MPE CALCULATION

FCC ID: I28MD-FXLAN11AC
FCC ID: I28MD-ZBR5QLN
FCC ID: I28-RFIDM6EMTT

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65

EUT Frequency Band: 902.75-927.25MHz;2412-2462 MHz, 2402-2480 MHz, 5180- 5320MHz, 5500-5720MHz, 5745-5825MHz 5210-5290MHz, 5530-5610MHz, 5690-5775MHz

Limits for General Population/Uncontrolled Exposure in the band of: 300-1500MHz;1500-100,000 MHz

Power Density Limit: 0.62 mW / cm^2 ;1 mW / cm^2

Equation: $S = PG / 4\pi R^2$ or $R = \sqrt{PG / 4\pi S}$

Where,   S = Power Density

P = Power Input to Antenna

G = Antenna Gain

R = distance to the center of radiated antenna

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EUT: Printer Access Point, Model No.: ZT410, ZT420

Omnidirectional Antenna

Prediction distance 20cm

(BT BLE): Power = 8.17 dBm, Antenna Gain = 3 dBi, Power density = 0.00260 mW/cm^2

(WLan 2.4GHz): Power = 16.77 dBm, Antenna Gain = 3 dBi, Power density = 0.02375 mW/cm^2

(WLan 5GHz): Power = 14.76 dBm, Antenna Gain = 5 dBi, Power density = 0.02370 mW/cm^2

Type	CH Freq (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Directional Gain (dBi)	Tune-Up Tolerance	Tolerance Max Power (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm²)	MPE Limit (mW/cm²)	Pass/ Fail
Bluetooth LE	2440	8.17	3	3	±1dB	9.17	20	0.00260	1	Pass
WLAN 2.4GHz	2437	16.77	3	3	±1dB	17.77	20	0.02375	1	Pass
WLAN 5GHz	5775	14.76	5	5	±1dB	15.76	20	0.02370	1	Pass

Patch antenna

(Bluetooth BDR/EDR): Power = 10.27 dBm, Antenna Gain = 1.16 dBi, Power density = 0.00348 mW/cm^2

Type	CH Freq (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Directional Gain (dBi)	Tune-Up Tolerance	Tolerance Max Power (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm²)	MPE Limit (mW/cm²)	Pass/ Fail
Bluetooth BDR/EDR	2441	10.27	1.16	1.16	±1dB	11.27	20	0.00348	1	Pass

UHF RFID: Power = 28.11 dBm, Antenna Gain = -36dBi, Power density = 0.0000407 mW/cm^2

Type	CH Freq (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Directional Gain (dBi)	Tune-Up Tolerance	Tolerance Max Power (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm²)	MPE Limit (mW/cm²)	Pass/ Fail
RFID	902.75	28.11	-36	-36	±1dB	29.11	20	0.0000407	0.62	Pass

Note: 2.4 GHZ and 5GHz radio do not transmit simultaneously.

Worst-Case Co-location MPE: UHF RFID, BT and 2.4GHz Wi-Fi operating simultaneously

BT = (0.00260/1) x 100 = 0.26%
2.4GHz WLAN = (0.02375/1) x 100 = 2.375%
RFID = (0.0000407/0.62) x 100 = 0.00656%

Total MPE Percentage = (0.3+2.375+0.00656) % = 2.641% <100%

The Above Result had shown that the Device complied with MPE requirement at 20 cm measurement distance.

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