| | | | |
|---|---|---|---|
| **Test Report Serial No.:** | 061506KBC-T757-E24G | **Report Issue Date:** | August 24, 2006 |
| **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | | Industry Canada RSS-132, RSS-133 |
| **Test Lab Registration(s):** | FCC Lab Registration #714830 | | Industry Canada Lab File #3874 |

## Appendix D    - Maximum Permissible Exposure Calculation

### D.1  REFERENCES

| | |
|---|---|
| **Normative Reference Standard** | FCC CFR 47§1.1310<br>IEEE Std C95.1-1999 |
| **Procedure Reference** | FCC CFR 47§2.1091 |

### D.2  LIMITS

| | Frequency | Power Density |
|---|---|---|
| FCC CFR 47§1.1310 Table 1(b) | 300 - 1500 MHz | $f/1500$ mW/cm$^2$ |
| | 1500 - 100,000 MHz | 1.0 mW/cm$^2$ |

### D.3  ENVIRONMENTAL CONDITIONS

| | |
|---|---|
| **Temperature** | na |
| **Humidity** | na |
| **Barometric Pressure** | na |

### D.4  MEASUREMENT EQUIPMENT SETUP

| | |
|---|---|
| **MEASUREMENT EQUIPMENT CONNECTIONS** | The results described herein were determined by calculations, so no measurement equipment was used.  The power measurements for each radio used in these calculations were made as described in Appendix A of this report. |
| **MEASUREMENT EQUIPMENT SETTINGS** | n/a |

### D.5  DUT OPERATING DESCRIPTION

| | |
|---|---|
| **Dual-Band GPRS** | The maximum GPRS RF conducted output power in each band used for these calculations was measured on Channel 251 for Cellular and Channel 661 for PCS. |
| **Dual-Band EDGE** | The maximum EDGE RF conducted output power in each band used for these calculations was measured on Channel 190 for Cellular and Channel 661 for PCS. |
| **Dual-Band UMTS** | The maximum UMTS RF conducted output power in each band used for these calculations was measured on Channel 4233 for Cellular and Channel 9400 for PCS. |

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** |
| **DUT Type:** | **Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem** | | | | **ITRONIX** A GENERAL DYNAMICS COMPANY |

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| | **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | | Industry Canada RSS-132, RSS-133 |
| | **Test Lab Registration(s):** | FCC Lab Registration #714830 | | Industry Canada Lab File #3874 |

## D.6  TEST RESULTS

### D.6.1  Calculations:

**Swivel Dipole Antenna (Max. Measured Conducted Power - Cellular GPRS Mode)**

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

***Equation from page 18***

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

**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

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

**R=** distance to the center of radiation of the antenna
**SL=** power density limit

Ratio of Time On versus Total Transmit Time     **0.25**

**Choose**

**ENTER**

Occupational/Controlled    ◯
General Population/Uncontrolled    ◉

| | | |
|---|---|---|
| Tx Frequency: | **848.80** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **32.28** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain: | **2.60** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 0.57 | (mW/cm^2) |
| **P=** | 422.6102 | (mW) |
| **G=** | 1.82 | (numeric) |

**R =**    **10.40**    **(cm)**

**S (mw/cm^2)**
**at 20cm**

0.15282675

**Formulae:**

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

where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain

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

R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** | **ITRONIX** |
|---|---|---|---|---|---|---|
| **DUT Type:** | **Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem** | | | | | A GENERAL DYNAMICS COMPANY |
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| | | | |
|---|---|---|---|
| | **Test Report Serial No.:** | 061506KBC-T757-E24G | **Report Issue Date:** | August 24, 2006 |
| | **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| | **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 |
| | **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 |

## D.6.2 Calculations:

**Swivel Dipole Antenna (Max. Measured Conducted Power - PCS GPRS Mode)**

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

***Equation from page 18***

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

**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

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

**R=** distance to the center of radiation of the antenna
**SL=** power density limit

Ratio of Time On versus Total Transmit Time          **0.25**

**Choose**          **ENTER**

Occupational/Controlled ◯
General Population/Uncontrolled ◉

| | | |
|---|---|---|
| Tx Frequency: | **1880.00** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **28.63** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain: | **2.60** | (dBi) |

| | | |
|---|---|---|
| SL= | 1.00 | (mW/cm^2) |
| P= | 182.3644 | (mW) |
| G= | 1.82 | (numeric) |

**R =          5.14          (cm)**

**S (mw/cm^2)**
**at 20cm**

0.065947658

## Formulae:

S = PG / 4πR²          where: S = Power Density Limit
                              P = Power Output of the Device
                              G = Numeric Antenna Gain
R = √(PG / 4πS)          R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** | **ITRONIX** |
|---|---|---|---|---|---|---|
| **DUT Type:** | **Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem** | | | | | A GENERAL DYNAMICS COMPANY |
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|---|---|---|---|
| Date(s) of Evaluation: | June 21 - July 27, 2006 | Report Revision No.: | Revision 1.0 |
| Test Standard(s): | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| Test Lab Registration(s): | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.3 Calculations:

**Swivel Dipole Antenna (Max. Measured Conducted Power - Cellular EDGE Mode)**

<div align="center">

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

</div>

*Equation from page 18*

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

**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

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

**R=** distance to the center of radiation of the antenna
**SL=** power density limit

Ratio of Time On versus Total Transmit Time      **0.25**

**Choose**     **ENTER**

Occupational/Controlled    ○
General Population/Uncontrolled    ◉

| | | |
|---|---|---|
| Tx Frequency: | **836.60** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **26.89** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain: | **2.60** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 0.56 | (mW/cm^2) |
| **P=** | 122.1631 | (mW) |
| **G=** | 1.82 | (numeric) |

**R =    5.63      (cm)**

**S (mw/cm^2)**
**at 20cm**

0.044177321

**Formulae:**

$$S = \frac{PG}{4\pi R^2}$$      where: S = Power Density Limit
                                P = Power Output of the Device

$$R = \sqrt{\frac{PG}{4\pi S}}$$            G = Numeric Antenna Gain
                                R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| Company: | Itronix Corporation | FCC ID: | KBCIX260PROAC860 | Model(s): | IX260PROAC860 | ITRONIX® A GENERAL DYNAMICS COMPANY |
|---|---|---|---|---|---|---|
| DUT Type: | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | | |
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|---|---|---|---|
| Date(s) of Evaluation: | June 21 - July 27, 2006 | Report Revision No.: | Revision 1.0 |
| Test Standard(s): | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| Test Lab Registration(s): | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.4  Calculations:

### Swivel Dipole Antenna (Max. Measured Conducted Power - PCS EDGE Mode)

**Prediction of MPE Limit
OET Bulletin 65, Edition 97-01**

*Equation from page 18*

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

**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

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

**R=** distance to the center of radiation of the antenna
**SL=** power density limit

Ratio of Time On versus Total Transmit Time        **0.25**

**Choose**
⬇
**ENTER**
⬇

Occupational/Controlled ◯
General Population/Uncontrolled ⬤

| | | |
|---|---|---|
| Tx Frequency: | **1880.00** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **25.73** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain: | **2.60** | (dBi) |

| | | |
|---|---|---|
| SL= | 1.00 | (mW/cm^2) |
| P= | 93.5276 | (mW) |
| G= | 1.82 | (numeric) |

**R =        3.68        (cm)**

**S (mw/cm^2)
at 20cm**

0.033822007

### Formulae:

$S = \dfrac{PG}{4\pi R^2}$        where: S = Power Density Limit
                          P = Power Output of the Device
                          G = Numeric Antenna Gain
$R = \sqrt{\dfrac{PG}{4\pi S}}$        R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| Company: | Itronix Corporation | FCC ID: | KBCIX260PROAC860 | Model(s): | IX260PROAC860 | ITRONIX® A GENERAL DYNAMICS COMPANY |
|---|---|---|---|---|---|---|
| DUT Type: | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | | |
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| | | | | |
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| | **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| | **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.5  Calculations:

**Swivel Dipole Antenna (Max. Measured Conducted Power - Cellular UMTS Mode)**

<div align="center">

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

</div>

*Equation from page 18*

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

**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

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

**R=** distance to the center of radiation of the antenna
**SL=** power density limit

Ratio of Time On versus Total Transmit Time    | 1.00 |

**Choose**

**ENTER**

Occupational/Controlled  ○
General Population/Uncontrolled  ◉

| Tx Frequency: | 846.60 | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | 24.00 | (dBm) |
| Source-Based Time-Average Factor: | 0.00 | (dB) |
| Antenna gain: | 2.60 | (dBi) |

| **SL=** | 0.56 | (mW/cm^2) |
| **P=** | 251.1886 | (mW) |
| **G=** | 1.82 | (numeric) |

| **R =** | 8.03 | (cm) |

**S (mw/cm^2)**
**at 20cm**

0.090836286

**Formulae:**

$S = \frac{PG}{4\pi R^2}$    where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain

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

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| **Company:** | Itronix Corporation | **FCC ID:** | KBCIX260PROAC860 | **Model(s):** | IX260PROAC860 | **ITRONIX** |
|---|---|---|---|---|---|---|
| **DUT Type:** | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | | A GENERAL DYNAMICS COMPANY |
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|---|---|---|---|---|
| | **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| | **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| | **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

### D.6.6  Calculations:

**Swivel Dipole Antenna (Max. Measured Conducted Power - PCS UMTS Mode)**

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

*Equation from page 18*

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

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

**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
**SL=** power density limit

Ratio of Time On versus Total Transmit Time     **1.00**

**Choose**

**ENTER**

Occupational/Controlled   ○
General Population/Uncontrolled   ◉

| | | |
|---|---|---|
| Tx Frequency: | **1880.00** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **23.00** | (dBm) |
| Source-Based Time-Average Factor: | **0.00** | (dB) |
| Antenna gain: | **2.60** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 1.00 | (mW/cm^2) |
| **P=** | 199.5262 | (mW) |
| **G=** | 1.82 | (numeric) |

**R =**    **5.38**      **(cm)**

**S (mw/cm^2)**
**at 20cm**

0.072153826

**Formulae:**

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

where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain
R = Distance from Antenna

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

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** | |
|---|---|---|---|---|---|---|
| **DUT Type:** | **Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem** | | | | | |

| | **Test Report Serial No.:** | 061506KBC-T757-E24G | **Report Issue Date:** | August 24, 2006 |
|---|---|---|---|---|
| | **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| | **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| | **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.7  Calculations:

**Vehicle-Mount Antenna (Max. Measured Conducted Power - Cellular GPRS Mode)**

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

*Equation from page 18*

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

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

**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
**SL=** power density limit

Ratio of Time On versus Total Transmit Time     **0.25**

**Choose**     **ENTER**

Occupational/Controlled     ○
General Population/Uncontrolled     ◉

| | | |
|---|---|---|
| Tx Frequency: | **848.80** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **32.28** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain and Cable Loss: | **1.11** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 0.57 | (mW/cm^2) |
| **P=** | 422.6102 | (mW) |
| **G=** | 1.29 | (numeric) |

**R =     8.76     (cm)**

**S (mw/cm^2)**
**at 20cm**

0.108442464

## Formulae:

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

where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain
R = Distance from Antenna

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

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| **Company:** | Itronix Corporation | **FCC ID:** | KBCIX260PROAC860 | **Model(s):** | IX260PROAC860 | ITRONIX A GENERAL DYNAMICS COMPANY |
|---|---|---|---|---|---|---|
| **DUT Type:** | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | | |
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| | **Test Report Serial No.:** | 061506KBC-T757-E24G | **Report Issue Date:** | August 24, 2006 |
|---|---|---|---|---|
| | **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| | **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| | **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.8  Calculations:

### Vehicle-Mount Antenna (Max. Measured Conducted Power - PCS GPRS Mode)

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

*Equation from page 18*

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

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

**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
**SL=** power density limit

Ratio of Time On versus Total Transmit Time    **0.25**

**Choose**    **ENTER**

Occupational/Controlled    ○
General Population/Uncontrolled    ◉

| | | |
|---|---|---|
| Tx Frequency: | **1880.00** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **28.63** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain and Cable Loss: | **0.20** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 1.00 | (mW/cm^2) |
| **P=** | 182.3644 | (mW) |
| **G=** | 1.05 | (numeric) |

**R =    3.90    (cm)**

**S (mw/cm^2)**
**at 20cm**

0.037948916

### Formulae:

$S = \frac{PG}{4\pi R^2}$    where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain
$R = \sqrt{\frac{PG}{4\pi S}}$    R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** | **ITRONIX**® |
|---|---|---|---|---|---|---|
| **DUT Type:** | **Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem** | | | | | A GENERAL DYNAMICS COMPANY |
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| | Test Report Serial No.: | 061506KBC-T757-E24G | Report Issue Date: | August 24, 2006 |
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| | Date(s) of Evaluation: | June 21 - July 27, 2006 | Report Revision No.: | Revision 1.0 |
| | Test Standard(s): | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| | Test Lab Registration(s): | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.9 Calculations:

**Vehicle-Mount Antenna (Max. Measured Conducted Power - Cellular EDGE Mode)**

### Prediction of MPE Limit
### OET Bulletin 65, Edition 97-01

*Equation from page 18*

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

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

**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
**SL=** power density limit

Ratio of Time On versus Total Transmit Time　　　　**0.25**

**Choose**

**ENTER**

Occupational/Controlled　　　○
General Population/Uncontrolled　　　◉

| | | |
|---|---|---|
| Tx Frequency: | **836.60** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **26.89** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain and Cable Loss: | **1.11** | (dBi) |

| | | |
|---|---|---|
| SL= | 0.56 | (mW/cm^2) |
| P= | 122.1631 | (mW) |
| G= | 1.29 | (numeric) |

**R = 　4.74　　 (cm)**

**S (mw/cm^2)
at 20cm**

0.031347245

### Formulae:

$S = \frac{PG}{4\pi R^2}$　　where: S = Power Density Limit
　　　　　　　　　　　P = Power Output of the Device
　　　　　　　　　　　G = Numeric Antenna Gain
$R = \sqrt{\frac{PG}{4\pi S}}$　　　R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| Company: | Itronix Corporation | FCC ID: | KBCIX260PROAC860 | Model(s): | IX260PROAC860 | ITRONIX® A GENERAL DYNAMICS COMPANY |
|---|---|---|---|---|---|---|
| DUT Type: | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | | |
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| | Test Report Serial No.: | 061506KBC-T757-E24G | Report Issue Date: | August 24, 2006 |
|---|---|---|---|---|
| | Date(s) of Evaluation: | June 21 - July 27, 2006 | Report Revision No.: | Revision 1.0 |
| | Test Standard(s): | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| | Test Lab Registration(s): | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

## D.6.10 Calculations:

### Vehicle-Mount Antenna (Max. Measured Conducted Power - PCS EDGE Mode)

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

*Equation from page 18*

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

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

**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
**SL=** power density limit

Ratio of Time On versus Total Transmit Time     **0.25**

**Choose**

**ENTER**

Occupational/Controlled   ○
General Population/Uncontrolled   ◉

| | | |
|---|---|---|
| Tx Frequency: | **1880.00** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **25.73** | (dBm) |
| Source-Based Time-Average Factor: | **-6.02** | (dB) |
| Antenna gain and Cable Loss: | **0.20** | (dBi) |

| | | |
|---|---|---|
| **SL=** | **1.00** | (mW/cm^2) |
| **P=** | **93.5276** | (mW) |
| **G=** | **1.05** | (numeric) |

**R =     2.79     (cm)**

**S (mw/cm^2)**
**at 20cm**

0.019462534

### Formulae:

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

where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain
R = Distance from Antenna

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

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| Company: | Itronix Corporation | FCC ID: | KBCIX260PROAC860 | Model(s): | IX260PROAC860 | ITRONIX® A GENERAL DYNAMICS COMPANY |
|---|---|---|---|---|---|---|
| DUT Type: | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | | |
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| | | | | |
|---|---|---|---|---|
| **Test Report Serial No.:** | 061506KBC-T757-E24G | **Report Issue Date:** | August 24, 2006 |
| **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 | |
| **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 | |

**D.6.11 Calculations:**

**Vehicle-Mount Antenna (Max. Measured Conducted Power - Cellular UMTS Mode)**

**Prediction of MPE Limit**
**OET Bulletin 65, Edition 97-01**

**Equation from page 18**

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

**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

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

**R=** distance to the center of radiation of the antenna
**SL=** power density limit

Ratio of Time On versus Total Transmit Time      **1.00**

**Choose**

**ENTER**

Occupational/Controlled      ○
General Population/Uncontrolled      ◉

| | | |
|---|---|---|
| Tx Frequency: | **846.60** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **24.00** | (dBm) |
| Source-Based Time-Average Factor: | **0.00** | (dB) |
| Antenna gain and Cable Loss: | **1.11** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 0.56 | (mW/cm^2) |
| **P=** | 251.1886 | (mW) |
| **G=** | 1.29 | (numeric) |

**R =      6.76      (cm)**

**S (mw/cm^2)**
**at 20cm**

0.064455409

**Formulae:**

S = PG / 4πR²        where: S = Power Density Limit
                                      P = Power Output of the Device
                                      G = Numeric Antenna Gain
R = √(PG / 4πS)            R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** |
| **DUT Type:** | **Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem** | | | | |

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| | | | |
|---|---|---|---|
| **Test Report Serial No.:** | 061506KBC-T757-E24G | **Report Issue Date:** | August 24, 2006 |
| **Date(s) of Evaluation:** | June 21 - July 27, 2006 | **Report Revision No.:** | Revision 1.0 |
| **Test Standard(s):** | FCC 47 CFR §2, §22H, §24E | Industry Canada RSS-132, RSS-133 |
| **Test Lab Registration(s):** | FCC Lab Registration #714830 | Industry Canada Lab File #3874 |

D.6.12 Calculations:

**Vehicle-Mount Antenna (Max. Measured Conducted Power - PCS UMTS Mode)**

### Prediction of MPE Limit
### OET Bulletin 65, Edition 97-01

***Equation from page 18***

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

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

**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
**SL=** power density limit

Ratio of Time On versus Total Transmit Time     **1.00**

**Choose**

**ENTER**

Occupational/Controlled    ○
General Population/Uncontrolled    ◉

| | | |
|---|---|---|
| Tx Frequency: | **1880.00** | (MHz) |
| Maximum Peak Power at Antenna Input Terminal: | **23.00** | (dBm) |
| Source-Based Time-Average Factor: | **0.00** | (dB) |
| Antenna gain and Cable Loss: | **0.20** | (dBi) |

| | | |
|---|---|---|
| **SL=** | 1.00 | (mW/cm^2) |
| **P=** | 199.5262 | (mW) |
| **G=** | 1.05 | (numeric) |

| | | |
|---|---|---|
| **R =** | 4.08 | **(cm)** |

**S (mw/cm^2)
at 20cm**

0.041520193

**Formulae:**

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

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

where: S = Power Density Limit
P = Power Output of the Device
G = Numeric Antenna Gain
R = Distance from Antenna

Source-Based Time-Average Factor = 10 * log (Time On / (Time On + Time Off))
Power Output of the Device (W) = 10 * log (RF Output Power (dBm) + Source-Based Time Average Factor (dB))

| | | | | | |
|---|---|---|---|---|---|
| **Company:** | **Itronix Corporation** | **FCC ID:** | **KBCIX260PROAC860** | **Model(s):** | **IX260PROAC860** |
| **DUT Type:** | Laptop PC with Sierra Wireless AC860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem | | | | **ITRONIX**® A GENERAL DYNAMICS COMPANY |

## D.7  PASS/FAIL

In reference to the results outlined in D6 the DUT passes the requirements as stated in the reference standards as follows:
1) The DUT must comply with the minimum spacing requirement of 20 cm to ensure an exposure of not more than f/1500 mW/cm$^2$ for frequencies between 300 and 1500 MHz and 1 mW/cm$^2$ for frequencies between 1500 and 100,000 MHz.

## D.8  SIGN-OFF

I attest to the accuracy of the data.  All measurements reported herein were performed by me and are correct to the best of my knowledge and belief.  I assume full responsibility for the completeness of these measurements.


_____
Spencer Watson
EMC Manager
Celltech Labs Inc.


_____June 27, 2006_____
Date