

US Tech Test Report:  
FCC ID:  
IC:  
Test Report Number:  
Issue Date:  
Customer:  
Model:

FCC Part 15/IC RSS Certification  
2ADWT-ICSS03  
12660A-ICSS03  
24-0101  
July 18, 2024  
Southern States, LLC  
ICS/TFDIR Sensor

### Maximum Public Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (e)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S**, as per the respective limits in Table 1 below, at a distance, *d*, of 20 cm (Mobile condition) from the EUT.

TABLE 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> )	Averaging time (minutes)
<b>Limits for General Population/Uncontrolled Exposure</b>				
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

Therefore, for:

#### MPE for 2400 MHz – 2483.5 MHz:

Limit: 1.0 mW/cm<sup>2</sup>

Peak Power (dBm) = 1.99 dBm

Peak Power (Watts) = 0.002 W

Gain of Transmit Antenna = 2.27 dB<sub>i</sub> = 1.69 numeric (Highest Gain)

d = Distance = 20 cm = 0.2 m

$$\begin{aligned} \mathbf{S} &= (\mathbf{PG} / 4\pi\mathbf{d}^2) = \mathbf{EIRP}/4A = 0.002 (1.69)/4\pi(0.2)^2 \\ &= 0.0034/0.5030 = 0.00675 \text{ W/m}^2 \\ &= (0.00675 \text{ W/m}^2) (1\text{m}^2/\text{W}) (0.1 \text{ mW/cm}^2) \\ &= 0.000675 \text{ mW/cm}^2 \end{aligned}$$

which is << less than S = 1.0 mW/cm<sup>2</sup>

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## RF Exposure Evaluation – IC

According to RSS-102, 2.5.2 Exemption Limits for Routine Evaluation

At or above 300 MHz and below 6 GHz and the source-based time averaged maximum EIRP of the device is equal to or less than  $1.31 \times 10^{-2} \times f^{0.6834}$  in Watts (adjusted for tune up tolerance where applicable), where f = frequency in MHz

For 2.4 GHz Band:

$$\text{Limit} = 1.31 \times 10^{-2} \times 2440^{0.6834} = 2.7 \text{ Watts}$$

$$\text{Max EIRP} = 1.99 \text{ dBm} + 2.27 \text{ dB} = 4.26 \text{ dBm} = 2.67 \text{ mW} << 2700 \text{ mW}$$