RADIO EXPOSURE TEST REPORT

FCC ID	:	2ABLP-RG32X0X
Equipment	:	Wi-Fi Gateway 3
Brand Name	:	Viasat
Model Name	:	RG32X0X (Please refer to section 1.2 for detail information)
Applicant	:	Viasat, Inc. 6155 El Camino Real Carlsbad, CA 92009 USA
Manufacturer	:	Hitron Technologies Inc. No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park, Hsinchu 30078, Taiwan
Standard	:	47 CFR Part 2.1091

The product was received on Aug. 27, 2021, and testing was started from Sep. 17, 2021 and completed on Dec. 15, 2021. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
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History of this test report

Report No.	Version	Description	Issued Date
FA182520	01	Initial issue of report	Dec. 30, 2021

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Penny Kao

1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	**Frequency Range (MHz)**	**Operating Frequency (MHz)**	**Modulation Type**
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

1.1.1 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	4	PSA	RFPCA282807IMLB901	PCB Antenna	I-PEX	Note 1
2	1	PSA	RFPCA282807IMLB902	PCB Antenna	I-PEX	
3	2	PSA	RFPCA312208IMLB901	PCB Antenna	I-PEX	
4	3	PSA	RFPCA312207IMLB901	PCB Antenna	I-PEX	

Note 1:

Ant.	Port	Antenna Gain (dBi)		
		2.4GHz	UNII 1	UNII 3
1	4	3.3	1.32	1.3
2	1	3.11	3.07	2.53
3	2	2.34	1.76	1.17
4	3	1.4	2.37	1.23
Directional Gain (dBi)				
		2.4GHz	UNII 1	UNII 3
4T1S		4.23	3.75	2.98
4T2S		3.3	3.07	2.53
4T4S		-0.73	-0.17	-0.65

Note1: The above information was declared by manufacturer.

Note2: The EUT has four antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/VHT/ax mode (4TX/4RX)

Port 1 and Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1 and Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11a/n/ac/ax mode (4TX/4RX)

Port 1 and Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1 and Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

1.1.2 Table for Multiple Listing

The model names are listed in the following table:

Model Name	Description
RG32X0X	The "X" in model name can be 0 to 9, A to Z or blank, for marketing purpose

Note1: From the above models, model: RG3210N were selected as representative model for the test and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.

1.2 Accessories

Power	Brand	Model	Rating
Adapter 1	APD	WA-42D12FU	Input: 100-240V~, 50-60Hz, 1.2 Max. Output: 12V, 3.5A
Adapter 2	Frecom	F42L1-120350SPAU	Input: 100-240V~50/60Hz, 1.4A Output: 12.0V, 3.5A, 42.0W
Others			
RJ-45 cable*1: Non-shielded, 2m			

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-3.0	614	1.63	*(100)	<6
3.0-30	1842/f	4.89/f	*(900/f^2)	<6
30-300	61.4	0.163	1.0	<6
300-1500	-	-	f/300	<6
1500-100,000	-	-	5	<6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f^2)	<30
30-300	27.5	0.073	0.2	<30
300-1500	-	-	f/1500	<30
1500-100,000	-	-	1.0	<30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 21 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)
2.4G;D1D	4.23	29.54	33.77	0.50	34.27	2.67301	21	0.48234	1.00000
5.2G;D1D	3.75	29.95	33.70	0.50	34.20	2.63027	21	0.52328	1.00000
5.8G;D1D	2.98	29.74	32.72	0.50	33.22	2.09894	21	0.41757	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz+WLAN 5GHz

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;D1D	4.23	29.54	33.77	0.50	34.27	2.67301	21	0.48234	1.00000	0.48234
5.2G;D1D	3.75	29.95	33.70	0.50	34.20	2.63027	21	0.47463	1.00000	0.47463
									Sum Ratio	0.95697
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

———THE END———