FCC PART 15 Subpart C

EMI MEASUREMENT AND TEST REPORT

FOR

UNICAL ENTERPRISES, INC.

16960 Gale Avenue
City of Industry, CA 91745

FCC ID: LZX39237

November 9, 1999

This Report Concerns:	**Equipment Type:**
☒ Original Report	900 MHz Cordless Phone – Household Appliances

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Test Date:	November 4, 1999
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1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Unical Enterprises, Inc.*, model *39237* or the "EUT" as referred to in this report is a 900 MHz Analog w/Call Waiting Caller ID Cordless phone measuring 8.50”L x 4.50”W x 3.50”H. It has following features:

- 900 MHz Operation.
- 40 Channel Autoscan.
- 40 Number Memory.
- Noise Compander.
- Digital Security Coding.
- 65536 Random Security Codes.
- Handset Page/Locator.
- Handset Hi/Lo Volume Control.
- Out-of-Range Warning.
- In-Use LED and the Battery Low Indicator
- Headphone Jack.
- Flash.
- Charge Indicators.
- Last Number Redial
- Power Save.
- Auto Anser/Auto Standby.
- Battery Quick Charge.
- Mixed Mode Dialing, Tone/Pulse Dialing.
- Ringer On/Off Switch.
- Desk/Wall Use.
- Hearing Aid Compatible.
- Belt Clip.

1.2 Purpose

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the 900 MHz 40 Channel Cordless Phone, FCC ID is LZX39237. The EMI measurements were performed according to the measurement procedure described in ANSI C63.6: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by FCC Title 47, Part 15, Subpart C, section 15.205, 15.207, and 15.249.

1.3 Related Submittal(s)/Grant(s)

No Related Submittals

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4 –1992, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.5 Test Facility

The Open Area Test site used by Bay Area Compliance Laboratory Corporation to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Suite 2, Sunnyvale, California, USA.

Test sites at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-1992.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-674 and R-657. The test sites has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corporation is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, IEC/CISPR 22: 1993, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Data
HP	Spectrum Analyzer	8566B	2610A02165	12/6/2000
HP	Spectrum Analyzer	8593B	2919A00242	12/20/2000
HP	Amplifier	8349B	2644A02662	12/20/2000
HP	Quasi-Peak Adapter	85650A	917059	12/6/2000
HP	Amplifier	8447E	1937A01046	12/6/2000
A.H. System	Horn Antenna	SAS0200/571	261	12/27/2000
Com-Power	Log Periodic Antenna	AL-100	16005	11/2/2000
Com-Power	Biconical Antenna	AB-100	14012	11/2/2000
Solar Electronics	LISN	8012-50-R-24-BNC	968447	12/28/2000
Com-Power	LISN	LI-200	12208	12/20/2000
Com-Power	LISN	LI-200	12005	12/20/2000
BACL	Data Entry Software	DES1	0001	12/20/2000

1.7 Equipment Under Test (EUT)

Manufacturer	Description	Model	Serial Number	FCC ID
Unical Enterprises, Inc.	Cordless Phone	39237	None	LZX39237

1.8 Local Support Equipment

Manufacturer	Description	Model	Serial Number	FCC ID
VTech	Headset	HS1000	None	None

1.9 Remote Support Equipment

Manufacturer	Description	Model	Serial Number	FCC ID
Teltone	Test Line Simulator	TLS 3	None	None

1.10 External I/O Cabling for the EUT Base Unit

Cable Description	Length (M)	Port/From	To
Unshielded Phone Cable	20	Tel Line /EUT	Teltone

1.11 External I/O Cabling for the EUT Handset Unit

Cable Description	Length (M)	Port/From	To
Unshielded headphone Cable	1.5	Headset /EUT	VTech

2 - SYSTEM TEST CONFIGURATION

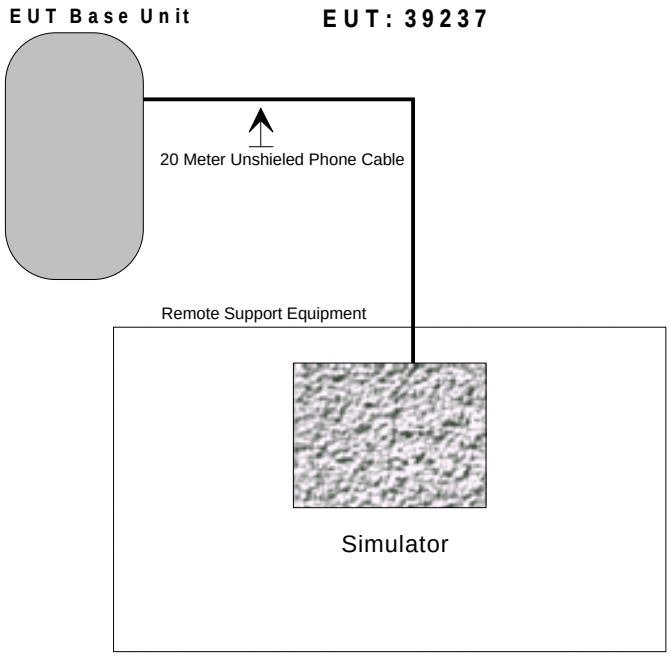
2.1 Description of Test Configuration

The EUT was configured for testing in a typical fashion (as normally used by a typical user).

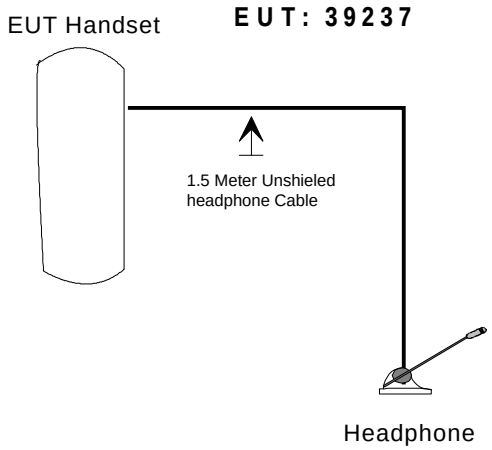
Handset Being tested: The 900 MHz 40 Channel Analog Cordless Phone – Handset, Model 39237 (EUT) was placed on the wooden table and tested in three orthogonal axis. The handset was connected to the headset via its headset port. The Low, middle, and high channels were tested. The handset was transmitting to and receiving from the Base unit. The EUT was investigated for emissions while off hook. The radiated data was taken in this mode of operation. All initial and final investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the 2.5.

Base being tested: The 900 MHz 40 Channel Analog Cordless Phone – Base, Model 39237 (EUT) was placed on the wooden table. The Low, middle, and high channels were tested. The base was connected to the line simulator and an AC adapter via its Tel Line and power ports, respectively. The base was transmitting and receiving from the 900 MHz 40 Channel Analog Cordless Phone – Handset. The conducted as well as radiated data was taken in this mode of operation. All initial and final investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the 2.4.

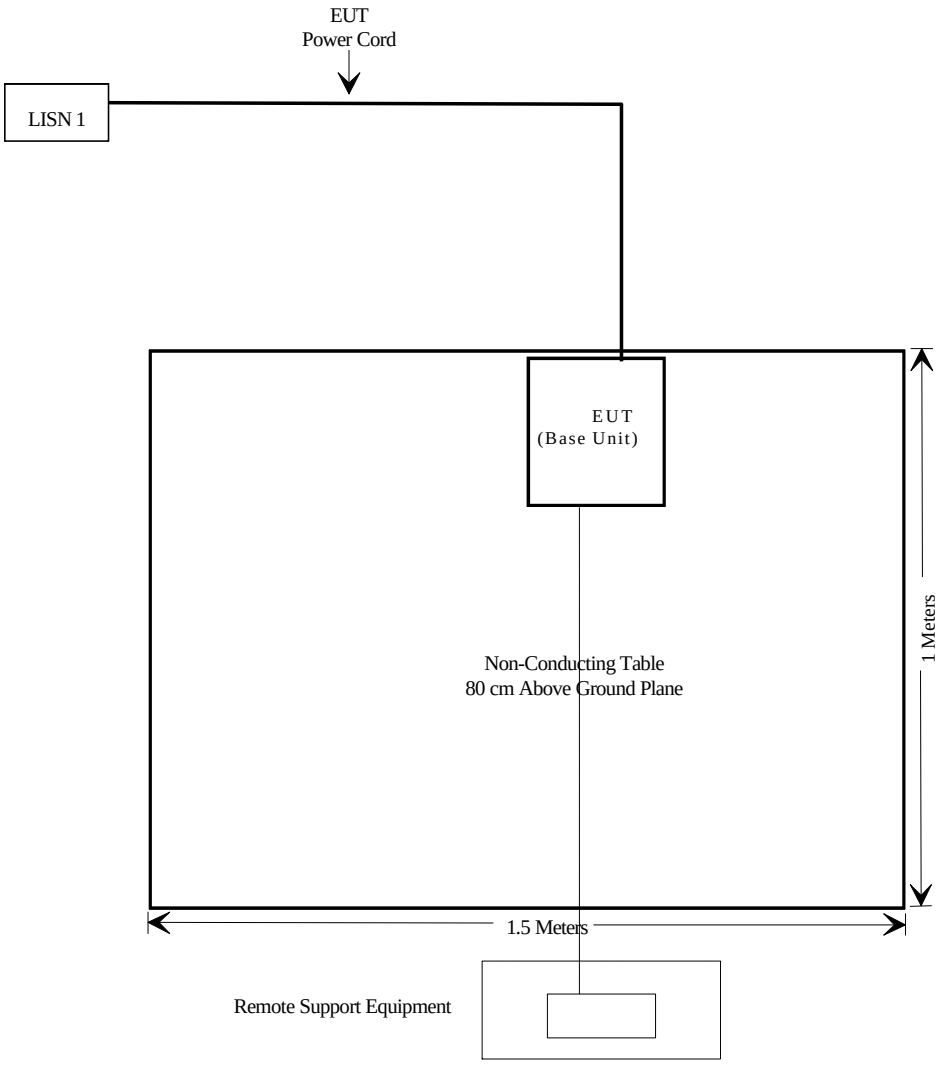
2.2 Configuration of Test System (Base Unit)



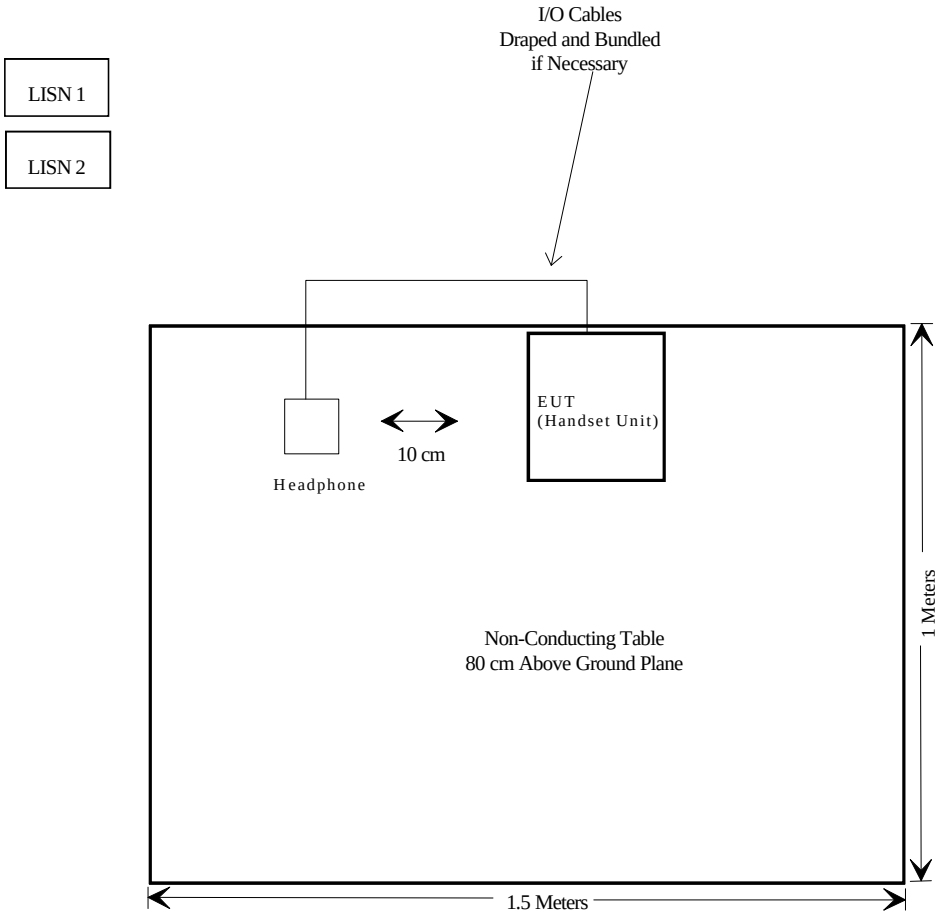
2.3 Configuration of Test System (Handset Unit)



2.4 Test Setup Block Diagram (Base Unit)



2.5Test Setup Block Diagram (Handset Unit)



2.6 Equipment Modifications

There were no modification(s) to the EUT were made to comply with the applicable limits.

3 - CONDUCTED EMISSIONS TEST DATA

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is $\pm$2.4 dB.

3.2 EUT Setup

The measurement was performed at the **O**pen **A**rea **T**est **S**ite, using the same setup per ANSI C63.4 - 1992 measurement procedure. Specification used was with the FCC Class B limits.

The Base of EUT was connected to a 110 VAC / 60 Hz power source and it was placed center and the back edge of the test table. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.

The spacing between the peripherals was 10 centimeters.

Input / Output cables were draped over edge of the test table and bundle when necessary.

3.3 Spectrum Analyzer Setup

The spectrum analyzer was set with the following configurations during the conducted emission test:

Start Frequency	450 kHz
Stop Frequency	30 MHz
Sweep Speed	Auto
IF Bandwidth	100 kHz
Video Bandwidth	100 kHz
Quasi-Peak Adapter Bandwidth	9 kHz
Quasi-Peak Adapter Mode	Normal

3.4 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first LISN with all support equipment power cords connected to the second.

The EUT was tested with the *UNICAL* (*U090030D*) power supply to represent worst case results for the final qualification test. Therefore, these results were used for final test data recorded in the table listed under section 3.6 of this report.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination. All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (less than -4 dBμV). Quasi-peak readings are distinguished with a "**Qp**".

3.5 Summary of Test Results

According to the data in section 3.6, the EUT complied with the FCC Conducted margin for a Class B device and these test results is deemed satisfactory evidence of compliance with ICES-003 of the Canadian Interference-Causing Equipment Regulations, with the *worst* margin reading of:

-10.5 dBμV at **0.600 MHz** in the ***Line*** mode for the ***UNICAL***, ***U090030D*** power supply

3.6 Conducted Emissions Test Data

3.6.1 Test Data for *Unical*, model *U090030D*, 0.45 - 30 MHz.

LINE CONDUCTED EMISSIONS				FCC CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	Qp/Ave/Peak	Line/Neutral	dBμV	dB
0.600	37.5	Peak	Line	48	-10.5
0.630	36.1	Peak	Neutral	48	-11.9
9.430	34.0	Peak	Line	48	-14.0
0.450	33.0	Peak	Line	48	-15.0
1.340	29.0	Peak	Neutral	48	-19.0
10.670	19.8	Peak	Neutral	48	-28.2

3.7 Plot of Conducted Emissions Test Data

Plot of Conducted Emissions test data for the *Unical Power Adapter*, model *U090030D* is presented in Appendix B of this report as reference.

4 - RADIATED EMISSION DATA

4.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is $\pm$4.0 dB.

4.2 EUT Setup

The radiated emission tests were performed in the open area 3 meter test site, using the setup in accordance with the ANSI C63.4 - 1992. The specification used was the FCC 15 Subpart C limits.

The EUT was connected to a 110 VAC / 60 Hz power source and it was placed center and the back edge of the test table. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.

The spacing between the peripherals was 10 centimeters.

Input / Output cables were draped over edge of the test table and bundle when necessary.

4.3 Spectrum Analyzer Setup

According to FCC Rules, 47 CFR 15.33 (a) (1), since the clock was 900 MHz, the system was tested to 10000 MHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Start Frequency	30 MHz
Stop Frequency	10000 MHz
Sweep Speed	Auto
IF Bandwidth	1 MHz
Video Bandwidth	1 MHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	1MHz

4.4 Test Procedure

For the radiated emissions test, both the EUT and all support equipment power cords was connected to the AC floor outlet since the power supply (*U090030D*) used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (less than -4 dBμV), and are distinguished with a "**Qp**" in the data table.

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - Class B Limit

4.6 Summary of Test Results

According to the data in section 4.7, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207, and 15.249, and had the worst margin of:

For Base:

- 3.6 dBμV at **4512.55 MHz** in the **Vertical** polarization at Low Channel, 30 to 10000MHz, 3 meters.

- 3.1 dBμV at **1807.44 MHz** in the **Horizontal** polarization at Middle Channel, 30 to 10000MHz, 3 meters.

- 4.4 dBμV at **904.92 MHz** in the **Horizontal** polarization at High Channel, 30 to 10000MHz, 3 meters.

For Handset:

- 3.6 dBμV at **5550.60 MHz** in the **Horizontal** polarization at Low Channel, 30 to 10000MHz, 3 meters.

- 3.2 dBμV at **926.28 MHz** in the **Vertical** polarization at Middle Channel, 30 to 10000MHz, 3 meters.

- 4.0 dBμV at **927.48 MHz** in the **Vertical** polarization at High Channel, 30 to 10000MHz, 3 meters.

For Spurious Emission of EUT Base Unit:

- 3.9 dBμV at **468.49 MHz** in the **Horizontal** polarization, 30 to 10000MHz, 3 meters.

For Spurious Emission of EUT Handset Unit:

- 4.4 dBμV at **468.49 MHz** in the **Horizontal** polarization, 30 to 10000MHz, 3 meters.

4.7 Radiated Emissions Test Result Data

4.7.1 Final Test Data, Base Unit, Low Channel, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
4512.55	35.0	Average	180	2.2	V	32.5	4.9	22.0	50.4	54.0	-3.6
5415.06	33.0	Average	120	1.8	V	33.9	5.2	22.0	50.1	54.0	-3.9
1805.02	43.7	Average	90	1.0	H	25.3	2.6	22.0	49.6	54.0	-4.4
902.51	81.5	Peak	45	1.0	H	24.8	3.0	19.8	89.5	94.0	-4.5
902.51	80.5	Peak	45	1.0	V	24.8	3.0	19.8	88.5	94.0	-5.5
1805.02	42.5	Average	45	3.0	V	25.3	2.6	22.0	48.4	54.0	-5.6
4512.55	30.0	Average	120	1.8	H	32.5	4.9	22.0	45.4	54.0	-8.6
2707.53	33.2	Average	120	2.4	V	29.0	3.7	22.0	43.9	54.0	-10.1
3610.04	31.2	Average	300	2.0	H	30.3	4.3	22.0	43.8	54.0	-10.2
3610.04	31.0	Average	180	1.8	V	30.3	4.3	22.0	43.6	54.0	-10.4
2707.53	32.5	Average	45	2.8	H	29.0	3.7	22.0	43.2	54.0	-10.8
5415.06	25.2	Average	270	1.8	H	33.9	5.2	22.0	42.3	54.0	-11.7

4.7.2 Final Test Data, Base Unit, Middle Channel, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
1807.44	45.0	Average	225	2.0	H	25.3	2.6	22.0	50.9	54.0	-3.1
903.72	82.5	Peak	45	1.5	H	24.8	3.0	19.8	90.5	94.0	-3.5
4518.60	34.6	Average	180	2.0	H	32.5	4.9	22.0	50.0	54.0	-4.0
903.72	81.6	Peak	45	1.0	V	24.8	3.0	19.8	89.6	94.0	-4.4
5422.32	31.2	Average	120	2.0	H	33.9	5.2	22.0	48.3	54.0	-5.7
4518.60	32.6	Average	120	2.0	V	32.5	4.9	22.0	48.0	54.0	-6.0
1807.44	41.3	Average	45	1.9	V	25.3	2.6	22.0	47.2	54.0	-6.8
3614.88	33.5	Average	300	2.0	H	30.3	4.3	22.0	46.1	54.0	-7.9
3614.88	32.9	Average	180	1.0	V	30.3	4.3	22.0	45.5	54.0	-8.5
5422.32	27.6	Average	270	1.5	V	33.9	5.2	22.0	44.7	54.0	-9.3
2711.16	33.6	Average	45	2.0	H	29.0	3.7	22.0	44.3	54.0	-9.7
2711.16	33.2	Average	120	1.0	V	29.0	3.7	22.0	43.9	54.0	-10.1

4.7.3 Final Test Data, Base Unit, High Channel, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
904.92	81.6	Peak	45	1.0	H	24.8	3.0	19.8	89.6	94.0	-4.4
4524.60	34.0	Average	180	2.0	H	32.5	4.9	22.0	49.4	54.0	-4.6
904.92	81.0	Peak	45	1.0	V	24.8	3.0	19.8	89.0	94.0	-5.0
1809.84	43.0	Average	225	1.5	H	25.3	2.6	22.0	48.9	54.0	-5.1
5429.52	31.0	Average	120	2.0	H	33.9	5.2	22.0	48.1	54.0	-5.9
1809.84	40.9	Average	45	1.8	V	25.3	2.6	22.0	46.8	54.0	-7.2
3619.68	34.0	Average	300	2.0	H	30.3	4.3	22.0	46.6	54.0	-7.4
4524.60	31.0	Average	120	2.0	V	32.5	4.9	22.0	46.4	54.0	-7.6
5429.52	29.0	Average	270	1.8	V	33.9	5.2	22.0	46.1	54.0	-7.9
3619.68	33.0	Average	180	1.8	V	30.3	4.3	22.0	45.6	54.0	-8.4
2714.76	34.9	Average	120	2.4	V	29.0	3.7	22.0	45.6	54.0	-8.4
2714.76	34.0	Average	45	2.8	H	29.0	3.7	22.0	44.7	54.0	-9.3

4.7.4 Final Test Data, Handset Unit, Low Channel, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
5550.60	32.9	Average	160	1.8	H	34.1	5.4	22.0	50.4	54.0	-3.6
925.10	81.3	Peak	90	1.0	V	24.7	4.4	20.2	90.2	94.0	-3.8
4625.50	34.6	Average	225	2.2	H	32.5	4.9	22.0	50.0	54.0	-4.0
925.10	80.0	Peak	90	1.0	H	24.7	4.4	20.2	88.9	94.0	-5.1
1850.20	43.0	Average	90	3.0	V	25.3	2.6	22.0	48.9	54.0	-5.1
1850.20	42.6	Average	125	1.0	H	25.3	2.6	22.0	48.5	54.0	-5.5
4625.50	32.0	Average	180	1.8	H	32.5	4.9	22.0	47.4	54.0	-6.6
3700.40	33.2	Average	280	2.0	H	30.3	4.3	22.0	45.8	54.0	-8.2
2775.30	35.0	Average	150	2.4	H	29.0	3.7	22.0	45.7	54.0	-8.3
3700.40	33.0	Average	160	1.8	H	30.3	4.3	22.0	45.6	54.0	-8.4
5550.60	28.0	Average	225	1.8	H	34.1	5.4	22.0	45.5	54.0	-8.5
2775.30	34.0	Average	90	2.8	H	29.0	3.7	22.0	44.7	54.0	-9.3

4.7.5 Final Test Data, Handset Unit, Middle Channel, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBμV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable dB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
926.28	81.9	Peak	90	1.0	V	24.7	4.4	20.2	90.8	94.0	-3.2
926.28	81.3	Peak	90	1.0	H	24.7	4.4	20.2	90.2	94.0	-3.8
1852.56	44.0	Average	90	3.0	V	25.3	2.6	22.0	49.9	54.0	-4.1
5557.68	32.0	Average	180	1.8	H	34.1	5.4	22.0	49.5	54.0	-4.5
4631.40	34.0	Average	225	2.2	H	32.5	4.9	22.0	49.4	54.0	-4.6
4631.40	33.0	Average	180	1.8	H	32.5	4.9	22.0	48.4	54.0	-5.6
3705.12	34.0	Average	270	2.0	H	30.3	4.3	22.0	46.6	54.0	-7.4
5557.68	29.0	Average	230	1.8	H	34.1	5.4	22.0	46.5	54.0	-7.5
1852.56	40.0	Average	125	1.0	H	25.3	2.6	22.0	45.9	54.0	-8.1
2778.84	34.2	Average	180	2.4	H	29.0	3.7	22.0	44.9	54.0	-9.1
2778.84	33.0	Average	125	2.8	H	29.0	3.7	22.0	43.7	54.0	-10.3
3705.12	31.0	Average	180	1.8	H	30.3	4.3	22.0	43.6	54.0	-10.4

4.7.6 Final Test Data, Handset Unit, High Channel, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Freqency MHz	Ampl. dBμV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable dB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
927.48	81.1	Peak	90	1.0	V	24.7	4.4	20.2	90.0	94.0	-4.0
4637.40	34.2	Average	180	1.8	H	32.5	4.9	22.0	49.6	54.0	-4.4
927.48	80.0	Peak	90	1.0	H	24.7	4.4	20.2	88.9	94.0	-5.1
1854.96	43.0	Average	90	3.0	V	25.3	2.6	22.0	48.9	54.0	-5.1
5564.88	31.2	Average	180	1.8	H	34.1	5.4	22.0	48.7	54.0	-5.3
4637.40	33.0	Average	225	2.2	H	32.5	4.9	22.0	48.4	54.0	-5.6
5564.88	30.0	Average	230	1.8	H	34.1	5.4	22.0	47.5	54.0	-6.5
1854.96	40.3	Average	125	1.0	H	25.3	2.6	22.0	46.2	54.0	-7.8
2782.44	35.3	Average	180	2.4	H	29.0	3.7	22.0	46.0	54.0	-8.0
3709.92	33.0	Average	270	2.0	H	30.3	4.3	22.0	45.6	54.0	-8.4
3709.92	33.0	Average	180	1.8	H	30.3	4.3	22.0	45.6	54.0	-8.4
2782.44	34.2	Average	125	2.8	H	29.0	3.7	22.0	44.9	54.0	-9.1

4.7.7 Final Test Data, Spurious Emission for the Base Unit, 30 to 10000MHz, 3 meters.

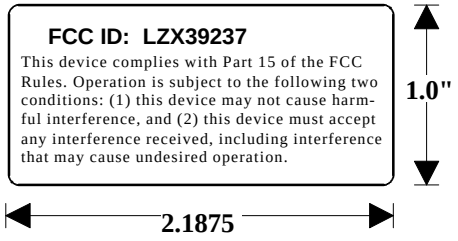
Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Class B	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
468.49	43.0	Peak	90	1.1	H	17.8	3.7	22.4	42.1	46.0	-3.9
468.60	42.3	Peak	0	1.9	V	17.8	3.7	22.4	41.4	46.0	-4.6
724.94	30.0	Peak	45	1.1	H	22.2	3.6	19.8	36.0	46.0	-10.0
611.87	34.0	Peak	0	1.1	V	20.0	3.3	22.8	34.5	46.0	-11.5
321.97	38.0	Peak	30	1.3	H	15.5	2.8	22.1	34.2	46.0	-11.8
658.04	30.0	Peak	30	1.2	V	20.7	3.4	21.6	32.5	46.0	-13.5

4.7.8 Final Test Data, Spurious Emission for the Handset Unit, 30 to 10000MHz, 3 meters.

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Class B	
Freqency MHz	Ampl. dBµV/m	Mode	Angle Degree	Height Meter	Polar H/ V	Antenna dBµV/m	Cable dB	Amp. dB	Corr. Ampl. dBµV/m	Limit dBµV/m	Margin dB
468.49	42.5	Peak	70	1.5	H	17.8	3.7	22.4	41.6	46.0	-4.4
468.60	42.1	Peak	0	1.4	V	17.8	3.7	22.4	41.2	46.0	-4.8
724.94	31.0	Peak	90	1.5	H	22.2	3.6	19.8	37.0	46.0	-9.0
611.87	34.5	Peak	30	1.1	V	20.0	3.3	22.8	35.0	46.0	-11.0
321.97	38.8	Peak	90	2.5	H	15.5	2.8	22.1	35.0	46.0	-11.0
658.04	30.0	Peak	45	1.5	V	20.7	3.4	21.6	32.5	46.0	-13.5

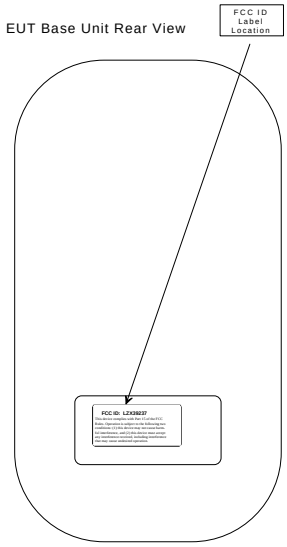
5 – FCC PRODUCT LABELING AND WARNING STATEMENT

5.1 FCC ID Label



Specifications: Text is black or white in color and is left justified. Labels are silk-screened and shall be "permanently affixed" at a conspicuous location on the EUT.

5.2 Proposed Label Location on EUT

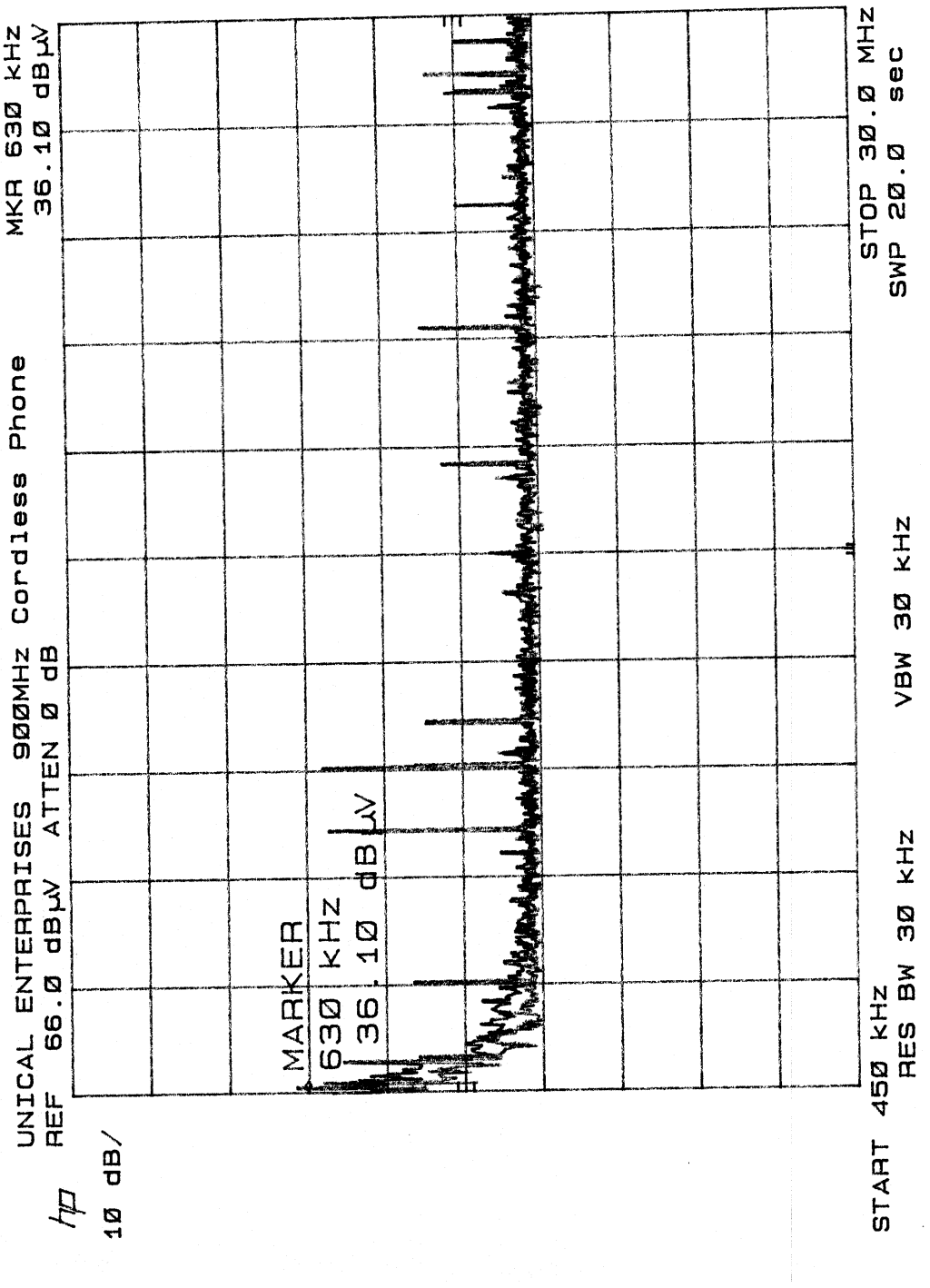


5.3 FCC Warning Statement

A FCC Warning Statement is provided in the product manual.

Appendix A – EUT BLOCK DIAGRAM

Appendix B – PLOT OF CONDUCTED EMISSION TEST DATA


UNICAL ENTERPRISES 900MHz Cordless Phone
MKR 630 kHz
36.10 dBµV
REF 66.0 dBµV ATTEN 0 dB
10 dB/
MARKER
630 kHz
36.10 dBµV
START 450 kHz
RES BW 30 kHz
VBW 30 kHz
STOP 30.0 MHz
SWP 20.0 sec

Appendix C – USER MANUAL

Appendix D – AGENT AUTHORIZATION LETTER

10/20/1999 16:06 6269656998 UNICAL

NORTHWESTERN BELL PHONES
Distributed Exclusively Worldwide by
UNICAL ENTERPRISES, INC.
www. nwbphones.com
16960 Gale Avenue, City of Industry, CA 91745 (626)965-5588 Fax: (626)965-6998

Date 10/20/1999

Federal Communications Commission
7435 Oakland Mills Road
Columbia, Maryland, 21046

Sir/Madam,

Reg: FCC grand for (39237 Excursion)

This letter is an authorization to accept Bay Area Compliance Lab. Corporation as an agent for Unical Enterprises, Inc., 16960 Gale Avenue, City of Industry, CA 91745 to sign applications before the Commission on our behalf, to make representations to you on our behalf, and to receive and exchange data between our company and the commission in connection with certification of the following product:
Unical Enterprises, Inc./ Northwestern Bell Phones
Cordless Telephone, 39237 Excursion.

Under FCC docket number 20780 and general docket number 80-284 pursuant to part 15, FCC rules and regulations.

Sincerely,

Marc Maledda
Compliance Administrator