



FCC RADIO EXPOSURE TEST REPORT

FCC ID : Z8H89FT0062

Equipment : ePMP 5 GHz Force 425 SM/ePMP 5 GHz Force 400C

Brand Name : Cambium Networks

Model Name : ePMP 5 GHz Force 425 SM/ePMP 5 GHz Force 400C

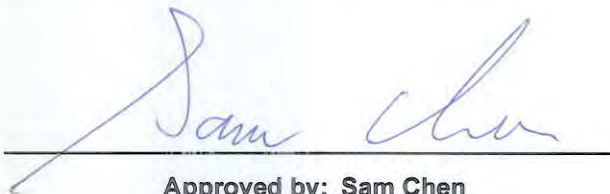
Model Number : C058940P102A
C058940P122A

Applicant : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL
60008, USA

Standard : 47 CFR Part 2.1091

The product was received on Jul. 29, 2020, and testing was started from Aug. 13, 2020 and completed on Sep. 03, 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 test results in this variant 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: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
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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: Wendy Pan



1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 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)
4.9GHz	4940-4990	4950-4980	QPSK

1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Function
1	1, 2	Cambium	1234A0002248A	Dish Antenna	Reversed-SMA	28	5GHz WLAN, 4.9GHz
2	1, 2	Cambium	1234A0002247A	Dish Antenna	Reversed-SMA	25	5GHz WLAN
3	1, 2	Cambium	APAMS-121	Dipole Antenna	Reversed-SMA	2	5GHz WLAN

Note: The above information was declared by manufacturer.

1.3 Table for Multiple Listing

The EUT has two equipment and model names which are identical to each other in all aspects except for the following table:

Equipment Name / Model Name	Model Number	Description
ePMP 5 GHz Force 425 SM	C058940P102A	All the models are identical, the difference equipment and model name as marketing strategy.
ePMP 5 GHz Force 400C	C058940P122A	

Note: 1.From the above models, ePMP 5 GHz Force 425 SM was selected as representative model for the test and its data was recorded in this report.

2.The above information was declared by manufacturer.



1.4 Table for EUT Function

EUT	GPS Function	WIFI Function
1	V	V
2	X	V

From the above EUTs, EUT 1 was selected as representative model for the test and its data was recorded in this report.

1.5 Table for Class III Change

This product is an extension of original one reported under Sporton project number: FA9D0424-01

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

Modifications	Performance Checking
Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device, and it has the straddle channels (5690 MHz, 5710 MHz and 5720MHz).	MPE

Note: Maximum Permissible Exposure of 5GHz band 1, 4 and 4.9GHz are based on original test report.

1.6 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

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)*	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)*	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 211 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

For Ant.1

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)
5.2G;D1D	28.00	22.81	50.81	0.50	51.31	135.20726	211	0.24167	1.00000
5.3G;D1D	28.00	1.94	29.94	0.05	29.99	0.99770	211	0.00178	1.00000
5.6G;D1D	28.00	1.90	29.90	0.09	29.99	0.99770	211	0.00178	1.00000
5.8G;D1D	28.00	28.96	56.96	0.50	57.46	557.18575	211	0.99592	1.00000
4.9G;	28.00	21.22	49.22	0.50	49.72	93.75620	211	0.16758	1.00000

For Ant.3

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)
5.2G;D1D	2.00	29.20	31.20	0.50	31.70	1.47911	211	0.00264	1.00000
5.3G;D1D	2.00	23.65	25.65	0.50	26.15	0.41210	211	0.00074	1.00000
5.6G;D1D	2.00	23.92	25.92	0.50	26.42	0.43853	211	0.00078	1.00000
5.8G;D1D	2.00	29.96	31.96	0.50	32.46	1.76198	211	0.00315	1.00000

Note: The above antenna gain was declared by manufacturer.

————THE END————