

DECLARATION OF COMPLIANCE MPE EVALUATION REPORT

Test Lab

CELLTECH RESEARCH INC.
Testing and Engineering Lab
1955 Moss Court
Kelowna, B.C.
Canada V1Y 9L3
Phone: 250-448-7047
Fax: 250-448-7046
e-mail: info@celltechlabs.com
web site: www.celltechlabs.com

Applicant Information

ITRONIX CORPORATION
801 South Stevens Street
Spokane, WA 99204

FCC Rule Part(s):	47 CFR §24(E), §22.901(d), §2.1091; §1.1310
IC Rule Part(s):	RSS-133 Issue 2, RSS-129 Issue 2, RSS-102 Issue 1 (Provisional)
FCC Classification:	Licensed Base Station for Part 24 (PCB)
IC Classification:	2GHz Personal Communication Services (RSS-133 Issue 2)
Device Type:	800MHz CDMA Cellular Transmitter (RSS-129 Issue 2) Rugged Laptop PC with Sierra Wireless AirCard 555/550 PCS/Cellular CDMA PCMCIA Modem, Vehicle Cradle, & Mobile Vehicle-Mount Antenna
FCC ID:	KBCIX260AC555
Model(s):	IX260
Tx Frequency Range:	1851.25 - 1908.75 MHz (PCS CDMA) 824.70 - 848.31 MHz (Cellular CDMA)
RF Output Power Tested:	23.0 dBm Conducted (PCS CDMA) 23.0 dBm Conducted (Cellular CDMA)
Antenna Type(s):	Mobile Vehicle Antenna (MaxRad P/N: WMLPVDB800/1900 - 3 dBi Gain)
Power Supply:	12V Vehicle Battery

This mobile transmitter has been shown to be compliant for localized Maximum Permissible Exposure (MPE) for uncontrolled environment / general population exposure limits specified in FCC 47 CFR §1.1310 and has been tested in accordance with the measurement procedures specified in FCC OET Bulletin 65, Edition 97-01. This device complies with the rules and regulations for Maximum Permissible Exposure (MPE) specified by the Federal Communications Commission and Industry Canada.

I attest to the accuracy of data. All measurements and/or calculations were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

This evaluation report shall not be reproduced partially, or in full, without the prior written approval of Celltech Research Inc. The results and statements contained in this report pertain only to the device(s) evaluated.



Russell Pipe
Senior Compliance Technologist
Celltech Research Inc.



Introduction

The Maximum Permissible Exposure (MPE) limit specified in 47 CFR §1.1310 of the FCC Rules is as follows:

The limit for the frequency range of the PCS band (1900MHz) is 1mW/cm² for General Population/Uncontrolled Access.

The limit for the frequency range in the cellular band (835MHz) is 0.57mW/cm² for General Population/Uncontrolled Access.

The EUT is designed for telecommunications transmissions in the PCS and Cellular bands and may use an external antenna of 3dBi gain. In this configuration the device is classified as mobile.

Summary

According to 47CFR 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b).

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
30-300	61.4	0.163	1.0	6
300-1500	...	...	F/300	6
1500-100,000	...	...	5	6
(B)Limits For General Population / Uncontrolled Exposure				
30-300	27.5	0.073	0.2	30
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

Formula used to determine MPE

$$S = \frac{PG}{4\pi R^2}$$

$$R = \sqrt{\frac{PG}{4\pi S}}$$

S= power density
P= power input to the antenna
G= power gain of the antenna in the direction of interest relative to an isotropic radiator
R= distance to the center of radiation of the antenna

MPE Calculation Data

The following calculation data shows that this device complies with the Maximum Permissible Exposure (MPE) requirements set forth in FCC §2.1091, §1.1310, and OET Bulletin 65, Edition 97-01 for General Population / Uncontrolled Exposure environment based on the specified frequencies listed.

Tx Frequency: 1900.00 (MHz)
Maximum Peak Power at Antenna Input Terminal: 23.00 (dBm)
Antenna gain (typical)+9dB for 8-element array: 3.00 (dBi)

S= 1.00 (mW/cm²)

P= 199.53 (mW)

G= 2.00 (numeric)

R = 5.63 (cm)

1900MHz MPE Calculation

Tx Frequency: 835.00 (MHz)
Maximum Peak Power at Antenna Input Terminal: 23.00 (dBm)
Antenna gain (typical)+9dB for 8-element array: 3.00 (dBi)

S= 0.56 (mW/cm²)

P= 199.53 (mW)

G= 2.00 (numeric)

R = 7.54 (cm)

835MHz MPE Calculation