



# Antenna List by FCC ID

Network Systems Organization

FCC ID: **H9PLA4111**

WLAN PC Card, 11 Mbps, Trilogy

Output Power: 60 mW

Grant Date	Ant #:	Model	Symbol P/N	Mfg	Mfg P/N
2/18/00					
	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
	09	4640 Toroid	21-17486-02	AIL Systems Suf	21-17486-02
	10	2040	10-17577-01	Tecom	703117
	11	6140	10-35305-01	UK	
	12	6840	10-32290-01	UK	
	15	Parapolic Grid	ML-2499-PGA1-	Conifer	26T-2400
	16	Pipe Bomb 25"x20'	50-11902-240S	Cushcraft	S2406BHS240RBN
	17	Criticare BFA	50-21900-021	Tecom	703443-1
	18	Corner Patch	ML-2499-DLA1-	Tecom	505126C
	19	Ceiling Panel	ML-2499-SD24-	UK	
	20	6140 OBS	10-17577-02	Tecom	
	X	Trilogy AP	21-20667-01	C&M Wauregan	
	Z	End Cap "C"	10-20511-01	Tecom	822319
Applied For					
	01	7546	10-38649-02	Tecom	
	02	2742	703624-2	Tecom	703624-2
	03	XP	50-21900-024	Tecom	703611
	04	7242	10-35477-01	Tecom	
	05	Toko	50-21900-022	Toko	DAC2450CT1
	06	Vocollect MMCX	50-21900-025	Austin Antenna	200215
	07	6846	10-32290-02	Tecom	
	08	7546D	10-40948-01	Tecom	703634

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Grant Date	Ant #:	Model	Symbol P/N	Mfg	Mfg P/N
	09	1742	703549-2	Tecom	703549-2
	10	Oniel MMCX	50-21900-031	Tecom	703620-2
	11	6846D	10-41003-01	Tecom	703645
	12	6146D	10-41361-01	Tecom	703652
	13	3146BD	10-41359-01	Symbol	10-41359-01
	14	1046	10-32447-02	Tecom	703385-2
	15	1046DP	10-41370-01	AeroAntenna	AT2400-4A



# RF Exposure Antenna Summary

## Network Systems Organization

FCC ID: **H9PLA4111**

WLAN PC Card, 11 Mbps, Trilogy

Source Based

Mobile DC Factor: 1.000

Output Power: 60 mW

Class II Permissive Change

Portable DC Factor: 1.000

## 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.	7546	10-38649-02	F-Element	0.0	0.31	17.47	55.9	Tested	Hand Held	
02.	2742	703624-2	F-Element	0.0	0.13	17.65	58.2	Tested	Hand Held	
03.	XP	50-21900-024	Slot	0.0	0.58	17.21	52.5	Tested	Hand Held	
04.	7242	10-35477-01	F-Element	0.0	0.13	17.65	58.2	Tested	Hand Held	
05.	Toko	50-21900-022	Puck	0.0	0.00	17.78	60.0	Tested	Hand Held	
07.	6846	10-32290-02	F-Element	0.0	0.34	17.44	55.5	See # 2	Hand Held	
08.	7546D	10-40948-01	F-Element	0.0	0.22	17.57	57.1	See # 2	Hand Held	
09.	1742	703549-2	F-Element	0.0	0.11	17.67	58.4	See # 2	Hand Held	
11.	6846D	10-41003-01	Slot	0.0	0.37	17.41	55.1	See # 2	Hand Held	
12.	6146D	10-41361-01	F-Element	0.0	0.23	17.55	56.9	See # 2	Hand Held	
13.	3146BD	10-41359-01	F-Element	0.0	0.09	17.69	58.7	See # 2	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
06.	Voccollect MMCX	50-21900-025	Dipole	2.0	0.25	17.53	89.8	Tested + SAR	Body Worn	
10.	Oniel MMCX	50-21900-031	Slot	0.0	0.37	17.41	55.1	See # 3	Body Worn	
14.	1046	10-32447-02	F-Element	0.0	0.15	17.63	58.0	See # 2 + SAR	Wrist Worn	
15.	1046DP	10-41370-01	Dipole	2.0	0.20	17.58	90.9	See # 6	Wrist 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

Tuesday, June 27, 2000 09:19 PM

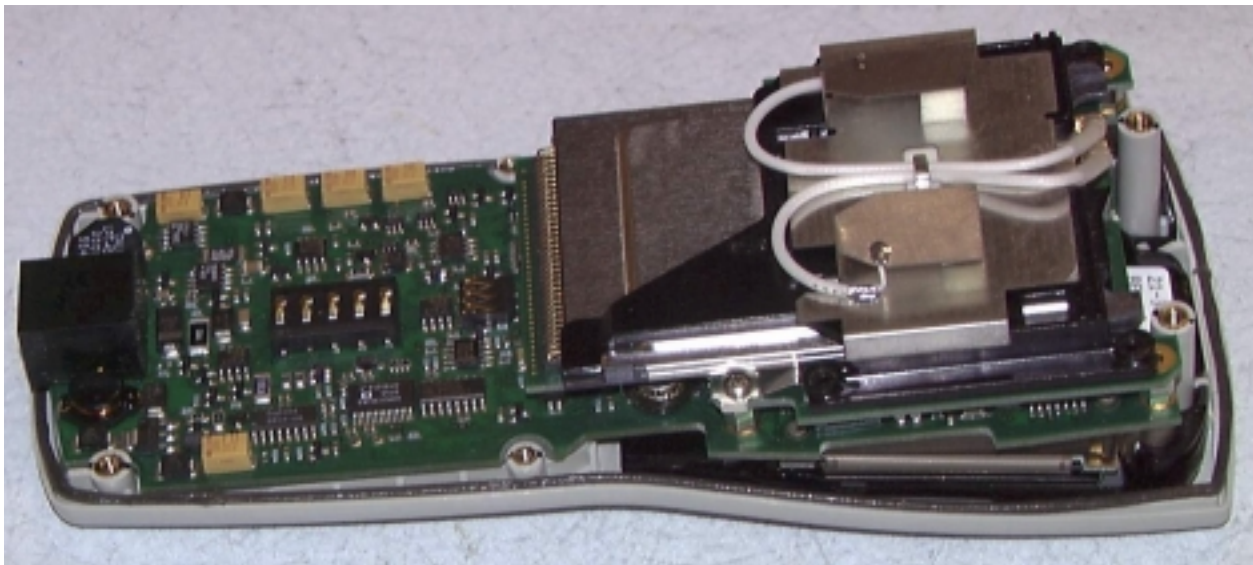
Page 1 of 1

**6146D Antenna**

The 6146D antenna is 0 dBi omnidirectional in azimuth plane. It is mounted internally on the top end of the terminal as shown in the attached photo. The 6146D uses a 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>	RG-178
<i>Symbol P/N</i>	10-41361-01
<i>EIRP</i>	See Summary Tbl

**“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 the user’s body.”**



Antenna Installed in Device



Terminal Use Photo



**3146D Antenna**

The 3146D antenna is 0 dBi omnidirectional in azimuth plane. It is mounted internally on the top end of the terminal as shown in the attached photo. The 3146D uses a 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>	RG-178
<i>Symbol P/N</i>	10-41359-01
<i>EIRP</i>	See Summary Tbl

**“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 the user’s body.”**



Antenna Installed in Device



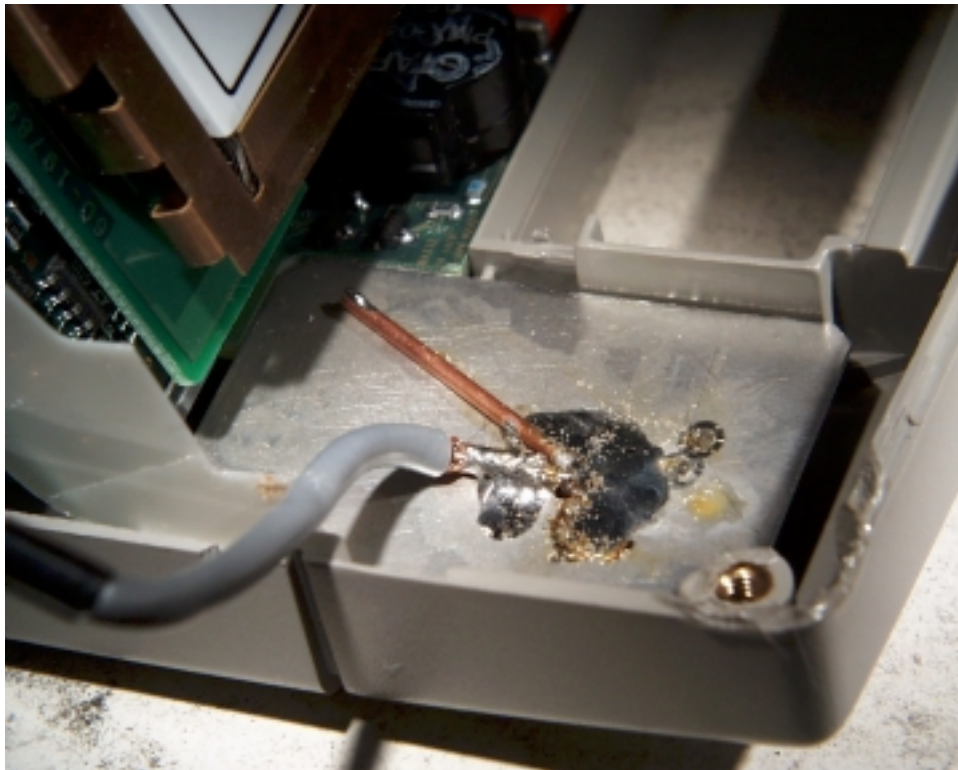
Terminal Use Photo

**1040, 1046 Antenna**

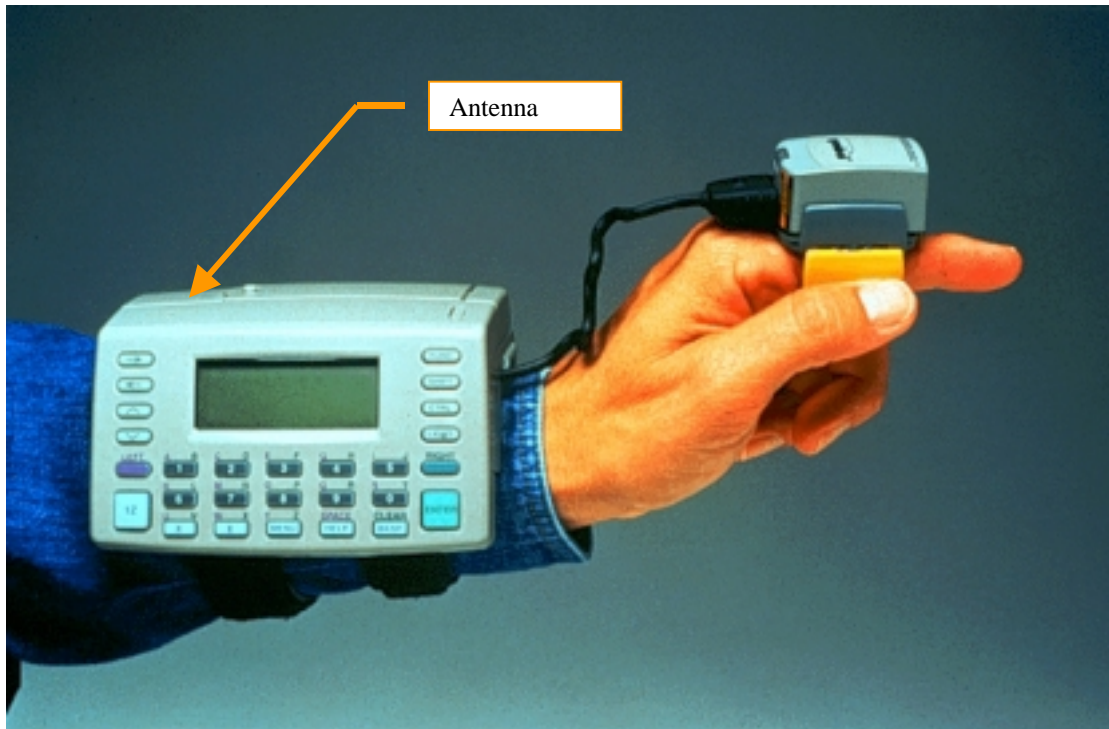
The **1040** antenna is 0 dBi omni-directional in azimuth plane. It is mounted internally as shown in the attached photo. The **1040** uses the Murata Erie BFA and the **1046** a MMCX connector. In its use it would be within 5 cm of a persons body. It is used in portable devices. This antenna / device combination was SAR tested and results filed with a Class II permissive change for the H9PLA2400. driven by 500 mW of transmitter power.

<i>Location</i>	Body worn 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>	MXYPH75, RG-178
<i>Symbol P/N</i>	10-32447-01, 10-32447-02

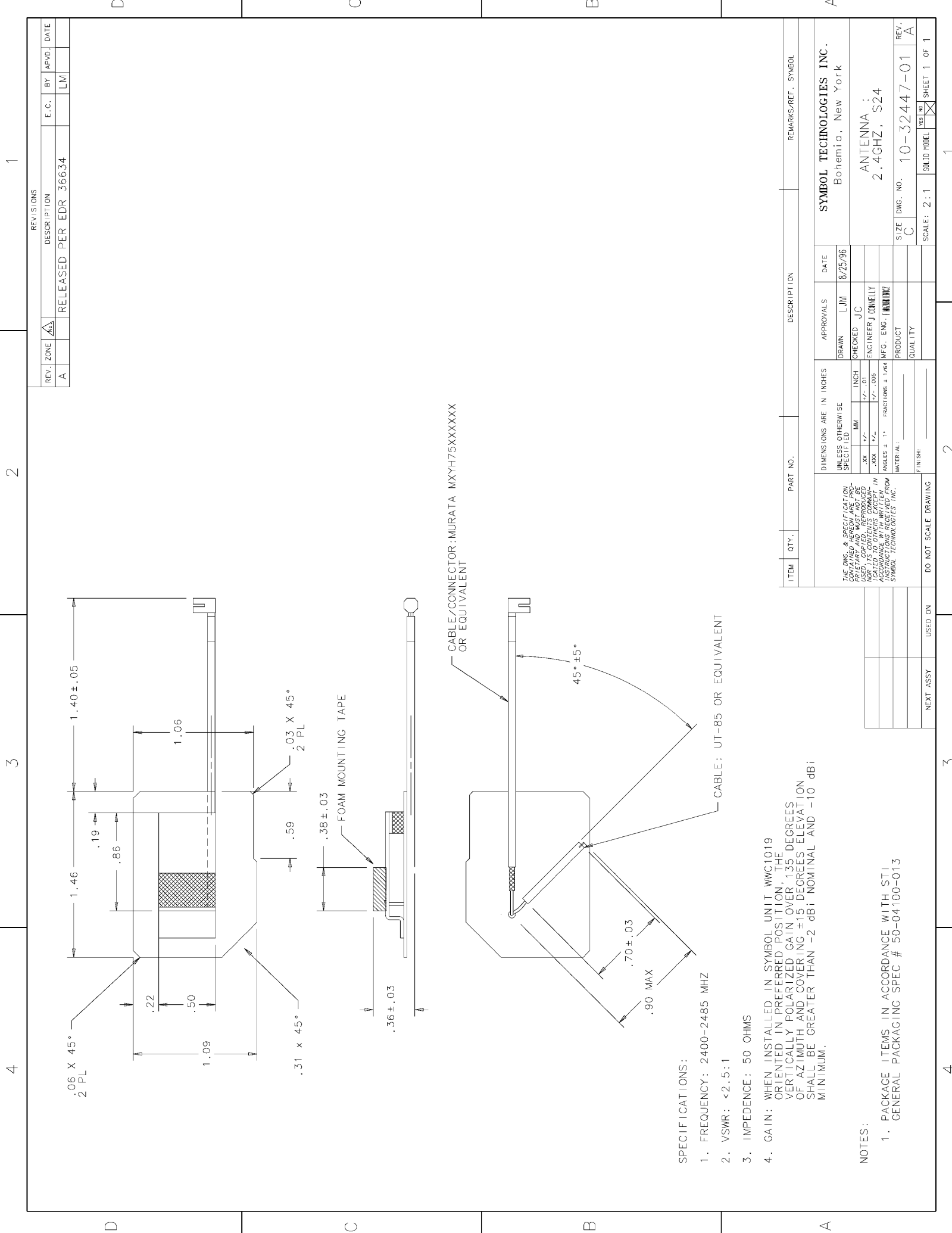
**Note: This antenna / terminal configuration is only to be used with a transmitter that produces an EIRP of less than 500 mW. For an EIRP of more than 500 mW a SAR test must be performed.**



Antenna Photo



Terminal Use Photo



SPECIFICATIONS:

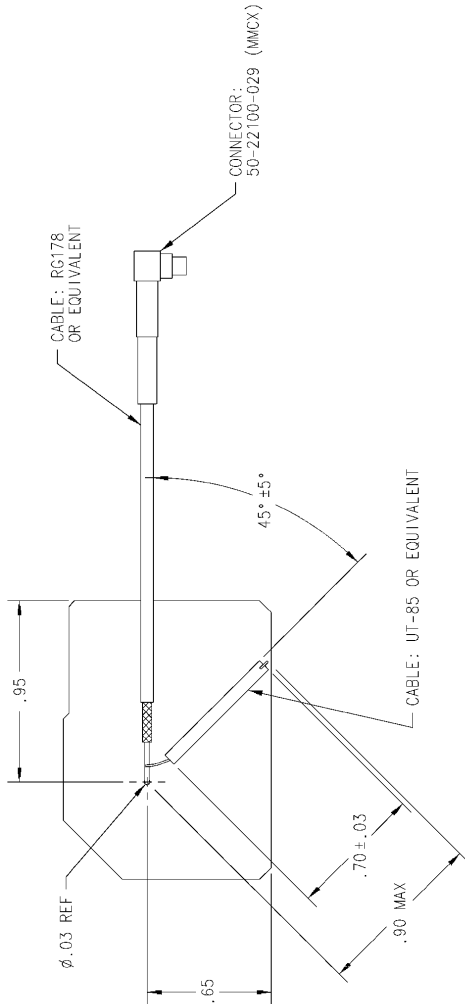
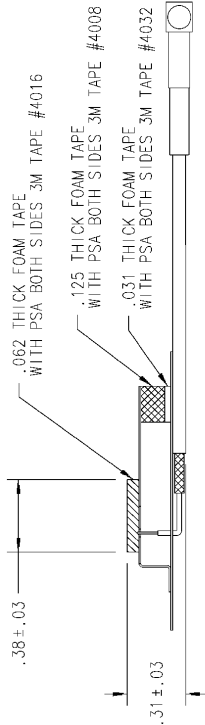
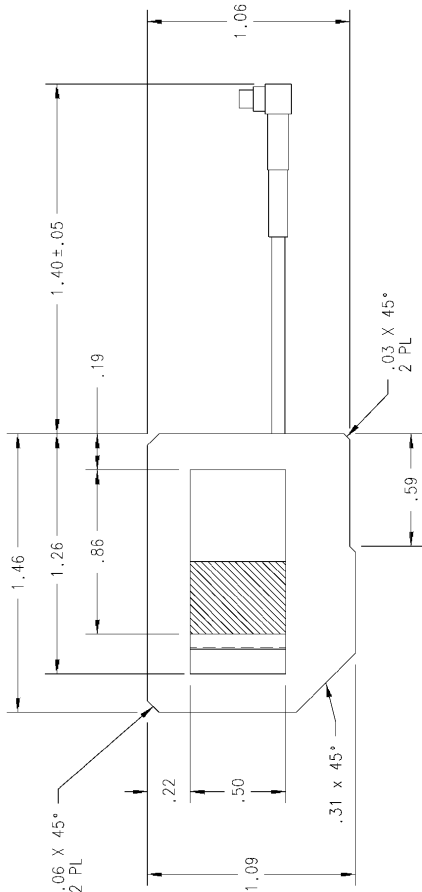
1. FREQUENCY: 2400-2485 MHZ
2. VSWR: <2.5:1
3. IMPEDENCE: 50 OHMS
4. GAIN: WHEN INSTALLED IN SYMBOL UNIT WWC1019 ORIENTED IN PREFERRED POSITION, THE VERTICALLY POLARIZED GAIN OVER 135 DEGREES OF AZIMUTH AND COVERING ±15 DEGREES ELEVATION SHALL BE GREATER THAN -2 dBt NOMINAL AND -10 dBt MINIMUM.

NOTES:

1. PACKAGE ITEMS IN ACCORDANCE WITH STI GENERAL PACKAGING SPEC # 50-04100-013

ITEM	QTY.	PART NO.	DESCRIPTION	APPROVALS	DATE	REMARKS/REF. SYMBOL
THE DIM. & SPECIFICATION CONTAINED HEREON ARE PROVIDED FOR INFORMATION ONLY. THEY ARE NOT TO BE USED, COPIED, REPRODUCED, OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF SYMBOL TECHNOLOGIES INC.						
UNLESS OTHERWISE SPECIFIED:						
DIMENSIONS ARE IN INCHES						
DRAWN: LJM						
CHECKED: JC						
ENGINEER: J CONNELLY						
MFG. ENG. J CONNELLY						
PRODUCT						
QUALITY						
MATERIAL:						
FINISH:						
DO NOT SCALE DRAWING						
NEXT ASSY						
USED ON						
SCALE: 2:1						
SHEET 1 OF 1						
SYMBOL TECHNOLOGIES INC.						
Bohemia, New York						
ANTENNA :						
2.4GHZ, S24						
SIZE						
DWG. NO. 10-32447-01						
REV. A						

REVISIONS				
REV	ZONE	DESCRIPTION	E.C.	BY
A		RELEASED PER EDR #55811		JS



SPECIFICATIONS:

FREQUENCY: 2400-2485 MHZ  
VSWR: <2.5:1  
IMPEDENCE: 50 OHMS  
GAIN: WHEN INSTALLED IN SYMBOL UNIT WWC1019 ORIENTED IN PREFERRED POSITION, THE VERTICALLY POLARIZED GAIN OVER 135 DEGREES OF AZIMUTH AND COVERING ±15 DEGREES ELEVATION SHALL BE GREATER THAN -2 DBI NOMINAL AND -10 DBI MINIMUM.

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 UN-AIDED EYE. EDGE PLATING ON CUT OR SHEARED SURFACES IS NOT REQUIRED.
3. BREAK AND DE-BURR ALL SHARP CORNERS AND EDGES .005 MAX PRIOR TO PLATING.
4. PACKAGE ITEMS IAW STI GENERAL PACKAGING SPEC #50-01400-013.
5. PARTS TO MEET THE CRITERIA PER STI WORKMANSHIP STANDARDS #SS-03800-57.

APPROVALS	DATE	SYMBOL TECHNOLOGIES, INC.	
DRAWN J. SIMMONS	3/28/00	One Symbol Plaza	
CHECKED M. SAVONA	3/28/00	Holtsville, NY 11742	
ENG. E. KOGAN	3/28/00	ANTENNA: 2.4GHZ, S24 MMXX	
ANALYST L. DOKBOWSKI	3/28/00	SIZE DWG. NO. 10-32447-02	
W.G. ENG.		C	
PRODUCT		SCALE: 2:1	
QUALITY		SHEET 1 OF 1	

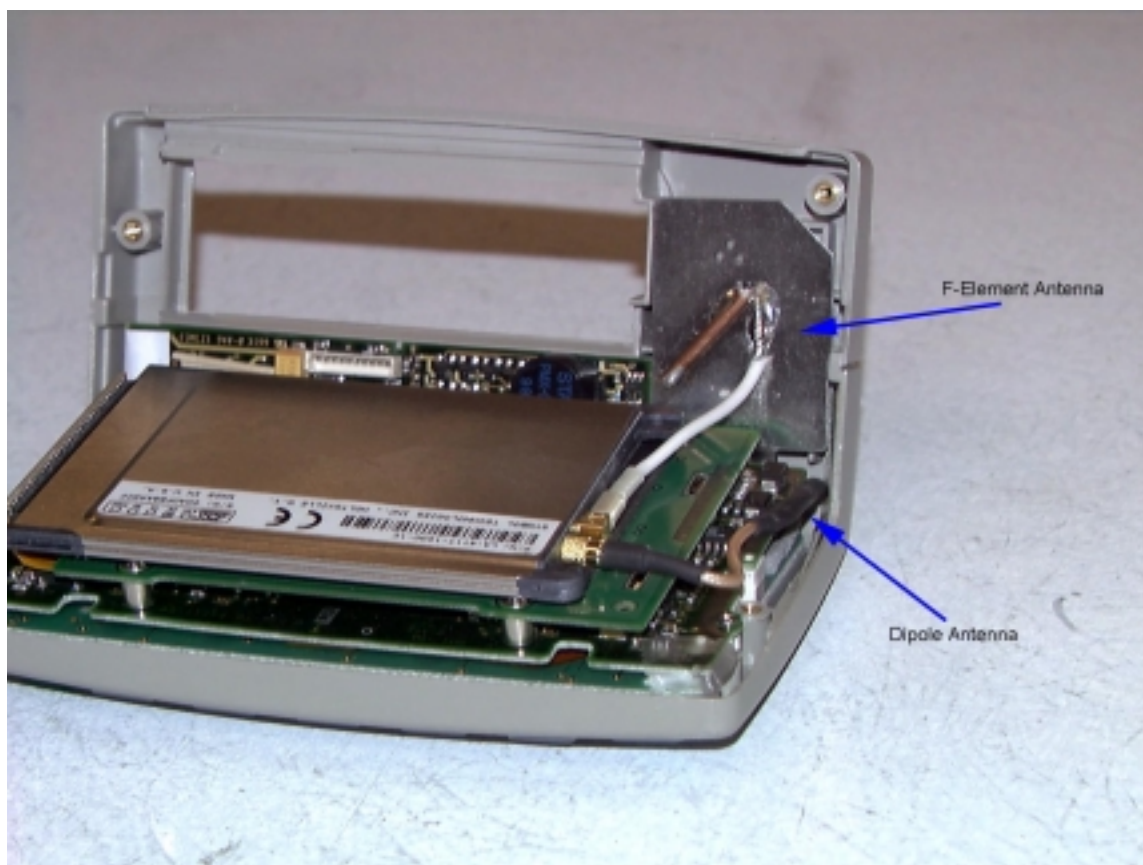
PROPRIETARY CONTENT		TOLERANCE CHART	
THE DRAWING CONTENT AND SPECIFICATIONS ARE THE PROPERTY OF SYMBOL TECHNOLOGIES, INC. AND ARE NOT TO BE REPRODUCED, COPIED, REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF SYMBOL TECHNOLOGIES, INC. COMPUTER GENERATED DRAWING. DO NOT SCALE.		UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES	
		FRACTIONS ± 1/64	
		ANGLES ± 1°	
		FRACTIONS ± 1/64	

**1046DP Antenna**

The **1046DP** antenna is 2 dBi omni-directional in azimuth plane. It is mounted internally as shown in the attached photo. The **1046DP** uses a MMCX connector. In its use it would be within 5 cm of a persons body. It is used in portable devices. This antenna / device combination has not been SAR tested.

<i>Location</i>	Wrist worn device
<i>Pattern</i>	Omni
<i>Type</i>	Dipole
<i>Max Gain</i>	2 dBi
<i>Physical</i>	See attached dwg
<i>Cable</i>	RG-178
<i>Symbol P/N</i>	10-41370.01

**Note:** This antenna / terminal configuration 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 Photo



Antenna Use Photo

USED ON