RF Exposure for Intelleflex RFID Gun with WLAN and BT
FCC ID: VBLMC9090

The referenced product has three transmitters, each with its own internal antenna:

Description	Frequency Range	Pmax, Watts	Pmax, dBm	Antenna Gain, dBi
RFID	902-928 MHz	0.863	29.36	6.0
WiFi at 2.4 GHz	2412-2462 MHz	0.092	19.6	2.0
WiFi at 5GHz	5.15-5.25/ 5.745-5.830GHz	0.079 (U-NII 4)	18.97	3.1
Bluetooth	2402-2480 MHz	0.00096	-0.18	4.0

The product is classified as a mobile device per secion 2.1091 of the Rules. The aggregate RF exposure is calculated by assuming the antennas are equidistant from the observer, a reasonable worst-case condition. The General Population/Uncontrolled Exposure limits are used. For multiple emitters, the powers are summed proportionate to the percentage of power from each transmitter compared to their respective limits.

Intelleflex										
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902-928 MHz FHSS Radio						**Calculate mW/cm2 here. Enter frequency in MHz:**				
2.4 GHz/5 GHz WiFi module										
Bluetooth						Calculation of Limits from 1.1310 Table 1				
									Controlled	Uncontrolled
		902 MHz	WiFi	Bluetooth					Ave 6 min	Ave 30 min
mW/cm2 from Table1:		0.60	1.0	1.0		F(MHz)	**Actual F, MHz**		Occ, mW/c2	Gen, mW/cm2
						0.3-3	0.5		100.0	100.0
Max RF Power	TX Antenna	MPE distance	S, mW/cm@	Comment		*3.0 - 30.0*	*5*		*180.0*	*36.0*
P, dBm	G, dBi	cm	at 20 cm			**30.0-300**	**55**		**1.0**	**0.2**
						300-1500	*902*		*3.0*	*0.60*
29.36	6.00	21.3	0.68	902 MHz		1500-100000	5555		5.0	1.0
19.60	2.00	3.4	0.03	WiFi 2.4GHz						
18.97	3.10	3.6	0.03	WiFi 5GHz						
-0.18000	4.00	0.4	0.00	Bluetooth						
						Enter P(mW)	Equivalent dBm	**Enter dBm**	Equivalent Watts	
Worst Case	**RFx total**	**% MPE at 22cm**	94%	902 MHz						
			2%	WiFi 5 GHz						
			0%	Bluetooth						
		TOTAL	96%	<100%						
Basis of Calculations:						***895.4***	**29.52**	***29.52***	895.4	
E^2/3770 = S, mW/cm2										
E, V/m = (Pwatts*Ggain*30)^.5/d, meters										
d = ((Pwatts*G*30)/3770*S))^0.5			Pwatts*Ggain = 10^(PdBm-30+GdBi)/10)							
S@20cm = 20 log (MPE dist/20cm)										
NOTE: For mobile or fixed location transmitters, minimum separation distance is for FCC compliance is 20 cm, even if calculations indicate MPE distance is less										

Calculations show that the general RF exposure limit is met for worst-case simultaneous transmissions at an MPE distance of greater than 22 cm.