



Maximum Permissible Exposure

FCC ID: 2AHU2WVOS2TX

APPLICANT: ASA Electronics Shenzhen Limited

Application Type: Certification

Product: Wireless (WiFi) Transmitter for Backup Monitoring

Model No.: WVOS2TX

Brand Name: Voyager

FCC Rule Part(s): Part 2.1091

Test Date: September 21 ~ November 4, 2020

Reviewed By

: 

(Paddy Chen)

Approved By

: 

(Chenz Ker)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report. Test results reported herein relate only to the item(s) tested.

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Revision History

| Report No. | Version | Description | Issue Date |
|---------------|---------|-----------------|------------|
| 2009TW5502-U2 | 1.0 | Original Report | 2020-11-06 |

1. PRODUCT INFORMATION

1.1. Equipment Description

| | |
|---------------------|---|
| Product Name | Wireless (WiFi) Transmitter for Backup Monitoring |
| Model No. | WVOS2TX |
| Brand Name | Voyager |
| Wi-Fi Specification | 802.11b/g/n (1TX / 1RX) |
| Frequency Range | <u>2.4GHz:</u> For 802.11b/g/n-HT20: 2412 ~ 2462 MHz |
| Type of modulation | 802.11b: DSSS, DBPSK, DQPSK, CCK 802.11g/n-20M: OFDM, BPSK, QPSK, 16QAM, 64QAM |

1.2. Antenna Description

| No. | Manufacturer | Model No. | Antenna Type | Peak Gain |
|-----|---------------------------------|---------------|--------------|-----------|
| 1 | Master Wave Technology Co., Ltd | HD-0006-48-1R | Dipole | 3.19dBi |

| No. | Manufacturer | Model No. | Antenna Type | Peak Gain |
|-----|---------------------------------|---------------|--------------|-----------|
| 2 | Master Wave Technology Co., Ltd | HD-0006-30-1R | Dipole | 2.41dBi |

Note:

This product is equipped with two Dipole Antennas. Since the antennas are of the same type, the antennas selected for testing have large gains (HD-0006-48-1R).

2. Maximum Permissible Exposure(MPE)

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Average Time (Minutes) |
|---|----------------------------------|----------------------------------|--|---------------------------|
| (A) Limits for Occupational/ Control Exposures | | | | |
| 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 Exposures | | | | |
| 0.3-1.4 | 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 : (1) f= Frequency in MHz , (2) * = Plane-wave equivalent power density

Calculation Formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

Under normal use condition, is at least 20cm away from the body of the user .

So, this device is classified as **Mobile Device**.

2.2. Test Result

| Frequency Band (MHz) | Output Power (dBm) | Output Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
|----------------------|--------------------|-------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412 ~ 2462 | 22.06 | 160.69 | 3.19 | 20 | 0.0666 | 1 |

Therefore, the maximum calculations are less than the “1” limit. Complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091.

_____ The End _____