

# FCC TEST REPORT

FCC ID: 2AQ3A-YG551

On Behalf of

Shenzhen VanTop Technology & Innovation Co., Ltd. Projector Model No.: YG551, PERFORMANCE V700W

Prepared for	:	Shenzhen VanTop Technology & Innovation Co., Ltd.
Address	:	502, 5th Flr. BLDG 4, MinQi Technology Park, No. 65 Lishan Road, Taoyuan Street, Nanshan District, Shenzhen, China

Prepared By	:	Shenzhen Alpha Product Testing Co., Ltd.
Address	:	Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

Report Number	:	A2204237-C01-R03
Date of Receipt	:	May 16, 2022
Date of Test	:	May 17, 2022 – May 30, 2022
Date of Report	:	May 31, 2022
Version Number	:	V0

ALPHA's reports is using a digital certificate that is trusted on Adobe's official server. If there is no digital certificate or the digital

# Contents

	Page
ST SUMMARY	5
MEASUREMENT UNCERTAINTY	5
NERAL INFORMATION	6
GENERAL DESCRIPTION OF EUT TEST MODE TEST FACILITY DESCRIPTION OF SUPPORT UNITS DEVIATION FROM STANDARDS ABNORMALITIES FROM STANDARD CONDITIONS OTHER INFORMATION REQUESTED BY THE CUSTOMER ADDITIONAL INSTRUCTIONS	
ST INSTRUMENTS LIST	
ST RESULTS AND MEASUREMENT DATA	
ANTENNA REQUIREMENT: CONDUCTED EMISSIONS EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH. PEAK TRANSMIT POWER POWER SPECTRAL DENSITY. BAND EDGE. RADIATED EMISSION	11 14 24 26 32
	MEASUREMENT UNCERTAINTY NERAL INFORMATION GENERAL DESCRIPTION OF EUT TEST MODE TEST FACILITY DESCRIPTION OF SUPPORT UNITS DEVIATION FROM STANDARDS ABNORMALITIES FROM STANDARD CONDITIONS. OTHER INFORMATION REQUESTED BY THE CUSTOMER ADDITIONAL INSTRUCTIONS ST INSTRUMENTS LIST ST RESULTS AND MEASUREMENT DATA ANTENNA REQUIREMENT: CONDUCTED EMISSIONS EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH PEAK TRANSMIT POWER POWER SPECTRAL DENSITY BAND EDGE.

				DECLARATION		
Applicant	:	Shenzhen VanTop Techr	Shenzhen VanTop Technology & Innovation Co., Ltd.			
Address	:	502, 5th Flr. BLDG 4, Mir Street, Nanshan District,		Technology Park, No. 65 Lishan Road, Taoyuan enzhen, China		
Manufacturer	:	Shenzhen Shadow Crow	nenzhen Shadow Crown Technology Co., Ltd.			
Address	:	A9 East 5th Floor, Indust Shenzhen, Guangdong, I		Building, Longwang Miao, Fuyong District , R. China.		
EUT Description	:	Projector				
		(A) Model No.	:	YG551, PERFORMANCE V700W		
		(B) Trademark	:	N/A		

**TEST REPORT DECLARATION** 

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart E RSS-247 Issue 2, ANSI C63.4:2014, ANSI C63.10:2013

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart E limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:

Lucas Pang

Project Engineer

Simple Guan Project Manager

Lucas Poung

Date of issue.....

Approved by (name + signature).....:

May 31, 2022

### **Revision History**

Revision	Issue Date	Revisions	Revised By
V0	May 31, 2022	Initial released Issue	Lucas Pang

## 1 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	Section 15.203 Section 7.1.4 RSS-Gen Issue 5	PASS
AC Power Line Conducted Emission	Section 15.207 Section 7.2.4 RSS-GEN(8.8), ANSI C63.10	PASS
Peak Transmit Power	Section 15.407(a), RSS-247 5.4(2)	PASS
Power Spectral Density	Section 15.407(a), RSS-247 5.2(2)	PASS
Undesirable Emission	Section 15.407(b), RSS-247 5.5	PASS
Radiated Emission	Section 15.407(b)&15.209 Section 5.5 RSS-Gen(8.9), RSS-247(5.5), ANSI C63.10	PASS
Band Edge	15.205, RSS-247 Issue 2, ANSI C63.10	PASS
Frequency Stability	15.407(f), RSS-GEN(6.11)	PASS

Remark:

1.Pass: The EUT complies with the essential requirements in the standard.

2. Frequency Stability: The manufacturer stated in the user's manual.

3.Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.

## 1.1 Measurement Uncertainty

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber	3.74dB(Polarize: V)
(30MHz to 1GHz)	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber	3.77dB(Polarize: V)
(1GHz to 25GHz)	3.80dB(Polarize: H)
Uncertainty for radio frequency	5.06×10 <sup>-8</sup> GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	<b>0.2</b> ℃
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

## 2 General Information

2.1	General Description	of EUT
	EUT Name	: Projector
	Trademark	: N/A
	Model No.	<sup>1</sup> YG551, PERFORMANCE V700W
	DIFF.	: There is no difference except the name of the model. All tests are made with the YG551 model.
	Power supply	: AC 120V/60Hz
	Radio Technology	: 5G WIFI
	Operation Frequency	: 802.11a/n(HT20): 5180~5240MHz
		802.11n(HT40): 5190~5230MHz
	Channel separation	: 20MHz for 802.11a/ 802.11n(HT20)
		40MHz for 802.11n(HT40)
	Modulation technology:	: IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
		IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK)
	Antenna Type	: Internal Antenna, max gain 3.89dBi
		Antenna information is provided by applicant.
	Software version	<sup>1</sup> V1.0
	Hardware version	<sup>1</sup> V1.0
	Intend use environment	: Residential, commercial and light industrial environment

### 2.2 Test mode

Transmitting mode Keep the EUT in transmitting with modulation. EUT was test with 99% duty cycle at its maximum power control level.

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

## 2.3 Test Facility

Shenzhen Alpha Product Testing Co., Ltd Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission Registration Number: 293961

July 25, 2017 Certificated by IC Registration Number: CN0085

## 2.4 Description of Support Units

Accessories	:	/
Manufacturer	:	/
Model	:	/
Ratings	:	/

- 2.5 Deviation from Standards None.
- 2.6 Abnormalities from Standard Conditions None.
- 2.7 Other Information Requested by the Customer None.

## 2.8 Additional instructions

Software (Used for test) from client

Channel	Power level
Lowest	Default
Middle	Default
Highest	Default

# 3 Test Instruments list

Equipment	Manufacture	Model No.	Firmware version	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	N/A	N/A	2020.09.02	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2021.08.25	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2021.08.25	1Year
Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03- 102082-Wa	2021.08.25	1Year
Receiver	R&S	ESCI	4.42 SP1	101165	2021.08.25	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	N/A	VULB 9168#627	2021.08.30	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	N/A	2106	2021.08.30	2Year
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	N/A	00059	2021.08.30	2Year
RF Cable	Resenberger	Cable 1	N/A	RE1	2021.08.25	1Year
RF Cable	Resenberger	Cable 2	N/A	RE2	2021.08.25	1Year
RF Cable	Resenberger	Cable 3	N/A	CE1	2021.08.25	1Year
Pre-amplifier	HP	HP8347A	N/A	2834A00455	2021.08.25	1Year
Pre-amplifier	Agilent	8449B	N/A	3008A02664	2021.08.25	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	N/A	8126-466	2021.08.25	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	N/A	101043	2021.08.25	1 Year
Horn Antenna	SCHWARZBECK	BBHA9170	N/A	00946	2021.08.30	2 Year
Preamplifier	SKET	LNPA_1840- 50	N/A	SK2018101801	2021.08.25	1 Year
Power Meter	Agilent	E9300A	N/A	MY41496628	2021.08.25	1 Year
Power Sensor	DARE	RPR3006W	N/A	15100041SNO91	2021.08.25	1 Year
Temp. & Humid. Chamber	Weihuang	WHTH- 1000-40-880	N/A	100631	2022.04.22	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	N/A	20140927-6	2021.08.25	1 Year
Adjustable attenuator	MWRFtest	N/A	N/A	N/A	N/A	N/A
10dB Attenuator	Mini-Circuits	DC-6G	N/A	N/A	N/A	N/A

Software Information								
Test Item	Software Name	Manufacturer	Version					
RE	EZ-EMC	farad	Alpha-3A1					
CE	EZ-EMC	farad	Alpha-3A1					
RF-CE	MTS 8310	MWRFtest	2.0.0.0					

## 4 Test results and Measurement Data

### 4.1 Antenna requirement:

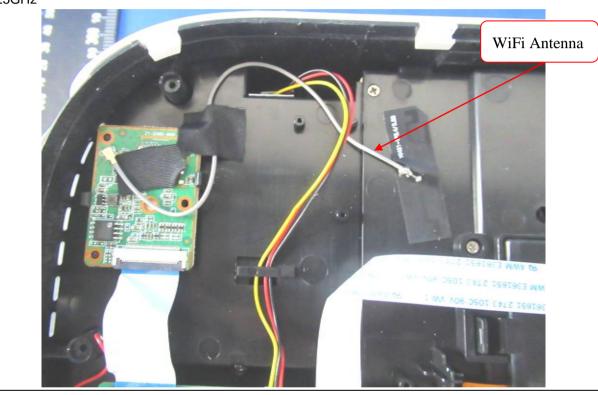
Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement:	

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### E.U.T Antenna:

### The antenna is internal antenna. The best case gain of the antenna is 3.89dBi for

### 5.15~5.25GHz

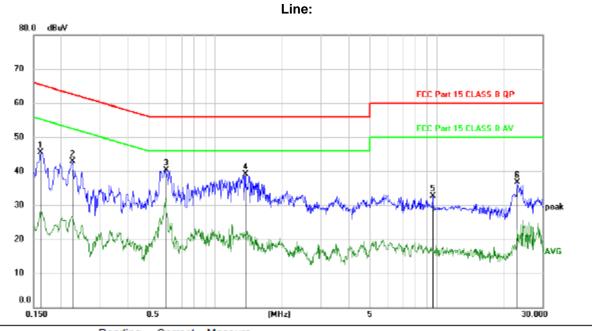


Test Requirement:	FCC Part15 C Section 15.207						
Test Method:	ANSI C63.10:2013						
Test Frequency Range:	150KHz to 30MHz						
Class / Severity:	Class B						
Receiver setup:	RBW=9KHz, VBW=30KHz						
Limit:	Frequency range (MHz)	Limit (c	lBuV)				
	Frequency range (MHz)	Quasi-peak	Average				
	0.15-0.5	66 to 56*	56 to 46*				
	0.5-5	56	46				
	5-30	60	50				
	* Decreases with the logarithm	n of the frequency.					
Test procedure	The E.U.T and simulators are impedance stabilization netwo coupling impedance for the main are also connected to the main 500hm/50uH coupling impedan to the block diagram of the tes A.C. line are checked for maxing find the maximum emission, the the interface cables must be conducted measurement.	ork(L.I.S.N.). The provide easuring equipment. The power through a LISI nce with 500hm terminest setup and photograp imum conducted interference relative positions of hanged according to A	de a 50ohm/50uH he peripheral devices N that provides a nation. (Please refers hs). Both sides of erence. In order to equipment and all of				
			er — AC power				
Test Instruments:	Refer to section 5.10 for detail	S					
Test mode:	Refer to section 5.3 for details						
Test results:	Pass						
Maggurament Data							

## 4.2 Conducted Emissions

### **Measurement Data**

An initial pre-scan was performed on the line and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

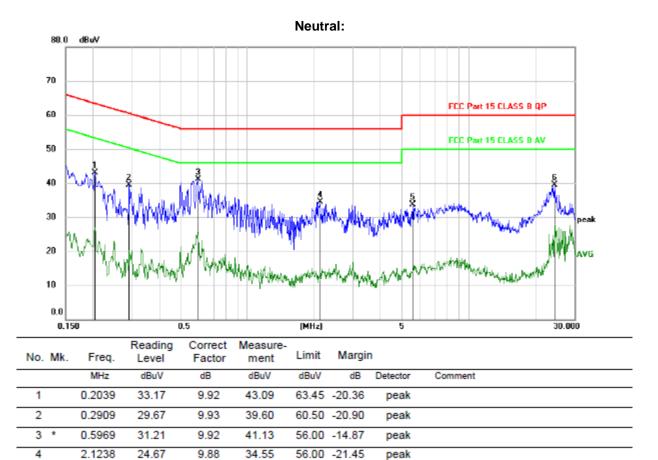


				Factor	ment	Limit	Margir	1	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1620	35.51	9.93	45.44	65.36	-19.92	peak	
2		0.2250	33.02	9.94	42.96	62.63	-19.67	peak	
3	*	0.5969	30.38	9.92	40.30	56.00	-15.70	peak	
4		1.3619	29.19	9.89	39.08	56.00	-16.92	peak	
5		9.5760	22.50	10.20	32.70	60.00	-27.30	peak	
6		23.1329	26.16	10.45	36.61	60.00	-23.39	peak	

\*:Maximum data x:Over limit !:over margin

(Reference Only

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable



60.00 -26.29

60.00 -20.45

peak

peak

\*:Maximum data x:Over limit !:over margin (Reference Only Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

5

6

5.5739

24.3539

23.65

29.11

10.06

10.44

33.71

39.55

Note: All modes and channels have been tested and only the A 5180MHz mode with the worst data is listed.

Test Requirement:	FCC Part15 E Section 15.407					
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01					
Limit:	N/A					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test procedure:	According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.					
Test Instruments:	Refer to section 5.10 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

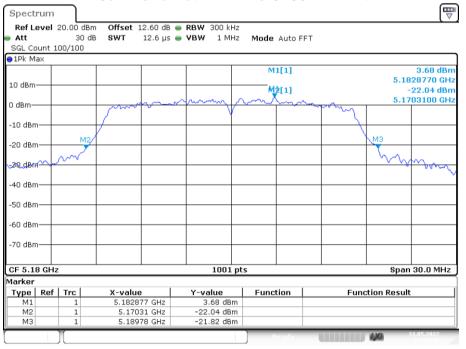
# 4.3 Emission Bandwidth and 99% Occupied Bandwidth

### Measurement Data:

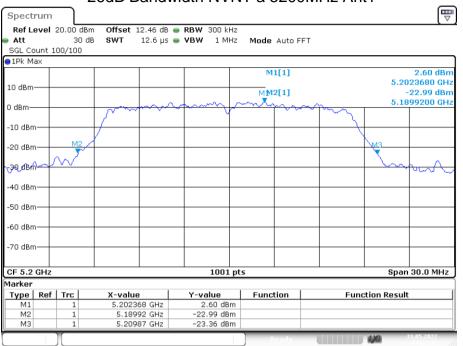
Band 1 (5150-5250 MHz)

width		1			I
Mode	Frequency	Antenna	-26 dB	Limit -26 dB	Verdict
	(MHz)		Bandwidth	Bandwidth (MHz)	
			(MHz)		
а	5180	Ant1	19.47	0.5	Pass
а	5200	Ant1	19.95	0.5	Pass
а	5240	Ant1	19.62	0.5	Pass
n20	5180	Ant1	19.65	0.5	Pass
n20	5200	Ant1	19.83	0.5	Pass
n20	5240	Ant1	19.65	0.5	Pass
n40	5190	Ant1	41.82	0.5	Pass
n40	5230	Ant1	39.3	0.5	Pass
	Mode a a n20 n20 n20 n20 n40	Mode         Frequency (MHz)           a         5180           a         5200           a         5240           n20         5180           n20         5180           n20         5200           n20         5180           n20         5200           n20         5240           n20         5240           n20         5240	ModeFrequency (MHz)Antenna (MHz)a5180Ant1a5200Ant1a5240Ant1n205180Ant1n205200Ant1n205240Ant1n205240Ant1n205240Ant1n405190Ant1	Mode         Frequency (MHz)         Antenna         -26 dB           a         (MHz)         Bandwidth (MHz)           a         5180         Ant1         19.47           a         5200         Ant1         19.95           a         5240         Ant1         19.62           n20         5180         Ant1         19.65           n20         5200         Ant1         19.83           n20         5240         Ant1         19.65           n20         5240         Ant1         19.65           n20         5240         Ant1         19.65           n40         5190         Ant1         19.65	Mode         Frequency (MHz)         Antenna         -26 dB Bandwidth         Limit -26 dB Bandwidth           a         5180         Ant1         19.47         0.5           a         5200         Ant1         19.95         0.5           a         5240         Ant1         19.62         0.5           n20         5180         Ant1         19.65         0.5           n20         5180         Ant1         19.83         0.5           n20         5200         Ant1         19.65         0.5           n40         5190         Ant1         19.65         0.5

#### -26dB Bandwidth NVNT a 5180MHz Ant1

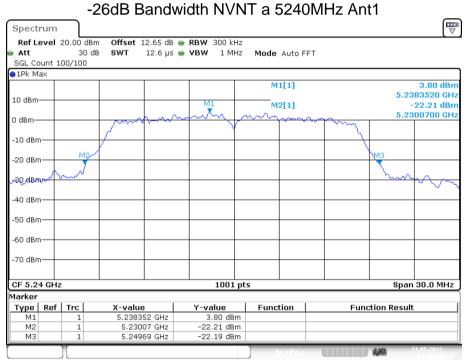


Date: 31.MAY.2022 04:18:00



### -26dB Bandwidth NVNT a 5200MHz Ant1

Date: 31.MAY.2022 04:23:32



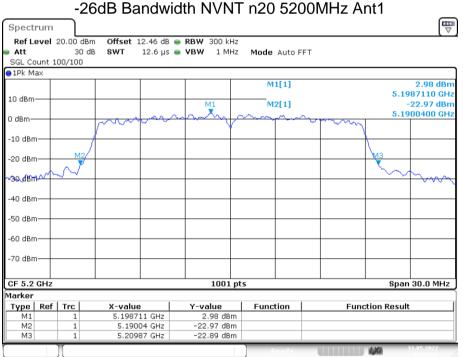
Date: 31.MAY.2022 04:26:36

Spect	rum	$\neg$			1120 010		III I III III III III III III III III I
		20.00 dBr	• Offset 12.60 d	3 👄 RBW 300 kHz			( V
Att	evei	20.00 UBI 30 di		5 - VBW 1 MHz	Mode Auto FI	ΞŦ	
	unt 1	.00/100	5 <b>5 6 1</b> 2.0 p		Mode Auto Fi		
DOL OU		.00, 200					
					M1[1]		3.50 dBm
							5.1777520 GHz
10 dBm	-+			M1	M2[1]		-22.43 dBm
o				mon la			5.1700700 GHz
0 dBm–			Samo and			man	
-10 dBn			X				
-10 aBn	-	)					
-20 dBn		ма⁄					МЗ
-20 UBI	'	~					
-30 MBh	m.	$\sim$					Vinna
COCUMENT	'						
-40 dBn	<u> </u>						
10 401	·						
-50 dBn	n						
-60 dBn	n——						
-70 dBn	n——						
CF 5.1	8 CH-	,		1001 pt			Span 30.0 MHz
darker		-		1001 pc	3		opun 00.0 MHz
		Trc	X-value	Y-value	Function	Eune	tion Result
Type M1	Rei	1	5.177752 GHz	3.50 dBm	Function	Func	alon Result
M2		1	5.17007 GHz	-22.43 dBm			
M3		1	5.18972 GHz	-22.25 dBm			
		)(			· · · · ·	2.1.1.1.1.1.1.1.1.	
		П			Ready		400 31.05.2022

-26dB Bandwidth N\/NT n20 5180MHz Ant1

Page 17 of 43

Date: 31.MAY.2022 04:30:33



-26dB Bandwidth NVNT n20 5200MHz Ant1

Date: 31.MAY.2022 04:34:16

\_

Spect	rum		Cab Bana		1120 02	10111127	line i □
Att		20.00 dB 30 c		dB 🖷 RBW 300 kHz µs 🖶 VBW 1 MHz	Mode Auto F	FT	(.
OGE CO		.00/100					
					M1[1]		3.75 dBm 5.2410190 GHz
10 dBm				man d	M1 M2[1]		-22.12 dBm 5.2302200 GHz
0 dBm-			m				
-10 dBm		мұ	/				МЗ
-20 dbn		$\sim$					mon
-40 dBm	-						
-50 dBrr							
-60 dBrr	-						
-70 dBm							
CF 5.2	4 GHz	2		1001 pt	s		Span 30.0 MHz
Marker							
Type	Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1		1	5.241019 GH:	z 3.75 dBm			
M2		1	5.23022 GH				
MЗ		1	5.24987 GH	z -22.23 dBm			
		Π			Ready		31.05.2022

-26dB Bandwidth NVNT n20 5240MHz Ant1

Date: 31.MAY.2022 04:37:59



Spect	rum										
Ref L	evel	20.00 dBm	Offset	12.50 dB 🧉	• RBW 300 k	Hz					
👄 Att		30 dE	SWT	25.3 µs 🧉	<b>∀BW</b> 1 M	1Hz	Mode	Auto FF	т		
-		.00/100									
😑 1Pk M	ax										]
							M	1[1]			-0.11 dBm
10 dBm											20880 GHz
10 0.0.00				M1			M	2[1]			25.43 dBm
0 dBm-			mum		man	-	Share ha	h		5.16	76200 GHz
			mann		1	M	10-1-04	1000	monon		
-10 dBn	n-+-	(			'	₩-				<u> </u>	
										IV	
-20 dBn	n-+-	M2 /				-				Ìγ(3	
0-00/	n a h	MV.								S. In	
- <sub>6</sub> 80.484		y - 1				<u> </u>				marchav	www.
-40 dBn	_										
-40 UBI											
-50 dBn	∩										
50 GDI	"										
-60 dBn	n — —					_					
-70 dBn	n										
CF 5.1	9 GH2	,			100	1 pts	5			Snan	60.0 MHz
Marker		-			100	- per				Span	
Type	Ref	Trc	X-valu	e	Y-value		Func	tion	Fund	tion Result	· 1
M1		1		88 GHz	-0.11 di	3m			- une		·
M2		1		62 GHz	-25.43 di						
M3		1	5.209	44 GHz	-25.88 di	3m					
		)(				T	R	eady		1)0	31.05.2022

Date: 31.MAY.2022 04:41:49

Ref Level 20.00 dBm Offset 12.60 dB ● RBW 300 kHz Att 30 dB SWT 25.3 µs ● VBW 1 MHz Mode Auto FFT SGL Count 100/100 ● 1Pk Max	Spectrur				1140 020			₽
Att       30 dB       SWT       25.3 µs       VBW       1 MHz       Mode       Auto FFT         SGL Count 100/100       ••••••••••••••••••••••••••••••••••••								
SGL Count 100/100       • 1Pk Max       10 dBm     M1[1]     0.58       10 dBm     M1     M2[1]     -24.82       0 dBm     M1     M2[1]     -24.82       -10 dBm     M1     M2[1]     -24.82       -20 dBm     M1     M2[1]     -24.82       -50 dBm     M1     M1     M2[1]       -70 dBm     M1     M2[1]     M1       -70 dBm     M1     M2[1]     M2[1]       -70 dBm     M1     M2[1]     M2[1]				-				
IPk Max       M1[1]       0.58         10 dBm       M1[1]       5.2274230         0 dBm       M2[1]       -24.82         -10 dBm       5.2105600       5.2105600         -20 dBm       M2       5.2105600         -20 dBm       M3       40         -20 dBm       M3       40         -20 dBm       M3       40         -20 dBm       M3       40         -70 dBm       M3       40         -70 dBm       1001 pts       Span 60.0         Marker       1001 pts       Span 60.0			dB <b>SWT</b> 25.3 µs	5 👄 VBW 1 MHz	Mode Auto Fi	=T		
10 dBm     M1[1]     0.58       10 dBm     M1     M2[1]     -24.82       0 dBm     M1     M2[1]     5.2105601       -10 dBm     M1     M2[1]     5.2105601       -20 dBm     M1     M3     M3       -20 dBm     M1     M3     M3       -20 dBm     M1     M3     M3       -20 dBm     M1     M3     M4       -20 dBm     M3     M3     M4       -20 dBm     M3     M4     M4       -20 dBm     M4     M4     M4       -20 dBm     M4     M4     M4       -20 dBm     M4     M4     M4       -		t 100/100						
10 dBm     M1     M2[1]     5.2274230       -24.82     -24.82     5.2105600       -10 dBm     -20 dBm     -20 dBm     -20 dBm       -20 dBm     -20 dBm     -20 dBm       -20 dBm     -20 dBm     -20 dBm       -20 dBm     -20 dBm     -20 dBm       -20 dBm     -20 dBm     -20 dBm       -20 dBm     -20 dBm     -20 dBm       -20 dBm     -20 dBm     -20 dBm       -40 dBm     -20 dBm     -20 dBm       -50 dBm     -20 dBm     -20 dBm       -60 dBm     -20 dBm     -20 dBm       -70 dBm     -20 dBm     -20 dBm	●1Pk Max							
10 dBm     M1     M2[1]     -24.82       0 dBm     M1     M2[1]     5.2105600       -10 dBm     M1     M2[1]     0       -20 dBm     M1     M1     M2[1]     0       -20 dBm     M1     M1     M2[1]     0       -20 dBm     M1     M2     M1     0       -20 dBm     M1     M2     M1     0       -40 dBm     -50 dBm     -60 dBm     -60 dBm     -60 dBm       -70 dBm     -70 dBm     -60 dBm     -60 dBm     -60 dBm					M1[1]			dBm
M1     M2[1]     -24.82       0 d8m     5.2105600       -10 d8m     -0       -20 d8m     -0	10 dBm							
0 dBm	10 000			M1	M2[1]			
-10 dBm	0 dBm						5.210560	J GHz
-20 dBm	o abiii		mann	and any card la	monday	monnon		
-20 dBm 113 133 133 133 133 133 133 133 133 13	-10 dBm-		4	V				
40 dBm     -40 dBm       -50 dBm     -60 dBm       -60 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -70 dBm			// /	l ľ				
40 dBm     -40 dBm       -50 dBm     -60 dBm       -60 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -60 dBm       -70 dBm     -70 dBm	-20 dBm—	Ma					1013	
-40 dBm		J 3						
-40 dBm	A-habase	Maran					Mon an	٨٨
-50 dBm								vr
-60 dBm	-40 dBm—							
-60 dBm								
-70 dBm CF 5.23 GHz 1001 pts Span 60.0 Marker	-50 dBm—							
-70 dBm CF 5.23 GHz 1001 pts Span 60.0 Marker								
CF 5.23 GHz 1001 pts Span 60.0 Marker	-60 dBm—							
CF 5.23 GHz 1001 pts Span 60.0 Marker								
Marker	-70 dBm—	-						-
Marker								
	CF 5.23 G	Hz		1001 pt	s		Span 60.0	MHz
Type   Ref   Trc   X-value   Y-value   Function   Function Result	Marker							
	Type R	ef   Trc	X-value	Y-value	Function	Fund	tion Result	
M1 1 5.227423 GHz 0.58 dBm								
M2 1 5.21056 GHz -24.82 dBm	M2	1	5.21056 GHz	-24.82 dBm				
M3 1 5.24986 GHz -25.03 dBm	MЗ	1	5.24986 GHz	-25.03 dBm				
Ready 31.05.20		)(			Dendu	( ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )	AMA 31.05.20	22

## -26dB Bandwidth NVNT n40 5230MHz Ant1

Date: 31.MAY.2022 04:51:06

## **Occupied Channel Bandwidth**

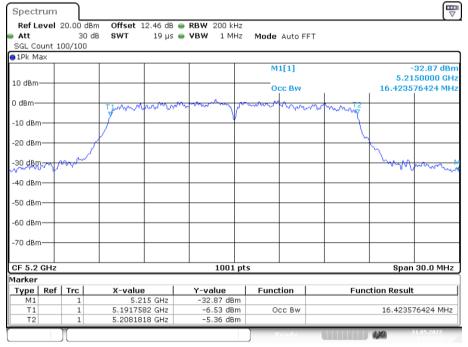
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	а	5180	Ant1	16.513
NVNT	а	5200	Ant1	16.424
NVNT	а	5240	Ant1	16.484
NVNT	n20	5180	Ant1	17.562
NVNT	n20	5200	Ant1	17.592
NVNT	n20	5240	Ant1	17.682
NVNT	n40	5190	Ant1	35.964
NVNT	n40	5230	Ant1	36.144

Spect	rum		_				
🛛 Att		20.00 ( 30 100/100	)dB <b>SWT</b> 19 µ	B <b>e RBW</b> 200 kHz s <b>e VBW</b> 1 MHz	Mode Auto Ff	FT	
⊖1Pk M	ax						
10 dBm	_				M1[1]		-32.81 dBm 5.1650000 GHz 16.513486513 MHz
0 dBm—	+		Tjmmmm		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mme	
-10 dBn	$\neg +$					+	
-20 dBn		M	7				
1-30 dBp	~	<u>~₩ I~</u>					Jone warden the
-50 dBr							
-60 dBn	-						
-70 dBn	n+						
CF 5.1	8 GH:	z		1001 pt	s		Span 30.0 MHz
Marker							
Type	Ref	Trc	X-value	Y-value	Function	Fund	tion Result
M1 T1		1	5.165 GHz 5.1716983 GHz	-6.49 dBm	Occ Bw		16.513486513 MHz
T2			5.1882118 GHz	-5.78 dBm	Ready		\$1.05.2022

## OBW NVNT a 5180MHz Ant1

Date: 31.MAY.2022 04:17:51

### OBW NVNT a 5200MHz Ant1



Date: 31.MAY.2022 04:23:22

Specti	rum										
Att		20.00 dB 30 d			● RBW ● VBW	200 kHz 1 MHz	Mode	Auto FF	T		
⊖1Pk Ma	ах										
10 dBm-								1[1] cc Bw		5.2	-33.43 dBm 550000 GHz 516484 MHz
							0	CC BW	1	10.4833	10484 MHZ
0 dBm—	+		TIMM	mon	mhrvom	www	᠂ᢩ᠕ᠰᠬᢦ᠆ᠬ	h	mmmt2		
-10 dBm	<del>ا (</del>										
-20 dBm	<del>ا ا</del>	- /	4							$\wedge$	
-30 dBr	iv	Antom								Jur	www
-40 dBm	<del>ا ا</del>										
-50 dBm	۱ <del>  </del>										
-60 dBm	<del>ا ا</del>										
-70 dBm	+										
CF 5.24	4 GH2	z				1001 pt	s			Spar	1 30.0 MHz
Marker											
Туре	Ref	Trc	X-value	.	Y-V	alue	Func	tion	Fun	ction Resul	t
M1		1		55 GHz		3.43 dBm					
T1 T2		1	5.23175 5.24824			7.38 dBm 5.76 dBm	0	cc Bw		16.4835	16484 MHz
		Υ						teady	-	4,00	31.05.2022

# OBW NVNT a 5240MHz Ant1

Date: 31.MAY.2022 04:26:25

## OBW NVNT n20 5180MHz Ant1

					VINII		100					_
Spectr	um											
Ref Le	vel	20.00	IBm Offset	12.60 dB	RBW 3	200 kHz						
Att		30	dB SWT	19 µs	e vbw	1 MHz	Mode	Auto Fl	FT			
SGL Cou	unt 1	00/100										
∋1Pk Ma	x											
							M	1[1]			-	30.77 dBm
10 dBm-												50000 GHz
10 00111							0	cc Bw			17.5624	37562 MHz
0 dBm—			-T1 A P	mon	man and	man po	مىرىمىكى	him	M	<u>а та</u>		
			Junhow			_`.₩		www	when	"hig		
-10 dBm-												
											$\backslash$	
-20 dBm-	+		/									
1		and									man	
-30 dau	mp											When
-40 dBm-												
-40 00111												
-50 dBm-	_											
-60 dBm-	+											
-70 dBm-	+											
CF 5.18	GHz					1001 pt	s				Span	30.0 MHz
Marker												
Туре	Ref	Trc	X-valu		Y-va		Func	tion		Func	tion Result	
M1		1		.65 GHz		77 dBm						
T1		1	5.17121			67 dBm	0	cc Bw			17.5624	37562 MHz
T2		1	5.18878	312 GHz	-5.	18 dBm	-					
		Π					P	e a d y			1,70	31.05.2022
		<u> </u>					_					

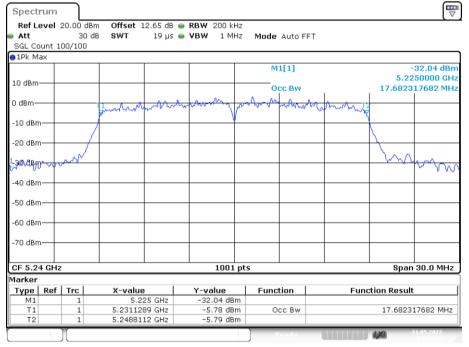
Date: 31.MAY.2022 04:30:20

		_			VINI		200		7 11 11			Ē
Spectr	um											₩
Ref Le	vel	20.00 dBi	m Offset :	12.46 dB	RBW	200 kHz						
Att		30 d	B SWT	19 µs	🖷 VBW	1 MHz	Mode	Auto FF	т			
SGL Co		.00/100										
∋1Pk Ma	X											
							M	1[1]				·30.94 dBm
10 dBm-												50000 GHz
20 00.00							0	cc Bw	1		17.5924	07592 MHz
0 dBm—	_				m	man	marian .	www				
			forman	- menore	· · · · ·	-V		L	www.v	àn,		
-10 dBm	+				<u> </u>							
			4								\	
-20 dBm	+											
		2005									ha.	
AR dBra	.∧v	200									<u>v wo</u>	كمكركم بصبا
40 - 10												
-40 dBm												
-50 dBm												
-50 00111												
-60 dBm	$\rightarrow$				_							
-70 dBm	$\rightarrow$				_							
CF 5.2 (	GHz			I		1001 pts	5				Span	30.0 MHz
Marker												
	Ref	Trc	X-value	e	Y-va	alue	Func	tion		Fund	tion Result	
M1		1		85 GHz		.94 dBm						
Τ1		1	5.19118	88 GHz	-5	.70 dBm	0	cc Bw			17.5924	07592 MHz
T2		1	5.20878	12 GHz	-5	.35 dBm						
		1					]	loady			100	31.05.2022

OBW NVNT n20 5200MHz Ant1

Date: 31.MAY.2022 04:34:01

## OBW NVNT n20 5240MHz Ant1



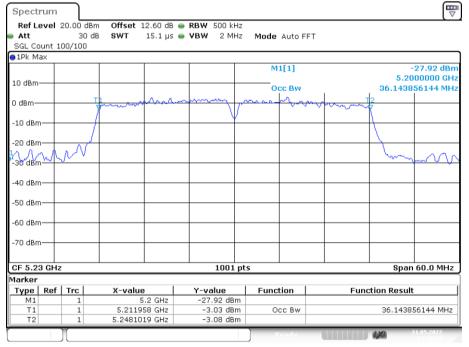
Date: 31.MAY.2022 04:37:43

					VINI	1140 0		_ / \iii (i		
Spectr	um									E
Ref Le	vel	20.00 dBr	n Offset 1	L2.50 dB	RBW	500 kHz				
Att		30 d	B SWT	15.1 µs	e vbw	2 MHz	Mode Auto F	FT		
SGL Cou	unt 1	.00/100								
∋1Pk Ma	x									
							M1[1]			-29.86 dBm
									5.1	600000 GH
10 dBm-							Occ Bw		35.964	035964 MHz
0.40				0.0	_				+	
0 dBm—			front way					a a channe	~~	
-10 dBm-			1			Y			N	
-10 ubiii-		1	( )						1	
-20 dBm-										
20 00111		~~							has	
Golden-	VΨ,	wr-							- my	marga
00 00										
-40 dBm-					_					
-50 dBm-	-				_					
-60 dBm-	-				_					
-70 dBm-										+
CF 5.19	GHz	2	1			1001 pt	5		Spa	n 60.0 MHz
Marker										
	Ref	Trc	X-value	.	Y-va	alue	Function	F	unction Resu	lt
M1		1		16 GHz		.86 dBm				
T1		1	5.1720			.75 dBm	Occ Bw		35.964	035964 MHz
T2		1	5.2079		-4	.23 dBm				
		11				1			440	31.05.2022
							Reauy		and the second se	

OBW NVNT n40 5190MHz Ant1

Date: 31.MAY.2022 04:41:35

## OBW NVNT n40 5230MHz Ant1



Date: 31.MAY.2022 04:50:50

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Limit:	<ul> <li>For the band 5.15-5.25GHz, 5.25-5.35GHz, 5.47-5.725GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW.</li> <li>For the band 5.725-5.85GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 1W.</li> </ul>
Test setup:	Power Meter E.U.T Non-Conducted Table Ground Reference Plane
Test procedure:	Measurement using an RF average power meter
	<ul> <li>(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied <ul> <li>a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle.</li> <li>b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.</li> <li>c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.</li> </ul> </li> <li>(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).</li> <li>(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.</li> <li>(iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10log(1/0.25) if the duty cycle is 25 percent).</li> </ul>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

## 4.4 Peak Transmit Power

Dallu I (S	130-3230	, wii 12)						
Condition	Mode	Frequency	Antenna	Conducted	Duty	Total	Limit	Verdict
		(MHz)		Power (dBm)	Factor	Power	(dBm)	
					(dB)	(dBm)		
NVNT	а	5180	Ant1	12.948	0	12.948	24	Pass
NVNT	а	5200	Ant1	12.399	0	12.399	24	Pass
NVNT	а	5240	Ant1	12.692	0	12.692	24	Pass
NVNT	n20	5180	Ant1	12.789	0	12.789	24	Pass
NVNT	n20	5200	Ant1	12.53	0	12.530	24	Pass
NVNT	n20	5240	Ant1	12.712	0	12.712	24	Pass
NVNT	n40	5190	Ant1	12.93	0	12.930	24	Pass
NVNT	n40	5230	Ant1	13.088	0	13.088	24	Pass

### Measurement Data Band 1 (5150-5250 MHz)

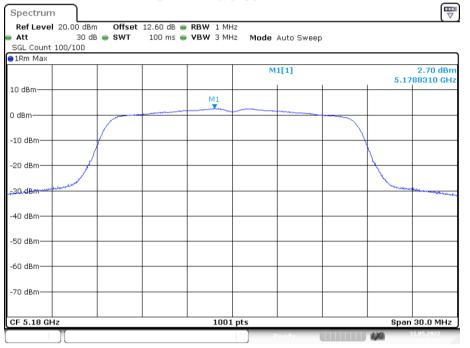
Test Method:	FCC Part15 E Section 15.407 KDB 789033 D02 General UNII Test Procedures New Rules v02r01 ≤11.00dBm/MHz for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725					
Limit:	≤11.00dBm/MHz for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725					
	≤11.00dBm/MHz for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz ≤30.00dBm/500KHz for 5725MHz-5850MHz					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
3	<ol> <li>Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power".</li> <li>Use the peak search function on the instrument to find the peak of the spectrum.</li> <li>Make the following adjustments to the peak value of the spectrum, if applicable:         <ul> <li>a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.</li> <li>b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.</li> </ul> </li> <li>The result is the PSD.</li> </ol>					
	Refer to section 5.10 for details					
Test mode:	Refer to section 5.3 for details					

# 4.5 Power Spectral Density

Band 1 (5150 - 5250 MHz)									
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict			
NVNT	а	5180	Ant1	2.703	11	Pass			
NVNT	а	5200	Ant1	2.2	11	Pass			
NVNT	а	5240	Ant1	2.271	11	Pass			
NVNT	n20	5180	Ant1	2.337	11	Pass			
NVNT	n20	5200	Ant1	1.853	11	Pass			
NVNT	n20	5240	Ant1	2.069	11	Pass			
NVNT	n40	5190	Ant1	-1.078	11	Pass			
NVNT	n40	5230	Ant1	-1.002	11	Pass			

### Measurement Data Band 1 (5150 - 5250 MHz)

### PSD NVNT a 5180MHz Ant1



Date: 31.MAY.2022 04:18:19

			FODIN	viviac		IZ AIILI		
Spectrun	n							₽
Ref Leve	1 20.00 dBm	n Offset	12.46 dB 👄	RBW 1 MH	z			
🖷 Att	30 dE	B 👄 SWT	100 ms 👄	<b>VBW</b> З МН	z Mode	Auto Sweep		
SGL Count	100/100							
⊖1Rm Max								
					М	1[1]	5.20	2.20 dBm 10790 GHz
10 dBm						+ +		
					M1			
0 dBm								
-10 dBm		/						
	1	1					\	
-20 dBm	- /						 <u> </u>	
30-d8m-****							and the second second	
adu obm								and the second second
-40 dBm								
-50 dBm							 	
-60 dBm								
-70 dBm								
CF 5.2 GH	 Z			1001	nts		Span	30.0 MHz
				1001		laadu (		1.05.2022
						Rearry	LYA .	

PSD NVNT a 5200MHz Ant1

Date: 31.MAY.2022 04:23:51

### PSD NVNT a 5240MHz Ant1



Date: 31.MAY.2022 04:26:57

			6
Spectrum			
	set 12.60 dB 👄 RBW 1 MHz		
Att 30 dB 👄 SW	T 100 ms 👄 VBW 3 MHz Mod	le Auto Sweep	
SGL Count 100/100 1Rm Max			
		M1[1]	2.34 dBm
		milil	5.1788010 GHz
10 dBm			
	M1		
) dBm			
-10 dBm			
-20 dBm			
and the second se			
-30-d8m			
-40 dBm			
40 UBIII			
-50 dBm			
Jo ubin			
-60 dBm			
-70 dBm			
CF 5.18 GHz	1001 pts		Span 30.0 MHz
	1001 pts		
		Ready	4/4 110107

#### PSD NVNT n20 5180MHz Ant1

Date: 31.MAY.2022 04:30:56

\_\_\_\_\_

### PSD NVNT n20 5200MHz Ant1

			20 32001011		
Spectrum					
Ref Level 20.00	dBm Offset	12.46 dB 👄 RBW 1	L MHz		
🛢 Att 3	0 dB 😑 SWT	100 ms 😑 VBW 3	MHz Mode Au	uto Sweep	
SGL Count 100/10	0				
⊜1Rm Max					
			M1	1]	1.85 dBm 5.1990410 GHz
10 dBm					
		M	1		
0 dBm					
	X				N I
-10 dBm					
	1				
-20 dBm	<u>/                                    </u>				
-30 dBm					and the second second second
-40 dBm					
-50 dBm					
-60 dBm					
-oo ubiii-					
-70 dBm					
CF 5.2 GHz		1	001 pts		Span 30.0 MHz
			Re	ady	4/0 31.05.2022

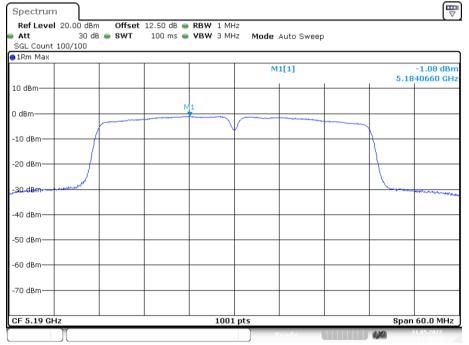
Date: 31.MAY.2022 04:34:38

			02401011274111	_
Spectrum	]			
Ref Level 20.0		12.65 dB 👄 RBW 1 MH		
Att	30 dB 😑 SWT	100 ms 👄 <b>VBW</b> 3 MH	Iz Mode Auto Sweep	
SGL Count 100/1	100			
∋1Rm Max				
			M1[1]	2.07 dBn 5.2412290 GH
10 dBm				
			M1	
0 dBm				
	X			
-10 dBm				
-20 dBm				
22.42				www.
-39-dBm				
-40 dBm				
-50 dBm				
-60 dBm				
-70 dBm				
CF 5.24 GHz		1001	pts	Span 30.0 MHz
		1003		
			Ready	<b>1.05</b> ,2022

PSD NVNT n20 5240MHz Ant1

Date: 31.MAY.2022 04:38:23

### PSD NVNT n40 5190MHz Ant1



Date: 31.MAY.2022 04:42:13

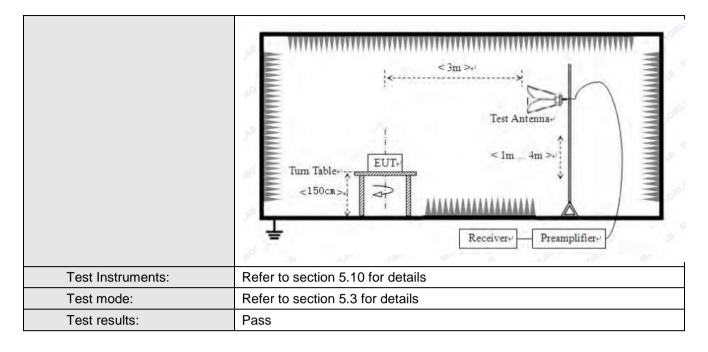
			FOD IN		JZ301VI	ITZ AIII	1		
Spectrum									
Ref Level	20.00 dBm	Offset	12.60 dB 👄	RBW 1 MH	z				
Att 🗧	30 dB	SWT	100 ms 👄	VBW 3 MH	z Mode A	Auto Sweep			
SGL Count :	100/100								
⊖1Rm Max									
					MI	L[1]		5.22	-1.00 dBm 242460 GHz
10 dBm									<u> </u>
0 dBm			N	1					
								(	
-10 dBm	/								
-20 dBm								$\left\{ - \right\}$	
-30-d8m	human								and wanter
									and the state of the
-40 dBm									
-50 dBm									
-60 dBm									
oo abiii									
-70 dBm									
CF 5.23 GH	7			1001	nts			Snan	60.0 MHz
0, 0.20 GH				1001	PC3				21.05.2022
					R	eady		100	6151.30

#### PSD NVNT n40 5230MHz Ant1

Date: 31.MAY.2022 04:51:30

# 4.6 Band Edge

Test Requirement:	FCC Part15 E Se	FCC Part15 E Section 15.407 and 15.205							
Test Method:	ANSI C63.10:201	ANSI C63.10:2013							
Test site:	Measurement Dis	stance: 3m (Se	emi-Anecho	ic Chambei	r)				
Test Method:	ANSI C63.10:201 Measurement Dis Frequency 30MHz-1GHz Above 1GHz Above 1GHz 216MHz-88 88MHz-216 216MHz-96 960MHz-1 Above 10 Undesirable emis (1) For transmitte outside of th dBm/MHz. I generate en applicable te	Measurement Distance: 3m (Semi-Anechoic Chamber)         Frequency       Detector       RBW       VBW       Remark         30MHz-1GHz       Quasi-peak       100KHz       300KHz       Quasi-peak Va         Above 1GHz       Peak       1MHz       3MHz       Peak Value         Av       1MHz       3MHz       Average Value         Frequency       Limit (dBuV/m @3m)       Remark         30MHz-88MHz       40.0       Quasi-peak Va         88MHz-216MHz       43.5       Quasi-peak Va         216MHz-960MHz       46.0       Quasi-peak Va         960MHz-1GHz       54.0       Quasi-peak Va         Above 1GHz       54.0       Average Value         Undesirable emission limits:       (1) For transmitters operating in the 5.15-5.25 GHz band: all emission outside of the 5.15-5.35 GHz band shall not exceed an EIRP of dBm/MHz.         (2) For transmitters operating in the 5.25-5.35 GHz band: all emission outside of the 5.15-5.35 GHz band shall not exceed an EIRP of dBm/MHz.         (2) For transmitters operating in the 5.15-5.25 GHz band must meet applicable technical requirements for operation in the 5.15-5.25 GHz band must meet applicable technical requirements for operation in the 5.15-5.25 GHz band							
Test Procedure:	<ul> <li>dBm/MHz. If generate en applicable te band (include emission EIF (3) For transmitte outside of the dBm/MHz.</li> <li>a. The EUT was ground at a 3 determine the b. The EUT was antenna, whi tower.</li> <li>c. The antenna ground to det horizontal an the measured d. For each sus case and the meters and the degrees to fir e. The test-rece Specified Ban f. If the emission</li> </ul>	<ul> <li>outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.</li> <li>(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.</li> <li>(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.</li> <li>a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> </ul>							
	sheet.	age method as	specified a	and then rep	ported in a data				
Test setup:	Above 1GHz								



Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2,

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

### Measurement Data:

### Band1

Mc	ode:	802	.11a	Frequ	iency:	5180	)MHz
IVIC					lency.	5100	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5150.00	31.94	17.18	49.12	68.20	-19.08	PK
V	5150.00	35.59	17.18	52.77	68.20	-15.43	PK
				_			
Mo	ode:	802	.11a	Frequ	iency:	5180	)MHz
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5150.00	25.33	17.18	42.51	54.00	-11.49	AV
V	5150.00	25.24	17.18	42.42	54.00	-11.58	AV
Mo	ode:	802.11a		Frequ	iency:	5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5350.00	32.81	17.18	49.99	68.20	-18.21	PK
V	5350.00	32.57	17.18	49.75	68.20	-18.45	PK
Мс	ode:	802	.11a	Frequ	iency:	5240	)MHz
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
					54.00	10.00	AV
Н	5350.00	24.43	17.18	41.61	54.00	-12.39	/ ( V

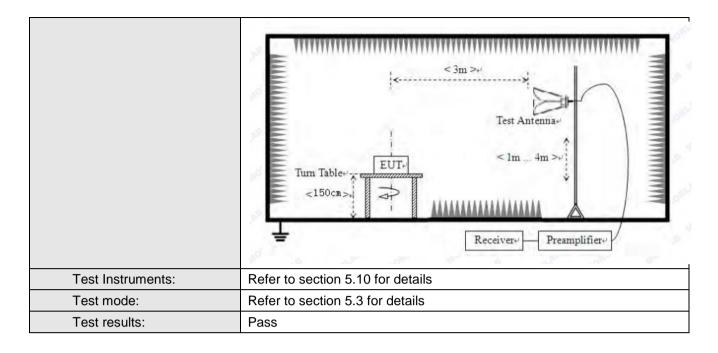
Мс	ode:	802.11r	n(HT20)	Frequ	iency:	5180	MHz
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5150.00	33.08	17.18	50.26	68.20	-17.94	PK
V	5150.00	33.72	17.18	50.90	68.20	-17.30	PK
			(1 )	_			<b></b> .
Mo	ode:	802.11r	n(HT20)	Frequ	iency:	5180	MHz
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5150.00	24.34	17.18	41.52	54.00	-12.48	AV
V	5150.00	24.87	17.18	42.05	54.00	-11.95	AV
Мс	ode:	802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5350.00	35.26	17.18	52.44	68.20	-15.76	PK
V	5350.00	33.25	17.18	50.43	68.20	-17.77	PK
Мс	ode:	802.11r	n(HT20)	Frequ	iency:	5240	MHz
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
Н	5350.00	25.53	17.18	42.71	54.00	-11.29	AV
V	5350.00	25.31	17.18	42.49	54.00	-11.51	AV

Мо	ode:	802.11r	(HT40)	Frequ	iency:	5190	MHz		
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector		
н	5150.00	32.05	17.18	49.23	68.20	-18.97	PK		
V	5150.00	33.07	17.18	50.25	68.20	-17.95	PK		
Mo	ode:	802.11r	(HT40)	Frequ	iency:	5190	MHz		
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector		
н	5150.00	25.29	17.18	42.47	54.00	-11.53	AV		
V	5150.00	23.80	17.18	40.98	54.00	-13.02	AV		
Мо	ode:	802.11r	(HT40)	Frequ	iency:	5230	5230MHz		
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector		
н	5350.00	32.96	17.18	50.14	68.20	-18.06	PK		
V	5350.00	34.34	17.18	51.52	68.20	-16.68	PK		
Мо	ode:	802.11r	n(HT40)	Frequ	iency:	5230	MHz		
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector		
н	5350.00	25.87	17.18	43.05	54.00	-10.95	AV		
V	5350.00	26.67	17.18	43.85	54.00	-10.15	AV		

## 4.7 Radiated Emission

Test Method: Test Frequency Range:	ANSI C63.10:20	12							
Test Frequency Range:		ANSI C63.10:2013							
1 7 0	30MHz to 40GHz								
Test site:	Measurement D	istance: 3m (S	emi-Anecho	ic Chambe	r)				
Receiver setup:	Frequency	Detector	RBW	VBW	Value				
Receiver setup.	30MHz-	Quasi-peak	100KHz	300KHz	Quasi-peak Value				
	1GHz				•				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
		AV	1MHz	3MHz	Average Value				
Limit:	Freque		Limit (dBuV/	,	Remark				
	30MHz-8		<u>40.0</u> 43.5		Quasi-peak Value				
	88MHz-21 216MHz-9		43.0		Quasi-peak Value				
	960MHz-				Quasi-peak Value Quasi-peak Value				
			74.(		Peak Value				
	Above 1	GHz	54.0		Average Value				
Test Procedure:	Substitution me	thod was perfo							
	<ul> <li>emission levels The following te</li> <li>1&gt;.Below 1GHz</li> <li>1. The EUT w 1GHz and 2 meter camb position of f</li> <li>2. The EUT v antenna, w antenna to</li> <li>3. The antenn the ground Both horize make the r</li> <li>4. For each s case and t meters and degrees to</li> <li>5. The test-res Specified E</li> <li>6. If the emist the limit sp values of th did not hav peak, quast in a data s</li> <li>2&gt;.Above 1GHz</li> <li>1. On the test sit the 1.5m supp use as declar</li> <li>2. The test ante shall be chose output of the for receiver.</li> <li>3. The transmitt</li> </ul>	of the EUT. st procedure as test procedure as placed on the 1.5 meters for a per. The table we the highest radio vas set 3 meter which was mount wer. The table we was set 3 meter which was mount wer. The table table to determine to ontal and vertice measurement. Uspected emiss hen the antenned the rotable table find the maxim exceiver system Bandwidth with sion level of the pecified, then te the EUT would level we 10dB margin si-peak or avera- heet. It test procedure to as test setup port on the turn ed by the provi- nna shall be or en to correspor- test antenna sh- er shall be swit- uring receiver s- ider test.	s below: the top of a road above 1GHz vas rotated 3 iation. rs away from the d on the the ied from one he maximum al polarization sion, the EU a was tuned ble was turn num reading was set to P Maximum He a EUT in pead sting could be be reported. the maximum He a graph above table and in der. iented initial ind to the free ched on, if p shall be tune	otating table ) above the 360 degrees in the interfe op of a vari e meter to fe in value of the ons of the a T was arran I to heights ed from 0 d 'eak Detect fold Mode. ak mode wa be stopped Otherwise e-tested one as specified ve,the EUT the position ly for vertica quency of the e-test to the free bossible, with	e (0.8m for below ground at a 3 s to determine the rence-receiving able-height our meters above he field strength. Intenna are set to inged to its worst from 1 meter to 4 legrees to 360 Function and as 10dB lower than and the peak the emissions that e by one using d and then reported shall be placed at in closest to normal al polarization and he transmitter. The measuring thout modulation equency of the				

	<ul> <li>maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.</li> <li>5. Repeat step 4 for test frequency with the test antenna polarized horizontally.</li> <li>6. Remove the transmitter and replace it with a substitution antenna</li> <li>7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.</li> <li>8. Repeat step 7 with both antennas horizontally polarized for each test frequency.</li> <li>9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula: EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi) where:</li> </ul>
Test setup:	Pg is the generator output power into the substitution antenna. Below 1GHz



# Measurement Data:

## Below 1GHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.87	48.05	11.25	0.59	30.08	29.81	40	-10.19	Vertical
55.10	40.83	11.93	0.81	29.96	23.61	40	-16.39	Vertical
120.75	46.28	9.4	1.36	29.57	27.47	43.5	-16.03	Vertical
172.52	42.64	8.5	1.7	29.31	23.53	43.5	-19.97	Vertical
440.72	36.84	16.29	3.05	29.41	26.77	46	-19.23	Vertical
860.53	33.25	21.83	4.69	29.14	30.63	46	-15.37	Vertical
64.32	36.54	8.73	0.9	29.89	16.28	40	-23.72	Horizontal
99.88	34.34	11.73	1.19	29.7	17.56	43.5	-25.94	Horizontal
269.73	45.45	12.53	2.22	29.79	30.41	46	-15.59	Horizontal
351.40	36.92	14.5	2.62	29.73	24.31	46	-21.69	Horizontal
627.61	36.18	19.43	3.83	29.27	30.17	46	-15.83	Horizontal
956.24	40.59	22.54	5.06	29.1	39.09	46	-6.91	Horizontal

<b>8</b> 02.11a(HT20) 5180MHz									
	Deed	Austaura		· _ /	80MHz		0		
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	a ala dinatia a	
(MHz)		Factor		Factor	(dBuV/m)	(dBuV/m)		polarization	
10360.74	(dBuV) 28.81	(dB/m) 11.25	(dB) 14.62	(dB) 32.65	22.03	74	(dB) -51.97	Vertical	
15540.45	30.24	11.25			25.37	74 74		Vertical	
			17.66	34.46			-48.63		
10360.21	32.45	9.4	14.62	32.65	23.82	74	-50.18	Horizontal	
15540.44	32.03	8.5	17.66	34.46	23.73	74	-50.27	Horizontal	
	Dood	Antonno		a(HT20) 52			Over		
Frequency	Read Level	Antenna Factor	Cable	Preamp	Level	Limit Line	Over	nolorization	
(MHz)	(dBuV)	(dB/m)	Loss (dB)	Factor (dB)	(dBuV/m)	(dBuV/m)	Limit (dB)	polarization	
10360.91	29.13	16.29	(ub) 14.62	32.65	27.39	74	-46.61	Vertical	
15540.50	30.51	21.83	14.62	34.46	35.54	74	-40.01	Vertical	
		8.73	14.62		23.52	74	-50.48		
10360.98	32.82			32.65		74		Horizontal	
15540.28	32.40	11.73	17.66	34.46	27.33	74	-46.67	Horizontal	
	Deed	Antonno		a(HT20) 52			Over		
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	nolorization	
(MHz)		Factor		Factor	(dBuV/m)	(dBuV/m)		polarization	
	(dBuV)	(dB/m)	(dB)	(dB) 32.65		. ,	(dB)	Vertical	
10360.25	28.22	11.25	14.62		21.44	74	-52.56	Vertical	
15540.50	30.86	11.93	17.66	34.46	25.99	74	-48.01	Vertical	
10360.43	32.13	9.4	14.62	32.65	23.50	74	-50.50	Horizontal	
15540.43	32.31	8.5	17.66	34.46	24.01	74	-49.99	Horizontal	
802.11n(HT20) 5180MHz									
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	nolorization	
(MHz)		Factor		Factor	(dBuV/m)	(dBuV/m)		polarization	
	(dBuV)	(dB/m)	(dB)	(dB)	· ,	, ,	(dB)	) / anti-anl	
10360.81	29.01	16.29	14.62	32.65	27.27	74	-46.73	Vertical	
15540.11	30.92	21.83	17.66	34.46	35.95	74	-38.05	Vertical	
10361.00	33.06	8.73	14.62	32.65	23.76	74	-50.24	Horizontal	
15540.98	31.97	11.73	17.66	34.46	26.90	74	-47.10	Horizontal	
				· /	00MHz				
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over		
(MHz)	Level	Factor	Loss	Factor	(dBuV/m)	(dBuV/m)	Limit	polarization	
· · · ·	(dBuV)	(dB/m)	(dB)	(dB)		, ,	(dB)		
10360.82	28.53	11.25	14.62	32.65	21.75	74	-52.25	Vertical	
15540.69	30.36	11.93	17.66	34.46	25.49	74	-48.51	Vertical	
10360.38	32.32	9.4	14.62	32.65	23.69	74	-50.31	Horizontal	
15540.62	32.39	8.5	17.66	34.46	24.09	74	-49.91	Horizontal	
				· · · · ·	40MHz	[			
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over		
(MHz)	Level	Factor	Loss	Factor	(dBuV/m)	(dBuV/m)	Limit	polarization	
. ,	(dBuV)	(dB/m)	(dB)	(dB)		. ,	(dB)		
10360.96	28.75	16.29	14.62	32.65	27.01	74	-46.99	Vertical	
15540.70	30.25	21.83	17.66	34.46	35.28	74	-38.72	Vertical	
10360.63	32.56	8.73	14.62	32.65	23.26	74	-50.74	Horizontal	
15540.65	31.65	11.73	17.66	34.46	26.58	74	-47.42	Horizontal	

#### Above 1GHz:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.59	28.50	11.25	14.62	32.65	21.72	74	-52.28	Vertical
15540.12	30.58	11.93	17.66	34.46	25.71	74	-48.29	Vertical
10360.71	32.84	9.4	14.62	32.65	24.21	74	-49.79	Horizontal
15540.73	32.06	8.5	17.66	34.46	23.76	74	-50.24	Horizontal
			802.11	n(HT40) 52	30MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.94	28.96	16.29	14.62	32.65	27.22	74	-46.78	Vertical
15540.73	31.10	21.83	17.66	34.46	36.13	74	-37.87	Vertical
10360.92	32.27	8.73	14.62	32.65	22.97	74	-51.03	Horizontal
15540.58	31.63	11.73	17.66	34.46	26.56	74	-47.44	Horizontal

802.11n(HT40) 5190MHz

Note:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.

2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

4. This Report only show the test plots of the worst case (U-NII-1).

# 4.8 Frequency stability

	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.
Test results:	Pass

Measurement Data:										
Mode	Voltage	FHL	Deviation	FHH	Deviation					
	(V)	(5180MHz)	(KHz)	(5240MHz)	(KHz)					
Band 1	DC 2.97V	5179.987	13	5239.990	10					
(5150-5250	DC 3.30V	5179.986	14	5239.989	11					
MHz)	DC 3.63V	5179.987	13	5239.990	10					

Mode	Voltage	FHL	Deviation	FHH	Deviation
	(V)	(5180MHz)	(KHz)	(5240MHz)	(KHz)
Band 1 (5150-5250 MHz )	<b>-10</b> ℃	5179.989	11	5239.990	10
	<b>-5</b> ℃	5179.992	8	5239.990	10
	<b>0</b> °C	5179.987	13	5239.989	11
	<b>+10</b> ℃	5179.989	11	5239.988	12
	<b>+20</b> ℃	5179.987	13	5239.991	9
	<b>+30</b> ℃	5179.987	13	5239.988	12
	<b>+40</b> ℃	5179.987	13	5239.987	13
	<b>+50</b> ℃	5179.991	9	5239.991	9
	<b>+60</b> ℃	5179.988	12	5239.987	13

-----END OF THE REPORT------