

MPE Exposure Formula:

$$S = (P \times G) / (4 \times \pi \times d^2)$$

where:

S = power density

P = transmitter conducted power in (mW)

G = antenna numeric gain

d = distance to radiation center (m) or $(.02^2) = .020$ m

**Transmitter# 1
902 MHz (RFID)**

Enter Data in Linear Units					
Gain =	4.0	Numeric	EUT ant.:	6	dBi
Power =	724	mW	EUT power:	28.6	dBm
Frequency =	902	MHz	MPE limit:	0.601	mW/cm ²
Cable Loss =		dB			
EIRP =	2884.03	mW		2884.03	mW
R (cm) =	19.5360802		S (20cm) =	0.574	

**Transmitter# 2
2400 MHz (Bluetooth)**

Enter Data in Linear Units					
Gain =	1.6	Numeric	EUT ant.:	2	dBi
Power =	1	mW	EUT power:	-0.18	dBm
Frequency =	2400	MHz	MPE limit:	1	mW/cm ²
Cable Loss =		dB			
EIRP =	1.52	mW		1.52	mW
R (cm) =	0.3478525		S (20cm) =	0.00030	

**Transmitter# 3
2400 MHz (802.11b/g)**

Enter Data in Linear Units					
Gain =	1.3	Numeric	EUT ant.:	1	dBi
Power =	92	mW	EUT power:	19.62	dBm
Frequency =	2400	MHz	MPE limit:	1	mW/cm ²
Cable Loss =		dB			
EIRP =	115.35	mW		115.35	mW
R (cm) =	3.0296682		S (20cm) =	0.023	

**Transmitter# 3
5260 MHz (802.11a)**

Enter Data in Linear Units					
Gain =	2.0	Numeric	EUT ant.:	3.1	dBi
Power =	78	mW	EUT power:	18.94	dBm
Frequency =	5260	MHz	MPE limit:	1	mW/cm ²
Cable Loss =		dB			
EIRP =	159.96	mW		159.96	mW
R (cm) =	3.5677554		S (20cm) =	0.032	

Cumulative Results from Multiple Transmitter

	Power Density (mW/cm ²)	Limit (mW/cm ²)	Percent MPE Use (%)
Transmitter# 1	0.574	0.601	95.4146%
Transmitter# 2	0.00030	1.000	0.0303%
Transmitter# 3	0.032	1.000	3.1822%
Total			98.6271%

From the tables above the MC9090R6 meets the MPE limits at the 20cm separation distance for a mobile device.