symbol

Network Systems Organization

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Federal Communications Commission
Equipment Approval Services
P.O. Box 358315
Pittsburgh, PA 15251-5315

Re: FCC ID H9PLA2400 Ref # 13402

Date: April 12, 2000

Dear Reviewer,

In response to the following Email:

To:	Norman Nelson, Symbol Technologies, Inc.
From:	Joe Dichoso
	jdichoso@fcc.gov
	FCC Application Processing Branch

Re:	FCC ID H9PLA2400	
Applicant:		Symbol Technologies Inc
Correspondence Reference Number:	13402	
731 Confirmation Number:		EA96849
Date of Original E-Mail:	04/11/2000	

The test report indicates 5 antennas. The RF exposure info indicates 8 antennas. Only pictures of 6 antennas were submitted. Provide a correct list of antennas. For each antenna, list the type and model number and the gain. Correct the type, model number and gain in the test report, the RF exposure, antenna list. Some of the gains, model number and pictures did not agree. Please check everything.

The 9th column of the Antenna Summary table shows the TR Status (Test Report) that two antennas were withdrawn. That's why there are only 6 pictured. (8 – 2 = 6) Note that antenna number 7 says see Ant #2. I did this since per a previous email you stated that only the highest gain antenna of each type needed to be tested. Since Antenna #2 is the same type and gain as #7 I refer you to #2 for the test data of #7. I have also included with this response another antenna #9 which is listed in the corrected Antenna Summary Table and in the same way refers to Ant #2. The #9 antenna description is included in this response.

The summary table is generated from a database that has the antenna gain, cable length, type of cable and its loss characteristics. I have corrected the gain of #3 in my database to match its data sheet and attached a corrected summary table.

Since I am using a database to keep track of antennas the TR status is a way to remove an antenna from consideration by marking it withdrawn rather than deleting it from the database. I hope this is acceptable.

The correct number of desired antennas in this application is 7 = 5 + 2:

Number tested	**5**
Number tested withdrawn	**0**
Number in table withdrawn	**2**
Number referenced to others	**2**
	___
Total in table	**9**

I have included the corrected page from the test report.
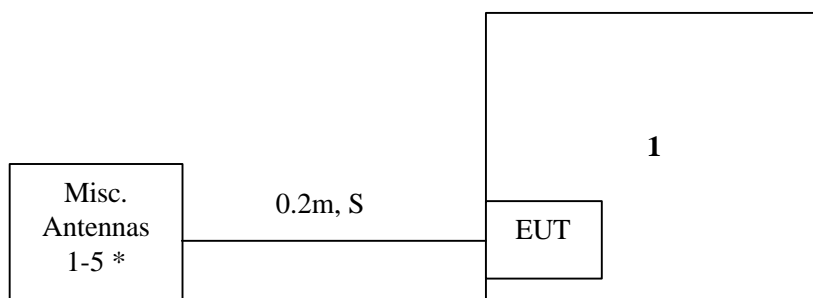
I hope these answers are satisfactory.

Respectfully,

Norman H. Nelson

3.0   System Test Configuration

3.1   Support Equipment

Item #	Description	Model No.	Serial No.	FCC ID
1	Compaq Notebook Computer	2860A	7448HJJ53R518	CNT75MB2CA

3.2   Block Diagram of Test Setup

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                                    ┌──────────────────────┐
                                    │                      │
                                    │          1           │
   ┌──────────────┐                 │  ┌────────┐          │
   │    Misc.     │   0.2m, S       │  │  EUT   │          │
   │   Antennas   │─────────────────┼──│        │          │
   │    1-5 *     │                 │  └────────┘          │
   └──────────────┘                 │                      │
                                    └──────────────────────┘
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*:   Antenna #1 = Model 7540
         Antenna #2 = Model 2740
         Antenna #3 = Model Vocollect BFA
         Antenna #4 = Model 7240
         Antenna #5 = Model Toko

m: Length in meters
S: Shielded

RF Exposure Antenna Summary

FCC ID: **H9PLA2400**   WLAN PC Card, 1 Mbps, CR-1, Hi Power   Output Power: 500 mW

Class II Permissive Change   Duty Cycle Factor: -9.0 dB

Mobile Antennas

Ant No	Model	Symbol P/N	Type	Gain (dBi)	Cabel Loss (dB)	Pout (dBm)	MPE (cm)	TR Status	Device Type

Portable Antennas

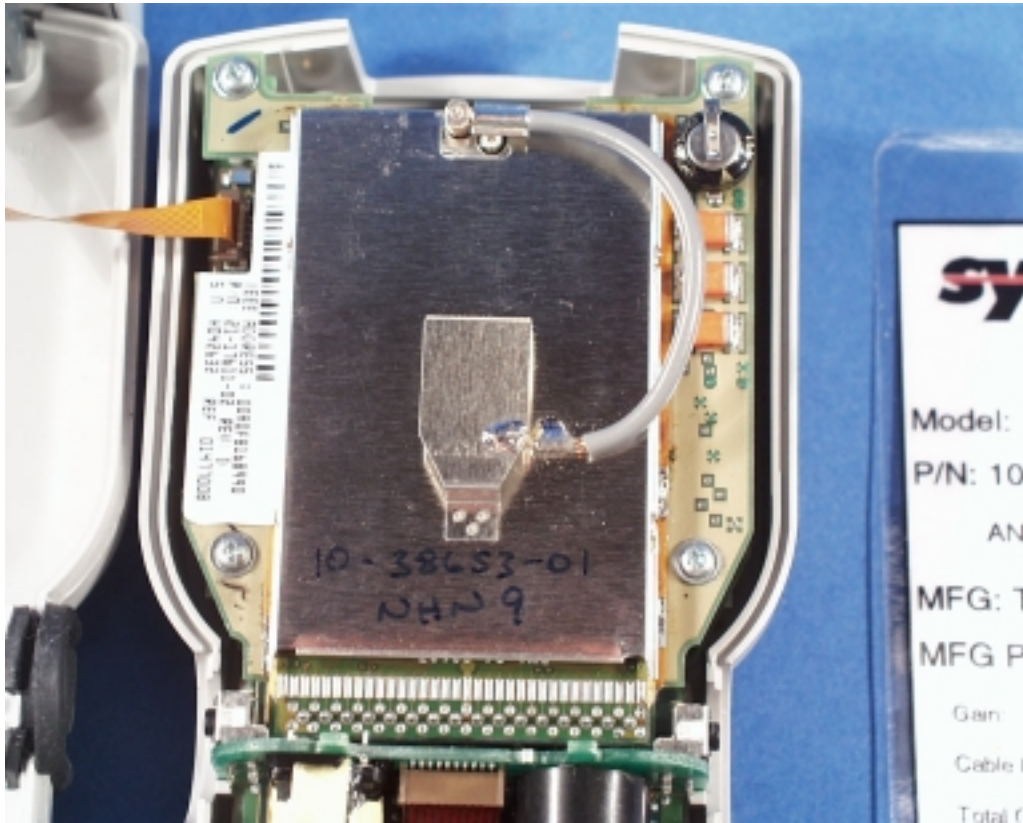| Ant No	Model	Symbol P/N	Type	Gain (dBi)	Cabel Loss (dB)	Pout (dBm)	EIRP (mW)	TR Status	Device Type
01.	7540	10-38649-01	F-Element	0.0	0.32	26.67	58.4	Tested	Hand Held
02.	2740	703624-1	F-Element	0.0	0.07	26.92	61.9	Tested	Hand Held
03.	Vocollect BFA		Dipole	2.0	0.25	26.74	94.2	Tested	Body Worn
04.	7240	10-35475-01	F-Element	0.0	0.13	26.86	61.1	Tested	Hand Held
05.	Toko	50-21900-022	Puck	0.0	0.00	26.99	62.9	Tested	Hand Held
06.	Oniel BFA	50-21900-023	Slot	0.0	0.39	26.60	57.6	Withdrawn	Body Worn
07.	1740	703549-1	F-Element	0.0	0.07	26.92	61.9	See # 2	Hand Held
08.	XP	703611	Slot	0.0	0.58	26.41	55.1	Withdrawn	Hand Held
09.	3140F	10-38653-01	F-Element	0.0	0.14	26.84	60.9	See # 2	Hand Held

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

3140F Antenna

The **3140F** antenna is 0 dBi omni-directional in azimuth plane. It is mounted internally on the top end of the terminal on the back side as shown in the attached photo. The **3140F** is a replacement for the 3140. The **3140F** uses a Murata Erie BFA 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

Location	Hand Held Device
Pattern	Omni
Type	F-Element
Gain	0 dBi
Physical	See attached dwg
Cable	MXYH75
Symbol P/N	10-38653-01

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.

> **"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."**
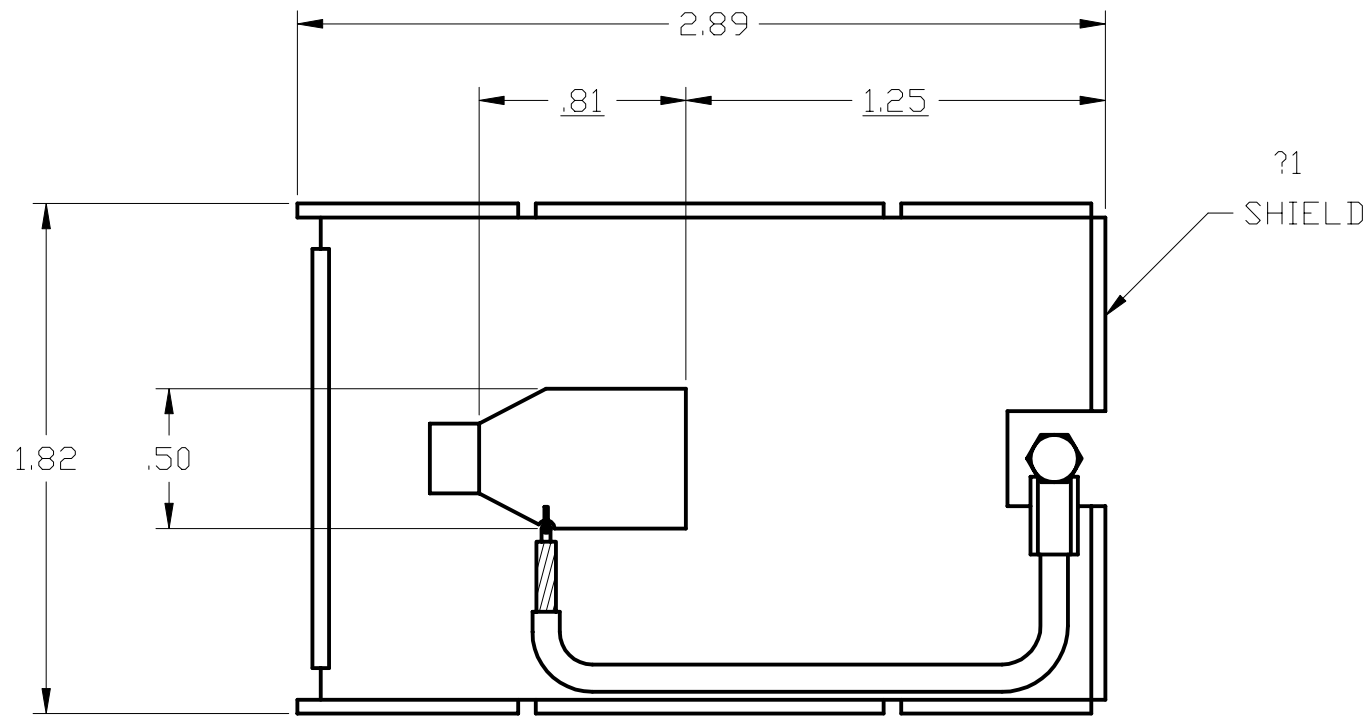

Antenna Installed in Device Photo

Terminal Use Photo

PROPOSAL DWG

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED
.	A	CHANGED DESIGN & REDRAWN. WO EC70-993P	10-22-97	Kvan
.	B	DIM .81, 1.25, .23 WAS .74, 1.50, .26 RESPECT. CHANGED CABLE PICTORIAL.	2-11-98	Kvan

?1
SHIELD

2.89
.81
1.25
1.82
.50

FOAM SPACER
.23
.22
.30

SPECIFICATIONS

FREQUENCY: _____ 2.4 TO 2.485 GHz
VSWR: _____ 2.0:1 MAX
GAIN: _____ 0 dBi NOM
IMPEDANCE: _____ 50 OHM

CABLE/ _____ TECOM 817283-X
CONNECTOR: _____ MURATA ERIE
MXYH62XXXXXXXX
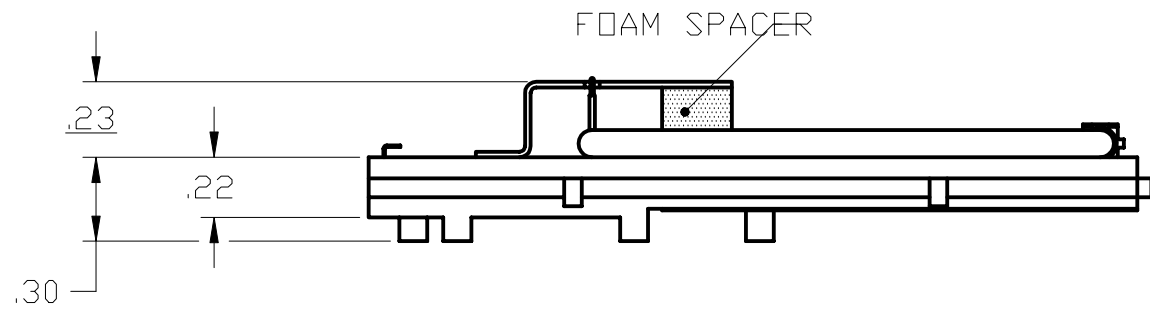
1 SHIELD IS SYMBOL 12-20029-01.
SHIELD TO BE PROCURED FROM
(TBD) BY TECOM FOR INCORPORATION
INTO ANTENNA.

NOTES : UNLESS OTHERWISE SPECIFIED

SCALE .500

PMIC

UNLESS OTHERWISE SPECIFIED:	CONTRACT NUMBER		
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.			

CONTRACTOR

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

DRAWN BY	DATE
S.REESE	1-22-96

CHECKER GR
MFG ENGR

HOLE TOLERANCES:

.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

NEXT ASSY	USED ON
.	WC60-050

MATL ENGR
APPROVAL
QA ENGR
PRGM MGR ENGR

APPLICATION

TITLE
2.4 GHz SAPPHIRE F-TYPE ANTENNA

SIZE	CAGE CODE	DWG NO	
C	52791	703134	

SCALE 2/1   UNIT WT   .   SHEET 1 OF 1