

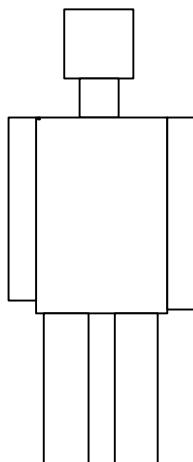
General

The MT900 is a LMRS/GMRS, UHF transceiver which is mobile mounted with radiating antenna mounted outside the vehicle and transmitting with output power less than 40 Watts. Per table 1 of 1.1307, paragraphs 1.1310 and 2.1091 of CFR 47, evaluation for this device is as follows. Due to the location of the antenna, normal operating conditions and use, the unit will satisfy the requirements for RF Exposure. Calculations are made here for completeness.

SPECIFIC ABSORPTION RATE CALCULATION

Calculations per 2.1091 of CFR 47.

These calculations are based upon a typical human figure as approximated below. The height is 5' 8" (173 cm.) and the weight is 160 lbs. (72.6kg).



The calculated absorption cross section for this figure is 143 cm squared.

CALCULATED OCCUPATIONAL / CONTROLLED POPULATION SAR

$$S = PG/(4\pi R^2) \dagger$$

Where S = power density in mw/cm^2

P = input power to antenna in mw .

G = power gain of antenna

R = distance from antenna in cm .

For a minimum distance of 46 centimeters and 40.0 watts (40,000 mW) operation with the supplied antenna, S is:

$$S = 40000/(4\pi(46)^2) = 1.5043 \text{ mw/cm}^2$$

For a body cross sectional area of 143 cm squared, $(1.5043)(143) = 215.11 \text{ mw}$ is absorbed.

For a body mass of 72.6 kg, this is $215.11/72.6 = 2.96 \text{ mw/kg} = 0.003 \text{ w/kg}$

Calculations demonstrating compliance with CFR 47 paragraphs 1.1310 and 2.1091 are show below.

ROGERS LABS, INC.

4405 West 259th Terrace

Louisburg, KS 66053

Phone/Fax: (913) 837-3214

Genex Telecom Co. LTD

MODEL: MT-900 LMRS/GMRS UHF Transceiver

Test #:040922

FCC ID#: PM3 MT900

Test to: FCC Parts 2, 15, 90 and 95

SN: Set 1

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MPE Calculator

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

Tx Frequency (MHz)	460	Output Power Average (Watts)	40.0000	Antenna Gain (dBi)	0
				dBd + 2.17 = dBi	2.17

Cable Loss (dB)	0.0	(dBm)	46.02	Antenna minus cable (dBi)	0.00
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Calculated ERP (mw) 24269.453

Calculated EIRP (mw) 40000.000

$$\text{EIRP} = \text{Po(dBm)} + \text{Gain (dB)}$$

Radiated (EIRP) dBm 46.021

$$\text{ERP} = \text{EIRP} - 2.17 \text{ dB}$$

Radiated (ERP) dBm 43.851

Occupational Limit	Power density (S)
1.53333 mW/cm ²	EIRP
	----- = mW/cm ²

General Public Limit	4 π r ²
0.30667 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

FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit @ Tx Freq (mW/cm ²)	Public Limit @ Tx Freq (mW/cm ²)
300-1,500	1.533333333	0.30666667
1,500-10,000	5	1

EIRP	Distance	Distance	S
milliwatts	cm	inches	mW/cm ²
40000.000	250.00	98.43	0.05093
40000.000	200.00	78.74	0.07958
40000.000	195.00	76.77	0.08371
40000.000	190.00	74.80	0.08817
40000.000	185.00	72.83	0.09301
40000.000	180.00	70.87	0.09824
40000.000	175.00	68.90	0.10394
40000.000	170.00	66.93	0.11014
40000.000	160.00	62.99	0.12434
40000.000	150.00	59.06	0.14147
40000.000	140.00	55.12	0.16240
40000.000	130.00	51.18	0.18835
40000.000	120.00	47.24	0.22105
40000.000	110.00	43.31	0.26307
40000.000	102.00	40.16	0.30595
40000.000	90.00	35.43	0.39298
40000.000	85.00	33.46	0.44057
40000.000	80.00	31.50	0.49736
40000.000	79.00	31.10	0.51003
40000.000	78.00	30.71	0.52319
40000.000	77.00	30.31	0.53687
40000.000	76.00	29.92	0.55109
40000.000	75.00	29.53	0.56588
40000.000	70.00	27.56	0.64961
40000.000	60.00	23.62	0.88419
40000.000	50.00	19.69	1.27324
40000.000	46.00	18.11	1.50430
40000.000	40.00	15.75	1.98944
40000.000	20.00	7.87	7.95775
40000.000	10.00	3.94	31.83099
40000.000	5.00	1.97	127.32395

Frequency (MHz)	Occupational Limit minimum Distance (cm)	Public Limit minimum distance (cm)
300-1,500	N/A	N/A
1,500-10,000	46.00	102.00

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