



Radio Exposure Evaluation Report

FCC ID : TOR-C230

Equipment : 802.11 a/n/ac/lax + b/g/n/lax Access Point

Brand Name : Arista

Model Name : C-230, C-230E, O-235, O-235E

Applicant : Arista Networks, Inc.
5453 Great America Parkway, Santa Clara, CA 95054

Manufacturer : Arista Networks, Inc.
5453 Great America Parkway, Santa Clara, CA 95054

Standard : 47 CFR Part 2.1091

The product was received on Feb. 26, 2020, and testing was started from Mar. 08, 2020 and completed on May 08, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of United States government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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TEL : 886-3-327-3456

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:

None.

Reviewed by: Ben Tseng

Report Producer: Debby Hung

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) 802.11 ax: OFDMA(BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11 ax: OFDMA(BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Bluetooth	2400-2483.5	2402-2480	LE: DSSS (GFSK)

1.2 Table for Multiple Listing

Sample No.	Model Name	Indoor/Outdoor	Description
1	C-230	Indoor	The model C-230 and O-235 indicate that it comes with internal antennas and the model C-230E and O-235E indicates that the access point comes with external antenna connectors.
2	C-230E		
3	O-235	Outdoor	
4	O-235E		

1.3 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FA9D1735

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
U-NII-2A and UNII-2C were added. 80+80 MHz mode was added.	All

1.4 Testing Location

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

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 ²)	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/ cm ²)	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 25 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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

2.4G(Radio 2) + 2.4G(Radio 3) + 5G(Radio 1) + Bluetooth

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)
5.8G;D1D	5.98	29.51	35.49	0.50	35.99	3.97192	25	0.50572	1.00000	0.50572
2.4G;D1D	5.23	28.29	33.52	0.50	34.02	2.52348	25	0.32130	1.00000	0.32130
2.4G;G1D	4.89	24.26	29.15	0.50	29.65	0.92257	25	0.11747	1.00000	0.11747
2.4G;BT-LE	3.87	6.96	10.83	0.50	11.33	0.01358	25	0.00173	1.00000	0.00173
									Sum Ratio	0.94622
									Ratio Limit	1

2.4G(Radio 2) + 5G(Radio 1) + 5G(Radio 3) + Bluetooth

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)
5.8G;D1D	5.98	29.51	35.49	0.50	35.99	3.97192	25	0.50572	1.00000	0.50572
2.4G;D1D	5.23	28.29	33.52	0.50	34.02	2.52348	25	0.32130	1.00000	0.32130
5.3G;D1D	5.97	23.27	29.24	0.50	29.74	0.94189	25	0.11993	1.00000	0.11993
2.4G;BT-LE	3.87	6.96	10.83	0.50	11.33	0.01358	25	0.00173	1.00000	0.00173
									Sum Ratio	0.94868
									Ratio Limit	1

————THE END————