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FCC RF Exposure

Applicant	:	Ningbo Sharkward Electronics Co Ltd
Address	:	No 88 Gongmao Road No 3 Jishigang Industrial Zone Haishu District Ningbo, Zhejiang Sheng 315000 China
Product Name	:	Low Voltage Microwave Bi-level Sensor
Brand Mark	:	Sharkward
Model	:	ANT-3C
Series model	:	ANT-3C-B, ANT-3A, ANT-3B, ANT-3D, ANT-7, ANT-7D, ANT-7-H, ANT-9C, ANT-9, ANT-11, ANT-8A, ANT-1M-5T, ANT-2M-4T, ANT-21-4T
FCC ID	:	2AVMOANT-2
Report Number	:	BLA-EMC-202505-A1002
Date of Receipt	:	May 07, 2025
Date of Test	:	May 07, 2025 to May 16, 2025
Test Standard	:	47 CFR Part 15, Part1.1307 47 CFR Part 15, Part2.1093 KDB447498D04 General RF Exposure Guidance v01
Test Result	:	Pass

Compiled by: Mark Chen **Review by:** Xavier **Approved by:** Blue Zheng

Issued Date: May 16, 2025

BlueAsia of Technical Services(Shenzhen) Co.,Ltd. BLA

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Revise Record

Version No.	Date	Description
01	May 16, 2025	Original

1 General information

1.1 General information

Applicant	Ningbo Sharkward Electronics Co Ltd
Address	No 88 Gongmao Road No 3 Jishigang Industrial Zone Haishu District Ningbo, Zhejiang Sheng 315000 China
Manufacturer	Ningbo Sharkward Electronics Co Ltd
Address	No 88 Gongmao Road No 3 Jishigang Industrial Zone Haishu District Ningbo, Zhejiang Sheng 315000 China
Factory	Ningbo Sharkward Electronics Co Ltd
Address	No 88 Gongmao Road No 3 Jishigang Industrial Zone Haishu District Ningbo, Zhejiang Sheng 315000 China

1.2 General description of EUT

Product name	Low Voltage Microwave Bi-level Sensor
Model no.	ANT-3C
Series model	ANT-3C-B, ANT-3A, ANT-3B, ANT-3D, ANT-7, ANT-7D, ANT-7-H, ANT-9C, ANT-9, ANT-11, ANT-8A, ANT-1M-5T, ANT-2M-4T, ANT-21-4T
Differences of Series model	The above models are identical in PCB layout, internal structure and components ,only Item number and color is different
Operation Frequency:	5725MHz-5875MHz
Modulation Type:	CW
Number of Channels:	1
Antenna Type:	microstrip antenna
Antenna Gain:	2.7dBi(Provided by the customer)
Power supply:	DC 12V
Hardware Version	V1
Software Version	V1

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

According to 447498 D04 Interim General RF Exposure Guidance v01

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.2 Limits

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\,\text{cm}}(d/20\,\text{cm})^{x} & d \le 20\,\text{cm} \\ ERP_{20\,\text{cm}} & 20\,\text{cm} < d \le 40\,\text{cm} \end{cases} \quad \text{(B.2)}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,\text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

$$P_{\text{th}}\,(\text{mW}) = ERP_{20\,\text{cm}}\,(\text{mW}) = \begin{cases} 2040f & 0.3\,\text{GHz} \le f < 1.5\,\text{GHz} \\ 3060 & 1.5\,\text{GHz} \le f \le 6\,\text{GHz} \end{cases} \quad \text{(B.1)}$$

2.3 Result

EIRP = pt x gt = (E X d)2/30
Where:
pt = transmitter output power in watts,
gt = numeric gain of the transmitting antenna (unitless),
E = electric field strength in V/m,
d = measurement distance in meters (m)
Spot = (EXd)2/30 x gt
Separation distance= 20cm
5.8GHz: Ant gain = 2.7dBi
For 5.8G:
Max. Field Strength: 82.37dBuV/m@3m
Note:
The maximum Equivalent Isotropic Radiated Power(EIRP) : 82.37dBuV/m-95.2=-12.83dBm (refer to C63.10, section 10.3.9)@5.8GHz
ERP = -12.83dBm-2.15=-14.98dBm=0.032mW< 3060 mW
it's deemed to fulfil the RF exposure requirement.

----END OF REPORT----