

EXHIBIT B

Measurement Report

MEASUREMENT REPORT of CORDLESS TELEPHONE

Applicant : Teledex Corporation
Model No. : TC305A, TC305B, TC305T, TC306A, TC306B, TC306T
EUT : One Line 900 MHz Analog Cordless Phone
FCC ID : DXATR1C
Report No. : S2115551

Test by :

Training Research Co., Ltd.

TEL : 886-2-26935155 FAX : 886-2-26934440

2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (1992) as a reference. All test were conducted by **Training Research Co., Ltd.**, 2, Lane 194, Huan-Ho Street, Hsichi, Taipei Hsien 221, Taiwan, R.O.C. Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.249.

Applicant : Teledex Corporation

Model No. : TC305A, TC305B, TC305T, TC306A, TC306B, TC306T

EUT : One Line 900 MHz Analog Cordless Phone

FCC ID : DXATR1C

Report No. : S2115551

Test Date : April. 20, 2000

Prepared by:



JACK TSAI

Approved by:



FRANK TSAI

Test by :

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I. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of Applicant in support of a Cordless Telephone certification in accordance with Part 2 Subpart J and Part 15 Subpart A and C of the Commission's Rules and Regulations.

1.2 Description of EUT

EUT : One Line 900 MHz Analog Cordless Phone
Model No. : TC305A, TC305B, TC305T, TC306A, TC306B, TC306T
FCC ID : DXATR1C
Frequency Range : Base: 925.080 – 927.440 MHz
Handset: 902.580 – 904.940 MHz
Support Channel : 60 Channel
Power Type : Base Powered by 120 Vac 60 Hz / 9 Vdc 300 mA
Handset powered by 3.6 V / 600 mAh.
Power Cord : Non-shielded
Data Cable : RJ-11 x 2 => Non-shielded, 7' long, Plastic hoods, No bead
Applicant : Teledex Corporation
3914 Murphy Canyon Rd., Suite A-207,
San Diego, CA 95131, USA

1.3 Description of Support Equipment

Headset & Mic. : DBTEL
Model No. : D&B
Serial No. : N/A
Data Cable : Non-shielded, 217cm long, Plastic hoods, No bead

1.4 Configuration of System Under Test

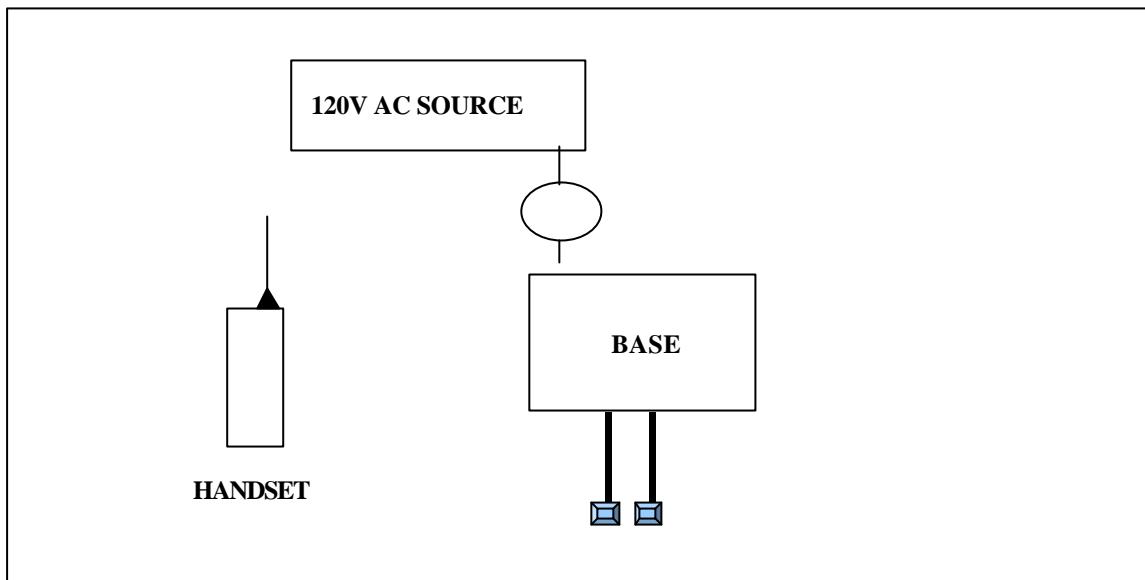


Fig. 1 Configuration of system under test

During testing the EUT was connected with three terminated. A diagram of the complete test configuration was shown in Fig 1.

1.5 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in Measurement procedure ANSI C63.4 (1992).

1.6 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter, Anechoic Chamber (Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F., No. 2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a shielded enclosure also located at *Training Research Co., Ltd.* B1, No. 2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan, R.O.C. *Training Research Co., Ltd.* is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.7 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests was chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated.

In test, the base and handset are tested separately. They were set in Ch01, Ch60 of EUT and continuously transmitting mode that controlled by test mode of EUT.

II. Conducted Emissions Measurements

2.1 Test Condition & Setup

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table, which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3825/2 Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPER quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 450 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.4.

There are tree test condition apply in this test item, the test procedure description as the following:

2.2 List of Test Instruments

Manufacturer	Device	Model No.	Input Impedance
Hewlett Packard	100Hz-1.5GHz Spectrum Analyzer	HP8591EM	50.00
EMCO	Line Impedance Stabilization Network	3825/2	50.00
TRC	Shielded Room	TRC-SR1	N/A

2.3 Test Configuration of Conducted Emission



Fig. 1 Conducted Emissions Test Configuration (Charging only)



Fig. 2 Conducted Emissions Test Configuration (Charging only)



Fig. 1 Conducted Emissions Test Configuration (Operating only)



Fig. 2 Conducted Emissions Test Configuration (Operating only)

2.4 Test Result of Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions on the HOT and NATURAL conductors of the EUT power cord.

Model No. : TC305A, TC305B, TC305T, TC306A, TC306B, TC306T

EUT : One Line 900 MHz Analog Cordless Phone

Table 1 Power Line Conducted Emissions (Channel 1)

Power Connected Emissions			FCC Class B	
Conductor	Frequency (KHz)	Peak Amplitude (dB μ V)	Limit (dB μ V)	Margin (dB)
Line 1	457.00	35.98	48.00	-12.02
	470.00	35.04	48.00	-12.96
	486.00	32.95	48.00	-15.05
	512.00	32.33	48.00	-15.67
	534.00	32.33	48.00	-15.67
	564.00	32.11	48.00	-15.89
	641.00	32.22	48.00	-15.78
	692.00	32.28	48.00	-15.72
	724.00	32.80	48.00	-15.20
	749.00	32.22	48.00	-15.78
LINE 2	452.00	28.12	48.00	-19.88
	493.00	27.88	48.00	-20.12
	524.00	28.34	48.00	-19.66
	549.00	27.01	48.00	-20.99
	773.00	24.68	48.00	-23.32
	808.00	28.26	48.00	-19.74
	851.00	28.90	48.00	-19.10
	898.00	29.14	48.00	-18.86
	935.00	29.07	48.00	-18.93
	991.00	26.33	48.00	-21.67

Note:

1. Margin = Peak Amplitude - Limit
2. A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit.

Table 2 Power Line Conducted Emissions (Channel 60)

Power Connected Emissions			FCC Class B	
Conductor	Frequency (KHz)	Peak Amplitude (dB μ V)	Limit (dB μ V)	Margin (dB)
Line 1	457.00	36.90	48.00	-11.10
	467.00	35.80	48.00	-12.20
	483.00	34.26	48.00	-13.74
	505.00	32.94	48.00	-15.06
	518.00	32.96	48.00	-15.04
	542.00	33.10	48.00	-14.90
	560.00	31.57	48.00	-16.43
	575.00	31.74	48.00	-16.26
	705.00	32.84	48.00	-15.16
	744.00	31.96	48.00	-16.04
LINE 2	457.00	28.77	48.00	-19.23
	486.00	27.12	48.00	-20.88
	505.00	28.96	48.00	-19.04
	521.00	28.67	48.00	-19.33
	538.00	28.94	48.00	-19.06
	813.00	27.82	48.00	-20.18
	845.00	29.34	48.00	-18.66
	874.00	29.27	48.00	-18.73
	910.00	30.40	48.00	-17.60
	966.00	29.30	48.00	-18.70

Table 3 Power Line Conducted Emissions (Charging)

Power Connected Emissions			FCC Class B	
Conductor	Frequency (KHz)	Peak Amplitude (dB μ V)	Limit (dB μ V)	Margin (dB)
Line 1	457.00	34.11	48.00	-13.89
	470.00	36.41	48.00	-11.59
	508.00	32.19	48.00	-15.81
	527.00	33.05	48.00	-14.95
	549.00	35.99	48.00	-12.01
	575.00	35.96	48.00	-12.04
	593.00	36.73	48.00	-11.27
	612.00	34.95	48.00	-13.05
	637.00	32.78	48.00	-15.22
	960.00	31.63	48.00	-16.37
LINE 2	461.00	31.26	48.00	-16.74
	473.00	30.79	48.00	-17.21
	483.00	29.61	48.00	-18.39
	502.00	30.39	48.00	-17.61
	524.00	30.81	48.00	-17.19
	545.00	32.44	48.00	-15.56
	560.00	29.26	48.00	-18.74
	575.00	28.67	48.00	-19.33
	910.00	31.50	48.00	-16.50
	960.00	30.70	48.00	-17.30

. Radiated Emissions Measurements

3.1 Test Condition & Setup

The EUT was placed in a anechoic chamber and scanned at 3 meter distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the final tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, anechoic chamber. The EUT system was placed on a nonconductive turntable, which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 85460A EMI Receiver, M.E.whole range Bi-Log antenna (Model No.: VULB9160) is used to measure frequency from 30 MHz to 1GHz.The final test is used the spectrum HP 85460A and spectrum was examined from 1 GHz to 18GHz using an Hewlett Packard 8592A Spectrum Analyzer, EMCO Horn Antenna (Model 3115) for 1 G - 18 GHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. There are two spectrum analyzers use on this testing , HP 85460A for frequency 30MHz to 1000MHz, and HP8592A for frequency 1 GHz to 18 GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6 dB bandwidth was set to 120 KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1 GHz to 18GHz) and the analyzer was operated in the maximum hold mode.

The actual field intensity in decibels referenced to 1 microvolt per meter (dB μ V/m) is determined by algebraically adding the measured reading in dB μ V, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

For frequency between 30MHz to 1000MHz

FIa (dBuV/m) = FIr (dBuV) – Correction Factors

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factor = Antenna Factor + (Cable Loss – Amplitude Gain)

For frequency between 1GHz to 18GHz

FIa (dBuV/m) = FIr (dBuV) + Correction Factor

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

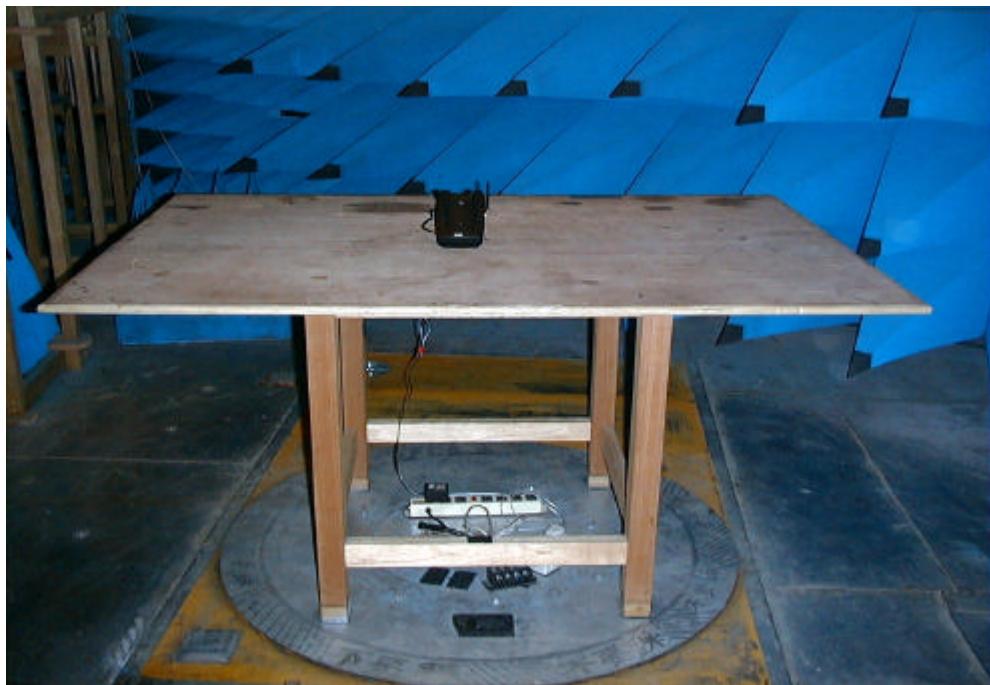
Correction Factors = Antenna Factor + Cable Loss – Distance Factor (9.54dB)

– Amplifier Gain

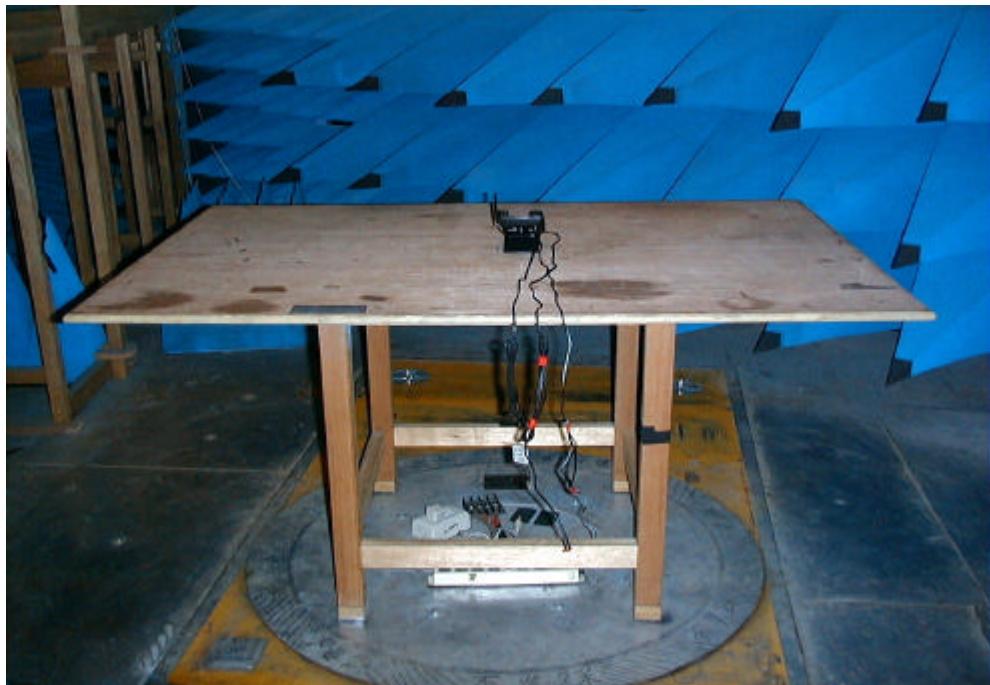
3.2 List of Test Instruments

Manufacturer	Device	Model	Input Impedance
Hewlett Packard	9KHz – 6GHz EMI Receiver	HP85460A	50.00
M.E.	30MHz-1.5GHz Bi-Log Antenna	VULB 9160	50.00
Hewlett Packard	50KHz – 22GHz Spectrum Analyzer	HP8592A	50.00

3.3 Test Configuration of Radiated Emission



Picture 1 Front View of the Test Configuration (BASE)



Picture 2 Rear View of the Test Configuration (BASE)



Picture 1 Front View of the Test Configuration (HANDSET)



Picture 2 Rear View of the Test Configuration (HANDSET)

The test configuration for frequency between 1 GHz to 18 GHz is same as above.

3.4 Test Result of Radiated Emissions

The peak values of fundamental emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Model No. : TC305A, TC305B, TC305T, TC306A, TC306B, TC306T

EUT : One Line 900 MHz Analog Cordless Phone

Table 4 Open Field Fundamental Emissions

Channel	Frequency (MHz)	A.P. (H/V)	A.H. (m)	Table (degree)	Amplitude (Peak) (dB μ V/m)	Limit (dB μ V)	Margin (dB μ V)
Base 01	925.080	H	1.00	119	66.49	94.00	-27.51
		V	1.00	116	70.66	94.00	-23.34
Base 60	927.440	H	1.00	21	62.38	94.00	-31.62
		V	1.00	103	67.28	94.00	-26.72
Handset 01	902.580	H	1.93	61	51.43	94.00	-42.57
		V	1.00	29	56.97	94.00	-37.03
Handset 60	904.940	H	1.93	47	57.55	94.00	-36.45
		V	1.00	31	62.82	94.00	-31.18

Note:

1. A. P. means antenna polarization, horizontal and vertical.
2. A. H. means antenna height.
3. Table means turntable turning position.
4. Amplitude means the fundamental emission measured.
5. Margin = Amplitude-limit

3.5 Test Result of Spurious Radiated Emissions

The highest peak values of radiated emissions form the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Model No. : TC305A, TC305B, TC305T, TC306A, TC306B, TC306T

EUT : One Line 900 MHz Analog Cordless Phone

Table 5 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 01, Base Horizontal]

*The emissions of this polarity are all under the limits more than twenty dB.

Table 6 Open Field Radiated Emissions for 1GHz ~ 18GHz [Channel 01, Base Horizontal]

Note:

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factor + Distance = Corrected

Table 7 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 01, Base Vertical]

*The emissions of this polarity are all under the limits more than twenty dB.

Table 8 Open Field Radiated Emissions for 1GHz ~ 18GHz [Channel 01, Base Vertical]

Table 9 *Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 60, Base Horizontal]*

*The emissions of this polarity are all under the limits more than twenty dB.

Table 10 Open Field Radiated Emissions For 1GHz ~ 18GHz [Channel 60, Base Horizontal]

Table 11 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 60, Base Vertical]

Note:

1. Margin = Corrected – Limit.
2. Peak Amplitude – Correction Factors = Corrected
3. Correction Factor = Antenna Factor + (Cable Loss – Amplitude Gain)

Table 12 Open Field Radiated Emissions for 1GHz ~ 18GHz [Channel 60, Base Vertical]

Table 13 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 01, Handset Horizontal]

Table 14 Open Field Radiated Emissions For 1GHz ~ 18GHz [Channel 01, Handset Horizontal]

Table 15 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 01, Handset Vertical]

Table 16 Open Field Radiated Emissions for 1GHz ~ 18GHz [Channel 01, Handset Vertical]

Table 17 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 60, Handset Horizontal]

Table 18 Open Field Radiated Emissions For 1GHz ~ 18GHz [Channel 60, Handset Horizontal]

Table 19 Open Field Radiated Emissions for 30MHz ~ 1GHz [Channel 60, Handset Vertical]

Table 20 Open Field Radiated Emissions for 1GHz ~ 18GHz [Channel 60, Handset Vertical]

. Verify Frequencies and Channels

Table 21 Verify the Frequency Pairs

Channel	Handset (MHz)	Base (MHz)	Channel	Handset (MHz)	Base (MHz)
1	902.580	925.080	31	903.780	926.280
2	902.620	925.120	32	903.820	926.320
3	902.660	925.160	33	903.860	926.360
4	902.700	925.200	34	903.900	926.400
5	902.740	925.240	35	903.940	926.440
6	902.780	925.280	36	903.980	926.480
7	902.820	925.320	37	904.020	926.520
8	902.860	925.360	38	904.060	926.560
9	902.900	925.400	39	904.100	926.600
10	902.940	925.440	40	904.140	926.640
11	902.980	925.480	41	904.180	926.680
12	903.020	925.520	42	904.220	926.720
13	903.060	925.560	43	904.260	926.760
14	903.100	925.600	44	904.300	926.800
15	903.140	925.640	45	904.340	926.840
16	903.180	925.680	46	904.380	926.880
17	903.220	925.720	47	904.420	926.920
18	903.260	925.760	48	904.460	926.960
19	903.300	925.800	49	904.500	927.000
20	903.340	925.840	50	904.540	927.040
21	903.380	925.880	51	904.580	927.080
22	903.420	925.920	52	904.620	927.120
23	903.460	925.960	53	904.660	927.160
24	903.500	926.000	54	904.700	927.200
25	903.540	926.040	55	904.740	927.240
26	903.580	926.080	56	904.780	927.280
27	903.620	926.120	57	904.820	927.320
28	903.660	926.160	58	904.860	927.360
29	903.700	926.200	59	904.900	927.400
30	903.740	926.240	60	904.940	927.440

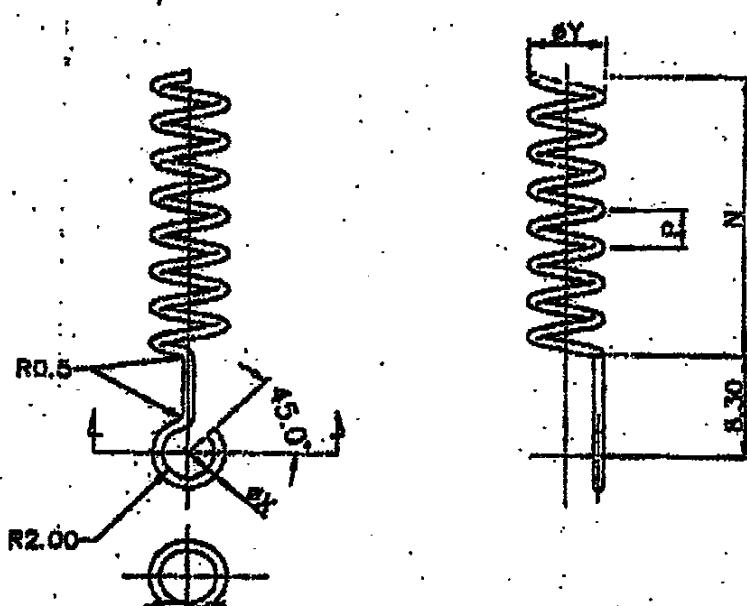
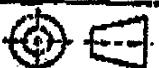
Note: This is for sure that all frequencies are in 902 MHz to 928 MHz.

Section 15.214(d) The security code is set automatic :

Every time when you place the handset in the base, your cordless will randomly select one of 65,000 possible security codes.

Appendix A

The antenna of the device is screwed inside the device, the user can not remove it freely without any tools from outside the device. This is comply with the FCC rules part 15.203

R E V I S I O N S											
REV/ITEM	DESCRIPTION	PREPARED	APPROVED								
A-0	RELEASED FOR QUOTATION ONLY	Berry Chow 990514	K M Chan 990514								
											
SPECIFICATIONS											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">PITCH (P)</td> <td style="width: 50%;">4.0mm</td> </tr> <tr> <td>NO. OF TURN (N)</td> <td>6-3/4</td> </tr> <tr> <td>DIAMETER OF WIRE (X)</td> <td>0.8mm</td> </tr> <tr> <td>DIAMETER OF SPRING (Y)</td> <td>8.0mm</td> </tr> </table>		PITCH (P)	4.0mm	NO. OF TURN (N)	6-3/4	DIAMETER OF WIRE (X)	0.8mm	DIAMETER OF SPRING (Y)	8.0mm		
PITCH (P)	4.0mm										
NO. OF TURN (N)	6-3/4										
DIAMETER OF WIRE (X)	0.8mm										
DIAMETER OF SPRING (Y)	8.0mm										
MATERIAL: PRE-NICKEL PLATED MEDIUM CARBON STEEL (THE MATERIAL SHOULD BE EASY FOR SOLDERING)											
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MM											
TOLERANCE ON : LINES & 2D. ADJ. ±0.13 ANGULAR : H. & P. ±0.05		SCALE DO NOT SCALE									
DRAWN : Berry Chow 990514		USED ON : TELEDEX TR1C/TR2C TH2M									
CHECKED : DATE		Dwg No. 7510300110(0303)									
APPROVED : K M Chan 990514		REF : HS-COIL SIZE : A4 DATE :									

Appendix B

§ 15.245 (b)(3) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

