Network Systems Organization

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

Re: FCC ID H9PLA3021-500 Ref # 9578

Date: October 13, 99

Dear Reviewer,

In response to the following Email:

On Thu, 9 Sep 1999 17:07:45 -0400, oetech@fccsun07w.fcc.gov (OET) wrote:

>To: Norman Nelson, Symbol Technologies, Inc.
>From: Joe Dichoso
> jdichoso@fcc.gov
> FCC Application Processing Branch
>
>Re: FCC ID H9PLA3021-500
>Applicant: Symbol Technologies Inc
>Correspondence Reference Number: 9578
>731 Confirmation Number: EA94853
>Date of Original E-Mail: 09/09/1999
>
>
>1) File a composite Certification application for the peripheral portion. If the peripheral portion
>will be DOC approved, provide the DOC Certificate and a revised label with DOC requirements.

I have emailed a request to Bette Taube to change the 731 13(a) to yes, 13(c) to filed at same time, and FCC ID to H9PLA3021-500. I have also uploaded the DOC to the FCC web site, and mailed in another 159 form with the EBC fees. Because of the size of the unit the required label information is included in the User Manual as permitted by 15.19(b)(3).
>
>2) The MMCX antenna connector is not unique. A search on the internet shows that it is
>available to anyone. Therefore, it is not in compliance with Section 15.203. Please
>correct/explain accordingly.
>
This connector is not available through retail distributors and requires special tools, knowledge, and assembly techniques that are not available to the general public. This connector has been approved for our H9PLA3020 radio (see correspondence # 3413) as well as many of our competitor's products. All of our antennas either have the MMCX connector and cable assembly permanently attached to the antenna (internal antennas) or the antenna is terminated in a reverse polarity BNC that requires a special adapter cable that is RP-BNC to MMCX (see attached drawing).

>3) The receiver input bandwidth must match the transmitter bandwidth. What is the receiver input
>bandwidth?

The receiver input bandwidth is 1 MHz.
>
>4) Provide a list of all of the antennas. Indicate the output power, antenna type with model
>number and the antenna gain.

As stated in #2 above, all cables are permanently affixed to the antennas with either a reverse polarity BNC or a MMCX connector on the free end. In general the antennas that are internal to hand held devices are MMCX and the portable antennas are RP-BNC. The list of antennas is attached.

>
>5) The requested output power is 250 mW. The technical descriptions indicate that the output
>power is designed for 500 mW. The sample tested shows a maximum output power of 331 mW.
>The device will only be granted with the maximum output power shown on the tests 331 mW.
>If you want 500 mW, you need to test a sample that operates at this output power. Please
>address this discrepancy.

Please grant the maximum output power for this device 331 mW. 500 mW was a goal set by marketing and due to conflicting requirements was reduced.
>
>6) The RF safety calculations were done with 250 mW. The device was tested at 331 mW and
>was designed for 500 mW. These calculations must be redone at the maximum output power.
>A review of the RF safety exhibits will be performed once the output power issue is resolved.

The attached antenna list includes the RF safety calculations. Symbol based these calculations by rounding up 331 mW to 350 mW.

I hope these answers are satisfactory.

Respectfully,

Norman H. Nelson

Antenna Summary Table

Non Hand Held Antennas

Ant #	Model	Type	Gain[1]	Usage	MPE Distance[2]	Symbol P/N	Mfgr.	Mfgr. P/N
1	Plane Antenna	Plane	0 dBi	Ceiling, Laptop	5.3 cm	ML-2499-PSA1-00		
2a	Dipole Antenna (4' Cable[3]),	Dipole Array	3 dBi	Ceiling	7.4 cm	ML-2499-HPA1-00 (4 ft)		
2b	Dipole Antenna (15" cable)	Dipole Array	0 dBi	Ceiling	5.3 cm	ML-2499-HPA2-00 (15 ft)		
3	Rubber Duck	Dipole	1 dBi	Ceiling, Computer	5.9 cm	ML-2499-APA1-00		
4	Yagi	Yagi	9 dB	Mast/Wall	14.8 cm	ML-2499-YGA1-01		
5	Patch	Patch	4 dBi	Wall/Rooftop	8.3 cm	ML-2499-PTA1-01		
6	Panel	Patch	7dBi	Wall/Rooftop	11.8 cm	ML-2499-PNA1-01		
7	End Cap	F-Element	0 dBi	Laptop Card Slot	5.3 cm	ML-3099-PCEC-01		
15	Parabolic Grid	Parabolic	9.5 dBi	Mast	15.7 cm	ML-2499-PGA1-00		
16	S2406	Dipole Array	2 dBi	Ceiling	6.6 cm	ML-2499-WHA1-20/30		
18	Corner Patch	Patch	5 dBi	Wall, ceiling	9.3 cm	ML-2499DLA1-06		
19	Ceiling Mount Panel	Plane	3.6 dBi	Ceiling	8.0 cm	ML-2499-SD24-06		
21	Mag Mount	Dipole	-3 dBi	Vehicle	6.6 cm	ML-2499-MGA1-01		

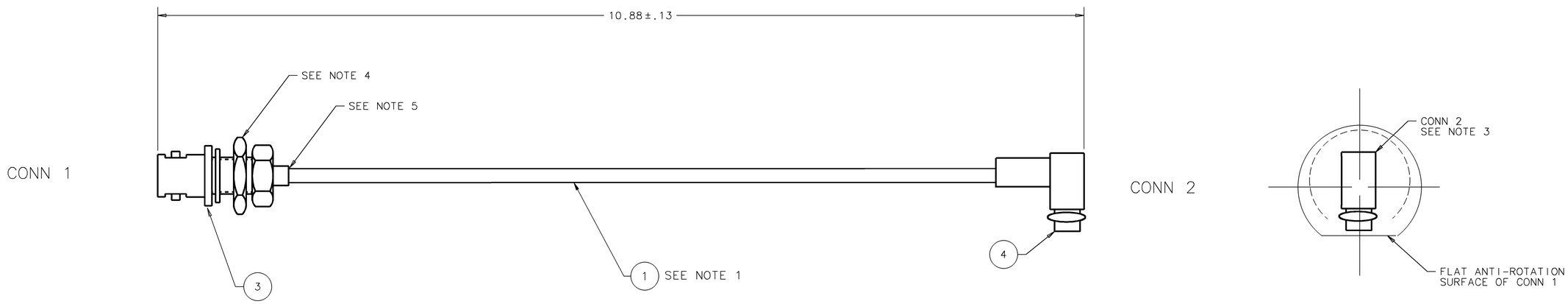
[1] Antenna gain includes permanently attached cable loss.
[2] MPE Distance is based on Symbol's worst case H9PLA3021-500 assuming 350 mW of transmitter power.
[3] All cables are permanently attached to the antenna with a reverse polarity BNC on the other end. A short MMCX to RP-BNC cable is required for mating to PC Card.

Hand Held Antennas

Ant #	*Model*	*Type*	*Gain*[4]	*Usage*	*MPE Distance*[5]	*Symbol P/N*	*Mfgr.*	*Mfgr. P/N*
8	4140	Whip	< 0 dBi	hand held	5.3 cm	DR10-2		
9	4640	Patch	< 0 dBi	hand held	5.3 cm	21-17486-02		
10	2140	F-Element	< 0 dBi	hand held	5.3 cm	10-17577-01		
11	6140	F-Element	< 0 dBi	hand held	5.3 cm	10-35305-01		
12	6840	F-Element	< 0 dBi	hand held	5.3 cm	10-32290-01		
13	1040	F-Element	< 0 dBi	Worn on Arm	SAR	10-32447-01		
14	Huber Suhner	Dipole	1.8 dBi	Hand Held	5.3 cm		Huber Suhner	9090.16.0001
17	Criticare	F-Element	0 dBi	hand held	5.3 cm		Tecom	703443
20	2040	F-Element	< 0 dBi	hand held	5.3 cm	10-17577-02		

[4] Antenna gain includes permanently attached cable loss
[5] MPE Distance is based on Symbol's worst case 350 mW H9PLA3021-500 for all antennas

REVISIONS							
REV	ZONE	ECN	DESCRIPTION	E.C.	BY	APVD.	DATE
A	—	—	RELEASED PER EDR # 20499	II	LW	MP	6-26-98
B	—	—	MODIFIED PER EC	D4399	LW	MP	11-2-98
C	—	—	MODIFIED NOTE 4 PER EC	E6924	LW	LW	6-22-99



NOTES:

1) PREPARE RAW CABLE(ITEM 1) AT BOTH ENDS PER MANUFACTURERS SPECIFICATIONS FOR CONNECTORS/ CONTACTS IN USE.

2) PACKAGE CABLE ASSEMBLIES IN ACCORDANCE WITH STI GENERAL PACKAGING SPEC #50-04100-013.

3) ORIENTATION OF CONN 2 (ITEM 4) AS SHOWN 180 DEGREES FROM FLAT SURFACE OF CONN 1.

4) REMOVE NUT AND WASHER FROM CONN 1 (ITEM 3) AND PLACE IN BAG WITH CABLE.

5) INSULATION WITH SHRINK TUBE OPTIONAL (NOT REQUIRED FOR CORRECT FUNCTION).

ITEM	QTY	PART NO.	DESCRIPTION	REMARKS/REF. SYMBOL
4	1	50-22100-029	CONN: MMCX	
3	1	50-22100-042	CONN: RBNC	
2				
1	A/R	50-16000-137	CABLE, 26 AWG, SHLD, FEP JCKT	

PARTS LIST

NEXT ASSY	USED ON
	1018

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DO NOT SCALE DRAWING

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

		MM	INCH
.XX	+/-		+/-.01
.XXX	+/-		+/-.005

ANGLES +/- 1° FRACTIONS +/-

MATERIAL: SEE P/L

FINISH: N/A

APPROVALS		DATE
DRAWN	L.WENDT	10-2-97
CHECKED	L.NAGLIERI	10-2-97
ENG	P.WALLACE	10-2-97
MFG. ENG.		
PRODUCT		
QUALITY		
TEST		

SYMBOL TECHNOLOGIES INC.
Bohemia, New York

CABLE ASSEMBLY

SIZE	DWG. NO.	REV
D	25-20335-02	C

SCALE: NONE SHEET 1 OF 1