The duty cycle of the module is internally software restricted to a maximum of 55% for thermal considerations of the components due to the absence of heat sinking. This reduces the maximum radio frequency exposure by at least 55%. The antennas with gain are mounted at remote locations at distances much greater than those used in the calculations. The user manual provides instructions for mounting all antennas and directs mounting the high gain antennas outdoors maintaining a separation distance of 2 meters from people. The additional length of cable required for outdoor remote locations would further reduce the power density.

Model: AX-B8965C (Antenex) 5dB Base Loaded Closed Collinear

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	5
		Output Power		dBd + 2.17 = dBi dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000	Antenna Gain (dBd)	2.83
Cable Loss (dB)	0.0	(dBm)	30.00	Antenna minus cable (dBi)	5.00
Calculated ERP (mw)		1918.669		Radiated (ERP) dBm	32.830
Calculated EIRP (mw)		3162.278		Radiated (EIRP) dBm	35.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

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

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP watts	Distance cm	Distance inches	S mW/cm^2
3162.278	100.00	39.37	0.02516
3162.278	75.00	29.53	0.04474
3162.278	50.00	19.69	0.10066
3162.278	40.00	15.75	0.15728
3162.278	35.00	13.78	0.20543
3162.278	30.00	11.81	0.27961
3162.278	25.00	9.84	0.40263
3162.278	24.75	9.74	0.41081
3162.278	24.50	9.65	0.41924
3162.278	24.25	9.55	0.42792
3162.278	24.00	9.45	0.43689
3162.278	23.75	9.35	0.44613
3162.278	23.50	9.25	0.45567
3162.278	23.25	9.15	0.46553
3162.278	23.00	9.06	0.47570
3162.278	22.75	8.96	0.48621
3162.278	22.50	8.86	0.49708
3162.278	22.25	8.76	0.50831
3162.278	22.00	8.66	0.51993
3162.278	21.75	8.56	0.53195
3162.278	21.50	8.46	0.54439
3162.278	21.25	8.37	0.55728
3162.278	21.00	8.27	0.57063
3162.278	20.75	8.17	0.58446
3162.278	20.50	8.07	0.59880
3162.278	20.25	7.97	0.61368
3162.278	20.00	7.87	0.62912

Model: MX-MUF8963 (Antenex) 3dB Open Coil

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	3
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	0.83
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	3.00
	Calculated ERP (mw)	1210.598			Radiated (ERP) dBm	30.830
	Calculated EIRP (mw)	1995.262			Radiated (EIRP) dBm	33.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

Power density (S)

$$\frac{EIRP}{4\pi r^2} = mW/cm^2$$

r (cm) EIRP (mW)

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP	Distance	Distance	S
watts	cm	inches	mW/cm^2
1995.262	100.00	39.37	0.01588
1995.262	75.00	29.53	0.02823
1995.262	50.00	19.69	0.06351
1995.262	40.00	15.75	0.09924
1995.262	35.00	13.78	0.12961
1995.262	30.00	11.81	0.17642
1995.262	25.00	9.84	0.25404
1995.262	24.75	9.74	0.25920
1995.262	24.50	9.65	0.26452
1995.262	24.25	9.55	0.27000
1995.262	24.00	9.45	0.27566
1995.262	23.75	9.35	0.28149
1995.262	23.50	9.25	0.28751
1995.262	23.25	9.15	0.29373
1995.262	23.00	9.06	0.30015
1995.262	22.75	8.96	0.30678
1995.262	22.50	8.86	0.31364
1995.262	22.25	8.76	0.32072
1995.262	22.00	8.66	0.32805
1995.262	21.75	8.56	0.33564
1995.262	21.50	8.46	0.34349
1995.262	21.25	8.37	0.35162
1995.262	21.00	8.27	0.36004
1995.262	20.75	8.17	0.36877
1995.262	20.50	8.07	0.37782
1995.262	20.25	7.97	0.38720
1995.262	20.00	7.87	0.39694

Model: NP-NMO-9000 (Antenex) Radome

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	0
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	-2.17
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	0.00
	Calculated ERP (mw)	606.736			Radiated (ERP) dBm	27.830
	Calculated EIRP (mw)	1000.000			Radiated (EIRP) dBm	30.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

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

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP	Distance	Distance	S
watts	cm	inches	mW/cm^2
1000.000	100.00	39.37	0.00796
1000.000	75.00	29.53	0.01415
1000.000	50.00	19.69	0.03183
1000.000	40.00	15.75	0.04974
1000.000	35.00	13.78	0.06496
1000.000	30.00	11.81	0.08842
1000.000	25.00	9.84	0.12732
1000.000	24.75	9.74	0.12991
1000.000	24.50	9.65	0.13257
1000.000	24.25	9.55	0.13532
1000.000	24.00	9.45	0.13816
1000.000	23.75	9.35	0.14108
1000.000	23.50	9.25	0.14410
1000.000	23.25	9.15	0.14721
1000.000	23.00	9.06	0.15043
1000.000	22.75	8.96	0.15375
1000.000	22.50	8.86	0.15719
1000.000	22.25	8.76	0.16074
1000.000	22.00	8.66	0.16442
1000.000	21.75	8.56	0.16822
1000.000	21.50	8.46	0.17215
1000.000	21.25	8.37	0.17623
1000.000	21.00	8.27	0.18045
1000.000	20.75	8.17	0.18482
1000.000	20.50	8.07	0.18936
1000.000	20.25	7.97	0.19406
1000.000	20.00	7.87	0.19894

Model: AX-FG8963 (Antenex) Fiberglass Base Station

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	3
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	1.83
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	3.00
Calculated ERP (mw)	1210.598				Radiated (ERP) dBm	30.830
Calculated EIRP (mw)	1995.262				Radiated (EIRP) dBm	33.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

Power density (S)

$$\frac{EIRP}{4\pi r^2} = mW/cm^2$$

r (cm) EIRP (mW)

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP	Distance	Distance	S
watts	cm	inches	mW/cm^2
1995.262	100.00	39.37	0.01588
1995.262	75.00	29.53	0.02823
1995.262	50.00	19.69	0.06351
1995.262	40.00	15.75	0.09924
1995.262	35.00	13.78	0.12961
1995.262	30.00	11.81	0.17642
1995.262	25.00	9.84	0.25404
1995.262	24.75	9.74	0.25920
1995.262	24.50	9.65	0.26452
1995.262	24.25	9.55	0.27000
1995.262	24.00	9.45	0.27566
1995.262	23.75	9.35	0.28149
1995.262	23.50	9.25	0.28751
1995.262	23.25	9.15	0.29373
1995.262	23.00	9.06	0.30015
1995.262	22.75	8.96	0.30678
1995.262	22.50	8.86	0.31364
1995.262	22.25	8.76	0.32072
1995.262	22.00	8.66	0.32805
1995.262	21.75	8.56	0.33564
1995.262	21.50	8.46	0.34349
1995.262	21.25	8.37	0.35162
1995.262	21.00	8.27	0.36004
1995.262	20.75	8.17	0.36877
1995.262	20.50	8.07	0.37782
1995.262	20.25	7.97	0.38720
1995.262	20.00	7.87	0.39694

Model: CCPC904N (Cushcraft) 4 element YAGI

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	6
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	3.83
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	6.00
Calculated ERP (mw)	2415.461				Radiated (ERP) dBm	33.830
Calculated EIRP (mw)	3981.072				Radiated (EIRP) dBm	36.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

Power density (S)

$$\frac{EIRP}{4\pi r^2} = mW/cm^2$$

r (cm) EIRP (mW)

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP	Distance	Distance	S
watts	cm	inches	mW/cm^2
3981.072	100.00	39.37	0.03168
3981.072	75.00	29.53	0.05632
3981.072	50.00	19.69	0.12672
3981.072	40.00	15.75	0.19800
3981.072	35.00	13.78	0.25862
3981.072	30.00	11.81	0.35200
3981.072	25.00	9.84	0.50689
3981.072	24.75	9.74	0.51718
3981.072	24.50	9.65	0.52779
3981.072	24.25	9.55	0.53872
3981.072	24.00	9.45	0.55001
3981.072	23.75	9.35	0.56165
3981.072	23.50	9.25	0.57366
3981.072	23.25	9.15	0.58606
3981.072	23.00	9.06	0.59887
3981.072	22.75	8.96	0.61211
3981.072	22.50	8.86	0.62578
3981.072	22.25	8.76	0.63993
3981.072	22.00	8.66	0.65455
3981.072	21.75	8.56	0.66969
3981.072	21.50	8.46	0.68535
3981.072	21.25	8.37	0.70157
3981.072	21.00	8.27	0.71838
3981.072	20.75	8.17	0.73579
3981.072	20.50	8.07	0.75385
3981.072	20.25	7.97	0.77257
3981.072	20.00	7.87	0.79201

Model: MX-MUF9000 1/4 wave (Antenex)

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	0
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	-2.17
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	0.00
	Calculated ERP (mw)	606.736			Radiated (ERP) dBm	27.830
	Calculated EIRP (mw)	1000.000			Radiated (EIRP) dBm	30.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

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

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP	Distance	Distance	S
watts	cm	inches	mW/cm^2
1000.000	100.00	39.37	0.00796
1000.000	75.00	29.53	0.01415
1000.000	50.00	19.69	0.03183
1000.000	40.00	15.75	0.04974
1000.000	35.00	13.78	0.06496
1000.000	30.00	11.81	0.08842
1000.000	25.00	9.84	0.12732
1000.000	24.75	9.74	0.12991
1000.000	24.50	9.65	0.13257
1000.000	24.25	9.55	0.13532
1000.000	24.00	9.45	0.13816
1000.000	23.75	9.35	0.14108
1000.000	23.50	9.25	0.14410
1000.000	23.25	9.15	0.14721
1000.000	23.00	9.06	0.15043
1000.000	22.75	8.96	0.15375
1000.000	22.50	8.86	0.15719
1000.000	22.25	8.76	0.16074
1000.000	22.00	8.66	0.16442
1000.000	21.75	8.56	0.16822
1000.000	21.50	8.46	0.17215
1000.000	21.25	8.37	0.17623
1000.000	21.00	8.27	0.18045
1000.000	20.75	8.17	0.18482
1000.000	20.50	8.07	0.18936
1000.000	20.25	7.97	0.19406
1000.000	20.00	7.87	0.19894

Model: AX-TRA9023 (Antenex) 3dB Phantom

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	3
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	0.83
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	3.00
Calculated ERP (mw)	1210.598				Radiated (ERP) dBm	30.830
Calculated EIRP (mw)	1995.262				Radiated (EIRP) dBm	33.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

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

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP	Distance	Distance	S
watts	cm	inches	mW/cm^2
1995.262	100.00	39.37	0.01588
1995.262	75.00	29.53	0.02823
1995.262	50.00	19.69	0.06351
1995.262	40.00	15.75	0.09924
1995.262	35.00	13.78	0.12961
1995.262	30.00	11.81	0.17642
1995.262	25.00	9.84	0.25404
1995.262	24.75	9.74	0.25920
1995.262	24.50	9.65	0.26452
1995.262	24.25	9.55	0.27000
1995.262	24.00	9.45	0.27566
1995.262	23.75	9.35	0.28149
1995.262	23.50	9.25	0.28751
1995.262	23.25	9.15	0.29373
1995.262	23.00	9.06	0.30015
1995.262	22.75	8.96	0.30678
1995.262	22.50	8.86	0.31364
1995.262	22.25	8.76	0.32072
1995.262	22.00	8.66	0.32805
1995.262	21.75	8.56	0.33564
1995.262	21.50	8.46	0.34349
1995.262	21.25	8.37	0.35162
1995.262	21.00	8.27	0.36004
1995.262	20.75	8.17	0.36877
1995.262	20.50	8.07	0.37782
1995.262	20.25	7.97	0.38720
1995.262	20.00	7.87	0.39694

Model: AX-B8965C (Antenex) 5dB Base Loaded Closed Collinear

The CDR-9150 module is a frequency hopping spread spectrum transmitter operating in the frequency band of 902 MHz to 928 MHz with 1.0 watt or less of output power.

MPE 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

				Antenna Gain (dBi)	5
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.17
Tx Frequency (MHz)	900	(Watts)	1.0000		Antenna Gain (dBd)	2.83
Cable Loss (dB)	0.0	(dBm)	30.00		Antenna minus cable (dBi)	5.00
	Calculated ERP (mw)	1918.669			Radiated (ERP) dBm	32.830
	Calculated EIRP (mw)	3162.278			Radiated (EIRP) dBm	35.000

Occupational Limit
3.00 mW/cm^2

General Public Limit
0.60 mW/cm^2

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

r (cm) EIRP (mW)

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit	Public Limit
300-1,500	f/300	f/1500
1,500-10,000	5	1

EIRP watts	Distance cm	Distance inches	S mW/cm^2
3162.278	100.00	39.37	0.02516
3162.278	75.00	29.53	0.04474
3162.278	50.00	19.69	0.10066
3162.278	40.00	15.75	0.15728
3162.278	35.00	13.78	0.20543
3162.278	30.00	11.81	0.27961
3162.278	25.00	9.84	0.40263
3162.278	24.75	9.74	0.41081
3162.278	24.50	9.65	0.41924
3162.278	24.25	9.55	0.42792
3162.278	24.00	9.45	0.43689
3162.278	23.75	9.35	0.44613
3162.278	23.50	9.25	0.45567
3162.278	23.25	9.15	0.46553
3162.278	23.00	9.06	0.47570
3162.278	22.75	8.96	0.48621
3162.278	22.50	8.86	0.49708
3162.278	22.25	8.76	0.50831
3162.278	22.00	8.66	0.51993
3162.278	21.75	8.56	0.53195
3162.278	21.50	8.46	0.54439
3162.278	21.25	8.37	0.55728
3162.278	21.00	8.27	0.57063
3162.278	20.75	8.17	0.58446
3162.278	20.50	8.07	0.59880
3162.278	20.25	7.97	0.61368
3162.278	20.00	7.87	0.62912