

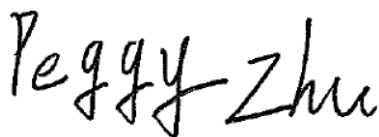
FCC Radio Test Report

FCC ID: 2AXJ4A54

This report concerns: Original Grant

Project No. : 2008C144
Equipment : AC1200 Dual Band Wi-Fi Router
Brand Name : tp-link
Test Model : Archer A54
Series Model : N/A
Applicant : TP-Link Corporation Limited
Address : Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong
Manufacturer : TP-Link Corporation Limited
Address : Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong
Date of Receipt : Aug. 24, 2020
Date of Test : Oct. 10, 2020 ~ Nov. 19, 2020
Issued Date : Dec. 17, 2020
Report Version : R01
Test Sample : Engineering Sample No.: DG2020082754 for conducted, DG2020082427 for radiated.
Standard(s) : FCC Part15, Subpart E(15.407)
ANSI C63.10-2013
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.



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The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 03, 2020
R01	Added the test setup photos for RF conducted test.	Dec. 17, 2020

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart E(15.407)				
Standard(s) Section	Test Item	Test Result	Judgement	Remark
15.207 15.407(b)	AC Power Line Conducted Emissions	APPENDIX A	PASS	-----
15.407(b) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	-----
15.407(a) 15.407(e)	Spectrum Bandwidth	APPENDIX E	PASS	-----
15.407(a)	Maximum Output Power	APPENDIX F	PASS	-----
15.407(a)	Power Spectral Density	APPENDIX G	PASS	-----
15.407(g)	Frequency Stability	APPENDIX H	PASS	-----
15.203	Antenna Requirements	-----	PASS	NOTE (3)
15.407(c)	Automatically Discontinue Transmission	-----	PASS	NOTE (3)

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.
- (3) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
- (4) For UNII-1 this device was functioned as a
☒ Access point device ☐ Client device

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's Test Firm Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.68

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9kHz ~ 30MHz	V	3.79
		9kHz ~ 30MHz	H	3.57
		30MHz ~ 200MHz	V	4.26
		30MHz ~ 200MHz	H	3.38
		200MHz ~ 1,000MHz	V	3.98
		200MHz ~ 1,000MHz	H	3.94
		1GHz ~ 6GHz	-	3.96
		6GHz ~ 18GHz	-	5.24
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

C. Other Measurement:

Test Item	Uncertainty
Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Conducted Spurious Emission	±2.71 dB
Power Spectral Density	±0.86 dB
Temperature	±0.08 °C
Time	±0.58 %
Supply voltages	±0.3 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25°C	53%	AC 120V/60Hz	Grani Zhou
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Grani Zhou
Radiated Emissions-30 MHz to 1GHz	26°C	52%	AC 120V/60Hz	Grani Zhou
Radiated Emissions-Above 1000 MHz	24°C	60%	AC 120V/60Hz	Grani Zhou
Spectrum Bandwidth	21°C	45%	AC 120V/60Hz	Hayden Chen
Maximum Output Power	21°C	45%	AC 120V/60Hz	Laughing Zhang
Power Spectral Density	21°C	45%	AC 120V/60Hz	Hayden Chen
Frequency Stability	Normal & Extreme	45%	Normal & Extreme	Hayden Chen

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	AC1200 Dual Band Wi-Fi Router
Brand Name	tp-link
Test Model	Archer A54
Series Model	N/A
Model Difference(s)	N/A
Power Source	DC voltage supplied from AC adapter. Model: T090085-2B1
Power Rating	I/P: 100-240V~ 50/60Hz 0.3A O/P: 9.0V === 0.85A
Operation Frequency	UNII-1: 5150 MHz ~ 5250 MHz UNII-3: 5725 MHz~5850 MHz
Modulation Type	OFDM
Bit Rate of Transmitter	IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n: up to 400 Mbps IEEE 802.11ac: up to 866.7 Mbps
Maximum Output Power for UNII-1 Non-Beamforming	IEEE 802.11a: 22.66 dBm (0.1845 W) IEEE 802.11ac (VHT20): 22.61 dBm (0.1824 W) IEEE 802.11ac (VHT40): 23.69 dBm (0.2339 W) IEEE 802.11ac (VHT80): 19.78 dBm (0.0951 W)
Maximum Output Power for UNII-3 Non-Beamforming	IEEE 802.11a: 21.71 dBm (0.1483 W) IEEE 802.11ac (VHT20): 21.46 dBm (0.1400 W) IEEE 802.11ac (VHT40): 22.94 dBm (0.1968 W) IEEE 802.11ac (VHT80): 24.69 dBm (0.2944 W)
Maximum Output Power for UNII-1 Beamforming	IEEE 802.11ac (VHT20): 22.32 dBm (0.1706 W) IEEE 802.11ac (VHT40): 23.40 dBm (0.2188 W) IEEE 802.11ac (VHT80): 19.49 dBm (0.0889 W)
Maximum Output Power for UNII-3 Beamforming	IEEE 802.11ac (VHT20): 21.12 dBm (0.1294 W) IEEE 802.11ac (VHT40): 22.68 dBm (0.1854 W) IEEE 802.11ac (VHT80): 24.41 dBm (0.2761 W)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

IEEE 802.11a IEEE 802.11n (HT20) IEEE 802.11ac (VHT20)		IEEE 802.11n (HT40) IEEE 802.11ac (VHT40)		IEEE 802.11ac (VHT80)	
UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

IEEE 802.11a IEEE 802.11n (HT20) IEEE 802.11ac (VHT20)		IEEE 802.11n (HT40) IEEE 802.11ac (VHT40)		IEEE 802.11ac (VHT80)	
UNII-3		UNII-3		UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

3. Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		3101502502	Internal	Weld	1
2		3101503221	Internal	Weld	1

Note:

- This EUT supports CDD, and all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$.
For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=1.00.
For power spectral density measurements, $N_{ANT} = 2$, $N_{SS} = 1$.
So Directional gain = $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})$ dB = $1.00 + 10\log(2/1)$ dB = 4.01
- Beamforming Gain: 3.00 dB, the Directional gain=3.00+1.00=4.00.

4. Table for Antenna Configuration:

For Non Beamforming:

Operating Mode	TX Mode	2TX
IEEE 802.11a		V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT20)		V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)		V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT20)		V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)		V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)		V (Ant. 1 + Ant. 2)

For Beamforming:

Operating Mode	TX Mode	2TX
IEEE 802.11n (HT20)		V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)		V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT20)		V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)		V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)		V (Ant. 1 + Ant. 2)

2.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC (VHT80) Mode / CH42 (UNII-1)
Mode 5	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 6	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 7	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)
Mode 8	TX AC (VHT80) Mode / CH155 (UNII-3)
Mode 9	TX AC(VHT80) Mode / CH155 (UNII-3)

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode	Description
Mode 9	TX AC(VHT80) Mode / CH155 (UNII-3)

Radiated emissions test-Below 1GHz	
Final Test Mode	Description
Mode 9	TX AC(VHT80) Mode / CH155 (UNII-3)

Radiated emissions test	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC (VHT80) Mode / CH42 (UNII-1)
Mode 5	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 6	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 7	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)
Mode 8	TX AC (VHT80) Mode / CH155 (UNII-3)

Maximum Output Power test_Non Beamforming	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC (VHT80) Mode / CH42 (UNII-1)
Mode 5	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 6	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 7	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)
Mode 8	TX AC (VHT80) Mode / CH155 (UNII-3)

Maximum Output Power test_Beamforming	
Final Test Mode	Description
Mode 2	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC (VHT80) Mode / CH42 (UNII-1)
Mode 6	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 7	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)
Mode 8	TX AC (VHT80) Mode / CH155 (UNII-3)

Other Conducted test	
Final Test Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC (VHT80) Mode / CH42 (UNII-1)
Mode 5	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 6	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 7	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)
Mode 8	TX AC (VHT80) Mode / CH155 (UNII-3)

Note:

- (1) For radiated emission below 1 GHz test, the IEEE 802.11ac80 is found to be the worst case and recorded.
- (2) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (3) For radiated emission above 1 GHz test, 1GHz~26.5GHz and 26.5GHz~40GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (4) VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.
- (5) The measurements for RF Output Power were tested, the Non Beamforming and Beamforming are recorded in the report. The worst case was Non Beamforming and only worst case were documented for other test items.
- (6) Radiated emissions above 1GHz have tested the vertical and horizontal polarities, the worst case is horizontal, and only the worst case recorded in this report.

2.3 PARAMETERS OF TEST SOFTWARE

Test Software	N/A
---------------	-----

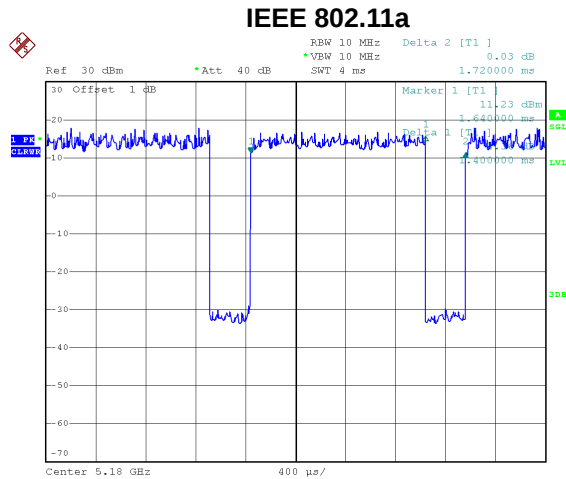
2.4 DUTY CYCLE

If duty cycle is $\geq 98\%$, duty factor is not required.

If duty cycle is $< 98\%$, duty factor shall be considered.

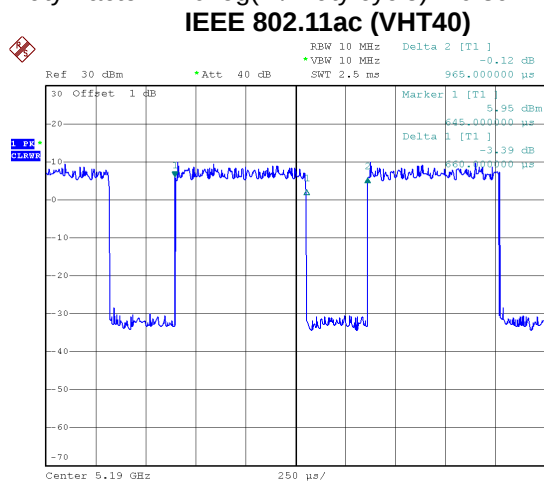
The output power = measured power + duty factor.

The power spectral density = measured power spectral density + duty factor.



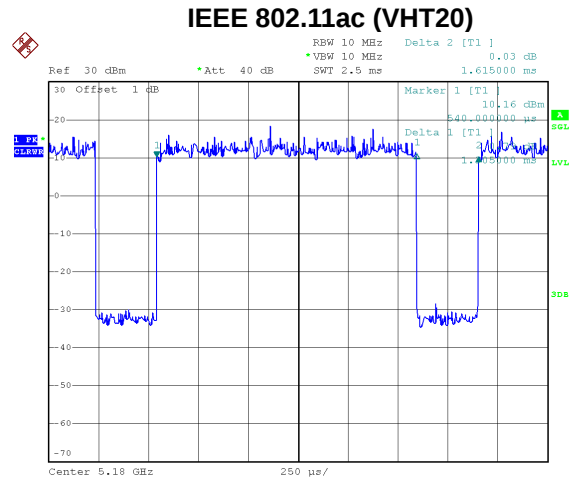
Date: 1.SEP.2020 18:02:19

Duty cycle = $1.400 \text{ ms} / 1.720 \text{ ms} = 81.40\%$
 Duty Factor = $10 \log(1 / \text{Duty cycle}) = 0.89$



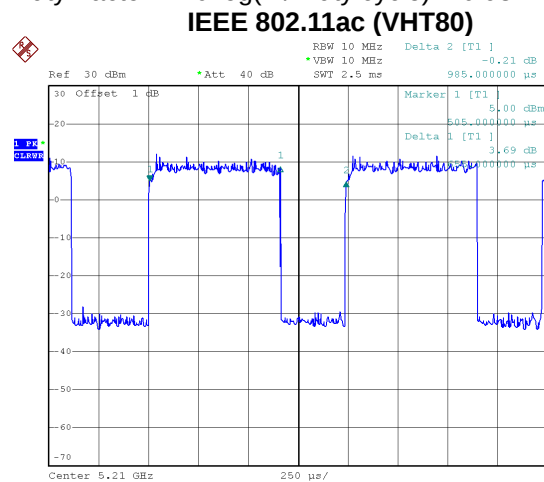
Date: 1.SEP.2020 18:09:10

Duty cycle = $0.660 \text{ ms} / 0.965 \text{ ms} = 68.39\%$
 Duty Factor = $10 \log(1 / \text{Duty cycle}) = 1.65$



Date: 1.SEP.2020 18:06:11

Duty cycle = $1.305 \text{ ms} / 1.615 \text{ ms} = 80.80\%$
 Duty Factor = $10 \log(1 / \text{Duty cycle}) = 0.93$



Date: 1.SEP.2020 18:10:05

Duty cycle = $0.655 \text{ ms} / 0.985 \text{ ms} = 66.50\%$
 Duty Factor = $10 \log(1 / \text{Duty cycle}) = 1.77$

NOTE:

For IEEE 802.11a and IEEE 802.11ac (VHT20):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle $< 98\%$).

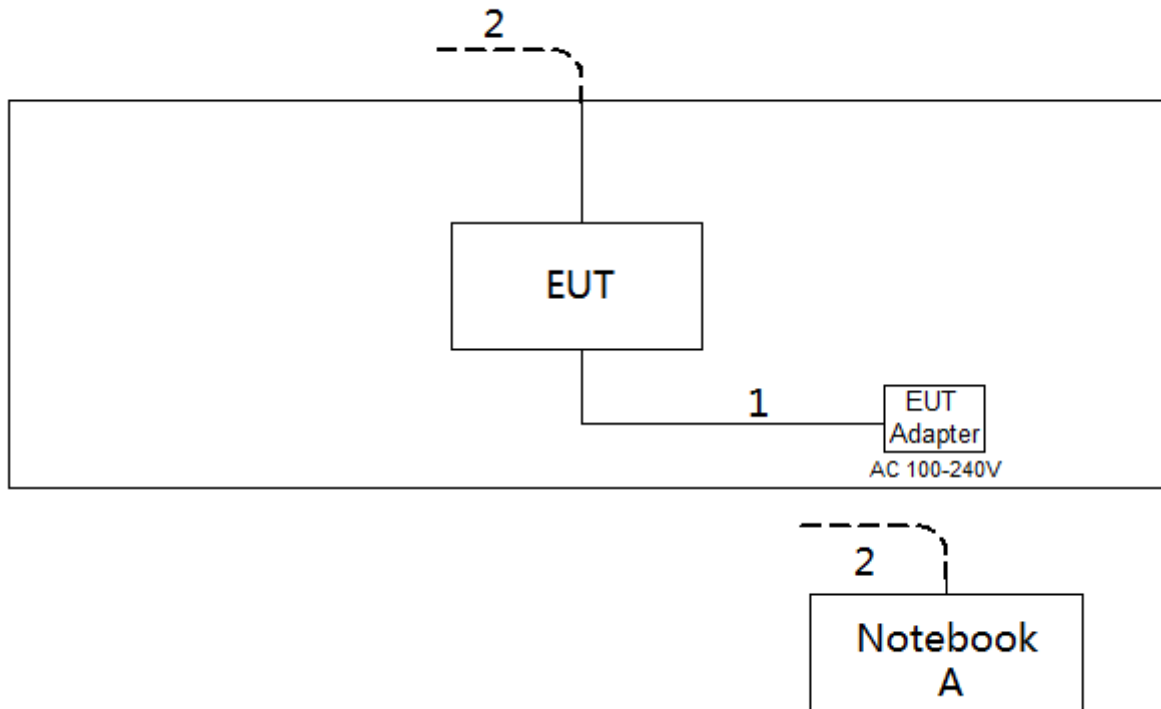
IEEE 802.11ac (VHT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle $< 98\%$).

For IEEE 802.11ac (VHT80):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 kHz (Duty cycle $< 98\%$).

2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	Dell	Inspiron 15-7559	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	RJ45 Cable	NO	NO	10m

3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56*	56 to 46*
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

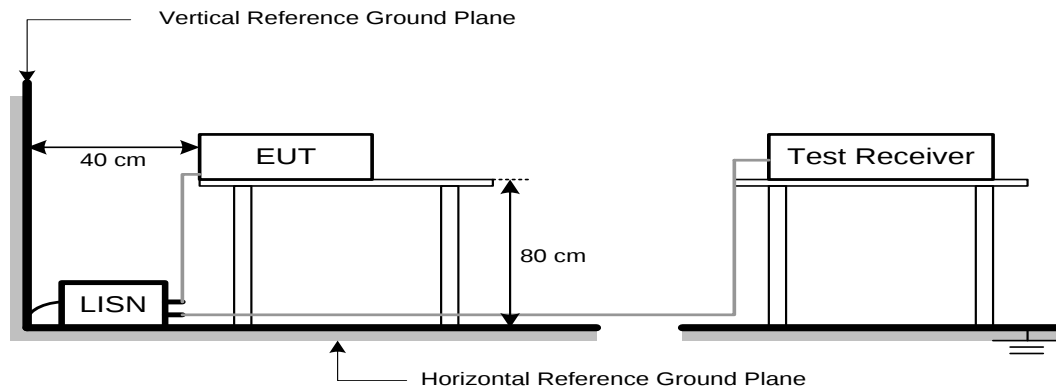
3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

The EUT was programmed to be in continuously transmitting/TX mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

4. RADIATED EMISSIONS TEST

4.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

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

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBμV/m)
5150-5250	-27	68.3
5725-5850	-27 NOTE (2)	68.3
	10 NOTE (2)	105.3
	15.6 NOTE (2)	110.9
	27 NOTE (2)	122.3

NOTE:

- (1) The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

- (2) According to 15.407(b)(4)(i), all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

4.2 TEST PROCEDURE

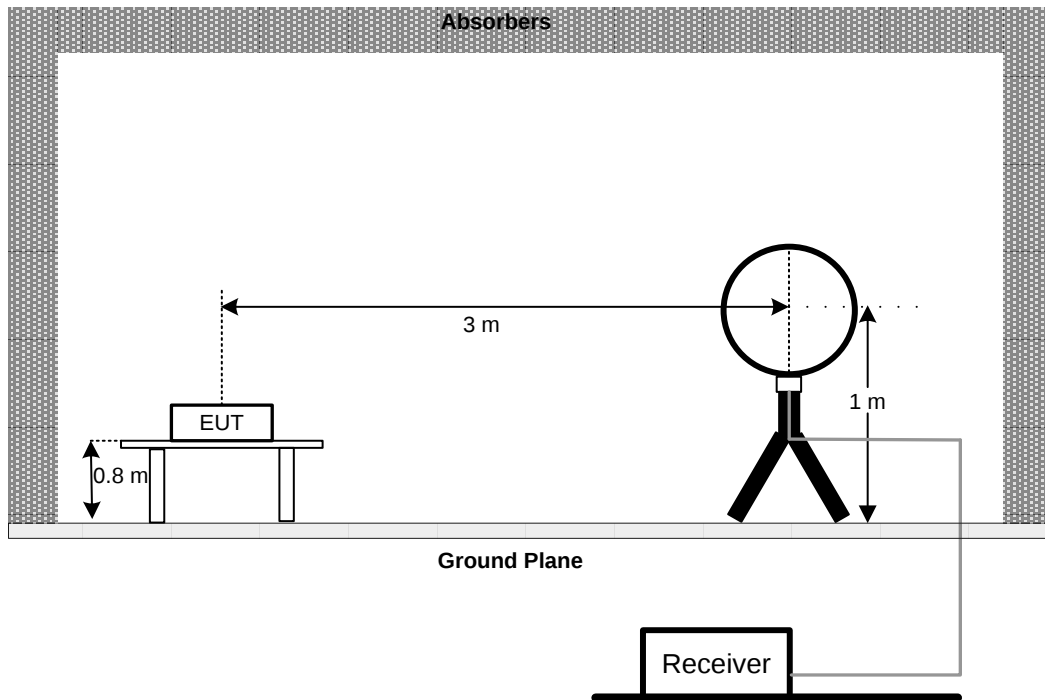
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(below 1 GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.3 DEVIATION FROM TEST STANDARD

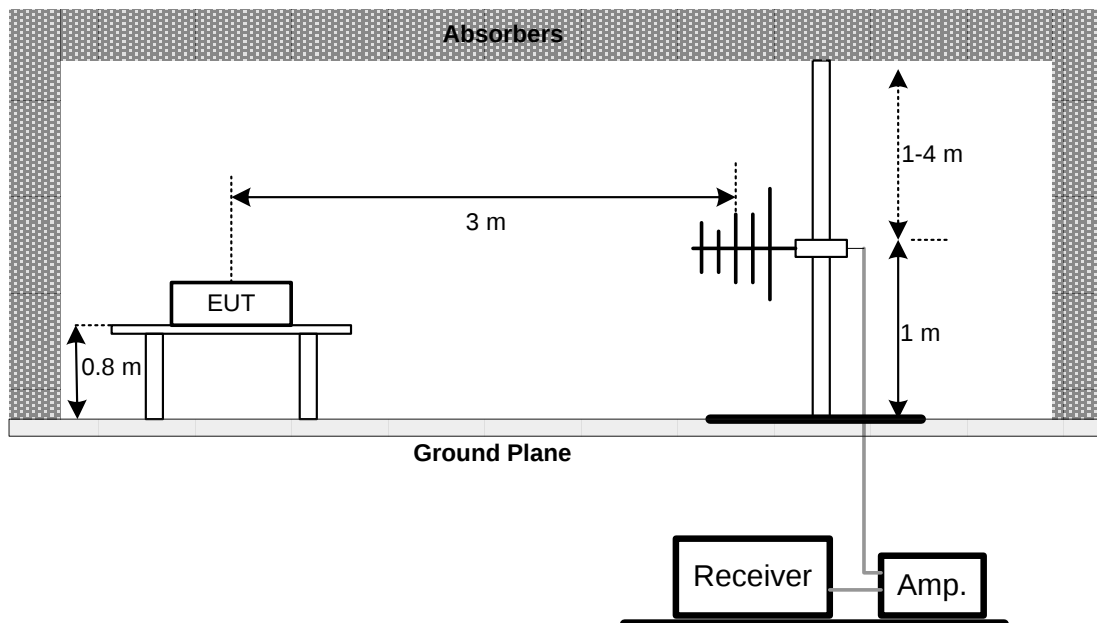
No deviation

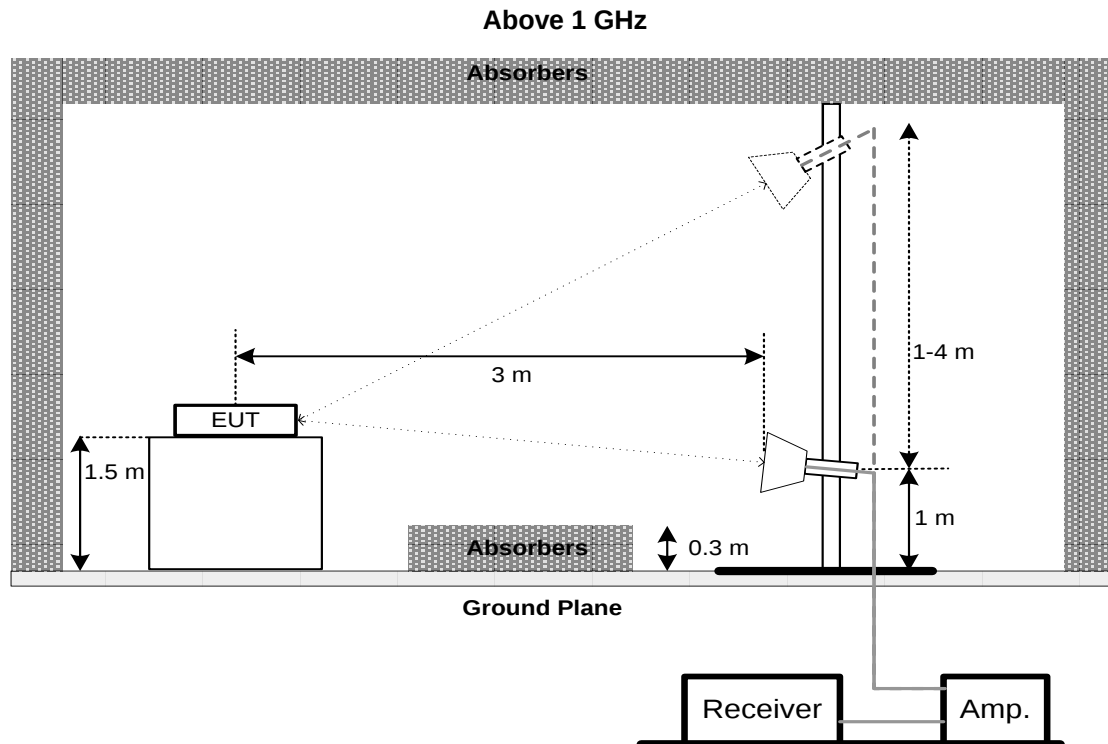
4.4 TEST SETUP

9 kHz to 30 MHz



30 MHz to 1 GHz





4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS - 9 KHZ to 30 MHZ

Please refer to the APPENDIX B

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB).
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

4.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5. BANDWIDTH TEST

5.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	26 dB Bandwidth	-	5150-5250
15.407(e)	6 dB Bandwidth	Minimum 500 kHz	5725-5850

5.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below

b. Spectrum Setting:

For UNII-1:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> 26 dB Bandwidth
RBW	300 kHz (Bandwidth 20 MHz) 1 MHz (Bandwidth 40 MHz and 80 MHz)
VBW	1 MHz (Bandwidth 20 MHz) 3 MHz (Bandwidth 40 MHz and 80 MHz)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

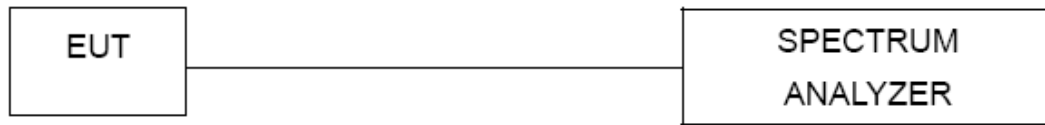
For UNII-3:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	6 dB Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Measured the spectrum width with power higher than 26 dB/6 dB below carrier

5.3 TEST PROCEDURE

No deviation.

5.4 TEST SETUP**5.5 EUT OPERATION CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6. MAXIMUM OUTPUT POWER TEST

6.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Maximum Output Power	AP device: 1 Watt (30 dBm) Client device: 250 mW (24 dBm)	5150-5250
		1 Watt (30dBm)	5725-5850

Note:

- For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.2 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- Test test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX F.

7. POWER SPECTRAL DENSITY TEST

7.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Power Spectral Density	AP device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250
		30 dBm/500 kHz	5725-5850

7.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	= 1 MHz.
VBW	≥ 3 MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

Note:

- The value measured with RBW=1 MHz is to be added with $10\log(500 \text{ kHz}/1 \text{ MHz})$ which is -3 dB.
For example, if the measured value is +10dBm using RBW=1 MHz (that is +10 dBm/MHz), then the converted value will be +7dBm/500kHz.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX G.

8. FREQUENCY STABILITY MEASUREMENT

8.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(g)	Frequency Stability	An emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.	5150-5250
			5725-5850

8.2 TEST PROCEDURE

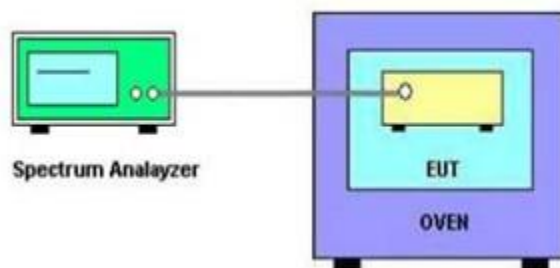
- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto
- The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
- User manual temperature is 0°C~40°C.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX H.

9. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Feb. 28, 2021
2	LISN	EMCO	3816/2	52765	Mar. 01, 2021
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 28, 2021
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 01, 2021
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 10, 2021
7	643 Shield Room	ETS	6*4*3m	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	EM	EM-6876-1	230	Apr. 16, 2021
2	Cable	N/A	RG 213/U	N/A	May 29, 2021
3	EMI Test Receiver	R&S	ESCI	100895	Feb. 28, 2021
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2021
2*	Amplifier	HP	8447D	2944A09673	Aug. 11, 2021
3	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 22, 2021
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	May 12, 2021
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jul. 07, 2021
3	Amplifier	Agilent	8449B	3008A02333	Mar. 01, 2021
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 07, 2021
5	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	N/A	EMC104-SM-SM-6000	N/A	May 09, 2021
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	Band Reject Filter	Micro-Tronics	BRC50705-01	10	Feb. 28, 2021
11	Band Reject Filter	Micro-Tronics	BRC50704-01	8	Feb. 28, 2021
12	Band Reject Filter	Micro-Tronics	BRC50703-01	7	Feb. 28, 2021
13	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Bandwidth & Conducted Output Power & Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 25, 2021
2	RF Cable	Tongkaichuan	N/A	N/A	N/A
3	DC Block	Mini	N/A	N/A	N/A
4	EXA Spectrum Analyzer	Keysight	N9010A	MY56480488	Mar. 01, 2021

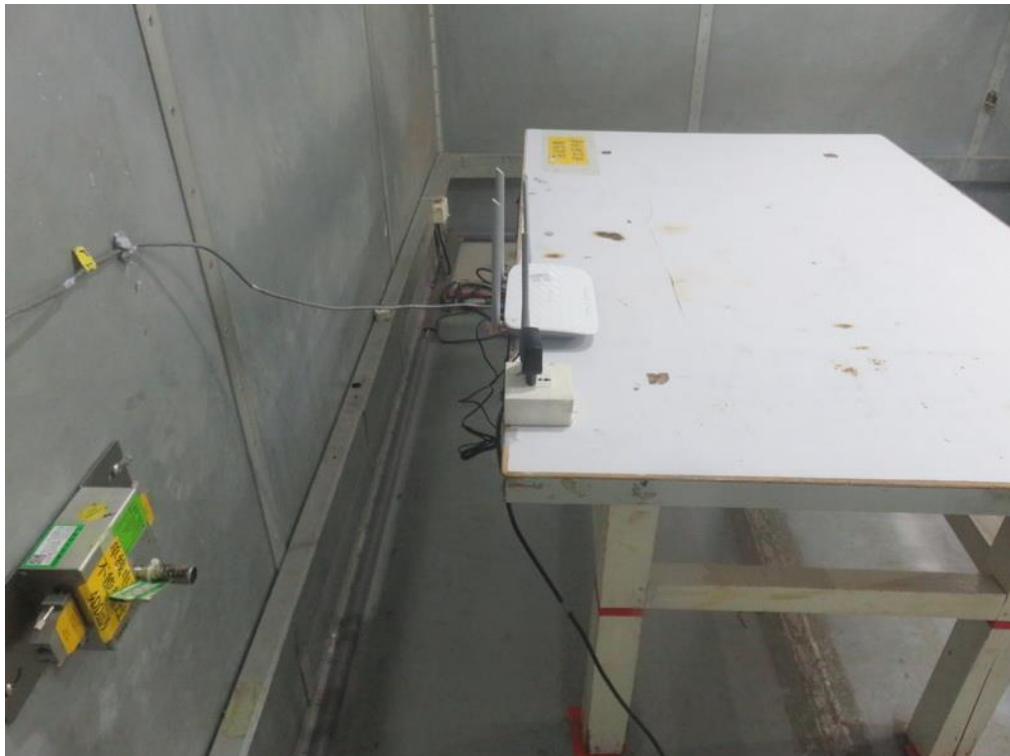
Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 07, 2021
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 25, 2021
3	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 11, 2021
4	RF Cable	Tongkaichuan	N/A	N/A	N/A

Frequency Stability					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 25, 2021
2	Precision Oven Tester	CEPREI	CEEC-M64T-40	15-008	Feb. 28, 2021
3	RF Cable	Tongkaichuan	N/A	N/A	N/A
4	DC Block	Mini	N/A	N/A	N/A

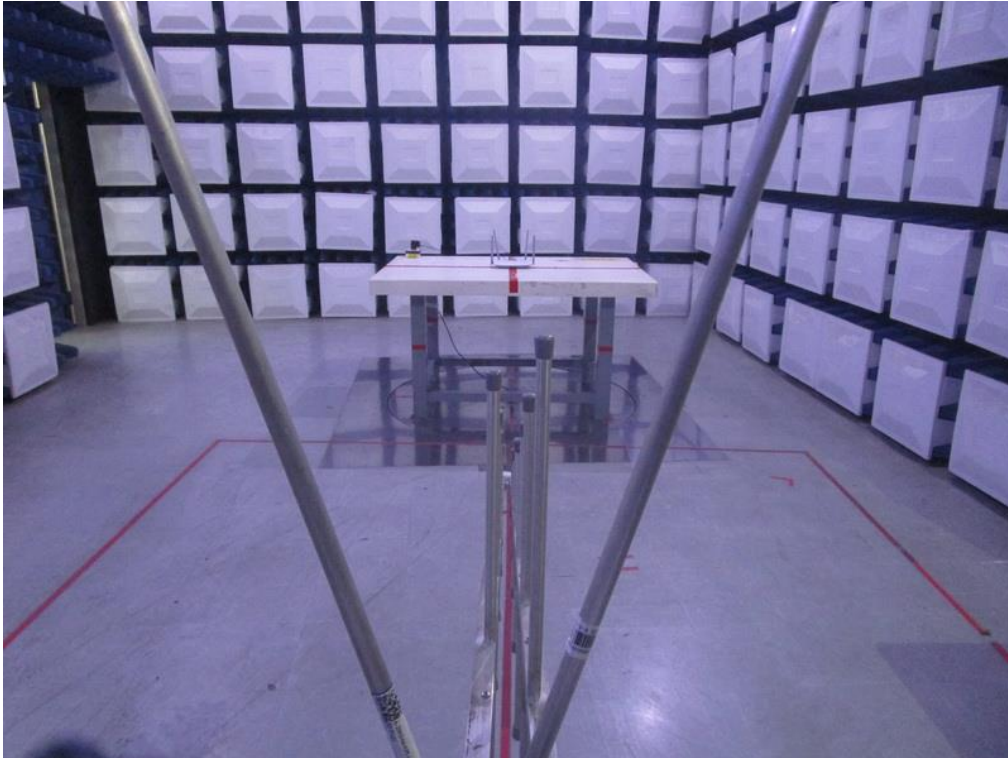
Remark: "N/A" denotes no model name, serial no. or calibration specified.

"*" calibration period of equipment list is three year.

Except * item, all calibration period of equipment list is one year.

10. EUT TEST PHOTOS**AC Power Line Conducted Emissions Test Photos**

Radiated Emissions Test Photos**9 kHz to 30 MHz**

Radiated Emissions Test Photos**30 MHz to 1 GHz**

Radiated Emissions Test Photos**Above 1 GHz**

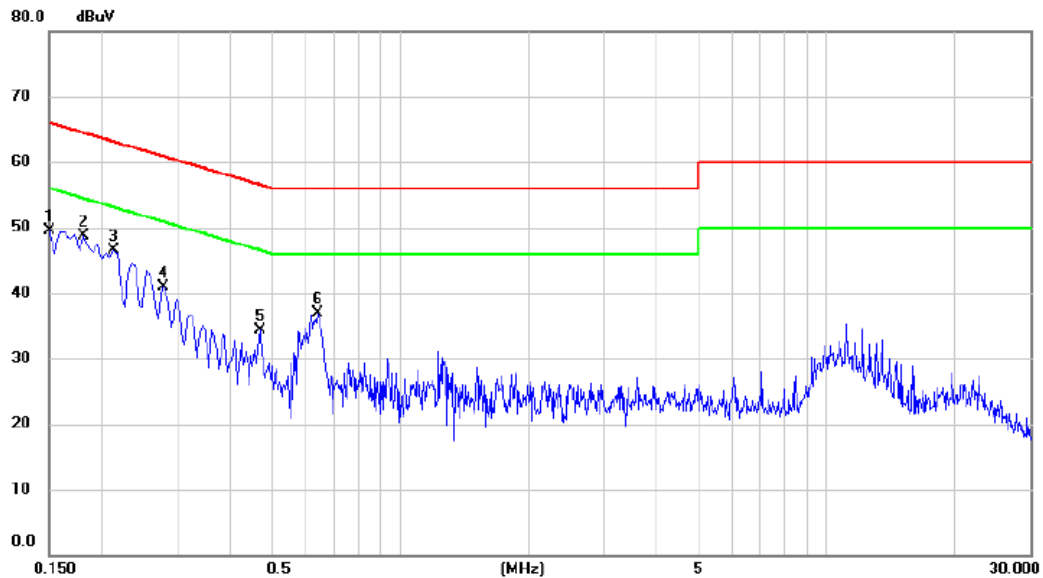
Conducted Emissions Test Photos



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode: TX AC80 MODE CHANNEL 155

Line



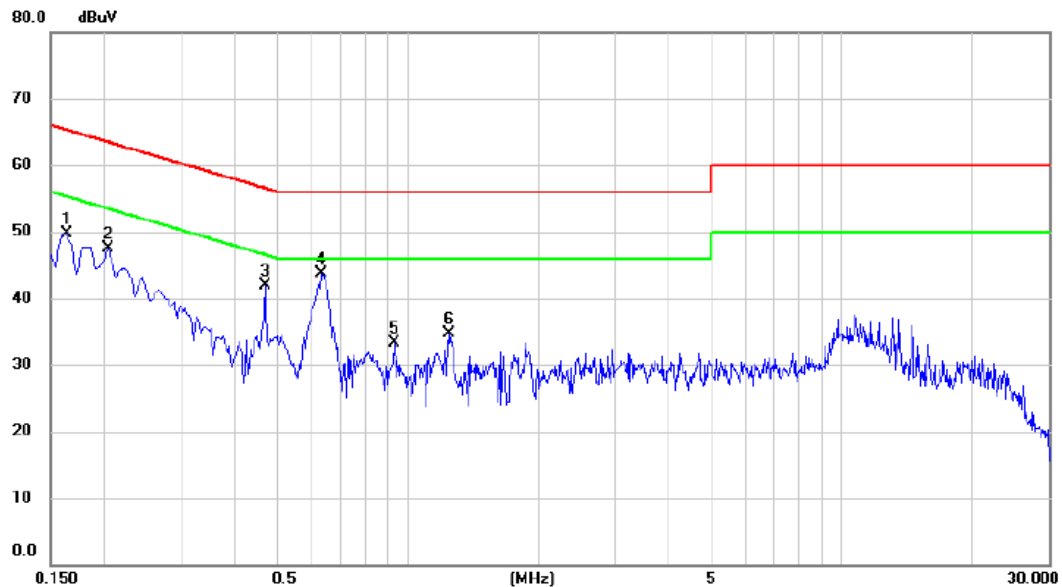
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1500	39.86	9.67	49.53	66.00	-16.47	peak	
2 *	0.1815	38.92	9.85	48.77	64.42	-15.65	peak	
3	0.2130	36.56	9.90	46.46	63.09	-16.63	peak	
4	0.2788	30.93	9.89	40.82	60.85	-20.03	peak	
5	0.4695	24.37	9.94	34.31	56.52	-22.21	peak	
6	0.6405	27.04	9.92	36.96	56.00	-19.04	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.
- (3) The test result has included the cable loss.

Test Mode: TX AC80 MODE CHANNEL 155

Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1635	39.81	9.85	49.66	65.28	-15.62	peak	
2		0.2040	37.50	10.01	47.51	63.45	-15.94	peak	
3		0.4695	31.84	10.13	41.97	56.52	-14.55	peak	
4	*	0.6315	33.54	10.16	43.70	56.00	-12.30	peak	
5		0.9285	23.00	10.28	33.28	56.00	-22.72	peak	
6		1.2435	24.29	10.33	34.62	56.00	-21.38	peak	

Note: The test result has included the cable loss.

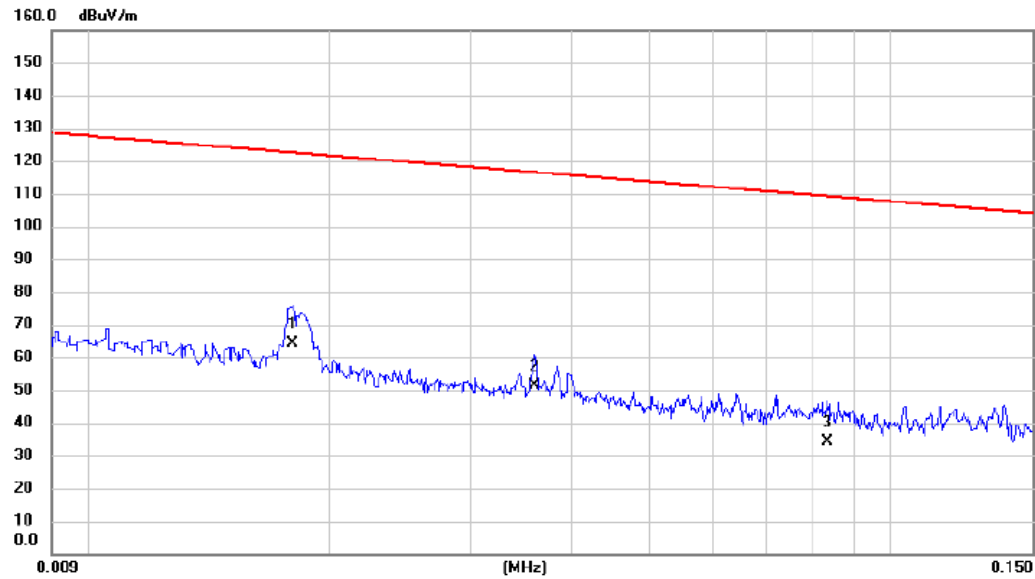
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.
- (3) The test result has included the cable loss.

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode: TX AC80 MODE CHANNEL 155

Ant 0°



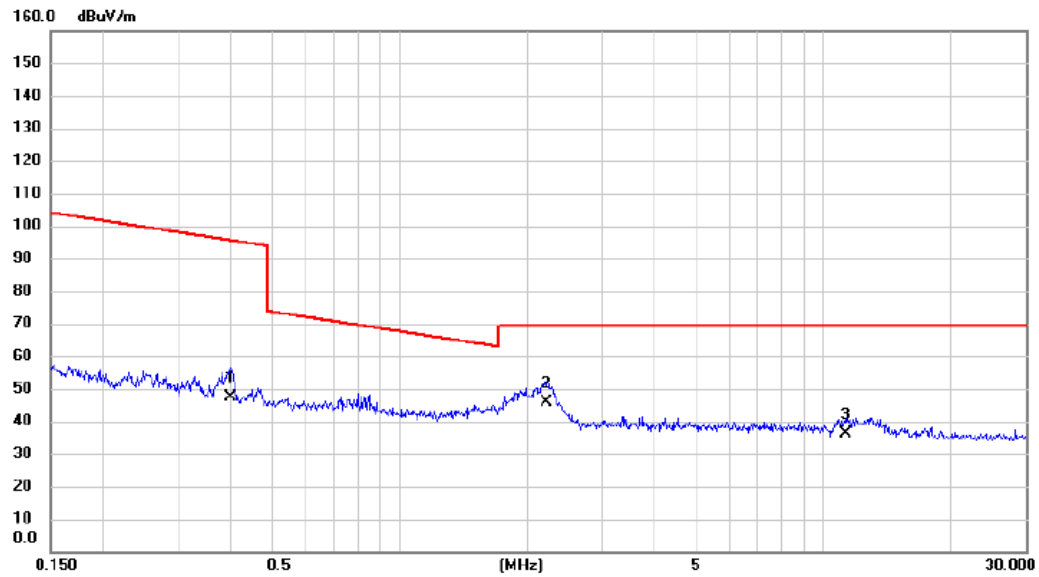
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0180	50.47	13.84	64.31	122.50	-58.19	AVG	
2		0.0360	38.66	12.79	51.45	116.48	-65.03	AVG	
3		0.0833	21.75	12.62	34.37	109.19	-74.82	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX AC80 MODE CHANNEL 155

Ant 0°



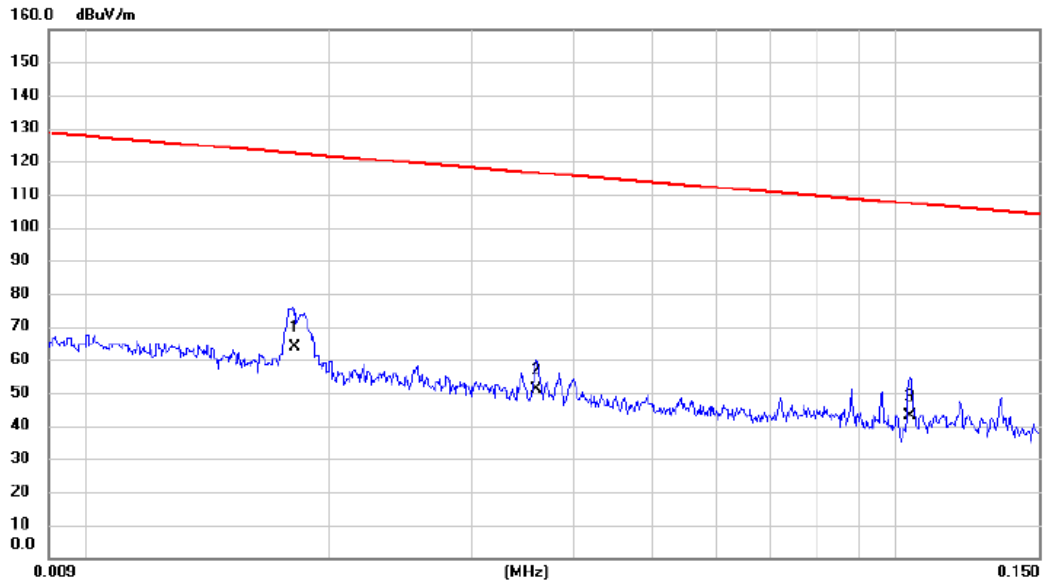
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.3997	35.11	12.26	47.37	95.57	-48.20	AVG	
2	*	2.2132	34.75	11.19	45.94	69.54	-23.60	QP	
3		11.3170	24.80	11.52	36.32	69.54	-33.22	QP	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Test Mode:	TX AC80 MODE CHANNEL 155
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Ant 90°



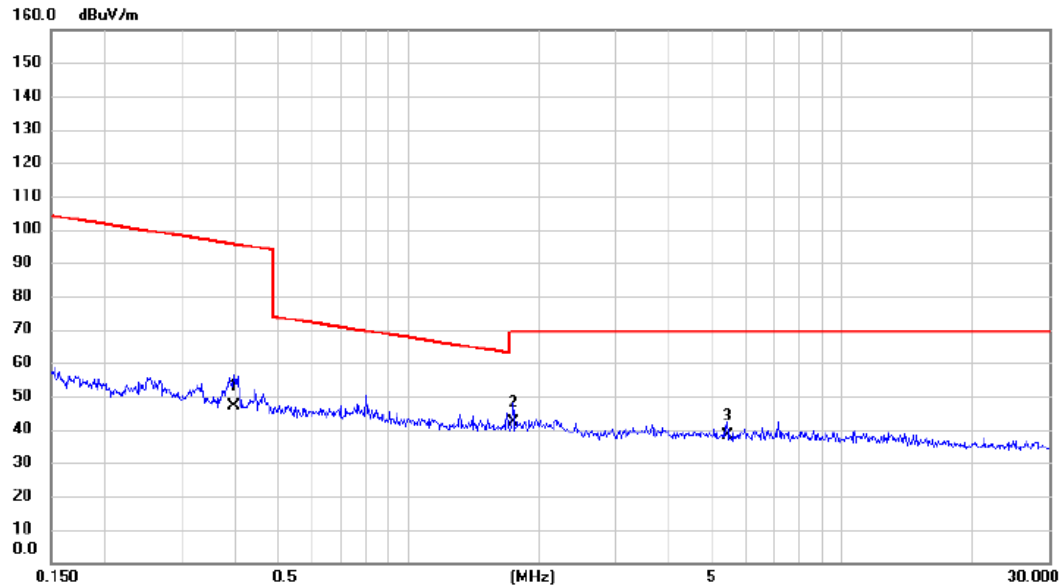
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.0181	50.10	13.81	63.91	122.45	-58.54	AVG	
2		0.0360	38.11	12.79	50.90	116.48	-65.58	AVG	
3		0.1041	30.46	12.72	43.18	107.26	-64.08	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX AC80 MODE CHANNEL 155

Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.3976	34.57	12.27	46.84	95.62	-48.78	AVG	
2	*	1.7437	30.66	11.43	42.09	69.54	-27.45	QP	
3		5.4474	26.90	11.13	38.03	69.54	-31.51	QP	

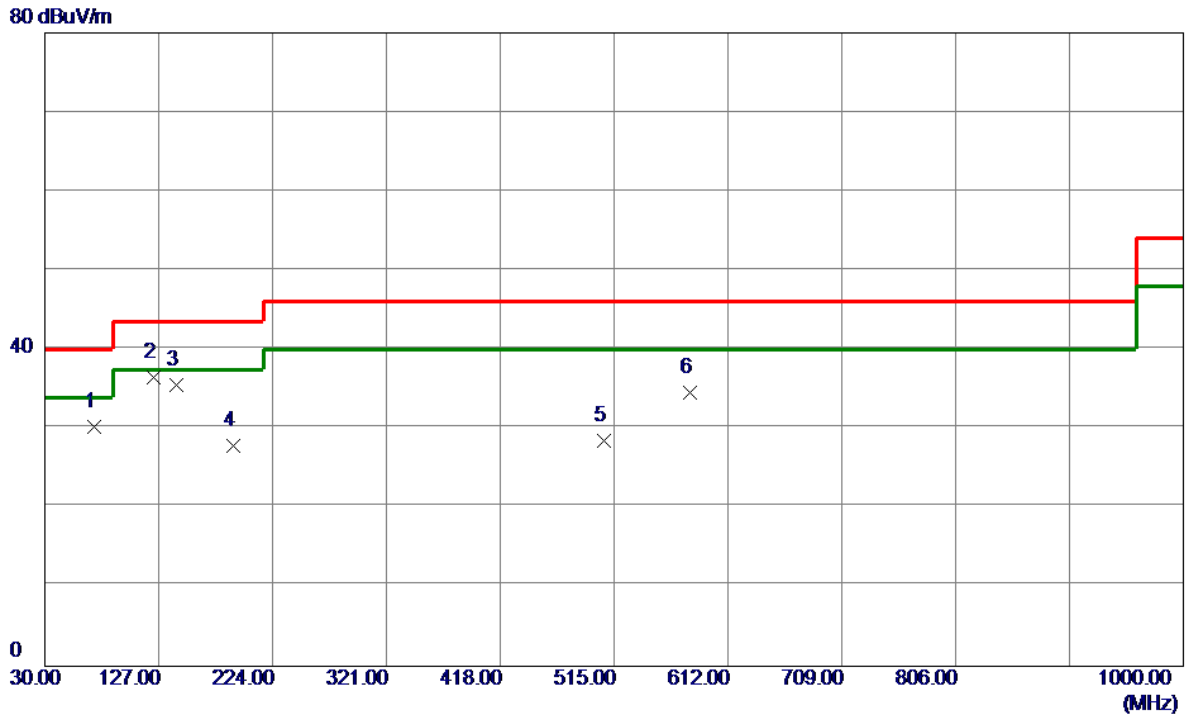
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1 GHZ

Test Mode:	TX AC80 MODE CHANNEL 155
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Vertical



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	71.7100	46.41	-16.23	30.18	40.00	-9.82	Peak	
2 *	123.1200	49.22	-12.74	36.48	43.50	-7.02	Peak	
3	142.5200	47.90	-12.41	35.49	43.50	-8.01	Peak	
4	191.0200	41.99	-14.17	27.82	43.50	-15.68	Peak	
5	506.2700	35.63	-7.21	28.42	46.00	-17.58	Peak	
6	579.9900	40.56	-5.93	34.63	46.00	-11.37	Peak	

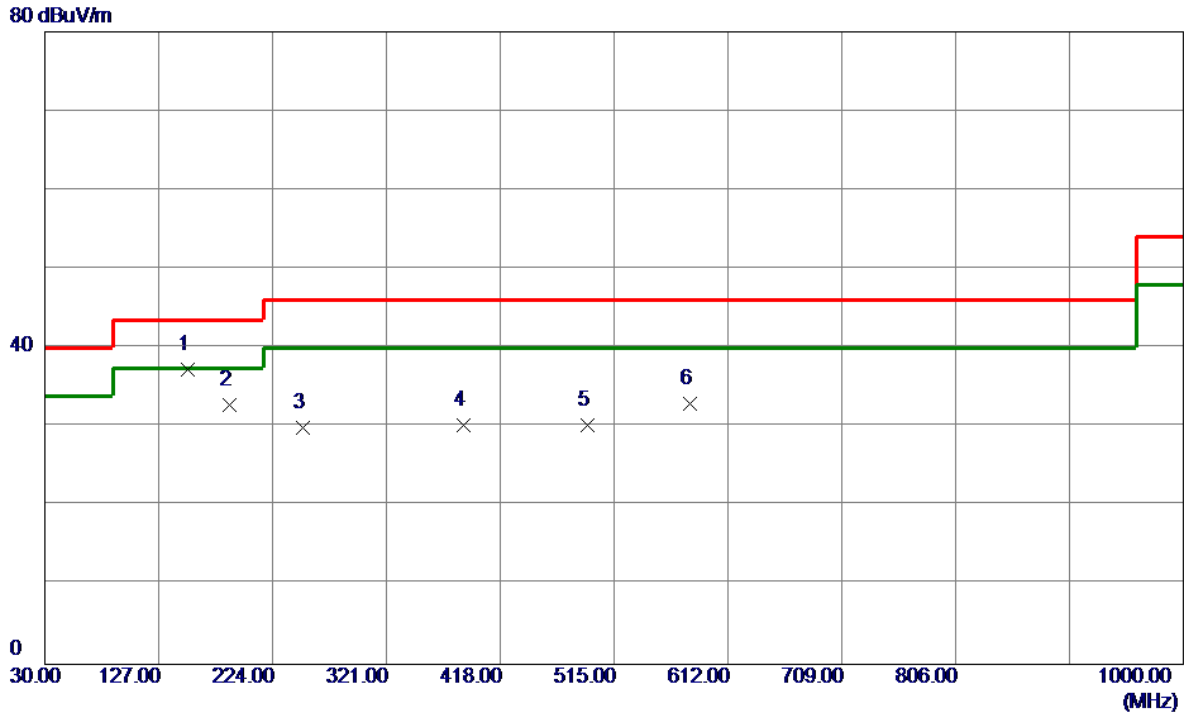
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX AC80 MODE CHANNEL 155

Horizontal



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	152.2200	48.94	-11.68	37.26	43.50	-6.24	Peak	
2	187.1400	46.52	-13.72	32.80	43.50	-10.70	Peak	
3	250.1900	43.18	-13.28	29.90	46.00	-16.10	Peak	
4	386.9600	39.54	-9.32	30.22	46.00	-15.78	Peak	
5	492.6900	37.61	-7.32	30.29	46.00	-15.71	Peak	
6	579.9900	38.89	-5.93	32.96	46.00	-13.04	Peak	

REMARKS:

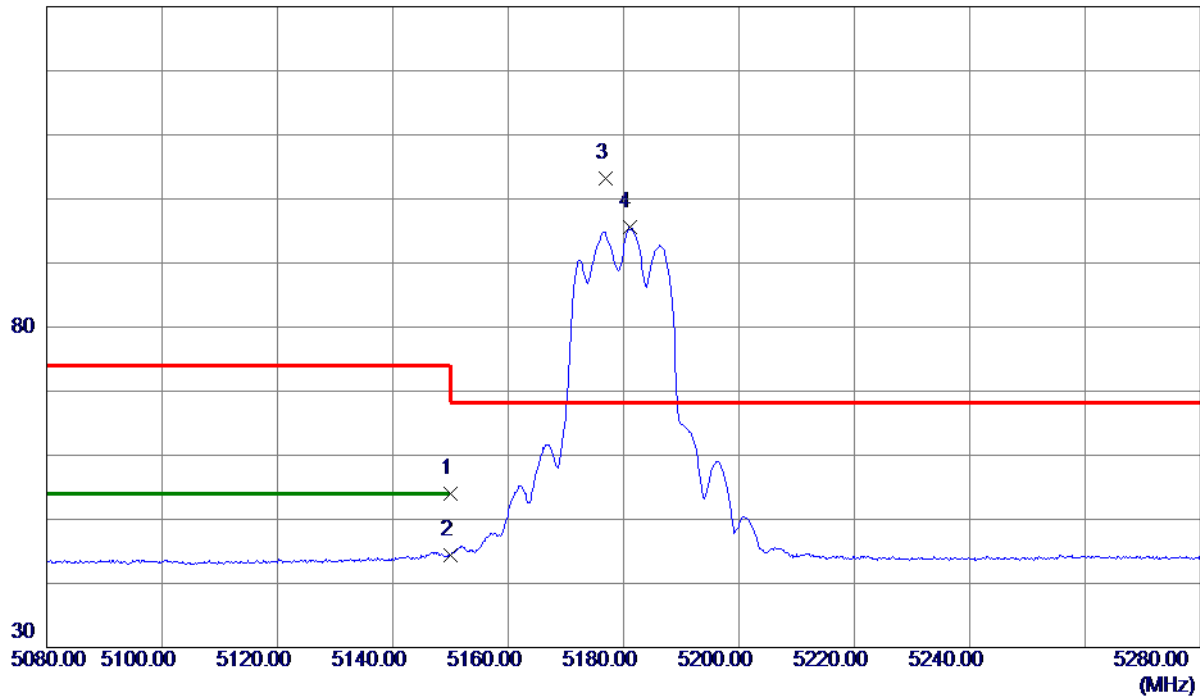
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

Orthogonal Axis	X
Test Mode	UNII-1_TX A Mode 5180 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5150.0000	35.05	18.95	54.00	74.00	-20.00	Peak	
2	5150.0000	25.46	18.95	44.41	54.00	-9.59	AVG	
3 *	5176.9000	84.16	19.02	103.18	68.30	34.88	Peak	No Limit
4	5181.0000	76.53	19.03	95.56	999.00	-903.44	AVG	No Limit

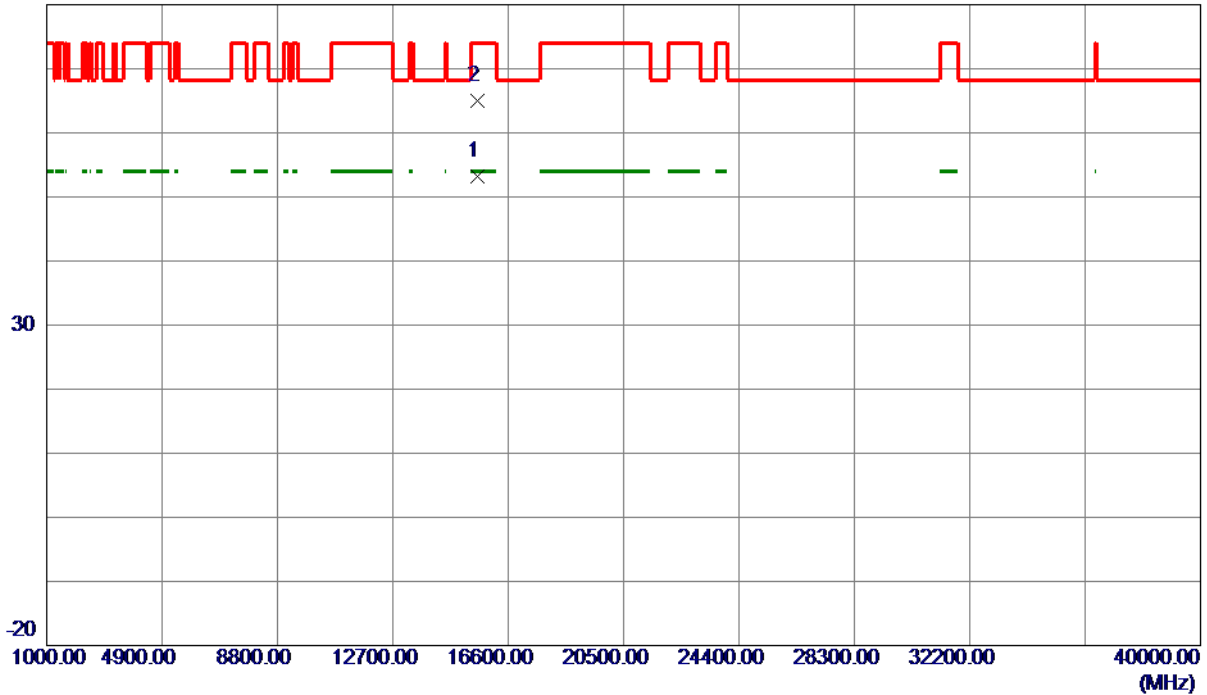
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX A Mode 5180 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	15538.7880	32.82	20.44	53.26	54.00	-0.74	AVG	
2	15539.4270	44.57	20.44	65.01	74.00	-8.99	Peak	

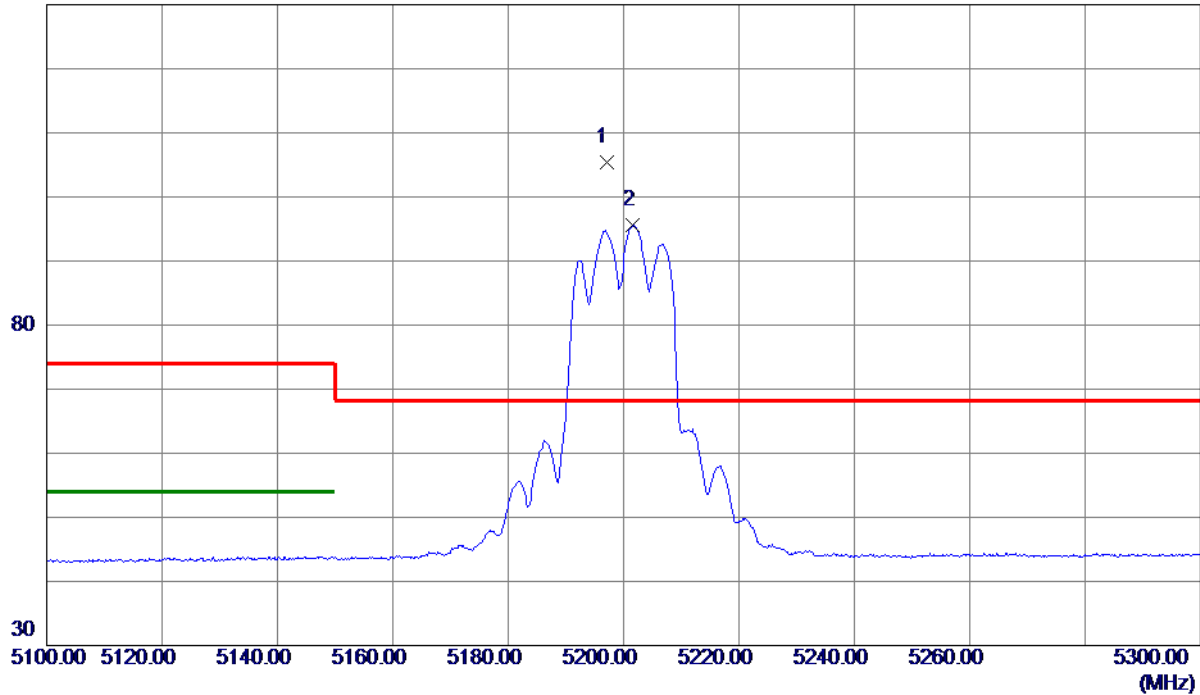
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX A Mode 5200 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5197.0000	86.41	19.07	105.48	68.30	37.18	Peak	No Limit
2	5201.5000	76.46	19.08	95.54	999.00	-903.46	AVG	No Limit

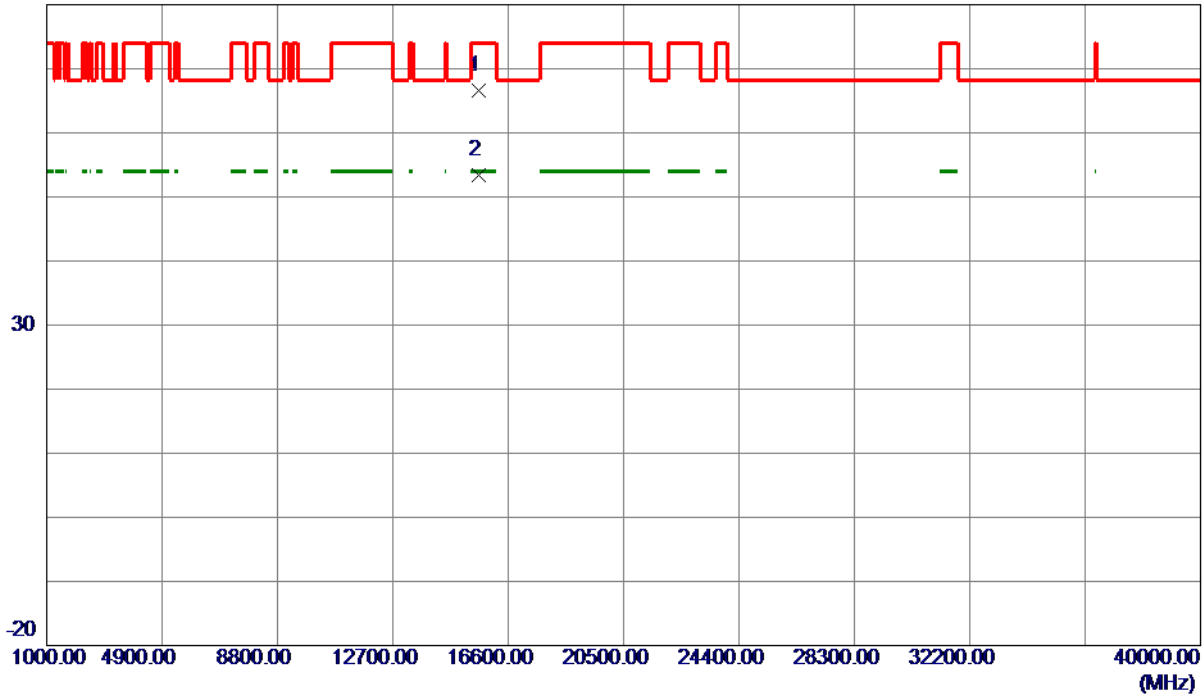
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX A Mode 5200 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	15598.5900	46.11	20.52	66.63	74.00	-7.37	Peak	
2 *	15598.8970	32.90	20.52	53.42	54.00	-0.58	AVG	

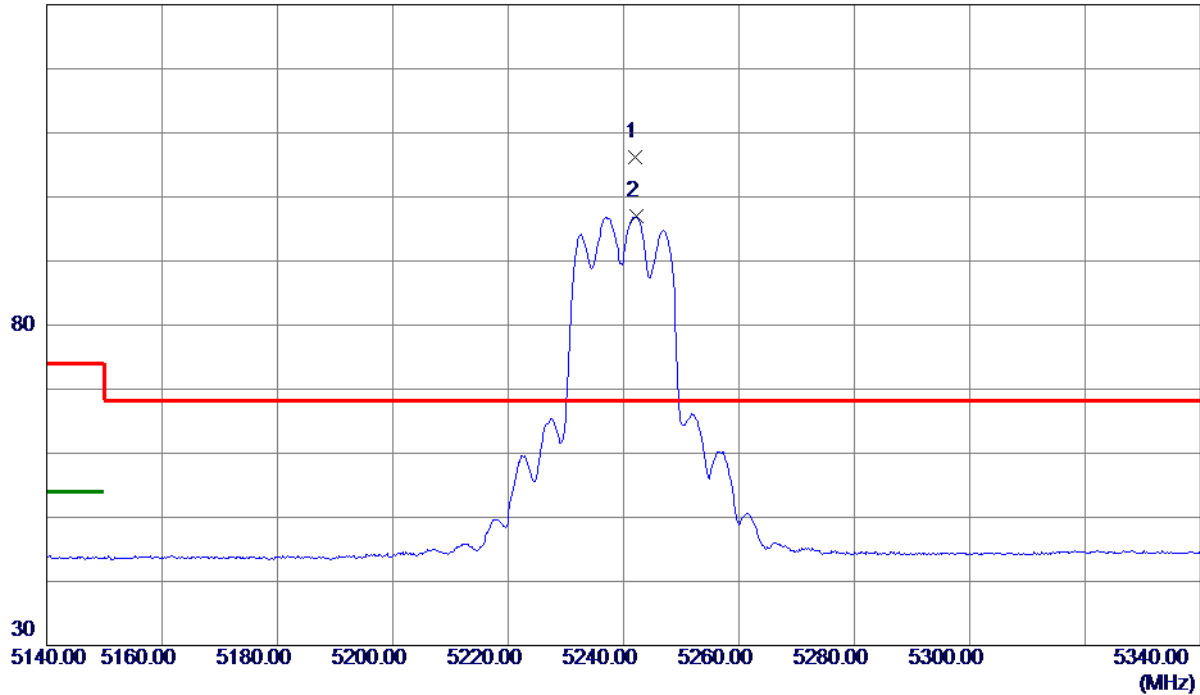
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX A Mode 5240 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5241.9000	86.98	19.19	106.17	68.30	37.87	Peak	No Limit
2	5242.2000	77.72	19.19	96.91	999.00	-902.09	AVG	No Limit

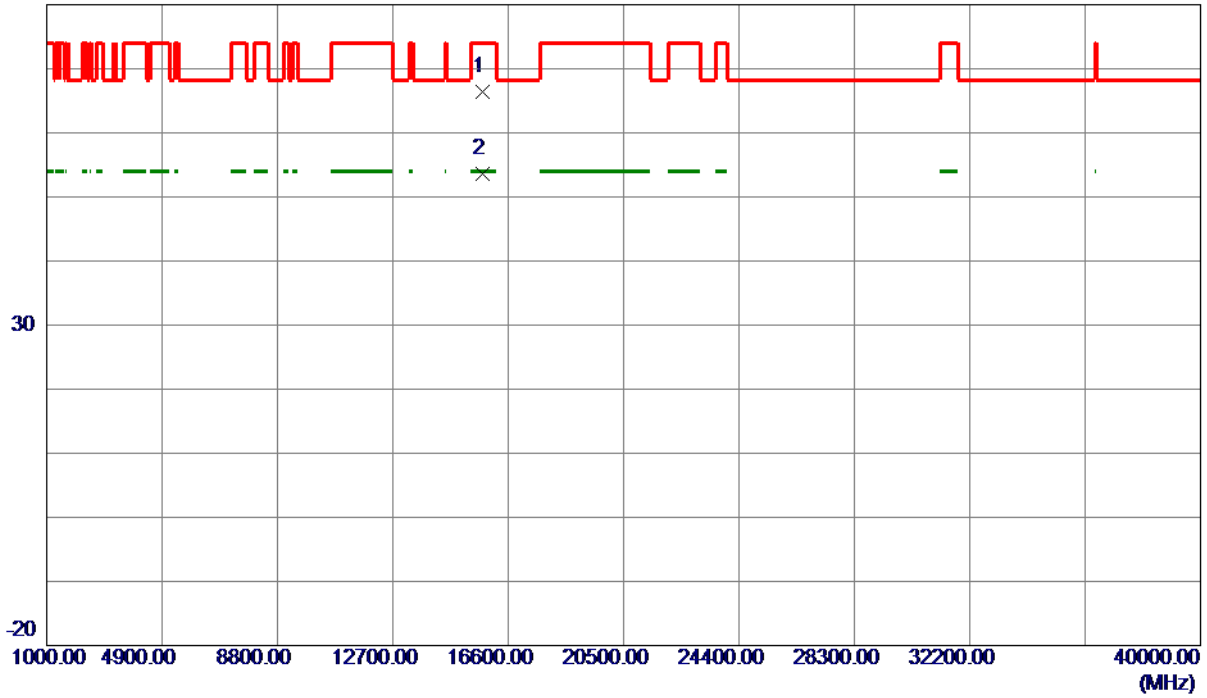
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX A Mode 5240 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	15718.3680	45.61	20.70	66.31	74.00	-7.69	Peak	
2 *	15719.2180	32.82	20.70	53.52	54.00	-0.48	AVG	

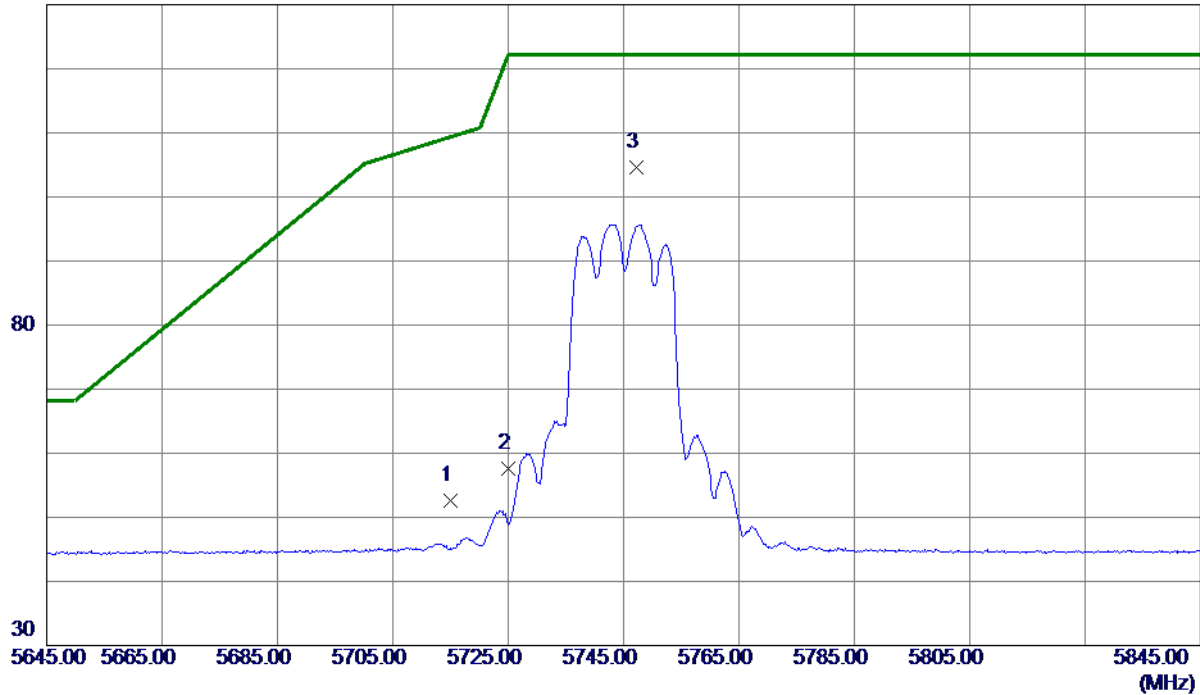
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5745 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5715.0000	32.67	20.01	52.68	109.40	-56.72	Peak	
2	5725.0000	37.50	20.02	57.52	122.20	-64.68	Peak	
3 *	5747.3000	84.63	20.04	104.67	122.20	-17.53	Peak	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

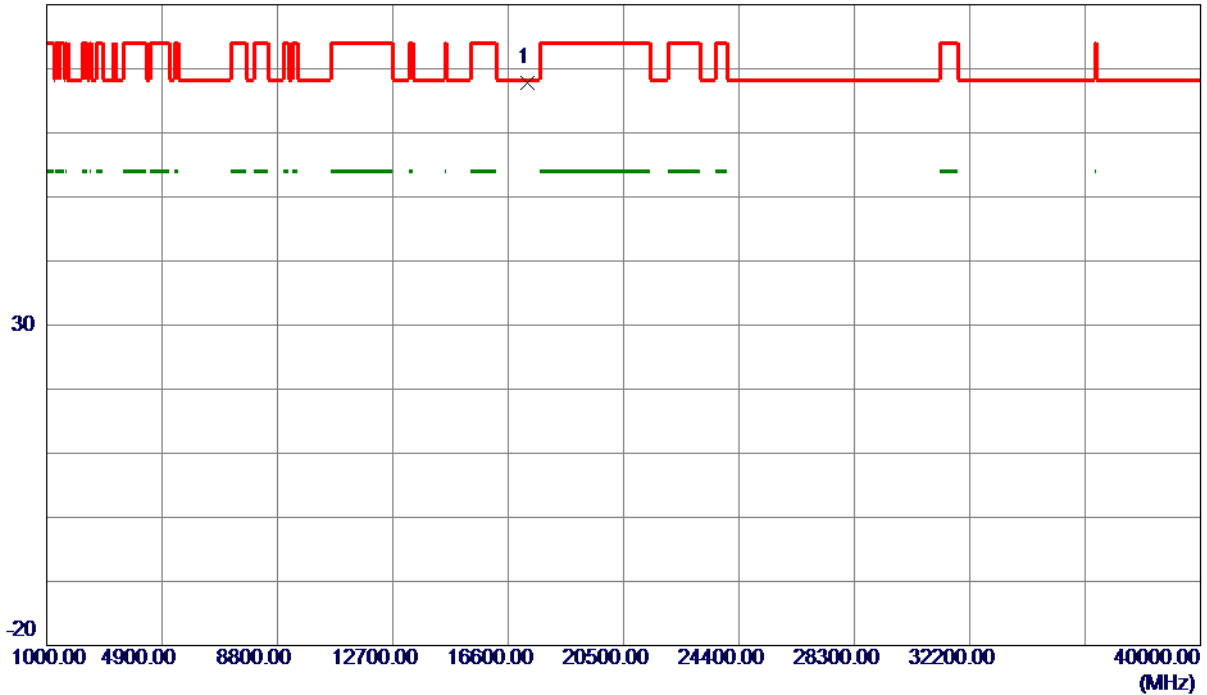
(2) Margin Level = Measurement Value - Limit Value.

-*

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5745 MHz

Horizontal

80 dBuV/m



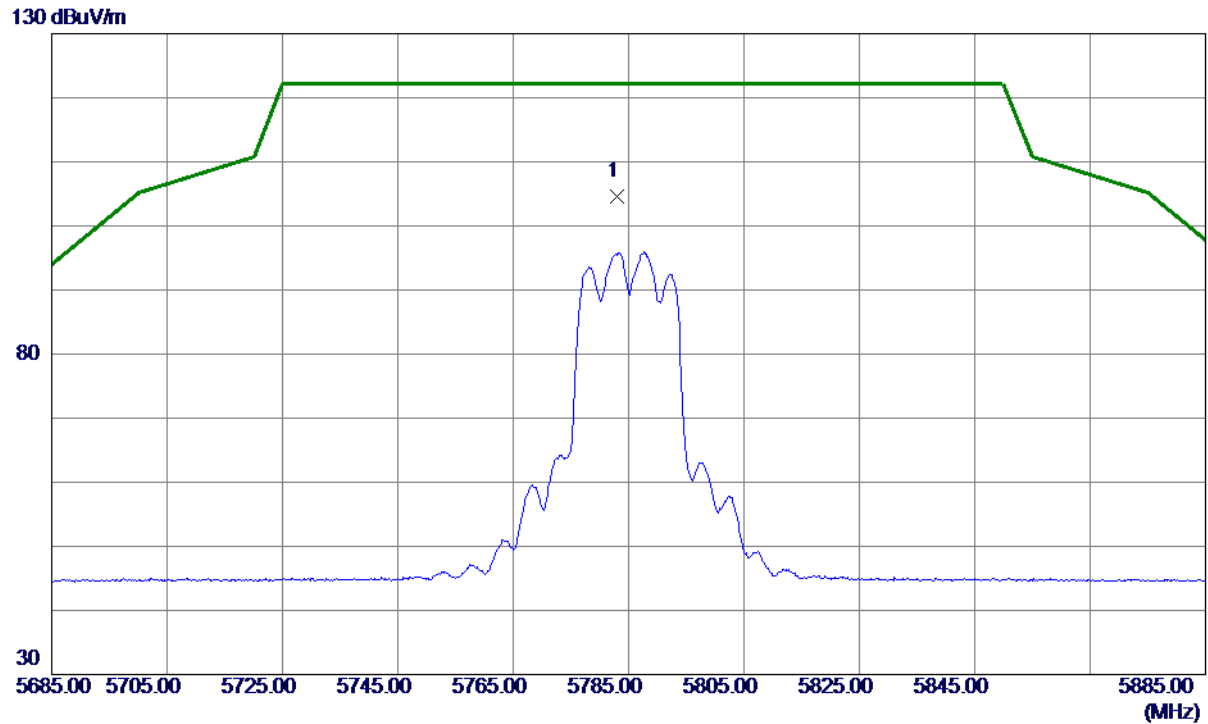
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17235.6780	43.66	24.12	67.78	68.30	-0.52	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5785 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5782.9000	84.53	20.06	104.59	122.20	-17.61	Peak	

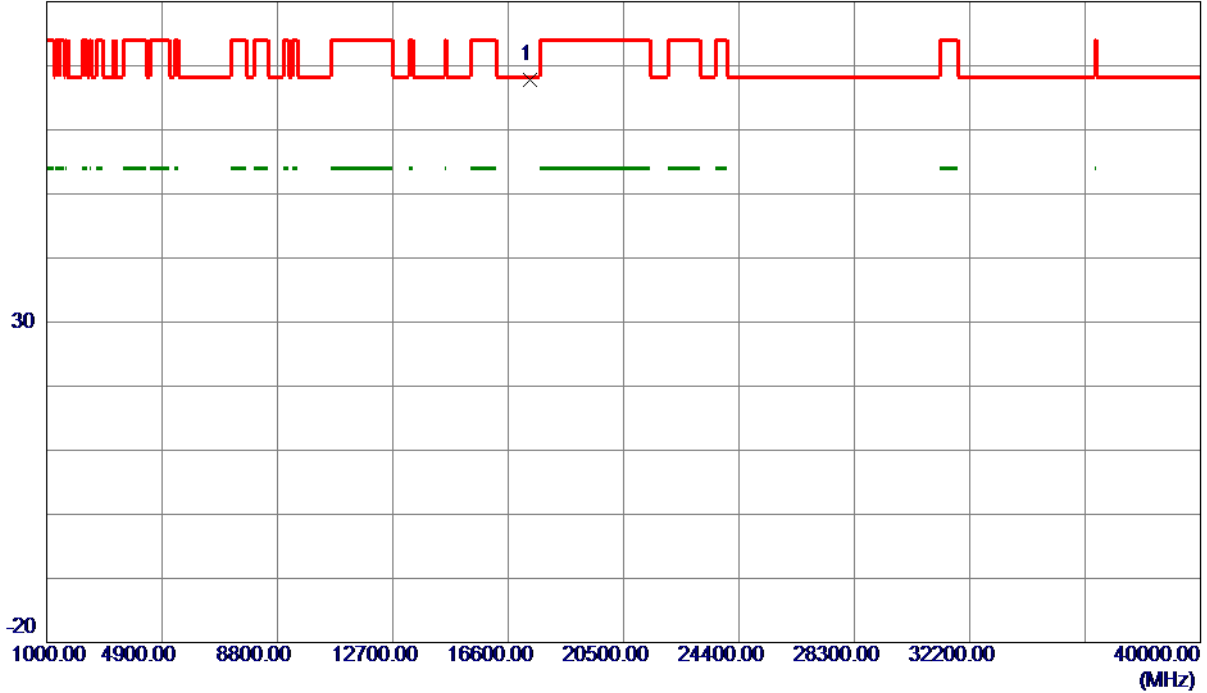
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5785 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17357.4580	43.24	24.54	67.78	68.30	-0.52	Peak	

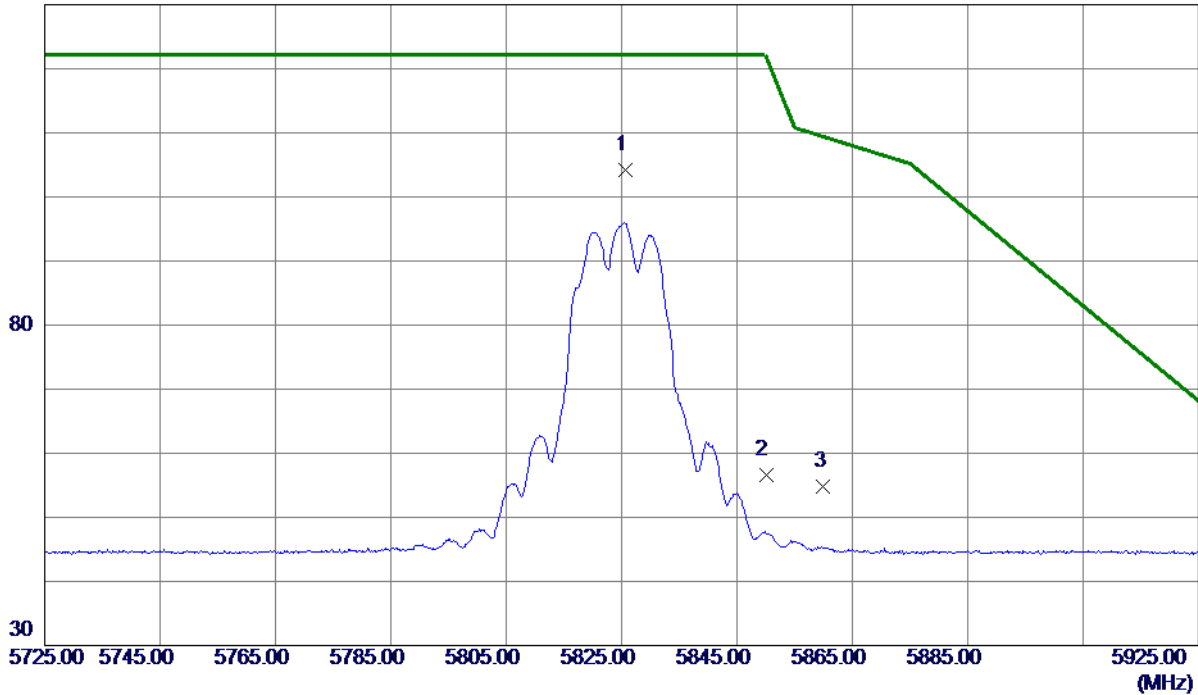
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5825 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5825.7000	84.18	20.09	104.27	122.20	-17.93	Peak	
2	5850.0000	36.56	20.11	56.67	122.20	-65.53	Peak	
3	5860.0000	34.73	20.12	54.85	109.40	-54.55	Peak	

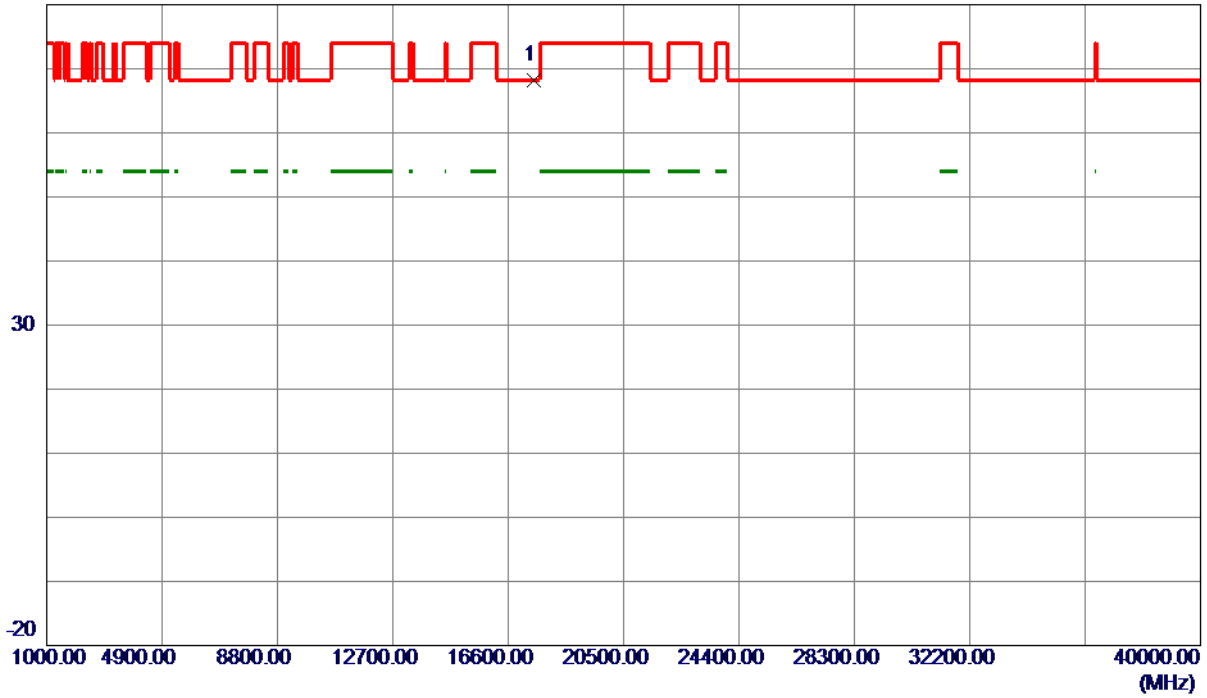
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX A Mode 5825 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17475.8379	43.22	24.95	68.17	68.30	-0.13	Peak	

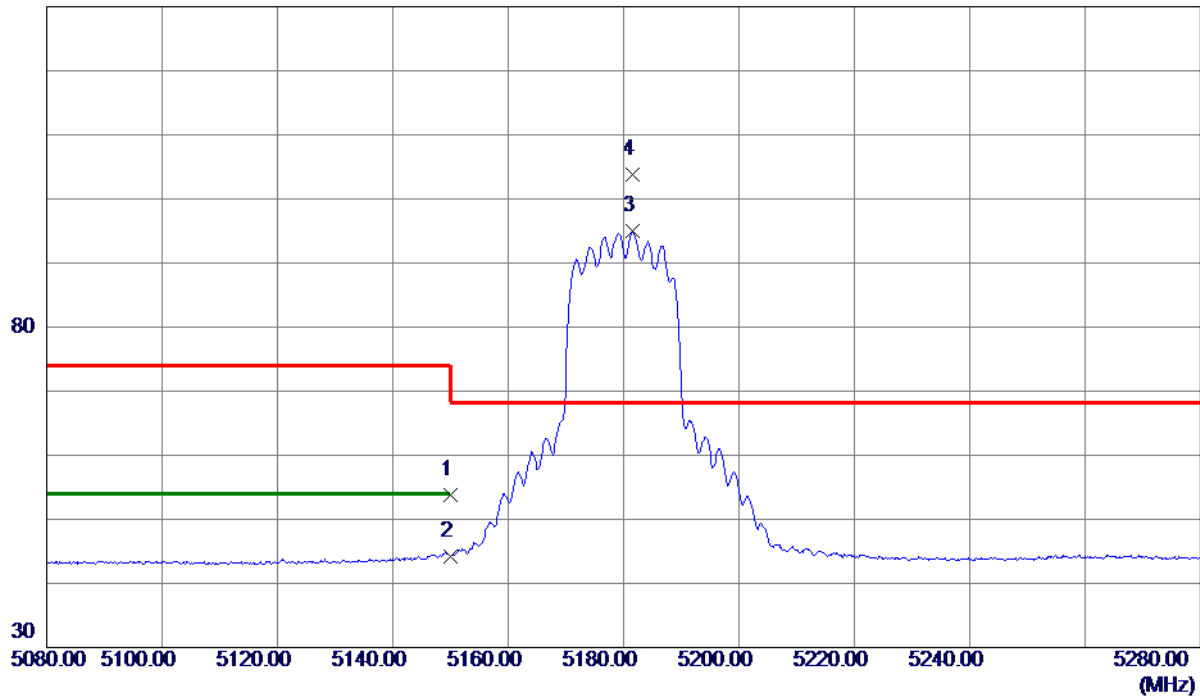
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT20) Mode 5180 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5150.0000	34.85	18.95	53.80	74.00	-20.20	Peak	
2	5150.0000	25.33	18.95	44.28	54.00	-9.72	AVG	
3	5181.5000	76.06	19.03	95.09	999.00	-903.91	AVG	No Limit
4 *	5181.6000	84.84	19.03	103.87	68.30	35.57	Peak	No Limit

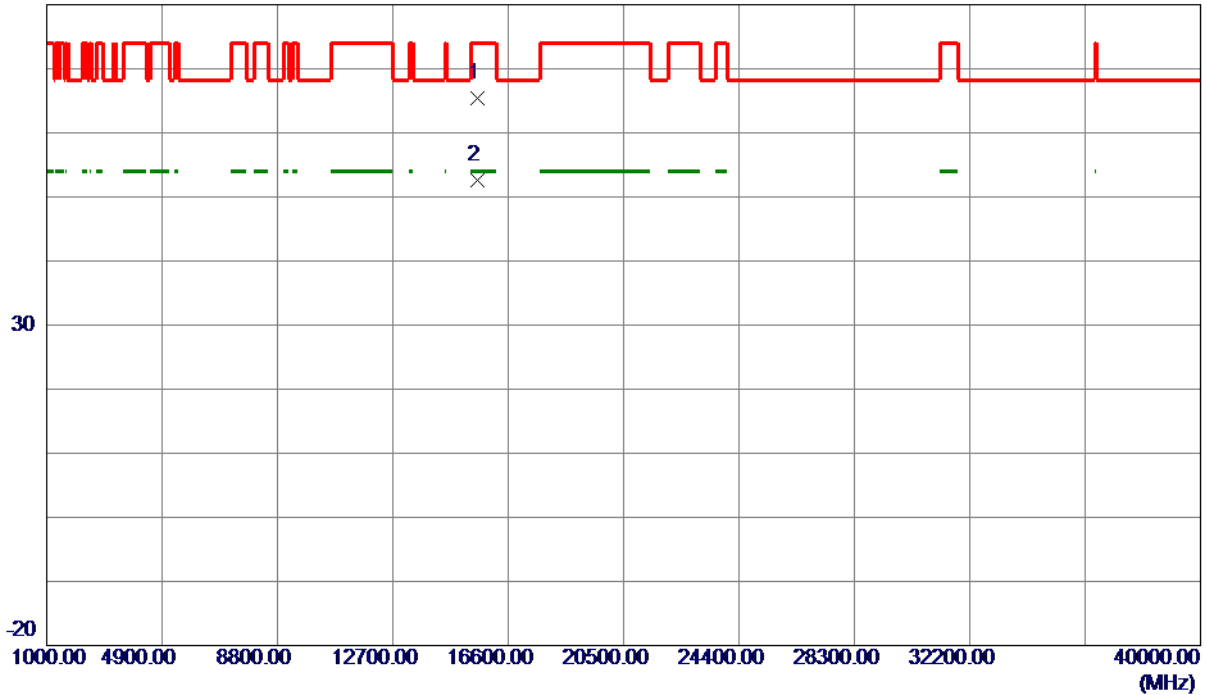
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT20) Mode 5180 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	15538.6080	44.97	20.44	65.41	74.00	-8.59	Peak	
2 *	15541.0970	32.21	20.44	52.65	54.00	-1.35	AVG	

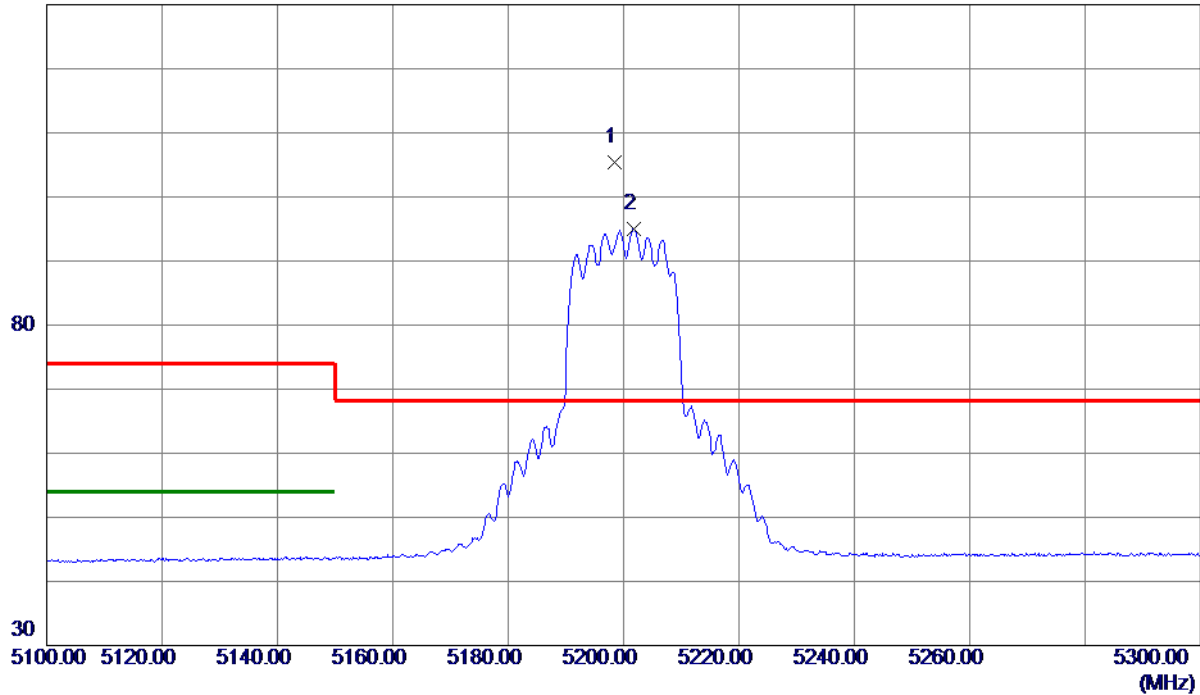
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT20) Mode 5200 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5198.5000	86.29	19.07	105.36	68.30	37.06	Peak	No Limit
2	5201.8000	75.94	19.08	95.02	999.00	-903.98	AVG	No Limit

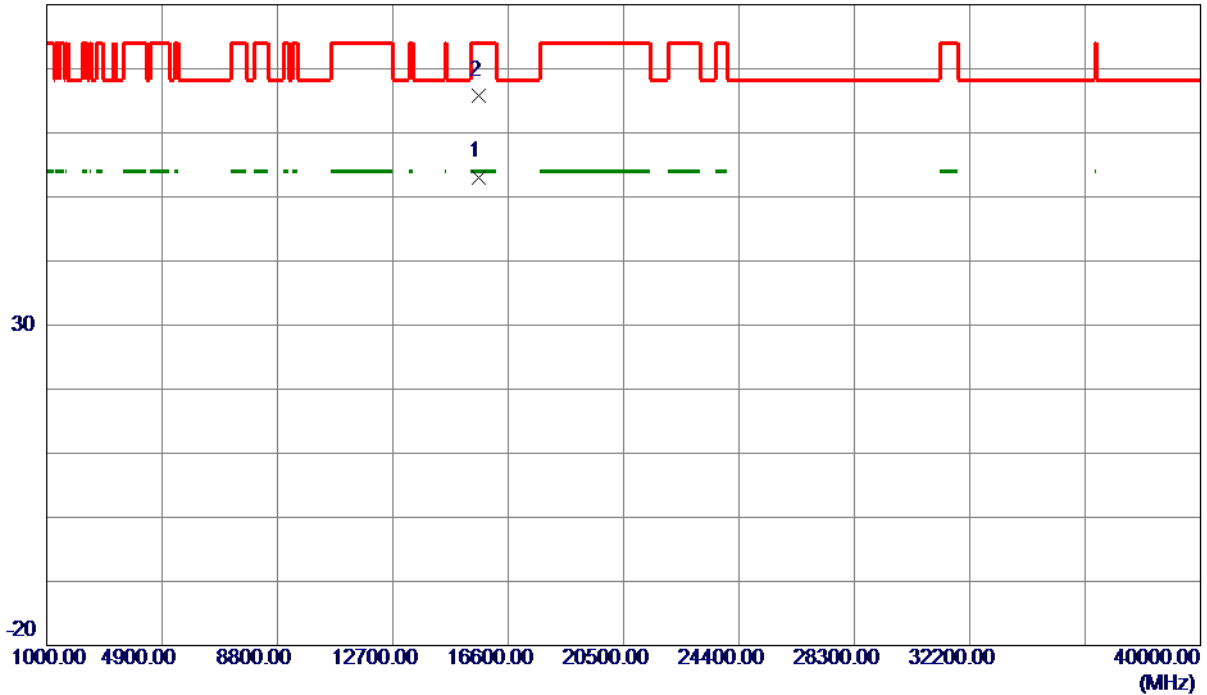
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT20) Mode 5200 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	15599.4100	32.57	20.53	53.10	54.00	-0.90	AVG	
2	15601.9680	45.28	20.53	65.81	74.00	-8.19	Peak	

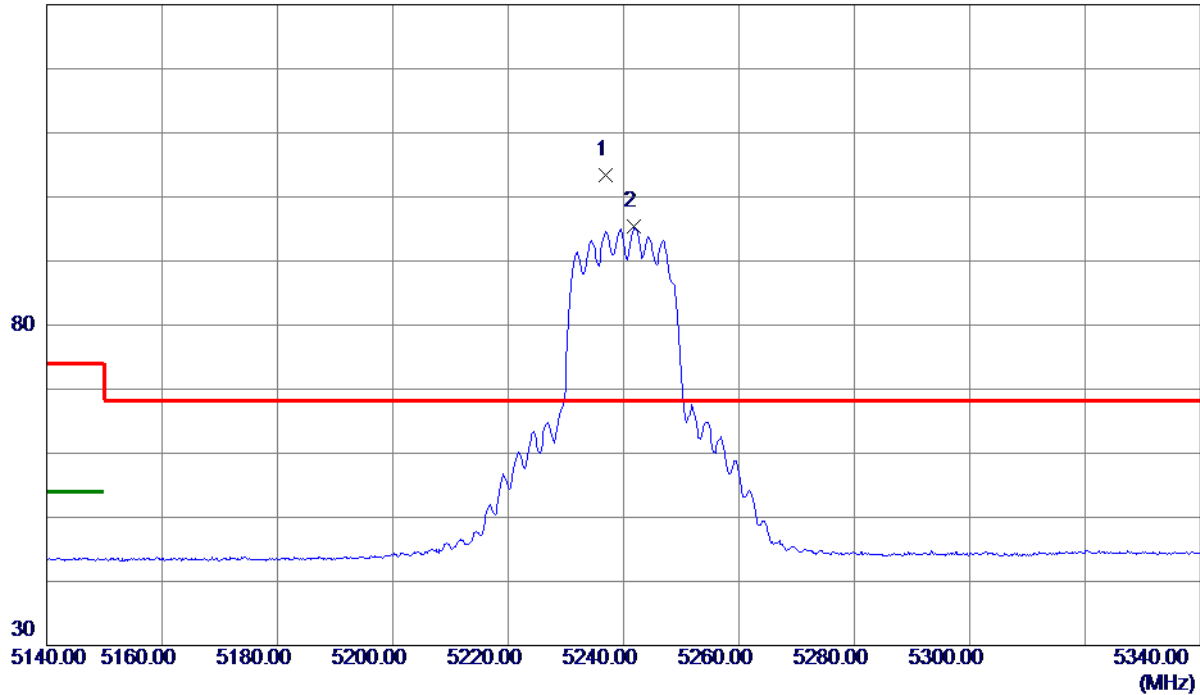
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT20) Mode 5240 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5236.8000	84.19	19.17	103.36	68.30	35.06	Peak	No Limit
2	5241.8000	76.25	19.19	95.44	999.00	-903.56	AVG	No Limit

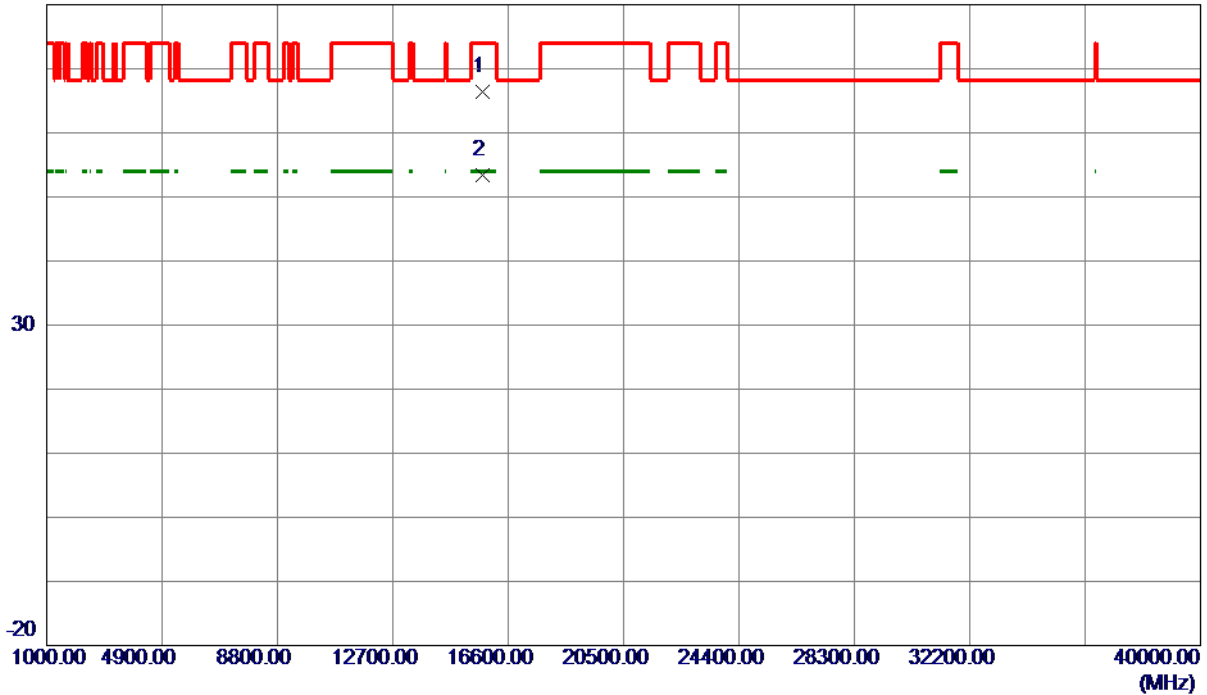
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT20) Mode 5240 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	15719.3530	45.65	20.70	66.35	74.00	-7.65	Peak	
2 *	15719.3620	32.64	20.70	53.34	54.00	-0.66	AVG	

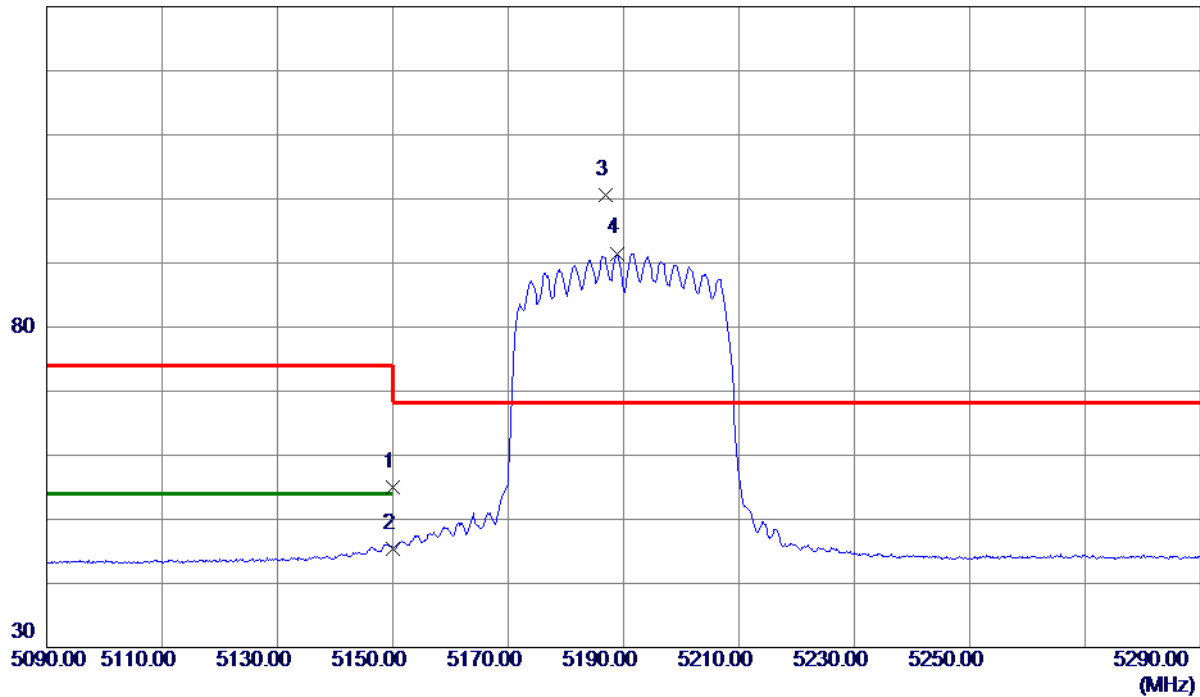
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT40) Mode 5190 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5150.0000	36.09	18.95	55.04	74.00	-18.96	Peak	
2	5150.0000	26.51	18.95	45.46	54.00	-8.54	AVG	
3 *	5186.9000	81.57	19.04	100.61	68.30	32.31	Peak	No Limit
4	5188.9000	72.45	19.05	91.50	999.00	-907.50	AVG	No Limit

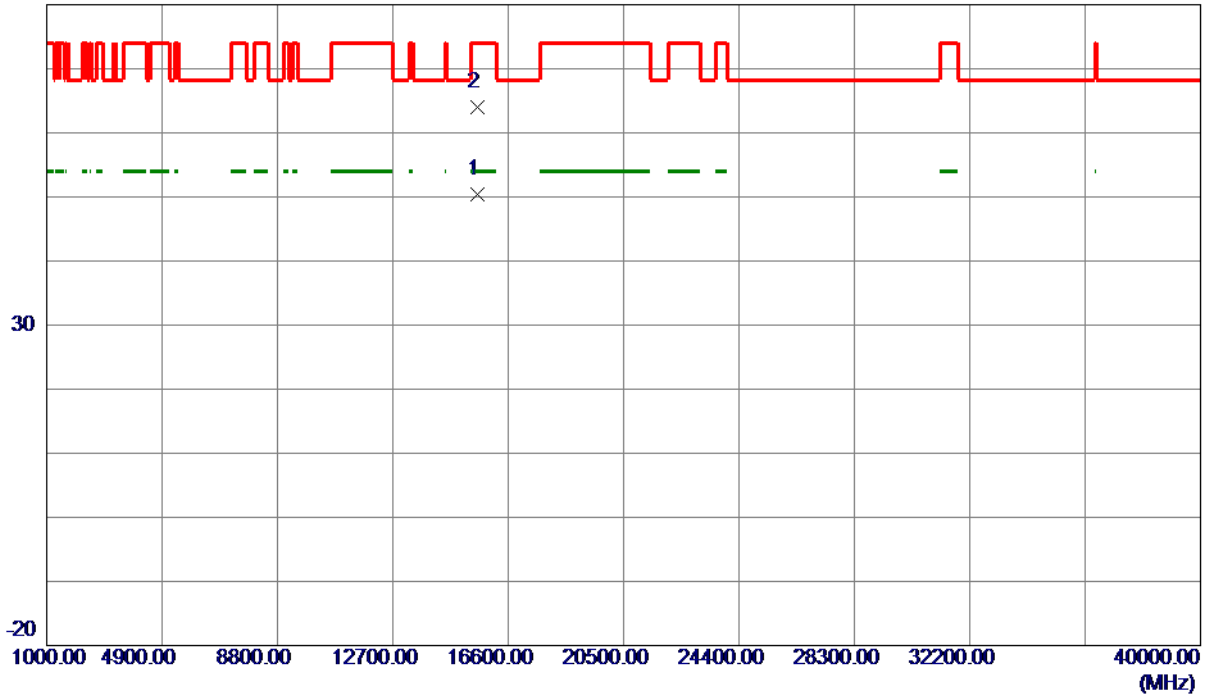
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT40) Mode 5190 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	15568.6600	29.84	20.48	50.32	54.00	-3.68	AVG	
2	15571.3800	43.51	20.48	63.99	74.00	-10.01	Peak	

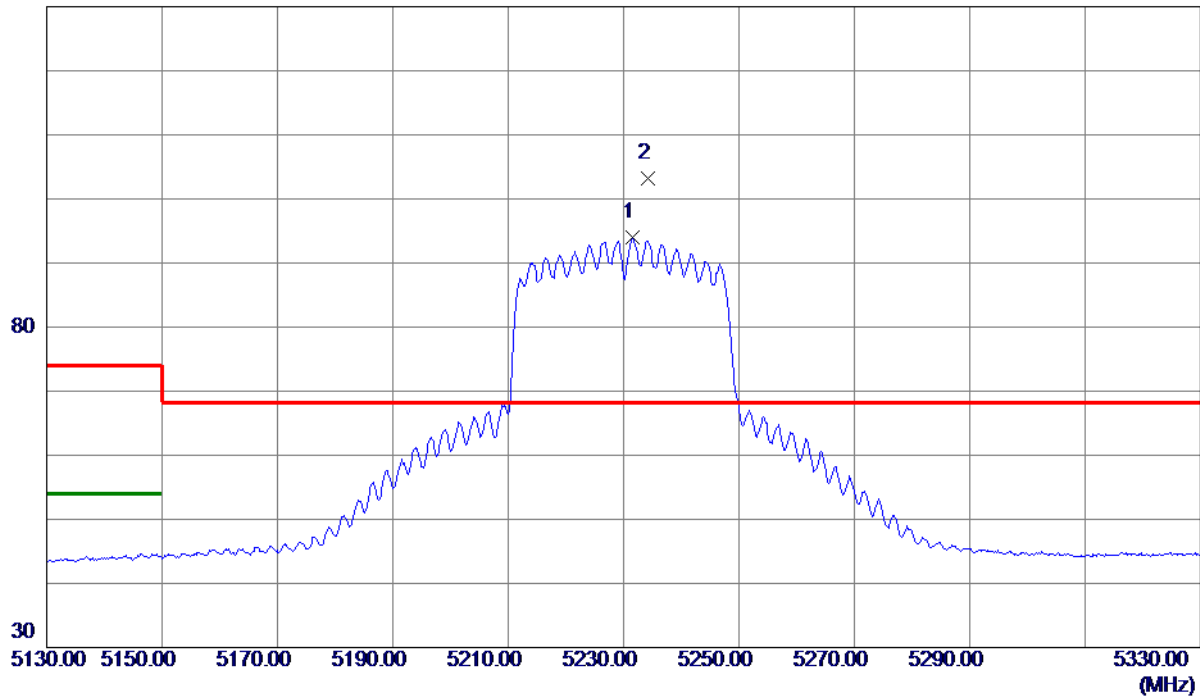
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT40) Mode 5230 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5231.5000	74.79	19.16	93.95	999.00	-905.05	AVG	No Limit
2 *	5234.3000	83.99	19.17	103.16	68.30	34.86	Peak	No Limit

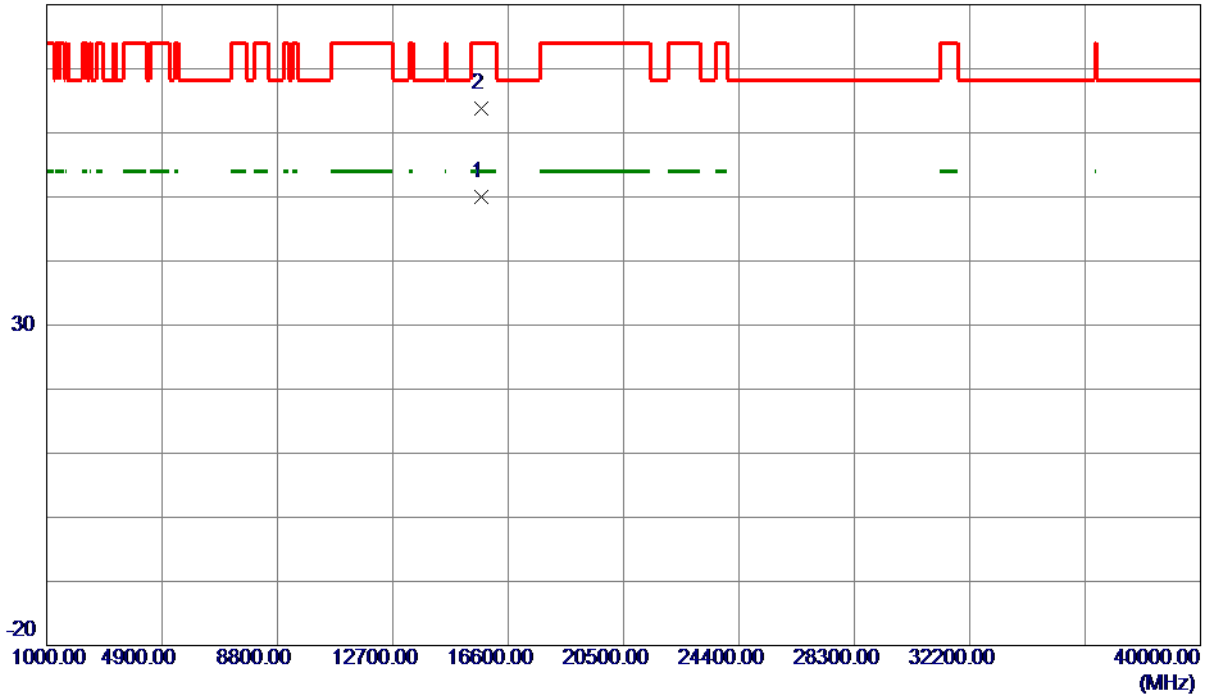
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT40) Mode 5230 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	15687.6350	29.27	20.65	49.92	54.00	-4.08	AVG	
2	15687.8900	43.06	20.65	63.71	74.00	-10.29	Peak	

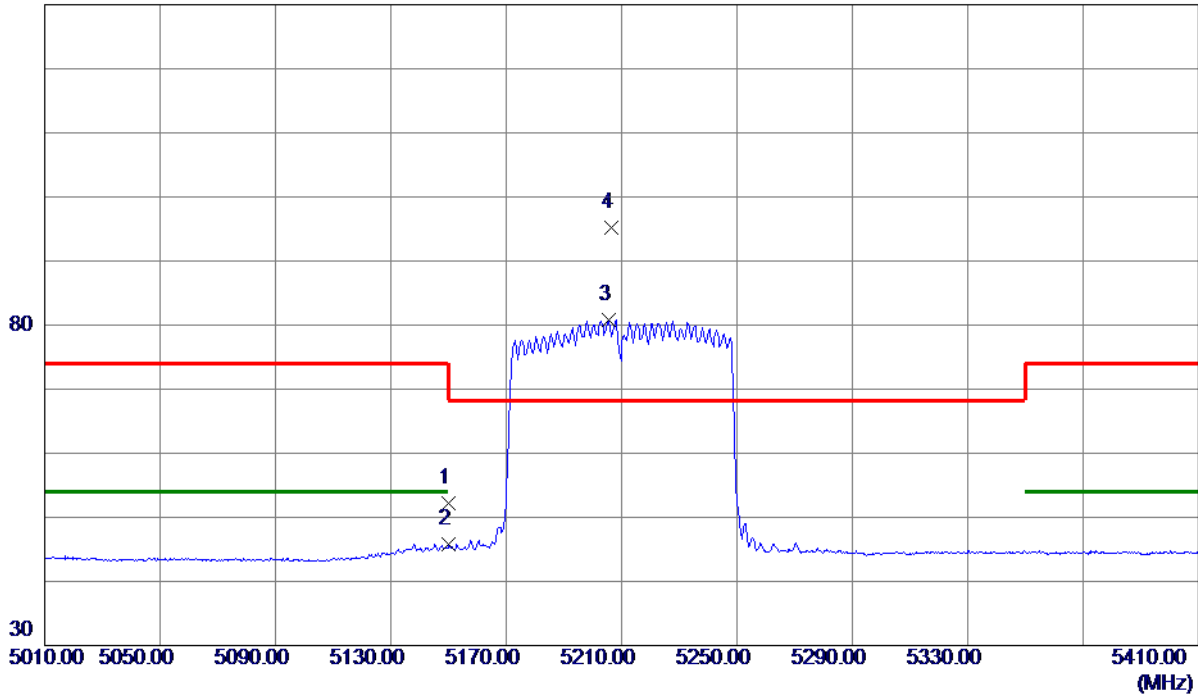
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT80) Mode 5210 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5150.0000	33.31	18.95	52.26	74.00	-21.74	Peak	
2	5150.0000	26.76	18.95	45.71	54.00	-8.29	AVG	
3	5205.4000	61.79	19.09	80.88	999.00	-918.12	AVG	No Limit
4 *	5206.4000	76.02	19.09	95.11	68.30	26.81	Peak	No Limit

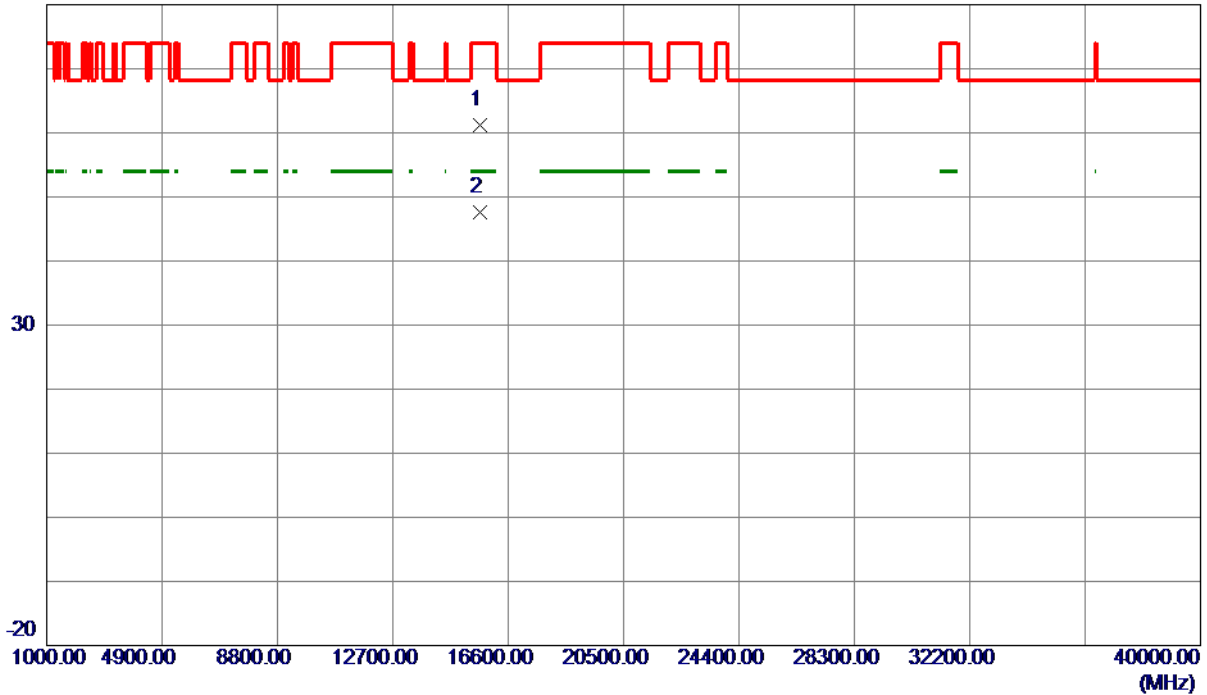
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-1_TX AC (VHT80) Mode 5210 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	15628.0600	40.58	20.57	61.15	74.00	-12.85	Peak	
2 *	15630.8020	26.99	20.57	47.56	54.00	-6.44	AVG	

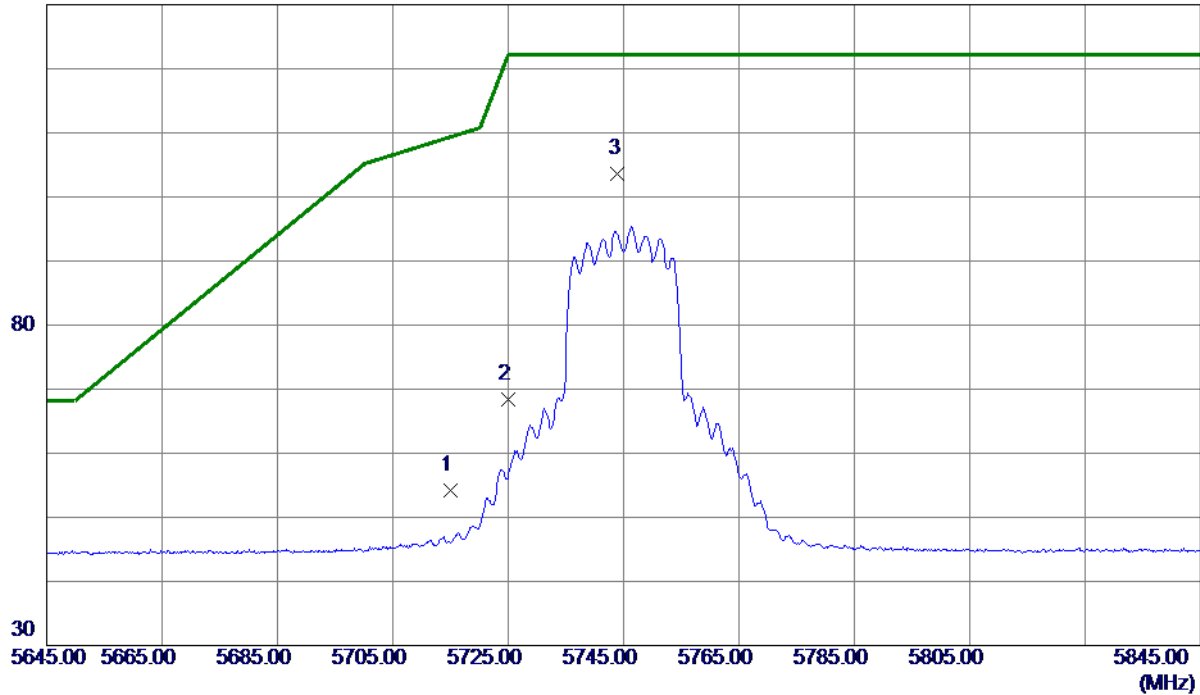
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT20) Mode 5745 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5715.0000	34.23	20.01	54.24	109.40	-55.16	Peak	
2	5725.0000	48.37	20.02	68.39	122.20	-53.81	Peak	
3 *	5744.0000	83.60	20.03	103.63	122.20	-18.57	Peak	

REMARKS:

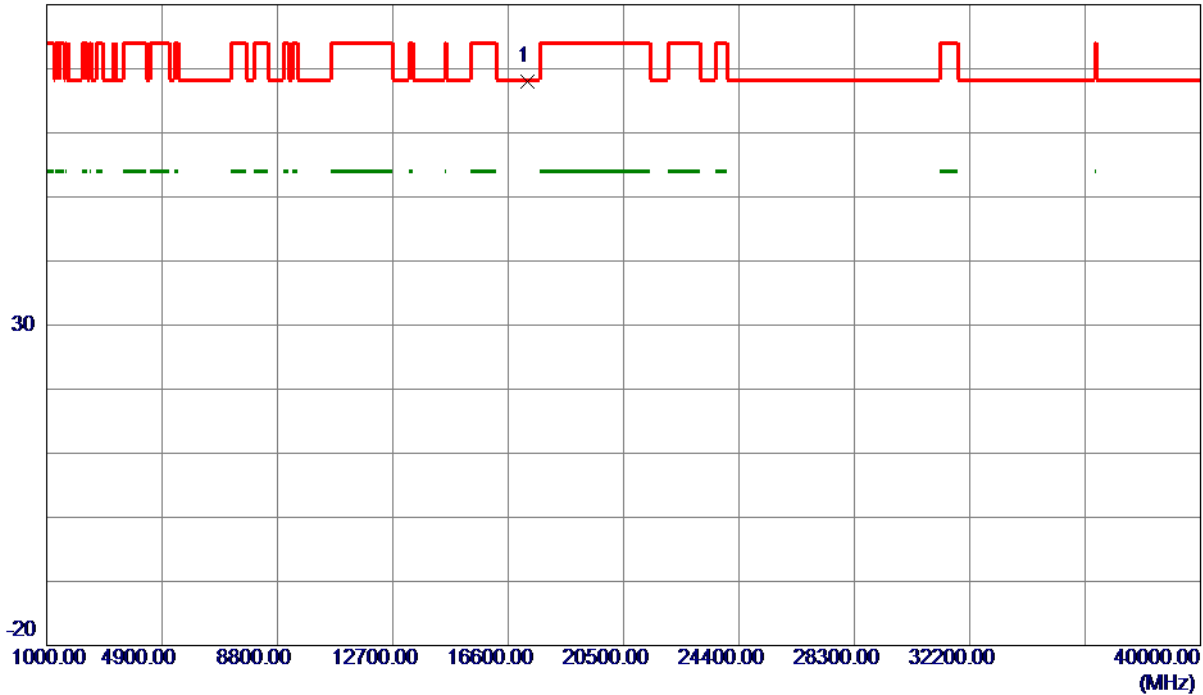
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT20) Mode 5745 MHz

Horizontal

80 dBuV/m



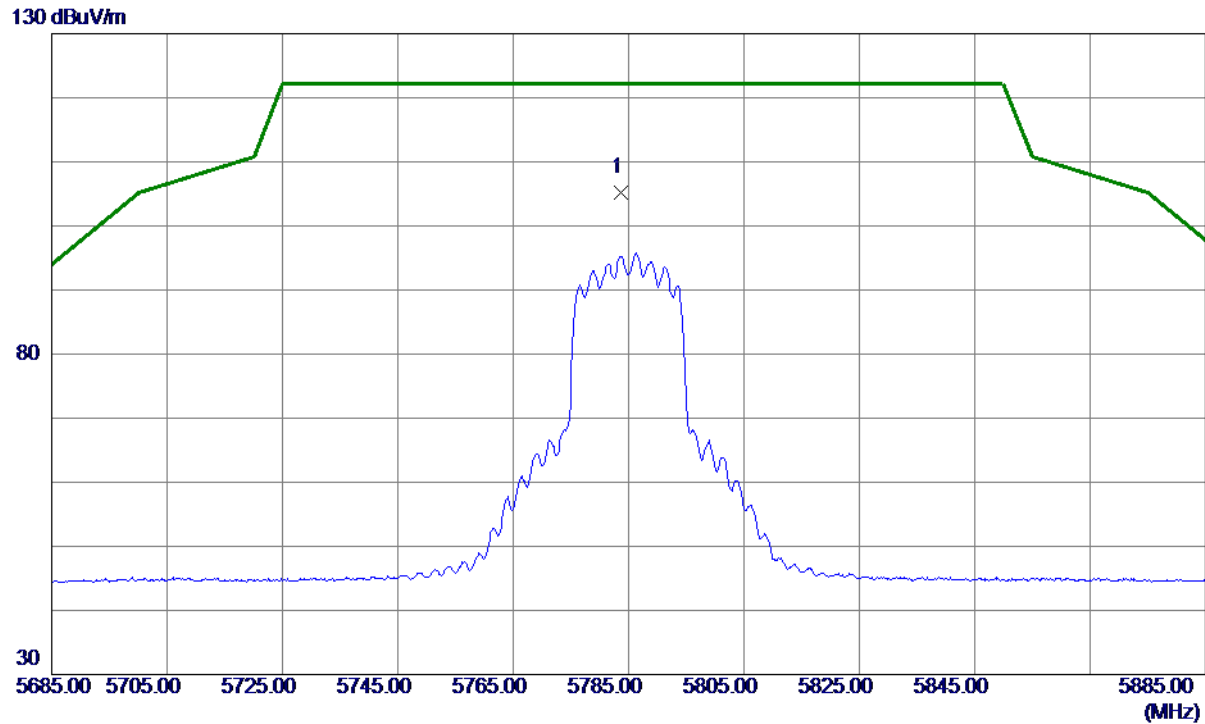
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17236.0830	43.93	24.12	68.05	68.30	-0.25	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT20) Mode 5785 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5783.7000	85.17	20.06	105.23	122.20	-16.97	Peak	

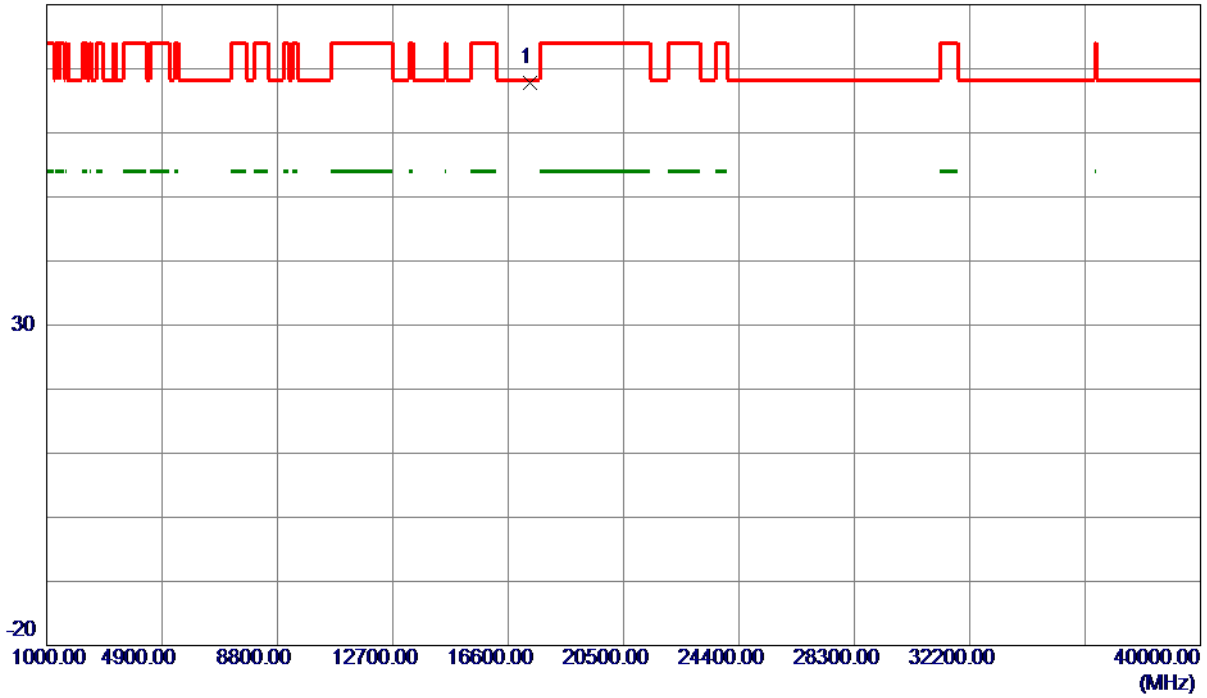
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT20) Mode 5785 MHz

Horizontal

80 dBuV/m



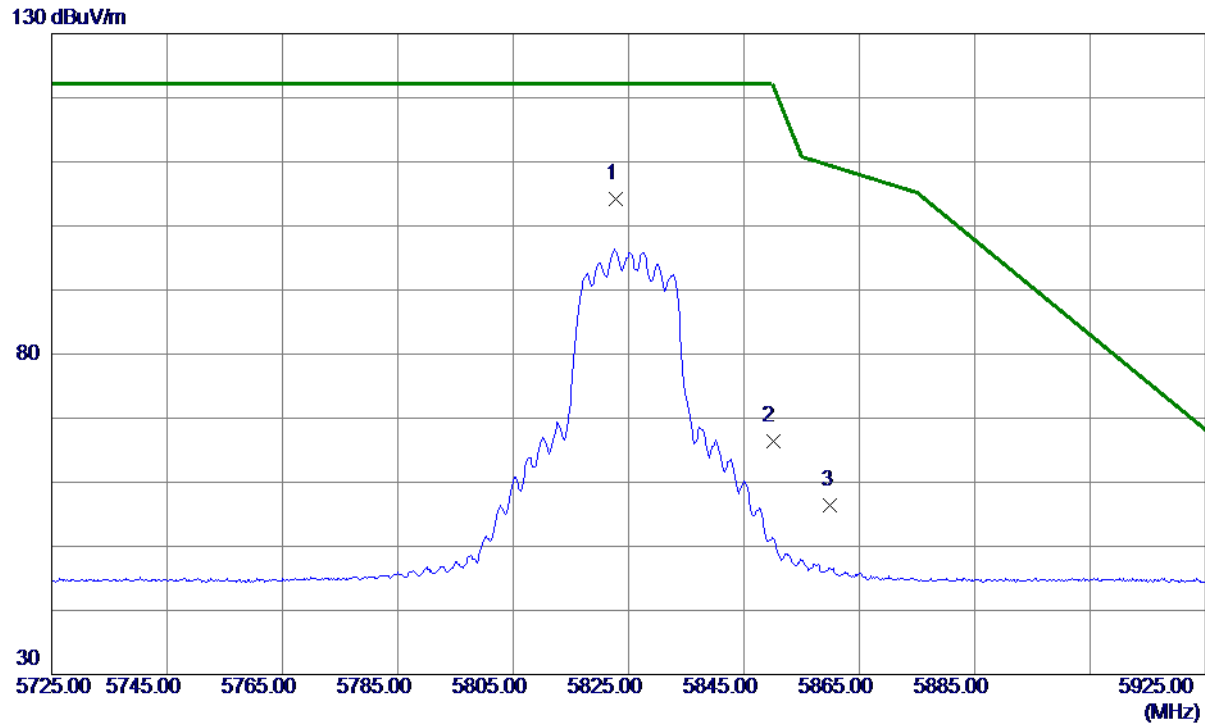
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17357.1900	43.25	24.54	67.79	68.30	-0.51	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT20) Mode 5825 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5822.7000	84.10	20.09	104.19	122.20	-18.01	Peak	
2	5850.0000	46.37	20.11	66.48	122.20	-55.72	Peak	
3	5860.0000	36.24	20.12	56.36	109.40	-53.04	Peak	

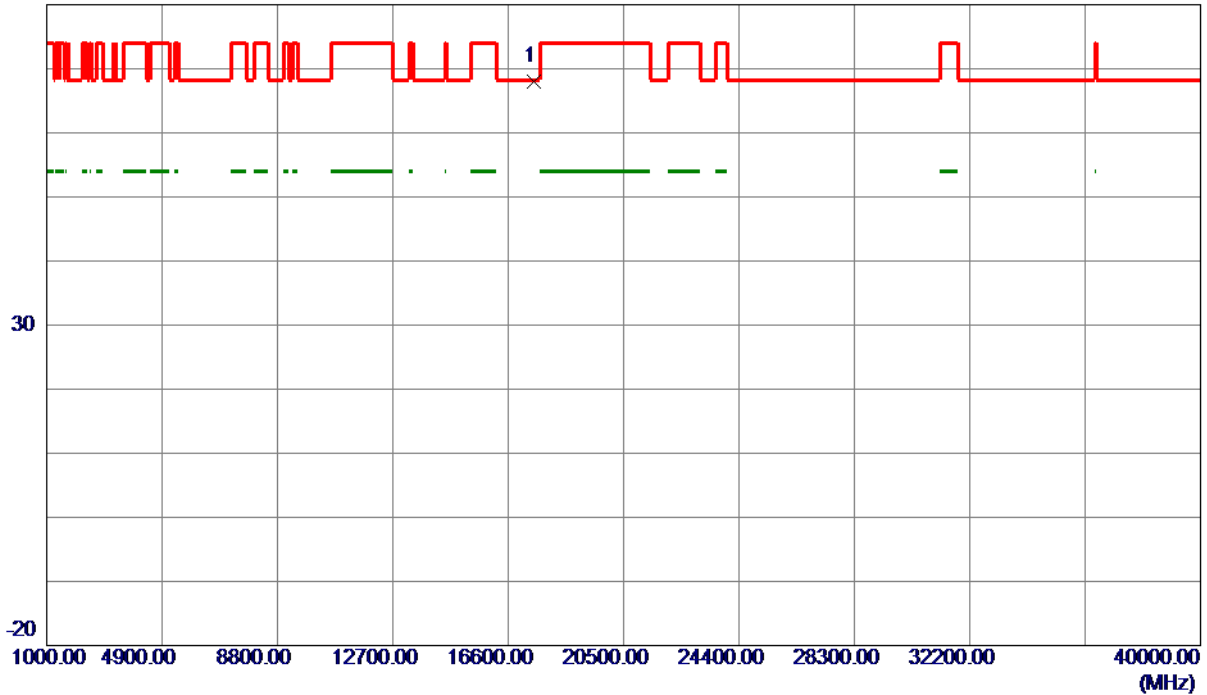
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT20) Mode 5825 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17475.9870	43.02	24.95	67.97	68.30	-0.33	Peak	

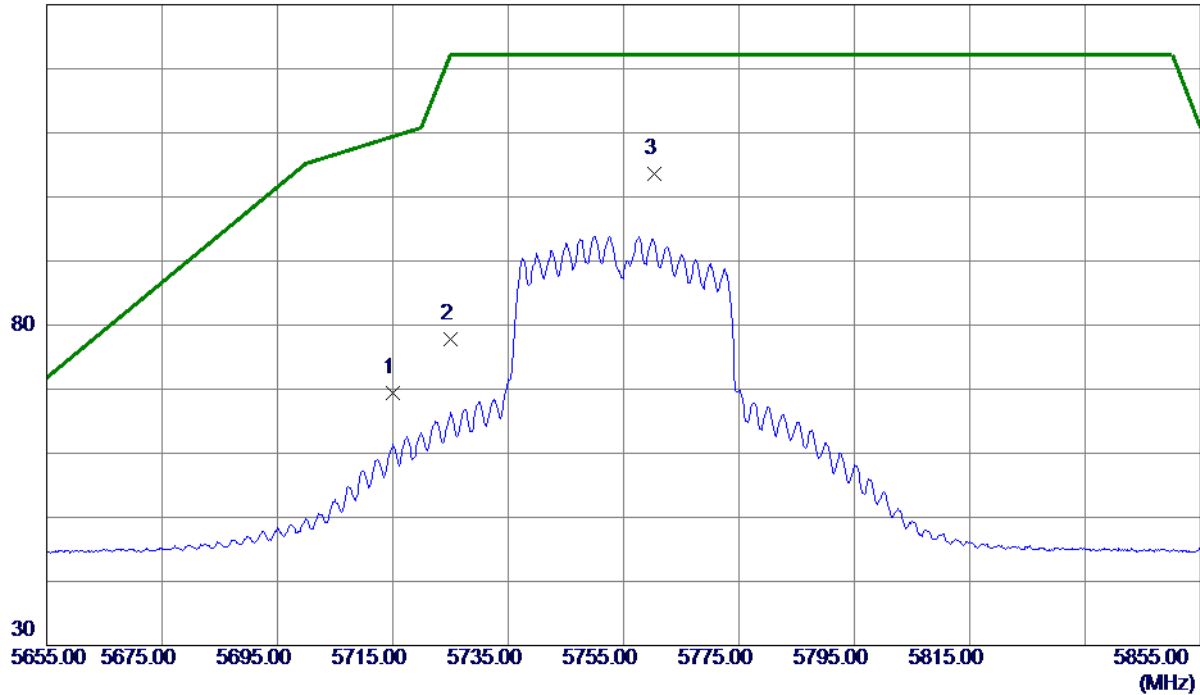
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT40) Mode 5755 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5715.0000	49.32	20.01	69.33	109.40	-40.07	Peak	
2	5725.0000	57.85	20.02	77.87	122.20	-44.33	Peak	
3 *	5760.4000	83.58	20.05	103.63	122.20	-18.57	Peak	

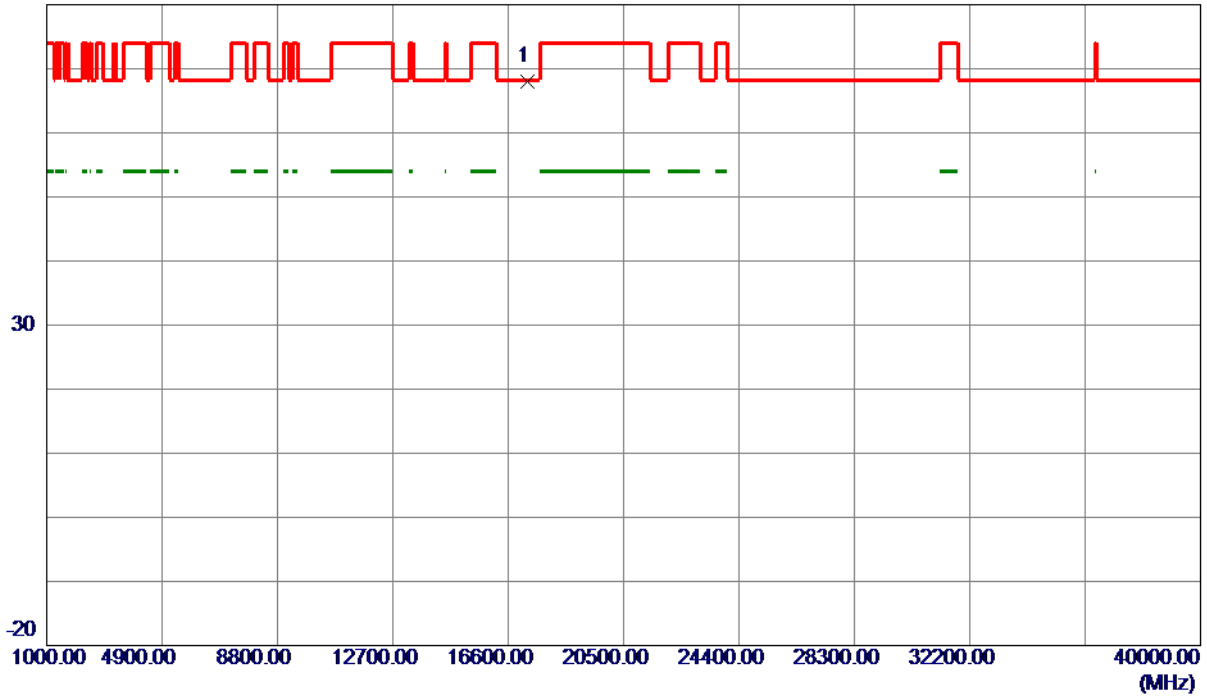
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT40) Mode 5755 MHz

Horizontal

80 dBuV/m



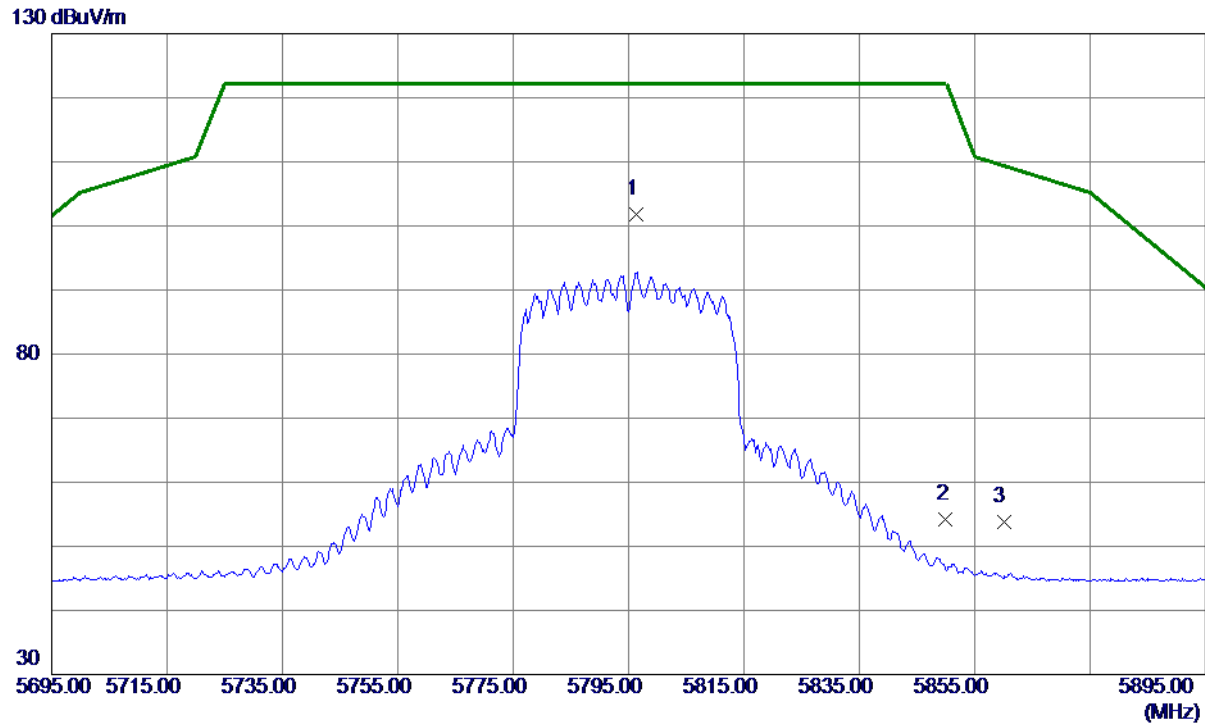
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17266.6950	43.74	24.23	67.97	68.30	-0.33	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT40) Mode 5795 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	5796.3000	81.68	20.07	101.75	122.20	-20.45	Peak	
2	5850.0000	34.09	20.11	54.20	122.20	-68.00	Peak	
3	5860.0000	33.76	20.12	53.88	109.40	-55.52	Peak	

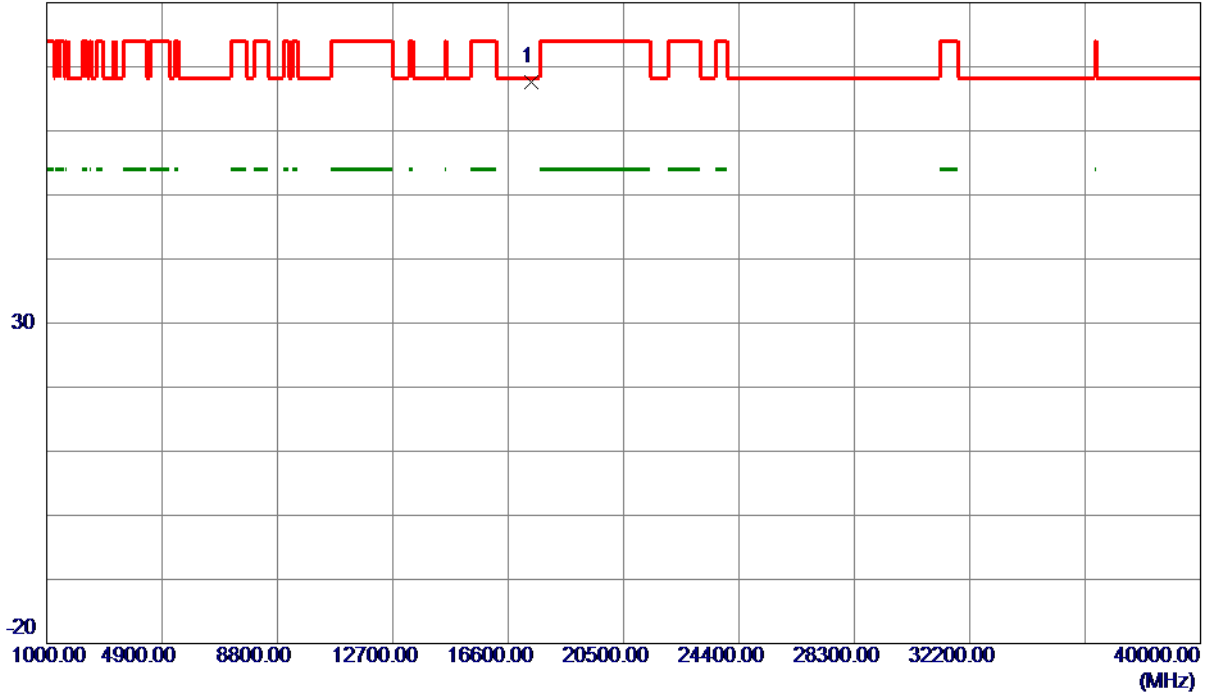
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT40) Mode 5795 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	17385.1300	42.98	24.63	67.61	999.00	-931.39	AVG	

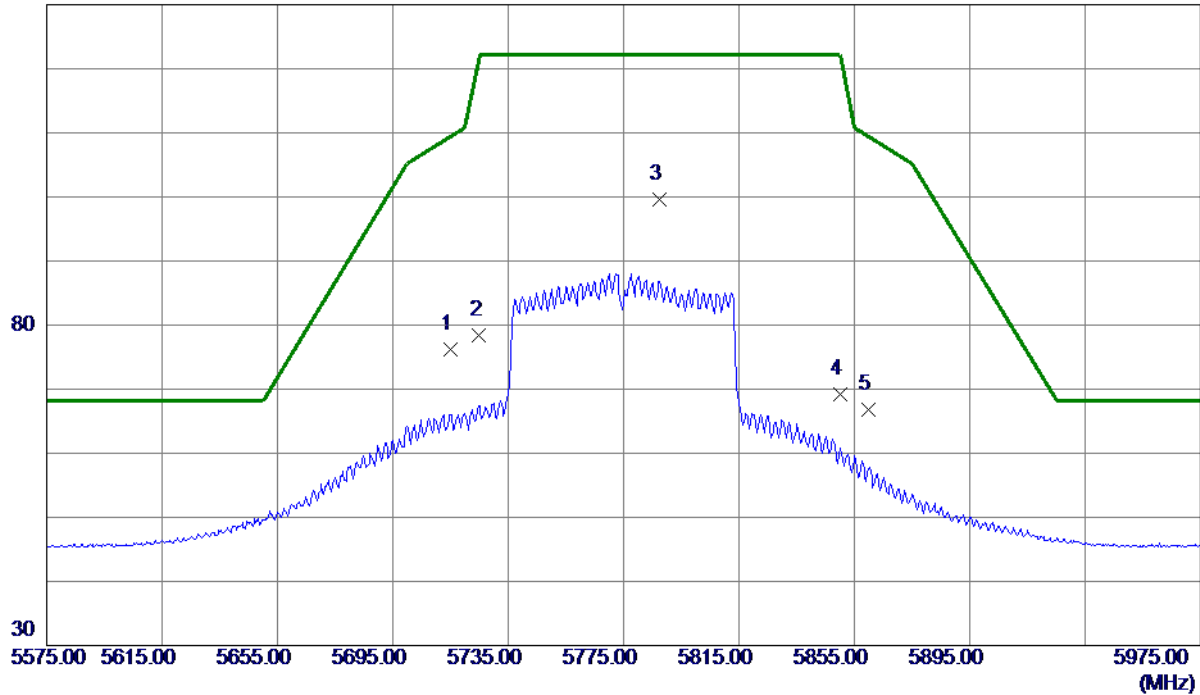
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT80) Mode 5775 MHz

Horizontal

130 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	5715.0000	56.13	20.01	76.14	109.40	-33.26	Peak	
2	5725.0000	58.42	20.02	78.44	122.20	-43.76	Peak	
3 *	5787.6000	79.50	20.06	99.56	122.20	-22.64	Peak	
4	5850.0000	49.06	20.11	69.17	122.20	-53.03	Peak	
5	5860.0000	46.59	20.12	66.71	109.40	-42.69	Peak	

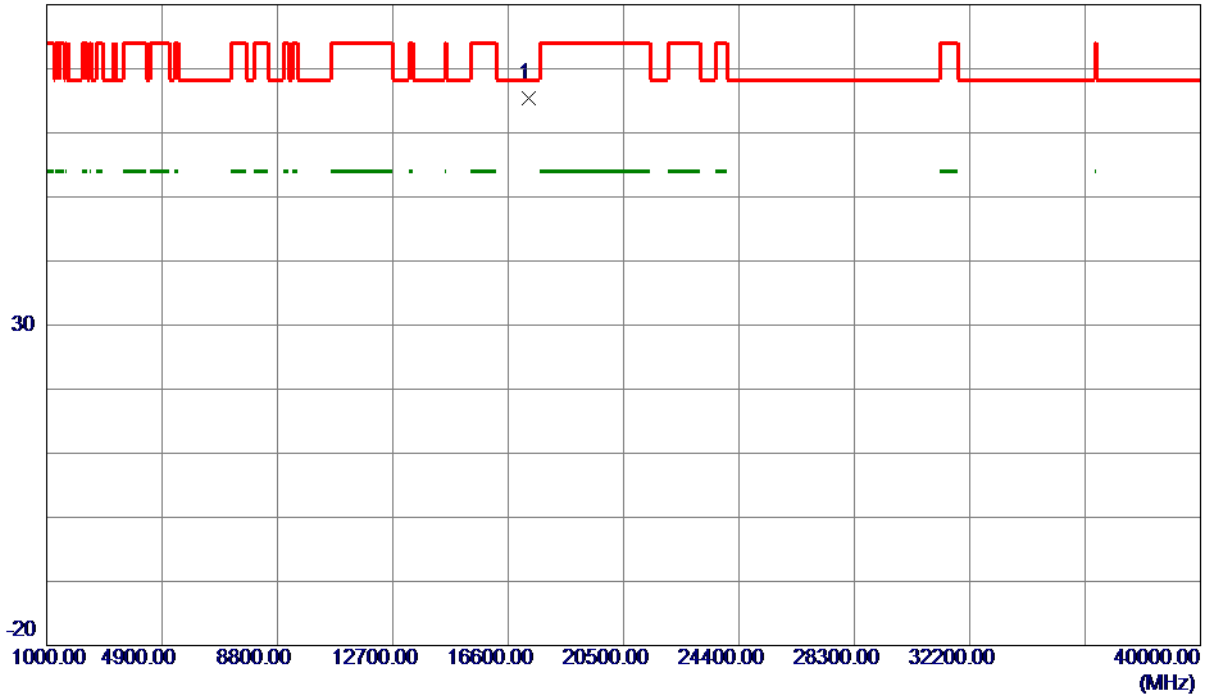
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode	UNII-3_TX AC (VHT80) Mode 5775 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	17300.0000	41.02	24.34	65.36	68.30	-2.94	Peak	

REMARKS:

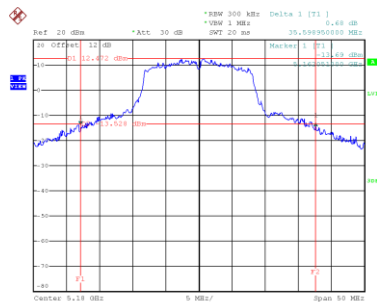
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX E - BANDWIDTH

Test Mode	UNII-1_TX A Mode
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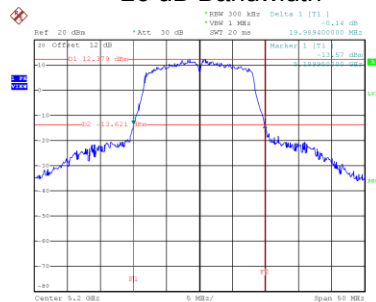
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)
36	5180	35.60	19.20
40	5200	19.99	16.70
48	5240	20.20	16.70

CH36



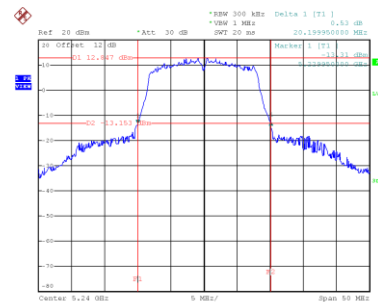
Date: 21.OCT.2020 15:03:25

CH40
26 dB Bandwidth



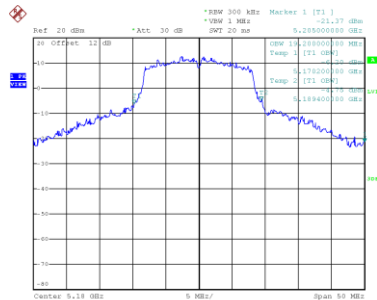
Date: 21.OCT.2020 15:04:02

CH48

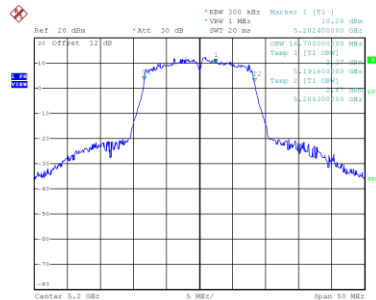


Date: 21.OCT.2020 15:04:37

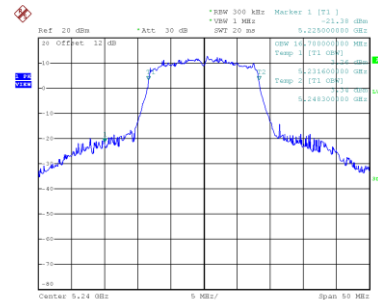
99 % Emission Bandwidth



Date: 21.OCT.2020 15:03:11



Date: 21.OCT.2020 15:03:41

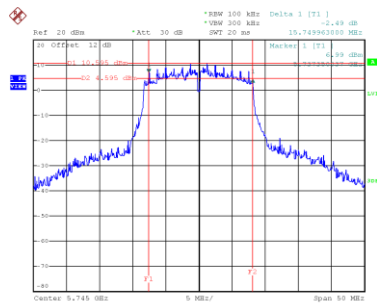


Date: 21.OCT.2020 15:04:17

Test Mode	UNII-3_TX A Mode
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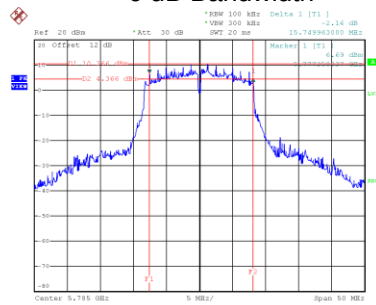
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
149	5745	15.75	16.80	500	Complies
157	5785	15.75	16.80	500	Complies
165	5825	15.20	16.70	500	Complies

CH149



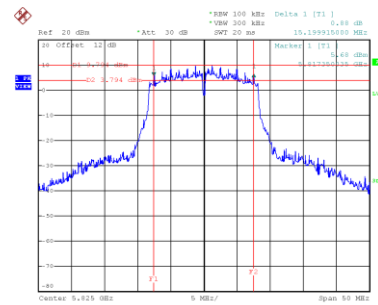
Date: 21.OCT.2020 15:05:30

CH157
6 dB Bandwidth



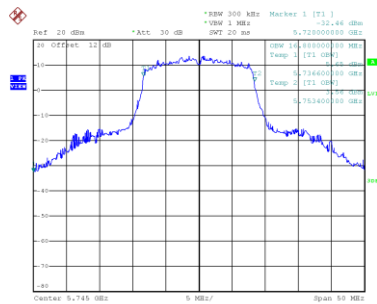
Date: 21.OCT.2020 15:06:14

CH165

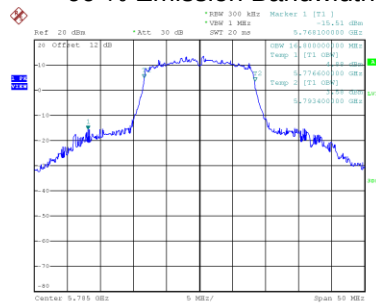


Date: 21.OCT.2020 15:06:51

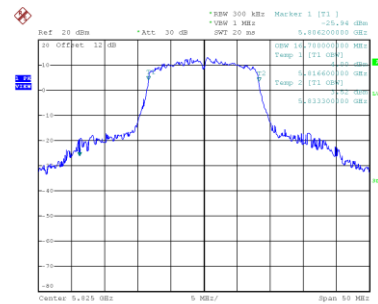
99 % Emission Bandwidth



Date: 21.OCT.2020 15:05:06



Date: 21.OCT.2020 15:05:49

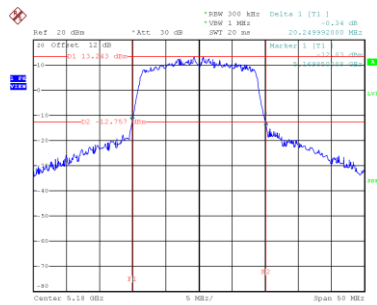


Date: 21.OCT.2020 15:06:27

Test Mode	UNII-1_TX AC (VHT20) Mode
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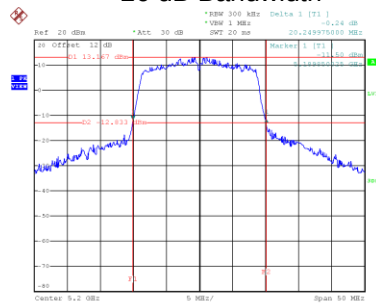
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)
36	5180	20.25	17.80
40	5200	20.25	17.80
48	5240	20.45	17.70

CH36



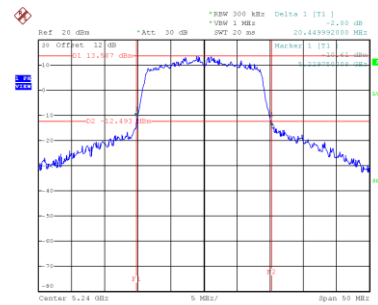
Date: 21.OCT.2020 15:07:24

CH40
26 dB Bandwidth



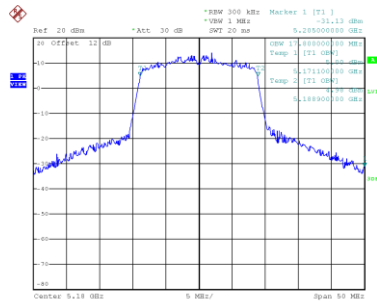
Date: 21.OCT.2020 15:08:09

CH48

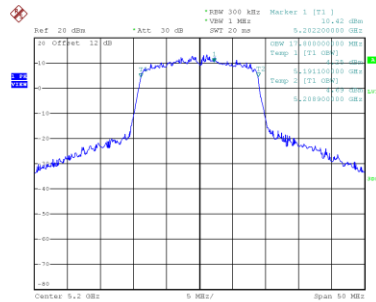


Date: 21.OCT.2020 15:08:45

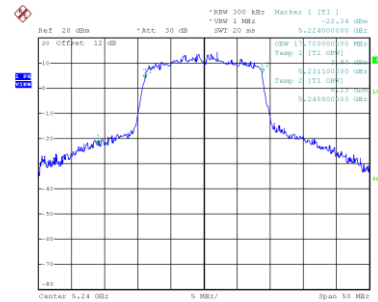
99 % Emission Bandwidth



Date: 21.OCT.2020 15:07:04



Date: 21.OCT.2020 15:07:45



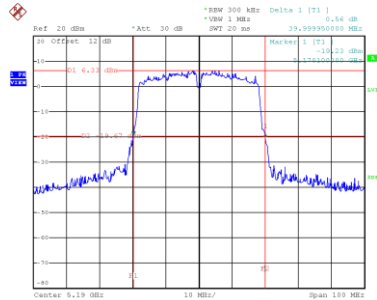
Date: 21.OCT.2020 15:08:25

Test Mode	UNII-1_TX AC (VHT40) Mode
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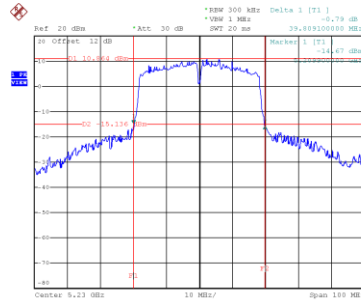
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)
38	5190	40.00	36.40
46	5230	39.81	36.80

CH38

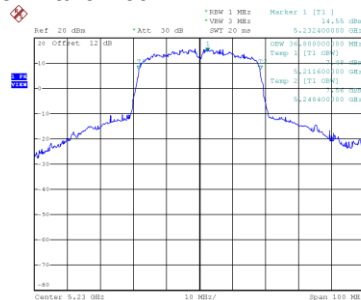
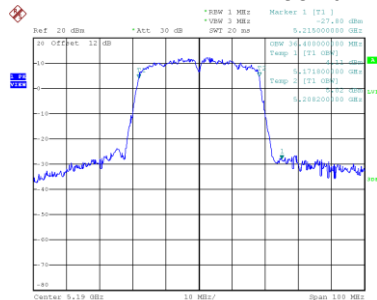
26 dB Bandwidth



CH46



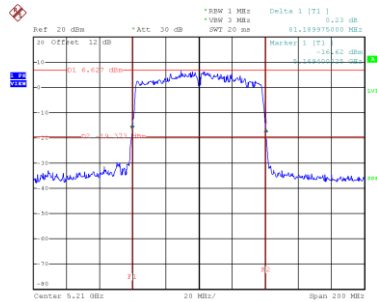
99 % Emission Bandwidth



Test Mode	UNII-1_TX AC (VHT80)
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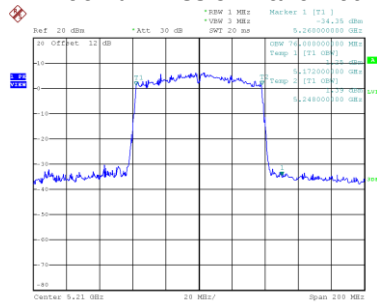
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)
42	5210	81.19	76.00

CH42 26 dB Bandwidth



Date: 21.OCT.2020 15:14:04

99 % Emission Bandwidth



Date: 21.OCT.2020 15:13:36

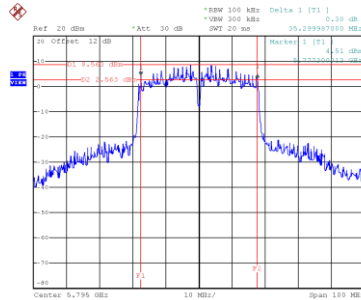
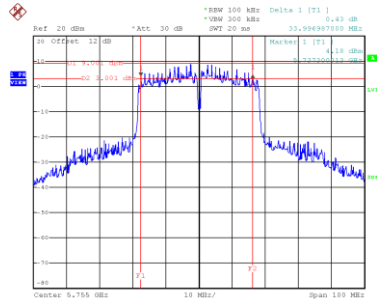
Test Mode	UNII-3_TX AC (VHT40) Mode
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Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
151	5755	34.00	36.80	500	Complies
159	5795	35.30	36.80	500	Complies

CH151

CH159

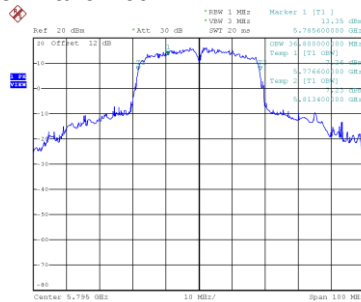
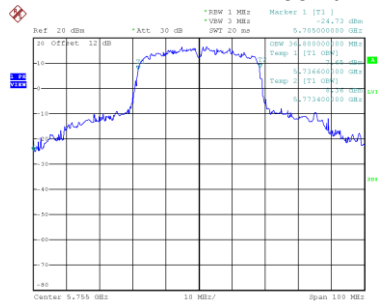
6 dB Bandwidth



Date: 21.OCT.2020 15:12:18

Date: 21.OCT.2020 15:13:21

99 % Emission Bandwidth



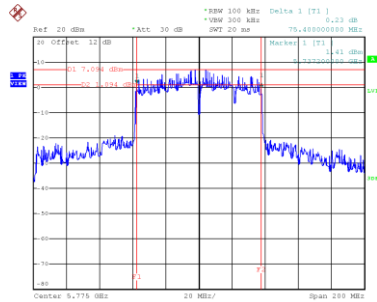
Date: 21.OCT.2020 15:12:18

Date: 21.OCT.2020 15:12:52

Test Mode	UNII-3_TX AC (VHT80)
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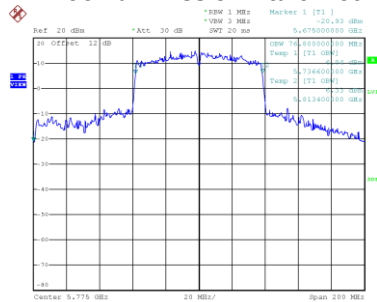
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
155	5775	75.40	76.80	500	Complies

CH155 6 dB Bandwidth



Date: 21.OCT.2020 15:15:00

99 % Emission Bandwidth



Date: 21.OCT.2020 15:14:33

APPENDIX F - MAXIMUM OUTPUT POWER

Non-Beamforming

Test Mode	UNII-1_TX A Mode_Ant. 1
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	18.52	0.89	19.41	30.00	1.00	Complies
40	5200	18.37	0.89	19.26	30.00	1.00	Complies
48	5240	18.77	0.89	19.66	30.00	1.00	Complies

Test Mode	UNII-1_TX A Mode_Ant. 2
-----------	-------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	18.64	0.89	19.53	30.00	1.00	Complies
40	5200	18.66	0.89	19.55	30.00	1.00	Complies
48	5240	18.75	0.89	19.64	30.00	1.00	Complies

Test Mode	UNII-1_TX A Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	22.48	30.00	1.00	Complies
40	5200	22.42	30.00	1.00	Complies
48	5240	22.66	30.00	1.00	Complies

Test Mode	UNII-3_TX A Mode_Ant. 1
-----------	-------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.51	0.89	18.40	30.00	1.00	Complies
157	5785	17.72	0.89	18.61	30.00	1.00	Complies
165	5825	16.95	0.89	17.84	30.00	1.00	Complies

Test Mode	UNII-3_TX A Mode_Ant. 2
-----------	-------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.43	0.89	18.32	30.00	1.00	Complies
157	5785	17.88	0.89	18.77	30.00	1.00	Complies
165	5825	17.13	0.89	18.02	30.00	1.00	Complies

Test Mode	UNII-3_TX A Mode_Total
-----------	------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	21.37	30.00	1.00	Complies
157	5785	21.71	30.00	1.00	Complies
165	5825	20.95	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT20) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	18.54	0.93	19.47	30.00	1.00	Complies
40	5200	18.51	0.93	19.44	30.00	1.00	Complies
48	5240	18.42	0.93	19.35	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT20) Mode_Ant. 2
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	18.74	0.93	19.67	30.00	1.00	Complies
40	5200	18.83	0.93	19.76	30.00	1.00	Complies
48	5240	18.69	0.93	19.62	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT20) Mode_Total
-----------	---------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	22.58	30.00	1.00	Complies
40	5200	22.61	30.00	1.00	Complies
48	5240	22.49	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT40) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
38	5190	16.86	1.65	18.51	30.00	1.00	Complies
46	5230	18.88	1.65	20.53	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT40) Mode_Ant. 2
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
38	5190	17.19	1.65	18.84	30.00	1.00	Complies
46	5230	19.17	1.65	20.82	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT40) Mode_Total
-----------	---------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
38	5190	21.69	30.00	1.00	Complies
46	5230	23.69	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
42	5210	15.04	1.77	16.81	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Ant. 2
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
42	5210	14.96	1.77	16.73	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Total
-----------	---------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
42	5210	19.78	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT20) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.25	0.93	18.18	30.00	1.00	Complies
157	5785	17.63	0.93	18.56	30.00	1.00	Complies
165	5825	16.48	0.93	17.41	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT20) Mode_Ant. 2
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.31	0.93	18.24	30.00	1.00	Complies
157	5785	17.42	0.93	18.35	30.00	1.00	Complies
165	5825	16.54	0.93	17.47	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT20) Mode_Total
-----------	---------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	21.22	30.00	1.00	Complies
157	5785	21.46	30.00	1.00	Complies
165	5825	20.45	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT40) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
151	5755	17.93	1.65	19.58	30.00	1.00	Complies
159	5795	18.12	1.65	19.77	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT40) Mode_Ant. 2
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
151	5755	18.25	1.65	19.90	30.00	1.00	Complies
159	5795	18.43	1.65	20.08	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT40) Mode_Total
-----------	---------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
151	5755	22.75	30.00	1.00	Complies
159	5795	22.94	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT80) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
155	5775	19.98	1.77	21.75	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT80) Mode_Ant. 2
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
155	5775	19.83	1.77	21.60	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT80) Mode_Total
-----------	---------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
155	5775	24.69	30.00	1.00	Complies

Beamforming

Test Mode	UNII-1_TX AC (VHT20) Mode_Ant. 1
-----------	----------------------------------

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	18.17	0.93	19.10	30.00	1.00	Complies
40	5200	18.21	0.93	19.14	30.00	1.00	Complies
48	5240	18.16	0.93	19.09	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT20) Mode_Ant. 2
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	18.44	0.93	19.37	30.00	1.00	Complies
40	5200	18.56	0.93	19.49	30.00	1.00	Complies
48	5240	18.39	0.93	19.32	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT20) Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
36	5180	22.24	30.00	1.00	Complies
40	5200	22.32	30.00	1.00	Complies
48	5240	22.21	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT40) Mode_Ant. 1
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
38	5190	16.54	1.65	18.19	30.00	1.00	Complies
46	5230	18.53	1.65	20.18	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT40) Mode_Ant. 2
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
38	5190	16.92	1.65	18.57	30.00	1.00	Complies
46	5230	18.94	1.65	20.59	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT40) Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
38	5190	21.39	30.00	1.00	Complies
46	5230	23.40	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Ant. 1
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
42	5210	14.79	1.77	16.56	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Ant. 2
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
42	5210	14.62	1.77	16.39	30.00	1.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
42	5210	19.49	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT20) Mode_Ant. 1
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.03	0.93	17.96	30.00	1.00	Complies
157	5785	17.22	0.93	18.15	30.00	1.00	Complies
165	5825	16.25	0.93	17.18	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT20) Mode_Ant. 2
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	17.08	0.93	18.01	30.00	1.00	Complies
157	5785	17.15	0.93	18.08	30.00	1.00	Complies
165	5825	16.27	0.93	17.20	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT20) Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
149	5745	20.99	30.00	1.00	Complies
157	5785	21.12	30.00	1.00	Complies
165	5825	20.20	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT40) Mode_Ant. 1
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
151	5755	17.67	1.65	19.32	30.00	1.00	Complies
159	5795	17.88	1.65	19.53	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT40) Mode_Ant. 2
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
151	5755	17.99	1.65	19.64	30.00	1.00	Complies
159	5795	18.15	1.65	19.80	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT40) Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
151	5755	22.49	30.00	1.00	Complies
159	5795	22.68	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT80) Mode_Ant. 1
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
155	5775	19.71	1.77	21.48	30.00	1.00	Complies

Test Mode	UNII-3_TX AC (VHT80) Mode_Ant. 2
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Duty Factor	Conducted Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
155	5775	19.54	1.77	21.31	30.00	1.00	Complies

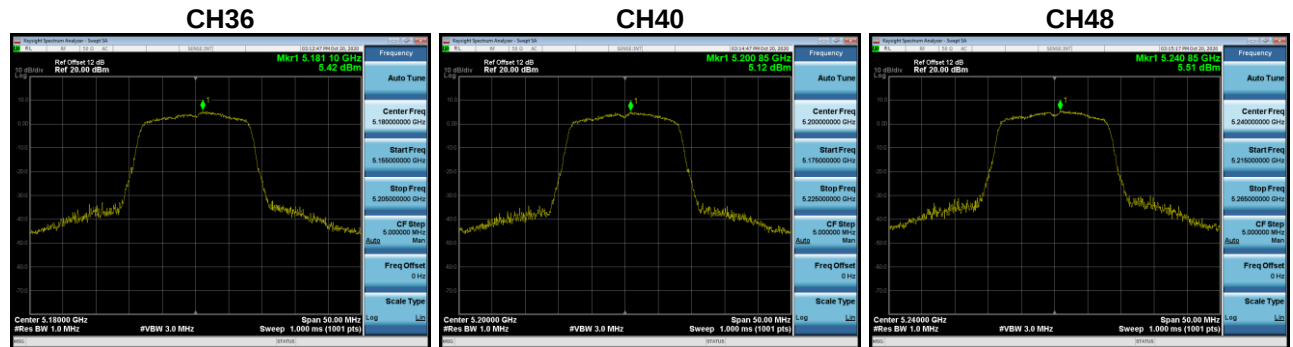
Test Mode	UNII-3_TX AC (VHT80) Mode_Total
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Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
155	5775	24.41	30.00	1.00	Complies

APPENDIX G - POWER SPECTRAL DENSITY

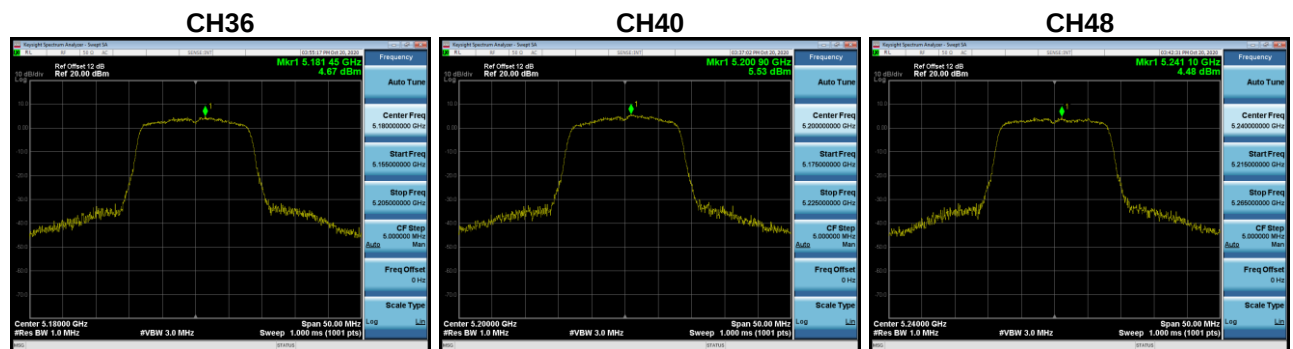
Test Mode	UNII-1_TX A Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180	5.42	0.89	6.31	17.00	Complies
40	5200	5.12	0.89	6.01	17.00	Complies
48	5240	5.51	0.89	6.40	17.00	Complies



Test Mode	UNII-1_TX A Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180	4.67	0.89	5.56	17.00	Complies
40	5200	5.53	0.89	6.42	17.00	Complies
48	5240	4.48	0.89	5.37	17.00	Complies

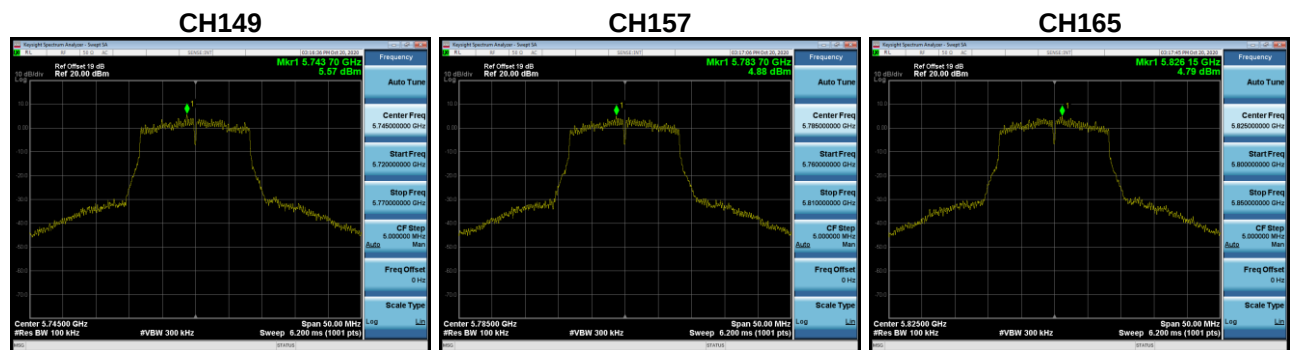


Test Mode	UNII-1_TX A Mode_Total
-----------	------------------------

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180	8.97	17.00	Complies
40	5200	9.23	17.00	Complies
48	5240	8.93	17.00	Complies

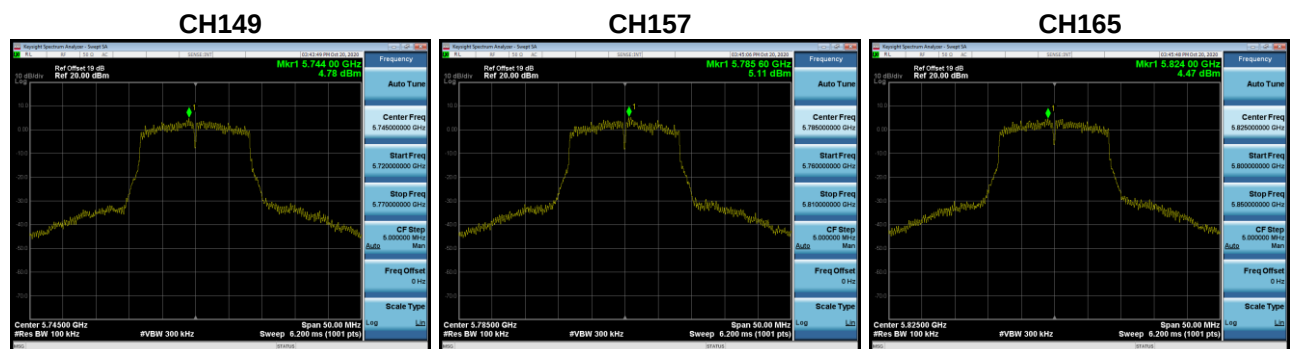
Test Mode	UNII-3_TX A Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	5.57	0.89	6.46	30.00	Complies
157	5785	4.88	0.89	5.77	30.00	Complies
165	5825	4.79	0.89	5.68	30.00	Complies



Test Mode	UNII-3_TX A Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	4.78	0.89	5.67	30.00	Complies
157	5785	5.11	0.89	6.00	30.00	Complies
165	5825	4.47	0.89	5.36	30.00	Complies

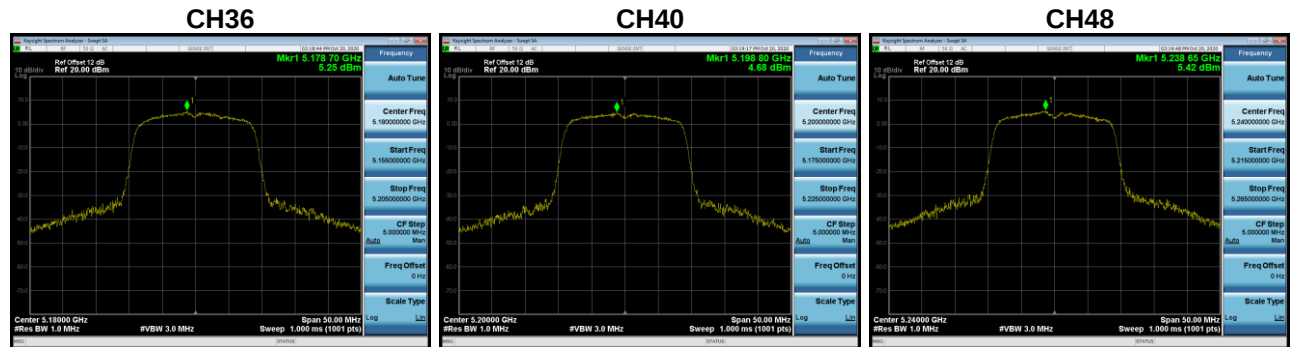


Test Mode	UNII-3_TX A Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	9.10	30.00	Complies
157	5785	8.90	30.00	Complies
165	5825	8.54	30.00	Complies

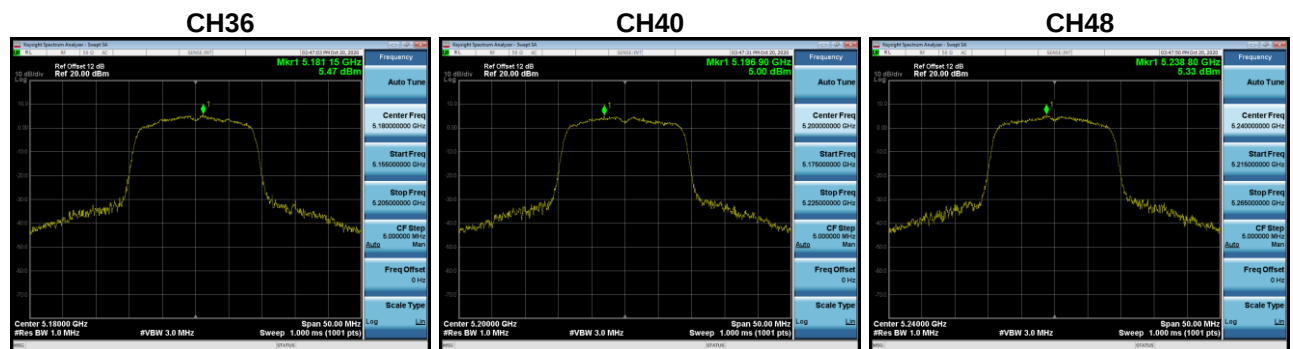
Test Mode	UNII-1_TX AC (VHT20) Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180	5.25	0.93	6.18	17.00	Complies
40	5200	4.68	0.93	5.61	17.00	Complies
48	5240	5.42	0.93	6.35	17.00	Complies



Test Mode	UNII-1_TX AC (VHT20) Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180	5.47	0.93	6.40	17.00	Complies
40	5200	5.00	0.93	5.93	17.00	Complies
48	5240	5.33	0.93	6.26	17.00	Complies

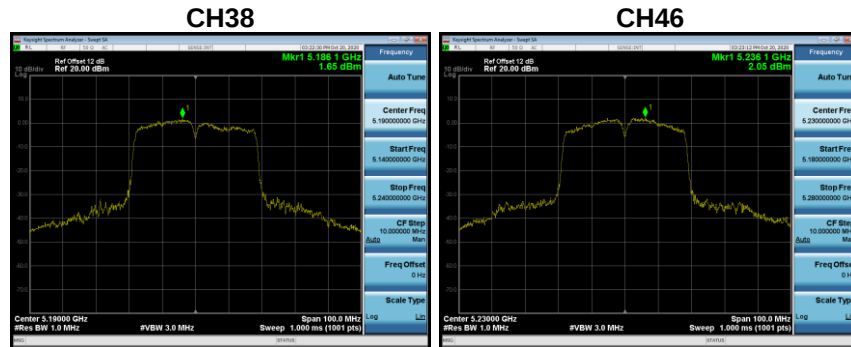


Test Mode	UNII-1_TX AC (VHT20) Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180	9.30	17.00	Complies
40	5200	8.78	17.00	Complies
48	5240	9.32	17.00	Complies

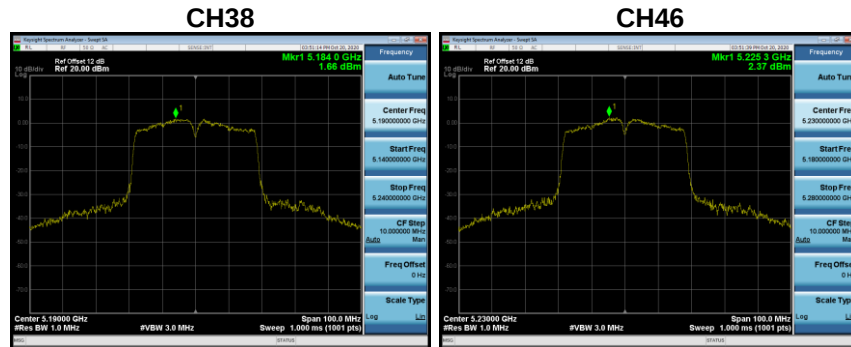
Test Mode	UNII-1_TX AC (VHT40) Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190	1.65	1.65	3.30	17.00	Complies
46	5230	2.05	1.65	3.70	17.00	Complies



Test Mode	UNII-1_TX AC (VHT40) Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190	1.66	1.65	3.31	17.00	Complies
46	5230	2.37	1.65	4.02	17.00	Complies



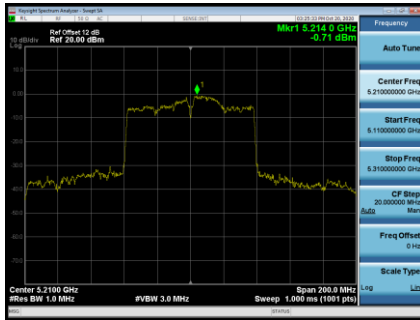
Test Mode	UNII-1_TX AC (VHT40) Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190	6.32	17.00	Complies
46	5230	6.87	17.00	Complies

Test Mode	UNII-1_TX AC (VHT80) Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210	-0.71	1.77	1.06	17.00	Complies

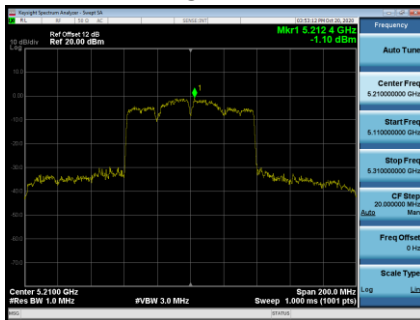
CH42



Test Mode	UNII-1_TX AC (VHT80) Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210	-1.10	1.77	0.67	17.00	Complies

CH42



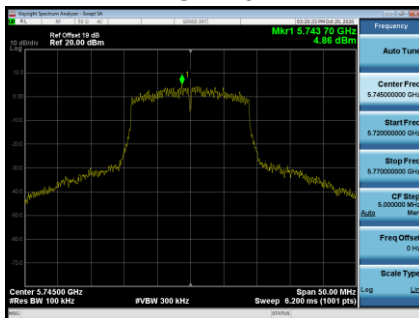
Test Mode	UNII-1_TX AC (VHT80) Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210	3.88	17.00	Complies

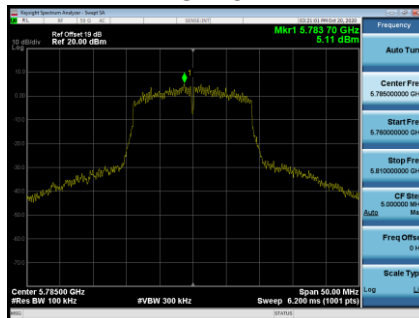
Test Mode	UNII-3_TX AC (VHT20) Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	4.86	0.93	5.79	30.00	Complies
157	5785	5.11	0.93	6.04	30.00	Complies
165	5825	5.76	0.93	6.69	30.00	Complies

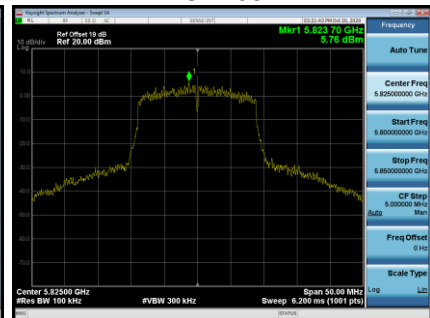
CH149



CH157



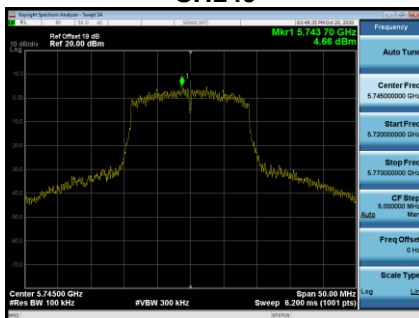
CH165



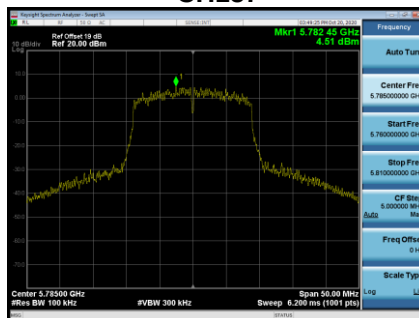
Test Mode	UNII-3_TX AC (VHT20) Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	4.66	0.93	5.59	30.00	Complies
157	5785	4.51	0.93	5.44	30.00	Complies
165	5825	5.08	0.93	6.01	30.00	Complies

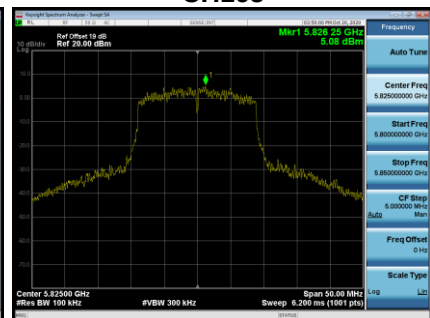
CH149



CH157



CH165



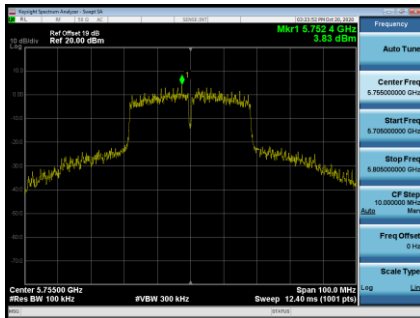
Test Mode	UNII-3_TX AC (VHT20) Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
149	5745	8.70	30.00	Complies
157	5785	8.76	30.00	Complies
165	5825	9.37	30.00	Complies

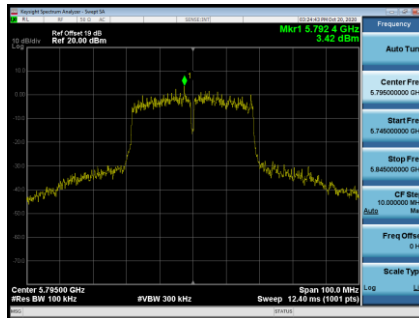
Test Mode	UNII-3_TX AC (VHT40) Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
151	5755	3.83	1.65	5.48	30.00	Complies
159	5795	3.42	1.65	5.07	30.00	Complies

CH151



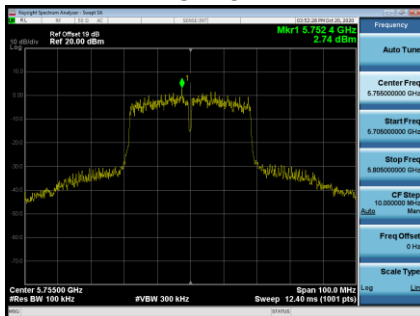
CH159



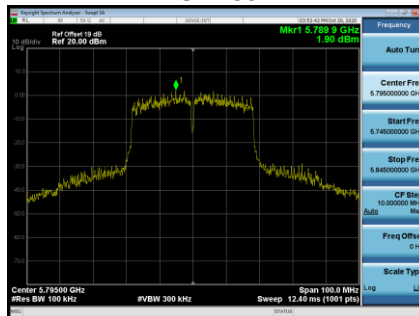
Test Mode	UNII-3_TX AC (VHT40) Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
151	5755	2.74	1.65	4.39	30.00	Complies
159	5795	1.90	1.65	3.55	30.00	Complies

CH151



CH159



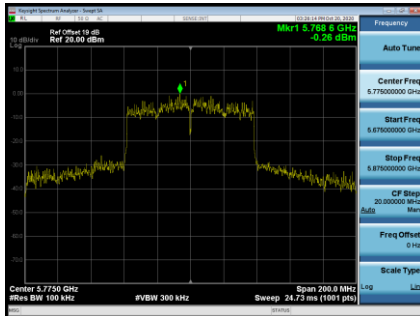
Test Mode	UNII-3_TX AC (VHT40) Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
151	5755	7.98	30.00	Complies
159	5795	7.39	30.00	Complies

Test Mode	UNII-3_TX AC (VHT80) Mode_Ant. 1
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
155	5775	-0.26	1.77	1.51	30.00	Complies

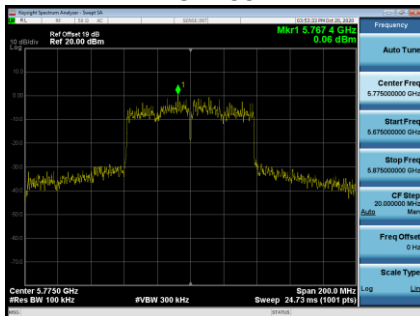
CH155



Test Mode	UNII-3_TX AC (VHT80) Mode_Ant. 2
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Duty Factor	Power Spectral Density + Duty Factor (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
155	5775	0.06	1.77	1.83	30.00	Complies

CH155



Test Mode	UNII-3_TX AC (VHT80) Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/500 kHz)	Max. Limit (dBm/500 kHz)	Result
155	5775	4.69	30.00	Complies

APPENDIX H - FREQUENCY STABILITY

Test Mode	UNII-1
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Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5180.0000
132	5179.9748
120	5179.9768
108	5179.9788
Maximum Deviation (MHz)	0.0252
Maximum Deviation (ppm)	4.8649

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5180.0000
-5	5179.9800
5	5179.9824
15	5179.9840
25	5179.9856
35	5179.9868
45	5179.9880
50	5179.9888
Maximum Deviation (MHz)	0.0200
Maximum Deviation (ppm)	3.8610

Test Mode	UNII-3
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Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5745.0000
132	5744.9864
120	5744.9892
108	5744.9908
Maximum Deviation (MHz)	0.0136
Maximum Deviation (ppm)	2.3673

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5745.0000
-5	5744.9920
5	5744.9940
15	5744.9932
25	5744.9944
35	5744.9952
45	5744.9964
50	5744.9980
Maximum Deviation (MHz)	0.0080
Maximum Deviation (ppm)	1.3925

End of Test Report