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Report of Measurements of
SAR Electromagnetic Compatibility Testing,
In accordance with FCC ET Docket 93-62

Test Report File No.	:	**NC4051**	Date of issue: July 27, 2000
Applicant	:	Symbol Technologies Inc.	
Model / Serial No.	:	Diamond PDT7532-ROX23M00 / ALP06157	
Product Type	:	Wireless Hand Scanner	
Power Supply	:	7.2 V dc 1400 mAh Lithium-ion Battery	
Manufacturer	:	Same as Applicant	
License holder	:	Same as Applicant	
Address	:	1 Symbol Plaza	
	:	Holtsville, NY 11742	
Test Result	:	☒ **Positive**	☐ **Negative**
Test Project Number	:	00ME14476	
References(s)			

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1.0 GENERAL

This device was evaluated for localized specific absorption rate (SAR) for uncontrolled environment-general population exposure limits specified in the Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz – 300 GHz, ANSI/IEEE C95.1-1992. The unit was tested in accordance with the measurement procedures specified in the Standard Recommended Practice for Measurement of Potentially Hazardous Electromagnetic R.F. Fields, ANSI/IEEE C95.3-1992.

1.1 Product Description

The Symbol Technologies Inc. PDT 7532 is based on the Symbol Technologies Inc. Diamond (PDT7500 series) terminal with a Sierra Wireless Inc. CDPD/AMPS radio module imbedded inside. The Symbol terminal is a handheld portable data terminal with WAN capability supplied by the Sierra Wireless Inc. SB 320 CDPD/AMPS radio module. The Sierra Wireless Inc. module was FCC approved to FCC Part 22 under FCC ID number N7NOEM3. This test report is part of Symbol Technologies Inc. application for the FCC ID number H9PPDT7532.

The Sierra Wireless module is a 600-milliwatt transmitter from 824 MHZ to 849 MHZ. The PDT 7500 series family of portable data terminals puts the processing power of a 486 PC in the user's hand. The terminal uses a rechargeable Lithium-Ion 1400 mAh smart battery, and incorporates a pen technology and bar code scanning capability in a key-based terminal.

1.2 Device Configuration During Test

Using the Symbol SAR Test Software "CDPD SAR Test V1.00-02", Model PDT7532-ROX23M00 was evaluated at maximum transmit power of 28 dBm, with CDPD modulation on Channels 105 (828 MHz), 399 (836 MHz), and 750 (847 MHz). Before each test the presence of a RF signal was verified using a spectrum analyzer. A conducted measurement was performed to verify the maximum transmit power, and tabulated below:

RF Frequency	Maximum Conducted RF Output
827.6 MHz	26.7
836.4 MHz	27.6
847 MHz	27.1

1.3 Test Positions and Limits

This device is considered a hand held device, which can be located next to the body. SAR Measurements were recorded in a muscle tissue simulation. The unit was placed within it's body worn holster, and located 3 cm from the flat portion of the generic twin and evaluated to the maximum exposure limits of the whole body. In addition the unit was located 2 mm from the flat portion of the generic twin phantom and evaluated to the maximum exposure limits for the hand.

2.0 SAR Test Equipment and Configuration

General - Testing was conducted within an ambient free shield room. Ferrite absorbing tiles were placed around the Schmid & Partner Engineering Generic Twin Phantom.

1. Hewlett Packard – Network Analyzer, Model 8753C, Calibration Due: 4/17/01
2. Hewlett Packard – S Parameter Test Set, Model 85046A, Calibration Due: 4/28/01
3. Hewlett Packard – Power Meter, Model E4418A, Calibration Due: 3/6/01
4. Hewlett Packard – Rohde & Schwarz Signal Generator, Model SMT03, Calibration Due: 6/2/01
5. Hewlett Packard – Power Sensor, Model 8482B, Calibration Due: 2/24/01
6. Schmid & Partner – 900 MHz Dipole Antenna, Model D900V2, Calibration Due: 4/17/01
7. Schmid & Partner – Data Acquisition Unit, Model DAE3, Calibration Due: 4/17/01
8. Schmid & Partner – E - Field Probe, Model ET3DV5, Calibration Due: 4/18/01
9. Advantest – Spectrum Analyzer, Model R3261C, Calibration Due: 11/20/00
10. Advantest – Preselector , Model R3551, Calibration Due: 11/20/00
11. Hewlett Packard – Transient Limiter, Model 11947A, Calibration Due: 11/9/00
12. Weinschel - 30 dB Pad, Model 48-30-43, Cal: N/A

2.1 System Verification

Prior to SAR assessment, the system was verified to the 5 % specifications at 900 MHz, by using the S&P D900V2 validation kit.

2.2 Measurement Uncertainties

The total measurement uncertainties were considered to be within 25%. These measurements include the uncertainties of the measuring equipment, environment, positioning of the device, and the muscle tissue.

2.3 Environmental conditions in the lab:

	Range
Temperature:	20-25°C
Relative Humidity	30 - 60 %
Atmospheric pressure	680 - 1060 mbar

3.0 SAR TEST DATA SUMMARY:

1. All measurements were recorded on the flat portion of the Schmid & Partner Engineering Generic Twin Phantom at maximum transmit power.

2. Measurements were recorded within a Muscle Tissue Simulation, with the following properties:

a) Dielectric Constant: 56.1 – 57.07
b) Conductivity: 1.09 – 1.14

3. Measurements were recorded for two exposure limits. Measurements for the body exposure were recorded 3 cm from the bottom of the phantom. Measurements for the hand exposure were recorded 2 mm from the bottom of the phantom.

4. In accordance with the manufacturer's information, the CDPD mode of operation was investigated and considered the worst-case condition.

5. All testing was conducted with a fully charged battery.

Channel (Frequency)	Human Exposure	Antenna Position	Measured SAR	Maximum SAR
105 (827.6 MHz)	Body	Fixed	0.228 mW/g	1.6 mW/g *
399 (836.4 MHz)	Body	Fixed	0.286 mW/g	1.6 mW/g *
750 (847MHZ)	Body	Fixed	0.234 mW/g	1.6 mW/g *
105 (827.6 MHz)	Hand	Fixed	0.640 mW/g	4.0 mW/g **
399 (836.4 MHz)	Hand	Fixed	0.901 mW/g	4.0 mW/g **
750 (847MHZ)	Hand	Fixed	0.735 mW/g	4.0 mW/g **

Test Notes:

* mW/g averaged over 1 gram.
** mW/g averaged over 10 grams

4.0 SUMMARY:

The SAR test data recorded for Model PDT7532-ROX23M00, under all representative-operating conditions, displayed energy levels, which were within the maximum limits. Based on these results, this unit has met the technical requirements as defined by FCC, ET Docket 93-62.

Test Start Date: July 5, 2000

Test Completion Date: July 12, 2000

- UNDERWRITERS LABORATORIES, INC. -

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