

## RF Exposure Report

**Report No.:** SABBEW-WTW-P21031098

**FCC ID:** 2AUAE-M350

**Test Model:** M350-W6

**Series Model:** M350-6

**Received Date:** 2021/9/2

**Test Date:** 2021/10/27

**Issued Date:** 2022/1/14

**Applicant:** Proscend Communications Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
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**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan

**FCC Registration /  
Designation Number:** 723255 / TW2022



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### Release Control Record

Issue No.	Description	Date Issued
SABBEB-WTW-P21031098	Original release.	2022/1/14

## 1 Certificate of Conformity

**Product:** Industrial Dual SIM CAT6 Cellular Router,  
Industrial Dual SIM CAT6 Cellular Router w/WiFi

**Brand:** PROSCEND

**Test Model:** M350-W6

**Series Model:** M350-6

**Sample Status:** Engineering sample

**Applicant:** Proscend Communications Inc.

**Test Date:** 2021/10/27

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :** Vivian Huang , **Date:** 2022/1/14  
Vivian Huang / Specialist

**Approved by :** Clark Lin , **Date:** 2022/1/14  
Clark Lin / Technical Manager

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
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

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20 cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

Antenna No.	RF Chain No.	Model	Antenna Net Gain(dBi)	Frequency Range	Antenna Type	Antenna Connector
WIFI Ant1	Chain0	WLN98002-A	1	2.4~2.4835 GHz	Dipole	R-SMA
			1.8	5.15~5.85 GHz		
WIFI Ant2	Chain1	WLN98002-A	1	2.4~2.4835 GHz	Dipole	R-SMA
			1.8	5.15~5.85 GHz		
LTE Ant1	Chain0	AN0727-64SP6BSM	2.89	1710~1785 MHz 1850 ~1915 MHz 1920 ~2010 MHz 2300~2400 MHz 2496~2690 MHz	Dipole	SMA
			-0.46	698~748 MHz 777~787 MHz 814 ~862 MHz 880~915 MHz		
LTE Ant2	Chain1	AN0727-64SP6BSM	2.89	1710~1785 MHz 1850 ~1915 MHz 1920 ~2010 MHz 2300~2400 MHz 2496~2690 MHz	Dipole	SMA
			-0.46	698~748 MHz 777~787 MHz 814 ~862 MHz 880~915 MHz		
GPS Ant	Chain0	GPS-21951	5.2	1575~1602 MHz	Dipole	SMA

Note: The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 2.5 Calculation Result

### For WLAN: CDD Mode

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
WLAN 2.4GHz	2412~2462	90.782	1.00	20	0.02274	1	Pass
WLAN 5GHz (U-NII-1)	5180~5240	62.168	1.8	20	0.01872	1	Pass
WLAN 5GHz (U-NII-3)	5745~5825	59.718	1.80	20	0.01798	1	Pass

### Beamforming Mode

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
WLAN 2.4GHz	2412~2462	37.471	4.01	20	0.01877	1	Pass
WLAN 5GHz (U-NII-1)	5180~5240	47.211	4.81	20	0.02843	1	Pass
WLAN 5GHz (U-NII-3)	5745~5825	57.549	4.81	20	0.03466	1	Pass

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = 1dBi + 10log(2) = 4.01 dBi
3. 5GHz: Directional gain = 1.8dBi + 10log(2) = 4.81 dBi

### For WWAN module < FCC ID: XMR201906EM06A>

Operation Mode	Evaluation Frequency (MHz)	Max. Power Average (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
LTE B2 <Worst-case>	1850.7-1909.3	251.1886432	2.89	20	0.09721	1	Pass

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

### CDD Mode

$$\text{WLAN 2.4GHz} + \text{WWAN} = 0.02274 / 1 + 0.09721 / 1 = 0.11995$$

$$\text{WLAN 5GHz} + \text{WWAN} = 0.01872 / 1 + 0.09721 / 1 = 0.11593$$

### Beamforming Mode

$$\text{WLAN 2.4GHz} + \text{WWAN} = 0.01877 / 1 + 0.09721 / 1 = 0.11598$$

$$\text{WLAN 5GHz} + \text{WWAN} = 0.03466 / 1 + 0.09721 / 1 = 0.13187$$

Therefore the maximum calculations of above situations are less than the "1" limit.

## Appendix

WWLAN module

MPE Evaluation for FCC ID: XMR201906EM06A Module

Operation Mode	Evaluation Frequency (MHz)	Total Average Power Output		Directional Gain	Power Density (mW/cm <sup>2</sup> )			Ratio
		mW	dBm		dB	Value	Limit	
LTE B2	1850.7-1909.3	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721
LTE B4	1710.7-1754.3	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721
LTE B5	824.7-848.3	251.1886432	24.00	-0.46	0.04495	0.5498	PASS	0.08176
LTE B7	2502.5-2567.5	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721
LTE B12	699.7-715.3	251.1886432	24.00	-0.46	0.04495	0.46647	PASS	0.09636
LTE B13	779.5-784.5	251.1886432	24.00	-0.46	0.04495	0.51967	PASS	0.08650
LTE B25	1850.7-1914.3	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721
LTE B26 (Part 22H)	824.7-848.3	251.1886432	24.00	-0.46	0.04495	0.5498	PASS	0.08176
LTE B26 (Part 90S)	814.7-848.3	251.1886432	24.00	-0.46	0.04495	0.54313	PASS	0.08276
LTE B30	2307.5-2312.5	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721
LTE B41	2498.5-2687.5	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721
LTE B66	1710.7-1779.3	251.1886432	24.00	2.89	0.09721	1	PASS	0.09721

Note:

1. Distance = 20 cm
2. For Frequency Range between 300-1500 MHz the Limit of Power Density =  $F/1500$ .

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