The Device is an interactive display panel. The panel is designed to be used as indoor equipment for commercial application.

Panel evaluated for RF radiation exposure according to the provisions of FCC §2.1091, MPE guidelines identified in FCC §1.1310 and FCC KDB 447498:2015.

TABLE 1 TO §1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(ii) 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^2)**	<30
30-300	27.5	0.073	0.2	<30
300-1.500			f/1500	<30
1.500-100,000			1.0	<30

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

The worst-case scenario for **LoRa Radio at 13.56 MHz** is

S = 0.98 mW/cm^2, for General Population/Uncontrolled Exposure

The worst-case scenario for **pre-certifies WiFi Module 2400 MHz** is

S = 1 mW/cm2, for General Population/Uncontrolled Exposure

Worse Transmitting power from new replaced pre-certified WiFi module FCC RF EXPOSURE REPORT#4789861913-5, ISSUE DATE: March 23, 2021

Worse Case new Pre-Certified WiFi Module transmitting powers					
TX	**Operating Mode**	**Max. Tune up Power (dBm)**	**Max. antenna gain (dBi)**	**Max EIRP (dBm)**	**Max EIRP (mW)**
BT (Worse Case)	8DPSK	8	3.5	11.5	14.13
BLE (Worst case)	GFSK	1	3.5	4.5	2.82
WIFI 2.4G (Worst case)	WIFI 2.4G (SISO mode)	17	3.5	20.5	112.2
	WIFI 2.4G (MIMO mode)	14	6.51	20.51	112.4
WIFI5G (Worst case)	WIFI 5G	**18**	**8.51**	**26.51**	**448**

LoRa RF conducted power measurement and internal LoRa antenna gain as per ETC test report t29e21a157-FCC are reported below. The worst case value is highlighted below. EIRP with highest antenna gain

Technology		**Frequency (MHz)**	**Radiated Max. Field Strength (dBuv/m)**	**Max EIRP (dBuv/m – 95.2) (dBm)**	**Measured EIRP (mW)**
RFID	P	13.56	59.68	-35.52	0.00028
	PT	13.56	41.9	-53.3	0.000004

Conclusion

Total Worse Case EIRP from three Radios = Worse WiFI EIRP (mW) + Worse Panel EIRP (mW) + Worse Pen Tray

	=	**448 mW**	**+ 0.00028 mW + 0.000004**
EIRP	=	448.000284 mW	
EIRP	=	**450 mW (rounded up)**	

To determine the minimum safe distance, the sum of all transmitted power is used

$S = EIRP / (4\pi R^2)$

Where: S, power density in 'mW/cm2'

EIRP, Effective Isotropic Radiated Power in 'mW'

R, distance to the center of the radiation of the antenna in 'cm'

And then re-arrange to determine the minimum safe distance for **General Population/Uncontrolled Exposure.**

R   = $\sqrt{[EIRP / (4\pi S)]}$

R   = $\sqrt{[450 / (4\pi \times 0.98)]}$

R   =   6.044888395 cm

R   =   rounded up to 6.1 cm distance Uncontrolled Exposure

Power Density using calculated distance

$S = EIRP / (4\pi R^2)$

$S = 450 / [4\pi (20)^2]$

S = 0.98 < **0.089524655 mW/cm2**

S = 0.98 <<<<<< **0.09 mW/cm2**

R = minimum 6.1 cm, for **uncontrolled exposure** (rounded up to the first decimal)

The manufacturer manual specified a minimum safe distance of 20 cm.