Summary: Standalone MPE Calculations and Summary								
Band (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	S_L (W/m^2)	S_{20} (W/m^2)	R_C (cm)	S_C (W/m^2)
902-928	100	917	28	1	2.771	0.07	3.2	2.77
Band (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	SL (W/m2)	S20 (W/m2)	RC (cm)	SC (W/m2)
2400-2483.5	100	2402	4	5	5.351	0.03	1.4	5.35

Simlutaneous MPE Calculation		
Tx Frequeny (MHz)	917	2402
S_{20} (W/m^2)	0.07	0.03
S_L (W/m^2)	2.771	5.351
Power Ratio (S_L / S_{20})	0.025	0.005
Sum of Power Ratios at 20cm (0.025 + 0.005)		0.030
Requirement = Σ of MPE Ratio ≤ 1		

	Model: TDSPC0U3		Test Number:	190530		
MPE Calculator	RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.					
	dBi = dB gain compared to an isotropic radiator.					
	S = power density in mW/cm^2					
Transmitter maximum Output power operating at 100% (Watts)			0.0280		Antenna Gain (dBi)	1
	Output Power for 100% duty Cycle operation (Watts)		0.0280		Antenna Gain (Numeric)	1.26
Tx Frequency (MHz)	917	Calcualtion power (Watts)	0.0280	dBd + 2.17 = dBi	dBi to dBd	2.2
					Antenna Gain (dBd)	-1.17
Cable Loss (dB)	0.0	Adjusted Power (dBm)	14.47		Antenna minus cable (dBi)	1.00
	Calculated ERP (mw)	21.387			EIRP = Po(dBM) + Gain (dB)	
	Calculated EIRP (mw)	35.250			Radiated (EIRP) dBm	15.472
					ERP = EIRP - 2.17 dB	
					Radiated (ERP) dBm	13.302

Power density (S) mW/cm² = EIRP / (4 p r^2)

r (cm) EIRP (mW)

		FCC radio frequency radiation exposure limits per 1.1310		
Occupational Limit		Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
3.06	mW/cm^2	30-300	1	0.2
30.57	W/m^2			
General Public Limit		300-1,500	f/300	f/1500
0.61	mW/cm^2	1,500-10,000	5	1
6.11	W/m^2			

		IC radio frequency radiation exposure limits per RSS-102		
Occupational Limit				
$0.6455f^{0.5}$	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
24.33	W/m^2			
General Public Limit		100-6,000	$0.6455f^{0.5}$	
$0.02619f^{0.6834}$	W/m^2	6,000-15,000	50	
2.77	W/m^2	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

f = Transmit Frequecny (MHz)			f (MHz) =	917 MHz
P_T = Power Input to Antenna (mW)			P_T (mW) =	28 mW
Duty cycle (percentage of operation)			% =	100 %
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	28 mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	1.26 numeric
S_{20} = Power Density of device at 20cm (W/m^2)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (W/m^2) =	0.07 W/m2
S_L = Power Density Limit (W/m^2)			S_L (W/m^2) =	2.771 W/m2
R_C = Minimum distance to the Radiating Element for Compliance (cm)		$R_C=\sqrt{(P_AG_N/4\pi S_L)}$	R_C (cm) =	3.2 cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m^2)		$S_C=(P_AG_N)/(4\pi R_C)^2$	S_C (W/m^2) =	2.77 W/m2
R_{20} = 20cm			R20 =	20 cm
	For Complaince with Canada General Population Limits, User Manual must indicate a minimum seperation distance of			3.2 cm

	Model: TDSPC0U3		Test Number:	190530		
MPE Calculator	RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.					
	dBi = dB gain compared to an isotropic radiator.					
	S = power density in mW/cm^2					
Transmitter maximum Output power operating at 100% (Watts)			0.0040		Antenna Gain (dBi)	5
	Output Power for 100% duty Cycle operation (Watts)		0.0040		Antenna Gain (Numeric)	3.16
Tx Frequency (MHz)	2402	Calcualtion power (Watts)	0.0040	dBd + 2.17 = dBi	dBi to dBd	2.2
					Antenna Gain (dBd)	2.83
Cable Loss (dB)	0.0	Adjusted Power (dBm)	6.02		Antenna minus cable (dBi)	5.00
	Calculated ERP (mw)	7.675			EIRP = Po(dBM) + Gain (dB)	
	Calculated EIRP (mw)	12.649			Radiated (EIRP) dBm	11.021
					ERP = EIRP - 2.17 dB	
					Radiated (ERP) dBm	8.851

Power density (S) $mW/cm^2 = \frac{EIRP}{4 \pi r^2}$

r (cm) EIRP (mW)

	Occupational Limit	FCC radio frequency radiation exposure limits per 1.1310		
5.00	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
50.00	W/m^2	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
1.00	mW/cm^2	1,500-10,000	5	1
10.00	W/m^2			
	Occupational Limit			
$0.6455f^{0.5}$	W/m^2	IC radio frequency radiation exposure limits per RSS-102		
39.38	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
	General Public Limit	100-6,000	$0.6455f^{0.5}$	
$0.02619f^{0.6834}$	W/m^2	6,000-15,000	50	
5.35	W/m^2	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

f = Transmit Frequecny (MHz)			f (MHz) =	2402 MHz
P_T = Power Input to Antenna (mW)			P_T (mW) =	4.0000 mW
Duty cycle (percentage of operation)			% =	100 %
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	4.00 mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	3.16 numeric
S_{20} = Power Density of device at 20cm (W/m^2)		$S_{20}=(P_A G_N)/(4\pi R_{20})^2$	S_{20} (W/m^2) =	0.025 W/m2
S_L = Power Density Limit (W/m^2)			S_L (W/m^2)=	5.351 W/m2
R_C = Minimum distance to the Radiating Element for Compliance (cm)		$R_C=\sqrt{(P_A G_N/4\pi S_L)}$	R_C (cm) =	1.4 cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m^2)		$S_C=(P_A G_N)/(4\pi R_C)^2$	S_C (W/m^2) =	5.35 W/m2
R_{20} = 20cm			R20=	20 cm
For Complaince with Canada General Population Limits, User Manual must indicate a minimum seperation distance of				1.4 cm