Test Report
For
Datamatic Ltd.
FCC ID: ODYD740

DUT:	Handheld transceiver model D740
Test Date:	05-Feb-2004
Manufacturer:	Datamatic, Ltd. 3600 K Avenue Plano, Texas (972) 234-5000
Conducted by:	Control Design & Testing, Inc. 6010 Red Fox Drive Spotsylvania, VA 22553 (540) 582-2826

CD&T FCC ID: ODYD740

A. DEVICE UNDER TEST

The product is a transceiver circuit contained in a PCMCIA housing. The device is designed to be used with the Micro-Flex PC9800 handheld computer manufactured by DAP Technologies. The D740 will only operate in the Micro-Flex PC9800. The circuit connection method is not PCMCIA standard and will not engage the contacts of a normal PCMCIA slot.

The PC9800 handheld computer has been previously issued a DoC. Together, the assembly is used to interrogate and collect data from various utility metering devices that have been previously certified under Part 15 of the FCC rules. This product is designed to operate under the provisions of Part 15.249 of the FCC rules.

The transmit frequency is 916.500 MHz., nominal. The modulation mode is on/off keying using a binary pulse position scheme. In normal operation this device works in the receive only mode. Transmissions may be initated manually to address a specific meter and then communicate with that meter in half duplex mode. Power for the device is provided by the internal ni-cad battery in the DAP unit. The device automatically powers down when placed in the charge cradle.

The device consists of two circuits (a controller board and a transceiver board) that are sandwiched together in the PCMCIA housing. The controller board is regulated at 5 volts and the rf board is regulated at 3.3 volts. The rf circuit consists of an RF Monolithics TR1000L transceiver hybrid circuit, a two element antenna matching network and an external dipole antenna. The antenna port employs an internal MMCX connector coupled to a bulkhead mounted, reverse pinned SMA connector. The antenna is a Nearson S463AH-915.

B. MEASUREMENT PROCEDURE: RADIATED EMISSIONS

Testing of this device was conducted at the Carl T. Jones test facility located in Springfield, Virginia. Site #90490

The receiver section of this device is a sequenced TRF, clocked at approximately 745 kHz. and does not use a local oscillator. The device was locked in the receive mode and scanned from 30 MHz. to 1 GHz. No emissions related to the receiver circuitry were detected.

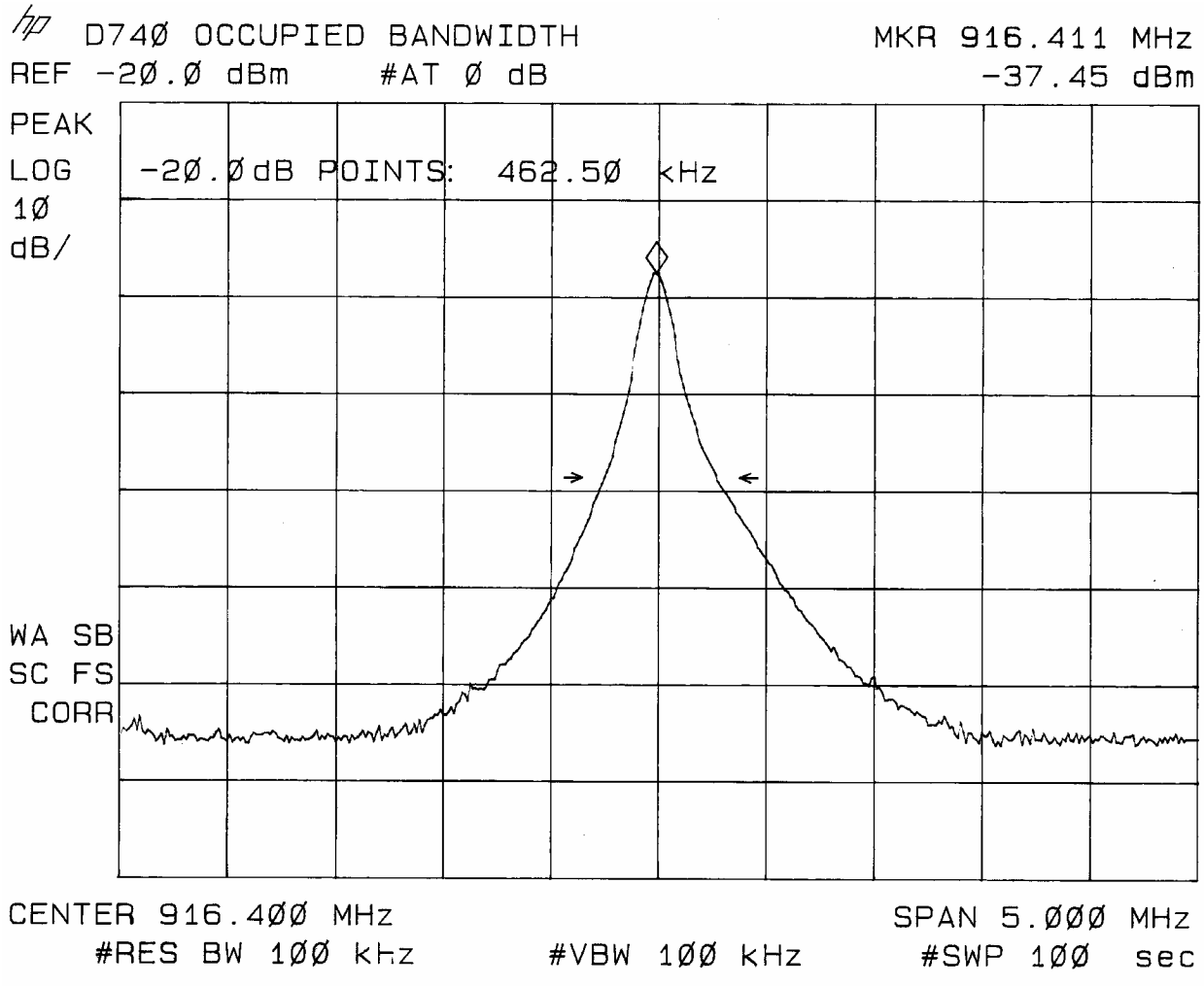
Transmitter field strength measurements were conducted according to the procedures

set forth in ANSI C63.4 (1992). Testing was conducted with the DAP unit fully charged.

The device under test was placed on a rotating turntable 0.8 meters high, centered at 3 meters distant from the measurement antenna. The device was placed in the center of the turntable and tested in the positions shown in the test setup photographs.

For the purpose of transmit mode radiated emissions testing, the sample was set to transmit a steady pulse stream. For the occupied bandwidth (Plot 1) the sample was set to transmit typical data packets

Plot 1



The field strength measurements for transmit mode radiated emissions (Table 1) were taken using an HP8596E spectrum analyzer, an EMCO 3121C dipole set, an EMCO 3115 double ridge guide horn and an Avantek UJ210 preamp. Receive mode measurements were made using a Compliance Design B100 biconical set. The device was scanned from 30 MHz. to 10 GHz. and all emissions were noted. In this case, the only emissions detected were those harmonically related to the fundamental transmit frequency.

At each detected emission frequency, the device was measured by rotating the turntable and adjusting the antenna height over a range of 1 to 4 meters to obtain the maximum output level. This procedure was performed with both horizontal and vertical antenna polarizations for using the setup positions shown in the test photos. The peak reading for each frequency was recorded in the fourth column in the tables below. Receive mode emissions (Table 2) were due to the internal processing circuitry and were present in transmit mode as well.

Table 2

RECEIVE MODE RADIATED EMISSIONS DATA

CLIENT: DATAMATIC FCC ID: ODYD740

ANTENNA: DIPOLES/DRG HORN EUT: DATA TRANSCEIVER

PART 15.109 TEST DATE: 05-FEB-04

Frequency In MHz.	Ant. Polar. H/V	Ant. Factor dB	Peak reading dBm	Duty Cycle -dB	Peak Power uV/m@3m	Corrected Power uV/m@3m	FCC Limit uV/m@3m
31.531	H	9.8	-96.71		10		100
35.999	H	9.4	-94.02		13		100
40.715	H	9.5	-91.07		19		100
71.819	H	6.7	-95.11		9		100
81.585	H	5.9	-100.79		4		100
276.075	H	22.0	-98.63		33		200
294.731	H	22.1	-97.28		39		200
313.175	H	22.9	-96.90		45		200
319.800	H	23.2	-94.46		61		200
344.299	H	23.7	-94.35		66		200
350.949	H	23.7	-95.08		60		200
363.349	H	23.8	-97.22		48		200
369.949	H	23.8	-97.84		44		200
394.699	V	24.2	-97.31		49		200
413.699	H	24.5	-99.67		39		200
419.949	V	24.6	-101.93		30		200
445.249	V	25.3	-104.66		24		200

Measurements taken for weak emissions were performed by reducing the distance from the measurement antenna to 1 meter and factoring –9.54dB into the calculation. This method was used for the 6th and 7th harmonics during transmit mode testing.

As provided in Part 15.35, the pulse format used by this device would result in a duty cycle correction of approximately -5.4 dB. However, since the peak readings for all harmonic and spurious emissions were 6dB or more under the limits, this correction was not applied to the calculations.

Table 1

TRANSMIT MODE RADIATED EMISSIONS DATA

CLIENT: DATAMATIC FCC ID: ODYD740

ANTENNA: DIPOLES/DRG HORN EUT: DATA TRANSCEIVER

PART 15.249 TEST DATE: 05-FEB-04

Frequency In MHz.	Ant. Polar. H/V	Ant. Factor dB	Peak reading dBm	Duty Cycle -dB	Peak Power uV/m@3m	Corrected Power uV/m@3m	FCC Limit uV/m@3m
916.405	V	30.8	-43.92		49431		50000
1832.810	V	30.2	-92.15		179		500
2749.215	V	33.4	-96.27		161		500
3665.620	V	35.7	-100.86		124		500
4582.025	H	36.6	-101.04		134		500
5498.430	H	38.6	-106.33		92		500
6414.835	V	39.1	-113.68		42		500