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# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant: FUJITSU CONNECTED TECHNOLOGIES Ltd.

Chuorinkan 7-10-1 Yamato, Kanagawa 242-0007, Japan

Product Name: Smart Phone Brand Name: FUJITSU

Model No.: F-42A Model Difference: N/A

 Report Number:
 ER/2020/40011

 FCC ID:
 2AQYEFMP178

 FCC Rule Part:
 \$15.407. Cat: NII

Issue Date: §15.407, Cat: NI

**Date of Test:** Apr. 14th, 2020 ~ May 8th, 2020

Date of EUT Re-

ceived:

Mar. 31st, 2020

# We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory 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 tested as described in this report is in compliance with conducted and radiated emission limits.

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

Approved By: CHUN-CHIEH, CHEN

Chun Chieh Chen / Supervisor





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Revision History				
Report Number	Revision	Description	Issue Date	Remark
ER/2020/40011	Rev.00	Original.	May 19th, 2020	Revised By: Yuri Tsai

#### Note:

1 · Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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# 1 GENERAL INFORMATION

# 1.1 Product Description

Product Nan	ne:	Smart Phone		
Brand Name	:	FUJITSU	FUJITSU	
Model No.:		F-42A		
Model Differ	ence:	N/A		
Hardware Ve	ersion:	: V1.2.0		
Software Ver	Software Version: V00R016Ve		iVe	
		3.8Vdc fr	om Rechargeable Li-ion Battery	
Power Supply:		Battery:	Model No.:CA54310-0075  attery: Supplier: FUJITSU CONNECTED TECHNOLOGIES LIMITED	
Modulation type  64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only		,		
Antenna Designation:		λ/4 Monopole Antenna, Peak Gain: -2.3dBi		
Transition Rate:	802.11 n_2	6/9/12/18/24/36/48/54 Mbps       802.11 ac_20MHz: 6.5 -86.7Mbps         20MHz: 6.5 - 72.2Mbps       802.11 ac_40MHz: 13.5 -200.0Mbps         40MHz: 13.5 - 150.0Mbps       802.11 ac_80MHz: 29.3 - 433.3Mbps		

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### 1.2 FCC worst power

orst power					
Wi-Fi 802.11	Frequency Range	Channels		wer (Avg.) orst case)	Modulation Technology
	5150~5250	4	11.	.21	
а	5250~5350	4	11.	.18	OFDM
	5470~5725	12	11.	.04	
n HT	5150~5250	4	HT:	11.25	
ac_VHT 20M	5250~5350	4	HT:	11.19	OFDM
	5470~5725	12	HT:	11.03	
n HT	5150~5250	2	HT:	10.92	
ac_VHT	5250~5350	2	HT:	10.80	OFDM
40M	5470~5725	6	HT:	11.07	
ac_VHT 80M	5150~5250	1	VHT:	10.71	
	5250~5350	1	VHT:	11.02	OFDM
	5470~5725	3	VHT:	11.04	

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# 1.3 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

# 1.4 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory (TAF code 0513) No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0001

# 1.5 Special Accessories

There are no special accessories used while test was conducted.

# 1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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# 2 SYSTEM TEST CONFIGURATION

# 2.1 EUT Configuration

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\*9m\*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.

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# 2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration



Fig. 2-2 Conducted (Antenna Port) Emission Configuration

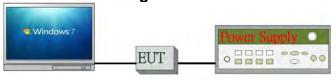


Fig. 2-3 Conducted (AC powerline) Emission Configuration

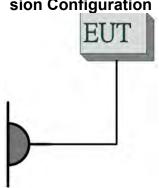


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2	DC Power Supply	Agilent	E3640A	MY40000811	N/A	N/A
3	Notebook	Lenovo	L430	R9-XFG0X	Shielded	Unshielded

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# **SUMMARY OF TEST RESULT**

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB & 6dB 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
§15.407(g)	Frequency Stability	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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# 4 DESCRIPTION OF TEST MODES

# 4.1 802.11a/n/ac operated in U-NII Bands

# Operated band in 5150 MHz ~5250 MHz:

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

III 3 I 30 IVIN		
40 M		
СН	Freq	
	(MHz)	
38	5190	
46	5230	
	•	

ZOU WITTZ.		
80 M		
СН	Freq (MHz)	
42	5210	

# Operated band in 5250 MHz ~5350 MHz:

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

U	<u>u III 3230 WII</u>			
	40 M			
	СН	Freq		
		(MHz)		
	54	5270		
	62	5310		

0000 1111 12.		
80 M		
СН	Freq (MHz)	
58	5290	

### Operated band in 5470 MHz ~5725 MHz:

Operated b					
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				

144 5720

<u>, III 3-</u>	111 347 0 1911 12					
4	40 M					
СН	Freq					
OIT	(MHz)					
102	5510					
110	5550					
118	5590					
126	5630					
134	5670					
142	5710					

80 M				
CH Freq (MHz)				
106	5530			
122	5610			
138	5690			

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

- 1. 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 gevin UE is pre-scanned among below modes.

Modulation	Transmission Chain	Multiple Transmission Spatial
⊠ 802.11 a	☑ Ch0 ☐ Ch1 ☐ Ch2 ☐ Ch3	□ 2TX
⊠ 802.11 n	□ Ch0 □ Ch1 □ Ch2 □ Ch3	☐ MIMO
⊠ 802.11 ac	☑ Ch0 ☐ Ch1 ☐ Ch2 ☐ Ch3	☐ MIMO
□ 802.11 ax	☐ Ch0 ☐ Ch1 ☐ Ch2 ☐ Ch3	☐ MIMO

4. 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.

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#### 4.2.1 RADIATED EMISSION TEST:

	RADIATED EMISSION TEST (BELOW 1 GHz)								
MODE	MODE FREQUEN- CY BAND (MHz) AVAILABLE TESTED MODULATION DATA RATE ANTENI (Mbps) PORT								
	5180~5240	36 to 48	44						
802.11a	5260~5320	52 to 64	60	OFDM	6	Ch0			
	5500~5720	100 to 144	116						

RADIATED EMISSION TEST (ABOVE 1 GHz)								
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTEN- NA PORT		
	5180~5240	36 to 48	36,44,48					
000.44	5260~5320	52 to 64	52,60,64			01.0		
802.11a	5500~5720	100 to 144	100,116,140, 144		6	Ch0		
	5180~5240	36 to 48	36,44,48					
802.11n HT20	5260~5320	52 to 64	52,60,64		MCS0	Ch0		
002.1111_11120	5500~5720	100 to 144	100,116,140, 144	OFDM		Ono		
	5190~5230	38 to 46	38,46	0. 5				
802.11n HT40	5270~5310	54 to 62	54,62		MCS0	Ch0		
602.TII <u></u> H140	5510~5710	102 to 142	102,110,134, 142		MCSU	CHO		
802.11ac_VHT80	5210	42	42	]				
	5290	58	58		MCS0	Ch0		
	5530~5690	106 to 138	106,122,138		IVICOU	Oilo		

### Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case E1 position was reported.

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### 4.2.2 ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST								
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT		
	5180~5240	36 to 48	36,44,48					
000 44 -	5260~5320	52 to 64	52,60,64			01-0		
802.11a	5500~5720	100 to 144	100,116,140, 144		6	Ch0		
	5180~5240	36 to 48	36,44,48					
000 44 11700	5260~5320	52 to 64	52,60,64			01.0		
802.11n_HT20	5500~5720	100 to 144	100,116,140, 144	OFDM	MCS0	Ch0		
	5190~5230	38 to 46	38,46					
000 44 11740	5270~5310	54 to 62	54,62		14000	01.0		
802.11n_HT40	5510~5710	102 to 142	102,110,134, 142		MCS0	Ch0		
802.11ac VHT80	5210	42	42					
	5290	58	58		MCS0	Ch0		
_	5530~5690	106 to 138	106,122,138					

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# 5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB & 6dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Meas- urement	+/- 0.96 dB
Peak Power Spectral Density Meas- urement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

Radiated Spurious Emission Measurement Uncertainty					
	9kHz~30MHz: +-2.3dB				
	30MHz - 180MHz: +/- 3.37dB				
Polarization: Vertical	180MHz -417MHz: +/- 3.19dB				
Polarization. Vertical	0.417GHz-1GHz: +/- 3.19dB				
	1GHz - 18GHz: +/- 4.04dB				
	18GHz - 40GHz: +/- 4.04dB				
	9kHz~30MHz: +-2.3dB				
	30MHz - 167MHz: +/- 4.22dB				
Polarization: Horizontal	167MHz -500MHz: +/- 3.44dB				
Polarization. Horizontal	0.5GHz-1GHz: +/- 3.39dB				
	1GHz - 18GHz: +/- 4.08dB				
	18GHz - 40GHz: +/- 4.08dB				

#### 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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# **6 CONDUCTED EMISSION TEST**

# 6.1 Standard Applicable

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

Frequency range	Lin dB(	nits uV)
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.

# 6.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT	EQUIPMENT MFR MODEL SERIAL LAST							
TYPE		NUMBER	NUMBER	CAL.				
EMI Test Receiver	R&S	ESCI 7	1166.5950.07	Jul. 4th, 2019	Jul. 3rd, 2020			
LISN	SCHWARZBECK	NSLK 8127	8127-649	Jun. 3rd, 2020	Jun. 2nd, 2020			
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R	N.C.R			
Coaxial Cables	N/A	WK CE Cable	N/A	Jan. 2nd, 2020	Jan. 1st, 2021			

# 6.3 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.

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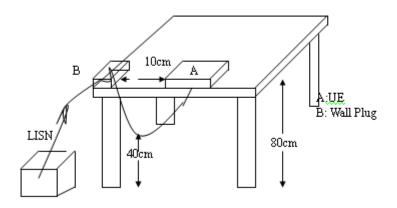
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### 6.4 Test SET-UP



#### 6.5 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.

#### 6.6 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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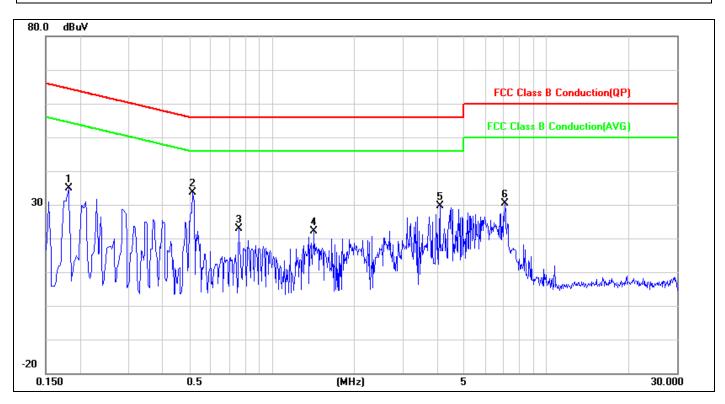
# AC POWER LINE CONDUCTED EMISSION TEST DATA

 Description:
 Operation
 Date:
 2020/04/29

 Line:
 L1
 Temp.(°C)/Hum.(%):
 23 (°C)/55%

Test Voltage: AC 120V/60Hz Test By: Neo

Report Number ER/2020/40011



NI.	BA1.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector
No.	Mk.	(MHz)	(dBuV)	( dB )	( dBuV )	(dBuV)	( dB )	Detector
1		0.1820	34.96	0.01	34.97	64.39	-29.42	peak
2	*	0.5140	33.54	0.01	33.55	56.00	-22.45	peak
3		0.7620	22.90	0.02	22.92	56.00	-33.08	peak
4		1.4260	22.15	0.03	22.18	56.00	-33.82	peak
5		4.1100	29.61	0.14	29.75	56.00	-26.25	peak
6		7.0940	30.27	0.23	30.50	60.00	-29.50	peak

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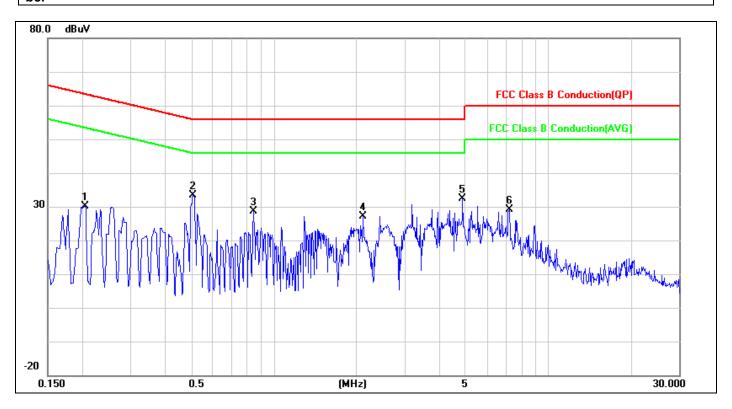
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Description: Operation Date: 2020/04/29

Line: N Temp.(°C)/Hum.(%): 23(°C)/55%

Test Voltage: AC 120V/60Hz Test By: Neo

Report Number ER/2020/40011



Na	NAL	Freq.	Reading	Factor	Measurement	Limit	Over	Datastan
No.	Mk.	(MHz)	(dBuV)	( dB )	( dBuV )	(dBuV)	( dB )	Detector
1		0.2060	30.05	0.01	30.06	63.37	-33.31	peak
2	*	0.5100	33.42	0.01	33.43	56.00	-22.57	peak
3		0.8460	28.50	0.02	28.52	56.00	-27.48	peak
4		2.1180	26.99	0.04	27.03	56.00	-28.97	peak
5		4.8820	32.19	0.19	32.38	56.00	-23.62	peak
6		7.2420	28.81	0.23	29.04	60.00	-30.96	peak

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# 7 DUTY CYCLE TEST SIGNAL

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.

#### 7.1 Measurement Procedure:

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

# **Duty Cycle:**

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log ( 1/Duty Cycle )	1/T (kHz)	VBW setting (kHz)
802.11a	100.00	0.00	0.00	0.01
802.11n_20	100.00	0.00	0.00	0.01
802.11ac_20	99.21	0.03	1.03	2.00
802.11n_40	100.00	0.00	0.00	0.01
802.11ac_40	98.10	0.08	2.02	3.00
802.11ac_80	95.94	0.18	4.03	5.00

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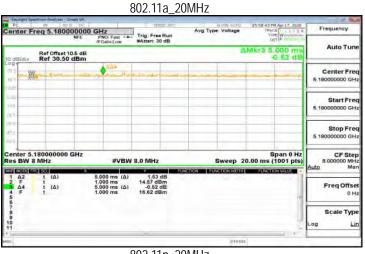
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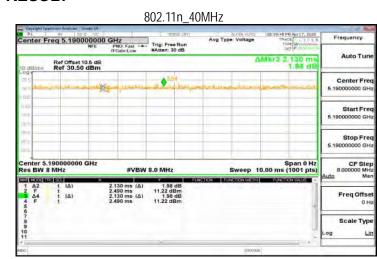
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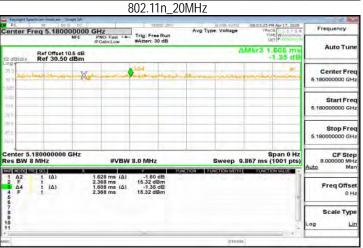


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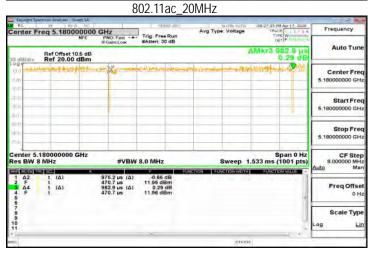
### 7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT













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# 8 26DB &6DB 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 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. 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 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 = 30M/50MHz,

Detector=Peak,

Sweep=auto

b. Mark the peak frequency and -6dB (upper and lower) frequency.

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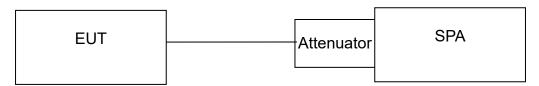


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# 8.3 Measurement Equipment Used

SGS Conducted Room							
Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23th, 2019	Dec. 22th, 2020		
Temperature Chamber	TERCHY	MHG-120LF	911009	May 17th, 2019	May 16th, 2020		
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	Feb. 20th, 2020	Feb. 19th, 2021		
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021		
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021		

# 8.4 Test Set-up



#### 8.5 Measurement Result

# 8.5.1 FCC 26dB Bandwidth

802.11a\_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.54	13.332
5220	21.68	13.360
5240	21.83	13.390
5260	21.78	13.380
5300	21.79	13.383
5320	21.89	13.403
5500	21.79	13.382
5580	21.86	13.396
5700	22.10	13.444
5720	21.73	13.371

802.11n\_HT20\_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.93	13.411
5220	21.94	13.412
5240	22.27	13.477
5260	22.23	13.470
5300	21.91	13.407
5320	21.95	13.415
5500	21.93	13.410
5580	22.45	13.512
5700	22.26	13.475
5720	22.01	13.426

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802.11n \_HT40\_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)		
5190	42.97	16.332		
5230	42.67	16.302		
5270	43.17	16.352		
5310	43.08	16.343		
5510	42.56	16.290		
5550	42.00	16.233		
5670	42.07	16.239		
5710	42.52	16.286		

802 11ac VHT80 Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	82.46	19.163
5290	84.22	19.254
5530	82.95	19.188
5610	83.55	19.220
5690	81.72	19.123

#### 8.5.2 99% BW Verification for DFS Function

802.11a\_Ch0

802	11	n	HT20	Ch0
UUZ.			11120	OHO

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.43	< 5250

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.97	< 5250

802.11n \_HT40\_Ch0

802.11ac \_VHT80\_Ch0

Limit (MHz)

< 5250

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)
5230	5248.10	< 5250	5210	5247.30

Please see next page for test plots.

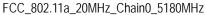
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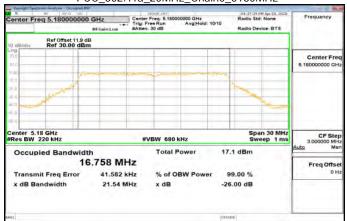
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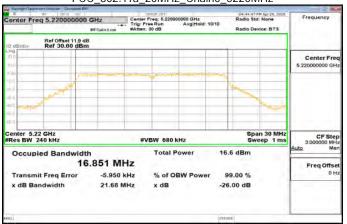


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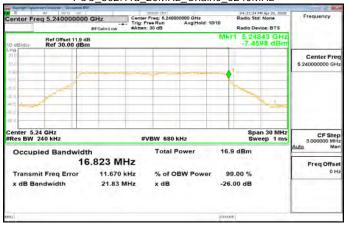




# FCC\_802.11a\_20MHz\_Chain0\_5220MHz



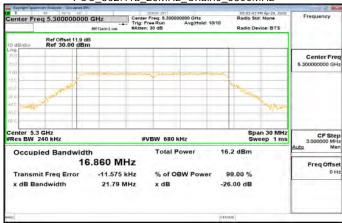
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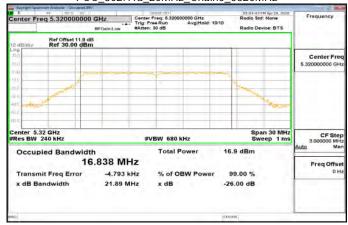
#### FCC 802.11a 20MHz Chain0 5260MHz



#### FCC\_802.11a\_20MHz\_Chain0\_5300MHz



### FCC\_802.11a\_20MHz\_Chain0\_5320MHz



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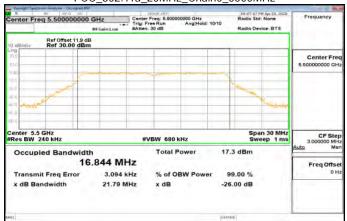
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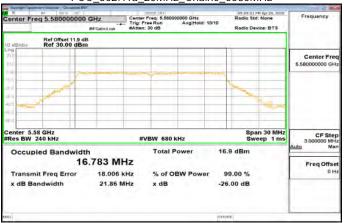


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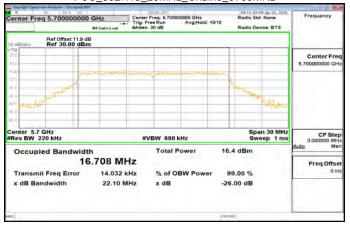
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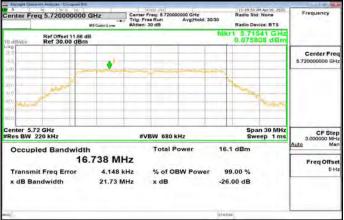
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FCC\_802.11a\_20MHz\_Chain0\_5700MHz



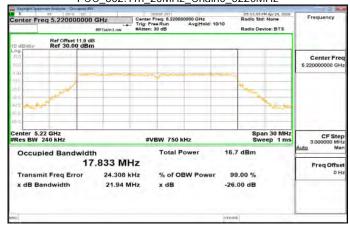
FCC\_802.11a\_20MHz\_Chain0\_5720MHz



FCC\_802.11n\_20MHz\_Chain0\_5180MHz



FCC\_802.11n\_20MHz\_Chain0\_5220MHz



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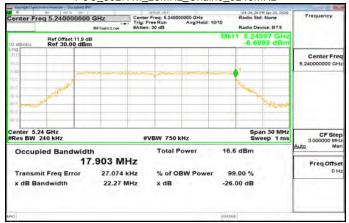
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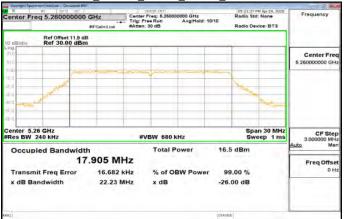


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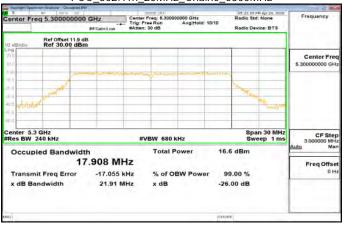
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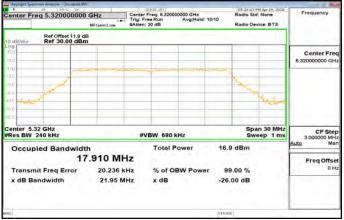
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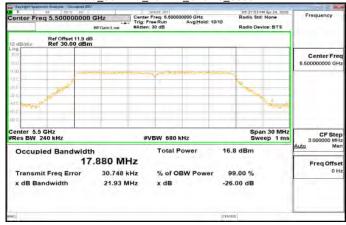
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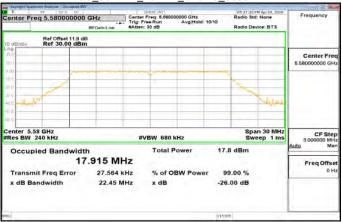
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#### FCC\_802.11n\_20MHz\_Chain0\_5500MHz



# FCC\_802.11n\_20MHz\_Chain0\_5580MHz



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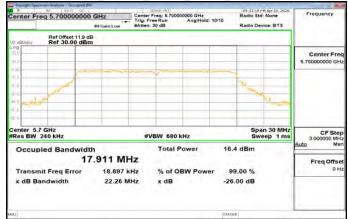
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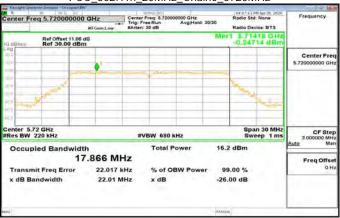


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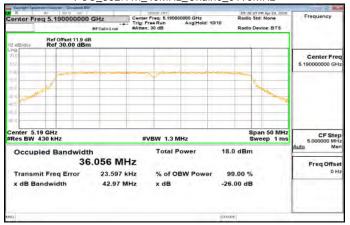




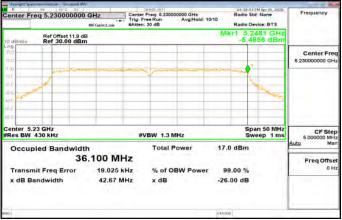
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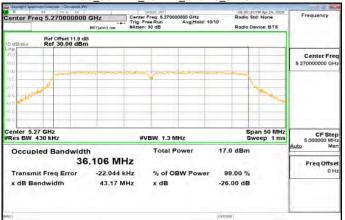
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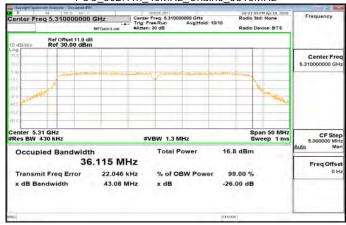
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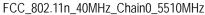
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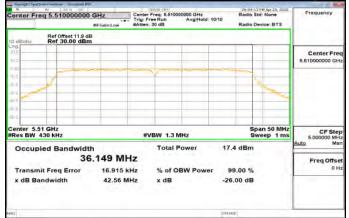
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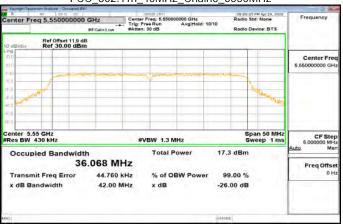




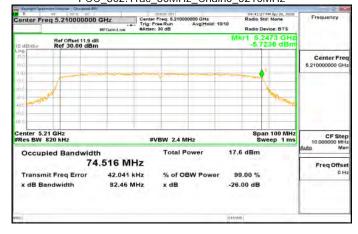
# FCC\_802.11n\_40MHz\_Chain0\_5710MHz



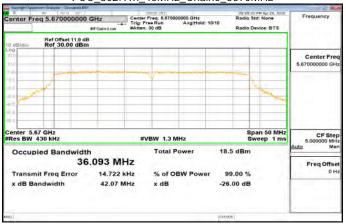
# FCC\_802.11n\_40MHz\_Chain0\_5550MHz



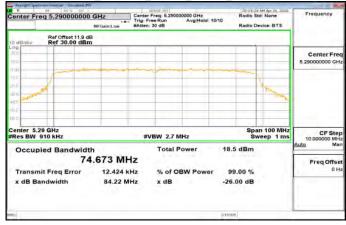
FCC\_802.11ac\_80MHz\_Chain0\_5210MHz



# FCC\_802.11n\_40MHz\_Chain0\_5670MHz



FCC\_802.11ac\_80MHz\_Chain0\_5290MHz



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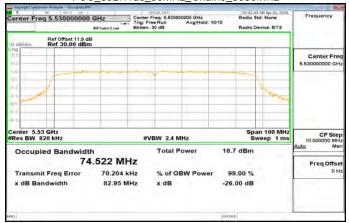
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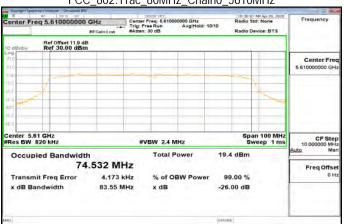


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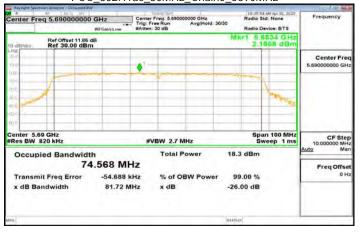




#### FCC\_802.11ac\_80MHz\_Chain0\_5610MHz



### FCC\_802.11ac\_80MHz\_Chain0\_5690MHz



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# MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

# 9.1 Standard Applicable

#### **FCC**

OPERZTION Band		EUT CATEGORY	LIMIT
		Access Point (Master device )	1 Watt(30dBm)
U-NII-1		Fixed point-to-point Access Ponit	1 Watt(30dBm)
	V	Mobile and portable client device	250mW(23.98dBm)
U-NII-2A			250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	V		250mW(23.98dBm) or 11dBm+10 log B
U-NII-3			1 Watt(30dBm)

If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna exceeds 6 dBi.

The antenna gain is not granter than 6 dBi. Therefore, reduction of power is not required.

#### 9.2 Measurement Procedure

- 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. 4.
- 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.

# 9.3 Measurement Equipment Used

	SGS Conducted Room									
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due					
Power Meter	Anritsu	ML2496A	1804001	Feb. 20th, 2020	Feb. 19th, 2021					
Power Sensor	Anritsu	MA2411B	1726104	Feb. 20th, 2020	Feb. 19th, 2021					
Power Sensor	Anritsu	MA2411B	1726107	Feb. 20th, 2020	Feb. 19th, 2021					
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23th, 2019	Dec. 22th, 2020					
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021					
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021					

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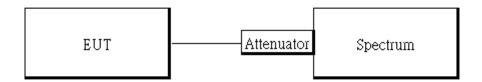
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# 9.4 Test Set-up



#### 9.5 Measurement Result

# 9.5.1 Conducted output power (FCC)

# 802.11a\_Ch0

002.11a_	0110		-					
СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
36	5180	6	11.21	13.213		23.98		PASS
44	5220	6	11.14	13.002		23.98		PASS
48	5240	6	11.16	13.062	23.98			PASS
52	5260	6	11.18	13.122	23.98 or 11+10log(B) = 24.38		24.38	PASS
60	5300	6	11.05	12.735	23.98	or 11+10log(B) =	24.38	PASS
64	5320	6	10.96	12.474	23.98	or 11+10log(B) =	24.40	PASS
100	5500	6	11.04	12.706	23.98	or 11+10log(B) =	24.38	PASS
116	5580	6	10.94	12.417	23.98	or 11+10log(B) =	24.40	PASS
140	5700	6	10.84	12.134	23.98	or 11+10log(B) =	24.44	PASS
144	5720(U-NII 2C)	6	9.54	9.00	23.98	or 11+10log(B) =	24.37	PASS
144	5720 (U-NII 3)	6	5.22	3.33		30	•	PASS

### 802.11n HT20 Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
36	5180	MCS0	11.25	13.335		23.98		PASS
44	5220	MCS0	11.15	13.032		23.98		PASS
48	5240	MCS0	11.23	13.274	23.98			PASS
52	5260	MCS0	11.19	13.152	23.98	or 11+10log(B) =	24.47	PASS
60	5300	MCS0	11.18	13.122	23.98	or 11+10log(B) =	24.41	PASS
64	5320	MCS0	11.05	12.735	23.98	or 11+10log(B) =	24.41	PASS
100	5500	MCS0	11.00	12.589	23.98	or 11+10log(B) =	24.41	PASS
116	5580	MCS0	11.03	12.677	23.98	or 11+10log(B) =	24.51	PASS
140	5700	MCS0	10.87	12.218	23.98	or 11+10log(B) =	24.47	PASS
144	5720(U-NII 2C)	MCS0	9.59	9.09	23.98	or 11+10log(B) =	24.43	PASS
144	5720 (U-NII 3)	MCS0	5.33	3.41		30		PASS

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### 802.11n HT40 Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
38	5190	MCS0	10.92	12.359		23.98		PASS
46	5230	MCS0	10.89	12.274	23.98			PASS
54	5270	MCS0	10.80	12.023	23.98	or 11+10log(B) =	27.35	PASS
62	5310	MCS0	10.75	11.885	23.98	or 11+10log(B) =	27.34	PASS
102	5510	MCS0	10.65	11.614	23.98	or 11+10log(B) =	27.29	PASS
110	5550	MCS0	10.63	11.561	23.98	or 11+10log(B) =	27.23	PASS
134	5670	MCS0	11.07	12.794	23.98	or 11+10log(B) =	27.24	PASS
142	5710(U-NII 2C)	MCS0	10.34	10.81	23.98	or 11+10log(B) =	27.29	PASS
142	5710 (U-NII 3)	MCS0	2.71	1.87		30		PASS

### 802.11ac VHT80 Ch0

00211100								
СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
42	5210	MCS0	10.71	11.776		23.98		PASS
58	5290	MCS0	11.02	12.647	23.98	or 11+10log(B) =	30.25	PASS
106	5530	MCS0	11.04	12.706	23.98	or 11+10log(B) =	30.19	PASS
122	5610	MCS0	11.00	12.589	23.98	or 11+10log(B) =	30.22	PASS
138	5690(U-NII 2C)	MCS0	10.65	11.61	23.98	or 11+10log(B) =	30.12	PASS
138	5690 (U-NII 3)	MCS0	-0.47	0.90		30	•	PASS

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# 10 MAXIMUM POWER SPECTRAL DENSITY

# 10.1 Standard Applicable

#### **FCC**

OPERZTION Band		EUT CATEGORY	LIMIT
		Access Point (Master device )	17dBm/ MHz
U-NII-1		Fixed point-to-point Access Ponit	17 dbiii/ ivii iz
	√	Mobile and portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C			11dBm/ MHz
U-NII-3			30dBm/ 500kHz

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

The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

#### 10.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 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 (601 pts), detector = sample, 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=500 kHz, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

- 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.

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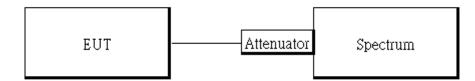


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# 10.3 Measurement Equipment Used

	SGS Conducted Room									
Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due					
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23th, 2019	Dec. 22th, 2020					
Temperature Chamber	TERCHY	MHG-120LF	911009	May 17th, 2019	May 16th, 2020					
EXA Spectrum Ana- lyzer	KEYSIGHT	N9010A	MY57120290	Feb. 20th, 2020	Feb. 19th, 2021					
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021					
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021					

# 10.4 Test Set-up



### 10.5 Measurement Result

# 10.5.1 Power spectral density

	POWER DENSITY 802.11a MODE_Ch0								
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)				
5180.00	1.32	-	1.32	11.00	-9.68				
5220.00	0.80	-	0.80	11.00	-10.20				
5240.00	0.50	-	0.50	11.00	-10.50				
5260.00	0.69	-	0.69	11.00	-10.31				
5300.00	0.14	-	0.14	11.00	-10.86				
5320.00	0.21	-	0.21	11.00	-10.79				
5500.00	0.38	-	0.38	11.00	-10.62				
5580.00	0.85	-	0.85	11.00	-10.15				
5700.00	0.82	-	0.82	11.00	-10.18				
5720 (U-NII 2C)	0.65	-	0.65	11.00	-10.35				
5720 (U-NII 3)	-2.16	-	-2.16	30.00	-32.16				

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PC	POWER DENSITY 802.11n HT20 MODE_Ch0									
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)					
5180	0.92	-	0.92	11	-10.08					
5220	0.76	-	0.76	11	-10.24					
5240	0.38	-	0.38	11	-10.62					
5260	0.27	-	0.27	11	-10.73					
5300	-0.17	-	-0.17	11	-11.17					
5320	-0.17	-	-0.17	11	-11.17					
5500	0.07	-	0.07	11	-10.93					
5580	0.81	-	0.81	11	-10.19					
5700	0.62	-	0.62	11	-10.38					
5720 (U-NII 2C)	0.39	-	0.39	11	-10.61					
5720 (U-NII 3)	-2.63	-	-2.63	30	-32.63					

PC	POWER DENSITY 802.11n HT40 MODE_Ch0									
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)					
5190	-2.44	-	-2.44	11	-13.44					
5230	-2.94	-	-2.94	11	-13.94					
5270	-3.05	-	-3.05	11	-14.05					
5310	-3.38	-	-3.38	11	-14.38					
5510	-3.21	-	-3.21	11	-14.21					
5550	-2.65	-	-2.65	11	-13.65					
5670	-1.72	-	-1.72	11	-12.72					
5710 (U-NII 2C)	-2.39	-	-2.39	11	-13.39					
5710 (U-NII 3)	-7.06	-	-7.06	30	-37.06					

PO	POWER DENSITY 802.11ac VHT80 MODE_Ch0								
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)				
5210	-5.95	0.18	-5.77	11	-16.77				
5290	-5.80	0.18	-5.62	11	-16.62				
5530	-5.57	0.18	-5.39	11	-16.39				
5610	-5.35	0.18	-5.17	11	-16.17				
5690 (U-NII 2C)	-5.34	0.18	-5.16	11	-16.16				
5690 (U-NII 3)	-12.29	0.18	-12.11	30	-42.11				

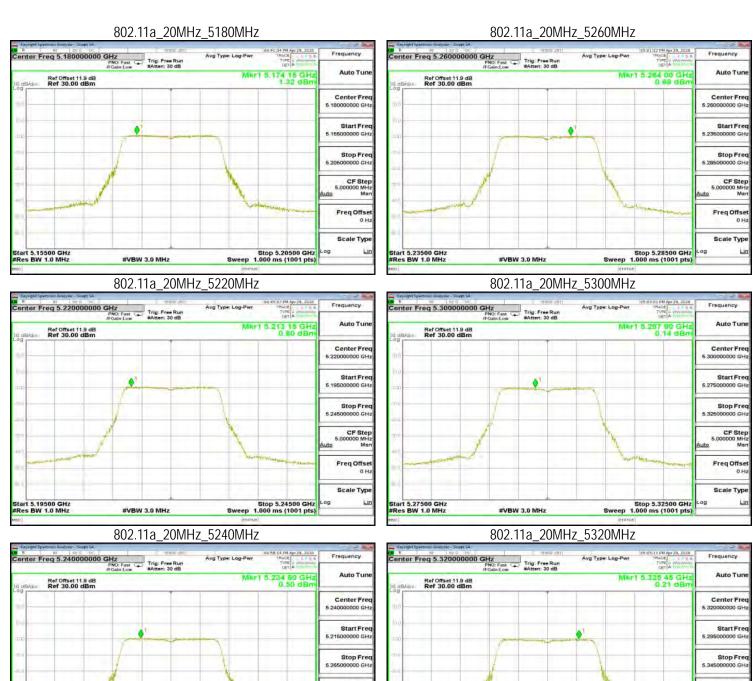
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Stop 5.26500 GHz Sweep 1.000 ms (1001 pts)

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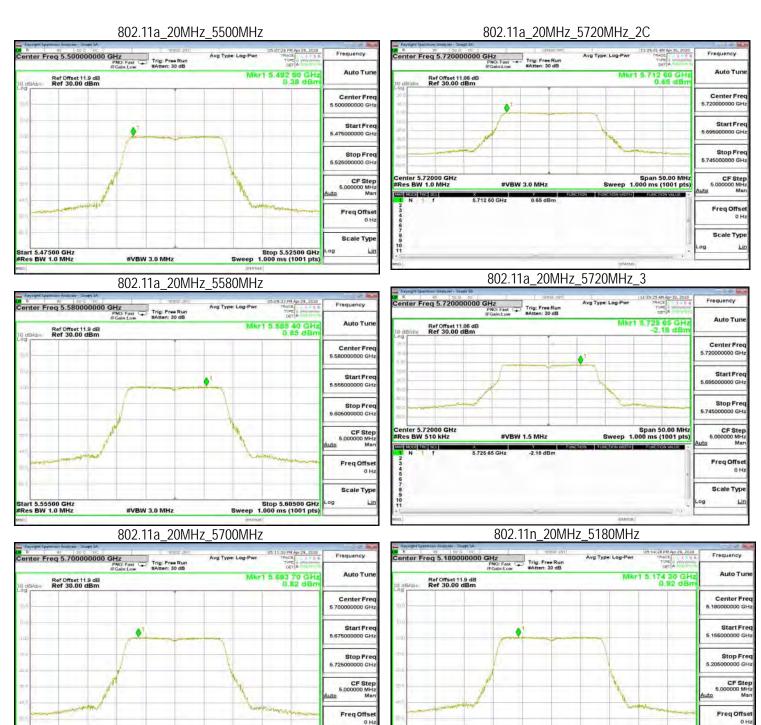
#VBW 3.0 MHz

#VBW 3.0 MHz

Stop 5.34500 GHz Sweep 1.000 ms (1001 pts)



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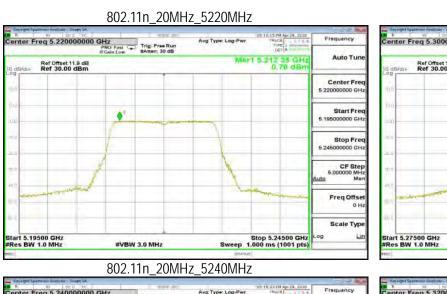
**#VBW 3.0 MHz** 

#VBW 3.0 MHz

Stop 5.20500 GHz Sweep 1.000 ms (1001 pts)

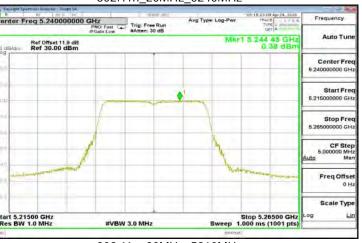


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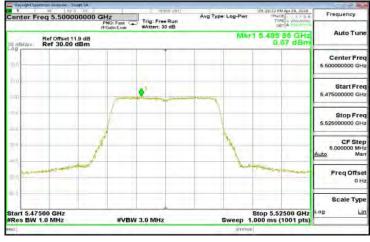
802.11n\_20MHz\_5320MHz



802.11n 20MHz 5260MHz



802.11n\_20MHz\_5500MHz



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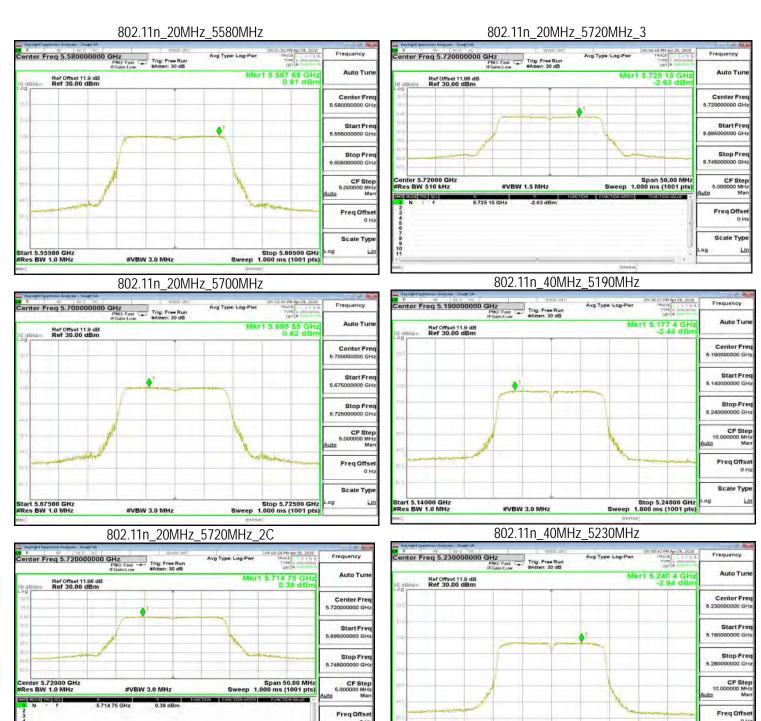
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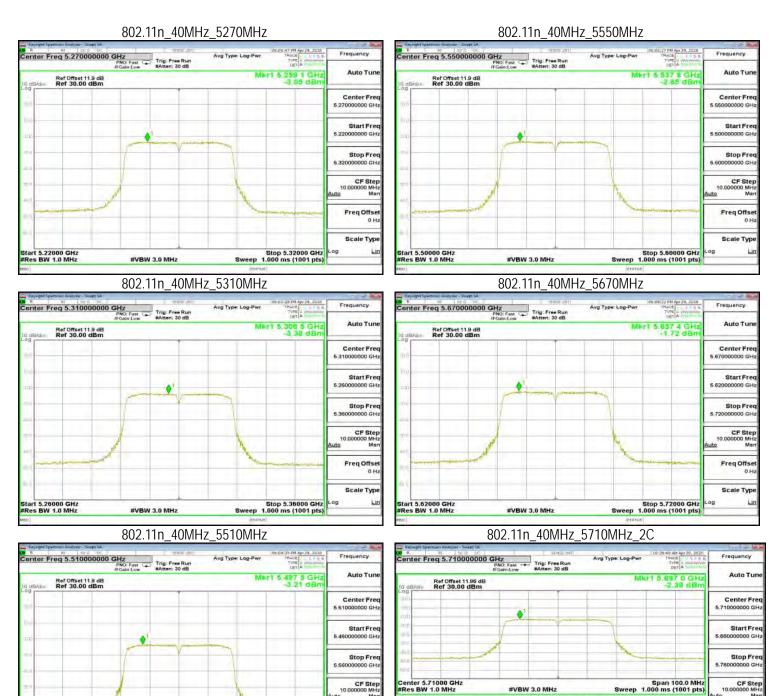
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#VBW 3.0 MHz

Stop 5.28000 GHz Sweep 1.000 ms (1001 pts)



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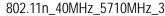
#VBW 3.0 MHz

Freq Offse

Scale Type

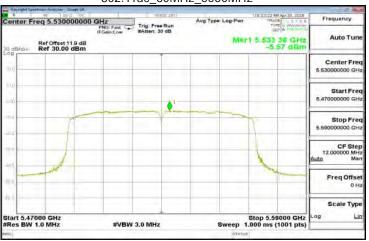


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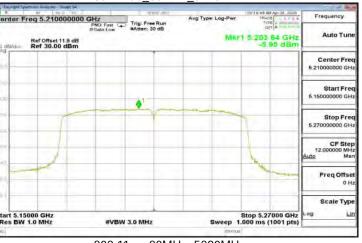




802.11ac 80MHz 5530MHz



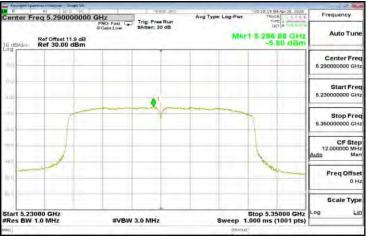
802.11ac 80MHz 5210MHz



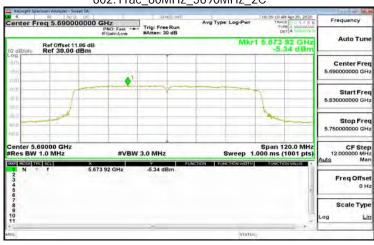
802.11ac\_80MHz\_5610MHz



802.11ac 80MHz 5290MHz



802.11ac 80MHz 5690MHz 2C



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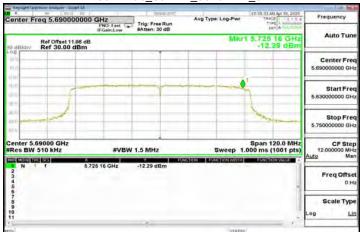
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## 802.11ac 80MHz 5690MHz 3



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## 11 UNDESIRABLE RADIATED EMISSION MEASUREMENT

# 11.1 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: 68.3 (dBµV/m)
15.407(b)(3) RSS-247 §6.2.3.2		
RSS-247 g0.2.3.2	PK:-27 (dBm/MHz) *1	PK: 68.2(dBµV/m) *1
15.407(b)(4)(i)	PK:10 (dBm/MHz) *2	PK:105.2 (dBµV/m) *2
RSS-247 §6.2.4.2	PK:15.6 (dBm/MHz) *3	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:

aced crinosion minico opeome	ed enhesion mile specified as below 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:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level  $(dB\mu V/m) = 20 \log Emission level (\mu V/m)$

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## 11.2 Measurement Equipment Used

SGS SAC-III							
Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
Horn Antenna	Schwarzbeck	BBHA9170	184	Dec. 25th, 2019	Dec. 24th, 2020		
Horn Antenna	Schwarzbeck	BBHA9120D	D803	Dec. 20th, 2019	Dec. 19th, 2020		
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	Jan. 13th, 2020	Jan. 12th, 2021		
Loop Antenna	ETS.LINDGREN	6502	148045	Oct. 15th, 2019	Oct. 14th, 2020		
Spectrum Analyzer	Agilent	E4446A	MY51100003	Oct. 23th, 2019	Oct. 22nd, 2020		
EMI Test Receiver	R&S	ESCI 7	1166.5950.07	Jul. 4th, 2019	Jul. 3rd, 2020		
Pre-Amplifier	EMC Instruments	EMC184045B	980135	Jan. 2nd, 2020	Jan. 1st, 2021		
Pre-Amplifier	EMC Instruments	EMC051825	980152	Jan. 2nd, 2020	Jan. 1st, 2021		
Pre-Amplifier	HP	8447D	2944A09469	Jan. 2nd, 2020	Jan. 1st, 2021		
Attenuator	Mini-Circuit	BW-S10W2+	4	Jan. 2nd, 2020	Jan. 1st, 2021		
Filter 5150-5350 MHz	Micro-Tronics	BRM50703	1	Jan. 2nd, 2020	Jan. 1st, 2021		
Filter 5470-5725 MHz	Micro-Tronics	BRM50704	1	Jan. 2nd, 2020	Jan. 1st, 2021		
Filter 5725-5875 MHz	Micro-Tronics	BRM50705	1	Jan. 2nd, 2020	Jan. 1st, 2021		
High Pass Filter	WI	WHKX7.0/18G-8SS	45	Jan. 2nd, 2020	Jan. 1st, 2021		
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	Jan. 2nd, 2020	Jan. 1st, 2021		
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	Jan. 2nd, 2020	Jan. 1st, 2021		
Coaxial Cable	Huber Suhner	EMC 104-SM-SM-2000	160123	Jan. 2nd, 2020	Jan. 1st, 2021		

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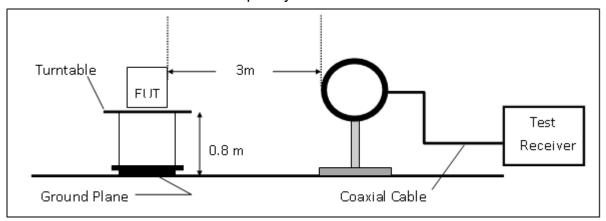
f (886-2) 2298-0488



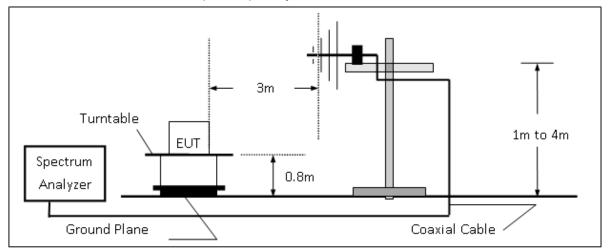
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## 11.3 Test SET-UP

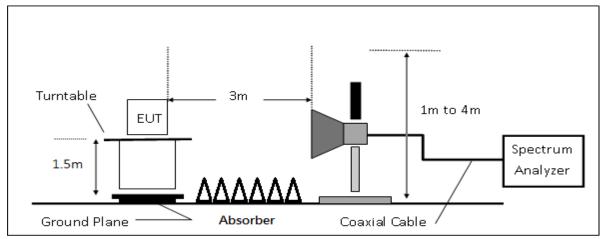
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



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



# (C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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#### **Measurement Procedure** 11.4

- The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 4. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 5. 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=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
- At frequency above 1 GHz, Set the spectrum analyzer:
  - A. RBW=1 MHz, VBW=3 MHz for Peak Detector.
  - **B.** Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for **Average** Detector.
- Maximum procedure was performed on the six highest emissions to ensure EUT compliance. 8.
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- **10.** Repeat above procedures until all frequency measured were complete.

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## 11.5 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 $(dB\mu V) + Factor(dB)$ 

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

# 11.6 Test Results of Radiated Spurious Emissions form 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.

Pre-scanned was done at frequency 5.47 GHz and 5.85 GHz for bandedge measurement of straddle channels 138, 142 and 144 which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

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# **Radiated Spurious Emission Measurement Result**

## 11.7.1 Below 1GHz Worst-Case Data:

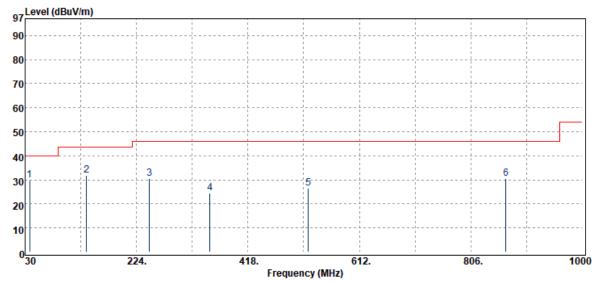
Report Number Test Date :2020-04-27 :ER/2020/40011

Temp./Humi. :22.4/70 Operation Mode :802.11a B1

Test Frequency Antenna Pol. :VERTICAL :5220 MHz

Test Mode :Tx CH Mid Engineer :Neo





Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
37.76	Peak	38.65	-8.79	29.86	40.00	-10.14
136.70	Peak	43.53	-11.48	32.05	43.50	-11.45
246.31	Peak	40.29	-9.64	30.65	46.00	-15.35
352.04	Peak	31.90	-7.28	24.62	46.00	-21.38
522.76	Peak	31.26	-4.75	26.51	46.00	-19.49
867.11	Peak	30.41	0.23	30.64	46.00	-15.36

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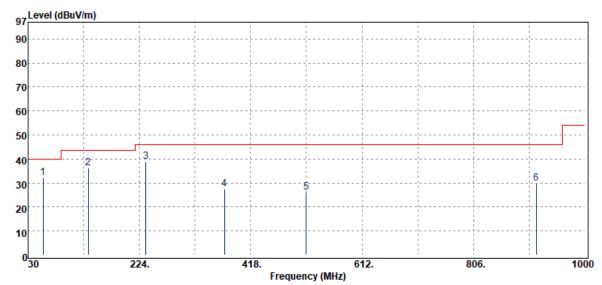
Report Number :ER/2020/40011 Test Date :2020-04-27

Operation Mode :802.11a B1 Temp./Humi. :22.4/70

Test Frequency :5220 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
56.19	Peak	48.88	-16.52	32.36	40.00	-7.64
134.76	Peak	47.64	-11.36	36.28	43.50	-7.22
235.64	Peak	49.54	-10.52	39.02	46.00	-6.98
372.41	Peak	34.35	-6.91	27.44	46.00	-18.56
515.00	Peak	30.84	-4.67	26.17	46.00	-19.83
915.61	Peak	29.27	0.74	30.01	46.00	-15.99

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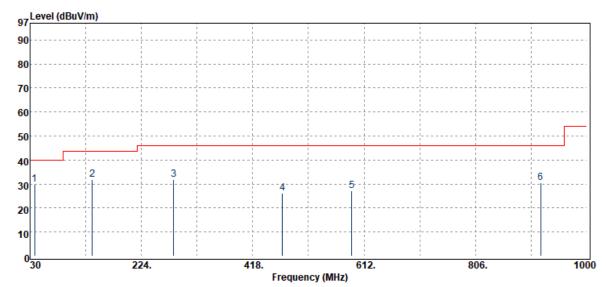
Report Number :ER/2020/40011 Test Date :2020-04-27

Operation Mode :802.11a B2 Temp./Humi. :22.4/70

Test Frequency :5300 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
IVII IZ	I IVQI /AV	αυμν	ub	αυμν/π	αυμν/π	<u>ub</u>
37.76	Peak	38.82	-8.79	30.03	40.00	-9.97
138.64	Peak	43.60	-11.58	32.02	43.50	-11.48
280.26	Peak	40.83	-8.81	32.02	46.00	-13.98
469.41	Peak	31.54	-5.52	26.02	46.00	-19.98
590.66	Peak	30.93	-3.60	27.33	46.00	-18.67
919.49	Peak	29.78	0.70	30.48	46.00	-15.52
280.26 469.41 590.66	Peak Peak Peak	40.83 31.54 30.93	-8.81 -5.52 -3.60	32.02 26.02 27.33	46.00 46.00 46.00	-13.98 -19.98 -18.67

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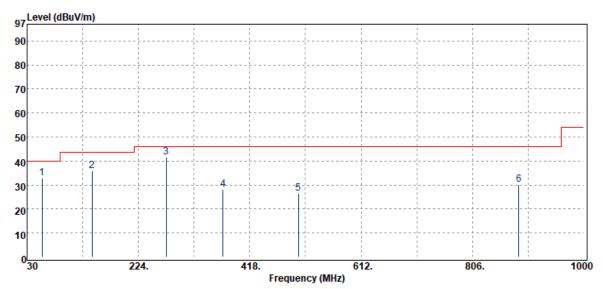
Report Number **Test Date** :2020-04-27 :ER/2020/40011

**Operation Mode** :802.11a B2 Temp./Humi. :22.4/70

:HORIZONTAL **Test Frequency** :5300 MHz Antenna Pol.

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
56.19	Peak	49.41	-16.52	32.89	40.00	-7.11
143.49	Peak	47.70	-11.85	35.85	43.50	-7.65
272.50	Peak	50.56	-8.82	41.74	46.00	-4.26
371.44	Peak	34.97	-6.90	28.07	46.00	-17.93
502.39	Peak	31.49	-5.00	26.49	46.00	-19.51
886.51	Peak	29.43	0.87	30.30	46.00	-15.70

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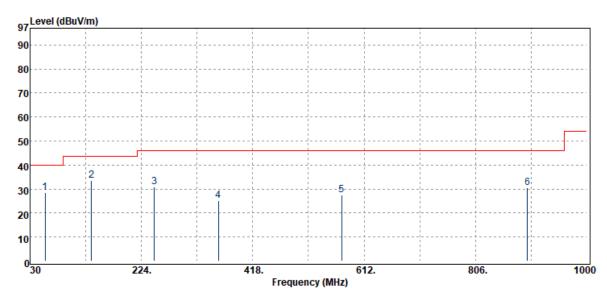
Report Number :ER/2020/40011 Test Date :2020-04-27

Operation Mode :802.11a B3 Temp./Humi. :22.4/70

Test Frequency :5580 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
56.19	Peak	45.16	-16.52	28.64	40.00	-11.36
136.70	Peak	44.95	-11.48	33.47	43.50	-10.03
246.31	Peak	40.60	-9.64	30.96	46.00	-15.04
357.86	Peak	32.04	-6.92	25.12	46.00	-20.88
573.20	Peak	32.01	-4.51	27.50	46.00	-18.50
896.21	Peak	29.49	1.18	30.67	46.00	-15.33

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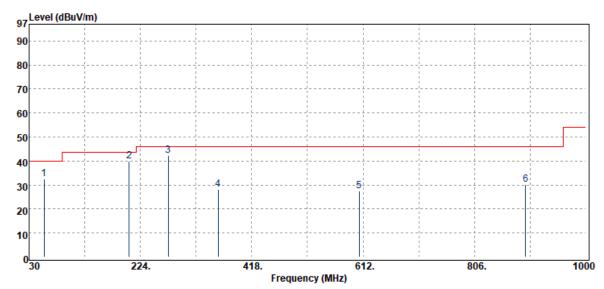
Report Number :ER/2020/40011 Test Date :2020-04-27

Operation Mode :802.11a B3 Temp./Humi. :22.4/70

Test Frequency :5580 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
56.19	Peak	49.02	-16.52	32.50	40.00	-7.50
204.60	Peak	51.98	-12.07	39.91	43.50	-3.59
272.50	Peak	51.25	-8.82	42.43	46.00	-3.57
359.80	Peak	35.03	-6.82	28.21	46.00	-17.79
605.21	Peak	30.77	-3.30	27.47	46.00	-18.53
895.24	Peak	28.96	1.19	30.15	46.00	-15.85

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# 11.7.2 Above 1GHz Worst-Case Data:

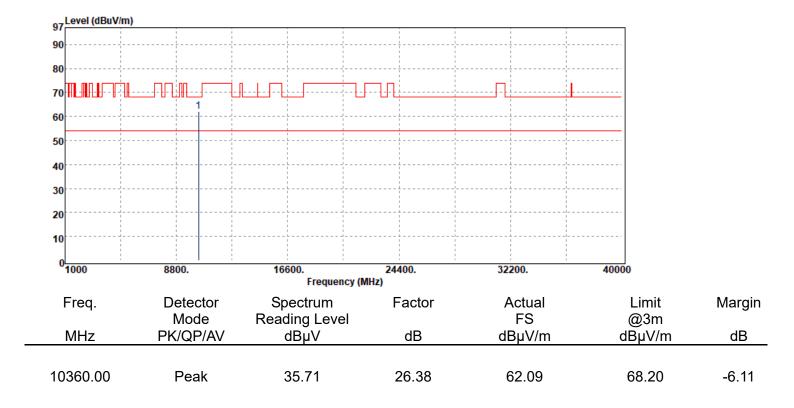
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB1 Temp./Humi. :21.1/67

Test Frequency :5180 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Low Engineer :Neo

EUT Pol :E1 Plane



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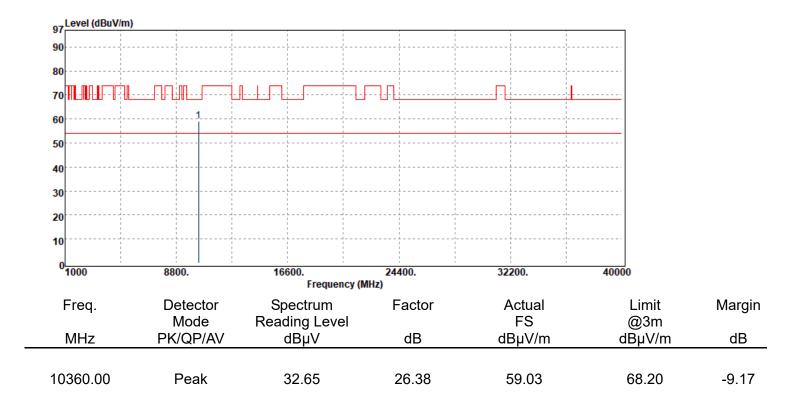
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB1 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :HORIZONTAL :5180 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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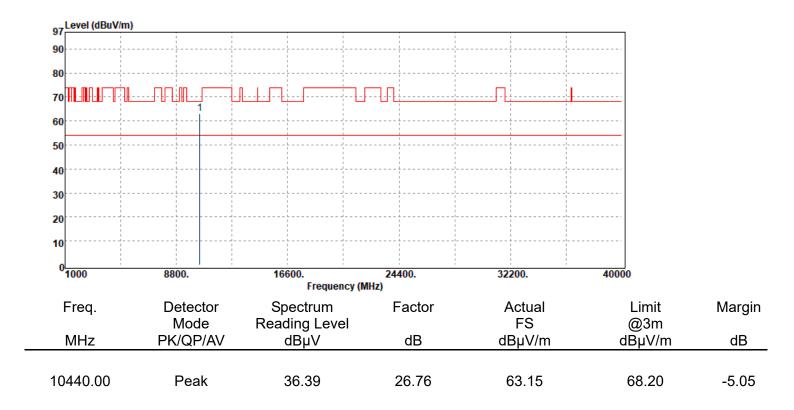
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** Temp./Humi. :21.1/67 :802.11aB1

**Test Frequency** Antenna Pol. :VERTICAL :5220 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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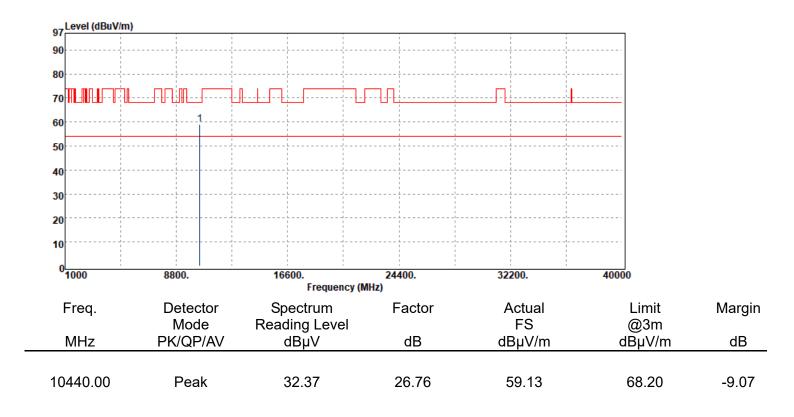
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB1 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :HORIZONTAL :5220 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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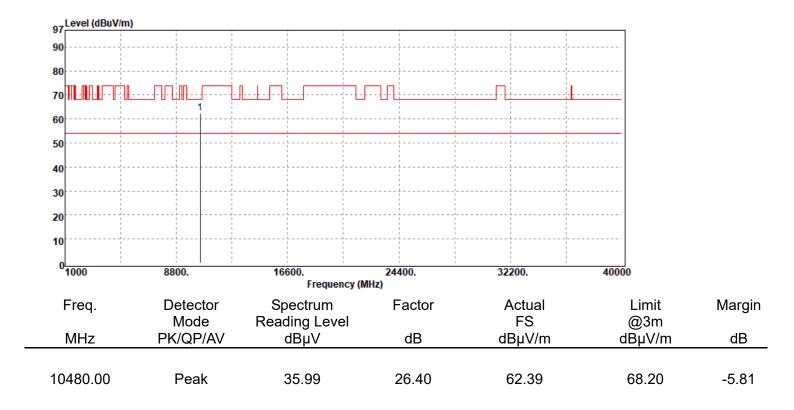
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB1 Temp./Humi. :21.1/67

Test Frequency :5240 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

EUT Pol :E1 Plane



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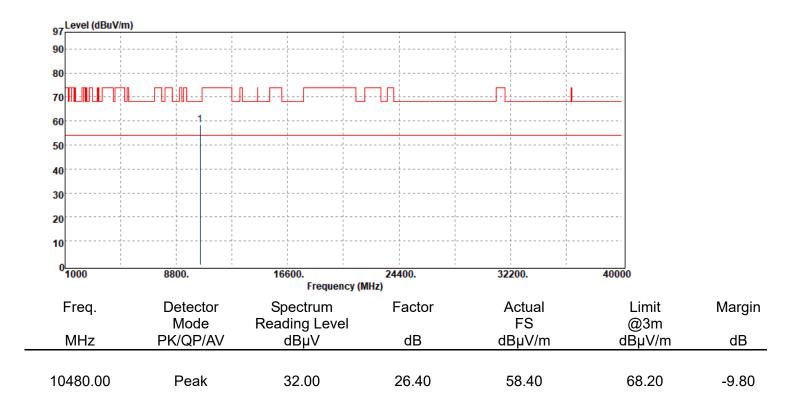
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB1 Temp./Humi. :21.1/67

**Test Frequency** :5240 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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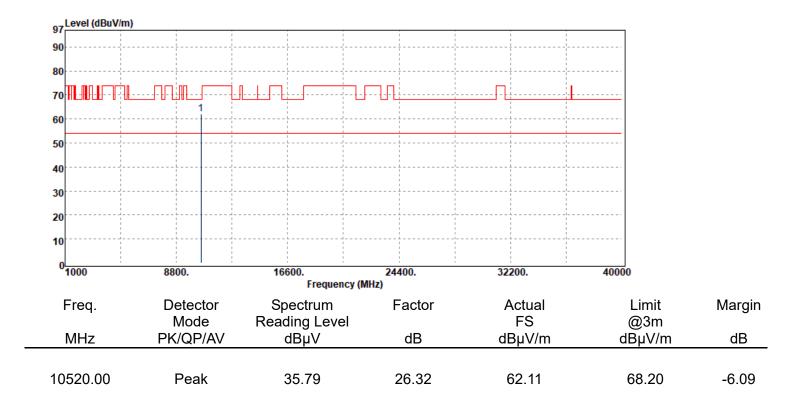
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB2 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :VERTICAL :5260 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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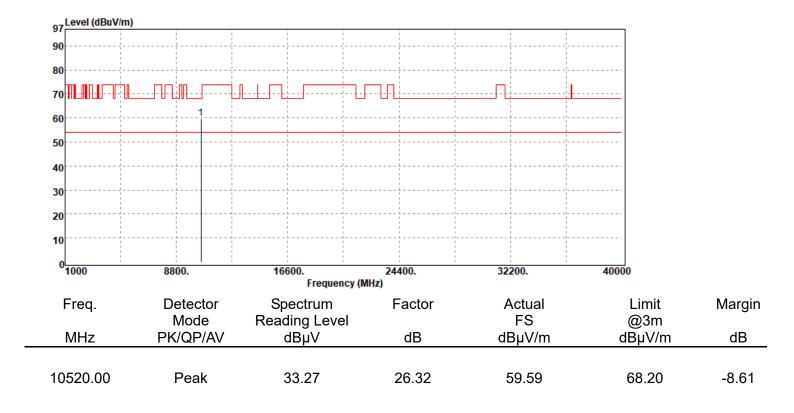
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB2 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :HORIZONTAL :5260 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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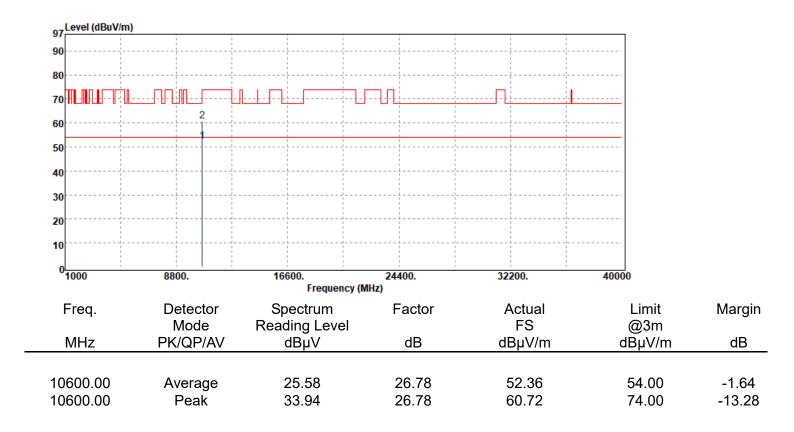
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB2 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :VERTICAL :5300 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB2 Temp./Humi. :21.1/67

Test Frequency :5300 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-05-08

Operation Mode :802.11aB2 Temp./Humi. :21.1/67

Test Frequency :5320 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

EUT Pol :E1 Plane



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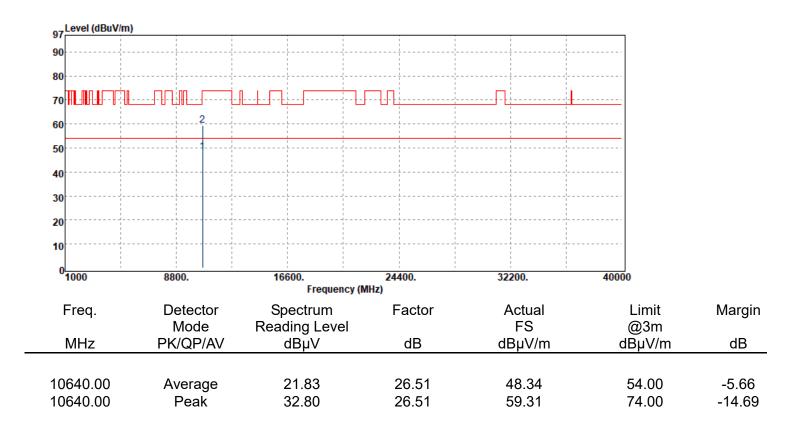
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB2 Temp./Humi. :21.1/67

**Test Frequency** :5320 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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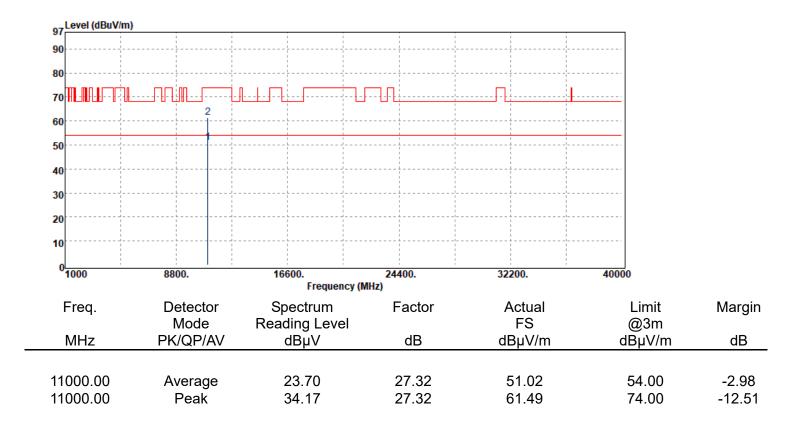
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11aB3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5500 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11aB3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5500 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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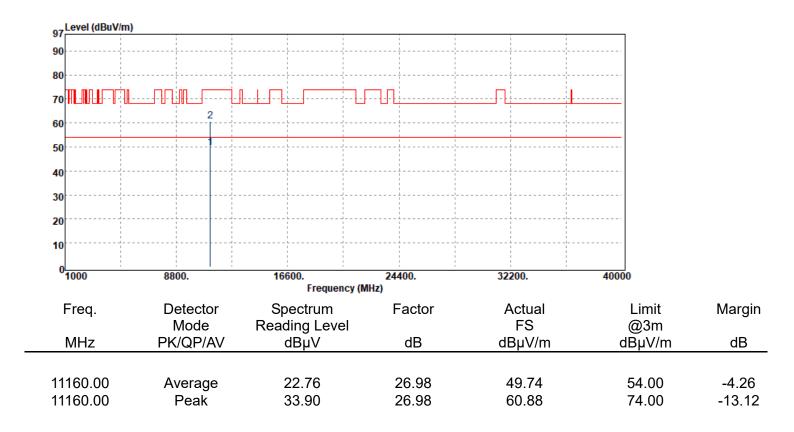
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11aB3 Temp./Humi. :21.1/65

Test Frequency :5580 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11aB3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5580 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11aB3 Temp./Humi. :21.1/65

Test Frequency :5700 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

EUT Pol :E1 Plane



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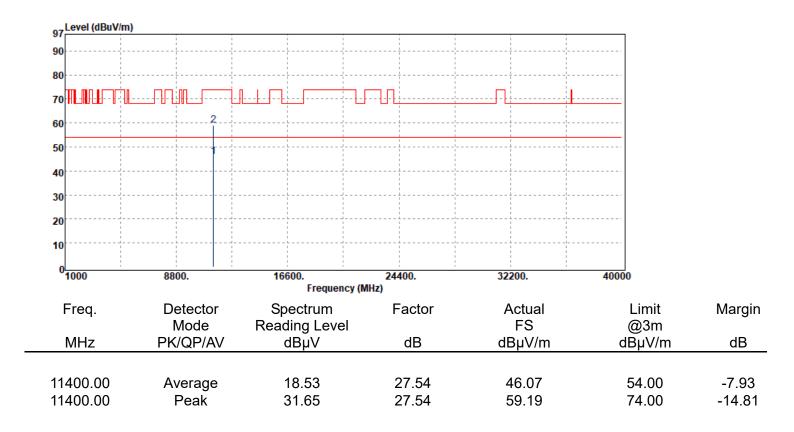
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11aB3 Temp./Humi. :21.1/65

**Test Frequency** :5700 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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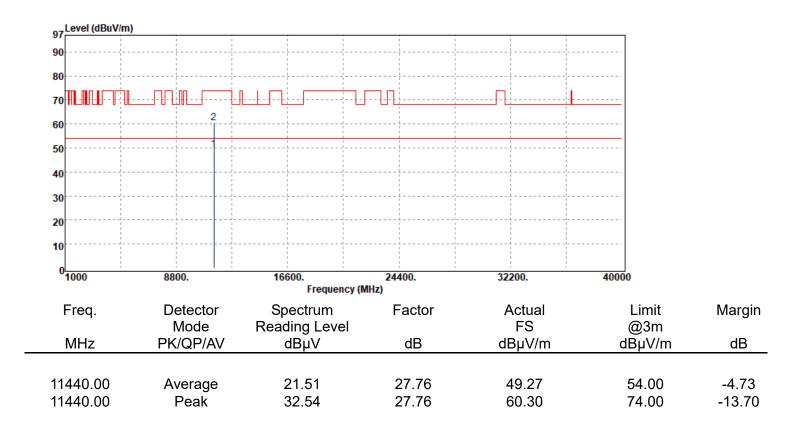
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11aB3-B4 Temp./Humi. :21.1/65

Test Frequency :5720 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11aB3-B4 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5720 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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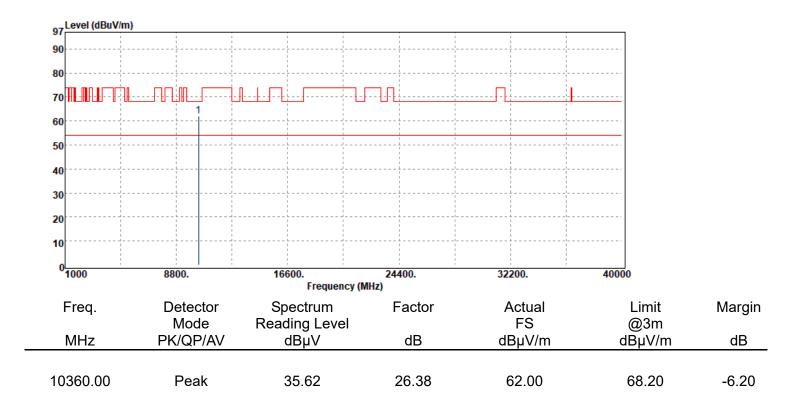
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5180 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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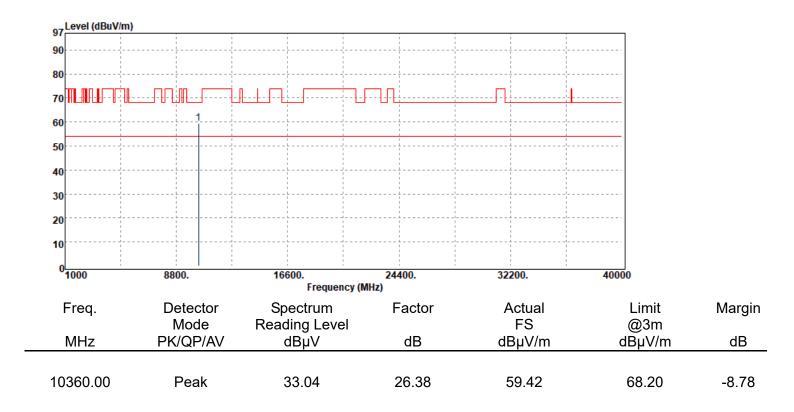
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5180 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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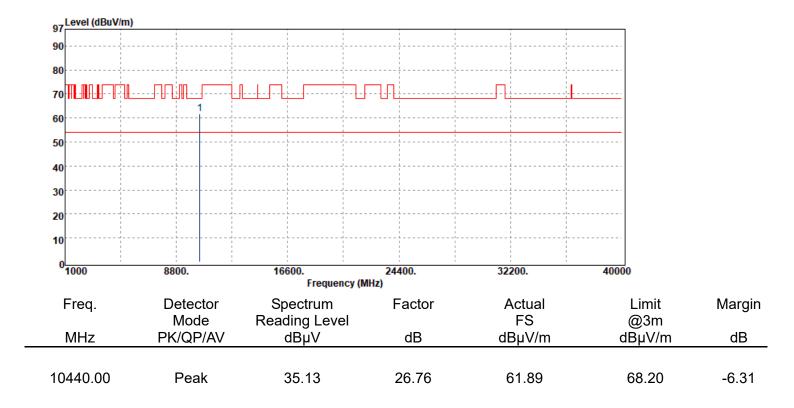
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11n20B1 Temp./Humi. :21.1/65

Test Frequency :5220 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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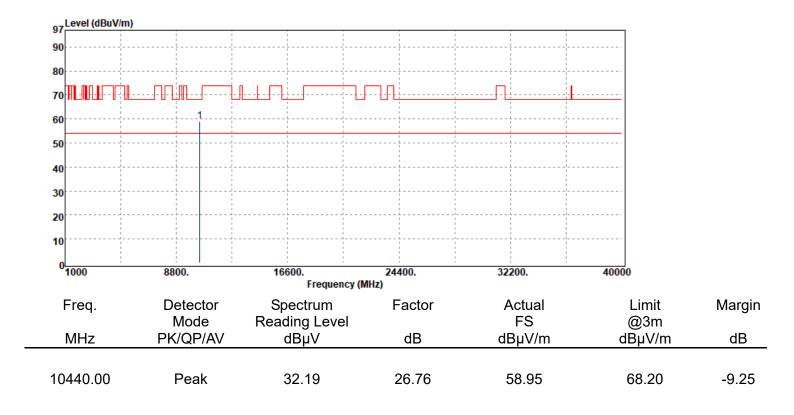
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5220 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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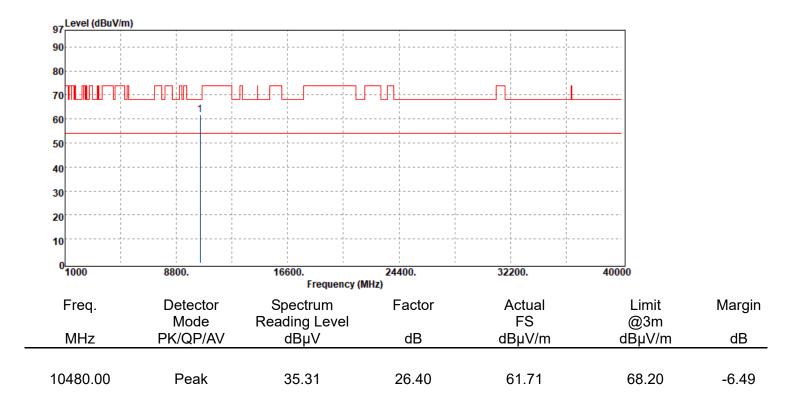
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5240 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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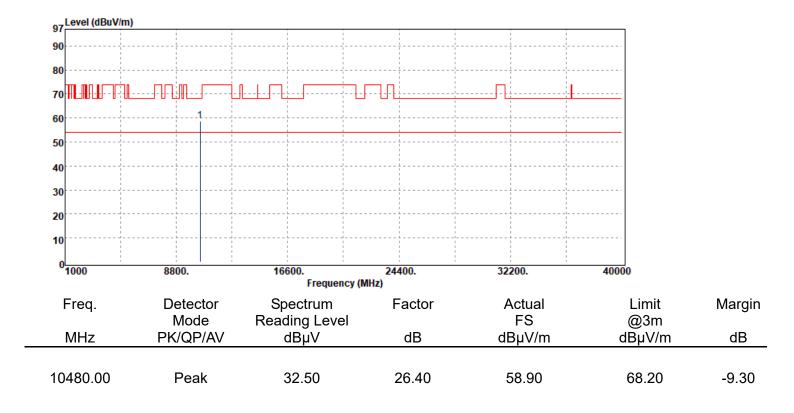
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5240 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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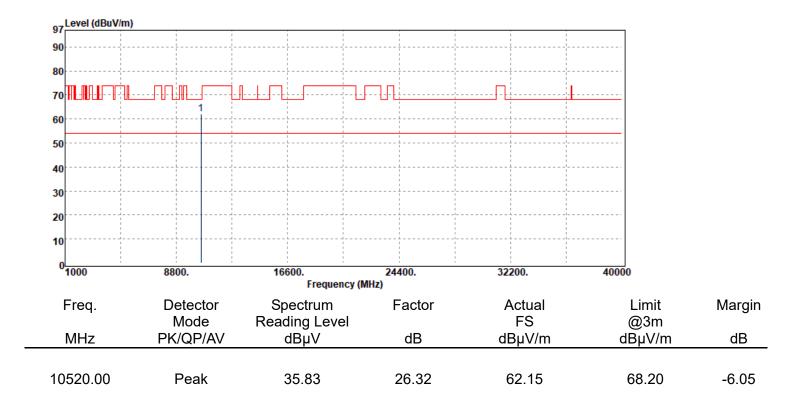
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5260 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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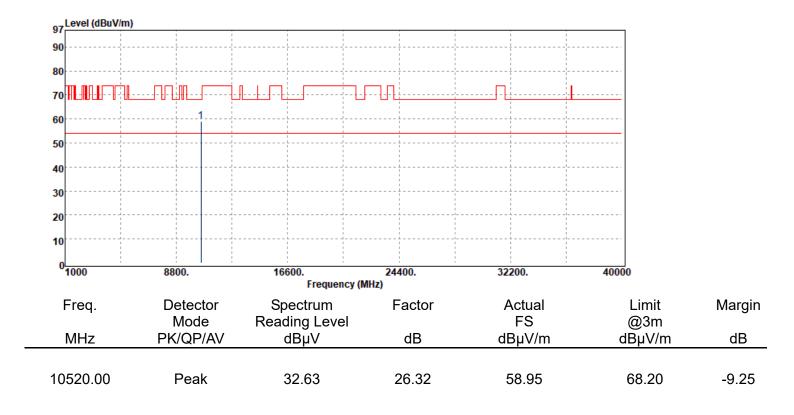
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**Operation Mode** :802.11n20B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5260 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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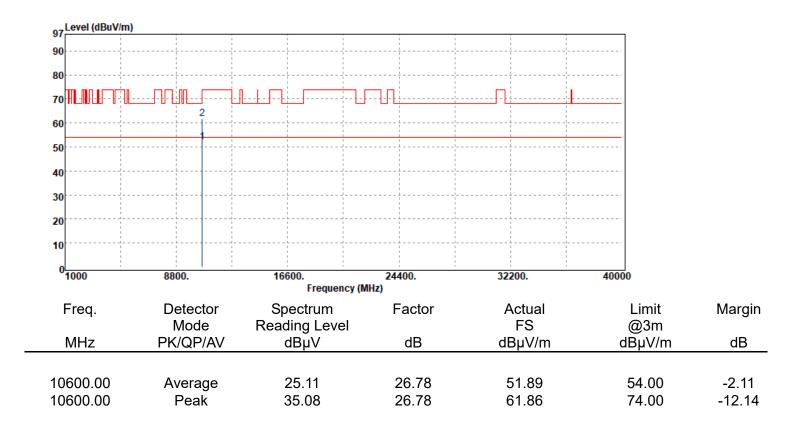
Report Number :ER/2020/40011 Test Date :2020-05-08

Operation Mode :802.11n20B2 Temp./Humi. :21.1/65

Test Frequency :5300 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5300 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-05-08 :ER/2020/40011

**Operation Mode** :802.11n20B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5320 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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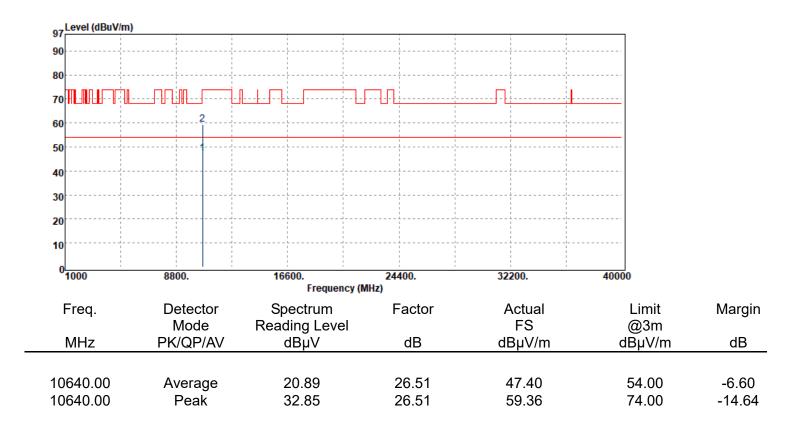
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5320 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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f (886-2) 2298-0488



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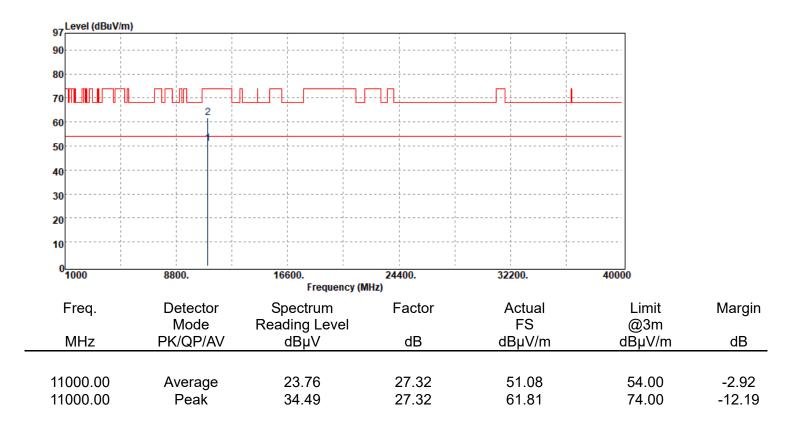
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11n20B3 Temp./Humi. :21.1/65

Test Frequency :5500 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Low Engineer :Neo

EUT Pol :E1 Plane



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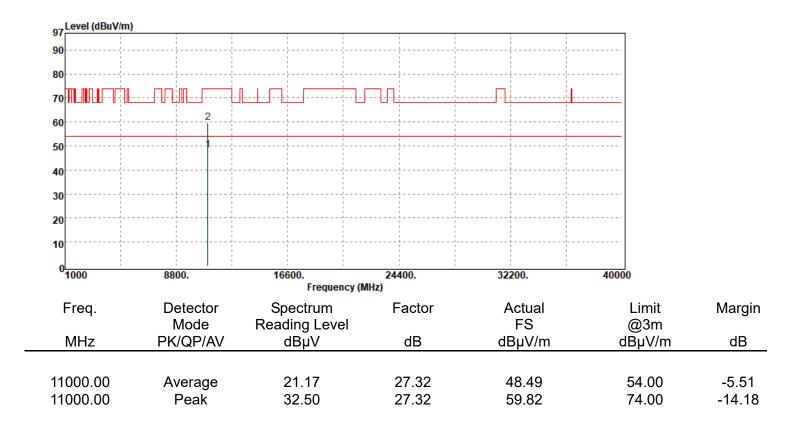
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5500 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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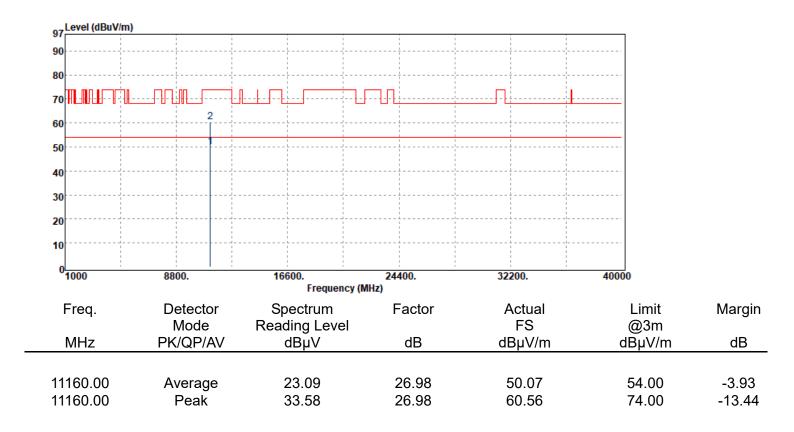
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11n20B3 Temp./Humi. :21.1/65

Test Frequency :5580 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5580 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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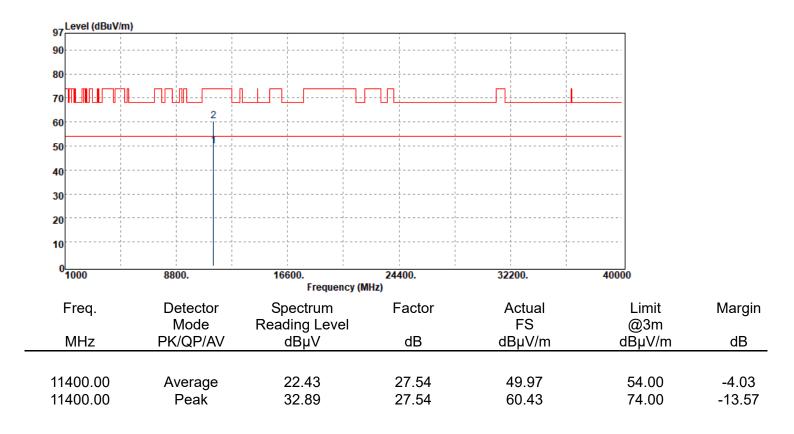
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B3 Temp./Humi. :21.1/65

**Test Frequency** :5700 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B3 Temp./Humi. :21.1/65

**Test Frequency** :5700 MHz Antenna Pol. :HORIZONTAL

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11n20B3-B4 Temp./Humi. :21.1/65

Test Frequency :5720 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n20B3-B4 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5720 MHz

Test Mode :Tx CH Mid Engineer :Neo





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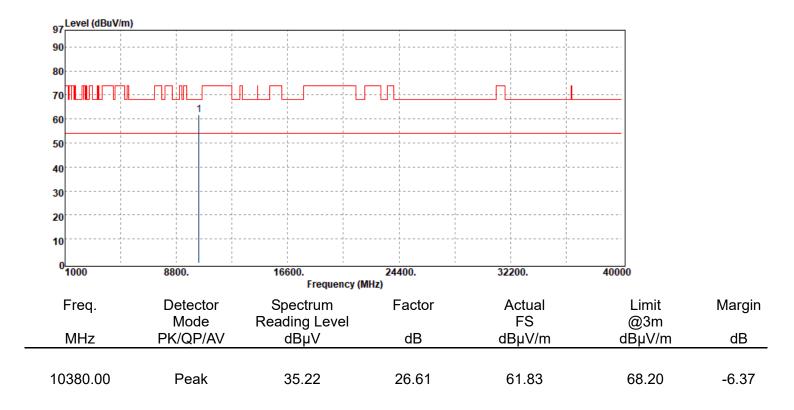
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11n40B1 Temp./Humi. :21.1/65

Test Frequency :5190 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Low Engineer :Neo

EUT Pol :E1 Plane



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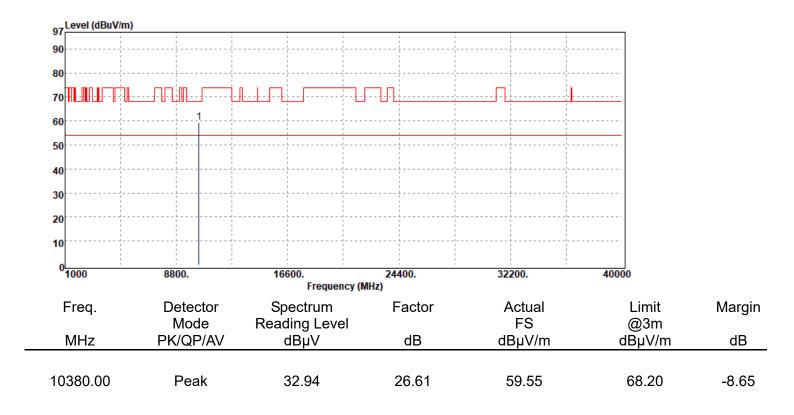
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5190 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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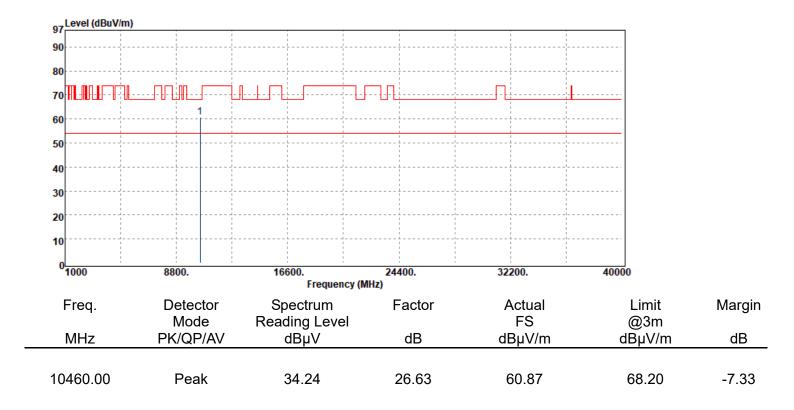
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5230 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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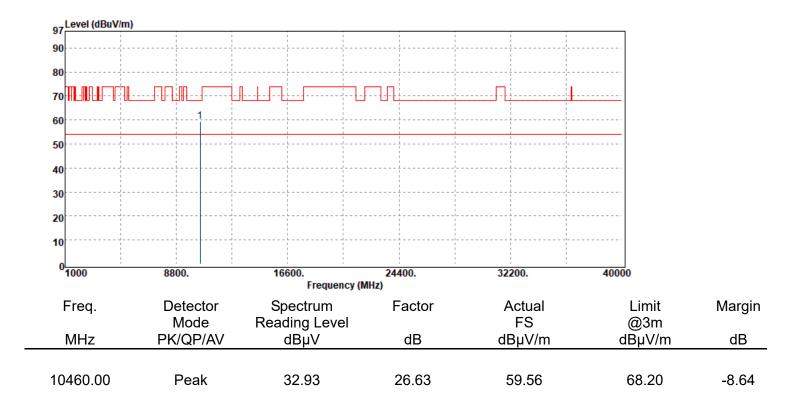
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5230 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5270 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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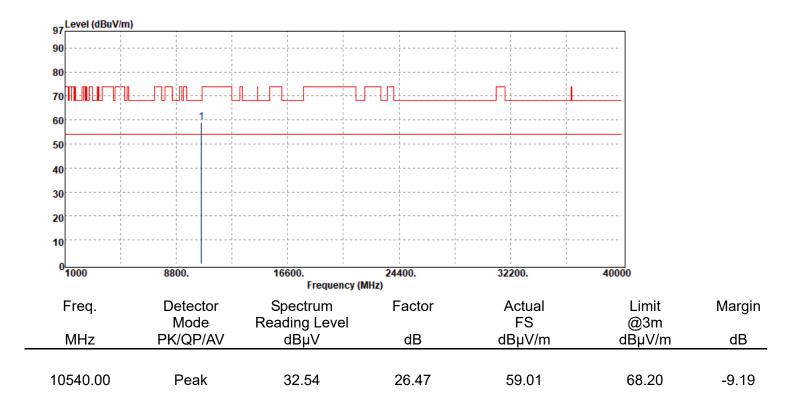
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5270 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-05-08

Operation Mode :802.11n40B2 Temp./Humi. :21.1/65

Test Frequency :5310 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

EUT Pol :E1 Plane



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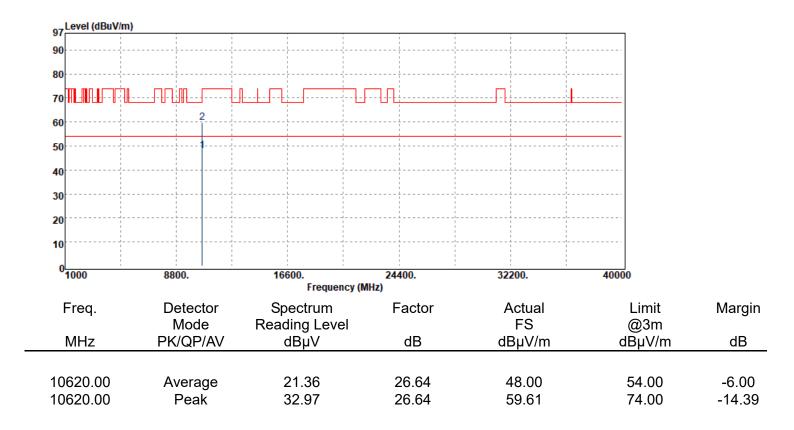
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5310 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11n40B3 Temp./Humi. :21.1/65

Test Frequency :5510 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Low Engineer :Neo

EUT Pol :E1 Plane



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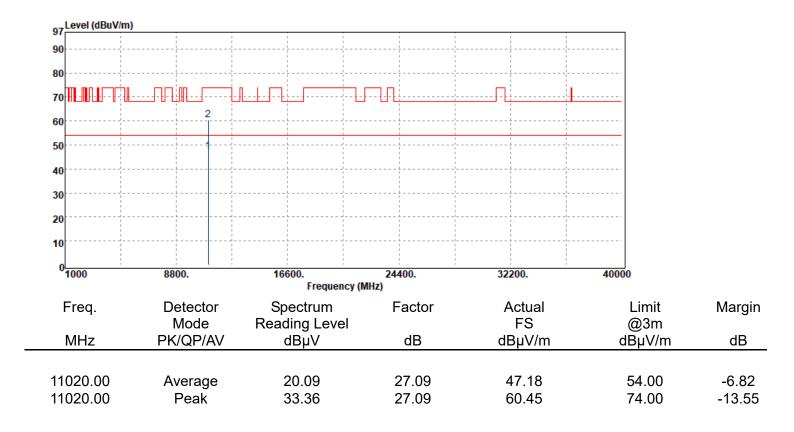
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5510 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5550 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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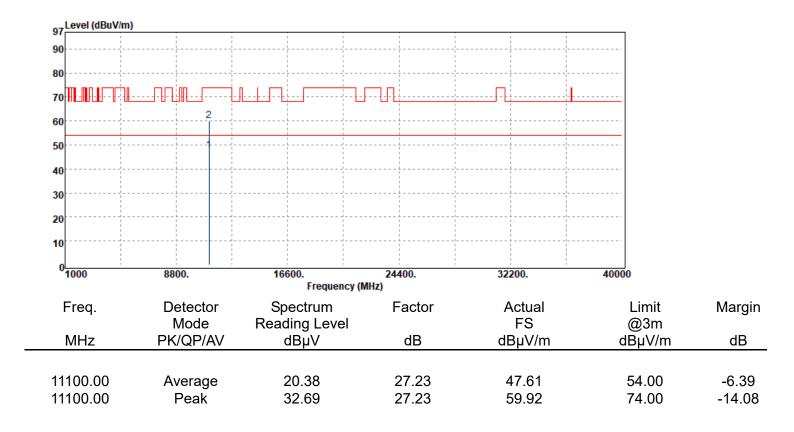
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5550 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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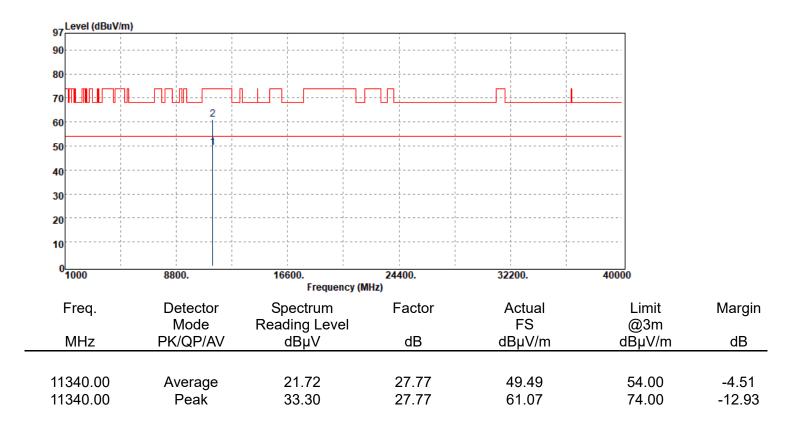
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5670 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5670 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3-B4 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5710 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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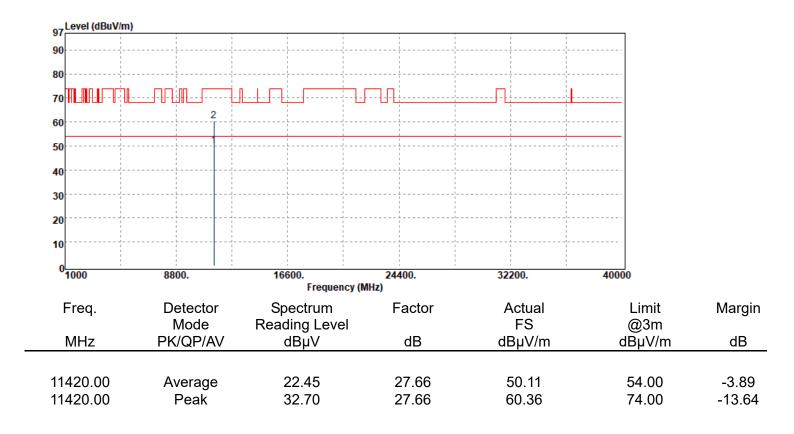
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11n40B3-B4 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5710 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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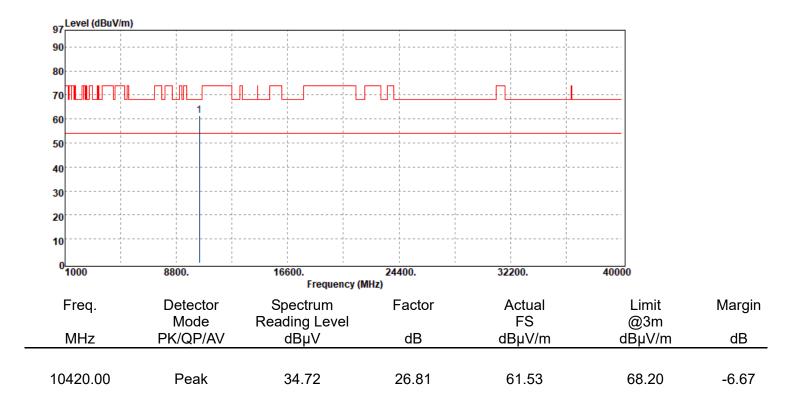
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11ac80B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :VERTICAL :5210 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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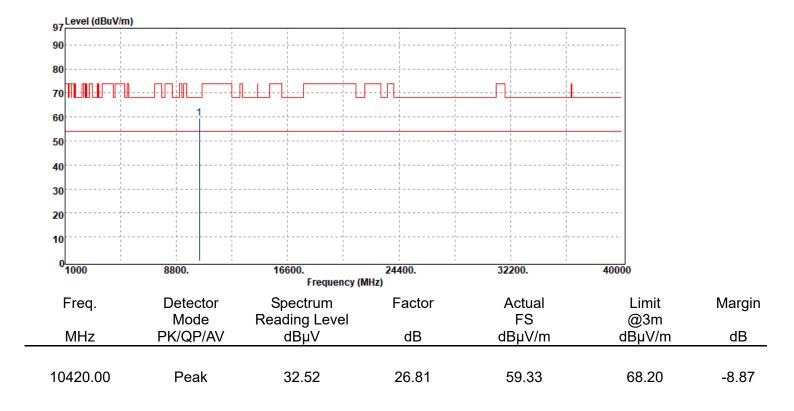
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11ac80B1 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5210 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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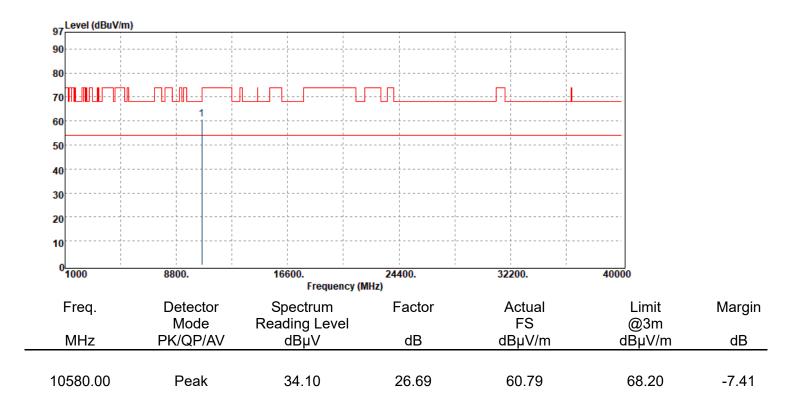
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11ac80B2 Temp./Humi. :21.1/65

Test Frequency :5290 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

EUT Pol :E1 Plane



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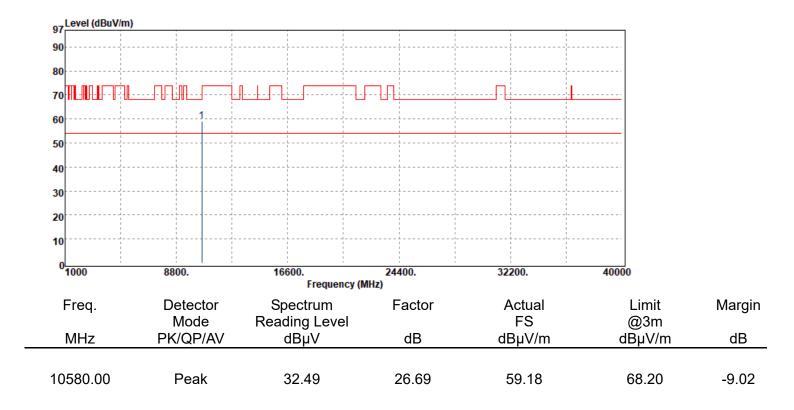
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11ac80B2 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5290 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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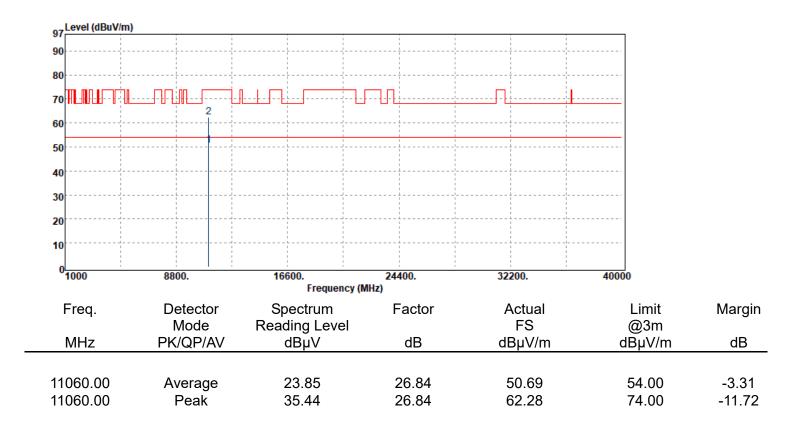
Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11ac80B3 Temp./Humi. :21.1/65

Test Frequency :5530 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Low Engineer :Neo

EUT Pol :E1 Plane



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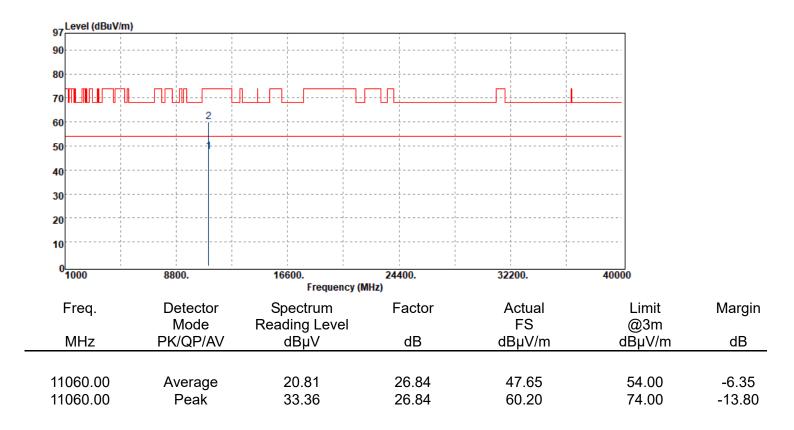
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11ac80B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5530 MHz

Test Mode :Tx CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11ac80B3 Temp./Humi. :21.1/65

Test Frequency :5610 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH Mid Engineer :Neo

EUT Pol :E1 Plane



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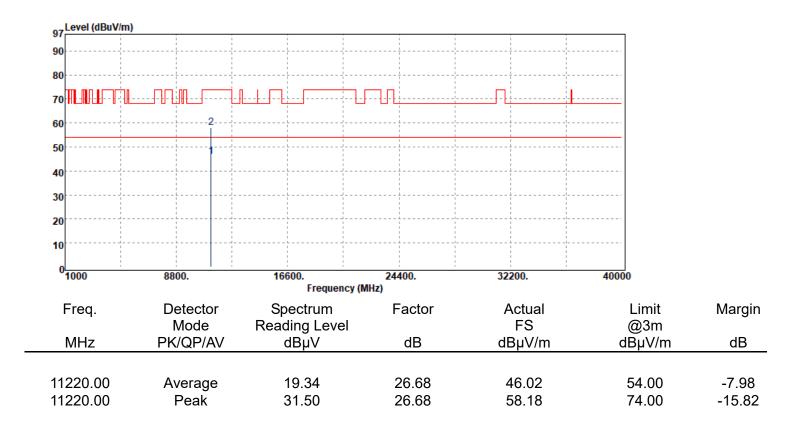
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11ac80B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5610 MHz

Test Mode :Tx CH Mid Engineer :Neo

**EUT Pol** :E1 Plane



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Report Number :ER/2020/40011 Test Date :2020-04-25

Operation Mode :802.11ac80B3 Temp./Humi. :21.1/65

Test Frequency :5690 MHz Antenna Pol. :VERTICAL

Test Mode :Tx CH High Engineer :Neo

EUT Pol :E1 Plane



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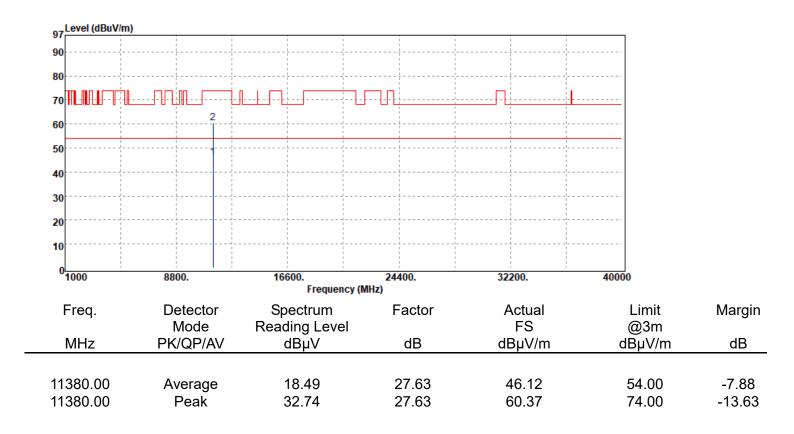
Report Number **Test Date** :2020-04-25 :ER/2020/40011

**Operation Mode** :802.11ac80B3 Temp./Humi. :21.1/65

**Test Frequency** Antenna Pol. :HORIZONTAL :5690 MHz

Test Mode :Tx CH High Engineer :Neo

**EUT Pol** :E1 Plane



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## 11.7.3 Band edge falling to restricted band

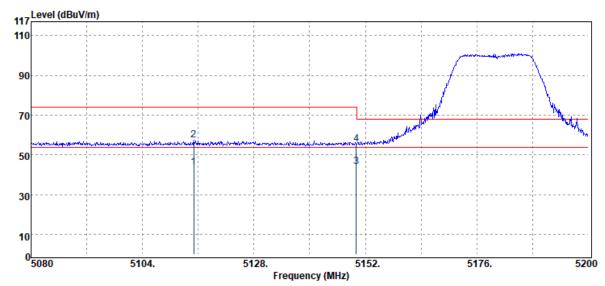
Report Number **Test Date** :ER/2020/40011 :2020-04-24

**Operation Mode** :802.11aB1 Temp./Humi. :21.1/67

:VERTICAL Test Frequency :5180 MHz Antenna Pol.

Test Mode :Bandedge CH Low Engineer :Neo

**EUT Pol** :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
5115.04	Average	29.01	14.88	43.89	54.00	-10.11
5115.04	Peak	42.43	14.88	57.31	74.00	-16.69
5150.00	Average	29.17	14.83	44.00	54.00	-10.00
5150.00	Peak	40.83	14.83	55.66	74.00	-18.34

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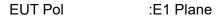
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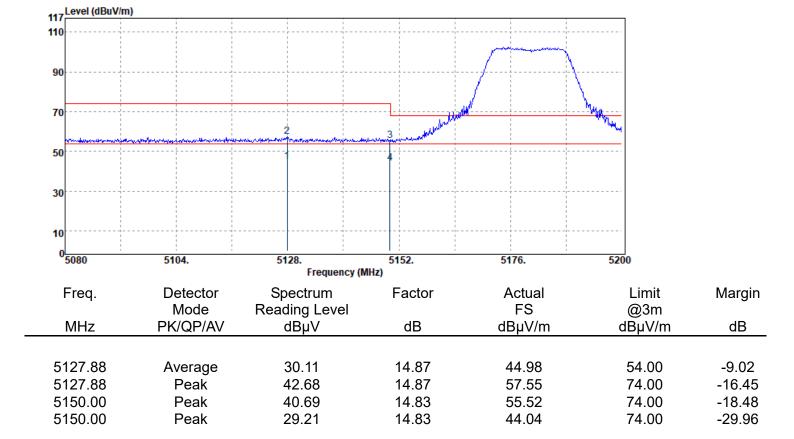
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB1 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :HORIZONTAL :5180 MHz

Test Mode :Bandedge CH Low Engineer :Neo





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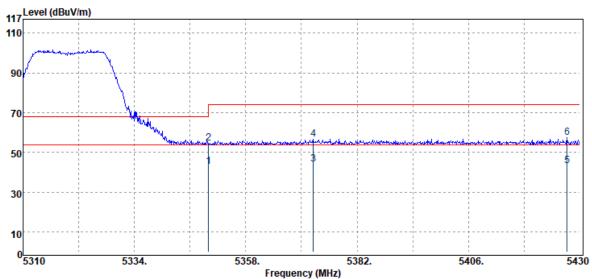
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB2 Temp./Humi. :21.1/67

Test Frequency :5320 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB	
5350.00	Average	28.86	14.20	43.06	54.00	-10.94	
5350.00	Peak	40.28	14.20	54.48	74.00	-19.52	
5372.52	Average	29.65	14.43	44.08	54.00	-9.92	
5372.52	Peak	42.31	14.43	56.74	74.00	-17.26	
5427.24	Average	28.81	14.60	43.41	54.00	-10.59	
5427.24	Peak	42.94	14.60	57.54	74.00	-16.46	

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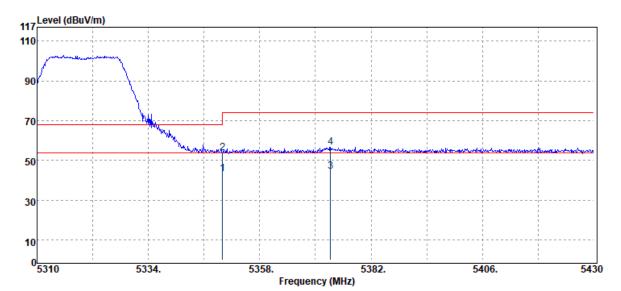
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB2 Temp./Humi. :21.1/67

Test Frequency :5320 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
						_
5350.00	Average	28.99	14.20	43.19	54.00	-10.81
5350.00	Peak	39.82	14.20	54.02	74.00	-19.98
5373.24	Average	30.27	14.43	44.70	54.00	-9.30
5373.24	Peak	42.12	14.43	56.55	74.00	-17.45

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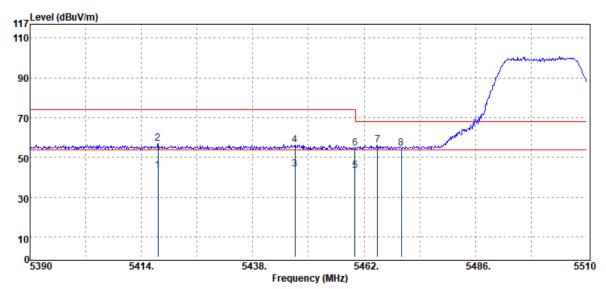
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB3 Temp./Humi. :21.1/67

Test Frequency :5500 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5417.60	Average	28.84	14.63	43.47	54.00	-10.53
5417.60	Peak	42.40	14.63	57.03	74.00	-16.97
5447.12	Average	29.73	14.53	44.26	54.00	-9.74
5447.12	Peak	41.89	14.53	56.42	74.00	-17.58
5460.00	Average	28.65	14.57	43.22	54.00	-10.78
5460.00	Peak	39.94	14.57	54.51	74.00	-19.49
5464.88	Peak	41.56	14.59	56.15	68.20	-12.05
5470.00	Peak	40.19	14.61	54.80	68.20	-13.40

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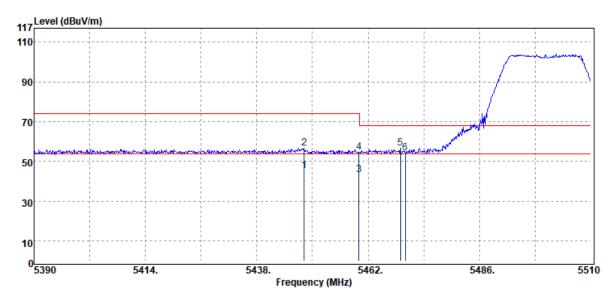
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11aB3 Temp./Humi. :21.1/67

Test Frequency :5500 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dΒμV/m	dB
5448.20	Average	30.74	14.53	45.27	54.00	-8.73
5448.20	Peak	42.18	14.53	56.71	74.00	-17.29
5460.00	Average	28.92	14.57	43.49	54.00	-10.51
5460.00	Peak	40.25	14.57	54.82	74.00	-19.18
5468.96	Peak	42.01	14.61	56.62	68.20	-11.58
5470.00	Peak	39.64	14.61	54.25	68.20	-13.95

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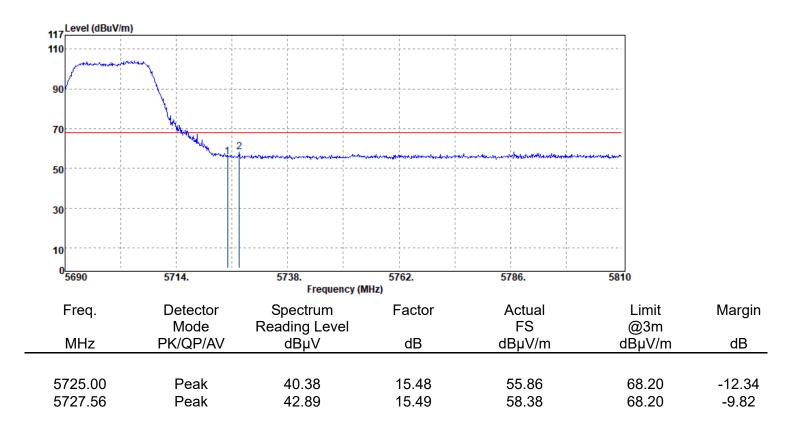
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB3 Temp./Humi. :21.1/67

**Test Frequency** :5700 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH High Engineer :Neo

**EUT Pol** :E1 Plane



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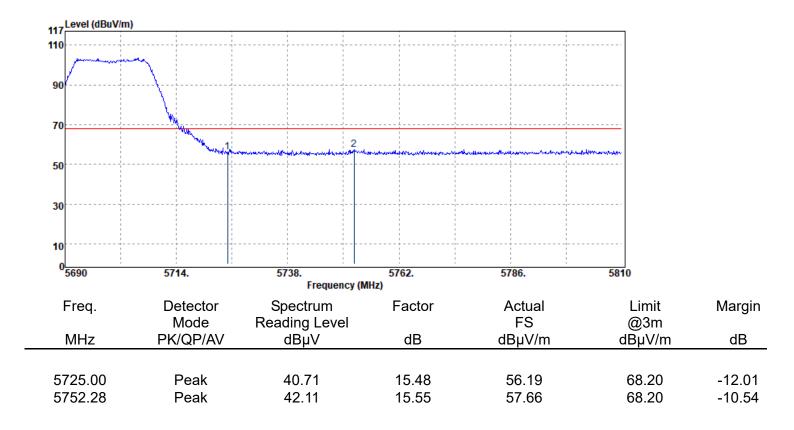
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11aB3 Temp./Humi. :21.1/67

**Test Frequency** :5700 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH High Engineer :Neo

**EUT Pol** :E1 Plane



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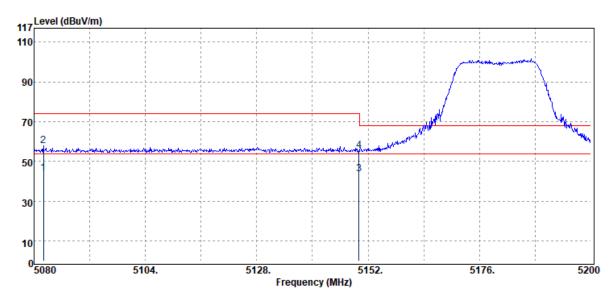
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n20B1 Temp./Humi. :21.1/67

Test Frequency :5180 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin 
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5082.04	Average	29.12	14.90	44.02	54.00	-9.98
5082.04	Peak	42.84	14.90	57.74	74.00	-16.26
5150.00	Average	29.03	14.83	43.86	54.00	-10.14
5150.00	Peak	40.66	14.83	55.49	74.00	-18.51

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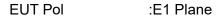
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Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n20B1 Temp./Humi. :21.1/67

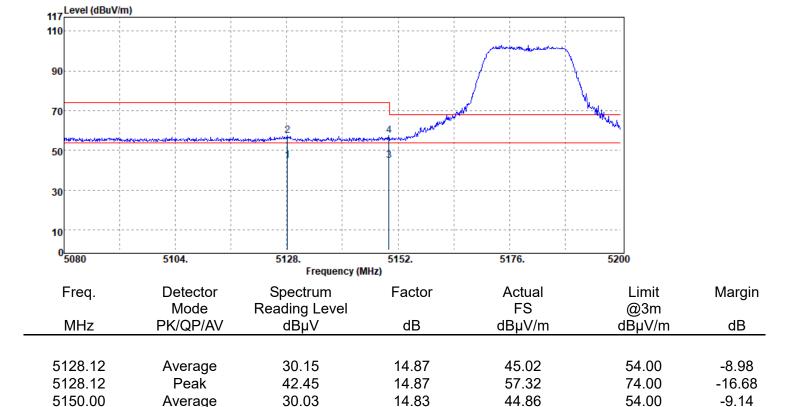
Test Frequency :5180 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH Low Engineer :Neo



5150.00

Peak



14.83

57.55

74.00

-16.45

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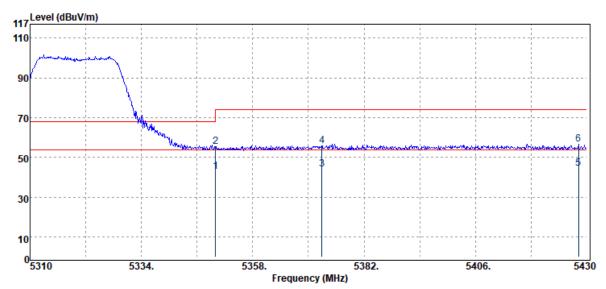
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n20B2 Temp./Humi. :21.1/67

Test Frequency :5320 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	Average	28.84	14.20	43.04	54.00	-10.96
5350.00	Peak	41.07	14.20	55.27	74.00	-18.73
5372.88	Average	29.83	14.43	44.26	54.00	-9.74
5372.88	Peak	41.50	14.43	55.93	74.00	-18.07
5428.20	Average	29.82	14.60	44.42	54.00	-9.58
5428.20	Peak	42.07	14.60	56.67	74.00	-17.33

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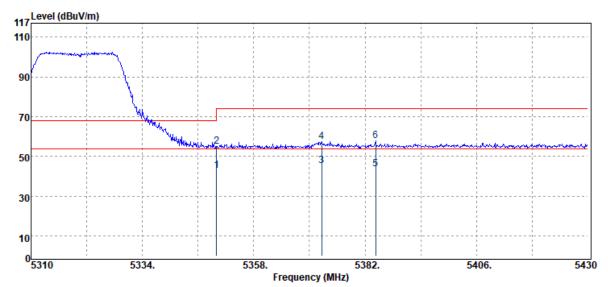
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n20B2 Temp./Humi. :21.1/67

Test Frequency :5320 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	Average	28.90	14.20	43.10	54.00	-10.90
5350.00	Peak	41.00	14.20	55.20	74.00	-18.80
5372.64	Average	30.84	14.43	45.27	54.00	-8.73
5372.64	Peak	42.86	14.43	57.29	74.00	-16.71
5384.28	Average	29.11	14.55	43.66	54.00	-10.34
5384.28	Peak	43.18	14.55	57.73	74.00	-16.27

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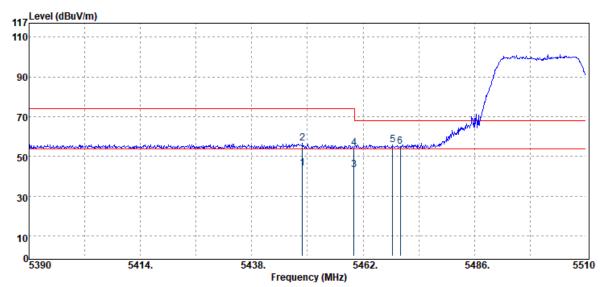
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n20B3 Temp./Humi. :21.1/67

Test Frequency :5500 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5448.92	Average	29.76	14.52	44.28	54.00	-9.72
5448.92	Peak	42.19	14.52	56.71	74.00	-17.29
5460.00	Average	28.92	14.57	43.49	54.00	-10.51
5460.00	Peak	39.63	14.57	54.20	74.00	-19.80
5468.36	Peak	41.38	14.61	55.99	68.20	-12.21
5470.00	Peak	40.32	14.61	54.93	68.20	-13.27

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:E1 Plane

**EUT Pol** 

Report No.: ER/2020/40011

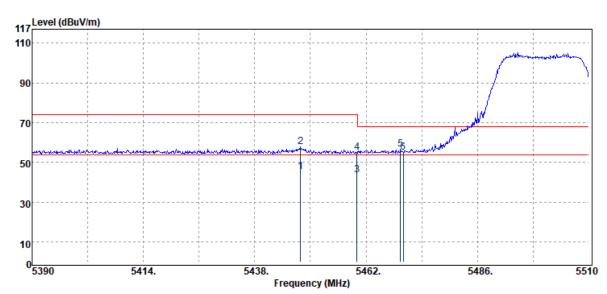
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Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n20B3 Temp./Humi. :21.1/67

Test Frequency :5500 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH Low Engineer :Neo



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5447.84	Average	30.83	14.53	45.36	54.00	-8.64
5447.84	Peak	43.27	14.53	57.80	74.00	-16.20
5460.00	Average	29.01	14.57	43.58	54.00	-10.42
5460.00	Peak	40.43	14.57	55.00	74.00	-19.00
5469.44	Peak	41.88	14.62	56.50	68.20	-11.70
5470.00	Peak	40.49	14.61	55.10	68.20	-13.10

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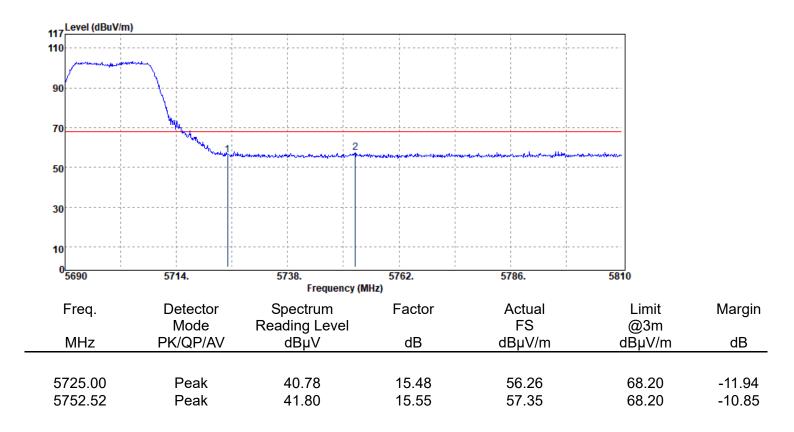
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11n20B3 Temp./Humi. :21.1/67

**Test Frequency** :5700 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH High Engineer :Neo

**EUT Pol** :E1 Plane



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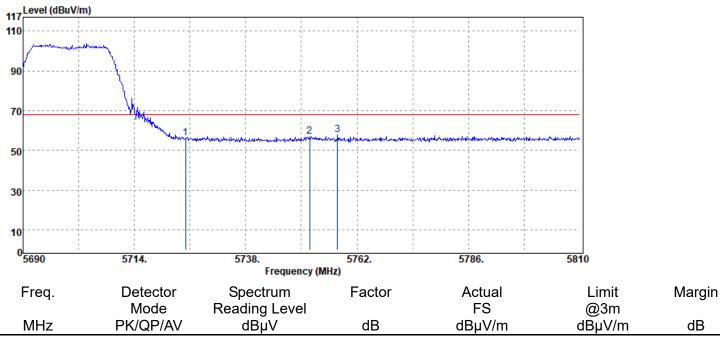
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11n20B3 Temp./Humi. :21.1/67

**Test Frequency** :5700 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH High Engineer :Neo

**EUT Pol** :E1 Plane



	Mode	Reading Level	. doto.	FS	@3m	.via.g
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	40.80	15.48	56.28	68.20	-11.92
5751.80	Peak	41.66	15.55	57.21	68.20	-10.99
5757.80	Peak	42.16	15.57	57.73	68.20	-10.47
	MHz 5725.00 5751.80	Mode PK/QP/AV  5725.00 Peak 5751.80 Peak	Mode PK/QP/AV         Reading Level dBμV           5725.00         Peak         40.80           5751.80         Peak         41.66	Mode PK/QP/AV         Reading Level dBμV         dB           5725.00         Peak         40.80         15.48           5751.80         Peak         41.66         15.55	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m           5725.00         Peak         40.80         15.48         56.28           5751.80         Peak         41.66         15.55         57.21	Mode PK/QP/AV         Reading Level dBμV         FS dBμV/m         @3m dBμV/m           5725.00         Peak         40.80         15.48         56.28         68.20           5751.80         Peak         41.66         15.55         57.21         68.20

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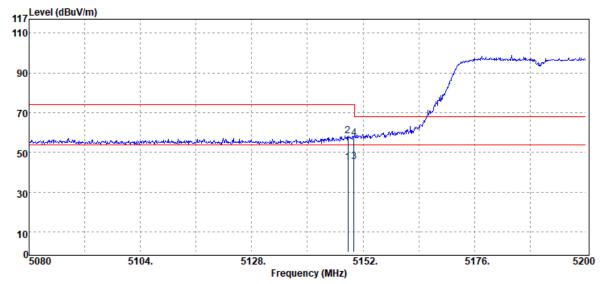
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n40B1 Temp./Humi. :21.1/67

Test Frequency :5190 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5148.76	Average	30.30	14.82	45.12	54.00	-8.88
5148.76	Peak	43.66	14.82	58.48	74.00	-15.52
5150.00	Average	30.42	14.83	45.25	54.00	-8.75
5150.00	Peak	42.31	14.83	57.14	74.00	-16.86

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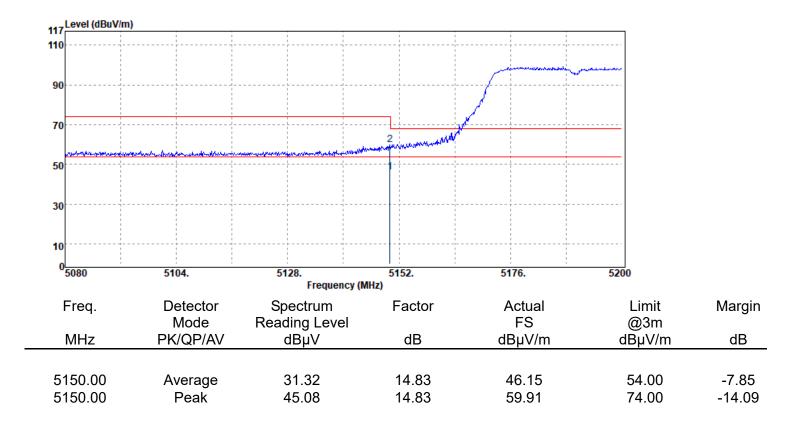
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11n40B1 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :HORIZONTAL :5190 MHz

Test Mode :Bandedge CH Low Engineer :Neo

**EUT Pol** :E1 Plane



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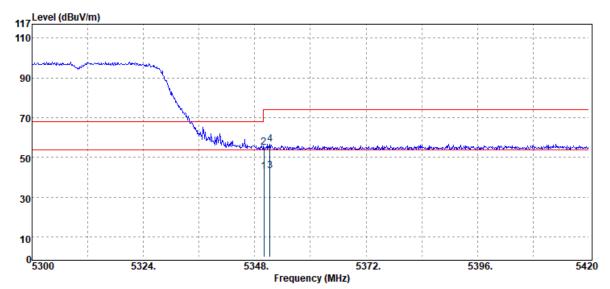
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n40B2 Temp./Humi. :21.1/67

Test Frequency :5310 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5350.00	Average	28.91	14.20	43.11	54.00	-10.89
5350.00	Peak	41.03	14.20	55.23	74.00	-18.77
5351.24	Average	29.02	14.23	43.25	54.00	-10.75
5351.24	Peak	42.54	14.23	56.77	74.00	-17.23

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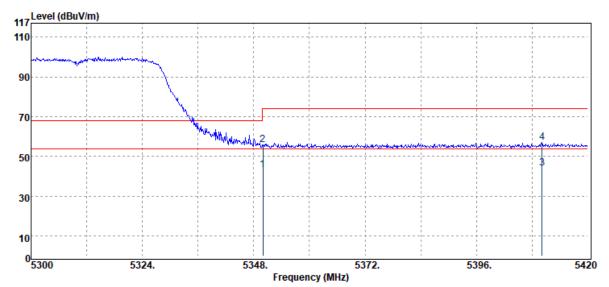
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n40B2 Temp./Humi. :21.1/67

Test Frequency :5310 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level	Factor	Actual FS dBµV/m	Limit @3m	Margin
IVITZ	PN/QP/AV	dΒμV	dB	аьµу/ш	dBμV/m	dB
5350.00	Average	29.13	14.20	43.33	54.00	-10.67
5350.00	Peak	41.68	14.20	55.88	74.00	-18.12
5410.16	Average	29.33	14.66	43.99	54.00	-10.01
5410.16	Peak	42.43	14.66	57.09	74.00	-16.91

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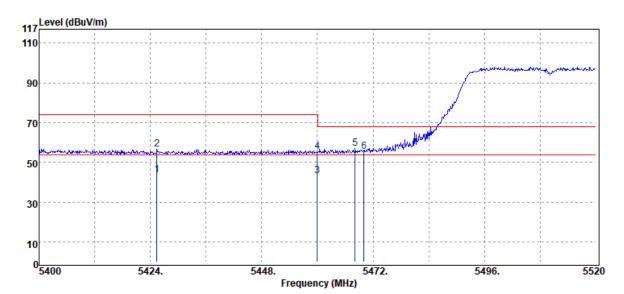
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :VERTICAL :5510 MHz

Test Mode :Bandedge CH Low Engineer :Neo

**EUT Pol** :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5425.44	Average	29.02	14.61	43.63	54.00	-10.37
5425.44	Peak	42.26	14.61	56.87	74.00	-17.13
5460.00	Average	28.79	14.57	43.36	54.00	-10.64
5460.00	Peak	40.91	14.57	55.48	74.00	-18.52
5468.16	Peak	42.52	14.61	57.13	68.20	-11.07
5470.00	Peak	40.80	14.61	55.41	68.20	-12.79

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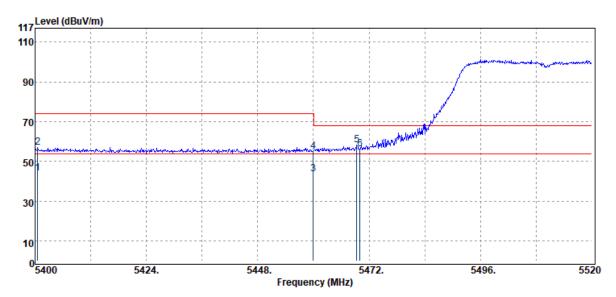
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11n40B3 Temp./Humi. :21.1/67

Test Frequency :5510 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5400.60	Average	29.35	14.69	44.04	54.00	-9.96
5400.60	Peak	42.35	14.69	57.04	74.00	-16.96
5460.00	Average	29.02	14.57	43.59	54.00	-10.41
5460.00	Peak	40.38	14.57	54.95	74.00	-19.05
5469.36	Peak	43.61	14.62	58.23	68.20	-9.97
5470.00	Peak	41.71	14.61	56.32	68.20	-11.88

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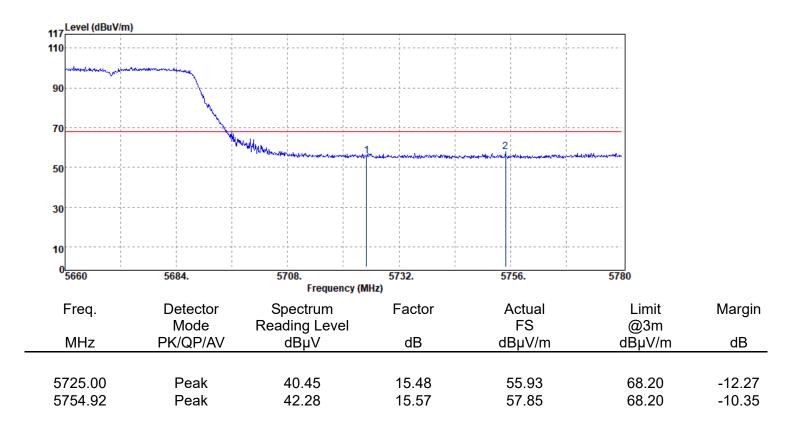
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :VERTICAL :5670 MHz

Test Mode :Bandedge CH High Engineer :Neo

**EUT Pol** :E1 Plane



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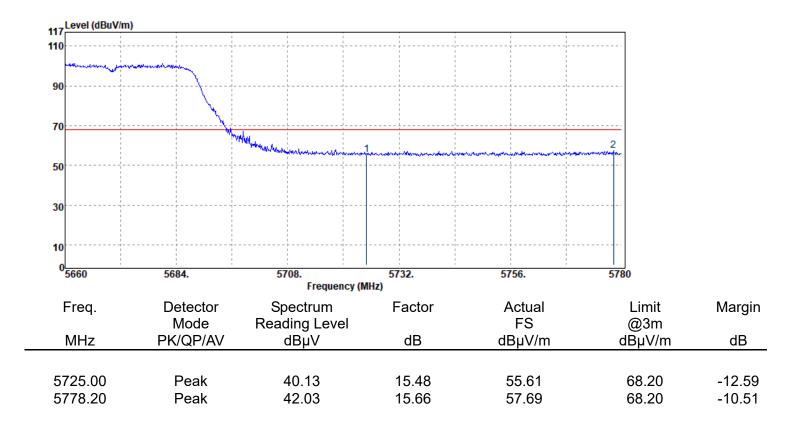
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11n40B3 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :HORIZONTAL :5670 MHz

Test Mode :Bandedge CH High Engineer :Neo





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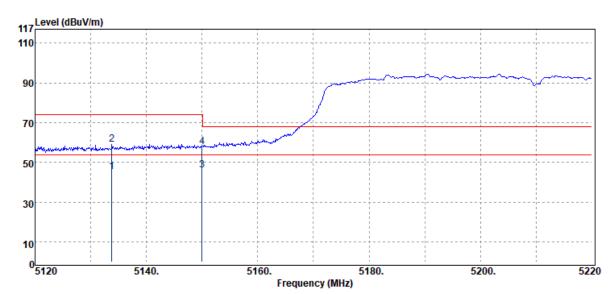
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11ac80B1 Temp./Humi. :21.1/67

**Test Frequency** Antenna Pol. :VERTICAL :5210 MHz

Test Mode :Bandedge CH Low Engineer :Neo

**EUT Pol** :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB
5133.80	Average	30.52	14.85	45.37	54.00	-8.63
5133.80	Peak	44.07	14.85	58.92	74.00	-15.08
5150.00	Average	31.16	14.83	45.99	54.00	-8.01
5150.00	Peak	43.12	14.83	57.95	74.00	-16.05

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:E1 Plane

**EUT Pol** 

Report No.: ER/2020/40011

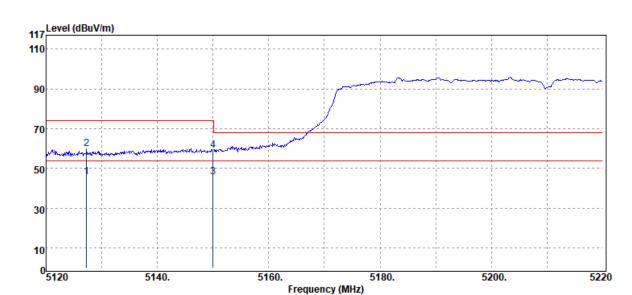
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Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11ac80B1 Temp./Humi. :21.1/67

Test Frequency :5210 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH Low Engineer :Neo



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB
						_
5127.30	Average	30.94	14.87	45.81	54.00	-8.19
5127.30	Peak	45.13	14.87	60.00	74.00	-14.00
5150.00	Average	31.12	14.83	45.95	54.00	-8.05
5150.00	Peak	44.08	14.83	58.91	74.00	-15.09

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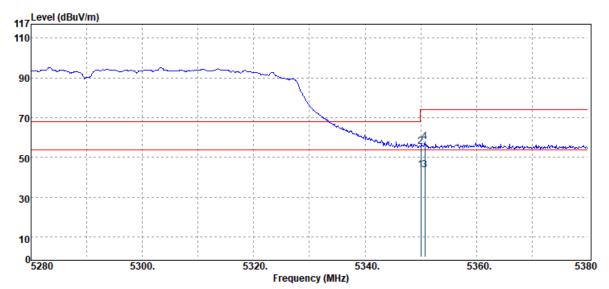
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11ac80B2 Temp./Humi. :21.1/67

Test Frequency :5290 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH High Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
5350.00	Average	29.36	14.20	43.56	54.00	-10.44
5350.00	Peak	41.20	14.20	55.40	74.00	-18.60
5350.70	Average	29.38	14.21	43.59	54.00	-10.41
5350.70	Peak	43.75	14.21	57.96	74.00	-16.04

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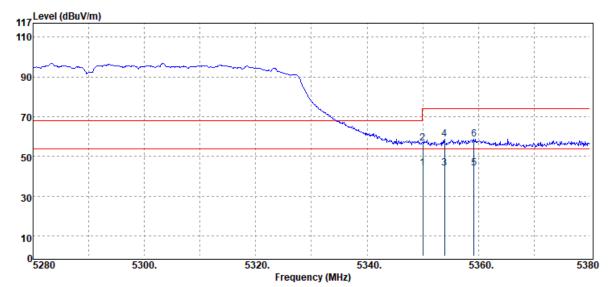
Report Number **Test Date** :2020-04-24 :ER/2020/40011

**Operation Mode** :802.11ac80B2 Temp./Humi. :21.1/67

:HORIZONTAL **Test Frequency** :5290 MHz Antenna Pol.

Test Mode :Bandedge CH High Engineer :Neo

**EUT Pol** :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5350.00	Average	29.95	14.20	44.15	54.00	-9.85
5350.00	Peak	42.44	14.20	56.64	74.00	-17.36
5353.90	Average	30.04	14.24	44.28	54.00	-9.72
5353.90	Peak	44.64	14.24	58.88	74.00	-15.12
5359.20	Average	29.75	14.31	44.06	54.00	-9.94
5359.20	Peak	44.27	14.31	58.58	74.00	-15.42

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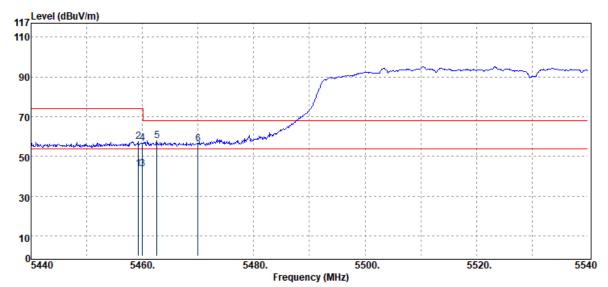
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11ac80B3 Temp./Humi. :21.1/67

Test Frequency :5530 MHz Antenna Pol. :VERTICAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
5459.30	Average	29.04	14.56	43.60	54.00	-10.40
5459.30	Peak	42.88	14.56	57.44	74.00	-16.56
5460.00	Average	29.33	14.57	43.90	54.00	-10.10
5460.00	Peak	42.29	14.57	56.86	74.00	-17.14
5462.60	Peak	43.39	14.58	57.97	68.20	-10.23
5470.00	Peak	41.69	14.61	56.30	68.20	-11.90

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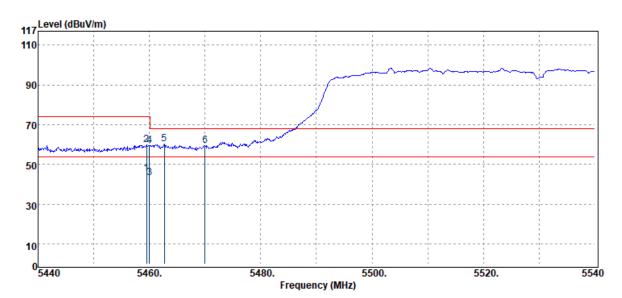
Report Number :ER/2020/40011 Test Date :2020-04-24

Operation Mode :802.11ac80B3 Temp./Humi. :21.1/67

Test Frequency :5530 MHz Antenna Pol. :HORIZONTAL

Test Mode :Bandedge CH Low Engineer :Neo

EUT Pol :E1 Plane



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dΒμV/m	dB
5459.50	Average	30.73	14.57	45.30	54.00	-8.70
5459.50	Peak	45.26	14.57	59.83	74.00	-14.17
5460.00	Average	28.77	14.57	43.34	54.00	-10.66
5460.00	Peak	44.90	14.57	59.47	74.00	-14.53
5462.70	Peak	45.81	14.58	60.39	68.20	-7.81
5470.00	Peak	44.87	14.61	59.48	68.20	-8.72

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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 FREQUENCY STABILITY

## Standard Applicable

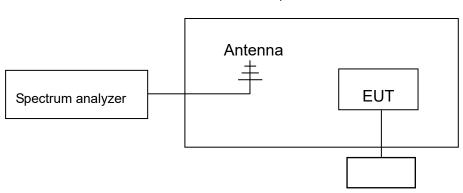
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

#### 13.2 **Measurement Procedure**

- 1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
- 2. Set EUT as normal operation.
- 3. Turn the EUT on and couple its output to spectrum.
- 4. Turn the EUT off and set the chamber to the highest temperature specified.
- 5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
- 6. Repeat step with the temperature chamber set to the lowest temperature.

#### **Test SET-UP** 13.3

### Temperature Chamber



Variable AC Power Supply

#### 13.4 **Measurement Equipment Used:**

	SGS Conducted Room								
Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due				
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23th, 2019	Dec. 22th, 2020				
Temperature Chamber	TERCHY	MHG-120LF	911009	May 17th, 2019	May 16th, 2020				
EXA Spectrum Analyz- er	KEYSIGHT	N9010A	MY57120290	Feb. 20th, 2020	Feb. 19th, 2021				
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021				
Attenuator	Mini-Circuit	BW-S10W2+	2	Jan. 2nd, 2020	Jan. 1st, 2021				

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#### 13.5 **Measurement Result**

## Start up

Operation Mode	802.11 a	Test Date	43951
Temperature	: 26.1°C	Test By	Thomas Wei
Humidity	: 58%		

Test Temp.(°C)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10	4.29	36	5180	5,179.99600	0.00000077
-10	3.51	36	5180	5,179.99507	0.00000095
25	3.8	36	5180	5,180.00875	-0.00000169
55	4.29	36	5180	5,180.00996	-0.00000192
ეე	3.51	36	5180	5,180.00351	-0.00000068

## 2 minutes

Operation Mode	802.11 a	Test Date	43951
Temperature	: 26.1°C	Test By	Thomas Wei
Humidity	: 58%	•	

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10	4.29	36	5180	5,179.99458	0.00000105
-10	3.51	36	5180	5,179.99984	0.00000003
25	3.8	36	5180	5,180.00461	-0.00000089
55	4.29	36	5180	5,180.00194	-0.00000037
ວວ	3.51	36	5180	5,180.00652	-0.00000126

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### 5 minutes

Operation Mode	802.11 a	Test Date	43951
Temperature	: 26.1°C	Test By	Thomas Wei
Humidity	: 58%		

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10	4.29	36	5180	5,179.99646	0.00000068
	3.51	36	5180	5,180.00001	0.00000000
25	3.8	36	5180	5,180.00970	-0.00000187
55	4.29	36	5180	5,180.00875	-0.00000169
	3.51	36	5180	5,180.00955	-0.00000184

## 10 minutes

Operation Mode	802.11 a	Test Date	43951
Temperature	: 26.1°C	Test By	Thomas Wei
Humidity	: 58%		

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10	4.29	36	5180	5,179.99092	0.00000175
	3.51	36	5180	5,179.99685	0.00000061
25	3.8	36	5180	5,180.00398	-0.0000077
55	4.29	36	5180	5,180.00354	-0.00000068
	3.51	36	5180	5,180.00940	-0.00000182

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# 14 ANTENNA REQUIREMENT

## 14.1 Standard Applicable

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

According to §15.407, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 14.2 Antenna Connected Construction

The antenna is designed as permanently attached and no consideration of replacement. Please see EUT photo for details.

~ End of Report ~

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