

N8X1904



*EXHIBIT D*

CKC TEST REPORT



**CERTIFICATION TEST REPORT  
FOR THE  
KEYPAD, 1904  
FCC PART 15 SUBPART C  
COMPLIANCE**

**DATE OF ISSUE: OCTOBER 15, 1998**

**PREPARED FOR:**

Microframe Corporation  
909 S. 12th Street  
Broken Arrow, OK 74012

P.O. No: Check #13875  
W.O. No: 69991

**Report No: FC98-024**

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Date of test: October 6 & 7, 1998

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## ADMINISTRATIVE INFORMATION

**DATE OF TEST:** October 6 & 7, 1998

**PURPOSE OF TEST:** To demonstrate the compliance of the Keypad, 1904, with the requirements for FCC Part 15, Subpart C devices.

**MANUFACTURER:** Microframe Corporation  
909 S. 12th Street  
Broken Arrow, OK 74012

**REPRESENTATIVE:** Bob McCullough

**TEST LOCATION:** CKC Laboratories, Inc.  
5473A Clouds Rest  
Mariposa, CA 95338

**TEST PERSONNEL:** Skip Doyle

**TEST METHOD:** ANSI C63.4 1992

**FREQUENCY RANGE TESTED:** 30 MHz – 10,000 MHz

**EQUIPMENT UNDER TEST:**

<b>Keypad</b>	
Manuf:	Microframe Corporation
Model:	1904
Serial:	1263
FCC ID:	Pending

## **SUMMARY OF RESULTS**

The Microframe Corporation Keypad, 1904, was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15, Subpart C.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15.249. The results in this report apply only to the items tested, as identified herein.

### **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

Part of a visual paging system.

### **MEASUREMENT UNCERTAINTY**

Associated with data in this report is a  $\pm 4$ dB measurement uncertainty.

### **EUT OPERATING FREQUENCY**

The EUT was operating at 30 MHz – 10,000 MHz.

### **TEMPERATURE AND HUMIDITY DURING TESTING**

The temperature during testing was within +15°C and + 35°C. The relative humidity was between 20% and 75%.

### **PERIPHERAL DEVICES**

The EUT was not tested with peripheral devices.

## REPORT OF MEASUREMENTS

The following Tables 1 and 2 report the highest emissions levels recorded during the tests performed on the Keypad, 1904. The data sheets from which these tables were compiled are contained in Appendix B.

**Table 1: Six Highest Radiated Emission Levels 15.249 (a)**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
903.394	83.7	23.5	-27.5	6.2		85.9	93.9	-8.0	V
903.399	85.2	23.5	-27.5	6.2		87.4	93.9	-6.5	V
903.410	84.9	23.5	-27.5	6.2		87.1	93.9	-6.8	H
903.486	81.7	23.5	-27.5	6.2		83.9	93.9	-10.0	H
903.490	79.5	23.5	-27.5	6.2		81.7	93.9	-12.2	V
903.527	84.8	23.5	-27.5	6.2		87.0	93.9	-6.9	H

Test Method:  
Spec Limit :  
Test Distance:

ANSI C63.4 1992  
FCC Part 15.249 (a)  
3 Meters

NOTES:    H = Horizontal Polarization  
                  V = Vertical Polarization  
                  N = No Polarization  
                  D = Dipole Reading  
                  Q = Quasi Peak Reading  
                  A = Average Reading

COMMENTS: Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC 15.249(a) Fundamental Freqs. of 903.37 only.

**Table 2: Six Highest Radiated Emission Levels 15.249 (c) / 15.209**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
1806.724	52.3	28.1	-35.8	6.9		51.5	54.0	-2.5	HA
2710.043	45.1	25.6	-35.3	12.2		47.6	54.0	-6.4	HA
2710.380	48.4	25.6	-35.3	12.2		50.9	54.0	-3.1	H
4516.677	38.3	26.9	-33.5	13.5		45.2	54.0	-8.8	H
5420.005	30.1	29.4	-33.3	16.3		42.5	54.0	-11.5	HA
5420.695	35.8	29.4	-33.3	16.3		48.2	54.0	-5.8	V

Test Method:

ANSI C63.4 1992

NOTES:

H = Horizontal Polarization

Spec Limit :

V = Vertical Polarization

Test Distance:

FCC Part 15.249 (c) / 15.209

N = No Polarization

3 Meters

D = Dipole Reading

Q = Quasi Peak Reading

A = Average Reading

COMMENTS: Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC 15.249(c) / 15.209

**Table 2: Six Highest Conducted Emission Levels**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V	SPEC LIMIT dB $\mu$ V	MARGIN dB	NOTES
		Lisn dB	dB	dB	dB				
0.465924	41.8	0.0				41.8	48.0	-6.2	B
0.639574	41.0	0.0				41.0	48.0	-7.0	B
0.741944	36.3	0.0				36.3	48.0	-11.7	W
0.983786	38.2	0.0				38.2	48.0	-9.8	B
1.098304	36.7	0.0				36.7	48.0	-11.3	B

Test Method: **ANSI C63.4 1992**  
 Spec Limit : **FCC Class B**  
 Test Distance: **No Distance**

NOTES:      Q = Quasi Peak Reading  
                  A = Average Reading  
                  B = Black Lead  
                  W = White Lead

**COMMENTS:** Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC B Conducted Emissions

**TABLE A**

**LIST OF TEST EQUIPMENT**

**The following list of test equipment is calibrated at regular intervals.**

1. Spectrum Analyzer, Hewlett Packard, Model No. 85662A, S/N 2403A08241.
2. Preamp, Hewlett Packard, Model No. 8447D, S/N -1937A02604.
3. Quasi-Peak Adapter, Hewlett Packard, Model No. 85650A, S/N 2811A01267.
4. Biconical Antenna, A & H Systems, Model No. SAS-200/542, S/N 156.
5. Log Periodic Antenna, A & H Systems, Model No. SAS-200/512, S/N 154.
6. Horn Antenna, EMCO, Model No. 3115, S/N 4683.
7. Test software, EMI Test 2.91.

## EUT SETUP

The equipment under test (EUT) listed was setup in a manner that represented its normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1 & 2 radiated emissions and Table 3 for conducted characteristics. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters. This configuration is typical for radiated emissions testing of table top devices.

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT is located, has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test. Conducted emissions tests required the use of the LISN's listed in Table A.

## TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A was used to collect both the radiated and conducted emissions data for the Keypad, 1904. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. For frequencies above 1000 MHz, the horn antenna was used. All antennas were located at a distance of 3 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISN's.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, a reference level of 100 dB $\mu$ V and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB $\mu$ V, and a vertical scale of 10 dB per division.

TABLE B : ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	40 GHz	1 MHz

## SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1 and 2 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in Table 1 or Table 2. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Keypad, 1904.

### Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

### Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP 85650A Quasi-Peak Adapter for the HP 8568B Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

### Average

When the frequencies exceed 1 GHz, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

## TEST METHODS

The radiated and conducted emissions data of the Keypad, 1904, was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C, emissions limits to determine compliance.

Preliminary and final measurements were taken in order to better ensure that all emissions from the EUT were found and maximized.

### Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode with the I/O cables and line cords facing the antenna. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. For frequencies above 1000 MHz, the horn antenna was used in the same manner stated above. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

For the final radiated scan, the equipment was again positioned with its I/O and power cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the cables. Maximizing of the cables was achieved by monitoring the spectrum analyzer on a closed circuit television monitor while the EUT cables were being moved and rearranged on the EUT table for maximum emissions. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

### **Conducted Emissions Testing**

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

### **TRANSMITTER CHARACTERISTICS**

#### **Occupied Bandwidth Measurements**

The fundamental frequency was kept within the permitted band 902 – 928 MHz. Refer to Appendix B for the occupied bandwidth plots.

#### **Power Output FCC Part 15.249 (a)**

The maximum ERP of this transmitter was measured to be (47.0 dB $\mu$ V/m in a 50  $\Omega$  system) when measured at a test distance of three meters. This measurement was made with the EUT's integral antenna, for there is no provision for connecting an external antenna.

## SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the six highest emissions readings in Tables 1 and 2. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula:

Meter reading (dB $\mu$ V)  
 + Antenna Factor (dB)  
 + Cable Loss (dB)  
 - Distance Correction (dB)  
 - Pre-amplifier Gain (dB)  
 = Corrected Reading (dB $\mu$ V/m)

This reading was then compared to the applicable specification limit to determine compliance. For conducted emissions, no correction factors were needed when 50  $\mu$ H LISN's were used.

A typical data sheet will display the following in column format:

#	Freq MHz	Rdng dB $\mu$ V	Cable	Amp.	Bicon	Horn	Log	Dist	Corr dB $\mu$ V/m	Spec	Margin	Polar
---	-------------	--------------------	-------	------	-------	------	-----	------	----------------------	------	--------	-------

# means reading number

**Freq** MHz is the frequency in MHz of the obtained reading.

**Rdng** dB $\mu$ V is the reading obtained on the spectrum analyzer in dB $\mu$ V.

**Amp.** is short for the preamplifier factor or gain in dB.

**Bicon** is the biconical antenna factor in dB.

**Log** is the log periodic antenna factor in dB.

**Horn** is the horn antenna factor in dB.

**Cable** is the cable loss in dB of the coaxial cable on the OATS.

**Dist** is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.

**Corr** dB $\mu$ V/m is the corrected reading which is now in dB $\mu$ V/m (field strength).

**Spec** is the specification limit (dB) stated in the agency's regulations.

**Margin** is the closeness to the specified limit in dB; + is over and - is under the limit.

**Polar** is the Polarity of the antenna with respect to earth.

**APPENDIX A**  
**INFORMATION ABOUT THE EQUIPMENT UNDER TEST**

**INFORMATION ABOUT THE EQUIPMENT UNDER TEST**

Test Software/Firmware:	Rev 1.0
CRT was displaying:	None
Power Supply Manufacturer:	24 VAC Transformer by Globtek
Power Supply Part Number:	WA1I1200V00
AC Line Filter Manufacturer:	None
AC Line Filter Part Number:	None
The AC power cord is removable and is NOT shielded	
Line voltage used during testing: 115	

<b>I/O PORTS</b>	
Type	#
None	1

<b>CRYSTAL OSCILLATORS</b>	
Type	Freq. In MHz
MTRON ATS-49	4

<b>PRINTED CIRCUIT BOARDS</b>				
Function	Model & Rev	Clocks, MHz	Layers	Location
Keypad Motherboard	4.3	4 MHz	2	In Keypad
Model 310	1.0	None	2	On back of Motherboard
Transmitter Interface				On back of Transmitter Interface Bd.
Linx Model RXM-900-HP Transmitter Module	See Linx Data			

<b>REQUIRED EUT CHANGES TO COMPLY:</b>
None

**CABLE INFORMATION**

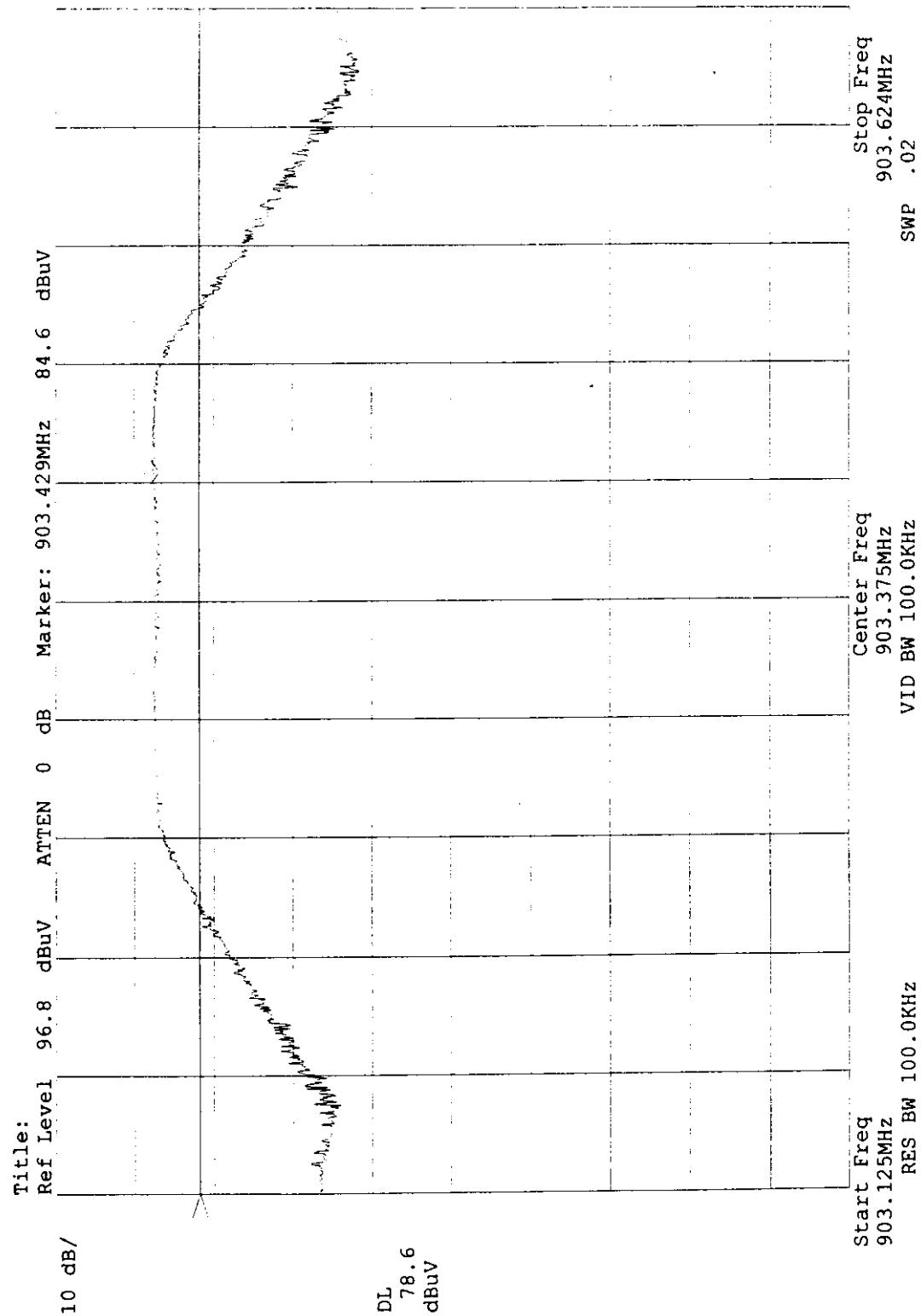
Cable #: 1	Cable(s) of this type: 1
Cable Type: RG/179	Shield Type:
Construction:	Length In Meters:
Connected To End (1): TXM-900-HP	Connected To End (2): Linx Antenna
Transmitter	900-CW-QWB
Connector At End (1): Soldered to board	Connector At End (2): Reverse SMA
	CONREVSMA0
	5
Shield Grounded At (1): Board	Shield Grounded At (2): None
Part Number:	Number of Conductors: 1+Shield
Notes:	

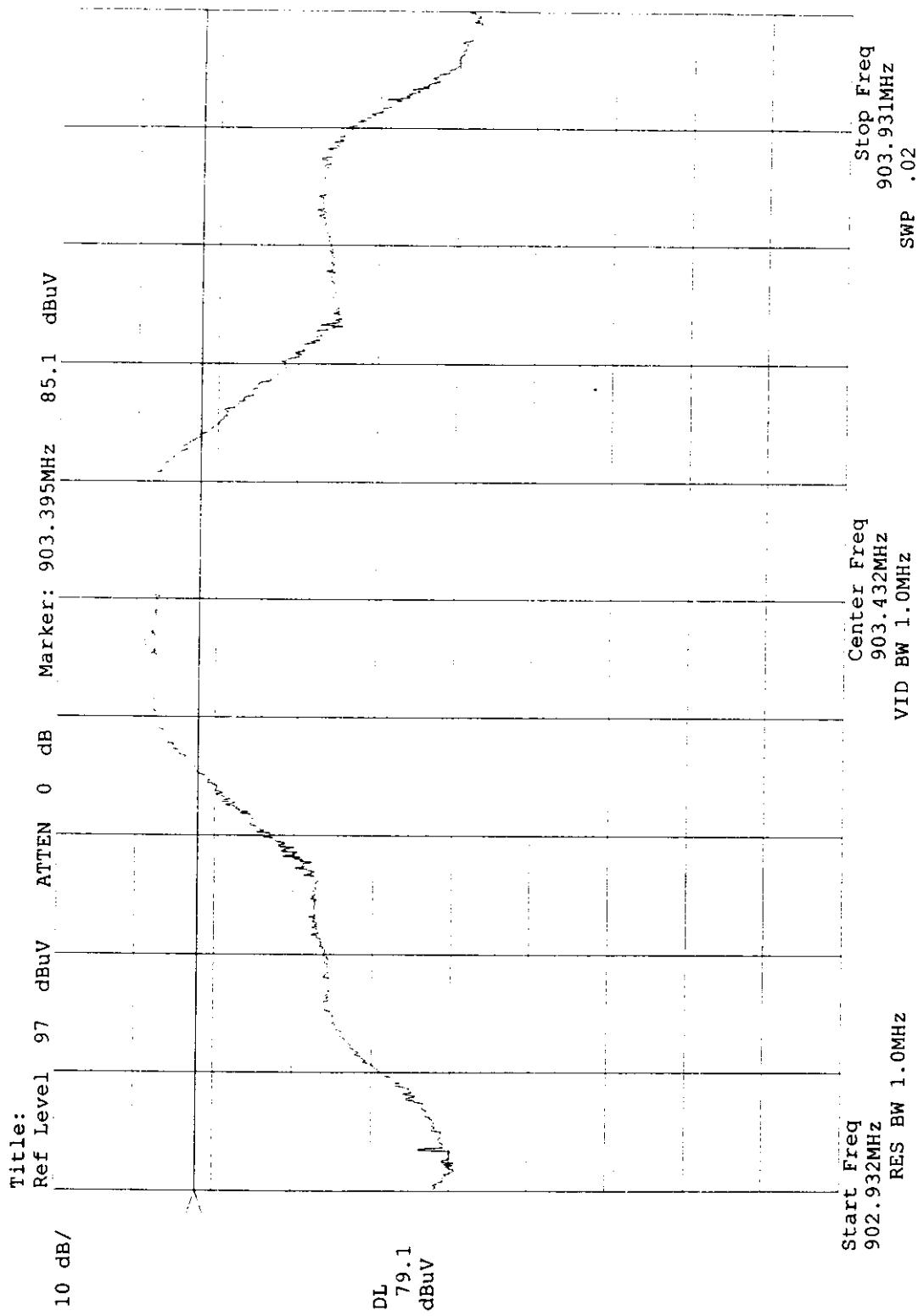
Cable Routing For Worst Case Emissions.

**APPENDIX B**  
**MEASUREMENT DATA SHEETS**

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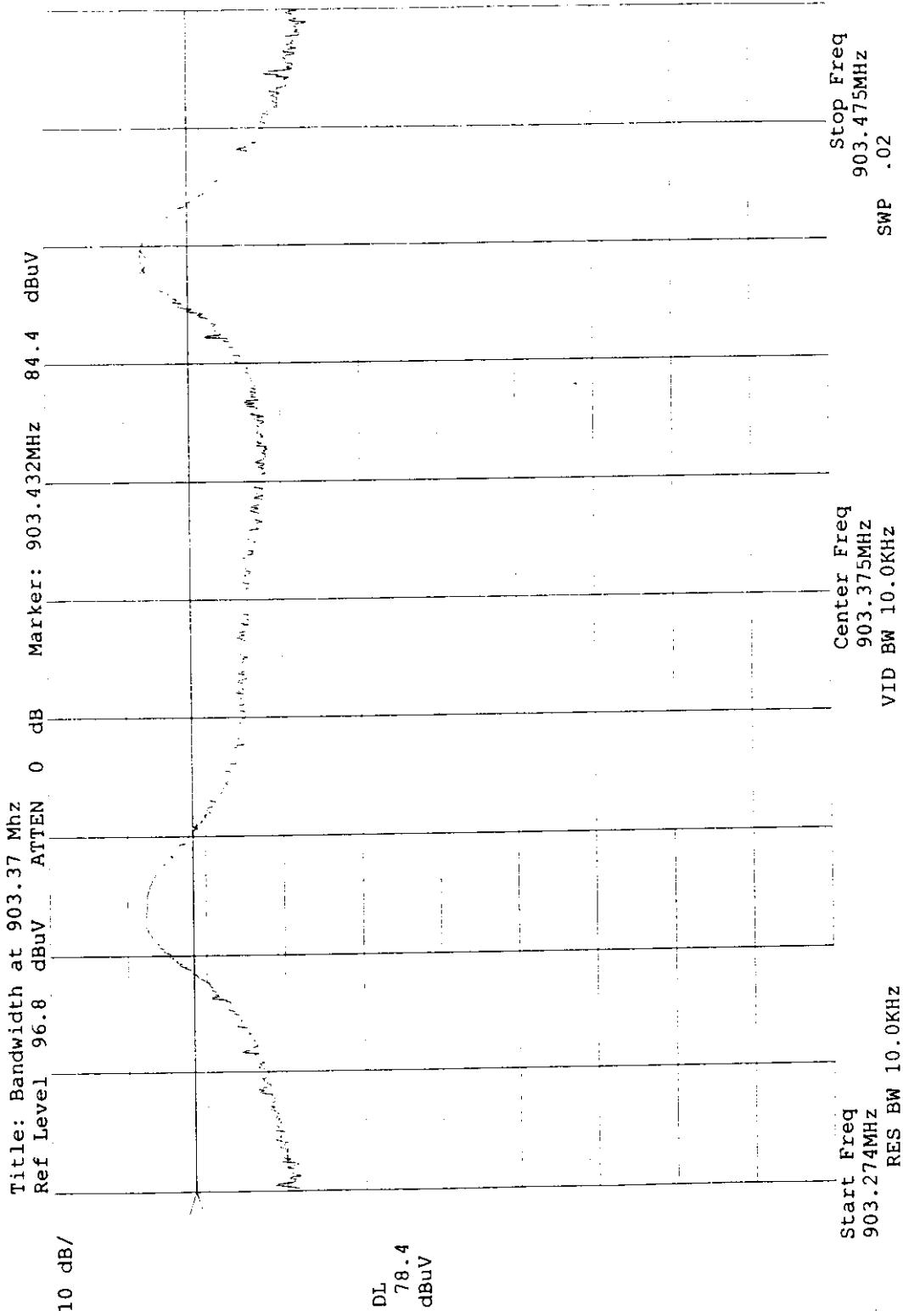
**Occupied Bandwidth Plot**

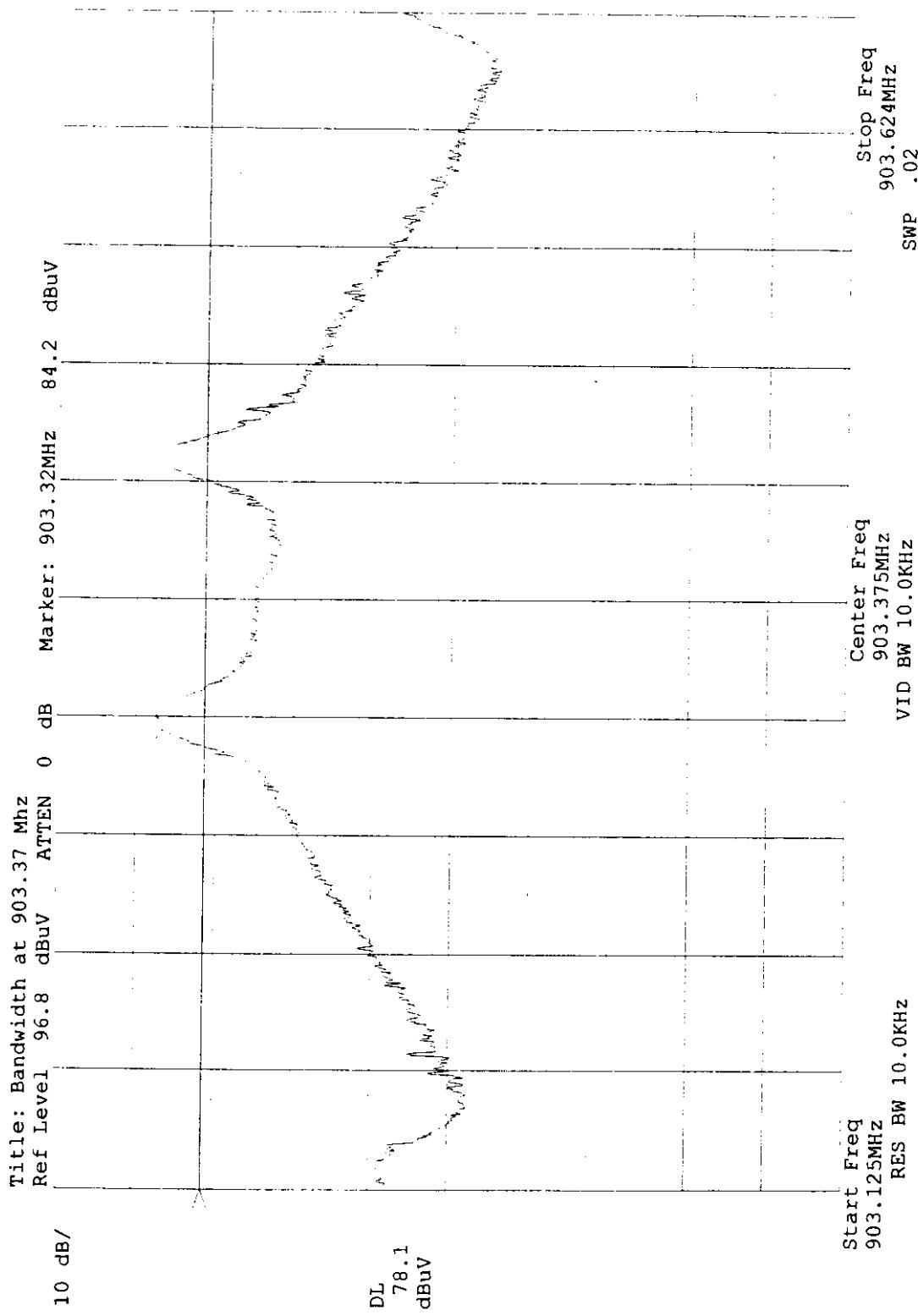


**Occupied Bandwidth Plot**

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## Occupied Bandwidth Plot



**Occupied Bandwidth Plot**



Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest Rd, Barn • Mariposa, CA 95338 • (800)-500-4EMC

Customer: **Microframe Corp.** Date: Oct-07-98  
Specification: **FCC 15.249 (a)** Time: 10:50  
Test Type: **Maximized Emissions** Sequence#: 1  
Equipment: **Visual Pager Series 900 Transmitter**  
Manufacturer: Microframe Corp Tested By: Skip Doyle  
Model: 904-1.5  
S/N: 1263

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Transmitter	Microframe	904-1.5	1263

***Support Devices:***

Function	Manufacturer	Model #	S/N
None			

***Test Conditions / Notes:***

Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC 15.249(a) Fundamental Freqs. of 903.37 only.

***Measurement Data:***

Sorted by Margin

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	Pream	Barn	Log 1	Dist dB	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar
			dB	dB	dB					
1	903.399	85.2	-27.5	+6.2	+23.5	+0.0	87.4	93.9	-6.5	Vert
<b>Side</b>										
2	903.410	84.9	-27.5	+6.2	+23.5	+0.0	87.1	93.9	-6.8	Horiz
<b>Side</b>										
3	903.527	84.8	-27.5	+6.2	+23.5	+0.0	87.0	93.9	-6.9	Horiz
<b>Back</b>										
4	903.394	83.7	-27.5	+6.2	+23.5	+0.0	85.9	93.9	-8.0	Vert
<b>Standing</b>										
5	903.486	81.7	-27.5	+6.2	+23.5	+0.0	83.9	93.9	-10.0	Horiz
<b>Standing</b>										
6	903.490	79.5	-27.5	+6.2	+23.5	+0.0	81.7	93.9	-12.2	Vert
<b>Back</b>										

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest Rd, Barn • Mariposa, CA 95338 • (800)-500-4EMC

Customer: **Microframe Corp.** Date: Oct-07-98  
 Specification: **FCC 15.249(C) / 15.209** Time: 10:19  
 Test Type: **Maximized Emissions** Sequence#: 3  
 Equipment: **Visual-Pager Series 900 Transmitter**  
 Manufacturer: Microframe Corp. Tested By: Skip Doyle  
 Model: 904-1.5  
 S/N: 1263

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Transmitter	Microframe	904-1.5	1263

***Support Devices:***

Function	Manufacturer	Model #	S/N
None			

***Test Conditions / Notes:***

Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC 15.249(c) / 15.209.

Measurement Data:		Sorted by Margin				Test Distance: 3 Meters				
#	Freq MHz	Rdng dB $\mu$ V	Horn dB	Barn dB	8449B dB	Dist dB	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar
1	1806.724	52.3	-35.8	+28.1	+6.9	+0.0	51.5	54.0	-2.5	Horiz
Average										
^	1806.729	54.2	-35.8	+28.1	+6.9	+0.0	53.4	54.0	-0.6	Horiz
3	2710.380	48.4	-35.3	+25.6	+12.2	+0.0	50.9	54.0	-3.1	Horiz
4	5420.695	35.8	-33.3	+29.4	+16.3	+0.0	48.2	54.0	-5.8	Vert
5	2710.043	45.1	-35.3	+25.6	+12.2	+0.0	47.6	54.0	-6.4	Horiz
Average										
6	4516.677	38.3	-33.5	+26.9	+13.5	+0.0	45.2	54.0	-8.8	Horiz
7	4516.681	35.9	-33.5	+26.9	+13.5	+0.0	42.8	54.0	-11.2	Vert
8	5420.005	30.1	-33.3	+29.4	+16.3	+0.0	42.5	54.0	-11.5	Horiz
Average										
^	5420.004	36.1	-33.3	+29.4	+16.3	+0.0	48.5	54.0	-5.5	Horiz
10	2710.105	38.4	-35.3	+25.6	+12.2	+0.0	40.9	54.0	-13.1	Vert
11	3613.368	35.8	-33.9	+25.7	+12.7	+0.0	40.3	54.0	-13.7	Horiz

12	3613.383	35.6	-33.9	+25.7	+12.7	+0.0	40.1	54.0	-13.9	Vert
13	1806.723	40.1	-35.8	+28.1	+6.9	+0.0	39.3	54.0	-14.7	Vert

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest Rd, Barn • Mariposa, CA 95338 • (800)-500-4EMC

Customer: **Microframe** Date: Oct-19-98  
 Specification: **FCC B COND** Time: 15:47  
 Test Type: **Conducted Emissions** Sequence#: 4  
 Equipment: **Transmitter**  
 Manufacturer: Microframe  
 Model: 904-1.5  
 S/N:

Tested By: Skip Doyle

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Transmitter	Microframe	904-1.5	1263

***Support Devices:***

Function	Manufacturer	Model #	S/N
None			

***Test Conditions / Notes:***

Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC B Conducted Emissions

***Measurement Data:***

Sorted by Margin

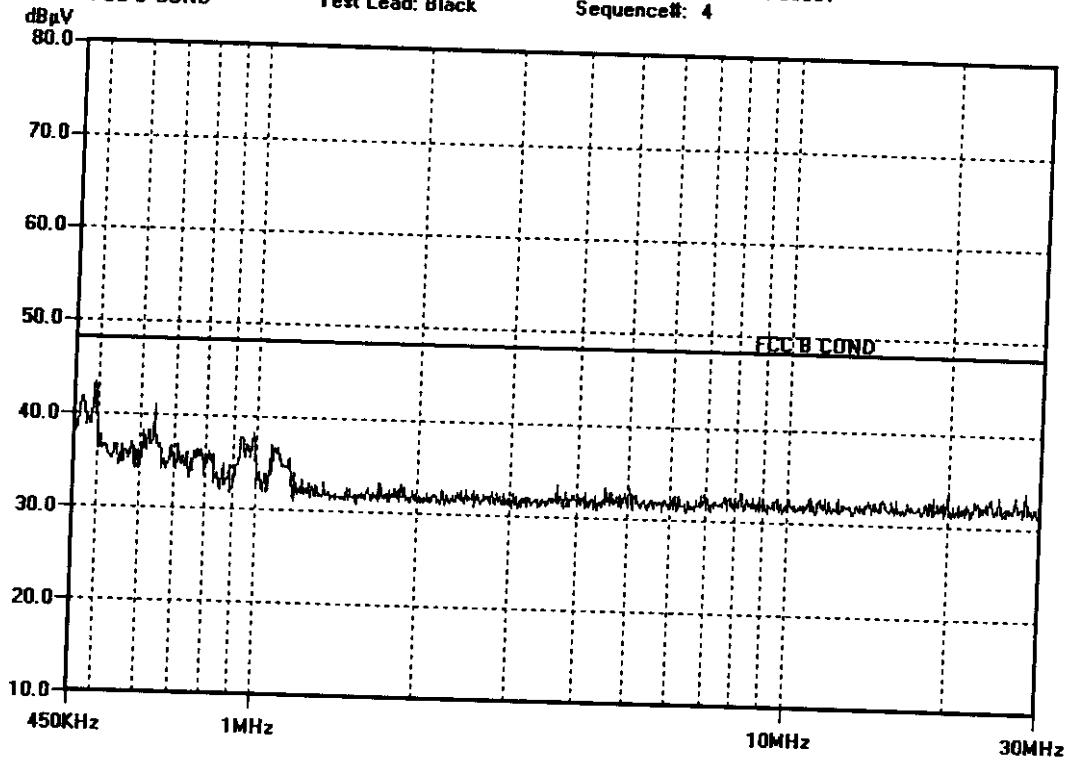
Test Lead: Black

#	Freq	Rdng dB $\mu$ V	DB	dB	dB	Dist dB	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar
1	465.924k	41.8				+0.0	41.8	48.0	-6.2	Black
2	639.574k	41.0				+0.0	41.0	48.0	-7.0	Black
3	479.953k	39.6				+0.0	39.6	48.0	-8.4	Black
4	457.583k	39.1				+0.0	39.1	48.0	-8.9	Black
5	494.300k Quasi Peak	38.5				+0.0	38.5	48.0	-9.5	Black
^	493.223k	43.3				+0.0	43.3	48.0	-4.7	Black
7	620.616k	38.3				+0.0	38.3	48.0	-9.7	Black
8	983.786k	38.2				+0.0	38.2	48.0	-9.8	Black
9	608.484k	38.2				+0.0	38.2	48.0	-9.8	Black
10	932.114k	37.8				+0.0	37.8	48.0	-10.2	Black
11	615.308k	37.7				+0.0	37.7	48.0	-10.3	Black



12	505.355k	37.7	+0.0	37.7	48.0	-10.3	Black
13	1.058M	37.1	+0.0	37.1	48.0	-10.9	Black
14	955.855k	37.1	+0.0	37.1	48.0	-10.9	Black
15	578.910k	37.1	+0.0	37.1	48.0	-10.9	Black
16	712.370k	36.8	+0.0	36.8	48.0	-11.2	Black
17	1.098M	36.7	+0.0	36.7	48.0	-11.3	Black
18	690.379k	36.7	+0.0	36.7	48.0	-11.3	Black
19	539.858k	36.7	+0.0	36.7	48.0	-11.3	Black
20	1.080M	36.6	+0.0	36.6	48.0	-11.4	Black
21	556.161k	36.6	+0.0	36.6	48.0	-11.4	Black

CKC Laboratories, Inc. Date: Mon Oct-19-1998 Time: 15:38:05 WO#: 69991  
FCC B COND Test Lead: Black Sequence#: 4





Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest Rd, Barn • Mariposa, CA 95338 • (800)-500-4EMC

Customer: **Microframe** Date: Oct-19-98  
Specification: **FCC B COND** Time: 16:03  
Test Type: **Conducted Emissions** Sequence#: 5  
Equipment: **Transmitter**  
Manufacturer: **Microframe** Tested By: Skip Doyle  
Model: **904-1.5**  
S/N:

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
Transmitter	Microframe	904-1.5	1263

***Support Devices:***

Function	Manufacturer	Model #	S/N
None			

***Test Conditions / Notes:***

Microframe Visual Pager Transmitter Series 900. EUT uses 120 VAC to 24 VAC transformer power supply and has a continuous modulated signal. FCC B Conducted Emissions

<b><i>Measurement Data:</i></b>		<b>Sorted by Margin</b>				<b>Test Lead: White</b>			
#	Freq	Rdng	Dist	Corr	Spec	Margin	Polar		
		dB $\mu$ V	dB	dB $\mu$ V/m	dB $\mu$ V/m	dB			
1	653.223k	38.8		+0.0	38.8	48.0	-9.2	White	
2	642.607k	38.4		+0.0	38.4	48.0	-9.6	White	
3	635.782k	37.9		+0.0	37.9	48.0	-10.1	White	
4	624.408k	37.7		+0.0	37.7	48.0	-10.3	White	
5	497.773k	37.6		+0.0	37.6	48.0	-10.4	White	
6	539.479k	37.5		+0.0	37.5	48.0	-10.5	White	
7	579.668k	37.1		+0.0	37.1	48.0	-10.9	White	
8	543.270k	36.9		+0.0	36.9	48.0	-11.1	White	
9	515.213k	36.9		+0.0	36.9	48.0	-11.1	White	
10	559.953k	36.8		+0.0	36.8	48.0	-11.2	White	
11	523.555k	36.6		+0.0	36.6	48.0	-11.4	White	



12	493.981k	36.6	+0.0	36.6	48.0	-11.4	White
13	599.763k	36.4	+0.0	36.4	48.0	-11.6	White
14	570.569k	36.4	+0.0	36.4	48.0	-11.6	White
15	565.261k	36.4	+0.0	36.4	48.0	-11.6	White
16	464.408k	36.4	+0.0	36.4	48.0	-11.6	White
17	741.943k	36.3	+0.0	36.3	48.0	-11.7	White
18	584.218k	36.2	+0.0	36.2	48.0	-11.8	White
19	450.758k	36.1	+0.0	36.1	48.0	-11.9	White
20	506.114k	36.0	+0.0	36.0	48.0	-12.0	White

CKC Laboratories, Inc. Date: Mon Oct-19-1998 Time: 15:59:41 WO#: 69991  
FCC B COND Test Lead: White Sequence#: 5

