Safety Human Exposure

1.1 Radio Frequency Exposure Compliance

1.1.1 Electromagnetic Fields

RESULT: **Pass**

Report No.	:	**CN22DJA9 004**
Test Specification		
Test item	:	ELAN 12" Touch Panel User Interface
Identification / Type No.	:	ITP-12
FCC ID	:	EF400230
IC	:	1078A-00230
HVIN	:	ITP-12B
Test standard	:	CFR47 FCC Part 2: Section 2.1093 CFR47 FCC Part 1: Section 1.1310 FCC KDB Publication 447498 v06, section 7 RSS-102 Issue 5 February 2021, section 2.5.2

➢ **FCC requirements**

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to KDB 447498 v06

Power Density: $S_{(mW/cm^2)}= PG/4\pi R^2$ or $EIRP/4\pi R^2$

Where:

S = power density (mW/cm^2)

P = power input to the antenna (mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm)

From the peak RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain, the RF power density can be calculated as below:

$S_{(mW/cm^2)}= PG/4\pi R^2$

a) EUT RF Exposure Evaluation standalone operations

Test Mode	Maximum conducted Power		Antenna Gain (dBi)	Measured e.i.r.p		$S_{(mW/cm^2)}= PG/4\pi R^2$	Limit $_{(mW/cm^2)}$
	(dBm)	(mW)		(dBm)	(mW)		
BR/EDR	6.88	4.88	3.3	10.18	10.42	0.002	1.0
BLE	4.82	3.03	3.3	8.12	6.49	0.001	1.0
802.11b/g/n	22.64	183.65	3.5	26.14	411.15	0.082	1.0

Bluetooth and Wi-Fi can't transmit at same time.

- **IC requirements:** The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

- RF exposure evaluation exempted power: 2.670 W

a) EUT RF Exposure Evaluation standalone operations:

Test Mode	Measured Peak Power		Antenna Gain (dBi)	Measured e.i.r.p (mW)	
	(dBm)	(mW)		(dBm)	(mW)
BR/EDR	6.88	4.88	3.3	10.18	10.42
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802.11b/g/n	22.64	183.65	3.5	26.14	411.15

Bluetooth and Wi-Fi can't transmit at same time.

The e.i.r.p. is less than the RF exposure evaluation exempted power. So RF exposure evaluation is not required.

"RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons."