

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant: Aviron Interactive.
Address of applicant: 780 Birchmount Rd. Unit 16, Toronto, ON M1K 5H4, Canada

Manufacturer: Aviron Interactive.
Address of manufacturer: 780 Birchmount Rd. Unit 16, Toronto, ON M1K 5H4, Canada

General Description of EUT:

Product Name: Aviron Touchscreen
Trade Name: Aviron Interactive Inc.
Model No.: ATS1
FCC ID: 2ASJ3-ATS1
Rated Voltage: DC19V

Technical Characteristics of EUT:

Wi-Fi 5G

Support Standards: 802.11a, 802.11n(HT20) , 802.11n-HT40, 802.11ac-VH80
Frequency Range: 5150-5250MHz, 5725-5850MHz
RF Output Power: 15.41dBm (Conducted)
Type of Modulation: BPSK, QPSK,16QAM,64QAM, 256QAM
Data Rate: 6-54Mbps, up to 867Mbps
Type of Antenna: Integral Antenna
Antenna Gain: 0dBi

Wi-Fi 2.4G

Support Standards: 802.11b, 802.11g, 802.11n(HT20)
Frequency Range: 2412-2462MHz
RF Output Power: 16.35dBm (Conducted)
Type of Modulation: DBPSK,BPSK,DQPSK,QPSK,16QAM,64QAM
Data Rate: 1-11Mbps, 6-54Mbps, up to 144.4Mbps
Quantity of Channels: 11
Channel Separation: 5MHz
Type of Antenna: Integral Antenna
Antenna Gain: 0dBi

Bluetooth

Bluetooth Version: V4.1
Frequency Range: 2402-2480MHz
RF Output Power: 7.419dBm (Conducted)
Data Rate: 1Mbps, 2Mbps, 3Mbps
Modulation: GFSK, Pi/4 QDPSK, 8DPSK

Quantity of Channels: 79/40
Channel Separation: 1/2MHz
Type of Antenna: Integral Antenna
Antenna Gain: 0dBi

1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

1.3 MPE Calculation Method

$$S = (30 * P * G) / (377 * R^2)$$

S = power density (in appropriate units, e.g., mw/cm²)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator,
the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Wi-Fi 5G

Maximum Tune-Up output power: 16 (dBm)

Maximum peak output power at antenna input terminal: 39.81 (mW)

Prediction distance: >20(cm)

Prediction frequency: 5825 (MHz)

Antenna gain: 0 (dBi)

Directional gain (numeric gain): 1

The worst case is power density at prediction frequency at 20cm: 0.008(mw/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

Wi-Fi 2.4G

Maximum Tune-Up output power: 17 (dBm)

Maximum peak output power at antenna input terminal: 50.12 (mW)

Prediction distance: >20(cm)

Prediction frequency: 2462 (MHz)

Antenna gain: 0 (dBi)

Directional gain (numeric gain): 1

The worst case is power density at prediction frequency at 20cm: 0.010(mw/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

BT

Maximum Tune-Up output power: 8 (dBm)

Maximum peak output power at antenna input terminal: 6.31 (mW)

Prediction distance: >20(cm)

Prediction frequency: 2462 (MHz)

Antenna gain: 0 (dBi)

Directional gain (numeric gain): 1

The worst case is power density at prediction frequency at 20cm: 0.001(mw/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

Not support WiFi and BT transmit simultaneously.

Result: Pass