FCC RADIO EXPOSURE TEST REPORT

FCC ID	:	Z8H89FT0048
Equipment	:	ePMP 5GHz Force 300-13 SM, cnVision Client MICRO 13 dBi, ePMP 5GHz Force 300-19 SM, cnVision Client MAXr 19 dBi
Brand Name	:	Cambium Networks
Model Name	:	ePMP 5GHz Force 300-13 SM, cnVision Client MICRO 13 dBi, ePMP 5GHz Force 300-19 SM, cnVision Client MAXr 19 dBi
Model Number	:	C050900P704A, C050900P904A
Applicant	:	Cambium Networks Inc. 3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA
Manufacturer	:	Cambium Networks, Ltd. Ashburton, TQ13 7UP, UK
Standard	:	47 CFR Part 2.1091

The product was received on Dec. 25, 2019, and testing was started from Dec. 25, 2019 and completed on Dec. 25, 2019. 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 government.

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: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
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History of this test report

Report No.	Version	Description	Issued Date
FA932717-08	01	Initial issue of report	Jan. 10, 2020

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: Cindy Peng

1 General Description

1.1 EUT General Information

RF General Information			
Frequency Range (MHz)	**Modulation Type**	**Operating Frequency (MHz)**	**Channel Bandwidth (MHz)**
4940-4990	QPSK	4950-4980	20

1.2 Table for Multiple Listing

The difference for each equipment names/model names is shown as below:

Equipment Name	Model Name	Model Number	Equip antenna	Chip	Description
ePMP 5GHz Force 300-13 SM	ePMP 5GHz Force 300-13 SM	C050900P704A	Ant. 1 / 2	IPQ4019	The difference served as marketing strategy.
cnVision Client MICRO 13 dBi	cnVision Client MICRO 13 dBi	C050900P704A	Ant. 1 / 2	IPQ4019	
ePMP 5GHz Force 300-19 SM	ePMP 5GHz Force 300-19 SM	C050900P904A	Ant. 1 / 2	IPQ4019	
cnVision Client MAXr 19 dBi	cnVision Client MAXr 19 dBi	C050900P904A	Ant. 1 / 2	IPQ4019	

Note 1: The above information was declared by manufacturer.

Note 2: From the above models, model: ePMP 5GHz Force 300-13 SM was selected as representative model for the test and its data was recorded in this report.

1.3 Table for Class III Change

This product is an extension of original one reported under Sporton project number: 932717-02.
Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
For Chip IPQ4019: Adding 4.9G function for the equipment name/model name "ePMP 5GHz Force 300-13 SM, ePMP 5GHz Force 300-19 SM", and supports 20 MHz bandwidth only.	Maximum Permissible Exposure. Chip IPQ4029 has been completed all testing (Refer to Sporton project number: 932717-04 for detail information). Thus after evaluating, only above test items need to be re-tested.
Based on Chip IPQ4019: 1. Adding two equipment name/model name "cnVision Client MICRO 13 dBi, cnVision Client MAXr 19 dBi". (The difference between original equipment name/model name and new equipment name/model name, please refer to the section 1.1.5 for detail) 2. Changing the model number to "C050900P704A, C050900P904A" from "C058900P701A, C058900P801A".	It does not need to test.

1.4 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/ 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)*	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)*	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 39 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)
4.9G;	19.00	23.03	42.03	0.50	42.53	17.90606	39	0.93681	1.00000
4.9G;	13.00	23.03	36.03	0.50	36.53	4.49780	39	0.23532	1.00000

Note: The above antenna gain was declared by manufacturer.

————THE END————