

6140 / 6146 Antenna

The 6146 antenna is 0 dBi omni-directional in azimuth plane. It is mounted internally on the top end of the terminal as shown in the attached photo. The 6140 uses the Muratta Erie BFA connector. The 6146 uses the MMCX connector. 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 Bulletin 65, Supplement C for EIRP greater than 200 mW.

<i>Location</i>	Hand Held Device
<i>Pattern</i>	Omni
<i>Type</i>	F-Element
<i>Max Gain</i>	0 dBi
<i>Physical</i>	See attached dwg
<i>Cable</i>	MXYH75, RG-178
<i>Symbol P/N</i>	10-35305-01, -02

“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

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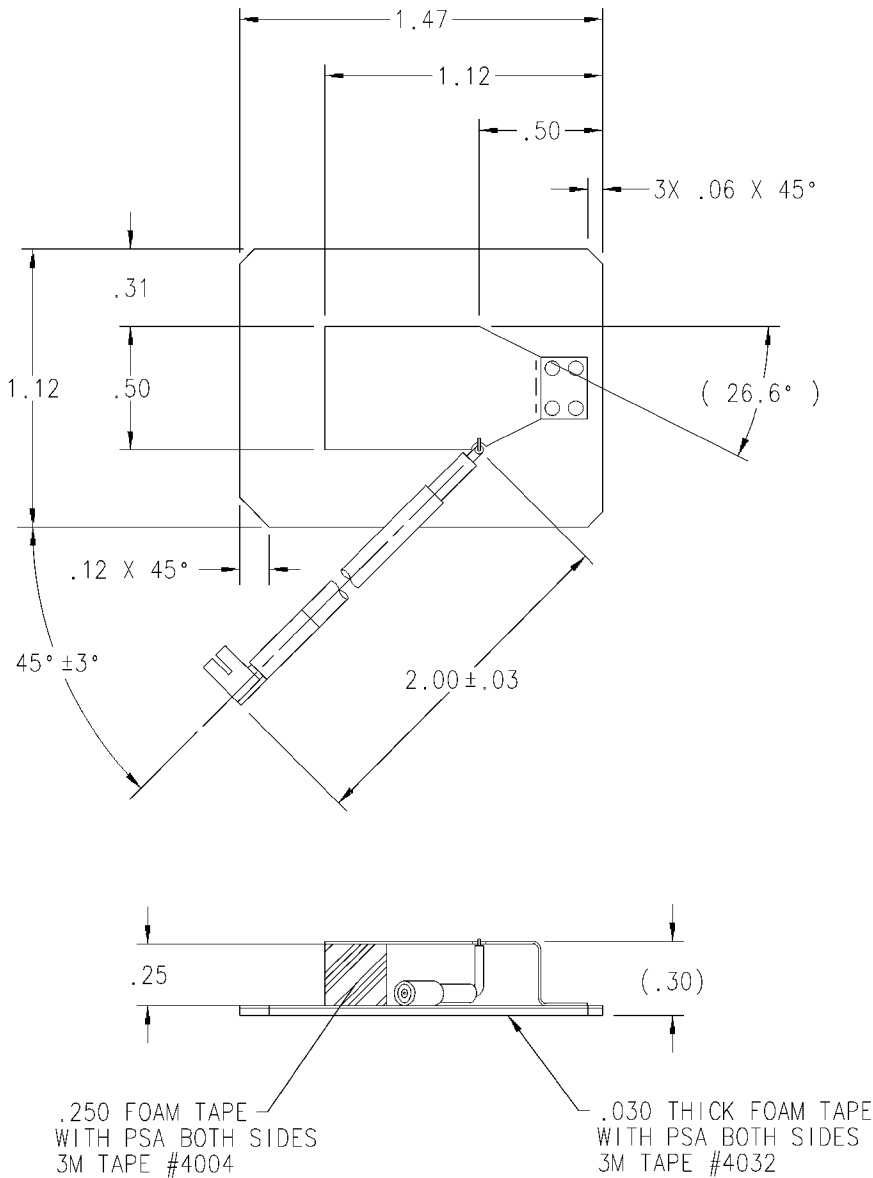
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REVISIONS							
REV.	ZONE	△No.	DESCRIPTION	E.C.	BY	APVD.	DATE
A			RELEASED PER EDR #53453		JS		1/13/00



NOTES: UNLESS OTHERWISE SPECIFIED.

1. MATERIAL: CRS 1008, .010±.001 THICK.
2. FINISH: BRIGHT TIN PLATE PER MIL-T 10727A, TYPE 1 ELECTRO DEPOSITED .00010-.00025 INCHES. 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.
3. BREAK AND DEBUR ALL SHARP CORNERS AND EDGES .005 MAX PRIOR TO PLATING.
4. OPERATING TEMPERATURE: -20 TO +50°C. STORAGE TEMPERATURE: -40 TO +70°C. HUMIDITY: 95% NON CONDENSING.
5. PACKAGE ITEMS IN ACCORDANCE WITH STI GENERAL PACKAGING SPEC #50-04100-013.

SPECIFICATIONS:

FREQUENCY: 2400-2485 MHz
VSWR: 2:1
GAIN: 0dbi NOMINAL
CABLE: RG178
CONNECTOR: 50-22100-029

ITEM	QTY.	PART NO.		DESCRIPTION		REMARKS/REF. SYMBOL						
THE DWG. & SPECIFICATION CONTAINED HEREON ARE PROPRIETARY AND MUST NOT BE USED, COPIED, REPRODUCED NOR ITS CONTENTS COMMUNICATED TO OTHERS EXCEPT IN ACCORDANCE WITH WRITTEN INSTRUCTIONS RECEIVED FROM SYMBOL TECHNOLOGIES INC.		DIMENSIONS ARE IN INCHES		APPROVALS		DATE		SYMBOL TECHNOLOGIES INC. Bohemia, New York				
		UNLESS OTHERWISE SPECIFIED		DRAWN J.SIMMONS		1/13/00						
			MM	INCH	CHECKED M.SAVONA		1/13/00		ANTENNA: TYPE F,S24, COBALT, MMCX			
		.XX	+/-	+/- .01	ENG. B.ROSENGRANT		1/13/00					
		.XXX	+/-	+/- .005	MFG. ENG.							
		ANGLES ± 1°		FRACTIONS ± 1/64		PRODUCT		SIZE		DWG. NO.	10-35305-02	REV. A
		MATERIAL: SEE NOTE 1		QUALITY				C				
FINISH: SEE NOTE 2						SCALE: 2:1		SOLID MODEL	YES NO	SHEET 1 OF 1		
								X				

	PDT6140
NEXT ASSY	USED ON
DO NOT SCALE DRAWING	

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Patch Antenna

The **Patch** antenna is 5 dBi 70° directional in azimuth plane. The **Patch** uses a reverse polarity BNC connector. It is mounted on a wall near the ceiling. In its use it would be farther than 20 cm from a person's body. It is used with mobile 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 Bulletin 65, Supplement C when ever the device configuration could reduce the MPE distance to be less than 20 cm.

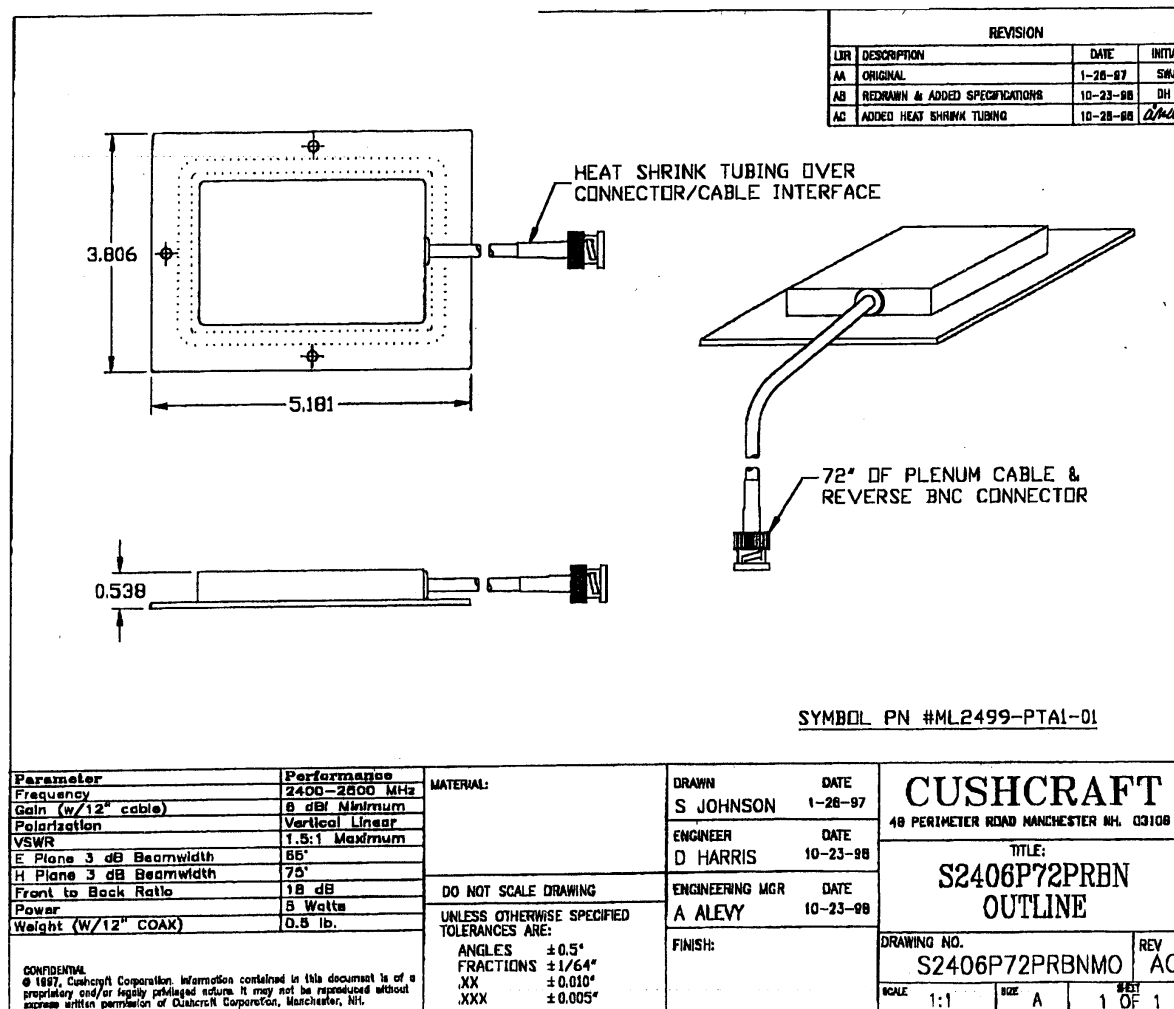
<i>Location</i>	Vertical Surface
<i>Pattern</i>	Directional 70° beam
<i>Type</i>	Patch
<i>Max Gain</i>	5 dBi
<i>Physical</i>	See attached dwg
<i>Cable</i>	6 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-PTA1-00
<i>MPE Distance</i>	See summary table

“Important Note: To comply with FCC RF exposure requirements, no one may remain within 20 cm of the antenna for extended periods of time.”



Antenna Photograph

.A	RELEASE PER EDR # 20049	03/18/97
.B	ADD TUBING PER EC# D4429	01/27/99



2. SYMBOL PART NUMBER: **ML-2499-PTA1-01**

1. PART TO BE PACKAGED IN ACCORDANCE WITH
STI SPECIFICATION 50-04100-013

UNLESS OTHERWISE SPECIFIED:

THIRD PARTY PRODUCT
CUSHCRAFT

SYMBOL TECHNOLOGIES
PART NO. ML-2499-PTA1-01
ANTENNA,VA: PATCH, 2.4, 6 DBI, 6 FT:
REV .B
PAGE 1 OF 2

Patches for both 902, 2400 and 5800 Linear and Circular Polarization

Patch antennas lend themselves well to many data collection applications. They are flat and unobtrusive in most environments. Their patterns are much like a short Yagi. Patches are available in either linear or circular polarity. The choice of polarity and the convenient shape of the patch makes it the right choice for many applications. Patches are most commonly wall mounted. Occasionally ceiling mounted patches are the right answer. We can also design patches so that they may be an integral part of the enclosure for data transceivers.

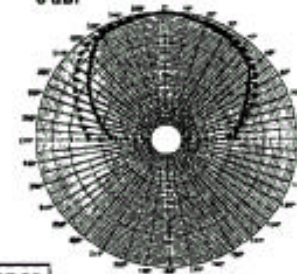


PATCHES

Model	S2406PL
Type	Patch
Polarity	Linear
Frequency, MHz	2400-2500
Gain	6 dBi
Front to Back, dB	16
Bandwidth 1.5:1, MHz	100
-3 dB beamwidth	
E-Plane, degrees	65
H-Plane, degrees	75
Connector Type	N-female
Enclosure Material	ABS plastic
Dimensions, in	5 x 5 x 7/16
	(12.7 x 12.7 x 1.1)
Weight, oz.(g)	6 (224)
Mount Style	Optional

S2406PL

6 dBi



H-Plane
E-Plane

SYMBOL TECHNOLOGIES
PART NO. ML-2499-PTA1-01
ANTENNA,VA: PATCH, 2.4, 6 DBI, 6 FT REV .B
PAGE 2 OF 2

Corner Patch Antenna

The **Corner Patch** antenna is 6 dBi directional in azimuth plane. The **Corner Patch** uses a reverse polarity BNC connector. It is mounted on a vertical surface. In its use it would be mounted on a wall near the ceiling farther than 20 cm from a person's body. It is used with mobile 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 Bulletin 65, Supplement C when ever the device configuration could reduce the MPE distance to be less than 20 cm.

<i>Location</i>	Horizontal Surface
<i>Pattern</i>	Directional
<i>Type</i>	Patch
<i>Max Gain</i>	6 dBi
<i>Physical</i>	See attached dwg
<i>Cable</i>	6 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-DLA1-00
<i>MPE Distance</i>	See summary table

“Important Note: To comply with FCC RF exposure requirements, no one may remain within 20 cm of the antenna for extended periods of time.”



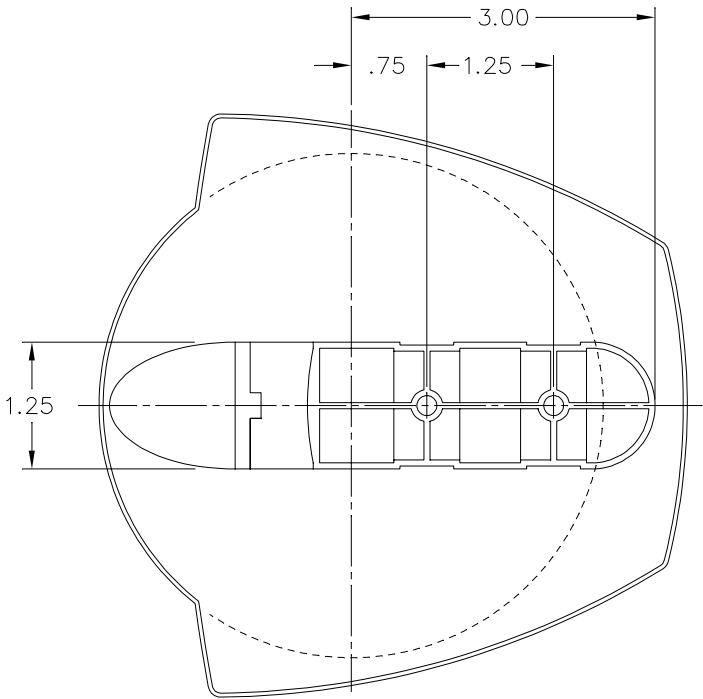
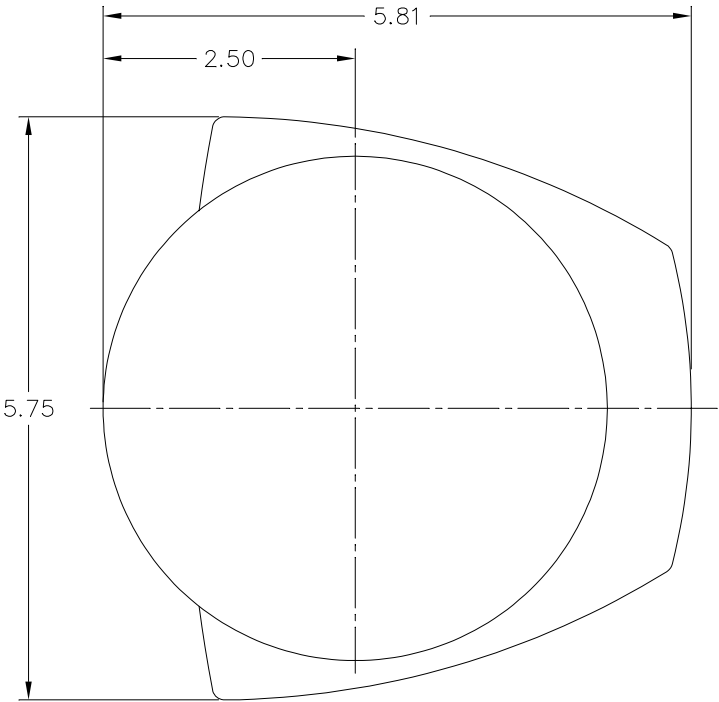
Antenna Photograph

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

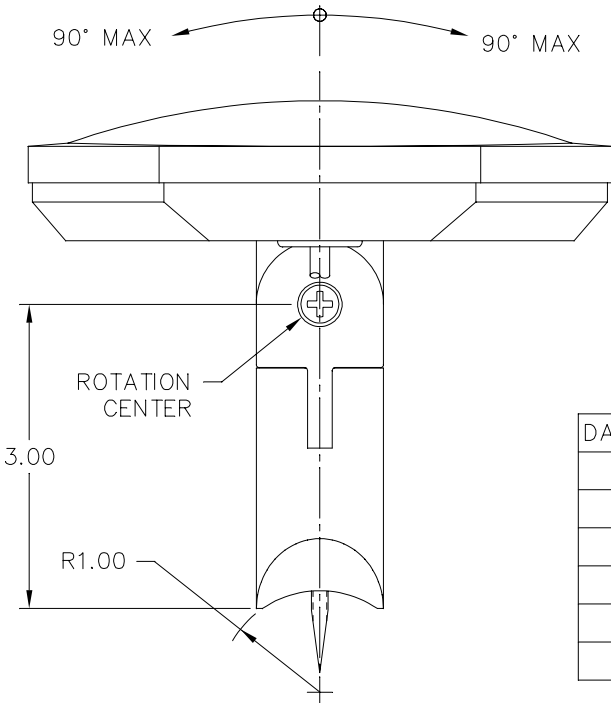
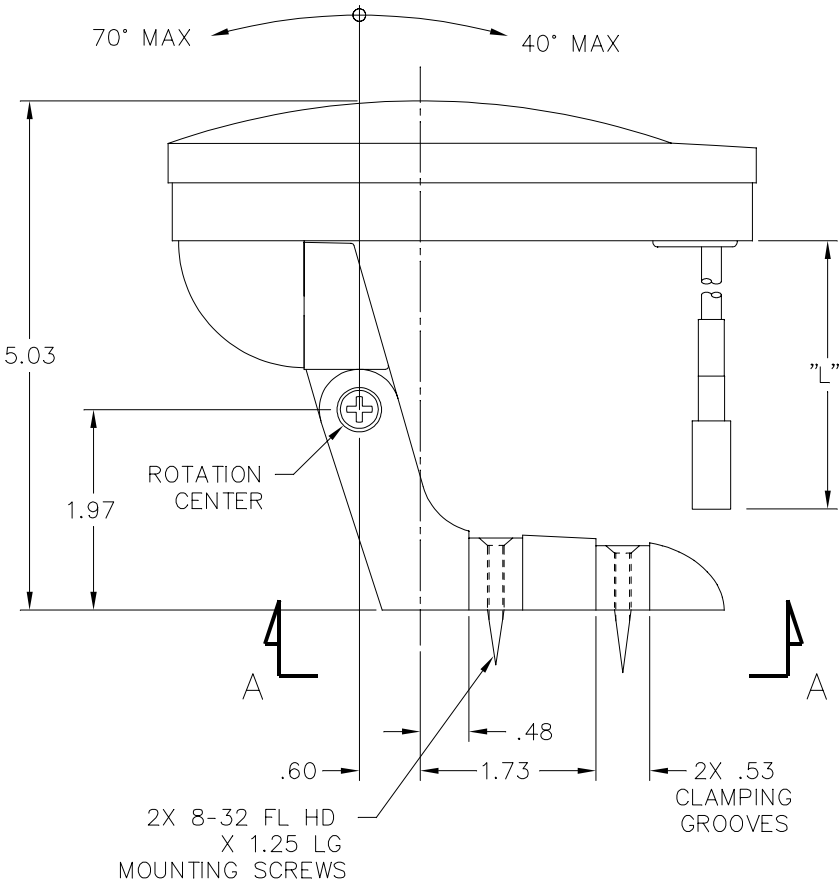
DEV ECO 5989

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED
.	A	ADDED -3 CONFIG. CONNECTOR WAS: TNC PLUG.	3-15-99 ML	
.	B	ADDED -4 CONFIG. WD 2409, 6798	4-26-99 TT	
.	C	ADDED -5 CONFIG. WD 2425	5-11-99 ML	
.	D	ADDED -6 CONFIG WD 2704	1-27-00 JL	



VIEW A-A



SPECIFICATIONS

FREQUENCY: _____ 2.4-2.5 GHz
VSWR: _____ 2.0:1 MAX
GAIN: _____ +7 dBi
CABLE: _____ LMR-200 LOW LOSS

DASH NO	TYPE NO	POLARIZATION	DIM "L"	CONNECTOR	REV
-1	505126AR	RHCP	24"±1	TNC-FEMALE	C
-2	505126AL	LHCP	24"±1	TNC-FEMALE	C
-3	505126A	LINEAR	24"±1	TNC-FEMALE	C
-4	505126D	LINEAR	96"±1	N-MALE	C
-5	505126DR	RHCP	96"±1	N-MALE	C
-6	505126DS	LINEAR	120"±1	N-MALE	D

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		TECOM INDUSTRIES INC. 9324 TOPANGA CYN BLVD CHATSWORTH, CA 91311 <i>TECHNICAL EXCELLENCE COMMITTED TO QUALITY</i>							
				CONTRACTOR									
				DRAWN BY Bill McLEAN					DATE 4-27-98				
				CHECKER					MFG ENGR				
		HOLE TOLERANCES:				TITLE ANTENNA, WIRELESS LOCAL LOOP							
		.040 - .128 +.003 -.001		.515 - .750 +.008 -.001									
822694		.136 - .228 +.004 -.001		.765 - 1.000 +.010 -.002									
		.234 - .500 +.006 -.001		1.031 UP +.015 +.002									
NEXT ASSY		USED ON		PRGM MGR		SIZE D		CAGE CODE 52791		DWG NO 703548			
APPLICATION		MATL ENGR		APPROVAL		ENGR		SCALE 1/1		UNIT WT .		SHEET 1 OF 1	



Plane Antenna

The **Plane** antenna is -1 dBi omnidirectional in azimuth plane. The **Plane** uses a reverse polarity BNC connector. It is mounted on a horizontal surface. In its use it would be mounted on a ceiling farther than 20 cm from a person's body. In its use on a computer it would probably not, but it could come, within 20 cm of a person. It is used with mobile devices.

<i>Location</i>	Horizontal Surface
<i>Pattern</i>	Omni
<i>Type</i>	Plane
<i>Max Gain</i>	-1 dBi
<i>Physical</i>	See attached dwg
<i>Cable</i>	4 ft (Plenum-rated)
<i>Symbol P/N</i>	ML-2499-PSA1-00
<i>MPE Distance</i>	See summary table

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 Bulletin 65, Supplement C when ever the device configuration could reduce the MPE distance to be less than 20 cm.

“Important Note: To comply with FCC RF exposure requirements, no one may remain within 20 cm of the antenna for extended periods of time.”



Antenna Photograph



Laptop Configuration



Ceiling Configuration

[illegible]

50-04100-013: Component Packaging

RELEASED

ORIGINAL

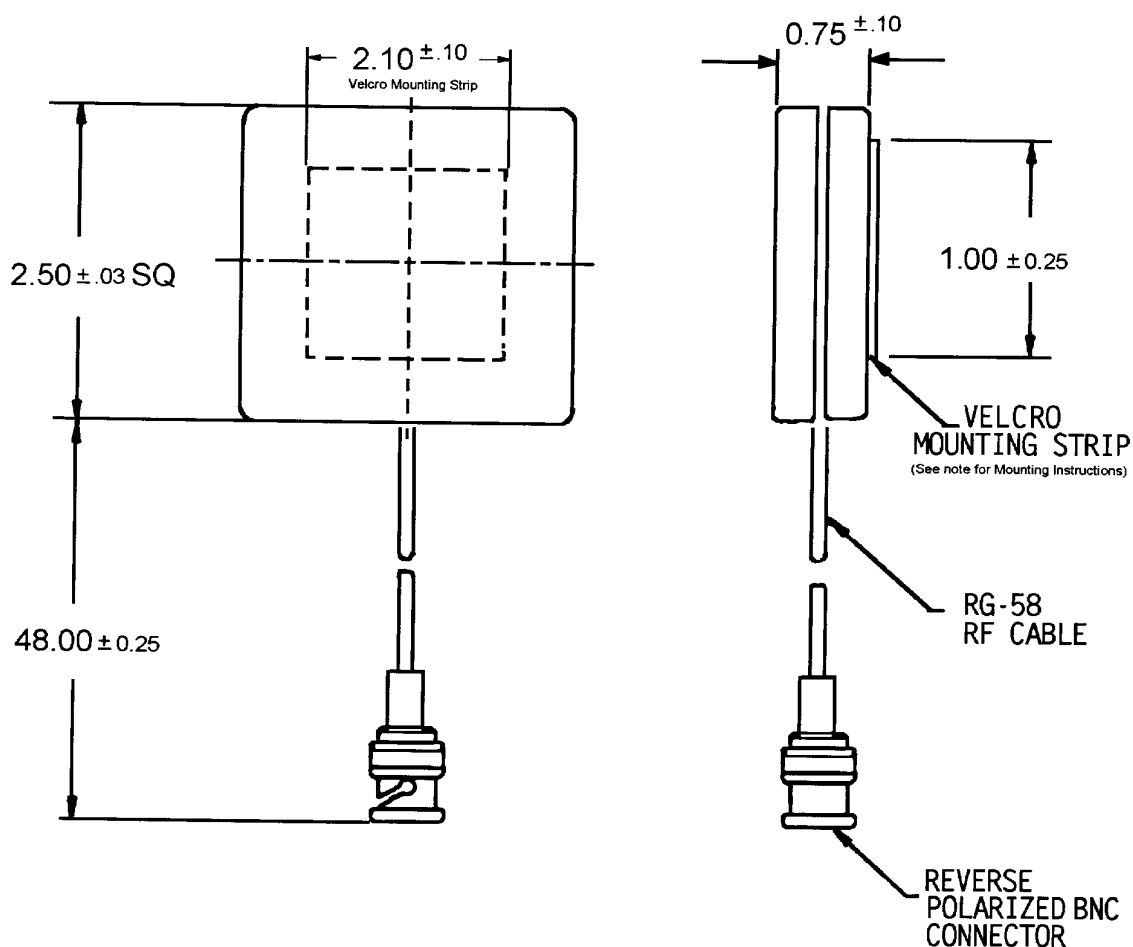
symbol

®

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APPROVAL	NAME	DATE	COMPONENT SPECIFICATION	
DRAWN	T. MIGLANI	8/24/95	ANTENNA:2.4GHZ,48IN,WPOS *REVERSED POLARIZED BNC FEMALE CONNECTOR	
CHECKED	B. KOGLER	8/25/95		
ENG.	S. TAM	8/14/95		
MFG. ENG.	A. MOSALLEI	9/6/95	DOC. NO. 50-21900-008	REV C
Q.A.	G. MCKENNA		SHEET 1 of 2	

DIMENSIONS



DRAWING NOT TO SCALE

SPECIFICATIONS

FREQUENCY	2400-2485 MHZ
VSWR	2:1
GAIN	0 DBI NOMINAL
PATTERN COVERAGE	HEMISPHERICAL
POLARIZATION	LINEAR
HOUSING COLOR:	WHITE
CABLE COLOR:	WHITE

Note:

1. Attached velcro mounting strip (hook side) onto antenna housing.

SYMBOL TECHNOLOGIES, INC.

DOCUMENT No.50-21900-008

REV C

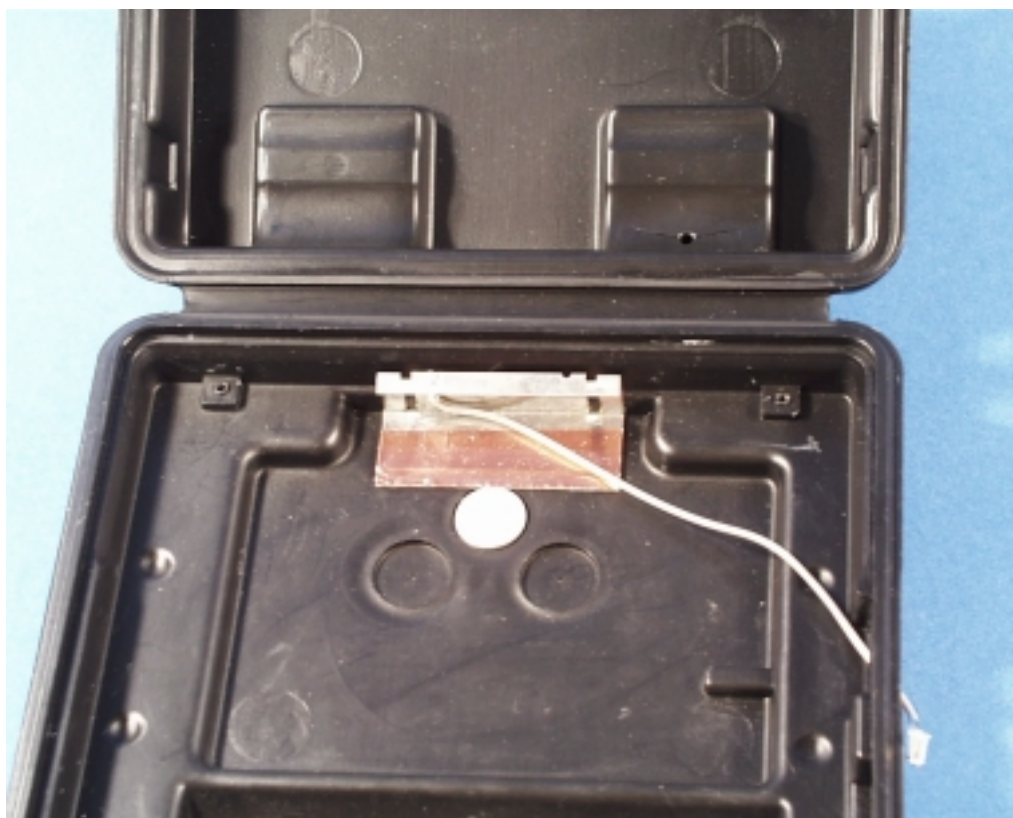
SHEET 2 of 2

Oneil BFA / Oneil MMCX Antenna

The **Oneil** antenna is 0 dBi omnidirectional in azimuth plane. It is available with either a MuRata 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

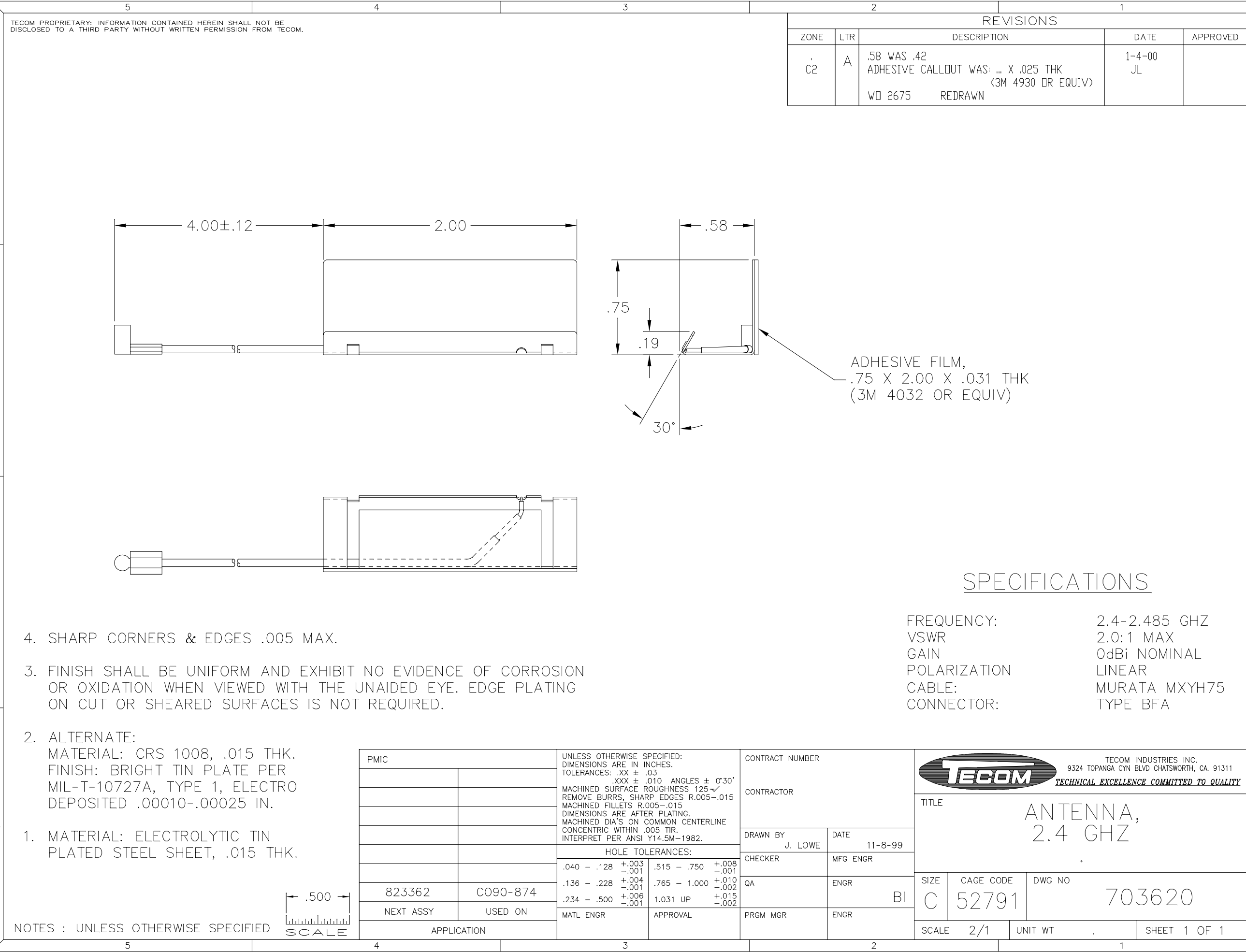
Note: This antenna is only to be used with a transmitter that produces an EIRP of less than 200 mW. For an EIRP of more than 200 mW a SAR test must be performed.



Antenna Installation Photo



Device use Photograph.



Amity BFA / Amity MMCX Antenna

The Amity antenna is 0 dBi omni-directional in azimuth plane. It is available with either a MuRata 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.”



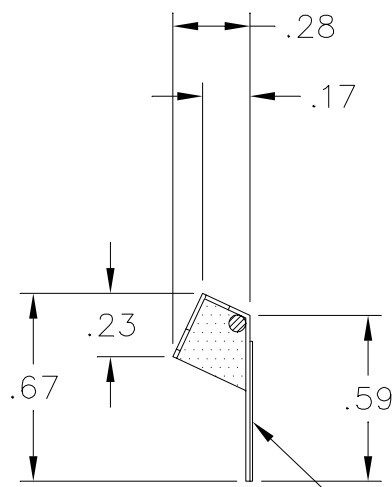
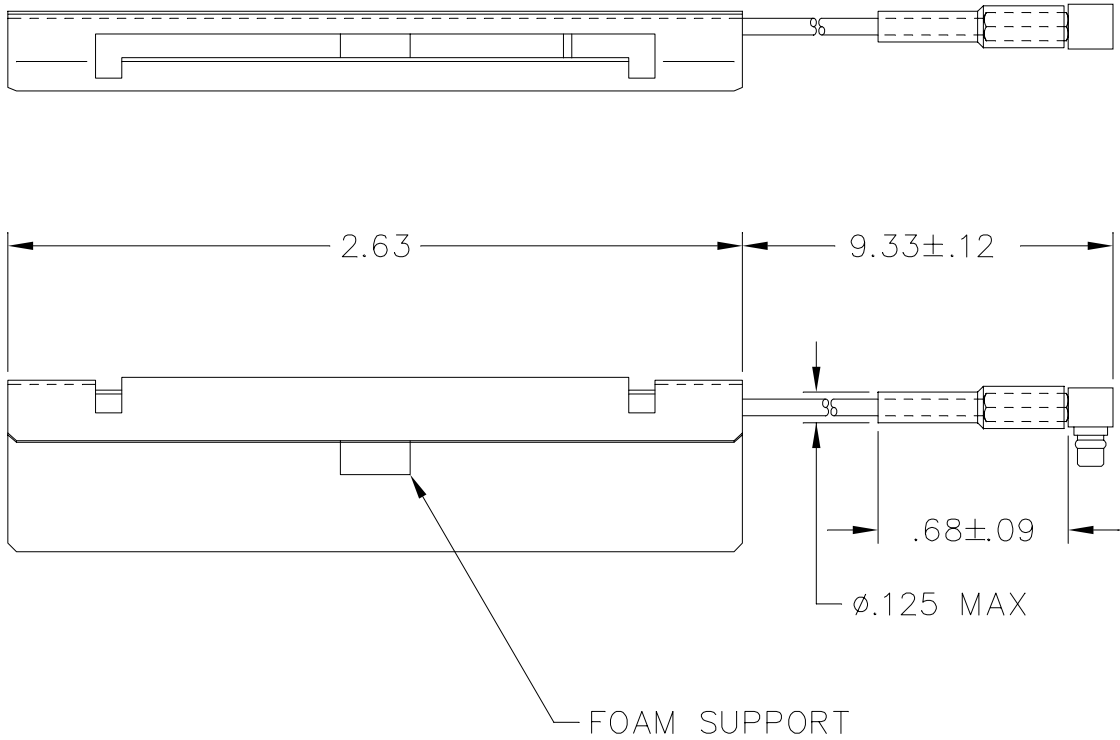
Antenna Installed in Device



Terminal Use Photo

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	

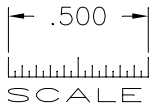


SPECIFICATIONS

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.

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

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		 TECOM INDUSTRIES INC. 9324 TOPANGA CYN BLVD CHATSWORTH, CA. 91311 TECHNICAL EXCELLENCE COMMITTED TO QUALITY					
			CONTRACTOR							
			DRAWN BY J. LOWE	DATE 10-11-99	TITLE ANTENNA, SLOT, 2.4 GHZ					
			CHECKER	MFG ENGR						
			QA	ENGR BI						
823283	CP90-065	HOLE TOLERANCES:		PRGM MGR	ENGR	SIZE	CAGE CODE	DWG NO	703611	
NEXT ASSY	USED ON	.040 - .128 +.003 -.001	.515 - .750 +.008 -.001			C	52791			
		.136 - .228 +.004 -.001	.765 - 1.000 +.010 -.002							
		.234 - .500 +.006 -.001	1.031 UP +.015 -.002							
APPLICATION		MATL ENGR	APPROVAL			SCALE	2/1	UNIT WT	.	SHEET 1 OF 1