Ericsson Inc.

FCC Part 15 Subpart D Application
For
Certification
(Unlicensed Personal Communications Service Devices)

DCT1900 Portable Handset
Model: DT-620

FCC ID: AXAROA1173201

October 05, 1998

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WO# 6059
RPT# eri24833.doc

Table of Contents

1.0 General Description

1.1 Product Description

The DT620 is a portable telephone which operates in the unlicensed isochronous PCS band from 1920Mhz to 1930Mhz. The frequency spacing of 8 separate channels is 1.25Mhz with the lowest channel centered at 1920.625Mhz. The DT620 operates on two power levels, 2mW and 90mW. The maximum peak transmit power level is 19.5dBm or 90mW. The Frequency reference for the handset is a 15Mhz Temperature compensated crystal oscillator (TCXO), D200.

The portable transceiver is made up of two major circuit elements. A combination of digital and analog circuits provides a telephony user interface, with associated keypad, display, microprocessor and battery functions. The other part of the transceiver is the radio circuit. Radio circuits consist of synthesizers, mixer, amplifiers and filters. Also included is the QPSK modem(D20) function and related radio control functions for transmitting and receiving digital radio signals. Since the system is Time Division Duplexed the same frequency is used for both transmit and receive.

After converting the TX signal to the frequency between 1920Mhz and 1930Mhz the signal is routed through a 3 pole bandpass filter, k L235, which removes the 1075.625Mhz to 1085.625Mhz image signals as well as the second LO at 1498.125 to 1506.875Mhz. A discrete filter follows the PA to reject harmonics of the output signal.

1.2 Related Submittals / Grants

There is a related submittal for this application. A related filing has been made for the DT-600, a previous version of the EUT. The FCC ID for the previous filing is AXAROA1173197. The base station for the DT 620 was filed under FCC ID: AXAKRC1011371.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All measurements were performed in Open Area Test Sites. For each scan, the procedures for maximizing emissions described in Section 8.1 of this report were followed. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the appropriate section of this Application. The DT-620 was tested in accordance with ANSI C63.17:1998.

1.4 Test Facility

The North site is located at 4317-A Park Drive in Norcross, Georgia. The site consists of a wooden enclosed structure with a steel ground plane. The site meets the characteristics of ANSI C63.4:1992 and is on file with the FCC. Please reference the site filing number: 3140/SIT 1300F2, dated April 26, 1996. For measurements a remotely controlled flush mount metal top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan from one to four meter heights. The site enclosure is constructed of non conductive materials.

1.5 Test Equipment List

The following test equipment was used during testing:

Type	Manufacturer	Model Number	Serial Number
Spectrum Analyzer	Hewlett Packard	8566B	2134A01032
Preamplifier	Compliance Design	P950	EMC-0002
Preamplifier	Hewlett Packard	8447D	2237109
Preamplifier	Hewlett Packard	8449B	3008A00989
Preselector	Hewlett Packard	85460A	3348A00203
Power Meter	Hewlett Packard	436A	1803A04471
Power Sensor	Hewlett Packard	8481A	2702A65715
Horn Antenna	EMCO	3115	9208-3919
Horn Antenna	EMCO	3116	9310-2222
BiLog	Chase	CBL6112B	2245
Tuned Dipole Ant.	Compliance Design	Roberts A100	423
Antenna Mast	EMCO	2070	9704-2405
LISN	Solar	8012-50-R-24-BNC	924866
Transient Limiter	Hewlett Packard	11947A	3107A01807

2.0 System Test Configuration

2.1 Justification

The transmitter was configured for testing in a typical fashion. During testing, the device was mounted to a cardboard box, which enabled the engineer to maximize emissions through placement in its three orthogonal axes.

The device was powered from one, fully charged Ericsson BKB 193 103 R1A 4.8V battery.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once activated, the unit transmits the typical signal. For simplicity of testing, the unit was wired to transmit continuously. Some tests required the transmitter to be operated in burst mode.

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

2.4 Equipment Modification

Any modifications installed previous to testing by Ericsson, Inc. will be incorporated in each production model sold/leased in the United States.

No Modifications were installed by Intertek Testing Services

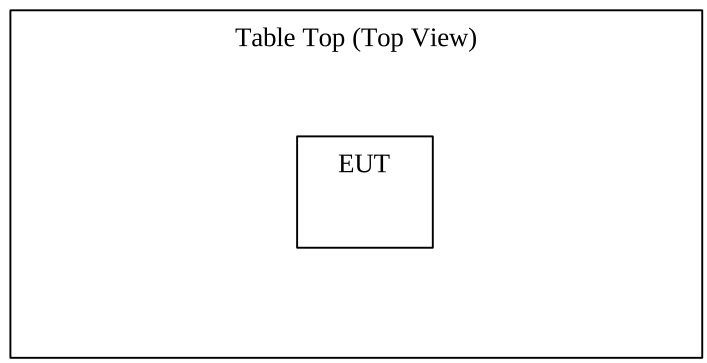
2.5 Support Equipment List and Description

The information for all equipment, plus descriptions of all cables used in the tested system are:

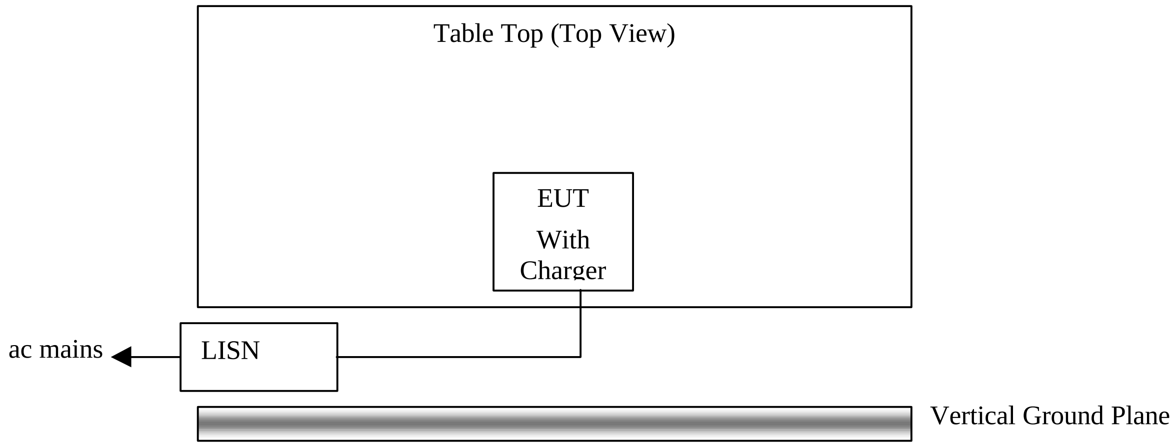
Description	Manufacturer	Part Number
Multi Charger and Transformer	Ericsson	BML 162 087/72
Rapid Charger	Ericsson	BML 162 098
Headset Adapter Cable	Ericsson	RPM 113 2067
Headset	Ericsson	UNK

Cables: None

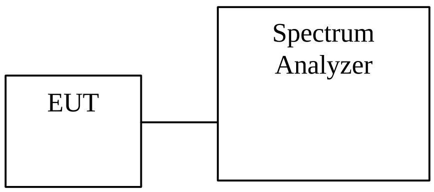
2.6 Test Configuration Block Diagram



Radiated Setup



Conducted Setup



Antenna Conducted
Setup

3.0 Technical Requirements

3.1 General Comments

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

where FS = Field Strength in dBμV/m

RA = Receiver Amplitude (including preamplifier) in dBμV

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB/m

AG = Amplifier Gain in dB

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m.

RA = 52.0 dBμV/m

AF = 7.4 dB/m

CF = 1.6 dB

AG = 29.0 dB

FS = 52 +7.4 + 1.6 - 29 = 32dbμV/m

3.2 Requirements and Test Results, Part 15, Subpart D

3.2.1 Coordination with fixed microwave service §15.307

The affidavit from UTAM, Inc. is enclosed in Appendix A

3.2.2 Cross Reference to subpart B

The requirements of Subpart D apply only to the radio transmitter contained in the PCS device. Other aspects of a PCS device may be subject to requirements contained elsewhere in this Chapter. In particular, a PCS device that includes digital circuitry not directly associated with the radio transmitter also is subject to the requirements for unintentional radiators in Subpart B. The DT-620 tunes up to 1930 MHz. Therefore, in accordance with §15.33 (b) (1), the EUT was tested from 30 MHz to 10 GHz.

§ 15.109 Radiated Emission Limits, Class B

Frequency MHz	Field Strength at 3 m	
	μV/m	dB(μV/m)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
960 – 10,000	500	54.0

Measurement Data:

The data below represents the worst case emissions and the operating mode.

Company: Ericsson, Inc
Model: Dixie DCT1900

Date: 10/01/98
Tested by: Mark A. Severson
Test Distance: 3
Job Number: J98024833

Notes: Mode 1 - Receive
Mode 2 - 90 mW TX, Mid Channel
Mode 3 - 90 mW TX, Mid Channel, with Multi-Charger and Headset

Standard: FCC Part 15
Class B

Antenna Polarity	Frequency MHz	Receiver Amplitude dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Mode
V	41.000	24.0	15.8	1.7	16.8	0.0	24.7	40.0	-15.3	2
H	41.000	21.0	15.8	1.7	16.8	0.0	21.7	40.0	-18.3	2
H	389.700	20.0	15.6	5.0	16.4	0.0	24.2	46.0	-21.8	2
V	389.700	20.0	15.6	5.0	16.4	0.0	24.2	46.0	-21.8	2
V	134.700	23.2	12.1	2.8	16.6	0.0	21.5	43.5	-22.0	1
H	134.700	21.0	12.1	2.8	16.6	0.0	19.3	43.5	-24.2	3
H	221.100	24.0	10.2	3.5	16.4	0.0	21.3	46.0	-24.7	2
V	221.100	23.2	10.2	3.5	16.4	0.0	20.5	46.0	-25.5	1

There were no other emissions detected above the measuring equipment noise floor, which is at least 6 db below the limit.

3.2.3 Labeling Requirements §15.311

In addition to the labeling requirements of Section 15.19 (a) (3), all devices authorized under this subpart must bear a prominently located label with the following statement:

Installation of this equipment is subject to notification and coordination with UTAM, Inc. Any relocation of this equipment must be coordinated through, and approved by UTAM. UTAM may be contacted at telephone number 1-800-429-8826.

See the product labeling in Section 5.

3.2.4 Conducted Emissions §15.315

An unlicensed PCS device that is designed to be connected to the public utility (AC) power line must meet the limits specified in §15.207.

§15.207 Conducted Emission Limits, Class B

Frequency MHz	Class B Conducted Limit	
	μV	dB(μV)
0.45 to 30	250	48.0

Measurement Data:

The DT-620 does not connect to the AC mains, however, the battery charger does connect to the AC mains; therefore, the conducted emissions testing was performed with the handset in the charger.

Company: Ericsson
Model: Dixie DCT1900
Date: 10/05/98
Tested by: Mark A. Severson
Job Number: J98024833
Notes: Mode 1 - With Desk Charger and Headset
Mode 2 - TX 90mW Mid Channel 1925.625Mhz
Standard: FCC Part 15 Class B

Quasi-Peak Readings

Frequency MHz	Reading Side A dB	Reading Side B dB	Attenuator Factor dB	Net dB(uV)	Qausi-Peak Limit dB(uV)	Margin dB	Mode
0.450	19.5	33.6	10.0	43.6	48.0	-4.4	2
0.450	23.0	31.3	10.0	41.3	48.0	-6.7	1
0.475	19.3	30.5	10.0	40.5	48.0	-7.5	2
0.500	15.5	25.7	10.0	35.7	48.0	-12.3	2
0.500	17.5	27.2	10.0	37.2	48.0	-10.8	1
0.600	13.7	21.9	10.0	31.9	48.0	-16.1	2
0.608	14.0	21.5	10.0	31.5	48.0	-16.5	1
0.623	12.3	18.6	10.0	28.6	48.0	-19.4	1
0.678	15.9	19.2	10.0	29.2	48.0	-18.8	2
0.680	15.3	19.4	10.0	29.4	48.0	-18.6	1
0.700	11.2	17.1	10.0	27.1	48.0	-20.9	2
0.750	11.0	12.3	10.0	22.3	48.0	-25.7	1

3.2.5 Antenna Requirement §15.317

The antenna of the DT-620 can only be replaced by the same type of antenna as specified by the manufacturer.

3.2.6 Frequency of Operation §15.319(a)

The DT-620 is an isochronous device that transmits from 1920 – 1930 MHz. The spectrum has been split into eight 1.25 MHz sub-bands. The DT-620 operates in the following channels:

Channel Number	Center Frequency MHz
0	1929.375
1	1928.125
2	1926.875
3	1925.625
4	1924.375
5	1923.125
6	1921.875
7	1920.625

3.2.7 Digital Modulation Technique §15.319(b)

The DT-620 uses a Differential Pi / 4 DQPSK Differential Quadrature Phase Shift Keying digital modulation.

3.2.8 Peak Transmit Power

The Peak Transmit Power limit is as follows:

$$PeakPower = 100uW \times \sqrt{BW}$$

Where P is the Peak Transmit Power, and BW is the Bandwidth in Hertz. The measured bandwidth for the DT-620 is not greater than 824 kHz. Therefore, the allowable Peak Transmit Power is:

$$PeakPower = 100uW \times \sqrt{824000} = 90.8 = 19.6dBm$$

The following table details the peak transmit power measured at the 90 mW setting.

Channel	Frequency, MHz	Measured Transmit Power	Allowed Transmit Power
0	1929.221	16.6 dBm	19.6 dBm
3	1925.589	16.9 dBm	19.6 dBm
7	1920.739	17.3 dBm	19.6 dBm

3.2.9 Power Spectral Density

The following data show the fundamental emission when modulated with a worst-case bit sequence. Power Spectral Density is observed to be –0.1dBm. The Power Spectral Density limit is 3 milliwatts (4.7 dBm) in any 3Khz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3Khz.

Frequency MHz	Maximum Power Spectral Density dBm
1920.625	-0.1
1925.625	-0.5
1929.375	-0.7

3.2.10 Directional Gain of Antenna §15.319 (e)

The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

The antenna gain of the DT-620 is 0 dBi.

3.2.11 Automatic Discontinuance of Transmission §15.319 (f)

The device shall automatically discontinue transmission on case of either absence of information to transmit or operational failure. The provisions in this section are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

1. The DT-620 will cease to transmit under the following conditions:
2. Reset Radio Exchange with base station powered from Radio Exchange
3. Remove power from Radio Exchange
4. Remove interface line between Radio Exchange and base station
5. Removed battery from handset

In the configuration tested, the EUT complied with the requirements of this specification.

3.2.12 IEEE C95.1-1991 §15.319 (I)

The device must comply with the IEEE C95.1 – 1991, (ANSI / IEEE C95.1-1992), “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.” The DT-620 meets the requirements of IEEE C95.1-1991. The testing was performed by Ericsson. The compliance statement is included in Appendix D of this report.

3.2.13 Channel Allocation §15.323 (a)

Operation shall be contained within one of the eight 1.25 MHz channels starting with 1920 – 1921.25 MHz and ending with 1928.75 – 1930 MHz. Further sub-division of a 1.25 MHz channel is permitted with a reduced power level, as specified in §15.319 (c), but in no event shall the emission bandwidth be less than 50 kHz.

Frequency (MHz)	Measured Emission Bandwidth (kHz)
1920.625	824
1925.625	824
1929.375	822

The DT-620 operates in the following channels:

Channel Number	Center Frequency MHz
0	1929.375
1	1928.125
2	1926.875
3	1925.625
4	1924.375
5	1923.125
6	1921.875
7	1920.625

The DT-620 uses Time Division Multiple Access (TDMA) technology. Each channel is divided into 10 msec frame periods, this is further divided into twenty-four time-slots of 416.7 (sec. The frame is divided in half. The first twelve slots of the frame are the downlink slots, (RFP to PP) and the second twelve slots are the uplink slots (PP to RFP). Below is a diagram showing how the 10 msec frame is subdivided and how each slot is divided into 480 bits:

3.2.14 15.323 (b), §15.323 (c) (1) through §15.323 (c) (12)

The tests to demonstrate compliance to these sections were performed at Ericsson Inc. The test report is enclosed in Appendix B.

3.2.15 Spurious Emissions §15.323 (d)

Emissions shall be attenuated below a reference power of 112 milliwatts as follows: 30 dB between the channel edges and 1.25 MHz above or below the channel; 50 dB between 1.25 and 2.5 MHz above or below the channel; and 60 dB at 2.5 MHz or greater above or below the channel. Systems that further sub-divide a 1.25 MHz channel into X sub-channels must comply with the following emission mask: In the bands between 1B and 2B measured from the center of the emission bandwidth the total power emitted by the device shall be at least 30 dB below the transmit power permitted for that device; in the bands between 2B and 3B measured from the center of the emission bandwidth the total power emitted by an intentional radiator shall be at least 50 dB below the transmit power permitted for that radiator; in the bands between 3B and the 1.25 MHz channel edge the total power emitted by an intentional radiator in the measurement bandwidth shall be at least 60 dB below the transmit power permitted for that radiator. "B" is defined as the emission bandwidth of the device in hertz. Compliance with the emission limits is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

The DT-620 tunes up to 1930 MHz; therefore, in accordance with §15.33 (b) (1), the EUT was tested from 30 MHz to 19.3 GHz, and in accordance with §15.31(m) the EUT was tuned with the transmitter at a low channel and an upper channel.

Spurious Emission at Antenna Terminals

Transmitting on Channel 0 (1929.375 MHz)			
Frequency Range MHz	Frequency MHz	Corrected Level dBm	Limit dBm
30 – 1926.875	1896.900	-44.5	-39.5
1926.875 – 1927.875	1926.930	-42.5	-29.5
1927.875 – 1930.875	None detected		-9.5
1930.875 – 1931.875	None detected		-29.5
1931.875 – 19300.00	2168.700 3858.750 5788.125	-51.3 -67.7* -67.3*	-39.5

* Noise Floor

Transmitting on Channel 7 (1920.625 MHz)			
Frequency Range MHz	Frequency MHz	Corrected Level dBm	Limit dBm
30 – 1918.125	1888.240	-42.7	-39.5
1918.125 – 1919.125	1918.240	-45.5	-29.5
1919.125 – 1922.125	None detected		-9.5
1922.125 – 1923.125	None detected		-29.5
1923.125 – 19300.00	1948.640 2451.302 3841.250	-49.1 -48.4 -67.7*	-39.5

* Noise Floor

Transmitting on Channel 3 (1925.625 MHz)			
Frequency Range MHz	Frequency MHz	Corrected Level dBm	Limit dBm
30 – 1923.125	1918.000	-42.0	-39.5
1923.125 – 1924.125	None detected		-29.5
1924.125 – 1927.125	None detected		-9.5
1927.125 – 1928.125	None detected		-29.5
1928.125 – 19300.00	2151.280 3851.256	-48.4 -68.3*	-39.5

* Noise Floor

Spurious Emissions, Radiated

See Section 3.2.2 of this report for the radiated emissions data.

3.2.16 Frame Repetition Stability / Frame Period and Jitter

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in these sub-bands shall be 10 milliseconds/X where X is a positive whole number. Each device that implements time division for the purposes of maintaining a duplex connection on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per millions (ppm). Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm. The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

The DT-620 was tested at Ericsson Inc. See Appendix B for the test results.

3.2.17 Frequency Stability §15.323 (f)

The frequency stability of the carrier frequency of the intentional radiator shall be maintained within +/-10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of -20° to +50° degrees C at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20° C. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

Frequency Stability Temperature C°	Supply Voltage	Frequency of Carrier, MHz	Measured Frequency, MHz	Deviation, ppm
-20	Nominal	1925.625	1925.6238	1.97
+20	Nominal	1925.625	1925.6200	Reference
+50	Nominal	1925.625	1925.6245	-0.36

4.0 Equipment Photographs

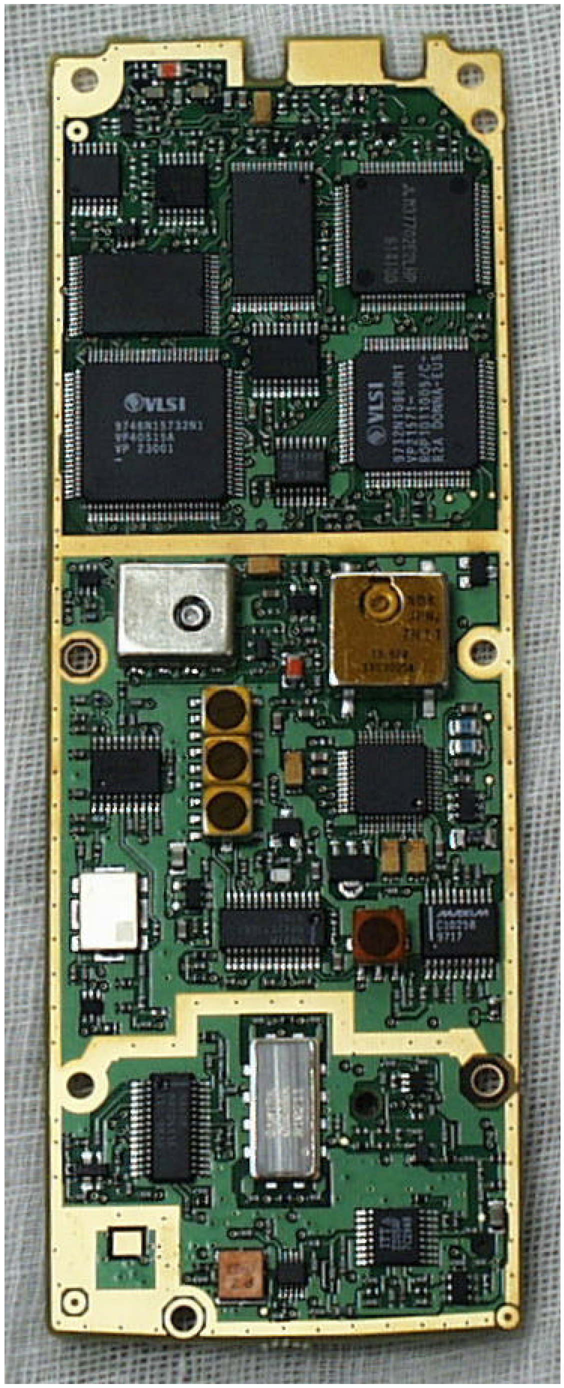
Photographs of the tested EUT are attached.

Photograph 4.1: Overview – Front of EUT
Photograph 4.2: Overview – Rear of EUT
Photograph 4.3: Overview – Printed Circuit Board – Top
Photograph 4.4: Overview – Printed Circuit Board – Bottom
Photograph 4.5: DCT 1900 and Accessories
Photograph 4.6: DCT 1900 Antenna
Photograph 4.7: Radiated Emissions setup
Photograph 4.8: Conducted Emissions setup
Photograph 4.9: Antenna Conducted setup

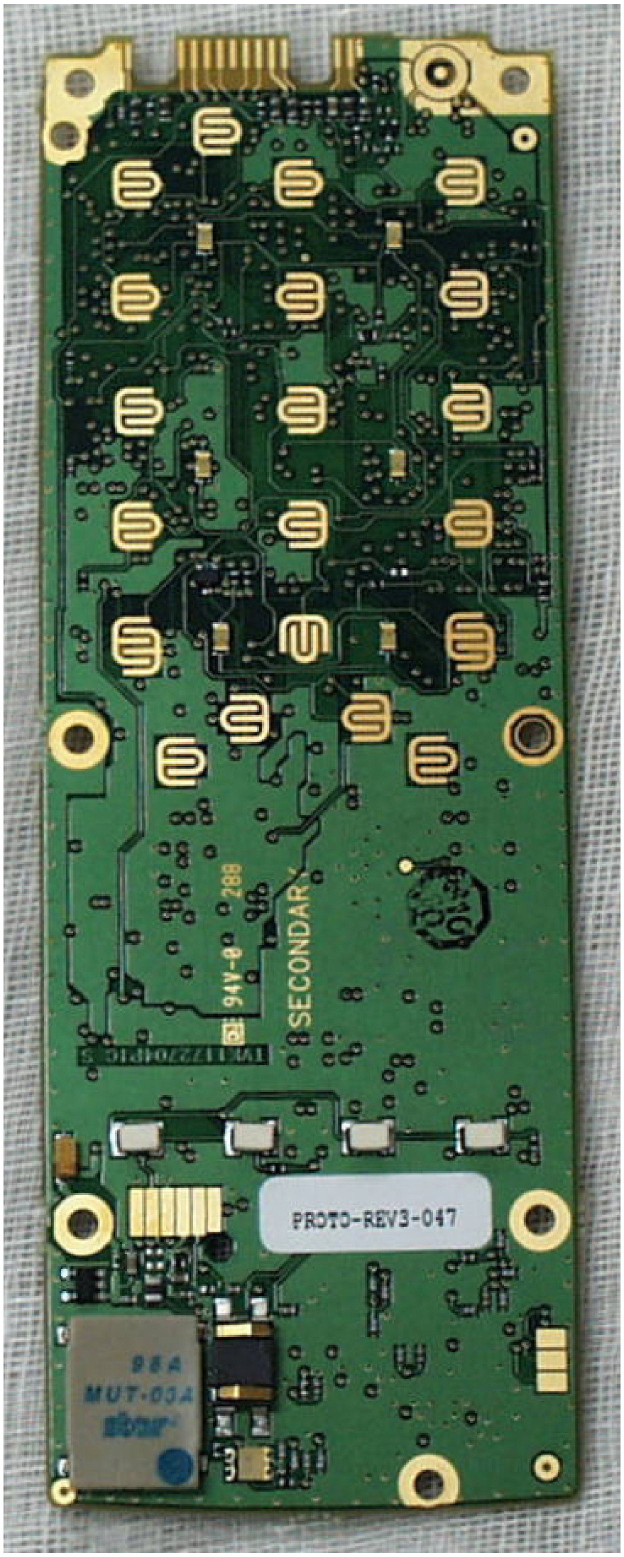
Photograph 4.1: Overview – Front of EUT

Photograph 4.2: Overview - Rear of EUT

Photograph 4.3: Overview - Printed Circuit Board - Top



Photograph 4.4: Overview - Printed Circuit Board - Bottom

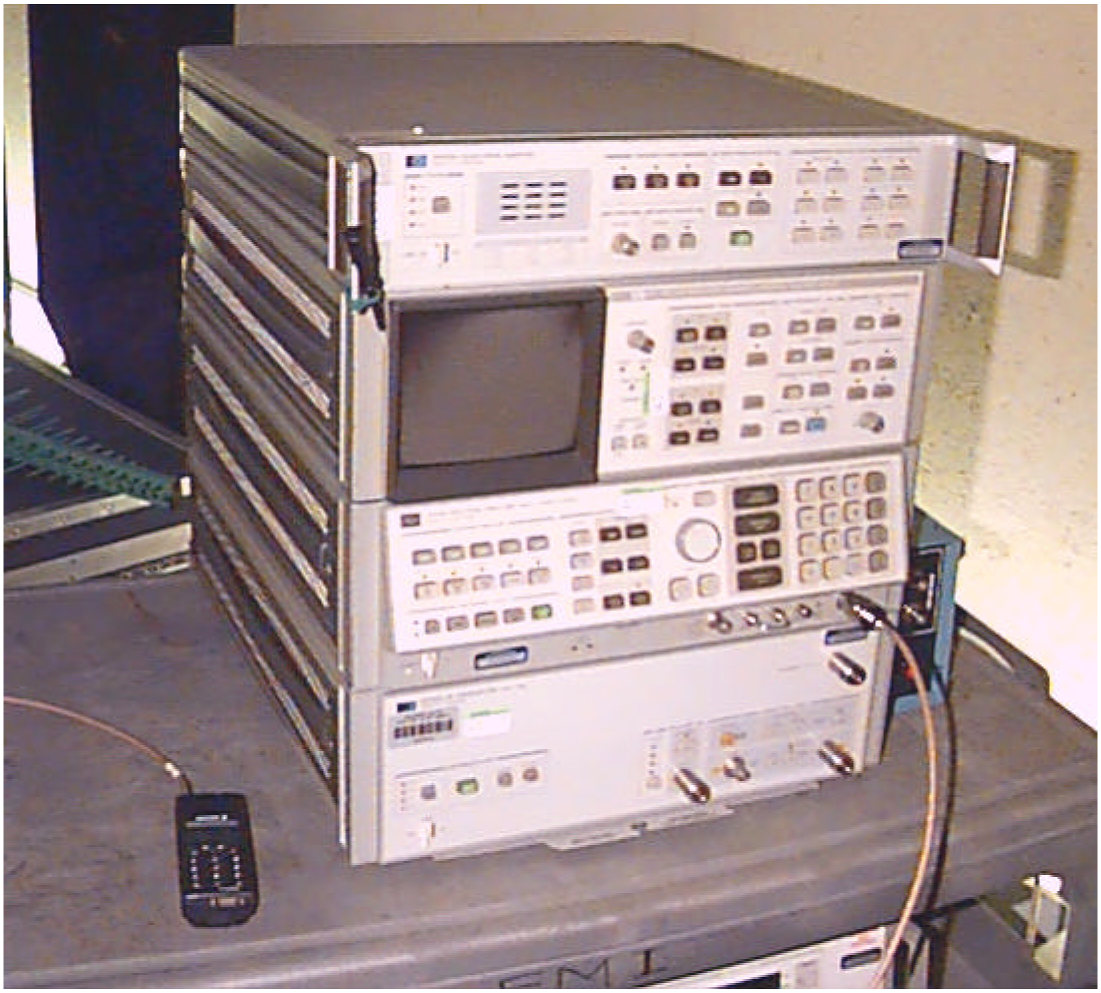


Photograph 4.5: DCT 1900 and Accessories

Photograph 4.6: DCT 1900 Antenna

Photograph 4.7: Radiated Emissions setup

Photograph 4.8: Antenna Conducted setup



5.0 Product Labeling

The Equipment label and label location are attached.

5.1 Label Artwork

An engineering drawing of the label which will be permanently affixed to the unit is shown below.

Figure 5.1 Equipment Label

6.0 Technical Specifications

Transmitter schematics are located in Appendix C.

Figure 6.1 Transmitter Block Diagram

7.0 Instruction Manual

Attached in Appendix D is a preliminary copy of the Instruction Manual. The following information is included:

> "This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."
>
> "Do not tamper with the Warranty Seal on the back of your phone. Tampering with this seal can void your warranty. Do not attempt to take your phone apart. Doing so will void your warranty. Your phone does not contain consumer serviceable components. Service should only be performed by Authorized Service Centers."

This manual will be provided to the end-user with each unit sold/leased in the United States.

8.0 Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under FCC Part 15 rules.

8.1 Cross Reference to Subpart B

8.1.1 §15.309 Radiated Emissions

The radiated emissions were tested as per ANSI C63.4: 1992.

Radiated emissions from the DT-620 were measured using a spectrum analyzer with a quasi-peak adapter. A preamplifier with a gain of 16 dB was used to increase the sensitivity of the measuring instrumentation. The spectrum analyzer's resolution bandwidth was set as follows:

Measurement Bandwidth Settings

Frequency Range, MHz	Peak and Quasi-Peak		Average	
	Resolution Bandwidth	Video Bandwidth	Resolution Bandwidth	Video Bandwidth
0.45 – 30	9 kHz	30 kHz	N/a	N/a
30 – 1000	120 kHz	300 kHz	N/a	N/a
> 1000	1 MHz	3 MHz	1 MHz	10 Hz

A Chase Biconilog antenna was used to measure emissions in the frequency range of 30 to 1000 MHz, and a double-ridge guide antenna was used to measure emissions in the frequency range of 1GHz to 20 GHz. All measurements were made with the antenna located 3 meters away from the EUT unless otherwise indicated. The readings obtained by these antennas were correlated to the levels obtained with a tuned dipole antenna by adding the antenna factors.

The equipment under test (EUT) was placed on a 1 x 1.5 meter wooden table which is 0.8 meters in height above the ground-plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

The EUT is warmed up for 15 minutes prior to the test.

Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals may be acquired at a distance of one meter or less. All measurements are taken at three meters unless otherwise noted on the data tables.

8.1.2 §15.315 AC Power Line Conducted Emissions

The AC power line conducted emissions were tested per ANSI C63.4: 1992

Power line conducted emissions were measured using a spectrum analyzer with a quasi-peak adapter. The measurement bandwidths used are indicated in the table above. Line conducted measurements were made using a 50 μH line impedance stabilization network on the open area site using a vertical ground plane located 40 cm away from the EUT.

8.2 Peak Transmit Power, §15.319(c), and Power Spectral Density, §15.319(d)

The EUT was directly connected to the spectrum analyzer through its antenna output port. The handset was configured to operate continuously on predetermined channels. The peak transmit power and the power spectral density were measured according to section 6.1.2 of ANSI C63.17: 1998. The peak transmit power was measured with a resolution bandwidth of 1 MHz and a video bandwidth of 3 MHz. The peak transmit power was also verified using a peak power meter. The measurements were performed on two channels, one near the top of the spectrum and one near the bottom per 47 CFR 15.31(m).

Power spectral density measurements were made with a resolution bandwidth of 3 kHz and a video bandwidth of 10 kHz. The highest peak of any 3 kHz span was recorded.

8.3 Emission Bandwidth

The emission bandwidth was determined according to section 6.1.3 of ANSI C63.17: 1998.

8.4 Spurious Emissions, §15.323 (d)

The EUT was directly connected to the spectrum analyzer through the antenna output port. The handset was configured to operate continuously on predetermined channels. Emissions were measured from 30 MHz to 19.3 GHz. All emissions detected within 20 dB of the limit were reported. The spurious emissions were measured according to section 6.1.6 of ANSI C63.17: 1998.

8.5 Carrier Frequency Stability, §15.323 (f)

The EUT was placed inside a temperature chamber and directly connected to a spectrum analyzer through the antenna port. The handset was configured to operate as needed on predetermined channels. The EUT was placed inside the chamber and brought to a temperature of 20°C for one hour in order to stabilized the temperature of the EUT. The frequency was recorded and used as the reference for the measurements at the two extreme temperatures.