

# RF Maximum Permissible Exposure Measurement Report

of

E.U.T. : Cordless Telephone

FCC ID. : AMW4960

MODEL : DCT4960-2 / DCX 490

for

APPLICANT : Uniden America Corporation

ADDRESS : 7F-2, NO. 9, PROSEPERITY 1ST RD., SCIENCE-  
BASED INDUSTRIAL PARK, HSINCHU, TAIWAN,  
R.O.C.

Test Performed by

**ELECTRONICS TESTING CENTER, TAIWAN**  
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Report Number : ET90R-10-039

# TEST REPORT CERTIFICATION

Applicant : Uniden America Corporation  
7F-2, NO. 9, PROSEPERITY 1ST RD., SCIENCE-BASED  
INDUSTRIAL PARK, HSINCHU, TAIWAN, R.O.C.

Manufacturer : TECOM CO., LTD. / Honor Tone Limited.  
No.23 R&D Road 2, Science-Based Industrial Park, Hsin-Chu Taiwan,  
R.O.C. / Block No.1 Tung Mun Industrial Zone, Dan Shui, Guangdong,  
China

Description of EUT :

a) Type of EUT : Cordless Telephone

b) Trade Name : UNIDEN / Radio Shack

c) Model No. : DCT4960-2 / DCX 490

d) Power Supply : Adaptoer Model: AD-490;  
I/P: 120VAC, 60Hz, 6W; O/P: 9VDC, 300mA

Regulation Applied : IEEE C95.1-1991, FCC 47 CFR Part 1 and Part 2

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in IEEE C95.1, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Note: 1. The result of the testing report relates only to the item tested.  
2. The testing report shall not be reproduced expect in full, without the written approval of ETC.

Issued Date : Oct. 15, 2001

Test Engineer : Jeff Chuang  
( Jeff Chuang )

Approve & Authorized Signer : Will Yauo  
Will Yauo, Manager  
EMC Detp. II of ELECTRONICS  
TESTING CENTER, TAIWAN

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# 1 GENERAL INFORMATION

## 1.1 Product Description

- a) Type of EUT : Cordless Telephone
- b) Trade Name : UNIDEN / Radio Shack
- c) Model No. : DCT4960-2 / DCX 490
- d) Power Supply : Adaptor Model: AD-490;  
I/P: 120VAC, 60Hz, 6W; O/P: 9VDC, 300mA

## 1.2 Characteristics of Device

This Cordless Telephone designed with a transmitting method of hopping spread spectrum technology. The base unit plugs into a standard analogue telephone jack and provides a digital wireless communication link with the handset using the 2400 to 2483.5 MHz ISM band.

## 1.3 Test Methodology

The Maximum Permissible Exposure (MPE) was performed according to the procedures illustrated in IEEE C95.1-1991.

## 1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at No.34, Lin 5, Ding Fu Tsun, Linkou Hsiang, Taipei Hsien, Taiwan, R.O.C.

This site has been fully described in a report submitted to the FCC, and accepted in a letter dated Feb. 10, 2000.

## 2 PROVISIONS APPLICABLE

### 2.1 Definition

#### MPE in Occupational / Controlled Environments:

Persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Also apply to a individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potatial for exposure.

#### MPE in General Population / Uncontrolled Environments:

General population / Uncontrilled exposure apply in situation in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potatial for exposure or cannot excercise control over their exposure.

### 2.2 Relative Requirement for Compliance

#### (1) MPE for Controlled Enviroments

According to section 1.1310 of FCC 47 CFR Part 1, MPE Limits for controlled enviroment are as following:

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-3.0	614	1.63	*100	6
3-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1500	-----	-----	f/300	6
1500-100,000	-----	-----	5.0	6

#### (2) MPE for Uncontrolled Enviroments

According to section 1.1310 of FCC 47 CFR Part 1, MPE Limits for uncontrolled enviroment are as following:

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-3.0	614	1.63	*100	30
3-30	1842/f	4.89/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1500	-----	-----	f/1500	30
1500-100,000	-----	-----	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power desity

### 3. SYSTEM TEST CONFIGURATION

#### 3.1 Justification

The system was configured for testing in a typical fashion, as a customer would normally use it. The MPE measurement was performed under the setting of maximum RF transmitting power and maximum transmission data rate of 11 Mbps. And measured on lowest, middle, and highest frequencies to demonstrate the whole used band is complied with the requirement. Further, measurement was made on every possible azimuth around the transmitting structure. Therefore, we can make sure that the MPE testing was performed under the worst case.

#### 3.2 Devices for Tested System

Device	Manufacture	Model	Cable Description
Cordless Telephone *	TECOM CO., LTD. / Honor Tone Limited.	DCT4960-2 / DCX 490	2.0m Unshielded AC Adaptor Power Cord 2.0m Unshielded RJ-11 Cable

Remark “\*” means device under test.

## 4 Maximum Permissible Exposure Measurement

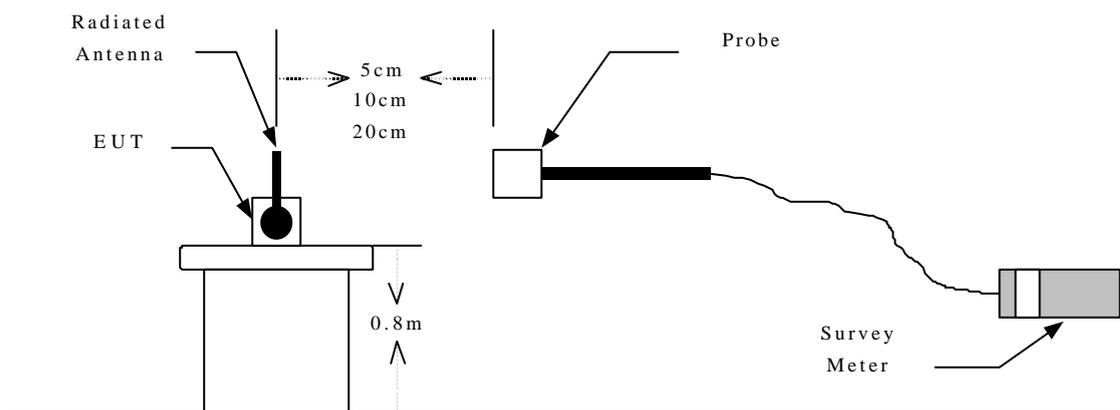
### 4.1 Applicable Standard

For this intentional radiator is used with any possible people, therefore the **Uncontrolled Environment Condition** is applied. And the MPE requirement is as described in section 2.2 of this test report.

### 4.2 Measurement Procedure

- (1) Set up the device under test (DUT) as its normal using configuration. Please see figure 1.
- (2) Calibrate the probe system so that the meter displays zero, and then power on the DUT.
- (3) Scan the antenna of DUT with a proper spacer of 5 cm in vertical axis and keep vertical scanning around the antenna, and pick up the maximum data with Max. Hold function.
- (4) Repeat step (3) by changing the spacer to 10 cm and then 20 cm till the field from DUT is too weak to be measured.
- (5) Record the maximum value appeared.

Figure 1 : Measurement configuration



### 4.3 Measurement Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.	Next Cal. Due
Survey Meter	Narda	8712	Jan. 30, 2002
Probe	Narda	8721D	Jan. 30, 2002

### 4.4 Power Density Data

Operation Mode : Maximum Data Transmitting Rate  
 Transmitting Frequency : 2400 to 2483.5 MHz  
 Rated Maximum Output Power : 15 dBm  
 Measured Output Peak Power : 14.05dBm @ CH 00, 14.33dBm @ CH 40;  
 13.33 dBm @ CH 74  
 Test Date : Oct. 12, 2001      Temperature : 25      Humidity : 70%

Measured Frequency MHz	Measured @ 5cm mW/cm <sup>2</sup>	Measured @ 10cm mW/cm <sup>2</sup>	Measured @ 15cm mW/cm <sup>2</sup>	Measured @ 20cm mW/cm <sup>2</sup>	Probe Factor	Maximum Result @5cm mW/ cm <sup>2</sup>	MPE Limit mW/cm <sup>2</sup>
CH 00	0.75	0.40	0.22	0.11	0.82	0.615	1.0
CH 40	0.73	0.38	0.25	0.12	0.82	0.598	1.0
CH 74	0.73	0.40	0.24	0.12	0.82	0.598	1.0

Note :

1. Remark “---” means that the emission level is too low to be measured (the precise accuracy of the measurement system is 0.01 mW/ cm<sup>2</sup>).
2. Value 0.82 is a corrected factor of measurement system.
3. Result = Value Measured X Corrected Factor.
4. The measurement was performed under the condition of fixed the emission frequency to get the most extreme MPE.