

MEASUREMENT REPORT

FCC PART 15.407 WLAN 802.11a/n/ac

FCC ID: 2AVK9-30178

Applicant: Strong Current Enterprises Limited

Application Type: Certification

Product: TRIFIBOOST

Model No.: 30178, 30213

FCC Classification: Unlicensed National Information Infrastructure (NII)

FCC Rule Part(s): Part15 Subpart E (Section 15.407)

Test Procedure(s): ANSI C63.10-2013

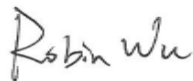
Test Date: January 13 ~ 19, 2020

Reviewed By:



(Sunny Sun)

Approved By:



(Robin Wu)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 789033 D02v02r01. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2001RSU019-U2	Rev. 01	Initial Report	01-22-2020	Valid

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General Information

Applicant:	Strong Current Enterprises Limited
Applicant Address:	Suite 2201, 22/F, Chinachem Century Tower, 178 Gloucester Road, Wan Chai, Hong Kong
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Designation No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	TRIFIBOOST
Model No.:	30178, 30213
Wi-Fi Specification:	802.11a/b/g/n/ac

Note: The different models are only for marketing different clients, others are the same.

2.2. Product Specification Subjective to this Report

Frequency Range:	For 802.11a/n-HT20/ac-VHT20: 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5755~5795MHz For 802.11ac-VHT80: 5775MHz
Type of Modulation:	802.11a/n/ac: OFDM
Channel Number:	For 802.11a/n-HT20/ac-VHT20: 5 For 802.11n-HT40/ac-VHT40: 2 For 802.11ac-VHT80: 1
Data Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps

2.3. Working Frequencies for this Report

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	153	5765 MHz	157	5785 MHz
161	5805 MHz	165	5825 MHz	--	--

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz	--	--

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
155	5775 MHz	--	--	--	--

2.4. Description of Available Antennas

Antenna Type	Frequency Band (MHz)	TX Paths	Max Antenna Gain (dBi)		CDD Directional Gain (dBi)	
			Ant 0	Ant 1	For Power	For PSD
Dipole Antenna	2412 ~ 2462	2	3	3	3	6.01
	5745 ~ 5825	1	3		3	3

Note:

For 2.4GHz, the EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

For CDD transmissions, directional gain is calculated as follows, $N_{ANT} = 2$, $N_{SS} = 1$.

Directional gain = $G_{ANT\ MAX} + \text{Array Gain}$, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

$$\text{Array Gain} = 10 \log (N_{ANT} / N_{SS}) \text{ dB} = 3.01;$$

- For power measurements on IEEE 802.11 devices,

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 4;$$

2.5. Test Mode

Test Mode	Mode 1: Transmit by 802.11a (6Mbps)
	Mode 2: Transmit by 802.11n-HT20 (MCS0)
	Mode 3: Transmit by 802.11n-HT40 (MCS0)
	Mode 4: Transmit by 802.11ac-VHT20 (MCS0)
	Mode 5: Transmit by 802.11ac-VHT40 (MCS0)
	Mode 6: Transmit by 802.11ac-VHT80 (MCS0)

2.6. Description of Test Software

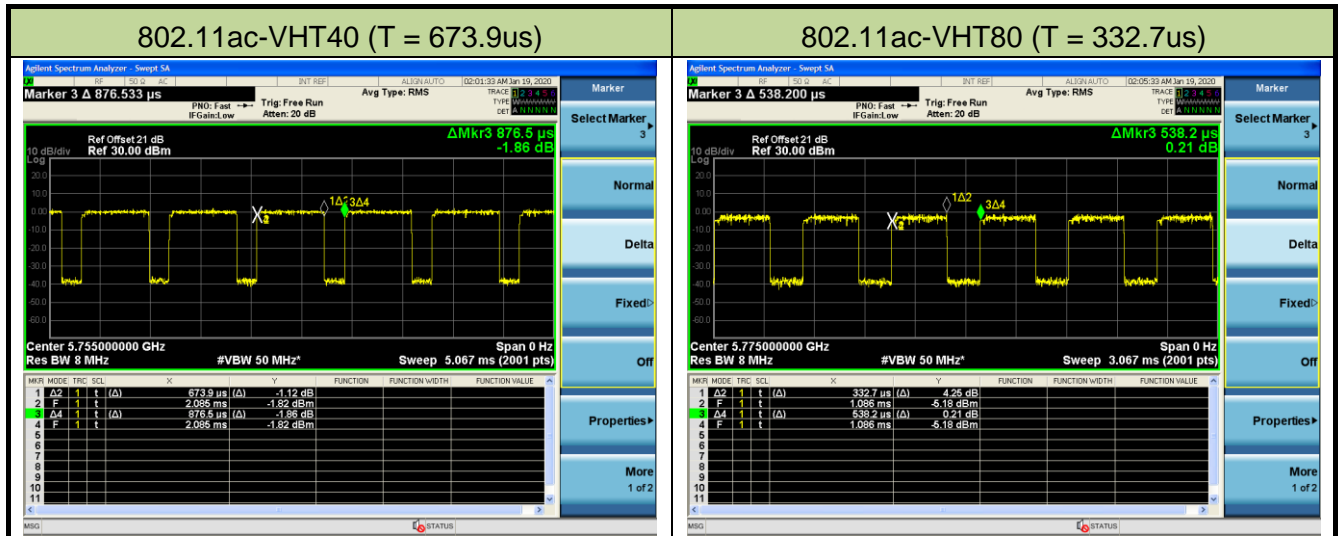
The test utility software used during testing was "MT76xxE QA", and the version was "2.0.10.3".

2.7. Device Capabilities

5GHz (NII) operation is possible in 20MHz, 40MHz, and 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
802.11a	87.80 %
802.11n-HT20	86.45 %
802.11n-HT40	76.11 %
802.11ac-VHT20	86.62 %
802.11ac-VHT40	76.89 %
802.11ac-VHT80	61.82 %





2.8. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.9. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlets supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance was used in the measurement.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remotecontrolled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2020/02/24
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2020/08/01
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2020/02/24
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/18
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2020/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2020/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2020/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2020/06/13
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2020/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Conducted Emission Measurement - SR2

The maximum measurement uncertainty is evaluated as:

9kHz~150kHz: 3.84dB

150kHz~30MHz: 3.46dB

Radiated Emission Measurement - AC1

The maximum measurement uncertainty is evaluated as:

Horizontal: 30MHz~300MHz: 4.07dB

300MHz~1GHz: 3.63dB

1GHz~18GHz: 4.16dB

Vertical: 30MHz~300MHz: 4.18dB

300MHz~1GHz: 3.60dB

1GHz~18GHz: 4.76dB

Radiated Emission Measurement - AC2

The maximum measurement uncertainty is evaluated as:

Horizontal: 30MHz~300MHz: 3.75dB

300MHz~1GHz: 3.53dB

1GHz~18GHz: 4.28dB

Vertical: 30MHz~300MHz: 3.86dB

300MHz~1GHz: 3.53dB

1GHz~18GHz: 4.33dB

7. TEST RESULT

7.1. Summary

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section 7.2
15.407(e)	6dB Bandwidth	$\geq 500\text{kHz}$		Pass	Section 7.3
15.407(a)(3)	Maximum Conducted Output Power	Refer to section 7.4		Pass	Section 7.4
15.407(a)(3)	Maximum Power Spectral Density	Refer to section 7.5		Pass	Section 7.5
15.407(g)	Frequency Stability	N/A		Pass	Section 7.6
15.407b(4)(i)	Undesirable Emissions	Refer to Section 7.7	Radiated	Pass	Section 7.7 & 7.8
15.205, 15.209 15.407(b)(5), (6), (7)	General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		Pass	
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.9

Notes:

- The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.

7.2. 26dB Bandwidth Measurement

7.2.1. Test Limit

N/A

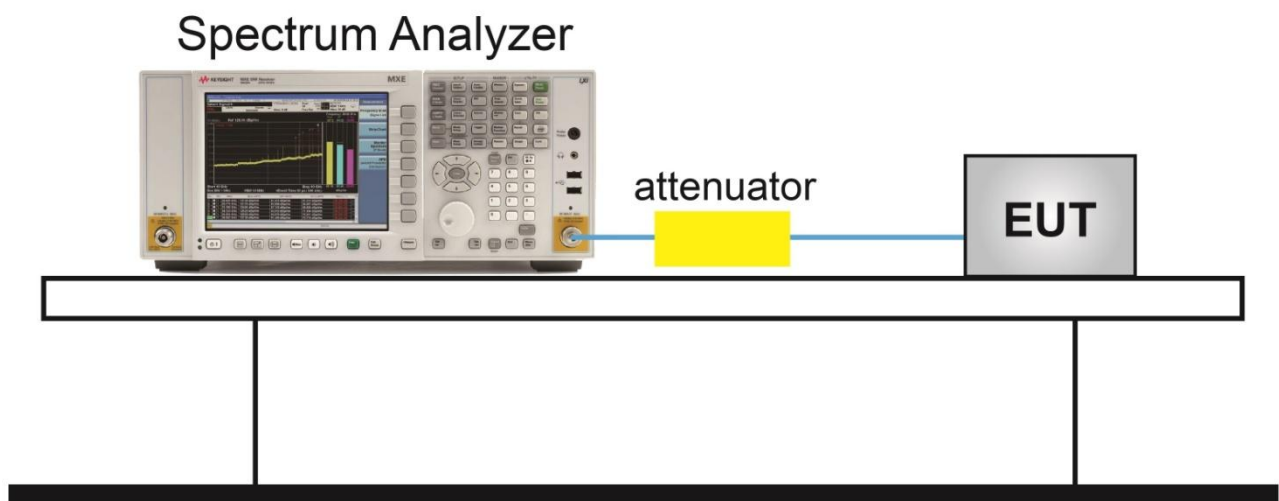
7.2.2. Test Procedure used

ANSI C63.10-2013-Section 6.9.2 & 6.9.3

7.2.3. Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 26$. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW \geq RBW.
4. Detector = Peak.
5. Trace mode = max hold.

7.2.4. Test Setup



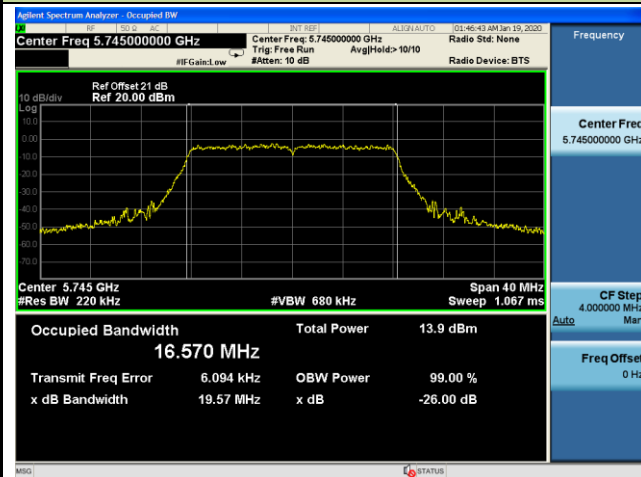
7.2.5. Test Result

Product	TRIFIBOOST	Temperature	24°C
Test Engineer	Snake Ni	Relative Humidity	59%
Test Site	TR3	Test Date	2020/01/19

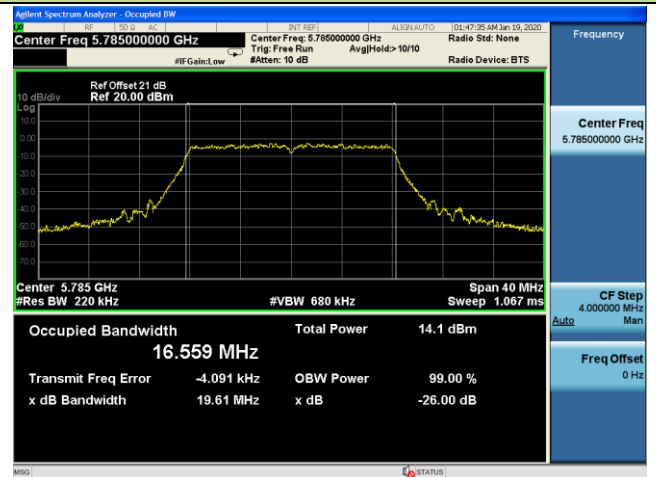
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	6Mbps	149	5745	19.57	16.57
802.11a	6Mbps	157	5785	19.61	16.56
802.11a	6Mbps	165	5825	20.12	17.51
802.11n-HT20	MCS0	149	5745	20.01	17.51
802.11n-HT20	MCS0	157	5785	20.12	17.52
802.11n-HT20	MCS0	165	5825	20.01	17.51
802.11n-HT40	MCS0	151	5755	40.04	36.15
802.11n-HT40	MCS0	159	5795	40.15	36.15
802.11ac-VHT20	MCS0	149	5745	19.99	17.53
802.11ac-VHT20	MCS0	157	5785	20.07	17.51
802.11ac-VHT20	MCS0	165	5825	20.12	17.51
802.11ac-VHT40	MCS0	151	5755	39.96	36.14
802.11ac-VHT40	MCS0	159	5795	39.91	36.11
802.11ac-VHT80	MCS0	155	5775	87.30	75.73

802.11a 26dB Bandwidth & 99% Bandwidth

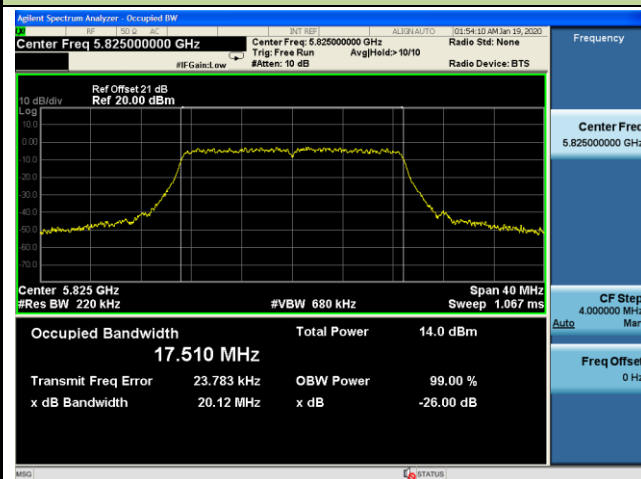
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

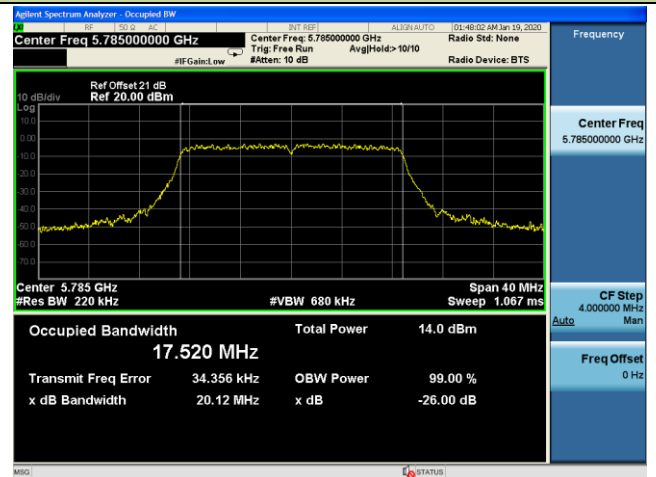


802.11n-HT20 26dB Bandwidth & 99% Bandwidth

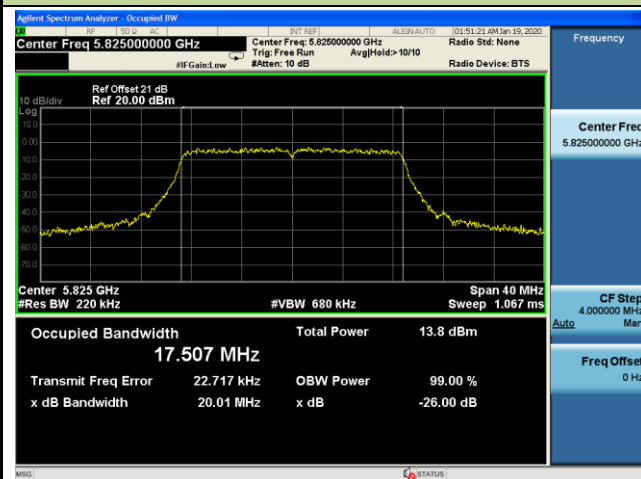
Channel 149 (5745MHz)



Channel 157 (5785MHz)

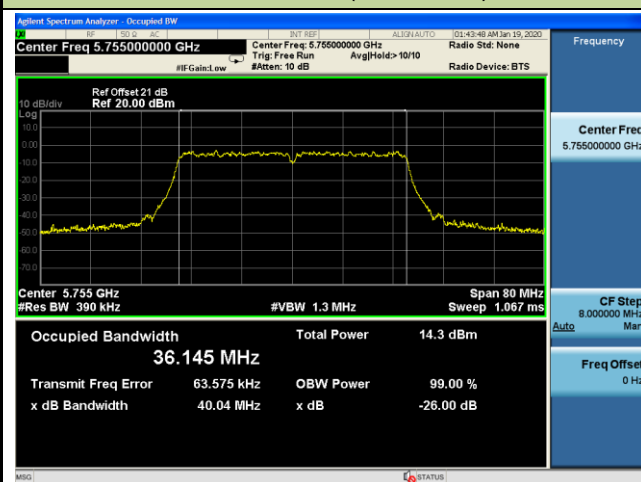


Channel 165 (5825MHz)

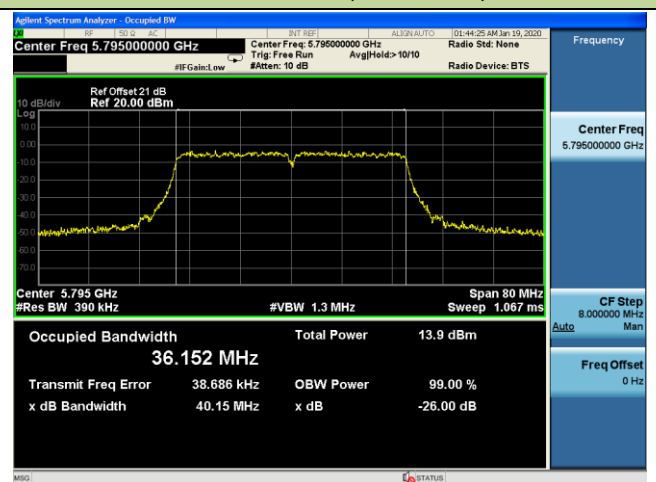


802.11n-HT40 26dB Bandwidth & 99% Bandwidth

Channel 151 (5755MHz)

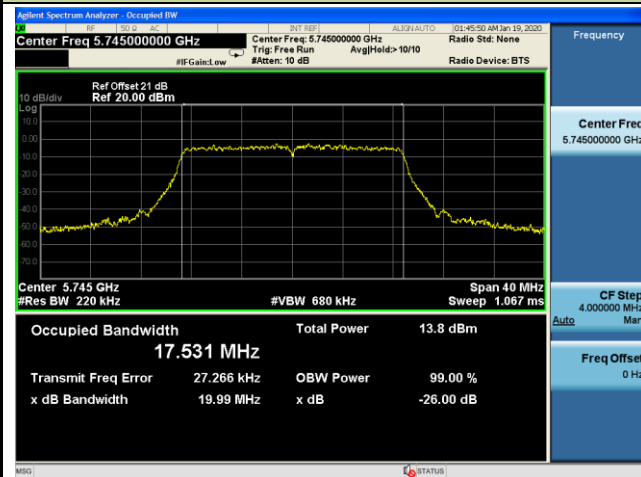


Channel 159 (5795MHz)

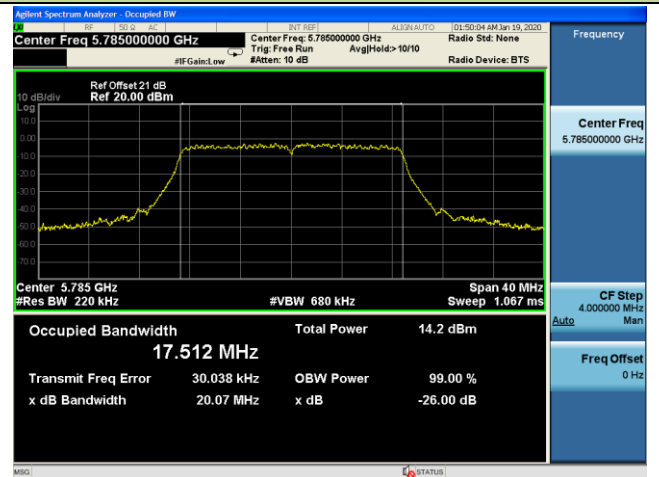


802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth

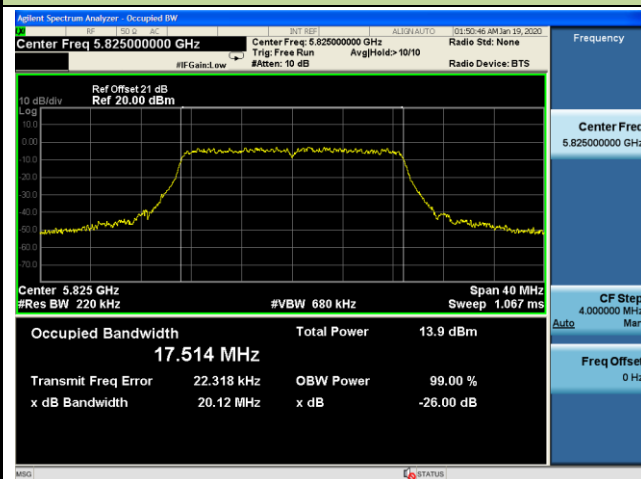
Channel 149 (5745MHz)



Channel 157 (5785MHz)

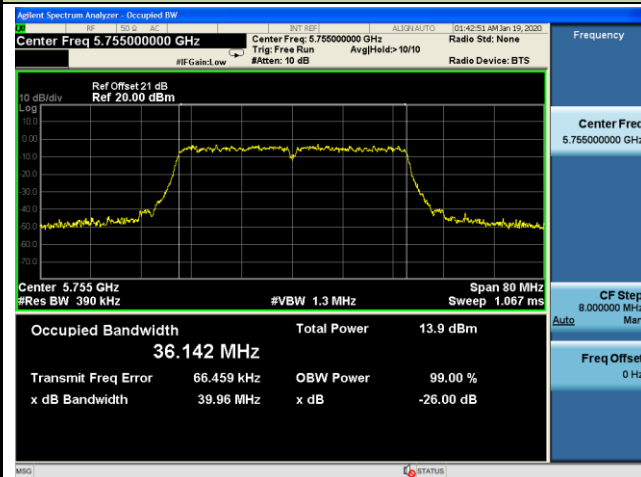


Channel 165 (5825MHz)

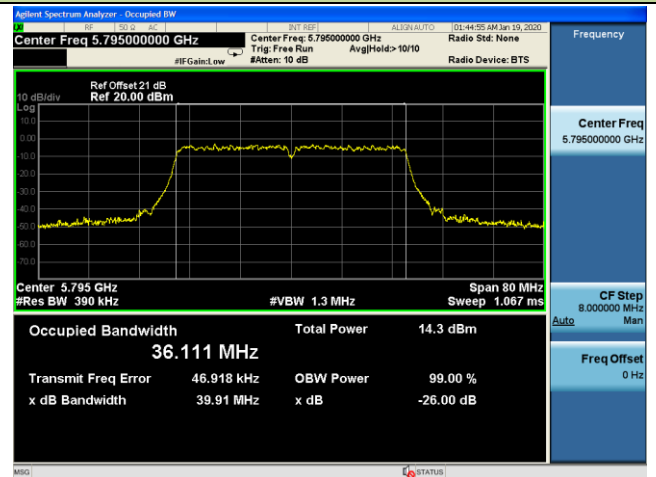


802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth

Channel 151 (5755MHz)

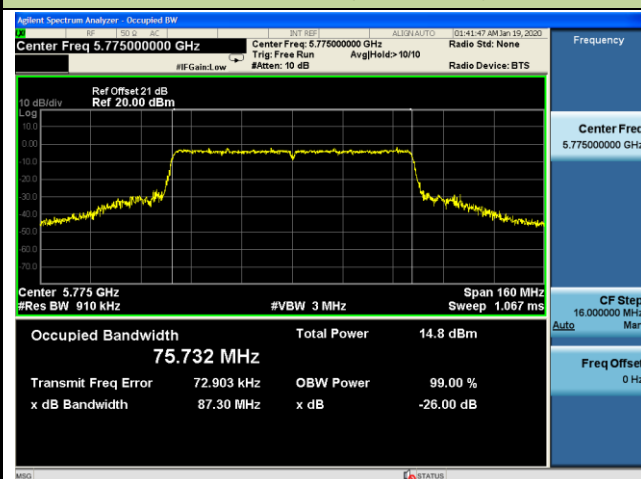


Channel 159 (5795MHz)



802.11ac-VHT80 26dB Bandwidth & 99% Bandwidth

Channel 155 (5775MHz)



7.3. 6dB Bandwidth Measurement

7.3.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

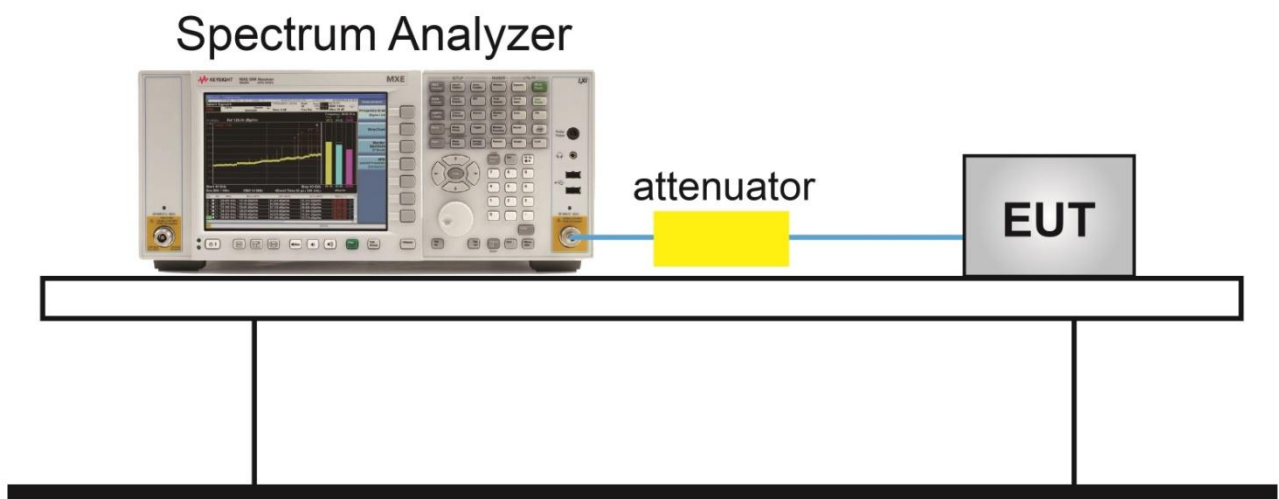
7.3.2. Test Procedure used

ANSI C63.10-2013 - Section 6.9.2

7.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3.4. Test Setup



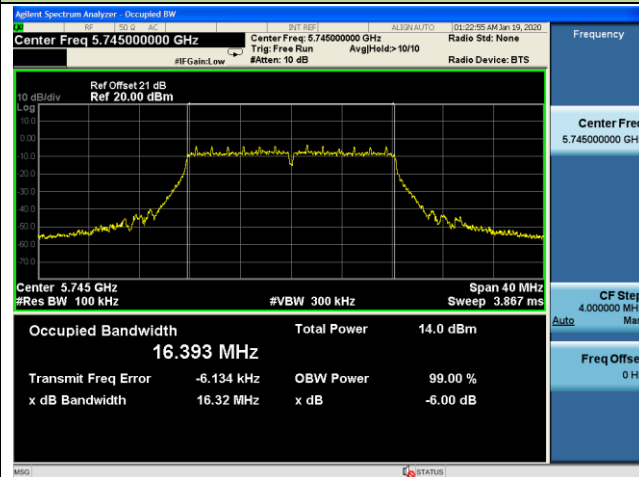
7.3.5. Test Result

Product	TRIFIBOOST	Temperature	24°C
Test Engineer	Snake Ni	Relative Humidity	59%
Test Site	TR3	Test Date	2020/01/19

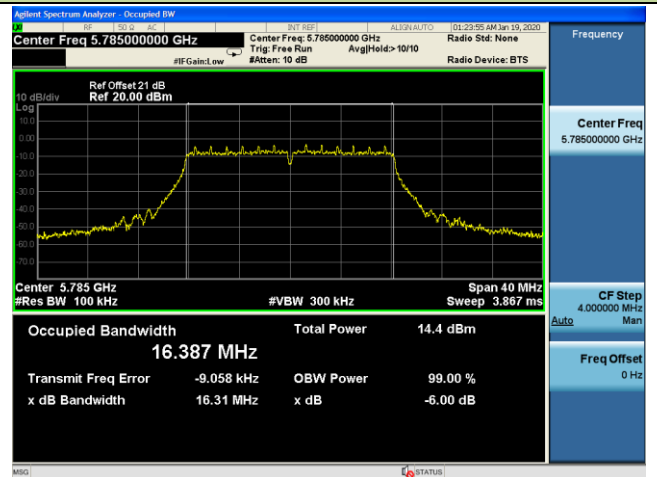
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	16.32	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.31	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.32	≥ 0.5	Pass
802.11n-HT20	6Mbps	149	5745	16.95	≥ 0.5	Pass
802.11n-HT20	6Mbps	157	5785	16.98	≥ 0.5	Pass
802.11n-HT20	6Mbps	165	5825	16.96	≥ 0.5	Pass
802.11n-HT40	6Mbps	151	5755	36.37	≥ 0.5	Pass
802.11n-HT40	6Mbps	159	5795	35.72	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	16.91	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	16.93	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	16.95	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.69	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.81	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.33	≥ 0.5	Pass

802.11a 6dB Bandwidth

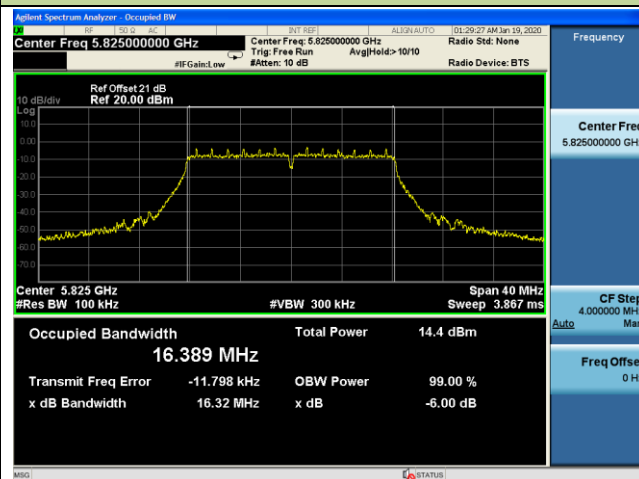
Channel 149 (5745MHz)



Channel 157 (5785MHz)

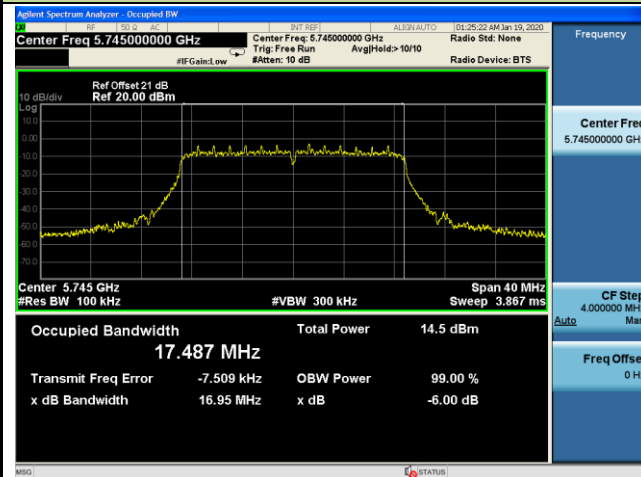


Channel 165 (5825MHz)

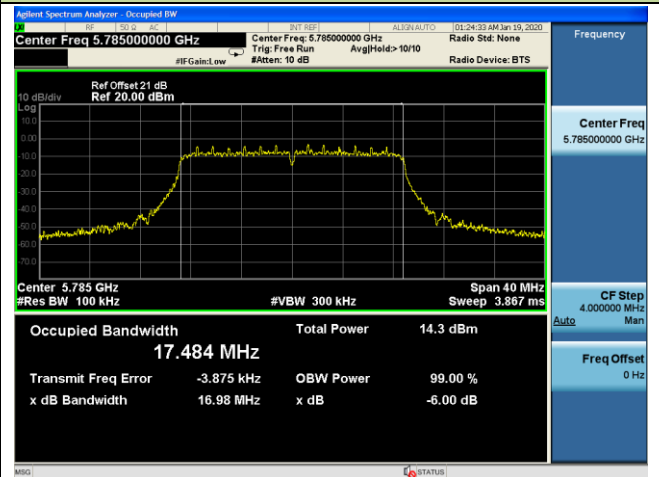


802.11n-HT20 6dB Bandwidth

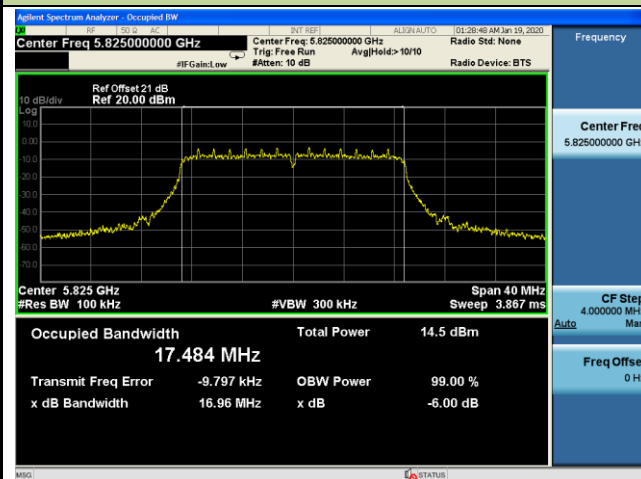
Channel 149 (5745MHz)



Channel 157 (5785MHz)

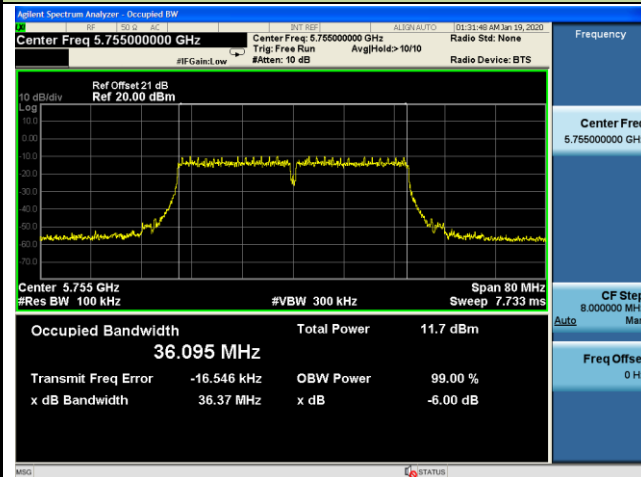


Channel 165 (5825MHz)

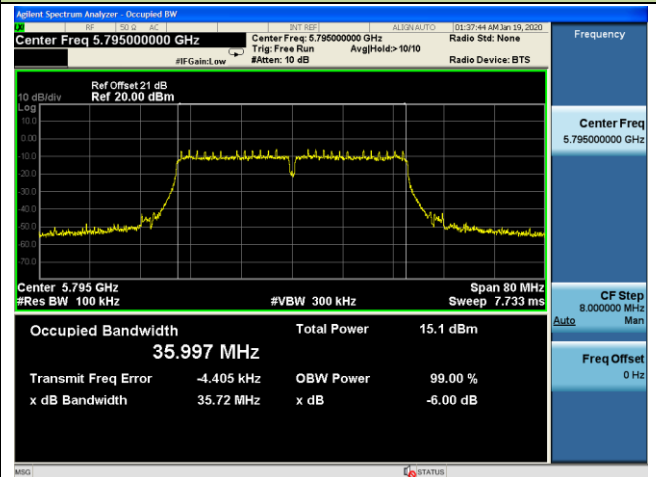


802.11n-HT40 6dB Bandwidth

Channel 149 (5755MHz)

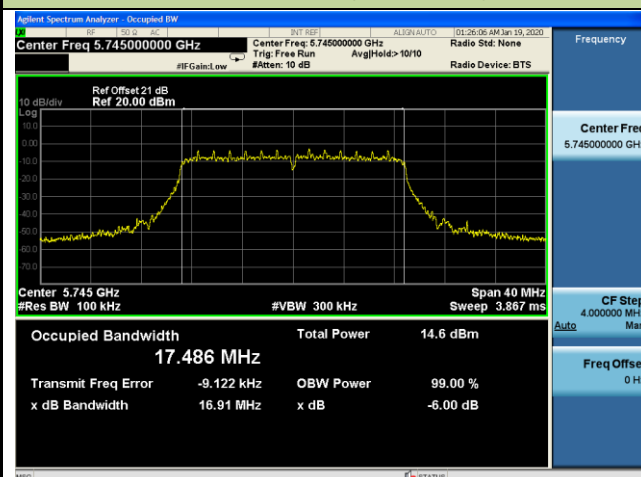


Channel 157 (5795MHz)

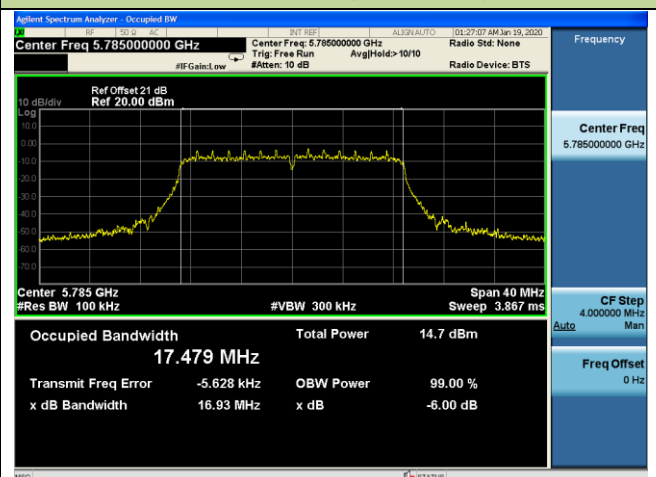


802.11ac-VHT20 6dB Bandwidth

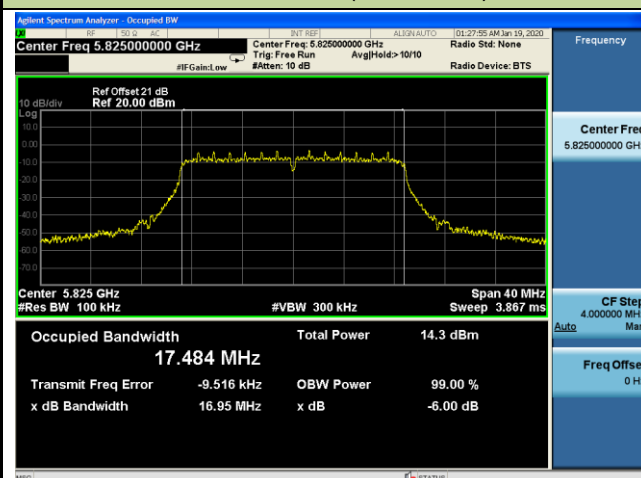
Channel 149 (5745MHz)



Channel 157 (5785MHz)

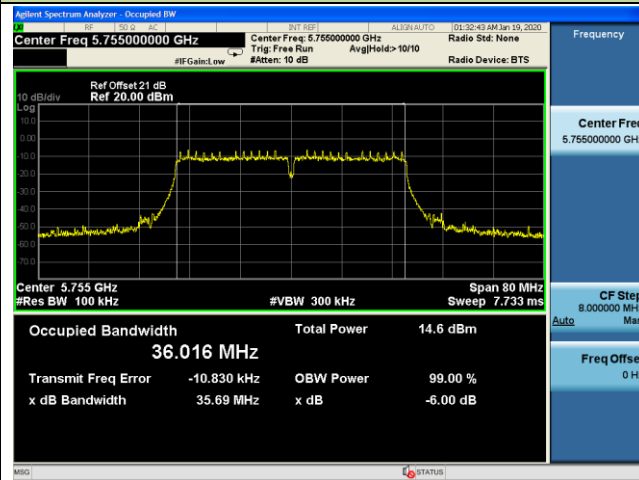


Channel 165 (5825MHz)

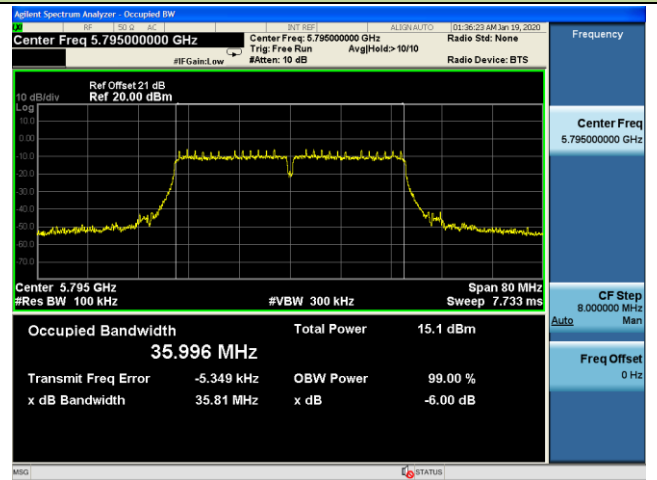


802.11ac-VHT40 6dB Bandwidth

Channel 151 (5755MHz)

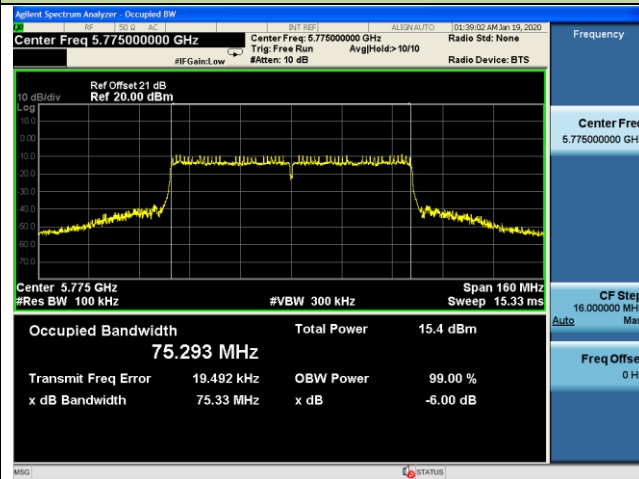


Channel 159 (5795MHz)



802.11ac-VHT80 6dB Bandwidth

Channel 155 (5775MHz)



7.4. Output Power Measurement

7.4.1. Test Limit

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

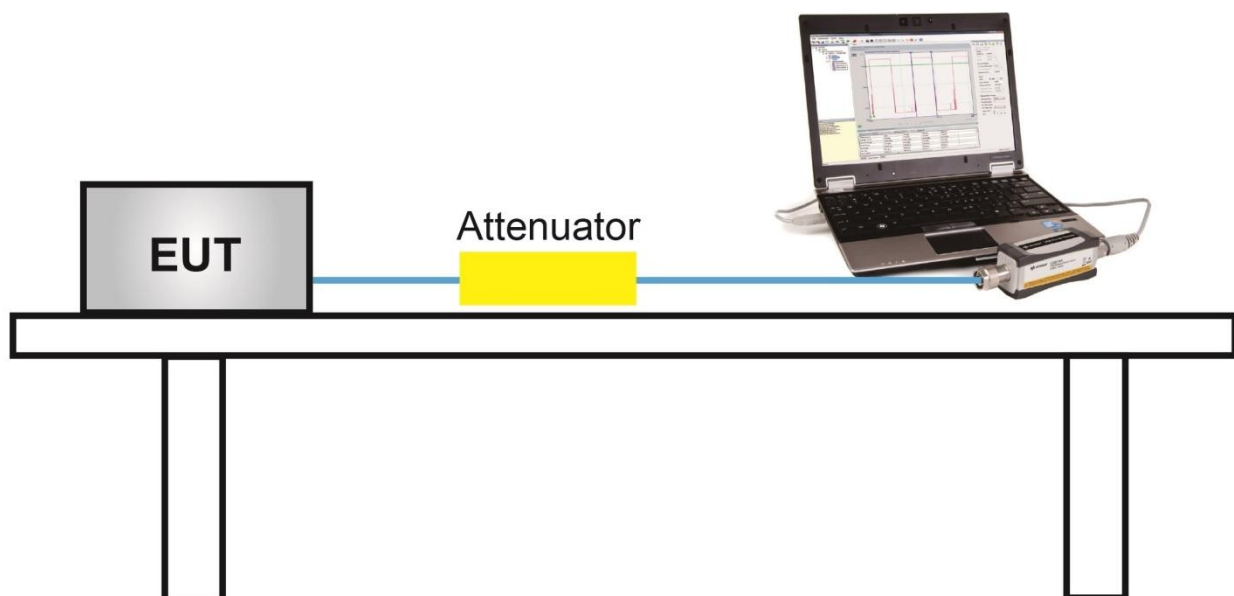
7.4.2. Test Procedure Used

ANSI C63.10-2013- Section 12.3.3.2 Method PM-G

7.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

7.4.4. Test Setup



7.4.5. Test Result

Power output test was verified over all data rates of each mode shown as below table, and then choose the maximum power output (grey marker) for final test of each channel.

Test Mode	Bandwidth	Channel No.	Frequency (MHz)	Data Rate/ MCS	Average Power (dBm)
802.11a	20	157	5785	6Mbps	8.91
				24Mbps	8.23
				54Mbps	7.81
802.11n	20	157	5785	MCS0	8.80
				MCS4	8.24
				MCS7	7.68
802.11n	40	159	5795	MCS0	8.75
				MCS4	8.32
				MCS7	7.91
802.11ac	20	157	5785	MCS0	8.36
				MCS4	7.92
				MCS8	7.25
802.11ac	40	159	5795	MCS0	8.55
				MCS4	8.13
				MCS9	7.46
802.11ac	80	155	5775	MCS0	8.91
				MCS4	8.44
				MCS9	8.02

Product	TRIFIBOOST	Temperature	24°C
Test Engineer	Snake Ni	Relative Humidity	59%
Test Site	TR3	Test Date	2020/01/17

Test Mode	Data Rate/MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Limit (dBm)	Result
11a	6Mbps	149	5745	9.06	≤ 30.00	Pass
11a	6Mbps	157	5785	8.91	≤ 30.00	Pass
11a	6Mbps	165	5825	8.88	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	8.89	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	8.80	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	9.01	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	8.81	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	8.75	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	8.78	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	8.36	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	8.51	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	8.54	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	8.55	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	8.91	≤ 30.00	Pass

7.5. Power Spectral Density Measurement

7.5.1. Test Limit

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

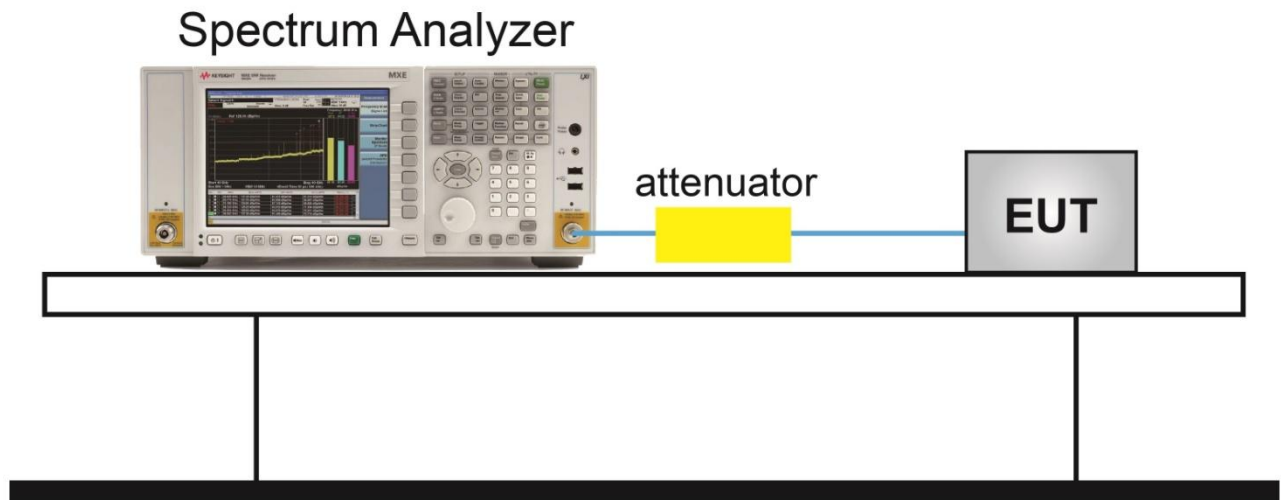
7.5.2. Test Procedure Used

ANSI C63.10- Section 12.5

7.5.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz,
RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span} / \text{RBW})$
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add $10 \cdot \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \cdot \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor $10 \cdot \log(500\text{kHz}/100\text{kHz}) = 6.99$ dB to the measured result.

7.5.4. Test Setup



7.5.5. Test Result

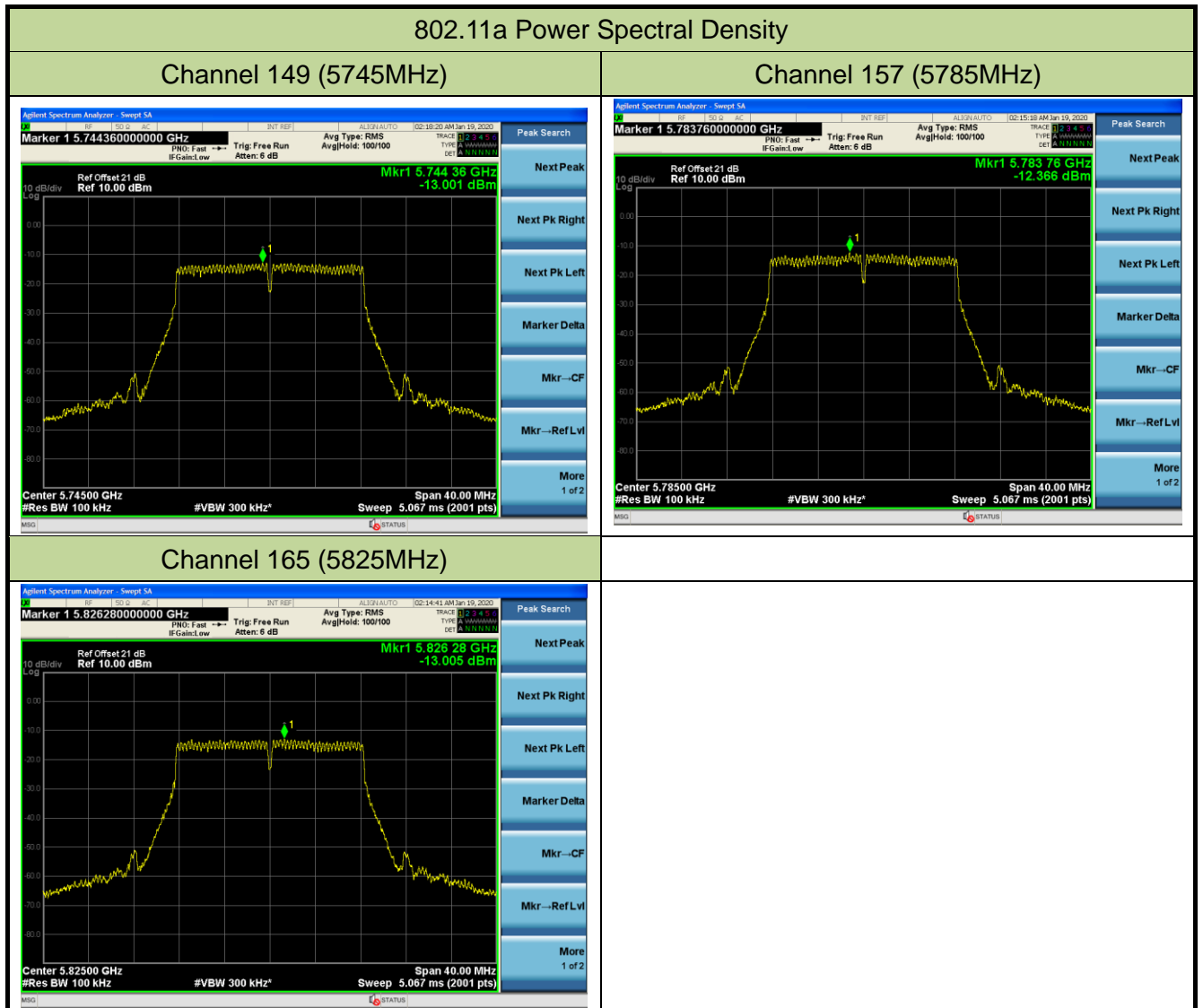
Product	TRIFIBOOST	Temperature	25°C
Test Engineer	Snake Ni	Relative Humidity	59%
Test Site	TR3	Test Date	2020/01/17

Test Mode	Data Rate/MCS	Channel No.	Freq. (MHz)	PSD (dBm/100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
11a	6Mbps	149	5745	-13.00	87.70	6.99	-5.44	≤ 30	Pass
11a	6Mbps	157	5785	-12.37	87.70	6.99	-4.81	≤ 30	Pass
11a	6Mbps	165	5825	-13.01	87.70	6.99	-5.44	≤ 30	Pass
11n-HT20	MCS0	149	5745	-12.73	86.45	6.99	-5.11	≤ 30	Pass
11n-HT20	MCS0	157	5785	-12.81	86.45	6.99	-5.19	≤ 30	Pass
11n-HT20	MCS0	165	5825	-13.10	86.45	6.99	-5.47	≤ 30	Pass
11n-HT40	MCS0	151	5755	-16.59	76.11	6.99	-8.41	≤ 30	Pass
11n-HT40	MCS0	159	5795	-16.46	76.11	6.99	-8.29	≤ 30	Pass
11ac-VHT20	MCS0	149	5745	-12.76	86.62	6.99	-5.14	≤ 30	Pass
11ac-VHT20	MCS0	157	5785	-12.88	86.62	6.99	-5.27	≤ 30	Pass
11ac-VHT20	MCS0	165	5825	-12.73	86.62	6.99	-5.12	≤ 30	Pass
11ac-VHT40	MCS0	151	5755	-16.88	76.89	6.99	-8.75	≤ 30	Pass
11ac-VHT40	MCS0	159	5795	-16.64	76.89	6.99	-8.51	≤ 30	Pass
11ac-VHT80	MCS0	155	5775	-20.14	61.82	6.99	-11.06	≤ 30	Pass

Note:

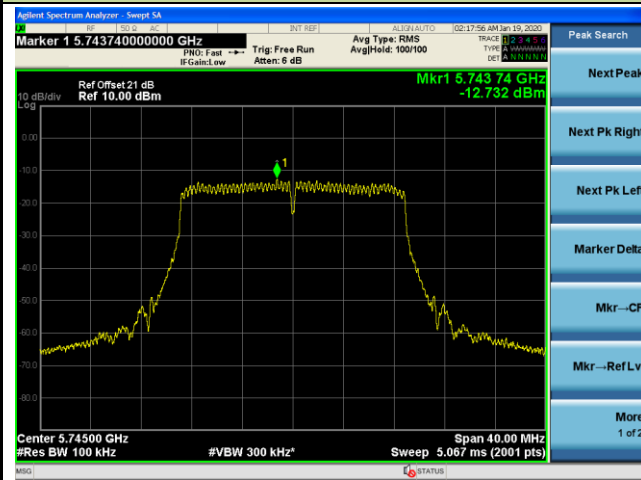
When EUT duty cycle < 98%, Total PSD (dBm/500KHz) = PSD (dBm/100KHz) + Constant Factor + 10*log(1/Duty Cycle).

Product	TRIFIBOOST	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	59%
Test Site	TR3	Test Date	2020/01/17

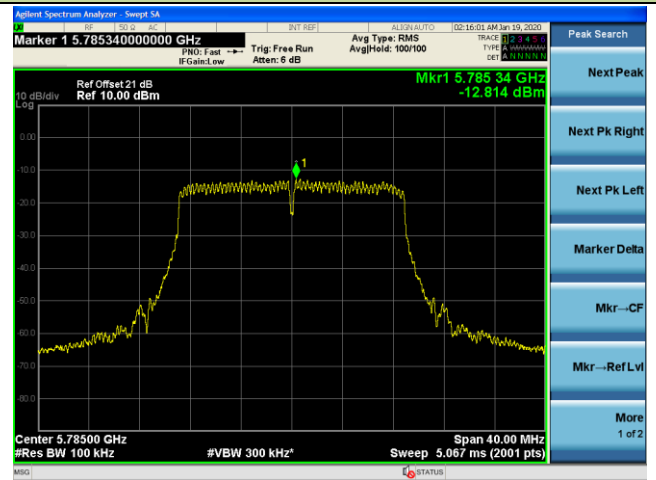


802.11n-HT20 Power Spectral Density

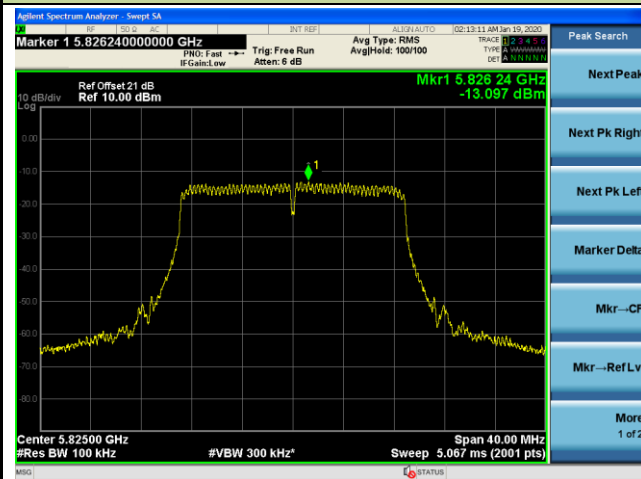
Channel 149 (5745MHz)



Channel 157 (5785MHz)

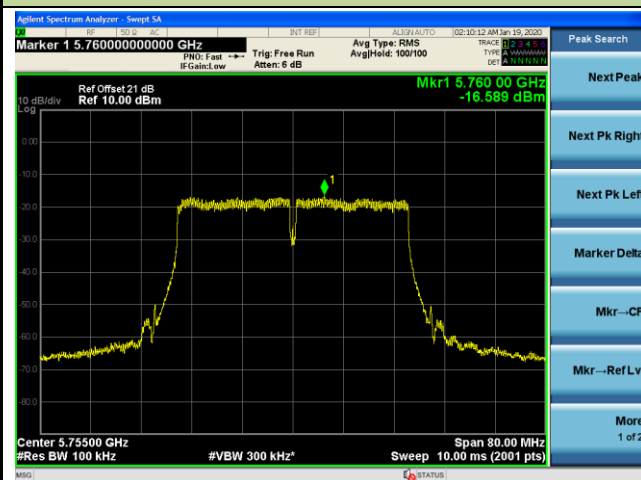


Channel 165 (5825MHz)



802.11n-HT40 Power Spectral Density

Channel 151 (5755MHz)

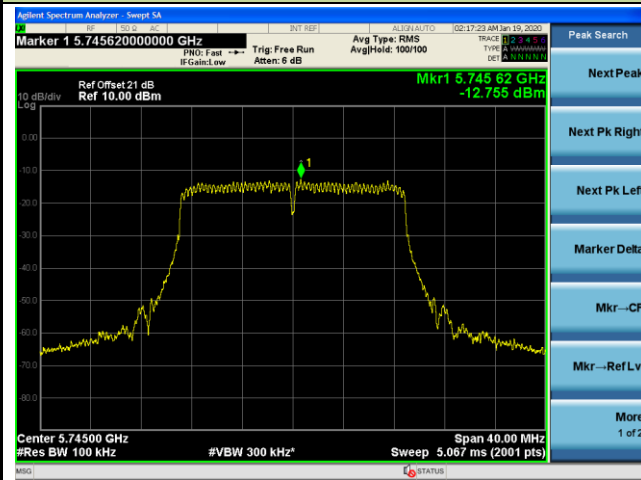


Channel 159 (5795MHz)

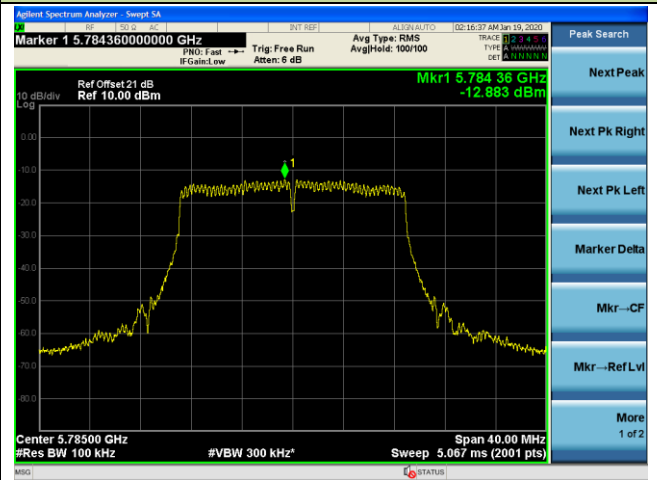


802.11ac-VHT20 Power Spectral Density

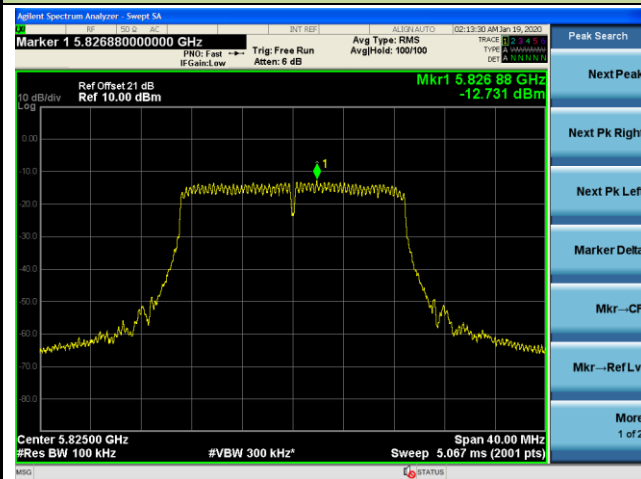
Channel 149 (5745MHz)



Channel 157 (5785MHz)

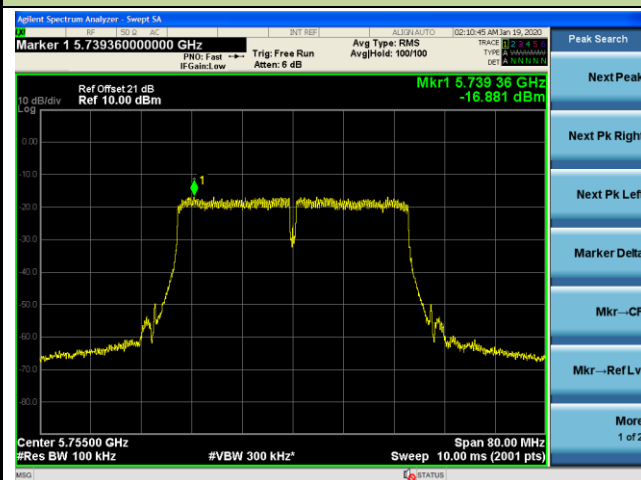


Channel 165 (5825MHz)

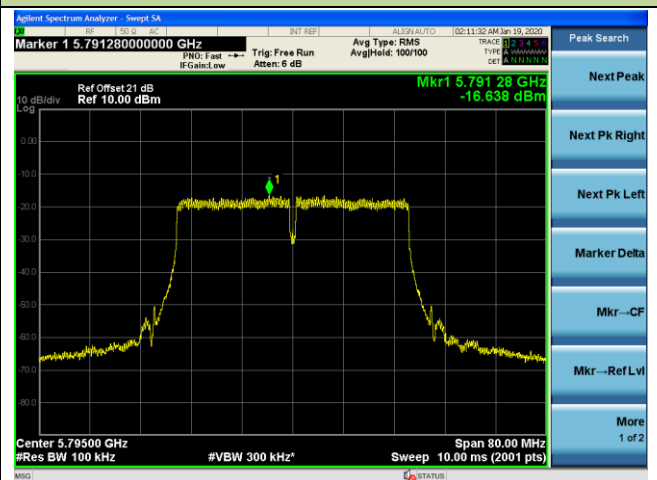


802.11ac-VHT40 Power Spectral Density

Channel 151 (5755MHz)

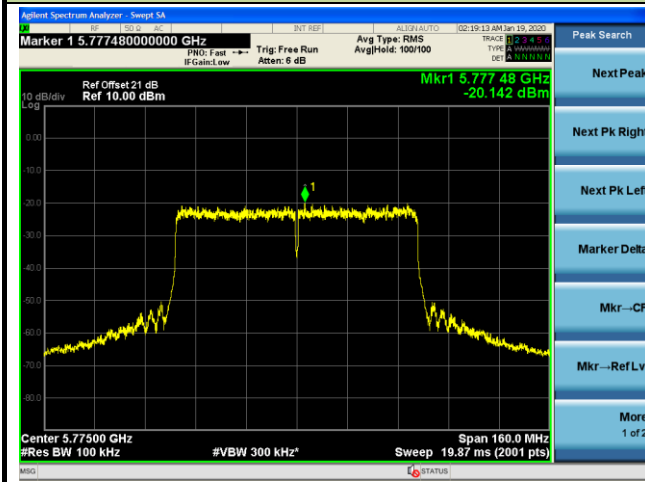


Channel 159 (5795MHz)



802.11ac-VHT80 Power Spectral Density

Channel 155 (5775MHz)



7.6. Frequency Stability Measurement

7.6.1. Test Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

7.6.2. Test Procedure Used

Frequency Stability Under Temperature Variations:

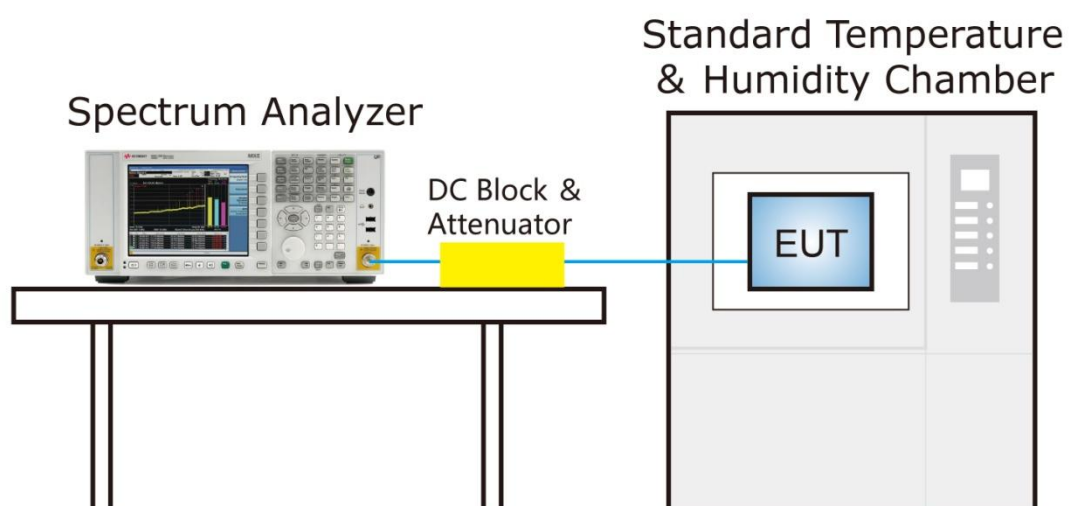
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

7.6.3. Test Setup



7.6.4. Test Result

Product	TRIFIBOOST	Temperature	-30 ~ 50°C
Test Engineer	Snake Ni	Relative Humidity	46 ~ 55%RH
Test Site	TR3	Test Time	2020/01/19
Test Mode	5775MHz (Carrier Mode)		

Voltage (%)	Power (V _{DC})	Temp (°C)	Frequency Tolerance (ppm)			
			0 minutes	2 minutes	5 minutes	10 minutes
100%	120	- 30	-2.25	-2.23	-2.31	-2.33
		- 20	-2.29	-2.27	-2.34	-2.41
		- 10	-2.32	-2.31	-2.41	-2.44
		0	-2.25	-2.29	-2.33	-2.31
		+ 10	-2.27	-2.32	-2.41	-2.55
		+ 20 (Ref)	-2.13	-2.24	-2.36	-2.41
		+ 30	-2.24	-2.29	-2.21	-2.53
		+ 40	-2.15	-2.26	-2.33	-2.39
		+ 50	-2.30	-2.34	-2.27	-2.51
115%	138	+ 20	-2.22	-2.33	-2.49	-2.38
85%	102	+ 20	-2.18	-2.24	-2.31	-2.42

Note: Frequency Tolerance (ppm) = {[Measured Frequency (Hz) - Declared Frequency (Hz)] / Declared Frequency (Hz)} * 10⁶.

7.7. Radiated Spurious Emission Measurement

7.7.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.7.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.7.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

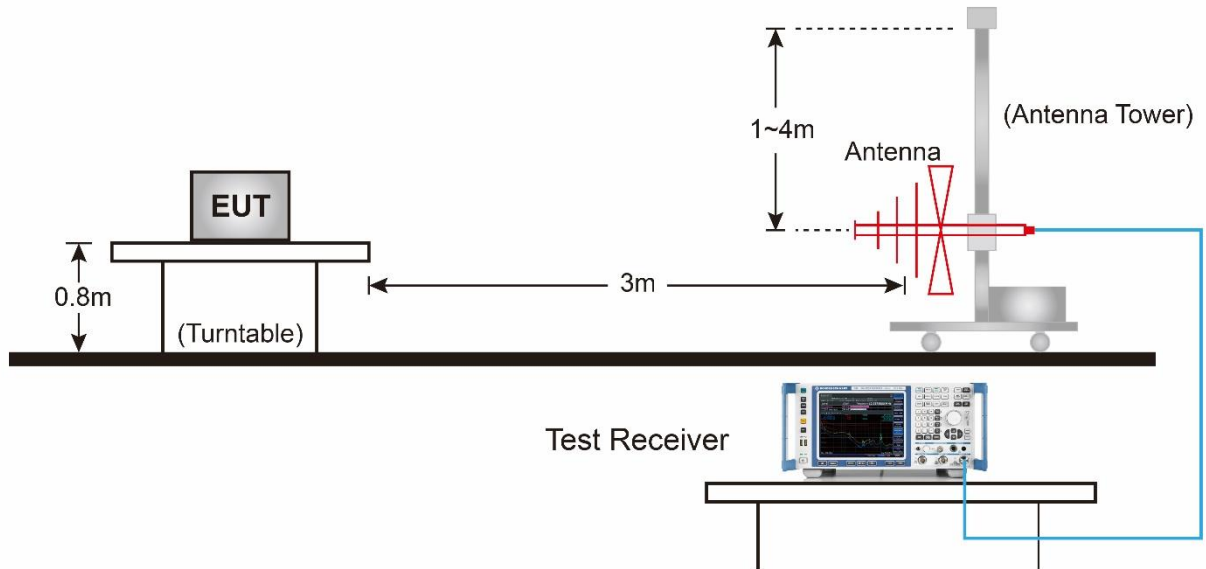
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

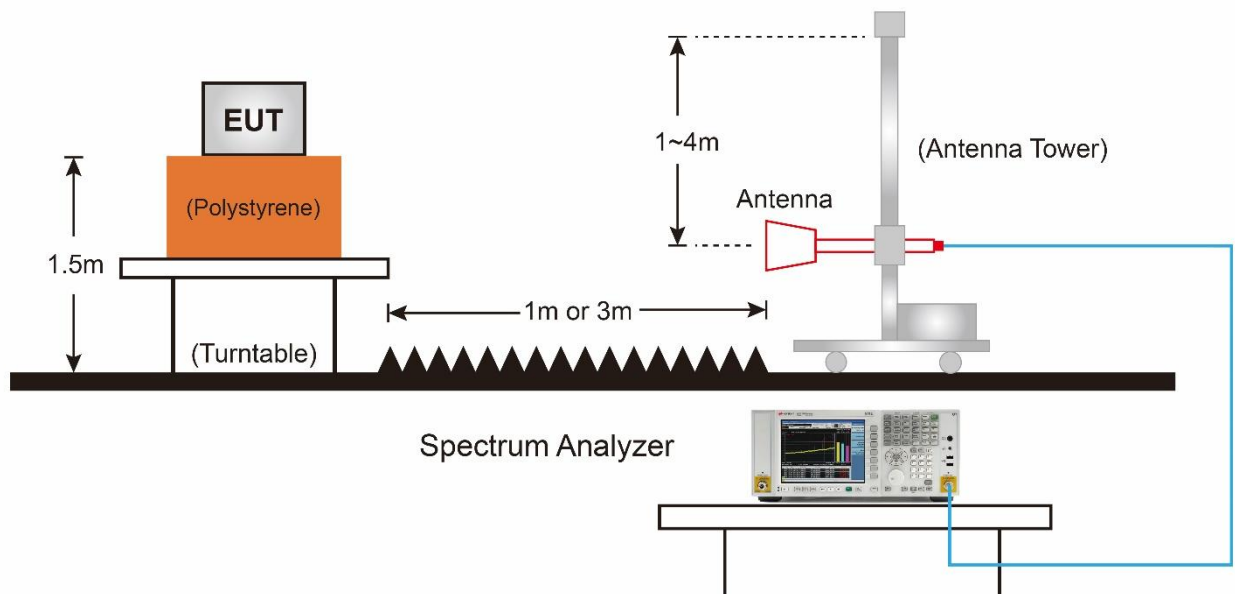
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.7.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.7.5. Test Result

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11a	Test Channel:	149
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7477.0	33.5	11.7	45.3	74.0	-28.7	Peak	Horizontal
*	8633.0	31.9	13.5	45.4	68.2	-22.8	Peak	Horizontal
*	10282.0	30.0	17.4	47.3	68.2	-20.9	Peak	Horizontal
	11829.0	31.7	16.8	48.5	74.0	-25.5	Peak	Horizontal
	7536.5	34.4	11.8	46.1	74.0	-27.9	Peak	Vertical
*	8777.5	30.6	14.1	44.7	68.2	-23.5	Peak	Vertical
*	9857.0	30.2	16.8	47.1	68.2	-21.1	Peak	Vertical
	11931.0	31.7	16.7	48.4	74.0	-25.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11a	Test Channel:	157
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7536.5	32.2	11.8	44.0	74.0	-30.0	Peak	Horizontal
*	8658.5	31.4	13.7	45.2	68.2	-23.0	Peak	Horizontal
*	10052.5	30.2	16.8	47.1	68.2	-21.1	Peak	Horizontal
	12330.5	32.7	16.9	49.6	74.0	-24.4	Peak	Horizontal
	8310.0	31.4	12.2	43.6	74.0	-30.5	Peak	Vertical
*	8735.0	31.0	14.0	45.0	68.2	-23.2	Peak	Vertical
*	10052.5	29.7	16.8	46.5	68.2	-21.7	Peak	Vertical
	12007.5	32.3	16.8	49.1	74.0	-24.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11a	Test Channel:	165
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7587.5	33.8	11.7	45.5	74.0	-28.5	Peak	Horizontal
*	8701.0	30.8	14.0	44.8	68.2	-23.4	Peak	Horizontal
*	10035.5	30.7	16.8	47.5	68.2	-20.7	Peak	Horizontal
	12143.5	31.0	17.2	48.2	74.0	-25.8	Peak	Horizontal
	7511.0	30.4	11.9	42.3	74.0	-31.7	Peak	Vertical
*	8862.5	29.7	14.4	44.0	68.2	-24.2	Peak	Vertical
*	10078.0	31.4	16.8	48.2	68.2	-20.0	Peak	Vertical
	12101.0	30.9	17.1	48.0	74.0	-26.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11n-HT20	Test Channel:	149
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7596.0	34.0	11.8	45.8	74.0	-28.3	Peak	Horizontal
*	8692.5	30.1	14.0	44.1	68.2	-24.1	Peak	Horizontal
*	9661.5	28.1	16.4	44.5	68.2	-23.7	Peak	Horizontal
	12228.5	31.1	17.0	48.1	74.0	-25.9	Peak	Horizontal
	7358.0	33.2	11.9	45.1	74.0	-28.9	Peak	Vertical
*	8854.0	30.0	14.4	44.4	68.2	-23.8	Peak	Vertical
*	10061.0	30.0	16.8	46.8	68.2	-21.4	Peak	Vertical
	11582.5	32.0	17.4	49.4	74.0	-24.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11n-HT20	Test Channel:	157
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7502.5	31.4	11.9	43.3	74.0	-30.7	Peak	Horizontal
*	8828.5	31.1	14.3	45.4	68.2	-22.8	Peak	Horizontal
*	10171.5	30.4	17.1	47.5	68.2	-20.7	Peak	Horizontal
	12211.5	30.7	17.2	47.9	74.0	-26.1	Peak	Horizontal
	8276.0	32.1	12.3	44.3	74.0	-29.7	Peak	Vertical
*	8769.0	31.1	14.2	45.3	68.2	-22.9	Peak	Vertical
*	10205.5	29.7	17.1	46.8	68.2	-21.4	Peak	Vertical
	12356.0	31.0	16.9	47.9	74.0	-26.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11n-HT20	Test Channel:	165
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7596.0	33.6	11.8	45.4	74.0	-28.6	Peak	Horizontal
*	8633.0	31.6	13.5	45.1	68.2	-23.1	Peak	Horizontal
*	10282.0	29.8	17.4	47.1	68.2	-21.1	Peak	Horizontal
	12109.5	31.9	17.1	49.0	74.0	-25.0	Peak	Horizontal
	7494.0	33.6	11.8	45.4	74.0	-28.6	Peak	Vertical
*	8709.5	31.5	13.9	45.5	68.2	-22.7	Peak	Vertical
*	10282.0	29.2	17.4	46.5	68.2	-21.7	Peak	Vertical
	12058.5	32.3	17.0	49.3	74.0	-24.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11n-HT40	Test Channel:	151
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7604.5	34.2	11.8	46.0	74.0	-28.0	Peak	Horizontal
*	8760.5	30.9	14.2	45.1	68.2	-23.1	Peak	Horizontal
*	10061.0	30.1	16.8	46.9	68.2	-21.3	Peak	Horizontal
	11897.0	32.4	16.7	49.0	74.0	-25.0	Peak	Horizontal
	7596.0	34.2	11.8	46.0	74.0	-28.0	Peak	Vertical
*	8692.5	32.2	14.0	46.1	68.2	-22.1	Peak	Vertical
*	9814.5	30.2	16.8	47.0	68.2	-21.2	Peak	Vertical
	12220.0	30.7	17.1	47.8	74.0	-26.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11n-HT40	Test Channel:	159
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7613.0	33.5	11.8	45.3	74.0	-28.7	Peak	Horizontal
*	8726.5	32.2	13.9	46.2	68.2	-22.0	Peak	Horizontal
*	9899.5	30.2	16.9	47.1	68.2	-21.1	Peak	Horizontal
	11948.0	31.2	16.8	48.0	74.0	-26.0	Peak	Horizontal
	7596.0	34.9	11.8	46.7	74.0	-27.3	Peak	Vertical
*	8760.5	32.7	14.2	46.9	68.2	-21.3	Peak	Vertical
*	9678.5	29.5	16.5	46.0	68.2	-22.2	Peak	Vertical
	11846.0	32.8	16.7	49.5	74.0	-24.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11ac-VHT20	Test Channel:	149
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7579.0	34.3	11.6	45.9	74.0	-28.1	Peak	Horizontal
*	8735.0	31.9	14.0	45.9	68.2	-22.3	Peak	Horizontal
*	9942.0	30.8	16.9	47.7	68.2	-20.5	Peak	Horizontal
	11727.0	31.5	16.7	48.2	74.0	-25.8	Peak	Horizontal
	7664.0	35.5	11.4	46.9	74.0	-27.1	Peak	Vertical
*	8769.0	31.5	14.2	45.7	68.2	-22.5	Peak	Vertical
*	10282.0	29.8	17.4	47.1	68.2	-21.1	Peak	Vertical
	12016.0	31.6	16.9	48.5	74.0	-25.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11ac-VHT20	Test Channel:	157
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7587.5	33.6	11.7	45.3	74.0	-28.7	Peak	Horizontal
*	8582.0	33.9	13.2	47.2	68.2	-21.1	Peak	Horizontal
*	10052.5	29.8	16.8	46.7	68.2	-21.5	Peak	Horizontal
	12288.0	30.7	17.0	47.7	74.0	-26.3	Peak	Horizontal
	7570.5	33.3	11.7	45.0	74.0	-29.0	Peak	Vertical
*	8735.0	32.3	14.0	46.3	68.2	-21.9	Peak	Vertical
*	10052.5	30.4	16.8	47.3	68.2	-20.9	Peak	Vertical
	12118.0	31.4	17.1	48.5	74.0	-25.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11ac-VHT20	Test Channel:	165
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7485.5	33.4	11.8	45.2	74.0	-28.8	Peak	Horizontal
*	8692.5	32.5	14.0	46.4	68.2	-21.8	Peak	Horizontal
*	10035.5	31.1	16.8	47.9	68.2	-20.3	Peak	Horizontal
	12220.0	31.4	17.1	48.5	74.0	-25.5	Peak	Horizontal
	7596.0	34.6	11.8	46.3	74.0	-27.7	Peak	Vertical
*	8854.0	29.4	14.4	43.8	68.2	-24.4	Peak	Vertical
*	10035.5	30.6	16.8	47.4	68.2	-20.8	Peak	Vertical
	11735.5	33.2	16.7	50.0	74.0	-24.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11ac-VHT40	Test Channel:	151
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7400.5	31.9	11.8	43.7	74.0	-30.3	Peak	Horizontal
*	8786.0	30.6	14.1	44.7	68.2	-23.5	Peak	Horizontal
*	10061.0	29.8	16.8	46.6	68.2	-21.6	Peak	Horizontal
	11735.5	33.5	16.7	50.2	74.0	-23.8	Peak	Horizontal
	7604.5	34.0	11.8	45.7	74.0	-28.3	Peak	Vertical
*	8633.0	31.3	13.5	44.9	68.2	-23.3	Peak	Vertical
*	9848.5	30.0	16.9	46.9	68.2	-21.3	Peak	Vertical
	11642.0	31.4	16.9	48.3	74.0	-25.7	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11ac-VHT40	Test Channel:	159
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7596.0	34.6	11.8	46.3	74.0	-27.7	Peak	Horizontal
*	8624.5	32.9	13.5	46.4	68.2	-21.8	Peak	Horizontal
*	10180.0	30.8	17.2	48.1	68.2	-20.1	Peak	Horizontal
	11115.0	33.5	17.5	51.0	74.0	-23.0	Peak	Horizontal
	8242.0	32.0	12.2	44.3	74.0	-29.7	Peak	Vertical
*	8777.5	30.7	14.1	44.8	68.2	-23.4	Peak	Vertical
*	10282.0	29.8	17.4	47.1	68.2	-21.1	Peak	Vertical
	11965.0	31.7	16.8	48.5	74.0	-25.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Product	TRIFIBOOST	Temperature	26°C
Test Engineer	Cloud Guo	Relative Humidity	57 %
Test Site	AC1	Test Date	2020/01/19
Test Mode:	802.11ac-VHT80	Test Channel:	155
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	7511.0	31.0	11.9	42.9	74.0	-31.1	Peak	Horizontal
*	8692.5	30.4	14.0	44.4	68.2	-23.8	Peak	Horizontal
*	10035.5	30.7	16.8	47.5	68.2	-20.7	Peak	Horizontal
	11939.5	31.4	16.7	48.1	74.0	-25.9	Peak	Horizontal
	7613.0	33.1	11.8	44.8	74.0	-29.2	Peak	Vertical
*	8658.5	31.6	13.7	45.4	68.2	-22.8	Peak	Vertical
*	10290.5	29.0	17.3	46.3	68.2	-21.9	Peak	Vertical
	11684.5	32.5	17.0	49.5	74.0	-24.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

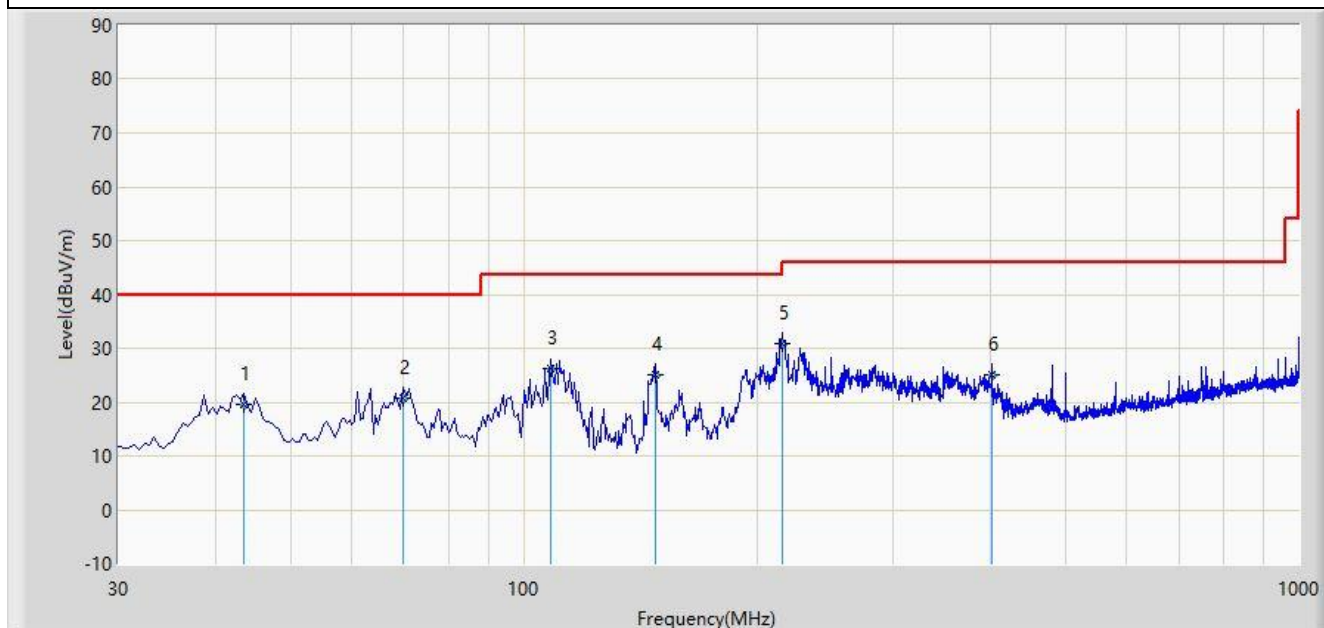
Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The Worst Case of Radiated Emission below 1GHz:

Site: AC1	Time: 2020/01/13 - 18:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: VULB 9168_20-2000MHz	Polarity: Horizontal
EUT: TRIFIBOOST	Power: AC 120V/60Hz

Test Mode: Worst case



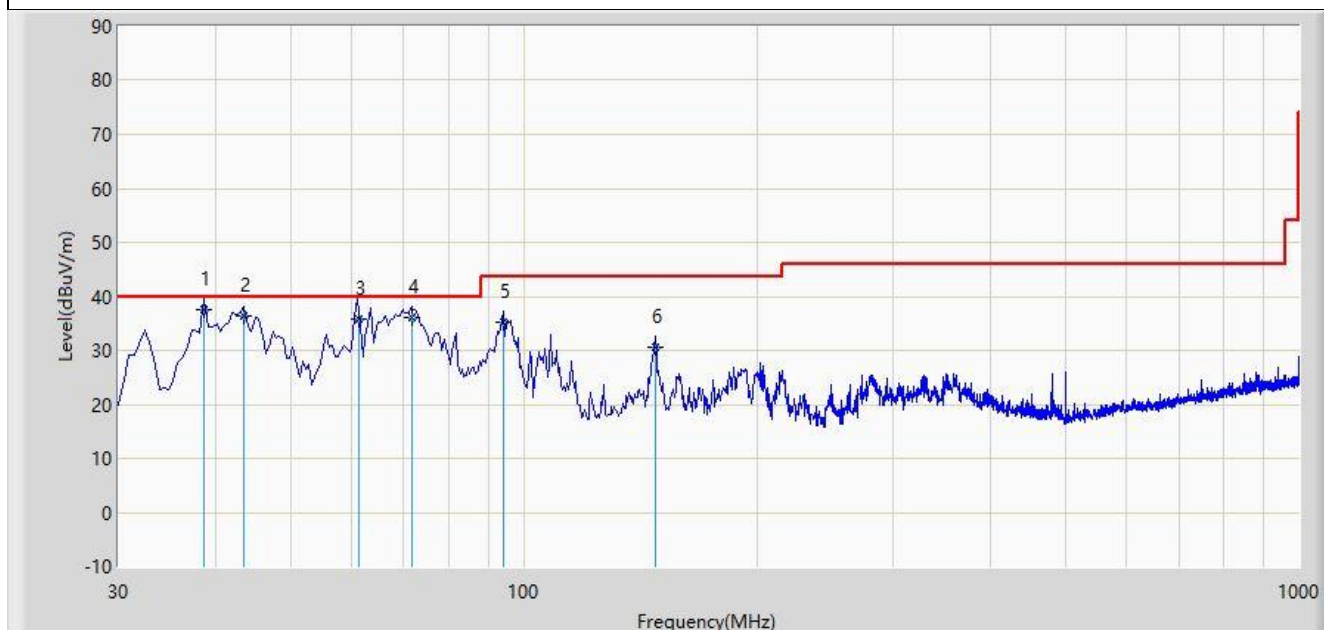
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			43.580	19.675	5.336	-20.325	40.000	14.339	QP
2			69.770	20.840	9.248	-19.160	40.000	11.592	QP
3			108.570	26.090	14.185	-17.410	43.500	11.905	QP
4			147.855	24.973	9.883	-18.527	43.500	15.090	QP
5		*	215.270	30.774	19.103	-12.726	43.500	11.671	QP
6			401.510	25.020	8.463	-20.980	46.000	16.558	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 40GHz), therefore no data appear in the report.

Site: AC1	Time: 2020/01/13 - 18:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: VULB 9168_20-2000MHz	Polarity: Vertical
EUT: TRIFIBOOST	Power: AC 120V/60Hz

Test Mode: Worst case


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	38.730	37.525	23.102	-2.475	40.000	14.423	QP
2			43.580	36.234	21.895	-3.766	40.000	14.339	QP
3			61.270	35.755	22.300	-4.245	40.000	13.455	QP
4			71.710	36.093	24.804	-3.907	40.000	11.289	QP
5			94.020	35.217	24.646	-8.283	43.500	10.570	QP
6			147.855	30.637	15.547	-12.863	43.500	15.090	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 40GHz), therefore no data appear in the report.

7.8. Radiated Restricted Band Edge Measurement

7.8.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42-16.423	399.9 - 410	4.5-5.15
¹ 0.495 - 0.505	16.69475-16.69525	608 - 614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960 - 1240	7.25-7.75
4.125-4.128	25.5 -25.67	1300 - 1427	8.025 - 8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660 - 1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123 - 138	2200 - 2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5 - 2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690 - 2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260 - 3267	23.6-24.0
12.29-12.293	167.72-173.2	3332 - 3339	31.2-31.8
12.51975-12.52025	240 - 285	3345.8 - 3358	36.43-36.5
12.57675-12.57725	322-335.4	3600 - 4400	(²)
13.36-13.41	--	--	--

For 15.407(b) requirement:

For transmitters operating in the 5.725-5.85 GHz band: 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.

As specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.8.2.Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.8.3. Test Setting

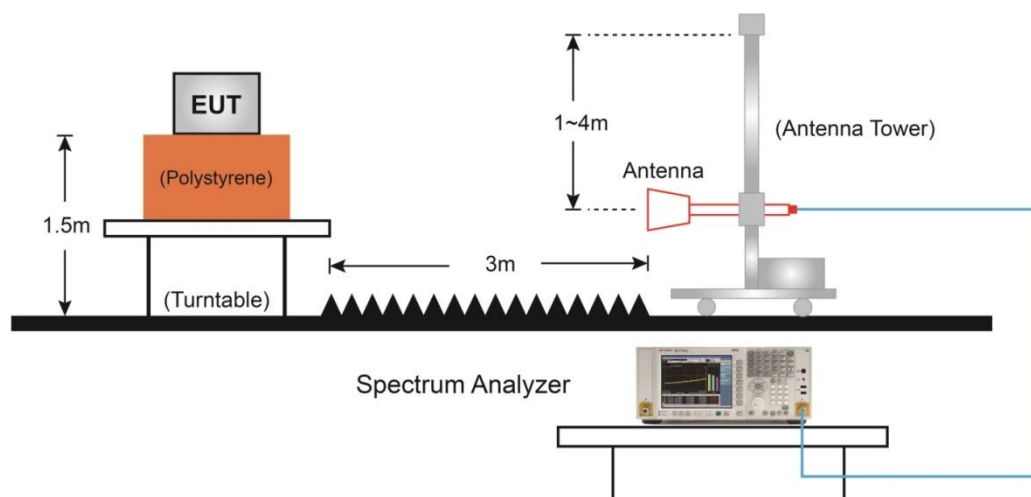
Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

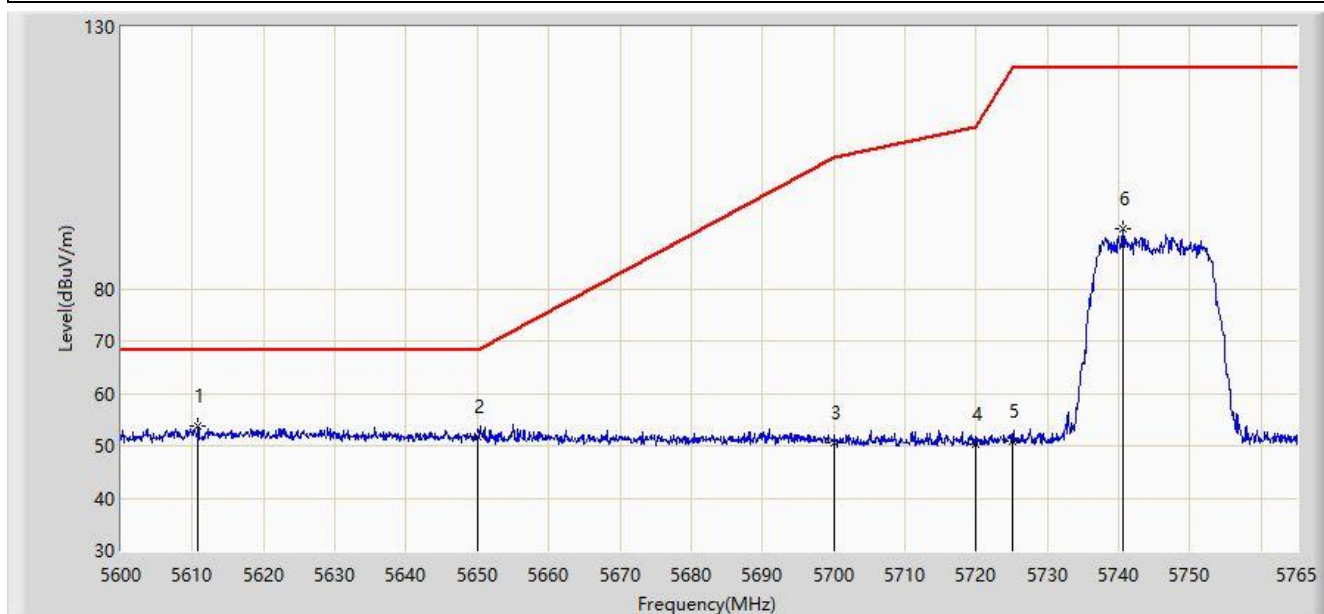
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz. If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$.
4. Detector = Peak
5. Sweep time = auto
6. Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98% duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle.

7.8.4. Test Setup



7.8.5.Test Result

Site: AC1	Time: 2020/01/19 - 17:13
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5745MHz	

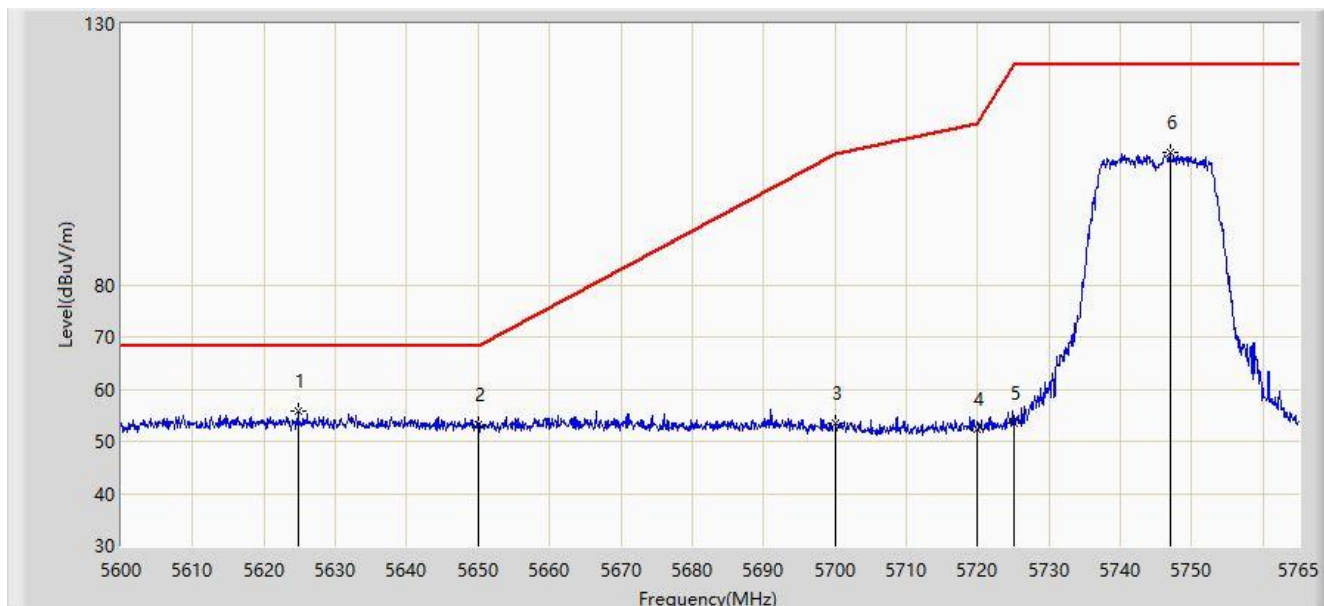


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5610.808	53.721	46.658	-14.479	68.200	7.063	PK
2			5650.000	51.777	44.637	-16.423	68.200	7.140	PK
3			5700.000	50.553	43.338	-54.647	105.200	7.215	PK
4			5720.000	50.330	43.057	-60.470	110.800	7.273	PK
5			5725.000	50.861	43.529	-71.339	122.200	7.332	PK
6			5740.580	91.491	84.060	N/A	N/A	7.431	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:20
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5745MHz	

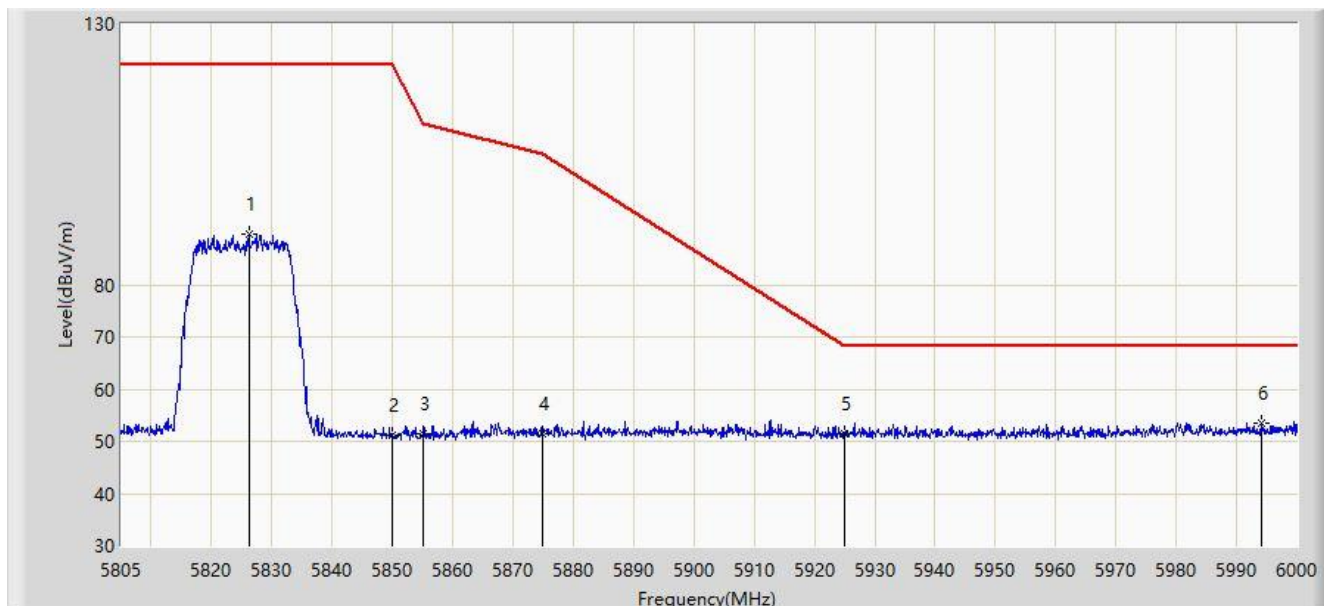


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5624.833	55.740	48.713	-12.460	68.200	7.027	PK
2			5650.000	53.105	45.965	-15.095	68.200	7.140	PK
3			5700.000	53.399	46.184	-51.801	105.200	7.215	PK
4			5720.000	52.427	45.154	-58.373	110.800	7.273	PK
5			5725.000	53.587	46.255	-68.613	122.200	7.332	PK
6			5746.933	105.249	97.808	N/A	N/A	7.441	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:22
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5825MHz	

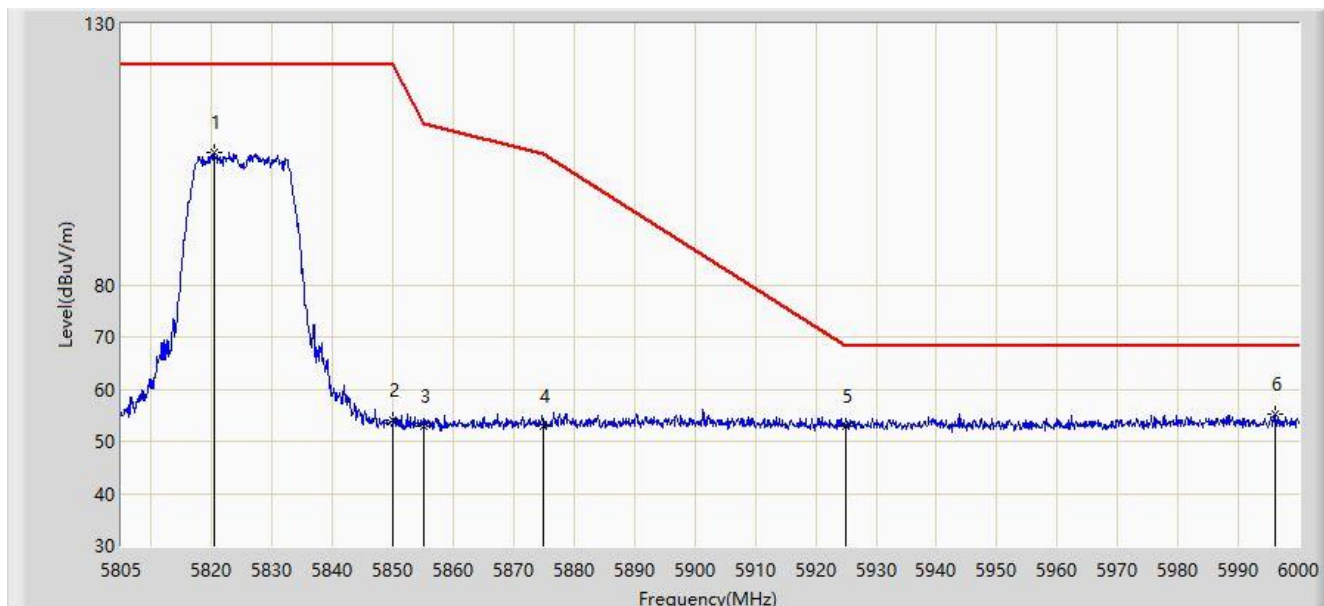


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5826.255	89.795	82.060	N/A	N/A	7.735	PK
2			5850.000	51.191	43.499	-71.009	122.200	7.692	PK
3			5855.000	51.517	43.873	-59.283	110.800	7.644	PK
4			5875.000	51.593	43.991	-53.607	105.200	7.602	PK
5			5925.000	51.548	43.722	-16.652	68.200	7.826	PK
6		*	5994.150	53.595	45.722	-14.605	68.200	7.874	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:24
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at channel 5825MHz	

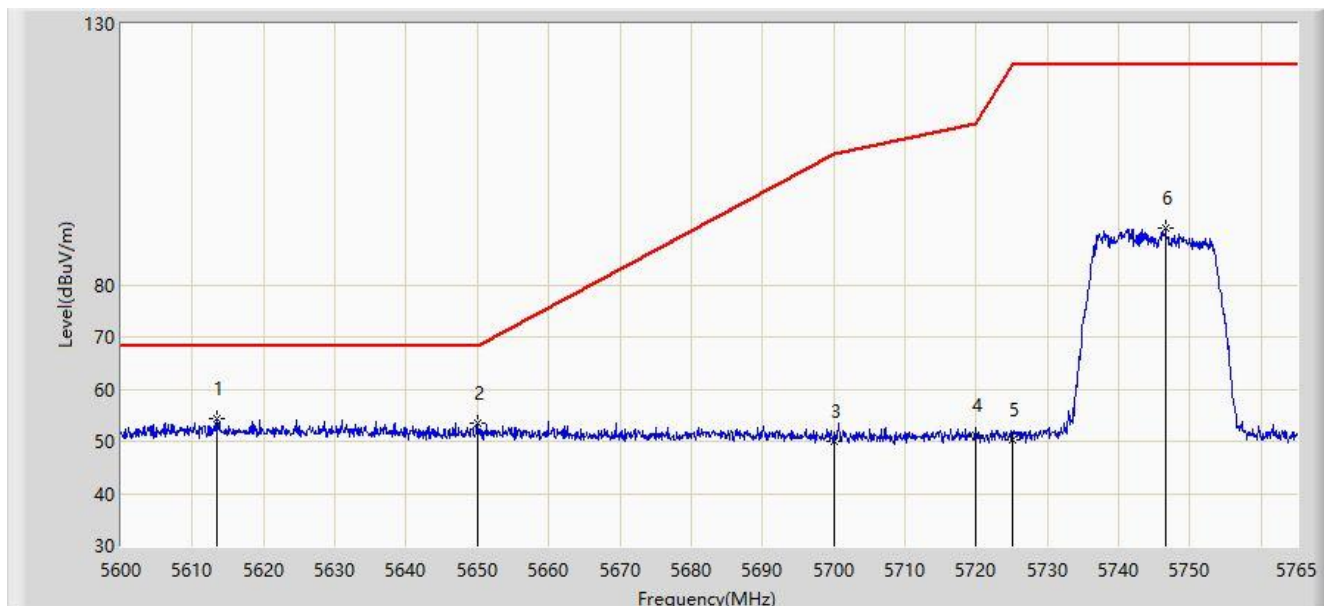


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5820.308	105.501	97.876	N/A	N/A	7.625	PK
2			5850.000	53.945	46.253	-68.255	122.200	7.692	PK
3			5855.000	52.960	45.316	-57.840	110.800	7.644	PK
4			5875.000	52.823	45.221	-52.377	105.200	7.602	PK
5			5925.000	53.019	45.193	-15.181	68.200	7.826	PK
6		*	5996.002	55.087	47.192	-13.113	68.200	7.895	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:29
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5745MHz	

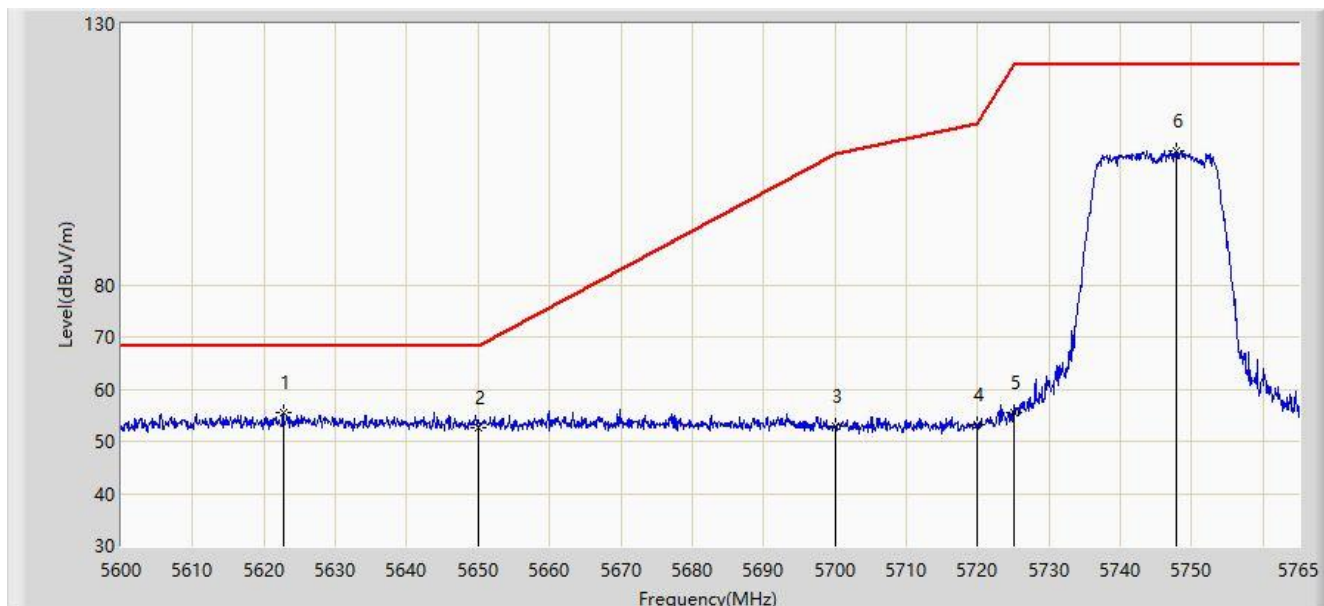


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5613.447	54.328	47.271	-13.872	68.200	7.058	PK
2			5650.000	53.519	46.379	-14.681	68.200	7.140	PK
3			5700.000	50.012	42.797	-55.188	105.200	7.215	PK
4			5720.000	51.066	43.793	-59.734	110.800	7.273	PK
5			5725.000	50.280	42.948	-71.920	122.200	7.332	PK
6			5746.603	90.758	83.316	N/A	N/A	7.442	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:30
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5745MHz	

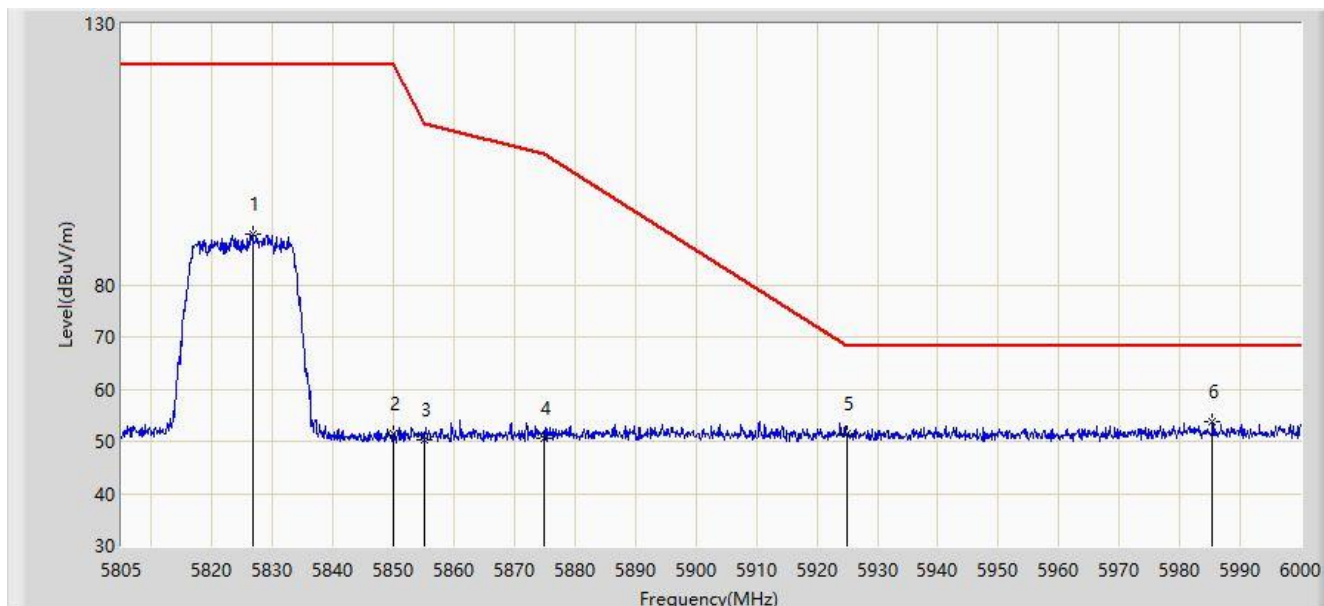


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5622.687	55.521	48.486	-12.679	68.200	7.035	PK
2			5650.000	52.705	45.565	-15.495	68.200	7.140	PK
3			5700.000	52.916	45.701	-52.284	105.200	7.215	PK
4			5720.000	53.160	45.887	-57.640	110.800	7.273	PK
5			5725.000	55.400	48.068	-66.800	122.200	7.332	PK
6			5747.757	105.794	98.354	N/A	N/A	7.440	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:31
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5825MHz	

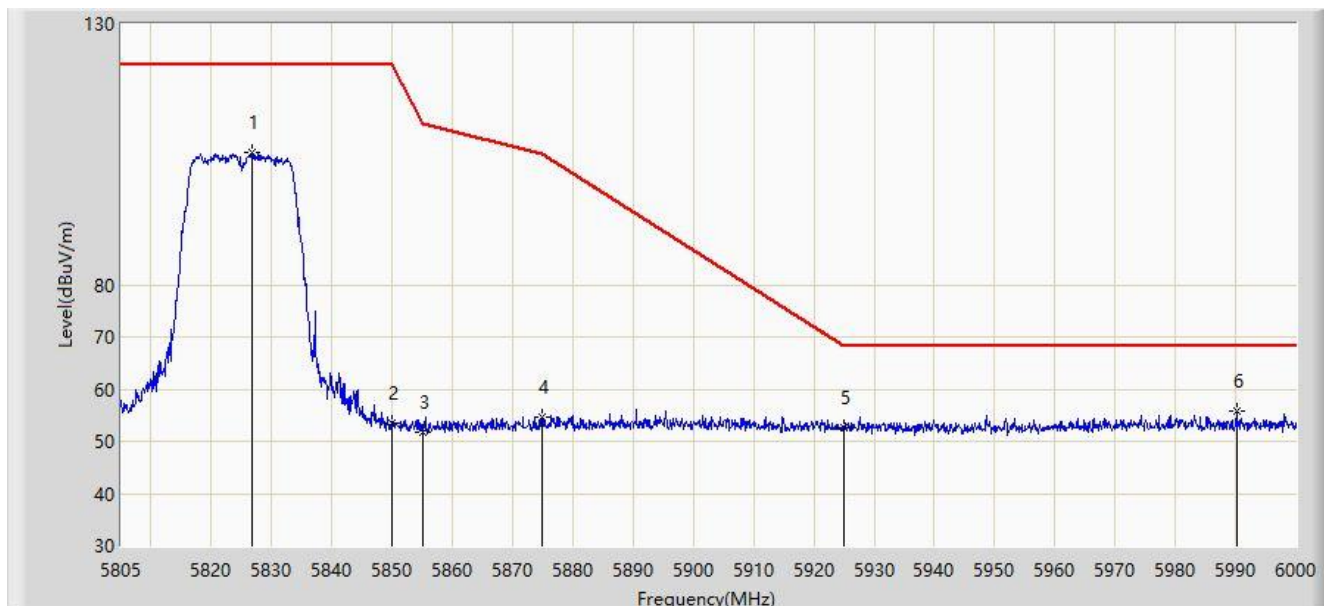


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5826.645	89.843	82.101	N/A	N/A	7.742	PK
2			5850.000	51.352	43.660	-70.848	122.200	7.692	PK
3			5855.000	50.254	42.610	-60.546	110.800	7.644	PK
4			5875.000	50.645	43.043	-54.555	105.200	7.602	PK
5			5925.000	51.416	43.590	-16.784	68.200	7.826	PK
6		*	5985.375	53.732	45.960	-14.468	68.200	7.771	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2020/01/19 - 17:32
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: TRIFIBOOST	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at channel 5825MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5826.645	105.439	97.697	N/A	N/A	7.742	PK
2			5850.000	53.420	45.728	-68.780	122.200	7.692	PK
3			5855.000	51.654	44.010	-59.146	110.800	7.644	PK
4			5875.000	54.532	46.930	-50.668	105.200	7.602	PK
5			5925.000	52.658	44.832	-15.542	68.200	7.826	PK
6		*	5990.152	55.659	47.832	-12.541	68.200	7.827	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)