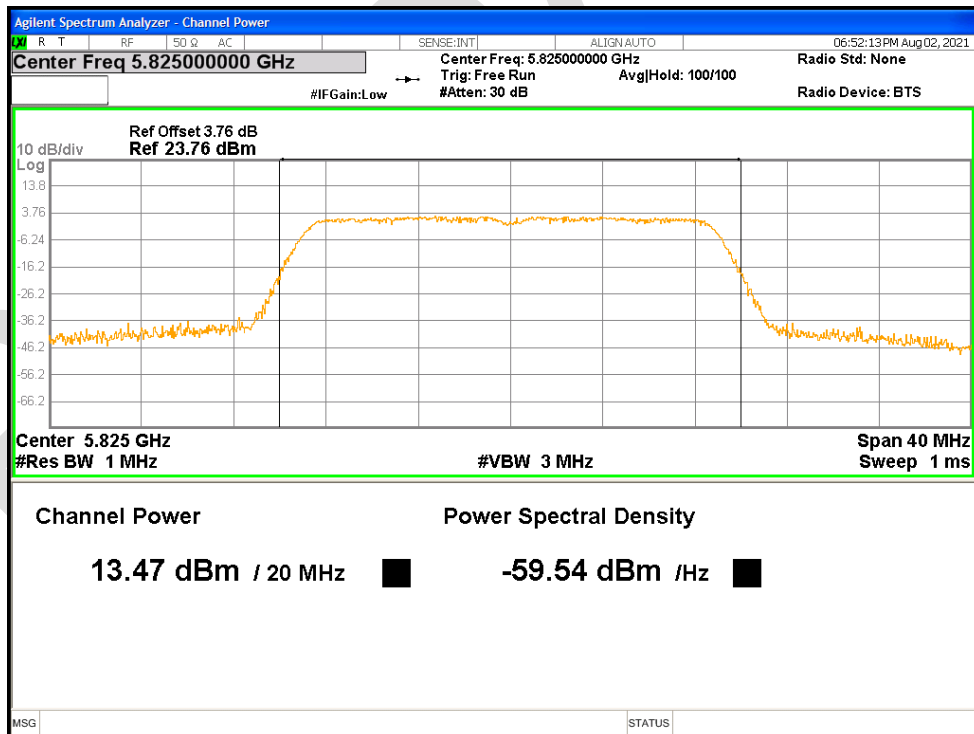
Power NVNT n20 5785MHz Ant1



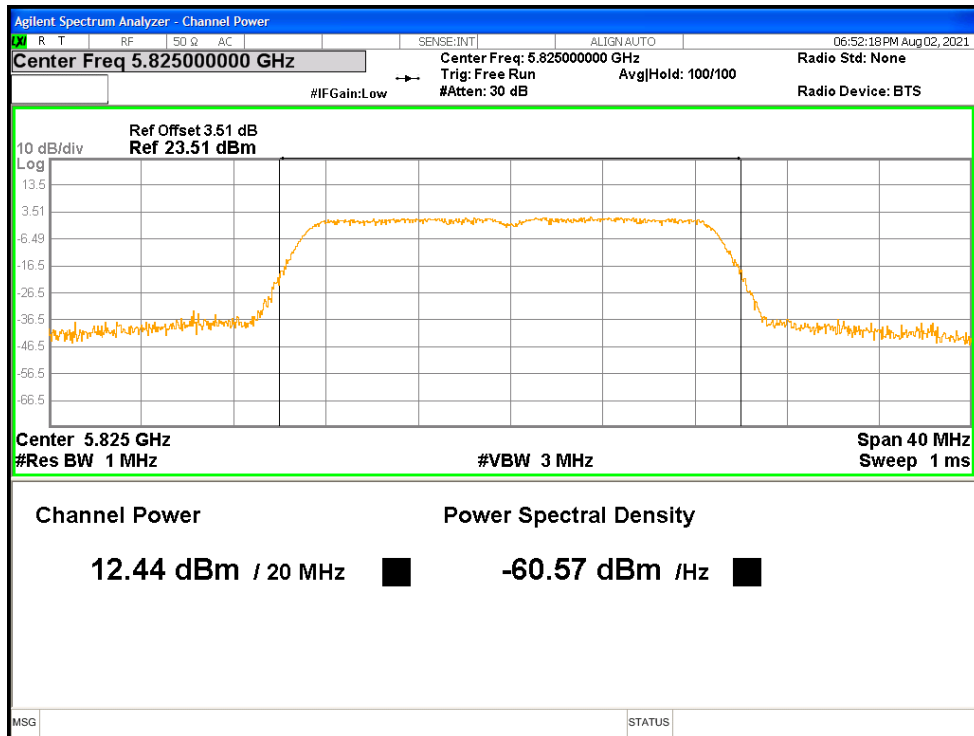
Power NVNT n20 5785MHz Ant2



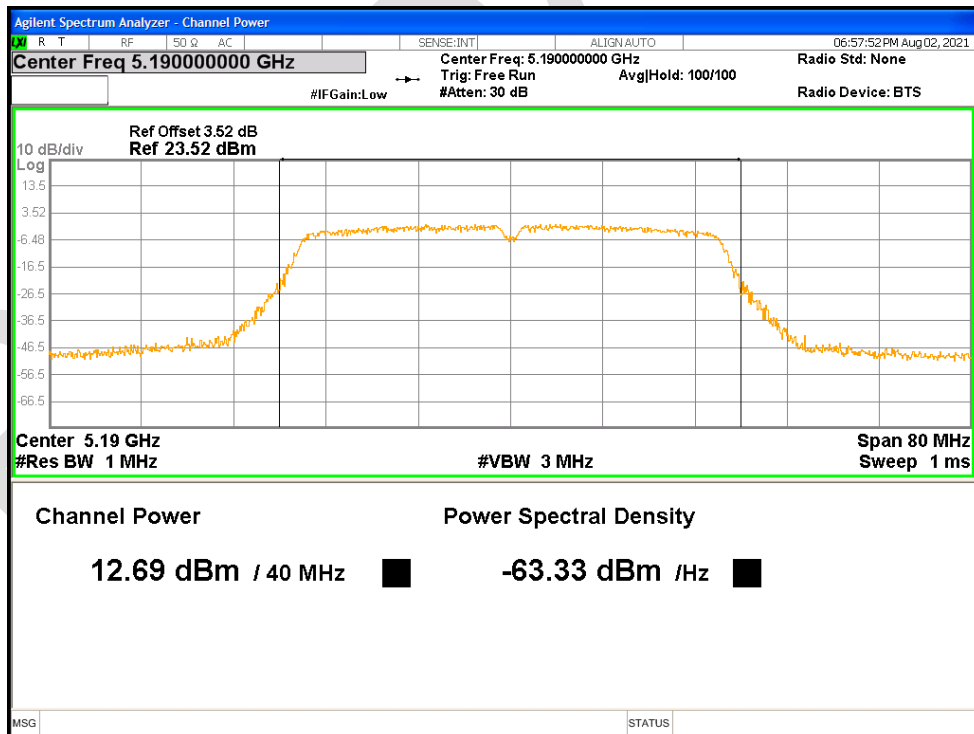
Power NVNT n20 5825MHz Ant1



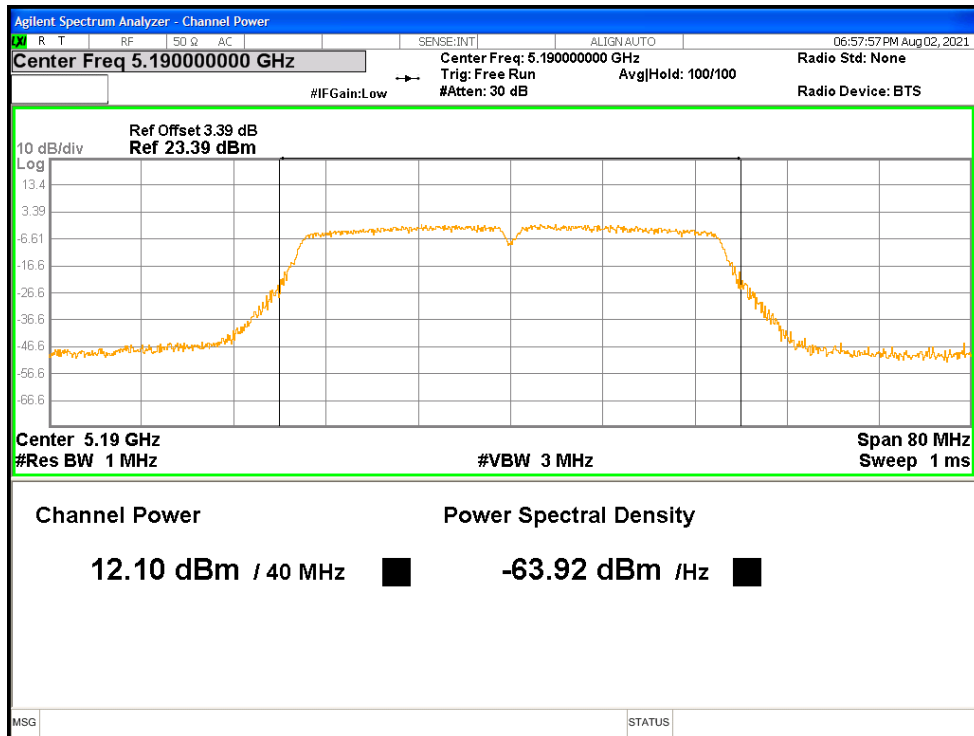
Power NVNT n20 5825MHz Ant2



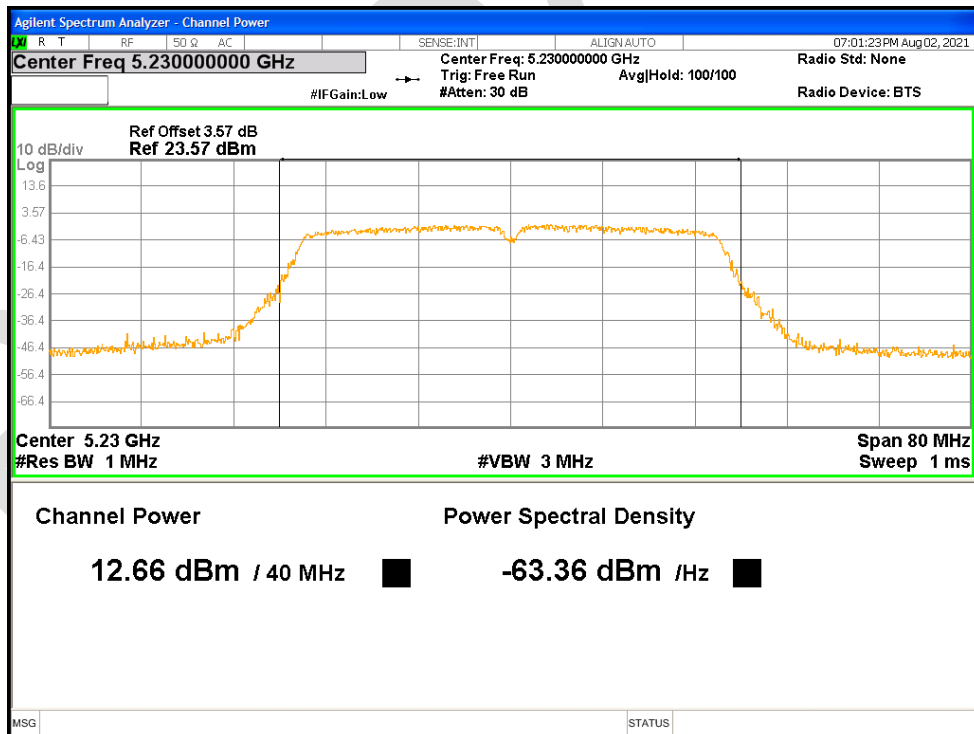
Power NVNT n40 5190MHz Ant1



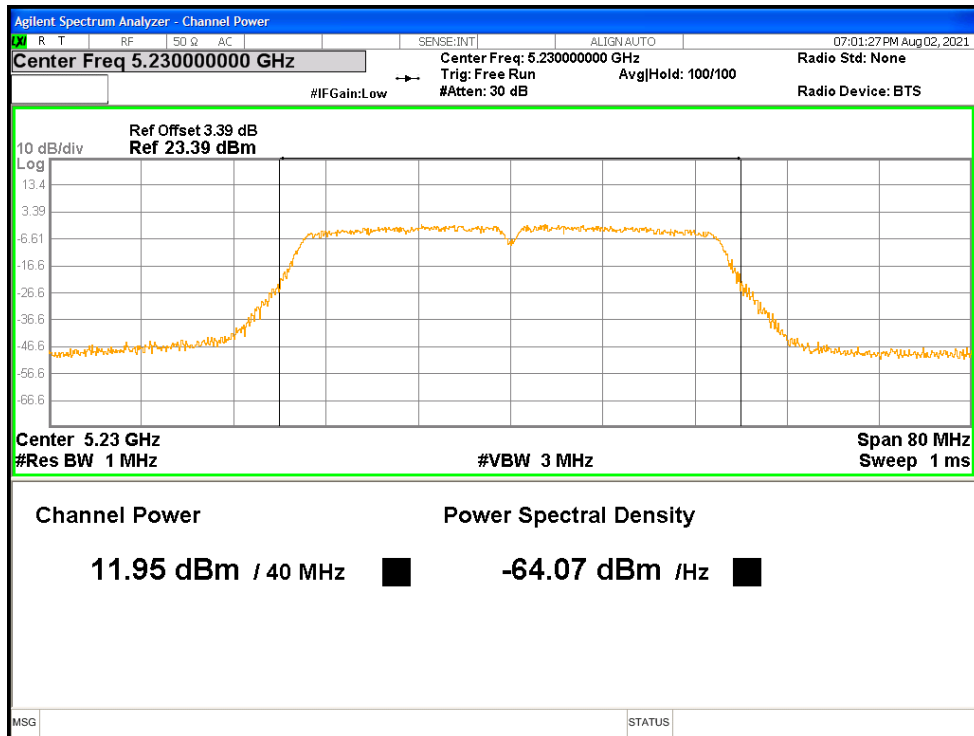
Power NVNT n40 5190MHz Ant2



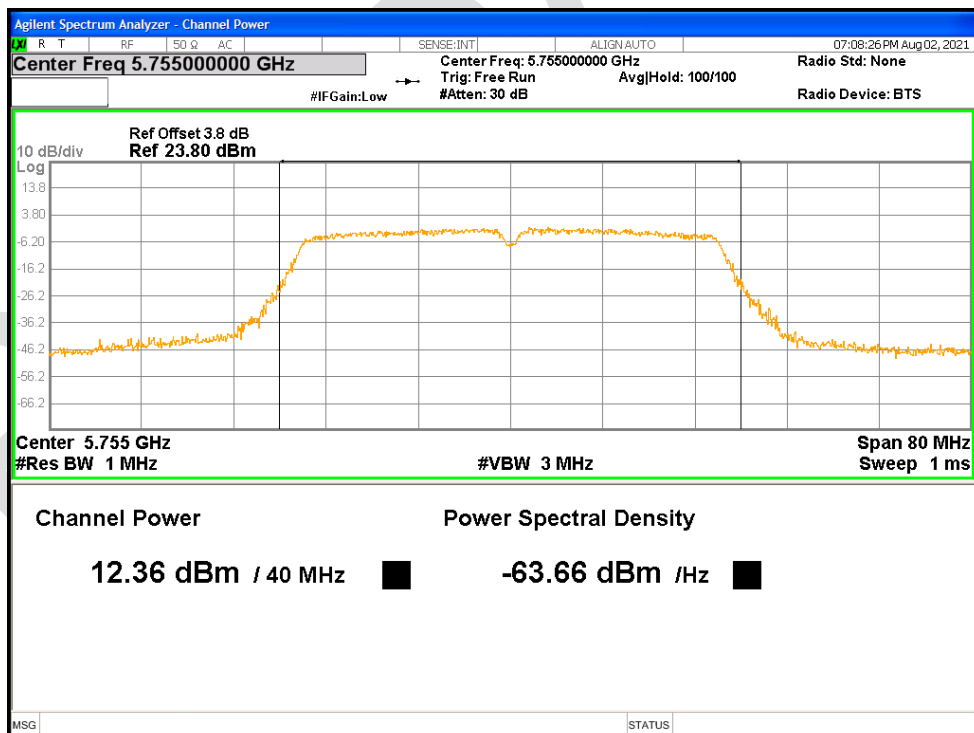
Power NVNT n40 5230MHz Ant1



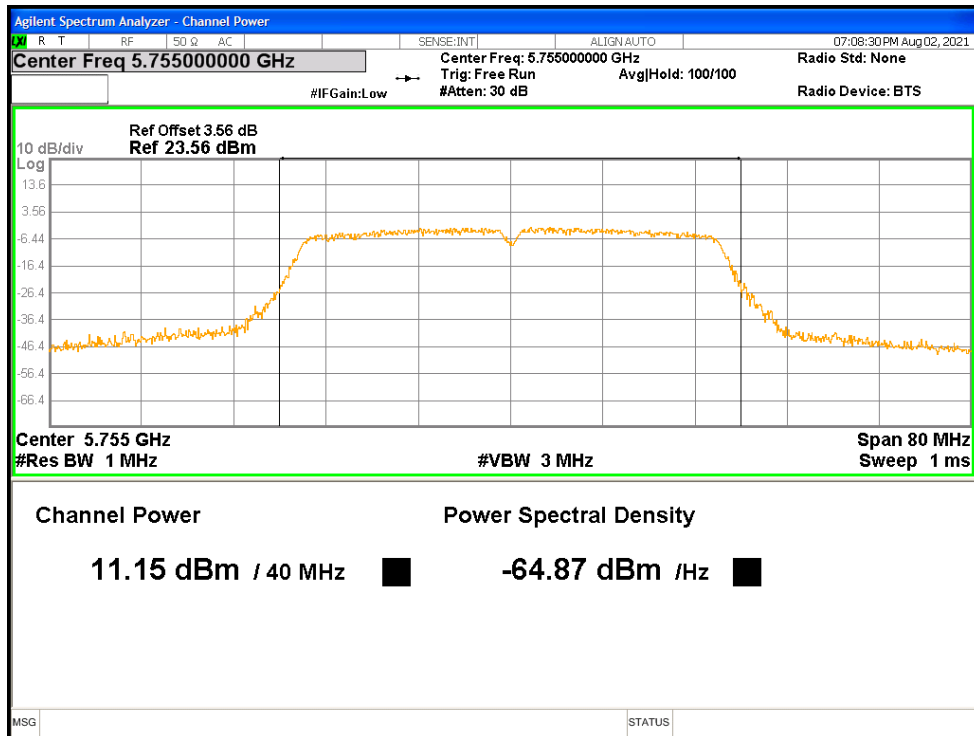
Power NVNT n40 5230MHz Ant2



Power NVNT n40 5755MHz Ant1



Power NVNT n40 5755MHz Ant2



Power NVNT n40 5795MHz Ant1

