

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant:	Quanta Computer Inc. No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City 33377, Taiwan
Product Name:	Dev Board Mini
Brand Name:	Google
Model No.:	KA1
Model Difference:	N/A
Report Number:	E2/2020/50133
FCC ID:	HFS-NX2KA1
FCC Rule Part:	§15.407, Cat: NII
Issue Date:	Aug. 11, 2020
Date of Test:	May 27, 2020 ~ Jun. 24, 2020
Date of EUT Re- ceived:	May 27, 2020

We hereby certify that:

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

JAZZ Approved By:

Jazz Huang / Asst. Supervisor



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Revision History					
Report Number Revision Description Issue Date Remark					
E2/2020/50133	Rev.00	Original.	Aug. 11, 2020	Revised By: Stefanie Yu	

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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GENERAL INFORMATION 1

1.1 **Product Description**

Product Nan	ne:	Dev Board Mini		
Brand Name	:	Google		
Model No.:		KA1		
Model Differ	ence:	N/A		
Hardware Version:		N/A		
Software Ver	rsion:	N/A		
Power Supp	ly:	5Vdc from Host		
Modulation type		64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only		
Rate: 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 ac_40MHz:		802.11 ac_20MHz: 6.5 –86.7Mbps 802.11 ac_40MHz: 13.5 -200.0Mbps 802.11 ac_80MHz: 29.3 – 433.3Mbps		

1.2 **Antenna Designation**

Antenna Type	Sup- plier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
	TDK N/A	N/A	5150~5250	2.4
Chip			5250~5350	2.4
Chip		IN/A	5470~5725	2.3
			5725~5850	2.8

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1.3 FCC worst power

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)	Modulation Technology
	5150~5250	4	12.76	
	5250~5350	4	12.99	OFDM
а	5470~5725	12	12.81	OFDIM
	5725-5850	5	12.78	
	5150~5250	4	HT: 11.90	
n_HT ac_VHT	5250~5350	4	HT: 11.97	OFDM
20M	5470~5725	12	HT: 11.95	OFDIM
2011	5725-5850	5	HT: 11.58	
	5150~5250	2	HT: 11.98	
n_HT ac_VHT	5250~5350	2	HT: 12.15	OFDM
40M	5470~5725	6	HT: 11.97	OFDIM
_	5725-5850	2	HT: 12.00	
	5150~5250	1	10.33	
ac_VHT 80M	5250~5350	1	10.56	OFDM
	5470~5725	3	10.51	
	5725-5850	1	10.37	

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1.4 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

1.5 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702) No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333

FCC Designation number: TW0028

1.6 Special Accessories

There are no special accessories used while test was conducted.

1.7 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 & Conducted (Antenna Port) Emission Configuration

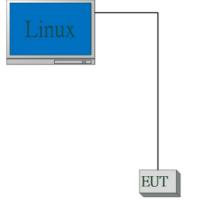


Fig 2-2 Conduction (AC Power Line) Emission

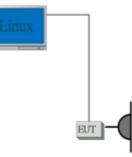


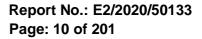
Table 2-1 Equipment Used in Tested System

ltem	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.	Notebook	Dell	P66F	28241894594	N/A	N/A

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SUMMARY OF TEST RESULT 3

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB, 99%& 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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DESCRIPTION OF TEST MODES

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

Operated ban					
2	20 M				
СН	Freq				
	(MHz)				
36	5180				
40	5200				
44	5220				
48	5240				

128

132

136

140

144

5640

5660

5680

5700

5720

nd in 5150 MHz ~5250 MHz:							
	4	0 M		8	0 M		
	СН	Freq (MHz)		СН	Freq (MHz)		
	38	5190		42	5210		
	46	5230					

80 M

CH

106

122

138

Freq

(MHz)

5530

5610

5690

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

and in 5250 MHz ~5350 MHz:

40 M		8	0 M
СН	Freq (MHz)	СН	Freq (MHz)
СП	(MHz)		
54	5270	58	5290
62	5310	-	

Operated band in 5470 MHz ~5725 MHz:

2	20 M	40 M			
СН	Freq	СН	Freq		
СП	(MHz)		(MHz)		
100	5500	102	5510		
104	5520	110	5550		
108	5540	118	5590		
112	5560	126	5630		
116	5580	134	5670		
120	5600	142	5710		
124	5620			•	

Operated band in 5725 MHz ~5850 MHz:

Ope		
2	20 M	
СН	Freq	
	(MHz)	
149	5745	
153	5765	
157	5785	
161	5805	
165	5825	

4		
СН	Freq	
	(MHz)	
151	5755	
159	5795	

80 M			
СН	Freq		
СП	(MHz)		
155	5775		

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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	\Box Ch3	□ 2TX
🛛 802.11 n	🛛 Ch0	🗆 Ch1	🗆 Ch2	\Box Ch3	
⊠ 802.11 ac	🛛 Ch0	□ Ch1	Ch2	\Box Ch3	
□ 802.11 ax	□ Ch0	□ Ch1	🗆 Ch2	\Box Ch3	

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	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	AN- TENNA PORT	
	5180~5240	36 to 48	36,44,48				
	5260~5320	52 to 64	52,60,64				
802.11a	5500~5720	100 to 144	100,116,140, 144		6	Ch0	
	5745~5825	149 to 165	149,157,165	OFDM			
	5210	42	42				
802.11ac_VHT80	5290	58	58		MCS0	SISO	
	5530~5690	106 to 138	106,122,138		101030	3130	
	5775	155	155				

RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	AN- TENNA PORT	
	5180~5240	36 to 48	36,44,48				
	5260~5320	52 to 64	52,60,64				
802.11a	5500~5720	100 to 144	100,116,140, 144		6	Ch0	
	5745~5825	149 to 165	149,157,165				
	5180~5240	36 to 48	36,44,48				
802.11n_HT20	5260~5320	52 to 64	52,60,64				
802.11ac_VHT20	5500~5700	100 to 144	100,116,140,		MCS 0	SISO	
002.11ac_V1120	5500~5720	100 10 144	144			SISO	
	5745~5825	149 to 165	149,157,165	OFDM			
	5190~5230	38 to 46	38,46				
802.11n_HT40	5270~5310	54 to 62	54,62			SISO	
802.11ac_VHT40	5510~5710	102 to 142	102,110,134,142		MCS 0		
	5755~5795	151 to 159	151,159				
	5210	42	42				
002 1100 VUT00	5290	58	58		MCS0	SISO	
802.11ac_VHT80	5530~5690	106 to 138	106,122,138		IVICSU	3130	
	5775	155	155				

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 E2 position was reported.

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ANTENNA PORT CONDUCTED MEASUREMENT: 4.2.2

	CONDUCTED TEST							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	AN- TENNA PORT		
	5180~5240	36 to 48	36,44,48					
	5260~5320	52 to 64	52,60,64					
802.11a	5500~5720	100 to 144	100,116,140, 144		6	Ch0		
	5745~5825	149 to 165	149,157,165					
	5180~5240	36 to 48	36,44,48					
002 11n UT20	5260~5320	52 to 64	52,60,64					
802.11n_HT20 / 802.11ac_VHT20	5500~5720	100 to 144	100,116,140, 144	05014	MCS0	Ch0		
	5745~5825	149 to 165	149,157,165	OFDM				
	5190~5230	38 to 46	38,46					
802.11n_HT40	5270~5310	54 to 62	54,62		MCS0	ChO		
/ 802.11ac_VHT40	5510~5710	102 to 142	102,110,134,142		IVICSU	Ch0		
	5755~5795	151 to 159	151,159					
	5210	42	42]				
	5290	58	58]	MCS0	Ch0		
802.11ac_VHT80	5530~5690	106 to 138	106,122,138]	IVICOU	Chu		
	5775	155	155					

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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		
Polarization: Vertical	30MHz - 180MHz: +/- 3.37dB		
	180MHz -417MHz: +/- 3.19dB		
	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	Limits dB(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 th	e 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 TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
LISN	SCHWARZBECK Mess-Elektronik	NSLK812 7	974	03/25/2020	03/24/2021		
EMI Test Receiver	R&S	ESCI	101342	04/28/2020	04/27/2021		
Test Software	audix	e3	Ver. 6.11- 20180419c	N.C.R	N.C.R		

6.3 EUT Setup

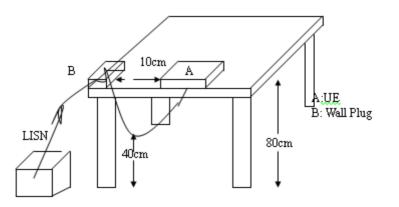
- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The LISN was connected with 120Vac/60Hz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

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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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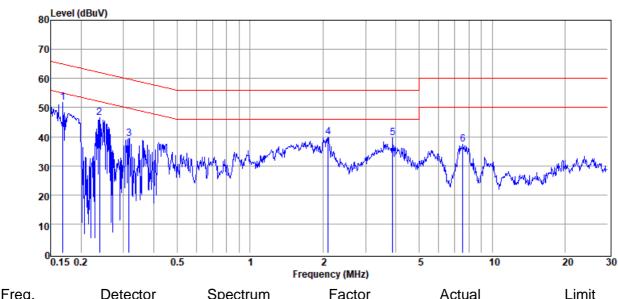


AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number
Test Mode
Power
Probe

:E2/2020/50133 :WLAN 5G :120V/60Hz :L1

Test Date :2020-06-19 Temp./Humi. :25.2/59 Engineer :Kailin



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV	dBµV	dB
0.17	Peak	41.41	10.22	51.63	65.03	-13.40
0.24	Peak	36.15	10.22	46.37	62.13	-15.76
0.32	Peak	29.09	10.22	39.31	59.80	-20.49
2.10	Peak	29.48	10.45	39.93	56.00	-16.07
3.88	Peak	29.04	10.48	39.52	56.00	-16.48
7.57	Peak	26.63	10.62	37.25	60.00	-22.75

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www.sgs.com.tw

:2020-06-19



:E2/2020/50133

Report Number

Test Mode	:WLAN 5G				25.2/59	
Power	:120V/60H			•	Kailin	
		2	Eng		Ramm	
Probe 80 70 60 50 40 30	:N					
20		da Millouth and an	PYAN HAT MY	· · · · · · · · · · · · · · · · · · ·	Man and	
10						
0.15 0.2	0.	5 1	2	5 1	0 20 30	
			quency (MHz)			
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV	dBµV	dB
0.16	Peak	43.01	10.21	53.22	65.69	-12.47
0.22	Peak	37.76	10.21	47.97	63.01	-15.04
0.27	Peak	31.51	10.21	41.72	60.98	-19.26
0.46	Peak	25.44	10.22	35.66	56.76	-21.10
3.03 7.21	Peak Peak	23.95 24.21	10.47 10.62	34.42 34.83	56.00 60.00	-21.58 -25.17
1.21	I Can	27.21	10.02	54.05	00.00	-20.17

Test Date

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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	93.25	0.30	0.72	1.00
802.11n_20	92.80	0.32	0.77	1.00
802.11ac_20	93.17	0.31	0.76	1.00
802.11n_40	87.01	0.60	1.54	2.00
802.11ac_40	86.86	0.61	1.53	2.00
802.11ac_80	84.29	0.74	3.10	4.00

⁶Duty Cycle Factor: $10 * \log(1/0.9325) = 0.3$ ⁶Duty Cycle Factor: $10 * \log(1/0.928) = 0.32$ ⁷Duty Cycle Factor: $10 * \log(1/0.9317) = 0.31$ ⁷Duty Cycle Factor: $10 * \log(1/0.8701) = 0.6$ ⁷Duty Cycle Factor: $10 * \log(1/0.8686) = 0.61$ ⁷Duty Cycle Factor: $10 * \log(1/0.8429) = 0.74$

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7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT

Duty Cycle_802.11a mode

										ght Spectrum	
Frequency	Jun 01, 2020	TRAC	e: Voltage	Avg Typ	NSE:INT			00000 GH		or Freq	RL ente
Auto Tu	492 ms	Mkr3 1.	۵			#Atten: 3	NO: Fast Gain:Low	IF	f Offset 11	Ret	
Center Fr).21 dB		3Δ4						f 30.00		
5.180000000	r.4	interner lives its	al of the second second second	- Henry	P BY CALL	~~~~~~ ~ **	***********	charter recorders		allonaestone	
Start Fr 5.180000000 0										_	
Stop F									1010		
5.180000000 CF S	pan 0 Hz	s						GHz	00000 0	er 5.1800	E
8.000000 M	1001 pts)	.800 ms (Sweep 2	ICTION FU	FU	8.0 MHz		×	z	W 8 MH	s Bi
Freq Off					Bm dB	-0.02 13.41 d -0.21 13.41 d	92 ms (Δ) 18.0 μs 192 ms (Δ) 18.0 μs	44	(Δ) (Δ)		F A4 F
Scale T											_
Log						**					
		s	STATUS								

Duty Cycle_802.11n20 mode

	ectrum Analyzer - S							
Center F	req 5.1800	00000 GH		Trig: Free Ru	Avg	Type: Voltage	12:50:53 PM Jun 01, 2020 TRACE 1 2 3 4 5 6 TYPE WWWWWW	Frequency
10 dB/div	Ref Offset 1 Ref 30.00	1.6 dB	NO: Fast Gain:Low	#Atten: 30 dE		4	Mkr3 1.397 ms 0.11 dB	Auto Tune
20.0 10.0	nty 250 Mary ala	nd Milan	-states	relative way in		3∆4 nat/an ati pla.runik	มีของไปประการสารเรียงเรื่องเป็นไปประการสาร	Center Fre 5.180000000 GH
10.0 20.0 30.0		207			8.00			Start Fre 5.180000000 GH
40.0 50.0 60.0								Stop Fre 5.18000000 GH
es BW 8	RC SCL	×		8.0 MHz	FUNCTION	Sweep 3	Span 0 Hz 467 ms (1001 pts) FUNCTION VALUE	
1 Δ2 2 F 3 Δ4 4 F 5	t (Δ) t t (Δ) t	83	297 ms (Δ) 26.1 μs 997 ms (Δ) 26.1 μs	-0.24 dB 12.94 dBm 0.11 dB 12.94 dBm				Freq Offse 0 H
6 7 8 9 10 11								Scale Typ
*						STATU	•	

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	strum Analyzer - Sw									
Center Fr	eq 5.19000	00000 GH	z		SE:INT	Avg Typ	e: Voltage	TRA	M Jun 01, 2020 CE 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 11 Ref 30.00	IFC	¥O: Fast ⊶ Sain:Low	#Atten: 30				۵ ۵Mkr3	44.3 μs 2.37 dB	Auto Tu
20.0 10.0		engladeligenthe		ylesbergelerth y	++++++++++++++++++++++++++++++++++++++	an the same of the	1Δ2 3Δ4		at instruction	Center Fr 5.190000000 G
20.0			1-14-1/2				ave.			Start Fr 5.190000000 G
10.0 50.0 50.0										Stop Fr 5.190000000 G
enter 5.1 es BW 8		3Hz ×	#VB\	W 8.0 MHz	EUN	ction Fu		.933 ms	Span 0 Hz (1001 pts)	CF St 8.000000 M Auto M
1 Δ2 1 2 F 1 3 Δ4 1 4 F 1 5	t (Δ) t t (Δ) t	68 74	7.7 μs (Δ 8.3 μs 4.3 μs (Δ 8.3 μs	6.63 dB	im iB					Freq Offs 0
5 6 7 8 9										Scale Ty
10					1					Log

Duty Cycle_802.11n40 mode

Duty Cycle_802.11ac20 mode

	ectrum Analyzer							- 2 -
Center F		0000000 GH	łz NO: Fast ↔	Trig: Free R	Avg	Type: Voltage	02:14:15 PM Jun 01, 2020 TRACE 1 2 3 4 5 TYPE WWWWW DET P N N N N	Frequency
10 dB/div	Ref Offse Ref 30.0	11.6 dB	Gain:Low	#Atten: 30 d		4	Det P NNNN Mkr3 1.409 ms 0.02 dE	Auto Tune
20.0 10.0	protilination of	homoshadinadi	hetwood	Not and the factor	(Antoernagian, no	entry Wertensyr		
-10.0 -20.0 -30.0				N			į, arij	Start Freq 5.180000000 GHz
-40.0 -50.0 -60.0								Stop Freq 5.18000000 GHz
Center 5. Res BW		×		V 8.0 MHz		Sweep 2	Span 0 Hz 2.600 ms (1001 pts 5000000 value	
1 Δ2 2 F 3 Δ4 4 F	t (Δ) t t (Δ) t	1.0	13 ms (Δ) 43 ms 09 ms (Δ) 43 ms	12.82 dBm	3			Freq Offset 0 Hz
5 6 7 8 9 10 11								Scale Type
MBG				17		STATU	5	



Duty Cycle_802.11ac40 mode

	ectrum Analyzer - Si							
Center Fr	req 5.1900	00000 GH		Trig: Free Run		e: Voltage	02:17:30 PM Jun 01, 2020 TRACE 1 2 3 4 5 TYPE WWWWW	6 Frequency
0 dB/div	Ref Offset 1 Ref 30.00	1.5 dB	NO: Fast Gain:Low	#Atten: 30 dB		ΔΝ	0.91 dE 0.91 dE	Auto Tune
00 20.0 10.0 10.0	-offermation	Na min	ersgery-railys		102 304 	nder orfeineð fyrfi	salimitent,milae	Center Free 5.190000000 GH
0.0		Non			-		ling	Start Fre 5.190000000 GH
0.0								Stop Fre 5.19000000 GH
anter 5.1 es BW 8		GHz	#VBW	8.0 MHz	FUNCTION FU		Span 0 Ha 33 ms (1001 pts Fonction value	CF Ste 8.000000 MH Auto Ma
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	t (Δ) t (Δ) t	40	51.5 μs (Δ) 54.3 μs 50.1 μs (Δ) 54.3 μs	3.00 dB 5.92 dBm 0.91 dB 5.92 dBm				Freq Offse
6 7 8 9 0								Scale Typ
				19		STATUS		

Duty Cycle_802.11ac80 mode

	trum Analyzer - S									
RL	RF 50		PNO: Fast		Run	Avg Typ	e: Voltage	TRA	CE 1 2 3 4 5 6	Frequency
dB/div	Ref Offset 1 Ref 30.00	1.6 dB	FGain:Low	#Atten: 3					422.0 μs 0.08 dB	Auto Tun
	Xaumi	and the second states of the s	h-Ph-sh-Pathbar			5 14/16-14-14/14/15-1	p-hp-astropy	17-me44.m		Center Fre 5.210000000 GH
0				aluna	- Elw		-		stantin in	Start Fre 5.210000000 GH
				-1-1410					dar and sol	Stop Fre 5.210000000 GP
s BW 8	500	×		V 8.0 MHz			Sweep 1	.000 ms	Span 0 Hz (1001 pts)	
Δ2 1 F 1 Δ4 1 F 1	t (Δ) t t (Δ) t	1	23.0 μs (Δ) 24.0 μs 22.0 μs (Δ) 24.0 μs	2.21 dE	3m dB					Freq Offs 01
									=	Scale Typ
				**					1 .	

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8 26DB, 99% &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.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto,
 Detector = Peak,
 Trace Mode = Max Hold,
 Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - 3.b. Mark the peak frequency and –26dB (upper and lower) frequency.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
- 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.
- 6. For 99% Bandwidth: Set the spectrum analyzer as

RBW=1%, VBW = 3*RBW, Span = 30M/50MHz, Detector=Sample, Sweep=auto.

- 7. Turn on the 99% bandwidth function, max reading.
- 8. Repeat above procedures until all frequency of interest measured was complete.

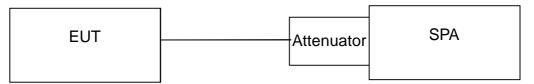
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8.3 **Measurement Equipment Used**

SGS Conducted Room									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
DC Block	PASTER- NACK	PE8210	RF32	11/20/2019	11/19/2020				
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/15/2019	07/14/2020				
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020				

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	19.63	12.929							
5220	19.69	12.942							
5240	19.55	12.911							
5260	19.41	12.880							
5300	19.75	12.956							
5320	19.64	12.931							
5500	19.69	12.942							
5580	19.52	12.905							
5700	19.74	12.953							
5720	20.11	13.034							

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802.11n HT20 Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.26	13.066
5220	20.05	13.021
5240	20.13	13.038
5260	19.94	12.997
5300	20.02	13.015
5320	19.96	13.002
5500	19.89	12.986
5580	19.91	12.991
5700	20.05	13.021
5720	19.87	12.982

802.11n _HT40_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	41.09	16.137
5230	40.44	16.068
5270	40.14	16.036
5310	40.93	16.120
5510	40.29	16.052
5550	40.6	16.085
5670	40.04	16.025
5710	40.31	16.054

802.11ac _VHT80_Ch0

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	81.33	19.103
5290	81.09	19.090
5530	81	19.085
5610	81.42	19.107
5690	80.9	19.079

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8.5.2 6dB Bandwidth (5725 MHz~ 5850 MHz) measure with Peak detector for FCC

802.11a_Ch0							
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)					
5745	12.35	10.917					
5785	14.48	11.608					
5825	15.81	11.989					

802.11n HT20 Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	15.11	11.793
5785	16.98	12.299
5825	15.02	11.767

802.11n_HT40_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.17	15.462
5795	35.1	15.453

802.11ac _VHT80_Ch0

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.25	18,765

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FCC 802.11a 20MHz Chain0 5180MHz

Keynight Space	ours Analyser - Occupied B								
AL NY SER DC Center Freq 5.180000000 GHz #FGehit.ow			Center Freq: 5.180000000 GHz Trig: Free Run Avg/Hold: 10/10 #Atten: 30 dB			Radio Stal: None Radio Device: BTS		Frequency	
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBr								
10.00			manny	man		and a			Center Free 5.180000000 GH
20.0	Mon					-	1		
100 mh	restlan				-	-	W	Mr. margare	
60.0									
-70.0		_				-	-		
Center 5.18 GHz Span 30 MHz Span 30 MHz Sweep 1 ms						CF Step 3.000000 MH			
Occup	ied Bandwid	th	т	Total Power 18.3			3 dBm		Auto Mar
	10	6.418 MH	z						Freq Offse
	it Freq Error	-55.247 k		of OBW	Power		9.00 %		он
x dB Ba	indwidth	19.63 M	Hz x	dB		-26	.00 dB		
pesq						STATU	15		

Radio Std N enter Freq 5.220000000 GHz vice: BTS Ref Offset 11.5 c Ref 20.00 dB Center F Wilhum CF St #VBW 620 KH 18.1 dB **Occupied Bandwidth Total Po** 16.427 MHz Freq Offs -33.159 kHz Transmit Freq Error ò % of OBW Power 99.00 % x dB Bandwidth 19.69 MHz x dB -26.00 dB

FCC_802.11a_20MHz_Chain0_5220MHz

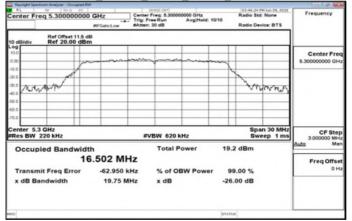
FCC 802.11a 20MHz Chain0 5240MHz



FCC 802.11a 20MHz Chain0 5260MHz

AL NF 150 C Center Freq 5.260000000 GHz			ter: 30 dB	Radio Stal: None Radio Device: BTS		Frequency	
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBn						
-10.0 -10.0	. Martin			nyu.sm	Marin March	per har	Center Free 5.26000000 GH
-70.0 Center 5.26 #Res BW 22			#VBW 620 kHz		Span 3 Sweep		CF Step 3.000000 MHz
Occupied Bandwidth 16.427 MHz			Total Power 17.6 dBm				Auto Mar Freg Offse
Transmit x dB Ban	Freq Error dwidth	-31.411 kHz 19.41 MHz	% of OBW Pow x dB		9.00 % .00 dB		0 Hu

FCC_802.11a_20MHz_Chain0_5300MHz



FCC 802.11a 20MHz Chain0 5320MHz

Kaynight Spectrum Analyzer Occupied BN		SENSE ONT		02-47:58 PH 341 09, 2	100 C
Center Freq 5.32000000	Trig	rig FreeRun AvgiHold: 10/10		Radio Stat: None	Frequency
	#FGein:Low #Atte	n: 30 dB		Radio Device: BTS	<u> </u>
0 dB/div Ref 20.00 dBm					
00					Center Free
	and an an an and and and	a manual and	mm		5.320000000 GH
no m			1 U		
				Net and I	
and Mark				Winterso	44
0.0			+ +		
0.0					
Center 5.32 GHz Span 30 MHz #Res BW 220 kHz #VBW 680 kHz Sweep 1 ms					ms 3.000000 MHz
Occupied Bandwidth		Total Power	18.3	dBm	Auto Mar
16	431 MHz				Freq Offse
Transmit Freq Error	-75.735 kHz	% of OBW Pow	er 99	.00 %	0 H
x dB Bandwidth	19,64 MHz	x dB	-26.	00 dB	
			STATU		

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FCC 802.11a 20MHz Chain0 5500MHz

Kaynight Space	rum Analyzer - Occupied I	w				100.00.00		10 P E
Center Fred 5 50000000 GHz				Center Freq: 5.50000000 GHz Trig: Free Run Avg[Hold: 10/10 #Atten: 30 dB		Radio Stal: None Radio Device: BTS		Frequency
10 dB/div	Ref Offset 11.5 Ref 20.00 dB							
10.0 0.00		and the state of the			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Center Free 5.500000000 GH
20.0 0.0 10.0 10.01	Andrew and	_				m late	Manur	
40.0							· · · · · · · · · · · · · · · · · · ·	
Center 5.5			#VBW 6	520 KHz			an 30 MHz reep 1 ms	CF Step
Occupied Bandwidth			Total Power 17.7			.7 dBm		Auto Man
	1	6.503 MH	z					Freq Offse
	it Freq Error Indwidth	-44.931 k 19.69 M		B B		.00 % 00 dB		он
weig:					STATUS			

enter Freq 5.580000000 GHz DAID7:57 PH 3u Radio Std: No ice: BTS Ref Offset 11.5 Ref 20.00 dB Center F what Myhally CFS #VBW 620 kHz 17.4 dB **Occupied Bandwidth Total Po** 16.449 MHz Freq Offs Transmit Freq Error -36.314 kHz ò % of OBW Power 99.00 % dB Bandwidth 19.52 MH x dB -26.00 dB

FCC_802.11a_20MHz_Chain0_5580MHz

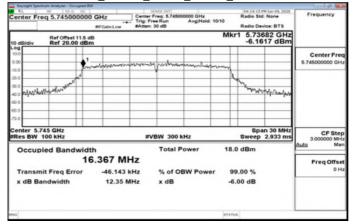
FCC 802.11a 20MHz Chain0 5700MHz



FCC 802.11a 20MHz Chain0 5720MHz

Keysight Spectrum Analys						- P -
Center Freq 5.7:	20000000	Trig	Free Run Avg Hold m: 30 dB	Rac 30/30	H2:20 PMJun 09,2026 tio Std: None tio Device: BTS	Frequency
10 dB/div Ref	offset 11.5 dE 20.00 dBm			Mkr1 5	5.71778 GHz 2.8742 dBm	
18.0 0.00		and the second second		uma		Center Free 5.720000000 GH
20.0 -20.0 -20.0	or the set			No.	an antoning	
50 0 60 0 70 0						
Center 5.72 GHz Res BW 220 kH		,	#VBW 680 kHz		Span 30 MHz Sweep 1 ms	CF Stej 3.000000 MH Auto Ma
Occupied Bandwidth			I Bandwidth Total Power 17.9 dBm 16.401 MHz			
Transmit Free x dB Bandwid	q Error	-34.861 kHz 20.11 MHz	% of OBW Powe x dB	er 99.00 -26.00 d		Freq Offse 0 H

FCC_802.11a_20MHz_Chain0_5745MHz



FCC_802.11a_20MHz_Chain0_5785MHz

	5000000	GHz #FGain:Low		req: 5.78500 • Run 30 dB	AvgiHold	10/10	Radio Sta	None vice: BTS	Frequency
0 dB/div Ref 2	ffset 11.5 di 20.00 dBn				_				
0.0	wh	mannen	stanus	theready	······	4,61,45,161	_		Center Fre 5.785000000 GH
0.0	mar		-				2		
00 Marter Arnhi	*						MAN	antranersto	
0.0									
enter 5.785 GHz Res BW 100 kHz			#VI	BW 300 K	Hz			an 30 MHz 2.933 ms	CF Ste
Occupied Ba		h 6.359 Mi	1-	Total P	ower	18	.8 dBm		<u>Auto</u> Ma
Transmit Freq		-43.980		% of OE	BW Powe	er 1	99.00 %		Freq Offse
x dB Bandwid	th	14.48 N	IHz	x dB		-	6.00 dB		

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FCC_802.11a_20MHz_Chain0_5825MHz

Frequency		Radio Str Radio De		10/10	0000 GHz AvgiHold	*q: 5.82500 Run 0 dB	Center F Trig: Fre #Atten: 3	Hz Geintow		q 5.82500	Center Fre
			_							Ref Offset Ref 20.00	10 dB/div
Center Free 5.825000000 GH				Lun			thereary	-	mound		10.00
			1	-					4		20.0
	humbdow	And								rement	40.0 Mana
									-		50.0
											70.0
CF Step 3.000000 MH	n 30 MHz 2.933 ms				Hz	W 300 k	#VI		-		Center 5.82
Auto Mar		dBm	9.2	1	ower	Total P			width	ed Band	Occupi
Freq Offse							Ιz	67 MI	16.3		
0 H		.00 %	99	er	W Pow	% of Of	Hz	-53.601	or	t Freq Err	Transmi
		00 dB	-6.0			x dB	Hz	15.81 N		ndwidth	x dB Ba
			ATUS								90

GAGAGEPH IN enter Freq 5.180000000 GHz ice: BTS Ref 20.00 dBm Center F the way an 30 CF St #VBW 680 KH 17.4 dB **Occupied Bandwidth Total Po** 17.585 MHz Freq Offs Transmit Freq Error -26.114 kHz 99.00 % ò % of OBW Power x dB Bandwidth 20.26 MHz x dB -26.00 dB

FCC_802.11n_20MHz_Chain0_5180MHz

FCC_802.11n_20MHz_Chain0_5220MHz



FCC_802.11n_20MHz_Chain0_5240MHz

Center Fre	q 5.24000000	Tris Tris	tter: Freq: 5.240000000 GHz g: Free Run AvgiHold: ten: 30 dB	10/10 Radio Stat: None 10/10 Radio Device: BTS	Frequency
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBr			Mkr1 5.24879 GH -6.9077 dBn	
10.0 0.00 -10.0 -20.0			m marine		Center Free 5.240000000 GH
30.0 40.0 50.0	and the state			- www.	
Center 5.24			#VBW 680 kHz	Span 30 MHz Sweep 1 ms	
Occupi	ed Bandwidt		Total Power	17.4 dBm	Auto Ma
Transmi x dB Bar	t Freq Error	7.582 MHz -36.510 kHz 20.13 MHz	% of OBW Power x dB	r 99.00 % -26.00 dB	Freq Offse 0 H
				hand	

FCC_802.11n_20MHz_Chain0_5260MHz



FCC_802.11n_20MHz_Chain0_5300MHz

RL	q 5.300000000	GHz Cents	Freq: 5.30000000 GHz FreeRun AvgiHold: h: 30 dB	10/10	Radio Stat		Frequency
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBr						
10.0		and a second and a	monom	mm			Center Freq 5.30000000 GHz
-10.0 -20.0 -20.0 -20.0	www				WWW	Manage	
50 0 60 0 70 0							
Center 5.3 Res BW 2			VBW 620 kHz			n 30 MHz ep 1 ms	CF Step 3.000000 MHz
Occupi	ed Bandwidt	h 7.591 MHz	Total Power	17.4	dBm		Auto Man Freg Offset
Transmi x dB Bar	t Freq Error	-36.180 kHz 20.02 MHz	% of OBW Powe x dB		.00 % 00 dB		OHz
90				STATUS			

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FCC_802.11n_20MHz_Chain0_5320MHz

Keynight Spect	rum Analyzer - Occupied Bit					57 PH Jun 09, 2020	
	q 5.32000000	-	Center Freq: 5.3200 Trig: Free Run #Atten: 30 dB	Avg/Hold: 10	Radio Radio	Stal: None Device: BTS	Frequency
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBn						
10.0		and the second second	and many mark and	manan	manan		Center Free 5.320000000 GH
20.0 20.0	whether		_		mo	windunin	
60.0 00.0							
Center 5.3 Res BW			#VBW 680	KHZ		pan 30 MHz weep 1 ms	CF Ste 3.000000 MH
Occup	ied Bandwidt	th	Total	Power	17.1 dBm		Auto Mar
	17	7.581 MH	z				Freq Offse
	it Freq Error Indwidth	-34.819 kH 19.96 MH		BW Power	99.00 % -26.00 dB		0 H
eig .					STATUS		

enter Freq 5.50000000 GHz Radio Std No ice: BTS Ref 20.00 dBm Center F Mr. Walde an 30 CF St 220 kH #VBW 680 KH 16.6 dE **Occupied Bandwidth Total Po** 17.585 MHz Freq Offs Transmit Freq Error -51.915 kHz % of OBW Power 99.00 % dB Bandwidth 19.89 MHz x dB -26.00 dB

FCC_802.11n_20MHz_Chain0_5500MHz

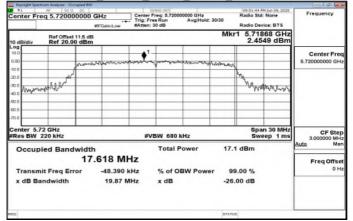
FCC_802.11n_20MHz_Chain0_5580MHz



FCC 802.11n 20MHz Chain0 5700MHz

Kaynight Spect	trum Analyser - Occupied	BW .					100 00 000
	eq 5.7000000	Trig	ter Freq: 5.700000000 G Free Run Avgi en: 30 dB	Hz Hold: 10/10	Radio St	PH Jun 09, 2020 d: None tvice: BTS	Frequency
10 dB/div	Ref Offset 11.5 Ref 20.00 dE						
10.0 0.00			an and a second second				Center Free 5.700000000 GH
30.0 30.0	mannet				No. Ala	Withour Star	
60.0 70.0							
Center 5.7			#VBW 680 kHz			an 30 MHz reep 1 ms	CF Step 3.000000 MH
Occup	led Bandwid		Total Power	17	.7 dBm		<u>Auto</u> Mar
	1	7.613 MHz					Freq Offse
	it Freq Error Indwidth	-42.865 kHz 20,05 MHz	% of OBW P x dB		99.00 % 6.00 dB		0 H
eig .					n.e		

FCC_802.11n_20MHz_Chain0_5720MHz



FCC_802.11n_20MHz_Chain0_5745MHz

RL I	eq 5.745000000	GHz	Sense Int Center Freq: 5.7450 Frig: Free Run (Atten: 30 dB	00000 GHz Avg/Hold: 10/10	Radio Sta		Frequency
10 dB/div	Ref Offset 11.5 di Ref 20.00 dBn			'	Mkr1 5.73 -6.49	622 GHz 87 dBm	
10.0 0.00	1	mannet	witney provision	man			Center Freq 5.745000000 GHz
-30.0 -30.0 -40.0 ALANA					N	MMMMmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm	
-50.0 -60.0 -70.0							
Center 5.7 #Res BW			#VBW 300	Hz		n 30 MHz 2.933 ms	CF Step 3.000000 MHz
Occup	ied Bandwidt 17	h .550 MH	Total F	ower	17.7 dBm		Auto Man Freg Offset
	it Freq Error Indwidth	-49.282 kH 15.11 MH		BW Power	99.00 % -6.00 dB		0 Hz
and the second					TATUS		

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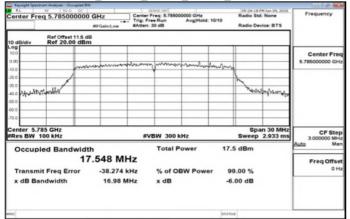
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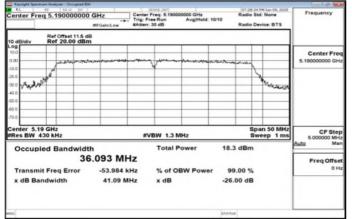
FCC_802.11n_20MHz_Chain0_5785MHz



enter Freq 5.825000000 GHz Radio Std: No Device: BTS Ref Offset 11.5 dB Ref 20.00 dBm Center F West dealer 12.0 wh an 30 CF St #VBW 300 KH S 17.7 dB **Occupied Bandwidth** 17.565 MHz Freq Offs Transmit Freq Error -51.859 kHz 99.00 % ò % of OBW Power dB Bandwidth 15.02 MHz x dB -6.00 dB

FCC_802.11n_20MHz_Chain0_5825MHz

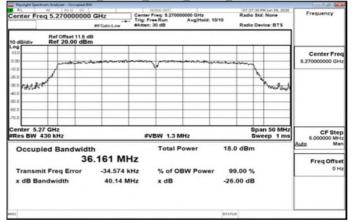
FCC_802.11n_40MHz_Chain0_5190MHz



FCC 802.11n 40MHz Chain0 5230MHz

Kaynight Spart	trum Analyser - Occupied Bit			07:36:85 PH Jun 09.	1012 0			
	eq 5.23000000	Trig	r Freq: 5.230000000 GHz Free Run AvgiHold: 1 n: 30 dB	Hz Radio Stal: None				
10 dB/div	Ref Offset 11.5 di Ref 20.00 dBn			Mkr1 5.24808 G -4.0871 dl				
10.0 0.00 -10.0	June	erastererthicerentre	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mutum 1	Center Free 5.230000000 GH			
30.0 40.0 50.0	al and a second s			- Aut	¢\$			
40.0 -70.0	23 GHz			Span 50 M	1112			
Res BW			VBW 1.3 MHz	Sweep 1				
Occup	ied Bandwidt	h 6.165 MHz	Total Power	17.5 dBm	FreqOffse			
	it Freq Error andwidth	-12.845 kHz 40.44 MHz	% of OBW Power x dB	99.00 % -26.00 dB	0H			
				harmed a				

FCC_802.11n_40MHz_Chain0_5270MHz



FCC_802.11n_40MHz_Chain0_5310MHz

Center Fre	q 5.31000000	UTTE T	enter Freq 5.3100 rig: Free Run Atten: 30 dB	reg: 5.310000000 GHz		Radio Stat: None Radio Device: BTS		Frequency
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBn							
10.0 0.00	mener				mentionedisati	2		Center Freq 5.31000000 GHz
30.0 30.0	P					Ì	"bether	
50 0 60 0 70 0								
Center 5.31 #Res BW 4	GHZ 30 kHz		#VBW 1.3 M	MHz			50 MHz p 1 ms	CF Step 5.000000 MHz
Occupi	ed Bandwidt 36	h 5.208 MHz	Total F	Power	18.7 dB	n		Auto Man
Transmi x dB Bar	t Freq Error ndwidth	-47.096 kHz 40.93 MHz		BW Power	99.00 9 -26.00 d			0 Hz
90					STATUS			

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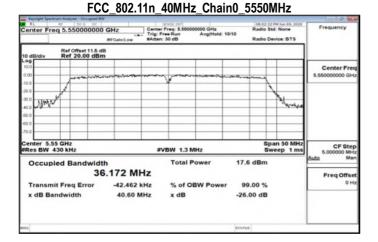
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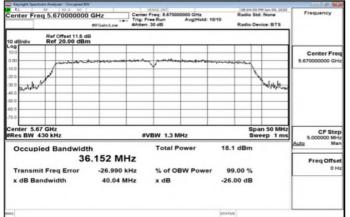


FCC_802.11n_40MHz_Chain0_5510MHz

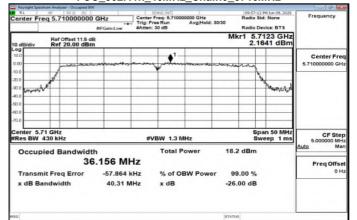
RL P	9 58 G	REGeint	Center Trig F	Freq: 5.51000 Free Run :: 30 dB	0000 GHz AvgiHold: 1	0/10	Radio St	PH Jun 09, 2020 III: None evice: BTS	Frequency
10 dB/div	Ref Offset 1 Ref 20.00								
10.00	more			Vierren	m	~~~~	m		Center Freq 5.510000000 GHz
200 200 400 hor		_	_			_	1	Mart	
40.0 40.0									
70.0 Center 5.51								an 50 MHz	CF Step
Res BW 36	0 KHZ		#	VBW 1.1 M	Hz		Sv	veep 1 ms	5.000000 MHz
Occupie	d Bandw	ldth		Total P	ower	17.3	Bm		Chello mari
		36.128	MHz						Freq Offset
Transmit	Freq Erro	-23.	415 kHz	% of OE	W Power	99.0	00 %		0 Hz
x dB Band	dwidth	40	29 MHz	x dB		-26.0	dB		
pead						STATUS			



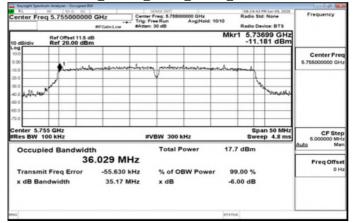
FCC_802.11n_40MHz_Chain0_5670MHz



FCC 802.11n 40MHz Chain0 5710MHz



FCC_802.11n_40MHz_Chain0_5755MHz



FCC_802.11n_40MHz_Chain0_5795MHz

Center Free	q 5.795000000	Trig				ione : BTS	Frequency
0 dB/div	Ref Offset 11.5 dl Ref 20.00 dBn						
0 20 10 0	C. Jane Tra	and the second sec	may perterbation period	make a start		_	Center Freq 5.795000000 GHz
20.0			Y I I		A		
an Alland					1	maker	
0.0							
enter 5.79					Span	50 MHz	CF Step
Res BW 1	00 kHz		#VBW 300 KHz		Sweep	4.8 ms	5.000000 MHz
Occupie	ed Bandwidt 36	h 6.029 MHz	Total Power	18.0 d	Bm		FreqOffset
Transmit	t Freq Error	-16.852 kHz	% of OBW Powe	r 99.0	0 %		0 H
x dB Ban	ndwidth	35.10 MHz	x dB	-6.00	dB		

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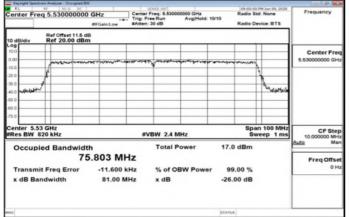
FCC_802.11ac_80MHz_Chain0_5210MHz

Keynight Space	trum Analyzer - Occupied		SENSE INT		100.07.05	PH 345 09, 2020	1019 0
Center Fre	eq 5.2100000		Center Freq: 5.2100 Trig: Free Run #Atten: 30 dB	Radio St		Frequency	
10 dB/div	Ref Offset 11.6 Ref 20.00 dt				Mkr1 5.2	479 GHz 175 dBm	
10.00						1	Center Free 5.210000000 GH
20.0 30.0 1444	4		_			frankrinks	
60.0 70.0							
Center 5.2 Res BW			#VBW 2.4 M	AHZ		n 100 MHz eep 1 ms	CF Ste 10.000000 MH
Occup	led Bandwi	^{dth} 75.798 MH	Total F	ower	18.8 dBm		Auto Ma Freq Offse
	iit Freq Error andwidth	-96.336 k 81.33 M		BW Power	99.00 % -26.00 dB		он
eq					STATUS		

enter Freq 5.290000000 GHz Gardin Std. No. ice: BTS Ref Offset 11.5 dB Ref 20.00 dBm Center F pan 100 CFS #VBW 2.4 MH 17.9 dE Total Po **Occupied Bandwidth** 75.794 MHz Freq Offs -25.583 kHz ò Transmit Freq Error % of OBW Power 99.00 % dB Bandwidth 81.09 MHz x dB -26.00 dB

FCC_802.11ac_80MHz_Chain0_5290MHz

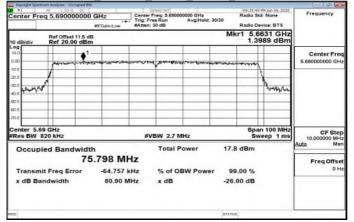
FCC_802.11ac_80MHz_Chain0_5530MHz



FCC 802.11ac 80MHz Chain0 5610MHz

AL # 1992 DC Center Freq 5.610000000	Trig	Freq: 5.510000000 GHz FreeRun AvgiHold: 10 n: 30 dB	Radio Stal: None Radio Device: BTS	Frequency
10 dB/div Ref 20.00 dBn				
10.0 0.00 10.0				Center Free 5.61000000 GH
20.0 20.0 40.0 60.0			here	
60.0				
Center 5.61 GHz Res BW 820 kHz		VBW 2.4 MHz	Span 100 MH Sweep 1 m	s 10.000000 MH
Occupied Bandwidt		Total Power	18.4 dBm	Auto Mar
	5.854 MHz			Freq Offse
Transmit Freq Error x dB Bandwidth	-72.974 kHz 81,42 MHz	% of OBW Power x dB	99.00 % -26.00 dB	0 H
			hanal	

FCC_802.11ac_80MHz_Chain0_5690MHz

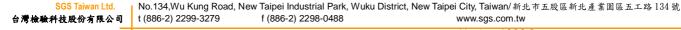


FCC_802.11ac_80MHz_Chain0_5775MHz

RL	5.775000000	GHz	enter Freq: 5.775000000 GHz rig: Free Run Avg Hold: Atten: 30 dB	Radio S	2 PH 3ur DQ 2020 Itd: None levice: BTS	Frequency
10 dB/div	Ref Offset 11.5 di Ref 20.00 dBn			Mkr1 5.73	3721 GHz 281 dBm	
- 0 0 10.0	A	elunnorasilahand	halan jaran kada dan sinaka	weds.themaland		Center Free 5.775000000 GH
40.0 50.0 60.0 70.0					Winnerfred	
Center 5.77 Res BW 10			#VBW 300 kHz		an 100 MHz ep 9,6 ms	CF Step 10.000000 MH
Occupie	ed Bandwidt 75	h 5.590 MHz	Total Power	17.4 dBm		Auto Mar
Transmit x dB Ban	Freq Error dwidth	-98.697 kHz 75.25 MHz		r 99.00 % -6.00 dB		OH
-				BTATUS		

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8.5.3 99% BW Verification for DFS Function

802.11a Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	
5240	5248.22	< 5250	
5745	5736.82	> 5725	

802.11n_HT20_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.79	< 5250
5745	5736.22	> 5725

802.11n _HT40_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	
5230	5248.08	< 5250	
5755	5736.99	> 5725	

802.11ac _VHT80_Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.90	< 5250
5775	5737.21	> 5725

Please see next page for test plots.

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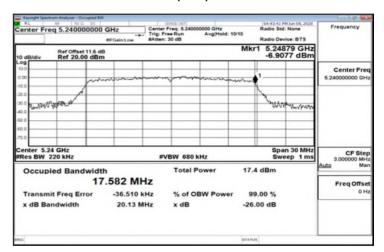
802.11a_5240MHz (Ch0)

Received Exection Androve - Grouped BW R.L BY SHO DC Center Freq 5.240000000 GHz				Center Freq: 5.240000000 GHz Trig: FreeRun Avg Hold: 10/10			Constant State Sta		d: None		
10 dB/div		an democrat					r1 5.24822 GHz -7.4250 dBm				
10.0 0.00 -10.0			annatura	here		and the second	nem d'al	1-			Center Free 5.240000000 GH
20.0 20.0 40.0 grangeling	N Mice							1	he	Anna	
50 0 60 0 70 0											
Center 5.2 Res BW				#VI	BW 620 k	Hz		_		an 30 MHz eep 1 ms	CF Ste 3.000000 MH
Occup	ied Band		.449 MI	łz	Total P	ower	17	.1 d	Bm		Auto Ma Freq Offse
	it Freq En ndwidth	ror	-39.127) 19.55 N		% of Of x dB	BW Powe		99.00 6.00			он
90							ETA	nus			

802.11a_5745MHz

	trum Analyser - Occupied 87	Y				0.00
Center Fre	q 5.74500000	Trig	serve dist ler Freq: 5.745000000 GHz Free Run AvgiHold: 10 en: 30 dB	/10	adio Std: None Radio Device: BTS	Frequency
10 dB/div	Ref Offset 11.5 d Ref 20.00 dBn			Mkr1	5.73682 GHz -6.1617 dBm	
10.0	1.	and and an an and and and and and and an	nty protocomencember	*****		Center Free 5.745000000 GH2
10.0 20.0	a stratter		V	4	2	
ADD COLANDAN	Wydloward				Wood ward and a start of the second s	
-70,0					_	
Center 5.7 Res BW 1			#VBW 300 kHz		Span 30 MHz Sweep 2.933 ms	3.000000 MPL
Occupi	ied Bandwidt	h 6.367 MHz	Total Power	18.0 0	IBm	Auto Mar Freq Offse
	it Freq Error andwidth	-46.143 kHz 12.35 MHz	% of OBW Power x dB	99.0 -6.00		0 H2
60				ETATUS		

802.11n_20MHz_5240MHz (Ch0)



802.11n_20MHz_5745MHz

RL	q 5.745000000	GHz Cent	Center Freq: 5.745000000 GHz Trig: Free Run Avg[Hold: 10/10 #Atten: 30 dB			M Jun 09, 2020 I: None vice: BTS	Frequency	
10 dB/div	Ref Offset 11.5 dl Ref 20.00 dBn			Mkr1 5.73622 GHz -6.4987 dBm				
10.0 10.0	int	mhannaghr	managener fen	monaling			Center Free 5.745000000 GH	
20.0 30.0 40.0 ALLANATU 50.0	al marked				WWW WWW	Malaha		
70.0								
Res BW 1			#VBW 300 kHz			2.933 ms	CF Step 3,000000 MH	
Occupie	ed Bandwidt 17	h .550 MHz	Total Power	17.	7 dBm		Auto Ma	
Transmit x dB Bar	t Freq Error ndwidth	-49.282 kHz 15.11 MHz	% of OBW Pov x dB		9.00 % .00 dB		0 H	
65				STAT	/6			

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802.11n 40MHz 5230MHz (Ch0)

Center Fre	aq 5.23000000	Trig:	Free Run AvgiHold: 107 n: 30 dB	07.36.05 PH Jun 05, 2020 Radio Std: None 10 Radio Device: BTS	Frequency
10 dB/div	Ref Offset 11.5 d Ref 20.00 dB			Mkr1 5.24808 GHz -4.0871 dBm	
10.0 0.00 -10.0	Juna	tonathornet descent		-American P	Center Freq 5.230000000 GHz
30.0 30.0 40.0 60.0	where a second sec			hard	
-70.0					
Res BW 4		,	VBW 1.3 MHz	Span 50 MHz Sweep 1 ms	5.000000 MHz
Occup	ied Bandwid 3	th 6.165 MHz	Total Power	17.5 dBm	Freq Offset
		-12.845 kHz 40.44 MHz	% of OBW Power x dB	99.00 % -26.00 dB	0 Hz
0				STATUS	

802.11n 40MHz 5755MHz

Center Fre	nq 5.7550000		Trig F	Freq: 6.75500 Free Run t: 30 dB	AvgiHold:	10/10	Radio 5	itd: None Device: BTS	Frequency			
10 dB/div	Ref Offset 11 Ref 20.00 c					Mkr1		3699 GHz 181 dBm				
10.0 0.00 10.0 20.0	1 minut	haden marken ha	nombren	a freedown		nadamp			Center Free 5.755000000 GHz			
-30.0 40.0 50.0 60.0	w l							manni				
Center 5.7 #Res BW				VBW 3001	kHz			pan 50 MHz eep 4.8 ms	CF Step			
Occup	led Bandw	ldth 36.029	MHz	Total F	ower	17.7		Auto Man Freq Offset				
Transmit Freq Error -55.630 x dB Bandwidth 35.17						00 % 0 dB		он				
660						STATUS						

802.11ac 80MHz 5210MHz (Ch0)

RL I	g 5.21000000	0 GHz Cente	strvit INT r Freq: 5.210000000 GHz Free Run Avg Hold: 1	Radio Std		Frequency	
10 dB/div	Ref Offset 11.5	1B	n: 30 dB	Radio Device: BTS Mkr1 5.2479 GHz -3.1475 dBm			
10.0 0.00 -10.0	Ref 20.00 dB					Center Free 5.210000000 GH	
20.0 30.0 40.0 60.0 60.0					Lucions		
70.0 Center 5.21 #Res BW 83			VBW 2.4 MHz		100 MHz ep 1 ms	CF Step 10.000000 MH	
Occupie	ed Bandwid 7	th 5.798 MHz	Total Power	18.8 dBm		Auto Ma	
Transmit x dB Ban	t Freq Error ndwidth	-96.336 kHz 81.33 MHz	% of OBW Power x dB	99.00 % -26.00 dB		он	
80				STATUS			

802.11ac 80MHz 5775MHz

RL .	N 50 0 DC 10 50 0 DC 10 5.77500000	0 GHz	Trig F	Freq: 5.77500 Free Run 1: 30 dB	0000 GHz Avg Hold: 10	0/10	Radio Std: None Radio Device: BTS		Frequency
10 dB/div	Ref Offset 11.5 Ref 20.00 dB					Mkr1		721 GHz 281 dBm	
10.0 0.00	1	_							Center Free 5.775000000 GH
-10.0	Herstender	celumpart	and the second sec	her productor book	alan to day and	nonderstation	entent		
-30.0 -40.0 50.0	La A						_	Winters	
-60.0			-	-		-	_		
Center 5.7 Res BW 1			#	VBW 300 H	Hz			n 100 MHz ep 9.6 ms	CF Step
Occupi	ed Bandwid			Total P	ower	17.4	dBm		Auto Ma
	7	5.590 N	IHz						Freq Offse
	Transmit Freq Error -9		/ kHz	% of O	BW Power		00 %		0 H
x dB Ba	ndwidth	75.25	MHz	x dB		-6.0	0 dB		
65						STATUS			

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9 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)						
		Mobile and portable client device	250mW(23.98dBm)						
U-NII-2A	\checkmark		250mW(23.98dBm) or 11dBm+10 log B						
U-NII-2C			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.

9.2 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 the power meter
- 4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
- 5. Record the max. reading and add 10 log(1/duty cycle).
- 6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

9.3 Measurement Equipment Used

SGS Conducted Room										
EQUIPMENT TYPE	MFR	MODEL NUM- BER	SERIAL NUMBER	LAST CAL.	CAL DUE.					
Power Meter	Anritsu	ML2496A	1326001	08/05/2019	08/04/2020					
Power Sensor	Anritsu	MA2411B	1315048	08/05/2019	08/04/2020					
Power Sensor	Anritsu	MA2411B	1315049	08/05/2019	08/04/2020					
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020					

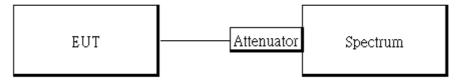
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9.4 **Test Set-up**



Note: Cable Loss= 11.50dB

9.5 **Measurement Result**

9.5.1 Conducted output power (FCC)

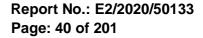
802.11a_Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	6	12.76	18.895		30		PASS
44	5220	6	12.15	16.419		30		PASS
48	5240	6	11.95	15.680		30		PASS
52	5260	6	12.41	17.432	23.98	or 11+10log(B) =	23.88	PASS
60	5300	6	12.95	19.740	23.98	or 11+10log(B) =	23.96	PASS
64	5320	6	12.99	19.923	23.98 or 11+10log(B) = 23		23.93	PASS
100	5500	6	12.03	15.972	23.98	or 11+10log(B) =	23.94	PASS
116	5580	6	12.19	16.571	23.98	or 11+10log(B) =	23.90	PASS
140	5700	6	12.81	19.114	23.98	or 11+10log(B) =	23.95	PASS
144	5720(U-NII 2C)	6	11.58	14.38	23.98	or 11+10log(B) =	24.03	PASS
144	5720 (U-NII 3)	6	6.84	4.83		30		PASS
149	5745	6	11.99	15.825	30		PASS	
157	5785	6	12.08	16.157	30			PASS
165	5825	6	12.78	18.982		30		PASS

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802.11n_HT20_Ch0

	Frequency	Data	TOTAL	TOTAL		REQUIRED		
СН	(MHz)	Rate	POWER (dBm)	POWER (mW)		LIMIT (dBm)		RESULT
36	5180	MCS0	11.90	15.504		<u>30</u>		PASS
44	5220	MCS0	11.39	13.786		30		PASS
48	5240	MCS0	11.36	13.692		30		PASS
52	5260	MCS0	11.54	14.271	23.98	or 11+10log(B) =	24.00	PASS
60	5300	MCS0	11.95	15.684	23.98	or 11+10log(B) =	24.01	PASS
64	5320	MCS0	11.97	15.756	23.98	or 11+10log(B) =	24.00	PASS
100	5500	MCS0	11.35	13.660	23.98	or 11+10log(B) =	23.99	PASS
116	5580	MCS0	11.41	13.850	23.98	or 11+10log(B) =	23.99	PASS
140	5700	MCS0	11.95	15.684	23.98	or 11+10log(B) =	24.02	PASS
144	5720(U-NII 2C)	MCS0	10.75	11.90	23.98	or 11+10log(B) =	23.98	PASS
144	5720 (U-NII 3)	MCS0	5.95	3.93	30			PASS
149	5745	MCS0	11.58	14.403	30			PASS
157	5785	MCS0	11.53	14.238	30			PASS
165	5825	MCS0	11.54	14.271	30			PASS
802.11n_H								
	Frequency	Data	TOTAL	TOTAL	REQUIRED			
СН	(MHz)	Rate	POWER	POWER		LIMIT	LIMIT	
	()		(dBm)	(mW)		(dBm)		
38	5190	MCS0	11.98	15.792		30		PASS
46	5230	MCS0	11.42	13.881		30		PASS
54	5270	MCS0	11.96	15.719	23.98	or 11+10log(B) =	27.04	PASS
62	5310	MCS0	12.15	16.422	23.98	or 11+10log(B) =	27.12	PASS
102	5510	MCS0	11.94	15.647	23.98	or 11+10log(B) =	27.05	PASS
110	5550	MCS0	11.31	13.534	23.98	or 11+10log(B) =	27.09	PASS
134	5670	MCS0	11.97	15.755	23.98	or 11+10log(B) =	27.02	PASS
142	5710(U-NII 2C)	MCS0	11.58	14.39	23.98	or 11+10log(B) =	27.05	PASS
142	5710 (U-NII 3)	MCS0	3.24	2.11		30		PASS
151	5755	MCS0	12.00	15.865		30		PASS
159	5795	MCS0	11.98	15.792		30		PASS

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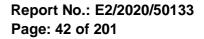


802.11ac_VHT80_Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
42	5210	MCS0	10.33	10.795		30		PASS
58	5290	MCS0	10.56	11.382	23.98	or 11+10log(B) =	30.09	PASS
106	5530	MCS0	10.31	10.745	23.98	or 11+10log(B) =	30.08	PASS
122	5610	MCS0	10.51	11.252	23.98	or 11+10log(B) =	30.11	PASS
138	5690(U-NII 2C)	MCS0	10.24	10.57	23.98	or 11+10log(B) =	30.08	PASS
138	5690 (U-NII 3)	MCS0	-1.17	0.76	30		PASS	
155	5775	MCS0	10.37	10.895		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							
		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 an-								

tenna exceeds 6 dBi.

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 \geq 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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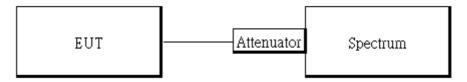
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10.3 **Measurement Equipment Used**

	SGS Conducted Room									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.					
DC Block	PASTER- NACK	PE8210	RF32	11/20/2019	11/19/2020					
Spectrum Ana- lyzer	KEYSIGHT	N9010A	MY51440113	07/15/2019	07/14/2020					
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020					

10.4 Test Set-up



Note:

Cable Loss= 11.50dB

10.5 **Measurement Result**

10.5.1 **Power spectral density**

	POWER DENSITY 802.11a MODE										
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)						
5180.00	3.68	0.30	3.98	17.00	-13.02						
5220.00	3.01	0.30	3.31	17.00	-13.69						
5240.00	2.69	0.30	2.99	17.00	-14.01						
5260.00	3.30	0.30	3.60	11.00	-7.40						
5300.00	3.09	0.30	3.39	11.00	-7.61						
5320.00	3.41	0.30	3.71	11.00	-7.29						
5500.00	1.98	0.30	2.28	11.00	-8.72						
5580.00	2.58	0.30	2.88	11.00	-8.12						
5700.00	3.90	0.30	4.20	11.00	-6.80						
5720 (U-NII 2C)	3.72	0.30	4.02	11.00	-6.98						
5720 (U-NII 3)	-1.36	0.30	-1.06	30.00	-31.06						
5745.00	0.21	0.30	0.51	30.00	-29.49						
5785.00	-0.02	0.30	0.28	30.00	-29.72						
5825.00	0.62	0.30	0.92	30.00	-29.08						

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	POWER DENS	ITY 802.11	n HT20 MOD	Ε	
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180	2.03	0.32	2.35	17	-14.65
5220	1.89	0.32	2.21	17	-14.79
5240	1.56	0.32	1.88	17	-15.12
5260	2.38	0.32	2.70	11	-8.30
5300	1.97	0.32	2.29	11	-8.71
5320	2.35	0.32	2.67	11	-8.33
5500	1.30	0.32	1.62	11	-9.38
5580	1.79	0.32	2.11	11	-8.89
5700	2.75	0.32	3.07	11	-7.93
5720 (U-NII 2C)	2.75	0.32	3.07	11	-7.93
5720 (U-NII 3)	-2.62	0.32	-2.30	30	-32.30
5745	-1.21	0.32	-0.89	30	-30.89
5785	-0.43	0.32	-0.11	30	-30.11
5825	-0.43	0.32	-0.11	30	-30.11

	POWER DENS	ITY 802.11r	n HT40 MOD	ЭE	
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5190	-1.09	0.60	-0.49	17	-17.49
5230	-1.82	0.60	-1.22	17	-18.22
5270	-1.3	0.60	-0.70	11	-11.70
5310	-0.58	0.60	0.02	11	-10.98
5510	-1.73	0.60	-1.13	11	-12.13
5550	-1.75	0.60	-1.15	11	-12.15
5670	-0.91	0.60	-0.31	11	-11.31
5710 (U-NII 2C)	-1.07	0.60	-0.47	11	-11.47
5710 (U-NII 3)	-6.06	0.60	-5.46	30	-35.46
5755	-4.26	0.60	-3.66	30	-33.66
5795	-4.52	0.60	-3.92	30	-33.92

	POWER DENSI	FY 802.11a	VHT80 MC	DE	
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5210	-6.59	0.74	-5.85	17	-22.85
5290	-6.59	0.74	-5.85	11	-16.85
5530	-7.06	0.74	-6.32	11	-17.32
5610	-7.09	0.74	-6.35	11	-17.35
5690 (U-NII 2C)	-6.15	0.74	-5.41	11	-16.41
5690 (U-NII 3)	-10.58	0.74	-9.84	30	-39.84
5775	-9.55	0.74	-8.81	30	-38.81

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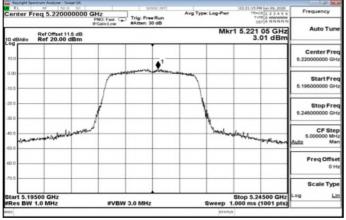
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802.11a_20MHz_5180MHz-5180

								ectrum Analyzer - So	Keysight Ips
Frequency	H Jun 89, 2020 CE 1 2 3 4 5 6 PE A WWWWWW A N N N N N	1954	Log-Pwr	Avg Type:	Trig: Free Run	NO: Fast Ca	00000 GH	req 5.1800	
Auto Tune	35 GHz 68 dBm	5.178	Mkr1		#Atten: 30 dB	GeinLow	1.5 dB	Ref Offset 11 Ref 20.00	10 dB/div
Center Fred 5.180000000 GHz					•1				10.0
Start Free 5.15600000 GHz				and	*******	1			-10.00
Stop Free 5.20500000 GHz				4		/			-20.0
CF Step 5.000000 MHa Auta Mar	wither white the	Standy-San	Madelphase				Man walt	mannen	40.0
Freq Offse 0 H					_				60.0
Scale Type		Stop 5.2	8						-70.0 Start 5.15
	(1001 pts)	000 ms	Sweep 1.0	6	3.0 MHz	#VBW		1.0 MHz	Res BW

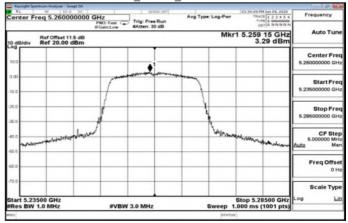
802.11a_20MHz_5220MHz-5220



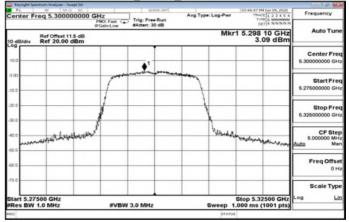
802.11a 20MHz 5240MHz-5240

TRACE 1 2 3 4 5 6 TITE A WANNA	T 1964	: Log-Pwr	Avg Type	Run	Trig: P	PMD East C	00000 G		Center F
Ref Offset 11.5 dB Mkr1 5.238 45 GHz 0 dB/div Ref 20.00 dBm 2.69 dBm									
	-		-	_		_		_	10.0
			former	- APPLICA		1			10.00
						1			20.0
where	mont	2. ales					andel	manipulation	40.0
	-		-	-	-	-		-	60.0
Í									70.0
	45 GHz 69 dBm	THE L 23 0.5 0 Coll A MANNAU 1 5.238 45 GHz 2.69 dBm	Mkr1 5.238 45 GHz	Avg Type: Leg-Pwr mick 12.3.8.5 a mick 15.2.38 45 GHz 2.69 dBm	Avg Type: Log-Pwr 20 db Mkr1 5.23 45 GHz 2.69 dBm	Mkr1 5.238 45 GHz 2.69 dBm	Hz Trig: Free Run Gen. Low Atten: 30 dB Mrg Type: Log-Per Tricca (22.8.5.8 Mkr1 5.238 45 GHz 2.69 dBm	Avg Type Log-Per Trig: Free Run Avg Type Log-Per Trice Type Autom 2014 States S	Ref Offset 115.dB Mkr1 5.238 45 GHz Ref 20.00 dBm 2.69 dBm

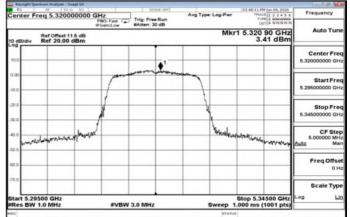
802.11a 20MHz 5260MHz-5260



802.11a_20MHz_5300MHz-5300



802.11a_20MHz_5320MHz-5320



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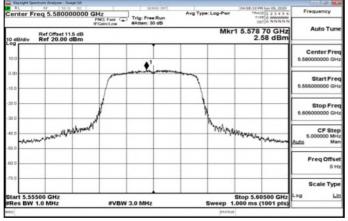
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802.11a 20MHz 5500MHz-5500

Keysight [pactrum.knalyzer - Sough SA	SUNST INT		04 56:53 PH Jun 89, 2020	
Center Freq 5.50000000 GH	Z D: Fast Co Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
Ref Offset 11.5 dB 10 dB/div Ref 20.00 dBm	ain:Low #Atten: 30 dB	Mkr	1 5.498 35 GHz 1.98 dBm	Auto Tune
10.0	A1			Center Free 5.50000000 GHz
-10.0	/ marine			Start Free 5.475000000 GHz
30.0	1			Stop Free 5.525000000 GH
40.0 annot reprint marting the		Ware	How in survey	CF Step 5.000000 MH0 Auto Mar
60.0				Freq Offset 0 Hz
-70.0				Scale Type
Start 5.47500 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 1.	Stop 5.52500 GHz 000 ms (1001 pts)	Log Lin
eic)		STATUS		

802.11a_20MHz_5580MHz-5580



802.11a 20MHz 5700MHz-5700



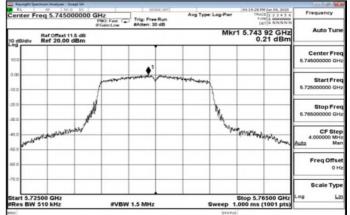
802.11a_20MHz_5720MHz_UNII 2C

Keyseght Spectrum Analyzer - Swept SA					- 2 🛍
Center Freq 5.72000000	PNO: East	Trig: Free Run	Avg Type: Log-Pwr	109-41-40 PM Aut 09, 2020 TRACE 1 2 3 4 5 6 TVTE A WWWW DET A NNNNN	Frequency
Ref Offset 11.5 dB	(FGein Low	#Atten: 30 dB	Mkr1	5.718 55 GHz 3.71 dBm	Auto Tun
10.0	-				Center Fre 5.720000000 GH
200 200 400 50.0 50.0	- Aller		Superior and	meran march	Start Fre 5.69600000 GH
50.0 70.0					Stop Fre 6.74600000 GH
Center 5.72000 GHz Res BW 1.0 MHz		3.0 MHz	Sweep 1.0	Span 50.00 MHz 00 ms (1001 pts)	CF Ste 5.000000 MH Auto Mi
2 2 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	,718 55 GHz	3,71 dBm			Freq Offs 0 H
6 7 8 9 10 11					Scale Typ
4 [' ' ' ' '		*	STATUS	,	

802.11a_20MHz_5720MHz_UNII 3

R1. HF 50	Seept SA	SENSEINT		109-41-59 PM Jun 09, 2020	
Center Freq 5.720	000000 GHz	Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
Ref Offset	IFGain:Low	#Atten: 30 dB	Mkr	1 5.725 15 GHz -1.36 dBm	Auto Tun
		provided and so that a second second	1 -		Center Fre 5,720000000 GH
00.0 20.0 30.0 40.0 50.0	and the stands			"myles and million	Start Fre 5.695000000 GH
50.0 70.0					Stop Fre 5.745000000 GH
				Span 50.00 MHz	CF Ste
Res BW 510 kHz		V 1.5 MHz	Sweep 1.	000 ms (1001 pts)	5.000000 MH
Res BW 510 kHz	#VBV				5.000000 Mi Auto Ma
2 3 4	#VBV	Y FU			5.000000 MH

802.11a_20MHz_5745MHz-5745



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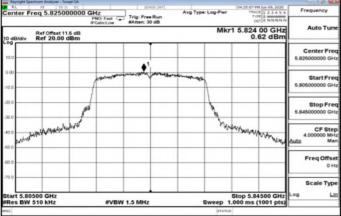
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802.11a_20MHz_5785MHz-5785

								chrum Analyzar - 5	Keysight Ips
Frequency	H Jun 89, 2020 26 1 2 3 4 5 6 PE A WWWWWW ET A N N N N N	THAC	pe: Log-Pwr		Trig: Free Run	PMD: Fast Ca	00000 G	eq 5.7850	
Auto Tune	76 GHz 02 dBm	5.785	Mkr1		#Atten: 30 dB	FGein:Low	1.5 dB	Ref Offset 1 Ref 20.00	10 dB/div
Center Freq 5.786000000 GHz				_	_				10.0
Start Free 5.765000000 GHz				ing and all proved	-unitritional large	mound			10.00
Stop Free 5.805000000 GH2			14	-			1		20.0
CF Step 4.000000 MHs Aute Mar	moundant	numer	Mr.	-			uinet"	hand the second	40.0
Freq Offset 0 Ha				-		-			60.0
Scale Type	0500 GHZ								5tart 5.76
	1001 pts)	000 ms (Sweep 1.		1.5 MHz	#VBV		510 kHz	Res BW

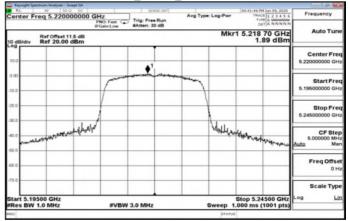
802.11a_20MHz_5825MHz-5825



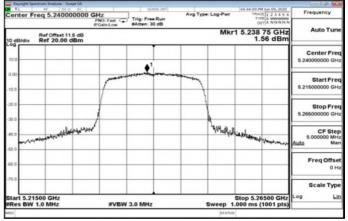
802.11n_20MHz_5180MHz-5180

Frequency	S PH Jun EV, 2020 RACE 1 2 3 4 5 6 TURE & WWWWW DET A NNNNN	TRA	: Log-Pwr	Avg Type	e Run	1	tz NO: Fast C+	00000 GH	req 5.1800	Center F		
Auto Tur	1 90 GHz 2.03 dBm	r1 5.181 2.	Mkr		0 dB/div Ref 20.00 dBm							
Center Fre 5.180000000 GH					▲ ¹					10.0		
Start Fre 5.15500000 GH				- man		and algorithm	1000			10.00		
Stop Fre 5.20500000 GH			4					1		20.0		
CF Ste 5.000000 Mi Auto Ma	Window and and	Freehund gerran	Majionay					Arthref	how and the second	40.0		
Freq Offse		-								60.0		
Scale Typ	.20500 GHz	Stop 5.2				3.0 MHz				70.0 Start 5.15		

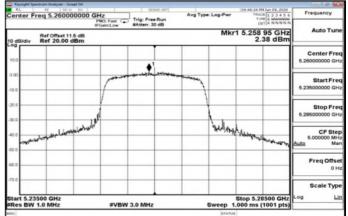
802.11n 20MHz 5220MHz-5220



802.11n_20MHz_5240MHz-5240



802.11n_20MHz_5260MHz-5260



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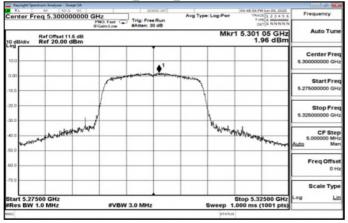
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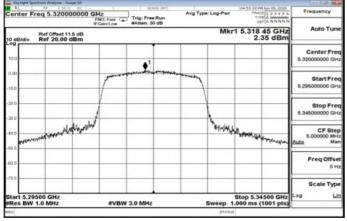
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802.11n_20MHz_5300MHz-5300



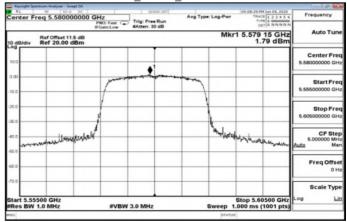
802.11n_20MHz_5320MHz-5320



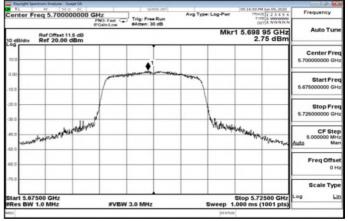
802.11n_20MHz_5500MHz-5500

Keysight Spectrum Analyzer - Swept SA KL N/ 50 G DC	SENSE (NY)		15 08 22 PH Jun 19, 2020	Frequency
Center Freq 5.500000000 GH	C Fast C Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TURE & WANNIN DET A NNINNN	Frequency
Ref Offset 11.5 dB	ain Low #Atten: 30 dB	Mkr	1 5.498 00 GHz 1.30 dBm	Auto Tune
10.0	A1			Center Free 5.50000000 GH
-10.5	(aparter and array	manual		Start Free 5.475000000 GH
20.0				Stop Fre 5.52500000 GH
100 unue which the		When	minimum	CF Ste 5.000000 MH Auto Ma
60.0				Freq Offse 0 H
-70.0				Scale Type
Start 5.47500 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 1.	Stop 5.52500 GHz 000 ms (1001 pts)	Log Li
660		STATUS		

802.11n 20MHz 5580MHz-5580



802.11n_20MHz_5700MHz-5700



802.11n_20MHz_5720MHz_UNII 2C

Kayusgirt Spectrum Analyzar - See					0.2.0
Center Freq 5.72000		Trig: Free Run	Avg Type: Log-Pwr	(19151104 PM Jun (19, 2100) TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
Ref Offset 11. 10 dB/div Ref 20.00 c	IFGain:Low	#Atten: 30 dB	Mkr	5,721 15 GHz 2.75 dBm	Auto Tune
10.0		↓ ¹			Center Free 5.720000000 GH
20.0 20.0 40.0	- Andrew and		harmon	hand have many and and	Start Fre 5.69500000 GH
50,0 60.0 70.0				a name of the states	Stop Free 5.745000000 GH
Center 5.72000 GHz Res BW 1.0 MHz	#VB	V 3.0 MHz	Sweep 1.	Span 50.00 MHz 000 ms (1001 pts)	CF Ster 5.000000 MH Auto Ma
1 N 1 J 2 3 4 5	5,721 15 GHz	2.75 dBm			Freq Offse 0 H
6 7 9 9 10					Scale Type
4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1		*	status		

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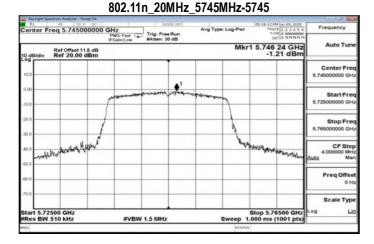
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802.11n_20MHz_5720MHz_UNII 3

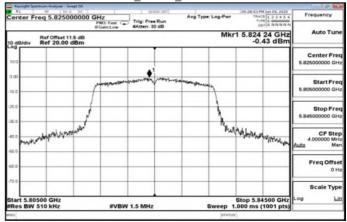
Keysight Spectrum Analyzar - Swept					0 2 📫
Center Freq 5.720000	PNO: Fast Ca	Trig: Free Run	Avg Type: Log-Pwr	109:51:23 PM Jun 119, 2020 TRACE 1 2 3 4 5 6 TYTE A WWWWW DET A NNNN N	Frequency
Ref Offset 11.5 10 dB/div Ref 20.00 dB		#Atten: 30 dB	Mkr	1 5.725 15 GHz -2.62 dBm	Auto Tune
10.0	-	*****	**********		Center Free 5.720000000 GH
20.0 20.0 40.0 50.0 50.0	-one-mat			and the second second	Start Free 5.69600000 GH
40.0 -70.0				and the second s	Stop Free 5.745000000 GH:
Center 5.72000 GHz Res BW 510 kHz	x	1.5 MHz	Sweep 1	Span 50.00 MHz .000 ms (1001 pts)	CF Step 5.000000 MH Auto Ma
1 N 1 1 2 3 3 4 6 6	5,725 15 GHz	-2.52 dBm			Freq Offse 0 H
6 7 8 9 9 10					Scale Type Log <u>Lir</u>
4		*	STATUS		



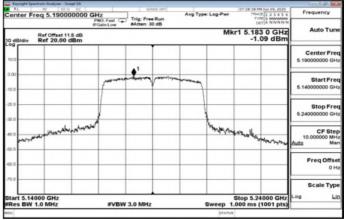
802.11n_20MHz_5785MHz-5785

Frequency	1 2 3 4 5 6 1 2 3 4 5 6 1 4 NNNNN	TRAC	Log-Pwr	Avg Type	ence INT		Hz PNO: Fast G FGain:Low	00000 G	eq 5.7850	enter F
Auto Tur	04 GHz 43 dBm	5.786 -0.4	Mkr					1.5 dB	Ref Offset 1 Ref 20.00	0 dB/div
Center Fre 5.785000000 GH						_				10.0
Start Fre 5.76500000 GF				anthought	Yhw.	Lagenceant	-provel	1		10.0
Stop Fre 5.80500000 GH			h					1		20.0
CF Ste 4.000000 Mi-	maying	Turalipito	ha					w/	Managalith	40.0
Freq Offse				-		-			-	60.0
Scale Typ										70.0
og L	1001 pts)				z	W 1.5 MH	#VB			Res BW

802.11n_20MHz_5825MHz-5825



802.11n_40MHz_5190MHz-5190



802.11n_40MHz_5230MHz-5230

Keysight Spectrum Analyzer - Swept	ISA I	E SINGLOVI		07:30:19 PH Jun 89, 2020	1012
Center Freq 5.230000	PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 TVIE A MININ	6 Frequency
Ref Offset 11.5 0 dB/div Ref 20.00 dE	dB		M	kr1 5.228 9 GHz -1.82 dBm	Auto Tune
10.0					Center Free 5.230000000 GH
10.0	menno	adarbard house of	to search		Start Free 5.18000000 GH
20.0					Stop Fre 5.29000000 GH
40.0 automan malerated	are		Young	and a part of the second	CF Ste 10.000000 MH Auto Ma
KD 0					Freq Offse 0 H
-70.0 Start 5.18000 GHz				Stop 5.28000 GHz	Scale Type
Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep	1.000 ms (1001 pts	

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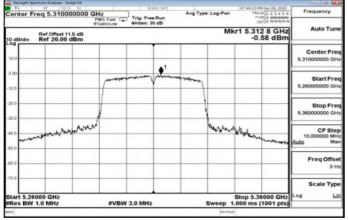
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802.11n_40MHz_5270MHz-5270

							ge SA	ectrum Analyzar - Soa	Keynight Sp
Frequency	PH Jan 89, 2020 HCE 1 2 3 4 5 6 TYPE A WWWWWW DET A NNNNN	1954	e: Log-Pwr	Avg Ty	Free Run	Kant () Tr	0000 GH	req 5.27000	
Auto Tune	67 7 GHz .30 dBm	kr1 5.26	M		en: 30 dB	ntow #/	IFG 5 dB	Ref Offset 11. Ref 20.00 d	10 dB/div
Center Free 5.27000000 GHz				-					10.0
Start Free 5.22000000 GHz				the state of the s					18.8
Stop Free 5.32000000 GH									-20.0
CF Step 10.000000 MH Auta Mar	mon	when the	limines				water	man	40.0 40.0
Freq Offse 0 H				-	_	_		_	60.0
Scale Type	32000 GHz	Stop 5.3							-70.0 Start 5.22
	(1001 pts)		Sweep 1	_	WHz	#VBW 3.0		1.0 MHz	#Res BW

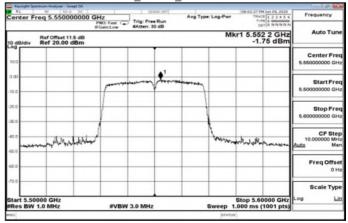
802.11n_40MHz_5310MHz-5310



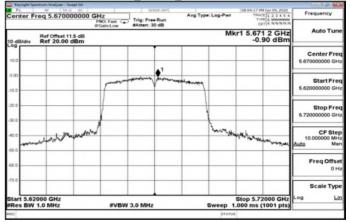
802.11n_40MHz_5510MHz-5510

Keysight Spectrum Analyzer - Swept SA. KL III 50 D DC	I MANSE IN	1	107.51 (09 PH Jun 19, 2020	Frequency
Center Freq 5.510000000 0	PNO: Fast C Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TURE & WANNAN DET A NANNAN	Frequency
Ref Offset 11.5 dB	IFGein:Low #Atten: 30 dB	M	cr1 5.507 7 GHz -1.73 dBm	Auto Tun
10.0				Center Fre 5.510000000 GH
10.0	particular and press	thornoon		Start Fre 5.45000000 GH
20.0				Stop Fre 5.56000000 GH
100 www.enerterthetheren		hu	hallotherman	CF Ste 10.000000 Mi Auto Mr
60.0				Freq Offse
-70.0				Scale Typ
Start 5.46000 GHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 1	Stop 5.56000 GHz .000 ms (1001 pts)	Log Li
CER		STATU	5	

802.11n 40MHz 5550MHz-5550



802.11n_40MHz_5670MHz-5670



802.11n_40MHz_5710MHz_UNII 2C

yulgirt Spectrum Analyzer - Swept SA				
ter Freq 5.710000000 GHz	Trig: Free Run	Avg Type: Log-Pwr	09/56/33 PM Jun (09, 2020) TRACE 1 2 3 4 5 6 TYPE A WWWWW OPT A NNNNN	Frequency
IFGain;Low Ref Offset 11.5 dB B/div Ref 20.00 dBm	#Atten: 30 dB	Mk	r1 5.707 4 GHz -1.07 dBm	Auto Tun
مارید در میروند. مارید در میروند میروند از مارید از مارید در ماری		-		Center Fre 5.710000000 GH
annor and and the state of the		harre	Same and	Start Fre 5.66000000 GH
And other				Stop Fre 5.750000000 GH
ter 5.71000 GHz 5 BW 1.0 MHz #VBW 3	3.0 MHz		Span 100.0 MHz 000 ms (1001 pts)	CF Ste 10.000000 MH Auto Ma
N 1 7 5.707 4 GHz	-1.07 dBm			Freq Offs 0 F
				Scale Typ
111	*	STATUS		

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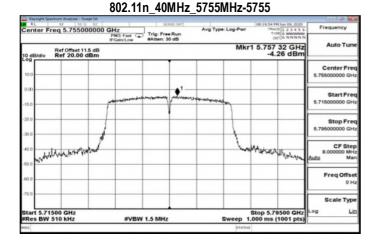
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802.11n_40MHz_5710MHz_UNII 3

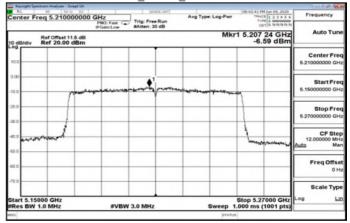
Keysight Spectrum Analyzer -:					
Center Freq 5.710	PNO: Fast Ca	Trig: Free Run	Avg Type: Log-Pwr	109:56:52 PM Jun 119, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNN N	Frequency
Ref Offset		#Atten: 30 dB	Mk	r1 5.725 6 GHz -6.06 dBm	Auto Tun
10.0	مرور میرون مرور میرون	and the second sec	1-		Center Fre 5.710000000 GH
20.0 20.0 20.0 40.0 50.0 40.0 50.0				the work and a series of the	Start Fre 5.56000000 GH
50.0 damantana ang ang ang ang ang ang ang ang ang					Stop Fre 6.76000000 GH
Center 5.71000 GHz Res BW 510 kHz	#VBV		Sweep 1	Span 100.0 MHz 000 ms (1001 pts)	CF Ste 10.000000 MH Auta Ma
1 N 1 F 2 3 4 5	5.725 6 GHz	-6,06 dBm		E	Freq Offse
6 7 8 9 10 11					Scale Typ
41 190			STATUS		



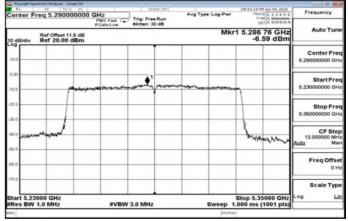
802.11n_40MHz_5795MHz-5795

Keyvight Spectrum Analyz R.L. IIF	100 X	1 1 40				108 24 36 PF	Line 19, 2120	0 0 0
Center Freq 5.7	P3	C East Co Trig: Fre	Run	Avg Type: Log-	Pwr	TRAC	123456 A WWWWW 7 A NNNNN	Frequency
Ref Office	set 11.5 dB 0.00 dBm	ain:Low #Atten: 3	0 dB		Mkr1	5.798	60 GHz 52 dBm	Auto Tun
10.0	_				-			Center Fre 5.795000000 GH
10.0			min	unannan	1			Start Fre 5.755000000 GH
20.0	1							Stop Fre 5.83600000 GH
10.0	ama				han	Ampuly	ANT YOM	CF Ste B.000000 MH Auto Mi
60.0	_				+			Freq Offs
70.0								Scale Typ
Start 5.75500 GH Res BW 510 kH		#VBW 1.5 MHz		Swee			500 GHz 1001 pts)	Log L
CON					TATUS			

802.11ac_80MHz_5210MHz-5210



802.11ac_80MHz_5290MHz-5290



802.11ac_80MHz_5530MHz-5530

Contract Trig Procession Trig Procession Trig Procession Trig Procession Trig Procession Procession<	
Ref Offset 11.5.db Mkr1 5.526 40 GHz 10 dbl/dv -7.06 dBm 00 dbl/dv -7.06 dB	Frequency
100 000 100 100 100 100 100 100	Auto Tune
	Center Fre
	Start Fre
anne and Auto	Stop Fre
(1)	CF Ste 12.000000 Mi- Ma
	Freq Offse
72.0 Stop 5.59000 GHz Log	Scale Type
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.000 ms (1001 pts)	

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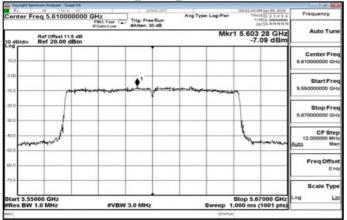
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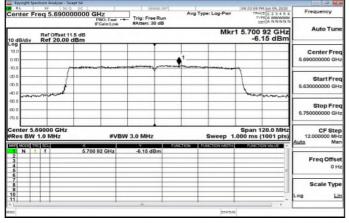
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802.11ac_80MHz_5610MHz-5610



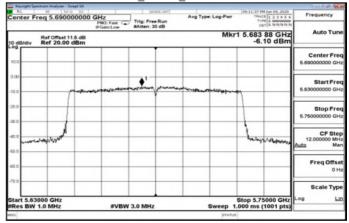
802.11ac_80MHz_5690MHz_UNII 2C



802.11ac_80MHz_5690MHz_UNII 3

enter Freg	50.0	30	1	584	SE-INT	Aug Tup	e: Log-Pwr	09:33(2)	1 PM. Jun (15, 2020	Frequency
enter Freq	5.69000	P	NC: Fast C	Trig: Free		AND TAP	e. Log-P wi		DET A NONNA	
0 dB/div Re	Offset 11.	5 dB	2010/L DW	in the second se			Mkr	1 5.72	7 44 GHz	Auto Tune
10 0 0 10 0					diate			↓ ¹		Center Free 5,69000000 GH
20.0		r feise af spinishe	and the second			and a start of the		l		Start Fre 5-630000000 GH
50 0 ++++++++++++++++++++++++++++++++++	may of								innoninglio	Stop Fre 5.750000000 GH
Res BW 510	kHz	£		V 1.5 MHz	FUN		Sweep 1	.000 ms	120.0 MHz (1001 pts)	
N 1 2 3 4 6		5,727 4	4 GHz	-10,58 dB	im					Freq Offse 0 H
6 7 8										Scale Typ
9 10 11										

802.11ac_80MHz_5690MHz-5690

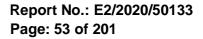


802.11ac_80MHz_5775MHz-5775

	H Jun 19, 2020				or per			nga SA	en Analyzer - So	Keynight Spectrum
Frequency	CE 1 2 3 4 5 6 DE A NNNN N	TRA	Log-Pwr	Avg Type	Run	Trig: Free	NO: Fast Ca	314	q 5.7750	enter Freq
Auto Tuni	2 5 GHz 54 dBm	r1 5.75	Mk		0 dB	#Atten: 3	Sein:Low	.5 dB	tef Offset 1 tef 20.00	dB/div R
Center Free 5.775000000 GH										où
Start Free 5.725000000 GH		n-mail	الرار وجوار حوار المراجع		Je-1900-140	ant instruction	-sicarnipoly	ne standa	report	ao 1.0
Stop Free 5.825000000 GH										19
CF Step 10.000000 MH Auto Mar	Lawrence								1	and the state of t
Freq Offse 0 H										2.0
Scale Type	2500 GHz (1001 pts)					1.5 MHz				art 5.72500
	(1001 pts)		BTATUS		-	1.5 MHz	#404		UKHZ	2 CES DAY 310

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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 5 MHz above or below 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)	PK: -27 (dBm/MHz)	PK: 68.3 (dBµV/m)		
RSS-247 §6.2.2.2	$FR = 27 \; (ubin/winz)$	FR. 00.3 (UBµ V/III)		
15.407(b)(3)				
RSS-247 §6.2.3.2				
	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		

*1 beyond 75 MHz or more above of the bandedge.

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

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

*4 from 5 MHz above or below the band edge increasing linearly to a level of 27

dBm/MHz at the band edge.

 $EIRP = ((E^*d)^2) / 30$, 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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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:

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				
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUM- BER	LAST CAL.	CAL DUE.
Broadband An- tenna	SCHWAZBECK	VULB 9168	9168-617	11/04/2019	11/03/2020
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2019	12/24/2020
Horn Antenna	Schwarzbeck	BBHA9120D	1187	01/10/2020	01/09/2021
Loop Antenna	ETS.LINDGREN	6502	143303	04/28/2020	04/27/2021
3m Site NSA	SGS	966 chamber D	N/A	07/12/2019	07/11/2020
Spectrum Ana- lyzer	KEYSIGHT	N9010A	MY51440113	07/15/2019	07/14/2020
Pre-Amplifier	EMC Instruments	EMC184045B	980135	11/20/2019	11/19/2020
Pre-Amplifier	EMC Instruments	EMC9135	980234	11/20/2019	11/19/2020
Pre-Amplifier	EMC Instruments	EMC12630SE	980271	11/20/2019	11/19/2020
Attenuator	Woken	WATT-218FS- 10	RF25	11/20/2019	11/19/2020
High Pass Filter	R&S	F13 HPF 3GHz	RF64	11/20/2019	11/19/2020
Low Pass Filter	EWT	EWT-56-0019	RF46	11/20/2019	11/19/2020
Notch Filter	EWT	EWT-54-0038	RF55	11/20/2019	11/19/2020
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	11/20/2019	11/19/2020
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	11/20/2019	11/19/2020
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	11/20/2019	11/19/2020

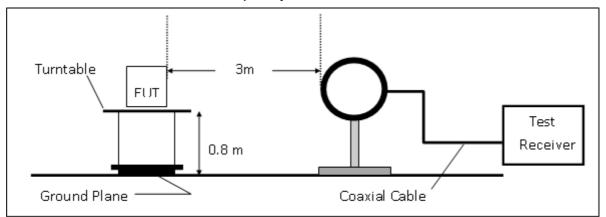
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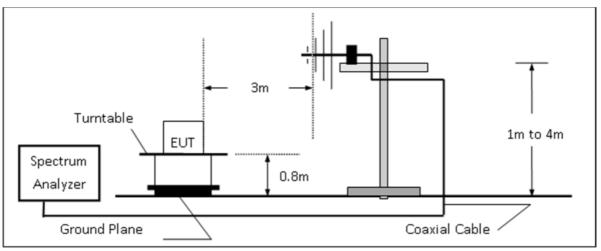


11.3 Test SET-UP

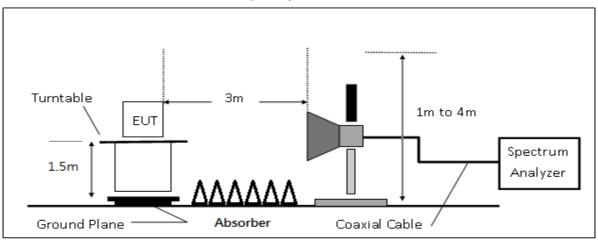
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(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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11.4 Measurement Procedure

- **1.** 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 .
- **3.** 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.
- 6. 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.
- 7. 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.
- 8. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- **9.** 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 RA = Reading Amplitude AF = Antenna Factor CL = Cable Attenuation Factor (Cable Loss) AG = Amplifier Gain

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)

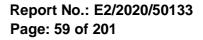
11.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

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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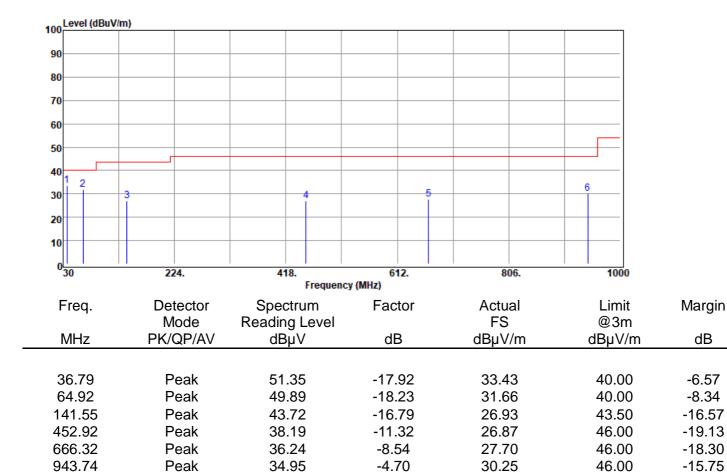




11.7 Radiated Spurious Emission Measurement Result

11.7.1 Below 1GHz Worst-Case Data:

Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-20
Test Frequency	:5220 MHz	Temp./Humi.	:21.2/62
Test Mode	:TX CH MID	Antenna Pol.	:VERTICAL
EUT Pol	:E2 Plan	Engineer	:Kailin

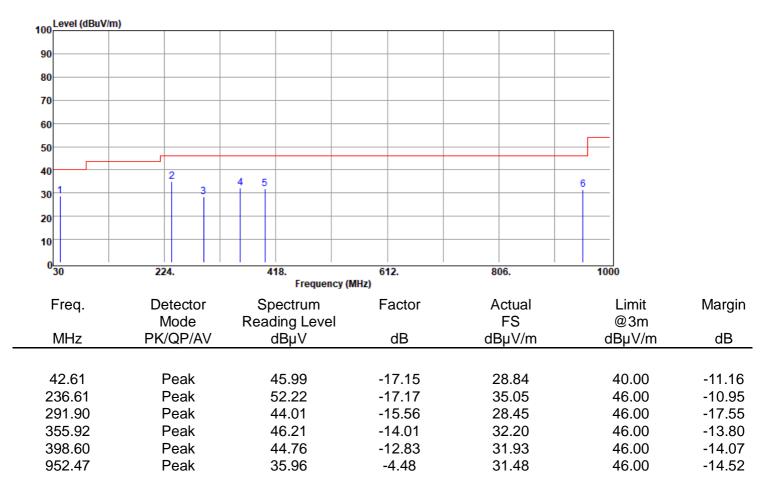


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-20
Test Frequency	:5220 MHz	Temp./Humi.	:21.2/62
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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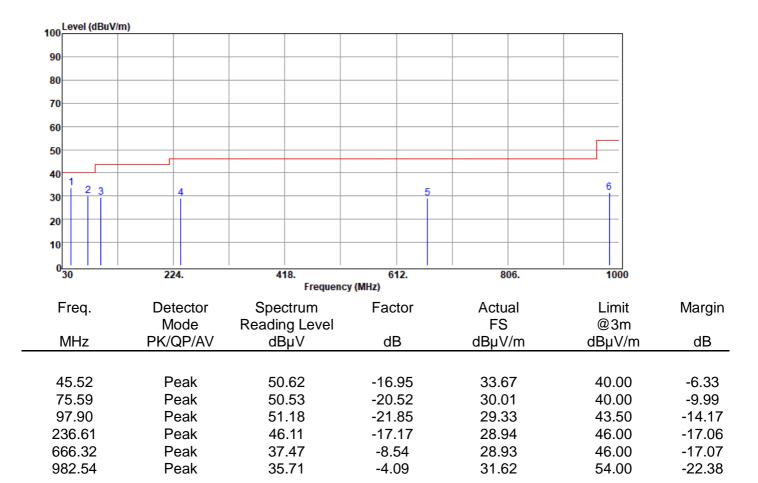
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5300 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.2/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-20
Test Frequency	:5300 MHz	Temp./Humi.	:21.2/62
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

100 Level (dBuV/m)					
90						
80						
70						
60						
50						
40	2					
30		3		4 5	6	
20						
10						
030	224.	418.	612.	806.	1000	
50	224.	Frequency (M		000.	1000	
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
128.94	Peak	49.40	-17.99	31.41	43.50	-12.09
243.40	Peak	51.30	-16.96	34.34	46.00	-11.66
356.89	Peak	46.79	-13.99	32.80	46.00	-13.20
784.66	Peak	38.52	-6.17	32.35	46.00	-13.65
908.82 947.62	Peak Peak	37.59 37.59	-5.18 -4.61	32.41 32.98	46.00 46.00	-13.59 -13.02
541.0Z	FEak	31.39	-4.01	32.90	40.00	-13.0Z

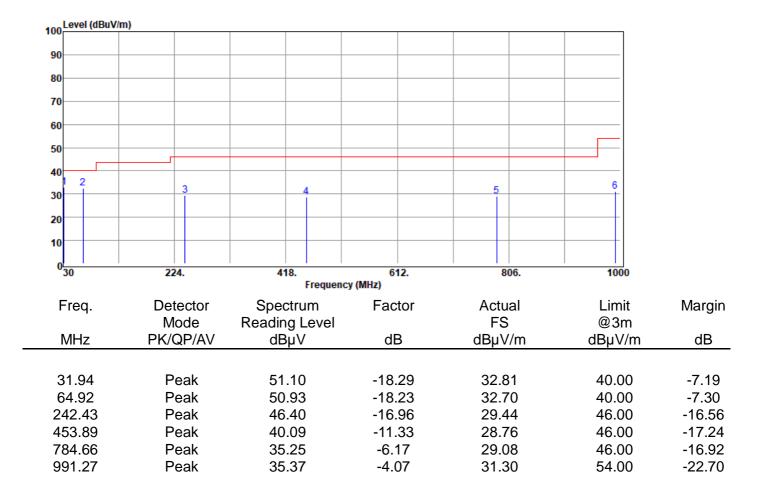
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5580 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.2/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



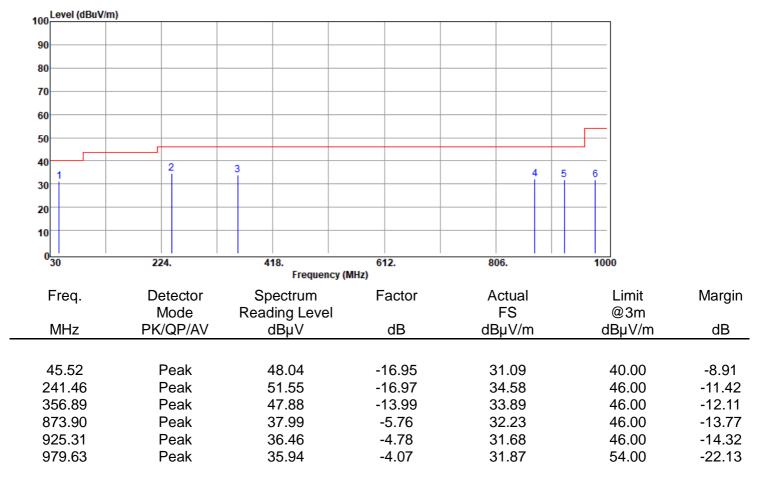
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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-20
Test Frequency	:5580 MHz	Temp./Humi.	:21.2/62
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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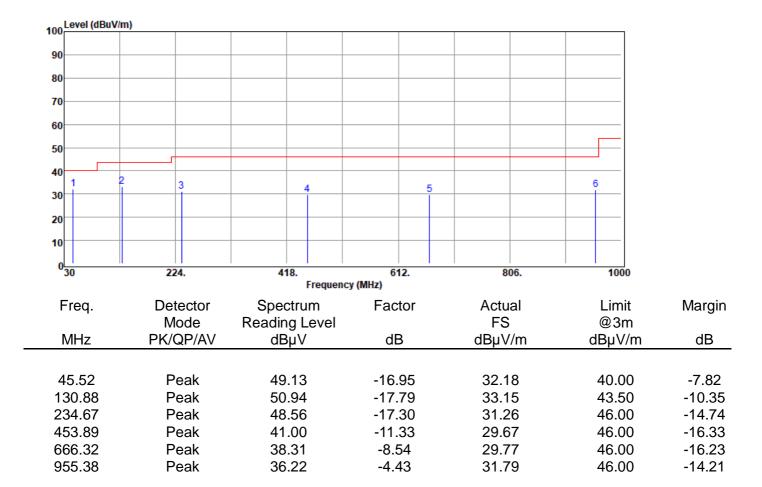
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5785 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.2/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



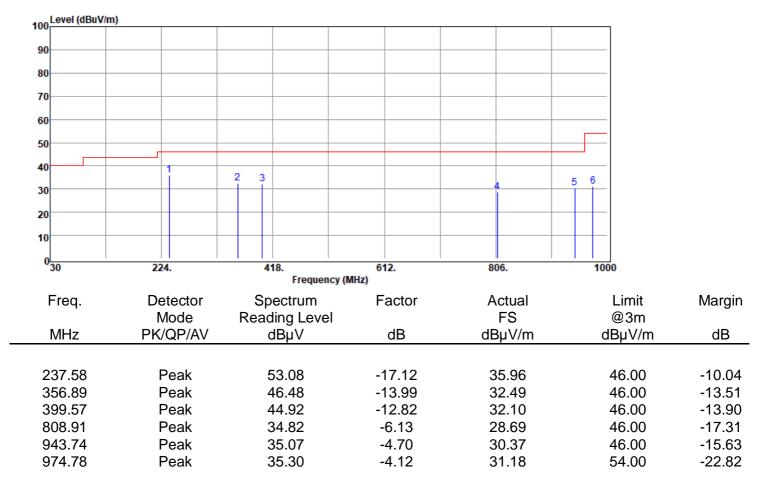
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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-20
Test Frequency	:5785 MHz	Temp./Humi.	:21.2/62
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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SGS Taiwan Ltd.

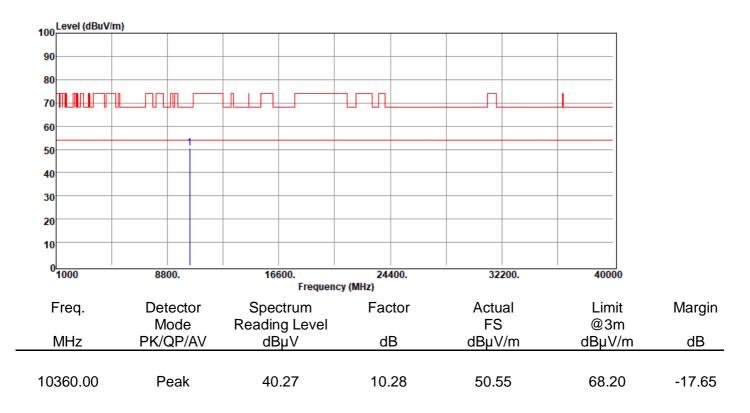
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

www.sgs.com.tw



11.7.2 Above 1GHz Worst-Case Data:

Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-22
Test Frequency	:5180 MHz	Temp./Humi.	:24.4/64
Test Mode	:TX CH LOW	Antenna Pol.	:VERTICAL
EUT Pol	:E2 Plan	Engineer	:Kailin



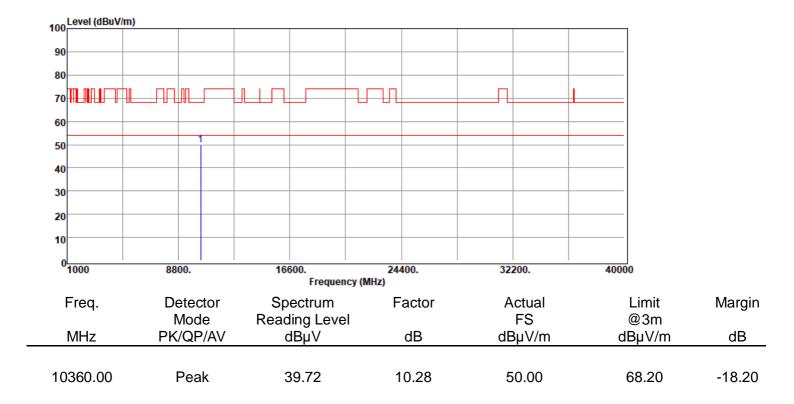
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5180 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

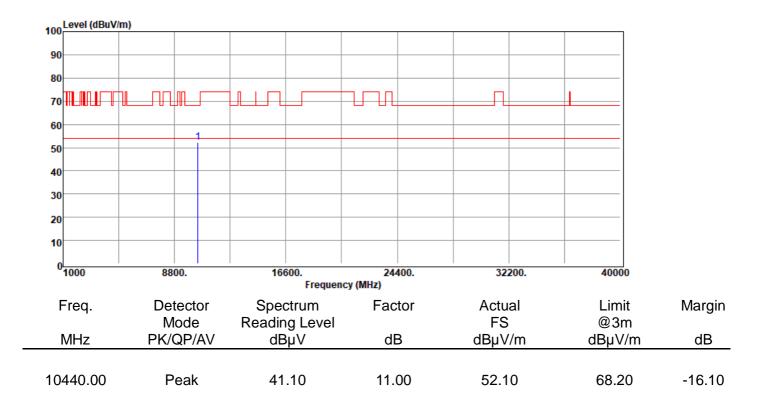


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5220 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin

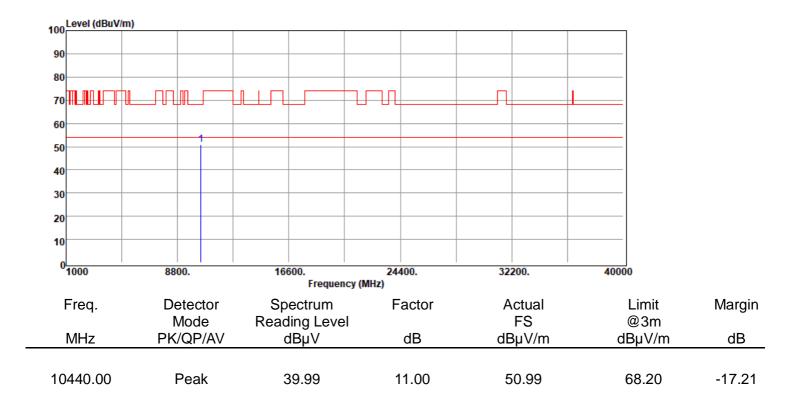


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5220 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

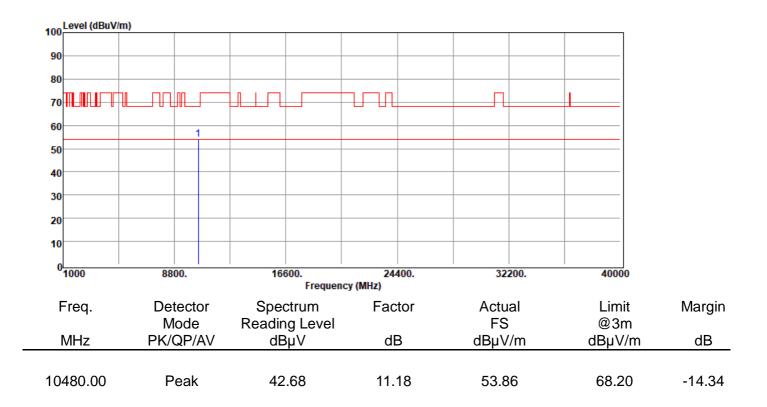


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5240 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin

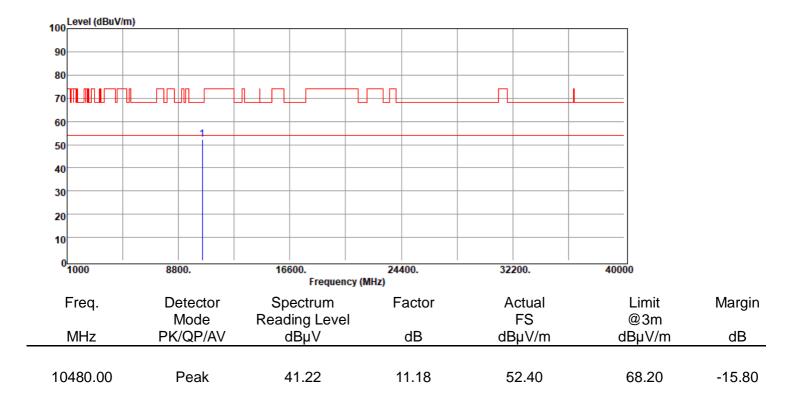


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 1
Test Frequency	:5240 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

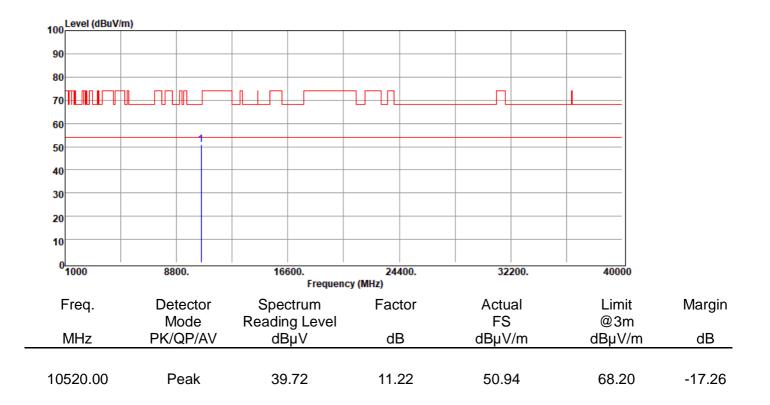


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 2
Test Frequency	:5260 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

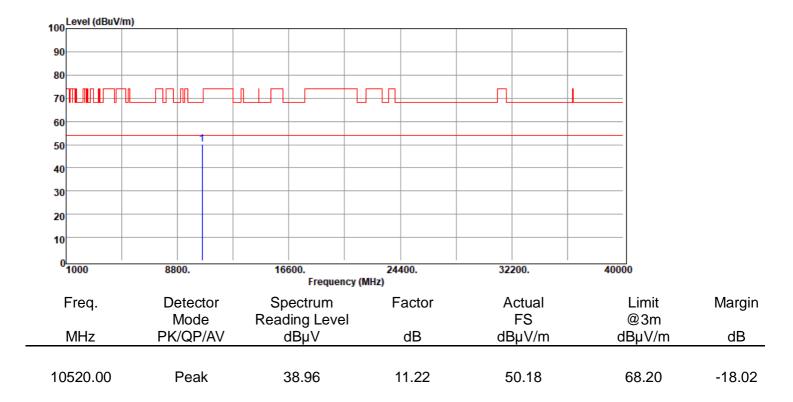


Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 2
Test Frequency	:5260 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

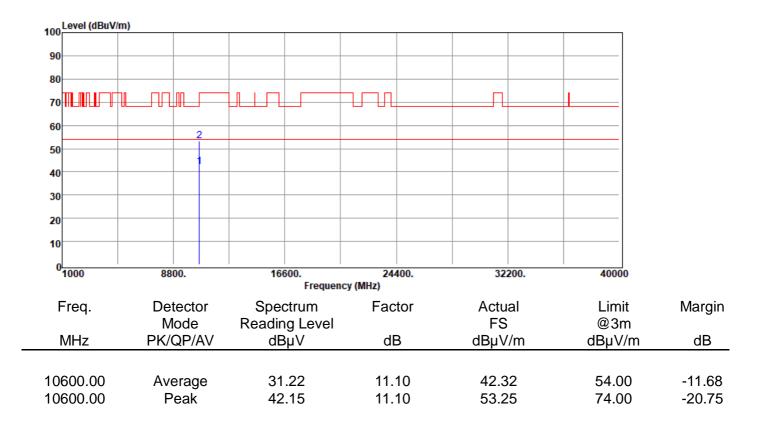


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 2
Test Frequency	:5300 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

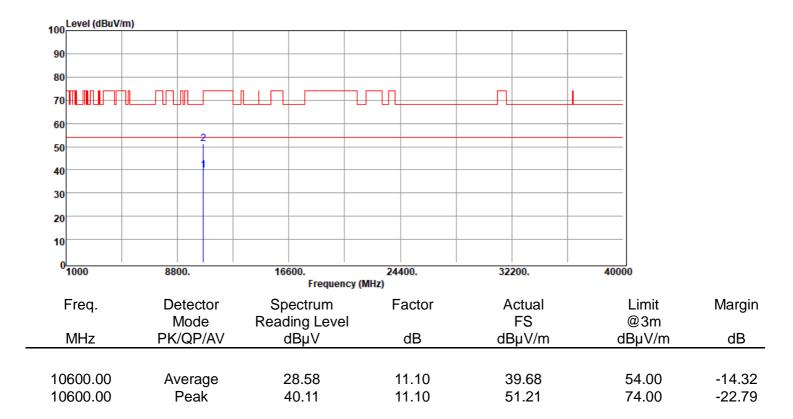


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 2
Test Frequency	:5300 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

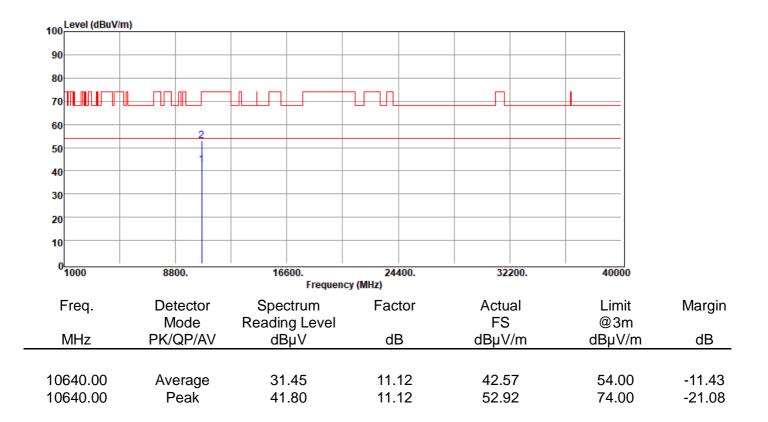


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 2
Test Frequency	:5320 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin



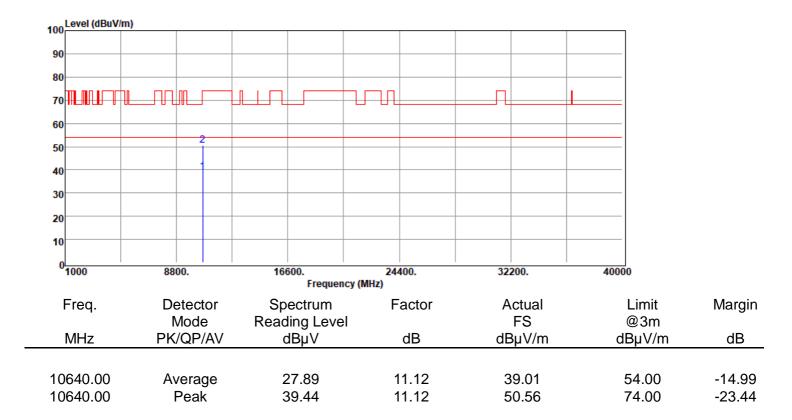
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 2
Test Frequency	:5320 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

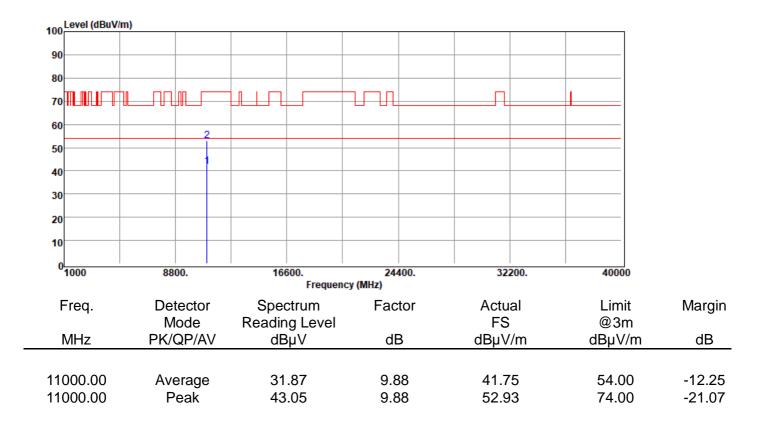


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5500 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

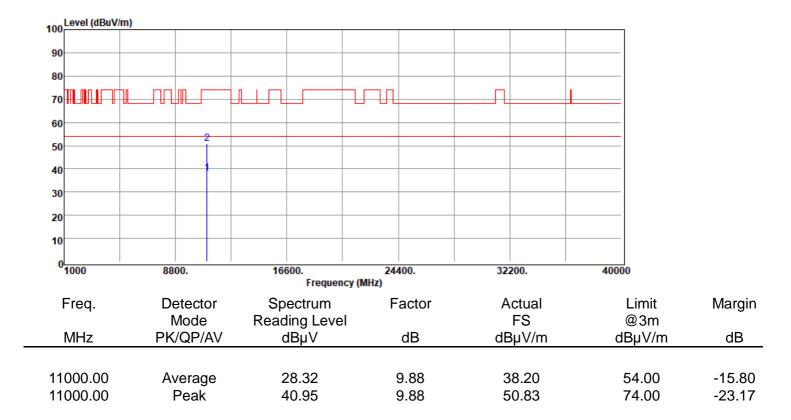


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5500 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

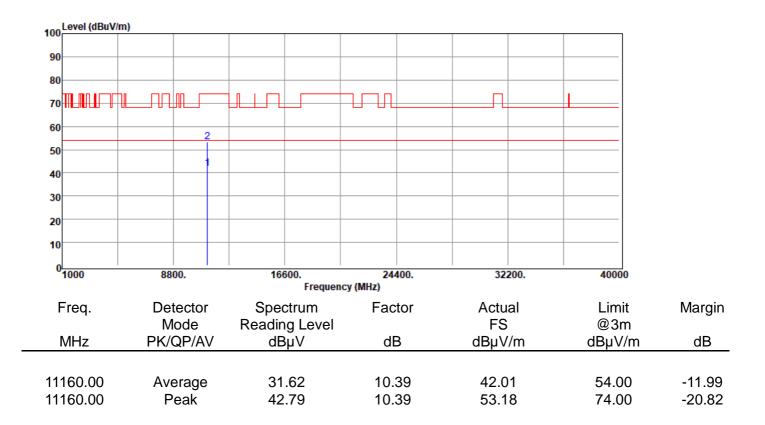


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5580 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

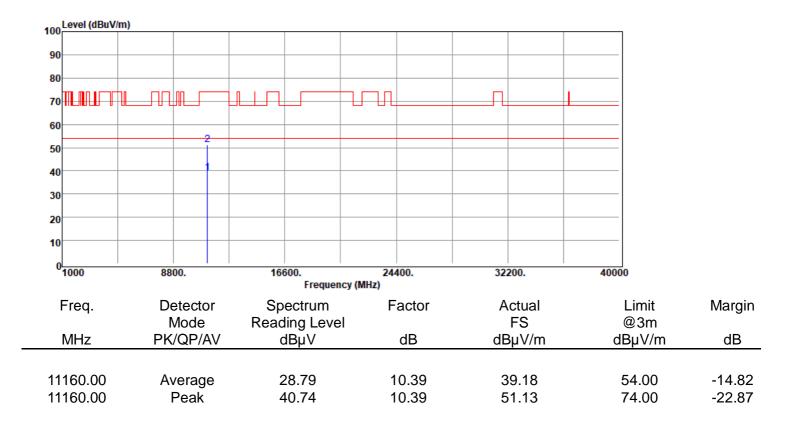


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5580 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/65
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

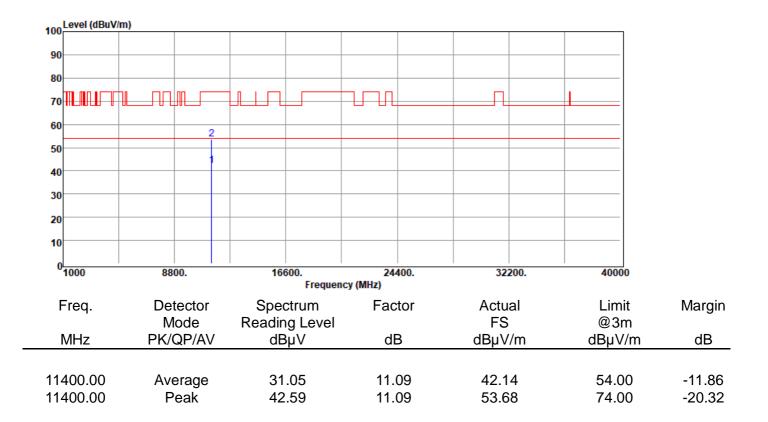


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5700 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5700 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

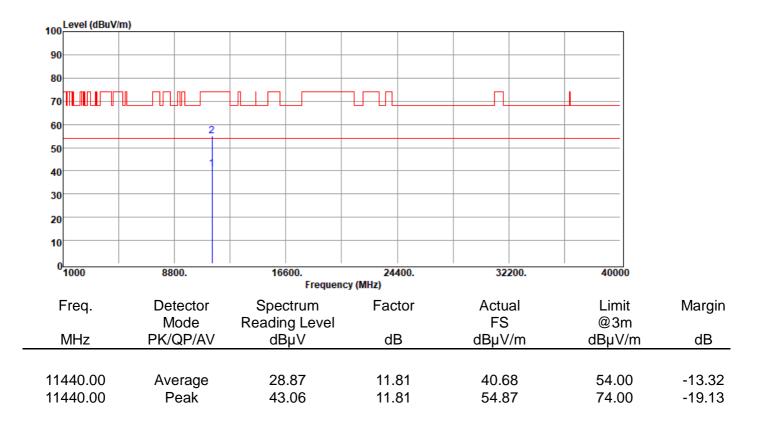


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3-4
Test Frequency	:5720 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

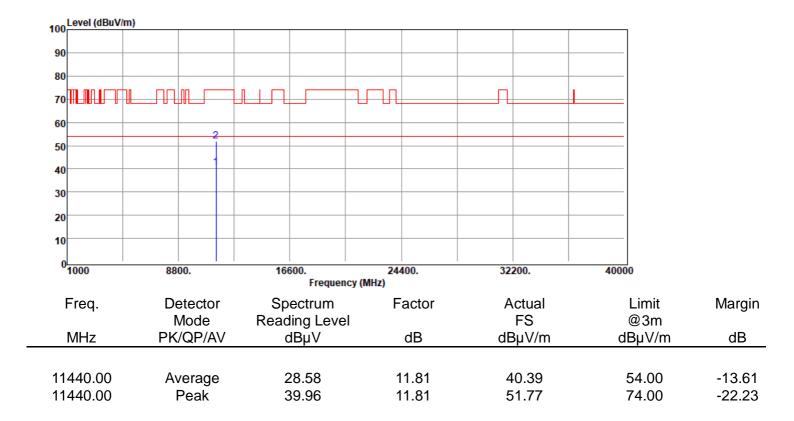
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 3-4	Test Date	:2020-06-22
Test Frequency	:5720 MHz	Temp./Humi.	:24.5/63
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

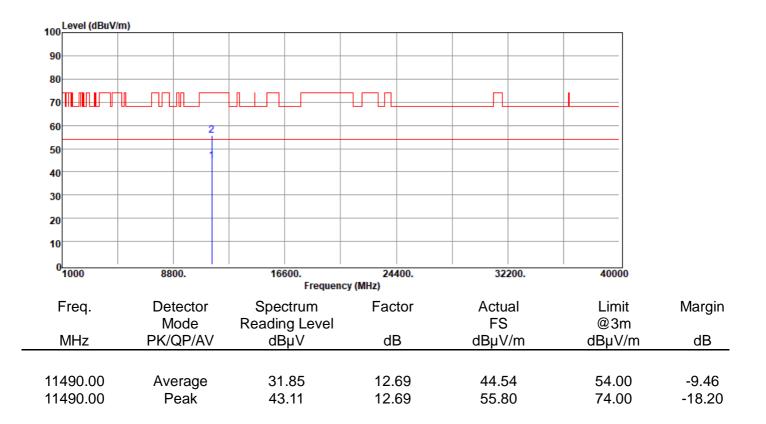


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5745 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

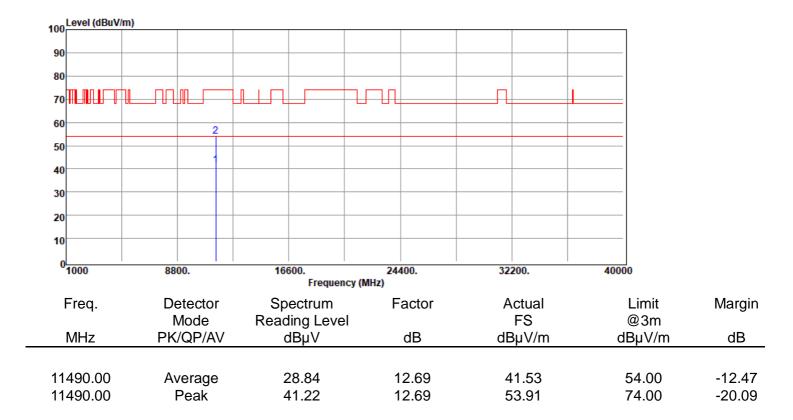


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5745 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

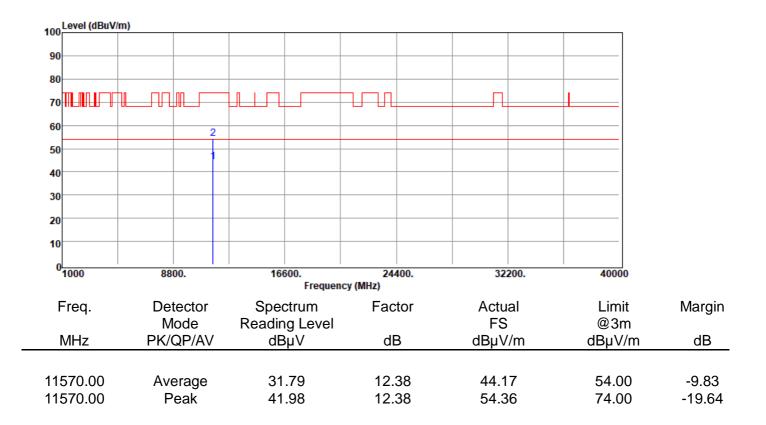


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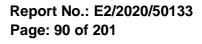
Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5785 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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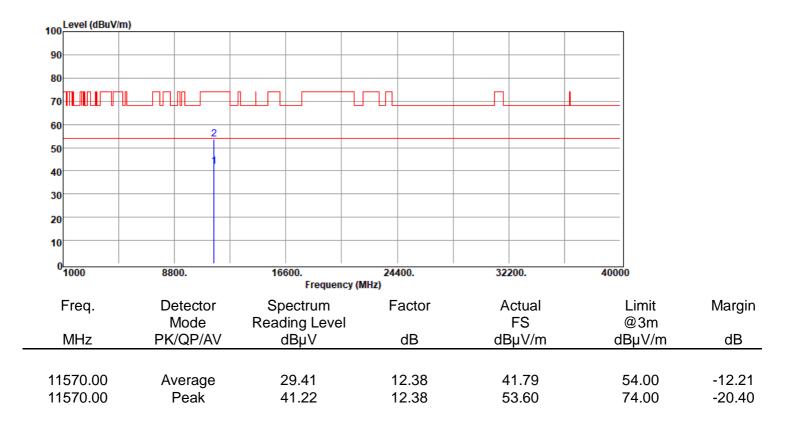
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5785 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

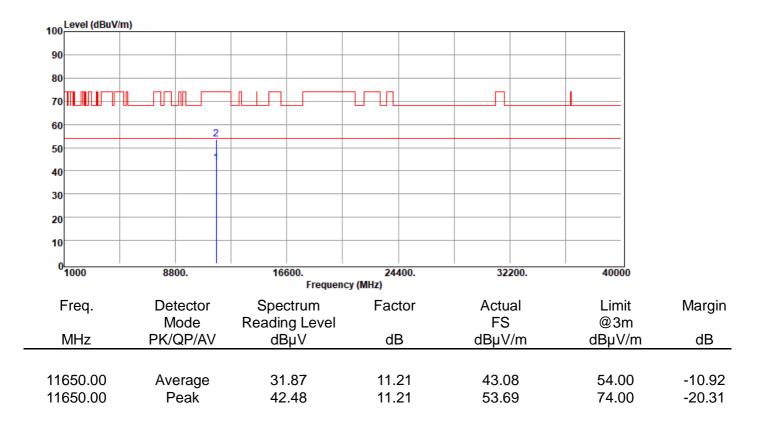


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5825 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

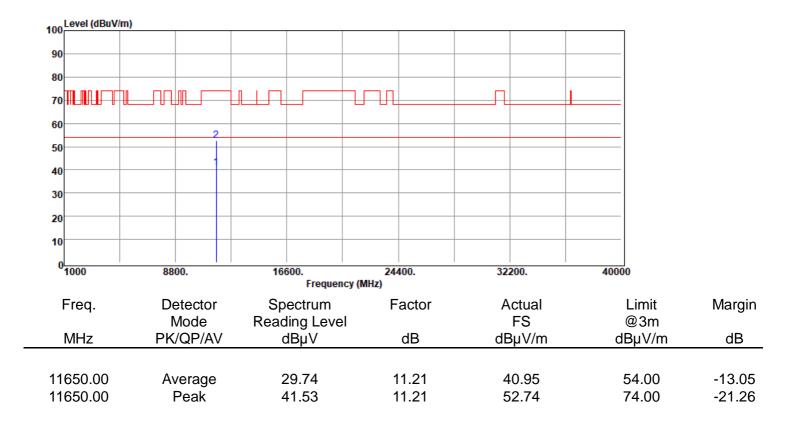


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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5825 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/63
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin

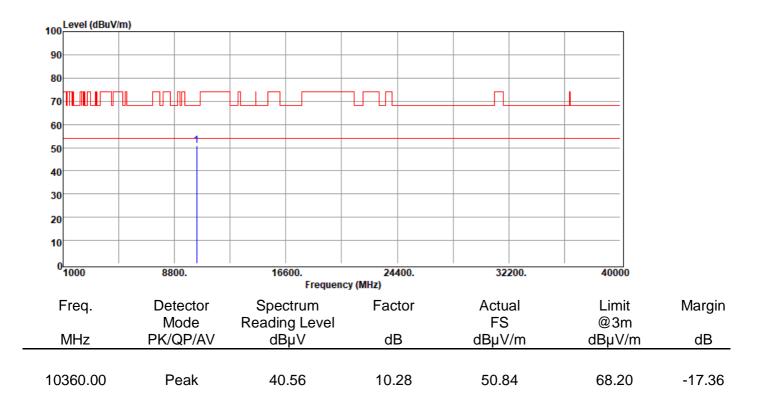


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 1
Test Frequency	:5180 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

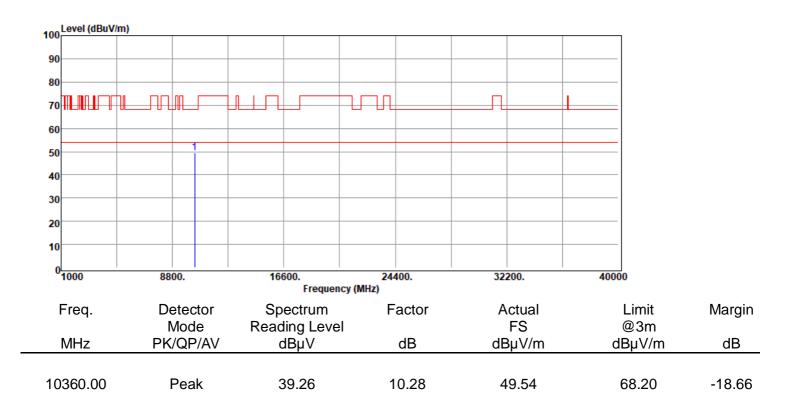
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



:E2/2020/50133	Test Site	:966 Chamber D
:802.11n20 / Band 1	Test Date	:2020-06-22
:5180 MHz	Temp./Humi.	:24.5/62
:TX CH LOW	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n20 / Band 1 :5180 MHz :TX CH LOW	:802.11n20 / Band 1Test Date:5180 MHzTemp./Humi.:TX CH LOWAntenna Pol.

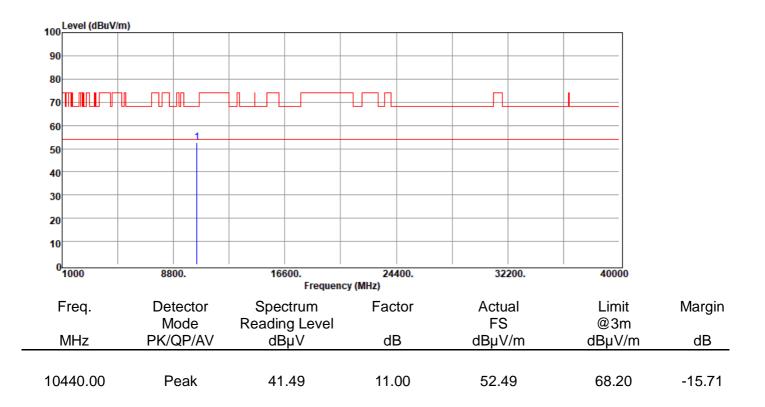


Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 1
Test Frequency	:5220 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

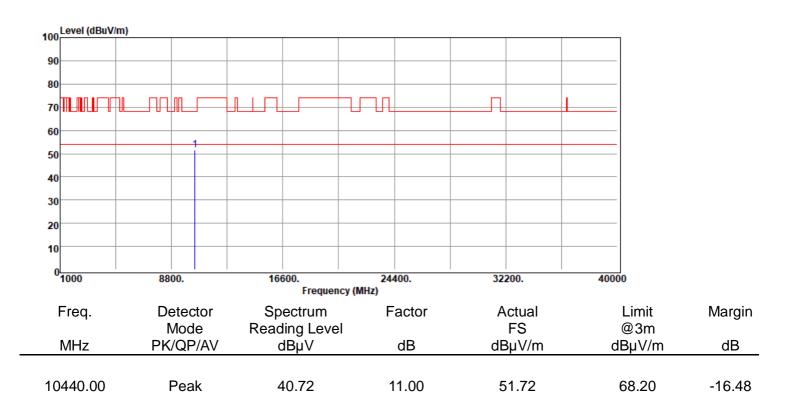
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 1	Test Date	:2020-06-22
Test Frequency	:5220 MHz	Temp./Humi.	:24.5/62
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

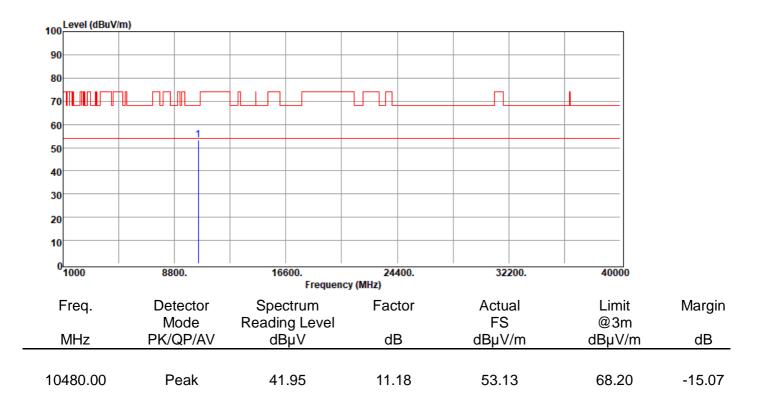


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 1
Test Frequency	:5240 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan
EUT Pol	:E2 Plan

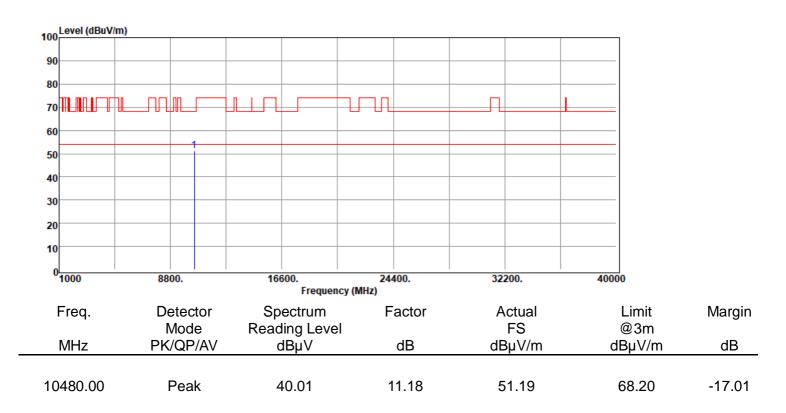
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 1	Test Date	:2020-06-22
Test Frequency	:5240 MHz	Temp./Humi.	:24.5/62
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin
		e e	

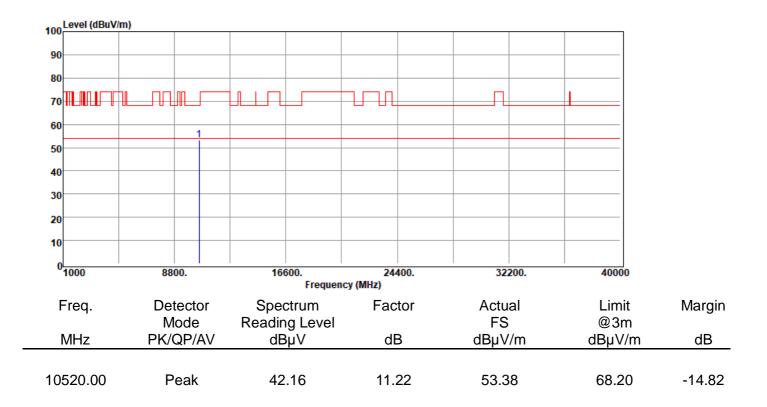


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 2
Test Frequency	:5260 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan
Test Mode	:TX CH LOW

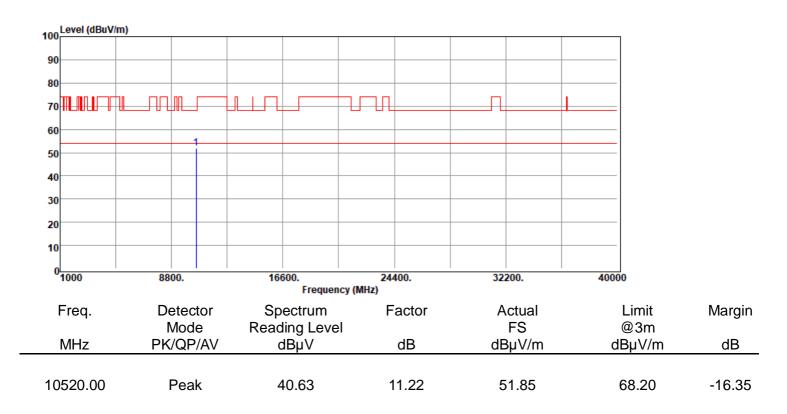
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 2	Test Date	:2020-06-22
Test Frequency	:5260 MHz	Temp./Humi.	:24.5/62
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

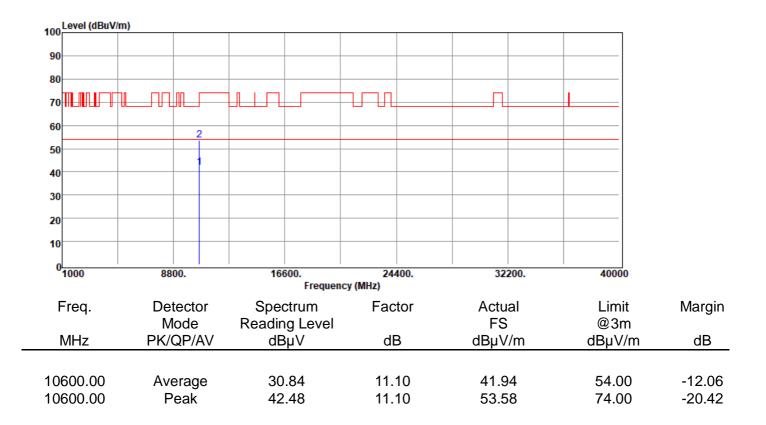


Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 2
Test Frequency	:5300 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

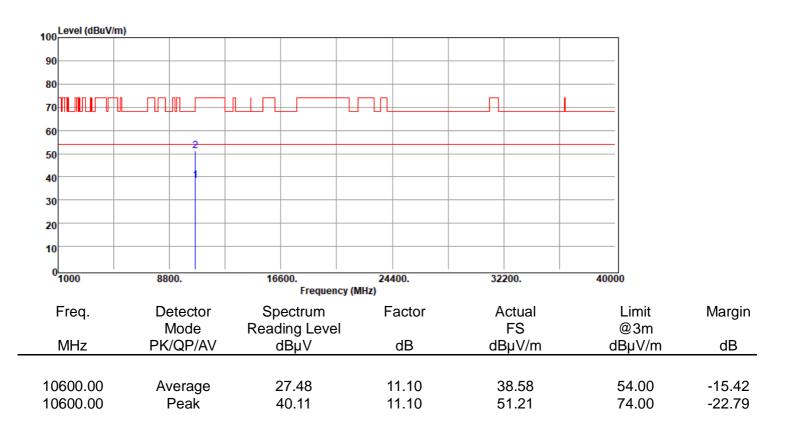
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/61
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 2	Test Date	:2020-06-22
Test Frequency	:5300 MHz	Temp./Humi.	:24.4/61
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

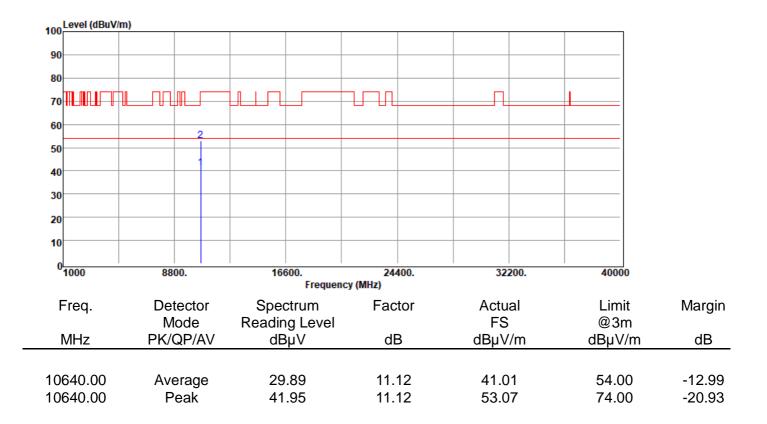


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 2
Test Frequency	:5320 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

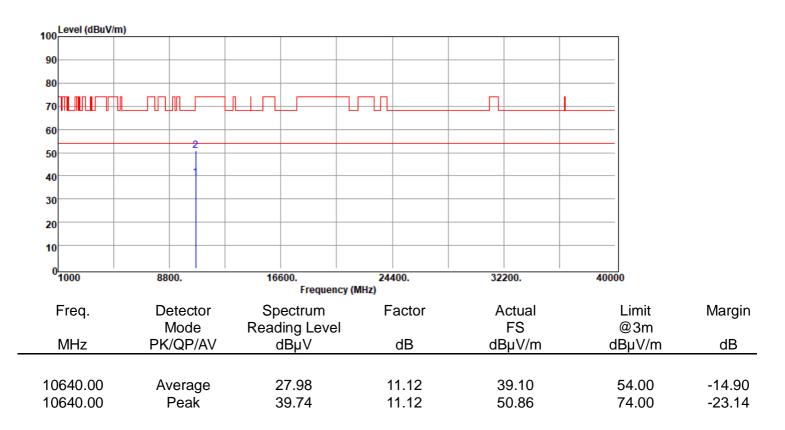
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/61
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 2	Test Date	:2020-06-22
Test Frequency	:5320 MHz	Temp./Humi.	:24.4/61
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

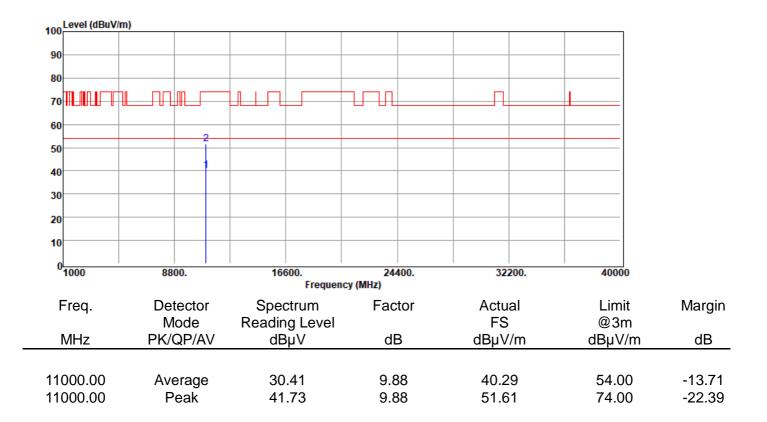


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 3
Test Frequency	:5500 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

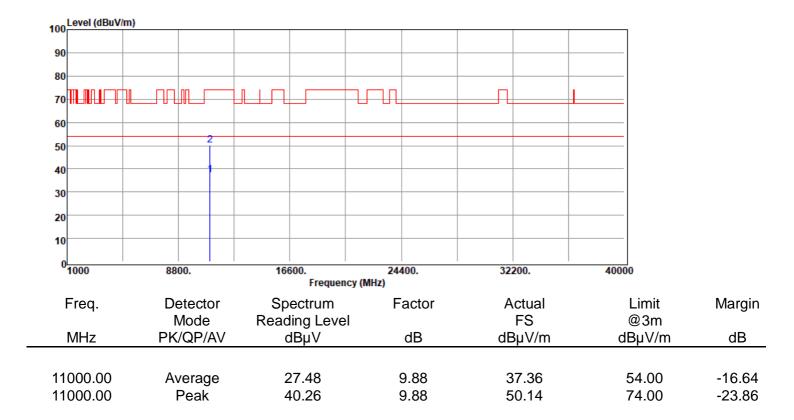
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/61
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 3	Test Date	:2020-06-22
Test Frequency	:5500 MHz	Temp./Humi.	:24.4/61
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

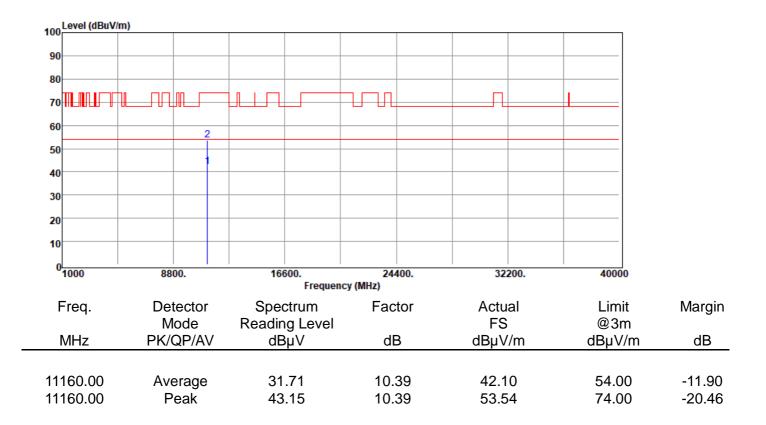


除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Report Number	:E2/2020/50133		
Operation Mode	:802.11n20 / Band 3		
Test Frequency	:5580 MHz		
Test Mode	:TX CH MID		
EUT Pol	:E2 Plan		
EUT Pol	:E2 Plan		

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/61
Antenna Pol.	:VERTICAL
Engineer	:Kailin

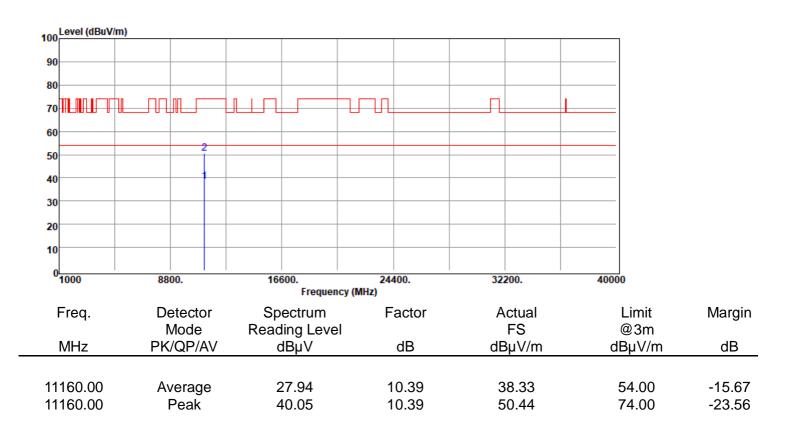


除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

D



Report Number	:E2/2020/50133	Test Site	:966 Chamber I
Operation Mode	:802.11n20 / Band 3	Test Date	:2020-06-22
Test Frequency	:5580 MHz	Temp./Humi.	:24.4/61
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



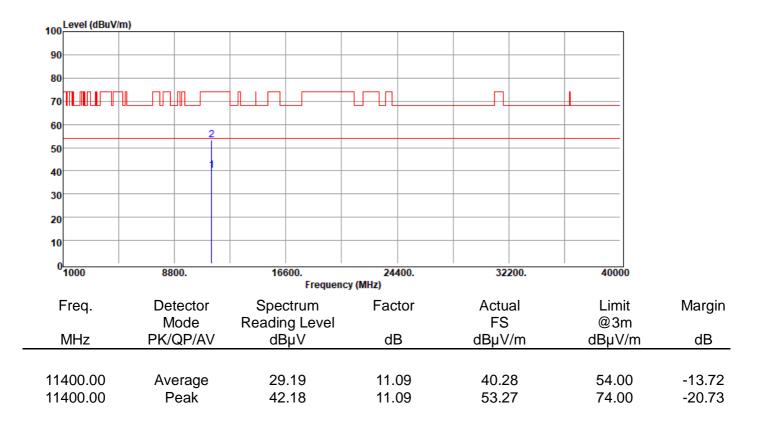
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。



Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 3
Test Frequency	:5700 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

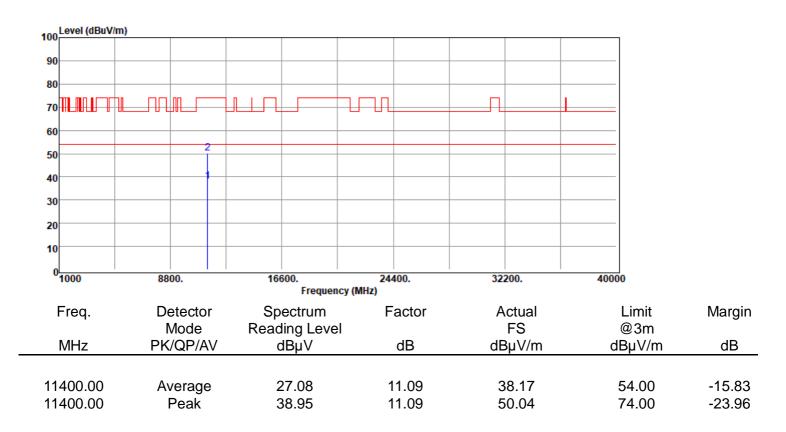
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/61
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 3	Test Date	:2020-06-22
Test Frequency	:5700 MHz	Temp./Humi.	:24.4/61
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

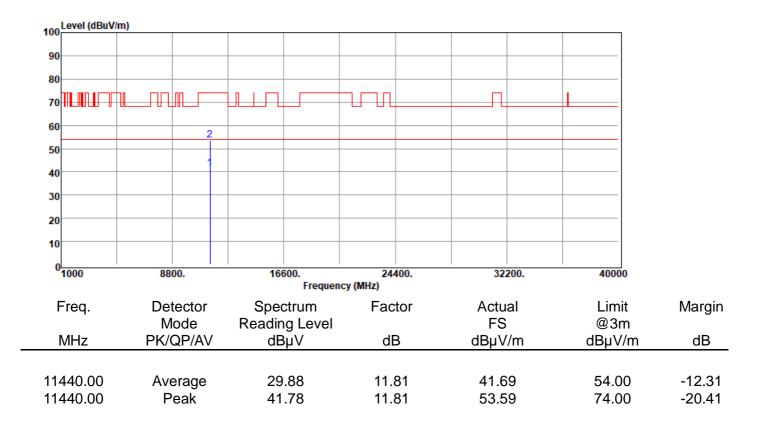


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 3-4
Test Frequency	:5720 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:E2/2020/50133	Test Site	:966 Chamber D
:802.11n20 / Band 3-4	Test Date	:2020-06-22
:5720 MHz	Temp./Humi.	:24.4/62
:TX CH MID	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n20 / Band 3-4 :5720 MHz :TX CH MID	:802.11n20 / Band 3-4Test Date:5720 MHzTemp./Humi.:TX CH MIDAntenna Pol.

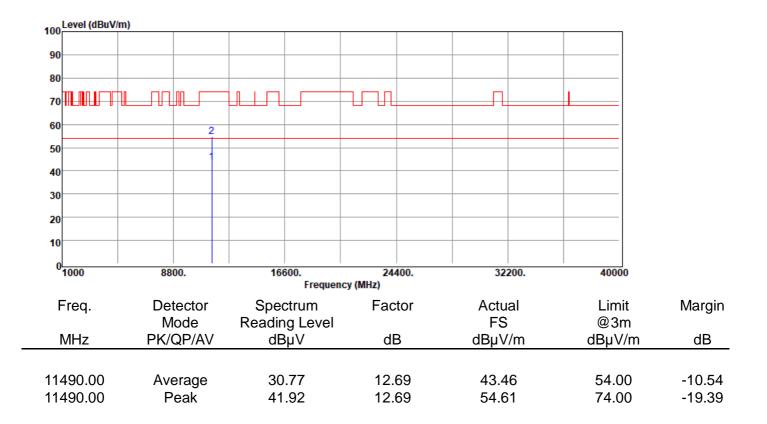


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 4
Test Frequency	:5745 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

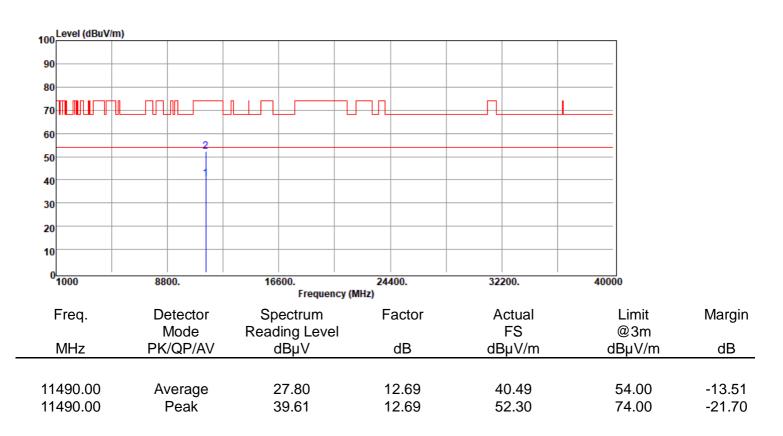
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 4	Test Date	:2020-06-22
Test Frequency	:5745 MHz	Temp./Humi.	:24.4/62
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

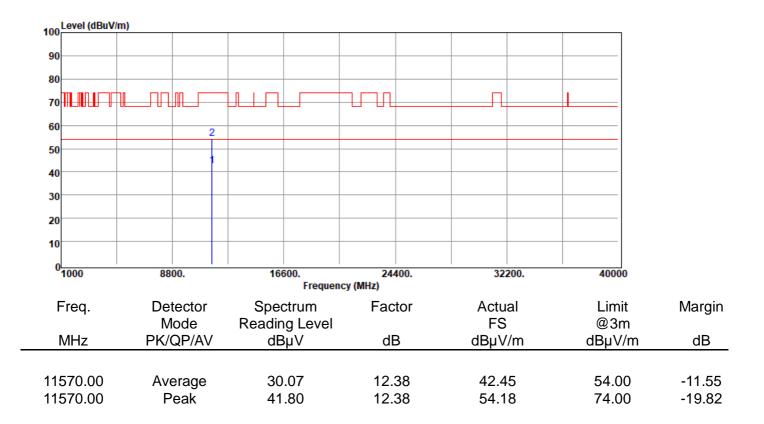


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 4
Test Frequency	:5785 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

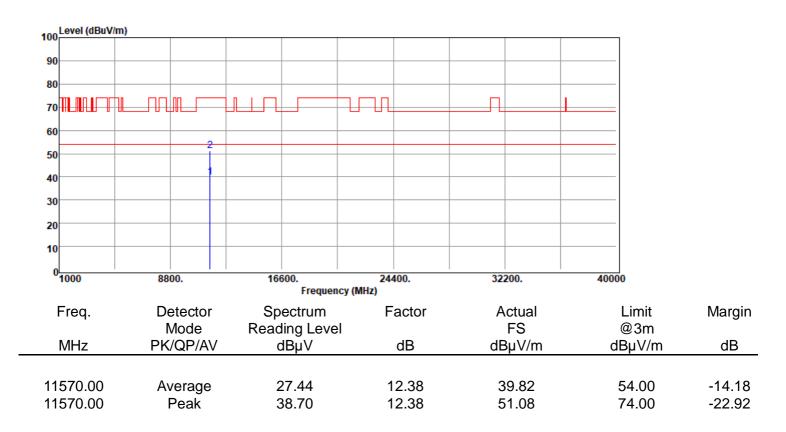
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 4	Test Date	:2020-06-22
Test Frequency	:5785 MHz	Temp./Humi.	:24.4/62
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

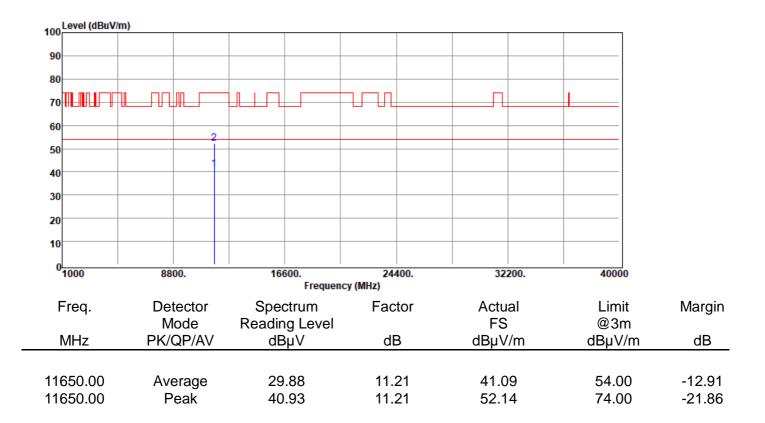


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 4
Test Frequency	:5825 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin

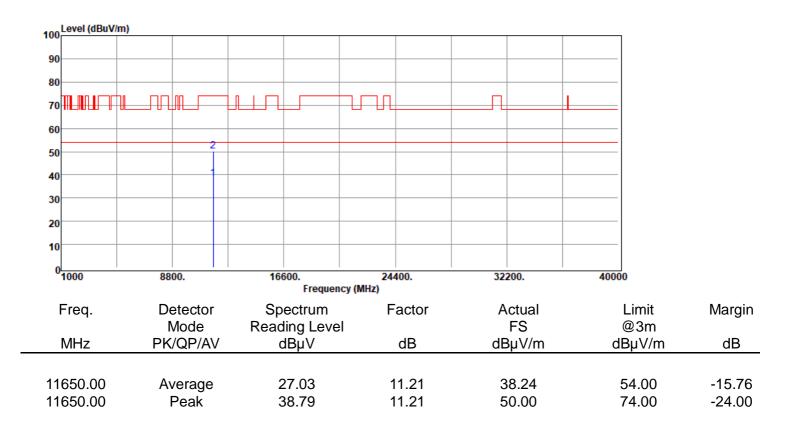


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:E2/2020/50133	Test Site	:966 Chamber D
:802.11n20 / Band 4	Test Date	:2020-06-22
:5825 MHz	Temp./Humi.	:24.4/62
:TX CH HIGH	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n20 / Band 4 :5825 MHz :TX CH HIGH	:802.11n20 / Band 4Test Date:5825 MHzTemp./Humi.:TX CH HIGHAntenna Pol.

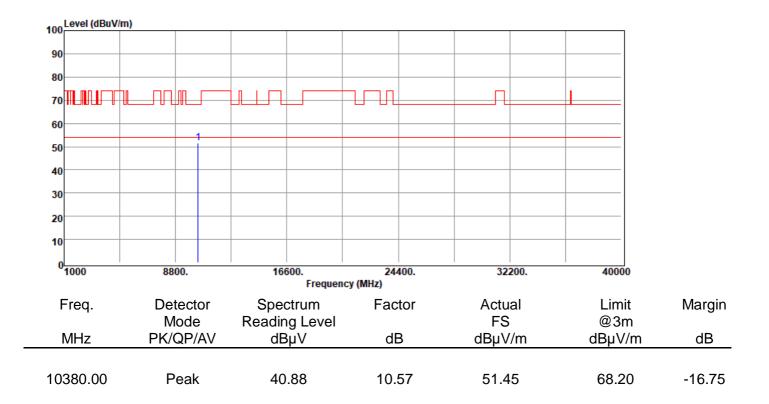


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 1
Test Frequency	:5190 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

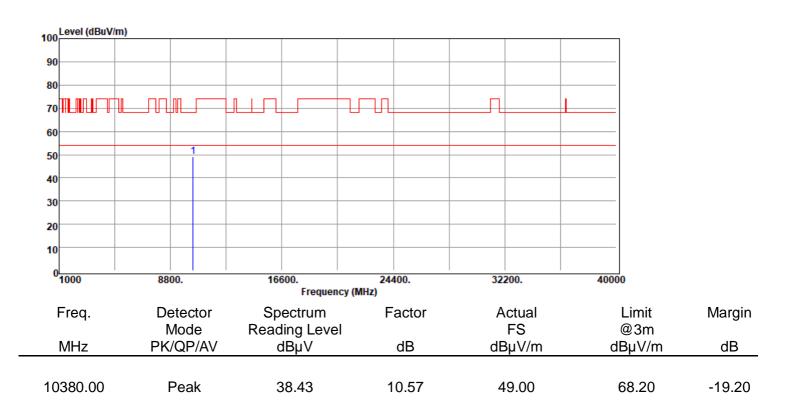
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/62
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 1	Test Date	:2020-06-22
Test Frequency	:5190 MHz	Temp./Humi.	:24.4/62
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

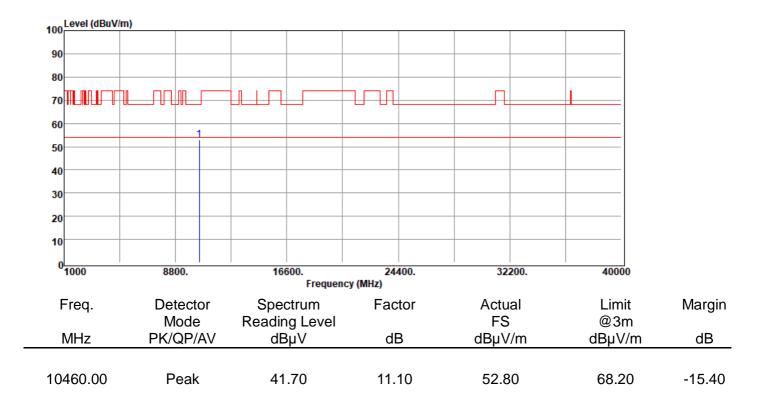


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 1
Test Frequency	:5230 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

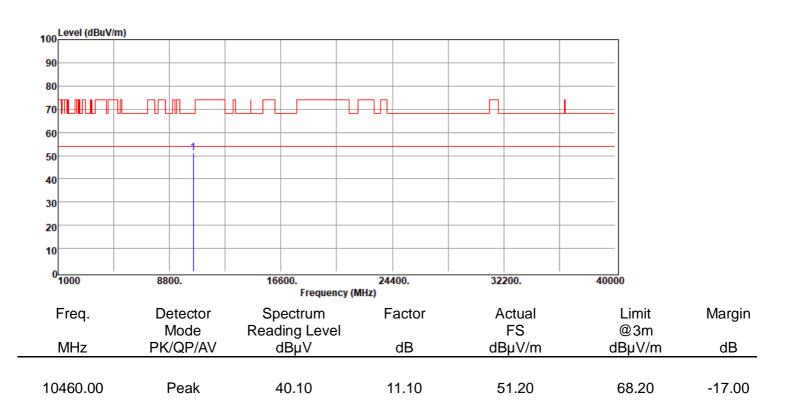
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 1	Test Date	:2020-06-22
Test Frequency	:5230 MHz	Temp./Humi.	:24.3/63
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

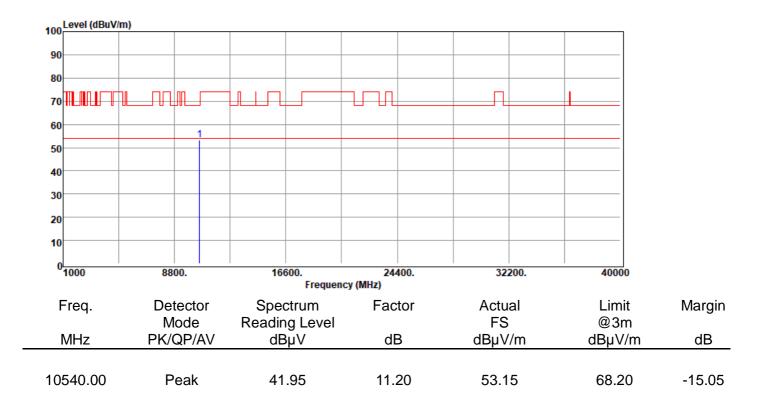


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 2
Test Frequency	:5270 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

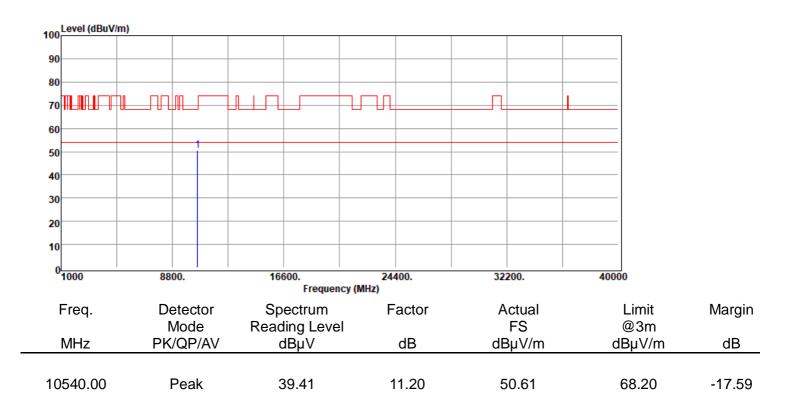
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



Context Source view be stated the results shown in this test report refer only to the sample(s) tested and source sample(s) are relatine to 90 bays only. 除非另有说明,此親告結果僅對測試之樣品負責,同時此提為僅保留的反下。本報告未變本公司書面許可,不可部份複製。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>http://www.sgs.com.tw/Terms-and-Conditions</u> and for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>http://www.sgs.com.tw/Terms-and-Conditions</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullers extend to the lew. fullest extent of the law.



Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 2	Test Date	:2020-06-22
Test Frequency	:5270 MHz	Temp./Humi.	:24.3/63
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

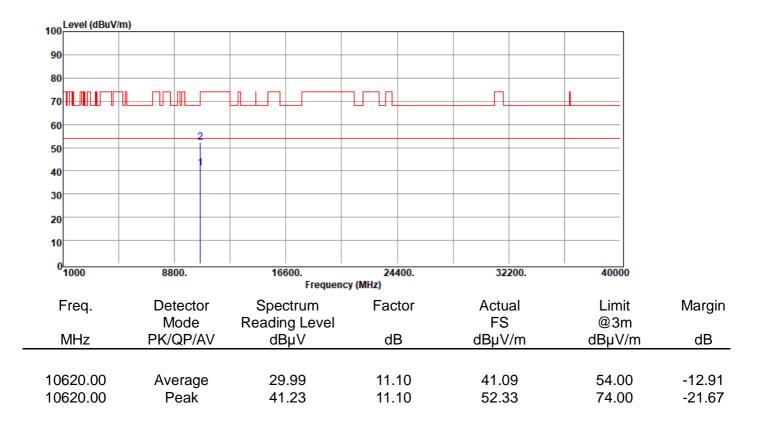


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 2
Test Frequency	:5310 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

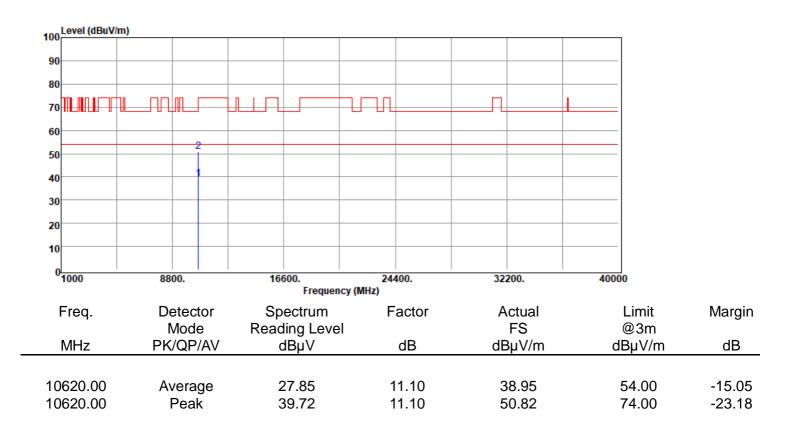
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 2	Test Date	:2020-06-22
Test Frequency	:5310 MHz	Temp./Humi.	:24.3/63
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

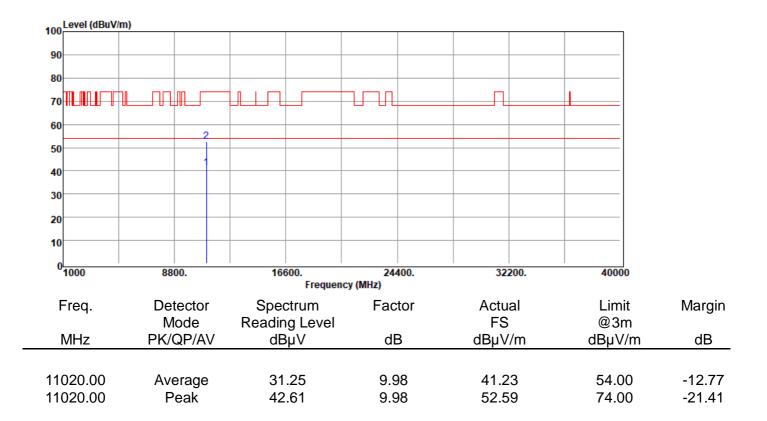


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 3
Test Frequency	:5510 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

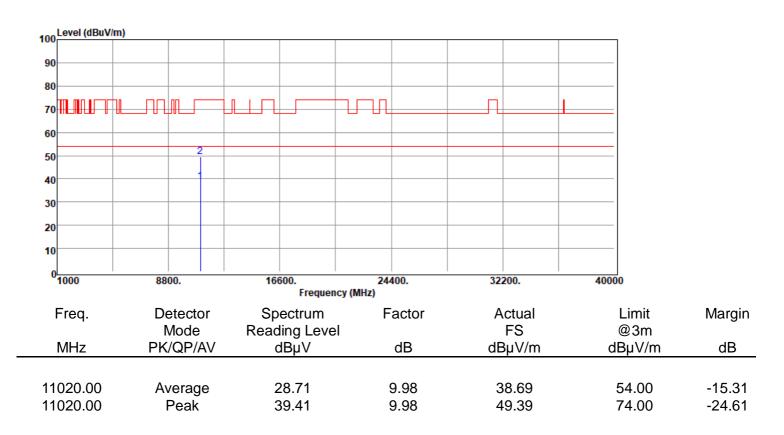
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:E2/2020/50133	Test Site	:966 Chamber D
:802.11n40 / Band 3	Test Date	:2020-06-22
:5510 MHz	Temp./Humi.	:24.3/63
:TX CH LOW	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n40 / Band 3 :5510 MHz :TX CH LOW	:802.11n40 / Band 3Test Date:5510 MHzTemp./Humi.:TX CH LOWAntenna Pol.

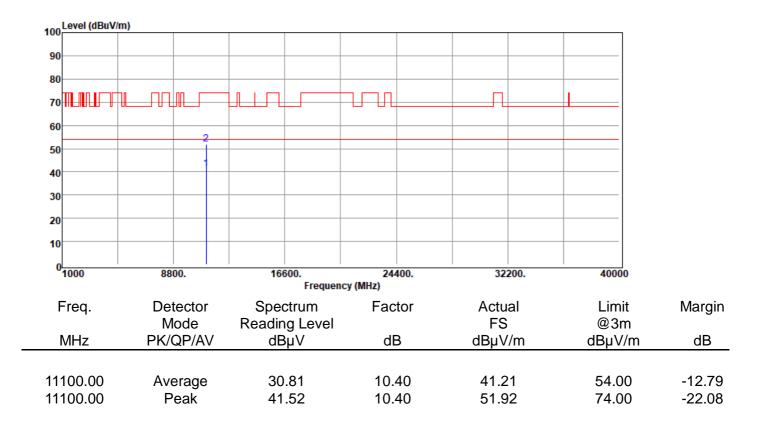


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2/2020/50133
)2.11n40 / Band 3
50 MHz
K CH MID
2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

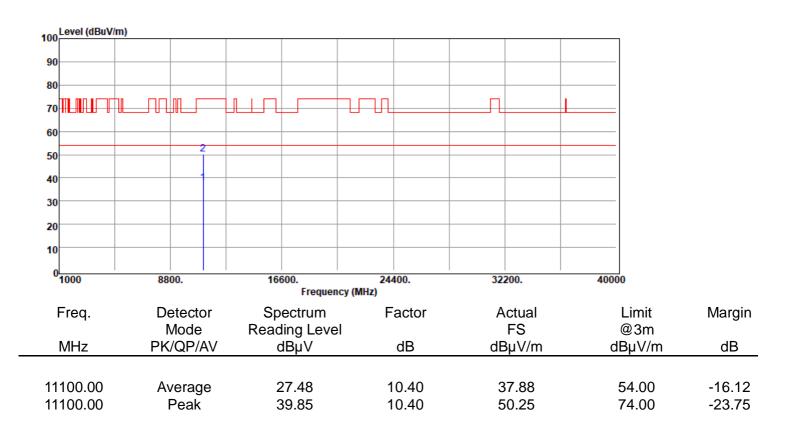


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D



Report Number	:E2/2020/50133	Test Site	:966 Chamber I
Operation Mode	:802.11n40 / Band 3	Test Date	:2020-06-22
Test Frequency	:5550 MHz	Temp./Humi.	:24.3/63
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



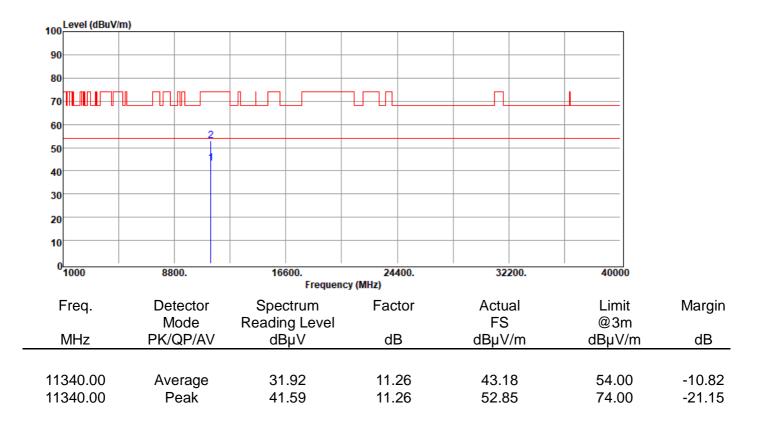
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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 3
Test Frequency	:5670 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

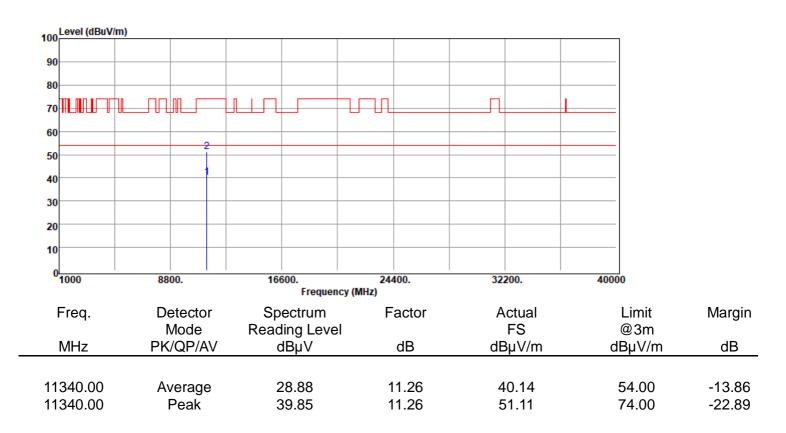
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:E2/2020/50133	Test Site	:966 Chamber D
:802.11n40 / Band 3	Test Date	:2020-06-22
:5670 MHz	Temp./Humi.	:24.3/63
:TX CH HIGH	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n40 / Band 3 :5670 MHz :TX CH HIGH	:802.11n40 / Band 3 :5670 MHz Temp./Humi. :TX CH HIGH Antenna Pol.

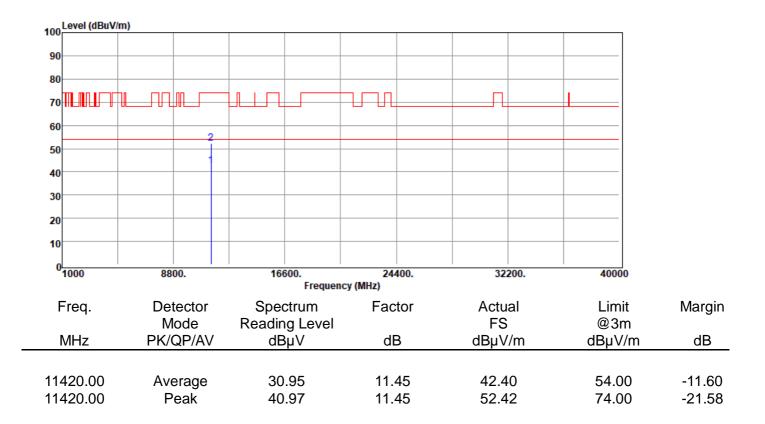


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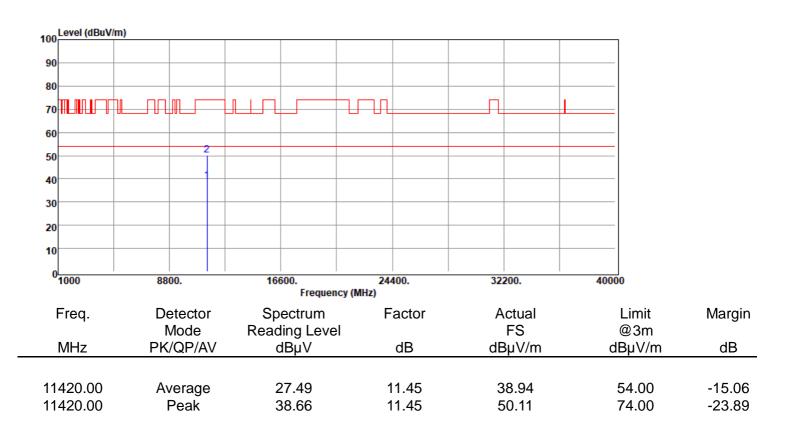
Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 3-4
Test Frequency	:5710 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.2/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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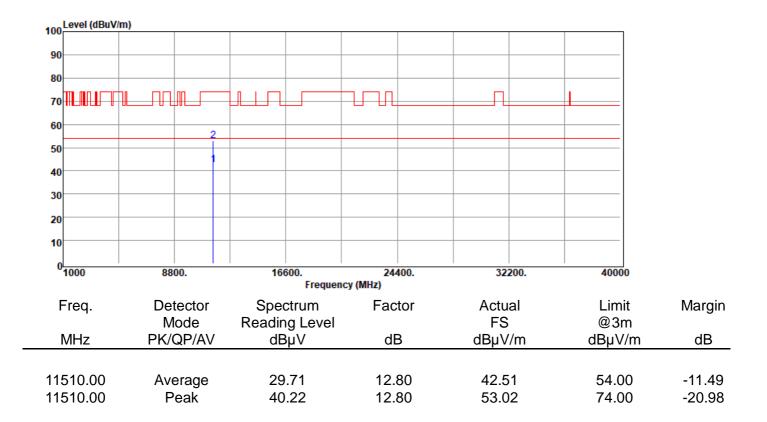


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 4
Test Frequency	:5755 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

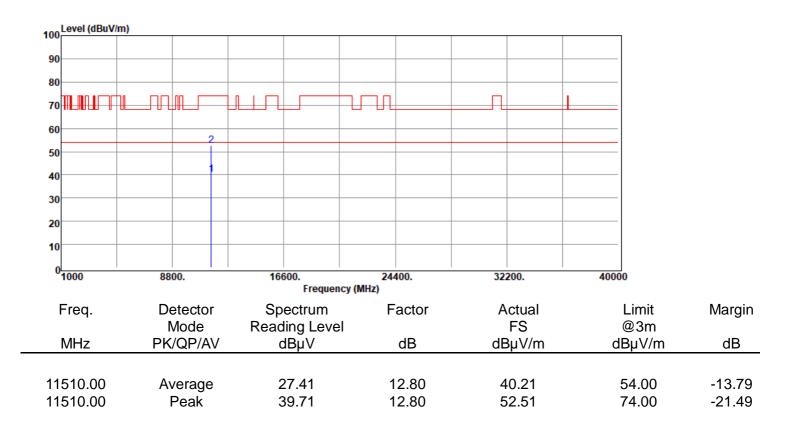
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.2/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 4	Test Date	:2020-06-22
Test Frequency	:5755 MHz	Temp./Humi.	:24.2/64
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

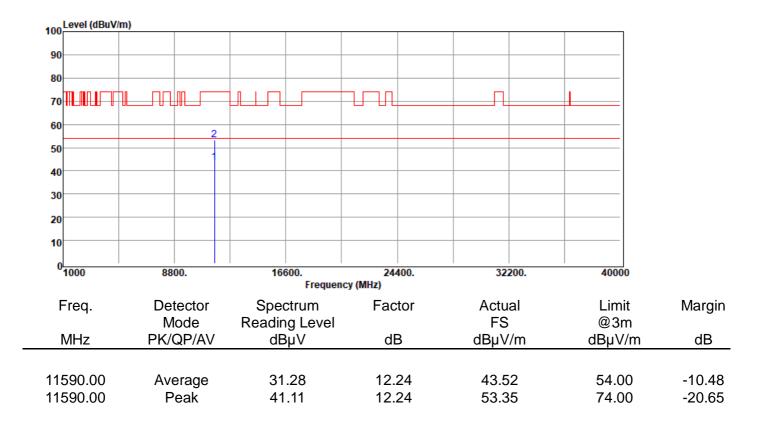


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 4
Test Frequency	:5795 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.2/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:E2/2020/50133	Test Site	:966 Chamber D
:802.11n40 / Band 4	Test Date	:2020-06-22
:5795 MHz	Temp./Humi.	:24.2/64
:TX CH HIGH	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n40 / Band 4 :5795 MHz :TX CH HIGH	:802.11n40 / Band 4Test Date:5795 MHzTemp./Humi.:TX CH HIGHAntenna Pol.

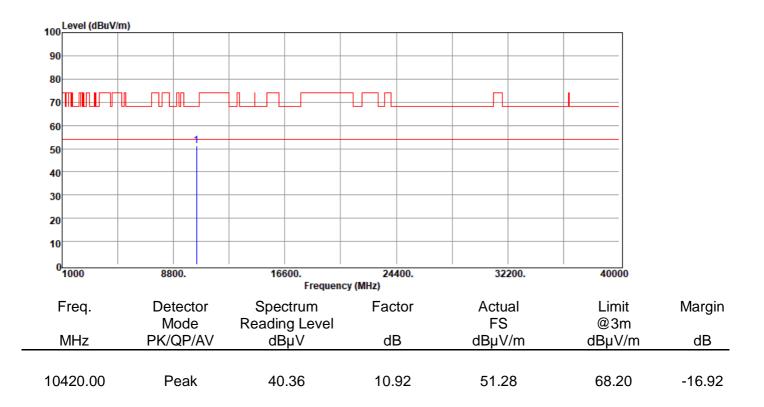
100 Level (dBuV/m))					
90						
80						
70						
60						
50	2					
40						
30						
20						
10						
0 <mark></mark> 1000	8800.	16600. Frequence	24400. cy (MHz)	32200.	40000	
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margi
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11590.00	Average	27.82	12.24	40.06	54.00	-13.9
11590.00	Peak	39.25	12.24	51.49	74.00	-22.5

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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 1
Test Frequency	:5210 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

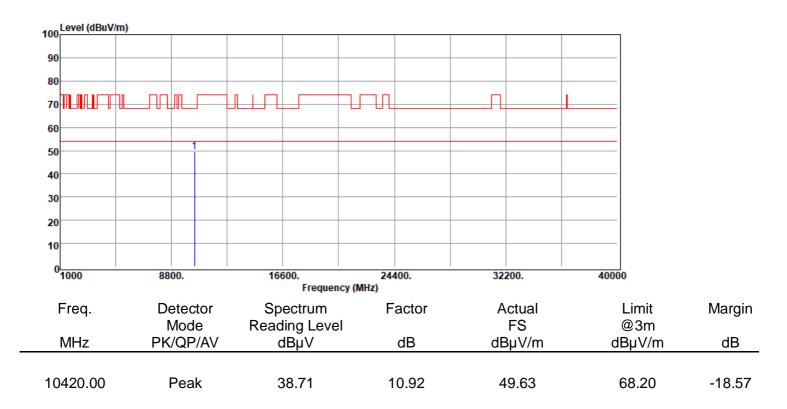
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.2/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 1	Test Date	:2020-06-22
Test Frequency	:5210 MHz	Temp./Humi.	:24.2/64
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

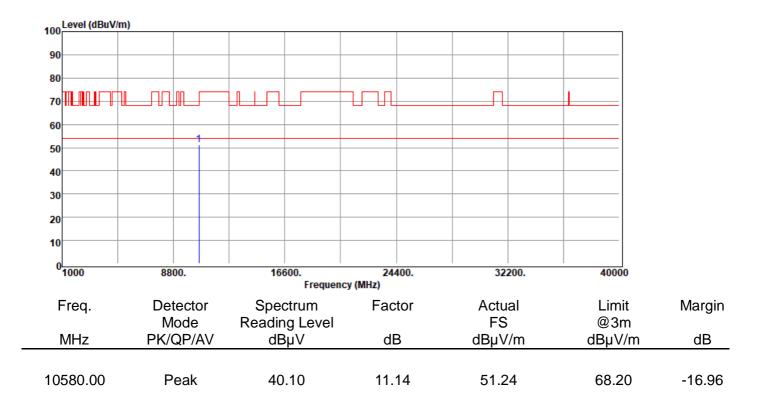


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Report Number	:E2/2020/50133	
Operation Mode	:802.11ac80 / Band 2	
Test Frequency	:5290 MHz	
Test Mode	:TX CH HIGH	
EUT Pol	:E2 Plan	

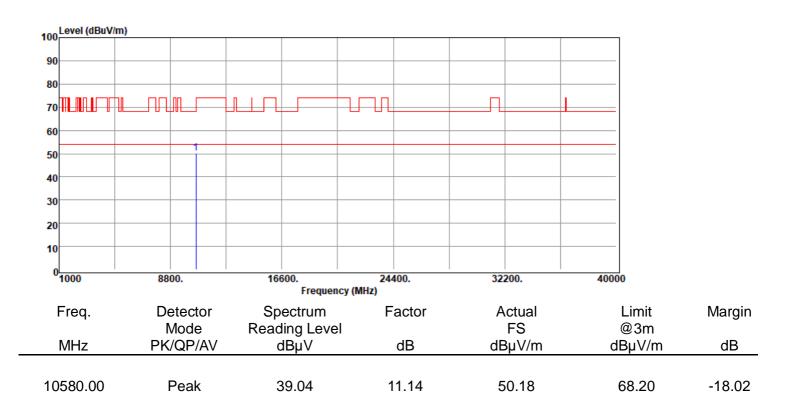
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.2/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:E2/2020/50133	Test Site	:966 Chamber D
:802.11ac80 / Band 2	Test Date	:2020-06-22
:5290 MHz	Temp./Humi.	:24.2/64
:TX CH HIGH	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11ac80 / Band 2 :5290 MHz :TX CH HIGH	:802.11ac80 / Band 2Test Date:5290 MHzTemp./Humi.:TX CH HIGHAntenna Pol.

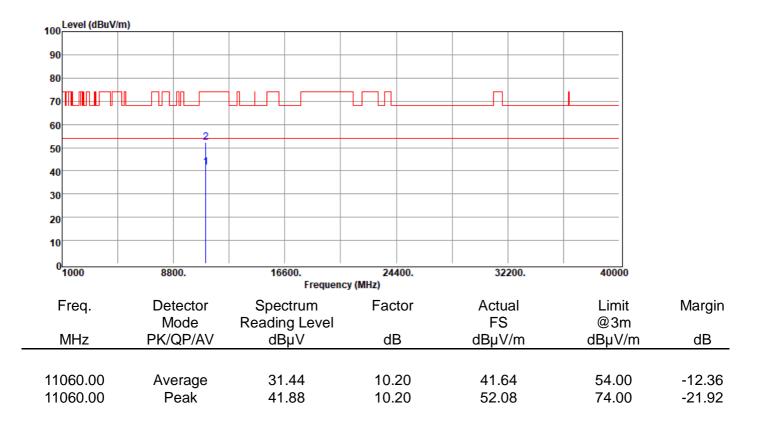


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Report Number	:E2/2020/50133		
Operation Mode	:802.11ac80 / Band 3		
Test Frequency	:5530 MHz		
Test Mode	:TX CH LOW		
EUT Pol	:E2 Plan		

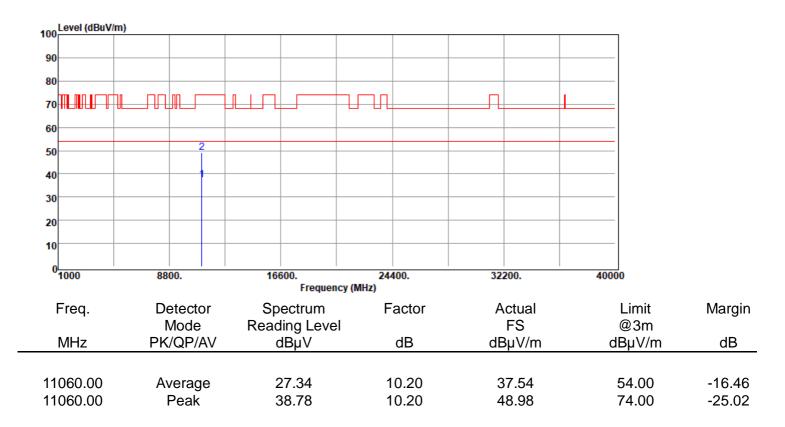
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.1/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:E2/2020/50133	Test Site	:966 Chamber D
:802.11ac80 / Band 3	Test Date	:2020-06-22
:5530 MHz	Temp./Humi.	:24.1/63
:TX CH LOW	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11ac80 / Band 3 :5530 MHz :TX CH LOW	:802.11ac80 / Band 3Test Date:5530 MHzTemp./Humi.:TX CH LOWAntenna Pol.

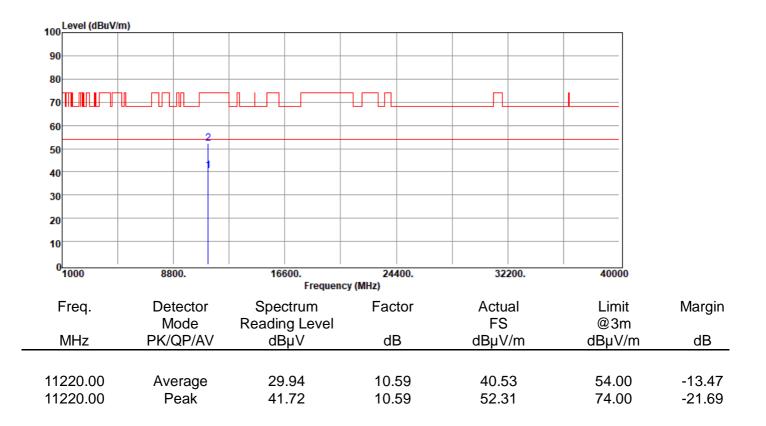


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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 3
Test Frequency	:5610 MHz
Test Mode	:TX CH MID
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.1/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

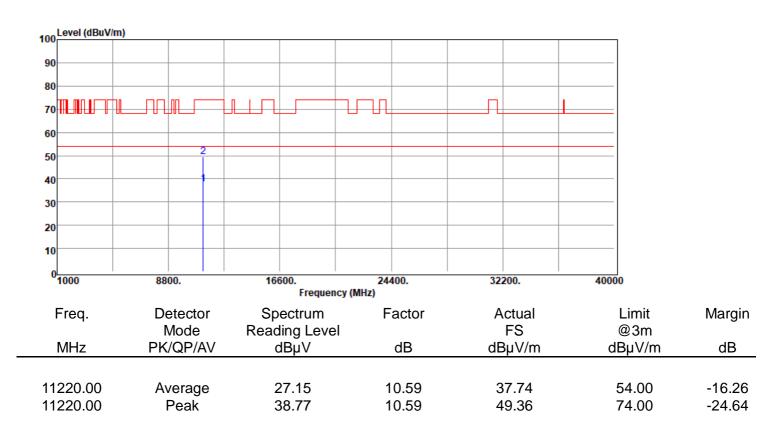


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 3	Test Date	:2020-06-22
Test Frequency	:5610 MHz	Temp./Humi.	:24.1/63
Test Mode	:TX CH MID	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



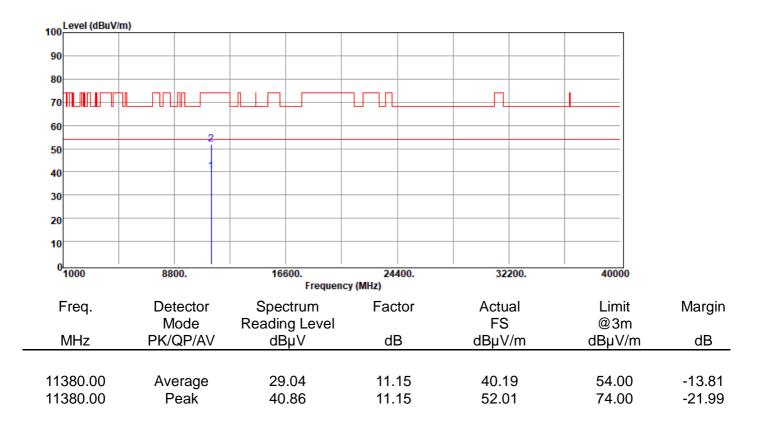
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 3
Test Frequency	:5690 MHz
Test Mode	:TX CH HIGH
EUT Pol	:E2 Plan

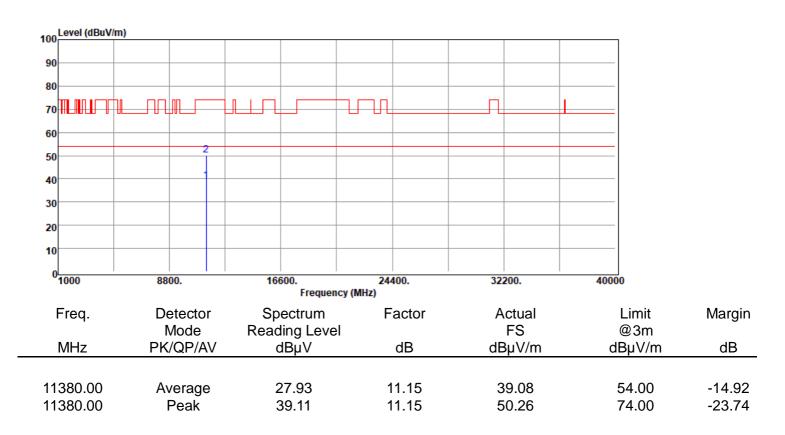
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.1/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 3	Test Date	:2020-06-22
Test Frequency	:5690 MHz	Temp./Humi.	:24.1/63
Test Mode	:TX CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



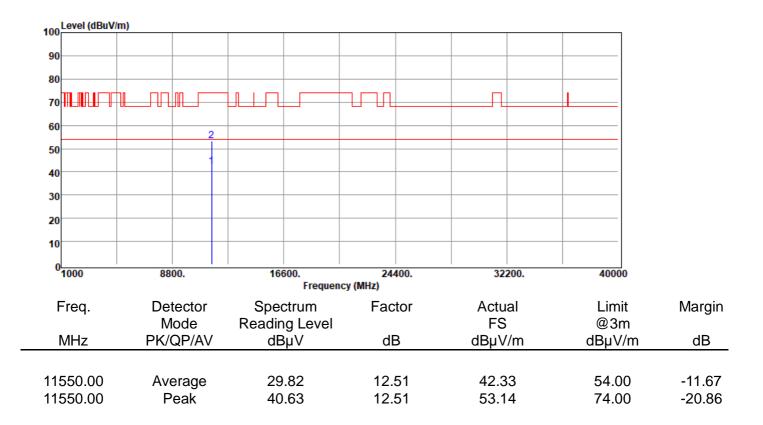
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 4
Test Frequency	:5775 MHz
Test Mode	:TX CH LOW
EUT Pol	:E2 Plan

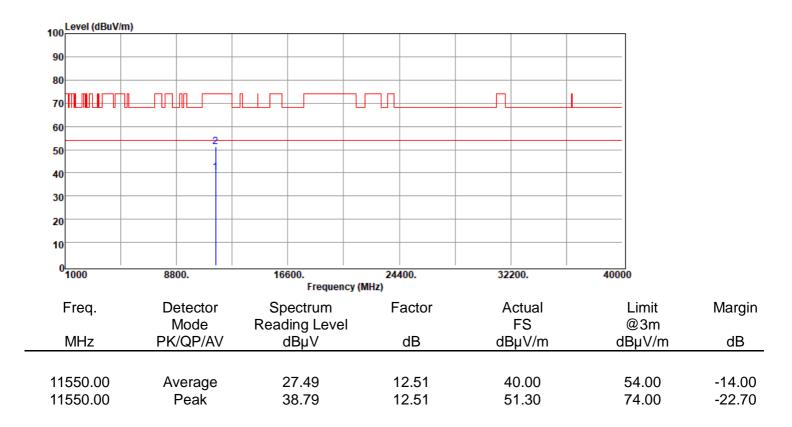
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.1/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 4	Test Date	:2020-06-22
Test Frequency	:5775 MHz	Temp./Humi.	:24.1/63
Test Mode	:TX CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



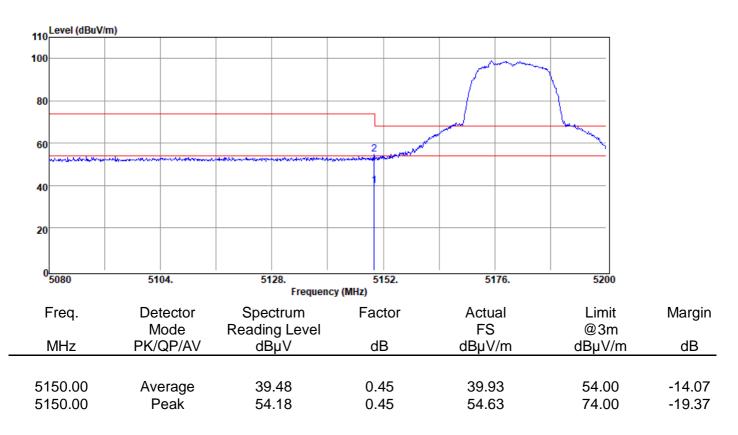
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11.7.3 Band edge falling to restricted band

Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 1	Test Date	:2020-06-20
Test Frequency	:5180 MHz	Temp./Humi.	:21.3/64
Test Mode	:BE CH LOW	Antenna Pol.	:VERTICAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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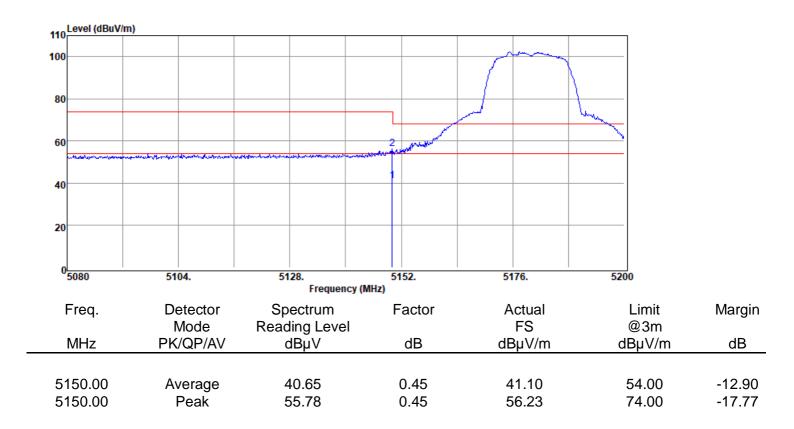
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Report Number	:E2/2020/50133	Test
Operation Mode	:802.11a / Band 1	Test
Test Frequency	:5180 MHz	Terr
Test Mode	:BE CH LOW	Ante
EUT Pol	:E2 Plan	Eng

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/64
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin



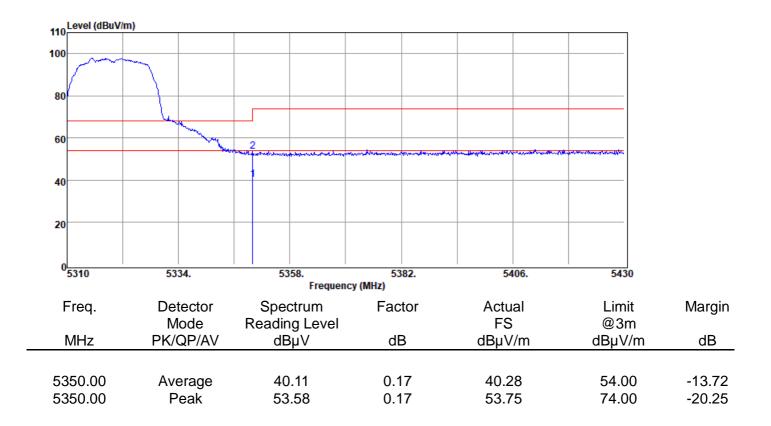
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:E2/2020/50133
:802.11a / Band 2
:5320 MHz
:BE CH HIGH
:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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60

40

20

:E2/2020/50133 :802.11a / Band 2	Test Site Test Date	:966 Chamber D :2020-06-20
:5320 MHz :BE CH HIGH	Temp./Humi. Antenna Pol.	:21.3/64 :HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11a / Band 2 :5320 MHz :BE CH HIGH	:802.11a / Band 2Test Date:5320 MHzTemp./Humi.:BE CH HIGHAntenna Pol.

5310	5334.	5358.	5382.	5406.	5430	
		Frequency (M	Hz)			
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
•	Mode	Reading Level		FS	@3m	5
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
				-		
350.00	Average	40.84	0.17	41.01	54.00	-12.99
350.00	Peak	54.81	0.17	54.98	74.00	-19.02

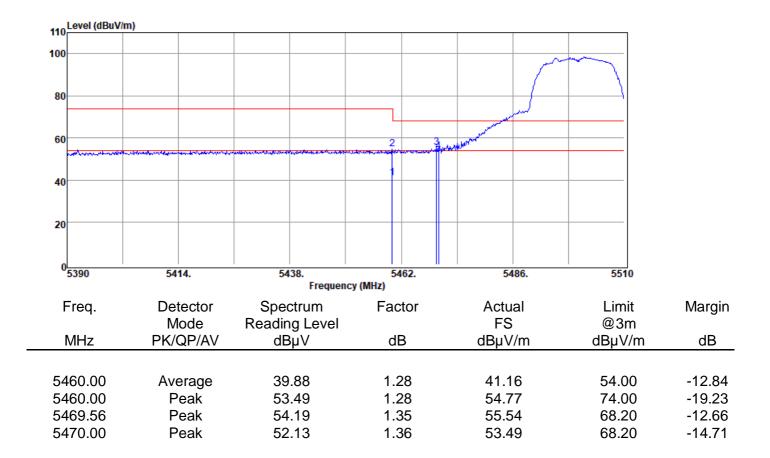
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 3
Test Frequency	:5500 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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5510

Limit

@3m

dBµV/m

54.00

74.00

54.00

74.00

68.20

68.20

Margin

dB

-12.57

-18.98

-12.00

-20.46

-9.49

-11.15



80

60

40

20

0^L 5390

Freq.

MHz

5459.24

5459.24

5460.00

5460.00

5469.32

5470.00

5414.

Detector

Mode

PK/QP/AV

Average

Peak

Average

Peak

Peak

Peak

Report Number	:E2/2020/50133			Test Site		:966 Chamb	ber D
Operation Mode	:802.11a / Band 3	3		Test Date	;	:2020-06-20)
Test Frequency	:5500 MHz			Temp./Hu	umi.	:21.3/64	
Test Mode	:BE CH LOW			Antenna	Pol.	:HORIZON	ΓAL
EUT Pol	:E2 Plan			Engineer		:Kailin	
110 Level (dBuV/m)							
100			 			where a loss	

24

5462.

Factor

dB

1.28

1.28

1.28

1.28

1.35

1.36

5486.

Actual

FS

dBµV/m

41.43

55.02

42.00

53.54

58.71

57.05

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5438.

Spectrum

Reading Level

dBµV

40.15

53.74

40.72

52.26

57.36

55.69

Frequency (MHz)

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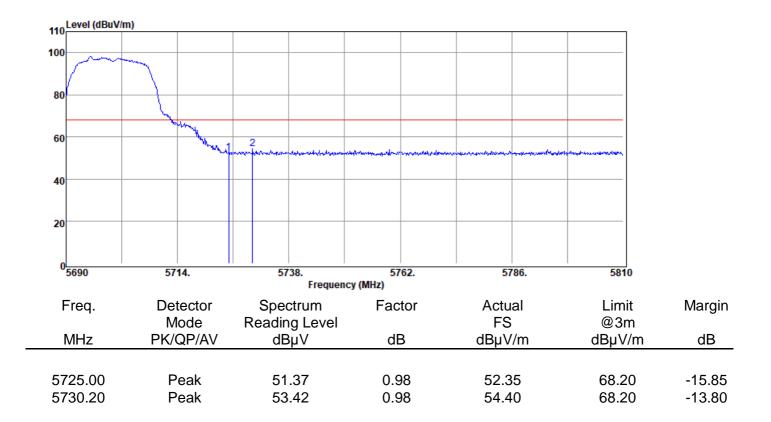
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:E2/2020/50133
:802.11a / Band 3
:5700 MHz
:BE CH HIGH
:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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:966 Chamber D



:E2/2020/50133

Report Number

beration Mode st Frequency	:802.11a / E :5700 MHz			Test Date Temp./Humi.	:2020-06-20 :21.3/64
st Mode	:BE CH HIC	jΗ		Antenna Pol.	:HORIZONTAL
JT Pol	:E2 Plan			Engineer	:Kailin
110 Level (dBuV/m)					
100					
80					
60	the way of the	+	and and the property of the second second		mar water and
40					
20					
0 5690	5714.	5738. Frequency	5762. (MHz)	5786.	5810
Freq.	Detector	Spectrum	Factor	Actual	Limit

Test Site

Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
Peak	53.46	0.98	54.44	68.20	-13.76
Peak	54.68	0.98	55.66	68.20	-12.54
	Mode PK/QP/AV Peak	Mode Reading Level PK/QP/AV dBµV Peak 53.46	ModeReading LevelPK/QP/AVdBµVdBPeak53.460.98	Mode PK/QP/AVReading Level dBµVFS dB dBµV/mPeak53.460.9854.44	Mode PK/QP/AVReading Level dBµVFS dB dBµV/m@3m dBµV/mPeak53.460.9854.4468.20

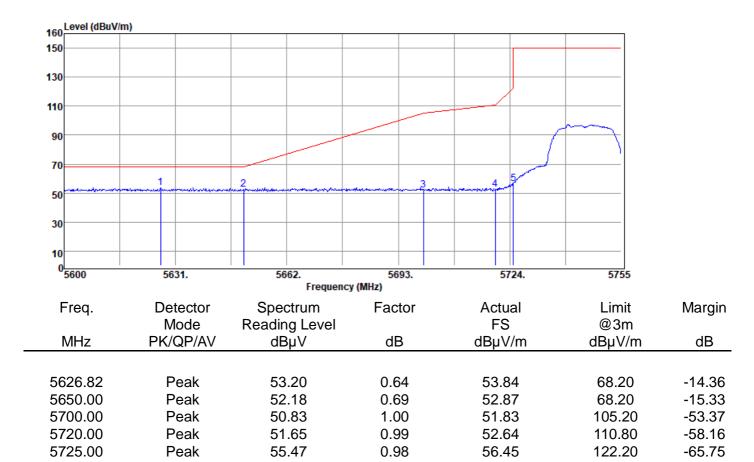
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5745 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

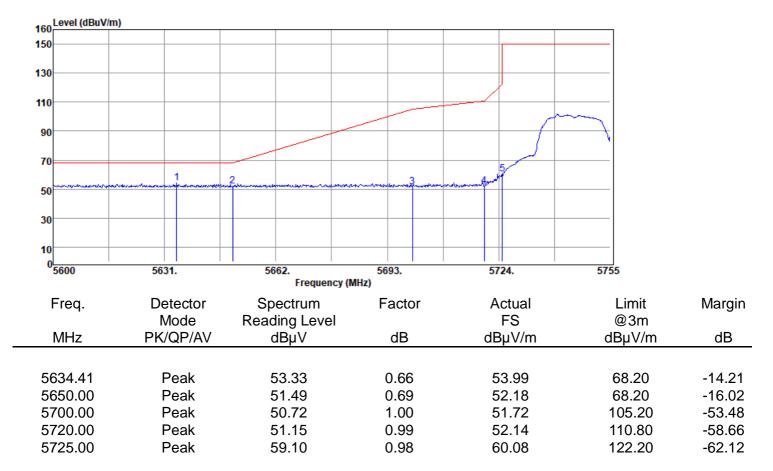


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11a / Band 4	Test Date	:2020-06-20
Test Frequency	:5745 MHz	Temp./Humi.	:21.3/63
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



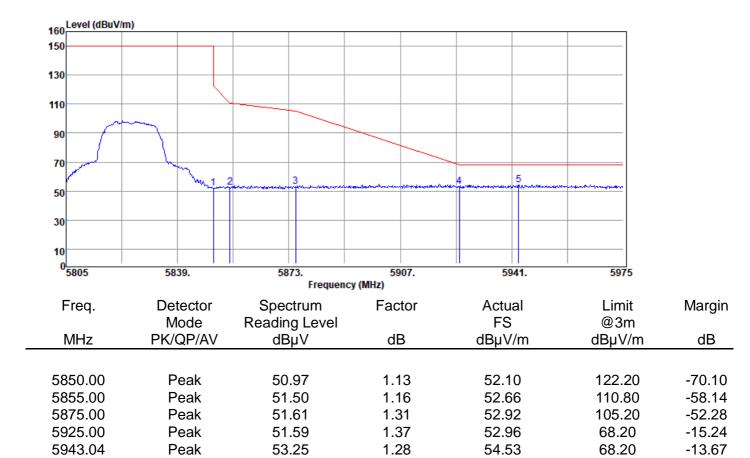
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5825 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



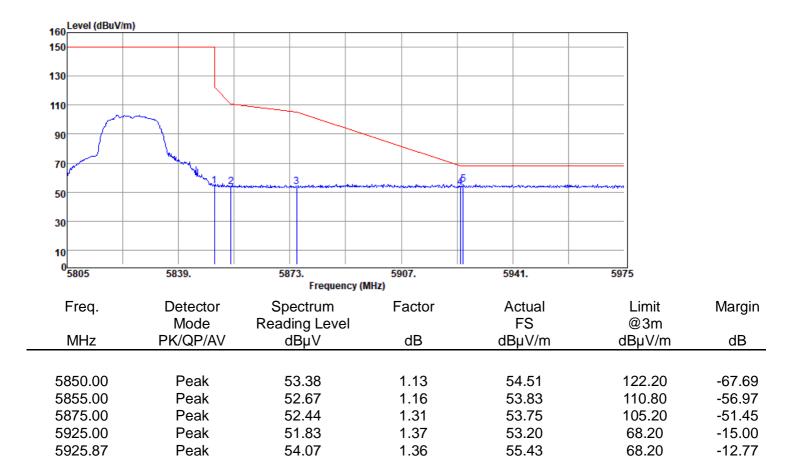
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Report Number	:E2/2020/50133
Operation Mode	:802.11a / Band 4
Test Frequency	:5825 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:HORIZONTAL
Engineer	:Kailin



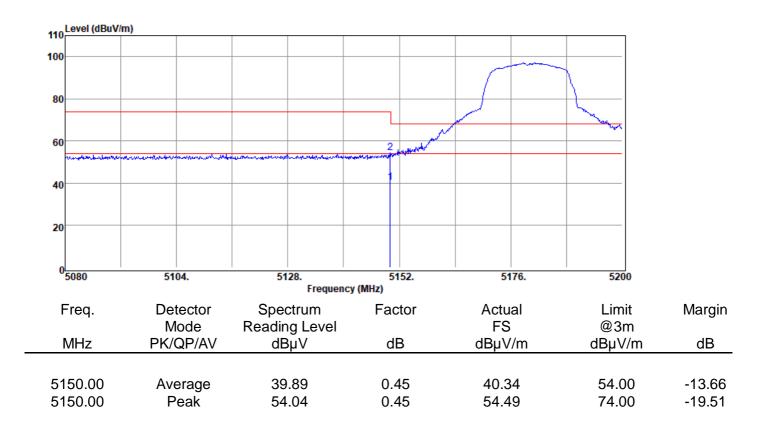
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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 1
Test Frequency	:5180 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

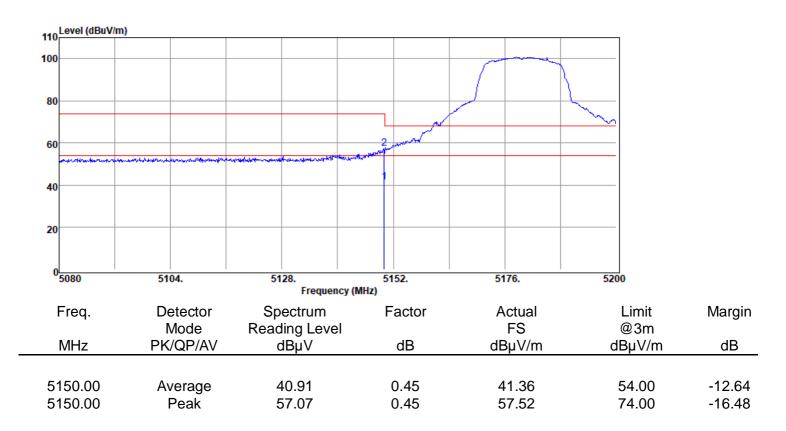


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 1	Test Date	:2020-06-20
Test Frequency	:5180 MHz	Temp./Humi.	:21.3/63
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



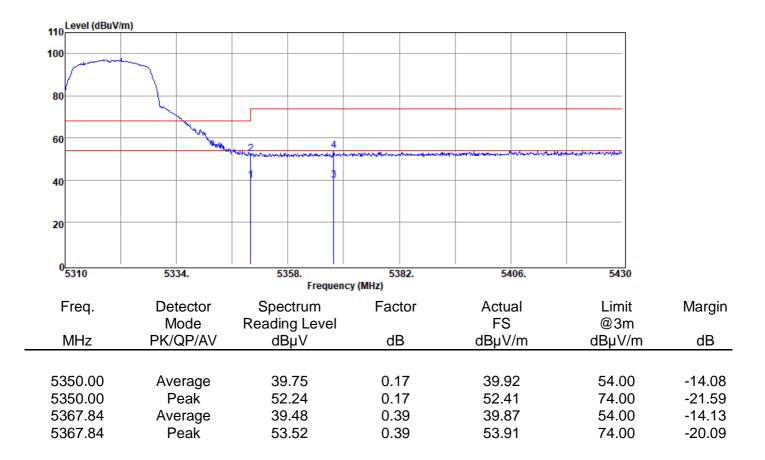
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/2020/50133
2.11n20 / Band 2
20 MHz
CH HIGH
Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

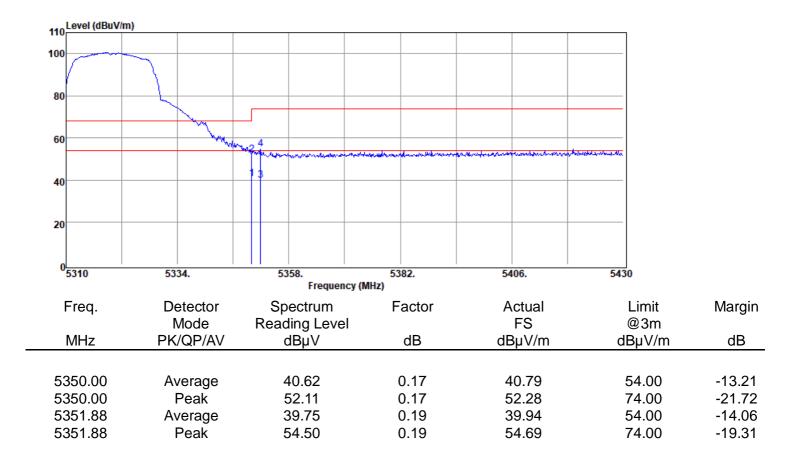


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 2	Test Date	:2020-06-20
Test Frequency	:5320 MHz	Temp./Humi.	:21.3/63
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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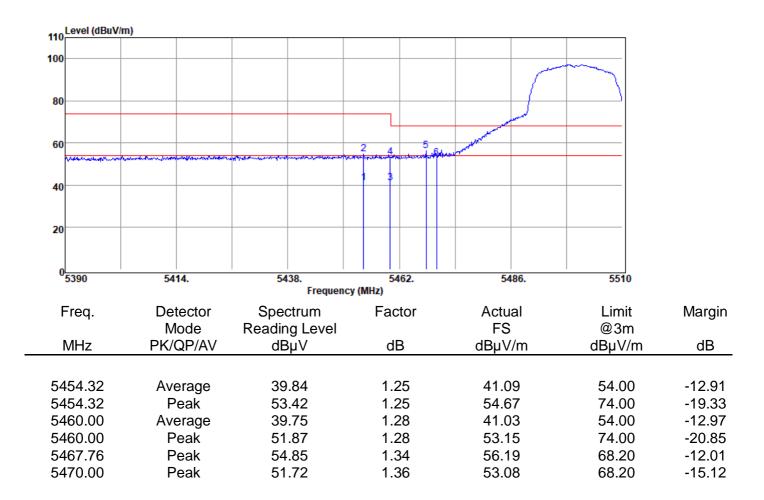
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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 3
Test Frequency	:5500 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



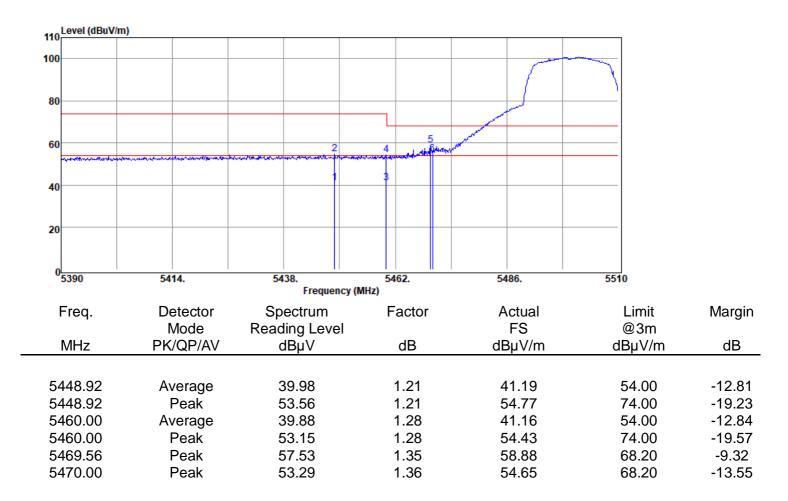
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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 3	Test Date	:2020-06-20
Test Frequency	:5500 MHz	Temp./Humi.	:21.3/63
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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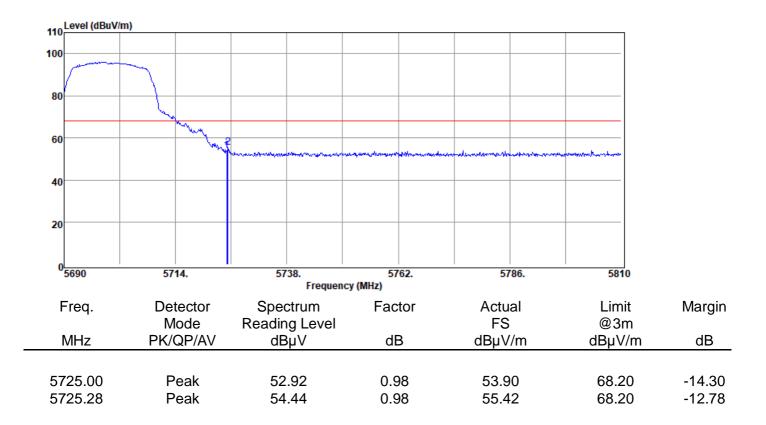
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Report Number	:E2/2020/50133	Tes
Operation Mode	:802.11n20 / Band 3	Tes
Test Frequency	:5700 MHz	Ter
Test Mode	:BE CH HIGH	An
EUT Pol	:E2 Plan	En

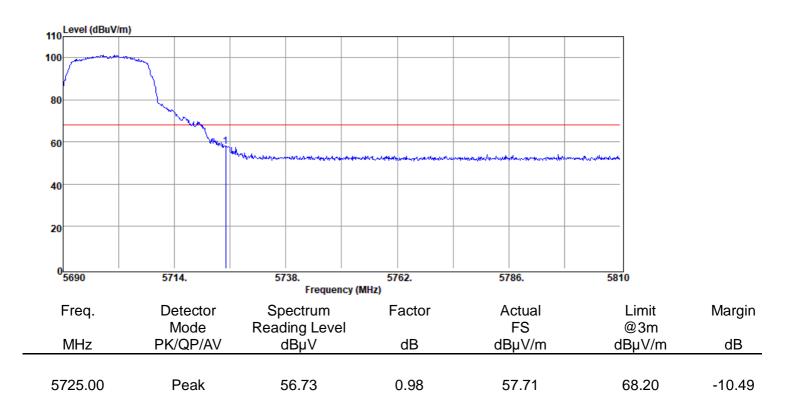
Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n20 / Band 3	Test Date	:2020-06-20
Test Frequency	:5700 MHz	Temp./Humi.	:21.3/63
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

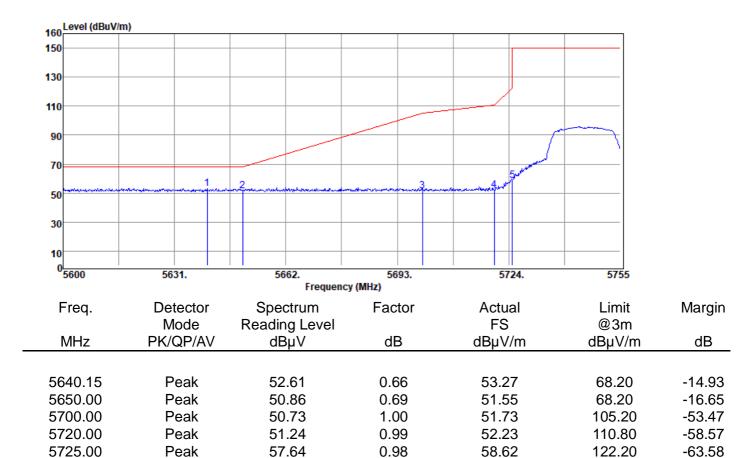


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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 4
Test Frequency	:5745 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin

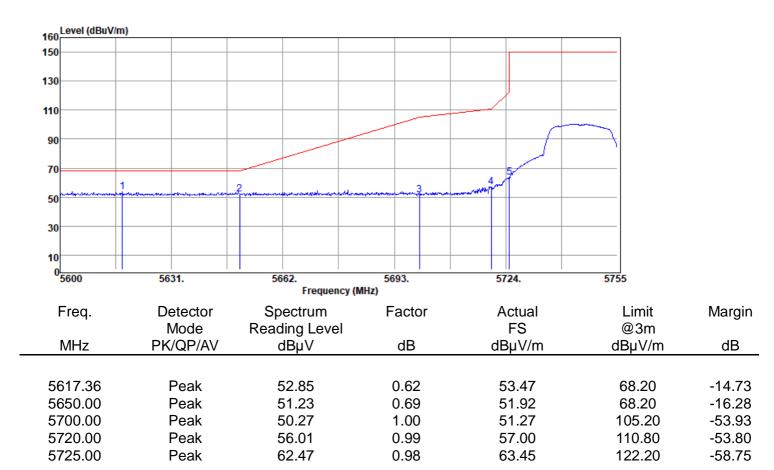


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:E2/2020/50133	Test Site	:966 Chamber D
:802.11n20 / Band 4	Test Date	:2020-06-20
:5745 MHz	Temp./Humi.	:21.3/63
:BE CH LOW	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
		:802.11n20 / Band 4Test Date:5745 MHzTemp./Humi.:BE CH LOWAntenna Pol.



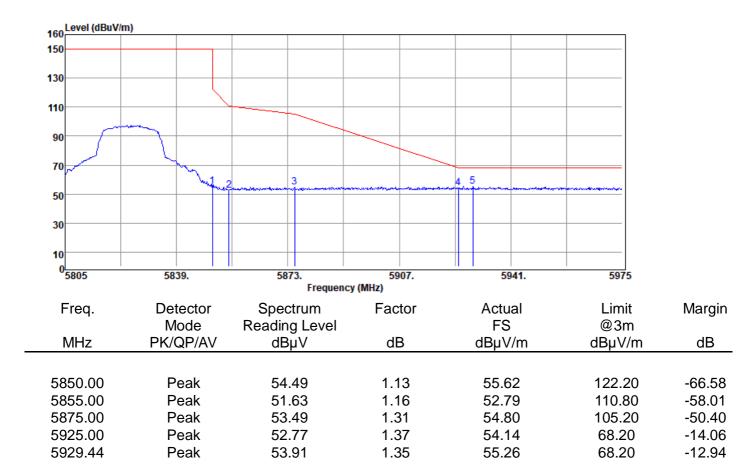
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Report Number	:E2/2020/50133
Operation Mode	:802.11n20 / Band 4
Test Frequency	:5825 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-20
Temp./Humi.	:21.3/63
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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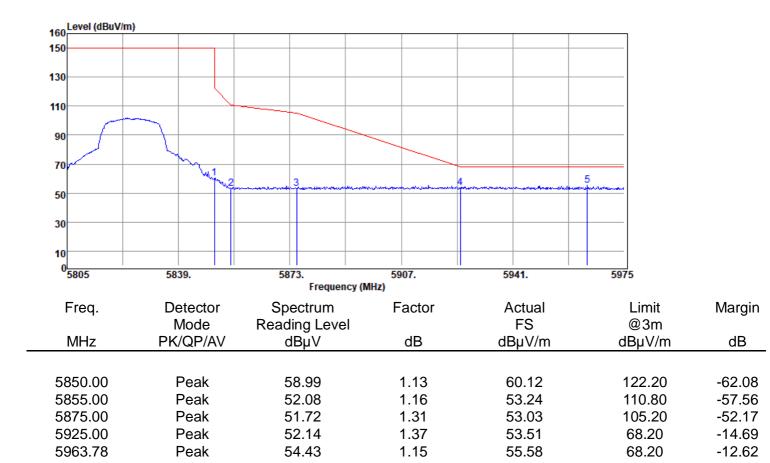
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D



:E2/2020/50133	Test Site	:966 Chamber I
:802.11n20 / Band 4	Test Date	:2020-06-20
:5825 MHz	Temp./Humi.	:21.3/63
:BE CH HIGH	Antenna Pol.	:HORIZONTAL
:E2 Plan	Engineer	:Kailin
	:802.11n20 / Band 4 :5825 MHz :BE CH HIGH	:802.11n20 / Band 4Test Date:5825 MHzTemp./Humi.:BE CH HIGHAntenna Pol.



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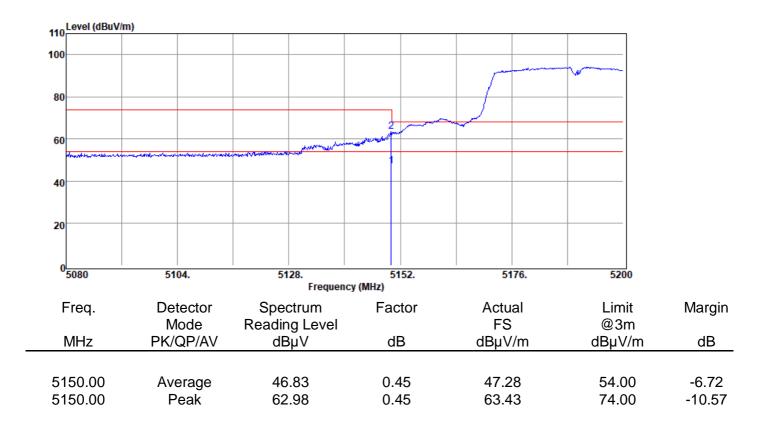
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:E2/2020/50133
:802.11n40 / Band 1
:5190 MHz
:BE CH LOW
:E2 Plan

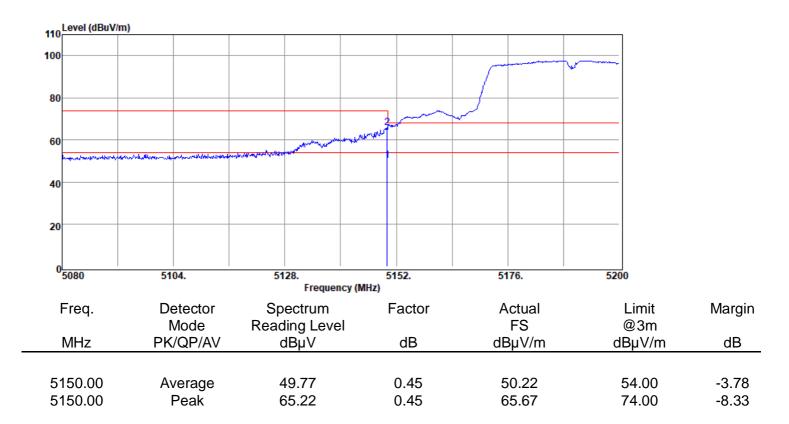
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 1	Test Date	:2020-06-22
Test Frequency	:5190 MHz	Temp./Humi.	:24.5/64
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

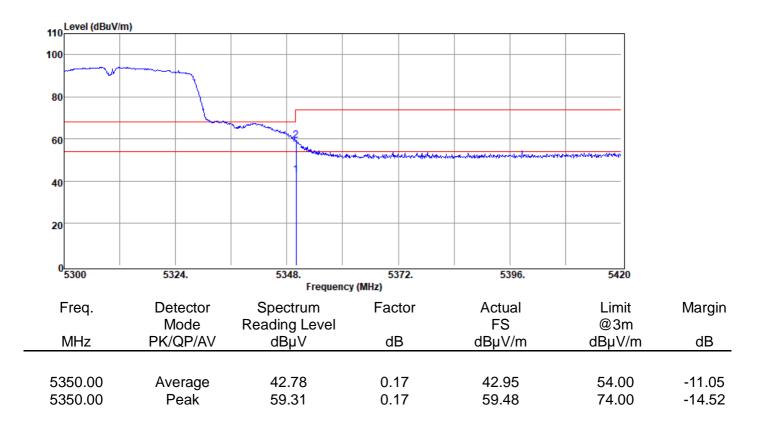


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 2
Test Frequency	:5310 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

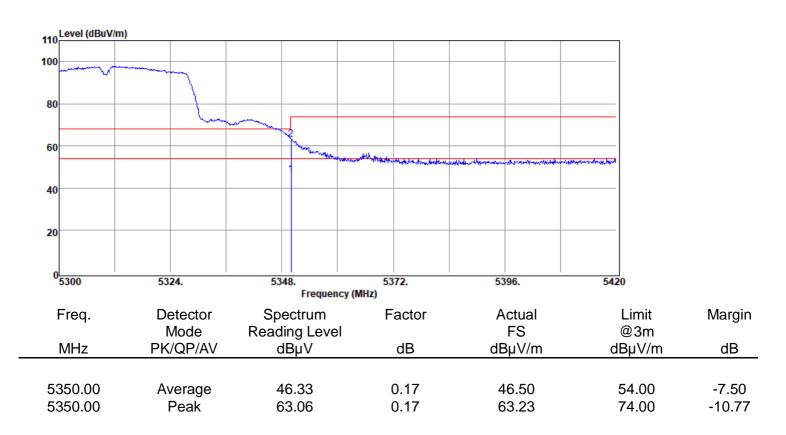
Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 2	Test Date	:2020-06-22
Test Frequency	:5310 MHz	Temp./Humi.	:24.5/64
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin

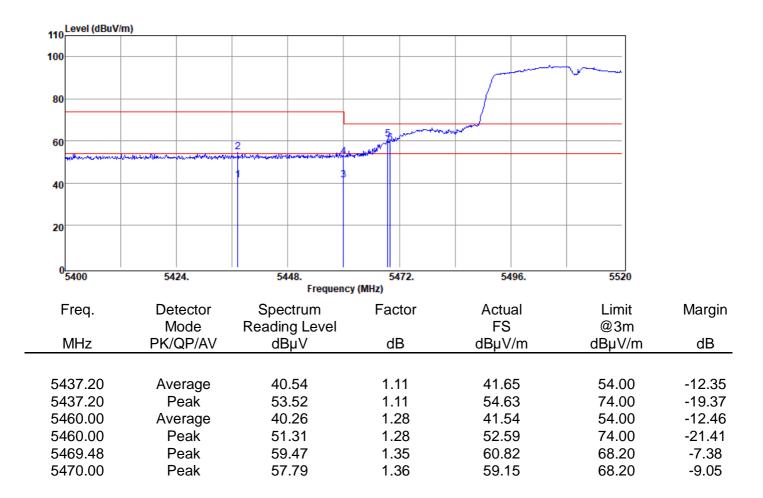


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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 3
Test Frequency	:5510 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin

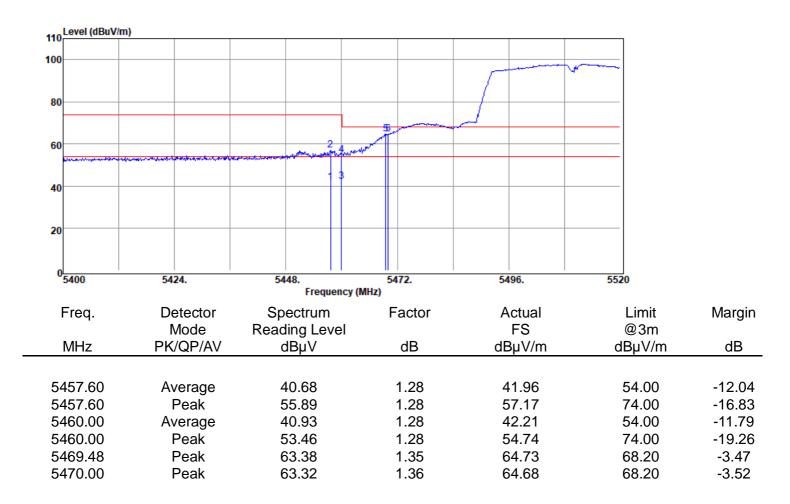


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 3	Test Date	:2020-06-22
Test Frequency	:5510 MHz	Temp./Humi.	:24.5/64
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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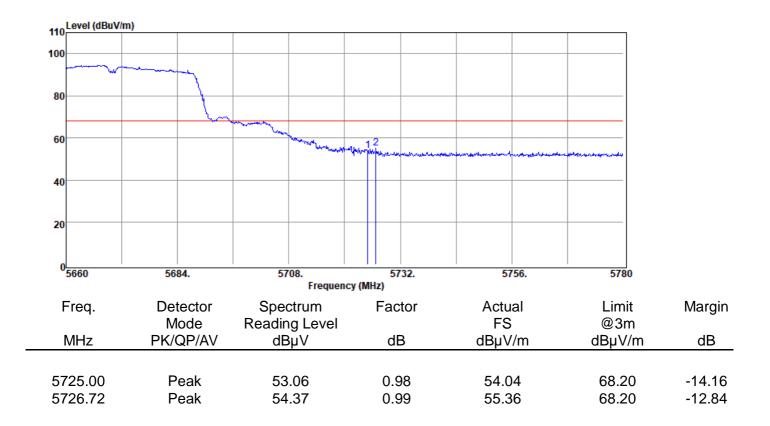
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Report Number	:E2/2020/50133
Operation Mode	:802.11n40 / Band 3
Test Frequency	:5670 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.5/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin

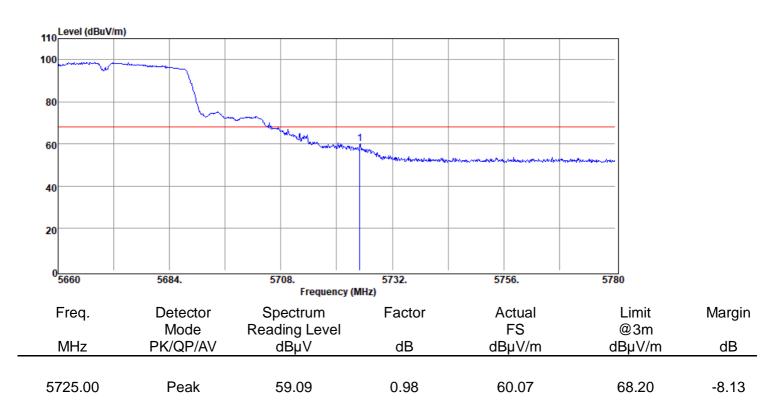


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 3	Test Date	:2020-06-22
Test Frequency	:5670 MHz	Temp./Humi.	:24.5/64
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



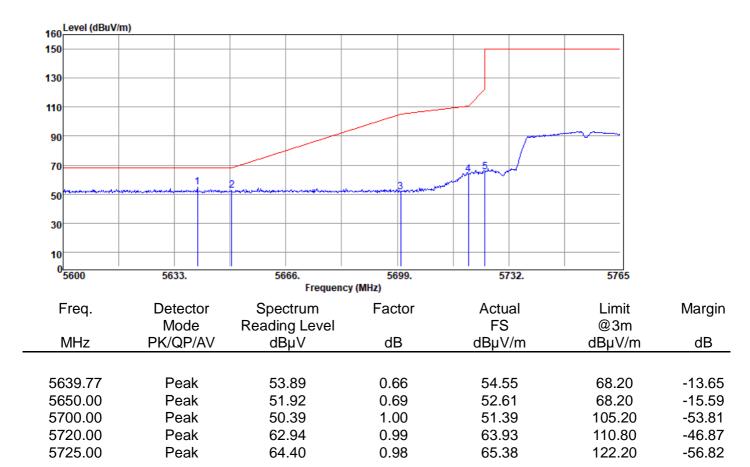
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Report Number	:E2/2020/50133	
Operation Mode	:802.11n40 / Band 4	
Test Frequency	:5755 MHz	
Test Mode	:BE CH LOW	
EUT Pol	:E2 Plan	

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

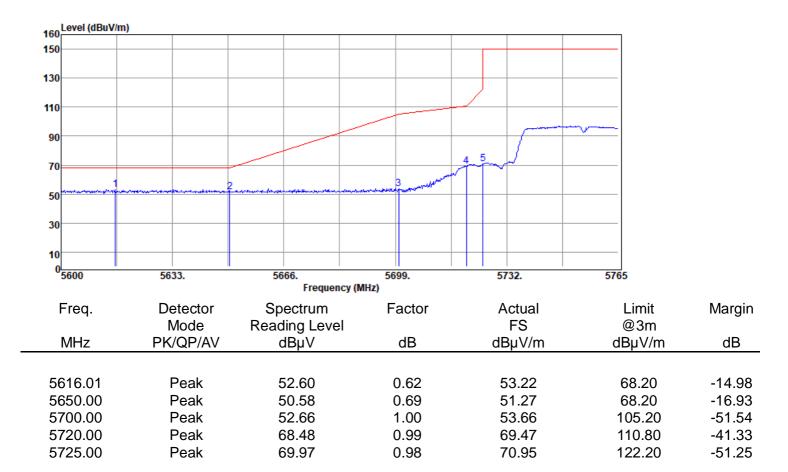


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 4	Test Date	:2020-06-22
Test Frequency	:5755 MHz	Temp./Humi.	:24.4/65
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



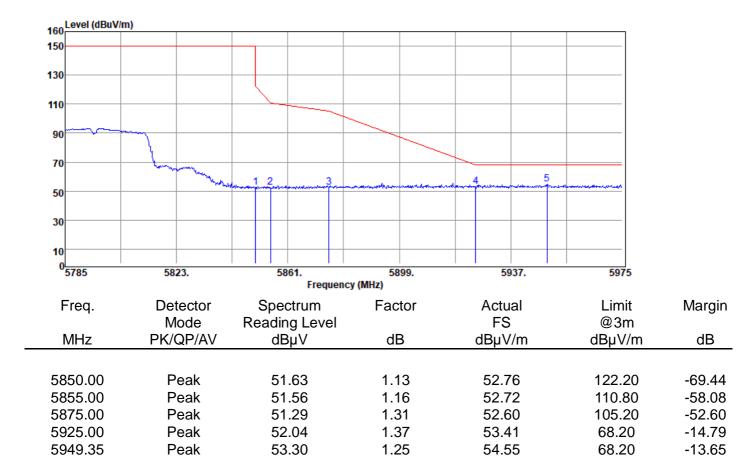
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Report Number	:E2/2020/50133	
Operation Mode	:802.11n40 / Band 4	
Test Frequency	:5795 MHz	
Test Mode	:BE CH HIGH	
EUT Pol	:E2 Plan	

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin



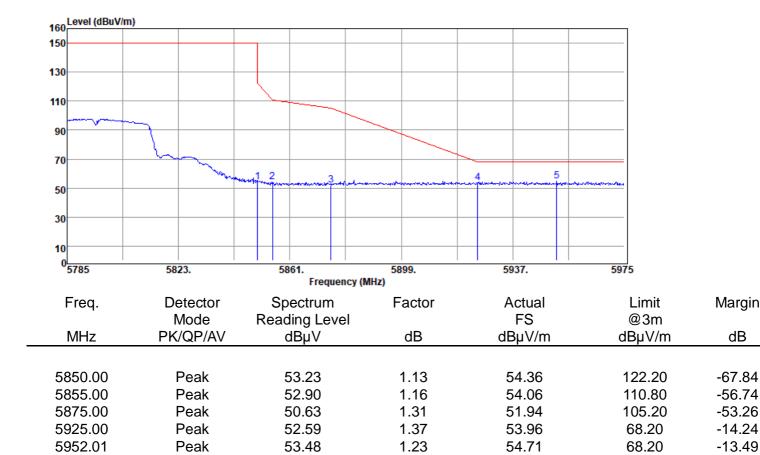
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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11n40 / Band 4	Test Date	:2020-06-22
Test Frequency	:5795 MHz	Temp./Humi.	:24.4/65
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



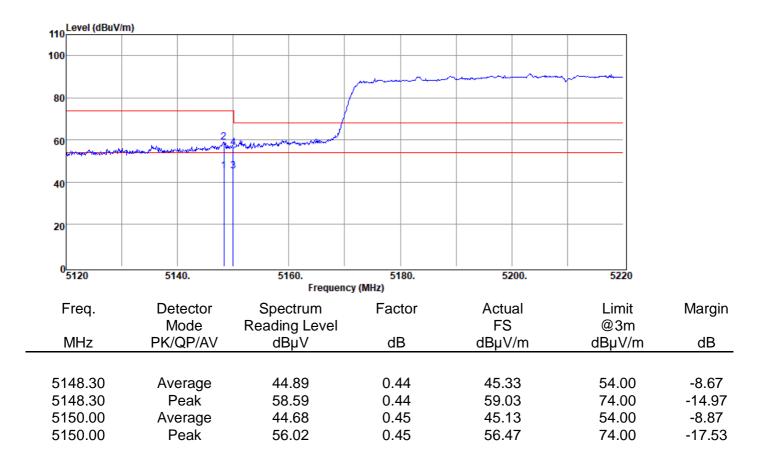
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 1
Test Frequency	:5210 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

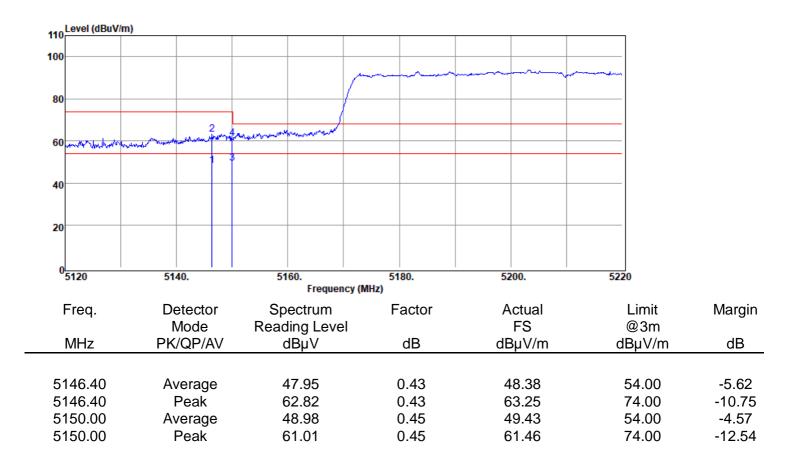


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 1	Test Date	:2020-06-22
Test Frequency	:5210 MHz	Temp./Humi.	:24.4/65
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



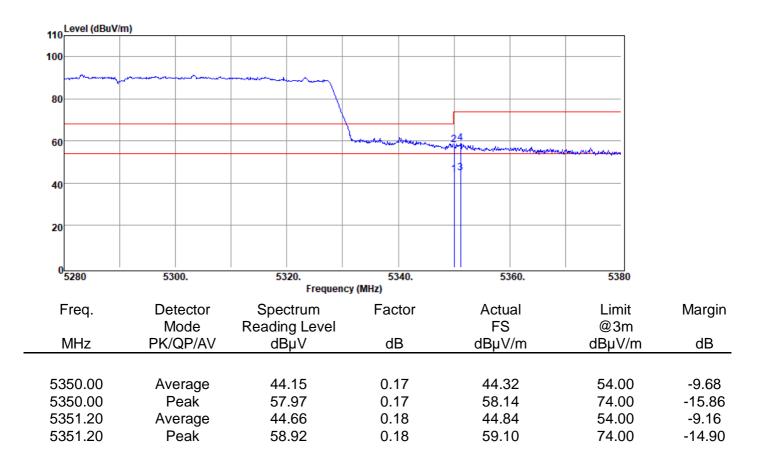
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 2
Test Frequency	:5290 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/65
Antenna Pol.	:VERTICAL
Engineer	:Kailin

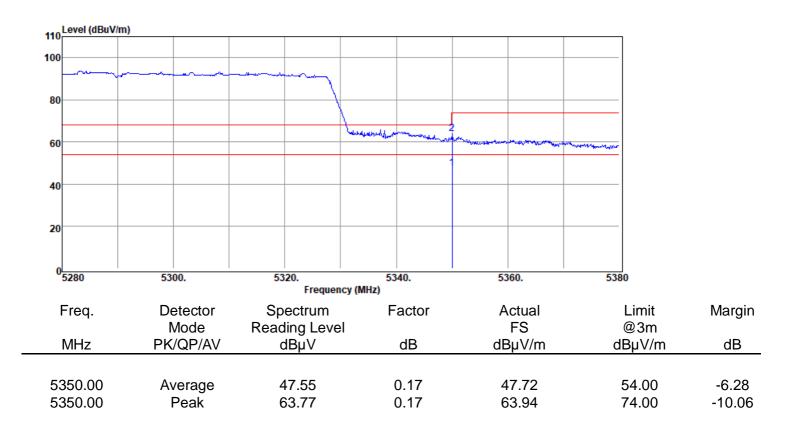


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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 2	Test Date	:2020-06-22
Test Frequency	:5290 MHz	Temp./Humi.	:24.4/65
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



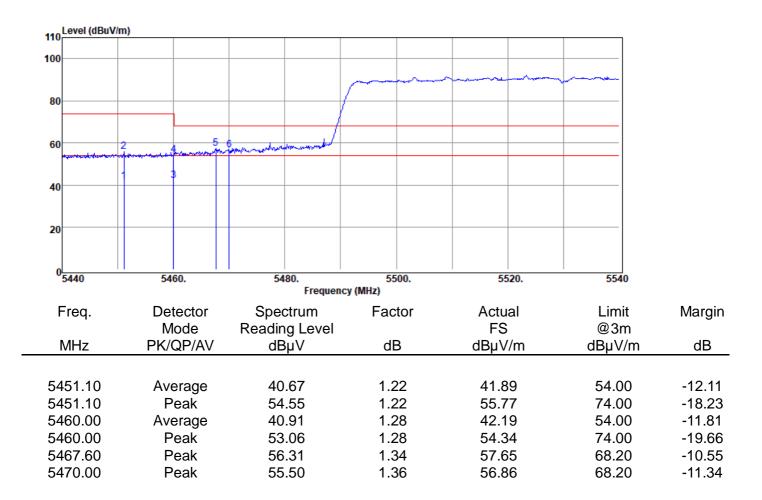
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 3
Test Frequency	:5530 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



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2/2020/50133	Test Site	:966 Chamber D
02.11ac80 / Band 3	Test Date	:2020-06-22
530 MHz	Temp./Humi.	:24.4/64
E CH LOW	Antenna Pol.	:HORIZONTAL
2 Plan	Engineer	:Kailin
	02.11ac80 / Band 3 630 MHz E CH LOW	D2.11ac80 / Band 3Test DateG30 MHzTemp./Humi.E CH LOWAntenna Pol.

110 Level (dBuV/r	m)					
100						
80						
60	2 5 6	an and a second and and and and and and				
and the second s	which the second second second					
40	1 3					
20						
0						
⁰ 5440	5460.	5480. Frequency (N	5500. (Hz)	5520.	5540	
Freq.	Detector	Spectrum	Factor	Actual	Limit	Margin
Freq.	Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
Freq. MHz			Factor dB			Margin dB
MHz	Mode PK/QP/AV	Reading Level dBµV	dB	FS dBµV/m	@3m dBµV/m	dB
MHz 5457.10	Mode PK/QP/AV Average	Reading Level dBµV 41.94	dB 1.26	FS dBµV/m 43.20	@3m dBµV/m 54.00	dB -10.80
MHz 5457.10 5457.10	Mode PK/QP/AV Average Peak	Reading Level dBµV 41.94 56.98	dB 1.26 1.26	FS dBµV/m 43.20 58.24	@3m dBµV/m 54.00 74.00	dB -10.80 -15.76
MHz 5457.10 5457.10 5460.00	Mode PK/QP/AV Average Peak Average	Reading Level dBµV 41.94 56.98 41.99	dB 1.26 1.26 1.28	FS dBµV/m 43.20 58.24 43.27	@3m dBµV/m 54.00 74.00 54.00	dB -10.80 -15.76 -10.73
MHz 5457.10 5457.10 5460.00 5460.00	Mode PK/QP/AV Average Peak Average Peak	Reading Level dBµV 41.94 56.98 41.99 55.29	dB 1.26 1.26 1.28 1.28	FS dBµV/m 43.20 58.24 43.27 56.57	@3m dBµV/m 54.00 74.00 54.00 74.00	dB -10.80 -15.76 -10.73 -17.43
MHz 5457.10 5457.10 5460.00	Mode PK/QP/AV Average Peak Average	Reading Level dBµV 41.94 56.98 41.99	dB 1.26 1.26 1.28	FS dBµV/m 43.20 58.24 43.27	@3m dBµV/m 54.00 74.00 54.00	dB -10.80 -15.76 -10.73

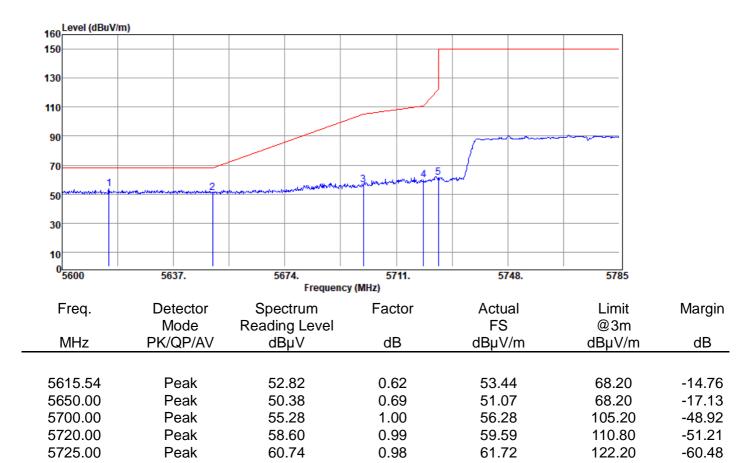
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 4
Test Frequency	:5775 MHz
Test Mode	:BE CH LOW
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



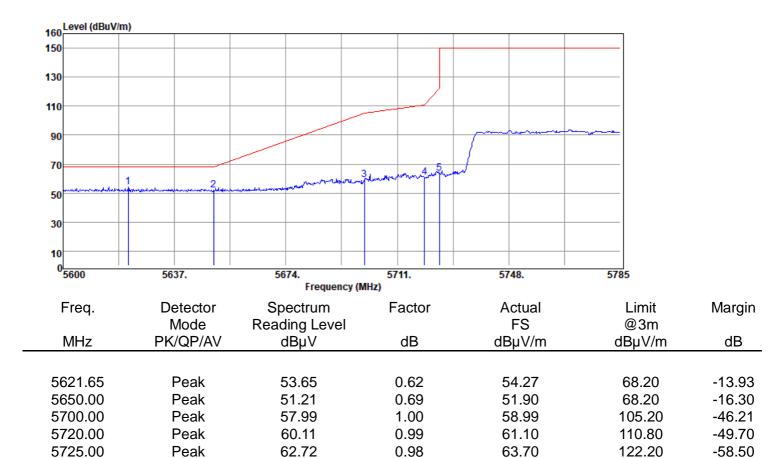
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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 4	Test Date	:2020-06-22
Test Frequency	:5775 MHz	Temp./Humi.	:24.4/64
Test Mode	:BE CH LOW	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



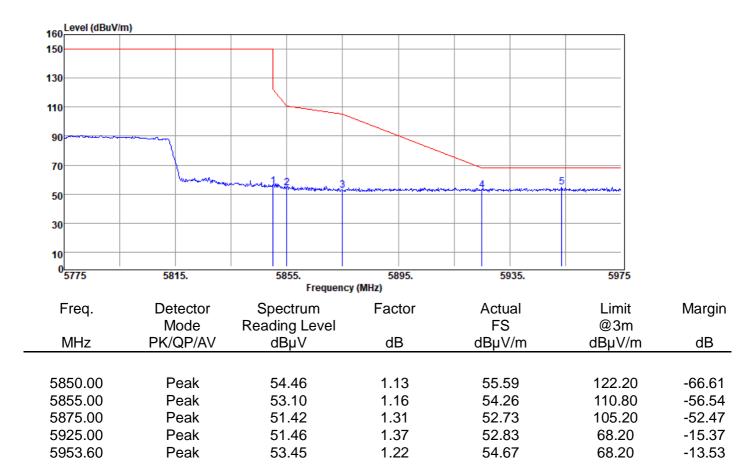
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Report Number	:E2/2020/50133
Operation Mode	:802.11ac80 / Band 4
Test Frequency	:5775 MHz
Test Mode	:BE CH HIGH
EUT Pol	:E2 Plan

Test Site	:966 Chamber D
Test Date	:2020-06-22
Temp./Humi.	:24.4/64
Antenna Pol.	:VERTICAL
Engineer	:Kailin



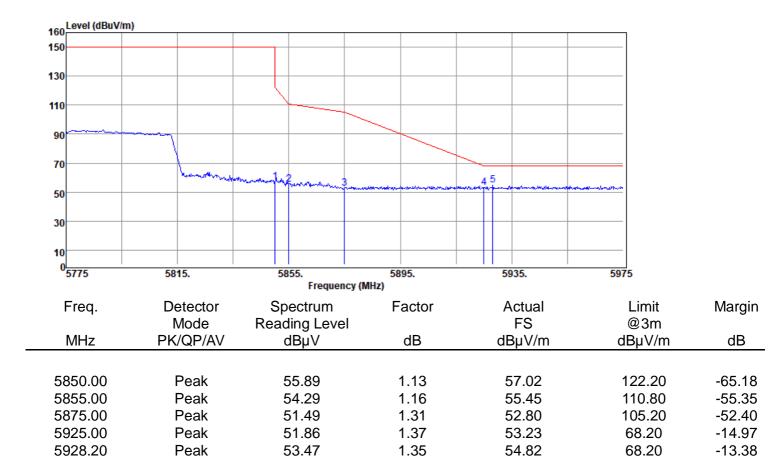
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Report Number	:E2/2020/50133	Test Site	:966 Chamber D
Operation Mode	:802.11ac80 / Band 4	Test Date	:2020-06-22
Test Frequency	:5775 MHz	Temp./Humi.	:24.4/64
Test Mode	:BE CH HIGH	Antenna Pol.	:HORIZONTAL
EUT Pol	:E2 Plan	Engineer	:Kailin



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12 TRANSMISSION IN THE ABSENCE OF DATA

12.1 Standard Applicable

According to §15.407(c)

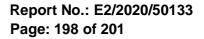
The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to 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

13.1 Standard Applicable

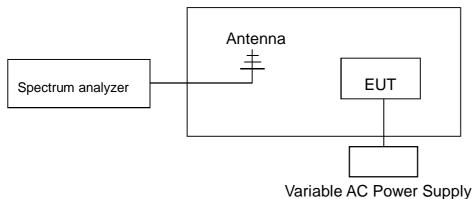
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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.

13.3 Test SET-UP

Temperature Chamber



13.4 Measurement Equipment Used:

SGS Conducted Room						
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUM- BER	LAST CAL.	CAL DUE.	
DC Block	PASTERNACK	PE8210	RF32	11/20/2019	11/19/2020	
Spectrum Ana- lyzer	KEYSIGHT	N9010A	MY51440113	07/15/2019	07/14/2020	
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020	

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13.5 **Measurement Result**

Start up

Operation Mode	802.11 a	Test Date	20200604
Temperature	: 25.9°C	Test By	Henry
Humidity	: 67%	-	

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.25	36	5180	5,179.99188	0.00000157
0	4.75	36	5180	5,179.99208	0.00000153
25	5	36	5180	5,179.99190	0.00000156
35	5.25	36	5180	5,179.99156	0.00000163
	4.75	36	5180	5,179.99160	0.00000162

2 minutes

Operation Mode	802.11 a	Test Date	20200604
Temperature	: 25.9°C	Test By	Henry
Humidity	: 67%		

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.25	36	5180	5,179.99181	0.00000158
0	4.75	36	5180	5,179.99146	0.00000165
25	5	36	5180	5,179.99164	0.00000161
35	5.25	36	5180	5,179.99187	0.00000157
	4.75	36	5180	5,179.99147	0.00000165

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5 minutes

Operation Mode	802.11 a	Test Date	20200604
Temperature	: 25.9°C	Test By	Henry
Humidity	: 67%		

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.25	36	5180	5,179.99156	0.00000163
0	4.75	36	5180	5,179.99204	0.00000154
25	5	36	5180	5,179.99174	0.00000159
35	5.25	36	5180	5,179.99156	0.00000163
	4.75	36	5180	5,179.99164	0.00000161

10 minutes

Operation Mode	802.11 a	Test Date	20200604
Temperature	: 25.9°C	Test By	Henry
Humidity	: 67%		

Test Temp.(℃)	Test Voltage(V)	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
0	5.25	36	5180	5,179.99196	0.00000155
0	4.75	36	5180	5,179.99186	0.00000157
25	5	36	5180	5,179.99222	0.00000150
35	5.25	36	5180	5,179.99159	0.00000162
33	4.75	36	5180	5,179.99155	0.00000163

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

~ End of Report ~

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