



FCC Certification Report for the
LA3020 WLAN PC Card
Class II Permissive Change

EXHIBIT 4

RF EXPOSURE INFO



Antenna List by FCC ID

Network Systems Organization

FCC ID: **H9PLA3020**

WLAN PC Card, 2 Mbps, Duo

Output Power: 250 mW

| Grant Date | Ant #: | Model | Symbol P/N | Mfg | Mfg P/N |
|-------------|--------|-------------------|---------------|-----------------|-----------------|
| 11/25/98 | | | | | |
| | 01 | Plane | 50-21900-008 | Tecom | 505042C(48IN) |
| | 02 | Pipe Bomb 11"x4' | 50-11901-048P | Cushcraft | S2403BHPS48RBN |
| | 02.1 | Pipe Bomb 11"x15' | 50-11901-180P | Cushcraft | S2403BHPS180RB |
| | 03 | Rubber Duck | 50-21900-007 | Cushcraft | RBN2400SXR |
| | 04 | Yagi | ML-2499-YGA1- | Cushcraft | PC2415RBN240 |
| | 05 | Patch | ML-2499-PTA1- | UK | S2406P72PRBN |
| | 06 | Panel | ML-2499-PNA1- | Tecom | ML-2499-PNA1-01 |
| | 07 | End Cap "C" | 10-20511-01 | Tecom | 822319 |
| | 08 | 4140 | 50-11900-001 | Dorne & Margol | DR10-2 |
| | 09 | 4640 | 21-17486-01 | AIL Systems Suf | 21-17486-01 |
| | 10 | 2040 | 10-17577-01 | Tecom | 703117 |
| | 11 | 6140 | 10-35305-01 | UK | |
| | 12 | 6840 | 10-32290-01 | UK | |
| | 13 | 1040 | 10-32447-01 | Tecom | |
| | 14 | HS Dipole | 50-21900-030 | Huber Suhner | 9090.16.0001 |
| | 15 | Parapolic Grid | ML-2499-PGA1- | Conifer | 26T-2400 |
| | 16 | Vocollect MMCX | 50-21900-025 | Austin Antenna | 200215 |
| | 17 | Criticare MMCX | 50-21900-032 | Tecom | 703443-2 |
| | 18 | Corner Patch | ML-2499-DLA1- | Tecom | 505126C |
| | 19 | Ceiling Panel | ML-2499-SD24- | UK | |
| 12/14/99 | | | | | |
| | 01 | Vocollect MMCX | 50-21900-025 | Austin Antenna | 200215 |
| Applied For | | | | | |
| | 01 | DASH 3000 | 50-21900-036 | NCC | N2400MMCX1 |
| | 02 | XP | 50-21900-024 | Tecom | 703611 |
| | 03 | Amtrak Omni | 50-21900-027 | Cushcraft | SQ2403PSNF |
| | 04 | Oniel MMCX | 50-21900-031 | Tecom | 703620-2 |



RF Exposure Antenna Summary

Network Systems Organization

FCC ID: **H9PLA3020**

WLAN PC Card, 2 Mbps, Duo

Source Based

Mobile DC Factor: 1.000

Output Power: 250 mW

Class II Permissive Change

Portable DC Factor: 0.680

Mobile Antennas

| Ant No | Model | Symbol P/N | Type | Gain (dBi) | Cabel Loss (dB) | Pout (dBm) | MPE (cm) | TR Status | Device Type |
|--------|-------------|--------------|--------|------------|-----------------|------------|----------|-----------|-------------|
| 03. | Amtrak Omni | 50-21900-027 | Dipole | 3.0 | 0.00 | 23.98 | 6.3 | Tested | Mobile |

Portable Antennas

| Ant No | Model | Symbol P/N | Type | Gain (dBi) | Cabel Loss (dB) | Pout (dBm) | EIRP (mW) | TR Status | Device Type | Tx Limited |
|--------|-----------|--------------|--------|------------|-----------------|------------|-----------|-----------|-------------|------------|
| 01. | DASH 3000 | 50-21900-036 | Dipole | 2.2 | 0.62 | 21.14 | 146.9 | Tested | Hand Held | 150 mW |
| 02. | XP | 50-21900-024 | Slot | 0.0 | 0.58 | 23.40 | 148.9 | Tested | Hand Held | |

Body Worn Antennas

| Ant No | Model | Symbol P/N | Type | Gain (dBi) | Cabel Loss (dB) | Pout (dBm) | EIRP (mW) | TR Status | Device Type | Tx Limited |
|--------|------------|--------------|------|------------|-----------------|------------|-----------|-----------|-------------|------------|
| 04. | Oniel MMCX | 50-21900-031 | Slot | 0.0 | 0.37 | 23.61 | 156.1 | Tested | Body Worn | |

Antenna Gain listed without cable
TR Status refers to whether the antenna was tested. If not refer to the directed antenna test data

Duty Cycle Factors are applied to MPE and EIRP

Tx Limited configurations are for low power versions of the radio. See the specific antenna exhibit for detail

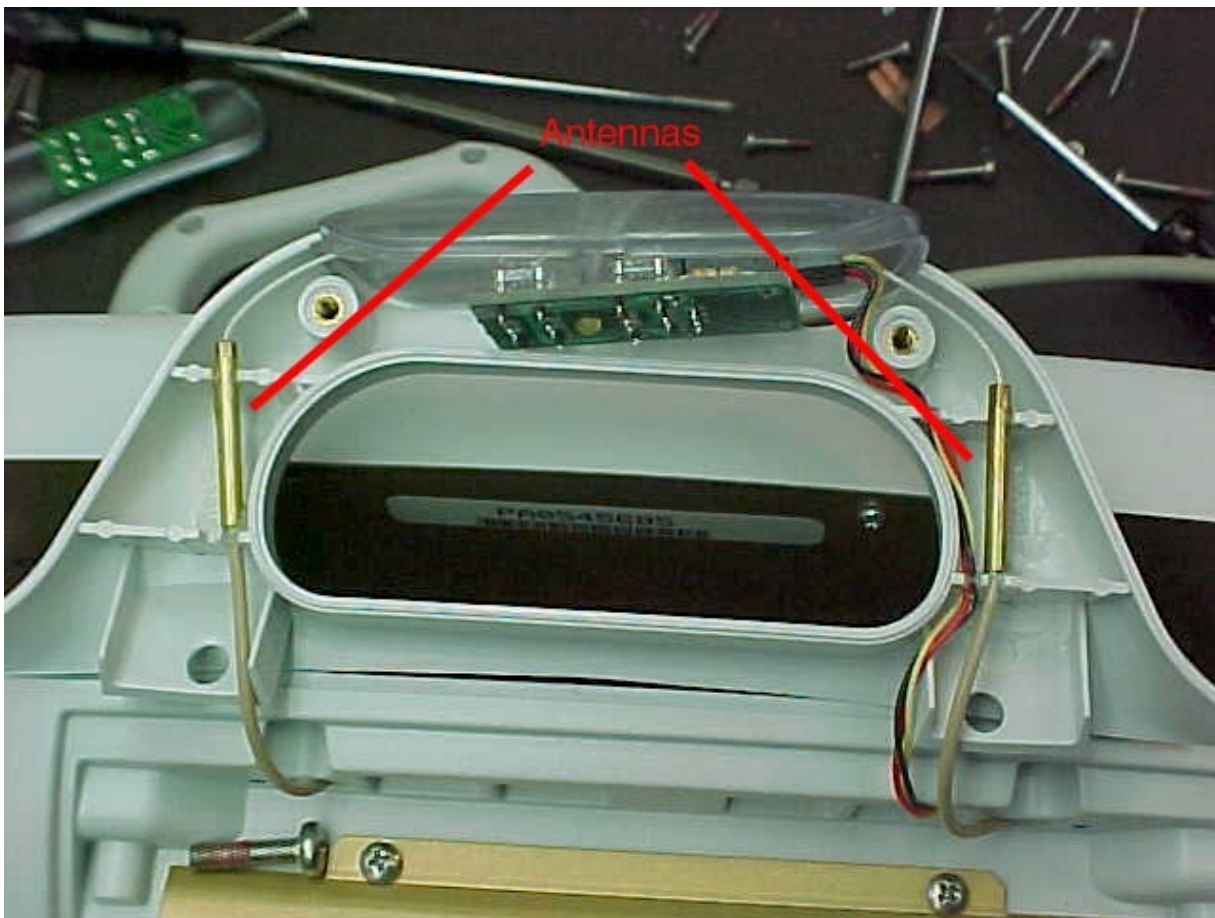
Thursday, May 18, 2000 01:33 PM

Page 1 of 1

Dash 3000 Antenna

The **Dash 3000** antenna is 1.6 dBi omnidirectional in azimuth plane. It is mounted internally on the top end of the terminal as shown in the attached photo. The **Dash 3000** uses a MMCX connector. In its use it can be carried along side a patient on a gurney from place to place. It is used in a portable device. This configuration will only be used with a low power version of the radio that is limited to 100 mW nominal 150 mW maximum transmit power. The maximum EIRP is limited to 150 mW for this configuration so according to OET Bulletin 65 Supplement C table 1. special instructions or warnings are not needed.

| | |
|-------------------|------------------|
| <i>Location</i> | Hand Held Device |
| <i>Pattern</i> | Omni |
| <i>Type</i> | Dipole |
| <i>Max Gain</i> | 1.6 dBi |
| <i>Physical</i> | See attached dwg |
| <i>Cable</i> | RG-178 |
| <i>Symbol P/N</i> | 50-21900-036 |
| <i>EIRP</i> | See summary tbl |



Antenna Installed in Device



Terminal Use Photo

NCC TECHNICAL DATA BULLETIN

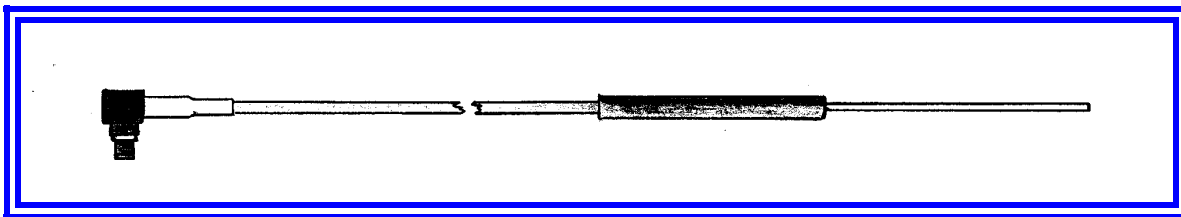


Illustration - Model N2400MMCX1

Description

2.4 GHz Antenna with Integrated Transmission Line and MMCX Connector

SPECIFICATIONS

Frequency Range - 2.4 GHz - 2.5 GHz

Bandwidth - 40 MHz <1.5:1

VSWR - <1.5:1 at Resonance

Impedance - Nominally 50 Ohms

Gain - 2 dBi

Connector - Right Angle MMCX Plug

**NCC, Inc.
18385 Parkman-Nelson Road
Parkman, Ohio 44080**

Telephone (440) 548-5384

Fax (440) 548-5404



GE Marquette

Dash 3000 Monitor General Information

[General Information](#) | [Specifications](#) | [Certification](#) | [Warranty](#)

Built to move; featured to stay put.

Advanced capabilities allow you to reliably move a patient throughout your enterprise, while feature-rich, no-compromise performance at the bedside helps maximize equipment utilization.



Weighing no more than 12 pounds, regardless of configuration, this lightweight monitor is made to move with a patient. The compact, ergonomic package, complete with integral power supply, allows easy handling. And drop-test rugged design means the DASH 3000 is made to withstand your demanding portable applications.

An extensive feature set enables you to create a portable monitoring solution capable of meeting a wide range of acuity demands. Many features you would only expect to find as options elsewhere are standard on the DASH 3000 - including 3 and 5 lead ECG, pulse oximetry, noninvasive blood pressure, two temperatures and respiration.

The DASH 3000 also accommodates two invasive blood pressures, mainstream CO₂ monitoring, and your choice of full arrhythmia, true 12-lead ECG with enhanced ST segment analysis, cardiac output and PA wedge procedures.

In addition to 24-hour trending with alarm histories, productivity-enhancing software includes online help, and drug dose, cardiac and pulmonary calculations.

And to ensure easy viewing of the data, the DASH 3000 features a full 8.4" screen, in your choice of color or monochrome. It displays up to 10 parameters and 6 waveforms, and an alternate screen configuration further enhances screen utilization and visibility.

| |
|--|
| Products & Services |
| X-Ray |
| MRI |
| CT |
| Nuclear/PET |
| Ultrasound |
| IIS |
| GE Marquette |
| News |
| Products |
| Real World Results |
| Service |
| Resources |
| Jobs |
| Refurbished Equipment |
| Accessories & Supplies |
| Financial Services |
| Services |
| Software |

As part of the new DASH family of monitors, the DASH 3000 is field upgradable and expansion enabled to leverage your investment over time. To ensure continuity of care, it supports 2-way wired or wireless networking, can import HIS demographic and lab data and can view other patients. And it looks and feels like other GE Marquette Medical Systems monitors, enabling users to confidently and efficiently transition from one monitor to the next, throughout your facility.

Plus, the DASH 3000's smart battery management system incorporates two, commercially available, user-accessible batteries. They feature a 4-5 hour run time and recharge in 2-4 hours, either internally or with a charger. Because the batteries can be changed one at a time, without loss of function, the DASH 3000 is specifically designed to help you maintain monitoring continuity.

Related Topics

- [News: GE Marquette Medical Systems Announces the Availability of its New Dash[®] 2000 And Dash[®] 3000 Configured Monitors](#)

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Amity BFA / Amity MMCX Antenna

The Amity antenna is 0 dBi omni-directional in azimuth plane. It is available with either a MuRatta BFA or MMCX connector. It is mounted internally on the top end of the terminal as shown in the attached photo. In its use it would be within 20 cm of a persons hand but more than 20 cm from the users body. It is used in portable devices. The following RF exposure information is included in a prominent place in the device's user manual to inform the user of safety issues as required by OET Bullitin 65, Supplement C for EIRP greater than 200 mW.

| | |
|-------------------|------------------|
| <i>Location</i> | Hand Held Device |
| <i>Pattern</i> | Omni |
| <i>Type</i> | Slot |
| <i>Max Gain</i> | 0 dBi |
| <i>Physical</i> | See attached dwg |
| <i>Cable</i> | MXYP75, RG-178 |
| <i>Symbol P/N</i> | 703611-1, 2 |

“Important Note: To comply with FCC RF exposure requirements, this hand-held device is approved for operation in a user’s hand when there is 20 cm or more between the antenna and everyone’s body.”



Antenna Installed in Device

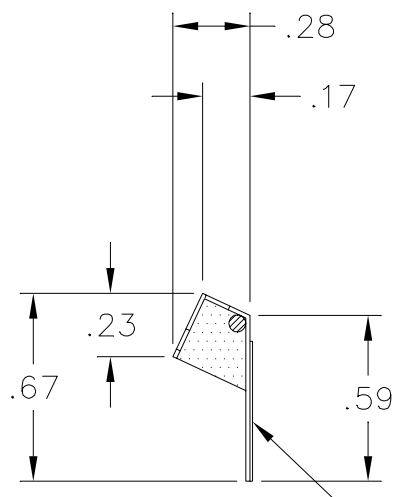
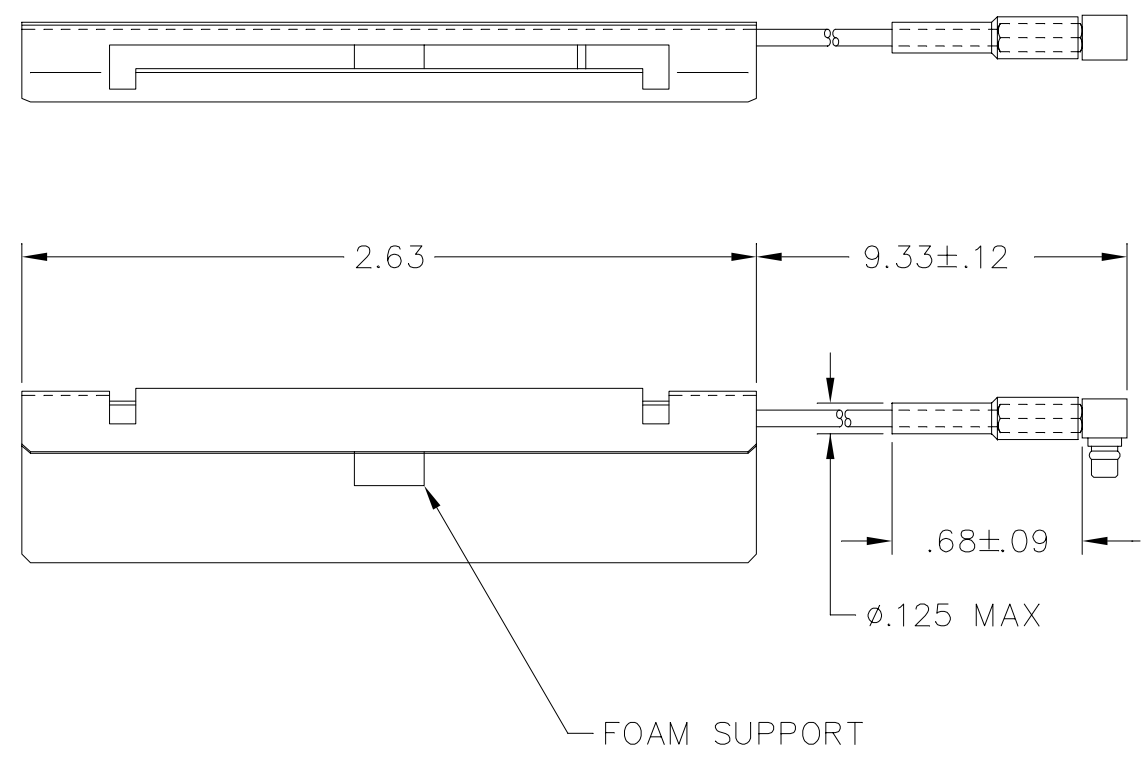


Terminal Use Photo

TECOM PROPRIETARY:
 INFORMATION CONTAINED HEREIN SHALL NOT BE DISCLOSED TO
 A THIRD PARTY WITHOUT WRITTEN PERMISSION FROM TECOM.

PROPOSAL DWG

| REVISIONS | | | | |
|-----------|-----|---|---------------|----------|
| ZONE | LTR | DESCRIPTION | DATE | APPROVED |
| . | A | 9.33±.12 WAS TBD±.12 ADDED Ø.125 MAX & .68±.09 ADDED STRAIN RELIEF SLEEVE (PICTURE CHG) ADDED FOAM SUPPORT (PICTURE & CALLOUT) REDRAWN WO 2654 | 11-5-99 JL | |



SPECIFICATIONS

FREQUENCY: 2.4-2.485 GHZ
 VSWR: 2.0:1 MAX
 GAIN: 0dBi NOMINAL
 POLARIZATION: LINEAR
 CONNECTOR: MMCX MALE

- 4. SHARP CORNERS & EDGES .005 MAX.
- 3. FINISH SHALL BE UNIFORM AND EXHIBIT NO EVIDENCE OF CORROSION OR OXIDATION WHEN VIEWED WITH THE UNAIDED EYE. EDGE PLATING ON CUT OR SHEARED SURFACES IS NOT REQUIRED.

- 2. ALTERNATE:
 MATERIAL: CRS 1008, .015 THK.
 FINISH: BRIGHT TIN PLATE PER MIL-T-10727A, TYPE 1, ELECTRO DEPOSITED .00010-.00025 IN.
- 1. MATERIAL: ELECTROLYTIC TIN PLATED STEEL SHEET, .015 THK.

| | | | |
|-------------|--|--|--------------------------------|
| PMIC | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES: .XX ± .03 .XXX ± .010 ANGLES ± 0°30' MACHINED SURFACE ROUGHNESS 125 ✓ REMOVE BURRS, SHARP EDGES R.005-.015 MACHINED FILLETS R.005-.015 DIMENSIONS ARE AFTER PLATING. MACHINED DIA'S ON COMMON CENTERLINE CONCENTRIC WITHIN .005 TIR. INTERPRET PER ANSI Y14.5M-1982. | | CONTRACT NUMBER |
| | | | CONTRACTOR |
| | | | DRAWN BY J. LOWE DATE 10-11-99 |
| | | | CHECKER MFG ENGR |
| | | | QA ENGR BI |
| | | | PRGM MGR ENGR |
| 823283 | CP90-065 | HOLE TOLERANCES: .040 - .128 +.003 - .001 .136 - .228 +.004 - .001 .234 - .500 +.006 - .001 | |
| NEXT ASSY | USED ON | .515 - .750 +.008 - .001 .765 - 1.000 +.010 - .002 1.031 UP +.015 - .002 | |
| APPLICATION | | MATL ENGR | APPROVAL |

TECOM 9324 TOPANGA CYN BLVD CHATSWORTH, CA. 91311
 TECHNICAL EXCELLENCE COMMITTED TO QUALITY

TITLE: ANTENNA, SLOT, 2.4 GHZ

| | | |
|-------|-----------|--------|
| SIZE | CAGE CODE | DWG NO |
| C | 52791 | 703611 |
| SCALE | UNIT WT | SHEET |
| 2/1 | . | 1 OF 1 |

NOTES : UNLESS OTHERWISE SPECIFIED

SCALE

Amtrak Omni

The **Amtrak Omni** antenna is 3 dBi omni-directional in azimuth plane. The **Amtrak Omni** uses a type N connector. This antenna will only be sold to Amtrak. Installation will be by Amtrak employess that have access to train car documentation for specific cable routing. This antenna will be installed into 16 – 20 different styles of computer cars with custom cable assemblies for each style of car. The cable assembly will connect the rack mounted

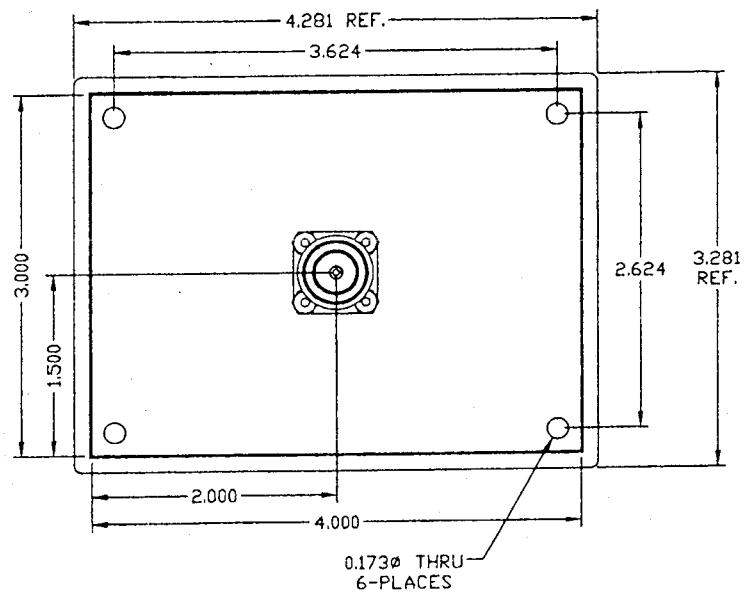
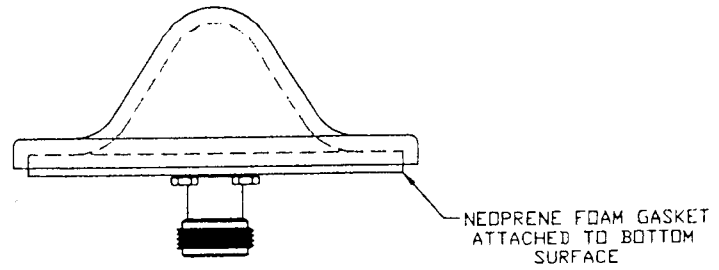
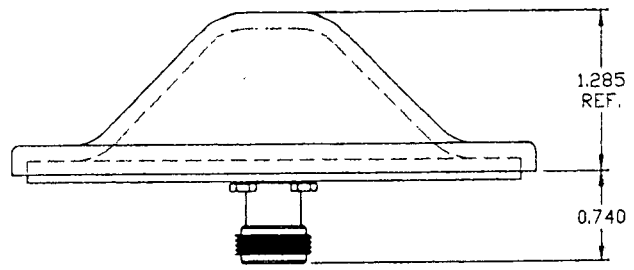
| | |
|---------------------|--------------------|
| <i>Location</i> | Horizontal Surface |
| <i>Pattern</i> | Omni |
| <i>Type</i> | Folded Dipole |
| <i>Max Gain</i> | 3 dBi |
| <i>Physical</i> | See attached dwg |
| <i>Cable</i> | None |
| <i>Symbol P/N</i> | SQ2403PSNF |
| <i>MPE Distance</i> | See summary table |

radio through and past structural components of the car to the antenna mounted externally on the top side of the car. In this configuration it would be farther than 20 cm from a persons body. It is used with mobile devices.



Antenna Photograph

| REVISION | | | |
|----------|-------------|---------|---------|
| LTR | DESCRIPTION | DATE | INITIAL |
| AA | ORIGINAL | 1-23-00 | SKL |



| Parameter | Performance |
|-------------------------|------------------|
| Frequency | 2.4-2.5 GHz |
| Gain | 3 dBi Min. |
| Polarization | Vertical |
| VSWR | 1.5:1 Max. |
| Horizontal Pattern | Omni Directional |
| Vertical 3 dB Beamwidth | 60° |
| RF Connector | Type N Female |
| Power | 50 Watts |
| Weight | 0.25 lb |
| Radome Color | Gray |

CONTROLLED DOCUMENT

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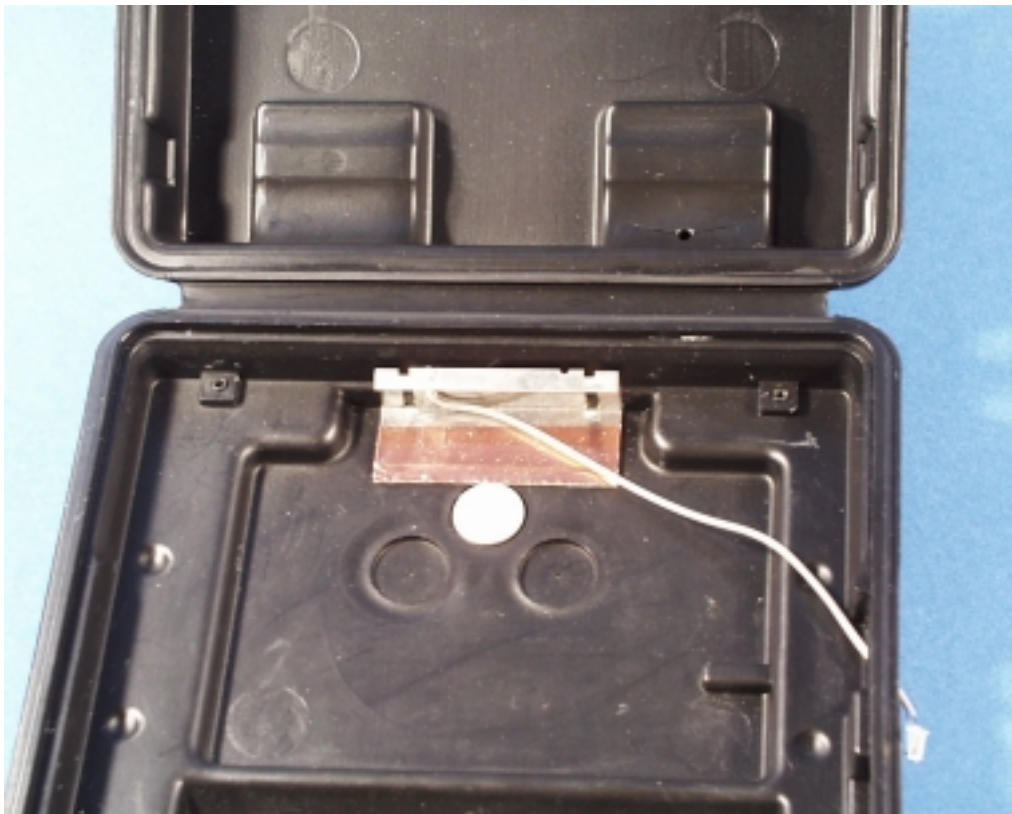
| | | | |
|--|-------------------------------------|-----------------------------|---|
| MATERIAL: | DRAWN S JOHNSON | DATE 1-23-00 | CUSHCRAFT 48 PERIMETER ROAD MANCHESTER NH 03108 |
| | ENGINEER <i>David H. Johnson</i> | DATE <i>1/23/00</i> | |
| DO NOT SCALE DRAWING | ENGINEERING MGR <i>C. Allen</i> | DATE <i>1/23/00</i> | TITLE: SQ2403PSNF MOUNTING & OUTLINE |
| UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: ANGLES ± 0.5° FRACTIONS ± 1/64" XX ± 0.010" .XXX ± 0.005" | FINISH: | DRAWING NO. SQ2403PSNFM0 | REV AA |
| SCALE 1:1 | | SIZE B | SHEET 1 OF 1 |

Oneil BFA / Oneil MMCX Antenna

The **Oneil** antenna is 0 dBi omnidirectional in azimuth plane. It is available with either a MuRatta BFA or MMCX connector. It is mounted as an internal antenna on the O'Neil MicroFlash series of portable belt worn printers. In its use it would be within 5 cm of a users body. It is used in portable devices.

| | |
|-------------------|------------------------------|
| <i>Location</i> | Body worn |
| <i>Pattern</i> | Omni |
| <i>Type</i> | Slot |
| <i>Max Gain</i> | 0 dBi |
| <i>Physical</i> | See attached dwg |
| <i>Cable</i> | MXYP75 or RG-178 |
| <i>Symbol P/N</i> | 50-21900-023 50-21900-031 |
| <i>EIRP</i> | See Summary Tbl |

Note: This antenna is only to be used with a transmitter that produces an EIRP of less than 200 mW. For an EIRP of more than 200 mW a SAR test must be performed.

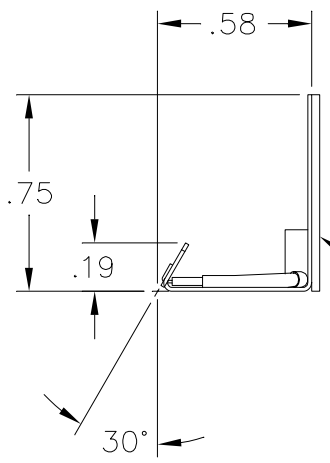
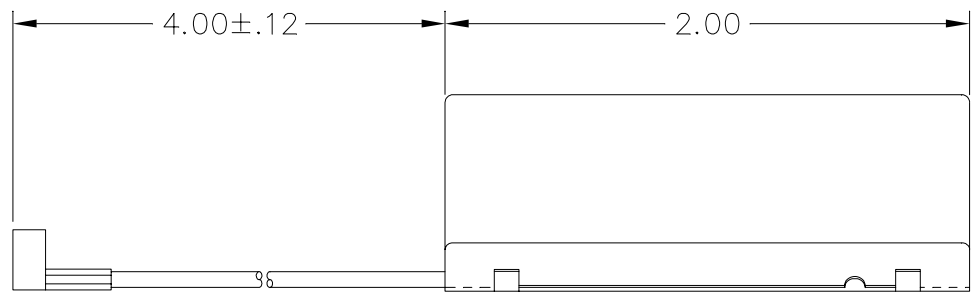


Antenna Installation Photo

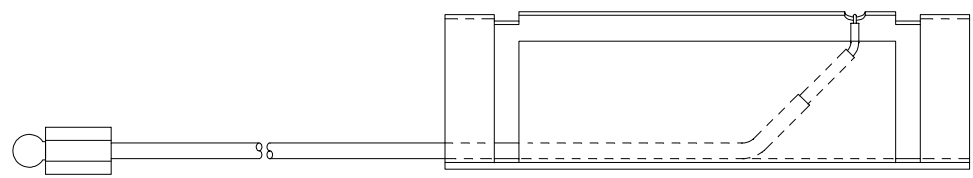


Device use Photograph.

| REVISIONS | | | | |
|-----------|-----|--|--------------|----------|
| ZONE | LTR | DESCRIPTION | DATE | APPROVED |
| C2 | A | .58 WAS .42 ADHESIVE CALLOUT WAS: ... X .025 THK (3M 4930 OR EQUIV) WD 2675 REDRAWN | 1-4-00 JL | |



ADHESIVE FILM,
.75 X 2.00 X .031 THK
(3M 4032 OR EQUIV)



SPECIFICATIONS

| | |
|--------------|---------------|
| FREQUENCY: | 2.4-2.485 GHZ |
| VSWR | 2.0:1 MAX |
| GAIN | 0dBi NOMINAL |
| POLARIZATION | LINEAR |
| CABLE: | MURATA MXYH75 |
| CONNECTOR: | TYPE BFA |

- 4. SHARP CORNERS & EDGES .005 MAX.
- 3. FINISH SHALL BE UNIFORM AND EXHIBIT NO EVIDENCE OF CORROSION OR OXIDATION WHEN VIEWED WITH THE UNAIDED EYE. EDGE PLATING ON CUT OR SHEARED SURFACES IS NOT REQUIRED.

- 2. ALTERNATE:
MATERIAL: CRS 1008, .015 THK.
FINISH: BRIGHT TIN PLATE PER MIL-T-10727A, TYPE 1, ELECTRO DEPOSITED .00010-.00025 IN.
- 1. MATERIAL: ELECTROLYTIC TIN PLATED STEEL SHEET, .015 THK.



NOTES : UNLESS OTHERWISE SPECIFIED

| | | | | |
|-------------|--|----------------------------|-----------------------------|-----------------|
| PMIC | UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES: .XX ± .03 .XXX ± .010 ANGLES ± 0°30' MACHINED SURFACE ROUGHNESS 125 ✓ REMOVE BURRS, SHARP EDGES R.005-.015 MACHINED FILLETS R.005-.015 DIMENSIONS ARE AFTER PLATING. MACHINED DIA'S ON COMMON CENTERLINE CONCENTRIC WITHIN .005 TIR. INTERPRET PER ANSI Y14.5M-1982. | | CONTRACT NUMBER | |
| | | | CONTRACTOR | |
| | | | DRAWN BY J. LOWE | DATE 11-8-99 |
| | | | CHECKER | MFG ENGR |
| | | | QA | ENGR BI |
| | | | PRGM MGR | ENGR |
| 823362 | C090-874 | HOLE TOLERANCES: | | |
| NEXT ASSY | USED ON | .040 - .128 +.003 -.001 | .515 - .750 +.008 -.001 | |
| | | .136 - .228 +.004 -.001 | .765 - 1.000 +.010 -.002 | |
| | | .234 - .500 +.006 -.001 | 1.031 UP +.015 -.002 | |
| APPLICATION | | MATL ENGR | APPROVAL | |

| | | | |
|------------------|---------------------------|--|--|
| | | TECOM INDUSTRIES INC. 9324 TOPANGA CYN BLVD CHATSWORTH, CA. 91311 <i>TECHNICAL EXCELLENCE COMMITTED TO QUALITY</i> | |
| | | TITLE ANTENNA, 2.4 GHZ | |
| SIZE C | CAGE CODE 52791 | DWG NO 703620 | |
| SCALE 2/1 | UNIT WT | SHEET 1 OF 1 | |