

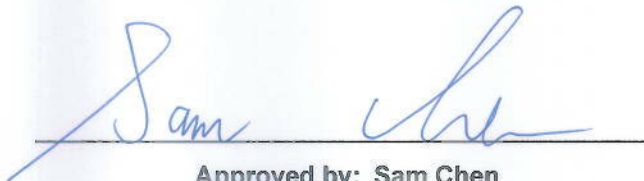


# RADIO EXPOSURE TEST REPORT

**FCC ID** : 2AHKM-CODA5814Q  
**Equipment** : DOCIS 3.1 Wi-Fi 6 EMTA Gateway  
**Brand Name** : Hitron  
**Model Name** : CODA5814Q, CODA5810Q, CODA5610Q  
**Applicant** : Hitron Technologies Inc.  
No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park,  
Hsinchu 30078, Taiwan  
**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 Oct. 05, 2021, and testing was started from Oct. 13, 2021 and completed on Jan. 06, 2022. 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
FA193028	01	Initial issue of report	Jan. 07, 2022



## 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: **Sandy Chuang**



# 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 5250-5350 5470-5725 5725-5850	5180-5250 5250-5320 5500-5720 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	1	Airgain	N03HTAFE-PK1-LA1X80BUR2	PCB Antenna	I-PEX	Note 1
2	2	Airgain	N03HTAFF-PK1-LB1X90BU	PCB Antenna	I-PEX	
3	3	Airgain	N03HTAFG-PK1-LG1X130BUR2	PCB Antenna	I-PEX	
4	4	Airgain	N03HTAFH-PK1-LW1X150BU	PCB Antenna	I-PEX	

Note 1:

Ant.	Port	Antenna Gain (dBi)				
		2.4GHz	UNII 1	UNII 2A	UNII 2C	UNII 3
1	1	4.19	2.83	1.60	2.59	2.76
2	2	1.83	2.78	3.26	3.45	3.56
3	3	3.30	3.24	3.19	1.91	2.92
4	4	4.71	3.31	3.62	2.69	3.80
Directional Gain (dBi)						
		2.4GHz	UNII 1	UNII 2A	UNII 2C	UNII 3
4T1S		5.65	5.79	5.78	5.98	5.45
4T2S		4.71	3.31	3.62	3.45	3.80
4T4S		1.53	1.14	0.36	0.89	0.73

Note 2: The above information (brand / model name/ antenna type) was declared by the manufacturer.

Note 3:

WLAN 2.4GHz/5GHz(UNII 1 ~ UNII 3): The directional gain is measured which follows the procedure of KDB 662911 D03. The antenna report is provided in the operational description for this application.

Note 4: 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**

Model Name	Voice Interface	Case color of EUT
CODA5814Q	V	Black
CODA5810Q	X	Black
CODA5610Q	X	White

Note 1: From the above models, model: CODA5814Q 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.

**1.1.3 Accessories**

Power	Brand	Model	Rating
Adapter	MOSO	MS-V4000R120-050A0-US	Input: 100-240V~, 50/60Hz, 1.3A max. Output: 12.0V, 4.0A
<b>Others</b>			
Coaxial cable*1: Shielded 1.0m			
RJ-45 cable*1: Non-shielded, 1.5m			



## 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/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	*(100)	<6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<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/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	<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 24 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

**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 <sup>2</sup> )	S Limit (mW/cm <sup>2</sup> )
2.4G;D1D	4.71	29.92	34.63	0.50	35.13	3.25837	24	0.64823	1.00000
5.2G;D1D	5.79	28.69	34.48	0.50	34.98	3.14775	24	0.43488	1.00000
5.3G;D1D	5.78	23.67	29.45	0.50	29.95	0.98855	24	0.13657	1.00000
5.6G;D1D	5.98	23.79	29.77	0.22	29.99	0.99770	24	0.13784	1.00000
5.8G;D1D	5.45	29.68	35.13	0.50	35.63	3.65595	24	0.50509	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 <sup>2</sup> )	S Limit (mW/cm <sup>2</sup> )	Ratio (S/Limit)
2.4G;D1D	4.71	29.92	34.63	0.50	35.13	3.25837	24	0.45016	1.00000	0.45016
5.8G;D1D	5.45	29.68	35.13	0.50	35.63	3.65595	24	0.50509	1.00000	0.50509
									Sum Ratio	0.95525
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————