

**Exhibit 6: Test Report**

**TEST REPORT FROM:**

COMMUNICATION CERTIFICATION LABORATORY  
1940 W. Alexander Street  
Salt Lake City, Utah  
84119-2039

Type of Report: Certification

TEST OF: EPX-405N

FCC ID: NBXEPX-405N

To FCC PART 15, Subpart B

Test Report Serial No: 73-6659

Applicant:

Diva Telecom Inc.  
6 West 33<sup>rd</sup> Street New York, NY 10001

Date of Test: November 3-4, 1998

Issue Date: December 7, 1998

**CERTIFICATION OF ENGINEERING REPORT**

This report has been prepared by Communication Certification Laboratory to determine compliance of the device described below with the requirements of FCC Part 15, Subpart B. This report may be reproduced in full, partial reproduction may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested.

- Applicant: Diva Telecom Inc.
- Manufacturer: Diva Telecom Inc.
- Brand Name: Diva
- Model Number: EPX-405N
- FCC ID: NBXEPX-405N

On this 7th day of December 1998, I, individually, and for Communication Certification Laboratory, certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge, and are made in good faith.

Although NVLAP has recognized that the Communication Certification Laboratory EMC testing facilities are in good standing, NVLAP does not endorse the product described in this report.

COMMUNICATION CERTIFICATION LABORATORY

\_\_\_\_\_  
Checked by: Roger J. Midgley  
EMC Engineering Manager

\_\_\_\_\_  
Tested by: Richard L. Winter  
EMC Technician

**SECTION 1.0 CLIENT INFORMATION**

**1.1 Client Information:**

Company Name: Diva Telecom Inc.  
6 West 33<sup>rd</sup> Street  
New York, NY 10001

Contact Name: Chris Kim  
Title: President

Signature: \_\_\_\_\_

**SECTION 2.0 EQUIPMENT UNDER TEST (EUT)****2.1 Identification of EUT:**

Trade Name: Diva  
Model Name or Number: EPX-405N  
Serial Number: N/A  
Options Fitted: N/A  
Country of Manufacture: Korea

**2.2 Description of EUT:**

The EPX-405N radio pager is a super-heterodyne receiver of alpha numeric display type. The EPX-405N utilizes POCSAG (CCIR CODE #1) code format operating at 512/1200 BPS. The EPX-405N operates from 454 to 479 MHz. The EPX-405N receives its power from a 1.5 (AAA) Volt battery.

**2.3 EUT and Support Equipment:**

Not Applicable.

**2.4 Interface Ports on EUT:**

Not Applicable.

**2.5 Modification Incorporated/Special Accessories on EUT:**

There were no modifications or special accessories required, to comply with the specification.

**SECTION 3.0 TEST SPECIFICATION, METHODS & PROCEDURES****3.1 Test Specification:**

Title: FCC PART 15, Subpart B (47 CFR 15).

Limits, and methods of measurement of radio interference characteristics of radio frequency devices.

Purpose of Test: The tests were performed to demonstrate Initial compliance.

**3.2 Methods & Procedures:****3.2.1 15.107 Conducted Limits**

(a) Except for Class A digital devices, and for equipment that is designed to be connected to the public utility. AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 450 kHz to 30 MHz shall not exceed 250 microvolts. Compliance with the provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

(b) For a Class A digital device that is designed to be connected to the public utility (AC) power line. The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 450 kHz to 30 MHz shall not exceed the limits in the following table. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals. The lower limit applies at the band edges.

Frequency of emission (MHz)	Conducted limit (microvolts)
0.45 - 1.705	1000
1.705 - 30.0	3000

**3.2.2 15.109 Radiated Limits**

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of emission (MHz)	Field Strength (microvolts/meter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

(b) The field strength of radiated emission from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of emission (MHz)	Field Strength (microvolts/meter)
30 - 88	90
88 - 216	150
216 - 960	210
Above 960	300

(c) In the emission tables above, the tighter limit applies at the band edges. 15.33 and 15.35, which specify the frequency range over which radiated emissions are to be measured, and the detector functions and other measurement standards apply.

### **3.2.3 Test Procedure**

The line conducted and radiated emissions testing was performed according to the procedures in ANSI C63.4 (1992). Line conducted and radiated emissions testing was performed at CCL's anechoic chamber located in Salt Lake City, Utah. This site has been fully described in a report submitted to the FCC, and was accepted in a letter dated March 6, 1996 (31040/SIT).

CCL participates in the National Voluntary Laboratory Accreditation Program (NVLAP) and has been accepted under NVLAP Lab Code: 100272-0, which is effective until September 30, 1999.

For radiated emissions testing that is performed at distances closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

**SECTION 4.0 OPERATION OF EUT DURING TESTING****4.1 Operating Environment:**

Power Supply: 1.5 AAA Battery  
AC Mains Frequency: N/A  
Current Rating: N/A

**4.2 Operating Modes:**

Each mode of operation was exercised to produce worst case emissions. The worst case emission was with the EPX-405N running in the In receive mode. Two samples of the EPX-405N radio pagers were tested. One near the bottom of the receive spectrum (473.0125 MHz) and one near the top of the receive spectrum (454.075 MHz).

**4.3 EUT Exercise Software:**

The internal software was used to exercise the EUT to produce worst case emissions described in Section 4.2.

**4.4 Configuration & Peripherals:**

The EPX-405N was placed on the table and connected to the support equipment listed in Section 2.3 via each port listed in Section 2.4. Shown in Section 4.5 is a block diagram of the test configuration.

**4.5 Block Diagram of Test Configuration:**





**SECTION 5.0 SUMMARY OF TEST RESULTS****5.1 Class B of FCC PART 15, Subpart B****5.1.1 Summary of Tests:**

<b>Port</b>	<b>Test Performed</b>	<b>Frequency Range (MHz)</b>	<b>Result</b>
AC Power	Line Conducted Emissions (Hot Lead to Ground)	0.45 to 30	Not Applicable
AC Power	Line Conducted Emissions (Neutral Lead to Ground)	0.45 to 30	Not Applicable
Enclosure	Radiated Emissions Field Strength (Vertical Polarity)	30 to 1000	Complied
Enclosure	Radiated Emissions Field Strength (Horizontal Polarity)	30 to 1000	Complied

**5.2 Result**

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

**SECTION 6.0 MEASUREMENTS, EXAMINATIONS AND DERIVED RESULTS****6.1 General Comments:**

This section contains the test results only. Details of the test methods used and a list of the test equipment used during the measurements can be found in Appendix 1 of this report.

**6.2 Measurements Uncertainties:**

The measurement uncertainties stated were calculated in accordance with the requirements of NAMAS Document NIS63 with a confidence level of 95%. The complete measurement uncertainty budget including the calculations can be found in Appendix 2 of this report.

Tests Performed	Total Measurement Uncertainty
Radiated Interference - Biconical Antenna @ 3 Meters (30 MHz to 200 MHz)	± 4.3 dB
Radiated Interference - Biconical Antenna @ 10 Meters (30 MHz to 200 MHz)	± 4.3 dB
Radiated Interference - Log-Periodic Antenna @ 3 Meters (200 MHz to 1 GHz)	± 6.0 dB
Radiated Interference - Log-Periodic Antenna @ 10 Meters (200 MHz to 1 GHz)	± 2.7 dB

**6.3 Test Results:****6.3.1 Radiated Interference Level Data (Vertical Polarity)**  
**473.0125 MHz.**

Frequency MHz	Detector	Receiver Reading dB $\mu$ V	Correction Factor dB	Field Strength dB $\mu$ V/m	3m Limit dB $\mu$ V/m
30.5	Peak	0.1	15.2	15.3	40.0
536.0	Peak	1.0	28.8	29.8	46.0
648.0	Peak	0.1	30.4	30.5	46.0
912.0	Peak	0.1	34.6	34.7	46.0
982.4	Peak	-0.7	35.5	34.8	54.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 4.3$  dB (30 MHz to 200 MHz) and  $\pm 6.0$  dB @ 3 meters  $\pm 2.7$  dB @ 10 meters (200 MHz to 1 GHz).

Comments

A detailed description of the test method and test equipment used to perform this measurement can be found in Appendix 1 of this report.

RESULT

The EUT complied with the specification limit by a margin of 11.3 dB.

**6.3.2 Radiated Interference Level Data (Horizontal Polarity)**  
**473.0125 MHz.**

Frequency MHz	Detector	Receiver Reading dB $\mu$ V	Correction Factor dB	Field Strength dB $\mu$ V/m	3m Limit dB $\mu$ V/m
176.2	Peak	4.6	17.9	22.5	40.0
405.6	Peak	2.0	25.5	27.5	46.0
593.6	Peak	1.1	30.0	31.1	46.0
732.8	Peak	0.7	32.0	32.7	46.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 4.3$  dB (30 MHz to 200 MHz) and  $\pm 6.0$  dB @ 3 meters  $\pm 2.7$  dB @ 10 meters (200 MHz to 1 GHz).

Comments

A detailed description of the test method and test equipment used to perform this measurement can be found in Appendix 1 of this report.

RESULT

The EUT complied with the specification limit by a margin of 13.3 dB.

**6.3.3 Radiated Interference Level Data (Vertical Polarity)**  
**454.075 MHz.**

Frequency MHz	Detector	Receiver Reading dB $\mu$ V	Correction Factor dB	Field Strength dB $\mu$ V/m	3m Limit dB $\mu$ V/m
45.6	Peak	1.4	12.1	13.5	40.0
184.9	Peak	1.0	17.9	18.9	43.5
433.6	Peak	2.2	25.9	28.1	46.0
606.4	Peak	0.8	30.2	31.0	46.0
742.4	Peak	0.5	32.0	32.5	46.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 4.3$  dB (30 MHz to 200 MHz) and  $\pm 6.0$  dB @ 3 meters  $\pm 2.7$  dB @ 10 meters (200 MHz to 1 GHz).

Comments

A detailed description of the test method and test equipment used to perform this measurement can be found in Appendix 1 of this report.

RESULT

The EUT complied with the specification limit by a margin of 13.5 dB.

**6.3.4 Radiated Interference Level Data (Horizontal Polarity)**  
**454.075 MHz.**

Frequency MHz	Detector	Receiver Reading dB $\mu$ V	Correction Factor dB	Field Strength dB $\mu$ V/m	3m Limit dB $\mu$ V/m
45.5	Peak	1.4	12.1	13.5	40.0
82.7	Peak	-3.3	15.9	12.6	40.0
145.1	Peak	1.1	16.2	17.3	43.5
174.7	Peak	1.1	17.9	19.0	43.5
712.8	Peak	-0.1	32.1	32.0	46.0
986.4	Peak	-0.3	35.6	35.3	54.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was  $\pm 4.3$  dB (30 MHz to 200 MHz) and  $\pm 6.0$  dB @ 3 meters  $\pm 2.7$  dB @ 10 meters (200 MHz to 1 GHz).

Comments

A detailed description of the test method and test equipment used to perform this measurement can be found in Appendix 1 of this report.

RESULT

The EUT complied with the specification limit by a margin of 14.0 dB.

**6.4 Sample Field Strength Calculation:**

The field strength is calculated by adding the Correction Factor (Antenna Factor + Cable Factor), to the measured level from the receiver. The receiver amplitude reading is compensated for any amplifier gain. The basic equation with a sample calculation is shown below:

FS = RA + CF Where

FS = Field Strength

RA = Receiver Amplitude Reading (Receiver Reading - Amplifier Gain)

CF = Correction Factor (Antenna Factor + Cable Factor)

Assume a receiver reading of 42.5 dB $\mu$ V is obtained from the receiver, an amplifier gain of 26.5 dB and a correction factor of 8.5 dB. The field strength is calculated by subtracting the amplifier gain and adding the correction factor, giving a field strength of 24.5 dB $\mu$ V/m, FS = (42.5 - 26.5) + 8.5 = 24.5 dB $\mu$ V/m

**APPENDIX 1 TEST PROCEDURES AND TEST EQUIPMENT****Line Conducted Emissions:**

The line-conducted emission from the digital apparatus was measured using a spectrum analyzer with a quasi-peak adapter for peak, quasi-peak and average readings. The quasi-peak adapter uses a bandwidth of 9 kHz, with the spectrum analyzer's resolution bandwidth set at 100 kHz, for readings in the 450 kHz to 30 MHz frequency ranges.

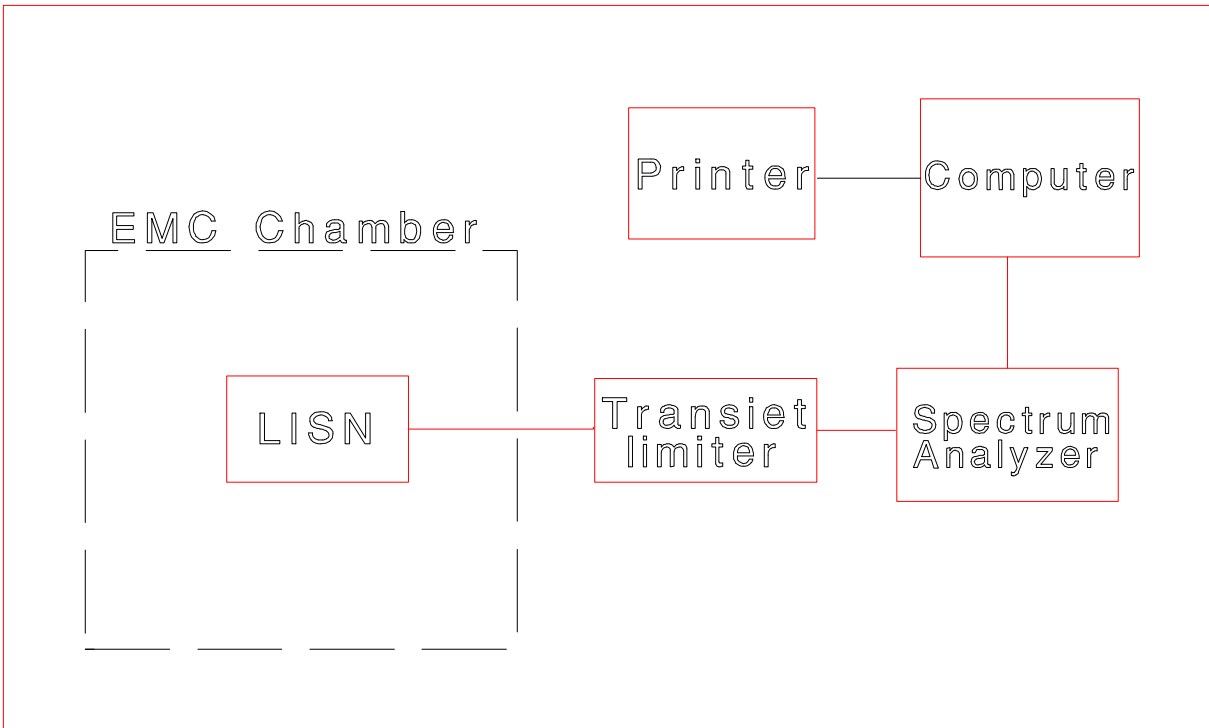
The line conducted emissions measurements are performed in a screen room using a (50  $\Omega$ /50  $\mu$ H) Line Impedance Stabilization Network (LISN). Desktop digital apparatus are placed on a non-conducting table at least 80 cm from the metallic floor. The equipment is placed a minimum of 40 cm from all walls. Floor standing equipment is placed directly on the earth grounded floor.

Type of Equipment	Manufacturer	Model Number	Serial Number
Anechoic Chamber	CCL	N/A	N/A
Test Software	CCL	Conducted Emissions	Revision 1.2
Spectrum Analyzer	Hewlett Packard	8566B	2230A01711
Quasi-Peak Detector	Hewlett Packard	8565A	3107A01582
LISN	EMCO	3825/2	9507-1893
Conductance Cable Anechoic Chamber	CCL	Cable A	N/A
Transient Limiter	Hewlett Packard	11947A	3107A00895

All the equipment listed above is calibrated every 12 months by an independent calibration laboratory or by CCL personal following outlined calibration procedures.



# Line Conducted Emissions Test



**Radiated Interference Emissions:**

The radiated emission from the digital apparatus was measured using a spectrum analyzer with a quasi-peak adapter for peak and quasi-peak readings. A preamplifier with a fixed gain of 26 dB and a power amplifier with a fixed gain of 22 dB were used to increase the sensitivity of the measuring instrumentation. The quasi-peak adapter uses a bandwidth of 120 kHz, with the spectrum analyzer's resolution bandwidth set at 1 MHz, for readings in the 30 to 1000 MHz frequency ranges.

A biconilog antenna was used to measure the frequency range of 30 to 1000 MHz, at a distance of 3 meters from the EUT. The readings obtained by these antennas are correlated to the levels obtained with a tuned dipole antenna by adding antenna factors.

The configuration of the digital apparatus was varied to find the maximum radiated emission. The EUT was connected to the peripherals listed in Section 2.4 via the interconnecting cables listed in Section 2.5. These interconnecting cable were manipulated manually by a technician to obtain worst case radiated emissions. The digital apparatus was rotated 360 degrees, and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission. Where there were multiple interface ports all of the same type, cables are either placed on all of the ports or cables added to these ports until the emissions do not increase by more than 2 dB.

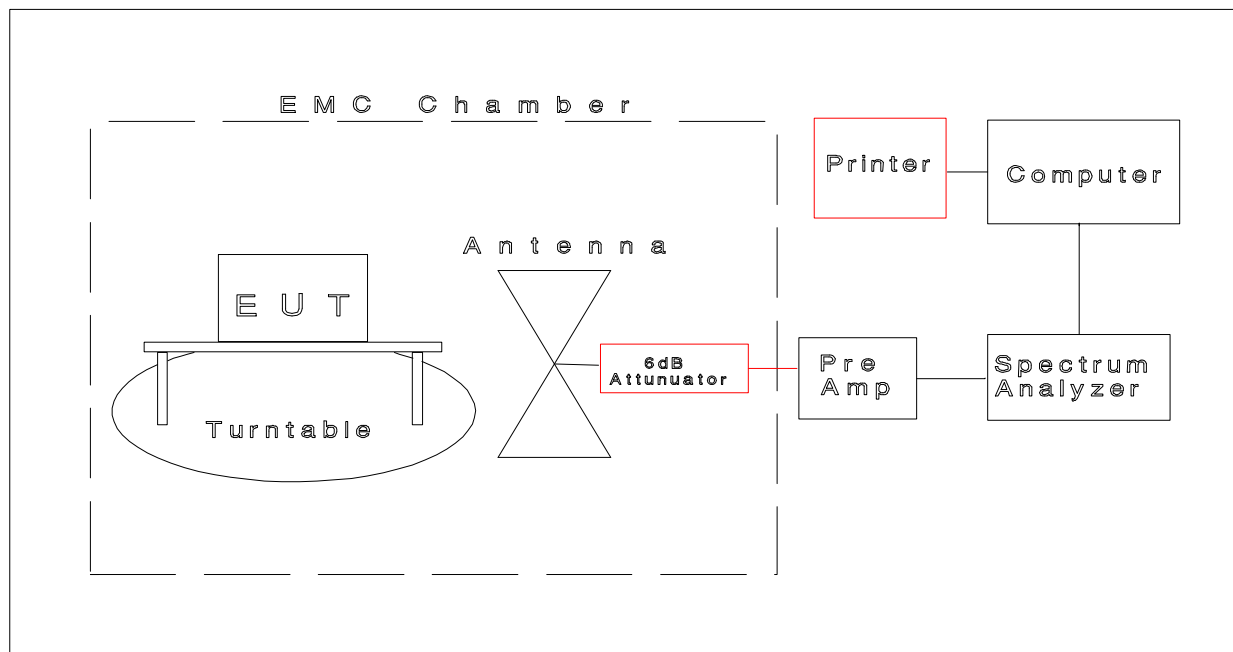
Desktop digital apparatus is measured on a non-conducting table one meter above the ground plane. The table is placed on a turntable which is level with the ground plane. The turntable has slip rings, which supply AC power to the digital apparatus. For equipment normally placed on floors, the equipment shall be placed directly on the turntable.

Type of Equipment	Manufacturer	Model Number	Serial Number
Anechoic Chamber	CCL	N/A	N/A
Test Software	CCL	Radiated Emissions	Revision 1.3
Spectrum Analyzer	Hewlett Packard	8566B	2230A01711
Quasi-Peak Detector	Hewlett Packard	8565A	3107A01582
Biconilog Antenna	EMCO	3141	1045

Type of Equipment	Manufacturer	Model Number	Serial Number
Double Ridged Guide Antenna	EMCO	3115	9409-4355
Radiated Emissions Cable Anechoic Chamber	CCL	Cable B	N/A
Pre-Amplifier	Hewlett Packard	8447D	1937A03151
Power-Amplifier	Hewlett Packard	8447E	2434A01975
6 dB Attenuator	Hewlett Packard	8491A	32835

All the equipment listed above is calibrated every 12 months by an independent calibration laboratory or by CCL personal Following outlined calibration procedures.

### R a d i a t e d E m i s s i o n s T e s t



**APPENDIX 2 MEASUREMENT UNCERTAINTY BUDGET AND CALCULATIONS**Measurement Uncertainty Budget

The measurement uncertainties were calculated in accordance with the requirements of NAMAS Document Draft NIS63 with a confidence level of 95%.

**MEASUREMENT UNCERTAINTY - RADIATED EMISSIONS 30 MHz TO 1 GHz**

Contribution	Distribution	Uncertainty (dB)	
		Biconical Antenna 3m/10m	Log-Periodic Antenna 3m/10m
Antenna factor calibration	Gaussian(2s)	±1.0	±1.0
Cable loss calibration	Gaussian(2s)	±0.5	±0.5
Spectrum Analyzer Specification	Rectangular	±1.6	±1.6
Pre-Amplifier Specification	Rectangular	±1.0	±1.0
Antenna factor variation with height	Rectangular	±2.0	±0.5
Antenna directivity	Rectangular	±0.5	±3.0/±0.5
Antenna phase center variation	Rectangular	0.0	±1.0/±0.2
Antenna factor frequency interpolation	Rectangular	±0.2	±0.2
Measurement distance variation	Rectangular	±0.5	±0.5
Site imperfections	Rectangular	±1.0	±1.0
Mismatch	U-shaped	±1.2	±0.5
Random	Gaussian(1s)	±0.7	±0.7
Total Uncertainty @ 95% min confidence probability		±4.3/±4.3	±6.0/±2.7

**REFERENCES :**

1. ANSI C63.6-1988 American National Standard guides for the computation of errors in open-area test site measurements.
2. ANSI C63.5-1988 American National Standard for calibration of antennas used for radiated emission measurements in Electromagnetic Interference (EMI) control.
3. Draft NIS63 The treatment of uncertainty in EMC measurements.

**MEASUREMENT UNCERTAINTY CALCULATIONS:**TOTAL UNCERTAINTY FORMULA

$$U = 2\sqrt{S_s I^2 + S_s 2^2 \dots + S_{sm}^2 + S_r^2}$$

TOTAL UNCERTAINTY FOR BICONICAL ANTENNA @ 3 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 2.0^2 + 0.5^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{1.2^2}{2} + 0.7^2} = 4.27dB$$

TOTAL UNCERTAINTY FOR BICONICAL ANTENNA @ 10 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 2.0^2 + 0.5^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{1.2^2}{2} + 0.7^2} = 4.27dB$$

TOTAL UNCERTAINTY FOR LOG-PERIODIC ANTENNA @ 3 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 0.5^2 + 3.0^2 + 1.0^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{0.5^2}{2} + 0.7^2} = 5.96dB$$

TOTAL UNCERTAINTY FOR LOG-PERIODIC ANTENNA @ 10 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 0.5^2 + 0.5^2 + 0.2^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{0.5^2}{2} + 0.7^2} = 2.71dB$$

**MEASUREMENT UNCERTAINTY - CONDUCTED EMISSIONS 10 kHz TO 30 MHz**

Contribution	Distribution	Uncertainty (dB)
		9 kHz to 30 MHz
Spectrum Analyzer Specification	Rectangular	±1.6
Transient Limiter Specification	Rectangular	±1.0
LISN Specification	Rectangular	±1.5
Cable Calibration	Gaussian(2s)	±0.2
Mismatch	U-shaped	±0.6
Random	Gaussian(1s)	±0.8
Total Uncertainty @ 95% min confidence probability		±3.3

**REFERENCES :**

1. ANSI C63.6-1988 American National Standard guides for the computation of errors in open-area test site measurements.
2. Draft NIS63 The treatment of uncertainty in EMC measurements.

**MEASUREMENT UNCERTAINTY CALCULATIONS:**TOTAL UNCERTAINTY FORMULA

$$U = 2\sqrt{S_1^2 + S_2^2 + \dots + S_{sm}^2 + S_r^2}$$

TOTAL UNCERTAINTY - CONDUCTED EMISSIONS

$$U = 2\sqrt{\frac{1.6^2 + 1.0^2 + 1.5^2}{3} + \left(\frac{0.2}{2}\right)^2 + \frac{0.6^2}{2} + 0.8^2} = 3.33 \text{ dB}$$