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# ELECTROMAGNETIC EMISSIONS **COMPLIANCE REPORT**





**FCC Applicant:** Cisco Systems Inc.

125 West Tasman Dr, Bldg. P, San Jose, California,

**USA** 

**Product Name:** FM4500EMB-HW

Cisco Fluidmesh FM4500 EMBEDDED **Brand Name:** 

Model No.: FM4500EMB

**Model Difference:** N/A

**Report Number:** ER/2021/A0108

FCC ID R5SX500E

Issue Date: January 28, 2022

Date of Test: November 16, 2021 ~ January 12, 2022

Date of EUT Received: October 28, 2021

Approved By

Mle Yang

## We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15.407.

The results of this report relate only to the sample identified in this report.

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Revision History						
Report Number	Revision	Description	Issue Date	Revised By	Remark	
ER/2021/A0108	00	Original.	January 28, 2022	Karen Huang		

# Note:

1 . The remark "\*" indicates modification of the report upon requests from certification body.

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# **GENERAL INFORMATION**

#### 1.1 **Product Description**

Product Name:	FM4500EMB-HW
Brand Name:	Cisco Fluidmesh FM4500 EMBEDDED
Model No.:	FM4500EMB
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	4500152873
Power Supply:	56Vdc

#### 1.2 **Modulation & Data Rate**

ē	
Modulation type:	64QAM, 16QAM, QPSK, BPSK for OFDM
iviodulation type.	256QAM for OFDM in 802.11ac only
	802.11 n_20MHz: 6.5 - 144.4 Mbps
Transition Rate:	802.11 n_40MHz: 13.5 - 300 Mbps
	802.11 ac_20MHz: 6.5 - 173.4 Mbps
	802.11 ac_40MHz: 13.5 - 400 Mbps
	802.11 ac_80MHz: 29.3 - 866.6 Mbps

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#### 1.3 **Antenna Designation**

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Directional Gain (dBi)
			5150~5250	3.0	6.01
Omnidirection	MP Antenna,	08-ANT-0985	5250~5350	3.0	6.01
Ommulection	LTD.		5475~5725	3.0	6.01
			5475~5825	3.0	6.01
	Omnidirection Fluidmesh	FM-OMNI-5-V	5150~5250	4.0	7.52
Ompidirection			5250~5350	4.0	7.52
Ommunection			5475~5725	4.0	7.52
			5475~5825	4.0	7.52
		uidmesh FM-OMNI-5-H	5150~5250	5.0	7.52
Omnidirection	Eluidmoch		5250~5350	5.0	7.52
	FluiuIIIESII		5475~5725	5.0	7.52
			5475~5825	5.0	7.52

# Note:

- 1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
- 2. Antenna information is provided by the applicant.

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#### 1.4 **FCC**

Wi-Fi	Frequency Range	Channels	Rated Power(Avg) (dBm) (Worst Case)	Modulation Technology
	5180~5240	4	20.89 dBm	OFDM
n_HT/	5260~5320	4	20.52 dBm	OFDM
ac_VHT 20M	5500-5700	11	20.73 dBm	OFDM
	5745-5825	5	20.07 dBm	OFDM
	5190~5230	2	20.88 dBm	OFDM
n_HT/ ac_VHT	5270~5310	2	20.57 dBm	OFDM
40M	5510-5670	5	20.80 dBm	OFDM
	5755-5795	2	19.83 dBm	OFDM
	5210	1	20.22 dBm	OFDM
ac_VHT	5290	1	19.90 dBm	OFDM
80M	5530-5610	2	19.87 dBm	OFDM
	5775	1	20.14 dBm	OFDM

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#### 1.5 **Test Methodology of Applied Standards**

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10:2013

#### 1.6 **Test Facility**

Laboratory	Test Site Address	Test Site Name	FCC Designa- tion number	IC CAB identifier
		SAC 1		
		SAC 3		
		Conduction 1		
	No.134, Wu Kung Road, New Taipei	Conducted 1		
	Industrial Park, Wuku District, New	Conducted 2	TW0027	TW3702
	Taipei City, Taiwan.	Conducted 3		
		Conducted 4	-	
		Conducted 5		
SGS Taiwan Ltd.		Conducted 6		
Central RF Lab.		Conduction C		
(TAF code 3702)		SAC C		
(1A1 code 3702)		SAC D		
		SAC G		
	No 2 Koji 1st Pd. Cujshan District	Conducted A		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conducted B	TW0028	
	ladydair City, Taiwair 555	Conducted C	-	
		Conducted D		
		Conducted E		
		Conducted F		
			<u> </u>	

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

#### 1.7 **Special Accessories**

There are no special accessories used while test was conducted.

#### 1.8 **Equipment Modifications**

There was no modification incorporated into the EUT.

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# SYSTEM TEST CONFIGURATION

#### **EUT Configuration** 2.1

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

#### 2.2 **EUT Exercise**

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

#### 2.3 **Test Procedure**

#### 2.3.1 **Conducted Emissions**

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

#### 2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

#### 2.3.3 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz. the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max, emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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#### 2.4 **Measurement Results Explanation Example**

#### 2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

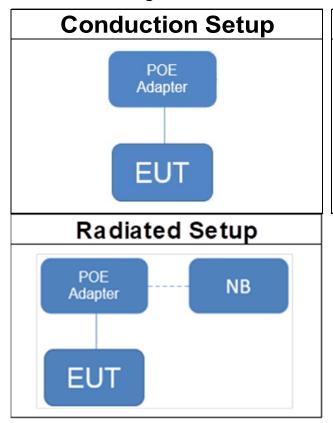
Radiated emission below 30MHz is measured in a 9m\*6m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

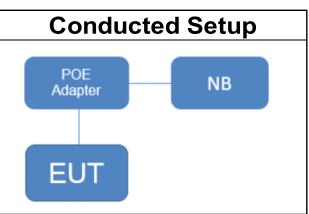
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

#### 2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

#### 2.5 **Test Configuration**





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#### 2.6 Control Unit(s)

Conducted Emission Test Site: Conduction 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Software	audix	e3	Ver. 9 210322	N.C.R	N.C.R
POE Adapter	PHIHONG	POE29U1AT(PL)	PHI242904L4	N/A	N/A

Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R
Notebook	Lenovo	L430	R9-WGNK5 13/01	N/A	N/A
POE Adapter	PHIHONG	POE29U1A T(PL)	PHI242904L4	N/A	N/A

	Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	
Test Software	audix	e3	Ver. 9 210322	N.C.R	N.C.R	
Notebook	Lenovo	L430	R9-WGNK5 13/01	N/A	N/A	
POE Adapter	PHIHONG	POE29U1AT(PL)	PHI242904L4	N/A	N/A	

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# **SUMMARY OF TEST RESULT**

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.407(e)	Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.205 §15.209 §15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.203	Antenna Requirement	Compliant

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# **DESCRIPTION OF TEST MODES**

#### 4.1 **Operating Frequencies**

# Operated band in 5150 MHz ~5250

20 M			
СН	Freq (MHz)		
36	5180		
40	5200		
44	5220		
48	5240		

1411 12.							
40 M							
	Freq						
CH	(MHz)						
38	5190						
46	5230						
	<b>4</b> CH 38						

80	80 M								
СН	Freq (MHz)								
42	5210								

# Operated band in 5250 MHz ~5350 MHz:

20 M								
СН	Freq (MHz)							
52	5260							
56	5280							
60	5300							
64	5320							

40 M							
СН	Freq (MHz)						
54	5270						
62	5310						

80 M						
CH Freq (MHz)						
58	5290					

# Operated band in 5470 MHz ~5725 MHz:

20 M								
СН	Freq (MHz)							
100	5500							
104	5520							
108	5540							
112	5560							
116	5580							
120	5600							
124	5620							
128	5640							
132	5660							
136	5680							
140	5700							

4	40 M									
СН	Freq (MHz)									
102	5510									
110	5550									
118	5590									
126	5630									
134	5670									

	80 M							
(	CH	Freq (MHz)						
1	06	5530						
1	22	5610						

# Operated band in 5725 MHz ~5850

20 M										
СН	Freq (MHz)									
149	5745									
153	5765									
157	5785									
161	5805									
165	5825									

40 M							
СН	Freq (MHz)						
151	5755						
159	5795						

8	0 M
СН	Freq (MHz)
155	5775

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#### 4.2 The Worst Test Modes and Channel Details

- The EUT has been tested under operating condition.
- 2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
- 3. Investigation has been done on all the possible configurations for searching the worst case. The given UE is pre-scanned among below modes.

N	Modulation		Transmission Chain							Single Transmission Spatial		Multiple Transmission Spatial	
	802.11 a		Ch0		Ch1		Ch2		Ch3		1TX		2TX
V	802.11 n	٧	Ch0	٧	Ch1		Ch2		Ch3		SISO	٧	MIMO
V	802.11 ac	٧	Ch0	٧	Ch1		Ch2		Ch3		SISO	٧	MIMO
	802.11 ax		Ch0		Ch1		Ch2		Ch3		SISO		MIMO

Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

RADIATED EMISSION TEST (BELOW 1 GHz)							
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA	
IVIODE	BAND (MHz)	CHANNEL	CHANNEL	WIODULATION	(Mbps)	PORT	
	5180~5240	36 to 48	44				
802.11_HT20	5260~5320	52 to 64	60	OFDM	MCS8	MIMO	
002.11_11120	5500-5700	100 to 140	116	OI DIVI		IVIIIVIO	
	5745~5825	149 to 165	157				
	5210	42	42				
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MIMO	
002.11aC_V11100	5530-5610	106 to 122	122	OI DIVI	WC30	IVIIIVIO	
	5775	155	155				

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RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA	
IVIODE	BAND (MHz)	CHANNEL	CHANNEL	WIODULATION	(Mbps)	PORT	
	5180~5240	36 to 48	36,44,48				
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS8	MIMO	
002.1111_H120	5500-5700	100 to 140	100,116,140	OFDIVI	WC30		
	5745~5825	149 to 165	149,157,165				
	5190~5230	38 to 46	38,46				
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO	
002.1111_11140	5510-5670	102 to 134	102,110,134	OI DIVI	MC36	IVIIIVIO	
	5755~5795	151 to 159	151,159				
	5210	42	42				
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MIMO	
002.11dC_VT10U	5530-5610	106 to 122	106,122	OI DIVI	IVICSU	IVIIIVIO	
	5775	155	155				

CONDUCTED TEST							
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA	
IVIODE	BAND (MHz)	CHANNEL	CHANNEL	WODULATION	(Mbps)	PORT	
	5180~5240	36 to 48	36,44,48				
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS8	MIMO	
002.1111_11120	5500-5700	100 to 140	100,116,140	OI DIVI	WC30	IVIIIVIO	
	5745~5825	149 to 165	149,157,165				
	5190~5230	38 to 46	38,46				
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO	
002.1111_11140	5510-5670	102 to 134	102,110,134	OI DIVI		IVIIIVIO	
	5755~5795	151 to 159	151,159				
	5210	42	42				
802.11ac_VHT80	5290	58	58	OFDM	MCS0	MIMO	
	5530-5610	106 to 122	106,122	OI DIVI	WC30	IVIIIVIO	
	5775	155	155				

# Note:

The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

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# **MEASUREMENT UNCERTAINTY**

Test Items	Un	certain	ty
AC Power Line Conducted Emission	+/-	2.34	dB
Output Power measurement	+/-	1	dB
Emission Bandwidth	+/-	1.53	Hz
Undesignable radiated emission measure- ment	+/-	1.68	dB
Peak Power Density	+/-	1.62	dB
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty						
Polarization: Vertical	+/-	2.57	dB	9kHz~30MHz		
	+/-	4.85	dB	30MHz - 1000MHz		
	+/-	4.45	dB	1GHz - 18GHz		
	+/-	4.24	dB	18GHz - 40GHz		
	+/-	2.57	dB	9kHz~30MHz		
Polarization: Horizontal	+/-	4.37	dB	30MHz - 1000MHz		
Polarization. Horizontal	+/-	4.45	dB	1GHz - 18GHz		
	+/-	4.24	dB	18GHz - 40GHz		

# Note:

- 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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# **MEASUREMENT EQUIPMENT USED**

#### 6.1 **Emission from AC power line**

Conducted Emission Test Site: Conduction 1							
EQUIPMENT TYPE	TYPE MFR MODEL SERIAL LANGE NUMBER LA			LAST CAL.	CAL DUE.		
EMI Test Receiver	R&S	ESCI 7	100759	08/26/2021	08/25/2022		
LISN	SCHWARZBECK	NSLK 8127	8127-465	04/09/2021	04/08/2022		
Coaxial Cables	N/A	Coaxial Cable	161207	12/07/2020	12/06/2021		

#### **Condcuted Measurement** 6.2

Conducted Emission Test Site: Conducted 2							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY60240503	12/11/2020	12/10/2021		
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY60240503	12/09/2021	12/08/2022		
Power Meter	Anritsu	ML2496A	1804001	03/02/2021	03/01/2022		
Power Sensor	Anritsu	MA2411B	1726104	03/02/2021	03/01/2022		
Power Sensor	Anritsu	MA2411B	1726107	03/02/2021	03/01/2022		
Attenuator	Mini-Circuit	BW- S10W2+	2	12/16/2020	12/15/2021		
Attenuator	Mini-Circuit	BW- S10W2+	2	12/14/2021	12/13/2022		
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021		
DC Block	Mini-Circuits	BLK-18-S+	1	12/14/2021	12/13/2022		

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#### **Radiated Measurement** 6.3

Radiated Emission Test Site: SAC 3							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
Horn Antenna	SCHWARZBECK	BBHA9170	184	12/11/2020	12/10/2021		
Horn Antenna	SCHWARZBECK	BBHA9120D	1441	09/27/2021	09/26/2022		
Bi-log Antenna	SCHWARZBECK	VULB9168	378	08/20/2021	08/19/2022		
Loop Antenna	ETS.LINDGREN	6502	148045	09/29/2021	09/28/2022		
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/27/2021	04/26/2022		
EMI Test Receiver	R&S	ESCI 7	100759	08/26/2021	08/25/2022		
Pre-Amplifier	HP	8449B	3008A00578	12/16/2020	12/15/2021		
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2021	10/26/2022		
Pre-Amplifier	HP	8447D	2944A07676	12/16/2020	12/15/2021		
Attenuator	Mini-Circuit	BW-S10W2+	4	12/16/2020	12/15/2021		
Filter 5150-5350 MHz	Micro-Tronics	BRM50703	1	12/16/2020	12/15/2021		
Filter 5470-5725 MHz	Micro-Tronics	BRM50704	1	12/16/2020	12/15/2021		
Filter 5725-5875 MHz	Micro-Tronics	BRM50705	1	12/16/2020	12/15/2021		
High Pass Filter	WI	WHKX7.0/18G- 8SS	45	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2636/2	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 104	340057/4	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 104PEA	800052/2	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2621/2	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2617/2	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2630/2	12/16/2020	12/15/2021		
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY22962/2	12/16/2020	12/15/2021		
Site Cal	SGS	SAC 3	N/A	01/01/2021	12/31/2021		

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# **CONDUCTED EMISSION TEST**

#### Standard Applicable 7.1

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below

	Limits				
Frequency range	(dBuV)				
MHz	Quasi-peak	Average			
0.15 to 0.50	66 to 56	56 to 46			
0.50 to 5	56	46			
5 to 30	60	50			

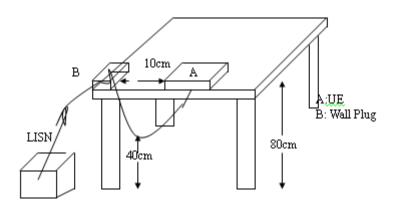
### Note

- 1. The lower limit shall apply at the transition frequencies
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

#### 7.2 **EUT Setup**

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The LISN was connected with 120Vac/60Hz power source.

#### 7.3 **Test SET-UP**



#### 7.4 **Measurement Procedure**

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all phases of power being supplied by given UE are completed.

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#### 7.5 **Measurement Result**

Note: Refer to next page for measurement data and plots.

Note2: The \* reveals the worst-case results that closet to the limit.

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# AC POWER LINE CONDUCTED EMISSION TEST DATA

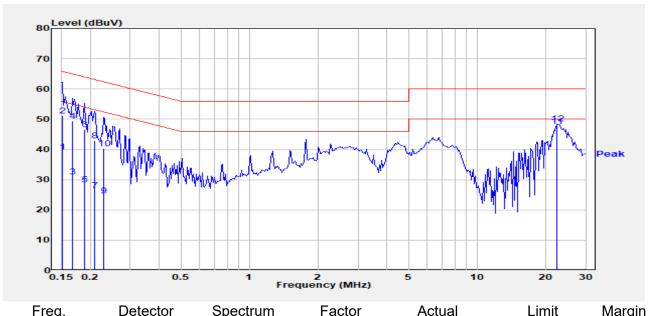
Report Number :ER-2021-A0108 Test Site :Conduction 1

Test Mode :WLAN5G Test Date :2021-12-02

Power :AC 120V Temp./Humi. :20.8/56

Probe Engineer :L :Jack Liu

Note:



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.151	Average	37.21	2.12	39.33	55.94	-16.61
0.151	QP	49.01	2.12	51.13	65.94	-14.81
0.167	Average	28.81	2.12	30.93	55.13	-24.20
0.167	QP	47.28	2.12	49.40	65.13	-15.73
0.189	Average	26.33	2.12	28.45	54.06	-25.61
0.189	QP	44.51	2.12	46.63	64.06	-17.43
0.208	Average	24.41	2.12	26.53	53.27	-26.74
0.208	QP	40.89	2.12	43.01	63.27	-20.26
0.229	Average	22.62	2.12	24.74	52.48	-27.74
0.229	QP	38.22	2.12	40.34	62.48	-22.14
22.438	Average	45.31	2.33	47.64	50.00	-2.36
22.438	QP	46.19	2.33	48.52	60.00	-11.48

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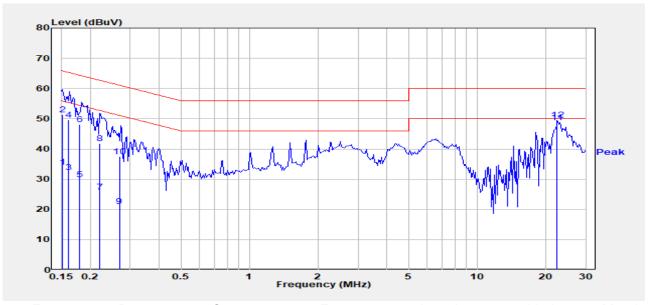
Report Number :ER-2021-A0108 Test Site :Conduction 1

:2021-12-02 Test Mode :WLAN5G Test Date

:AC 120V Power Temp./Humi. :20.8/56

Probe :L Engineer :Jack Liu

Note:



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.152	Average	31.82	2.13	33.95	55.91	-21.97
0.152	QP	49.16	2.13	51.29	65.91	-14.63
0.161	Average	30.15	2.17	32.32	55.40	-23.09
0.161	QP	47.48	2.17	49.65	65.40	-15.76
0.179	Average	27.73	2.23	29.96	54.52	-24.55
0.179	QP	45.96	2.23	48.19	64.52	-16.32
0.220	Average	23.56	2.28	25.84	52.82	-26.99
0.220	QP	39.57	2.28	41.85	62.82	-20.98
0.268	Average	18.86	2.22	21.08	51.17	-30.08
0.268	QP	35.27	2.22	37.49	61.17	-23.67
22.437	Average	46.53	2.33	48.86	50.00	-1.14
22.437	QP	47.42	2.33	49.75	60.00	-10.25

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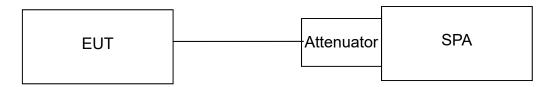
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# **EMISSION BANDWIDTH MEASUREMENT**

#### 8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C. The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

#### 8.2 **Test Setup**



#### 8.3 **Measurement Procedure**

- 1. Place the EUT on the table and set it in transmitting mode.
- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
  - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto,

Detector = Peak,

Trace Mode = Max Hold,

Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.

- 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
- 5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
  - a. Set the spectrum analyzer as

RBW = 100 kHz,

VBW = 3\*RBW.

Span = large enough to capture all products of the modulation process.

Detector=Peak.

Sweep=auto

- b. Mark the peak frequency and -6dB (upper and lower) frequency.
- 6. Repeat above procedures until all frequency of interest measured was complete.

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#### 8.4 **Measurement Result**

#### 8.4.1 **FCC Occupied Bandwidth**

802.11n\_HT20\_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.24	13.060
5220	20.21	13.060
5240	20.11	13.030
5260	20.01	13.010
5300	20.08	13.030
5320	20.22	13.060
5500	20.02	13.010
5580	20.02	13.010
5700	20.10	13.030

## 802.11n\_HT20\_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.71	12.480
5785	17.64	12.460
5825	17.69	12.480

802.11n\_HT20\_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.79	< 5250
5745	5736.15	> 5725

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## 802.11n\_HT20\_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.91	12.990
5220	19.80	12.970
5240	19.77	12.960
5260	19.97	13.000
5300	19.76	12.960
5320	19.87	12.980
5500	19.81	12.970
5580	19.89	12.990
5700	19.72	12.950

# 802.11n\_HT20\_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.63	12.460
5785	17.63	12.460
5825	17.68	12.470

# 802.11n\_HT20\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.76	< 5250
5745	5736.16	> 5725

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802.11n\_HT40\_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.37	16.060
5230	40.04	16.020
5270	39.87	16.010
5310	40.48	16.070
5510	40.03	16.020
5550	40.77	16.100
5670	40.24	16.050

## 802.11n\_HT40\_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	36.38	15.610
5795	36.35	15.610

## 802.11n\_HT40\_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5247.98	< 5250
5755	5736.95	> 5725

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## 802.11n\_HT40\_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.91	16.010
5230	39.65	15.980
5270	40.03	16.020
5310	39.67	15.980
5510	39.98	16.020
5550	39.92	16.010
5670	40.01	16.020

## 802.11n\_HT40\_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.97	15.560
5795	35.70	15.530

# 802.11n\_HT40\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5247.94	< 5250
5755	5736.94	> 5725

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## 802.11ac\_VHT80\_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	80.34	19.050
5290	80.58	19.060
5530	80.55	19.060
5610	80.30	19.050

## 802.11ac\_VHT80\_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.23	18.760

# 802.11ac\_VHT80\_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.32	< 5250
5775	5737.41	> 5725



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## 802.11ac\_VHT80\_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	79.55	19.010
5290	80.07	19.030
5530	79.71	19.020
5610	79.92	19.030

## 802.11ac\_VHT80\_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.07	18.750

# 802.11ac\_VHT80\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.32	< 5250
5775	5737.35	> 5725

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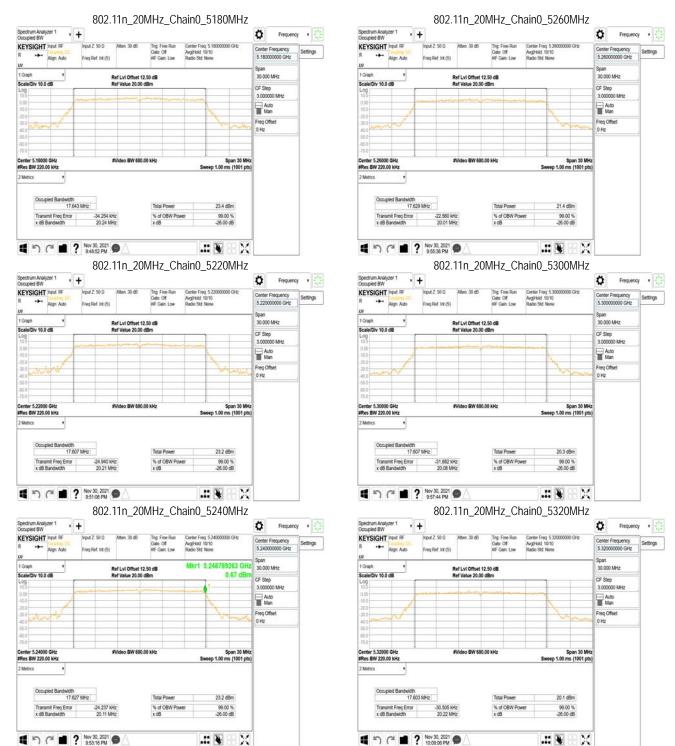
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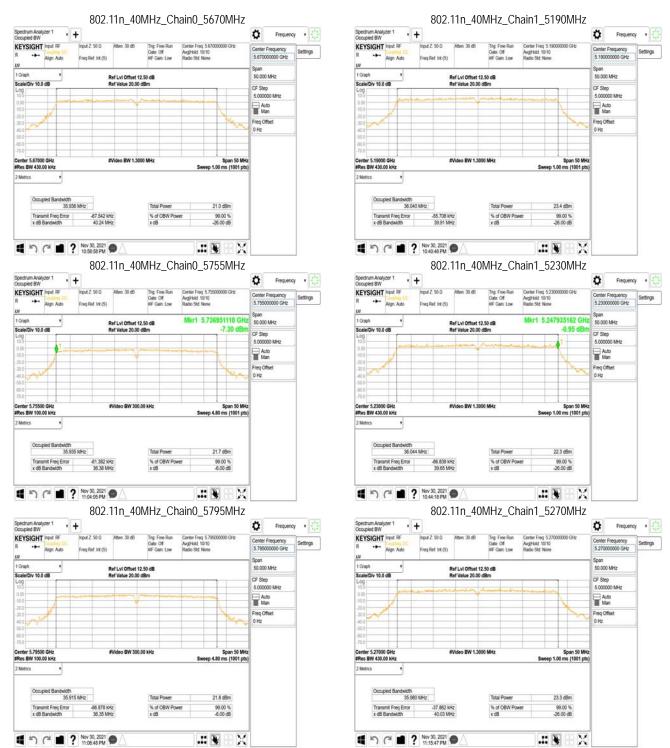
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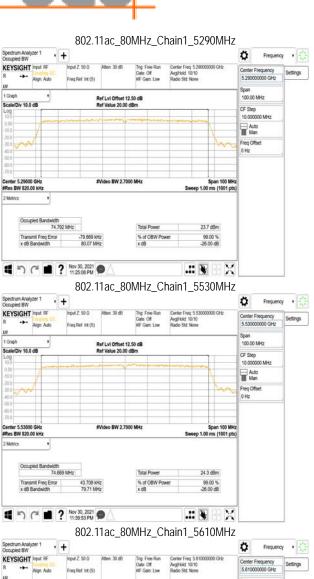


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CF Step 10.000000 MHz Auto Man Freq Offset 0 Hz

23.6 dBm

99.00 % -26.00 dB

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Ref Lvl Offset 12.50 dB Ref Value 20.00 dBm

#Video RW 2 7000 MH:

Total Power

% of OBW Power x dB

Scale/Div 10.0 dB

ter 5,61000 G

Occupied Bandwidth 74,717 MHz

■ 1 Nov 30, 2021 ■ 11:30:29 PM

Transmit Freq Error x dB Bandwidth



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## MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

### 9.1 Standard Applicable

#### 9.1.1 **Duty Cycle**

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

### 9.1.2 **Output Power**

				e-CRF Title 4	7 §15.407	
Band	C	EUT ATEGORY	Conducted Output Power	EIRP	TPC	Antenna Directional Gain Requirements
		Fixed point-to- point	1 Watt(30dBm) Not required		Not required	23dBi
11 1111 1		Outdoor AP	1 Watt(30dBm) Elevation angle above 30 degrees 125mW (21dBm)		Not required	6dBi
U-NII-1	V Indoor AP		1 Watt(30dBm)	Not required	Not required	6dBi
	٧	Other	250mW(23.98dBm)	Not required	Not required	6dBi
U-NII-2A	٧	Other	250mW(23.98dBm) or 11dBm+10 log B	Not required	When EIRP >500mW At least 6dB below EIRP 1W (30dBm)	6dBi
U-NII-2C <b>V</b> Oth		Other	250mW(23.98dBm) or 11dBm+10 log B	Not required	EIRI TW (Soublin)	6dBi
	V	Other 1 Watt(30dBm)		Not required	Not required	6dBi
U-NII-3		Fixed point-to-point	1 Watt(30dBm)	Not required	Not required	Not required

<sup>1.</sup> If transmitting antennas of directional gain greater than the antenna requirements column, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna.

Note: Other is the worst case in the report.

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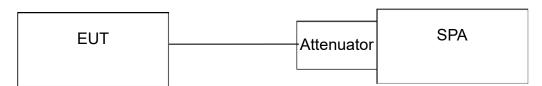
<sup>2.</sup> For the 10 log B, B is the 26 dB emission bandwidth.



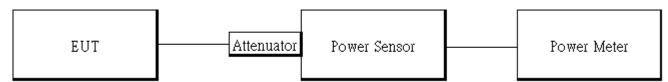
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### 9.2 **Test Setup**

### 9.2.1 **Duty Cycle**



### **Output Power** 9.2.2



#### 9.3 **Measurement Procedure**

### 9.3.1 **Duty Cycle Measurements**

- 1. Set span = Zero
- 2. RBW = 8MHz
- VBW = 8MHz,
- 4. Detector = Peak

#### 9.3.2 **Output Power Measurements**

- 1 Place the EUT on the table and set it in transmitting mode.
- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
- Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
- Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
- Record the max. reading and add 10 log(1/duty cycle).
- Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.
- MIMO mode: offset is set with "measure and add 10 Log (N)" to measurement for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna, cable loss is specified below.

Cable Loss Offset (dB) 10.7

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### **Duty Cycle Measurement Result** 9.4

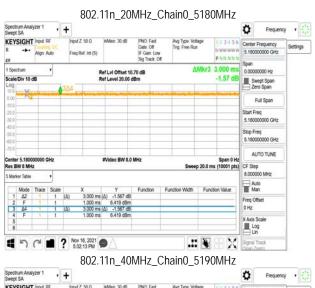
Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log ( 1/Duty Cycle )	1/T (kHz)	VBW setting (kHz)
802.11n_20	100.00	0.00	0.00	0.01
802.11ac_20	100.00	0.00	0.00	0.01
802.11n_40	100.00	0.00	0.00	0.01
802.11ac_40	100.00	0.00	0.00	0.01
802.11ac_80	100.00	0.00	0.00	0.01

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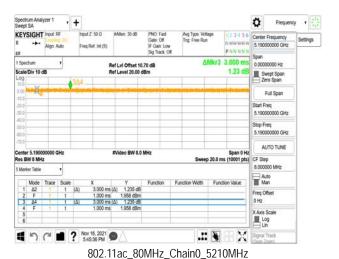
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802.11ac\_40MHz\_Chain0\_5190MHz



Spectrum Analyzer 1 Swept SA ٥ KEYSIGHT Input RF Ref Lvi Offset 10.70 dB Ref Level 20.00 dBm Scale/Div 10 d8 5.210000000 GHz Stop Freq 5.210000000 GHz AUTO TUNE Span 0 i Sweep 20.0 ms (10001 pt Res BW 8 MHz Marker Table Auto Man X 3.000 ms (Δ) (Δ) Freq Offset 3.000 ms (Δ) 1.064 dB 1.000 ms 4.386 dBn 0 Hz X Axis Scal ■ 9 C ■ ? Nov 16, 2021 ● .:: 🔖

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### 9.5 **Output Power Measurement Result**

### 9.5.1 **FCC Output power**

802.11n HT20 MIMO

611	Frequency	Data	Power	Avg. POV	Avg. POWER (dBm)		TOTAL	REQUIRED	DEGULT
СН	(MHz)	Rate	set	Ch0	Ch1	POWER (dBm)	POWER (mW)	LIMIT (dBm)	RESULT
36	5180	MCS8	30	17.89	17.75	20.83	121.060	22.46	PASS
44	5220	MCS8	30	18.44	17.21	20.88	122.462	22.46	PASS
48	5240	MCS8	30	18.52	17.14	20.89	122.744	22.46	PASS
52	5260	MCS8	23	16.65	18.23	20.52	112.720	22.46	PASS
60	5300	MCS8	23	15.91	18.37	20.32	107.647	22.46	PASS
64	5320	MCS8	23	15.98	18.39	20.36	108.643	22.46	PASS
100	5500	MCS8	23	16.85	18.45	20.73	118.304	22.46	PASS
116	5580	MCS8	23	15.68	16.65	19.20	83.176	22.46	PASS
140	5700	MCS8	23	15.25	16.04	18.67	73.621	22.46	PASS
149	5745	MCS8	30	16.62	17.45	20.07	101.625	28.48	PASS
157	5785	MCS8	30	16.71	17.32	20.04	100.925	28.48	PASS
165	5825	MCS8	30	15.77	16.04	18.92	77.983	28.48	PASS

802 11n HT40 MIMO

СН	Frequency	Data	Power	Avg. POV	Avg. POWER (dBm)		TOTAL POWER	REQUIRED LIMIT	DECLUT
СП	(MHz)	Rate	set	Ch0	Ch1	POWER (dBm)	(mW)	(dBm)	RESULT
38	5190	MCS8	30	17.92	17.82	20.88	122.462	22.46	PASS
46	5230	MCS8	30	18.08	16.83	20.51	112.460	22.46	PASS
54	5270	MCS8	23	16.72	18.27	20.57	114.025	22.46	PASS
62	5310	MCS8	23	15.9	18.35	20.31	107.399	22.46	PASS
102	5510	MCS8	23	16.71	18.41	20.65	116.145	22.46	PASS
110	5550	MCS8	23	17.7	17.88	20.80	120.226	22.46	PASS
134	5670	MCS8	23	16.23	17.25	19.78	95.060	22.46	PASS
151	5755	MCS8	30	16.34	16.97	19.68	92.897	28.48	PASS
159	5795	MCS8	30	16.54	17.08	19.83	96.161	28.48	PASS

802.11ac VHT20 MIMO

CH	Frequency	Data	Power	Avg. POW	/ER (dBm)	TOTAL POWER	TOTAL POWER	REQUIRED LIMIT	RESULT
Сп	(MHz)	Rate	set	Ch0	Ch1	(dBm)	(mW)	(dBm)	RESULI
36	5180	MCS0	30	17.85	17.72	20.80	120.226	22.46	PASS
44	5220	MCS0	30	18.41	17.16	20.84	121.339	22.46	PASS
48	5240	MCS0	30	18.44	17.09	20.83	121.060	22.46	PASS
52	5260	MCS0	23	16.63	18.17	20.48	111.686	22.46	PASS
60	5300	MCS0	23	15.88	18.33	20.29	106.905	22.46	PASS
64	5320	MCS0	23	15.96	18.31	20.30	107.152	22.46	PASS
100	5500	MCS0	23	16.8	18.37	20.67	116.681	22.46	PASS
116	5580	MCS0	23	15.62	16.57	19.13	81.846	22.46	PASS
140	5700	MCS0	23	15.21	16	18.63	72.946	22.46	PASS
149	5745	MCS0	30	16.55	17.4	20.01	100.231	28.48	PASS
157	5785	MCS0	30	16.64	17.25	19.97	99.312	28.48	PASS
165	5825	MCS0	30	15.73	15.98	18.87	77.090	28.48	PASS

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802.11ac VHT40 MIMO

СН	Frequency	Data	Power	Avg. POW	/ER (dBm)	TOTAL POWER	TOTAL POWER	REQUIRED LIMIT	RESULT
Сп	(MHz)	Rate	set	Ch0	Ch1	(dBm)	(mW)	(dBm)	
38	5190	MCS0	30	17.86	17.77	20.83	121.060	22.46	PASS
46	5230	MCS0	30	18.03	16.76	20.45	110.917	22.46	PASS
54	5270	MCS0	23	16.65	18.22	20.52	112.720	22.46	PASS
62	5310	MCS0	23	15.84	18.29	20.25	105.925	22.46	PASS
102	5510	MCS0	23	16.64	18.37	20.60	114.815	22.46	PASS
110	5550	MCS0	23	17.66	17.83	20.76	119.124	22.46	PASS
134	5670	MCS0	23	16.18	17.19	19.72	93.756	22.46	PASS
151	5755	MCS0	30	16.3	16.93	19.64	92.045	28.48	PASS
159	5795	MCS0	30	16.47	17.01	19.76	94.624	28.48	PASS

## 802.11ac VHT80 MIMO

CH	Frequency	Data	Power	Avg. POWER (dBm)		TOTAL POWER	TOTAL POWER	REQUIRED LIMIT	RESULT
OII	(MHz)	Rate	set	Ch0	Ch1	(dBm)	(mW)	(dBm)	KLSOLI
42	5210	MCS0	30	17.15	17.26	20.22	105.196	22.46	PASS
58	5290	MCS0	23	16.08	17.57	19.90	97.724	22.46	PASS
106	5530	MCS0	23	15.85	17.68	19.87	97.051	22.46	PASS
122	5610	MCS0	23	15.82	17.06	19.49	88.920	22.46	PASS
155	5775	MCS0	30	16.69	17.52	20.14	103.276	28.48	PASS

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# 10 MAXIMUM POWER SPECTRAL DENSITY

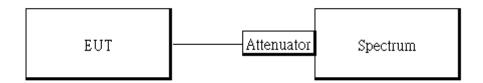
### Standard Applicable 10.1

Operation Bands	EUT	CATEGORY	e-CRF Title 47 §15.407 Power Spectral Density	Antenna Directional Gain Requirements	
		Outdoor Access Point (Master)	1. 17dBm/ MHz 2. EIRP<=125mW(21dBm) at any elevation angle > 30°	6dBi	
U-NII-1	1 V Indoor Access Point (Master)		17dBm/ MHz	6dBi	
		Fixed point-to- point Access Ponit	17dBm/ MHz	23dBi	
	٧	Client device	11dBm/ MHz	6dBi	
U-NII-2A	٧	All	11dBm/ MHz	6dBi	
U-NII-2C	٧	All	11dBm/ MHz	6dBi	
U-NII-3	V All		30dBm/ 500kHz	6dBi	

If transmitting antennas of directional gain greater than the antenna requirements column, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna.

Note: Client device is the worst case in the report.

### 10.2 **Test Setup**



#### 10.3 **Measurement Procedure**

1. Place the EUT on the table and set it in transmitting mode.

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2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.

- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
- 4. For U-NII1, U-NII-2A, U-NII-2C Band:

Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (1001 pts), Detector = power averaging (rms), if available. Otherwise, use sample detector mode, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

### For U-NII-3 Band:

Set RBW=300kHz, VBW=1MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto, detector = RMS or sample, traces 100 sweeps of video averaging.

In addition, measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result.

- 5. User the cursor on spectrum to peak search the highest level of trace
- 6. Record the max. reading and add 10 log(1/duty cycle).
- 7. Repeat above procedures until all default test channel (low, middle, and high) was complete.
- 8. MIMO mode: offset is set with "measure and add 10 Log (N)" to measurement for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna, cable loss is specified below.

Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

### Note:

As per section F. 2). e). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

• Directional Gain = 
$$10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^{2}}{N_{ANT}} \right]$$

### where

Each antenna is driven by no more than one spatial stream; NSS = the number of independent spatial streams of data; NANT = the total number of antennas

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 $g_{j,k}$  = / 20 10Gk if the kth antenna is being fed by spatial stream j, or zero if it is not;  $G_k$  is the gain in dBi of the kth antenna.

The antenna gain is grater than 6 dBi in MIMO mode, therefore the the power density limit autenuation has been applied in the test results.

## 10.4 Measurement Result

		POWE	R DENSITY 802.11	In HT20 MODE			
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'c	I PSD(dBm/MHz)	Limit	Margin (dB)
5180	6.290	6.018	0.00	9.1	66	9.48 dBm/MHz	-0.31
5220	5.984	4.614	0.00	8.3	363	9.48 dBm/MHz	-1.12
5240	6.889	5.366	0.00	9.2	204	9.48 dBm/MHz	-0.28
5260	5.372	6.988	0.00	9.2	265	9.48 dBm/MHz	-0.21
5300	3.819	6.427	0.00	8.3	326	9.48 dBm/MHz	-1.15
5320	3.900	6.255	0.00	8.2	246	9.48 dBm/MHz	-1.23
5500	4.798	6.522	0.00	8.7	<b>'</b> 55	9.48 dBm/MHz	-0.72
5580	3.773	5.553	0.00	7.7	<b>'</b> 64	9.48 dBm/MHz	-1.72
5700	3.823	4.780	0.00	7.3	338	9.48 dBm/MHz	-2.14
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maxmum Corr'd PSD(dBm/500kHz )	Limit	Margin (dB)
5745	0.616	1.499	0.00	2.22	6.310	28.48 dBm/500kHz	-22.17
5785	0.890	1.731	0.00	2.22	6.561	28.48 dBm/500kHz	-21.92
5825	-0.241	-0.472	0.00	2.22	4.875	28.48 dBm/500kHz	-23.60
		POWE	ER DENSITY 802.11	In HT40 MODE			
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'c	I PSD(dBm/MHz)	Limit	Margii (dB)
5190	3.959	3.798	0.00	6.8	390	9.48 dBm/MHz	-2.59
5230	3.592	4.079	0.00	6.8	353	9.48 dBm/MHz	-2.63
5270	-1.620	2.131	0.00	3.6	659	9.48 dBm/MHz	-5.82
5310	-3.402	2.128	0.00	3.2	200	9.48 dBm/MHz	-6.28
5510	-3.987	2.356	0.00	3.2	263	9.48 dBm/MHz	-6.22
5550	-2.972	1.620	0.00	2.9	915	9.48 dBm/MHz	-6.57
5670	-3.358	0.931	0.00	2.306		9.48 dBm/MHz	-7.17
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maxmum Corr'd PSD(dBm/500kHz )	Limit	Margi (dB)
5755	-6.831	-3.526	0.00	2.22	0.359	28.48 dBm/500kHz	-28.12
5795	-6.380	-4.284	0.00	2.22	0.024	28.48 dBm/500kHz	-28.46

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	POWER DENSITY 802.11ac VHT80 MODE								
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)		
5210	0.424	-0.445	0.00	3.0	)21	9.48 dBm/MHz	-6.46		
5290	-5.567	-1.766	0.00	-0.2	253	9.48 dBm/MHz	-9.73		
5530	-7.495	-1.087	0.00	-0.	193	9.48 dBm/MHz	-9.67		
5610	-6.854	-1.793	0.00	-0.6	614	9.48 dBm/MHz	-10.09		
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maxmum Corr'd PSD(dBm/500kHz )	Limit	Margin (dB)		
5775	-10.720	-8.032	0.00	2.22	-3.941	28.48 dBm/500kHz	-32.42		

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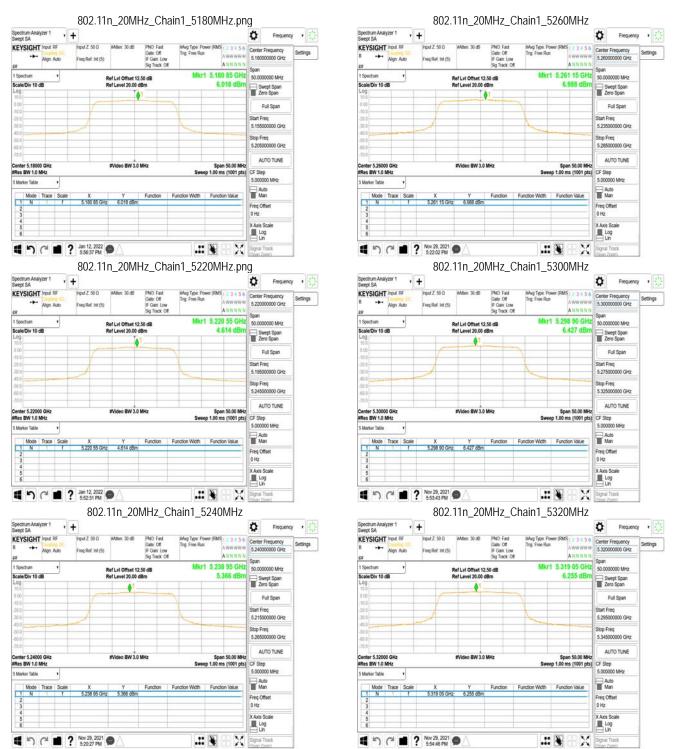
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### 802.11ac\_80MHz\_Chain1\_5290MHz ٥ KEYSIGHT Input RF nout 7:50.0 Algn: Auto r1 5.288 20 GH: Scale/Div 10 dB Swept Span Zero Span Full Span #Video BW 3.0 MHz FRes BW 1.0 MHz Auto Man 5.288 20 GHz -1.766 dBm Freq Offse 0 Hz Log Lin 1 5 C 1 ? Nov 16, 2021 .:: 📡





802.11ac\_80MHz\_Chain1\_5775MHz



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## 11 UNDESIRABLE RADIATED EMISSION MEASUREMENT

## Standard Applicable

## 11.1.1 Band Edge

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- 1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- 2. 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.

APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1) RSS-247 §6.2.1.2		
15.407(b)(2) RSS-247 §6.2.2.2	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
15.407(b)(3) RSS-247 §6.2.3.2		
15.407(b)(4)(i) RSS-247 §6.2.4.2	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3	PK: 68.2 (dBµV/m) *1 PK:105.2 (dBµV/m) *2 PK: 110.8(dBµV/m) *3
	PK:27 (dBm/MHz) *4	PK:122.2 (dBµV/m) *4

<sup>\*1</sup> beyond 75 MHz or more above of the bandedge.

 $EIRP = ((E^*d)^2) / 30$ , where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

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<sup>\*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

<sup>\*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

<sup>\*4</sup> from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



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# 11.1.2 Spurious Emission

Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

	nto opodinou do poloti table:	
Frequency (MHz)	Field strength (microvolts/meter)	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

### Note:

The lower limit shall apply at the transition frequencies. 1.

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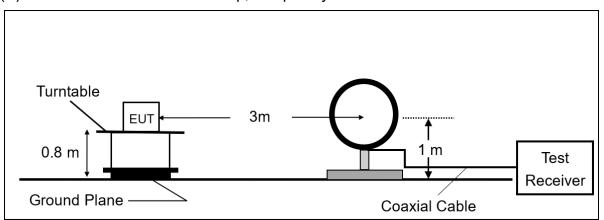
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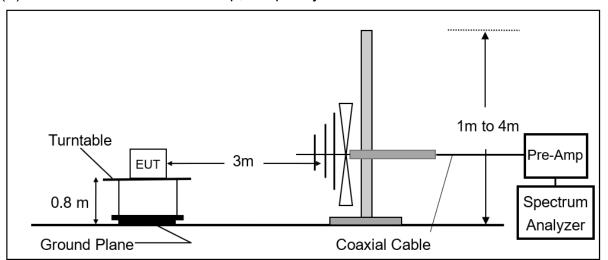
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### 11.2 **Test Setup**

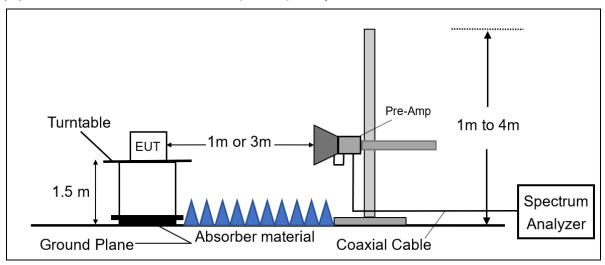
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz



(C) Radiated Emission Test Set-Up, Frequency Above 1GHz



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#### 11.3 **Measurement Procedure**

- 1. The testing follows FCC KDB 789033 D02.
- The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission
- EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- Set the spectrum analyzer as RBW=100 kHz and VBW=300 kHz for Peak Detector (PK) at frequency between 30MHz and 1 GHz
- Use receiver mode as RBW=120 kHz for Quasi-peak (QP) at frequency between 30MHz and 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Maximum Emission Measure-7. ments at frequency above 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T 8. (Duty cycle < 98%) for Average Emission Measurements at frequency above 1 GHz.
- When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 10. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- **12.** Repeat above procedures until all frequency measured were complete.

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# 11.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

*RA* = *Reading Amplitude* 

AG = Amplifier Gain

AF = Antenna Factor

The limit of the emission level is expressed in dBuV/m, which converts 20\*log(uV/m)

Actual  $FS(dB\mu V/m) = SPA$ . Reading level(dB $\mu V$ ) + Factor(dB)

 $Factor(dB) = Antenna\ Factor(dB\mu V/m) + Cable\ Loss(dB) - Pre\_Amplifier\ Gain(dB)$ 

# 11.5 Test Results of Radiated Spurious Emissions from 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

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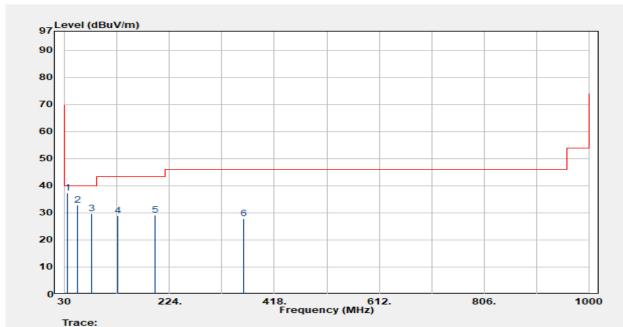
# **Radiated Spurious Emission Measurement Result**

### 11.6.1 **Spurious Emission**

Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5220 MHz Temp./Humi. :22.8/45 Test Mode :Tx CH Mid Antenna Pol. :Vertical **EUT Pol** :H Plane Engineer :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
35.030	QP	46.20	-8.96	37.24	40.00	-2.76
54.400	QP	41.10	-8.30	32.80	40.00	-7.20
79.470	Peak	41.74	-11.97	29.77	40.00	-10.23
128.940	Peak	37.79	-8.75	29.04	43.50	-14.46
197.810	Peak	38.94	-9.74	29.20	43.50	-14.30
360.770	Peak	32.73	-4.88	27.85	46.00	-18.15

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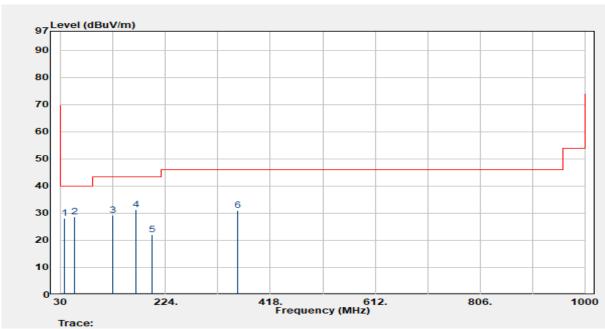
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5220 MHz Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Horizontal :Tx CH Mid

**EUT Pol** Engineer :H Plane :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
36.790	Peak	37.13	-8.93	28.20	40.00	-11.80
55.220	Peak	37.22	-8.44	28.78	40.00	-11.22
126.030	Peak	38.30	-9.08	29.23	43.50	-14.27
169.680	Peak	38.97	-7.69	31.29	43.50	-12.21
198.780	QP	31.90	-9.73	22.17	43.50	-21.33
357.860	Peak	36.02	-4.91	31.11	46.00	-14.89

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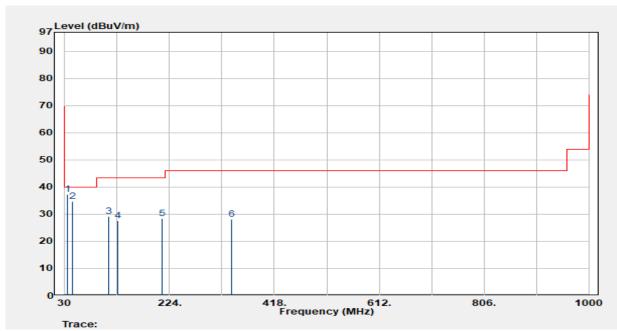
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5300 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
QP	46.30	-8.96	37.34	40.00	-2.66
QP	43.10	-8.28	34.82	40.00	-5.18
Peak	40.04	-10.84	29.20	43.50	-14.30
Peak	36.38	-8.86	27.53	43.50	-15.97
Peak	37.95	-9.68	28.27	43.50	-15.23
Peak	33.07	-4.96	28.12	46.00	-17.88
_	Mode PK/QP/AV QP QP Peak Peak Peak	Mode PK/QP/AV         Reading Level dBμV           QP         46.30           QP         43.10           Peak         40.04           Peak         36.38           Peak         37.95	Mode PK/QP/AV         Reading Level dBμV         dB           QP         46.30         -8.96           QP         43.10         -8.28           Peak         40.04         -10.84           Peak         36.38         -8.86           Peak         37.95         -9.68	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m           QP         46.30         -8.96         37.34           QP         43.10         -8.28         34.82           Peak         40.04         -10.84         29.20           Peak         36.38         -8.86         27.53           Peak         37.95         -9.68         28.27	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m         @3m dBμV/m           QP         46.30         -8.96         37.34         40.00           QP         43.10         -8.28         34.82         40.00           Peak         40.04         -10.84         29.20         43.50           Peak         36.38         -8.86         27.53         43.50           Peak         37.95         -9.68         28.27         43.50

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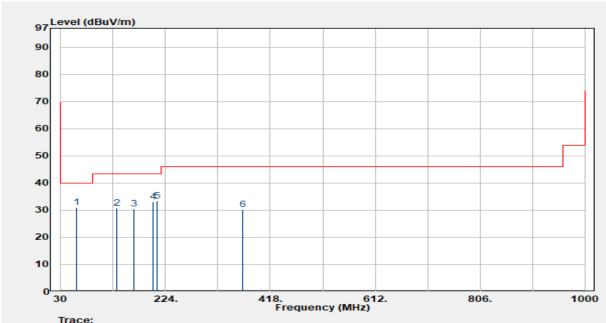
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5300 MHz Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Horizontal :Tx CH Mid

**EUT Pol** Engineer :H Plane :Jack Liu



mucc.						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
59.100	Peak	39.59	-8.70	30.90	40.00	-9.10
133.790	Peak	38.76	-8.12	30.63	43.50	-12.87
164.830	Peak	37.74	-7.36	30.38	43.50	-13.12
201.690	Peak	42.92	-9.67	33.25	43.50	-10.25
208.480	Peak	43.23	-9.74	33.50	43.50	-10.00
366.590	Peak	34.89	-4.75	30.14	46.00	-15.86

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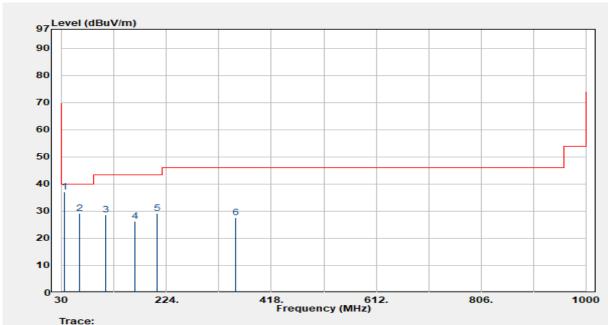
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5580 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Vertical :Tx CH Mid

**EUT Pol** Engineer :H Plane :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
34.850	QP	46.12	-9.00	37.12	40.00	-2.88
62.010	QP	38.21	-9.06	29.15	40.00	-10.85
111.480	Peak	39.23	-10.68	28.54	43.50	-14.96
164.830	Peak	33.57	-7.36	26.22	43.50	-17.28
206.540	Peak	39.03	-9.75	29.27	43.50	-14.23
352.040	Peak	32.46	-4.94	27.52	46.00	-18.48

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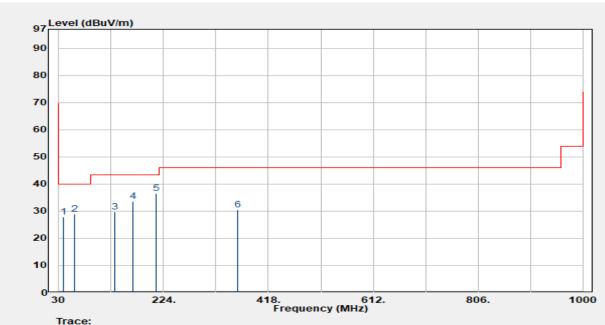
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5580 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Horizontal :Tx CH Mid

**EUT Pol** Engineer :H Plane :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
37.760	Peak	36.61	-8.71	27.90	40.00	-12.10
59.100	Peak	37.73	-8.70	29.03	40.00	-10.97
133.790	Peak	37.75	-8.12	29.62	43.50	-13.88
167.740	Peak	41.07	-7.52	33.56	43.50	-9.94
210.420	Peak	46.34	-9.68	36.66	43.50	-6.84
361.740	Peak	35.42	-4.85	30.57	46.00	-15.43

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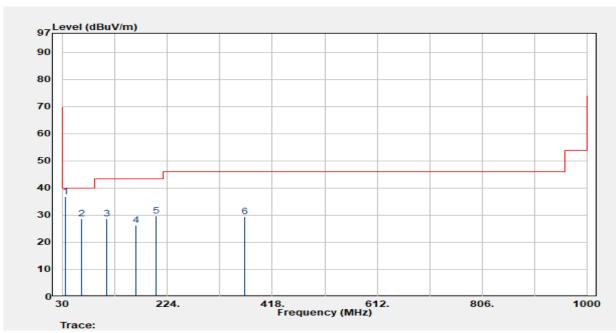
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5785 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBμV/m	dBµV/m	dB
34.850	QP	45.89	-9.00	36.89	40.00	-3.11
63.950	QP	37.90	-9.24	28.66	40.00	-11.34
110.510	Peak	39.39	-10.84	28.55	43.50	-14.95
165.800	Peak	33.80	-7.50	26.30	43.50	-17.20
202.660	Peak	39.27	-9.70	29.57	43.50	-13.93
366.590	Peak	34.26	-4.75	29.51	46.00	-16.49

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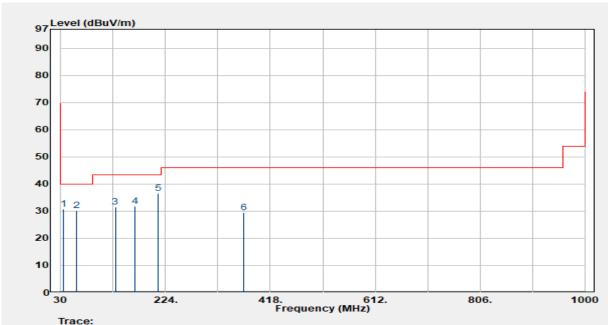
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5785 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Horizontal :Tx CH Mid

**EUT Pol** Engineer :H Plane :Jack Liu



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Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
34.850	Peak	39.71	-9.00	30.72	40.00	-9.28
59.100	Peak	38.90	-8.70	30.20	40.00	-9.80
130.880	Peak	40.09	-8.44	31.65	43.50	-11.85
167.740	Peak	39.23	-7.52	31.72	43.50	-11.78
209.450	Peak	46.34	-9.73	36.61	43.50	-6.89
369.500	Peak	34.26	-4.73	29.53	46.00	-16.47

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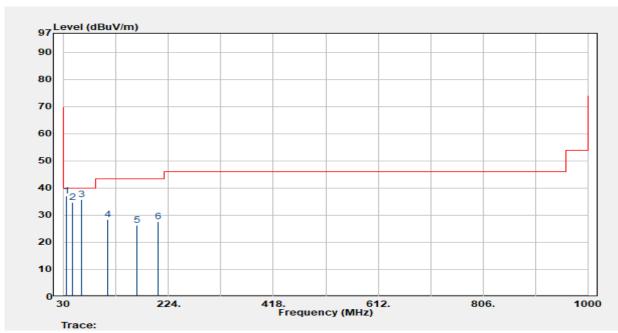
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5210 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
QP	46.05	-9.00	37.05	40.00	-2.95
QP	42.87	-8.18	34.69	40.00	-5.31
Peak	44.86	-9.06	35.80	40.00	-4.20
Peak	39.32	-10.84	28.48	43.50	-15.02
Peak	33.76	-7.36	26.41	43.50	-17.09
Peak	37.34	-9.76	27.59	43.50	-15.91
	Mode PK/QP/AV QP QP Peak Peak Peak	Mode PK/QP/AV         Reading Level dBμV           QP         46.05           QP         42.87           Peak         44.86           Peak         39.32           Peak         33.76	Mode PK/QP/AV         Reading Level dBμV         dB           QP         46.05         -9.00           QP         42.87         -8.18           Peak         44.86         -9.06           Peak         39.32         -10.84           Peak         33.76         -7.36	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m           QP         46.05         -9.00         37.05           QP         42.87         -8.18         34.69           Peak         44.86         -9.06         35.80           Peak         39.32         -10.84         28.48           Peak         33.76         -7.36         26.41	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m         @3m dBμV/m           QP         46.05         -9.00         37.05         40.00           QP         42.87         -8.18         34.69         40.00           Peak         44.86         -9.06         35.80         40.00           Peak         39.32         -10.84         28.48         43.50           Peak         33.76         -7.36         26.41         43.50

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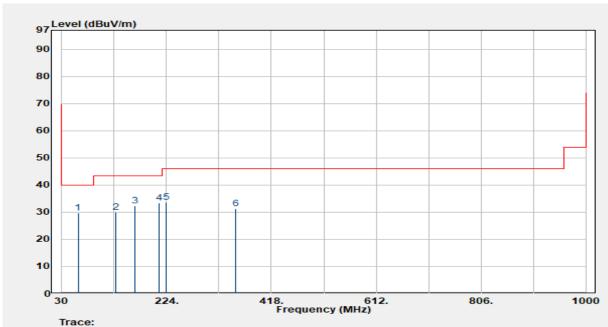
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5210 MHz Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Horizontal :Tx CH Low

**EUT Pol** Engineer :H Plane :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
60.070	Peak	38.55	-8.80	29.75	40.00	-10.25
129.910	Peak	38.49	-8.55	29.94	43.50	-13.56
165.800	Peak	39.94	-7.50	32.44	43.50	-11.06
209.450	Peak	43.00	-9.73	33.27	43.50	-10.23
223.030	Peak	42.90	-9.35	33.54	46.00	-12.46
352.040	Peak	36.33	-4.94	31.39	46.00	-14.61

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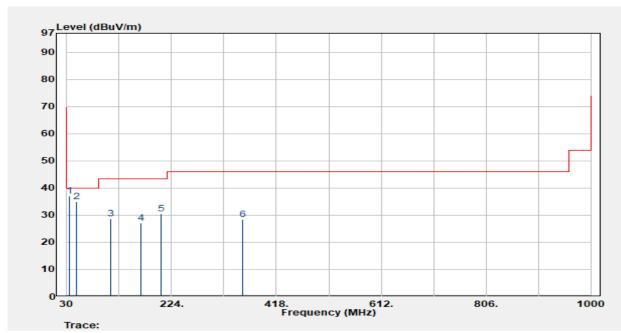
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5290 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
QP	46.13	-9.00	37.13	40.00	-2.87
QP	43.21	-8.12	35.09	40.00	-4.91
Peak	39.58	-10.84	28.74	43.50	-14.76
Peak	34.61	-7.52	27.09	43.50	-16.41
Peak	40.38	-9.76	30.62	43.50	-12.88
Peak	33.41	-4.93	28.48	46.00	-17.52
	Mode PK/QP/AV QP QP Peak Peak Peak	Mode PK/QP/AV         Reading Level dBμV           QP         46.13           QP         43.21           Peak         39.58           Peak         34.61           Peak         40.38	Mode PK/QP/AV         Reading Level dBμV         dB           QP         46.13         -9.00           QP         43.21         -8.12           Peak         39.58         -10.84           Peak         34.61         -7.52           Peak         40.38         -9.76	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m           QP         46.13         -9.00         37.13           QP         43.21         -8.12         35.09           Peak         39.58         -10.84         28.74           Peak         34.61         -7.52         27.09           Peak         40.38         -9.76         30.62	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m         @3m dBμV/m           QP         46.13         -9.00         37.13         40.00           QP         43.21         -8.12         35.09         40.00           Peak         39.58         -10.84         28.74         43.50           Peak         34.61         -7.52         27.09         43.50           Peak         40.38         -9.76         30.62         43.50

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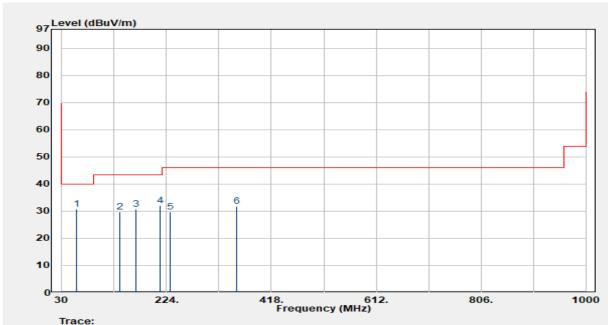
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5290 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



II acc.						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
57.160	Peak	39.32	-8.53	30.78	40.00	-9.22
137.670	Peak	37.63	-7.81	29.82	43.50	-13.68
166.770	Peak	38.40	-7.53	30.87	43.50	-12.63
211.390	Peak	41.73	-9.60	32.14	43.50	-11.36
230.790	Peak	38.70	-8.92	29.78	46.00	-16.22
353.980	Peak	36.69	-4.93	31.75	46.00	-14.25

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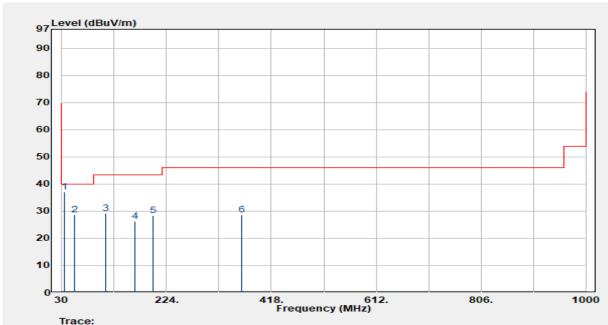
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5610 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Vertical :Tx CH Mid

**EUT Pol** Engineer :H Plane :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
34.850	QP	45.99	-9.00	36.99	40.00	-3.01
54.250	QP	36.85	-8.27	28.58	40.00	-11.42
110.510	Peak	39.91	-10.84	29.07	43.50	-14.43
164.830	Peak	33.73	-7.36	26.37	43.50	-17.13
199.750	Peak	38.13	-9.65	28.48	43.50	-15.02
362.710	Peak	33.42	-4.83	28.60	46.00	-17.40

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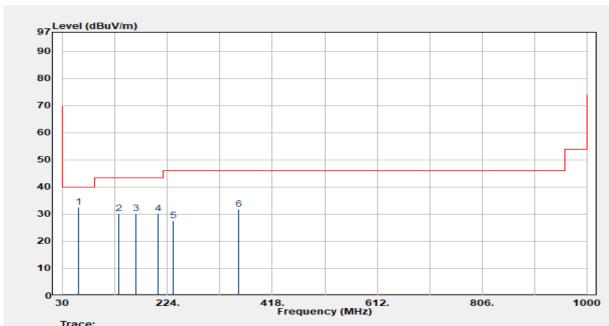
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5610 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



mace.						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
59.100	Peak	41.19	-8.70	32.49	40.00	-7.51
133.790	Peak	38.37	-8.12	30.25	43.50	-13.25
164.830	Peak	37.48	-7.36	30.12	43.50	-13.38
206.540	Peak	40.11	-9.75	30.36	43.50	-13.14
233.700	Peak	36.16	-8.61	27.55	46.00	-18.45
355.920	Peak	36.63	-4.92	31.71	46.00	-14.29

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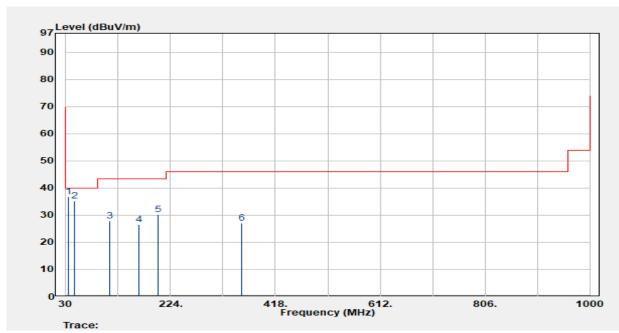
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5775 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
QP	45.86	-9.00	36.86	40.00	-3.14
QP	43.21	-8.07	35.14	40.00	-4.86
Peak	38.73	-10.84	27.89	43.50	-15.61
Peak	33.86	-7.36	26.50	43.50	-17.00
Peak	39.92	-9.67	30.25	43.50	-13.25
Peak	32.11	-4.93	27.18	46.00	-18.82
	Mode PK/QP/AV QP QP Peak Peak Peak	Mode PK/QP/AV         Reading Level dBμV           QP         45.86           QP         43.21           Peak         38.73           Peak         33.86           Peak         39.92	Mode PK/QP/AV         Reading Level dBμV         dB           QP         45.86         -9.00           QP         43.21         -8.07           Peak         38.73         -10.84           Peak         33.86         -7.36           Peak         39.92         -9.67	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m           QP         45.86         -9.00         36.86           QP         43.21         -8.07         35.14           Peak         38.73         -10.84         27.89           Peak         33.86         -7.36         26.50           Peak         39.92         -9.67         30.25	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m         @3m dBμV/m           QP         45.86         -9.00         36.86         40.00           QP         43.21         -8.07         35.14         40.00           Peak         38.73         -10.84         27.89         43.50           Peak         33.86         -7.36         26.50         43.50           Peak         39.92         -9.67         30.25         43.50

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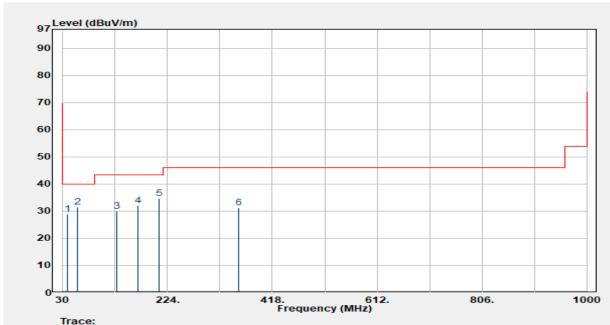
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5775 MHz Temp./Humi. :22.8/45

Test Mode Antenna Pol. :Horizontal :Tx CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
37.760	Peak	37.62	-8.71	28.91	40.00	-11.09
58.130	Peak	40.17	-8.70	31.48	40.00	-8.52
129.910	Peak	38.53	-8.55	29.98	43.50	-13.52
169.680	Peak	39.63	-7.69	31.95	43.50	-11.55
207.510	Peak	44.41	-9.75	34.67	43.50	-8.83
354.950	Peak	36.09	-4.93	31.16	46.00	-14.84

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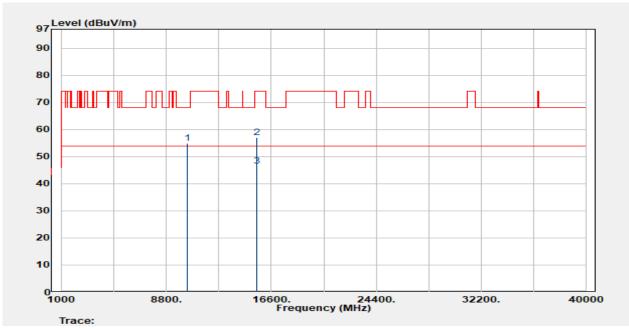
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5180 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10360.000	Peak	34.29	20.53	54.82	68.20	-13.38
15540.000	Peak	33.74	23.22	56.96	74.00	-17.04
15540.000	Average	23.22	23.22	46.44	54.00	-7.56

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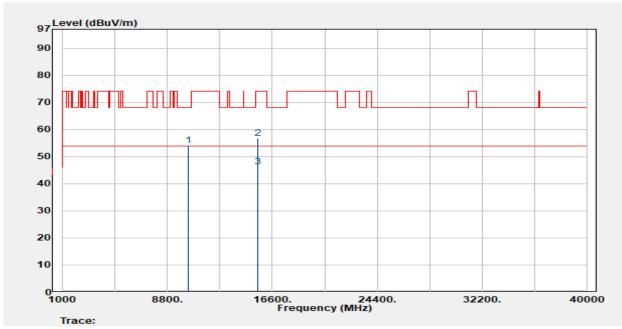
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5180 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10360.000	Peak	34.14	20.13	54.28	68.20	-13.92
15540.000	Peak	33.65	23.19	56.84	74.00	-17.16
15540.000	Average	23.16	23.19	46.35	54.00	-7.65

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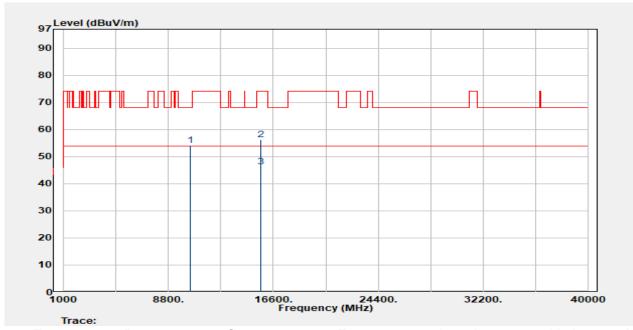
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5220 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
MHz	Mode PK/QP/AV	Reading Level dBuV	dB	FS dBµV/m	@3m dBµV/m	dB
				<u> </u>	<u></u>	
10440.000	Peak	33.83	20.33	54.16	68.20	-14.04
15660.000	Peak	33.29	22.86	56.15	74.00	-17.85
15660.000	Average	23.36	22.86	46.22	54.00	-7.78

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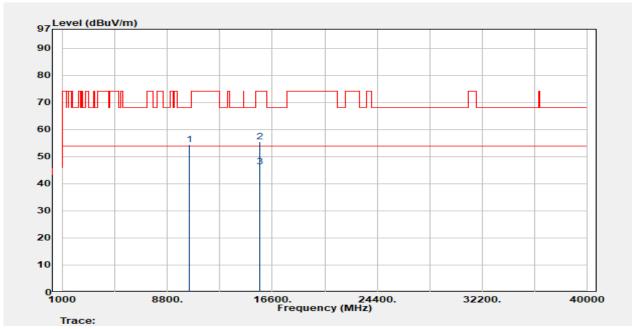
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5220 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10440.000	Peak	33.98	20.42	54.40	68.20	-13.80
15660.000	Peak	32.63	22.97	55.60	74.00	-18.40
15660.000	Average	23.35	22.97	46.32	54.00	-7.68

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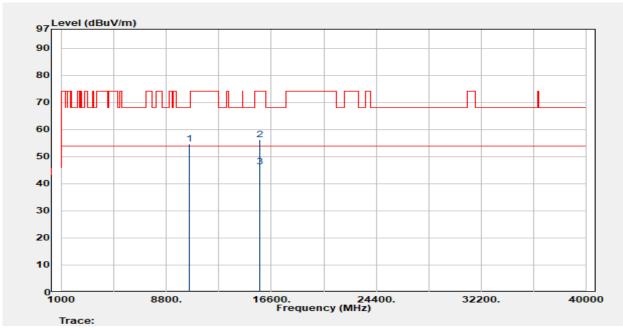
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5240 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dΒμV/m	dBμV/m	dB
10480.000	Peak	33.49	21.20	54.69	68.20	-13.51
15720.000	Peak	33.15	23.12	56.27	74.00	-17.73
15720.000	Average	23.22	23.12	46.34	54.00	-7.66

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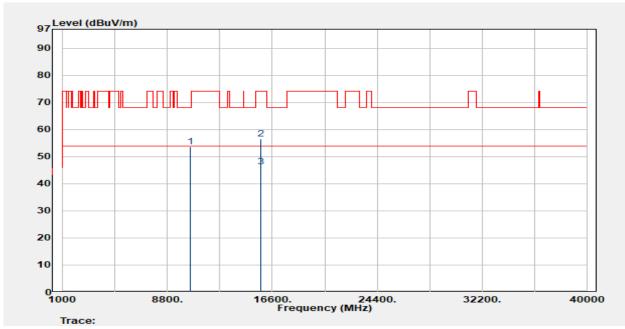
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5240 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10480.000	Peak	32.79	20.76	53.54	68.20	-14.66
15720.000	Peak	33.47	23.01	56.48	74.00	-17.52
15720.000	Average	23.19	23.01	46.20	54.00	-7.80

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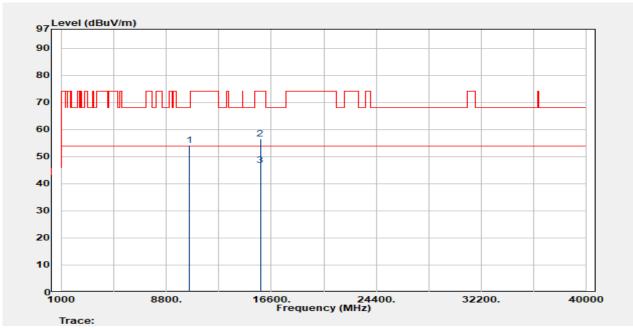
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5260 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10520.000	Peak	32.73	21.49	54.21	68.20	-13.99
15780.000	Peak	33.14	23.44	56.58	74.00	-17.42
15780.000	Average	23.28	23.44	46.72	54.00	-7.28

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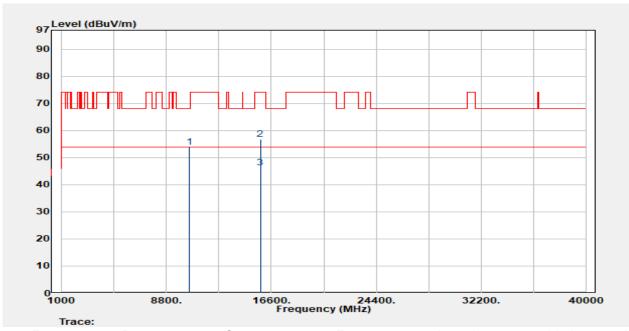
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5260 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10520.000	Peak	33.11	20.87	53.98	68.20	-14.22
15780.000	Peak	33.83	23.08	56.91	74.00	-17.09
15780.000	Average	23.24	23.08	46.32	54.00	-7.68

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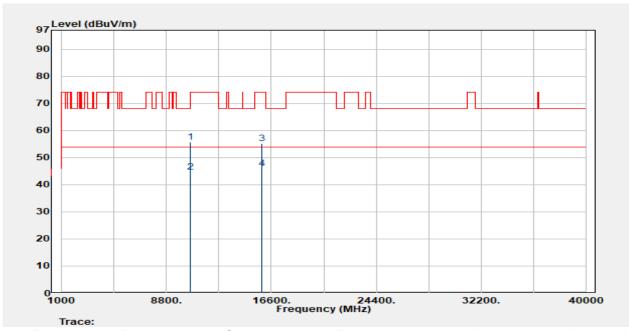
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5300 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10600.000	Peak	34.96	20.66	55.61	74.00	-18.39
10600.000	Average	24.06	20.66	44.72	54.00	-9.28
15900.000	Peak	32.32	22.90	55.22	74.00	-18.78
15900.000	Average	23.03	22.90	45.93	54.00	-8.07

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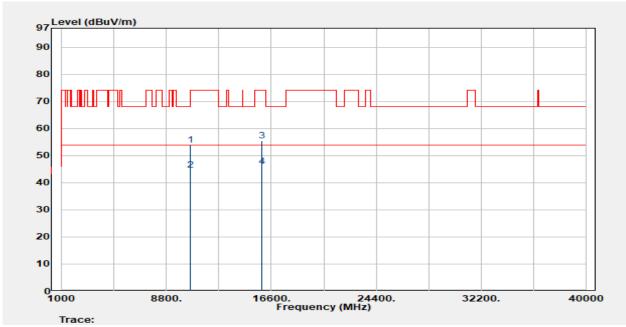
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n20 Test Date :2021-12-01

Test Frequency :5300 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



II acc.						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
10600.000	Peak	33.14	20.64	53.78	74.00	-20.22
10600.000	Average	24.02	20.64	44.66	54.00	-9.34
15900.000	Peak	32.32	23.03	55.35	74.00	-18.65
15900.000	Average	22.93	23.03	45.96	54.00	-8.04

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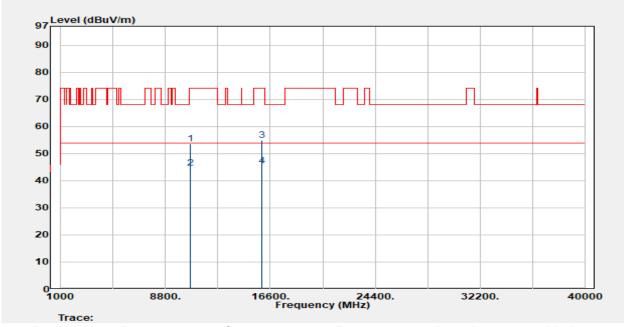
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5320 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10640.000	Peak	32.72	20.89	53.61	74.00	-20.39
10640.000	Average	23.89	20.89	44.78	54.00	-9.22
15960.000	Peak	32.74	22.07	54.81	74.00	-19.19
15960.000	Average	23.36	22.07	45.43	54.00	-8.57

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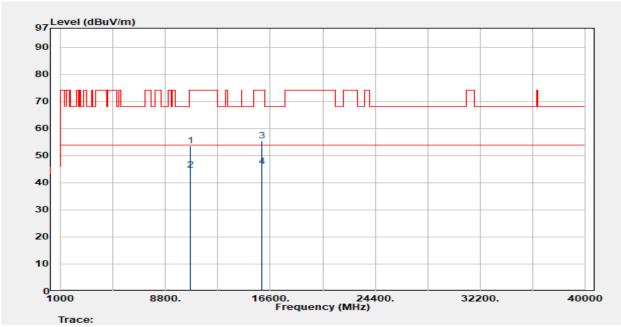
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5320 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10640.000	Peak	32.74	20.77	53.51	74.00	-20.49
10640.000	Average	23.79	20.77	44.56	54.00	-9.44
15960.000	Peak	32.78	22.59	55.37	74.00	-18.63
15960.000	Average	23.36	22.59	45.95	54.00	-8.05

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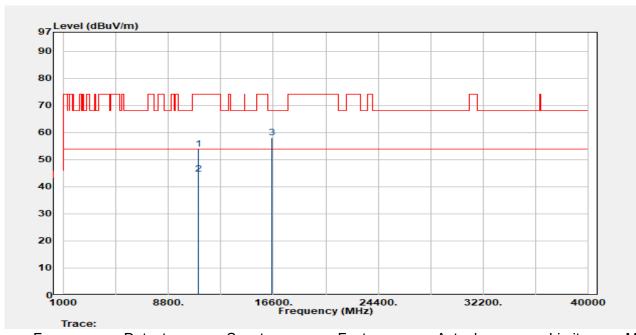
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5500 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** Engineer :H Plane :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
11000.000	Peak	32.97	20.81	53.78	74.00	-20.22
11000.000	Average	23.76	20.81	44.57	54.00	-9.43
16500.000	Peak	33.19	24.95	58.14	68.20	-10.06

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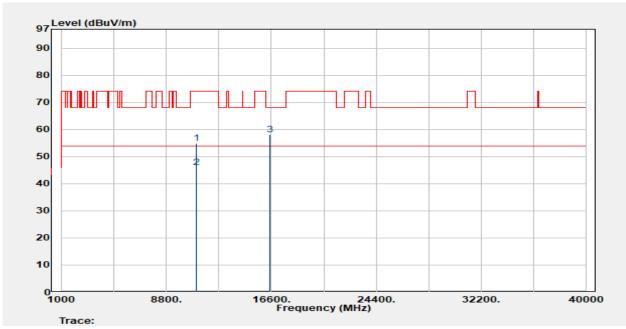
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

:5500 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11000.000	Peak	32.61	22.24	54.85	74.00	-19.15
11000.000	Average	23.73	22.24	45.97	54.00	-8.03
16500.000	Peak	32.66	25.33	57.99	68.20	-10.21

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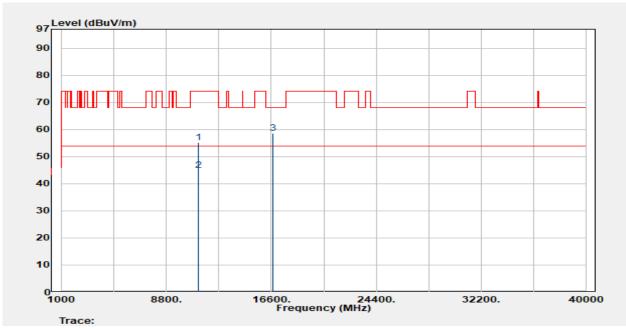
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5580 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11160.000	Peak	33.71	21.59	55.29	74.00	-18.71
11160.000	Average	23.33	21.59	44.92	54.00	-9.08
16740.000	Peak	31.16	27.42	58.58	68.20	-9.62

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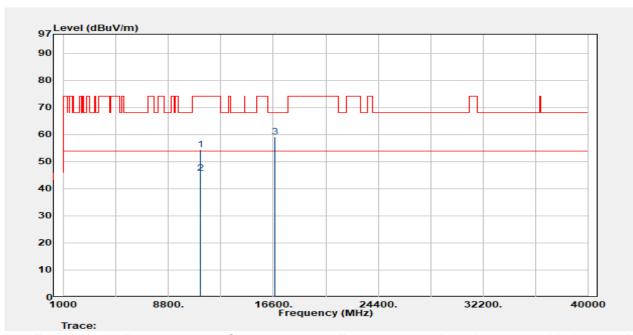
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n20 Test Date :2021-12-01

Test Frequency :5580 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBμV/m	dBµV/m	dB
11160.000	Peak	32.86	21.48	54.34	74.00	-19.66
11160.000	Average	24.26	21.48	45.74	54.00	-8.26
16740.000	Peak	32.03	27.01	59.04	68.20	-9.16

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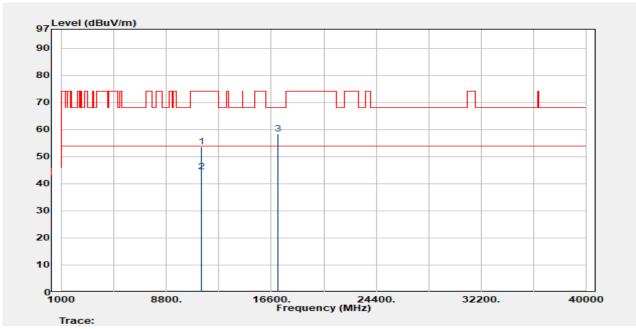
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5700 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11400.000	Peak	32.80	20.80	53.60	74.00	-20.40
11400.000	Average	23.56	20.80	44.36	54.00	-9.64
17100.000	Peak	31.69	26.77	58.46	68.20	-9.74

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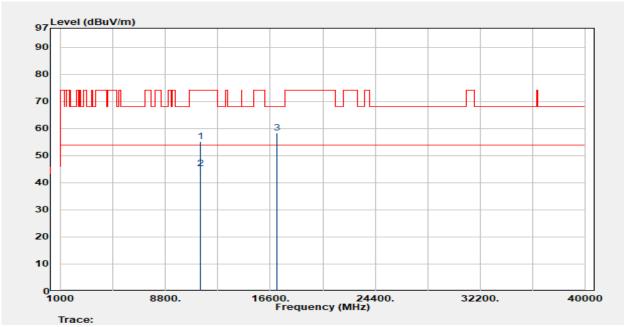
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5700 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
11400.000	Peak	33.43	21.83	55.26	74.00	-18.74
11400.000	Average	23.43	21.83	45.26	54.00	-8.74
17100.000	Peak	31.22	27.23	58.45	68.20	-9.75

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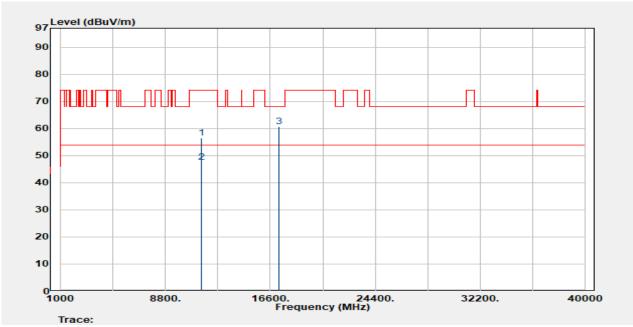
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5745 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
11490.000	Peak	32.47	23.98	56.44	74.00	-17.56
11490.000	Average	23.67	23.98	47.65	54.00	-6.35
17235.000	Peak	32.69	28.13	60.82	68.20	-7.38

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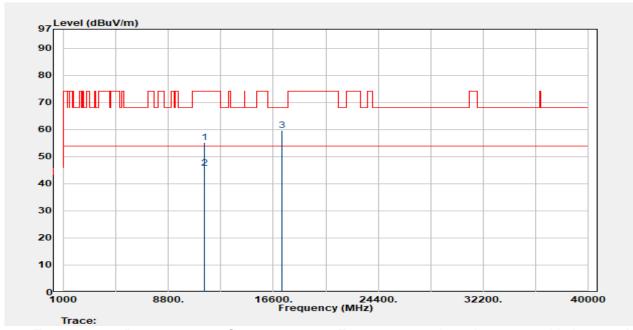
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5745 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11490.000	Peak	32.87	22.21	55.08	74.00	-18.92
11490.000	Average	23.55	22.21	45.76	54.00	-8.24
17235.000	Peak	31.52	28.20	59.72	68.20	-8.48

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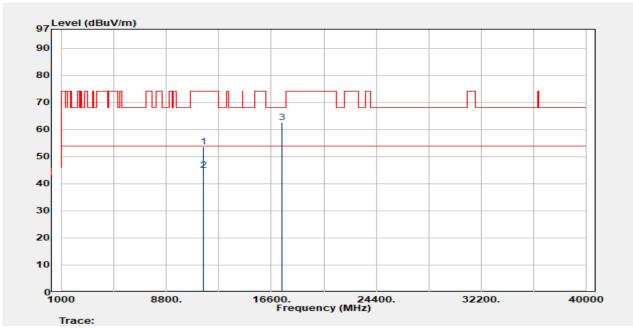
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5785 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11570.000	Peak	32.51	21.18	53.69	74.00	-20.31
11570.000	Average	23.67	21.18	44.85	54.00	-9.15
17355.000	Peak	32.80	29.74	62.54	68.20	-5.66

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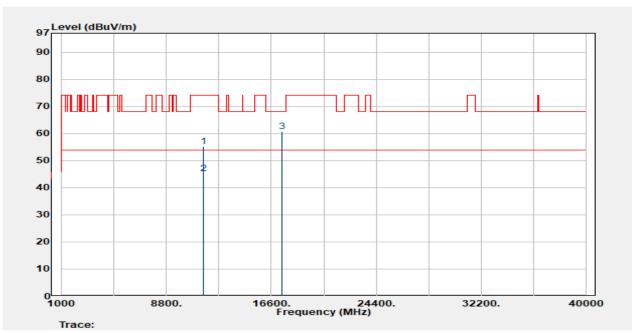
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5785 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11570.000	Peak	33.54	21.72	55.26	74.00	-18.74
11570.000	Average	23.56	21.72	45.28	54.00	-8.72
17355.000	Peak	31.66	28.99	60.65	68.20	-7.55

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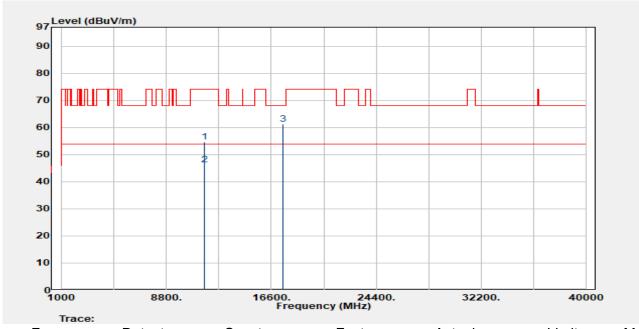
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5825 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dΒμV/m	dBμV/m	dB
11650.000	Peak	33.06	21.71	54.77	74.00	-19.23
11650.000	Average	24.59	21.71	46.30	54.00	-7.70
17475.000	Peak	31.44	29.72	61.16	68.20	-7.04

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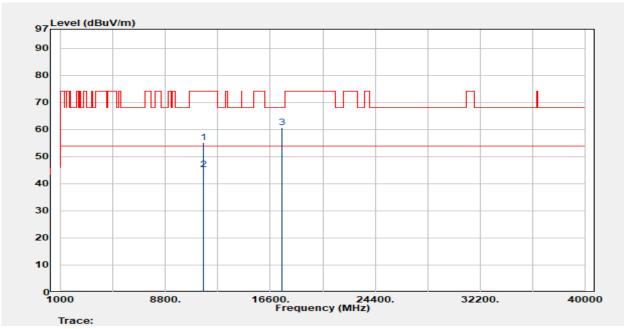
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-12-01

Test Frequency :5825 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11650.000	Peak	33.78	21.47	55.25	74.00	-18.75
11650.000	Average	23.85	21.47	45.32	54.00	-8.68
17475.000	Peak	31.36	29.31	60.68	68.20	-7.52

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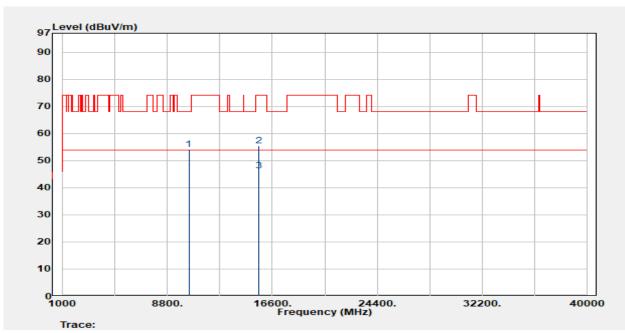
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5190 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dΒμV/m	dBμV/m	dB
10380.000	Peak	33.78	20.41	54.19	68.20	-14.01
15570.000	Peak	32.37	23.17	55.54	74.00	-18.46
15570.000	Average	22.98	23.17	46.15	54.00	-7.85

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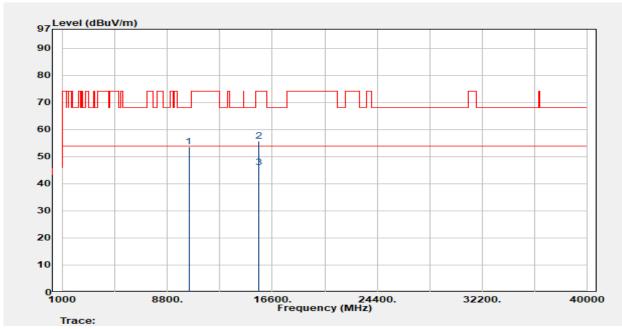
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5190 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
10380.000	Peak	33.48	20.10	53.58	68.20	-14.62
15570.000	Peak	32.56	23.07	55.63	74.00	-18.37
15570.000	Average	22.95	23.07	46.02	54.00	-7.98

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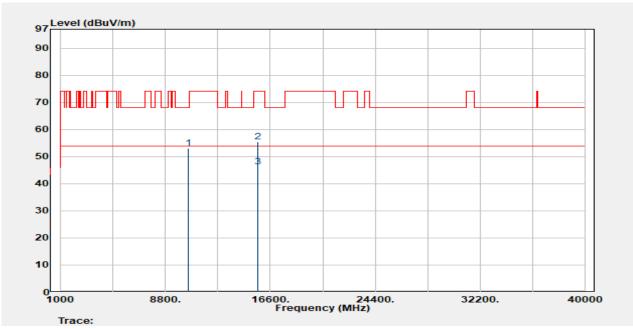
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5230 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10460.000	Peak	32.45	20.63	53.08	68.20	-15.12
15690.000	Peak	32.44	22.90	55.34	74.00	-18.66
15690.000	Average	23.42	22.90	46.32	54.00	-7.68

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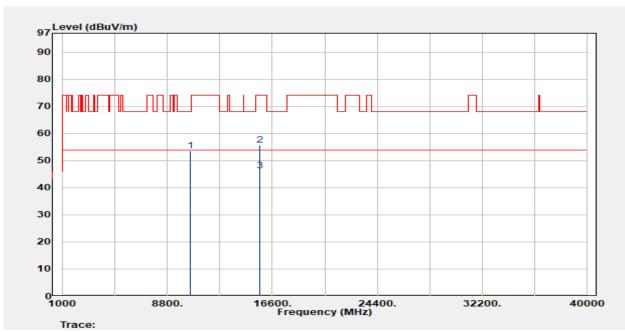
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5230 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dΒμV/m	dBμV/m	dB
10460.000	Peak	33.12	20.59	53.70	68.20	-14.50
15690.000	Peak	32.75	22.98	55.73	74.00	-18.27
15690.000	Average	23.36	22.98	46.34	54.00	-7.66

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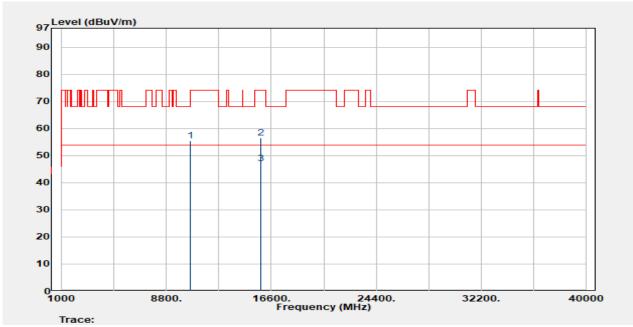
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5270 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
10540.000	Peak	34.13	21.21	55.34	68.20	-12.86
15810.000	Peak	33.09	23.48	56.57	74.00	-17.43
15810.000	Average	23.46	23.48	46.94	54.00	-7.06

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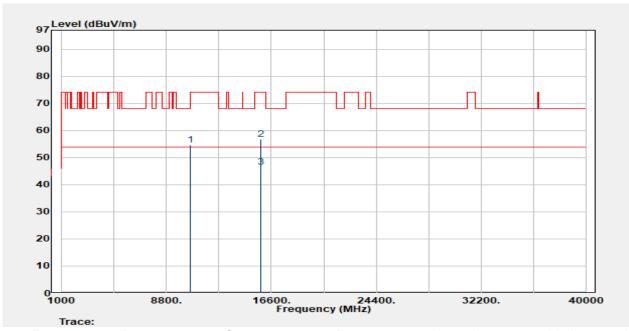
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5270 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
10540.000	Peak	33.96	20.81	54.77	68.20	-13.43
15810.000	Peak	33.56	23.10	56.66	74.00	-17.34
15810.000	Average	23.40	23.10	46.50	54.00	-7.50

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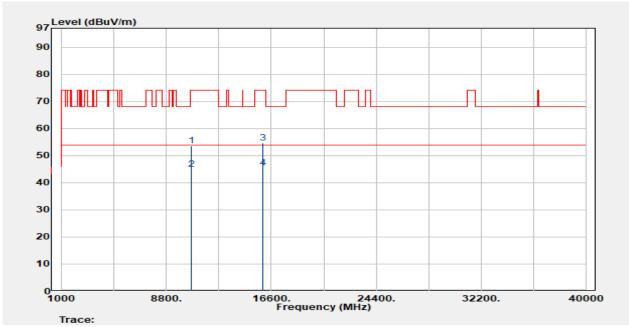
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5310 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10620.000	Peak	32.98	20.77	53.75	74.00	-20.25
10620.000	Average	24.11	20.77	44.88	54.00	-9.12
15930.000	Peak	32.45	22.32	54.77	74.00	-19.23
15930.000	Average	23.26	22.32	45.58	54.00	-8.42

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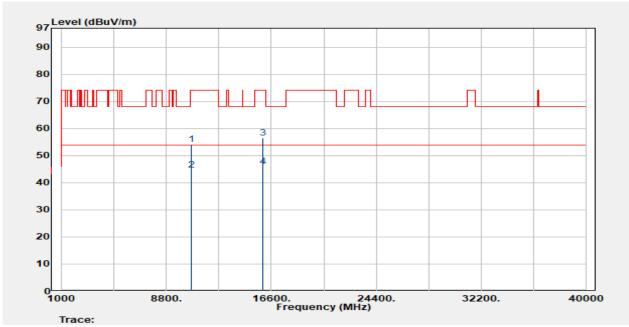
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5310 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
		•		•	•	
10620.000	Peak	33.37	20.70	54.08	74.00	-19.92
10620.000	Average	23.92	20.70	44.62	54.00	-9.38
15930.000	Peak	33.60	22.81	56.41	74.00	-17.59
15930.000	Average	23.19	22.81	46.00	54.00	-8.00

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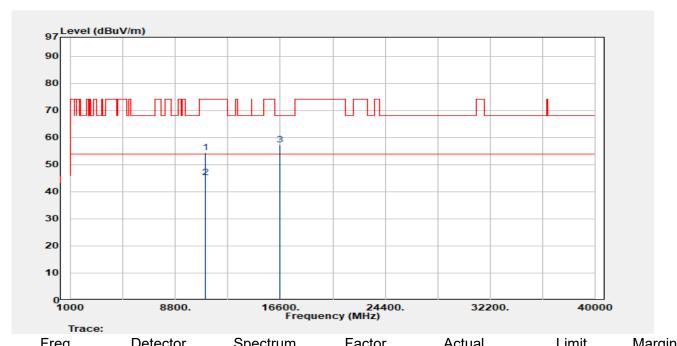
Test Site Report Number :ER-2021-A0108 :SAC 3

Operation Mode :802.11n40 **Test Date** :2021-12-01

:5510 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Mode	Reading Level	i actor	FS	@3m	iviaigiii
PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
Peak	32.84	21.44	54.29	74.00	-19.71
Average	23.86	21.44	45.30	54.00	-8.70
Peak	32.14	25.15	57.29	68.20	-10.91
	Mode PK/QP/AV Peak Average	Mode Reading Level PK/QP/AV dBμV  Peak 32.84 Average 23.86	Mode PK/QP/AV         Reading Level dBμV         dB           Peak Average         32.84         21.44           Average         23.86         21.44	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m           Peak Average         32.84         21.44         54.29           Average         23.86         21.44         45.30	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m         @3m dBμV/m           Peak         32.84         21.44         54.29         74.00           Average         23.86         21.44         45.30         54.00

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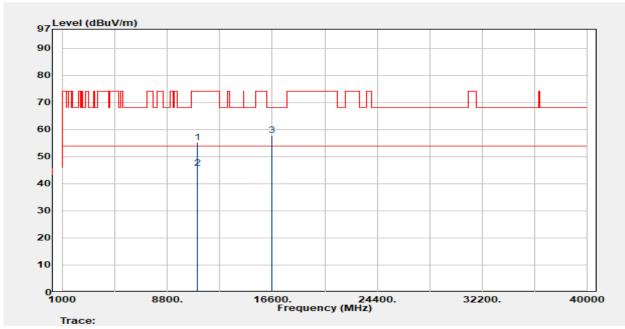
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

:5510 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
11020.000	Peak	33.19	22.05	55.24	74.00	-18.76
11020.000	Average	23.65	22.05	45.70	54.00	-8.30
16530.000	Peak	32.49	25.43	57.93	68.20	-10.27

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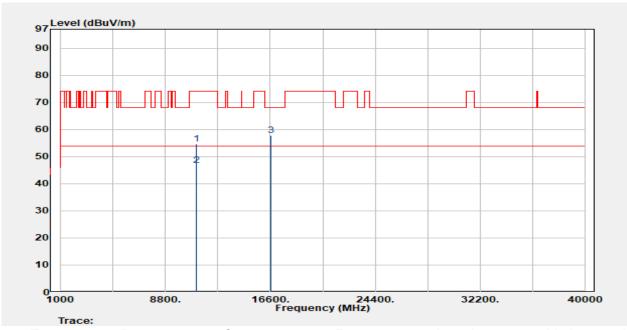
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5550 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	Reading Level dBµV	dB	r3 dBμV/m	@3m dBµV/m	dB
		•		•	•	
11100.000	Peak	32.35	22.37	54.72	74.00	-19.28
11100.000	Average	24.41	22.37	46.78	54.00	-7.22
16650.000	Peak	31.93	25.82	57.75	68.20	-10.45

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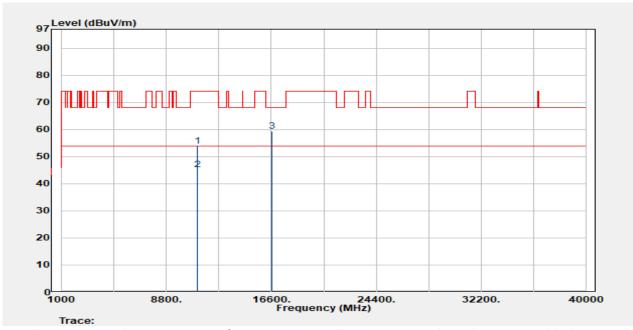
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5550 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11100.000	Peak	32.60	21.31	53.91	74.00	-20.09
11100.000	Average	23.97	21.31	45.28	54.00	-8.72
16650.000	Peak	33.39	26.05	59.44	68.20	-8.76

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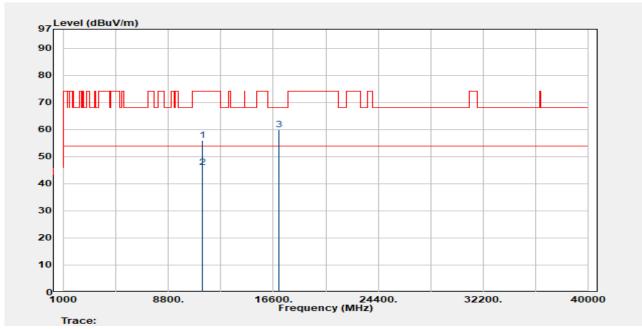
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5670 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11340.000	Peak	34.02	21.96	55.98	74.00	-18.02
11340.000	Average	24.02	21.96	45.98	54.00	-8.02
17010.000	Peak	31.74	28.28	60.01	68.20	-8.19

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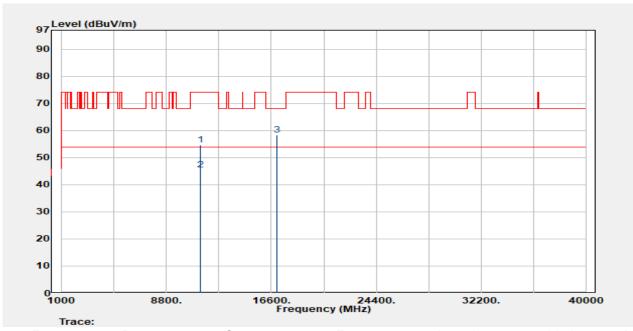
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5670 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
11340.000	Peak	33.17	21.62	54.78	74.00	-19.22
11340.000	Average	23.79	21.62	45.41	54.00	-8.59
17010.000	Peak	30.77	27.50	58.27	68.20	-9.93

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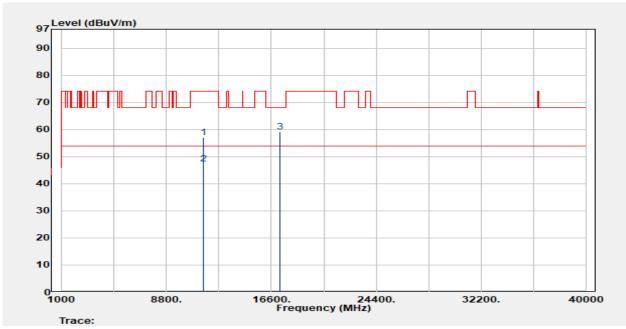
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5755 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11510.000	Peak	33.12	23.86	56.98	74.00	-17.02
11510.000	Average	23.55	23.86	47.41	54.00	-6.59
17265.000	Peak	30.97	28.08	59.05	68.20	<b>-</b> 9.15

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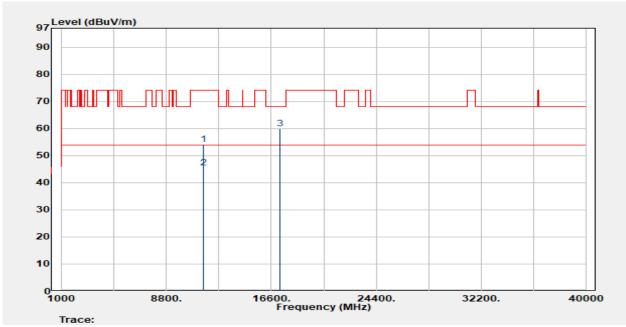
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5755 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
11510.000	Peak	31.86	22.18	54.04	74.00	-19.96
11510.000	Average	23.27	22.18	45.45	54.00	-8.55
17265.000	Peak	31.70	28.20	59.89	68.20	-8.31

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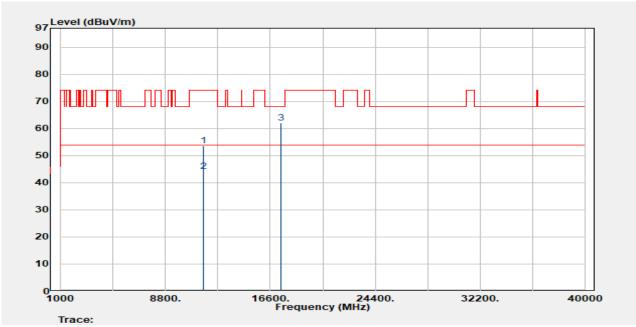
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5795 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11590.000	Peak	33.12	20.44	53.56	74.00	-20.44
11590.000	Average	23.76	20.44	44.20	54.00	-9.80
17385.000	Peak	32.49	29.63	62.12	68.20	-6.08

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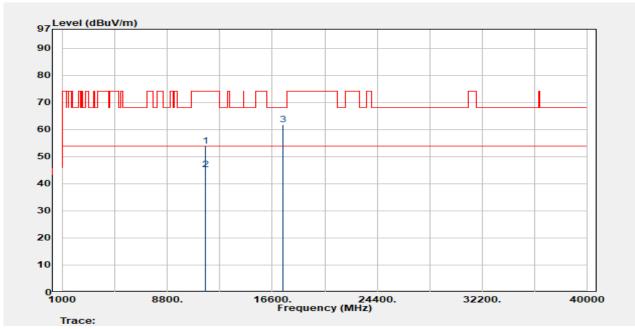
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-12-01

Test Frequency :5795 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11590.000	Peak	32.42	21.57	53.99	74.00	-20.01
11590.000	Average	23.63	21.57	45.20	54.00	-8.80
17385.000	Peak	32.22	29.42	61.64	68.20	-6.56

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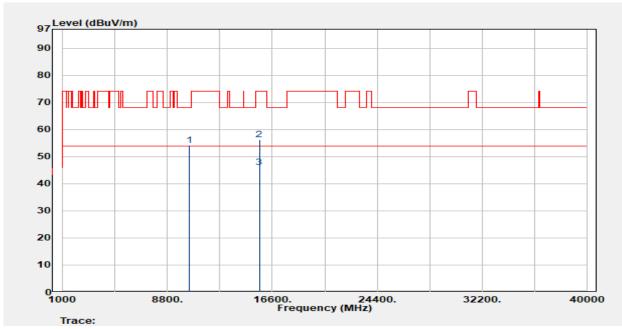
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5210 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10420.000	Peak	33.96	20.31	54.27	68.20	-13.93
15630.000	Peak	33.24	23.00	56.25	74.00	-17.75
15630.000	Average	23.02	23.00	46.02	54.00	-7.98

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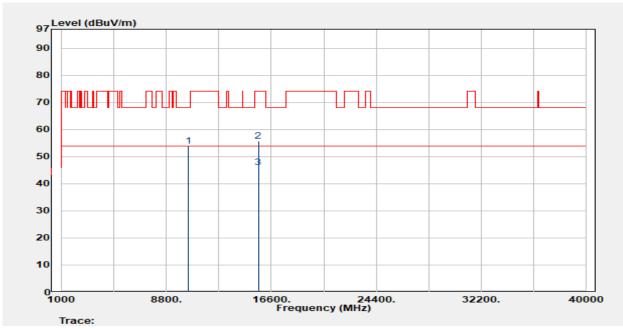
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5210 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
10420.000	Peak	33.57	20.25	53.82	68.20	-14.38
15630.000	Peak	32.66	22.96	55.62	74.00	-18.38
15630.000	Average	22.96	22.96	45.92	54.00	-8.08

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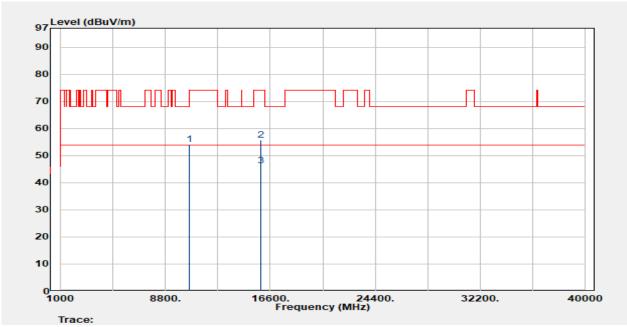
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5290 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
10580.000	Peak	33.28	20.82	54.10	68.20	-14.10
15870.000	Peak	32.29	23.32	55.60	74.00	-18.40
15870.000	Average	23.07	23.32	46.39	54.00	-7.61

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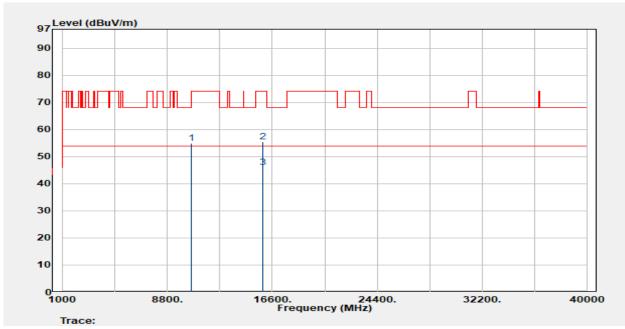
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5290 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
10580.000	Peak	34.15	20.69	54.85	68.20	-13.35
15870.000	Peak	32.39	23.05	55.45	74.00	-18.55
15870.000	Average	23.03	23.05	46.08	54.00	-7.92

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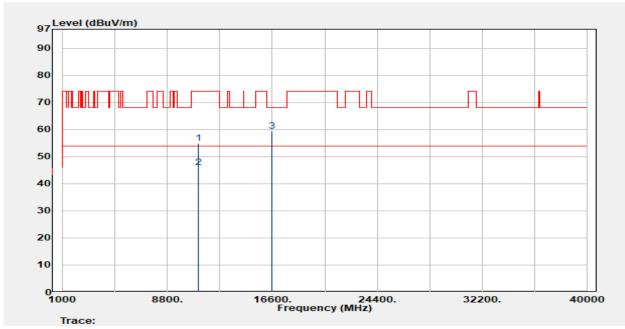
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5530 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dΒμV/m	dBμV/m	dB
11060.000	Peak	32.48	22.39	54.87	74.00	-19.13
11060.000	Average	23.72	22.39	46.11	54.00	-7.89
16590.000	Peak	33.39	25.91	59.30	68.20	-8.90

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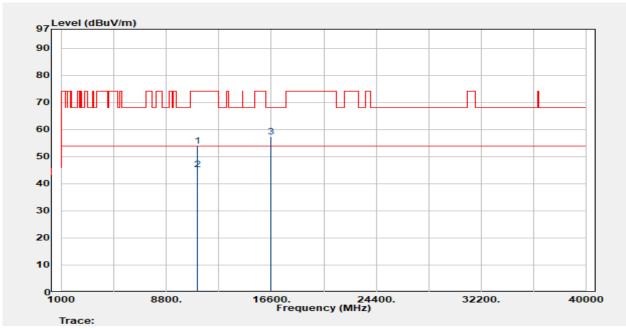
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

:5530 MHz Test Frequency Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
11060.000	Peak	32.13	21.68	53.81	74.00	-20.19
11060.000	Average	23.53	21.68	45.21	54.00	-8.79
16590.000	Peak	31.77	25.64	57.41	68.20	-10.79

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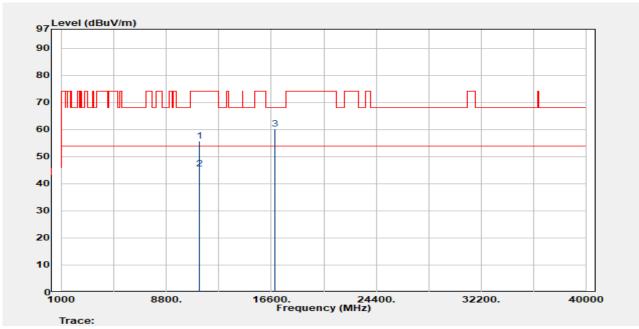
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5610 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11220.000	Peak	34.01	21.61	55.62	74.00	-18.38
11220.000	Average	23.86	21.61	45.47	54.00	-8.53
16830.000	Peak	32.36	27.76	60.12	68.20	-8.08

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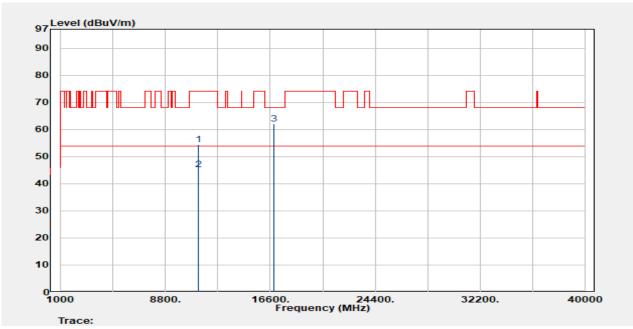
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11ac80 Test Date :2021-12-01

Test Frequency :5610 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Mid Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB
11220.000	Peak	32.83	21.57	54.40	74.00	-19.60
11220.000	Average	23.56	21.57	45.13	54.00	-8.87
16830.000	Peak	34.36	27.76	62.13	68.20	-6.07

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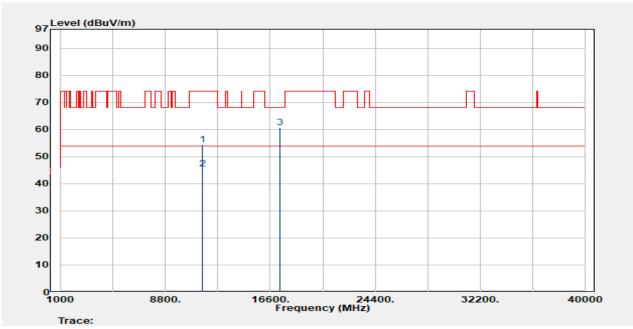
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-12-01

Test Frequency :5775 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
11550.000	Peak	32.57	21.93	54.50	74.00	-19.50
11550.000	Average	23.47	21.93	45.40	54.00	-8.60
17325.000	Peak	31.59	29.10	60.69	68.20	-7.51

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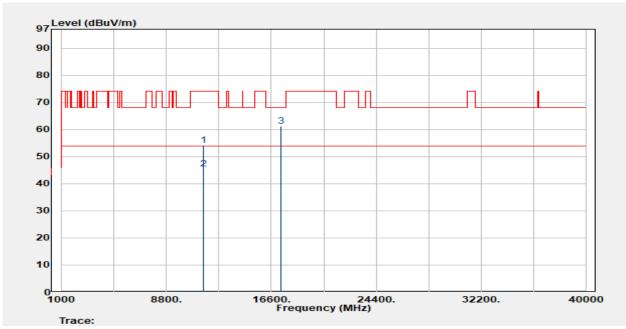
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11ac80 Test Date :2021-12-01

Test Frequency :5775 MHz Temp./Humi. :22.8/45

Test Mode :Tx CH Low Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
11550.000	Peak	32.38	21.87	54.25	74.00	-19.75
11550.000	Average	23.51	21.87	45.38	54.00	-8.62
17325.000	Peak	32.66	28.56	61.22	68.20	-6.98

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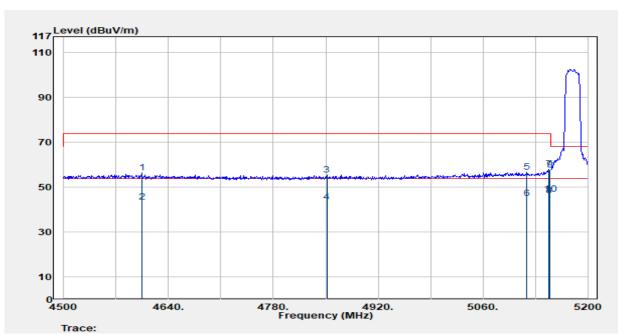
## Band edge falling to restricted band 11.6.2

Test Site Report Number :ER-2021-A0108 :SAC 3

Operation Mode :802.11n20 Test Date :2021-11-26

Test Frequency :5180 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical **EUT Pol** :H Plane Engineer :Jack Liu



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
	11001771	454.	42	αΣμτ/	GD (47111	
4604.300	Peak	49.41	6.95	56.36	74.00	-17.64
4604.300	Average	36.57	6.95	43.52	54.00	-10.48
4851.400	Peak	48.47	7.10	55.57	74.00	-18.43
4851.400	Average	36.38	7.10	43.48	54.00	-10.52
5118.800	Peak	48.11	8.78	56.89	74.00	-17.11
5118.800	Average	36.18	8.78	44.96	54.00	-9.04
5147.500	Peak	49.21	8.69	57.90	74.00	-16.10
5147.500	Average	37.61	8.69	46.30	54.00	-7.70
5150.000	Peak	48.97	8.68	57.65	74.00	-16.35
5150.000	Average	38.12	8.68	46.80	54.00	-7.20

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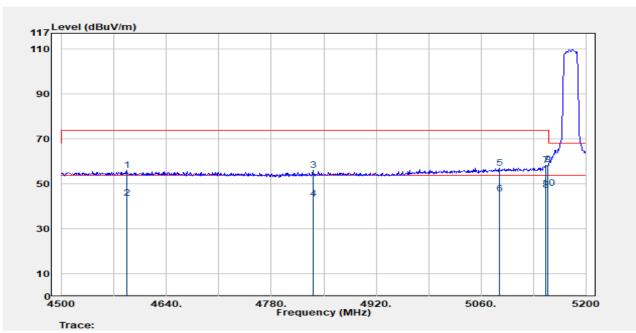
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

:5180 MHz Test Frequency Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



	mace:						
	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
	MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
_							
	4586.800	Peak	49.05	6.92	55.97	74.00	-18.03
	4586.800	Average	36.87	6.92	43.79	54.00	-10.21
	4835.300	Peak	48.95	7.03	55.98	74.00	-18.02
	4835.300	Average	36.46	7.03	43.49	54.00	-10.51
	5084.500	Peak	48.47	8.66	57.13	74.00	-16.87
	5084.500	Average	36.89	8.66	45.55	54.00	-8.45
	5146.800	Peak	49.69	8.69	58.39	74.00	-15.61
	5146.800	Average	38.52	8.69	47.21	54.00	-6.79
	5150.000	Peak	49.94	8.68	58.62	74.00	-15.38
	5150.000	Average	39.61	8.68	48.29	54.00	-5.71

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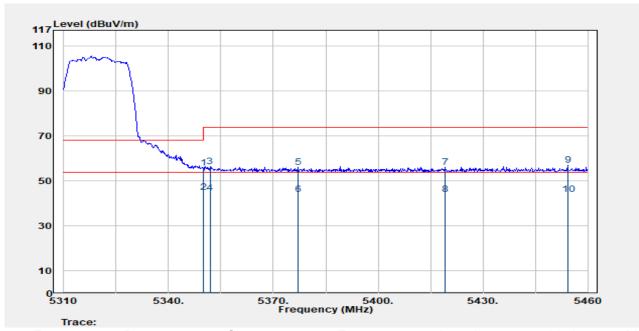
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5320 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



	mace.						
	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
	MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
_							
	5350.000	Peak	47.69	8.12	55.81	74.00	-18.19
	5350.000	Average	36.78	8.12	44.90	54.00	-9.10
	5351.850	Peak	48.40	8.12	56.52	74.00	-17.48
	5351.850	Average	36.65	8.12	44.77	54.00	-9.23
	5377.200	Peak	47.96	8.13	56.09	74.00	-17.91
	5377.200	Average	35.89	8.13	44.02	54.00	-9.98
	5419.050	Peak	48.13	8.10	56.24	74.00	-17.76
	5419.050	Average	35.93	8.10	44.03	54.00	-9.97
	5454.300	Peak	48.93	8.07	57.00	74.00	-17.00
	5454.300	Average	36.03	8.07	44.10	54.00	-9.90

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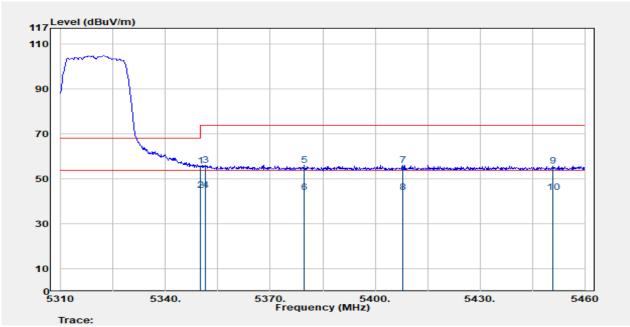
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5320 MHz Temp./Humi. :21.5/70

:Bandedge CH High Test Mode Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBμV/m	dBµV/m	dB
5350.000	Peak	47.58	8.12	55.71	74.00	-18.29
5350.000	Average	36.97	8.12	45.09	54.00	-8.91
5351.400	Peak	48.02	8.12	56.15	74.00	-17.85
5351.400	Average	36.87	8.12	44.99	54.00	-9.01
5379.750	Peak	48.01	8.13	56.14	74.00	-17.86
5379.750	Average	36.09	8.13	44.22	54.00	-9.78
5407.950	Peak	47.99	8.12	56.10	74.00	-17.90
5407.950	Average	35.99	8.12	44.11	54.00	-9.89
5450.850	Peak	47.76	8.06	55.82	74.00	-18.18
5450.850	Average	36.01	8.06	44.07	54.00	-9.93

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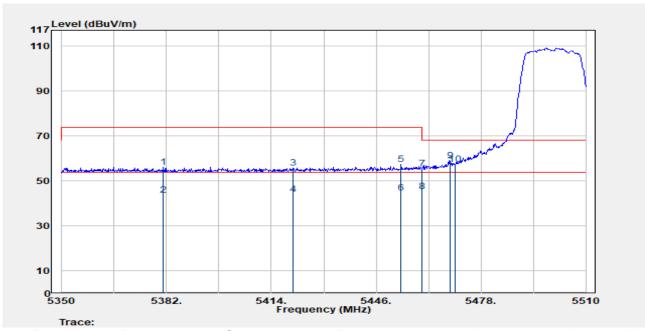
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5500 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** Engineer :H Plane :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5381.040	Peak	48.08	8.13	56.20	74.00	-17.80
5381.040	Average	35.78	8.13	43.91	54.00	-10.09
5420.560	Peak	47.84	8.10	55.94	74.00	-18.06
5420.560	Average	36.07	8.10	44.17	54.00	-9.83
5453.680	Peak	49.18	8.07	57.25	74.00	-16.75
5453.680	Average	36.75	8.07	44.82	54.00	-9.18
5460.000	Peak	47.49	8.07	55.56	74.00	-18.44
5460.000	Average	37.19	8.07	45.26	54.00	-8.74
5468.720	Peak	50.85	8.08	58.93	68.20	-9.27
5470.000	Peak	49.25	8.08	57.33	68.20	-10.87

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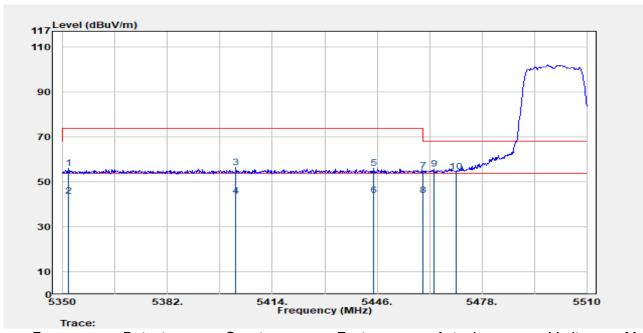
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5500 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



	Freq.	Detector Mode	Spectrum	Factor	Actual FS	Limit	Margin
	MHz	PK/QP/AV	Reading Level dBµV	dB	го dBµV/m	@3m dBµV/m	dB
_	IVIITZ	PN/QP/AV	чьμν	иБ	ασμν/ιιι	ασμν/ιιι	uБ
	5351.600	Peak	47.89	8.12	56.02	74.00	-17.98
	5351.600	Average	35.65	8.12	43.77	54.00	-10.23
	5402.800	Peak	48.25	8.12	56.37	74.00	-17.63
	5402.800	Average	35.72	8.12	43.84	54.00	-10.16
	5445.040	Peak	48.01	8.07	56.08	74.00	-17.92
	5445.040	Average	35.98	8.07	44.05	54.00	-9.95
	5460.000	Peak	46.87	8.07	54.94	74.00	-19.06
	5460.000	Average	36.11	8.07	44.18	54.00	-9.82
	5463.280	Peak	47.83	8.07	55.91	68.20	-12.29
	5470.000	Peak	46.40	8.08	54.48	68.20	-13.72

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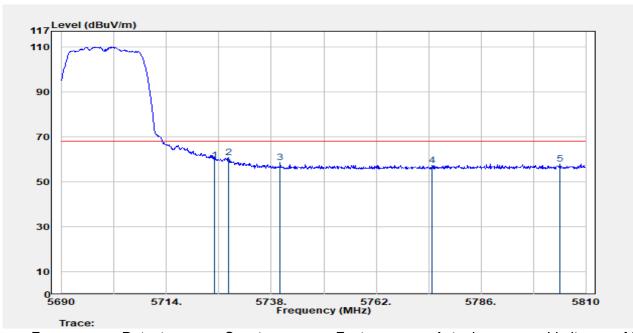
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5700 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB
5725.000	Peak	50.88	8.81	59.69	68.20	-8.51
5728.160	Peak	51.94	8.82	60.76	68.20	-7.44
5740.040	Peak	49.75	8.88	58.63	68.20	-9.57
5774.720	Peak	48.36	9.10	57.46	68.20	-10.74
5804.120	Peak	48.87	9.28	58.15	68.20	-10.05

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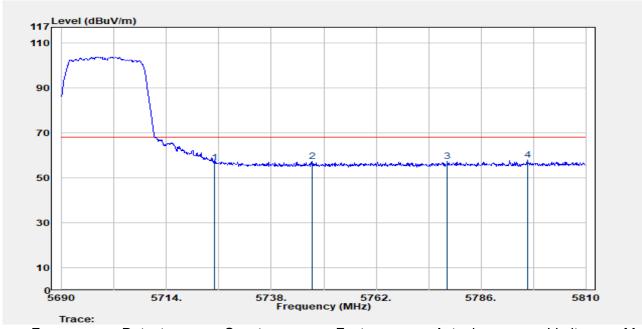
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n20 Test Date :2021-11-26

Test Frequency :5700 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dΒμV/m	dB
5725.000	Peak	48.05	8.81	56.86	68.20	-11.34
5747.360	Peak	48.36	8.92	57.28	68.20	-10.92
5778.320	Peak	48.13	9.12	57.25	68.20	-10.95
5796.680	Peak	48.74	9.24	57.98	68.20	-10.22

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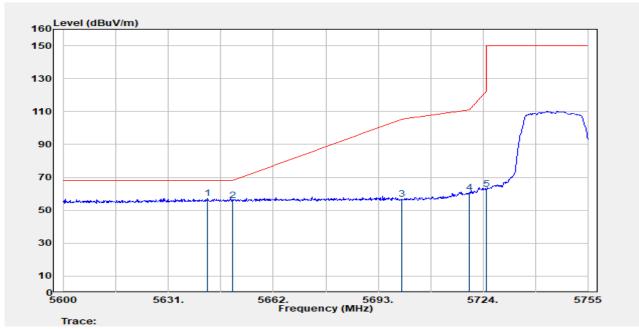
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5745 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5642.470	Peak	48.90	8.30	57.20	68.20	-11.00
5650.000	Peak	47.56	8.32	55.88	68.20	-12.32
5700.000	Peak	48.09	8.69	56.78	105.20	-48.42
5720.000	Peak	51.98	8.79	60.77	110.80	-50.03
5725.000	Peak	54.27	8.81	63.08	122.20	-59.12

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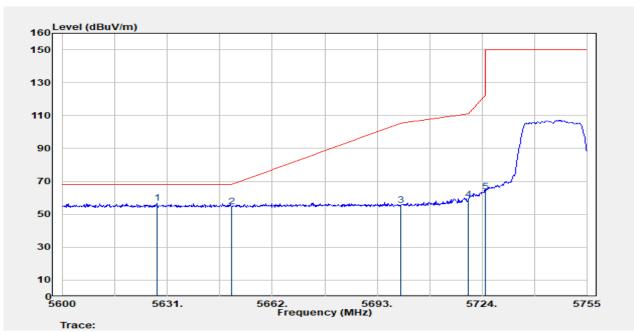
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5745 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5627.900	Peak	48.44	8.25	56.69	68.20	-11.51
5650.000	Peak	46.34	8.32	54.66	68.20	-13.54
5700.000	Peak	46.68	8.69	55.37	105.20	-49.83
5720.000	Peak	50.40	8.79	59.18	110.80	-51.62
5725.000	Peak	54.73	8.81	63.53	122.20	-58.67

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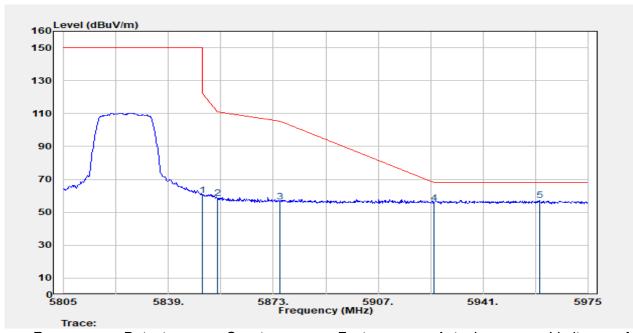
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5825 MHz Temp./Humi. :21.5/70

:Bandedge CH High Test Mode Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBμV/m	dBµV/m	dB
5850.000	Peak	51.00	9.42	60.42	122.20	-61.78
5855.000	Peak	48.95	9.44	58.38	110.80	-52.42
5875.000	Peak	46.82	9.50	56.32	105.20	-48.88
5925.000	Peak	46.02	9.65	55.67	68.20	-12.53
5959.360	Peak	47.60	9.70	57.31	68.20	-10.89

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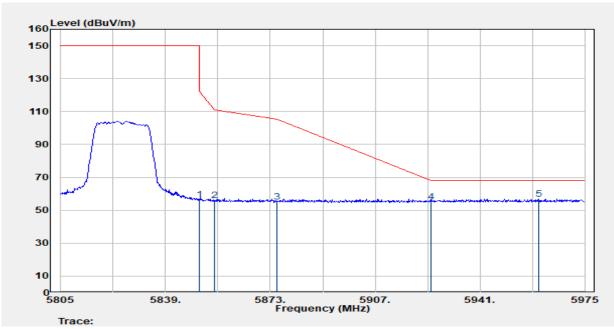
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n20 **Test Date** :2021-11-26

Test Frequency :5825 MHz Temp./Humi. :21.5/70

:Bandedge CH High Test Mode Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5850.000	Peak	46.96	9.42	56.38	122.20	-65.82
5855.000	Peak	46.66	9.44	56.10	110.80	-54.70
5875.000	Peak	45.62	9.50	55.12	105.20	-50.08
5925.000	Peak	45.36	9.65	55.01	68.20	-13.19
5960.040	Peak	47.30	9.70	57.00	68.20	-11.20

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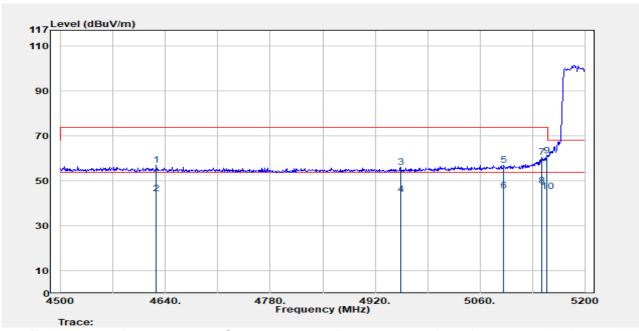
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n40 Test Date :2021-11-26

Test Frequency :5190 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

EUT Pol :H Plane Engineer :Jack Liu



II acc.						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
						_
4627.400	Peak	50.21	7.02	57.22	74.00	-16.78
4627.400	Average	37.38	7.02	44.40	54.00	-9.60
4954.300	Peak	48.46	7.66	56.12	74.00	-17.88
4954.300	Average	36.54	7.66	44.20	54.00	-9.80
5092.200	Peak	48.27	8.75	57.01	74.00	-16.99
5092.200	Average	36.79	8.75	45.54	54.00	-8.46
5143.300	Peak	51.72	8.70	60.43	74.00	-13.57
5143.300	Average	39.19	8.70	47.89	54.00	-6.11
5150.000	Peak	52.61	8.68	61.30	74.00	-12.70
5150.000	Average	36.57	8.68	45.25	54.00	-8.75

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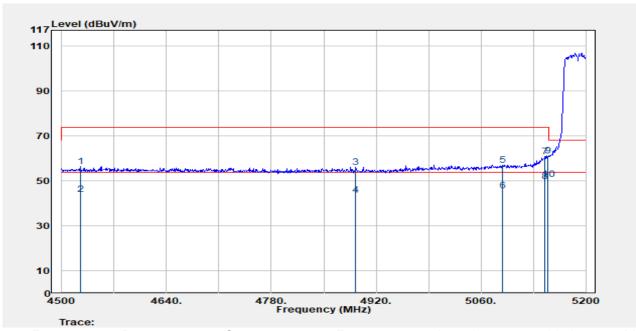
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n40 Test Date :2021-11-26

Test Frequency :5190 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



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	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
	MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
_							
	4524.500	Peak	49.64	6.90	56.54	74.00	-17.46
	4524.500	Average	37.02	6.90	43.92	54.00	-10.08
	4892.700	Peak	48.97	7.29	56.26	74.00	-17.74
	4892.700	Average	36.49	7.29	43.78	54.00	-10.22
	5088.700	Peak	48.46	8.71	57.17	74.00	-16.83
	5088.700	Average	36.96	8.71	45.67	54.00	-8.33
	5145.400	Peak	52.22	8.70	60.92	74.00	-13.08
	5145.400	Average	41.12	8.70	49.82	54.00	-4.18
	5150.000	Peak	52.42	8.68	61.10	74.00	-12.90
	5150.000	Average	42.05	8.68	50.73	54.00	-3.27

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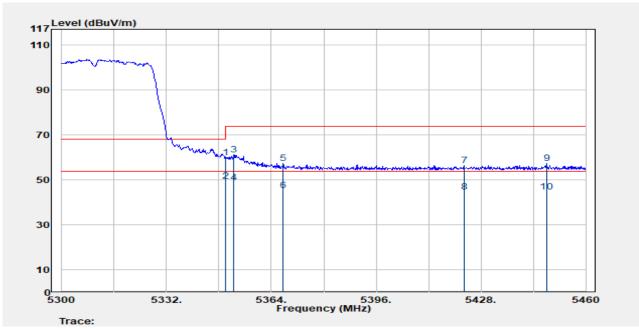
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n40 Test Date :2021-11-26

Test Frequency :5310 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Vertical

EUT Pol :H Plane Engineer :Jack Liu



114001						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB
5350.000	Peak	51.91	8.12	60.03	74.00	-13.97
5350.000	Average	41.37	8.12	49.49	54.00	-4.51
5352.480	Peak	53.19	8.12	61.32	74.00	-12.68
5352.480	Average	40.66	8.12	48.78	54.00	-5.22
5367.680	Peak	49.13	8.13	57.26	74.00	-16.74
5367.680	Average	37.35	8.13	45.48	54.00	-8.52
5422.880	Peak	48.42	8.10	56.52	74.00	-17.48
5422.880	Average	36.63	8.10	44.73	54.00	-9.27
5448.000	Peak	49.29	8.07	57.36	74.00	-16.64
5448.000	Average	36.77	8.07	44.84	54.00	-9.16

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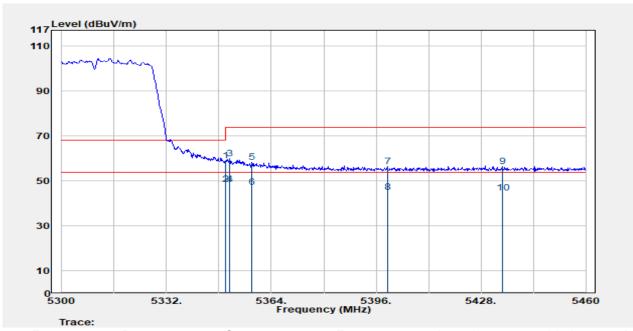
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11n40 Test Date :2021-11-26

Test Frequency :5310 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5350.000	Peak	50.70	8.12	58.83	74.00	-15.17
5350.000	Average	40.51	8.12	48.63	54.00	-5.37
5351.200	Peak	51.89	8.12	60.02	74.00	-13.98
5351.200	Average	40.32	8.12	48.44	54.00	-5.56
5358.080	Peak	50.14	8.13	58.27	74.00	-15.73
5358.080	Average	39.04	8.13	47.17	54.00	-6.83
5399.520	Peak	48.41	8.13	56.54	74.00	-17.46
5399.520	Average	36.79	8.13	44.92	54.00	-9.08
5434.560	Peak	48.44	8.08	56.52	74.00	-17.48
5434.560	Average	36.58	8.08	44.66	54.00	-9.34

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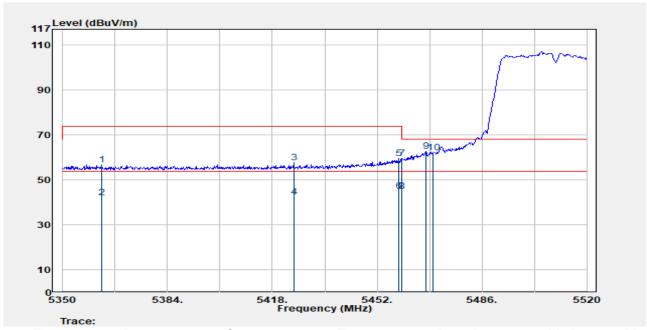
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

Test Frequency :5510 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
5362.580	Peak	48.54	8.13	56.67	74.00	-17.33
5362.580	Average	34.10	8.13	42.23	54.00	-11.77
5424.970	Peak	49.71	8.10	57.80	74.00	-16.20
5424.970	Average	34.34	8.10	42.44	54.00	-11.56
5459.140	Peak	51.60	8.07	59.67	74.00	-14.33
5459.140	Average	36.81	8.07	44.88	54.00	-9.12
5460.000	Peak	51.69	8.07	59.76	74.00	-14.24
5460.000	Average	36.97	8.07	45.04	54.00	-8.96
5467.980	Peak	54.63	8.08	62.70	68.20	-5.50
5470.000	Peak	53.92	8.08	62.00	68.20	-6.20

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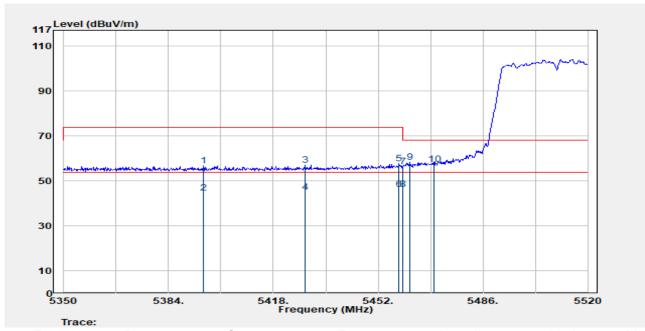
Report Number Test Site :SAC 3 :ER-2021-A0108

:2021-11-26 Operation Mode :802.11n40 **Test Date** 

Test Frequency :5510 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Horizontal

**EUT Pol** Engineer :H Plane :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5395.390	Peak	48.64	8.13	56.77	74.00	-17.23
5395.390	Average	36.46	8.13	44.59	54.00	-9.41
5428.200	Peak	48.88	8.09	56.97	74.00	-17.03
5428.200	Average	36.85	8.09	44.94	54.00	-9.06
5458.800	Peak	49.55	8.07	57.62	74.00	-16.38
5458.800	Average	38.18	8.07	46.25	54.00	-7.75
5460.000	Peak	48.38	8.07	56.45	74.00	-17.55
5460.000	Average	38.32	8.07	46.39	54.00	-7.61
5462.200	Peak	50.35	8.07	58.42	68.20	-9.78
5470.000	Peak	49.38	8.08	57.46	68.20	-10.74

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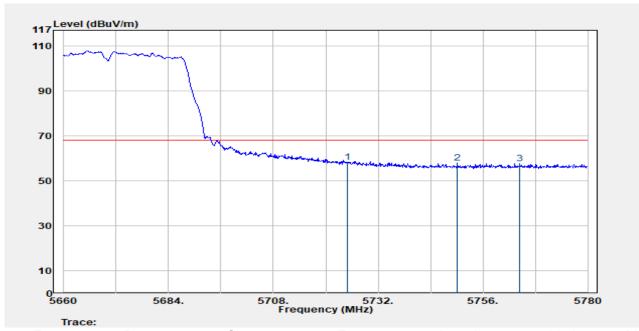
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

Test Frequency :5670 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.000	Peak	49.47	8.81	58.28	68.20	-9.92
5750.120	Peak	49.07	8.93	58.00	68.20	-10.20
5764.520	Peak	48.63	9.03	57.66	68.20	-10.54

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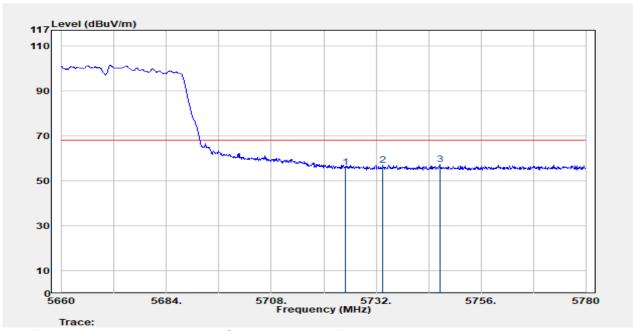
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

Test Frequency :5670 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH High Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	$dB\mu V$	dB	dBµV/m	dBµV/m	dB
5725.000	Peak	47.18	8.81	55.99	68.20	-12.21
5733.560	Peak	48.17	8.85	57.02	68.20	-11.18
5746.640	Peak	48.37	8.91	57.28	68.20	-10.92

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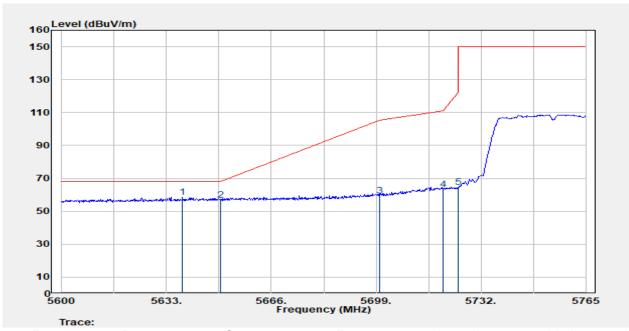
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

Test Frequency :5755 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dΒμV/m	dB
5637.950	Peak	50.31	8.28	58.59	68.20	-9.61
5650.000	Peak	48.28	8.32	56.60	68.20	-11.60
5700.000	Peak	50.89	8.69	59.58	105.20	-45.62
5720.000	Peak	54.64	8.79	63.42	110.80	-47.38
5725.000	Peak	55.62	8.81	64.43	122.20	-57.77

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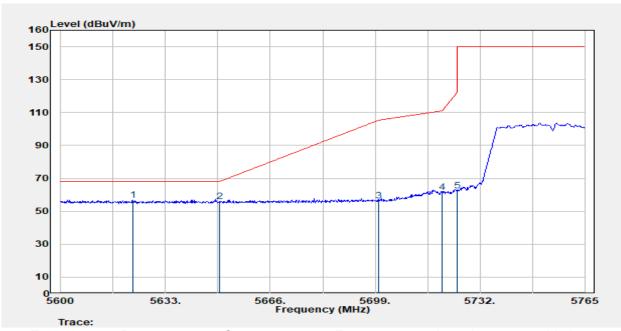
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

Test Frequency :5755 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5622.605	Peak	48.78	8.23	57.01	68.20	-11.19
5650.000	Peak	47.53	8.32	55.85	68.20	-12.35
5700.000	Peak	47.70	8.69	56.39	105.20	-48.81
5720.000	Peak	52.60	8.79	61.39	110.80	-49.41
5725.000	Peak	53.71	8.81	62.51	122.20	-59.69

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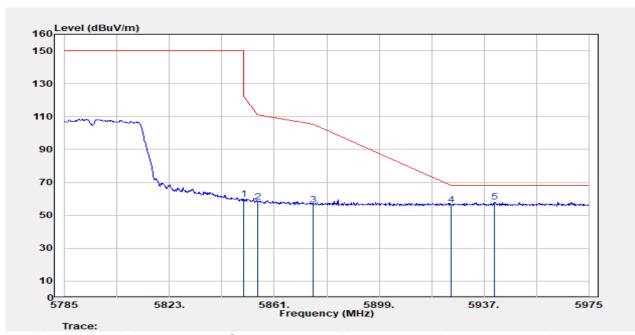
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

:5795 MHz Test Frequency Temp./Humi. :21.5/70

:Bandedge CH High Test Mode Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	$dB\mu V$	dB	dBµV/m	dBµV/m	dB
5850.000	Peak	50.43	9.42	59.85	122.20	-62.35
5855.000	Peak	48.84	9.44	58.28	110.80	-52.52
5875.000	Peak	46.88	9.50	56.38	105.20	-48.82
5925.000	Peak	46.94	9.65	56.58	68.20	-11.62
5940.990	Peak	48.32	9.69	58.01	68.20	-10.19

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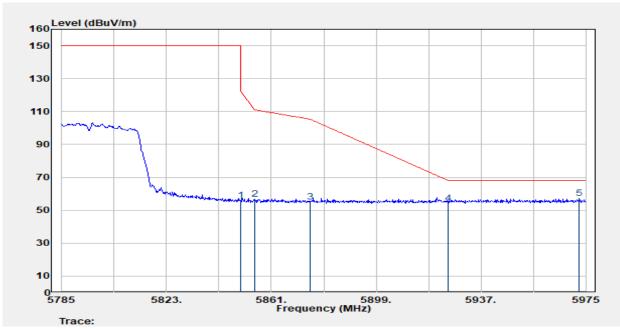
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11n40 **Test Date** :2021-11-26

:5795 MHz Test Frequency Temp./Humi. :21.5/70

:Bandedge CH High Test Mode Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5850.000	Peak	46.67	9.42	56.09	122.20	-66.11
5855.000	Peak	47.28	9.44	56.72	110.80	-54.08
5875.000	Peak	45.69	9.50	55.19	105.20	-50.01
5925.000	Peak	44.77	9.65	54.41	68.20	-13.79
5972.720	Peak	47.35	9.69	57.03	68.20	-11.17

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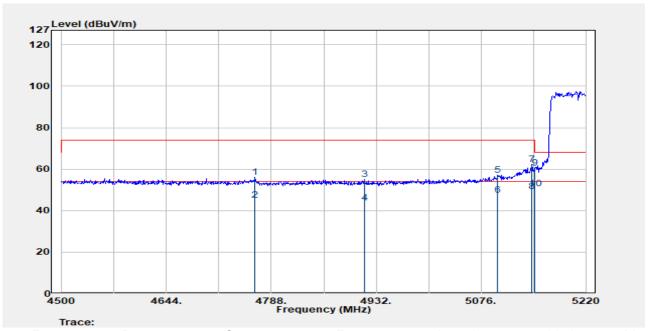
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5210 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



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Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dΒμV/m	dBμV/m	dB
4765.680	Peak	49.04	6.95	55.99	74.00	-18.01
4765.680	Average	38.05	6.95	45.00	54.00	-9.00
4915.440	Peak	47.78	7.42	55.20	74.00	-18.80
4915.440	Average	36.21	7.42	43.63	54.00	-10.37
5099.040	Peak	48.30	8.83	57.12	74.00	-16.88
5099.040	Average	38.83	8.83	47.66	54.00	-6.34
5145.840	Peak	53.54	8.70	62.24	74.00	-11.76
5145.840	Average	40.67	8.70	49.37	54.00	-4.63
5150.000	Peak	51.78	8.68	60.47	74.00	-13.53
5150.000	Average	41.76	8.68	50.44	54.00	-3.56

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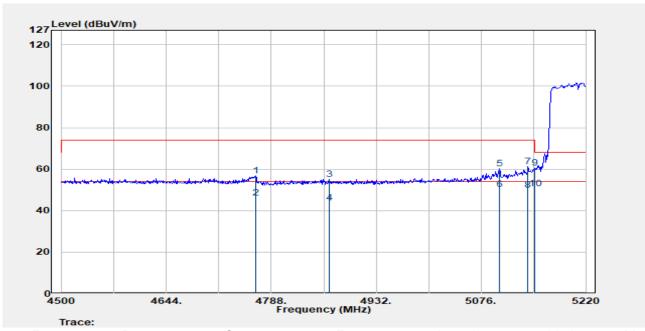
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5210 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBμV/m	dB
4766.400	Peak	49.85	6.95	56.80	74.00	-17.20
4766.400	Average	39.29	6.95	46.24	54.00	-7.76
4867.200	Peak	47.80	7.17	54.97	74.00	-19.03
4867.200	Average	36.51	7.17	43.68	54.00	-10.32
5101.920	Peak	51.36	8.83	60.19	74.00	-13.81
5101.920	Average	41.32	8.83	50.15	54.00	-3.85
5140.800	Peak	52.62	8.71	61.33	74.00	-12.67
5140.800	Average	41.29	8.71	50.00	54.00	-4.00
5150.000	Peak	51.80	8.68	60.48	74.00	-13.52
5150.000	Average	41.91	8.68	50.59	54.00	-3.41

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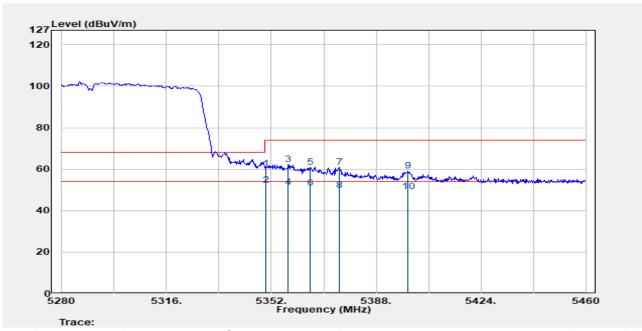
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5290 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Vertical :Bandedge CH Low

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBμV/m	dBµV/m	dB
5350.000	Peak	52.13	8.12	60.26	74.00	-13.74
5350.000	Average	44.11	8.12	52.23	54.00	-1.77
5357.760	Peak	54.08	8.13	62.20	74.00	-11.80
5357.760	Average	43.24	8.13	51.37	54.00	-2.63
5365.320	Peak	52.95	8.13	61.08	74.00	-12.92
5365.320	Average	42.86	8.13	50.99	54.00	-3.01
5375.400	Peak	52.78	8.13	60.91	74.00	-13.09
5375.400	Average	41.72	8.13	49.85	54.00	-4.15
5398.980	Peak	50.99	8.13	59.12	74.00	-14.88
5398.980	Average	41.26	8.13	49.39	54.00	-4.61

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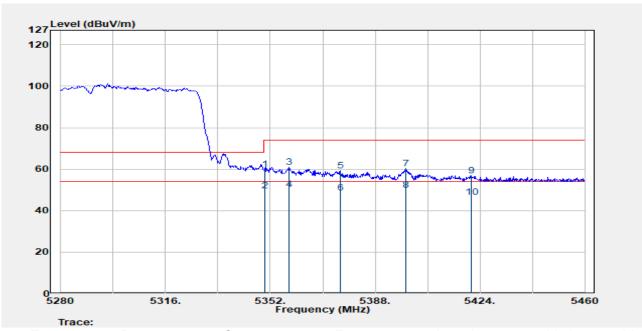
Test Site :SAC 3 Report Number :ER-2021-A0108

:2021-11-26 Operation Mode :802.11ac80 **Test Date** 

Test Frequency :5290 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dΒμV/m	dBμV/m	dB
						_
5350.000	Peak	51.79	8.12	59.91	74.00	-14.09
5350.000	Average	41.60	8.12	49.72	54.00	-4.28
5358.480	Peak	52.86	8.13	60.98	74.00	-13.02
5358.480	Average	42.21	8.13	50.34	54.00	-3.66
5375.940	Peak	51.13	8.13	59.26	74.00	-14.74
5375.940	Average	40.27	8.13	48.40	54.00	-5.60
5398.440	Peak	51.97	8.13	60.10	74.00	-13.90
5398.440	Average	41.75	8.13	49.88	54.00	-4.12
5420.940	Peak	48.77	8.10	56.87	74.00	-17.13
5420.940	Average	38.46	8.10	46.56	54.00	-7.44

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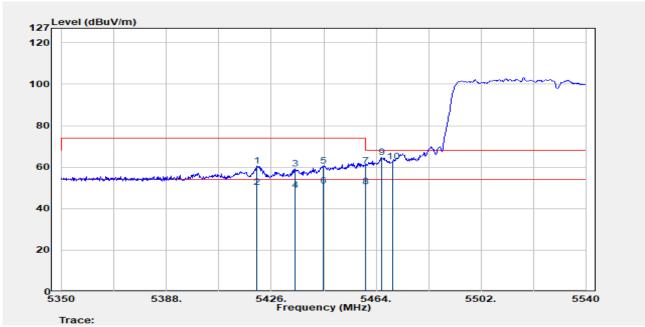
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5530 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Vertical :Bandedge CH Low

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5420.680	Peak	52.49	8.10	60.60	74.00	-13.40
5420.680	Average	42.17	8.10	50.27	54.00	-3.73
5434.740	Peak	51.15	8.08	59.23	74.00	-14.77
5434.740	Average	40.90	8.08	48.98	54.00	-5.02
5444.810	Peak	52.60	8.07	60.67	74.00	-13.33
5444.810	Average	42.98	8.07	51.05	54.00	-2.95
5460.000	Peak	52.57	8.07	60.64	74.00	-13.36
5460.000	Average	42.65	8.07	50.72	54.00	-3.28
5465.900	Peak	56.58	8.07	64.65	68.20	-3.55
5470.000	Peak	54.51	8.08	62.58	68.20	-5.62

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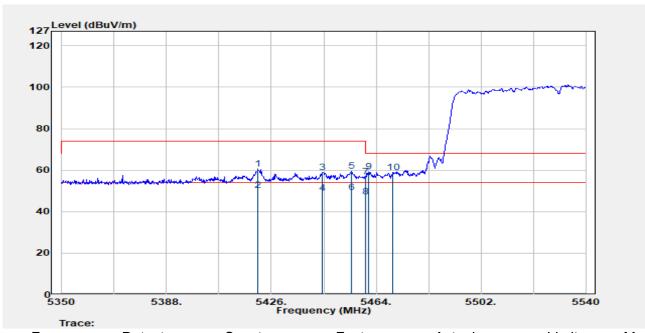
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5530 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



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Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5421.250	Peak	52.46	8.10	60.56	74.00	-13.44
5421.250	Average	42.03	8.10	50.13	54.00	-3.87
5444.430	Peak	50.82	8.07	58.89	74.00	-15.11
5444.430	Average	40.74	8.07	48.81	54.00	-5.19
5455.070	Peak	51.62	8.07	59.69	74.00	-14.31
5455.070	Average	41.14	8.07	49.21	54.00	-4.79
5460.000	Peak	48.71	8.07	56.78	74.00	-17.22
5460.000	Average	39.19	8.07	47.26	54.00	-6.74
5461.150	Peak	51.17	8.07	59.24	68.20	-8.96
5470.000	Peak	50.65	8.08	58.72	68.20	-9.48

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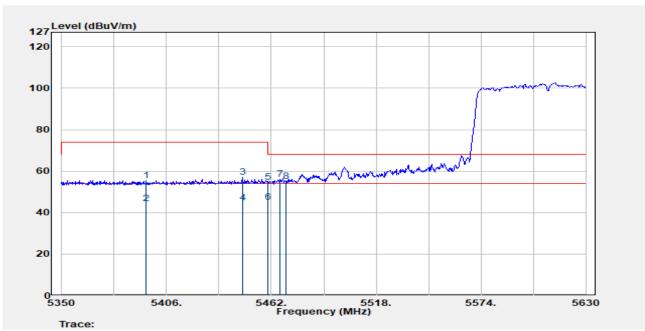
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11ac80 Test Date :2021-11-26

Test Frequency :5610 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Mid Antenna Pol. :Vertical

EUT Pol :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dΒμV/m	dB
5395.080	Peak	47.45	8.13	55.58	74.00	-18.42
5395.080	Average	36.23	8.13	44.36	54.00	-9.64
5446.600	Peak	49.06	8.07	57.12	74.00	-16.88
5446.600	Average	36.77	8.07	44.84	54.00	-9.16
5460.000	Peak	46.73	8.07	54.80	74.00	-19.20
5460.000	Average	37.00	8.07	45.07	54.00	-8.93
5466.760	Peak	48.17	8.07	56.25	68.20	-11.95
5470.000	Peak	46.99	8.08	55.07	68.20	-13.13

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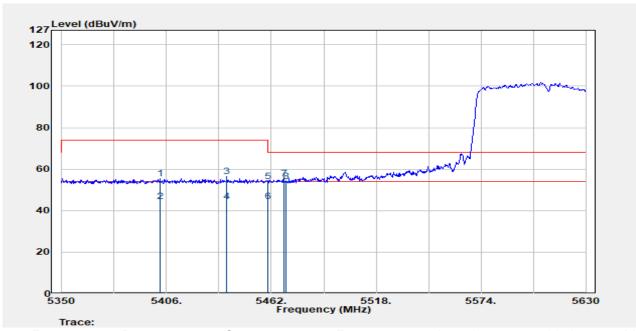
Report Number :ER-2021-A0108 Test Site :SAC 3

Operation Mode :802.11ac80 Test Date :2021-11-26

Test Frequency :5610 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Mid Antenna Pol. :Horizontal

EUT Pol :H Plane Engineer :Jack Liu



Detector	Spectrum	Factor	Actual	Limit	Margin
Mode	Reading Level		FS	@3m	
PK/QP/AV	dBµV	dB	dBµV/m	dΒμV/m	dB
Peak	47.45	8.13	55.57	74.00	-18.43
Average	36.18	8.13	44.31	54.00	-9.69
Peak	48.24	8.08	56.32	74.00	-17.68
Average	36.38	8.08	44.46	54.00	-9.54
Peak	46.08	8.07	54.15	74.00	-19.85
Average	36.45	8.07	44.52	54.00	-9.48
Peak	47.43	8.08	55.51	68.20	-12.69
Peak	45.92	8.08	54.00	68.20	-14.20
	Mode PK/QP/AV  Peak Average Peak Average Peak Average Peak Average	Mode PK/QP/AV Reading Level dBµV  Peak 47.45 Average 36.18 Peak 48.24 Average 36.38 Peak 46.08 Average 36.45 Peak 47.43	Mode PK/QP/AV         Reading Level dBμV         dB           Peak         47.45         8.13           Average         36.18         8.13           Peak         48.24         8.08           Average         36.38         8.08           Peak         46.08         8.07           Average         36.45         8.07           Peak         47.43         8.08	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m           Peak         47.45         8.13         55.57           Average         36.18         8.13         44.31           Peak         48.24         8.08         56.32           Average         36.38         8.08         44.46           Peak         46.08         8.07         54.15           Average         36.45         8.07         44.52           Peak         47.43         8.08         55.51	Mode PK/QP/AV         Reading Level dB μV         FS dB μV/m         @3m dB μV/m           Peak         47.45         8.13         55.57         74.00           Average         36.18         8.13         44.31         54.00           Peak         48.24         8.08         56.32         74.00           Average         36.38         8.08         44.46         54.00           Peak         46.08         8.07         54.15         74.00           Average         36.45         8.07         44.52         54.00           Peak         47.43         8.08         55.51         68.20

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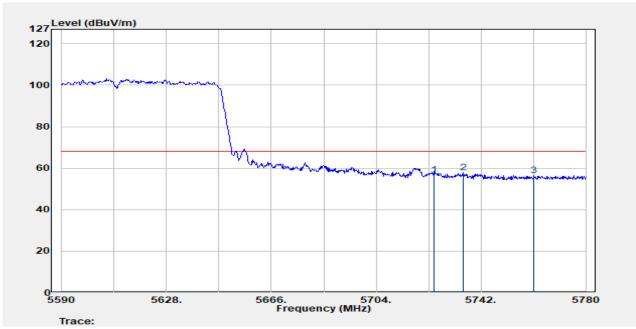
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5610 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Mid Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5725.000	Peak	47.99	8.81	56.80	68.20	-11.40
5735.730	Peak	48.97	8.86	57.83	68.20	-10.37
5761.190	Peak	47.27	9.00	56.28	68.20	-11.92

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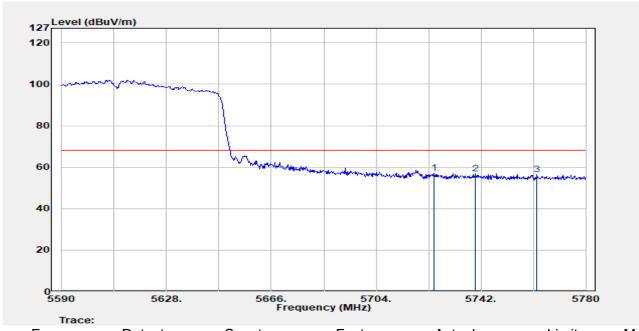
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5610 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Mid Antenna Pol. :Horizontal

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5725.000	Peak	48.34	8.81	57.15	68.20	-11.05
5740.100	Peak	47.94	8.88	56.82	68.20	-11.38
5762.330	Peak	47.40	9.01	56.41	68.20	-11.79

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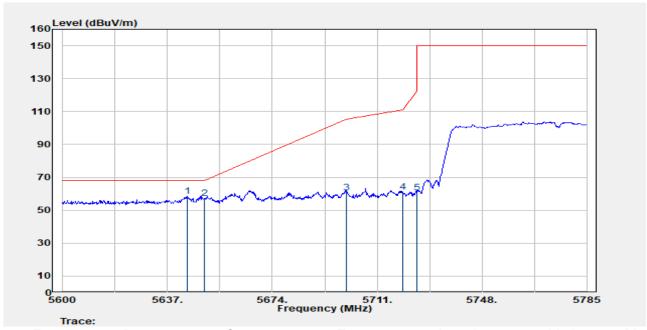
Report Number Test Site :SAC 3 :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5775 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5643.845	Peak	50.07	8.30	58.37	68.20	-9.83
5650.000	Peak	49.00	8.32	57.32	68.20	-10.88
5700.000	Peak	51.94	8.69	60.63	105.20	-44.57
5720.000	Peak	52.45	8.79	61.23	110.80	-49.57
5725.000	Peak	51.96	8.81	60.77	122.20	-61.43

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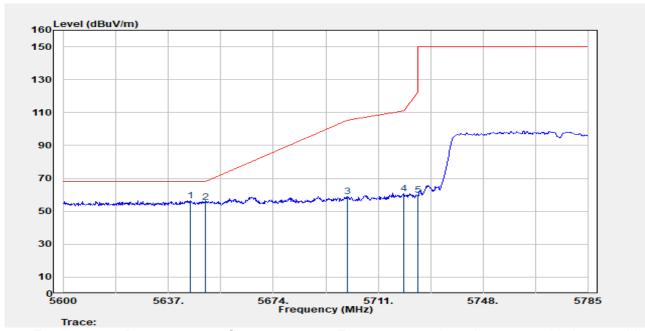
Test Site :SAC 3 Report Number :ER-2021-A0108

:2021-11-26 Operation Mode :802.11ac80 **Test Date** 

Test Frequency :5775 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



mace.						
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5644.770	Peak	48.09	8.30	56.40	68.20	-11.80
5650.000	Peak	47.17	8.32	55.49	68.20	-12.71
5700.000	Peak	50.35	8.69	59.04	105.20	-46.16
5720.000	Peak	51.83	8.79	60.62	110.80	-50.18
5725.000	Peak	50.90	8.81	59.71	122.20	-62.49

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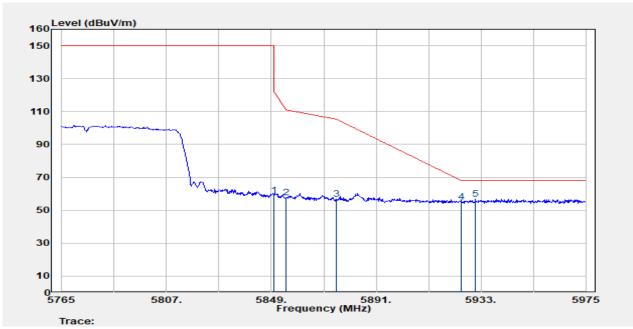
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5775 MHz Temp./Humi. :21.5/70

Test Mode :Bandedge CH Low Antenna Pol. :Vertical

**EUT Pol** :H Plane Engineer :Jack Liu



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5850.000	Peak	49.61	9.42	59.03	122.20	-63.17
5855.000	Peak	48.17	9.44	57.61	110.80	-53.19
5875.000	Peak	47.35	9.50	56.85	105.20	-48.35
5925.000	Peak	45.48	9.65	55.13	68.20	-13.07
5930.900	Peak	47.30	9.66	56.97	68.20	-11.23

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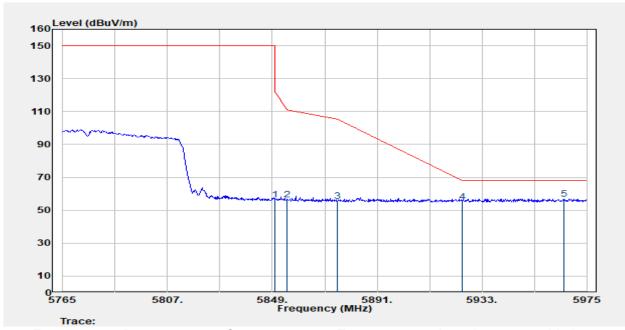
Test Site :SAC 3 Report Number :ER-2021-A0108

Operation Mode :802.11ac80 **Test Date** :2021-11-26

Test Frequency :5775 MHz Temp./Humi. :21.5/70

Test Mode Antenna Pol. :Horizontal :Bandedge CH Low

**EUT Pol** :H Plane :Jack Liu Engineer



Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dΒμV/m	dB
5850.000	Peak	46.85	9.42	56.27	122.20	-65.93
5855.000	Peak	46.93	9.44	56.37	110.80	-54.43
5875.000	Peak	45.85	9.50	55.35	105.20	-49.85
5925.000	Peak	45.53	9.65	55.18	68.20	-13.02
5965.760	Peak	47.28	9.70	56.98	68.20	-11.22

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## 12 TRANSMISSION IN THE ABSENCE OF DATA

### 12.1 Standard Applicable

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

### 12.2 Result

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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# 13 ANTENNA REQUIREMENT

### Standard Applicable 13.1

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

## 13.2 Antenna Connected Construction

The antenna is designed with unique RF connector and no consideration of replacement. Please see EUT photo for details.

~ End of Report ~

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