



KTL Dallas, Inc.

Safety - EMC - Telecom - ISO Guide 25

FCC PART 101

MEASUREMENT / TECHNICAL REPORT

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on the

Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

FCC ID: NNS3214864

for

Bosch Telecom, Inc.
8360 LBJ Freeway Center II
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NVLAP LAB CODE: 100426-0

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CORPORATE POLICY

KTL Dallas, Inc. test reports are submitted for exclusive use of the clients to whom they are addressed. The test report's significance is subject to the adequacy of the samples in representing production models and representative of the samples and the comprehensiveness of the tests or surveys performed.

No quotations from KTL Dallas, Inc. reports or use of KTL Dallas, Inc.'s name are permitted except as expressly authorized by KTL Dallas, Inc. in writing.

QUALITY SYSTEM

The quality system in place conforms to IEC Guide 25 and EN 45001. The EMC Laboratory has been audited to the EN 45001 standard by TÜV Rheinland, an European Union Competent Body in Germany, as well as NEMKO, a Certification Body in Norway. The EMC Laboratory has also been audited using the ISO 9000 Quality System by Interference Technology International, an European Union Competent Body in the United Kingdom.

KTL Dallas, Inc. is accredited by the United States of America National Institute of Standards and Technology, as well as National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods or services.

KTL Dallas, Inc. is a recognized laboratory with VCCI (Japan), the Federal Communications Commission, the Ministry of Commerce (New Zealand), and is also an Underwriters Laboratory Certificated Agency for Administrative.

Appendix C contains copies of the certificates and recognitions issued to KTL Dallas, Inc. for compliance testing services.

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A. INTRODUCTION

STANDARD REFERENCES

Standards applied to the EUT:

- 1) American National Standards Institute (ANSI) C63.4-1992, Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical Electronic Equipment in the range of 9 kHz to 40 GHz.
- 2) Code of Federal Regulations (CFR) Title 47, Part 101, Fixed Microwave Devices; General Rules and Regulations, (October 1, 1997).
- 3) Code of Federal Regulations (CFR) Title 47, Part 2, Frequency Allocations and Radio Treaty Matters; General Rules and Regulations, Subpart J Equipment Authorization Procedures (October 1, 1997).
- 4) Code of Federal Regulations (CFR) Title 47, Part 15, Radio frequency devices, Subpart B Unintentional Radiators (October 1, 1996).
- 5) ICC Measurement /Technical Report # 980179.REP, Model Customer Premises Equipment Network Interface Unit for Bosch Telecom, Inc. (June 17, 1998).

Standards utilized for measurement methods and/or equipment:

- 6) CISPR Publication 16, Second Edition, (CISPR specification for radio interference measuring apparatus and measurement methods) IEC 1987.

INTRODUCTION (Continued)

The test facility, International Compliance Corporation, was legally changed to KTL Dallas, Inc. KTL Dallas, Inc. is in the process of updating forms. Some forms in this report reference the former company, International Compliance Corporation.

The following tests contain data which are not covered by NVLAP accreditation.

RF POWER SPECTRAL DENSITY

The RF Power Spectral Density amplitudes were measured from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) and the Model CUSTOMER PREMISES EQUIPMENT NETWORK INTERFACE UNIT at Bosch Telecom, Inc., Richardson, Texas on October 30, 1998. **The test results confirm that the amplitudes of the RF Power Spectral Density from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) and the amplitudes of the Model CUSTOMER PREMISES EQUIPMENT NETWORK INTERFACE UNIT tested in conjunction with other equipment (identified later in this report) are within the FCC Part 101 (FCC Part 2.985) requirements.**

MODULATION CHARACTERISTICS

The modulation characteristics were measured from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) at the KTL Dallas, Inc. Electromagnetic Measurements Laboratory on June 5, 1998. **The modulation characteristics from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) were tested in conjunction with other equipment (identified later in this report) to the FCC Part 101 (FCC Part 2.987) requirements.**

OCCUPIED BANDWIDTH

The occupied bandwidth was measured from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) at the KTL Dallas, Inc. Electromagnetic Measurements Laboratory on June 5, 1998. **The occupied bandwidth from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) were tested in conjunction with other equipment (identified later in this report) to the FCC Part 101 (FCC Part 2.989) requirements.**

SPURIOUS EMISSIONS

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

The spurious emissions at antenna terminal amplitudes were measured from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) at the KTL Dallas, Inc. Open Area Test Site and Electromagnetic Measurements Laboratory and on June 11th, 24th, and 25th of 1998. **The test results confirm that the amplitudes of the antenna terminal spurious emissions from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) tested in conjunction with other equipment (identified later in this report) are within the FCC Part 101 (FCC Part 2.991) requirements.**

A. INTRODUCTION (Continued)

FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS

The field strength of spurious radiated emissions amplitudes were measured from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) at the KTL Dallas, Inc. Open Area Test Site on April 30th, May 1st, 4th, May 5th, May 6th, May 7th, May 15th, 18th, 19th and June 10th of 1998. **The test results confirm that the amplitudes of the field strength of spurious radiated emissions from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) tested in conjunction with other equipment (identified later in this report) are within the FCC Part 101 (FCC Part 2.993) requirements.**

FREQUENCY STABILITY

The frequency stability was measured from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) at the KTL Dallas, Inc. Environmental Chamber on April 28, 1998. **The test results confirm that the frequency stability from the Bosch Telecom, Inc. Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) tested in conjunction with other equipment (identified later in this report) are within the FCC Part 101 (Part 2.995) requirements.**

TEST	CATEGORY	PASS/ FAIL
FCC Part 101/2		
RF Power Spectral Density	Part 101 (2.985) – 28.107 GHz	Pass
Modulation Characteristics	Part 101 (2.987) – 28.107 GHz , 28.225 GHz, 28.345 GHz	N/A
Occupied Bandwidth	Part 101 (2.989) – 28.107 GHz , 28.225 GHz, 28.345 GHz	N/A
Spurious Emissions at Antenna Terminals	Part 101 (2.991) – 30 MHz-26 GHz, 26 GHz-40 GHz, 40 GHz-100 GHz	Pass
Field Strength of Spurious Radiated Emissions	Part 101 (2.993) – 30 MHz – 100 GHz	Pass
Frequency Stability	Part 101 (2.995) – 28.225 GHz	Pass

B. EQUIPMENT-UNDER-TEST

The equipment-under-test (EUT) was received by KTL Dallas, Inc. on April 28,1998, from Bosch Telecom, Inc.

The EUT is the Bosch Telecom, Inc. CUSTOMER PREMISES EQUIPMENT Model ROOF UNIT TRANSCEIVER (US), S/N MSN-69, P/N 3214864-001. **Refer to Figure B-1 for EUT photographs.**

The Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) was tested with the following equipment and cables:

- a) Bosch Telecom, Inc. Model Node Interface Unit, S/N 003, P/N 3214845.
- b) Commscope RG11 Cable, Model 5916, peripheral termination, one hundred thirty-five feet in length, shielded, Type F connector.

The Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) was tested with the following equipment and cables in the Antenna Terminal Conducted (FCC Part 2.991) tests:

- c) Hewlett Packard Preselected RF Section, Model 11974A, S/N 3001A00297, P/N1197A.
- d) Hewlett Packard Preselected Power Supply, Model 11974-60028, S/N 0415-0445, P/N.11974-60028.

MODES OF OPERATION

The EUT was operating in a steady state mode with three simulated and three actual QPSK input frequencies, all at max. rated output power (100 milliwatts).

CHANGES TO THE EUT AFTER RECEIPT OF SAMPLE

No additional measures were taken over those already incorporated in the product.

DEVIATION CRITERIA

No deviation was required.

**Please Refer to Photographs of the EUT in Exhibits 4 and 10
of the Application to FCC for Certification**

FIGURE B-1. EQUIPMENT-UNDER-TEST (EUT) PHOTOGRAPHS

C. TEST PROCEDURE

RF POWER SPECTRAL DENSITY

The RF Power Spectral Density amplitudes for Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US) and the Model CUSTOMER PREMISES EQUIPMENT NETWORK INTERFACE UNIT were measured at Bosch Telecom, Inc., Richardson, Texas in the following configurations for the:

1/2 Rate
3/4 Rate
7/8 Rate

MODULATION CHARACTERISTICS

The modulation characteristics were measured at the KTL Dallas, Inc. Electromagnetic Measurements Laboratory in the following configurations:

ACTUAL QPSK SIGNAL

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU) 1/2 Rate, IF Input +5.41 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input -.01 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU) 3/4 Rate, IF Input +5.68 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input -.04 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU) 7/8 Rate, IF Input +5.34 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input -.02 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input +5.95 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input -1.07 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input +6.05 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input -0.96 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input +6.16 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU) 7/8 Rate, IF Input -1.01 dBm measured
RF Output = +17.0 dBm.

C. TEST PROCEDURE (Continued)

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input +6.93 dBm 1/2 Rate measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 1/2Rate, IF Input -0.60 dBm 1/2 Rate measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input +6.95 dBm 3/4 Rate measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input -0.51 dBm 3/4Rate measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input +7.09 dBm 7/8 Rate measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input -0.58 dBm 7/8 Rate measured
RF Output = +17.0 dBm.

SIMULATED QPSK SIGNAL

Fundamental Frequency 28.107 GHz, Simulated QPSK, IF Input +5.14 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Simulated QPSK, IF Input -0.04 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.225 GHz, Simulated QPSK, IF Input +5.76 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.225 GHz, Simulated QPSK, IF Input -1.03 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.345 GHz, Simulated QPSK, IF Input + 3.47 dBm measured
RF Output = +19.5 dBm.

Fundamental Frequency 28.345 GHz, Simulated QPSK, IF Input -0.59 dBm measured
RF Output = +17.0 dBm.

OCCUPIED BANDWIDTH

The occupied bandwidth were measured at the KTL Dallas, Inc. Electromagnetic Measurements Laboratory in the following configurations:

ACTUAL QPSK SIGNAL

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU) 1/2 Rate, IF Input +5.41 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input -0.01 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU) 3/4 Rate, IF Input +5.68 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input -0.04 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU) 7/8 Rate, IF Input +5.34 dBm measured
RF Output = +20.0 dBm.

Fundamental Frequency 28.107 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input -.002 dBm measured
RF Output = +17.0 dBm.

C. TEST PROCEDURE (Continued)

Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input +5.95 dBm measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input -1.07 dBm measured
RF Output = +17.0 dBm.
Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input +6.05 dBm measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input -0.96 dBm measured
RF Output = +17.0 dBm.
Fundamental Frequency 28.225 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input +6.16 dBm measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.225 GHz, Actual QPSK (NIU) 7/8 Rate, IF Input -1.01 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 1/2 Rate, IF Input +6.93 dBm 1/2 Rate measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 1/2Rate, IF Input -0.60 dBm 1/2 Rate measured
RF Output = +17.0 dBm.
Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input +6.95 dBm 3/4 Rate measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 3/4 Rate, IF Input -0.51 dBm 3/4Rate measured
RF Output = +17.0 dBm.
Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input +7.09 dBm 7/8 Rate measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.345 GHz, Actual QPSK (NIU), 7/8 Rate, IF Input -0.58 dBm 7/8 Rate measured
RF Output = +17.0 dBm.

SIMULATED QPSK SIGNAL

Fundamental Frequency 28.107 GHz, Simulated QPSK, IF Input +5.14 dBm measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.107 GHz, Simulated QPSK, IF Input -0.04 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.225 GHz, Simulated QPSK, IF Input +5.76 dBm measured
RF Output = +20.0 dBm.
Fundamental Frequency 28.225 GHz, Simulated QPSK, IF Input -1.03 dBm measured
RF Output = +17.0 dBm.

Fundamental Frequency 28.345 GHz, Simulated QPSK, IF Input + 3.47 dBm measured
RF Output = +19.5 dBm.
Fundamental Frequency 28.345 GHz, Simulated QPSK, IF Input -0.59 dBm measured
RF Output = +17.0 dBm.

C. TEST PROCEDURE (Continued)

• ELECTROMAGNETIC EMISSIONS

The test procedures used for determining FCC Part 15 Subpart B-Unintentional Radiators Class A and FCC Part 2 Subpart J-Frequency Allocation and Radio Treaty Matters; General Rules and Regulations compliance were in accordance with FCC Rules and Regulations, ANSI C63.4-1992 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

All measurements were performed using the CISPR quasi-peak, peak or average detector functions of the receiver or spectrum analyzer. The bandwidths (6-dB) were as follows for the different detector functions and frequency ranges (deviations if necessary would be noted on the individual data sheets):

FREQUENCY RANGE	QUASI-PEAK	PEAK	AVERAGE
10 kHz – 150kHz	200 Hz	200 Hz	200 Hz
150 kHz – 30 kHz	9 kHz	10 kHz	10 kHz
30 MHz – 1000 MHz	120 kHz	100 kHz	100 kHz
> 1000 MHz	N/A	1 MHz	1 MHz

C. TEST PROCEDURE (Continued)

SPURIOUS EMISSIONS AT ANTENNA TERMINALS:

The spurious emissions at antenna terminals amplitudes were measured at the KTL Dallas, Inc. Open Area Test Site between 30 MHz and 26 GHz, 26 GHz and 40 GHz, and 40 GHz and 100 GHz at three different frequencies for the Actual QPSK signal and the Simulated QPSK signal:

(Lower Frequency) TX 28.107 GHz 20.0dBm (Actual QPSK)
(Center Frequency) TX 28.225 GHz 20.0dBm (Actual QPSK)
(Higher Frequency) TX 28.345 GHz 20.0dBm (Actual QPSK)

(Lower Frequency) TX 28.107 GHz 20.0dBm (Simulated QPSK)
(Center Frequency) TX 28.225 GHz 20.0dBm (Simulated QPSK)
(Higher Frequency) TX 28.345 GHz 20.0dBm (Simulated QPSK)

FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS MEASUREMENTS:

The field strength of spurious radiated emissions were measured between 30 MHz and 100 GHz for the Actual QPSK and the Simulated QPSK signals at the KTL Dallas, Inc. Open Area Test Site at a 3 meter distance. The measurements were made at three different configurations:

Scan 30 MHz - 1000 MHz

Lower Frequency TX 28.107 GHz 20.0 dBm Actual QPSK Signal
Center Frequency TX 28.225 GHz, 20.0 dBm Actual QPSK Signal
Higher Frequency TX 28.345 GHz 20.0 dBm Actual QPSK Signal

Lower Frequency TX 28.107 GHz 20.0 dBm Simulated QPSK Signal
Center Frequency TX 28.225 GHz, 20.0 dBm Simulated QPSK Signal
Higher Frequency TX 28.345 GHz 20.0 dBm Simulated QPSK Signal

Scan 1 GHz - 100 GHz

Lower Frequency TX 28.107 GHz 20.0 dBm Actual QPSK Signal
Lower Frequency TX 28.107 GHz 20.0 dBm (Actual QPSK Signal Driven by NIU)
Center Frequency TX 28.225 GHz, 20.0 dBm Actual QPSK Signal
Center Frequency TX 28.225 GHz, 20.0 dBm (Actual QPSK Signal Driven by NIU)
Higher Frequency TX 28.345 GHz 20.0 dBm Actual QPSK Signal
Higher Frequency TX 28.345 GHz 20.0 dBm (Actual QPSK Signal Driven by NIU)

Lower Frequency TX 28.107 GHz 20.0 dBm Simulated QPSK Signal
Center Frequency TX 28.225 GHz, 20.0 dBm Simulated QPSK Signal
Higher Frequency TX 28.345 GHz 20.0 dBm Simulated QPSK Signal

C. TEST PROCEDURE (Continued)

The antennas were vertically and then horizontally polarized. The antenna height was set at 1 meter. The microwave radiated-emissions amplitudes were measured at various azimuthal orientations in order to maximize amplitudes. Cables were oriented to maximize the field strength amplitudes.

Unless otherwise specified, broadband antennas were used. Standard broadband antennas used were selected from the following: Biconical 30 MHz - 300 MHz, Log Periodic 0.3 GHz - 1 GHz and Horn 1 GHz - 40 GHz. For measurements (up to 1 GHz) that were close to the limit, a tuned dipole antenna may have been used.

FREQUENCY STABILITY

Frequency Stability was measured at the KLT Dallas, Inc. Environmental Chamber in TX 28.225 GHz configuration at voltages, 40.8 Vdc, 48.0 Vdc and 55.2 Vdc, with the following temperatures: -30 C°, -20 C°, -10 C°, 0 C°, 10 C°, 20 C°, 30 C°, 40 C°, and 50 C°.

D. TEST RESULTS

TEST	CATEGORY	PASS/ FAIL
FCC Part 101/2 RF Power Spectral Density	Part 101 (2.985) – 28.107 GHz	Pass
Modulation Characteristics	Part 101 (2.987) –28.107 GHz , 28.225 GHz, 28.345 GHz	N/A
Occupied Bandwidth	Part 101 (2.989)– 28.107 GHz , 28.225 GHz, 28.345 GHz	N/A
Spurious Emissions at Antenna Terminals	Part 101 (2.991) – 30 MHz-26 GHz, 26 GHz-40 GHz, 40 GHz-100 GHz	Pass
Field Strength of Spurious Radiated Emissions	Part 101 (2.993) – 30 MHz – 100 GHz	Pass
Frequency Stability	Part 101 (2.995) –28.225 GHz	Pass

The worst-case data are tabulated in Tables D-I, D-II, D-III, D-IV, D-V, D-VI, D-VII, and D-VIII.

The test data are contained in Appendix B of this report.

The RF power spectral density data for the CPE Roof Unit are labeled Tests RF Power, RF Power Spectral Density (1/2 Rate), RF Power Spectral Density (3/4 Rate), and RF Power Spectral Density (7/8Rate) dated October 30, 1998 and for the CPE Network Interface Unit are labeled Tests RF Power Spectral Density (1/2 Rate), RF Power Spectral Density (3/4 Rate), and RF Power Spectral Density (7/8Rate) dated October 30, 1998.

The modulation characteristics plots for the Actual QPSK signal are labeled Actual QPSK 1/2 Rate, Actual QPSK 3/4 Rate, and Actual QPSK 7/8 Rate dated June 5, 1998.

The modulation characteristics data plots for the Simulated QPSK signal are labeled Simulated QPSK for Configuration: Center 28.10700 GHz, Configuration: Center 28.22500, and Configuration: Center 28.34500 GHz dated June 5, 1998.

The occupied bandwidth data plots for the Actual QPSK signal are labeled Actual QPSK 1/2 Rate, Actual QPSK 3/4 Rate, and Actual QPSK 7/8 Rate dated June 5, 1998.

The occupied bandwidth data plots for the Simulated QPSK signal are labeled Simulated QPSK for Configuration: Center 28.10700 GHz, Configuration: Center 28.22500, and Configuration: Center 28.34500 GHz dated June 5, 1998.

The spurious emissions at antenna terminals data for the Actual QPSK Signal are labeled Tests # 036V4, # 036V5, and # 036V6 dated June 11, 1998, and Tests # 036V4A # 036V4b, # 036V5A, # 036V5b, # 036V6A, and # 036V6b dated June 24, 1998.

D. TEST RESULTS (Continued)

The spurious emissions at antenna terminals data for the Simulated QPSK Signal are labeled Tests # 036V1, # 036V1b, # 036V2, and # 036V3 dated June 11, 1998, Tests # 036V01A and # 036V3A dated June 24, 1998, and Tests # 036V2A, # 036V3B, and # 036V2C dated June 25, 1998.

The field strength of spurious radiated emissions data sheets (Scan: 30 MHz- 1000 MHz) for the Actual QPSK Signal are labeled Tests # RE8, and # RE9 dated May 18, 1998 and Tests # RE9A and # RE-10 dated May 19, 1998. The field strength of spurious radiated emissions data sheets (Scan: 1 GHz- 100 GHz) for the Actual QPSK Signal are also labeled Tests # MW-8, # MW-8a, # MW-8c, # MW-9, # MW-9a, # MW-10, and # MW-10a dated May 15, 1998, and Tests # MW-8b, # MW-9b, # MW-9c, # MW-10b, and # MW-10c dated May 18, 1998, Tests # MW-8D, # MW-9c, # MW-9D, and # MW-10D dated May 19, 1998, and Tests # MW-8G, # MW-8H, and # MW-9f, dated June 10, 1998,

The field strength of spurious radiated emissions data sheets (Scan: 30 MHz- 1000 MHz) for the Simulated QPSK Signal are labeled Tests # RE-01 and # RE-03 dated May 1, 1998 and # RE-02 and RE-03A dated May 4, 1998. The field strength of spurious radiated emissions data sheets (Scan: 1 GHz- 100 GHz) for the Simulated QPSK Signal are also labeled Tests # MW-01 and # MW-02 dated April 30, 1998, Tests # MW-01A # MW-03, and # MW-03A dated May 1, 1998, Test # MW-2A dated May 4, 1998, Tests # MW-1A, # MW-1B, # MW-3A, and MW-3d dated May 5, 1998, Tests # MW-2B, # MW-3B, and # MW-3C dated May 6, 1998, Tests # MW-1C, # MW-2C and # MW-3E dated May 7, 1998, and Tests # MW-1D, # MW-2D and # MW-3F dated June 10, 1998

The frequency stability data sheets are labeled Frequency Stability (Configuration 28.225000 GHz) dated April 28, 1998.

RF power spectral density data are tabulated in Table D-I. The spurious emissions at antenna terminals data for Actual QPSK Signal are tabulated in Table D-II and the spurious emissions at antenna terminals data for Simulated QPSK Signal are tabulated in Table D-III. The field strength of spurious radiated emissions data (30 MHz – 1000 MHz) for Actual QPSK Signal are tabulated in Table D-IV and the field strength of spurious radiated emissions data (Scan: 30 MHz – 1000 MHz) for Simulated QPSK Signal are tabulated in Table D-V. The field strength of spurious radiated emissions data (1 GHz - 100 GHz) for Actual QPSK Signal are tabulated in Table D-VI and the field strength of spurious radiated emissions data (1 GHz - 100 GHz) for Simulated QPSK Signal are tabulated in Table D-VII. Frequency stability data are tabulated in Table D-VIII.

Figure D-1 contains photographs of RF power spectral density test set-up. Figure D-2 contains photographs of the modulation characteristics and Figure D-3 contains photographs of the occupied band width test set-ups. Figure D-4 contains photographs of the spurious emissions at antenna terminals test set-ups. Figure D-5 contains photographs of the field strength of spurious radiated emissions for Actual QPSK Signal (Scan 30 MHz –1000 MHz) test set-ups and Figure D-6 contains photographs of the field strength of spurious radiated emissions Simulated QPSK Signal (Scan 30 MHz –1000 MHz) test set-ups. Figure D-7 contains photographs of the field strength of spurious radiated emissions for the Actual QPSK Signal (Scan 1 GHz –100 GHz) test set-ups and Figure D-8 contains photographs of the field strength of spurious radiated emissions for the Simulated QPSK Signal (Scan 1GHz –100 GHz) test set-ups. Figures D-9 contains photographs of the frequency stability test set-ups. Figure D-10 contains photographs of radiated emissions test set-ups.

D. TEST RESULTS (Continued)

- **TEST RESULTS SUMMARY**

The test results confirm that the RF power spectral density, spurious emissions at antenna terminals, field strength of spurious radiated emissions and frequency stability amplitudes are within the FCC Part 101 and FCC Part 2 requirements. The modulation characteristics and occupied bandwidths were tested to the FCC Part 101 and FCC Part 2 requirements.

D. TEST RESULTS (Continued)• **SAMPLE CALCULATIONS*****RF Power Spectral Density***

Test #:	CPE Roof Unit 1/2 Rate	Frequency: 28.170 GHz		Channel Bandwidth: 2.04 MHz		
		Conversions				
Analyzer (dBm/Hz)	Attenuation (dB)	Hz to MHz (dB)	dBm to dBW (dB)	Antenna Gain (dBi)	Corrected Reading dBW/MHz)	Limit dBm
-72.2	22.2	60.0	-30	38.0	18	42.0

The calculation proceeds as follows: Analyzer Reading (dBm/Hz) + Attenuation (dB) + Conversion Factor (dB) = Correction Read (dBW/MHz).

Spurious Emissions at Antenna Terminals

Test #:	036V4A	Frequency: .960 GHz		Power Line:	At Antenna Terminals	
Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	4 kHz RBW Correction Factor (dB)	Corrected Reading (dBm)	Limit dBm	
-70.0	20	1.0	-24.0	-73.0	-13.0	

The calculation proceeds as follows: Meter Reading (dBm) + Attenuation (dB) + Cable Loss (dB) + Correction Factor (dB) = Voltage (dBm).

4 kHz RBW Correction Factor Calculation:

$$\text{Ratio BW} / [10 \times \log (\text{RBW1}/\text{RBW2})] = -23.979 = -24.0 \text{ dB.}$$

dBc Limit Calculation:

$$A = 43 \text{ dB} + 10 \log_{10} \text{M0PW} = -13 \text{ dB}$$

D. TEST RESULTS (Continued)***Field Strength of Spurious Radiated (30 MHz-1000 MHz)***

Test #:	RE-10	Frequency:	33.400 MHz	Polarization:	Vertical	Spec Limit	Delta
Meter Reading (dBμV)	Antenna Factor (dB)	Path Loss (dB)	Amplifier Gain (dB)	Field Strength (dBμV/m)	Field Strength (dBμV/m)		(dB)
59.0	11.3	1.4	25.0	46.7	84.6		-37.9

The calculations proceed as follows: Meter Reading (dBμV) + Antenna Factor (dB) + Path Loss (dB) - Amplifier Gain (dB) = Field Strength (dBμV/m).

When the emission level is less than 6 dB above the ambient noise floor, the antenna is moved closer to the EUT. A 3-meter measurement level is compared with a 10-meter limit by extrapolating the limit to a 3-meter distance. One adds a factor of 10.5 dB to the limit, which is derived from:

$$\text{Correction Factor (dB)} = 20 \log (10 \text{ m}/3 \text{ m}) = 10.5 \text{ dB}$$

e.g., Limit @ 10 m = 30 dBμV/m @ 10 m
 Limit @ 3 m = 40.5 dBμV/m @ 3 m

Similarly, a 10-meter limit is extrapolated to a specified 30-meter limit by use of a correction factor of $20 \log (10 \text{ m}/30 \text{ m}) = -9.5 \text{ dB}$.

Field Strength of Spurious Radiated Emissions (1 GHz-100 MHz)

Test #	MW-10D	Frequency:	1.557 GHz	Polarization:	Vertical		
Meter Reading (dBμV)	4 kHz RBW Correction Factor (dB)	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Corrected Reading (dBμV/m)	dBc	dBc Limit
21.0	-24	25.1	1.7	22.5	1.3	-116.3	-33.0

The calculations proceed as for RF Radiated Emissions, except for the added conversion factor.

4 kHz RBW Correction Factor Calculation:

$$\text{Ratio BW} / [10 \times \log (\text{RBW1}/\text{RBW2})] = 23.979 = -24.0 \text{ dBm.}$$

dBc Limit Calculation:

$$A = 43 + 10 \log_{10} \text{M0PW} = -33 \text{ dB}$$

$$\text{Field Intensity (equivalent to 0.1 W into tuned dipole)} = 20.0 \text{ dBm} - 28.87 + 116 + 10.5 = 117.63 \text{ dB} \cdot \text{V/m}$$

TABLE D-I. RF POWER SPECTRAL DENSITY DATA

RF POWER CPE ROOF UNIT

Frequency GHz	Power Reading dBm	External Attenuation dB	Conversion dBm to dBW	Antenna Gain dBi	Corrected Reading dBW	Limit dBW	Delta dB
28.27093	20	0	-30	38	28	55	-27

CPE ROOF UNIT QPSK (1/2 RATE)

Center Frequency GHz	Channel Bandwidth	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	2.04	-72.2	22.2	60	-30	38	18	42	-24
28.225	2.04	-70.8	22.2	60	-30	38	19.4	42	-22.6
28.345	2.04	-70.5	22.2	60	-30	38	19.7	42	-22.3

CPE ROOF UNIT QPSK (3/4 RATE)

Center Frequency GHz	Channel Bandwidth	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	1.359	-70.6	22.2	60	-30	38	19.6	42	-22.4
28.225	1.359	-71.1	22.2	60	-30	38	19.1	42	-22.9
28.345	1.359	-70.1	22.2	60	-30	38	20.1	42	-21.9

CPE ROOF UNIT QPSK (7/8 RATE)

Center Frequency GHz	Channel Bandwidth	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	1.165	-69.9	22.2	60	-30	38	20.3	42	-21.7
28.225	1.165	-70	22.2	60	-30	38	20.2	42	-21.8
28.345	1.165	-72.1	22.2	60	-30	38	18.1	42	-23.9

CPE NETWORK INTERFACE UNIT (1/2 RATE)

Center Frequency GHz	Channel Bandwidth	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.10593	2.04	-70.6	22.2	60	-30	38	19.6	42	-22.4
28.22593	2.04	-71.3	22.2	60	-30	38	18.9	42	-23.1
28.34593	2.04	-70.4	22.2	60	-30	38	19.8	42	-22.2

D. TEST RESULTS (Continued)**CPE NETWORK INTERFACE UNIT (3/4 RATE)**

Center Frequency GHz	Channel Bandwidth	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.10593	1.359	-68.8	22.2	60	-30	38	21.4	42	-20.6
28.22593	1.359	-69.2	22.2	60	-30	38	21	42	-21
28.34593	1.359	-69.2	22.2	60	-30	38	21	42	-21

CPE NETWORK INTERFACE QPSK (7/8 RATE)

Center Frequency GHz	Channel Bandwidth	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.10593	1.165	-67.4	22.2	60	-30	38	22.8	42	-19.2
28.22593	1.165	-68.3	22.2	60	-30	38	21.9	42	-20.1
28.34593	1.165	-67.5	22.2	60	-30	38	22.7	42	-19.3

1. Data contained in Appendix B- Tests RF Power CPE Roof Unit, Test RF Power Spectral Density CPE Roof Unit QPSK (1/2 Rate), RF Power Spectral Density CPE Roof Unit QPSK (3/4 Rate), Test RF Power Spectral Density CPE Roof Unit QPSK (7/8 Rate), Test RF Power Spectral Density CPE Network Interface Unit (1/2 Rate), Test RF Power Spectral Density CPE Network Interface Unit (3/4 Rate), and Test RF Power Spectral Density CPE Network Interface Unit (7/8 Rate) dated 10/30/98.



FIGURE D-1. RF POWER SPECTRAL DENSITY TEST SETUP



FIGURE D-2. MODULATION CHARACTERISTICS TEST SETUP



Photograph is Identical to the Test Setup for 2.987

FIGURE D-2. MODULATION CHARACTERISTICS TEST SETUP
(Continued)



FIGURE D-3. OCCUPIED BANDWIDTH TEST SETUP



Photograph is Identical to the Test Setup for 2.989

FIGURE D-3. OCCUPIED BANDWIDTH TEST SETUP
(Continued)

TABLE D-II. SPURIOUS EMISSIONS AT ANTENNA TERMINALS DATA FOR ACTUAL QPSK SIGNAL

Scan 30 MHz-26 GHz

Test # 036V4A, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm (ACTUAL QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
.960	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
1.556	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
3.112	-71.0	20.0	1.0	-74.0	-13.0	61.0	1,2
4.668	-71.0	20.0	1.0	-74.0	-13.0	61.0	1,2

Scan 26GHz-40 GHz

Test #036V4, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm (ACTUAL QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
26.550	-55.8	19.0	6.3	-30.5	-13.0	17.5	1,3
28.080	-48.2	19.0	7.8	-21.3	-13.0	8.3	1,4
28.132	-51.5	19.0	7.8	-24.7	-13.0	11.7	1,4

Scan 40GHz- 100 GHz

Test # 036V4b, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm (ACTUAL QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
53.100	-77.0	20.0	1.0	-80.0	-13.0	67.0	1,2
56.189	-77.0	20.0	1.0	-80.0	-13.0	67.0	1,2
56.214	-41.8	20.0	1.0	-44.8	-13.0	31.8	1,5
56.239	-75.0	20.0	1.0	-54.0	-13.0	41.0	1,4
79.650	-72.0	20.0	1.0	-51.0	-13.0	38.0	1,6
84.321	-49.0	20.0	1.0	-52.0	-13.0	39.0	1,7

D. TEST RESULTS (Continued)**Scan 30 MHz-26 GHz**

**Test # 036V5A, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(ACTUAL QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
.960	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
1.674	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
3.348	-71.0	20.0	1.0	-74.0	-13.0	61.0	1,2
5.022	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2

Scan 26 GHz-40 GHz

Test # 036V5, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm (ACTUAL QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
26.550	-55.70	19.0	6.3	-30.4	-13.0	17.4	1,3
28.200	-48.50	19.0	7.8	-21.7	-13.0	8.7	1,4
28.250	50.50	19.0	7.8	-23.7	-13.0	10.7	1,4

Scan 40 GHz-100 GHz

**Test # 036V5b, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(ACTUAL QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
53.100	-77.0	20.0	1.0	-80.0	-13.0	67.0	1,2
56.425	-72.0	20.0	1.0	-51.0	-13.0	38.0	1,4
56.450	-35.0	20.0	1.0	-38.0	-13.0	25.0	1,5
56.475	-71.6	20.0	1.0	50.6	-13.0	37.6	1,4
79.650	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2
84.675	-51.5	20.0	1.0	-54.5	-13.0	41.5	1,7

D. TEST RESULTS (Continued)**Scan 30 MHz-26 GHz**

**Test # 036V6A, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(ACUTAL QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
.960	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
1.794	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
3.588	-71.0	20.0	1.0	-74.0	-13.0	61.0	1,2
5.382	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2

Scan 26 GHz-40 GHz

**Test # 036V6, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(ACTUAL QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
26.550	-55.2	19.0	6.3	-29.9	-13.0	16.9	1,3
28.320	-48.5	19.0	7.8	-21.7	-13.0	8.7	1,4
28.370	-56.2	19.0	7.8	-29.4	-13.0	16.4	1,4

Scan 40 GHz-100 GHz

**Test # 036V6b, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(ACTUAL QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
53.100	-77.0	20.0	1.0	-80.0	-13.0	67.0	1,2
56.665	-71.0	20.0	1.0	-50.0	-13.0	37.0	1,4
56.690	-42.0	20.0	1.0	-45.0	-13.0	32.0	1,5
56.715	-76.6	20.0	1.0	-55.6	-13.0	42.6	1,4
79.650	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2
85.035	-62.2	20.0	1.0	-65.2	-13.0	52.2	1,7

D. TEST RESULTS (Continued)

Comments:

- 1) Data contained in Appendix B - Tests # 036V4, # 036V5, and # 036V6 (06/11/98) and Tests # 036V4A, # 036V4b, # 036V5A, # 036V5b, # 036V6A and # 036Vb (06/24/98).
- 2) Noise floor reading.
- 3) L/O (CW Signal)
- 4) CW Signal
- 5) Second Harmonic of Fundamental
- 6) Harmonic of L/O
- 7) Third Harmonic of Fundamental

Note:

*Calculations may not agree exactly with data due to rounding of numbers.

4 kHz RBW correction factor of -24 dB was added to the formula (refer to sample calculations).

Amplitudes were measured using the peak detector. Reference detector specified in the limit is the peak detector.

TABLE D-III. SPURIOUS EMISSIONS AT ANTENNA TERMINALS DATA FOR SIMULATED QPSK SIGNAL

Scan 30 MHz-26 GHz

**Test #036V01A, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
.960	-70.0	0	1.0	-93.0	-13.0	80.0	1,2
1.556	-70.0	0	1.0	-93.0	-13.0	80.0	1,2
3.112	-71.0	0	1.0	-94.0	-13.0	81.0	1,2
4.668	-72.0	0	1.0	-95.0	-13.0	82.0	1,2

Scan 26 GHz-40 GHz

**Test # 036V1, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Peak (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
26.550	-56.0	19.0	6.3	-30.7	-13.0	17.7	1,3

Scan 40 GHz-100 GHz

**Test #036V1B, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
53.100	-77.00	20	1.0	-80.0	-13	67.0	1,2
56.210	-37.00	20	1.0	-40.0	-13	27.0	1,5
79.600	-72.00	20	1.0	-75.0	-13	62.0	1,2
84.321	-51.5	20	1.0	-54.5	-13	41.5	1,7

D. TEST RESULTS (Continued)**Scan 30 MHz-26 GHz**

Test # 036V2A, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
.960	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
1.674	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
3.348	-71.0	20.0	1.0	-74.0	-13.0	61.0	1,2
5.022	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2

Scan 26 GHz- 40 GHz

Test # 036V2, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
26.550	-56.0	19.0	6.3	30.7	-13.0	17.7	1,3

Scan 40 GHz-100 GHz

Test # 036V2C, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
53.100	-77.0	20.0	1.0	-56.0	-13.0	43.0	1,2
56.450	-37.0	20.0	1.0	-40.0	-13.0	27.0	1,5
79.650	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2
84.675	-51.5	20.0	1.0	-54.5	-13.0	41.5	1,6

D. TEST RESULTS (Continued)**Scan 30 MHz-26 GHz**

**Test # 036V3A, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
.960	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
1.794	-70.0	20.0	1.0	-73.0	-13.0	60.0	1,2
3.588	-71.0	20.0	1.0	-74.0	-13.0	61.0	1,2
5.382	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2

Scan 26 GHz-40 GHz

**Test # 036V3, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
26.550	-54.5	19.0	6.3	-29.2	-13.0	16.2	1,3

Scan 40 GHz-100 GHz

**Test # 036V3B, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(SIMULATED QPSK), 16 Vdc**

Frequency (MHz)	Meter Reading (dBm)	Attenuation (dB)	Cable Loss (dB)	Corrected Reading (dBm)	FCC 2.991 Limit (dBm)	Margin* (dB) (Limit-Amplitude)	Comments
53.100	-77.0	20.0	1.0	-80.0	-13.0	67.0	1,2
56.690	-42.0	20.0	1.0	-45.0	-13.0	32.0	1
79.650	-72.0	20.0	1.0	-75.0	-13.0	62.0	1,2
85.035	-62.2	20.0	1.0	-65.2	-13.0	52.2	1

D. TEST RESULTS (Continued)

Comments:

- 1) Data contained in Appendix B - Tests # 036V1, # 036V1B, # 036V2, and # 036V3 (06/11/98), Tests # 036V01A and # 036VA (06/24/98) and Tests # 036V2A, # 036V2C and # 036V3B (06/25/98).
- 2) Noise floor reading.
- 3) L/O (CW Signal)
- 4) CW Signal
- 5) Second Harmonic of Fundamental
- 6) Third Harmonic of L/O
- 7) Third Harmonic of Fundamental

Note:

*Calculations may not agree exactly with data due to rounding of numbers.

4 kHz RBW correction factor of - 24 dB was added to the formula (refer to sample calculations).

Amplitudes were measured using the peak detector. Reference detector specified in the limit is the peak detector.

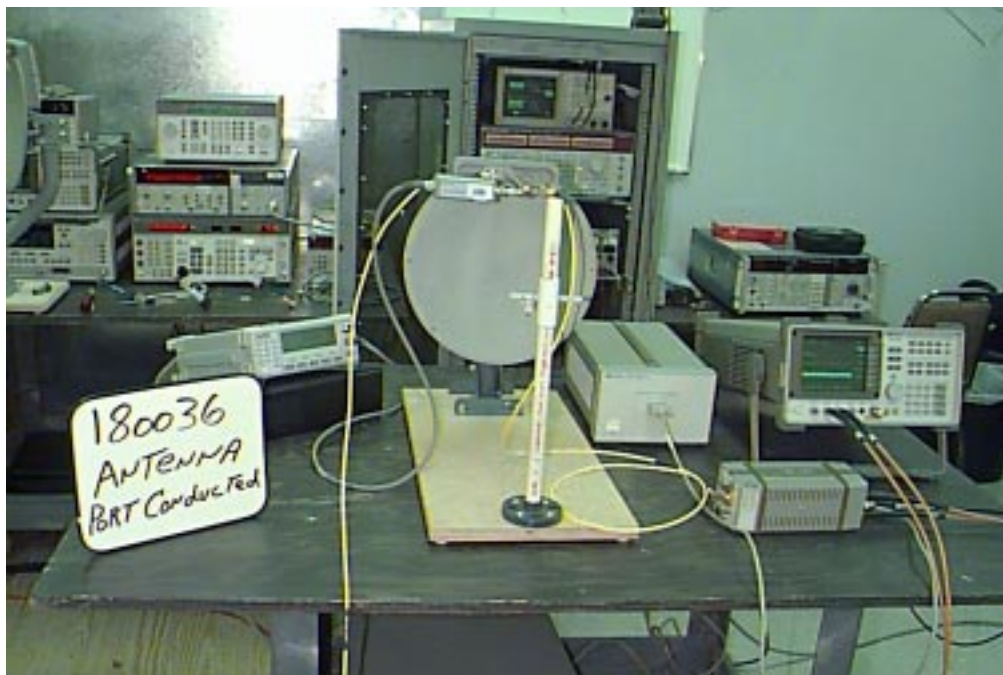


FIGURE D-4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS TEST SETUP

TABLE D-IV WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS DATA FOR ACTUAL QPSK SIGNAL (SCAN: 30 MHz - 1000 MHz)

**Test # RE-10, Configuration: TX 28.107 GHz (Lower Frequency) 20.0dBm
(Actual QPSK Signal), 16 Vdc**

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.993. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
33.400	46.7	84.6	37.9	Vertical	1,2
104.020	41.9	84.6	42.7	Vertical	1,2
113.760	41.6	84.6	43.0	Vertical	1,2
104.020	48.4	84.6	36.2	Horizontal	1,2
113.650	43.6	84.6	41.0	Horizontal	1,2
120.000	43.0	84.6	41.6	Horizontal	1,2

Test # RE9A, Configuration: TX 28.225 GHz (Center Frequency) 20.0dBm (Actual QPSK), 16 Vdc

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.993. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
33.400	45.7	84.6	38.9	Vertical	1,2
73.500	38.1	84.6	46.5	Vertical	1,2
104.020	41.9	84.6	42.7	Vertical	1,2
104.020	42.9	84.6	41.7	Horizontal	1,2
133.700	43.4	84.6	41.2	Horizontal	1,2
173.800	41.7	84.6	42.9	Horizontal	1,2

Test # RE9, Configuration: TX 28.225 GHz (Center Frequency) 20.0dBm (Actual QPSK), 16 Vdc

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.991. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
328.000	27.7	84.6	56.9	Vertical	1,2
632.000	39.5	84.6	45.1	Vertical	1,2
960.000	33.3	84.6	51.3	Vertical	1,2
328.000	30.7	84.6	53.9	Horizontal	1,2
632.000	38.5	84.6	46.1	Horizontal	1,2
960.000	33.3	84.6	51.3	Horizontal	1,2

D. TEST RESULTS (Continued)**Test # RE8, Configuration: TX 28.345 GHz (Higher Frequency) 20.0dBm (Actual QPSK), 16 Vdc**

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.991. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
33.400	46.7	84.6	37.9	Vertical	1,2
104.020	41.9	84.6	42.7	Vertical	1,2
113.760	42.6	84.6	42.0	Vertical	1,2
104.020	45.9	84.6	38.7	Horizontal	1,2
120.000	40.0	84.6	44.6	Horizontal	1,2
133.700	39.4	84.6	45.2	Horizontal	1,2

Comments:

1. Data contained in Appendix B - Tests # RE9 and # RE8 (05/18/98) and Tests # RE-10 and # RE9A (05/19/98).
2. Amplitude was measured using the quasi-peak detector.

Notes:

*Calculations may not agree exactly with data due to rounding of numbers.

All other radiated emissions amplitudes were at least 10 dB within the FCC 2.991 Limits. Emissions were scanned from 30 MHz to 1 GHz with antennas in both the vertical and horizontal orientation. The specified radiated emissions antenna reference distance was 3 meters. Testing of the EUT was conducted at 3 meters. No additional signal was detected.

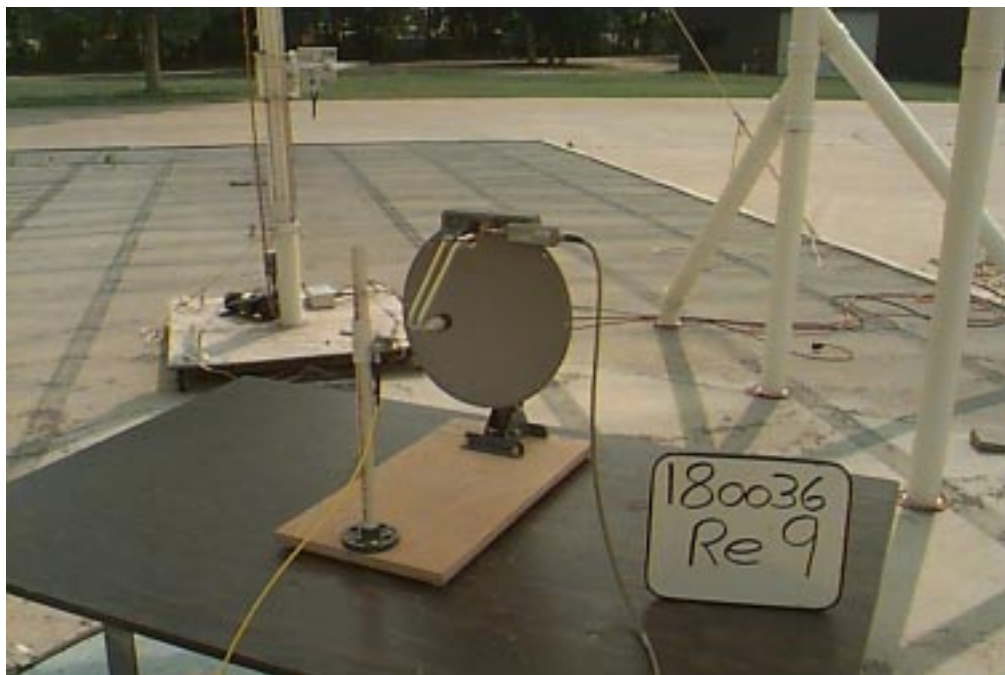
Amplitudes were measured using the CISPR quasi-peak detector. Reference detector specified in the limit is the CISPR quasi-peak detector.



Configuration: Lower Frequency (Actual QPSK Signal)
FIGURE D-5. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS ACTUAL QPSK
SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP

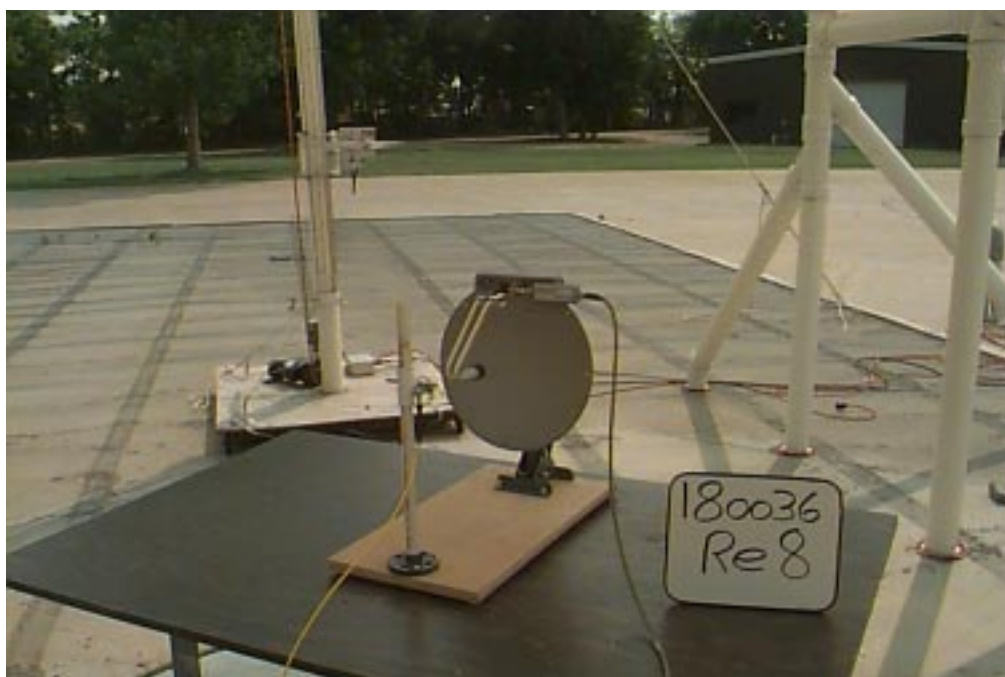


Configuration: Center Frequency (Actual QPSK Signal)
FIGURE D-5. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)



Configuration: Center Frequency (Actual QPSK Signal)

FIGURE D-5. WORST-CASE FIELD STRENGTH OF SPURIOUS EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)



Configuration: Higher Frequency Actual (QPSK Signal)

FIGURE D-5. WORST-CASE FIELD STRENGTH OF SPURIOUS EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)

TABLE D-V WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS DATA FOR SIMULATED QPSK SIGNAL (SCAN : 30 MHz-1000 MHz)

**Test # RE-02, Configuration: TX 28.107 GHz (Lower Frequency) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.993. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
33.425	44.2	84.6	40.4	Vertical	1,2
59.750	42.9	84.6	41.7	Vertical	1,2
73.560	41.1	84.6	43.5	Vertical	1,2
120.000	41.5	84.6	43.1	Horizontal	1,2
120.350	40.6	84.6	44.0	Horizontal	1,2
133.720	40.4	84.6	44.2	Horizontal	1,2

**Test # RE-01, Configuration: TX 28.225 GHz (Center Frequency) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.993. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
60.180	44.5	84.6	40.1	Vertical	1,2
104.020	41.9	84.6	42.7	Vertical	1,2
133.760	44.4	84.6	40.2	Vertical	1,2
104.020	44.9	84.6	39.7	Horizontal	1,2
120.000	45.9	84.6	38.7	Horizontal	1,2
120.345	44.5	84.6	40.1	Horizontal	1,2

**Test # RE-03A, Configuration: TX 28.345 GHz (Higher Frequency) 19.7 dBm
(Simulated QPSK), 16 Vdc**

Frequency (MHz)	Amplitude Q.P. (dBμ V/m)	FCC 2.993. Limit (dBμ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
33.440	47.7	84.6	36.9	Vertical	1,2
59.780	43.4	84.6	41.2	Vertical	1,2
173.840	37.7	84.6	46.9	Vertical	1,2
33.420	40.7	84.6	43.9	Horizontal	1,2
113.670	35.6	84.6	49.0	Horizontal	1,2
133.720	38.4	84.6	46.2	Horizontal	1,2

D. TEST RESULTS (Continued)**Test # RE-03, Configuration: TX 28.345 GHz (Higher Frequency) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (MHz)	Amplitude Q.P. (dB μ V/m)	FCC 2.993. Limit (dB μ V/m)	Margin* (dB) (Limit-Amplitude)	Polarization Vertical/ Horizontal	Comments
328.050	31.2	84.6	53.4	Vertical	1,2
632.100	39.0	84.6	45.6	Vertical	1,2
960.000	37.6	84.6	47.0	Vertical	1,2
344.070	32.8	84.6	51.8	Horizontal	1,2
632.100	37.0	84.6	47.6	Horizontal	1,2
960.000	34.6	84.6	50.0	Horizontal	1,2

Comments:

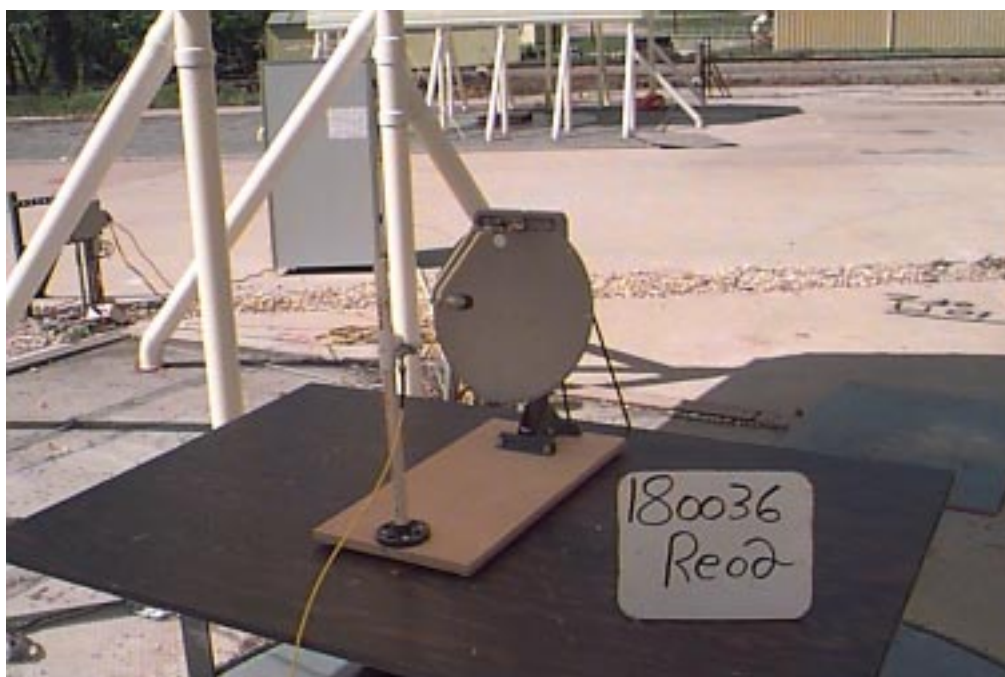
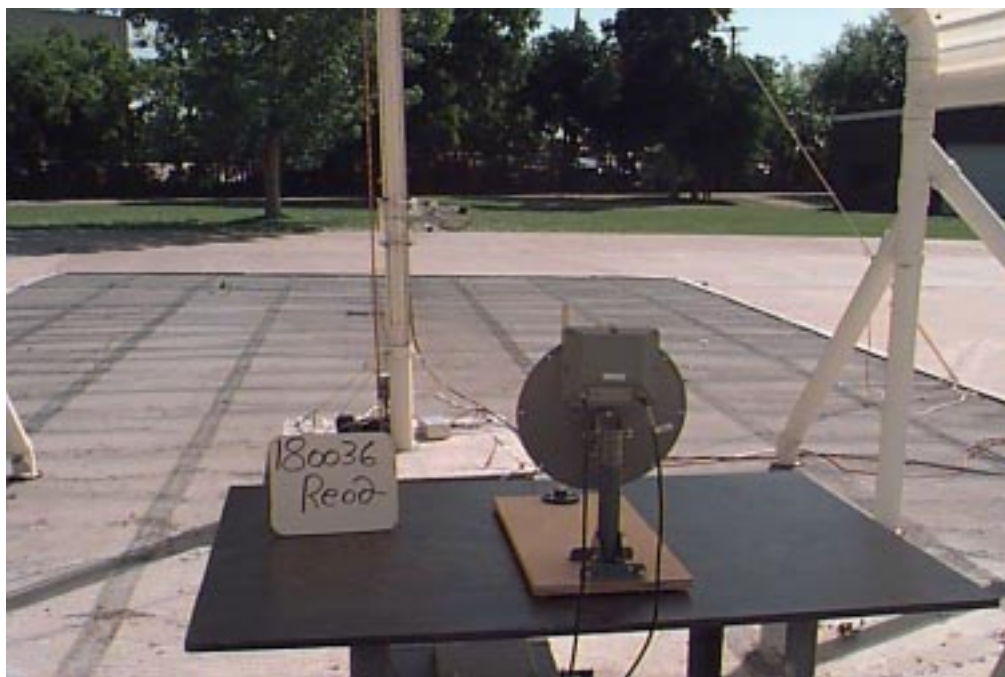
1. Data contained in Appendix B - Tests # RE-01 and # RE-03 (05/01/98) and Tests # RE-02 and # RE-03A (05/04/98)
2. Amplitude was measured using the quasi-peak detector.

Notes:

*Calculations may not agree exactly with data due to rounding of numbers.

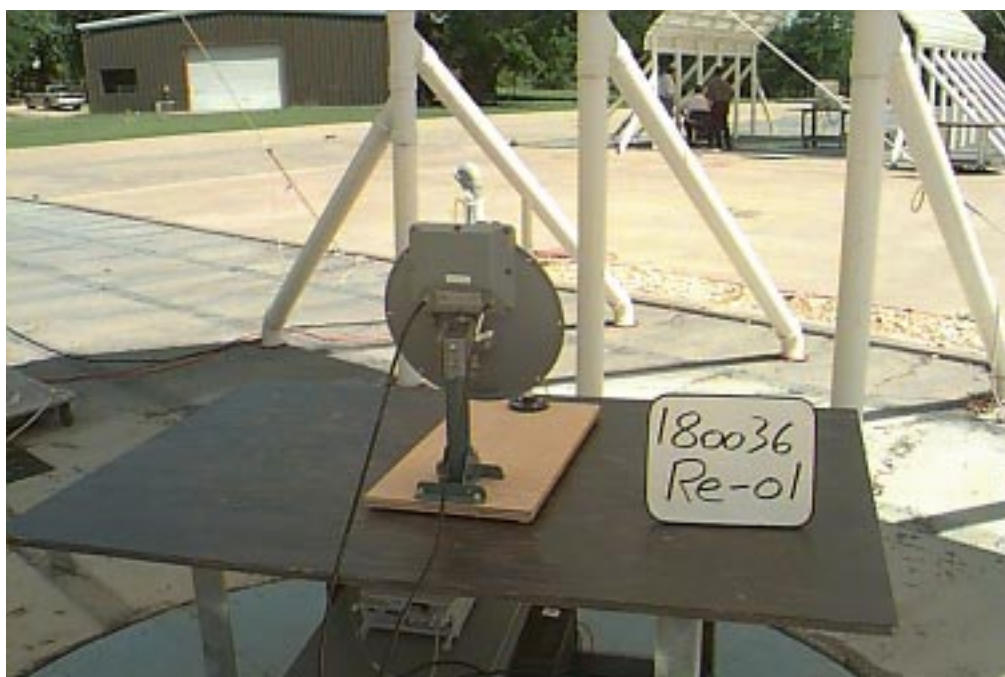
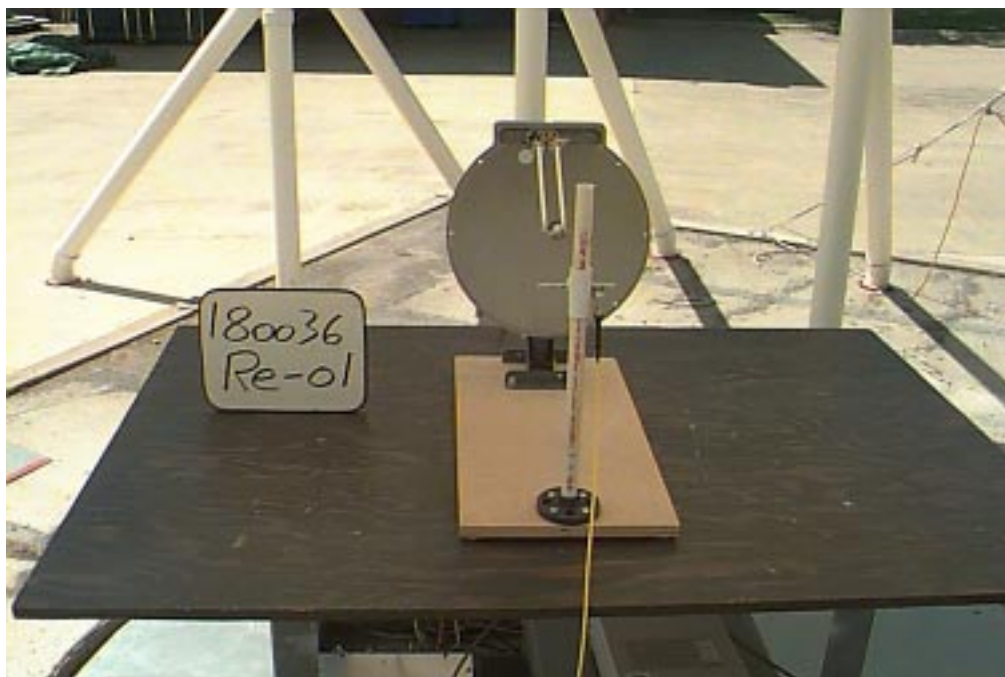
All other radiated emissions amplitudes were at least 10 dB within the FCC 2.991 Limits. Emissions were scanned from 30 MHz to 1 GHz with antennas in both the vertical and horizontal orientation. The specified radiated emissions antenna reference distance was 3 meters. Testing of the EUT was conducted at 3 meters. No additional signal was detected.

Amplitudes were measured using the CISPR quasi-peak detector. Reference detector specified in the limit is the CISPR quasi-peak detector.



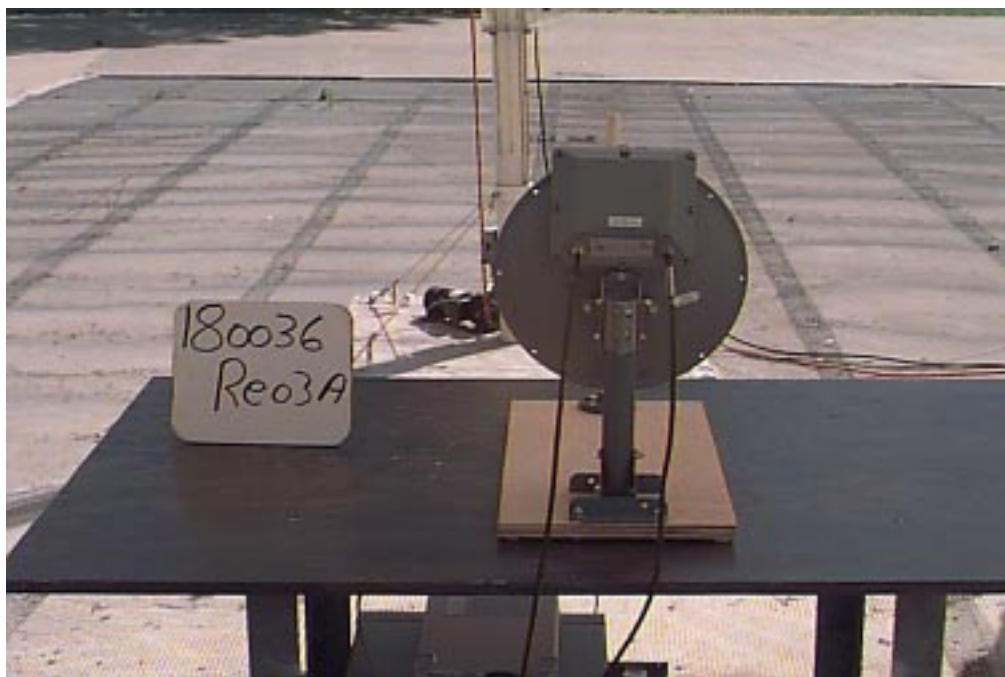
Configuration: Lower Frequency (Simulated QPSK Signal)

FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP



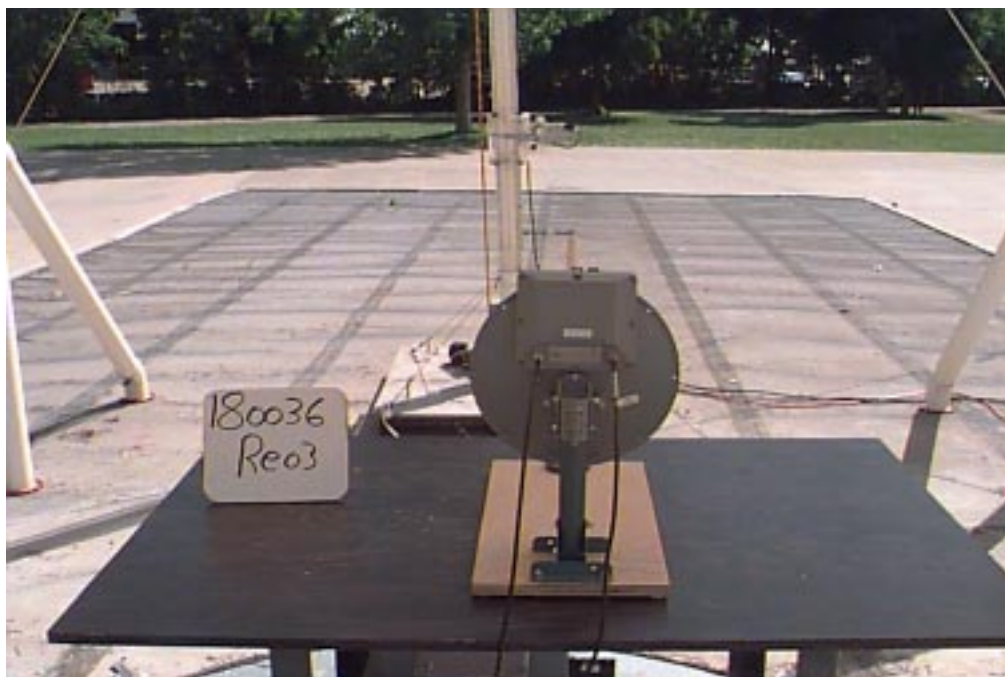
Configuration: Center Frequency (Simulated QPSK Signal)

FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)



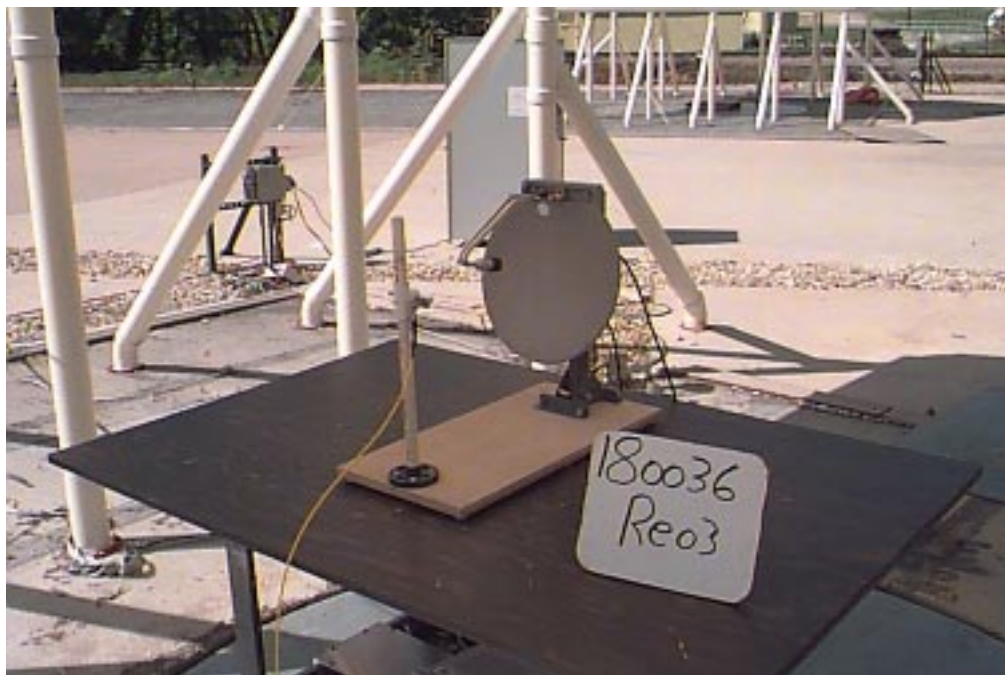
Configuration: High Frequency (Simulated QPSK Signal)

FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADAITED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)



Configuration: High Frequency (Simulated QPSK Signal)

FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK (SCAN: 30 MHz – 1000 MHz) SIGNAL TEST SETUP (Continued)



Configuration: High Frequency (Simulated QPSK Signal)

FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)

TABLE D-VI. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS DATA FOR ACTUAL QPSK SIGNAL (SCAN: 1 GHz-100 GHz)

SCAN 1 GHz-18 GHz

**Test # MW-10D, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0 dBm
(ACTUAL QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
1.557	-116.3	-33.0	83.3	1.3	Vertical	1,2,3
1.920	-111.1	-33.0	78.1	6.5	Vertical	1,2,3
3.114	-104.9	-33.0	71.9	13.0	Vertical	1,2,3
9.600	-98.0	-33.0	65.0	20.0	Vertical	1,2,3
13.000	-100.3	-33.0	67.3	17.0	Vertical	1,2,3
15.000	-97.5	-33.0	64.5	20.0	Vertical	1,2,3
18.000	-93.9	-33.0	60.9	24.0	Vertical	1,2,3
1.557	-116.3	-33.0	83.3	1.3	Horizontal	1,2,3
1.920	-111.1	-33.0	78.1	6.5	Horizontal	1,2,3
3.114	-104.9	-33.0	71.9	13.0	Horizontal	1,2,3
9.600	-98.0	-33.0	65.0	20.0	Horizontal	1,2,3
13.000	-100.3	-33.0	67.3	17.0	Horizontal	1,2,3
15.000	-97.5	-33.0	64.5	20.0	Horizontal	1,2,3
18.000	-93.9	-33.0	60.9	24.0	Horizontal	1,2,3

Scan 18 GHz-26 GHz

**Test # MW-8c, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU)**

Frequency (GHz)	dBc (dB)	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
18.000	-76.3	-33.0	43.3	41.0	Vertical	1,2
20.000	-72.8	-33.0	39.8	45.0	Vertical	1,2
24.000	-70.3	-33.0	37.3	47.0	Vertical	1,2
18.000	-76.3	-33.0	43.3	41.0	Horizontal	1,2
20.000	-72.8	-33.0	39.8	45.0	Horizontal	1,2
24.000	-70.3	-33.0	37.3	47.0	Horizontal	1,2

D. TEST RESULTS (Continued)**Scan 26 GH-40 GHz**

Test # MW-8, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU), 16 Vdc

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-58.6	-33.0	25.6	59.0	Vertical	1
28.107	-53.7	-33.0	20.7	64.0	Vertical	1,4
26.550	-66.6	-33.0	33.6	51.0	Horizontal	1
28.107	-57.7	-33.0	24.7	60.0	Horizontal	1,4

Scan 26 GHz-40 GHz

Test # MW-8H, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU), 16 Vdc

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-61.6	-33.0	28.6	46.0	Vertical	1
27.510	-58.7	-33.0	25.7	49.0	Vertical	1,3
28.107	-54.7	-33.0	21.7	53.0	Vertical	1,4
26.550	-55.6	-33.0	22.6	52.0	Horizontal	1,3
27.510	-58.7	-33.0	25.7	49.0	Horizontal	1,3
28.107	-50.7	-33.0	17.7	57.0	Horizontal	1,4

Scan 40 GHz-60 GHz

Test # MW-8a, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU), 16 Vdc

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
53.100	-69.9	-33.0	36.9	47.8	Vertical	1,3
55.020	-69.7	-33.0	36.7	47.9	Vertical	1,3
56.214	-69.5	-33.0	36.5	48.1	Vertical	1,3
53.100	-69.9	-33.0	36.9	47.8	Horizontal	1,3
55.020	-69.7	-33.0	36.7	47.9	Horizontal	1,3
56.214	-69.5	-33.0	36.5	48.0	Horizontal	1,3

D. TEST RESULTS (Continued)**Scan 60 GHz-100 GHz****Test # MW-8b, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0 dBm****(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
79.650	-61.4	-33.0	28.4	56.0	Vertical	1,3
82.530	-61.0	-33.0	28.0	57.0	Vertical	1,3
84.321	-60.9	-33.0	27.9	57.0	Vertical	1,3
79.650	-61.4	-33.0	28.4	56.0	Horizontal	1,3
82.530	-61.0	-33.0	28.0	57.0	Horizontal	1,3
84.321	-60.9	-33.0	27.9	57.0	Horizontal	1,3
300 kHz Resolution BW, 30kHz Video						
79.650	-62.2	-33.0	29.2	55.0	Vertical	1,3
82.530	-61.8	-33.0	28.8	56.0	Vertical	1,3
84.321	-61.7	-33.0	28.7	56.0	Vertical	1,3
79.650	-62.2	-33.0	29.2	55.0	Horizontal	1,3
82.530	-61.8	-33.0	28.8	56.0	Horizontal	1,3
84.321	-61.7	-33.0	28.7	56.0	Horizontal	1,3

Scan 1 GHz-18 GHz**Test # MW-9D, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm****(ACTUAL QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
1.675	-116.3	-33.0	83.3	1.3	Vertical	1,2,3
1.920	-111.1	-33.0	78.1	6.5	Vertical	1,2,3
3.350	-104.9	-33.0	71.9	13.0	Vertical	1,2,3
9.600	-98.0	-33.0	65.0	20.0	Vertical	1,2,3
13.000	-100.3	-33.0	67.3	17.0	Vertical	1,2,3
15.000	-97.5	-33.0	64.5	20.0	Vertical	1,2,3
18.000	-93.9	-33.0	60.9	24.0	Vertical	1,2,3
1.675	-116.3	-33.0	83.3	1.30	Horizontal	1,2,3
1.920	-111.1	-33.0	78.1	6.5	Horizontal	1,2,3
3.350	-104.9	-33.0	71.9	13.0	Horizontal	1,2,3
9.600	-98.0	-33.0	65.0	20.0	Horizontal	1,2,3
13.000	-100.3	-33.0	67.3	17.0	Horizontal	1,2,3
15.000	-97.5	-33.0	64.5	20.0	Horizontal	1,2,3
18.000	-93.9	-33.0	60.9	24.0	Horizontal	1,2,3

D. TEST RESULTS (Continued)**Scan 18 GHz-26 GHz****Test # MW-9c, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm****(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
18.0	-76.3	-33.0	43.3	41.0	Vertical	1,3
20.0	-72.8	-33.0	39.8	45.0	Vertical	1,3
24.0	-70.3	-33.0	37.3	47.0	Vertical	1,3
18.0	-76.3	-33.0	43.3	41.0	Horizontal	1,3
20.0	-72.8	-33.0	39.8	45.0	Horizontal	1,3
24.0	-70.3	-33.0	37.3	47.0	Horizontal	1,3

Scan 26 GHz-40 GHz**Test # MW-9, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm****(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-57.6	-33.0	24.6	60.0	Vertical	1
28.225	-51.7	-33.0	18.7	66.0	Vertical	1,4
26.550	-66.6	-33.0	33.6	51.0	Horizontal	1
28.225	-55.7	-33.0	22.7	62.0	Horizontal	1,4

Scan 26 GHz-40 GHz**Test # MW-9f, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm****(ACTUAL QPSK signal driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-61.6	-33.0	28.6	46.0	Vertical	1,3
27.510	-58.7	-33.0	25.7	49.0	Vertical	1,3
28.225	-55.7	-33.0	22.7	52.0	Vertical	1,4
26.550	-55.6	-33.0	22.6	52.0	Horizontal	1
27.510	-58.7	-33.0	25.7	49.0	Horizontal	1,3
28.225	-50.7	-33.0	17.7	57.0	Horizontal	1,4

D. TEST RESULTS (Continued)**Scan 40 GHz-60 GHz****Test # MW-9a, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm****(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
53.10	-69.9	-33.0	36.9	48.0	Vertical	1,3
55.02	-69.7	-33.0	36.7	48.0	Vertical	1,3
56.45	-69.5	-33.0	36.5	48.0	Vertical	1,3
53.10	-69.9	-33.0	36.9	48.0	Horizontal	1,3
55.02	-69.7	-33.0	36.7	48.0	Horizontal	1,3
56.45	-69.5	-33.0	36.5	48.0	Horizontal	1,3

Scan 60 GHz-100 GHz**Test # MW-9b, Configuration : TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm****(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
79.650	-61.4	-33.0	28.4	56.0	Vertical	1,3
82.530	-61.0	-33.0	28.0	57.0	Vertical	1,3
84.675	-60.9	-33.0	27.9	57.0	Vertical	1,3
79.650	-61.4	-33.0	28.4	56.0	Horizontal	1,3
82.530	-61.0	-33.0	28.0	57.0	Horizontal	1,3
84.675	-60.9	-33.0	27.9	57.0	Horizontal	1,3
300 kHz Resolution Bu, 30 kHz Video						
79.650	-62.2	-33.0	29.2	55.0	Vertical	1,3
82.530	-61.8	-33.0	28.8	56.0	Vertical	1,3
84.675	-61.7	-33.0	28.7	56.0	Vertical	1,3
79.650	-62.2	-33.0	29.2	55.0	Horizontal	1,3
82.530	-61.8	-33.0	28.8	56.0	Horizontal	1,3
84.675	-61.7	-33.0	28.7	56.0	Horizontal	1,3

D. TEST RESULTS (Continued)**Scan 1 GHz-18 GHz**

**Test # MW-8D, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0 dBm
(ACTUAL QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
1.795	-72.3	-33.0	39.3	45.3	Vertical	1,2
1.920	-65.3	-33.0	32.3	52.4	Vertical	1,2,3
3.590	-63.4	-33.0	30.4	54.2	Vertical	1,2,3
9.600	-98.0	-33.0	65.0	19.7	Vertical	1,2,3
13.000	-100.3	-33.0	67.3	17.3	Vertical	1,2,3
15.000	-97.5	-33.0	64.5	20.1	Vertical	1,2,3
18.000	-93.9	-33.0	60.9	23.7	Vertical	1,2,3
1.795	-71.3	-33.0	38.3	46.3	Horizontal	1,2,3
1.920	-65.3	-33.0	32.3	52.4	Horizontal	1,2,3
3.590	-63.4	-33.0	30.4	54.2	Horizontal	1,2,3
9.600	-98.0	-33.0	65.0	19.7	Horizontal	1,2,3
13.000	-100.3	-33.0	67.3	17.3	Horizontal	1,2,3
15.000	-97.5	-33.0	64.5	20.1	Horizontal	1,2,3
18.000	-93.9	-33.0	60.9	23.7	Horizontal	1,2,3

Scan 18 GHz-26 GHz

**Test # MW-10c, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
18.0	-76.3	-33.0	43.3	41.3	Vertical	1,3
20.0	-72.8	-33.0	39.8	44.8	Vertical	1,3
24.0	-70.3	-33.0	37.3	47.3	Vertical	1,3
18.0	-76.3	-33.0	43.3	41.3	Horizontal	1,3
20.0	-72.8	-33.0	39.8	44.8	Horizontal	1,3
24.0	-70.3	-33.0	37.3	47.3	Horizontal	1,3

D. TEST RESULTS (Continued)**Scan 26 GHz-40 GHz**

Test # MW-8G, Configuration: TX 28.345 GHZ (CENTER FREQUENCY) 20.0 dBm
(ACTUAL QPSK signal driven by NIU), 16 Vdc

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-61.6	-33.0	28.6	46.0	Vertical	1,3
27.510	-58.7	-33.0	25.7	49.0	Vertical	1,3
28.345	-54.7	-33.0	21.7	53.0	Vertical	1,4
26.550	-55.6	-33.0	22.6	52.0	Horizontal	1
27.510	-58.7	-33.0	25.7	49.0	Horizontal	1,3
28.345	-50.7	-33.0	17.7	57.0	Horizontal	1,4

Scan 26 GHz-40 GHz

Test # MW-10, Configuration: TX 28.345 GHZ (HIGHER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU), 16Vdc

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-58.6	-33.0	25.6	59.0	Vertical	1
28.345	-51.7	-33.0	18.7	66.0	Vertical	1,4
26.550	-64.6	-33.0	31.6	53.0	Horizontal	1
28.345	-55.7	-33.0	22.7	62.0	Horizontal	1,4

Scanned 40 GHz-60 GHz

Test # MW-10a, Configuration: TX 28.345 GHZ (HIGHER FREQUENCY) 20.0 dBm
(ACTUAL QPSK signal driven by NIU), 16 Vdc

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
53.100	-69.9	-33.0	36.9	48.0	Vertical	1,3
55.020	-69.7	-33.0	36.7	48.0	Vertical	1,3
56.690	-69.5	-33.0	36.5	48.0	Vertical	1,3
53.100	-69.9	-33.0	36.9	48.0	Horizontal	1,3
55.020	-69.7	-33.0	36.7	48.0	Horizontal	1,3
56.690	-69.5	-33.0	36.5	48.0	Horizontal	1,3

D. TEST RESULTS (Continued)**Scan 60 GHz-100 GHz**

**Test # MW-10b, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0 dBm
(ACTUAL QPSK Signal Driven by NIU), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
79.65	-61.4	-33.0	28.4	56.0	Vertical	1,3
82.53	-61.0	-33.0	28.0	57.0	Vertical	1,3
85.035	-60.9	-33.0	27.9	57.0	Vertical	1,3
79.65	-61.4	-33.0	28.4	56.0	Horizontal	1,3
82.53	-61.0	-33.0	28.0	57.0	Horizontal	1,3
85.035	-60.9	-33.0	27.9	57.0	Horizontal	1,3
300 kHz Resolution BW, 30 kHz Video						
79.65	-62.2	-33.0	29.2	55.0	Vertical	1,3
82.53	-61.8	-33.0	28.8	56.0	Vertical	1,3
85.035	-61.7	-33.0	28.7	56.0	Vertical	1,3
79.65	-62.2	-33.0	29.2	55.0	Horizontal	1,3
82.53	-61.8	-33.0	28.8	56.0	Horizontal	1,3
85.035	-61.7	-33.0	28.7	56.0	Horizontal	1,3

Comments:

- 1) Data contained in Appendix B - Tests # MW-8, # MW-8a, # MW-9, # MW-9a, # MW-10, and # MW-10a (05/15/98), Tests # MW-8b, # MW-8c, #MW-9c, # MW-9b, # MW-10c, and # MW- 10b (05/18/98), Tests # MW-8D, #MW-10D, and # MW-9D, and (5/19/98), and Tests # MW-8H, # MW-9f, and MW-8G (06/10/98).
- 2) Amplitude was measured using the average detector.
- 3) Noise Floor Reading.
- 4 Fundamental reading.

Notes:

4 kHz RBW correction factor of -24 dB was added to the formula (refer to sample calculations).

*Calculations may not agree exactly with data due to rounding of numbers.

Photographs are unavailable for Tests # MW 10D, # MW-8c, # MW-9D, # MW-9c, # MW-9f, # MW-8D, # MW-10c, and # MW-8G

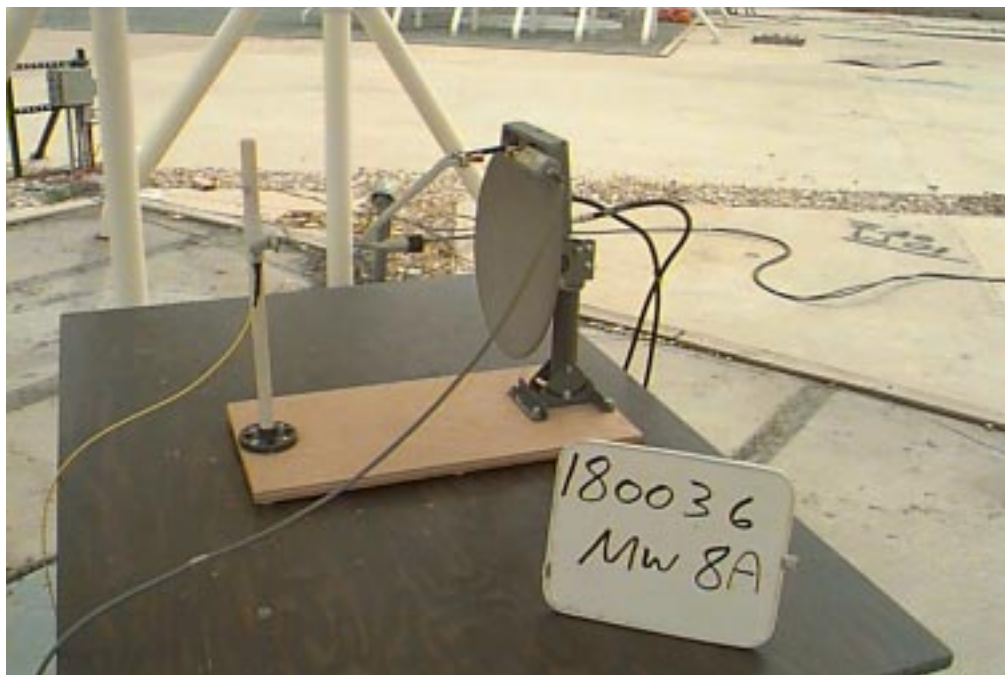
All other radiated emissions amplitudes were at least 10 dB within the FCC Part 2 Subpart 2.993 Limits. Emissions were scanned from 1 GHz to 18 GHz, 18GHz-26 GHz, 26 GHz to 40 GHz, 40 GHz to 60 GHz and 60 GHz to 100 GHz with antennas in both the vertical and horizontal orientation. The specified radiated emissions antenna reference distance was 3 meters. Testing of the EUT was conducted at 3meters. No additional signal was detected.

Amplitudes were measured using the peak detector. Reference detector specified in the limit is the average detector.



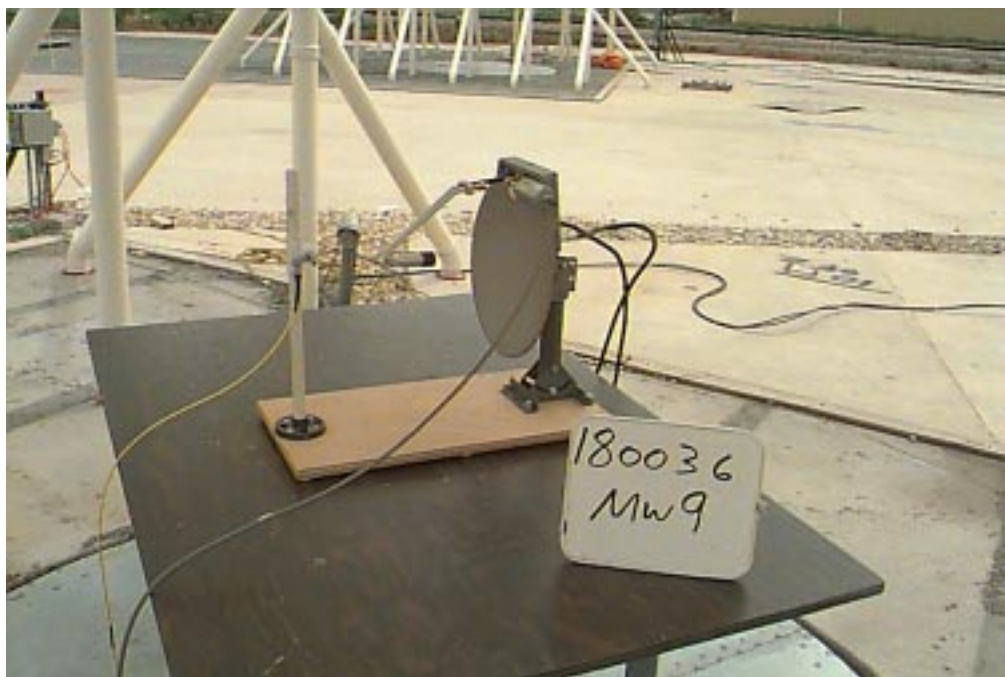
Configuration: Lower Frequency (Actual QPSK Signal)

FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP



Configuration: Lower Frequency (Actual QPSK Signal)

FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



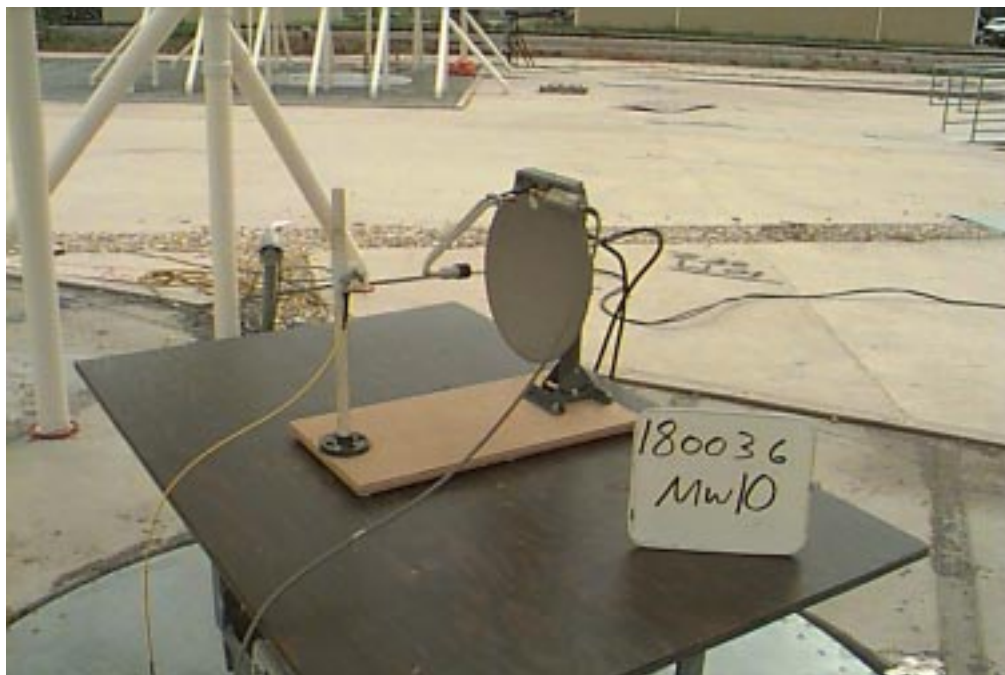
Configuration: Center Frequency (Actual QPSK Signal)

FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



Configuration: Center Frequency (Actual QPSK Signal)

FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



Configuration: Higher Frequency (Actual QPSK Signal)

FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL TEST SETUP (Continued)



Configuration: Higher Frequency (Actual QPSK Signal)

FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)

TABLE D-VII. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS DATA FOR SIMULATED QPSK SIGNAL (SCAN 1 GHz –100 GHz)

Scan 1 GHz-18 GHz

**Test # MW-02, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm
(Simulated QPSK Signal) 20.0 dBm, 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dB μ V/m)	Polarization Vertical/ Horizontal	Comments
1.557	-99.2	-33.0	66.2	18.0	Vertical	1,2
1.920	-106.2	-33.0	73.2	11.0	Vertical	1,2,3
3.114	-100.6	-33.0	67.6	17.0	Vertical	1,2,3
9.600	-96.4	-33.0	63.4	21.0	Vertical	1,2,3
1.557	-97.2	-33.0	64.2	20.0	Horizontal	1,2
1.920	-106.2	-33.0	73.2	11.0	Horizontal	1,2,3
3.114	-100.6	-33.0	67.6	17.0	Horizontal	1,2,3
9.600	-96.4	-33.0	63.4	21.0	Horizontal	1,2,3

SCAN 18 GHz-40 GHz

**Test # MW-2A, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm
(Simulated QPSK Signal) 20.0 dBm, 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dB μ V/m)	Polarization Vertical/ Horizontal	Comments
24.000	-65.3	-33.0	32.3	52.3	Vertical	1,3
26.555	-63.5	-33.0	30.5	54.1	Vertical	1
28.107	-63.9	-33.0	30.9	53.8	Vertical	1
20.000	-69.8	-33.0	36.8	47.8	Horizontal	1,3
24.000	-65.3	-33.0	32.3	52.3	Horizontal	1,3
26.555	-54.5	-33.0	21.5	63.1	Horizontal	1

D. TEST RESULTS (Continued)**SCAN 26 GHz-40 GHz**

**Test # MW-2D, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-61.6	-33.0	28.6	46.0	Vertical	1,3
27.510	-58.7	-33.0	25.7	48.9	Vertical	1,3
28.107	-54.7	-33.0	21.7	53.0	Vertical	1,4
26.550	-54.6	-33.0	21.6	53.0	Horizontal	1
27.510	-58.7	-33.0	25.7	48.9	Horizontal	1,3
26.107	-51.7	-33.0	18.7	56.0	Horizontal	1,4

SCAN 40 GHz-60 GHz

**Test # MW-2B, Configuration: TX 28.107 GHz (LOWER FREQUENCY) 20.0dBm,
(Simulated QPSK signal), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 (dBc) Limit	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
53.100	-45.4	-33.0	12.4	72.0	Vertical	1,3
56.214	-45.0	-33.0	12.0	73.0	Vertical	1,3
55.020	-45.2	-33.0	12.2	72.0	Vertical	1,3
53.100	-45.4	-33.0	12.4	72.0	Horizontal	1,3
56.214	-45.0	-33.0	12.0	73.0	Horizontal	1,3
55.070	-45.2	-33.0	12.2	72.0	Horizontal	1,3
300 kHz Resolution Bu, 30 kHz Video BW						
53.100	-65.2	-33.0	32.2	52.0	Vertical	1,3
56.214	-64.8	-33.0	31.8	53.0	Vertical	1,3
55.020	-65.0	-33.0	32.0	53.0	Vertical	1,3
53.100	-65.2	-33.0	32.2	52.0	Horizontal	1,3
56.214	-64.8	-33.0	31.8	53.0	Horizontal	1,3
55.070	-65.0	-33.0	32.0	53.0	Horizontal	1,3

D. TEST RESULTS (Continued)**Scan 1 GHz-13 GHz****Test # MW-01, TX 28.225GHz (CENTER FREQUENCY) 20.0dBm
(Simulated QPSK Signal), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
1.675	-107.2	-33.0	74.2	10.0	Vertical	1,2,3
19.20	-106.2	-33.0	73.2	11.0	Vertical	1,2,3
3.350	-100.6	-33.0	67.6	17.0	Vertical	1,2,3
9.600	-96.4	-33.0	63.4	21.0	Vertical	1,2,3
1.675	-107.2	-33.0	74.2	10.0	Horizontal	1,2,3
19.20	-106.2	-33.0	73.2	11.0	Horizontal	1,2,3
3.350	-100.6	-33.0	67.6	17.0	Horizontal	1,2,3
9.600	-96.4	-33.0	63.4	21.0	Horizontal	1,2,3

SCAN 13 GHz-18 GHz**Test # MW-01A, TX 28.225 GHz (CENTER FREQUENCY) 20.0 dBm
(Simulated QPSK Signal), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
13.000	-96.6	-33.0	63.6	21.0	Vertical	1,2,3
15.000	-94.4	-33.0	61.4	23.0	Vertical	1,2,3
18.000	-85.5	-33.0	52.5	32.0	Vertical	1,2,3
13.000	-96.6	-33.0	63.6	21.0	Horizontal	1,2,3
15.000	-94.4	-33.0	61.4	23.0	Horizontal	1,2,3
18.000	-85.5	-33.0	52.5	32.0	Horizontal	1,2,3

Scan 18 GHz-40 GHz**Test # MW-1A, Test Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(Simulated QPSK signal), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
24.000	-67.3	-33.0	34.3	50.0	Vertical	1,3
26.550	-63.0	-33.0	30.0	55.0	Vertical	1
28.225	-63.7	-33.0	30.7	54.0	Vertical	1,3
24.000	-67.3	-33.0	34.3	50.0	Horizontal	1,3
26.550	-54.0	-33.0	21.0	55.0	Horizontal	1
28.225	-63.7	-33.0	30.7	54.0	Horizontal	1,3

D. TEST RESULTS (Continued)**SCAN 26 GHz-40 GHz**

**Test # MW-1D, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-61.6	-33.0	28.6	53.0	Vertical	1,3
27.510	-58.7	-33.0	25.7	49.0	Vertical	1,3
26.225	-54.7	-33.0	21.7	56.0	Vertical	1;4
26.550	-54.6	-33.0	21.6	46.0	Horizontal	1
27.510	-58.7	-33.0	25.7	49.0	Horizontal	1,3
28.225	-51.7	-33.0	18.7	53.0	Horizontal	1,4

Scan 40 GHz-60 GHz

**Test # MW-1B, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
53.100	-45.4	-33.0	12.4	72.0	Vertical	1,3
56.450	-45.0	-33.0	12.0	73.0	Vertical	1,3
55.020	-45.2	-33.0	12.2	72.0	Vertical	1,3
53.100	-45.4	-33.0	12.4	72.0	Horizontal	1,3
56.450	-45.0	-33.0	12.0	73.0	Horizontal	1,3
55.070	-45.2	-33.0	12.2	72.0	Horizontal	1,3
300 kHz Resolution BW, 300 kHz Video BW						
53.100	-65.1	-33.0	32.1	53.0	Vertical	1,3
56.450	-64.7	-33.0	31.7	53.0	Vertical	1,3
55.020	-64.9	-33.0	31.9	53.0	Vertical	1,3
53.100	-65.1	-33.0	32.1	53.0	Horizontal	1,3
56.450	-64.7	-33.0	31.7	53.0	Horizontal	1,3
55.070	-64.9	-33.0	31.9	53.0	Horizontal	1,3

D. TEST RESULTS (Continued)**SCAN 60 GHz-100 GHz**

**Test # MW-1C, Configuration: TX 28.225 GHz (CENTER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
79.650	-61.4	-33.0	28.4	56.0	Vertical	1,3
82.530	-61.0	-33.0	28.0	57.0	Vertical	1,3
84.675	-60.9	-33.0	27.9	57.0	Vertical	1,3
79.650	-61.4	-33.0	28.4	56.0	Horizontal	1,3
82.530	-61.0	-33.0	28.0	57.0	Horizontal	1,3
84.675	-60.9	-33.0	27.9	57.0	Horizontal	1,3
300 kHz Resolution BW, 30 kHz Video BW						
79.650	-61.2	-33.0	28.2	56.0	Vertical	1,3
82.530	-60.8	-33.0	27.8	57.0	Vertical	1,3
84.675	-60.7	-33.0	27.7	57.0	Vertical	1,3
79.650	-61.2	-33.0	28.2	56.0	Horizontal	1,3
82.530	-60.8	-33.0	27.8	57.0	Horizontal	1,3
84.675	-60.7	-33.0	27.7	57.0	Horizontal	1,3

Scan 1GHz-13GHz

**Test # MW-03, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
1.795	-110.4	-33.0	77.4	7.3	Vertical	1,2,3
1.920	-108.2	-33.0	75.2	9.4	Vertical	1,2,3
3.590	-100.0	-33.0	67.0	18.0	Vertical	1,2,3
9.600	-96.4	-33.0	63.4	21.0	Vertical	1,2,3
1.795	-110.4	-33.0	77.4	7.30	Horizontal	1,2,3
1.920	-108.2	-33.0	75.2	9.4	Horizontal	1,2,3
3.590	-100.0	-33.0	67.0	18.0	Horizontal	1,2,3
9.600	-96.4	-33.0	63.4	21.0	Horizontal	1,2,3

D. TEST RESULTS (Continued)**Scan 13 GHz –18 GHz**

**Test # MW-03A, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(Simulated QPSK Signal), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
13.000	-98.6	-33.0	65.6	19.0	Vertical	1,2,3
15.000	-94.4	-33.0	61.4	23.0	Vertical	1,2,3
18.000	-87.5	-33.0	54.5	30.0	Vertical	1,2,3
13.000	-98.6	-33.0	65.6	19.0	Horizontal	1,2,3
15.000	-94.4	-33.0	61.4	23.0	Horizontal	1,2,3
18.000	-87.5	-33.0	54.5	30.0	Horizontal	1,2,3

Scan 18 GHz - 40 GHz

**Test # MW-3A, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(Simulated QPSK Signal), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
20.000	-69.8	-33.0	36.8	48.0	Vertical	1,3
24.000	-67.3	-33.0	34.3	50.0	Vertical	1,3
26.550	-63.5	-33.0	30.5	54.0	Vertical	1
28.225	-63.0	-33.0	30.0	54.0	Vertical	1,3
20.000	-69.8	-33.0	36.8	48.0	Horizontal	1,3
24.000	-67.3	-33.0	34.3	50.0	Horizontal	1,3
26.550	-54.5	-33.0	21.5	54.0	Horizontal	1
28.225	-63.7	-33.0	30.7	54.0	Horizontal	1,3

Scan 26 GHz-40 GHz

**Test # MW-3F, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμ V/m)	Polarization Vertical/ Horizontal	Comments
26.550	-61.6	-33.0	28.6	46.0	Vertical	1,3
27.510	-58.7	-33.0	25.7	49.0	Vertical	1,3
28.345	-53.7	-33.0	20.7	54.0	Vertical	1,4
26.550	-54.6	-33.0	21.6	53.0	Horizontal	1
27.510	-58.7	-33.0	25.7	49.0	Horizontal	1,3
26.345	-51.7	-33.0	18.7	56.0	Horizontal	1,4

D. TEST RESULTS (Continued)**Scan 18 GHz-40 GHz**

**Test # MW-3B, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 19.4dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dB μ V/m)	Polarization Vertical/ Horizontal	Comments
20.000	-69.8	-33.0	36.8	48.0	Vertical	1,3
24.000	-67.3	-33.0	34.3	50.0	Vertical	1,3
26.550	-63.0	-33.0	30.0	55.0	Vertical	1
20.000	-69.8	-33.0	36.8	48.0	Horizontal	1,3
24.000	-67.3	-33.0	34.3	50.0	Horizontal	1,3
26.550	-54.0	-33.0	21.0	55.0	Horizontal	1

SCAN 40 GHz-60 GHz

**Test # MW-3d, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dB μ V/m)	Polarization Vertical/ Horizontal	Comments
53.100	-45.4	-33.0	12.4	72.0	Vertical	1,3
56.690	-45.0	-33.0	12.0	73.0	Vertical	1,3
55.020	-45.2	-33.0	12.2	72.0	Vertical	1,3
53.100	-45.4	-33.0	12.4	72.0	Horizontal	1,3
56.690	-45.0	-33.0	12.0	73.0	Horizontal	1,3
55.070	-45.2	-33.0	12.2	72.0	Horizontal	1,3
300 kHz Resolution BW, 30 kHz Video BW						
53.100	-65.2	-33.0	32.2	52.0	Vertical	1
56.690	-64.8	-33.0	31.8	53.0	Vertical	1
55.020	-65.0	-33.0	32.0	53.0	Vertical	1
53.100	-65.2	-33.0	32.2	52.0	Horizontal	1
56.690	-64.8	-33.0	31.8	53.0	Horizontal	1
55.070	-65.0	-33.0	32.0	53.0	Horizontal	1

D. TEST RESULTS (Continued)**Scan 60 GHz-100 GHz**

**Test # MW-3E, Configuration: TX 28.345 GHz (HIGHER FREQUENCY) 20.0dBm
(Simulated QPSK), 16 Vdc**

Frequency (GHz)	dBc	FCC 2.993 Limit (dB)	Margin* (dB) (Limit-Amplitude)	Corrected Reading (dBμV/m)	Polarization Vertical/ Horizontal	Comments
79.650	-61.4	-33.0	28.4	56.3	Vertical	1,3
82.530	-61.0	-33.0	28.0	56.6	Vertical	1,3
85.035	-60.9	-33.0	27.9	56.7	Vertical	1,3
79.650	-61.4	-33.0	28.4	56.3	Horizontal	1,3
82.530	-61.0	-33.0	28.0	56.6	Horizontal	1,3
85.035	-60.9	-33.0	27.9	56.7	Horizontal	1,3
300 kHz Resolution Bw, 30 kHz Video						
79.650	-61.2	-33.0	28.2	56.5	Vertical	1,3
82.530	-60.8	-33.0	27.8	56.8	Vertical	1,3
85.035	-60.7	-33.0	27.7	56.9	Vertical	1,3
79.650	-61.2	-33.0	28.2	56.5	Horizontal	1,3
82.530	-60.8	-33.0	27.8	56.8	Horizontal	1,3
85.035	-60.7	-33.0	27.9	56.9	Horizontal	1,3

D. TEST RESULTS (Continued)

Comments:

1) Data contained in Appendix B - Tests # MW-01 and # MW-02 (4/30/98), Tests # MW-01A, # MW-03, and # MW-03A (5/01/98), Tests # MW-2A (05/04/98), Tests # MW-01A, # MW-1B, # MW-3A and # MW 3d (05/05/98), Tests # MW-2B, and # MW-3B (05/06/98) , Tests # MW-1C, # MW-2C, and # MW-3E (05/07/98), and Tests # MW-2D, # MW-1D, and # MW-3F (06/10/98).

4) Amplitude was measured using the average detector.

5) Noise floor reading.

5 Fundamental reading.

Notes:

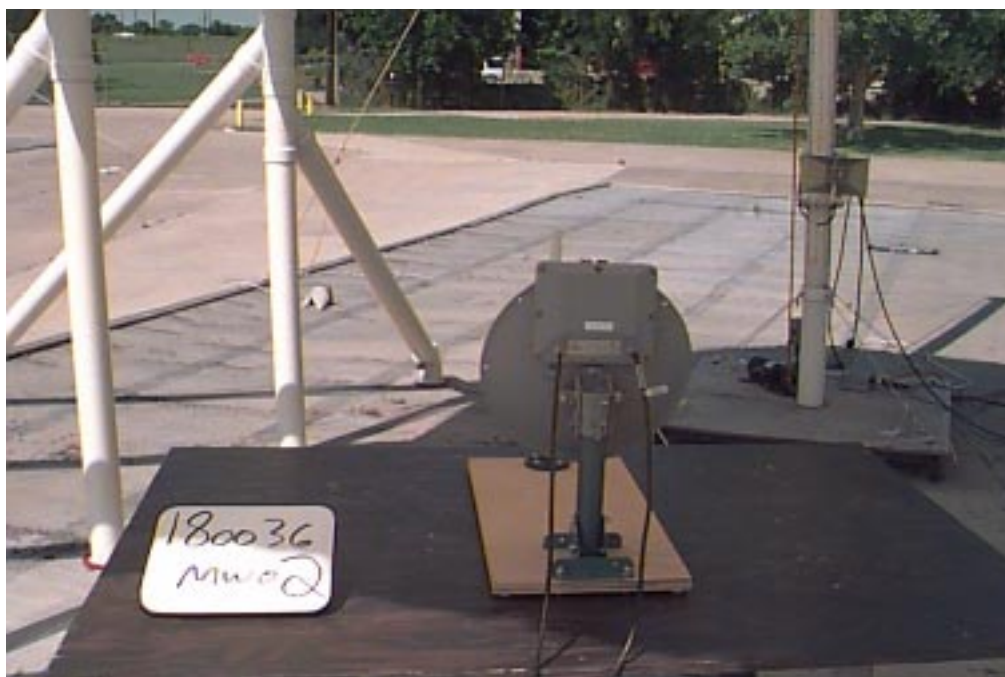
4 kHz RBW correction factor of -24 dB was added to the formula (refer to sample calculations).

*Calculations may not agree exactly with data due to rounding of numbers.

Photographs are unavailable for Tests # MW-2D, # MW-1D, # MW-3F, and # MW-3E.

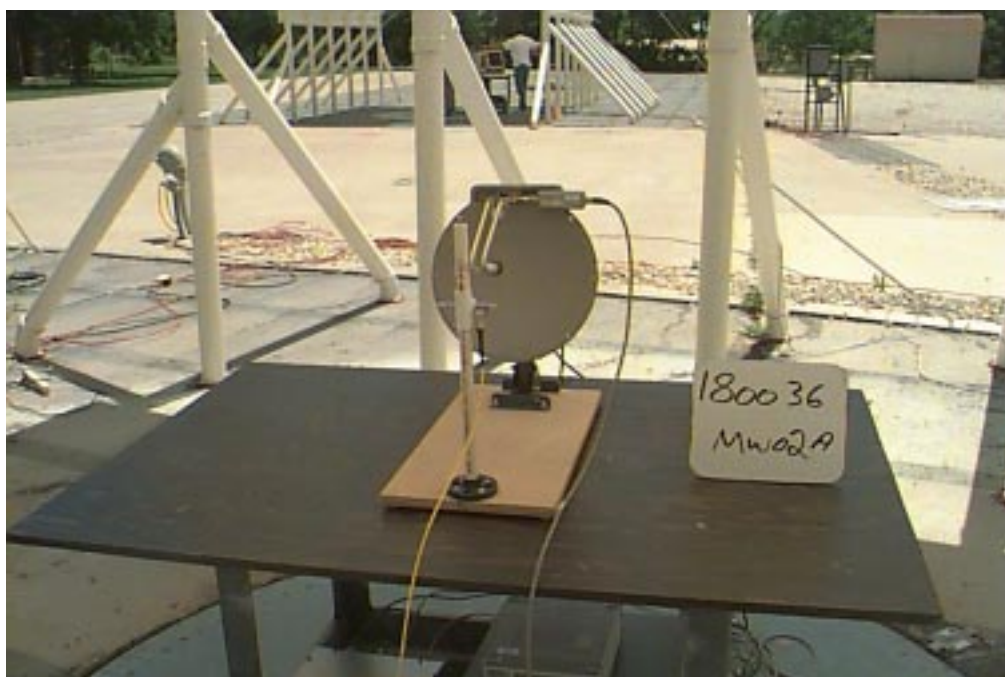
All other radiated emissions amplitudes were at least 10 dB within the FCC Part 2 Subpart 2.993 Limits. Emissions were scanned from 1 GHz to 18 GHz, 18GHz-26 GHz, 26 GHz to 40 GHz, 40 GHz to 60 GHz and 60 GHz to 100 GHz with antennas in both the vertical and horizontal orientation. The specified radiated emissions antenna reference distance was 3 meters. Testing of the EUT was conducted at 3meters. No additional signal was detected.

Amplitudes were measured using the peakdetector. Reference detector specified in the limit is the average detector.



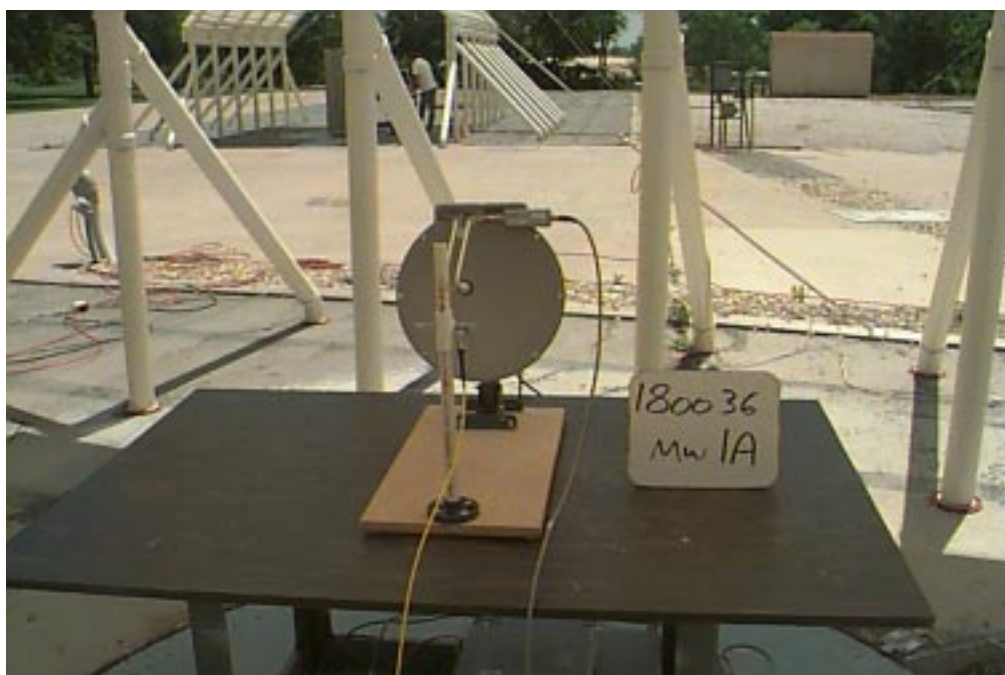
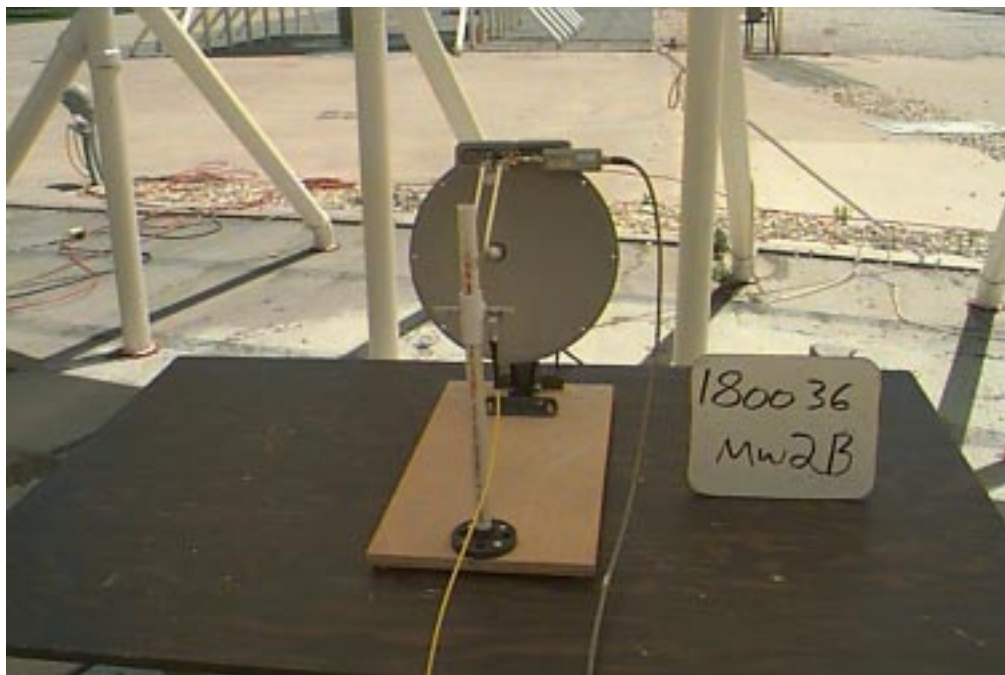
Configuration: Lower Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz - 100 GHz) TEST SETUP



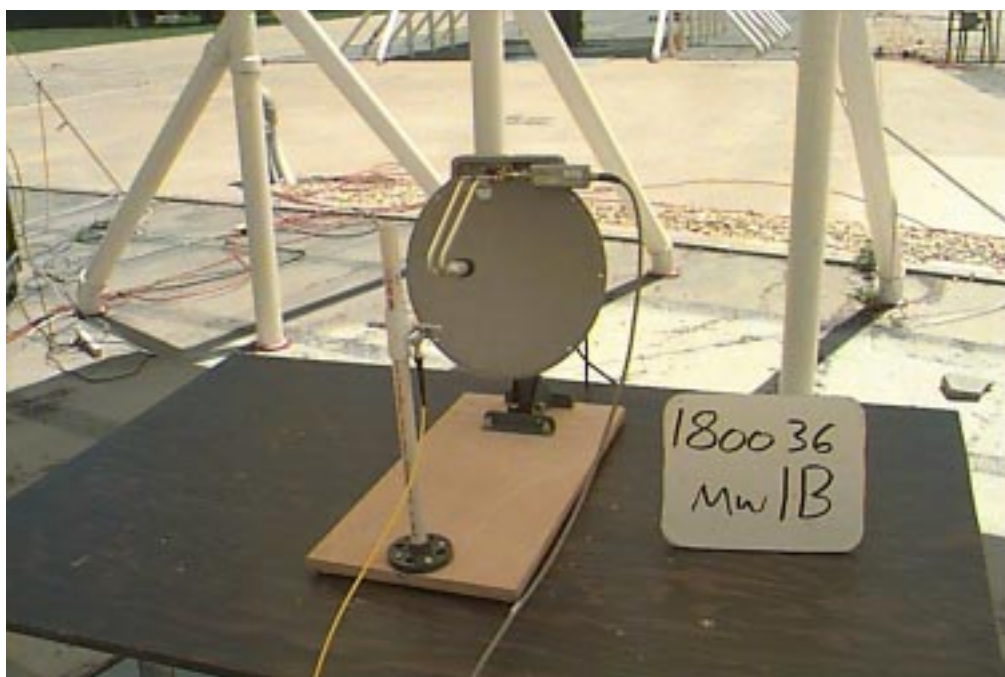
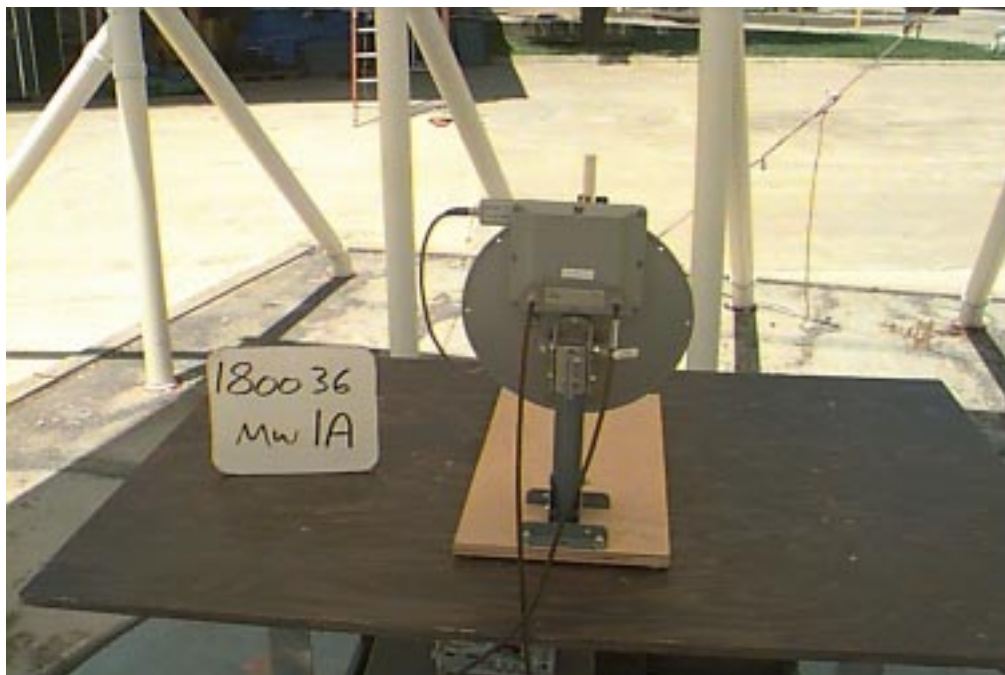
Configuration: Lower Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



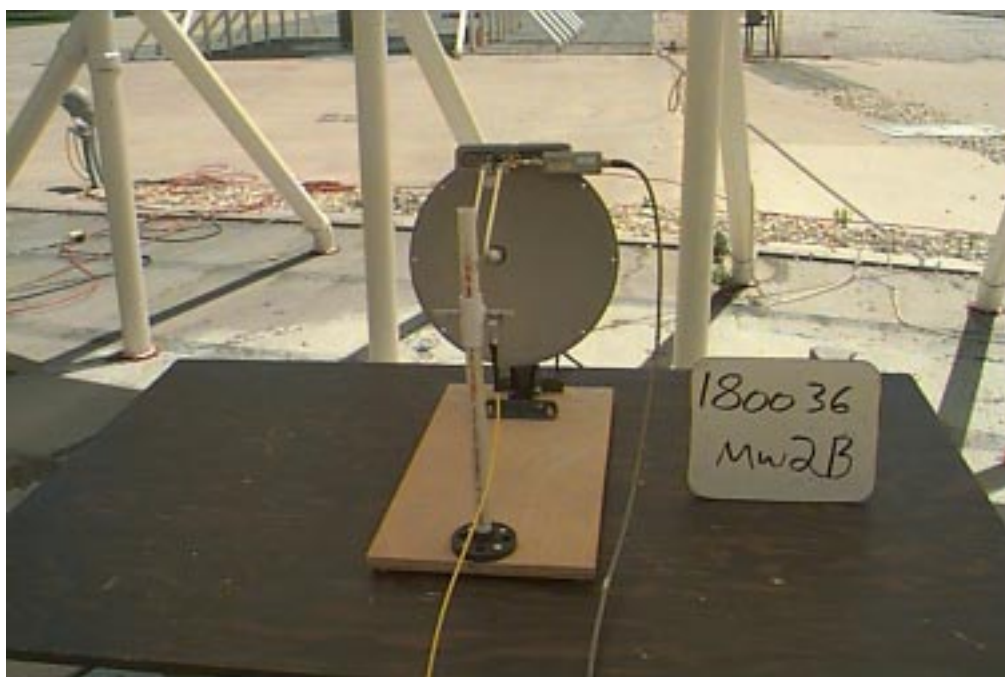
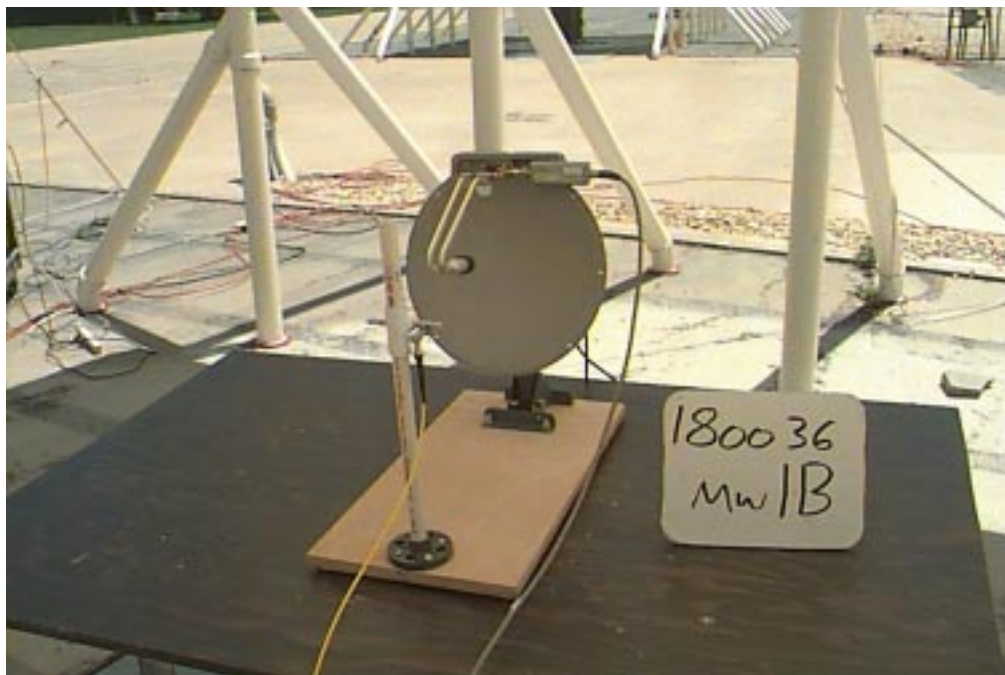
Configuration: Center Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FILED STRNETH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz - 100 GHz) TEST SETUP (Continued)



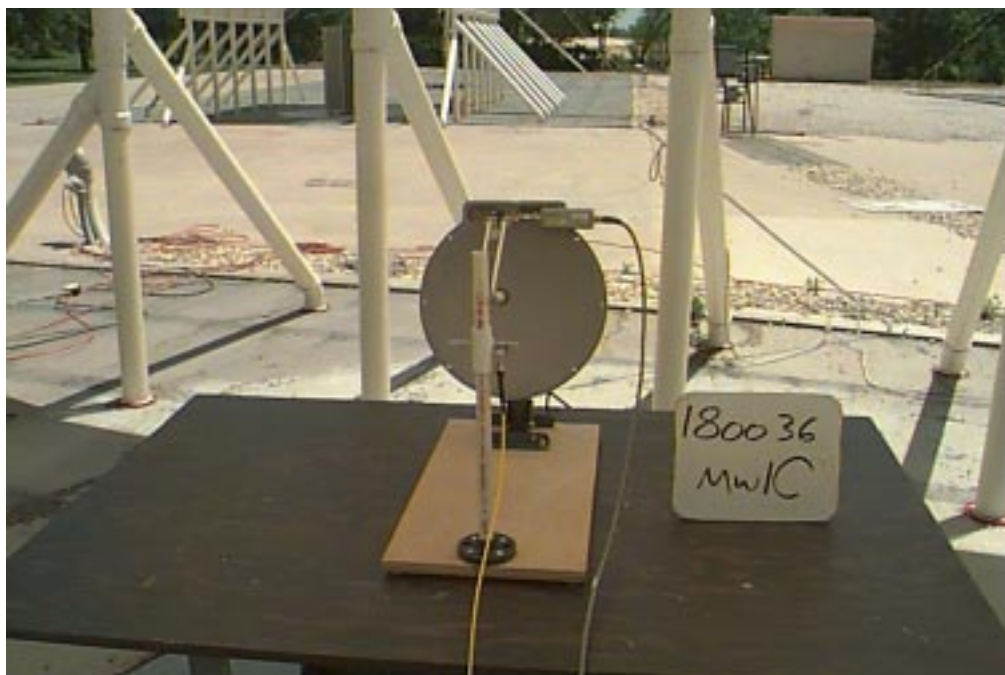
Configuration: Center Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FILED STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



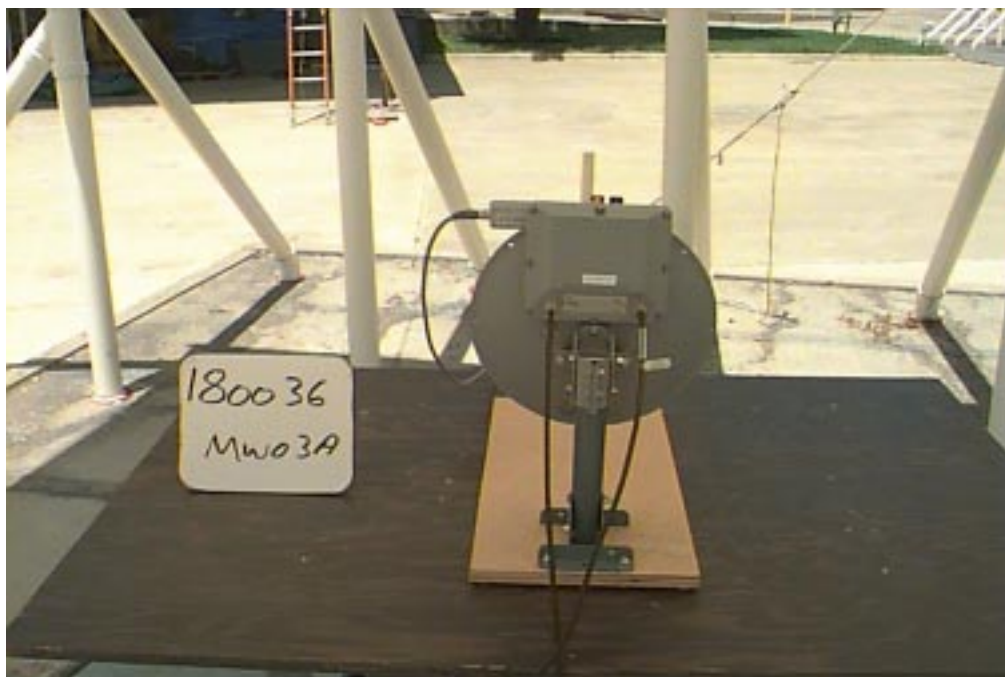
Configuration: Center Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



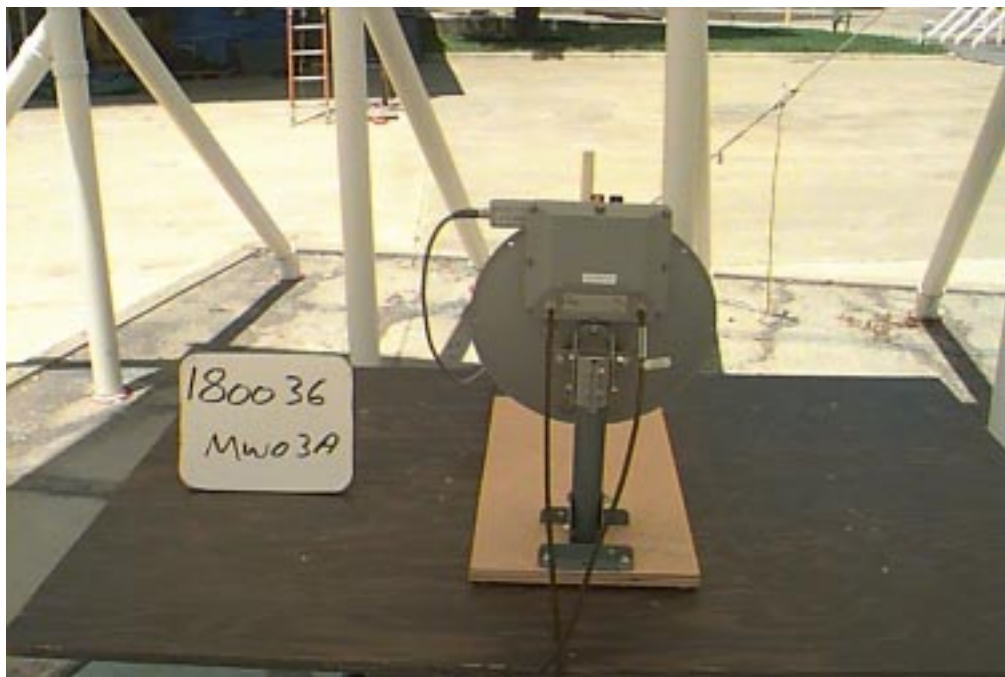
Configuration: Center Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FILED STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



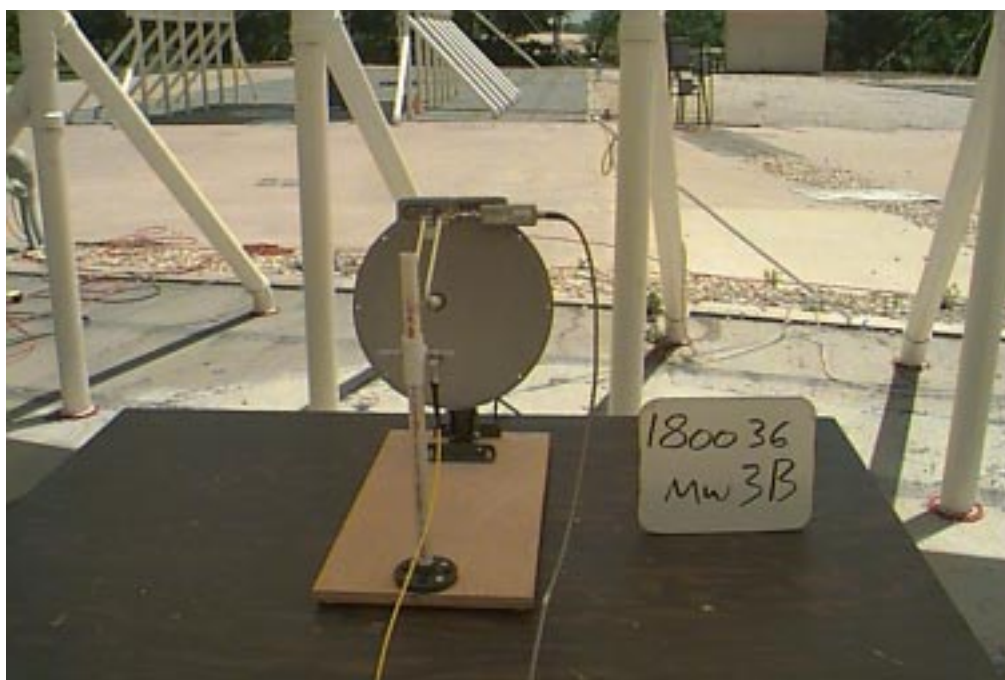
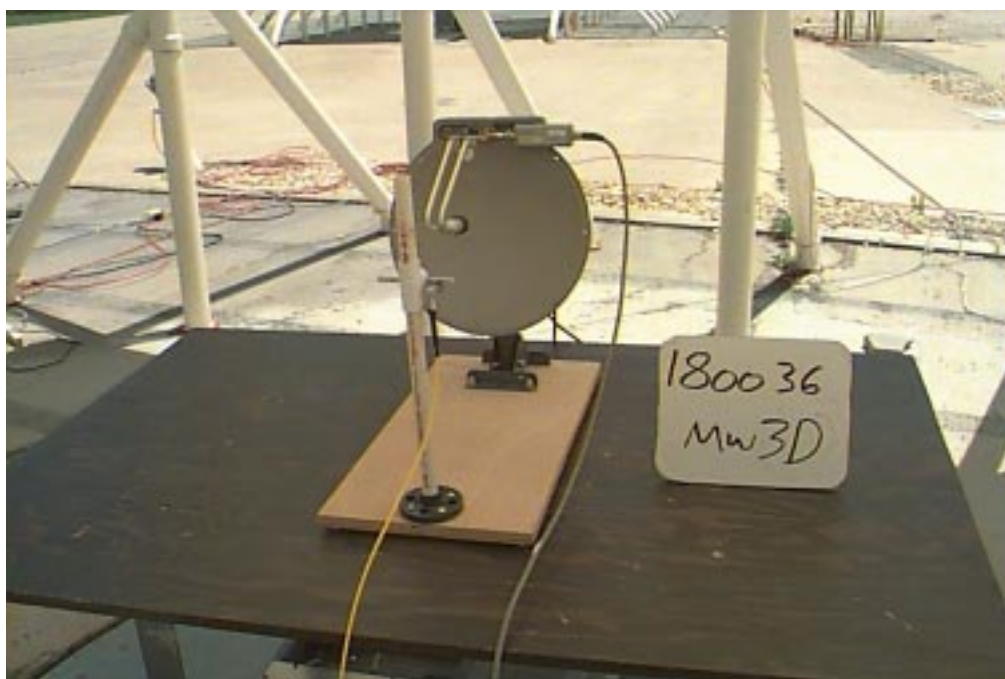
Configuration: Higher Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



Configuration: Higher Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



Configuration: Higher Frequency (Simulated QPSK Signal)

FIGURE D-8. WORST-CASE FILED STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)

TABLE D-VIII. FREQUENCY STABILITY DATA**Frequency Stability Configuration: TX 28.225000 GHz**

Frequency (MHz)	Temperature	FCC Limit 101 (2.995)	Voltage	Time
28.225000404 (RF) freq	-30 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000182 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000394 (RF) freq	-30 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1135
1.675000180 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000348 (RF) freq	-30 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000180 (I/F) freq		.001% (+/- 279.2 kHz)		
28.22500637 (R/F) freq		.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000181 I/F freq	-20 C°	.001% (+/- 279.2 kHz)		
28.225000638 (R/F) freq		.001% (+/- 279.2 kHz)		
1.675000181 I/F freq	-20 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1240
28.225000637 (RF) freq		.001% (+/- 279.2 kHz)		
1.675000183 I/F freq	-20 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
28.225000522 (RF) freq	-10 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000185 I/F freq		.001% (+/- 279.2 kHz)		
28.225000530 (RF) freq	-10 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1325
1.675000185 I/F freq		.001% (+/- 279.2 kHz)		
28.225000514 (RF) freq	-10 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000184 I/F freq		.001% (+/- 279.2 kHz)		
28.225000440 (RF) freq	0 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000454 (RF) freq	0 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1410
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000447 (RF) freq	0 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000183 (I/F) freq		.001% (+/- 279.2 kHz)		

D. TEST RESULTS (Continued)**Frequency Stability Configuration: TX 28.225000 GHz**

Frequency (MHz)	Temperature	FCC Limit 101 (2.995)	Voltage	Time
28.22500394(R/F) freq4		.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000183 I/F freq	10 C°	.001% (+/- 279.2 kHz)		
28.225000484 (r/F) freq		.001% (+/- 279.2 kHz)		
1.675000182 I/F freq	10 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1455
28.225000407 (RF) freq		.001% (+/- 279.2 kHz)		
1.675000183 I/F freq	10 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
28.225000359 (RF) freq	20 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000184 I/F freq		.001% (+/- 279.2 kHz)		
28.225000360 (RF) freq	20 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1540
1.675000183 I/F freq		.001% (+/- 279.2 kHz)		
28.225000374 (RF) freq	20 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000192 I/F freq		.001% (+/- 279.2 kHz)		
28.225000392(RF) freq	30 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000396(RF) freq	30 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1625
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000391(RF) freq	30 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000489 (RF) freq	40 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000473 (RF) freq	40 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1710
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000477 (RF) freq	40 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000183 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000718(RF) freq	50 C°	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000714(RF) freq	50 C°	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1755
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000731(RF) freq	50 C°	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		

Comments:

1. Data contained in Appendix B – Test # Frequency Stability (04/28/98).



FIGURE D 9. FREQUENCY STABILITY TEST SET UP



FIGURE D 9. FREQUENCY STABILITY TEST SET UP
(Continued)



FIGURE D 9. FREQUENCY STABILITY TEST SET UP
(Continued)

E. MEASUREMENT FACILITY AND INSTRUMENTATION

A report describing the KTL Dallas, Inc. measurement facility is on file with the Federal Communications Commission in Columbia, Maryland. The laboratory has been audited by two Competent Bodies in the European Union, TÜV Rheinland and Interference Technology International, Ltd. The laboratory has also been audited by NEMKO, a Certification Body in Norway, and the U.S. National Institute of Standards and Technology (NIST); the National Voluntary Laboratory Accreditation Program (NVLAP) has also audited the laboratory for selected test methods or services. These audits and certifications were performed in accordance with EN 45001, ISO/IEC Guide 25: 1990, ISO/IEC Guide 58: 1993 and ISO 9002: 1994.

The instrumentation used conforms to ANSI C63.4 (1992), ANSI C63.2 (1987), CISPR, and FCC requirements for detector function and bandwidth. The antennas used are linearly polarized. Table E-I identifies the instrumentation utilized for the test. Calibration of measurement instrumentation is performed annually. Calibrations are traceable to NIST (formerly called NBS) to ensure the instrumentation accuracy.

Multiple **open area test sites** are capable of being used for 3-, 10-, and 30-meter measurement distances. The ground plane is composed of overlapping sheets of galvanized hardware cloth. The overlap distance is at least 10 cm. The overall ground plane size varies by field site. The ac power for the EUT is buried.

Multiple **turntables** allow for the equipment-under-test (EUT) to be rotated 360° azimuthally. For floor-standing EUT, the EUT to be tested is placed directly on a metal top turntable. Table-top EUT is placed on a test table located 80 cm above the ground plane. The unsunken turntables are composed primarily of wood and PVC. The only metal parts are the pivot mechanism/pedestal which is 15 cm above the ground plane and required bolts and nuts that are no longer than 4 cm.

The **antenna mast** allows for the antennas to be raised and lowered continuously from 1 to 4 meters in height above the ground plane. The mast is composed primarily of wood and plastic. All metal hardware is less than 10 cm in length and positioned to be as far from the antenna as possible.

The **tripod** is of wooden construction and is used to support the antennas during preliminary radiated-emissions measurements.

The **instrumentation support stand** is of wood construction and is located outside of the minimum reflection-free area of the open-field measurement site.

The **Semi-Anechoic Chamber #1** is a Rayproof Shielded Enclosure assembled professionally by Shielding Resources Group. The dimensions of the enclosure are 8.5m X 5.5m X 6.1m. The three-phase ac power and neutral, 60 Hz, are filtered using Keene Corporation 225 ampere ac power line filters. The power line filters have 100 dB attenuation over most of the spectrum. The three-phase ac power and neutral, 50 Hz, are filtered using Universal Shielding Corporation 100 ampere ac power line filters with similar attenuation. Access to the room is through a double-wide door (6' wide by 7' tall). The room is lined on all sides and the ceiling with 3' anechoic cones and ferrite tile (in selected locations). The floor may be made anechoic by the use of removable ferrite tile squares that cover a 10' by 10' area between the transmit antenna and the EUT. The height of the enclosure permits a full 4-meter antenna scan height. Site-attenuation measurements and uniform-field measurements have been performed inside the room.

E. MEASUREMENT FACILITY AND INSTRUMENTATION (Continued)

The **Shielded Enclosure #1 and #2** consist of an ARK Electronics Corp. Plyshield Shielded Enclosure. The enclosure is divided into two rooms: **#1** is 2.5 m x 3.0 m x 3.0 m and **#2** is 6.1 m x 3.0 m x 3.0 m. The dimensions of the enclosure are (8.6 m x 3.0 m x 3.0 m). The three-phase ac power and neutral for the larger room are filtered using Corcom 100 ampere ac power line filters. The power for the smaller room is filtered using ARK 30 ampere power filters. The power line filters have 100 dB of attenuation between 14 kHz and 10 GHz.

The **shielded room conducted emissions test setup** is located inside the 6.1 m x 3.0 m x 3.0 m room of the shielded enclosure. The ac power is filtered using Corcom 100 ampere ac power line filters. The power line filters have 100 dB of attenuation between 14 kHz and 10 GHz. The EUT is supported on a wooden table that is located at the side of the enclosure. The table is 80-cm high. The instrumentation is located inside the enclosure during conducted-emissions measurements.

The **laboratory conducted emissions test setups** are located in each of the test laboratories with horizontal and vertical conducting planes each measuring 2.4 by 2.4 meters. The horizontal and vertical planes overlap two inches and are bonded together by screws placed on one foot centers. The EUT is supported on a portable wooden/plastic table that is 80 cm in height with the back edge located 40 cm from the vertical conducting plane.

The **Semi-Anechoic Chamber #2** is a Keene Corp. Plyshield Shielded Enclosure. The dimensions of the shielded enclosure are 8.7 meters long by 4.9 meters wide by 3.7 meters high. Access is provided through a double leaf door of 1.8 meters wide by 2.3 meters height and by a single leaf door of 0.9 meters wide by 2.3 meters height. The three-phase 60 Hz ac power for the enclosure is filtered using Universal Shielding 100 ampere ac power line filters. The single-phase 50 Hz power is filtered using Keene 30 ampere ac power line filters. The power line filters have 100 dB of attenuation between 14 kHz and 10 GHz. The side walls and ceiling of the enclosure are covered with anechoic material.

TABLE E-1 TEST EQUIPMENT

The listing below indicates the test equipment utilized for the test (s).

<u>KTL/(ICC) ID</u>	<u>Nomenclature</u>	<u>Manufacturer Model Number</u>	<u>Serial Number</u>	<u>Calibration Date</u>
C2B	B O.A.T.S. Cable Set			11/01/97
CF20	Semi Flex Cable (3 meters)			10/09/97
CF21	Semi Flex Cable (3 meters)			10/09/97
CF31	Storm Cable (7.6 meters)	Semi Flex		12/03/97
103	Spectrum Analyzer	Tektronix 492P	B043496	11/11/97
110	Spectrum Analyzer (10 kHz - 3.5 GHz)	Advantest R4131D	00350640	07/29/97
181	Limiter	Fischer FCC-45013-1.2	NSN	02/12/98
184	Limiter	Fischer FCC-45013-1.2	NSN	02/12/98
200	Log-Periodic Antenna (300 MHz - 1.8 GHz)	A.H. Systems SAS-200/510	121	01/24/98
216	Horn Antenna (1GHz - 18 GHz)	EMCO 3115	8812-3035	06/02/97
227	Antenna, LP	A.H. Systems SAS-200/510	556	01/24/98
230	Biconical Antenna (30 MHz - 300 MHz)	International Compliance Corporation. BCON-30300	210	01/17/98
313	Variac	General Radio W10MT3A		CNR
398	Preamplifier, 25dB (30 MHz - 1.5 GHz)	ICC LNA25	398	06/18/98
421	Low Noise Preamplifier (1 MHz - 1 GHz)	International Compliance Corporation		04/27/98
430	RF Amplifier (5 GHz - 12 GHz)	International Compliance Corporation	NSN	04/27/98
452	Preamp 12-18 GHz	ICC LN12-18	452	11/18/97

TABLE E-1 TEST EQUIPMENT
(Continued)

The listing below indicates the test equipment utilized for the test (s).

<u>KTL/(ICC) ID</u>	<u>Nomenclature</u>	<u>Manufacturer Model Number</u>	<u>Serial Number</u>	<u>Calibration Date</u>
494	Horn Antenna	A.H. Systems SAS-200/571	162	04/28/98
697	Spectrum Analyzer	Hewlett Packard 8563E	3551A04428	08/01/97
739	Environmental Chamber	Envirotronics SH27	129010083	11/06/98
879	Mixer	Hewlett Packard 5356D	251A00583	10/03/97
881	Harmonic Mixer	Hewlett Packard 119770U	2332A00116	10/20/98
934	Horn Antenna (18-26.5 GHz)	EMCO 3160-09	9705-1079	08/13/97
935	Horn Antenna (26.5-40GHz)	EMCO 3160-10	9701-1049	08/13/98
958	Harmonic Mixer	Hewlett Packard 11970V	2521A01222	12/08/98
	Signal Generator	Rhode & Schwarz SMHU-58	838496/015	07/11/97
	CW Signal Generator	Hewlett Packard 8360L	3722A00186	08/25/97
	Arbitrary Waveform Generator	Hewlett Packard 83640L	3300117	01/22/98
	Spectrum Analyzer	Hewlett Packard 856E	3517A00315	11/10/97
	GHz Counter	Hewlett Packard 5345A	2016A06589	04/22/98
	GHz Counter	Hewlett Packard 5355A	2242A01511	04/22/98
	GHz Counter	Hewlett Packard 5356C	2118A00739	04/22/98
	L Band Counter	Hewlett Packard 5342A	2542A10349	04/22/98

TABLE E-1 TEST EQUIPMENT
(Continued)

The listing below indicates the test equipment utilized for the test (s).

<u>KTL (ICC) ID</u>	<u>Nomenclature</u>	<u>Manufacturer Model Number Part Number</u>	<u>Serial Number</u>	<u>Calibration Date</u>
	20 dB Directional Coupler	Millitech P/N 559A	DC9809	
	20 dB Attenuator	Millitech P/N 521A-6/599	DC9807	
	Anritsu Power Meter	ML2438A	97500031	09/01/98
	Spectrum Analyzer	Hewlett Packard 8564E	3517A0315	09/01/98
LAB #2 (IN DOOR) ENVIRONMENTAL CHAMBER SITE B O.A.T.S. (OPEN AREA TEST SITE) 10 Meter Site				
	Turntable Flush Mounted, Metal Covered, 8 Foot	RF Consultants Model AT-8 (Automated)		CNR
	Antenna Mast, 4 Meter	ICC (Automated)		CNR

LEGEND:

CNR = CALIBRATION NOT REQUIRED

N/A = NOT APPLICABLE

CBU = CALIBRATED BEFORE USE

APPENDIX A – DATA REPORT



International Compliance Corporation
"Your Certification Solution" *sm*

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Data Report

Workorder # 1800218

Date 6/24/98

Client must complete box 1 and sign
Please provide information as it should be presented in report

Equipment Under Test (EUT)

Box 1

Model Number/Name (This form will appear in formal test report)
Please print upper/lower case, space, dashes, slashes, hyphens, etc., in the spaces provided

C	U	S	T	O	M	E	R		P	R	E	M	I	S	E	S		E	Q	U	I	P	M	E	N	T			
R	O	O	F		U	N	I	T		T	R	A	N	S	C	E	I	V	E	R		(	U	S	)				

Serial Number MSN-69

Part Number 3214864-001

Clock, Oscillator, Highest Frequencies Utilized: (If >108 MHz additional test may be required)
960 MHz, 26.55 GHz, 950 - 1950 MHz, 27.35 - 28.5 GHz

EUT Test Configurations: FCC Part 2/101, 2.985, 2.987, 2.989, 2.991, 2.993 and 2.995 with
three simulated and three actual QPSK input frequencies, all at maximum rated
output power (100 milliwatts)

Video Mode(s): N/A

EUT mode of Operation: Steady-state with unit operating at three simulated and three
actual QPSK input frequencies, all at max. rated output power (100 milliwatts)

I (Client Representative) E.W. Paschetag understand all
information including the Model number/name above will appear on the formal
test report as indicated and may effect test duration.

Representative: E.W. Paschetag

Telephone: (972) 997-3270

Company: Bosch Telecom, Inc.

Alternate: (972) 879-3252

Address: PO Box 742466

Fax: (972) 997-3181

Dallas, TX 75374

After hours: (972) 997-3270

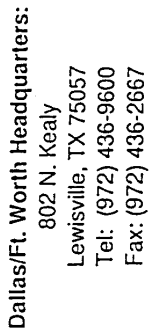
If you will not witness testing, please indicate after hours or pager number.

To be completed by ICC

Box 2

Worst-case Mode/Configuration: OPERATING AT 100mW ACTUAL QPSK

DATA\COMMON\FORMS\TEST\DATA\SHEETS\DATA\REPORT



HARDWARE

Client: BOSCH TELECOM

W.O#: 180036

EUT: CPE ROOF UNIT

S/N: MSN-69

Date: 6/08/98

Place "*" next to EUT and any item that is part of the EUT.

Please complete every column using N/A or unknown if needed.

[illegible]

** FCC ID Status

1. FCC DOC
2. FCC A Verification
3. FCC B Verification

DataWorkOrders\MasterTestData\Data\Hardware
REV091797

4. NONE (If performing FCC testing, contact lab manager.)
5. Certification (Include FCC ID in parenthesis.)

ICC Forms Control # ET-018

036Hardware1

Page 1 of 1

**802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667**

CABLES

Client: BOSCH TELECOM
EUT: CPE ROOF UNIT
Date: 6/08/98

W.O#: 180036
S/N: MSN-69

Place "*" Next to ant item that is part of the EUT.

Complete every column, using N/A or unknown if needed.

Connector

[illegible]

*** Termination: 1. Peripheral
2. Resistive
3. Loopback
4. Remote Equipment
5. EUT
6. Other

REV960716

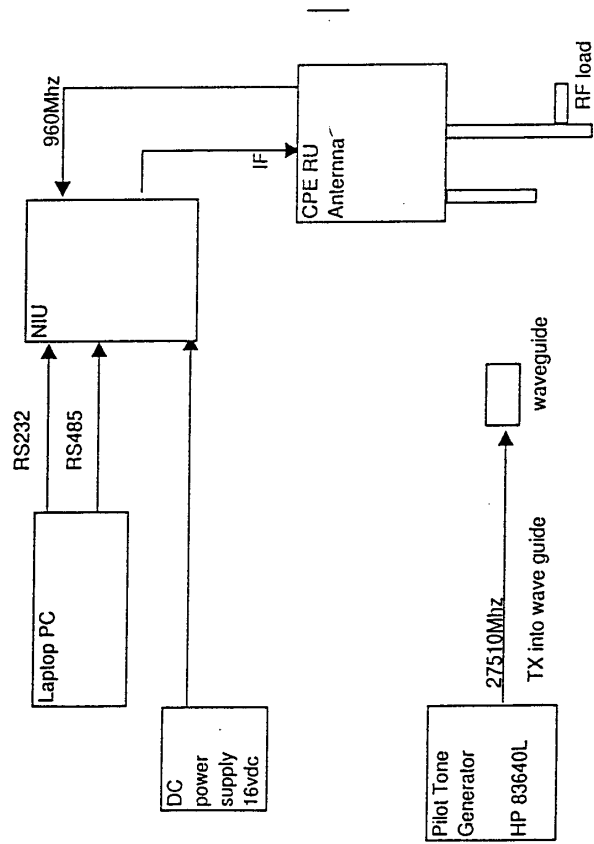
036Cables1



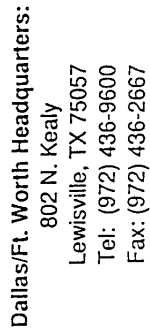
Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

BLOCK DIAGRAM

Client Name: BOSCH TELECOM	Work Order #: 180036
Model Number: CPE ROOF UNIT	Date: 5/7/98
Configuration: CFR 47 P2.993	Actual QPSK



036FRADEMBLK03



SIMULATED QPSK TEST EQUIPMENT

Client: BOSCH TELECOM

W.O#: 180036

EUT: CPE ROOF UNIT

S/N: SEE HARDWR

Date: 4/30/98

Place "*" next to EUT and any item that is part of the EUT.

Please complete every column using N/A or unknown if needed.

[illegible]

DataWorkOrders\MasterTestData\Data\Hardware
REV091797

ICC Forms Control # ET-018

SIM QPSK TE

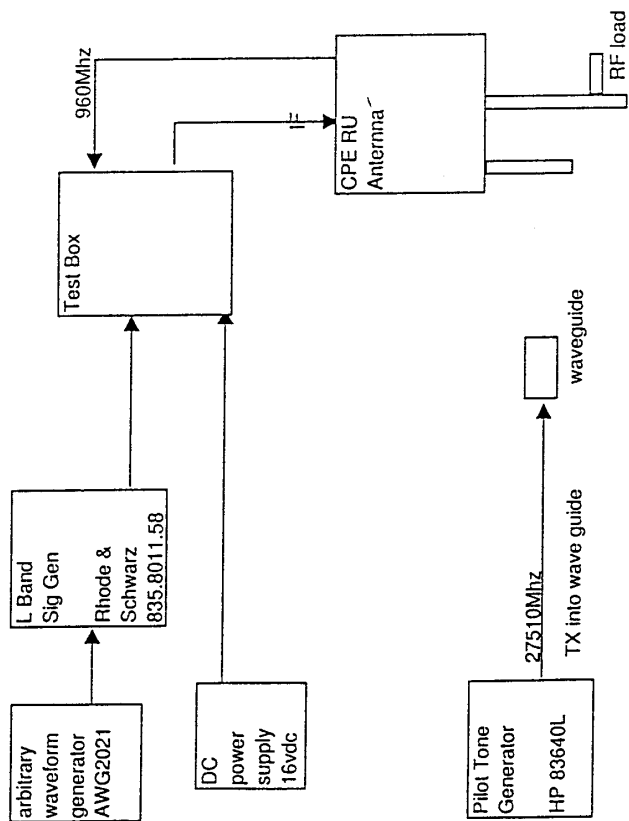
Page 1 of 1



Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

BLOCK DIAGRAM

Client Name: BOSCH TELECOM	Work Order #: 180036
Model Number: CPE ROOF UNIT	Date: 5/7/98
Configuration: CFR 47 P2.993 Simulated QPSK	



036blk01

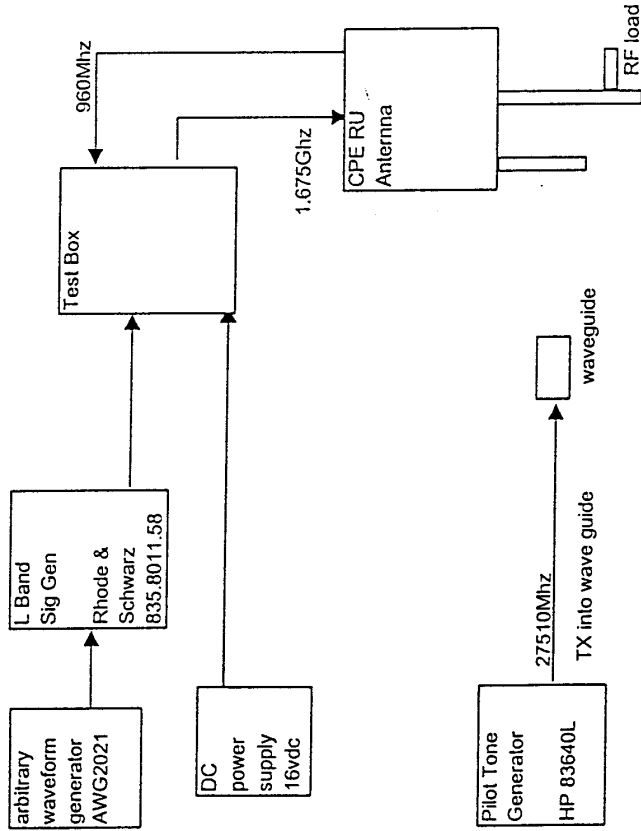


Dallas/Ft. Worth Headquarters:

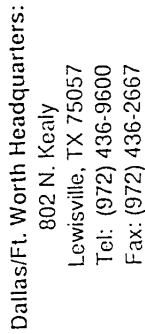
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

BLOCK DIAGRAM

Client Name: BOSCH TELECOM	Work Order #: 180036
Model Number CPE ROOF UNIT	Date: 5/7/98
Configuration: CFR 47 P2.993	



036RADEMBLK01.xls



**BOSCH TELECOM HARDWARE USED IN
ANTENNA TERMINAL CONDUCTED TESTING**

Client: BOSCH TELECOM

W.O#: 180036

S/N: MSN-69

EUT: CPE ROOF UNIT

Date: 6/11/98

Place "" next to EUT and any item that is part of the EUT.

Please complete every column using N/A or unknown if needed.

[illegible]

DataWorkOrders\MasterTestData\Data\Hardware
REV091797

**** FCC ID Status**

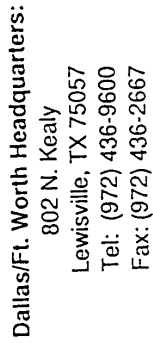
1. FCC DOC
2. FCC A Verification
3. FCC B Verification

4. NONE (If performing FCC testing, contact lab manager.)
5. Certification (Include FCC ID in parenthesis.)

ICC Forms Control # ET-018

036 V1 HARDWR

Page 1 of 1



W.O#: 180036

S/N: SEE HARDWR

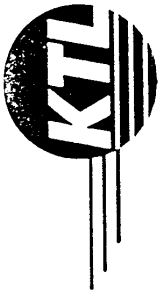
Client: BOSCH TELECOM

EUT: CPE ROOF UNIT

Date: 4/30/98

Place "" next to EUT and any item that is part of the EUT.

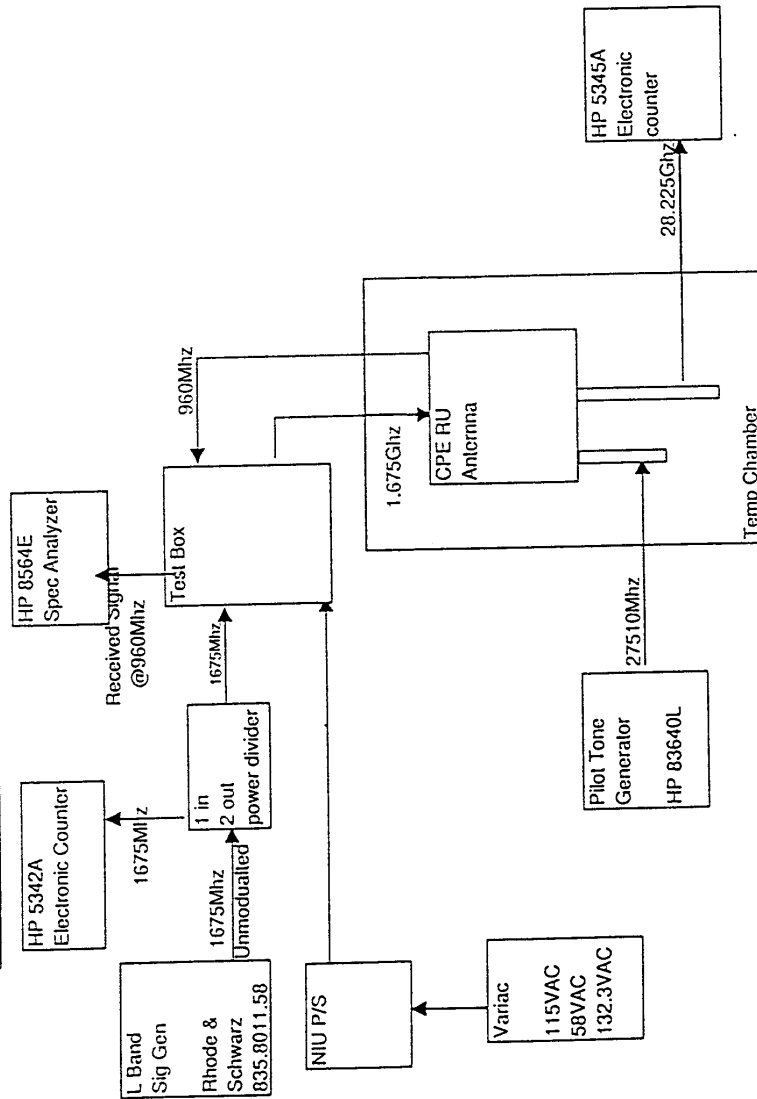
[illegible]



Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

BLOCK DIAGRAM

Client Name: BOSCH TELECOM	Work Order #: 180036
Model Number: CPE ROOF UNIT	Date: 4/28/98
Configuration: CFR 47 P2.995	



036FREOSTABLK01

APPENDIX B - TEST DATA

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

RF POWER SPECTRAL DENSITY



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Client: Bosch Telecom, Inc.

W.O.#: 180036

Model #: CPE Roof Unit Transceiver (US)

Date : 10/30/98

RF POWER

CPE ROOF UNIT

Frequency GHz	Power Reading dBm	External Attenuation dB	Conversion dBm to dBW	Antenna Gain dBi	Corrected Reading dBW	Limit dBW	Delta dB
28.27093	20	0	-30	38	28	55	-27

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809

Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807

Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98

Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

RF POWER SPECTRAL DENSITY,

CPE NETWORK INTERFACE UNIT (1/2 RATE)

Client: Bosch Telecom, Inc.

Model #: CPE Network Interface Unit

W.O.#: 180036

Date: 10/30/98

Center Frequency GHz	Channel Bandwidth MHz	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.10593	2.04	-70.6	22.2	60	-30	38	19.6	42	-22.4
28.22593	2.04	-71.3	22.2	60	-30	38	18.9	42	-23.1
28.34593	2.04	-70.4	22.2	60	-30	38	19.8	42	-22.2

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809
Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807
Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98
Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Client: Bosch Telecom, Inc.

W.O.#: 180036

Model # : CPE Network Interface Unit

Date : 10/30/98

RF POWER SPECTRAL DENSITY

CPE NETWORK INTERFACE QPSK (3/4 RATE)

Center Frequency GHz	Channel Bandwidth MHz	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	MHz to dBm (dB)				
28.10593	1.359	-68.8	22.2	60	-30	38	21.4	42	-20.6
28.22593	1.359	-69.2	22.2	60	-30	38	21	42	-21
28.34593	1.359	-69.2	22.2	60	-30	38	21	42	-21

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809
Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807
Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98
Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Client: Bosch Telecom, Inc.

W.O.#: 180036

Model #: CPE Network Interface Unit

Date : 10/30/98

RF POWER SPECTRAL DENSITY

CPE NETWORK INTERFACE QPSK (7/8 RATE)

Center Frequency GHz	Channel Bandwidth MHz	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.10593	1.165	-67.4	22.2	60	-30	38	22.8	42	-19.2
28.22593	1.165	-68.3	22.2	60	-30	38	21.9	42	-20.1
28.34593	1.165	-67.5	22.2	60	-30	38	22.7	42	-19.3

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809
Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807
Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98
Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

RF POWER SPECTRAL DENSITY

CPE ROOF UNIT QPSK (1/2 RATE)

Client: Bosch Telecom, Inc.

Model #: CPE Roof Unit Transceiver (US)

W.O.#: 180036

Date: 10/30/98

Center Frequency GHz	Channel Bandwidth MHz	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	2.04	-72.2	22.2	60	-30	38	18	42	-24
28.225	2.04	-70.8	22.2	60	-30	38	19.4	42	-22.6
28.345	2.04	-70.5	22.2	60	-30	38	19.7	42	-22.3

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809
Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807
Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98
Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Client: Bosch Telecom, Inc.

W.O.#: 180036

Model #: CPE Roof Unit Transceiver (US)

Date: 10/30/98

RF POWER SPECTRAL DENSITY

CPE ROOF UNIT QPSK (3/4 RATE)

Center Frequency GHZ	Channel Bandwidth MHz	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	1.359	-70.6	22.2	60	-30	38	19.6	42	-22.4
28.225	1.359	-71.1	22.2	60	-30	38	19.1	42	-22.9
28.345	1.359	-70.1	22.2	60	-30	38	20.1	42	-21.9

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809
Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807
Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98
Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Client: Bosch Telecom, Inc.

W.O.#: 180036

Model # : CPE Roof Unit Transceiver (US)

Date: 10/30/98

RF POWER SPECTRAL DENSITY

CPE ROOF UNIT QPSK (7/8 RATE)

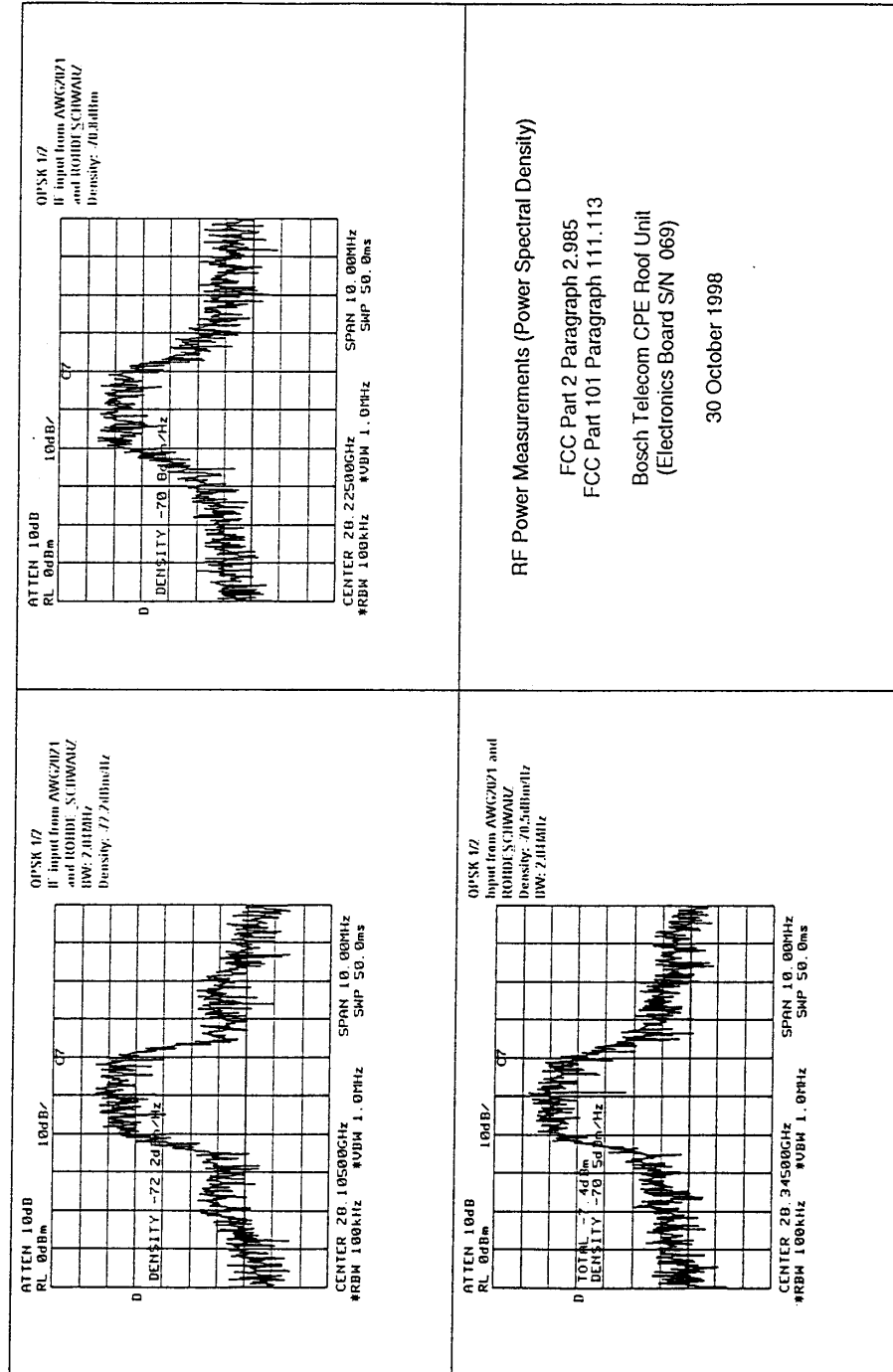
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				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	1.165	-69.9	22.2	60	-30	38	20.3	42	-21.7
28.225	1.165	-70	22.2	60	-30	38	20.2	42	-21.8
28.345	1.165	-72.1	22.2	60	-30	38	18.1	42	-23.9

Equipment :

Millitech, 20 dB Directional Coupler P/N 559A, S/N DC9809
Millitech, 20 dB Attenuator, P/N 521A-6/599, S/N DC9807
Anritsu Power Meter, Model ML2438A, S/N 97500031, Cal Date: 09/01/98
Hewlett Packard Spectrum Analyzer, Model # 8564E, S/N 3517A0315, Cal Date: 09/01/98



KTL Dallas, Inc.
 802 N. Kealy
 Lewisville, TX 75057-3136
 Tel: (972) 436-9600
 Fax: (972) 436-2667



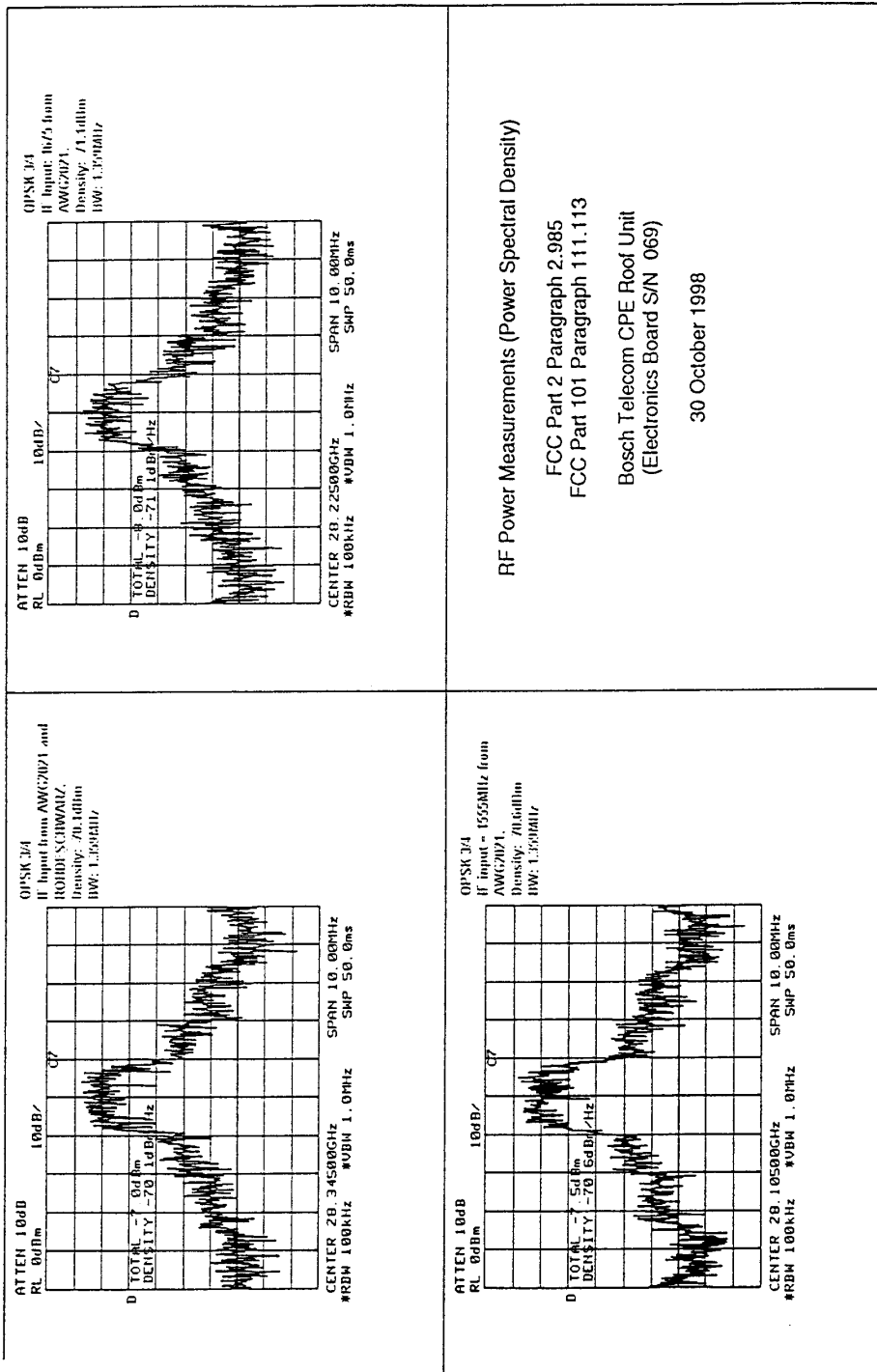
RF Power Measurements (Power Spectral Density)

FCC Part 2 Paragraph 2.985
 FCC Part 101 Paragraph 111.113

Bosch Telecom CPE Roof Unit
 (Electronics Board S/N 069)

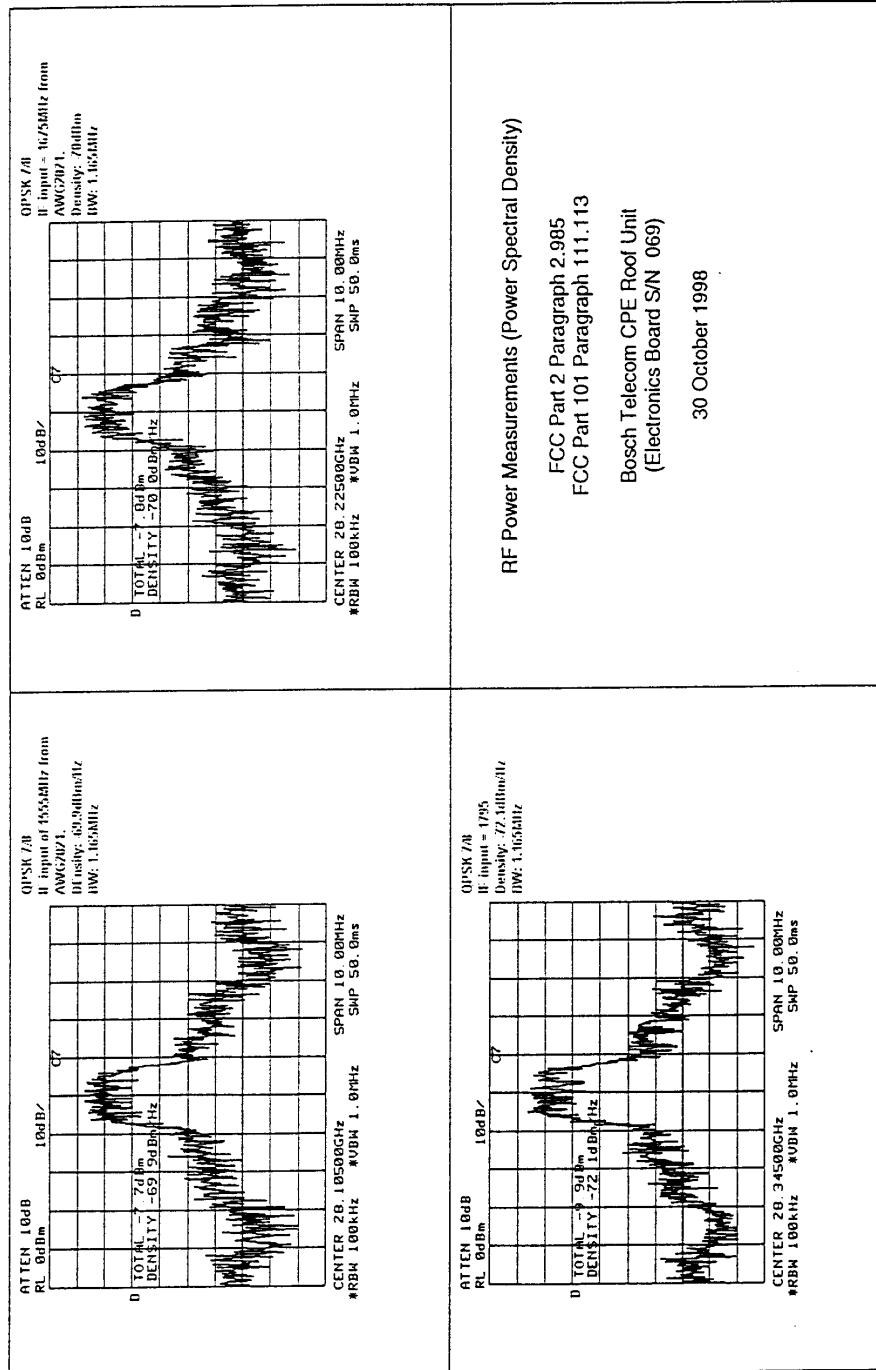
30 October 1998

KTL Dallas, Inc.
 802 N. Kealy
 Lewisville, TX 75057-3136
 Tel: (972) 436-9600
 Fax: (972) 436-2667



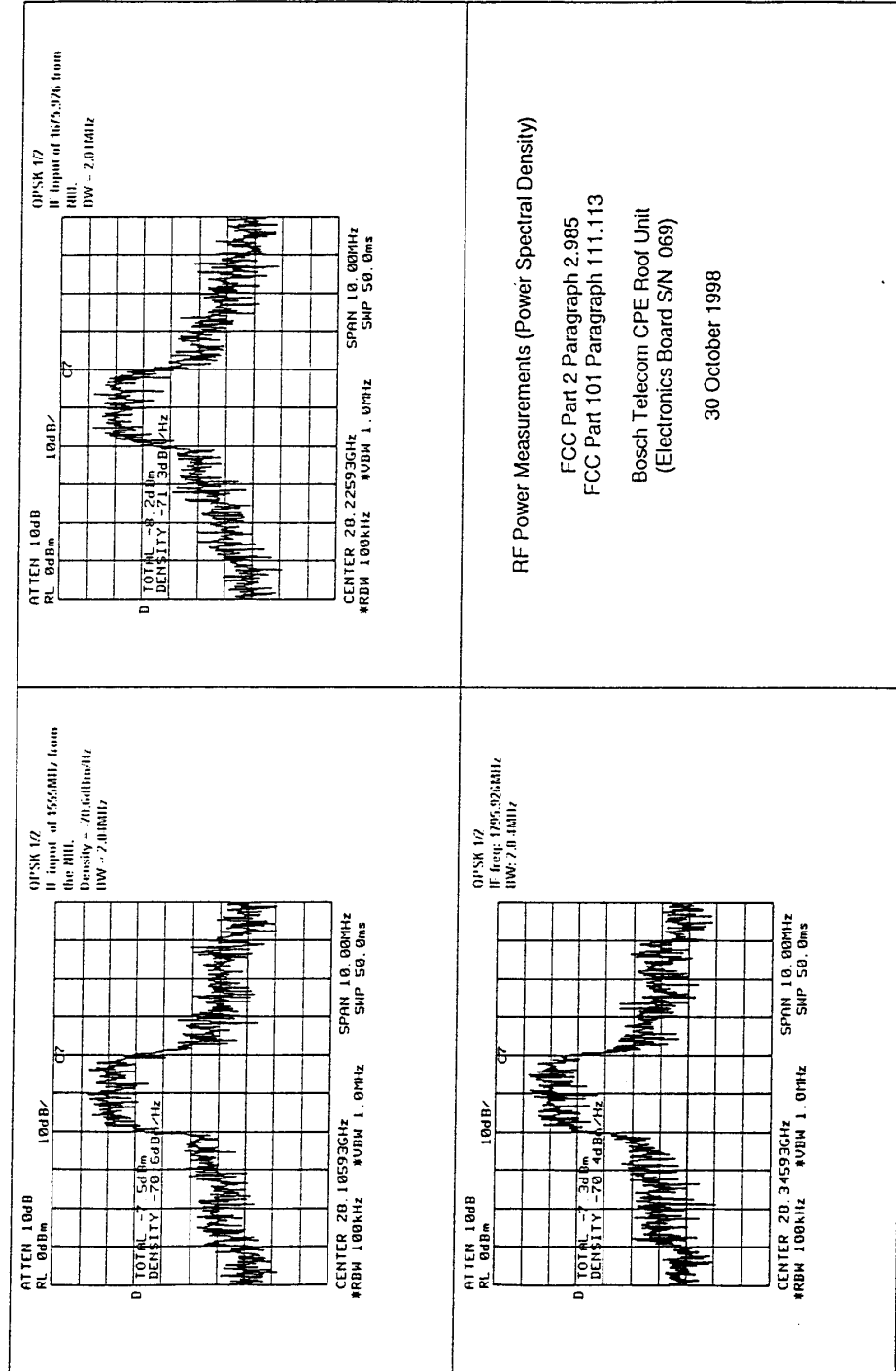


KTL Dallas, Inc.
 802 N. Kealy
 Lewisville, TX 75057-3136
 Tel: (972) 436-9600
 Fax: (972) 436-2667





KTL Dallas, Inc.
802 N. Kealy
Lewisville, TX 75057-3136
Tel: (972) 436-9600
Fax: (972) 436-2667

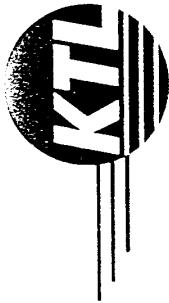


RF Power Measurements (Power Spectral Density)

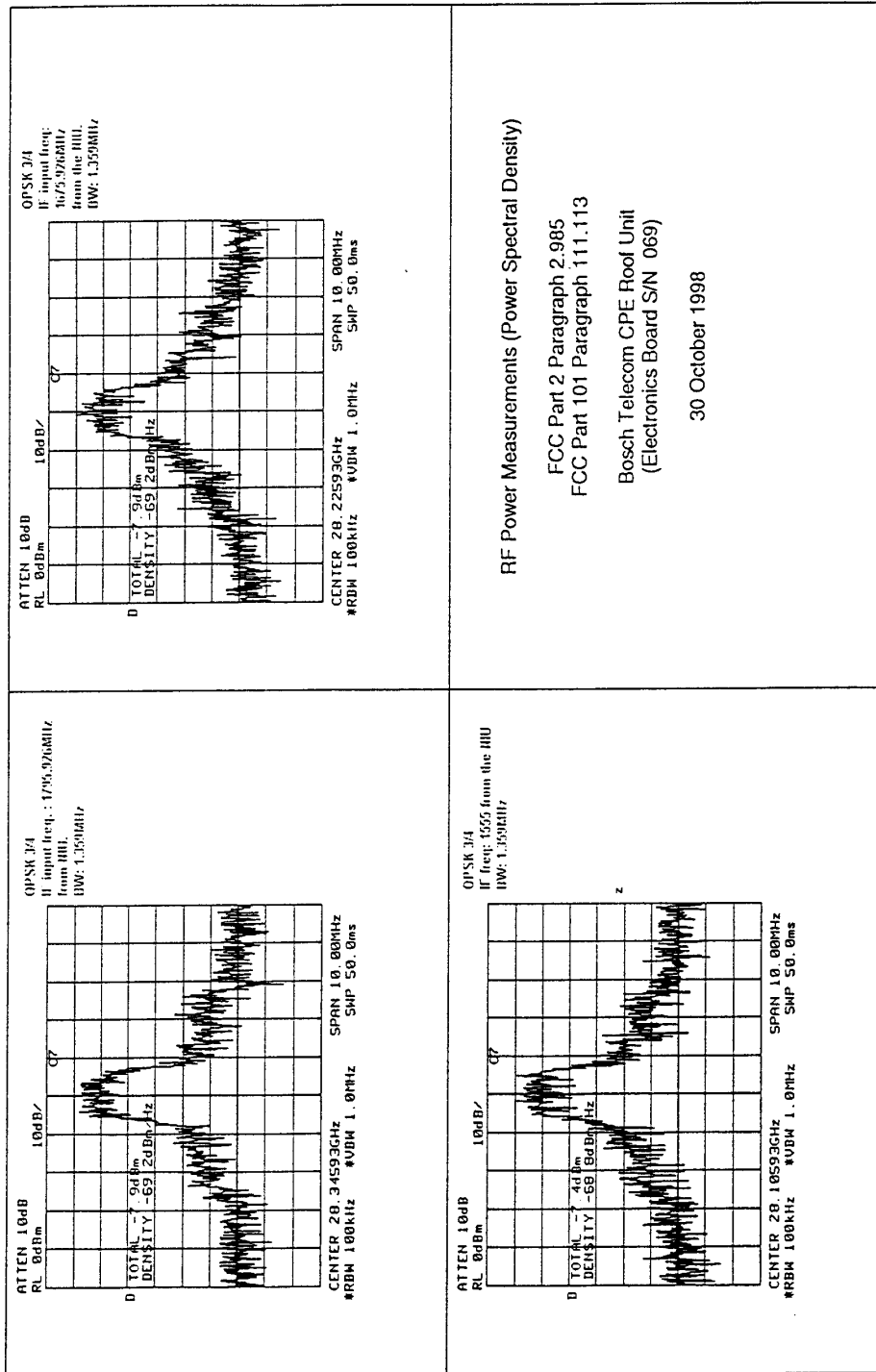
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FCC Part 101 Paragraph 111.113

Bosch Telecom CPE Roof Unit
(Electronics Board S/N 069)

30 October 1998



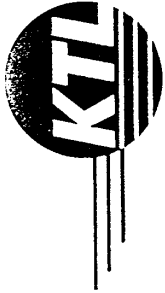
KTL Dallas, Inc.
 802 N. Kealy
 Lewisville, TX 75057-3136
 Tel: (972) 436-9600
 Fax: (972) 436-2667



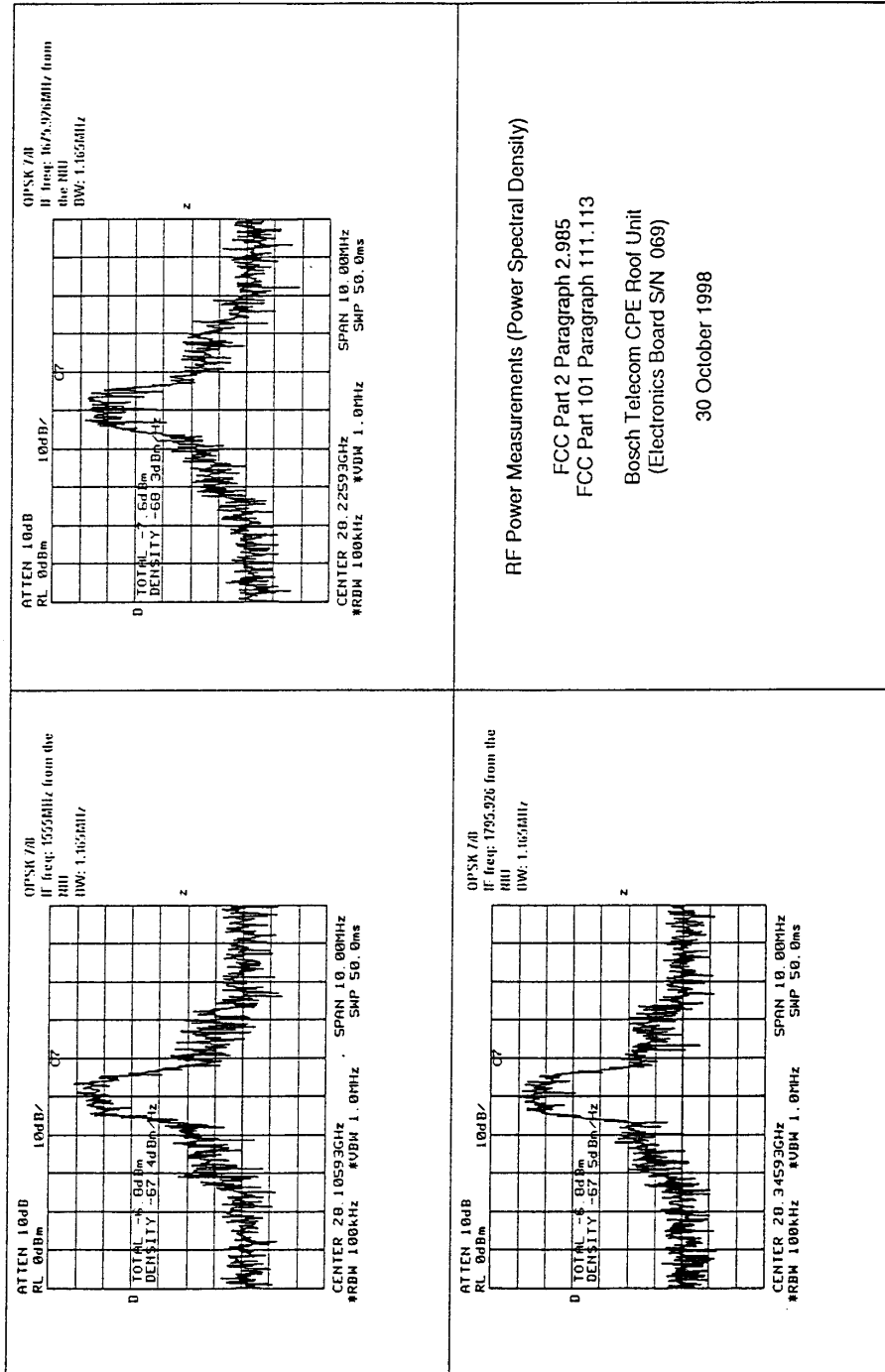
RF Power Measurements (Power Spectral Density)

FCC Part 2 Paragraph 2.985
 FCC Part 101 Paragraph 111.113
 Bosch Telecom CPE Roof Unit
 (Electronics Board S/N 069)

30 October 1998



KTL Dallas, Inc.
802 N. Kealy
Lewisville, TX 75057-3136
Tel: (972) 436-9600
Fax: (972) 436-2667



RF Power Measurements (Power Spectral Density)

FCC Part 2 Paragraph 2.985
FCC Part 101 Paragraph 111.113
Bosch Telecom CPE Roof Unit
(Electronics Board S/N 069)

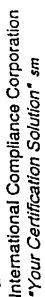
30 October 1998

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

**MODULATION CHARACTERISTICS
ACTUAL QPSK**



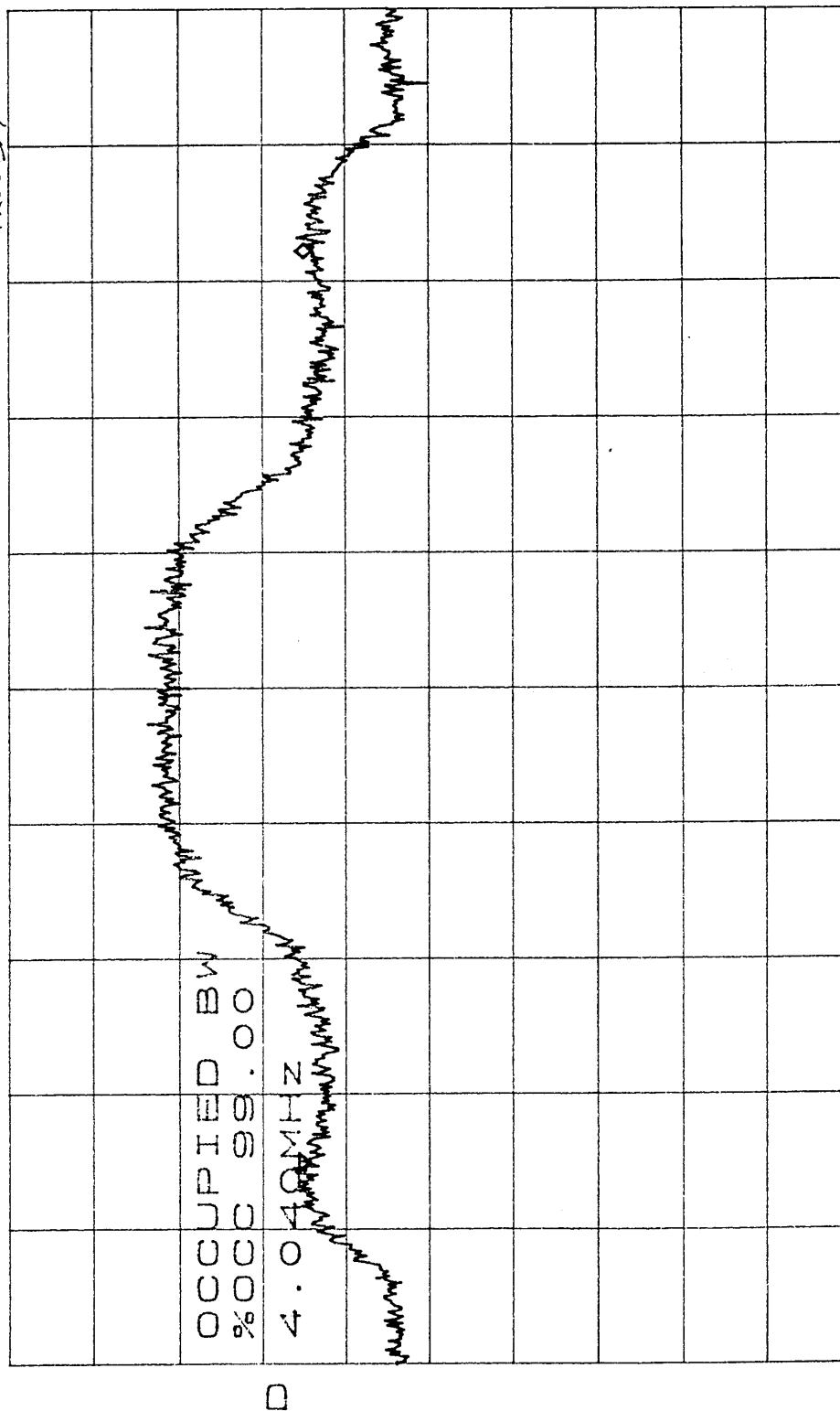
Work Order #: 180036

ACTUAL QPSK (NIU) $\frac{1}{2}$ 1/2

Polarization:	N/A	1	(Lab 2)	3393
---------------	-----	---	---------	------

39B
Reading through 20dB atten

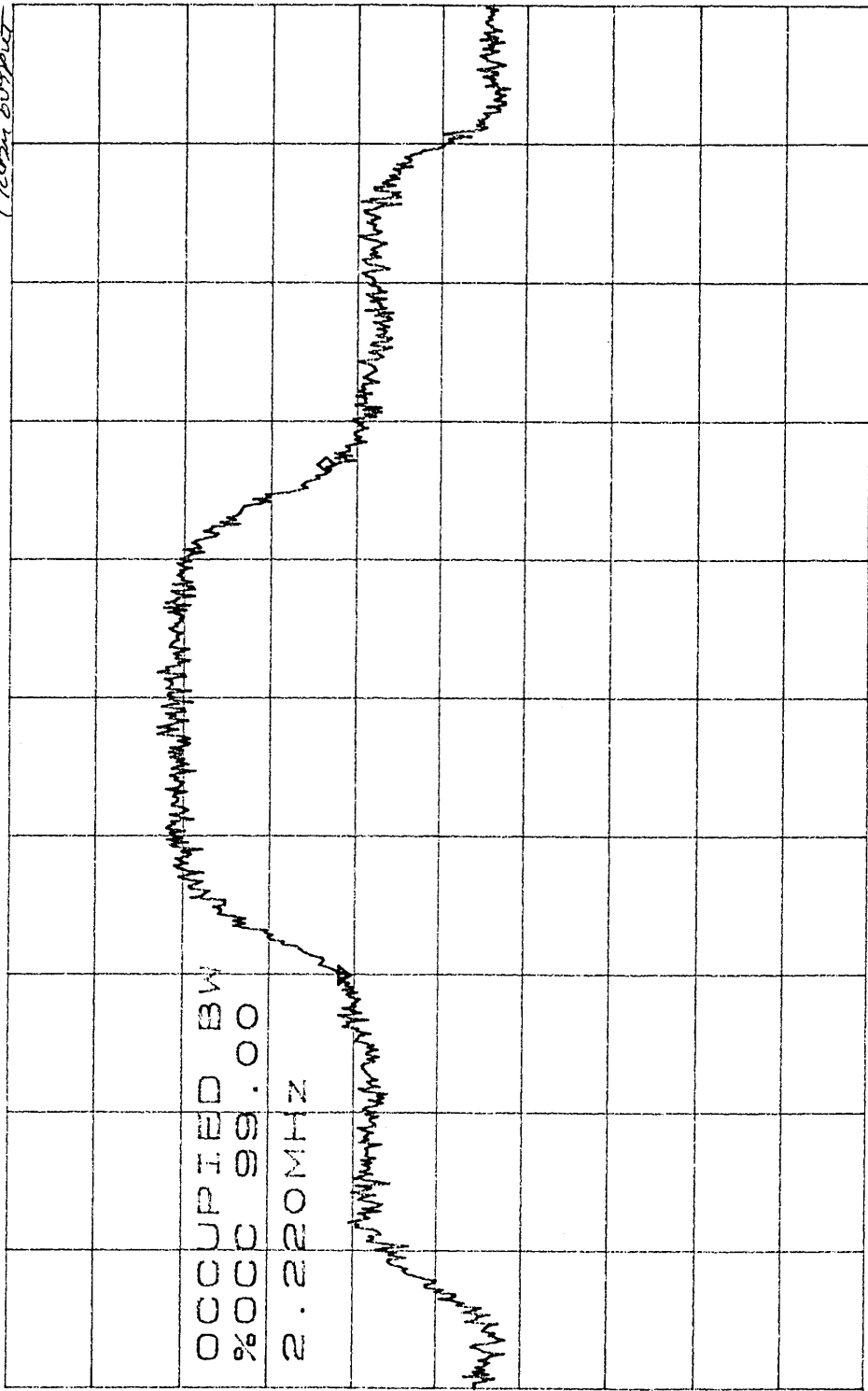
4.040MHz
+20dBm



SE O . O W A S * N I Y O M N I Y O M
N I S O O . W Z A S N I O O O V O . W N I Y O M N I Y O M



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) <i>1/2 Noise</i>
Test Date:	6/5/98	Polarization:	N/A
CL 23. X/C66 <i>Completed</i> Preliminary <i>U</i> 10 PL -6.4dBm 10dB/ 2.210MHz <i>17dBm output</i>		ACTUAL QPSK (NIU) <i>1/2 Noise</i> MKH 1.5 <i>Reading through 20dB atten</i>	



CENTER 28.107000GHZ SPAN 6.000MHZ
 *RBW 30KHZ VBW 30KHZ *SWP 50.0ms



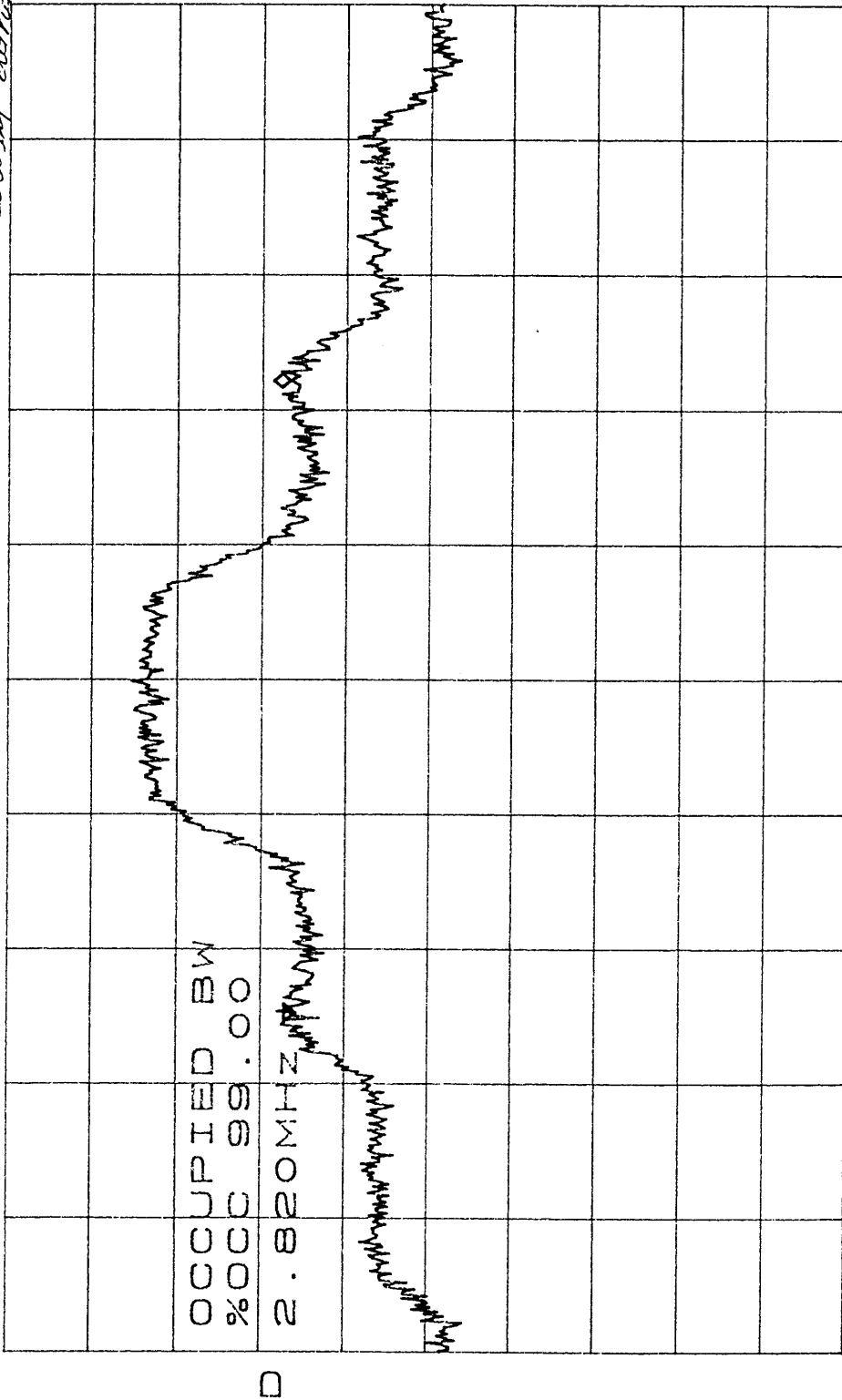
International Compliance Corporation
"Your Certification Solution" sm

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) ³ /part
Test Date:	6/5/98	Polarization:	N/A (<i>Lab 2</i>)
X Completed	☒ Preliminary	G	10 MKH --- 1 . 1 Reached through 20dB atten

5.68d₃₃ Input

CL 23	Completed	9/5/98	Polarization: N/A	Lab 2
	☒ Preliminary	☒ G 10	MKH	1 : 1
				Reading through 20dB atten

PL -6.4dBm 10dB/ 2.810MHZ *+20dBm*

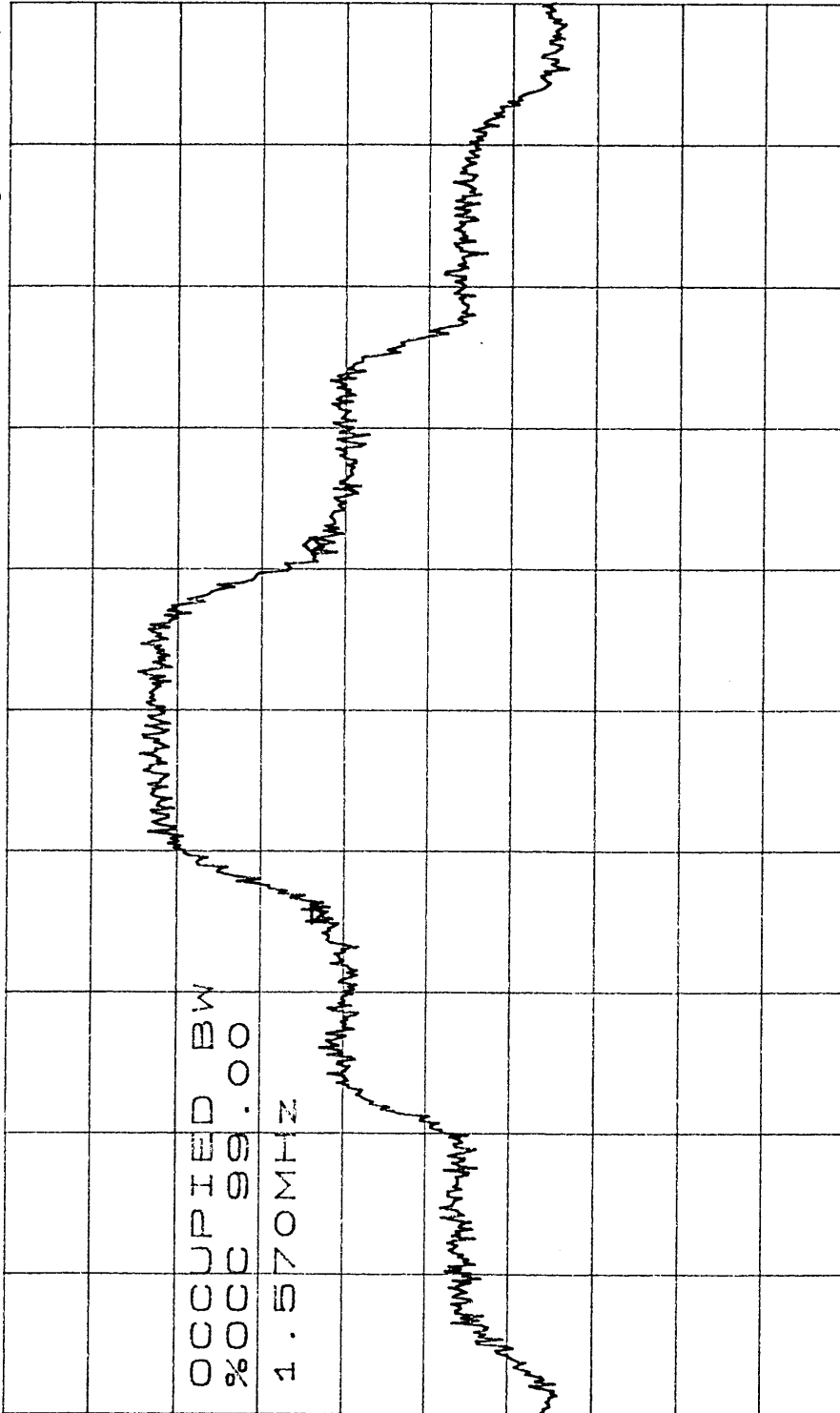


CENTER 28.107000G1Z
 *M333 300Y3N VEB 300Y3N
 SPAN 5.0000M1Z
 *S250.00S 50.00S



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/1/02
Test Date:	6/5/98	Polarization:	N/A
X/ Completed	Preliminary	Frequency:	1.570 MHz
CL 23.0 dBm	10 dB	Reading through 20dB atten	+17dBm output

-0.0463



D

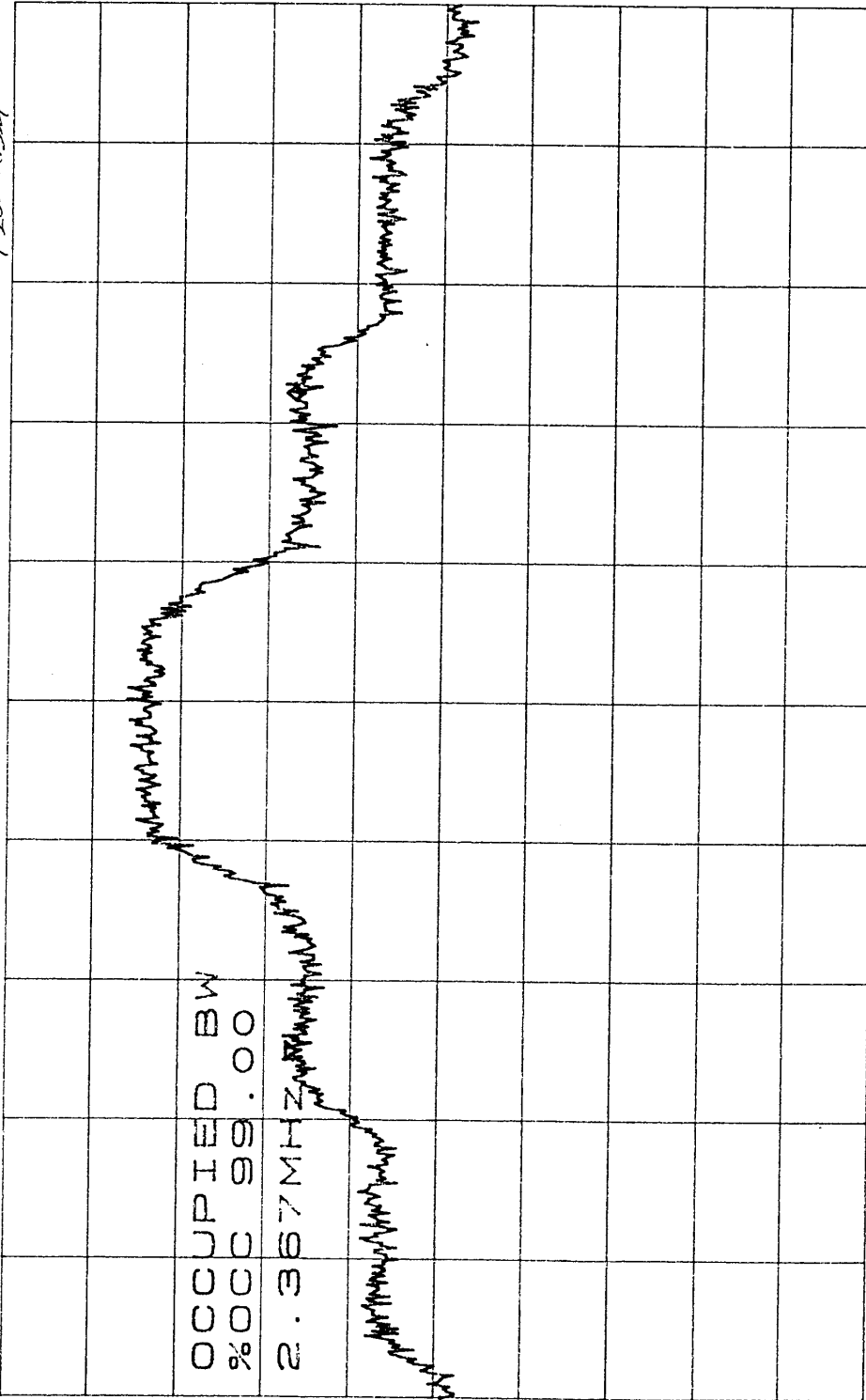
CENTER 28.10700000 GHz SPAN 6.0000 MHz
*RBW 30KHZ VBW 30KHZ *SSWP 50.0ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	
Test Date:	6/5/98	Polarization:	N/A

5-3603
Input

CL 23. X/C661pted Preliminary G 10
 PL -6.4dBm 10dB/ 2.367MHz 20dB atten
 MKR 1.0 Reading through 20dB atten
 720.0dBm



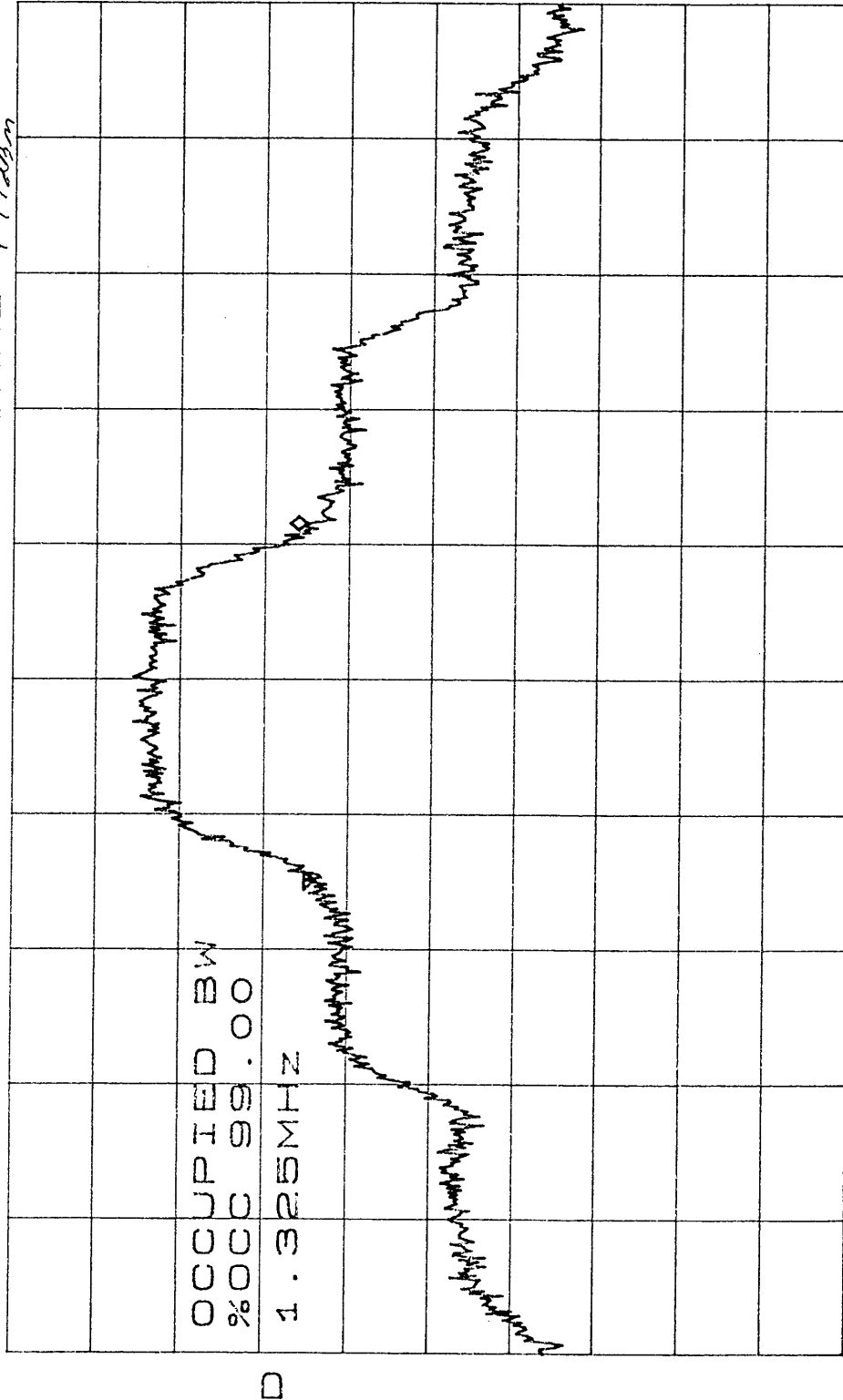
CENTER 28.107000GHZ SPAN 5.0000MHZ
 *RBW 30KHZ VBW 30KHZ *SWP 50.0MS



0.02dB₃
INLET

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) $\frac{3}{4}$ power
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

CL 23. X/Completed Preliminary G 10
 RL -6.4dBm 10dB/ 1.333MHz + 17dBm



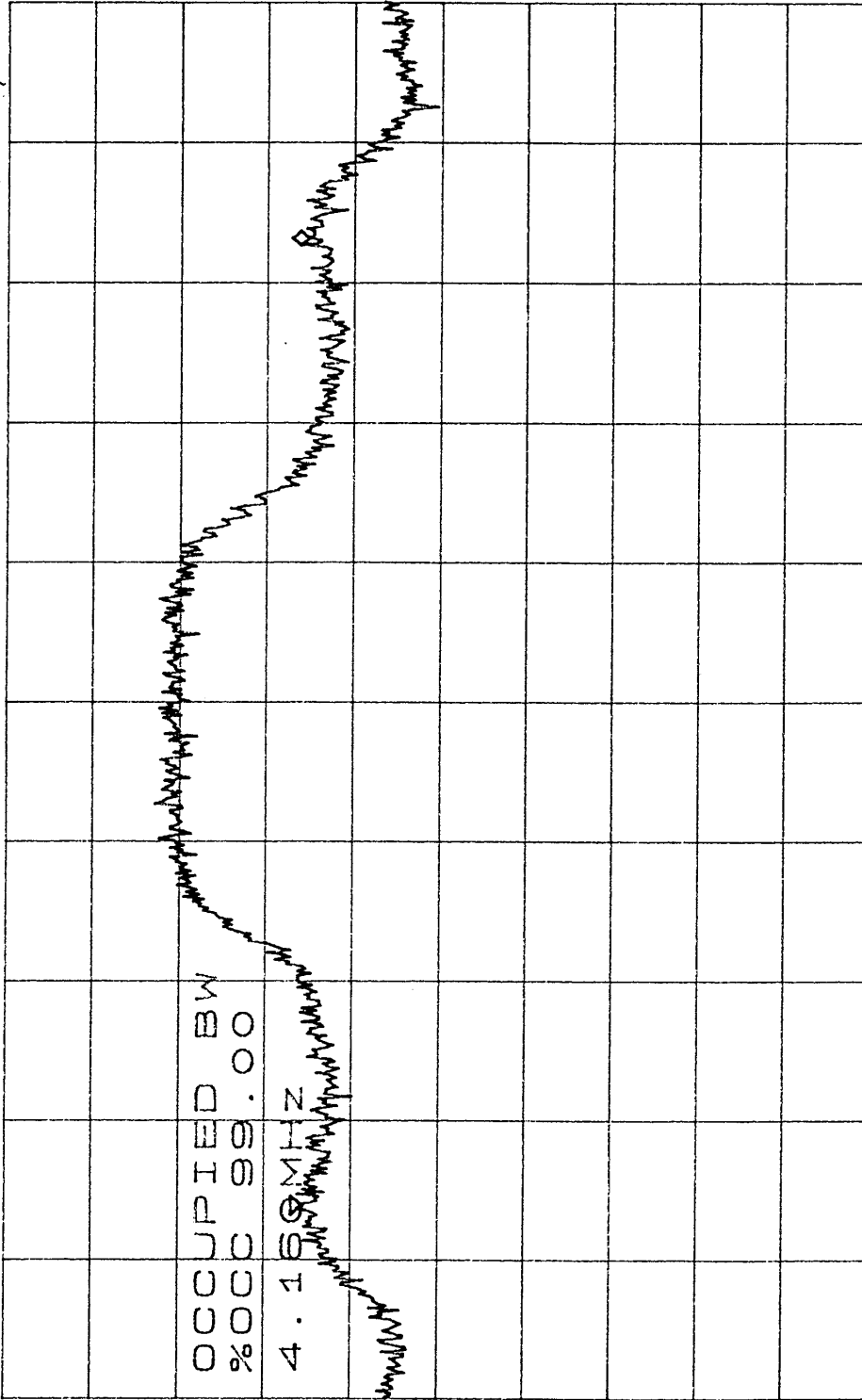
CENTER 28.107000GHZ SPAN 5.0000MHZ
 *RBW 30KHZ VBW 30KHZ *SWP 50.0ms



15.45 dBm
Inter

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) $\frac{1}{2}$ Power
Test Date:	6/5/98	Polarization:	N/A

CL 23. X/C completed Preliminary G 10
 PL -6.4dBm 10dB/ 4.170MHZ 120.0 dBm



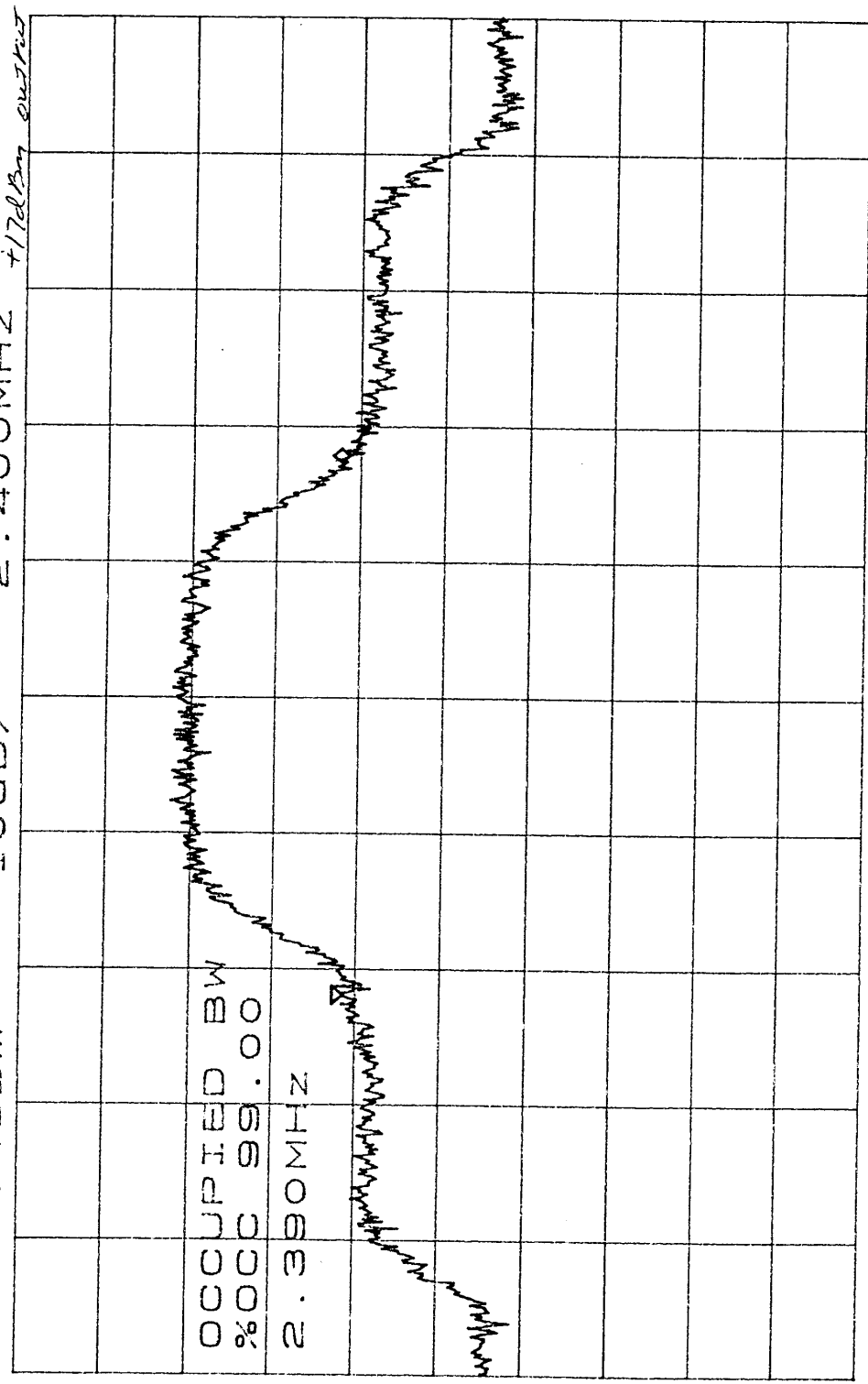
D

CENTER 28.225000GHZ SPAN 6.0000MHZ
 *RBW 30KHZ VBW 30KHZ *SWP 50.0MS



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/3 12-20
Test Date:	6/5/98	Polarization:	N/A
Test Description:	CL 23. X. Completed Preliminary / G 10 MKR 1.5 Preceding through 20dB atten		
RL	-6.4dBm	10dB/	2.400MHZ +17dBm output

-1.07
dBm
2.400

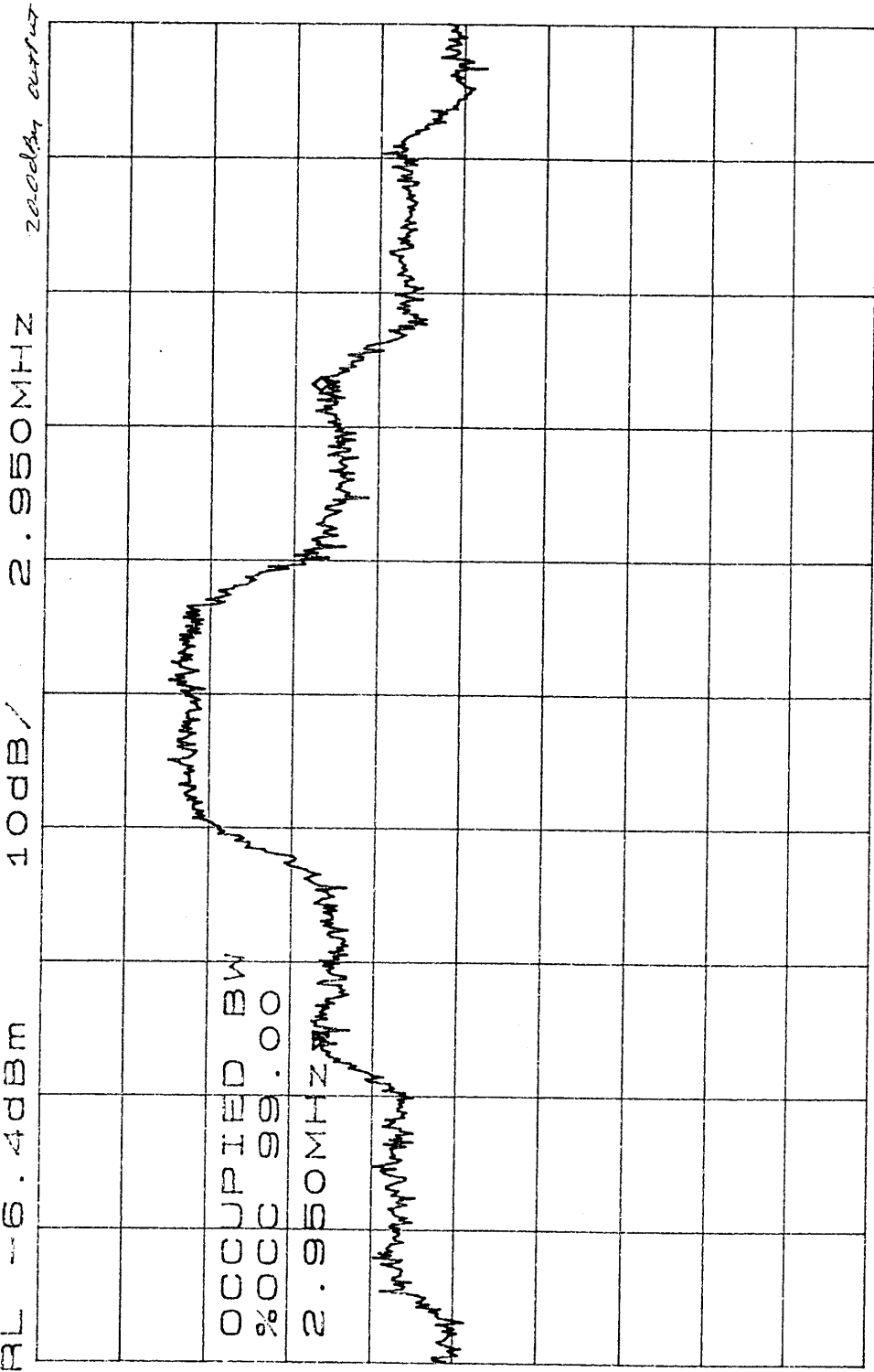


CENTER 28.2250000GHZ SPAN 6.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 Rate
Test Date:	6/5/98	Polarization:	N/A
CL 23. X/Completed	Preliminary G 10	Reading through 20dB atten	
AL -6.4dBm	10dB/	2.950MHz	

76.05215, 76.05215



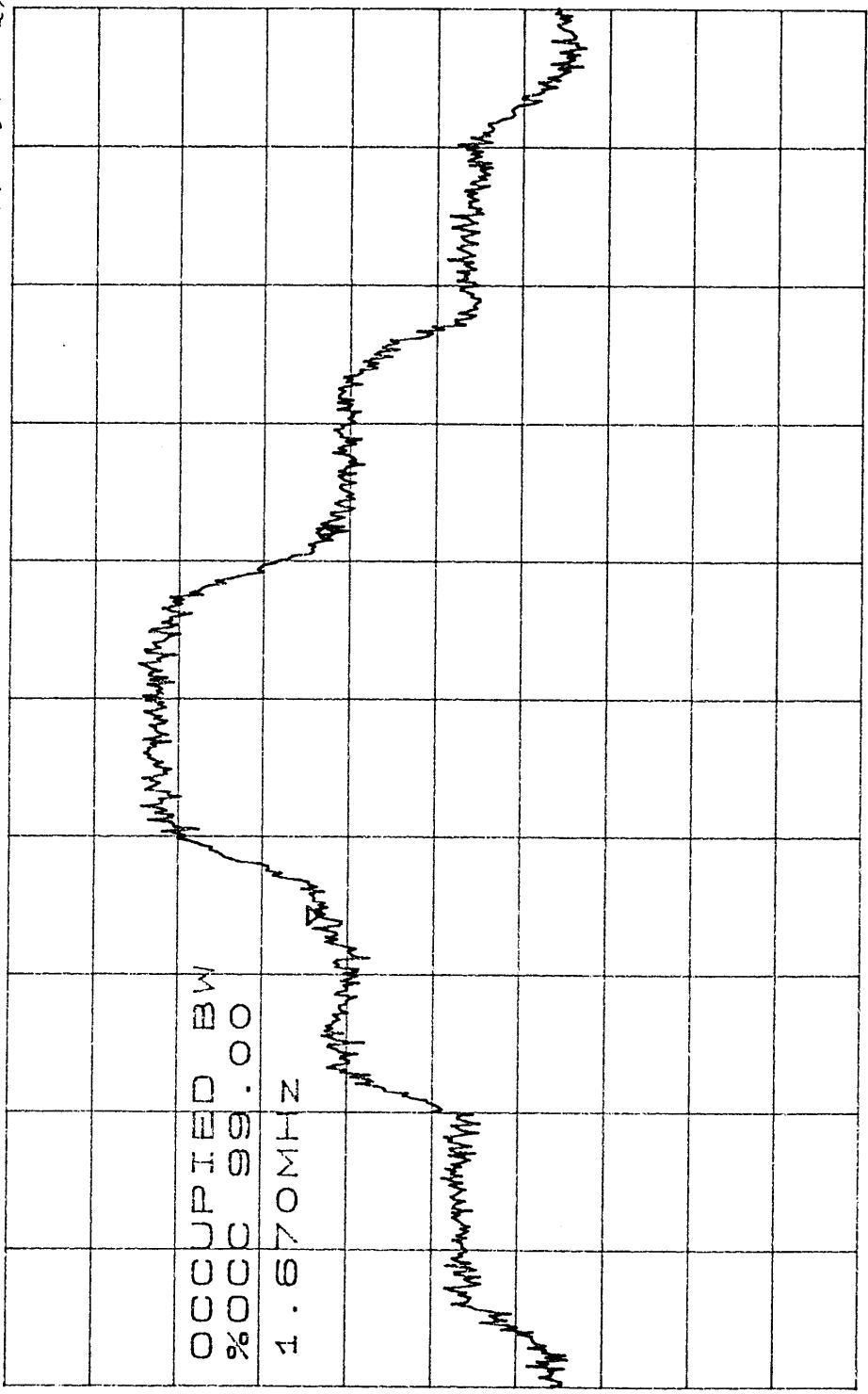
CENTER 28.225000GHZ SPAN 6.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



296031
INTEL

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/1000
Test Date:	6/5/98	Polarization:	N/A

CL 23. X/Completed Preliminary/G 10 MKR .500 Reading through 20dB atten
 PL -6.4dBm 10dB/ 1.660MHZ 17.0dBm with



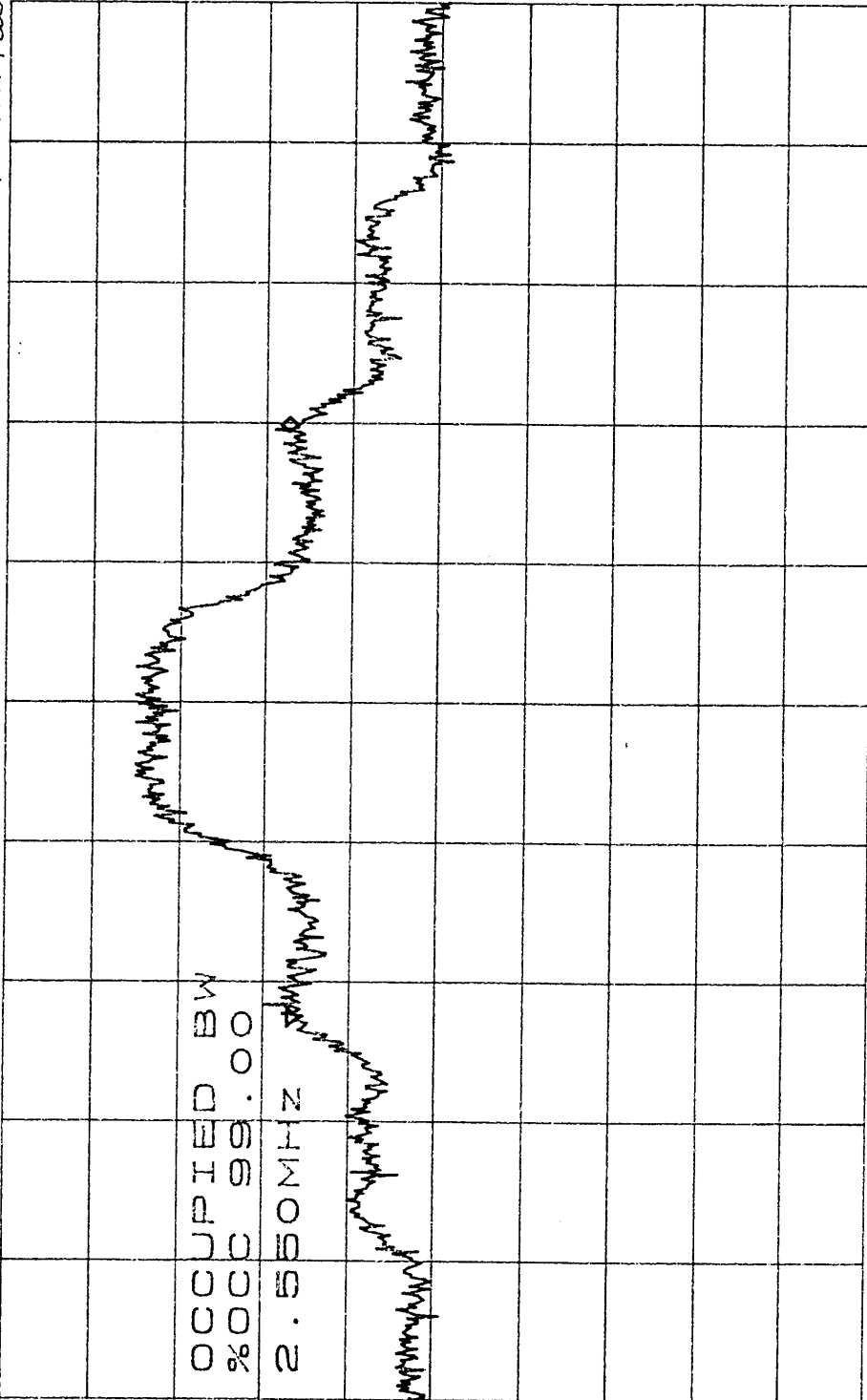
CENTER 28.2250000GHZ SPAN 6.0000MHZ
 *PRBW 30KHZ VBW 30KHZ *SWP 50.0ms



7/16/97
TJH

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 7/16/97
Test Date:	6/5/98	Polarization:	N/A (Leakage)

CL 23. X/Completed Preliminary G 10 MKR .33 dB Reading through 20dB atten
 PL -6.4dBm 10dB/ 2.550MHZ -20.0dBm at 100



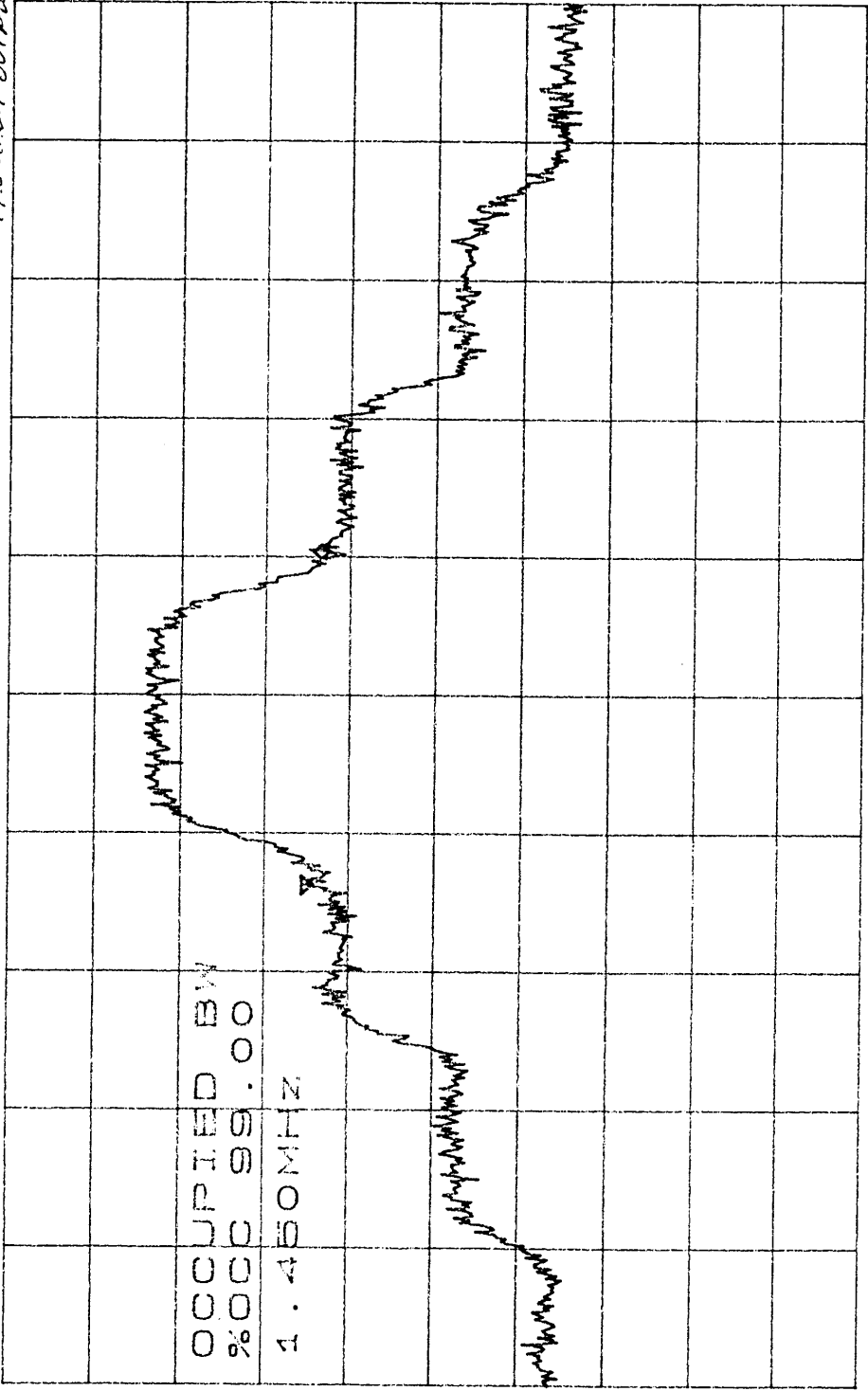
D

CENTER 28.225000GHZ SPAN 6.0000MHZ
 *RBW 30KHZ VBW 30KHZ *SWP 50.0ms

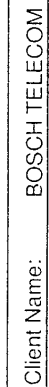


-100dBm
Input

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) $\frac{1}{4}$ Part
Test Date:	6/5/98	Polarization:	N/A
CL 23 - X/C completed Preliminary G 10 PL -6.4dBm 10dB/		MKR -- . B Reading through 20dB atten 1.460MHZ + 17.0dBm output	



CENTER 28.2250000GHZ SPAN 6.0000MHZ
*RESW 30KHZ VBW 30KHZ *SNP 50.0ms



6.93
LB-1
INPiet

PL -6.4dBm	10dB/	4.170MHZ	26.0dBm/0.001
------------	-------	----------	---------------



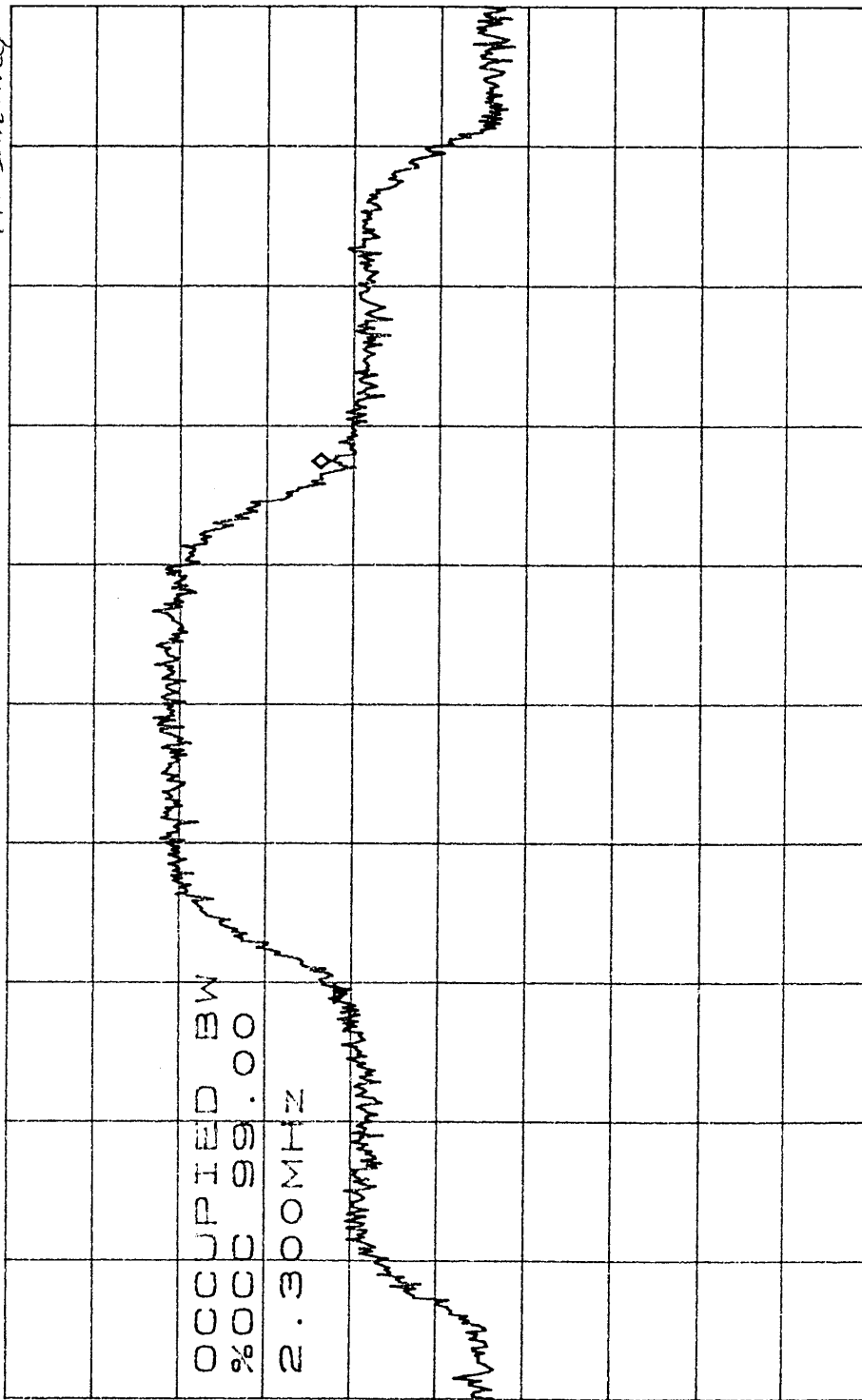
0
E
O
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R
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OO
*



2.6 GHz
2.124

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/2 1/2 1/2 1/2
Test Date:	6/5/98	Polarization:	N/A
CL 23. X Completed	Preliminary	2.3	Reading through 20dB atten
PL -6.4dBm	10dB	2.300MHZ	70dBm avg



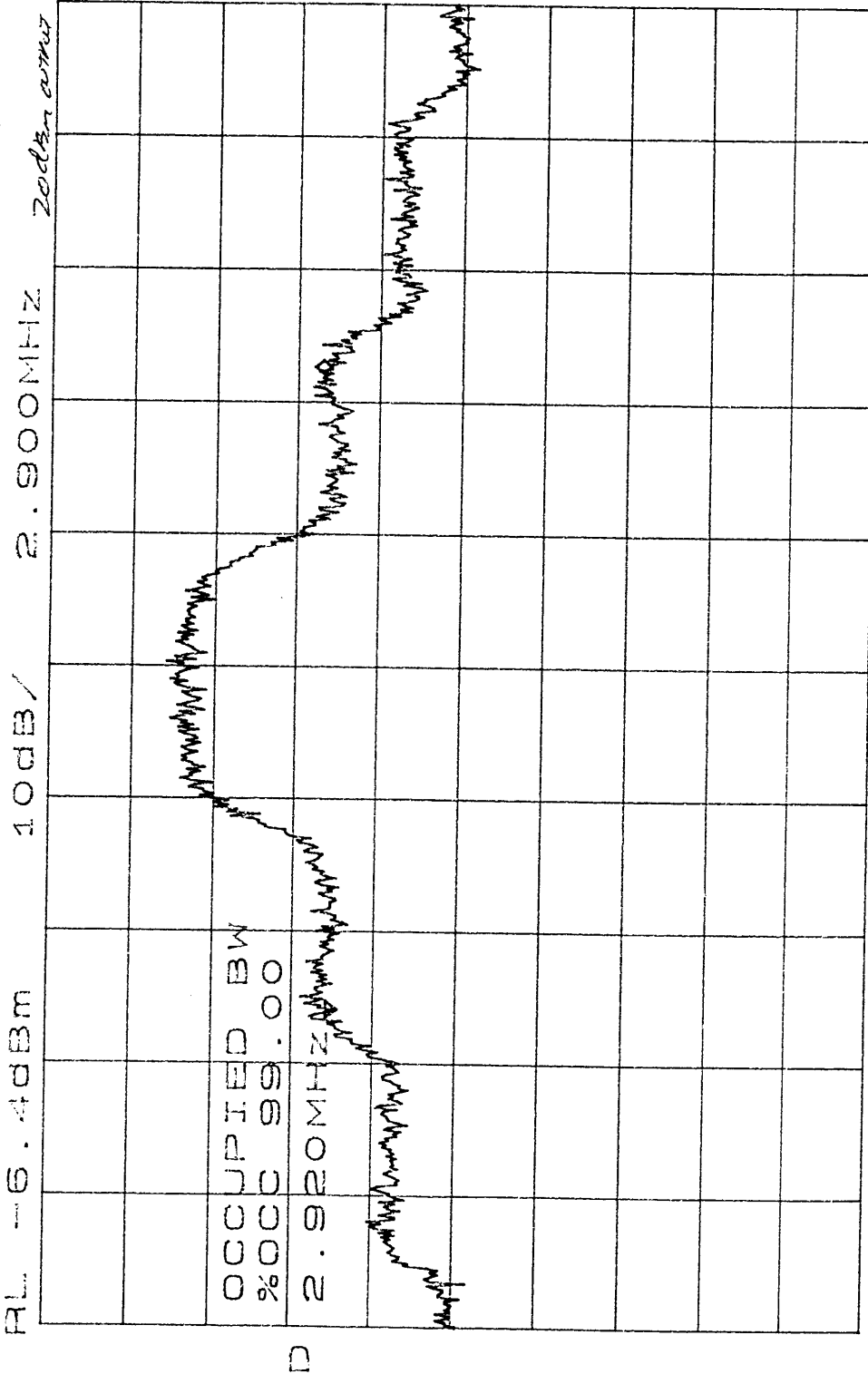
CENTER 28.345000GHZ SPAN 6.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



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Client Name: BOSCH TELECOM	Work Order #: 180036
Model Number: U.S. CPE ROOF UNIT SN: MSN-69	Plot Number: 41242
Test Date: 6/5/98	Polarization: N/A
CL 23 .X/Completed Preliminary/G 10	Actual QPSK (NIU) (Lab 2)
PL -6.4dBm	1.5-Reading through 20dB atten

76.85
dBm
100W



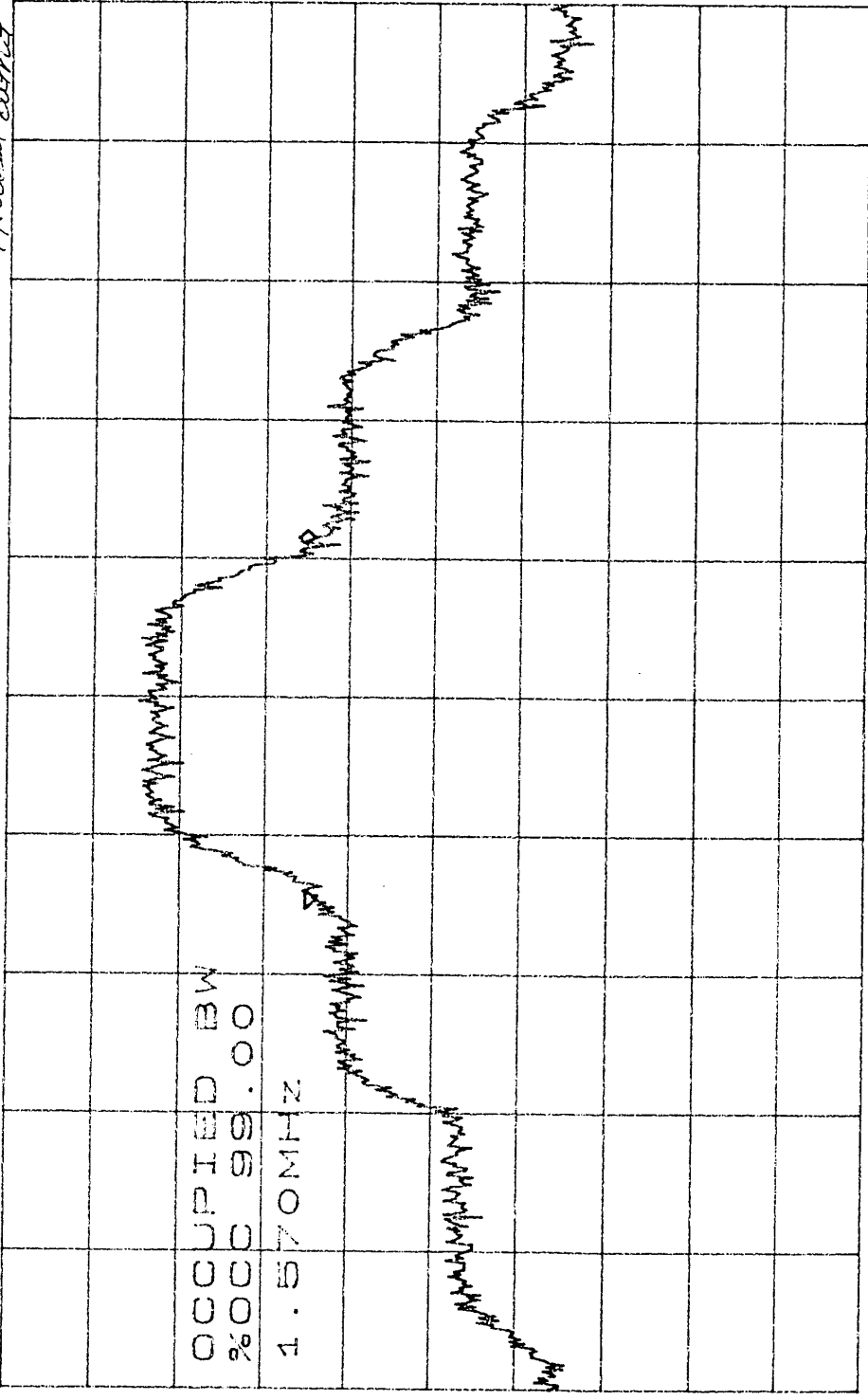
CENTER 28.3450000GHz SPAN 6.000MHz
*RBW 30kHz *SWP 50.0ms
VBW 30kHz



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	
Test Date:	6/5/98	Polarization:	N/A
	☒ Completed ☐ Preliminary		

0.51 dBm Input

CL 23.0 X Completed 10dB/ 1.600MHz 17.0dBm output



CENTER 23.345000MHZ SPAN 6.000MHZ
*RES BW 30KHZ VBW 30KHZ X SWP 50.0MS

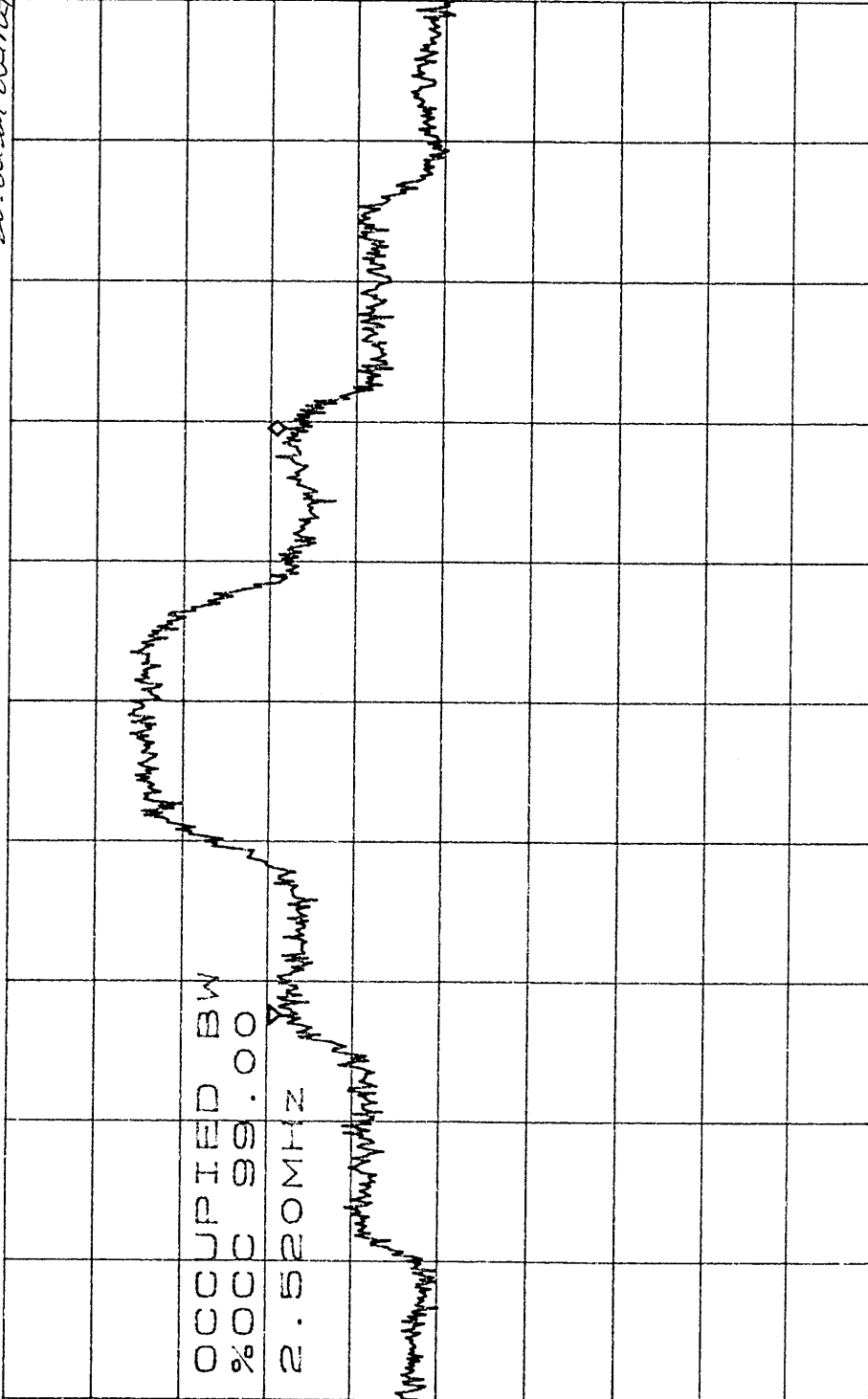


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17.0 dB
IUT

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/8 Pwr
Test Date:	6/5/98	Polarization:	N/A
Completed	Preliminary	Reading through 20dB atten	

CL 23.0 X Completed Preliminary 10
PL -6.4dBm 10dB/ 2.510MHZ 20.0dBm over



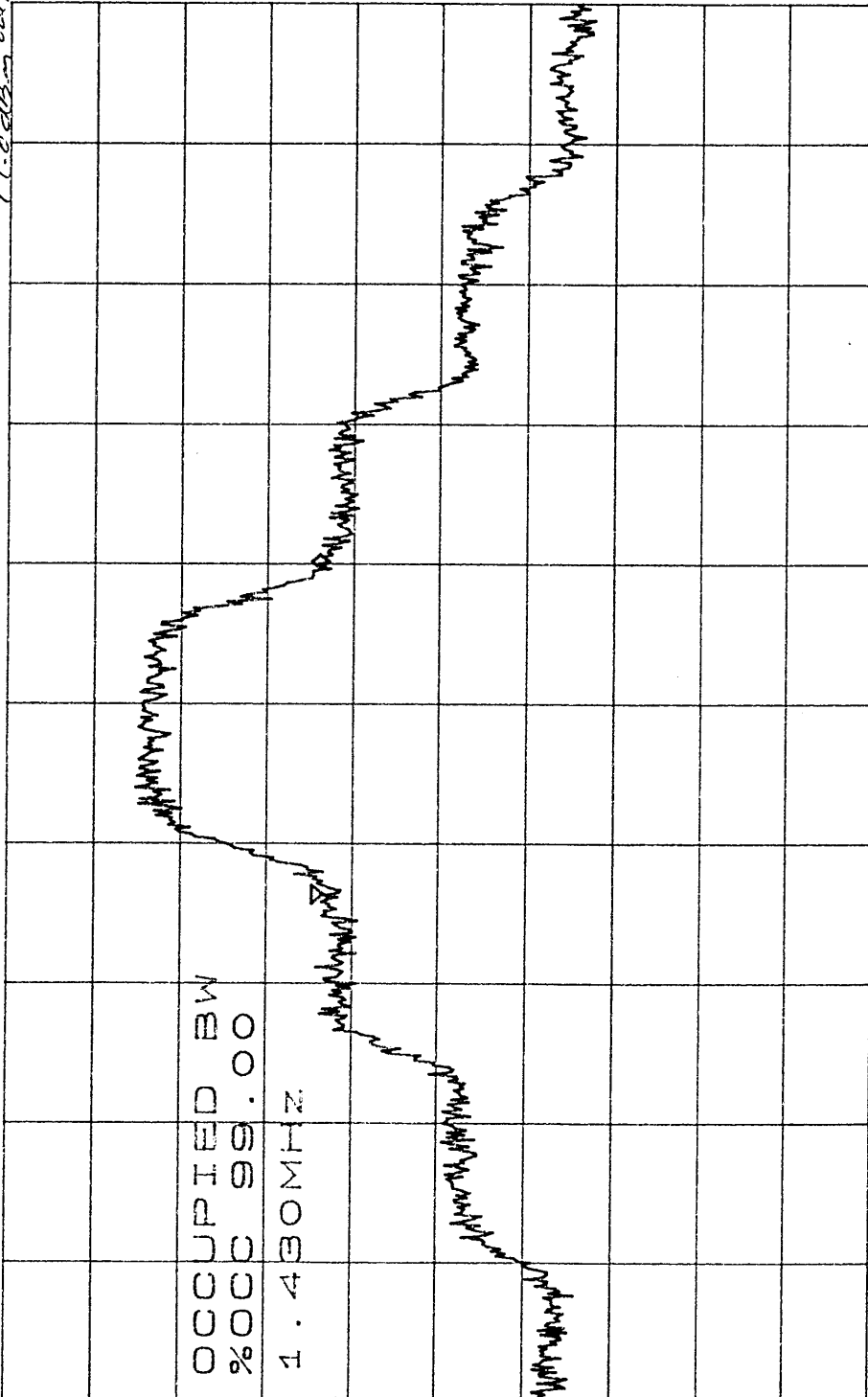
CENTER 28.3450000GHZ SPAN 6.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



CL 23.58
AL 23.58
AL 23.58

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	
Test Date:	6/5/98	Polarization:	N/A
Test Description:	Preliminary G 10		
Actual QPSK (NIU) 1/3	1.00		
Reading through 20dB atten	17.0dBm over		

CL 23.58
AL 23.58
AL 23.58



CENTER 28.345000GHZ SPAN 6.000MHZ
*RBW 30KHZ *SWP 50.0ms

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

**MODULATION CHARACTERISTICS
SIMULATED QPSK**

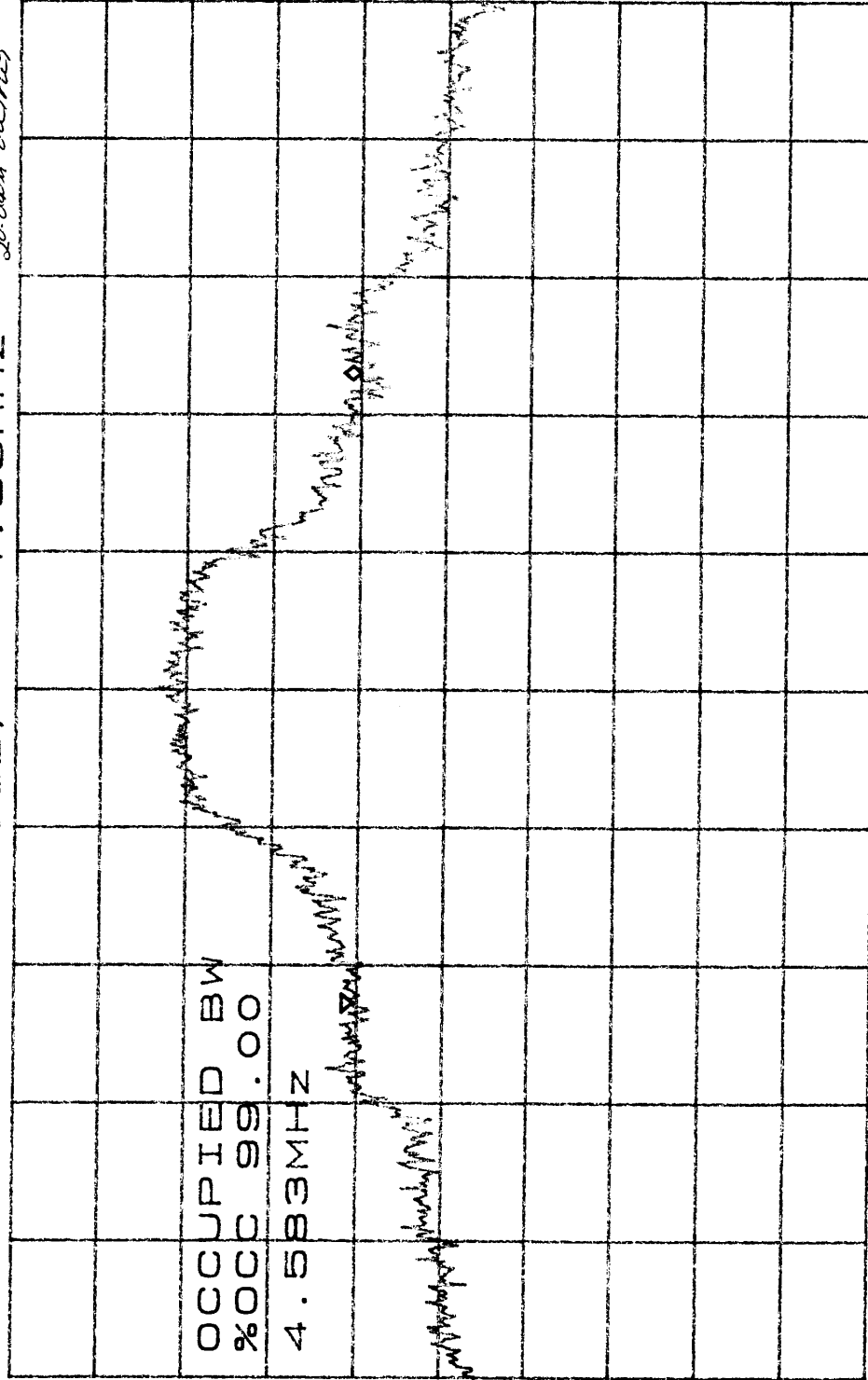


Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A

75.4kHz
Input

CL 23. X/Completed Preliminary ☒ TO 10dB/ 4.58MHz 20dBm output

RL -6.4dBm



D

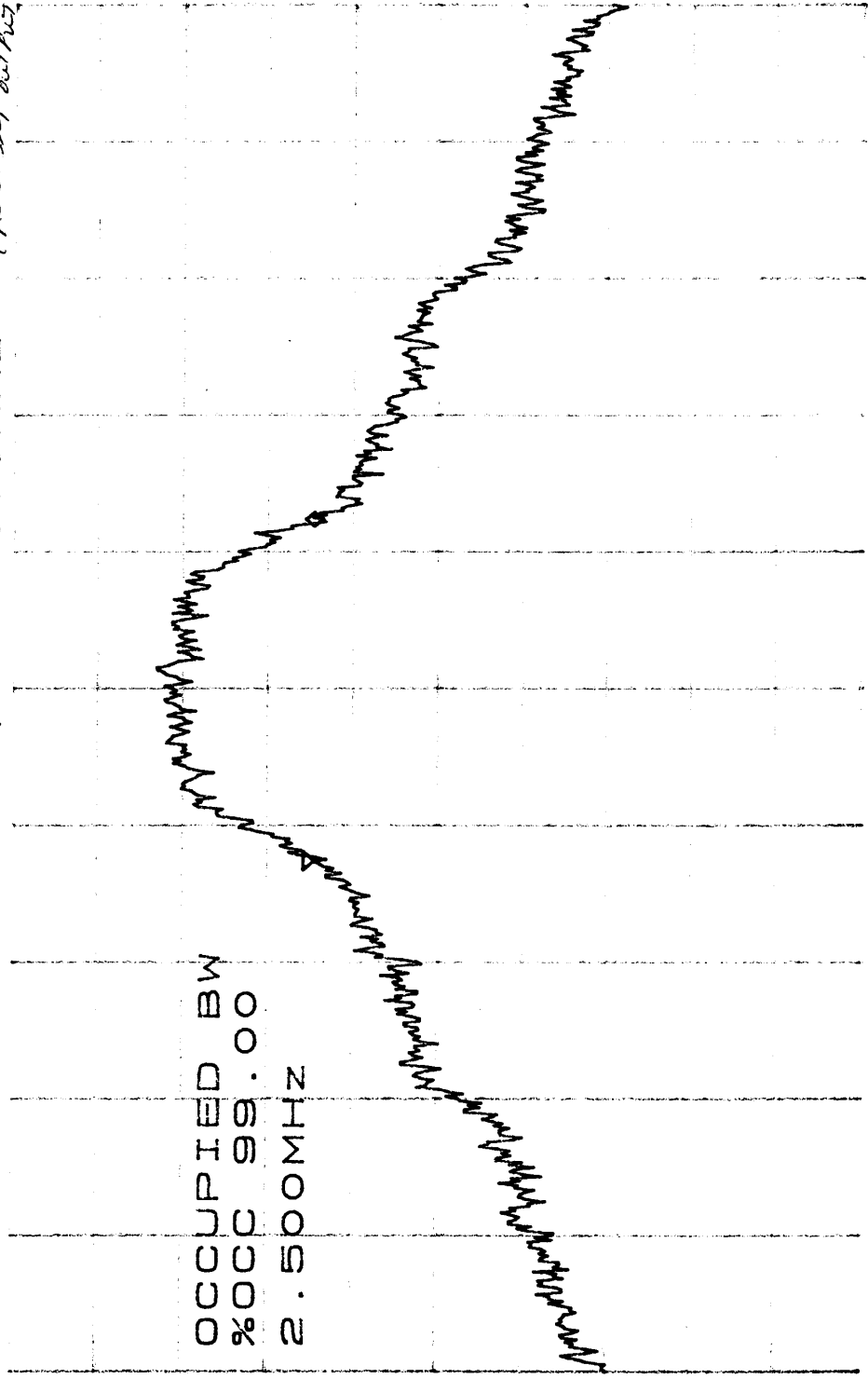
CENTER 28.10700GHZ SPAN 10.00MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



0.044
17.127

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23. X/Completed	Preliminary	MKA	Lab 2

CL 23. X/Completed Preliminary
RL -6.4dBm 10dB/ 2.50MHZ 17.0dBm airpwr
Reading through 20dB atten



CENTER 28.10700GHZ SPAN 10.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



15.76dBm
Z-447

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	
Test Date:	6/5/98	Polarization:	N/A

SIMULATED QPSK

Reading through 20dB atten

CL 23.X/Completed Preliminary VG 10

RL -6.4dBm

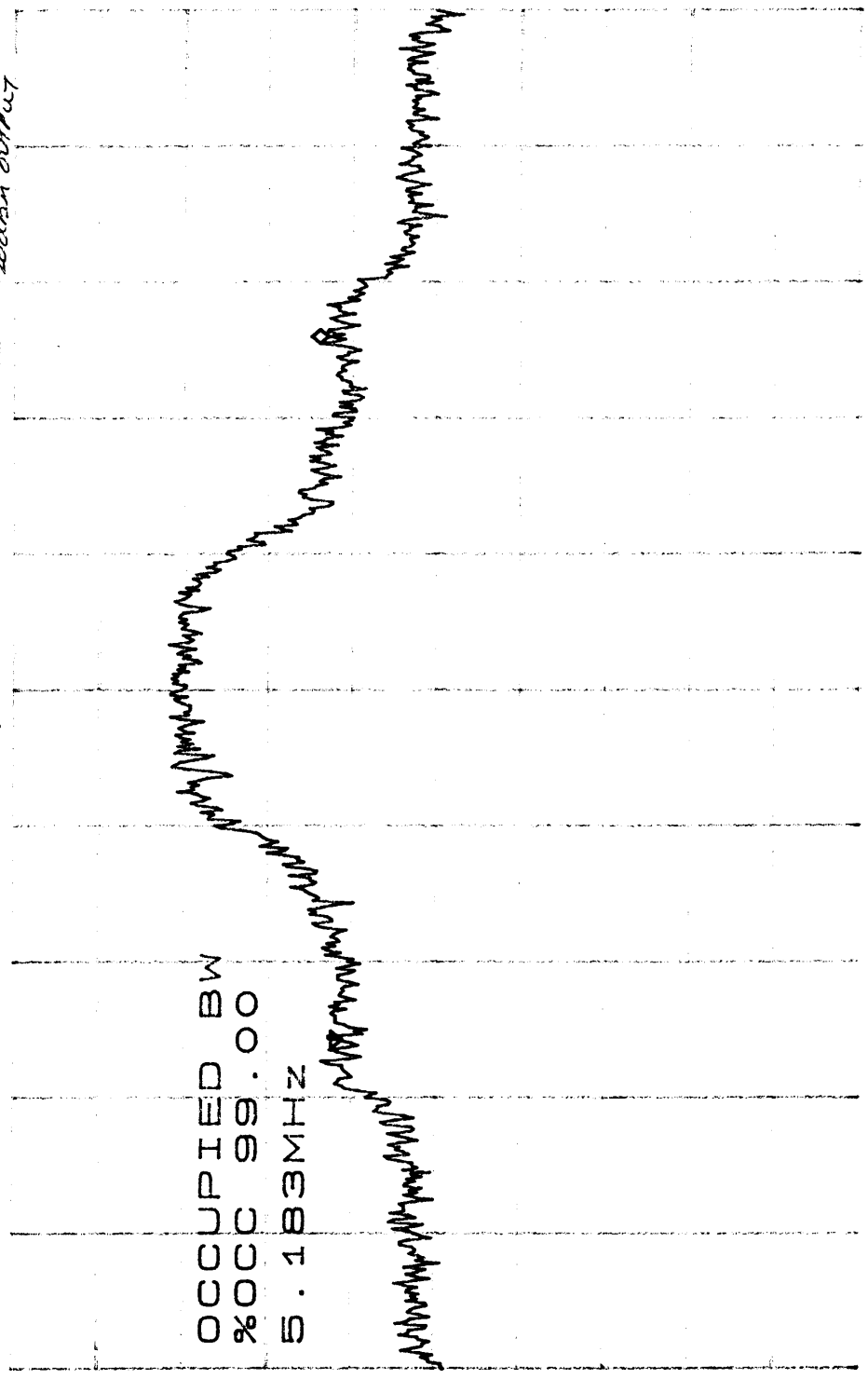
5.18MHZ

10dB/ 10dBm over

OCCUPIED BW

%OCC 99.00

D 5.183MHZ



CENTER 28.22500GHZ

SPAN 10.00MHZ

*RBW 30KHZ

VBW 30KHZ

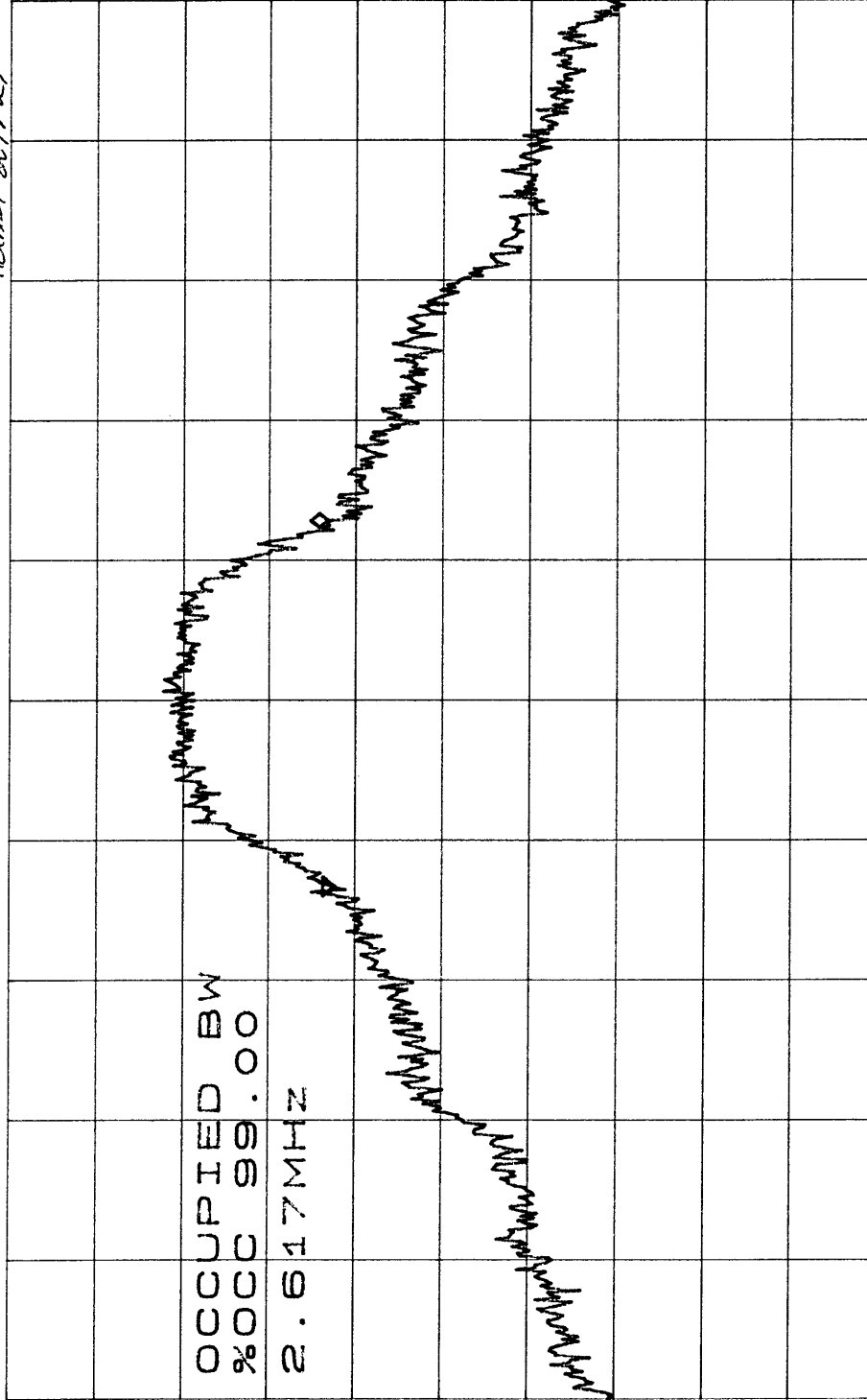
*SWP 50.0ms



1-03-004
ZMUT

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23. X/Completed		MKH .34 (Lab 2)	
RL -6.4dBm			

10dB / 2.58MHz Relan output
 10dB / 2.58MHz Relan output



OCCUPIED BW
 %OCC 99.00
 2.617MHz

CENTER 28.22500GHZ SPAN 10.00MHz
 *RBW 30KHZ *SWP 50.0ms
 VBW 30KHZ



Client Name: BOSCH TELECOM

Work Order #: 180036

Model Number: U.S. CPE ROOF UNIT SN: MSN-69

Plot Number: SIMULATED QPSK

Test Date: 6/5/98

Polarization: N/A

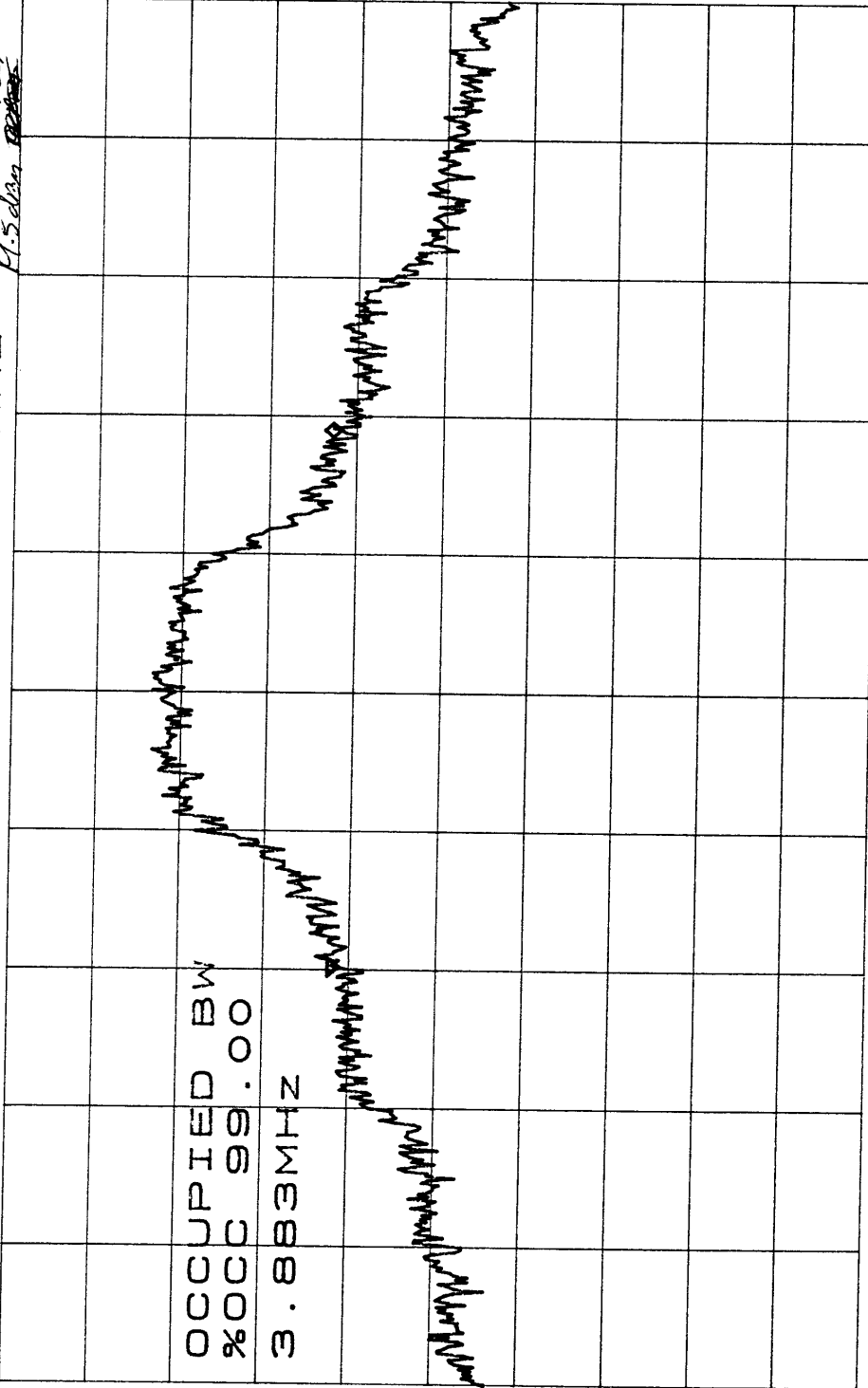
CL 23.4 dBm / Preliminary / G 10

MKFR 3.84 Reading through 20dB atten

RL -6.4 dBm 10dB/

3.90 MHz

11.5 dBm output



CENTER 28.345000GHZ

SPAN 10.00MHZ

*RBW 30KHZ

VBW 30KHZ

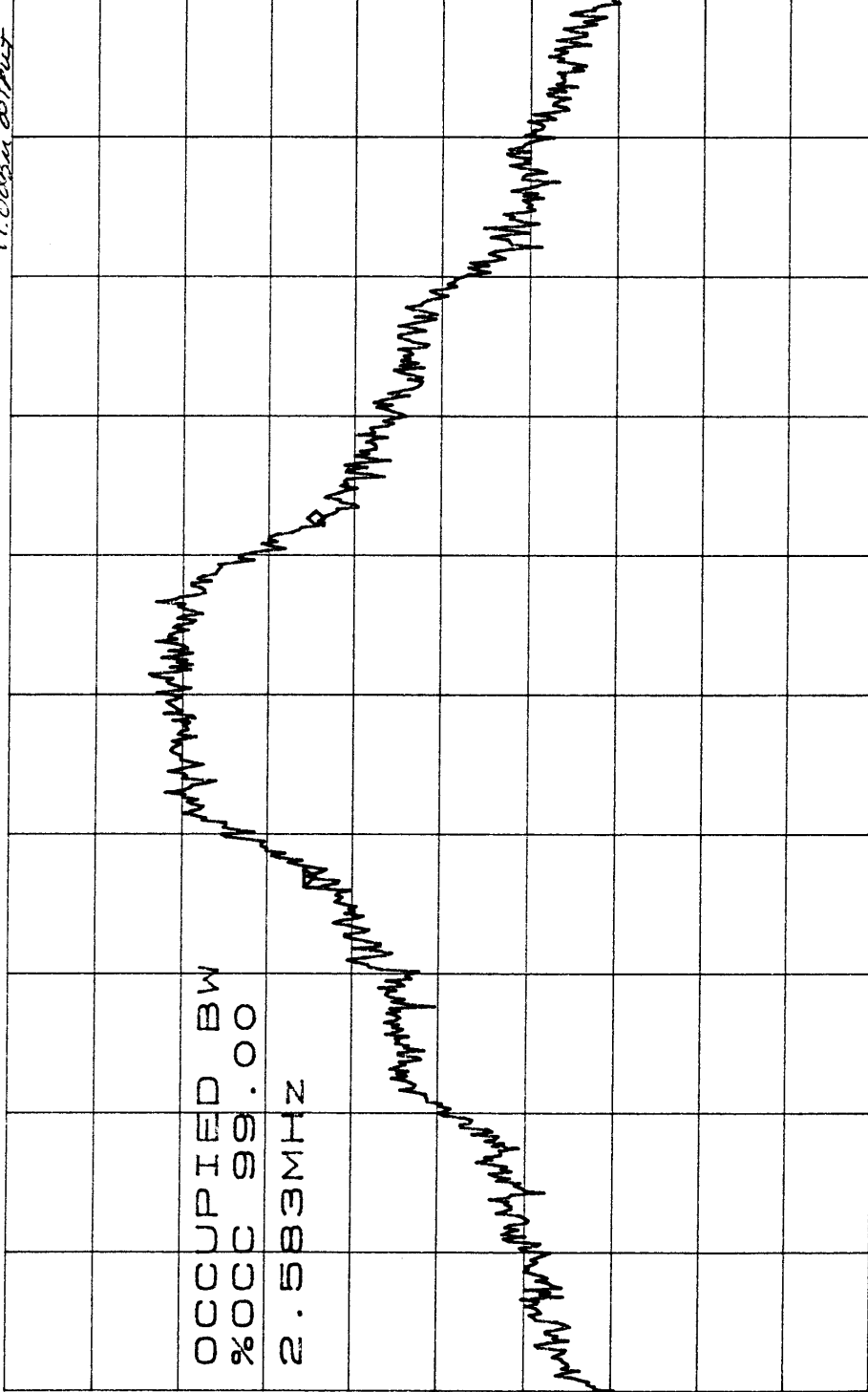
*SWP 50.0ms



Client Name: BOSCH TELECOM	Work Order #: 180036
Model Number: U.S. CPE ROOF UNIT SN: MSN-69	Plot Number: SIMULATED QPSK
Test Date: 6/5/98	Polarization: N/A
CL 23 - X/Completed	MK H 0dB (Loss)
Preliminary/	Reading through 20dB atten

0.5dBm
17mV

RL -6.4dBm 10dB/ 2.57MHz 17.0dBm atten



D

CENTER 28.34500GHZ SPAN 10.00MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

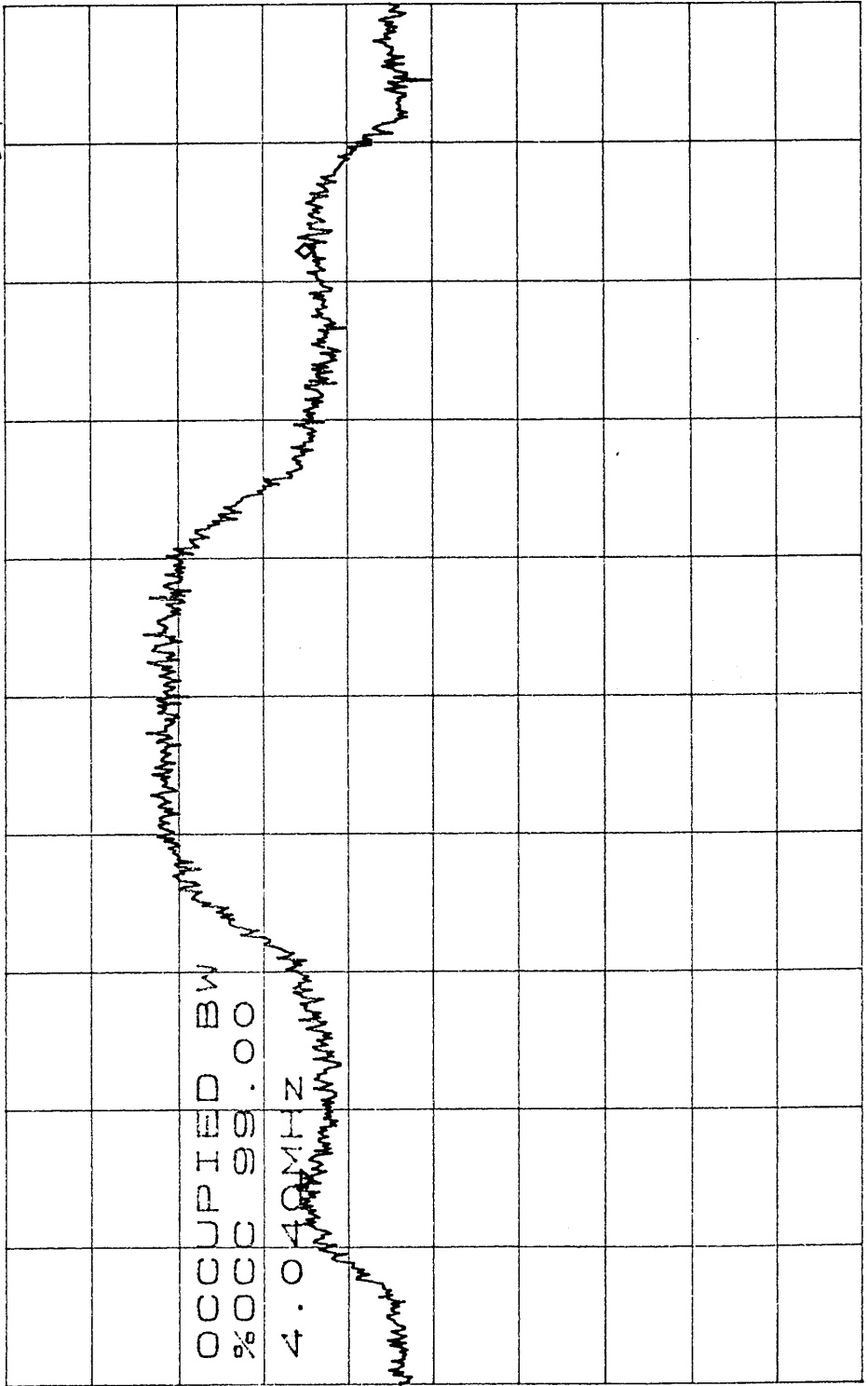
**OCCUPIED BANDWIDTH
ACTUAL QPSK**



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/2
Test Date:	6/5/98	Polarization:	N/A
X Completed	Preliminary		
CL 23.0	1.0		
PL -6.4dBm	10dB/	4.040MHZ	120dBm

754/10/3m
In net

Reading through 20dB atten



D

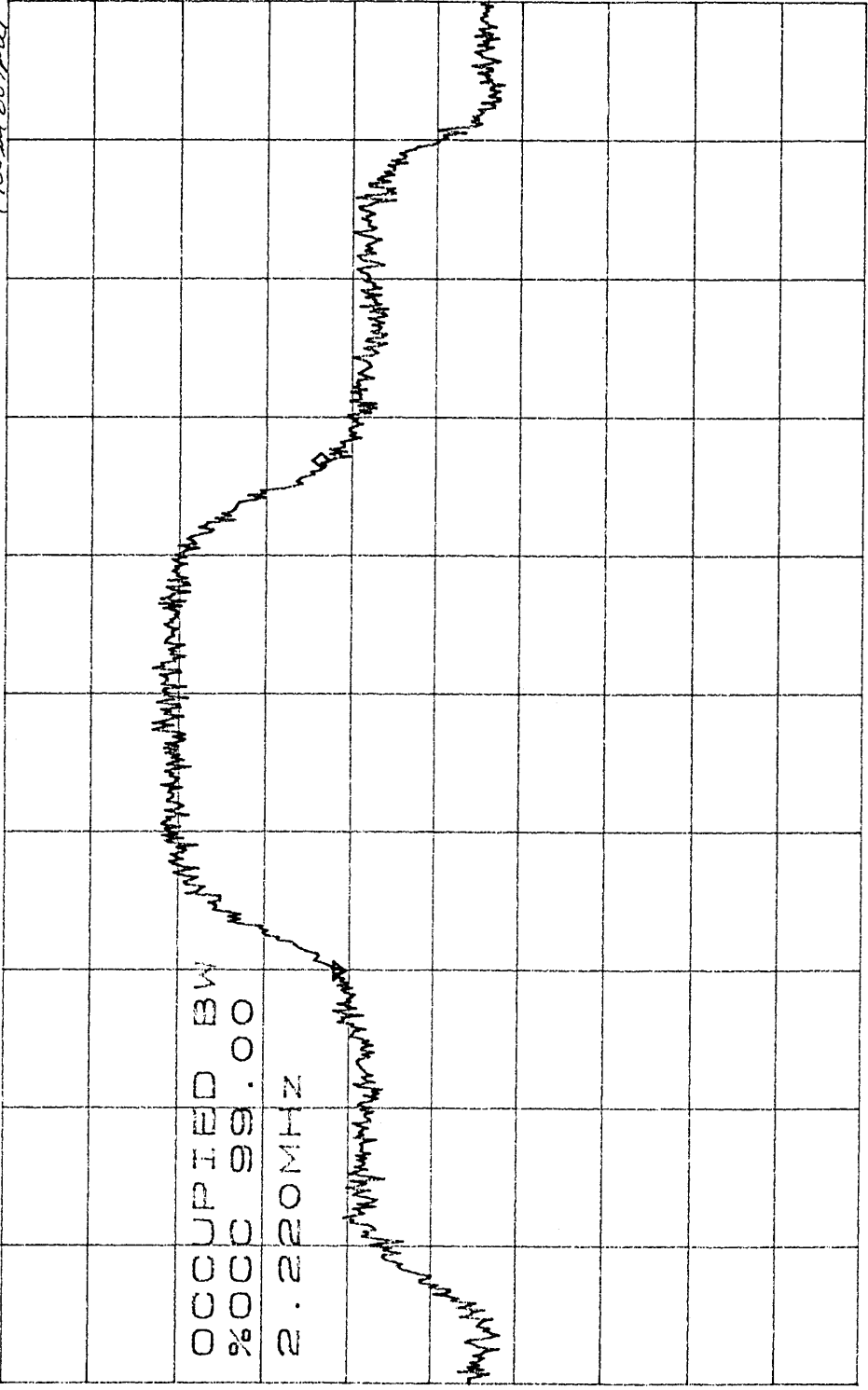
CENTER 28.1070000GHZ SPAN 6.0000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 6/12/98
Test Date:	6/5/98	Polarization:	N/A
X/Completed		Y/Reading through 20dB atten	

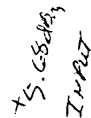
0.01
dBm
Input

CL 23.0 X/Completed Preliminary G 10
PL -6.4dBm 10dB/ 2.210MHz
17dBm output



D

CENTER 28.1070000GHZ SPAN 6.0000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



fzodbzay cuttut

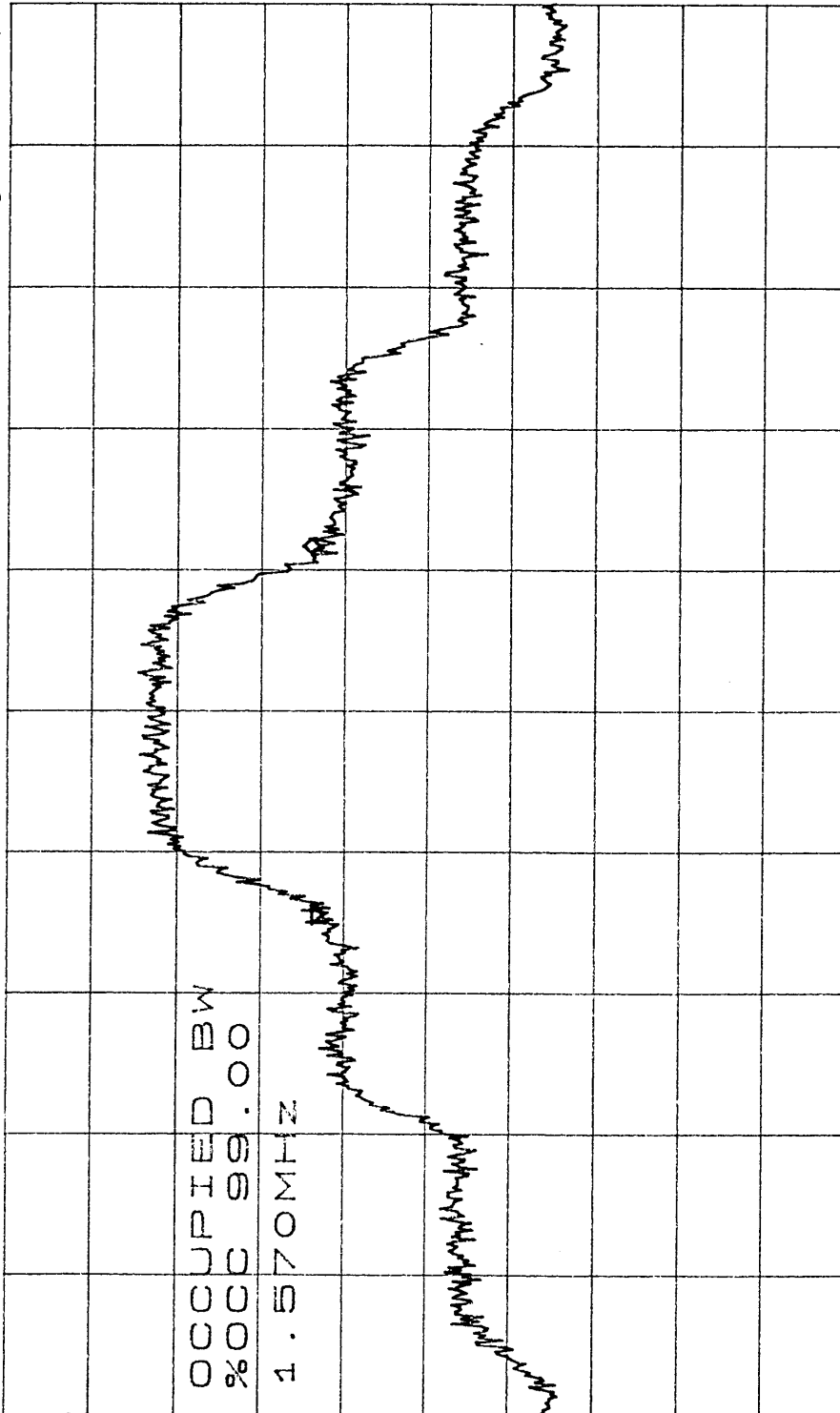


CENTER 28.107000GHZ
 CENTER 30.000000GHZ
 SPAN 6.000000GHZ
 NEW
 SEE



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 rate
Test Date:	6/5/98	Polarization:	N/A
X/ Completed	Preliminary/ G 10	Modulation:	QPSK (Lab 2)
CL 23	23	Reading through 20dB atten	
PL -6	-6.4dBm	1.570MHz	+17dBm antenna

-0.0dBm



D

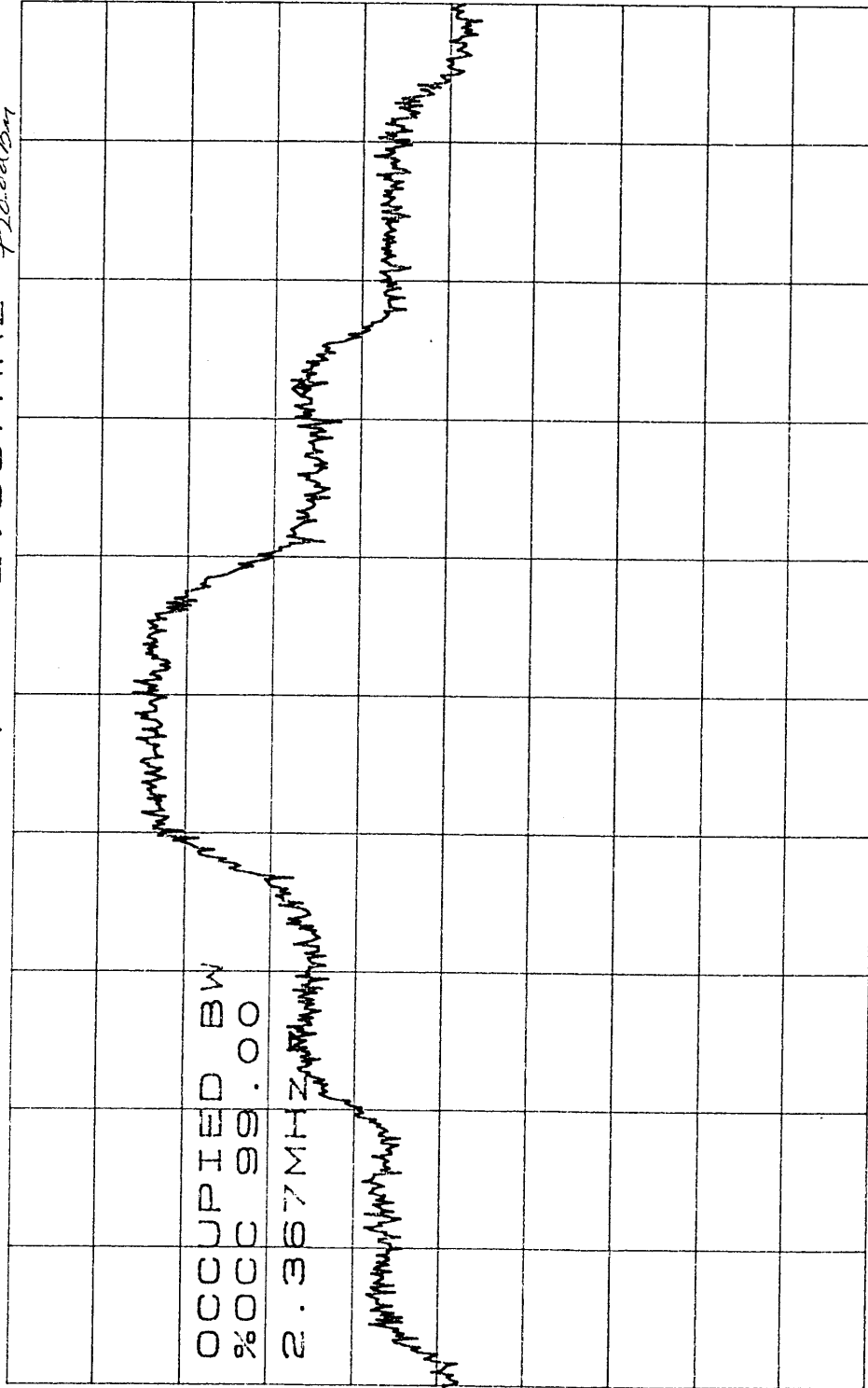
CENTER 28.1070000GHZ SPAN 6.0000MHZ
*RBW 30KHZ *SWP 50.0MS
VBW 30KHZ



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) <i>7/19</i>
Test Date:	6/5/98	Polarization:	N/A (Lab 3)

*5-34624
IUT27*

CL 23. X/Completed Preliminary 10
 RL -6.4dBm 10dB/ 2.367MHz 120.0dBm
 MKH -- 1.0 Reading through 20dB atten



CENTER 28.1070000GHZ SPAN 5.000MHZ
 *RBW 30KHZ VBW 30KHZ *SWP 50.0MS



Client Name: BOSCH TELECOM

Work Order #: 180036

Model Number: U.S. CPE ROOF UNIT SN: MSN-69

Plot Number: ACTUAL QPSK (NIU) *1/4*

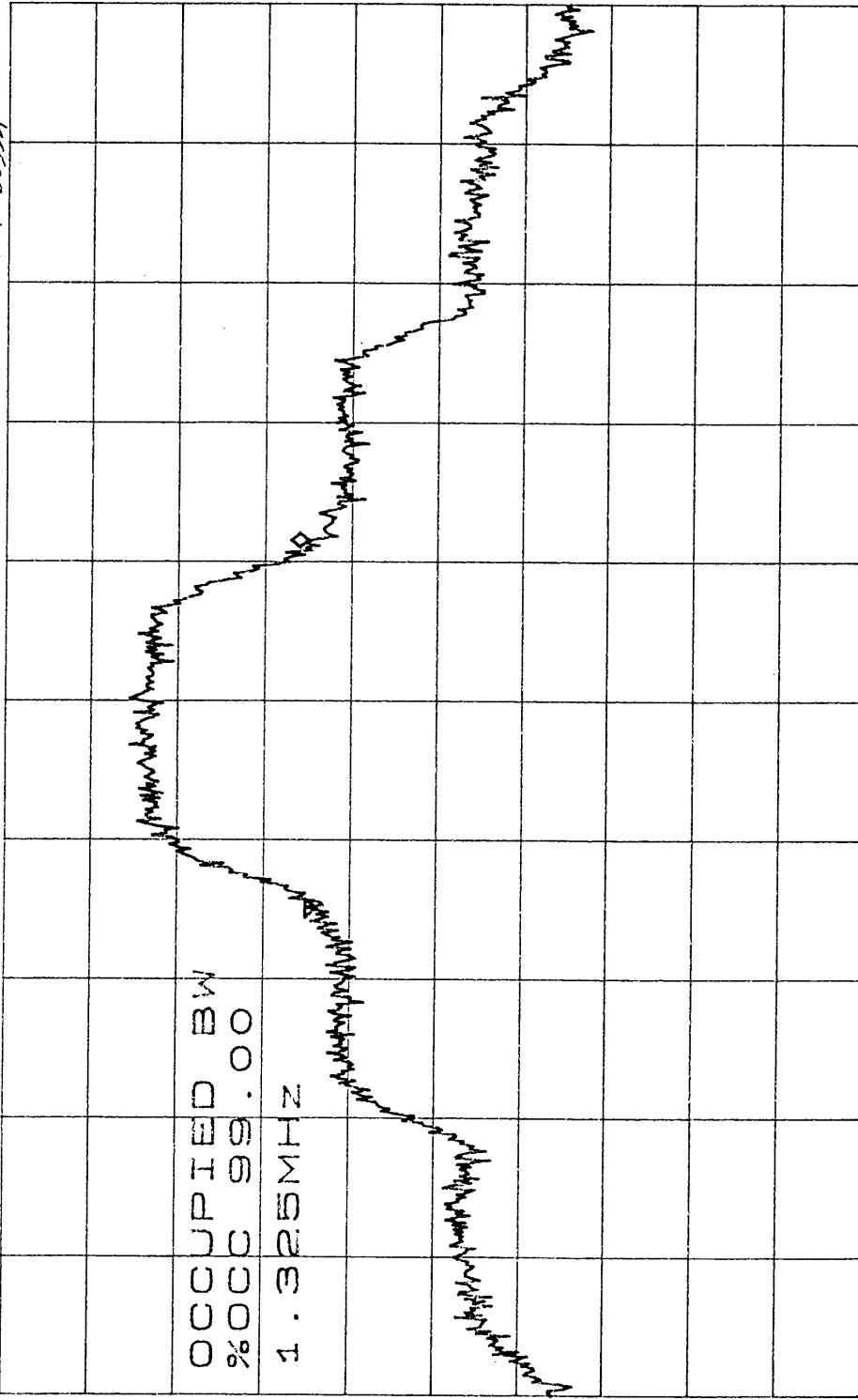
Test Date: 6/5/98

Polarization: N/A (Lab-2)

*-0.02 dB
I/16T*

CL 23. X/Completed Preliminary G 10 10dB/ 1.333MHz + 17dBm

RL -6.4dBm



CENTER 28.107000GHZ SPAN 5.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



Client Name: BOSCH TELECOM

Work Order #: 180036

Model Number: U.S. CPE ROOF UNIT SN: MSN-69

Plot Number: ACTUAL QPSK (NIU) $\frac{1}{2}$ 2238

Test Date: 6/5/98

Polarization: N/A (Lab 2)

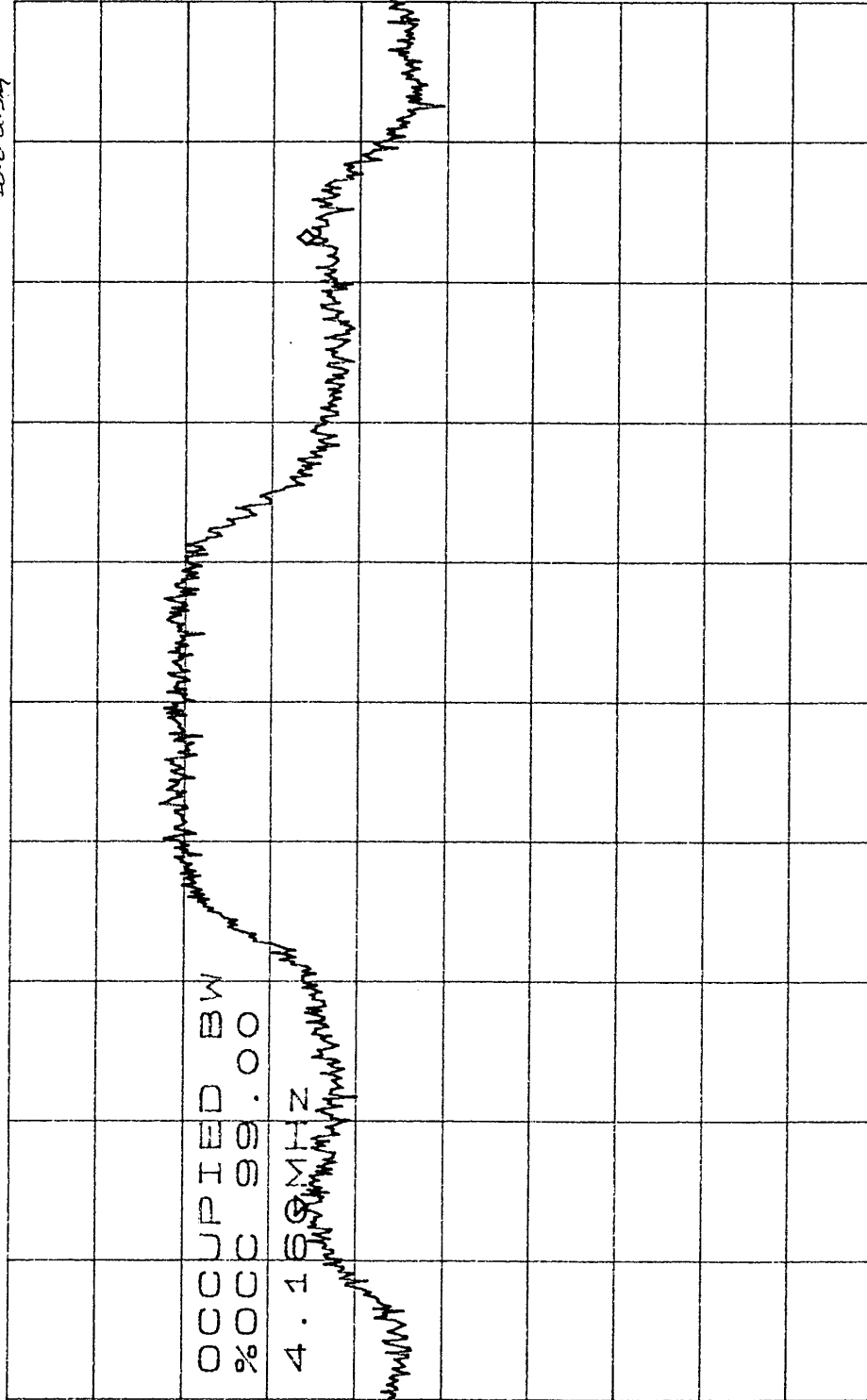
CL 23.X/C66/Plotted Preliminary G 10

Heading through 20dB atten

RL -6.4dBm

4.170MHZ

+20.0dBm



D

CENTER 28.2250000GHZ SPAN 6.0000MHZ
*PFBW 30KHZ VBW 30KHZ *SWP 50.0MS



Client Name: BOSCH TELECOM

Model Number: U.S. CPE ROOF UNIT SN: MSN-69

Test Date: 6/5/98

Work Order #: 180036

Plot Number:

Polarization: N/A

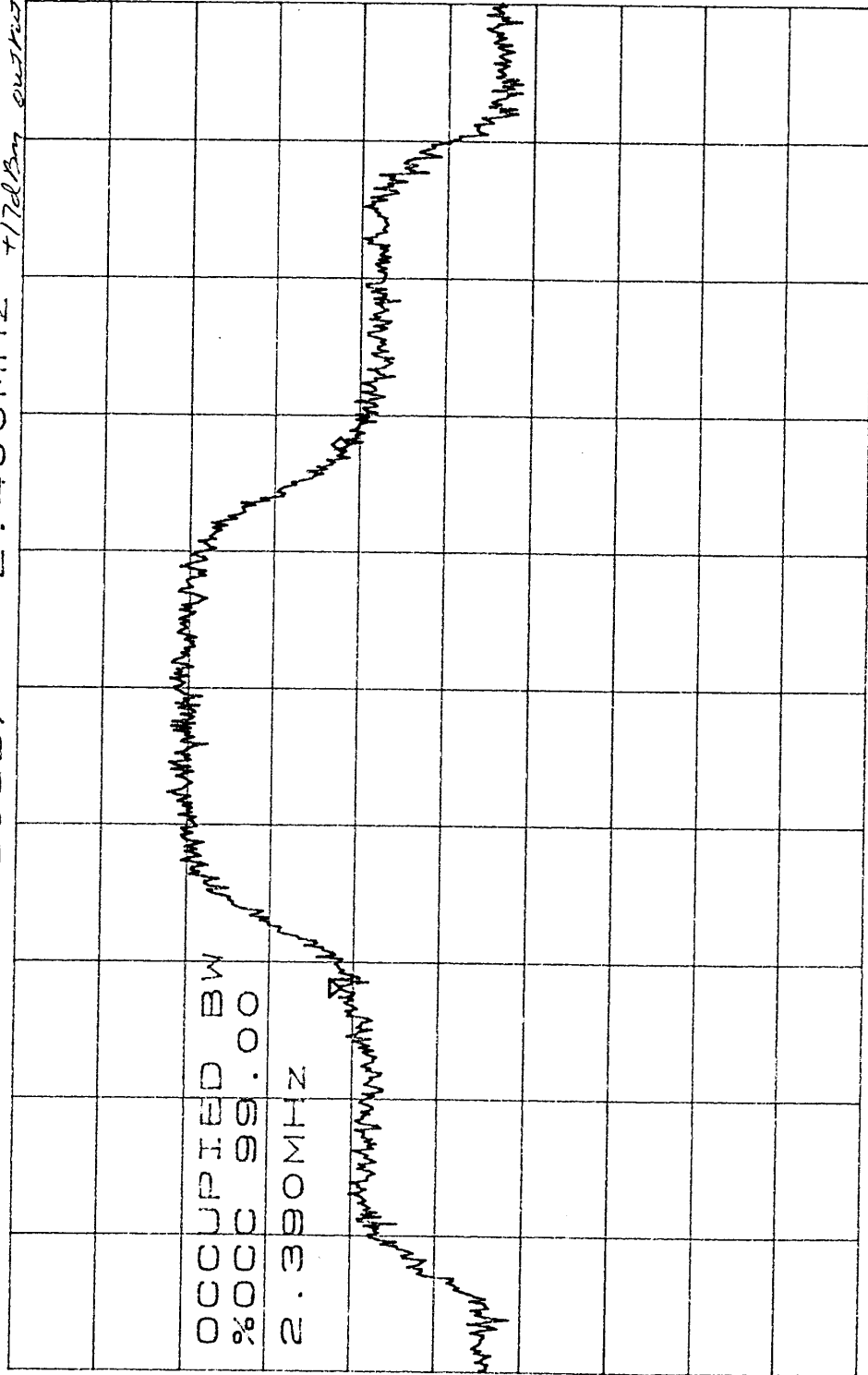
ACTUAL QPSK (NIU) 1

(Lab 2)

-1.07
dBm
2.25

CL 23 X Completed Preliminary / G 10 MKR 1.00 dBm through 20dB atten

RL -6.40 dBm 10 dB / 2.400 MHz +17 dBm output



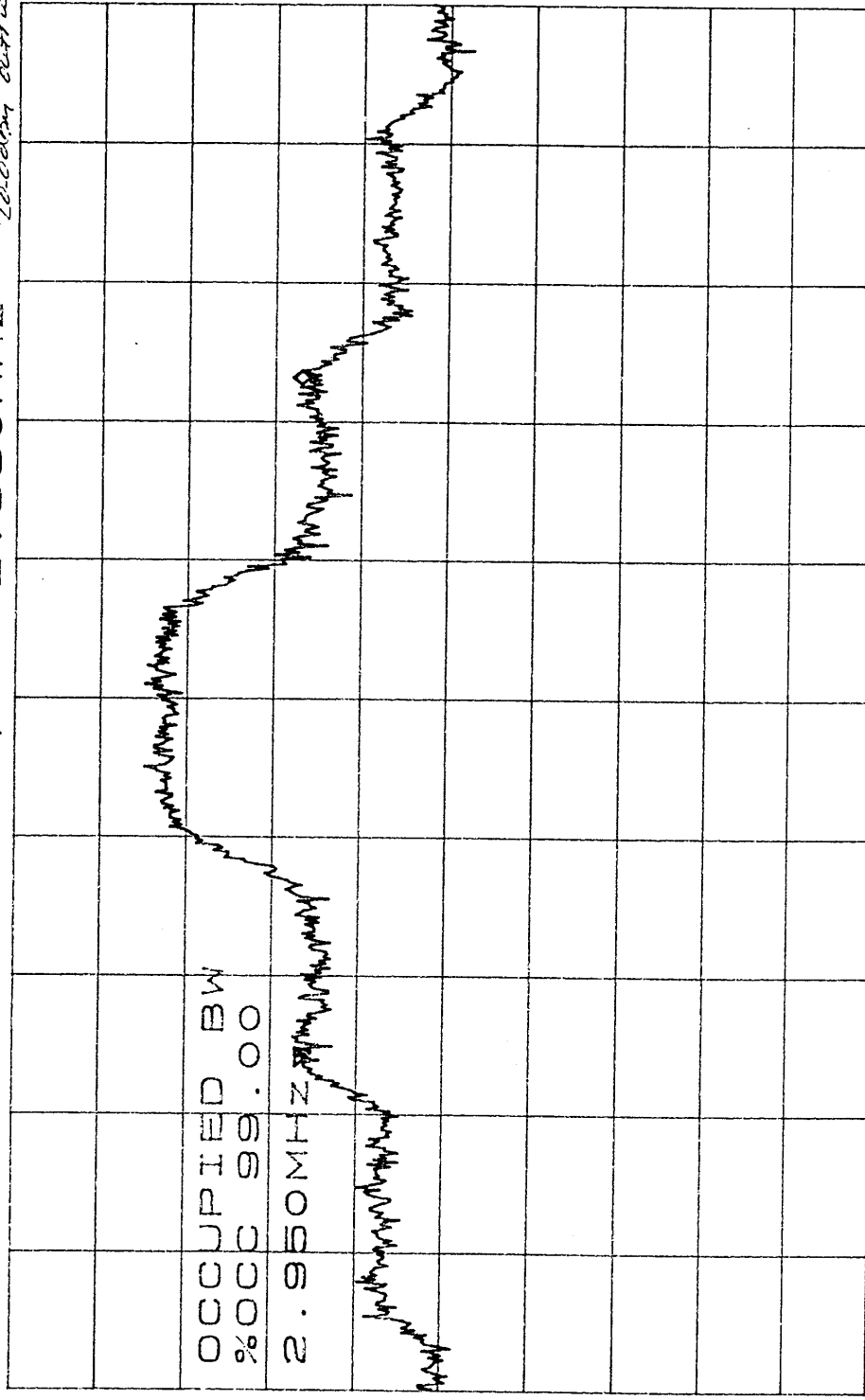
CENTER 28.22500000 GHz SPAN 6.0000 MHz
*RBW 30 KHz VBW 30 KHz *SWP 50.00 ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 Rate
Test Date:	6/5/98	Polarization:	N/A
CL 23.X/Completed	Preliminary G 10	MKH -- . 5 Reading through 20dB atten	

76.00dBm
20.0dBm

FL -6.4dBm 10dB/ 2.950MHZ 20.0dBm output



D

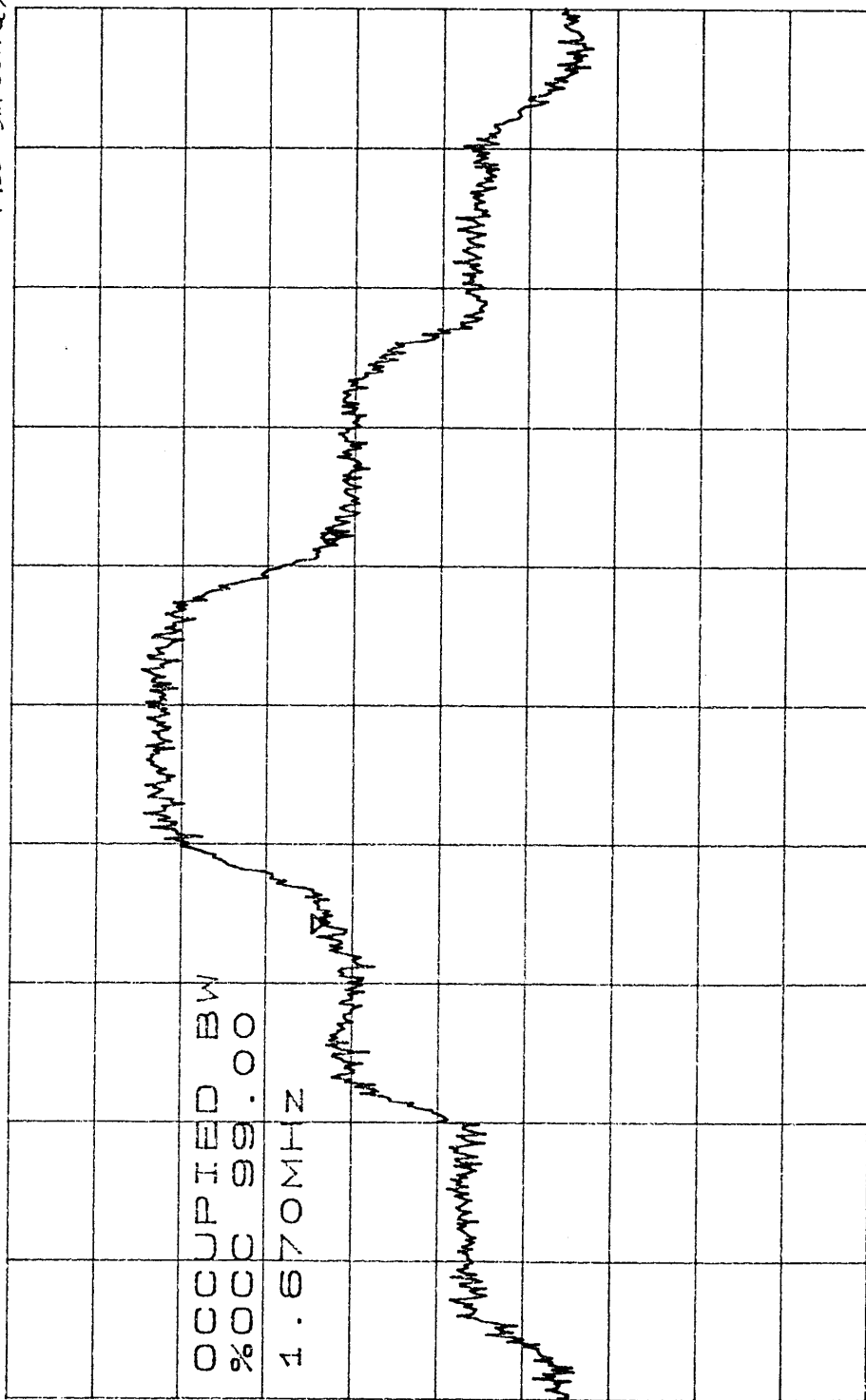
CENTER 28.225000GHZ SPAN 6.000MHZ
*RBW 30KHZ *SMP 50.0ms
VBW 30KHZ



2096931
JUN 15

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/2 KHz
Test Date:	6/5/98	Polarization:	N/A

CL 23.0dBm
 PL -6.4dBm
 10dB/ 1.660MHZ
 17.0dBm attenuator



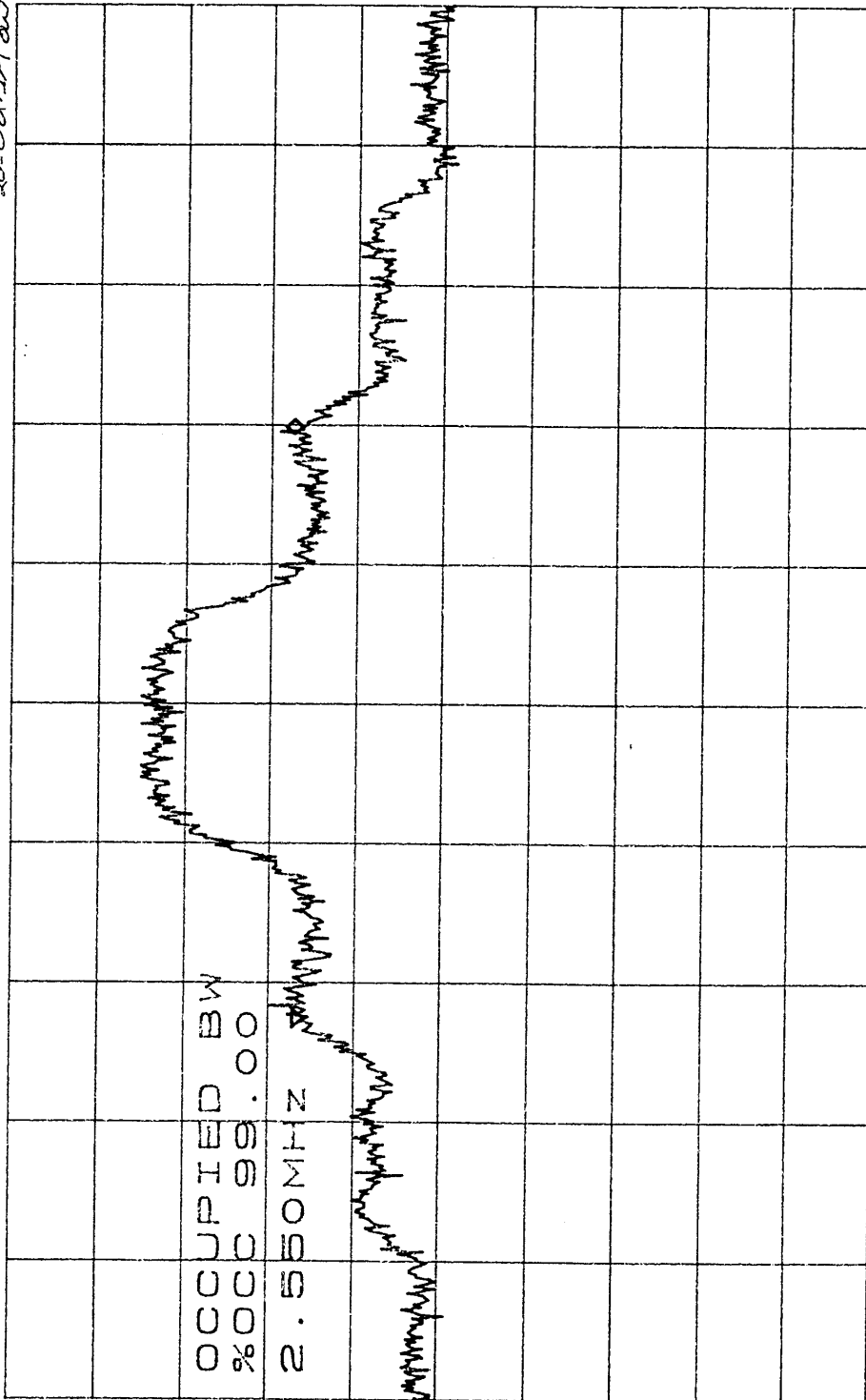
CENTER 28.2250000GHZ
 *REBW 30KHZ
 SPAN 6.0000MHZ
 *SWP 50.0ms



7616db2-7
JUL 27

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 7616db2-7
Test Date:	6/5/98	Polarization:	N/A (Lab2)

CL 23.X/Completed Preliminary G 10 MKR .33dB Reading through 20dB atten
 PL -6.4dBm 10dB/ 2.550MHZ +20.0dBm at 100



D

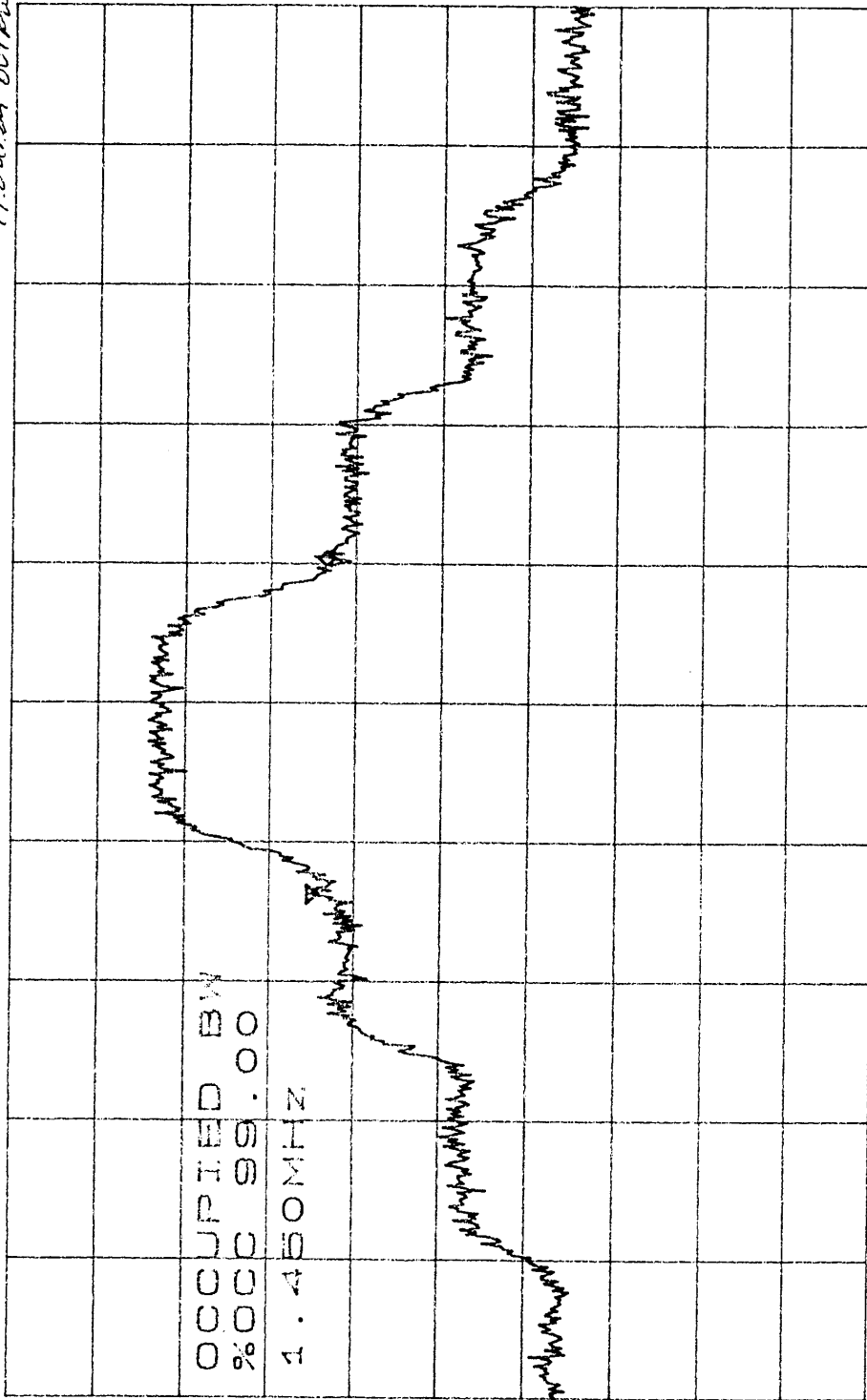
CENTER 28.2250000GHZ SPAN 6.000MHZ
 *RBW 30KHZ VEBW 30KHZ *SWP 50.0ms



100dBm
Output

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) <i>2, Part 2</i>
Test Date:	6/5/98	Polarization:	N/A

CL 23 - X/Completed Preliminary *10*
 PL -6.4dBm 10dB/ 1.460MHz + 17.0dBm output



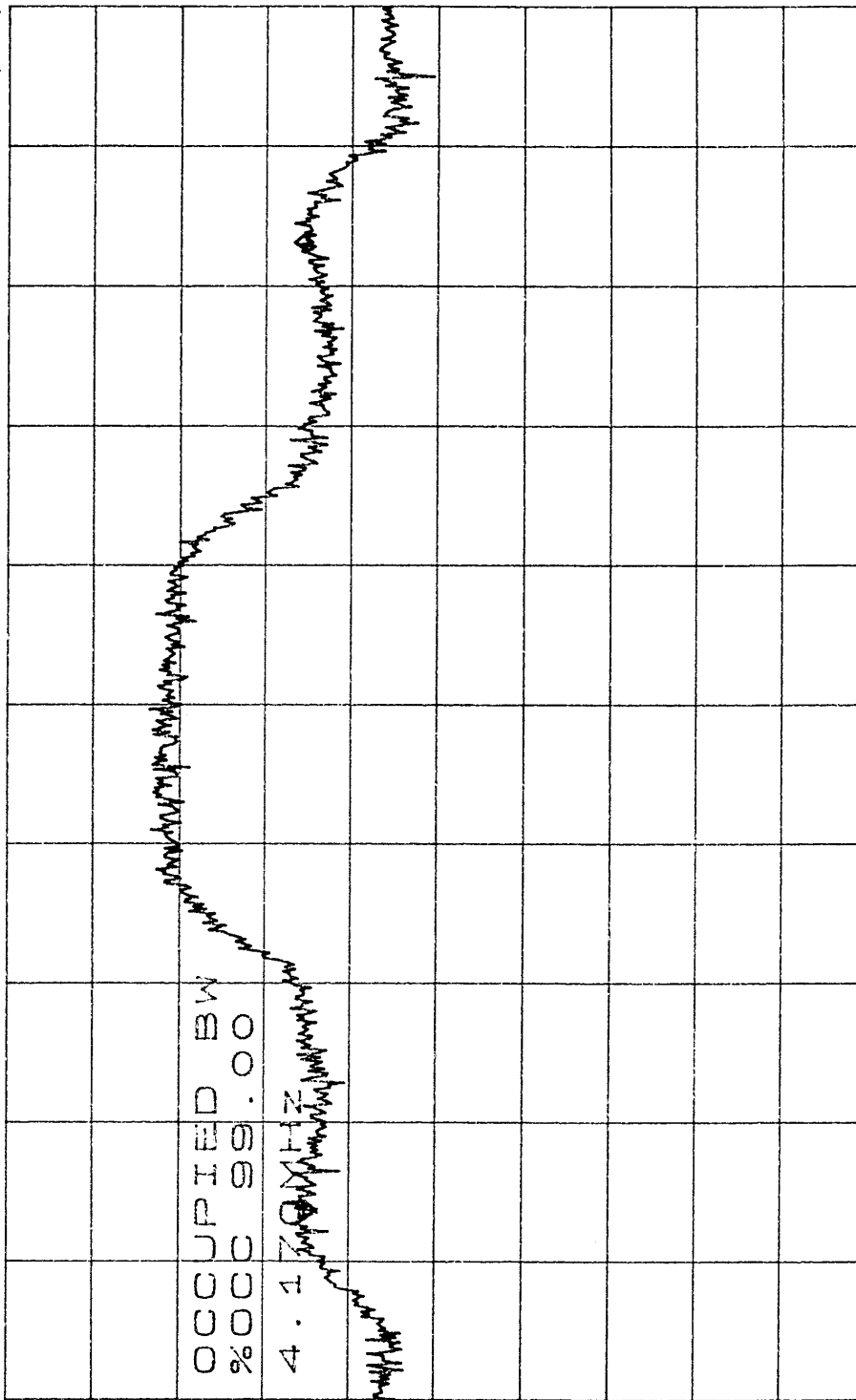
CENTER 28.2250000GHZ SPAN 6.0000MHZ
 *RESW 30KHZ VBW 30KHZ *SWP 50.0ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) $\frac{1}{2}$ / $\frac{1}{2}$ / $\frac{1}{2}$
Test Date:	6/5/98	Polarization:	N/A
CL 23 - X/Completed		Preliminary 10	
PRL -6.4dBm		10dB/	

76.93
28.4m
2.4m

Heading through 20dB atten
4.170MHZ
26.0dBm



CENTER 28.3450000GHZ SPAN 6.000MHZ
*RBW 30KHZ VIEW 30KHZ *SWP 50.0ms



Client Name: BOSCH TELECOM

Work Order #: 180036

International Compliance Corporation
"Your Certification Solution"™

Model Number: U.S. CPE ROOF UNIT SN: MSN-69

Plot Number: ACTUAL QPSK (NIU) 1/3 1/2 3/4

Test Date: 6/5/98

Polarization: N/A (Lab 2)

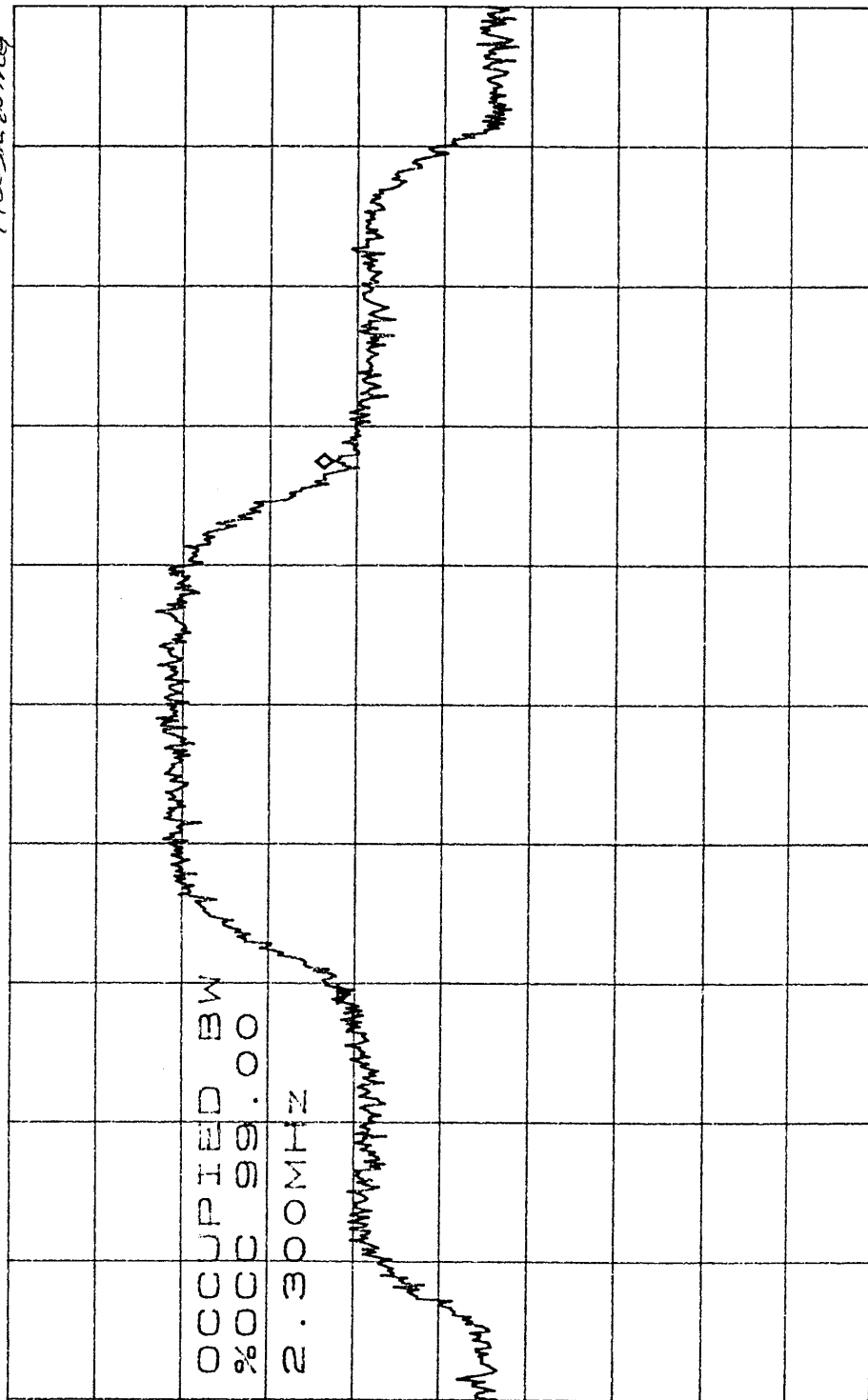
CL 23 - X Completed Preliminary 3 10

Reading through 20dB atten

RL -6.4dBm

2.300MHZ

76dBm average



CENTER 28.345000GHZ

SPAN 6.000MHZ

*RBW 30KHZ

VBW 30KHZ

*SWP 50.0ms

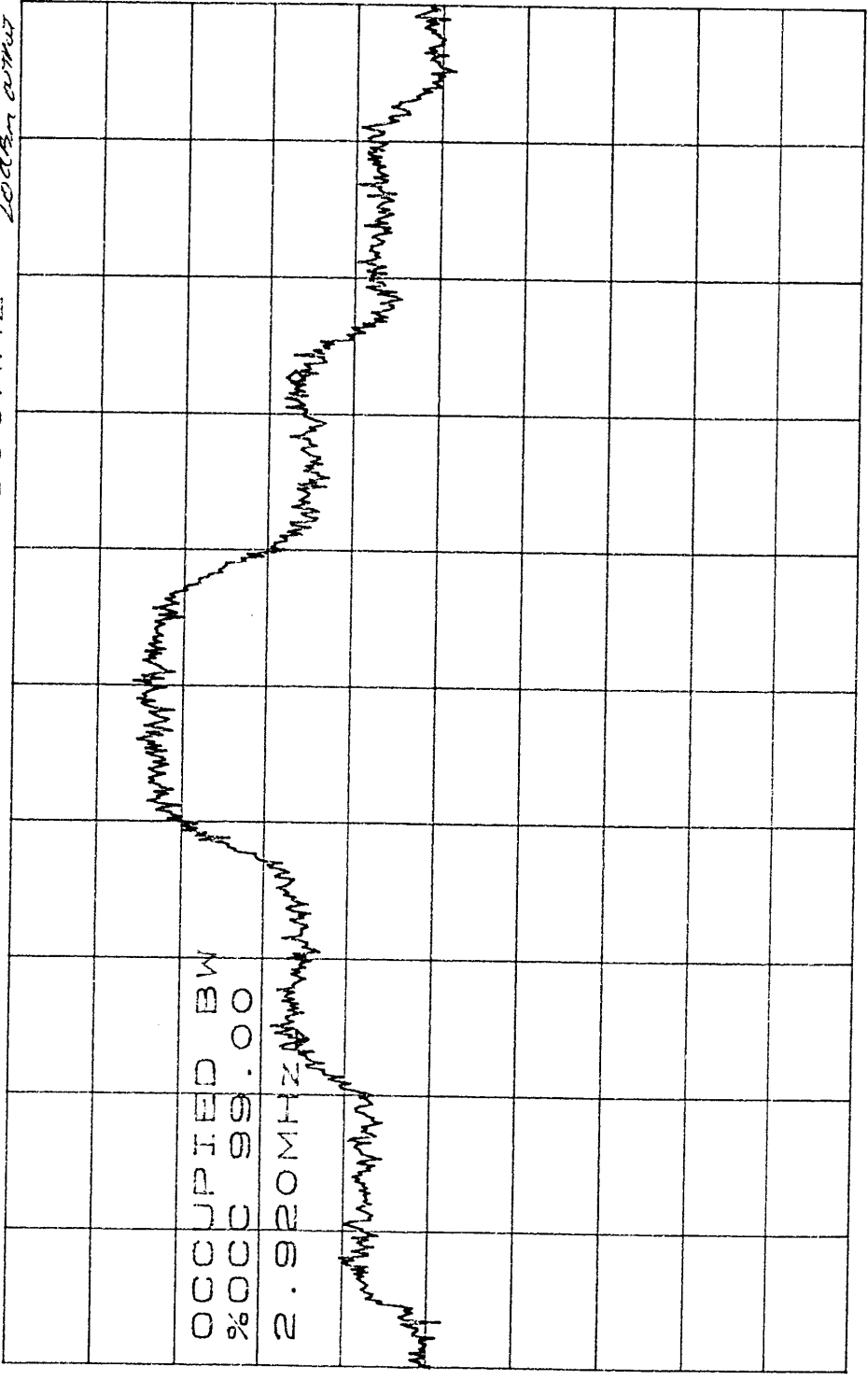


International Compliance Corporation
"Your Certification Solution"™

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) <i>7/10/02</i>
Test Date:	6/5/98	Polarization:	N/A
	☒ Completed ☐ Preliminary		(Lab 2)

*T6-05
den
TUNED*

CL 23
AL -6.4dBm
10dB/ 2.900MHZ
20dBm



OCCUPIED BW
%000 99.00

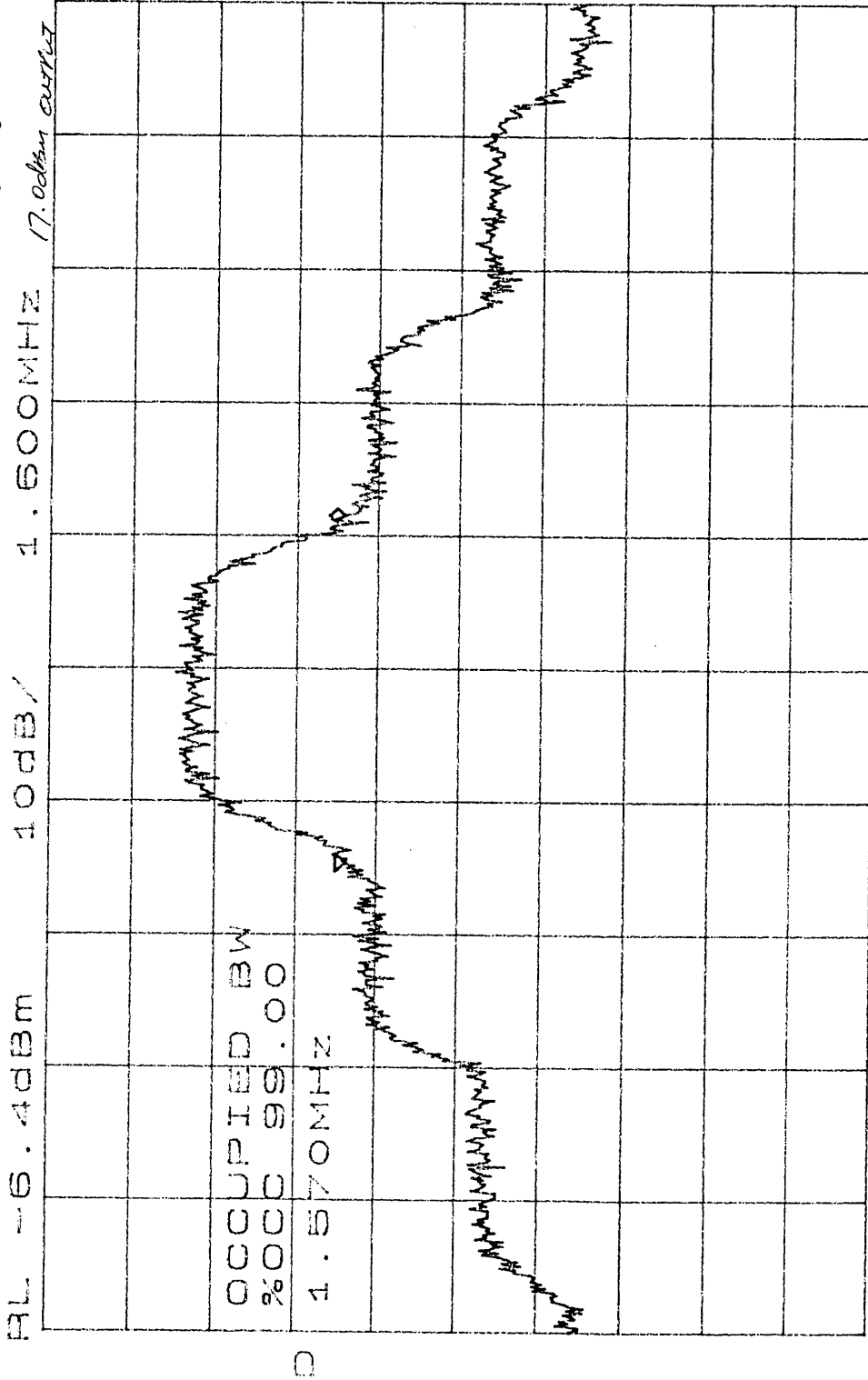
D

CENTER 28.345000GHZ
SPAN 6.000MHZ
*RBW 30KHZ
*SMP 50.0MS
VBW 30KHZ



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 34/100%
Test Date:	6/5/98	Polarization:	N/A
CL 23 .X. Completed Preliminary/ 10		MKH - 1.1. Reading through 20dB atten	

0.51
dBm
IN PUT



SPAN 6.0000MHZ
CENTER 28.34500000MHZ
VBW 30KHZ
RES 300HZ
SWP 50.00%

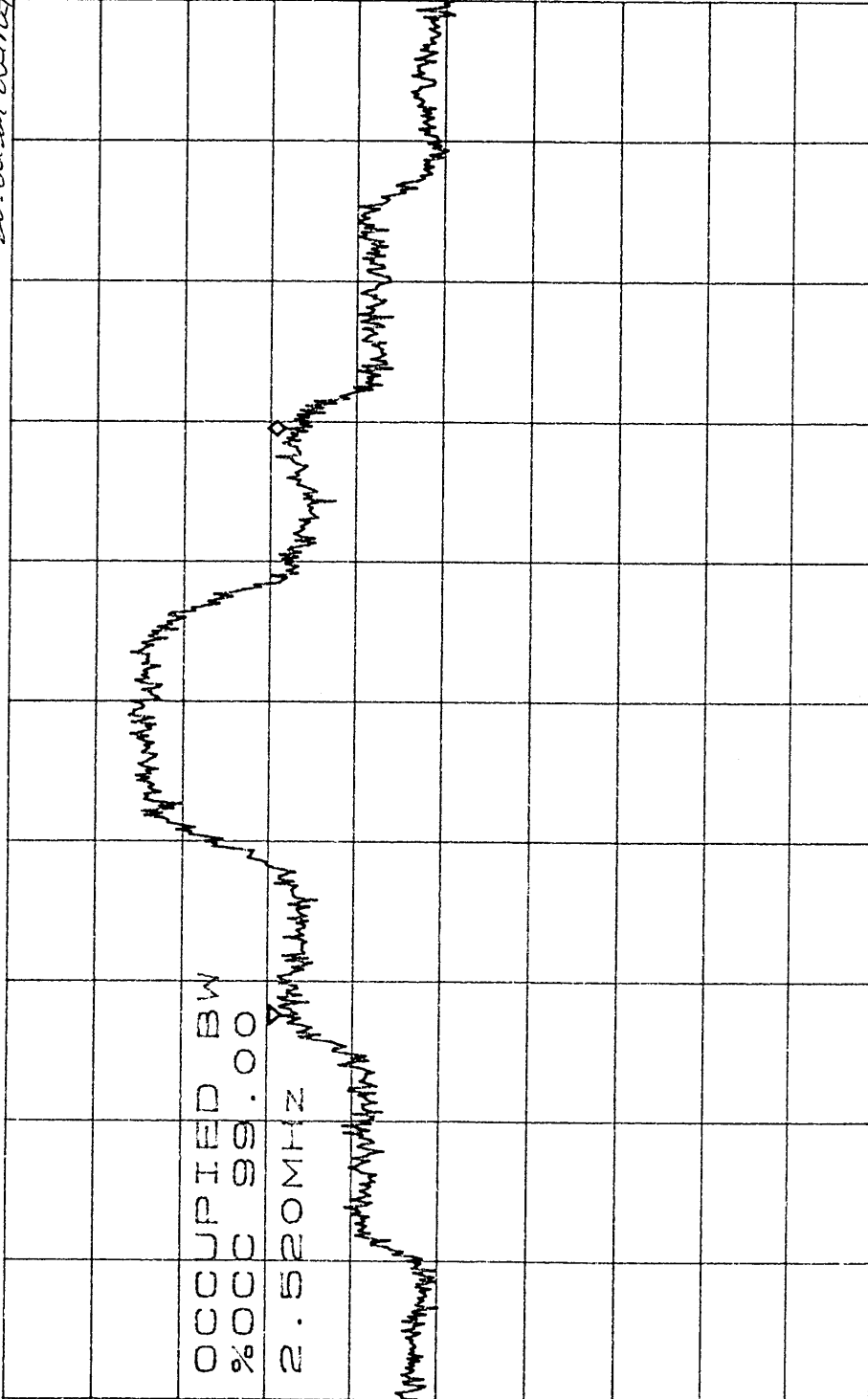


International Compliance Corporation
"Your Certification Solution" sm

17.0 dB
IUT

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/8 Pwr
Test Date:	6/5/98	Polarization:	N/A
X: Completed	Preliminary	Reading through 20dB atten	

CL 23.0 X: Completed Preliminary 10
PL -6.4dBm 10dB/ 2.510MHZ 20.0dBm over



CENTER 28.3450000GHZ SPAN 6.000MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms

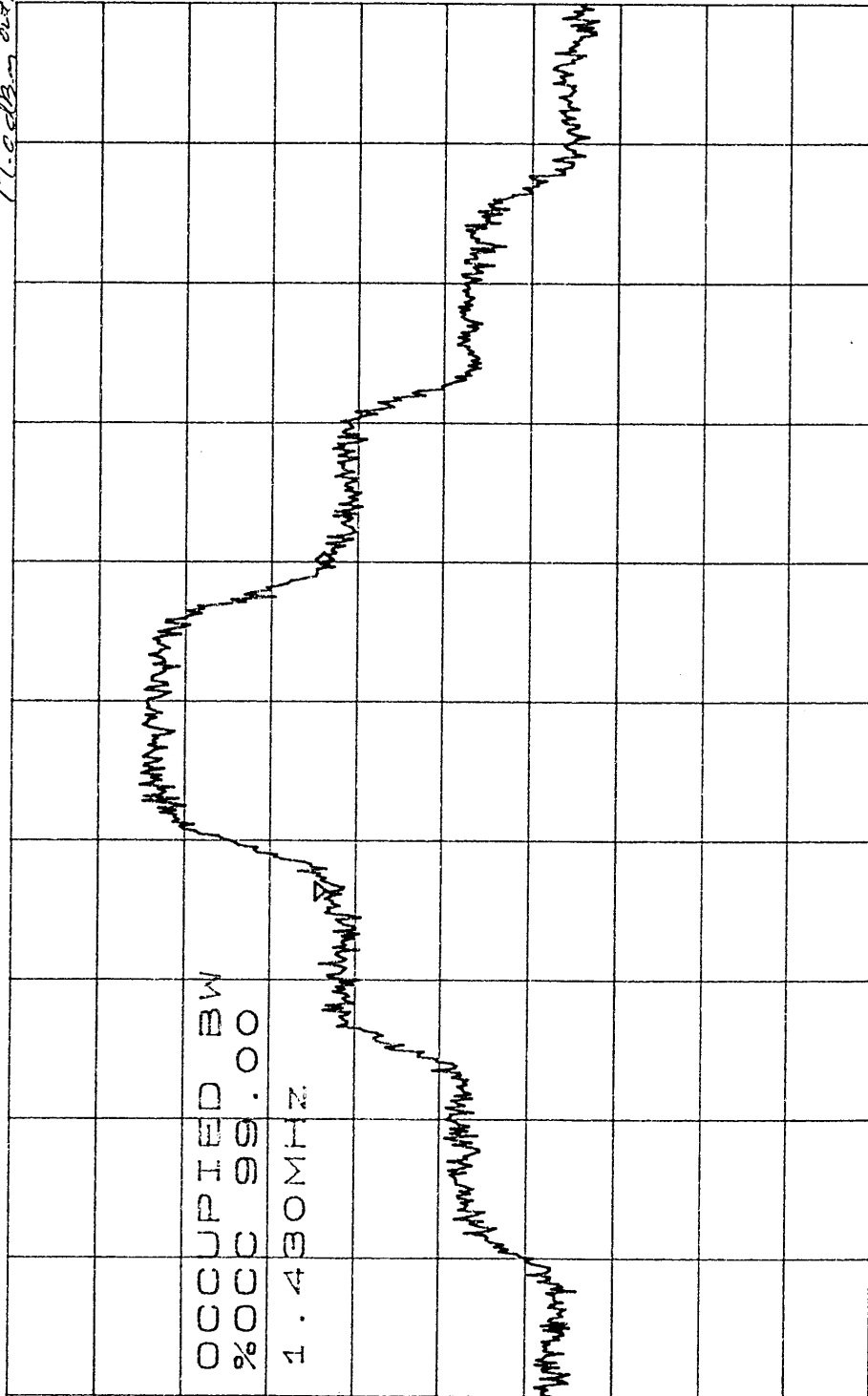


International Compliance Corporation
"Your Certification Solution" sm

-0.54
dBm
17.22

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/3 KHz
Test Date:	6/5/98	Polarization:	N/A
CL 23. X Completed		MKH 1.00	
Preliminary		Reading through 20dB atten	

FL -6.4dBm 10dB/ 1.420MHz 17.2dBm over 17



CENTER 28.345000GHZ SPAN 6.000MHZ
*FEBW 30KHZ VBW 30KHZ *SWP 50.0ms

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

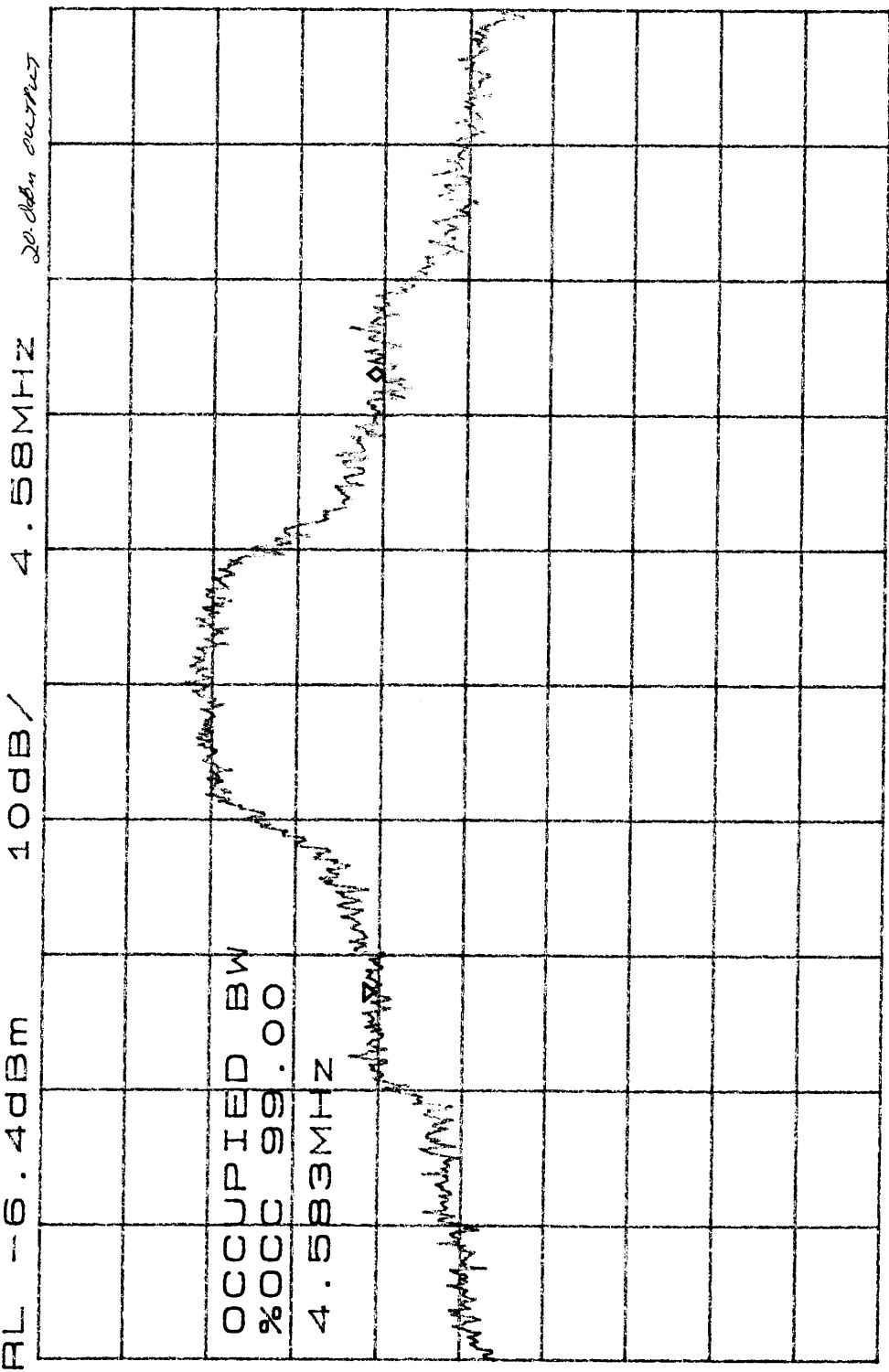
Bosch Telecom, Inc.

**OCCUPIED BANDWIDTH
SIMULATED QPSK**



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23 - X/Completed	Preliminary	4.58MHz	
RL -6.4dBm	10dB/	4.58MHz	

75.4dBm
Input



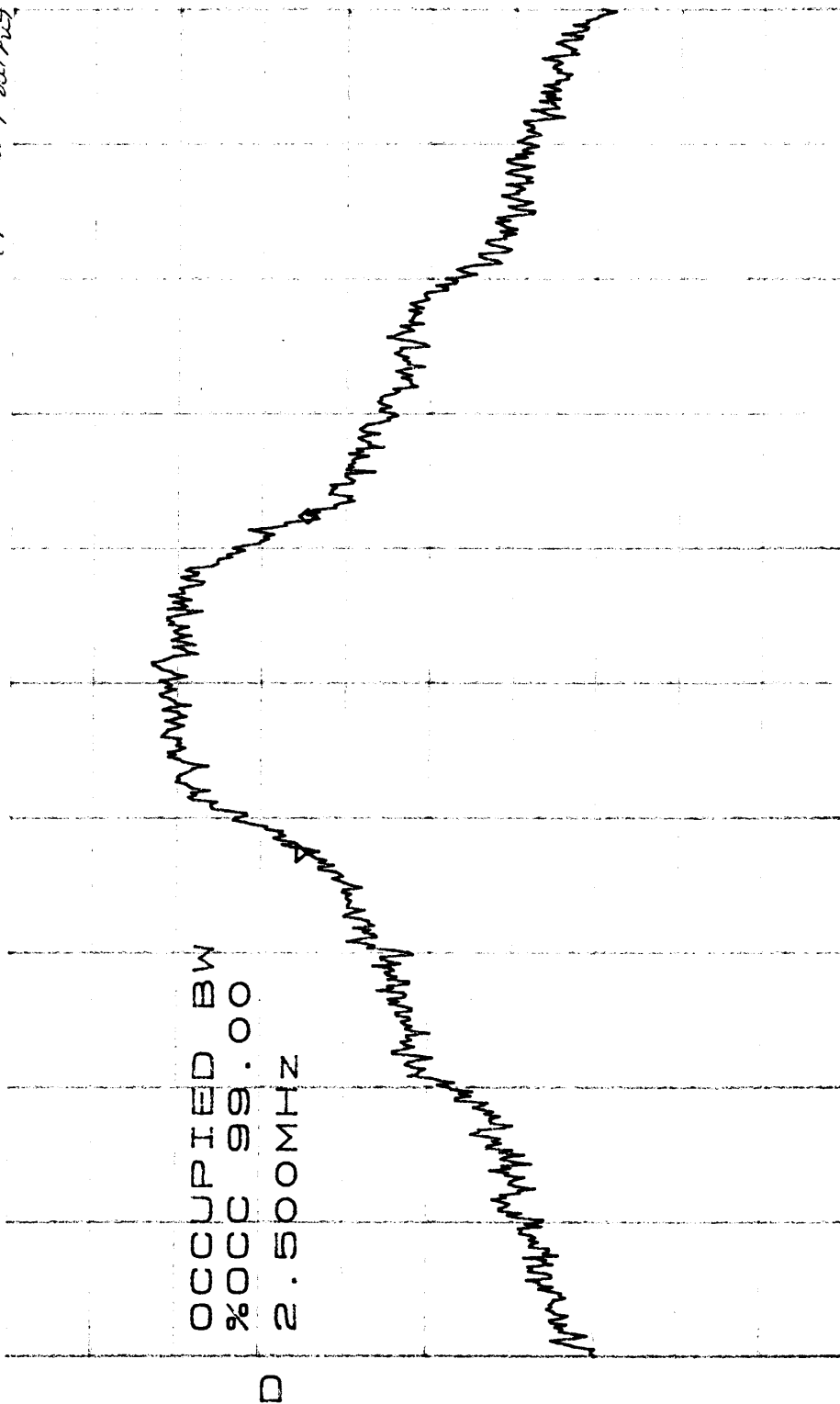
CENTER 28.10700GHZ SPAN 10.00MHZ
*RBW 30KHZ *SWP 50.0ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23. X/Completed	Preliminary/ G 10	Reading through 20dB atten	

-0.044
In Hz

PL -6.4dBm 10dB/ 2.50MHZ 17.0dBm with



OCCUPIED BW
%OCC 99.00
D 2.500MHZ

CENTER 28.10700GHZ SPAN 10.00MHZ
*RBW 30KHZ *SMP 50.0ms
VBW 30KHZ



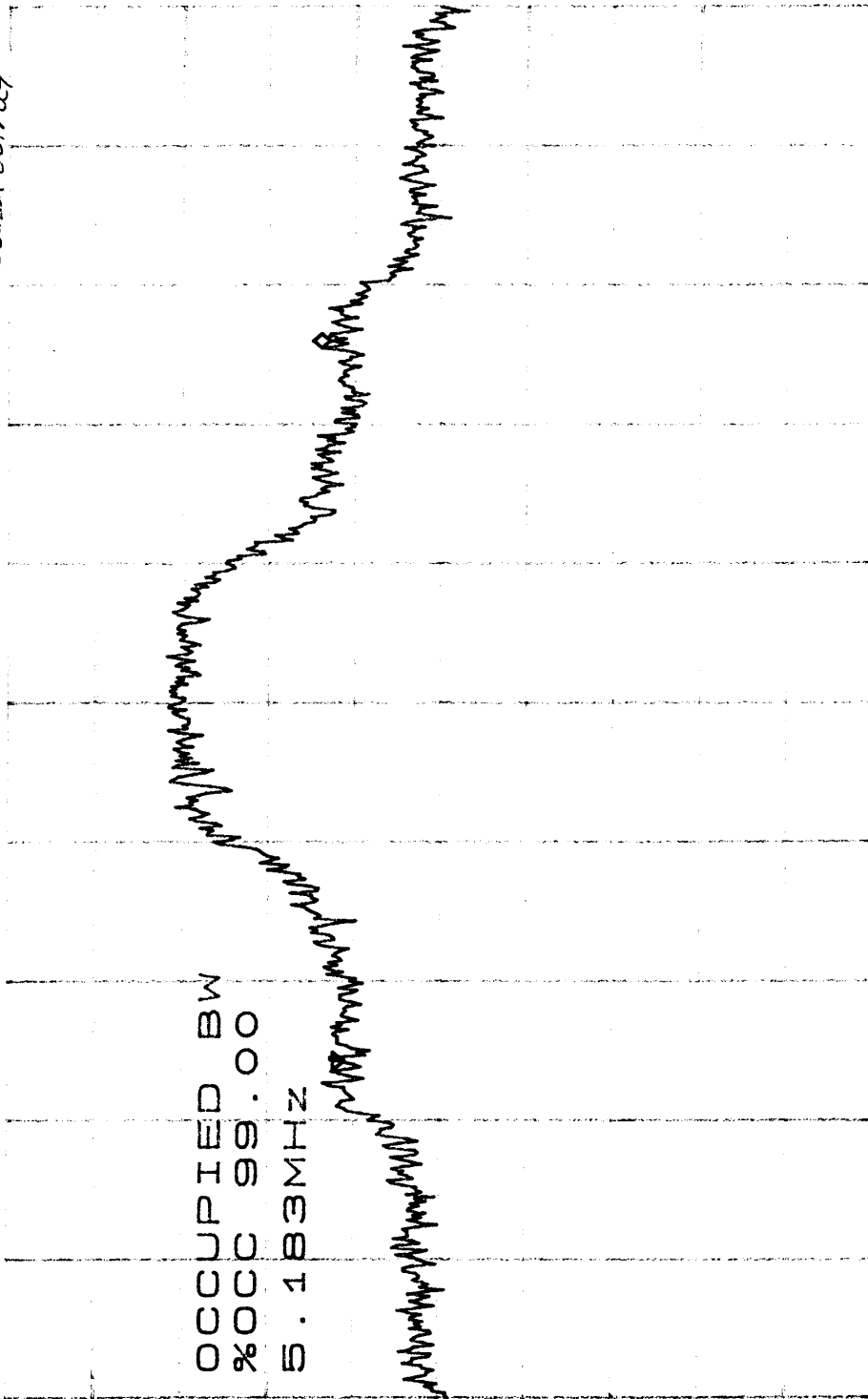
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23 - X/Completed	Preliminary	MKH .83	(Lab 2)

45.76dBm
Interf

RL -6.4dBm 10dB/ 5.18MHz 20dB atten

20dBm output

OCCUPIED BW
%OCC 99.00
D 5.183MHz

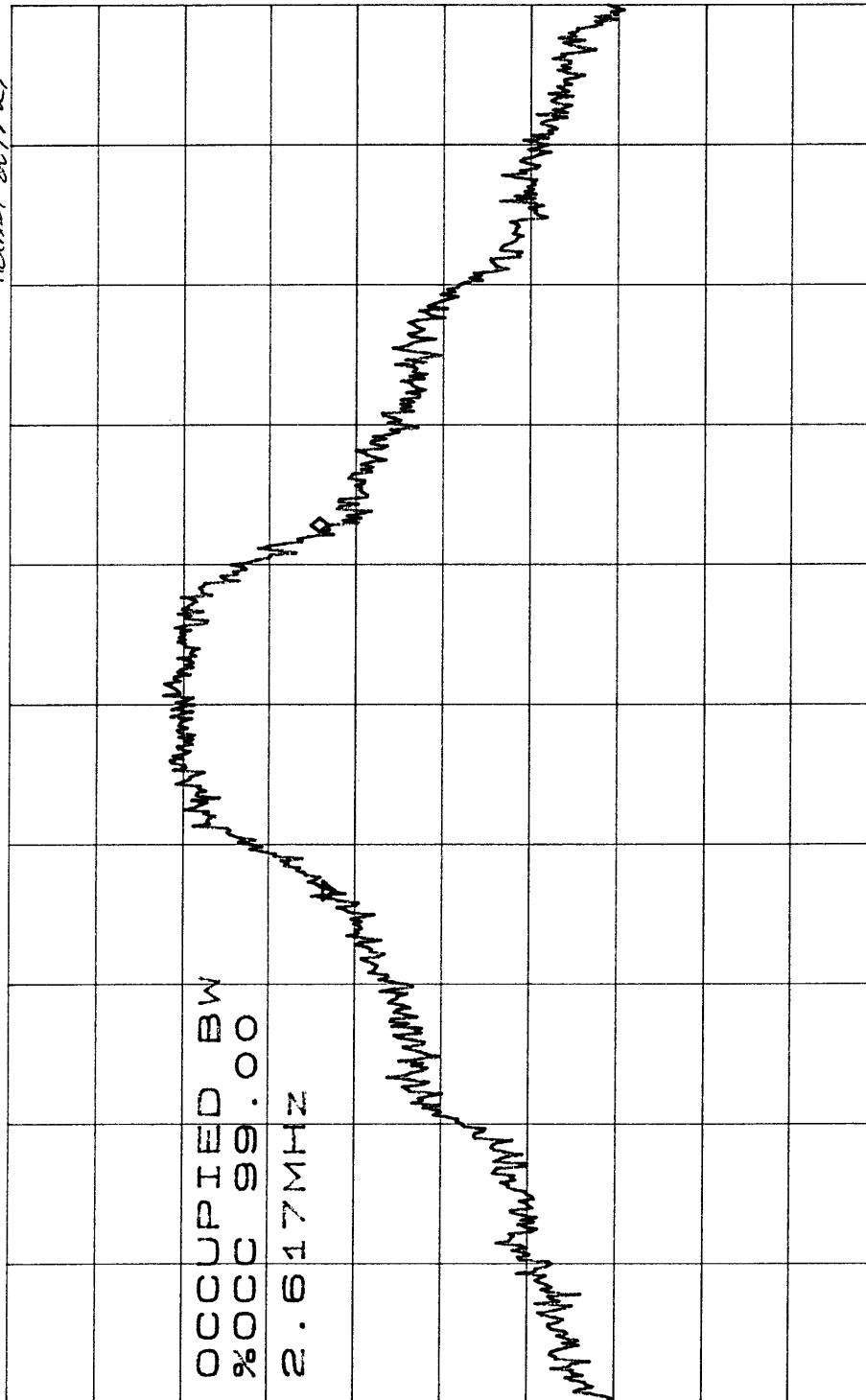


CENTER 28.22500GHZ SPAN 10.000MHZ
*RBW 30KHZ *SWP 50.0ms
VBW 30KHZ



1.03 Jan
ZMM

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23 X/Completed Preliminary/G 10		MKH .34 Reading through 20dB atten	
RL -6.4dBm		2.58MHz Relan attm	



CENTER 28.22500GHZ SPAN 10.00MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms



Client Name: BOSCH TELECOM

Model Number: U.S. CPE ROOF UNIT SN: MSN-69

Test Date: 6/5/98

Work Order #: 180036

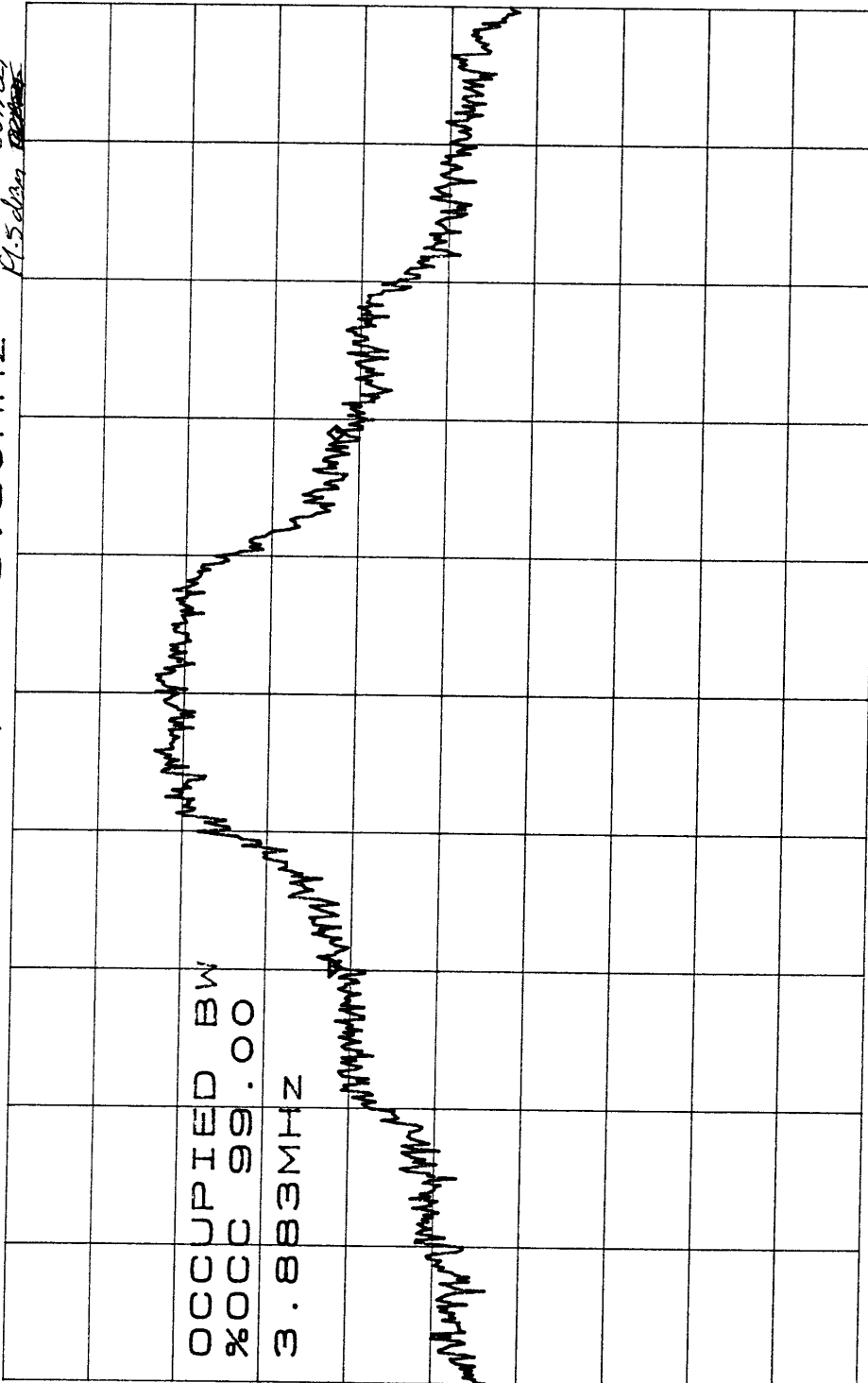
Plot Number: SIMULATED QPSK

Polarization: N/A

CL 23. X/Completed Preliminary/G 10 MKR 3.84 Reading through 20dB atten

RL -6.4dBm 10dB/ 3.90MHz

P1.5dBm output



D

CENTER 28.34500GHZ
*RBW 30KHZ VBW 30KHZ

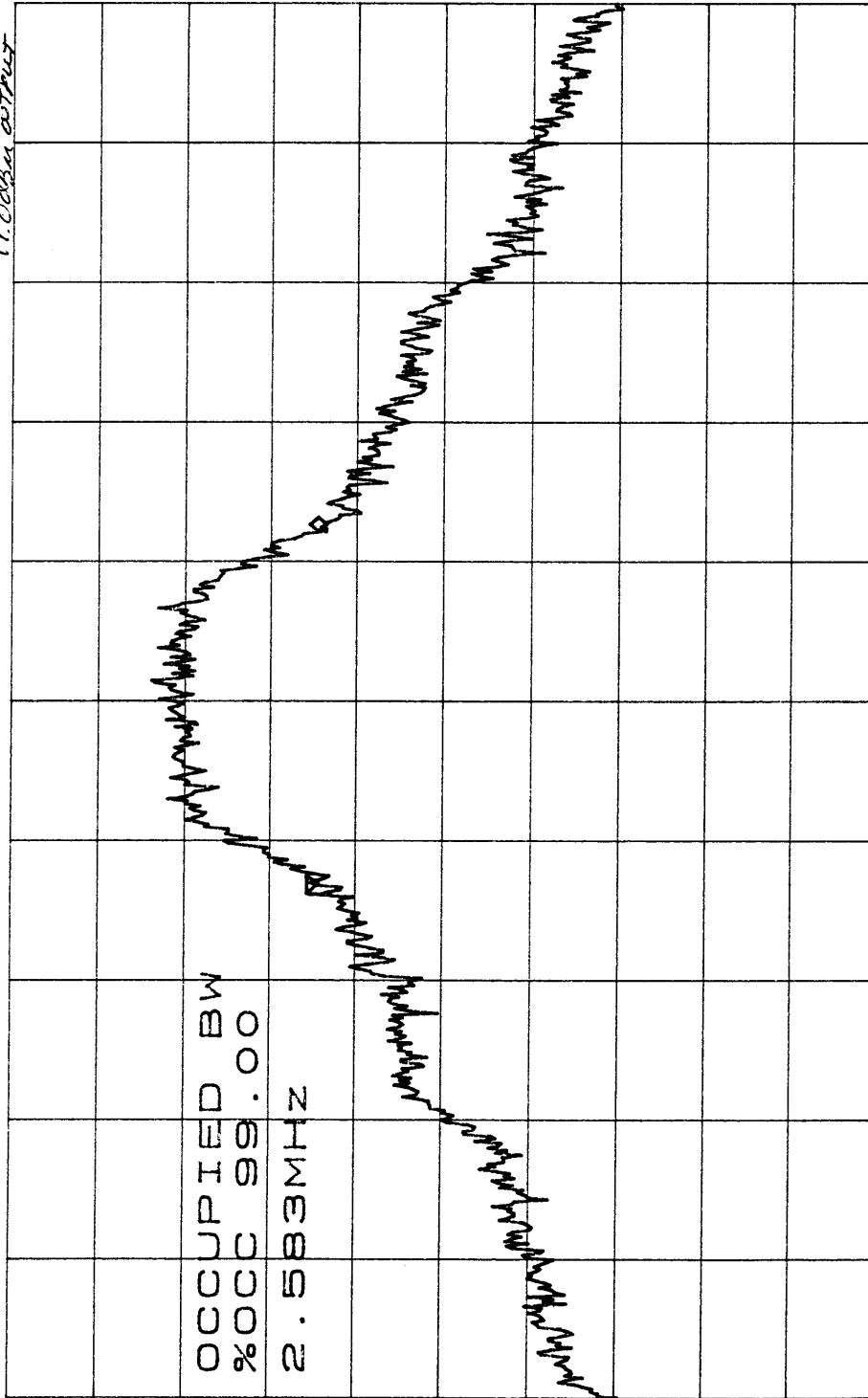
SPAN 10.00MHZ
*SWP 50.0ms



Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A
CL 23	X/Completed	MKR 0dB (Le 5 z)	
Reading through 20dB atten			

0.5dB
INNT

PRL --6.4dBm 10dB/ 2.57MHz 17.0dBm output



D

CENTER 28.34500GHZ SPAN 10.00MHZ
*RBW 30KHZ VBW 30KHZ *SWP 50.0ms

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCIVER (US)**

Bosch Telecom, Inc.

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

ACTUAL QPSK SIGNAL

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V4b

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V4b

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATS

Date: 6/24/98

Equipment Used: 697,881

Configuration: TX 28.107 (LOWER FREQUENCY) 20.0dBm(ACTUAL QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

n/a 60 Hz

X Peak

Temperature: 20 C

208 V.A.C.

n/a 50 Hz

 Average

Relative Humidity: 37 %

230 V.A.C.

Atmospheric Pressure: 999 mbar

X Other 16VDC

n/a 1 Phase

n/a 3 Phase

[illegible]

Dallas/Ft. Worth Headquarters:

802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V5A

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V5A

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATS

Date: 6/24/98

Equipment Used: 697

Configuration: TX 28.225 (CENTER FREQUENCY) 20.0dBm(ACTUAL QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power:

115 V.A.C.

n/a 60 Hz

X Peak

Temperature: 22 C

208 V.A.C.

n/a 50 Hz

Average

Relative Humidity: 34 %

230 V.A.C.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Atmospheric Pressure: 999 mbar

X Other 16VDC

n/a

n/a	1 Phase
-----	---------

n/a 3 Phase

[illegible]

DATA\COMMON\FORMS\TEST DATA SHEETS\MICRORE REV 030597

036v05a

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V5

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V5

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATSDate: 6/11/98

Equipment Used: 934,935,CF21,CF20,697,935

Configuration: TX 28.225 (CENTERFREQUENCY) 20.0dBm(ACTUAL QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth:

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

n/a 60 Hz

X Peak

Temperature: 20 C

208 V.A.C.

n/a 50 Hz

Average

Relative Humidity: 37 %

230 V.A.C.

n/a 1 Phase

n/a 3 Phase

Atmospheric Pressure: 996 mbar

X Other 16VDC

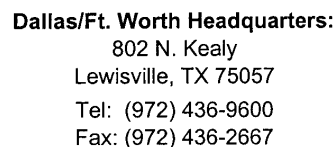
n/a	1 Phase
-----	---------

n/a 3 Phase

[illegible]

DATA\COMMON\FORMS\TEST DATA SHEETS\MICRORE REV 030597

036v05

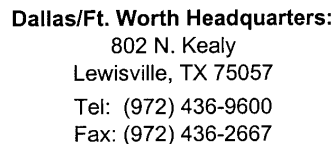


Complete <u>X</u>		Preliminary <u> </u>		Page <u>1</u> of <u>1</u>	
Client: <u>BOSCH TELECOM</u>		Test #: <u>036V5b</u>		W.O.#: <u>180036</u>	
EUT: <u>CPE ROOF UNIT</u>		S/N: <u>MSN(69)</u>		Photo ID: <u>180036 V5b</u>	
Technician: <u>MARK SEVERSON</u>		Specification: <u>CFR 47 P 2.991</u>		Lab: <u>BOATS</u> Date: <u>6/24/98</u>	
Equipment Used: <u>697,881</u>					
Configuration: <u>TX 28.225 (CENTER FREQUENCY) 20.0dBm(ACTUAL QPSK)</u>					
Readings taken at antenna terminals					
Bandwidth: <u>1MHZ</u>		Video Bandwidth: <u>100KHZ</u>		Antenna Distance <u>n/a</u> Detector: <u> </u>	
Climatic Conditions:		EUT Power: <u>115 V.A.C.</u>		<u>n/a</u> 60 Hz <u>X</u> Peak	
Temperature: <u>20</u> C		<u>208 V.A.C.</u>		<u>n/a</u> 50 Hz <u> </u> Average	
Relative Humidity: <u>37</u> %		<u>230 V.A.C.</u>			
Atmospheric Pressure: <u>999</u> mbar		<u>X</u> Other 16VDC		<u>n/a</u> 1 Phase <u>n/a</u> 3 Phase	

[illegible]

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036V05b



Complete <u>X</u>	Preliminary <u> </u>	Page <u>1</u> of <u>1</u>
Client: <u>BOSCH TELECOM</u>	Test #: <u>036V6</u>	W.O.#: <u>180036</u>
EUT: <u>CPE ROOF UNIT</u>	S/N: <u>MSN(69)</u>	Photo ID: <u>180036 V6</u>
Technician: <u>MARK SEVERSON</u>	Specification: <u>CFR 47 P 2.991</u>	Lab: <u>BOATS</u> Date: <u>6/11/98</u>
Equipment Used: <u>934,935,CF21,CF20,697,935</u>		
Configuration: <u>TX 28.345 (HIGHER FREQUENCY) 20.0dBm(ACTUAL QPSK)</u>		
Readings taken at antenna terminals		
Bandwidth: <u>1MHZ</u>	Video Bandwidth: <u>100KHZ</u>	Antenna Distance <u>n/a</u> Detector: <u> </u>
Climatic Conditions:	EUT Power: <u>115 V.A.C.</u>	<u>n/a</u> 60 Hz <u>X</u> Peak
Temperature: <u>20</u> C	<u>208 V.A.C.</u>	<u>n/a</u> 50 Hz <u> </u> Average
Relative Humidity: <u>37</u> %	<u>230 V.A.C.</u>	
Atmospheric Pressure: <u>996</u> mbar	<u>X</u> Other <u>16VDC</u>	<u>n/a</u> 1 Phase <u>n/a</u> 3 Phase

[illegible]

DATA\COMMON\FORMS\TEST DATA SHEETS\MICRORE REV 030597

036v06

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V6A

W.O.#: 180036EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V6A

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATSDate: 6/24/98Equipment Used: 697

Configuration: TX 28.345(HIGHER FREQUENCY) 20.0dBm(ACTUAL QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power:

115 V.A.C.

n/a 60 Hz

 X Peak

Temperature: 22 C

208 V.A.C.

n/a 50 Hz

 Average

Relative Humidity: 34 %

230 V.A.C.

n/a 1 Phase

n/a 3 Phase

[illegible]

DATA\COMMON\FORMS\TEST DATASHEETS\MICRORE REV 030597

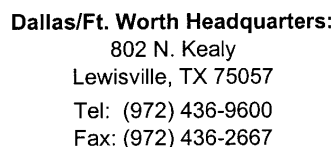
036v06a

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCIVER (US)**

Bosch Telecom, Inc.

**SPURIOUS EMISSIONS AT ANTENNA TERMINALS
SIMULATED QPSK SIGNAL**



Complete <u>X</u>	Preliminary <u> </u>	Page <u>1</u> of <u>1</u>	
Client: <u>BOSCH TELECOM</u>		Test #: <u>036V01A</u>	W.O.#: <u>180036</u>
EUT: <u>CPE ROOF UNIT</u>		S/N: <u>MSN(69)</u>	Photo ID: <u>180036 V01A</u>
Technician: <u>MARK SEVERSON</u>	Specification: <u>CFR 47 P 2.991</u>	Lab: <u>2</u>	Date: <u>6/24/98</u>
Equipment Used: <u>697</u>			
Configuration: <u>TX 28.107 (LOWER FREQUENCY) 20.0dBm(SIMULATED QPSK)</u>			
Readings taken at antenna terminals			
Bandwidth: <u>1MHZ</u>	Video Bandwidth: <u>100KHZ</u>	Antenna Distance <u>n/a</u>	Detector:
Climatic Conditions:	EUT Power: <u>115 V.A.C.</u>	<u>n/a</u> 60 Hz	<u>X</u> Peak
Temperature: <u>22</u> C	<u>208 V.A.C.</u>	<u>n/a</u> 50 Hz	<u> </u> Average
Relative Humidity: <u>34</u> %	<u>230 V.A.C.</u>		
Atmospheric Pressure: <u>999</u> mbar	<u>X</u> Other <u>16VDC</u>	<u>n/a</u> 1 Phase	<u>n/a</u> 3 Phase

[illegible]

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v01a

Dallas/Ft. Worth Headquarters:

802 N. Kealy
Lewisville, TX 75057

Tel: (972) 436-9600

Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V1

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V1

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATS

Date: 6/11/98

Equipment Used: 934,935,CF21,CF20,697,935

Configuration: TX 28.107 (LOWER FREQUENCY) 20.0dBm(SIMULATED QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a m Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

n/a 60 Hz

X Peak

Temperature: 25 C

208 V.A.C.

n/a 50 Hz

— Average

Relative Humidity: 41 %

230 V.A.C.

n/a	1 Phase
-----	---------

n/a 3 Phase[illegible]

DATA\COMMON\FORMS\TEST DATA SHEETS\MICRORE REV 030597

036v01

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V2

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID 180036 V2

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATS Date: 6/11/98

Equipment Used: 934,935,CF21,CF20,697,935

Configuration: TX 28.225 (CENTER FREQUENCY) 20.0dBm(SIMULATED QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

n/a 60 Hz

X Peak

Temperature: 20 C

208 V.A.C.

n/a 50 Hz

Average

Relative Humidity: 37 %

230 V.A.C.

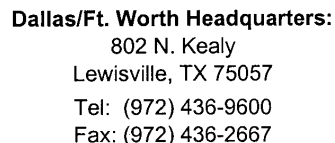
	n/a	1 Phase	n/a	3 Phase
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[illegible]

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE

REV 030597

036v02



Complete ☒ Preliminary ☐ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V2C W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V2C

Technician: D. LIGHT Specification: CFR 47 P 2.991 Lab: BOATS Date: 6/25/98

Equipment Used: 697,881

Configuration: TX 28.225 (CENTER FREQUENCY) 20.0dBm(SIMULATED QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ Video Bandwidth: 100KHZ Antenna Distance n/a Detector:

Climatic Conditions:	EUT Power:	<u>115 V.A.C.</u>	<u>n/a</u> 60 Hz	<u>X</u> Peak
Temperature: <u>20</u> C		<u>208 V.A.C.</u>	<u>n/a</u> 50 Hz	<u> </u> Average
Relative Humidity: <u>37</u> %		<u>230 V.A.C.</u>		
Atmospheric Pressure: <u>999</u> mbar	<u>X</u> Other 16VDC	<u>n/a</u> 1 Phase	<u>n/a</u> 3 Phase	

[illegible]

DATA\COMMON\FORMS\TEST DATA SHEETS\MICRORE REV 030597

036v02c

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V3

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V3

Technician: MARK SEVERSON

Specification: CFR 47 P 2.991

Lab: BOATS

Date: 6/11/98

Equipment Used: 934,935,CF21,CF20,697,935

Configuration: TX 28.345 (HIGHER FREQUENCY) 20.0dBm(SIMULATED QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

n/a 60 Hz

X Peak

Temperature: 20 C

208 V.A.C.

n/a 50 Hz

Average

Relative Humidity: 37 %

230 V.A.C.

n/a	1 Phase
-----	---------

n/a 3 Phase

[illegible]

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v03

Dallas/Ft. Worth Headquarters:

802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Antenna Terminal Conducted Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: 036V3B

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 V3B

Technician: D. LIGHT

Specification: CFR 47 P 2.991

Lab: 2

Date: 6/25/98

Equipment Used: 697,881

Configuration: TX 28.345 (HIGHER FREQUENCY) 20.0dBm(SIMULATED QPSK)

Readings taken at antenna terminals

Bandwidth: 1MHZ

Video Bandwidth: 100KHZ

Antenna Distance

n/a

Detector:

Climatic Conditions:

EUT Power:

115 V.A.C.

n/a 60 Hz

X Peak

Temperature:

20 C

208 V.A.C.

n/a 50 Hz

Average

Relative Humidity:

37 %

230 V.A.C.

Atmospheric Pressure: 999 mbar

X Other 16VDC

n/a 1 Phase

n/a 3 Phase

[illegible]

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE

REV 030597

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCIVER (US)**

Bosch Telecom, Inc.

**FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 30 MHz TO 1000 MHz)**

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:		BOSCH TELECOM				W.O.#: 180036				DATE:		5/19/98	
EUT MODEL:		CPE ROOF UNIT <i>2.6 Hz</i>				SERIAL #: MSN(69)				TIME:		0930	
EUT CONFIG.:		TX 28.107(LOWER FREQUENCY) 20.0dBm(ACTUAL QPSK signal)								TECH.:		MARK SEVERSON	
TEST SPECIFICATION:		2.993 (3M)								TEST NUMBER:		RE-10	
ROD ANT. #:		CABLE #: 2B				DETECT. TYPE: QP				LOCATION:		BOATS	
BICON ANT. #:		230 PREAMP. #: 398				RES. BW (kHz): 120				DISTANCE (m):		3M	
LOG ANT. #:		227 LIMITER# 181				VIDEO BW (kHz): N/A				EUT VOLTAGE:		115VAC	
HORN ANT. #:		ATTEN.#: N/A				TEMP. (deg. C): 25				EUT FREQ. (Hz):		60	
DIPOLE ANT #:		DETECTOR#: 110				HUMIDITY (%): 42				PHOTO ID:		180036 RE-10 RAD. EM.	
											Notes		
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal			
33.400	V	0.0	60.0	11.26	1.42	25.0	47.73	84.6	-36.87	Pass	PEAK		
33.400	V	0.0	59.0	11.26	1.42	25.0	46.73	84.6	-37.87	Pass	QP		
60.180	V	0.0	49.0	9.5	1.95	24.9	35.52	84.6	-49.08	Pass	PEAK		
60.180	V	0.0	46.0	9.5	1.95	24.9	32.52	84.6	-52.08	Pass	QP		
73.500	V	0.0	54.0	8.89	2.15	24.9	40.11	84.6	-44.49	Pass	PEAK		
73.500	V	0.0	52.0	8.89	2.15	24.9	38.11	84.6	-46.49	Pass	QP		
104.020	V	0.0	57.0	10.22	2.54	24.8	44.94	84.6	-39.66	Pass	PEAK		
104.020	V	0.0	54.0	10.22	2.54	24.8	41.94	84.6	-42.66	Pass	QP		
112.000	V	0.0	50.0	10.8	2.54	24.8	38.52	84.6	-46.08	Pass	PEAK		
112.000	V	0.0	48.0	10.8	2.54	24.8	36.52	84.6	-48.08	Pass	QP		
113.760	V	0.0	55.0	10.85	2.54	24.8	43.57	84.6	-41.03	Pass	PEAK		
113.760	V	0.0	53.0	10.85	2.54	24.8	41.57	84.6	-43.03	Pass	QP		
173.800	V	0.0	44.0	13.49	2.82	24.7	35.65	84.6	-48.95	Pass	PEAK		
173.800	V	0.0	43.0	13.49	2.82	24.7	34.65	84.6	-49.95	Pass	QP		
33.400	H	0.0	50.0	11.26	1.42	25.0	37.73	84.6	-46.87	Pass	PEAK		
33.400	H	0.0	48.0	11.26	1.42	25.0	35.73	84.6	-48.87	Pass	QP		
40.000	H	0.0	47.0	10.2	1.59	25.0	33.84	84.6	-50.76	Pass	PEAK		
40.000	H	0.0	45.0	10.2	1.59	25.0	31.84	84.6	-52.76	Pass	QP		
104.020	H	0.0	62.0	10.22	2.54	24.8	49.94	84.6	-34.66	Pass	PEAK		
104.020	H	0.0	60.5	10.22	2.54	24.8	48.44	84.6	-36.16	Pass	QP		
112.000	H	0.0	51.0	10.8	2.54	24.8	39.52	84.6	-45.08	Pass	PEAK		
112.000	H	0.0	50.0	10.8	2.54	24.8	38.52	84.6	-46.08	Pass	QP		
113.650	H	0.0	57.0	10.85	2.54	24.8	45.57	84.6	-39.03	Pass	PEAK		
113.650	H	0.0	55.0	10.85	2.54	24.8	43.57	84.6	-41.03	Pass	QP		
120.000	H	0.0	55.0	11.2	2.54	24.8	43.98	84.6	-40.62	Pass	PEAK		
120.000	H	0.0	54.0	11.2	2.54	24.8	42.98	84.6	-41.62	Pass	QP		
120.300	H	0.0	52.0	11.2	2.54	24.8	40.98	84.6	-43.62	Pass	PEAK		
120.300	H	0.0	51.0	11.2	2.54	24.8	39.98	84.6	-44.62	Pass	QP		
133.700	H	0.0	52.0	12.32	2.82	24.8	42.38	84.6	-42.22	Pass	PEAK		
133.700	H	0.0	50.0	12.32	2.82	24.8	40.38	84.6	-44.22	Pass	QP		
173.800	H	0.0	46.0	13.49	2.82	24.7	37.65	84.6	-46.95	Pass	PEAK		

Compliance Data

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM				W.O.#: 180036		DATE:		5/19/98			
EUT MODEL:	CPE ROOF UNIT		642 <i>ago</i>		SERIAL #: MSN(69)		TIME:		0930			
EUT CONFIG.:	TX 28.107(LOWER FREQUENCY) 20.0dBm(ACTUAL QPSK signal)						TECH.:		MARK SEVERSON			
TEST SPECIFICATION:	2.993 (3M)				TEST NUMBER:		RE-10					
ROD ANT. #:	CABLE #:		2B		DETECT. TYPE:		QP		LOCATION:		BOATS	
BICON ANT. #:	230		PREAMP. #:		398		RES. BW (kHz):		120		DISTANCE (m):	3M
LOG ANT. #:	227		LIMITER#		181		VIDEO BW (kHz):		N/A		EUT VOLTAGE:	115VAC
HORN ANT. #:			ATTEN.#:		N/A		TEMP. (deg. C):		25		EUT FREQ. (Hz):	60
DIPOLE ANT #:			DETECTOR#:		110		HUMIDITY (%):		42		PHOTO ID:	180036 RE-10 RAD. EM.
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes	
173.800	H	0.0	44.4	13.49	2.82	24.7	36.05	84.6	-48.55	Pass	QP	
328.000	V	0.0	35.0	17.75	4.63	24.6	32.76	84.6	-51.84	Pass	PEAK	
328.000	V	0.0	32.0	17.75	4.63	24.6	29.76	84.6	-54.84	Pass	QP	
632.000	V	0.0	38.0	21	7.29	24.8	41.54	84.6	-43.06	Pass	PEAK	
632.000	V	0.0	37.0	21	7.29	24.8	40.54	84.6	-44.06	Pass	QP	
960.000	V	0.0	33.0	23.26	9.17	24.8	40.6	84.6	-44	Pass	PEAK	
960.000	V	0.0	29.0	23.26	9.17	24.8	36.6	84.6	-48	Pass	QP	
328.000	H	0.0	36.0	17.75	4.63	24.6	33.76	84.6	-50.84	Pass	PEAK	
328.000	H	0.0	34.0	17.75	4.63	24.6	31.76	84.6	-52.84	Pass	QP	
344.100	H	0.0	36.0	15.8	4.63	24.6	31.81	84.6	-52.79	Pass	PEAK	
344.100	H	0.0	34.0	15.8	4.63	24.6	29.81	84.6	-54.79	Pass	QP	
632.000	H	0.0	36.0	21	7.29	24.8	39.54	84.6	-45.06	Pass	PEAK	
632.000	H	0.0	34.0	21	7.29	24.8	37.54	84.6	-47.06	Pass	QP	
960.000	H	0.0	31.0	23.26	9.17	24.8	38.6	84.6	-46	Pass	PEAK	
960.000	H	0.0	27.0	23.26	9.17	24.8	34.6	84.6	-50	Pass	QP	
											SCANNED 30MHZ-1GHZ <i>ago</i>	
											<i>M#2 642</i>	

Compliance Data

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:		BOSCH TELECOM				W.O.#: 180036				DATE:		5/19/98	
EUT MODEL:		CPE ROOF UNIT <i>GHz 4g</i>				SERIAL #: MSN(69)				TIME:		0815	
EUT CONFIG.:		TX 28.225 (CENTER FREQUENCY) 20.0 dBm (ACTUAL QPSK)				TECH.:				MARK SEVERSON			
TEST SPECIFICATION:		2.993 (3M)				TEST NUMBER:				RE9A			
ROD ANT. #:		CABLE #: 2B				DETECT. TYPE: QP				LOCATION: BOATS			
BICON ANT. #:		230 PREAMP. #: 398				RES. BW (kHz): 120				DISTANCE (m): 3M			
LOG ANT. #:		LIMITER# 181				VIDEO BW (kHz): N/A				EUT VOLTAGE: 16VDC			
HORN ANT. #:		ATTEN.#: N/A				TEMP. (deg. C): 24				EUT FREQ. (Hz): N/A			
DIPOLE ANT #:		DETECTOR#: 110				HUMIDITY (%): 42				PHOTO ID: 180036 RE9A RAD. EM.			
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBUV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBUV/m)	Spec. Limit (dBUV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes		
33.400	V	0.0	59.0	11.26	1.42	25.0	46.73	84.6	-37.87	Pass	PEAK		
33.400	V	0.0	58.0	11.26	1.42	25.0	45.73	84.6	-38.87	Pass	QP		
60.180	V	0.0	53.0	9.5	1.95	24.9	39.52	84.6	-45.08	Pass	PEAK		
60.180	V	0.0	47.0	9.5	1.95	24.9	33.52	84.6	-51.08	Pass	QP		
73.500	V	0.0	55.0	8.89	2.15	24.9	41.11	84.6	-43.49	Pass	PEAK		
73.500	V	0.0	52.0	8.89	2.15	24.9	38.11	84.6	-46.49	Pass	QP		
104.020	V	0.0	55.0	10.22	2.54	24.8	42.94	84.6	-41.66	Pass	PEAK		
104.020	V	0.0	54.0	10.22	2.54	24.8	41.94	84.6	-42.66	Pass	QP		
112.000	V	0.0	44.0	10.8	2.54	24.8	32.52	84.6	-52.08	Pass	PEAK		
112.000	V	0.0	42.0	10.8	2.54	24.8	30.52	84.6	-54.08	Pass	QP		
113.600	V	0.0	49.0	10.85	2.54	24.8	37.57	84.6	-47.03	Pass	PEAK		
113.600	V	0.0	47.0	10.85	2.54	24.8	35.57	84.6	-49.03	Pass	QP		
173.800	V	0.0	45.0	13.49	2.82	24.7	36.65	84.6	-47.95	Pass	PEAK		
173.800	V	0.0	43.0	13.49	2.82	24.7	34.65	84.6	-49.95	Pass	QP		
33.400	H	0.0	48.0	11.26	1.42	25.0	35.73	84.6	-48.87	Pass	PEAK		
33.400	H	0.0	46.0	11.26	1.42	25.0	33.73	84.6	-50.87	Pass	QP		
40.000	H	0.0	45.0	10.2	1.59	25.0	31.84	84.6	-52.76	Pass	PEAK		
40.000	H	0.0	43.0	10.2	1.59	25.0	29.84	84.6	-54.76	Pass	QP		
104.020	H	0.0	57.0	10.22	2.54	24.8	44.94	84.6	-39.66	Pass	PEAK		
104.020	H	0.0	55.0	10.22	2.54	24.8	42.94	84.6	-41.66	Pass	QP		
112.020	H	0.0	45.0	10.8	2.54	24.8	33.52	84.6	-51.08	Pass	PEAK		
112.020	H	0.0	44.0	10.8	2.54	24.8	32.52	84.6	-52.08	Pass	QP		
113.650	H	0.0	51.0	10.85	2.54	24.8	39.57	84.6	-45.03	Pass	PEAK		
113.650	H	0.0	49.0	10.85	2.54	24.8	37.57	84.6	-47.03	Pass	QP		
120.000	H	0.0	53.0	11.2	2.54	24.8	41.98	84.6	-42.62	Pass	PEAK		
120.000	H	0.0	51.0	11.2	2.54	24.8	39.98	84.6	-44.62	Pass	QP		
120.300	H	0.0	50.0	11.2	2.54	24.8	38.98	84.6	-45.62	Pass	PEAK		
120.300	H	0.0	48.0	11.2	2.54	24.8	36.98	84.6	-47.62	Pass	QP		
133.700	H	0.0	54.0	12.32	2.82	24.8	44.38	84.6	-40.22	Pass	PEAK		
133.700	H	0.0	53.0	12.32	2.82	24.8	43.38	84.6	-41.22	Pass	QP		
173.800	H	0.0	52.0	13.49	2.82	24.7	43.65	84.6	-40.95	Pass	PEAK		

Compliance Data

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM		W.O.#:	180036	DATE:	5/19/98	
EUT MODEL:	CPE ROOF UNIT <i>6 Hz</i>		SERIAL #:	MSN(69)	TIME:	0815	
EUT CONFIG.:	TX 28.225 (CENTER FREQUENCY) 20.0 dBm (ACTUAL QPSK)				TECH.:	MARK SEVERSON	
TEST SPECIFICATION:	2.993 (3M)			TEST NUMBER:	RE9A		
ROD ANT. #:	CABLE #:	2B	DETECT. TYPE:	QP	LOCATION:	BOATS	
BICON ANT. #:	230	PREAMP. #:	398	RES. BW (kHz):	120	DISTANCE (m):	3M
LOG ANT. #:	LIMITER#	181	VIDEO BW (kHz):	N/A	EUT VOLTAGE:	16VDC	
HORN ANT. #:	ATTEN.#:	N/A	TEMP. (deg. C):	24	EUT FREQ. (Hz):	N/A	
DIPOLE ANT #:	DETECTOR#:	110	HUMIDITY (%):	42	PHOTO ID:	180036 RE9A RAD. EM.	

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
173.800	H	0.0	50.0	13.49	2.82	24.7	41.65	84.6	-42.95	Pass	QP <i>apm</i>
											SCANNED 30-300MHz
											<i>MHz</i>

Compliance Data

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM		W.O.#:	180036	DATE:	5/18/98	
EUT MODEL:	CPE ROOF UNIT	GHZ	SERIAL #:	MSN(69)	TIME:	1550	
EUT CONFIG.:	TX 28.225 (CENTER FREQUENCY) 20.0dBm (ACTUAL QPSK)			TECH.:	MARK SEVERSON		
TEST SPECIFICATION:	2.993 (3M)			TEST NUMBER:	RE9		
ROD ANT. #:	CABLE #:	2B	DETECT. TYPE:	QP	LOCATION:	BOATS	
BICON ANT. #:	230	PREAMP. #:	398	RES. BW (kHz):	120	DISTANCE (m):	3M
LOG ANT. #:	200	LIMITER#	181	VIDEO BW (kHz):	N/A	EUT VOLTAGE:	16VDC
HORN ANT. #:		ATTEN#:	N/A	TEMP. (deg. C):	25	EUT FREQ. (Hz):	N/A
DIPOLE ANT #:		DETECTOR#:	110	HUMIDITY (%):	42	PHOTO ID:	180036 RE9 RAD. EM.

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
328.000	H	0.0	36.0	16.7	4.63	24.6	32.71	84.6	-51.89	Pass	PEAK
328.000	H	0.0	34.0	16.7	4.63	24.6	30.71	84.6	-53.89	Pass	QP
344.100	H	0.0	35.0	15.68	4.63	24.6	30.69	84.6	-53.91	Pass	PEAK
344.100	H	0.0	34.0	15.68	4.63	24.6	29.69	84.6	-54.91	Pass	QP
632.000	H	0.0	36.0	21.98	7.29	24.8	40.52	84.6	-44.08	Pass	PEAK
632.000	H	0.0	34.0	21.98	7.29	24.8	38.52	84.6	-46.08	Pass	QP
960.000	H	0.0	30.0	22.98	9.17	24.8	37.32	84.6	-47.28	Pass	PEAK
960.000	H	0.0	26.0	22.98	9.17	24.8	33.32	84.6	-51.28	Pass	QP
328.000	V	0.0	34.0	16.7	4.63	24.6	30.71	84.6	-53.89	Pass	PEAK
328.000	V	0.0	31.0	16.7	4.63	24.6	27.71	84.6	-56.89	Pass	QP
632.000	V	0.0	38.0	21.98	7.29	24.8	42.52	84.6	-42.08	Pass	PEAK
632.000	V	0.0	35.0	21.98	7.29	24.8	39.52	84.6	-45.08	Pass	QP
960.000	V	0.0	34.0	22.98	9.17	24.8	41.32	84.6	-43.28	Pass	PEAK
960.000	V	0.0	26.0	22.98	9.17	24.8	33.32	84.6	-51.28	Pass	QP
SCANNED 300MHZ-1GHZ											
MHz GHz											

Compliance Data

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM			W.O.#:	180036	DATE:	5/18/98
EUT MODEL:	CPE ROOF UNIT <i>GHZ 49</i>			SERIAL #:	MSN(69)	TIME:	1430
EUT CONFIG.:	TX 28.345 (HIGHER FREQUENCY) 0 20.0dBm (ACTUAL QPSK)					TECH.:	MARK SEVERSON
TEST SPECIFICATION:	2.993 (3M)			TEST NUMBER: RE8			
ROD ANT. #:	CABLE #:	2B	DETECT. TYPE:	QP	LOCATION: BOATS		
BICON ANT. #:	230	PREAMP. #:	398	RES. BW (kHz):	120	DISTANCE (m): 3M	
LOG ANT. #:	200	LIMITER#	181	VIDEO BW (kHz):	N/A	EUT VOLTAGE: 16VDC	
HORN ANT. #:		ATTEN#	N/A	TEMP. (deg. C):	25	EUT FREQ. (Hz): N/A	
DIPOLE ANT #:		DETECTOR#:	110	HUMIDITY (%):	42	PHOTO ID: 180036 RE8 RAD. EM.	

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBUV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBUV/m)	Spec. Limit (dBUV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
33.400	V	0.0	60.0	11.26	1.42	25.0	47.73	84.6	-36.87	Pass	PEAK
33.400	V	0.0	59.0	11.26	1.42	25.0	46.73	84.6	-37.87	Pass	QP
60.180	V	0.0	54.0	9.5	1.95	24.9	40.52	84.6	-44.08	Pass	PEAK
60.180	V	0.0	50.0	9.5	1.95	24.9	36.52	84.6	-48.08	Pass	QP
73.500	V	0.0	56.0	8.89	2.15	24.9	42.11	84.6	-42.49	Pass	PEAK
73.500	V	0.0	54.0	8.89	2.15	24.9	40.11	84.6	-44.49	Pass	QP
104.020	V	0.0	55.0	10.22	2.54	24.8	42.94	84.6	-41.66	Pass	PEAK
104.020	V	0.0	54.0	10.22	2.54	24.8	41.94	84.6	-42.66	Pass	QP
112.000	V	0.0	52.0	10.8	2.54	24.8	40.52	84.6	-44.08	Pass	PEAK
112.000	V	0.0	48.0	10.8	2.54	24.8	36.52	84.6	-48.08	Pass	QP
113.760	V	0.0	56.0	10.85	2.54	24.8	44.57	84.6	-40.03	Pass	PEAK
113.760	V	0.0	54.0	10.85	2.54	24.8	42.57	84.6	-42.03	Pass	QP
173.800	V	0.0	46.0	13.49	2.82	24.7	37.65	84.6	-46.95	Pass	PEAK
173.800	V	0.0	44.0	13.49	2.82	24.7	35.65	84.6	-48.95	Pass	QP
33.400	H	0.0	51.0	11.26	1.42	25.0	38.73	84.6	-45.87	Pass	PEAK
33.400	H	0.0	49.0	11.26	1.42	25.0	36.73	84.6	-47.87	Pass	QP
40.000	H	0.0	47.0	10.2	1.59	25.0	33.84	84.6	-50.76	Pass	PEAK
40.000	H	0.0	45.0	10.2	1.59	25.0	31.84	84.6	-52.76	Pass	QP
104.020	H	0.0	60.0	10.22	2.54	24.8	47.94	84.6	-36.66	Pass	PEAK
104.020	H	0.0	58.0	10.22	2.54	24.8	45.94	84.6	-38.66	Pass	QP
112.020	H	0.0	46.0	10.8	2.54	24.8	34.52	84.6	-50.08	Pass	PEAK
112.020	H	0.0	45.0	10.8	2.54	24.8	33.52	84.6	-51.08	Pass	QP
113.650	H	0.0	53.0	10.85	2.54	24.8	41.57	84.6	-43.03	Pass	PEAK
113.650	H	0.0	50.5	10.85	2.54	24.8	39.07	84.6	-45.53	Pass	QP
120.000	H	0.0	53.0	11.2	2.54	24.8	41.98	84.6	-42.62	Pass	PEAK
120.000	H	0.0	51.0	11.2	2.54	24.8	39.98	84.6	-44.62	Pass	QP
120.300	H	0.0	50.0	11.2	2.54	24.8	38.98	84.6	-45.62	Pass	PEAK
120.300	H	0.0	48.0	11.2	2.54	24.8	36.98	84.6	-47.62	Pass	QP
133.700	H	0.0	51.0	12.32	2.82	24.8	41.38	84.6	-43.22	Pass	PEAK
133.700	H	0.0	49.0	12.32	2.82	24.8	39.38	84.6	-45.22	Pass	QP
173.800	H	0.0	45.0	13.49	2.82	24.7	36.65	84.6	-47.95	Pass	PEAK

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM		W.O.#: 180036		DATE:	5/18/98	
EUT MODEL:	CPE ROOF UNIT <i>6 Hz</i>		SERIAL #: MSN(69)		TIME:	1430	
EUT CONFIG.:	TX 28.345 (HIGHER FREQUENCY)		20.0dBm (ACTUAL QPSK)		TECH.:	MARK SEVERSON	
TEST SPECIFICATION:	2.993 (3M)		TEST NUMBER:		RE8		
ROD ANT. #:	CABLE #:	2B	DETECT. TYPE:	QP	LOCATION:	BOATS	
BICON ANT. #:	230	PREAMP. #:	398	RES. BW (kHz):	120	DISTANCE (m):	3M
LOG ANT. #:	200	LIMITER#	181	VIDEO BW (kHz):	N/A	EUT VOLTAGE:	16VDC
HORN ANT. #:		ATTEN. #:	N/A	TEMP. (deg. C):	25	EUT FREQ. (Hz):	N/A
DIPOLE ANT. #:		DETECTOR#:	110	HUMIDITY (%):	42	PHOTO ID:	180036 RE8 RAD. EM.

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
173.800	H	0.0	42.0	13.49	2.82	24.7	33.65	84.6	-50.95	Pass	QP
328.000	V	0.0	34.0	16.7	4.63	24.6	30.71	84.6	-53.89	Pass	PEAK
328.000	V	0.0	31.0	16.7	4.63	24.6	27.71	84.6	-56.89	Pass	QP
632.000	V	0.0	38.0	21.98	7.29	24.8	42.52	84.6	-42.08	Pass	PEAK
632.000	V	0.0	36.5	21.98	7.29	24.8	41.02	84.6	-43.58	Pass	QP
960.000	V	0.0	35.0	22.98	9.17	24.8	42.32	84.6	-42.28	Pass	PEAK
960.000	V	0.0	27.0	22.98	9.17	24.8	34.32	84.6	-50.28	Pass	QP
328.000	H	0.0	36.0	16.7	4.63	24.6	32.71	84.6	-51.89	Pass	PEAK
328.000	H	0.0	34.0	16.7	4.63	24.6	30.71	84.6	-53.89	Pass	QP
344.100	H	0.0	36.0	15.68	4.63	24.6	31.69	84.6	-52.91	Pass	PEAK
344.100	H	0.0	34.0	15.68	4.63	24.6	29.69	84.6	-54.91	Pass	QP
632.000	H	0.0	36.0	21.98	7.29	24.8	40.52	84.6	-44.08	Pass	PEAK
632.000	H	0.0	34.0	21.98	7.29	24.8	38.52	84.6	-46.08	Pass	QP
960.000	H	0.0	31.0	22.98	9.17	24.8	38.32	84.6	-46.28	Pass	PEAK
960.000	H	0.0	28.0	22.98	9.17	24.8	35.32	84.6	-49.28	Pass	QP
Scanned 30MHz-1GHz <i>agm</i>											
<i>MHz GHz</i>											

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCIVER (US)**

Bosch Telecom, Inc.

**FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
SIMULATED QPSK SIGNAL (SCAN: 30 MHz TO 1000 MHz)**

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM				W.O.#: 180036		DATE:		5/04/98				
EUT MODEL:	CPE ROOF UNIT GH2 02				SERIAL #: MSN(69)		TIME:		0920				
EUT CONFIG.:	TX 28.107 (LOWER FREQUENCY) 20.0dBm(Simulated QPSK signal)				TECH.:		MARK SEVERSON						
TEST SPECIFICATION:				2.993 (3M)		TEST NUMBER:		RE-02					
ROD ANT. #:	CABLE #:		2B		DETECT. TYPE:		QP		LOCATION:		BOATS		
BICON ANT. #:	230		PREAMP. #:		398		RES. BW (kHz):		120		DISTANCE (m):	3M	
LOG ANT. #:	227		LIMITER#		184		VIDEO BW (kHz):		N/A		EUT VOLTAGE:		115VAC
HORN ANT. #:			ATTEN. #:		N/A		TEMP. (deg. C):		20		EUT FREQ. (Hz):		60
DIPOLE ANT #:			DETECTOR#:		1184		HUMIDITY (%):		39		PHOTO ID:		180036 RE-02 RAD. EM.
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes		
33.425	V	0.0	57.0	11.26	1.42	25.0	44.73	84.6	-39.87	Pass	PEAK		
33.425	V	0.0	56.5	11.26	1.42	25.0	44.23	84.6	-40.37	Pass	QP		
59.750	V	0.0	58.0	9.577	1.75	24.9	44.397	84.6	-40.203	Pass	PEAK		
59.750	V	0.0	56.5	9.577	1.75	24.9	42.897	84.6	-41.703	Pass	QP		
73.560	V	0.0	56.0	8.89	2.15	24.9	42.11	84.6	-42.49	Pass	PEAK		
73.560	V	0.0	55.0	8.89	2.15	24.9	41.11	84.6	-43.49	Pass	QP		
104.020	V	0.0	50.0	10.22	2.54	24.8	37.94	84.6	-46.66	Pass	PEAK		
104.020	V	0.0	48.5	10.22	2.54	24.8	36.44	84.6	-48.16	Pass	QP		
112.020	V	0.0	42.0	10.8	2.54	24.8	30.52	84.6	-54.08	Pass	PEAK		
112.020	V	0.0	41.0	10.8	2.54	24.8	29.52	84.6	-55.08	Pass	QP		
113.680	V	0.0	53.0	10.85	2.54	24.8	41.57	84.6	-43.03	Pass	PEAK		
113.680	V	0.0	52.5	10.85	2.54	24.8	41.07	84.6	-43.53	Pass	QP		
133.730	V	0.0	49.0	12.32	2.82	24.8	39.38	84.6	-45.22	Pass	PEAK		
133.730	V	0.0	48.0	12.32	2.82	24.8	38.38	84.6	-46.22	Pass	QP		
173.840	V	0.0	47.0	13.49	2.82	24.7	38.65	84.6	-45.95	Pass	PEAK		
173.840	V	0.0	46.0	13.49	2.82	24.7	37.65	84.6	-46.95	Pass	QP		
33.440	H	0.0	48.4	11.26	1.42	25.0	36.13	84.6	-48.47	Pass	PEAK		
33.440	H	0.0	47.4	11.26	1.42	25.0	35.13	84.6	-49.47	Pass	QP		
40.000	H	0.0	52.0	10.2	1.59	25.0	38.84	84.6	-45.76	Pass	PEAK		
40.000	H	0.0	51.0	10.2	1.59	25.0	37.84	84.6	-46.76	Pass	QP		
104.020	H	0.0	49.0	10.22	2.54	24.8	36.94	84.6	-47.66	Pass	PEAK		
104.020	H	0.0	48.0	10.22	2.54	24.8	35.94	84.6	-48.66	Pass	QP		
112.020	H	0.0	40.0	10.8	2.54	24.8	28.52	84.6	-56.08	Pass	PEAK		
112.020	H	0.0	38.8	10.8	2.54	24.8	27.32	84.6	-57.28	Pass	QP		
113.670	H	0.0	53.0	10.85	2.54	24.8	41.57	84.6	-43.03	Pass	PEAK		
113.670	H	0.0	51.0	10.85	2.54	24.8	39.57	84.6	-45.03	Pass	QP		
120.000	H	0.0	53.0	11.2	2.54	24.8	41.98	84.6	-42.62	Pass	PEAK		
120.000	H	0.0	52.5	11.2	2.54	24.8	41.48	84.6	-43.12	Pass	QP		
120.350	H	0.0	52.5	11.2	2.54	24.8	41.48	84.6	-43.12	Pass	PEAK		
120.350	H	0.0	51.6	11.2	2.54	24.8	40.58	84.6	-44.02	Pass	QP		
133.720	H	0.0	51.0	12.32	2.82	24.8	41.38	84.6	-43.22	Pass	PEAK		

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME: BOSCH TELECOM		W.O.#: 180036		DATE: 5/04/98	
EUT MODEL: CPE ROOF UNIT <i>GHZ</i>		SERIAL #: MSN(69)		TIME: 0920	
EUT CONFIG.: TX 28.107 (LOWER FREQUENCY) 20.0dBm (Simulated QPSK signal)		TECH.: MARK SEVERSON			
TEST SPECIFICATION: 2.993 (3M)		TEST NUMBER: RE-02			
ROD ANT. #:	CABLE #:	2B	DETECT. TYPE:	QP	LOCATION: BOATS
BICON ANT. #:	230	PREAMP. #:	398	RES. BW (kHz):	120
LOG ANT. #:	227	LIMITER#	184	VIDEO BW (kHz):	N/A
HORN ANT. #:		ATTEN. #:	N/A	TEMP. (deg. C):	20
DIPOLE ANT. #:		DETECTOR#:	641184	HUMIDITY (%):	39
				PHOTO ID:	180036 RE-02 RAD. EM.

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
133.720	H	0.0	50.0	12.32	2.82	24.8	40.38	84.6	-44.22	Pass	QP
173.850	H	0.0	42.0	13.49	2.82	24.7	33.65	84.6	-50.95	Pass	PEAK
173.850	H	0.0	40.0	13.49	2.82	24.7	31.65	84.6	-52.95	Pass	QP
328.050	V	0.0	42.0	17.75	4.63	24.6	39.76	84.6	-44.84	Pass	PEAK
328.050	V	0.0	40.5	17.75	4.63	24.6	38.26	84.6	-46.34	Pass	QP
344.070	V	0.0	40.0	15.8	4.63	24.6	35.81	84.6	-48.79	Pass	PEAK
344.070	V	0.0	39.0	15.8	4.63	24.6	34.81	84.6	-49.79	Pass	QP
632.100	V	0.0	39.0	21	7.29	24.8	42.54	84.6	-42.06	Pass	PEAK
632.100	V	0.0	38.0	21	7.29	24.8	41.54	84.6	-43.06	Pass	QP
960.000	V	0.0	38.0	23.26	9.17	24.8	45.6	84.6	-39	Pass	PEAK
960.000	V	0.0	35.0	23.26	9.17	24.8	42.6	84.6	-42	Pass	QP
328.050	H	0.0	38.5	17.75	4.63	24.6	36.26	84.6	-48.34	Pass	PEAK
328.050	H	0.0	37.5	17.75	4.63	24.6	35.26	84.6	-49.34	Pass	QP
344.050	H	0.0	41.0	15.8	4.63	24.6	36.81	84.6	-47.79	Pass	PEAK
344.050	H	0.0	40.0	15.8	4.63	24.6	35.81	84.6	-48.79	Pass	QP
632.100	H	0.0	38.0	21	7.29	24.8	41.54	84.6	-43.06	Pass	PEAK
632.100	H	0.0	37.0	21	7.29	24.8	40.54	84.6	-44.06	Pass	QP
960.000	H	0.0	31.0	23.26	9.17	24.8	38.6	84.6	-46	Pass	PEAK
960.000	H	0.0	26.0	23.26	9.17	24.8	33.6	84.6	-51	Pass	QP
											SCANNED 30MHZ-1GHZ <i>GHZ</i>
											<i>MHZ GHZ</i>

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:		BOSCH TELECOM				W.O.#: 180036		DATE:		5/01/98					
EUT MODEL:		CPE ROOF UNIT <i>GHZ</i>				SERIAL #: MSN(69)		TIME:		1330					
EUT CONFIG.:		TX 28.225(CENTER FREQUENCY) 20.0dBm(Simulated QPSK signal)				TECH.:		MARK SEVERSON							
TEST SPECIFICATION:		2.993 (3M)				TEST NUMBER:		RE-01							
ROD ANT. #:		CABLE #:		2B		DETECT. TYPE:		QP		LOCATION:		BOATS			
BICON ANT. #:		230		PREAMP. #:		398		RES. BW (kHz):		120		DISTANCE (m):		3M	
LOG ANT. #:		227		LIMITER#		184		VIDEO BW (kHz):		N/A		EUT VOLTAGE:		115VAC	
HORN ANT. #:				ATTEN. #:		N/A		TEMP. (deg. C):		22		EUT FREQ. (Hz):		60	
DIPOLE ANT #:				DETECTOR#:		<i>41</i> 184		HUMIDITY (%):		40		PHOTO ID:		180036 RE-01 RAD. EM.	
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes				
33.420	V	0.0	58.0	11.26	1.42	25.0	45.73	84.6	-38.87	Pass	PEAK				
33.420	V	0.0	54.0	11.26	1.42	25.0	41.73	84.6	-42.87	Pass	QP				
60.180	V	0.0	60.2	9.5	1.95	24.9	46.72	84.6	-37.88	Pass	PEAK				
60.180	V	0.0	58.0	9.5	1.95	24.9	44.52	84.6	-40.08	Pass	QP				
73.560	V	0.0	50.0	8.89	2.15	24.9	36.11	84.6	-48.49	Pass	PEAK				
73.560	V	0.0	46.0	8.89	2.15	24.9	32.11	84.6	-52.49	Pass	QP				
104.020	V	0.0	54.5	10.22	2.54	24.8	42.44	84.6	-42.16	Pass	PEAK				
104.020	V	0.0	54.0	10.22	2.54	24.8	41.94	84.6	-42.66	Pass	QP				
112.020	V	0.0	47.0	10.8	2.54	24.8	35.52	84.6	-49.08	Pass	PEAK				
112.020	V	0.0	45.3	10.8	2.54	24.8	33.82	84.6	-50.78	Pass	QP				
113.650	V	0.0	57.5	10.85	2.54	24.8	46.07	84.6	-38.53	Pass	PEAK				
113.650	V	0.0	54.0	10.85	2.54	24.8	42.57	84.6	-42.03	Pass	QP				
133.760	V	0.0	57.8	12.32	2.82	24.8	48.18	84.6	-36.42	Pass	PEAK				
133.760	V	0.0	54.0	12.32	2.82	24.8	44.38	84.6	-40.22	Pass	QP				
173.850	V	0.0	47.6	13.49	2.82	24.7	39.25	84.6	-45.35	Pass	PEAK				
173.850	V	0.0	44.0	13.49	2.82	24.7	35.65	84.6	-48.95	Pass	QP				
33.420	H	0.0	48.5	11.26	1.42	25.0	36.23	84.6	-48.37	Pass	PEAK				
33.420	H	0.0	45.0	11.26	1.42	25.0	32.73	84.6	-51.87	Pass	QP				
40.000	H	0.0	54.0	10.2	1.59	25.0	40.84	84.6	-43.76	Pass	PEAK				
40.000	H	0.0	51.4	10.2	1.59	25.0	38.24	84.6	-46.36	Pass	QP				
104.020	H	0.0	59.0	10.22	2.54	24.8	46.94	84.6	-37.66	Pass	PEAK				
104.020	H	0.0	57.0	10.22	2.54	24.8	44.94	84.6	-39.66	Pass	QP				
112.020	H	0.0	46.0	10.8	2.54	24.8	34.52	84.6	-50.08	Pass	PEAK				
112.020	H	0.0	45.0	10.8	2.54	24.8	33.52	84.6	-51.08	Pass	QP				
113.650	H	0.0	56.4	10.85	2.54	24.8	44.97	84.6	-39.63	Pass	PEAK				
113.650	H	0.0	53.0	10.85	2.54	24.8	41.57	84.6	-43.03	Pass	QP				
120.000	H	0.0	58.0	11.2	2.54	24.8	46.98	84.6	-37.62	Pass	PEAK				
120.000	H	0.0	56.9	11.2	2.54	24.8	45.88	84.6	-38.72	Pass	QP				
120.345	H	0.0	56.7	11.2	2.54	24.8	45.68	84.6	-38.92	Pass	PEAK				
120.345	H	0.0	55.5	11.2	2.54	24.8	44.48	84.6	-40.12	Pass	QP				
133.760	H	0.0	56.0	12.32	2.82	24.8	46.38	84.6	-38.22	Pass	PEAK				

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:		BOSCH TELECOM				W.O.#: 180036		DATE:		5/01/98	
EUT MODEL:		CPE ROOF UNIT <i>GHz</i>				SERIAL #: MSN(69)		TIME:		1330	
EUT CONFIG.:		TX 28.225(CENTER FREQUENCY) 20.0dBm(Simulated QPSK signal)				TECH.:		MARK SEVERSON			
TEST SPECIFICATION:		2.993 (3M)				TEST NUMBER:		RE-01			
ROD ANT. #:		CABLE #:		2B		DETECT. TYPE:		QP		LOCATION:	
BICON ANT. #:		PREAMP. #:		398		RES. BW (kHz):		120		DISTANCE (m):	
LOG ANT. #:		LIMITER#		184		VIDEO BW (kHz):		N/A		EUT VOLTAGE:	
HORN ANT. #:		ATTEN.#:		N/A		TEMP. (deg. C):		22		EUT FREQ. (Hz):	
DIPOLE ANT #:		DETECTOR#:		641784		HUMIDITY (%):		40		PHOTO ID:	
										180036 RE-01 RAD. EM.	
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
133.760	H	0.0	53.0	12.32	2.82	24.8	43.38	84.6	-41.22	Pass	QP
173.850	H	0.0	44.0	13.49	2.82	24.7	35.65	84.6	-48.95	Pass	PEAK
173.850	H	0.0	40.5	13.49	2.82	24.7	32.15	84.6	-52.45	Pass	QP
328.050	V	0.0	36.5	17.75	4.63	24.6	34.26	84.6	-50.34	Pass	PEAK
328.050	V	0.0	34.8	17.75	4.63	24.6	32.56	84.6	-52.04	Pass	QP
632.090	V	0.0	36.0	21	7.29	24.8	39.54	84.6	-45.06	Pass	PEAK
632.090	V	0.0	34.6	21	7.29	24.8	38.14	84.6	-46.46	Pass	QP
960.000	V	0.0	36.0	23.26	9.17	24.8	43.6	84.6	-41	Pass	PEAK
960.000	V	0.0	27.0	23.26	9.17	24.8	34.6	84.6	-50	Pass	QP
328.050	H	0.0	39.0	17.75	4.63	24.6	36.76	84.6	-47.84	Pass	PEAK
328.050	H	0.0	38.0	17.75	4.63	24.6	35.76	84.6	-48.84	Pass	QP
344.070	H	0.0	37.0	15.8	4.63	24.6	32.81	84.6	-51.79	Pass	PEAK
344.070	H	0.0	35.0	15.8	4.63	24.6	30.81	84.6	-53.79	Pass	QP
632.090	H	0.0	35.0	21	7.29	24.8	38.54	84.6	-46.06	Pass	PEAK
632.090	H	0.0	34.0	21	7.29	24.8	37.54	84.6	-47.06	Pass	QP
960.000	H	0.0	31.0	23.26	9.17	24.8	38.6	84.6	-46	Pass	PEAK
960.000	H	0.0	29.0	23.26	9.17	24.8	36.6	84.6	-48	Pass	QP
											SCANNED 30MHZ-1GHZ <i>GHz</i>
											<i>MHz GHz</i>

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM				W.O.#: 180036		DATE:		5/04/98					
EUT MODEL:	CPE ROOF UNIT CHZ 27				SERIAL #: MSN(69)		TIME:		0800					
EUT CONFIG.:	TX 28.345(HIGH FREQUENCY) 19.7dBm(Simulated QPSK signal)						TECH.:		MARK SEVERSON					
TEST SPECIFICATION:	2.993 (3M)				TEST NUMBER:		RE-03A							
ROD ANT. #:	CABLE #:		2B		DETECT. TYPE:		QP		LOCATION:		BOATS			
BICON ANT. #:	230		PREAMP. #:		398		RES. BW (kHz):		120		DISTANCE (m):		3M	
LOG ANT. #:	227		LIMITER#		184		VIDEO BW (kHz):		N/A		EUT VOLTAGE:		115VAC	
HORN ANT. #:			ATTEN. #:		N/A		TEMP. (deg. C):		20		EUT FREQ. (Hz):		60	
DIPOLE ANT #:			DETECTOR#:		11841		HUMIDITY (%):		39		PHOTO ID:		180036 RE-03A RAD. EM.	
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes			
33.440	V	0.0	61.0	11.26	1.42	25.0	48.73	84.6	-35.87	Pass	PEAK			
33.440	V	0.0	60.0	11.26	1.42	25.0	47.73	84.6	-36.87	Pass	QP			
59.780	V	0.0	59.0	9.577	1.75	24.9	45.397	84.6	-39.203	Pass	PEAK			
59.780	V	0.0	57.0	9.577	1.75	24.9	43.397	84.6	-41.203	Pass	QP			
73.560	V	0.0	51.0	8.89	2.15	24.9	37.11	84.6	-47.49	Pass	PEAK			
73.560	V	0.0	50.0	8.89	2.15	24.9	36.11	84.6	-48.49	Pass	QP			
104.020	V	0.0	50.0	10.22	2.54	24.8	37.94	84.6	-46.66	Pass	PEAK			
104.020	V	0.0	48.0	10.22	2.54	24.8	35.94	84.6	-48.66	Pass	QP			
112.020	V	0.0	41.0	10.8	2.54	24.8	29.52	84.6	-55.08	Pass	PEAK			
112.020	V	0.0	39.0	10.8	2.54	24.8	27.52	84.6	-57.08	Pass	QP			
113.660	V	0.0	49.0	10.85	2.54	24.8	37.57	84.6	-47.03	Pass	PEAK			
113.660	V	0.0	48.0	10.85	2.54	24.8	36.57	84.6	-48.03	Pass	QP			
133.740	V	0.0	48.0	12.32	2.82	24.8	38.38	84.6	-46.22	Pass	PEAK			
133.740	V	0.0	47.0	12.32	2.82	24.8	37.38	84.6	-47.22	Pass	QP			
173.840	V	0.0	47.0	13.49	2.82	24.7	38.65	84.6	-45.95	Pass	PEAK			
173.840	V	0.0	46.0	13.49	2.82	24.7	37.65	84.6	-46.95	Pass	QP			
33.420	H	0.0	54.0	11.26	1.42	25.0	41.73	84.6	-42.87	Pass	PEAK			
33.420	H	0.0	53.0	11.26	1.42	25.0	40.73	84.6	-43.87	Pass	QP			
40.000	H	0.0	40.0	10.2	1.59	25.0	26.84	84.6	-57.76	Pass	PEAK			
40.000	H	0.0	39.0	10.2	1.59	25.0	25.84	84.6	-58.76	Pass	QP			
104.020	H	0.0	44.0	10.22	2.54	24.8	31.94	84.6	-52.66	Pass	PEAK			
104.020	H	0.0	43.0	10.22	2.54	24.8	30.94	84.6	-53.66	Pass	QP			
112.020	H	0.0	37.0	10.8	2.54	24.8	25.52	84.6	-59.08	Pass	PEAK			
112.020	H	0.0	36.0	10.8	2.54	24.8	24.52	84.6	-60.08	Pass	QP			
113.670	H	0.0	48.0	10.85	2.54	24.8	36.57	84.6	-48.03	Pass	PEAK			
113.670	H	0.0	47.0	10.85	2.54	24.8	35.57	84.6	-49.03	Pass	QP			
120.000	H	0.0	47.0	11.2	2.54	24.8	35.98	84.6	-48.62	Pass	PEAK			
120.000	H	0.0	46.0	11.2	2.54	24.8	34.98	84.6	-49.62	Pass	QP			
120.350	H	0.0	47.0	11.2	2.54	24.8	35.98	84.6	-48.62	Pass	PEAK			
120.350	H	0.0	45.0	11.2	2.54	24.8	33.98	84.6	-50.62	Pass	QP			
133.720	H	0.0	49.0	12.32	2.82	24.8	39.38	84.6	-45.22	Pass	PEAK			

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME: BOSCH TELECOM		W.O.#: 180036		DATE: 5/04/98	
EUT MODEL: CPE ROOF UNIT		SERIAL #: MSN(69)		TIME: 0800	
EUT CONFIG.: TX 28.345		HIGH FREQUENCY) 19.7dBm(Simulated QPSK signal)		TECH.: MARK SEVERSON	
TEST SPECIFICATION: 2.993 (3M)		TEST NUMBER: RE-03A			
ROD ANT. #:	CABLE #:	2B	DETECT. TYPE:	QP	LOCATION: BOATS
BICON ANT. #:	230	PREAMP. #:	398	RES. BW (kHz):	120
LOG ANT. #:	227	LIMITER#	184	VIDEO BW (kHz):	N/A
HORN ANT. #:		ATTEN.#:	N/A	TEMP. (deg. C):	20
DIPOLE ANT #:		DETECTOR#:	41184	HUMIDITY (%):	39
				EUT VOLTAGE: 115VAC	
				EUT FREQ. (Hz): 60	
				PHOTO ID: 180036 RE-03A RAD. EM.	

Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes
133.720	H	0.0	48.0	12.32	2.82	24.8	38.38	84.6	-46.22	Pass	QP
173.850	H	0.0	43.0	13.49	2.82	24.7	34.65	84.6	-49.95	Pass	PEAK
173.850	H	0.0	41.0	13.49	2.82	24.7	32.65	84.6	-51.95	Pass	QP
											SCANNED 30-300MHZ
											MH2

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA ELECTRIC FIELD

CLIENT NAME:		BOSCH TELECOM				W.O.#: 180036		DATE:		5/01/98					
EUT MODEL:		CPE ROOF UNIT <i>6Hz</i>				SERIAL #: MSN(69)		TIME:		1520					
EUT CONFIG.:		TX 28.345(HIGH FREQUENCY) 20.0dBm(Simulated QPSK signal)				TECH.:		MARK SEVERSON							
TEST SPECIFICATION:		2.993 (3M)				TEST NUMBER:		RE-03							
ROD ANT. #:		CABLE #:		2B		DETECT. TYPE:		QP		LOCATION:		BOATS			
BICON ANT. #:		230		PREAMP. #:		398		RES. BW (kHz):		120		DISTANCE (m):		3M	
LOG ANT. #:		227		LIMITER#		184		VIDEO BW (kHz):		N/A		EUT VOLTAGE:		115VAC	
HORN ANT. #:		ATTEN.#:		N/A		TEMP. (deg. C):		22		EUT FREQ. (Hz):		60			
DIPOLE ANT #:		DETECTOR#:		<i>6911846</i>		HUMIDITY (%):		40		PHOTO ID:		180036 RE-03 RAD. EM.			
Emission Frequency (MHz)	Ant. Pol. (H/V)	Det. Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	CR/SL Delta (dB)	Pass Fail Marginal	Notes				
328.050	H	0.0	36.5	17.75	4.63	24.6	34.26	84.6	-50.34	Pass	PEAK				
328.050	H	0.0	35.0	17.75	4.63	24.6	32.76	84.6	-51.84	Pass	QP				
344.070	H	0.0	36.0	15.8	4.63	24.6	31.81	84.6	-52.79	Pass	PEAK				
344.070	H	0.0	35.0	15.8	4.63	24.6	30.81	84.6	-53.79	Pass	QP				
632.100	H	0.0	35.0	21	7.29	24.8	38.54	84.6	-46.06	Pass	PEAK				
632.100	H	0.0	33.5	21	7.29	24.8	37.04	84.6	-47.56	Pass	QP				
960.000	H	0.0	32.0	23.26	9.17	24.8	39.6	84.6	-45	Pass	PEAK				
960.000	H	0.0	27.0	23.26	9.17	24.8	34.6	84.6	-50	Pass	QP				
328.050	V	0.0	33.5	17.75	4.63	24.6	31.26	84.6	-53.34	Pass	PEAK				
328.050	V	0.0	32.0	17.75	4.63	24.6	29.76	84.6	-54.84	Pass	QP				
344.070	V	0.0	36.0	15.8	4.63	24.6	31.81	84.6	-52.79	Pass	PEAK				
344.070	V	0.0	35.4	15.8	4.63	24.6	31.21	84.6	-53.39	Pass	QP				
632.100	V	0.0	36.0	21	7.29	24.8	39.54	84.6	-45.06	Pass	PEAK				
632.100	V	0.0	35.5	21	7.29	24.8	39.04	84.6	-45.56	Pass	QP				
960.000	V	0.0	36.0	23.26	9.17	24.8	43.6	84.6	-41	Pass	PEAK				
960.000	V	0.0	30.0	23.26	9.17	24.8	37.6	84.6	-47	Pass	QP				
SCANNED 300MHz-1GHz															
<i>7MHz 6Hz</i>															

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

**FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS
ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz)**

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

**FIELD STRENGTH OF SPURIOUS EMISSIONS
SIMULATED QPSK SIGNAL**



Dallas/Ft. Worth Headquarters:

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Microwave Radiated Emissions Data

Complete X Preliminary Page 1 of 2

Client: BOSCH TELECOM Test #: MW-02 W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-02

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 4/30/98

Equipment Used: 103,216,421,430,CF31

Configuration: TX 28.107 ^{GHz} (LOWER FREQUENCY) 20.0dBm (Simulated QPSK signal)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz Peak
Temperature: 22 C 208 V.A.C. n/a 50 Hz X Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar X Other 16vdc n/a 1 Phase n/a 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
1.557	45	24.2	1.72	22.49	-24	24	-93.2	H	PEAK
1.557	41	24.2	1.72	22.49	-24	20	-97.2	H	AVG
1.920	35	27.1	2.23	22.93	-24	17	-100.2	H	PEAK Noise floor
1.920	29	27.1	2.23	22.93	-24	11	-106.2	H	AVG Noise floor
3.114	33	31.1	3.68	20.73	-24	23	-94.6	H	PEAK Noise floor
3.114	27	31.1	3.68	20.73	-24	17	-100.6	H	AVG Noise floor
1.557	45	24.2	1.72	22.49	-24	24	-93.2	V	PEAK
1.557	39	24.2	1.72	22.49	-24	18	-99.2	V	AVG
1.920	35	27.1	2.23	22.93	-24	17	-100.2	V	PEAK Noise floor
1.920	29	27.1	2.23	22.93	-24	11	-106.2	V	AVG Noise floor
3.114	33	31.1	3.68	20.73	-24	23	-94.6	V	PEAK Noise floor
3.114	27	31.1	3.68	20.73	-24	17	-100.6	V	AVG Noise floor

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Microwave Radiated Emissions Data

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Client: BOSCH TELECOM Test #: MW-2A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-2A

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/04/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.107 ^{GHz} (LOWER FREQUENCY) 20.0dBm (Simulated QPSK signal)
20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz X Peak
Temperature: 22 C 208 V.A.C. n/a 50 Hz Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar X Other 16VDC n/a 1 Phase n/a 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
20	47	40.3	24.5	40	-24	47.8	-69.8	H	Noise floor
24	49	40.4	26.9	40	-24	52.3	-65.3	H	Noise floor
26.55	58.5	40.5	28.1	40	-24	63.1	-54.5	H	
20	48	40.3	24.5	40	-24	48.8	-68.8	V	Noise floor
24	49	40.4	26.9	40	-24	52.3	-65.3	V	Noise floor
26.55	49.5	40.5	28.1	40	-24	54.1	-63.5	V	
27.510	50	43.4	0.54	0	-24	69.9	-47.7	H	Pilot tone
28.107	83.18	43.42	0.54	0	-24	103	-14.5	H	Noise floor
27.510	43	43.4	0.54	0	-24	62.9	-54.7	V	Pilot tone
28.107	33.8	43.42	0.54	0	-24	53.8	-63.9	V	Noise floor
									SCANNED
									18-40GHz
									GHz

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036mw2a

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Microwave Radiated Emissions Data

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Client: BOSCH TELECOM

Test #: MW-2D

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-2D

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS Date: 6/10/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.107 ^{GHz} LOWER FREQUENCY) 20.0dBm (SIMULATED QPSK)
20dBm at 10m = 107.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: 100Khz Antenna Distance 10 m Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

N/A 60 Hz

X Peak

Temperature: 24 C

— 208 V.A.C.

N/A 50 Hz

Average

Relative Humidity: 38 %

230 V.A.C.

N/A 1 Phase

n/a 3 Phase

dBc limit = -33

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Microwave Radiated Emissions DataComplete ☒ Preliminary ☐Page 1 of 1Client: BOSCH TELECOMTest #: MW-2BW.O.#: 180036EUT: CPE ROOF UNITS/N: MSN(69)Photo ID: 180036 MW-2BTechnician: MARK SEVERSONSpecification: CFR 47 2.993Lab: BOATS Date: 5/06/98Equipment Used: CF20,934,CF21,935,697,Configuration: TX 28.107GHZ (LOWER FREQUENCY) 20.0dBm (Simulated QPSK signal)20.0dBm at 3m = 117.63dBuV/mBandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions:

Temperature: 22 CRelative Humidity: 38 %Atmospheric Pressure: 998 mbarEUT Power: 115 V.A.C.n/a 60 Hz☒ Peak208 V.A.C.n/a 50 Hz☐ Average230 V.A.C.☒ Other 16VDCn/a 1 Phasen/a 3 Phase

dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
53.1	54.5	41.22	0.54	0	-24	72	-45.4	V	NOISE FLOOR
56.214	54.5	41.6	0.54	0	-24	73	-45.0	V	NOISE FLOOR
55.02	54.5	41.4	0.54	0	-24	72	-45.2	V	NOISE FLOOR
53.1	54.5	41.22	0.54	0	-24	72	-45.4	H	NOISE FLOOR
56.214	54.5	41.6	0.54	0	-24	73	-45.0	H	NOISE FLOOR
55.07	54.5	41.4	0.54	0	-24	72	-45.2	H	NOISE FLOOR
									below readings
									300Khz Res bw
									30Khz Video bw
53.1	29.5	41.22	0.54	0	-18.8	52	-65.2	V	NOISE FLOOR
56.214	29.5	41.6	0.54	0	-18.8	53	-64.8	V	NOISE FLOOR
55.02	29.5	41.4	0.54	0	-18.8	53	-65.0	V	NOISE FLOOR
53.1	29.5	41.22	0.54	0	-18.8	52	-65.2	H	NOISE FLOOR
56.214	29.5	41.6	0.54	0	-18.8	53	-64.8	H	NOISE FLOOR
55.07	29.5	41.4	0.54	0	-18.8	53	-65.0	H	NOISE FLOOR
									Scanned
									40-60GHz

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036mw2b

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Microwave Radiated Emissions DataComplete X Preliminary Page 1 of 2Client: BOSCH TELECOMTest #: MW-2CW.O.#: 180036EUT: CPE ROOF UNITS/N: MSN(69)Photo ID: 180036 MW-2CTechnician: MARK SEVERSONSpecification: CFR 47.2.993Lab: BOATSDate: 5/07/98Equipment Used: CF20,CF21,697,958,879Configuration: TX 28.107GHz (LOWER FREQUENCY) 20.0dBm (Simulated QPSK signal)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZVideo Bandwidth: 100Khz

Antenna Distance

3 m

Detector:

Climatic Conditions:

EUT Power: X 115 V.A.C.X 60 HzX PeakTemperature: 22 C 208 V.A.C. 50 Hz AverageRelative Humidity: 38 % 230 V.A.C.Atmospheric Pressure: 998 mbar Other 1 Phase 3 Phase

dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (db)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
60.0	35	43.8	0.54	0	-24	55.3	-62.3	V	Noise floor
65.0	35	43.7	0.54	0	-24	55.2	-62.4	V	Noise floor
70.0	35	44.0	0.54	0	-24	55.5	-62.1	V	Noise floor
60.0	35	43.8	0.54	0	-24	55.3	-62.3	H	Noise floor
65.0	35	43.7	0.54	0	-24	55.2	-62.4	H	Noise floor
70.0	35	44.0	0.54	0	-24	55.5	-62.1	H	Noise floor
79.65	35	44.74	0.54	0	-24	56.3	-61.4	V	Noise floor
82.53	35	45.05	0.54	0	-24	56.6	-61.0	V	Noise floor
84.321	35	45.2	0.54	0	-24	56.7	-60.9	V	Noise floor
79.65	35	44.74	0.54	0	-24	56.3	-61.4	H	Noise floor
82.53	35	45.05	0.54	0	-24	56.6	-61.0	H	Noise floor
84.321	35	45.2	0.54	0	-24	56.7	-60.9	H	Noise floor

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Microwave Radiated Emissions Data

Complete X Preliminary Page 1 of 2

Client: BOSCH TELECOM Test #: MW-01 W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-01

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 4/30/98

Equipment Used: 103,216,421,430,CF31

Configuration: TX 28.225 ^{GHz} (CENTER FREQUENCY) 20.0dBm (Simulated QPSK signal)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: X 115 V.A.C. X 60 Hz Peak
Temperature: 22 C 208 V.A.C. 50 Hz X Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar Other 1 Phase 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
1.675	35	24.2	1.72	22.49	-24	14	-103.2	H	PEAK Noise floor
1.675	31	24.2	1.72	22.49	-24	10	-107.2	H	AVG Noise floor
1.920	35	27.1	2.23	22.93	-24	17	-100.2	H	PEAK Noise floor
1.920	29	27.1	2.23	22.93	-24	11	-106.2	H	AVG Noise floor
3.35	33	31.1	3.68	20.73	-24	23	-94.6	H	PEAK Noise floor
3.35	27	31.1	3.68	20.73	-24	17	-100.6	H	AVG Noise floor
1.675	35	24.2	1.72	22.49	-24	14	-103.2	V	PEAK Noise floor
1.675	31	24.2	1.72	22.49	-24	10	-107.2	V	AVG Noise floor
1.920	35	27.1	2.23	22.93	-24	17	-100.2	V	PEAK Noise floor
1.920	29	27.1	2.23	22.93	-24	11	-106.2	V	AVG Noise floor
3.35	33	31.1	3.68	20.73	-24	23	-94.6	V	PEAK Noise floor
3.35	27	31.1	3.68	20.73	-24	17	-100.6	V	AVG Noise floor

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Microwave Radiated Emissions Data

Continuation Page

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Client: BOSCH TELECOM

Test #: MW-01

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-01

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 4/30/98

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Microwave Radiated Emissions Data

Complete X Preliminary Page 1 of 1

Client: BOSCH TELECOM Test #: MW-01A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-01A

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/01/98

Equipment Used: 103,216,452,CF31

Configuration: TX 28.225GHz (CENTER FREQUENCY) 20.0dBm (Simulated QPSK signal)
20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: X 115 V.A.C. X 60 Hz Peak
Temperature: 22 C 208 V.A.C. 50 Hz X Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar Other 1 Phase 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
13.0	51	39.7	7.9	45.6	-24	29	-88.6	V	Peak Noise floor
13.0	43	39.7	7.9	45.6	-24	21	-96.6	V	Avg Noise floor
15.0	49	41.0	8.92	43.7	-24	31	-86.4	V	Peak Noise floor
15.0	41	41.0	8.92	43.7	-24	23	-94.4	V	Avg Noise floor
18.0	51	41.0	9.94	37.8	-24	40	-77.5	V	Peak Noise floor
18.0	43	41.0	9.94	37.8	-24	32	-85.5	V	Avg Noise floor
13.0	51	39.7	7.9	45.6	-24	29	-88.6	H	Peak Noise floor
13.0	43	39.7	7.9	45.6	-24	21	-96.6	H	Avg Noise floor
15.0	49	41.0	8.92	43.7	-24	31	-86.4	H	Peak Noise floor
15.0	41	41.0	8.92	43.7	-24	23	-94.4	H	Avg Noise floor
18.0	51	41.0	9.94	37.8	-24	40	-77.5	H	Peak Noise floor
18.0	43	41.0	9.94	37.8	-24	32	-85.5	H	Avg Noise floor
									SCANNED
									13-18GHz
									GHz

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Microwave Radiated Emissions Data

Complete X Preliminary Page 1 of 1

Client: BOSCH TELECOM Test #: MW-1A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-1A

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/05/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.225 ^{GHz} (CENTER FREQUENCY) 20.0dBm (Simulated QPSK signal)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz X Peak
Temperature: 22 C 208 V.A.C. n/a 50 Hz Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar X Other -16vdc n/a 1 Phase n/a 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
20	47	40.3	24.5	40	-24	48	-69.8	H	NOISE FLOOR
24	47	40.4	26.9	40	-24	50	-67.3	H	NOISE FLOOR
26.550	59	40.5	28.1	40	-24	64	-54.0	H	
20	47	40.3	24.5	40	-24	48	-69.8	V	NOISE FLOOR
24	47	40.4	26.9	40	-24	50	-67.3	V	NOISE FLOOR
26.550	50	40.5	28.1	40	-24	55	-63.0	V	
27.510	51	43.4	0.54	0	-24	71	-46.7	H	Pilot tone
28.225	34	43.42	0.54	0	-24	54	-63.7	H	NOISE FLOOR
27.510	45	43.4	0.54	0	-24	65	-52.7	V	Pilot tone
28.225	34	43.42	0.54	0	-24	54	-63.7	V	NOISE FLOOR
									SCANNED
									18-40GHz
									GHz

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Client: BOSCH TELECOM

Test #: MW-1D

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-1D

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS Date: 6/10/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.225GHz (CENTER FREQUENCY) 20.0dBm (SIMULATED QPSK)

$$20\text{dBm at } 10\text{m} = 107.63\text{dB}\mu\text{V/m}$$

Bandwidth: 1MHz

Video Bandwidth: 100Khz

Antenna Distance 10 m

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

N/A 60 Hz

X Peak

Temperature: 24 C

208 V.A.C.

N/A 50 Hz

— Average

Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

— 230 V.A.C.

N/A 1 Phase

N/A 1 Phase n/a 3 Phase
dBc limit = -33

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Client: BOSCH TELECOM Test #: MW-1B W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-1B

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/06/98

Equipment Used: CF20,934,CF21,935,697,

Configuration: TX 28.225 ^{GHz} (CENTER FREQUENCY) 20.0dBm (Simulated QPSK signal)
20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/ 60 Hz X Peak
Temperature: 22 C 208 V.A.C. n/a 50 Hz Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar X Other 16VDC n/a 1 Phase n/a 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
53.1	54.5	41.22	0.54	0	-24	72	-45.4	V	NOISE FLOOR
56.45	54.5	41.6	0.54	0	-24	73	-45.0	V	NOISE FLOOR
55.02	54.5	41.4	0.54	0	-24	72	-45.2	V	NOISE FLOOR
53.1	54.5	41.22	0.54	0	-24	72	-45.4	H	NOISE FLOOR
56.45	54.5	41.6	0.54	0	-24	73	-45.0	H	NOISE FLOOR
55.07	54.5	41.4	0.54	0	-24	72	-45.2	H	NOISE FLOOR
									below readings
									300Khz Res bw
									30Khz Video bw
53.1	29.6	41.22	0.54	0	-18.8	53	-65.1	V	NOISE FLOOR
56.45	29.6	41.6	0.54	0	-18.8	53	-64.7	V	NOISE FLOOR
55.02	29.6	41.4	0.54	0	-18.8	53	-64.9	V	NOISE FLOOR
53.1	29.6	41.22	0.54	0	-18.8	53	-65.1	H	NOISE FLOOR
56.45	29.6	41.6	0.54	0	-18.8	53	-64.7	H	NOISE FLOOR
55.07	29.6	41.4	0.54	0	-18.8	53	-64.9	H	NOISE FLOOR
									scanned
									40-60GHz <i>KPM</i>
									<i>GHz</i>

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Client: BOSCH TELECOM Test #: MW-03 W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-03

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/01/98

Equipment Used: 103,216,421,430,CF31

Configuration: TX 28.345 ^{GHz} (HIGH FREQUENCY) 20.0dBm (Simulated QPSK signal)
20dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: X 115 V.A.C. X 60 Hz Peak
Temperature: 22 C 208 V.A.C. 50 Hz X Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar Other 1 Phase 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
1.795	35	24.2	2.23	22.17	-24	15	-102.4	H	PEAK Noise floor
1.795	27	24.2	2.23	22.17	-24	7.3	-110.4	H	AVG Noise floor
1.920	35	27.1	2.23	22.93	-24	17	-100.2	H	PEAK Noise floor
1.920	27	27.1	2.23	22.93	-24	9.4	-108.2	H	AVG Noise floor
3.59	33	31.1	4.0	20.48	-24	24	-94.0	H	PEAK Noise floor
3.59	27	31.1	4.0	20.48	-24	18	-100.0	H	AVG Noise floor
1.795	35	24.2	2.23	22.17	-24	15	-102.4	V	PEAK Noise floor
1.795	27	24.2	2.23	22.17	-24	7.3	-110.4	V	AVG Noise floor
1.920	35	27.1	2.23	22.93	-24	17	-100.2	V	PEAK Noise floor
1.920	27	27.1	2.23	22.93	-24	9.4	-108.2	V	AVG Noise floor
3.59	33	31.1	4.0	20.48	-24	24	-94.0	V	PEAK Noise floor
3.59	27	31.1	4.0	20.48	-24	18	-100.0	V	AVG Noise floor

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036mw03

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Microwave Radiated Emissions Data
Continuation Page

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Client: BOSCH TELECOM

Test #: MW-03

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-03

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 5/01/98[illegible]

REV 960717

036mw03



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Microwave Radiated Emissions Data

Complete X Preliminary Page 1 of 1

Client: BOSCH TELECOM Test #: MW-03A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-03A

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/01/98

Equipment Used: 103,216,452,CF31

Configuration: TX 28.345GHZ (HIGH FREQUENCY) 20.0dBm (Simulated QPSK signal)
20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz Peak
Temperature: 22 C 208 V.A.C. n/a 50 Hz X Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar X Other 16vdc n/a 1 Phase n/a 3 Phase
dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
13.0	49	39.7	7.9	45.6	-24	27	-90.6	V	Peak Noise floor
13.0	41	39.7	7.9	45.6	-24	19	-98.6	V	Avg Noise floor
15.0	49	41.0	8.92	43.7	-24	31	-86.4	V	Peak Noise floor
15.0	41	41.0	8.92	43.7	-24	23	-94.4	V	Avg Noise floor
18.0	49	41.0	9.94	37.8	-24	38	-79.5	V	Peak Noise floor
18.0	41	41.0	9.94	37.8	-24	30	-87.5	V	Avg Noise floor
13.0	49	39.7	7.9	45.6	-24	27	-90.6	H	Peak Noise floor
13.0	41	39.7	7.9	45.6	-24	19	-98.6	H	Avg Noise floor
15.0	49	41.0	8.92	43.7	-24	31	-86.4	H	Peak Noise floor
15.0	41	41.0	8.92	43.7	-24	23	-94.4	H	Avg Noise floor
18.0	49	41.0	9.94	37.8	-24	38	-79.5	H	Peak Noise floor
18.0	41	41.0	9.94	37.8	-24	30	-87.5	H	Avg Noise floor
									SCANNED
									13-18GHZ
									GHZ

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036mw03a



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Client: BOSCH TELECOM Test #: MW-3A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-3A

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/05/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.345 ^{GHz} (HIGHER FREQUENCY) 20.0dBm (Simulated QPSK signal)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz X Peak
Temperature: 22 C 208 V.A.C. n/a 50 Hz Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar X Other 16vdc n/a 1 Phase n/a 3 Phase
dBc limit= -33dB

Freq. (GHz)	Meter Reading (dBuVm)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
20	47	40.3	24.5	40	-24	48	-69.8	H	NOISE FLOOR
24	47	40.4	26.9	40	-24	50	-67.3	H	NOISE FLOOR
26.550	58.5	40.5	28.1	40	-24	63	-54.5	H	
20	47	40.3	24.5	40	-24	48	-69.8	V	NOISE FLOOR
24	47	40.4	26.9	40	-24	50	-67.3	V	NOISE FLOOR
26.550	49.5	40.5	28.1	40	-24	54	-63.5	V	
27.510	51	43.4	0.54	0	-24	71	-46.7	H	Pilot tone
28.225	34	43.42	0.54	0	-24	54	-63.7	H	NOISE FLOOR
27.510	45	43.4	0.54	0	-24	65	-52.7	V	Pilot tone
28.225	34	43.42	0.54	0	-24	54	-63.0	V	NOISE FLOOR
									SCANNED
									18-40GHz ^{GHz}

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Client: BOSCH TELECOM

Test #: MW-3F

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-3F

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATSDate: 6/10/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.345GHz (HIGHER FREQUENCY) 20.0dBm (SIMULATED QPSK)

$$20\text{dBm at } 10\text{m} = 107.63\text{dBuV/m}$$

Bandwidth: 1MHZ

Video Bandwidth: 100Khz

Antenna Distance

10 m

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

N/A 60 Hz

X Peak

Temperature: 24 C

208 V.A.C.

N/A 50 Hz

 Average

Relative Humidity: 38 %

230 V.A.C.

Atmospheric Pressure: 998 mbar

X Other 16VDC

N/A 1 Phase

n/a 3 Phase

dBc limit = -33

[illegible]

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Microwave Radiated Emissions DataComplete X Preliminary Page 1 of 1Client: BOSCH TELECOMTest #: MW-3dW.O.#: 180036EUT: CPE ROOF UNITS/N: MSN(69)Photo ID: 180036 MW-3dTechnician: MARK SEVERSONSpecification: CFR 47 2.993Lab: BOATSDate: 5/05/98Equipment Used: CF20,934,CF21,935,697Configuration: TX 28.345^{GHz} (HIGHER FREQUENCY) 20.0dBm (Simulated QPSK signal)20.0dBm at 3m = 117.63dBuV/mBandwidth: 1MHZVideo Bandwidth: N/AAntenna Distance 3 m

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.n/a 60 HzX PeakTemperature: 22 C208 V.A.C.n/a 50 Hz AverageRelative Humidity: 38 %230 V.A.C.Atmospheric Pressure: 998 mbarX Other 16VDCn/a 1 Phasen/a 3 Phase

dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
53.1	54.5	41.22	0.54	0	-24	72	-45.4	V	NOISE FLOOR
56.69	54.5	41.6	0.54	0	-24	73	-45.0	V	NOISE FLOOR
55.02	54.5	41.4	0.54	0	-24	72	-45.2	V	NOISE FLOOR
53.1	54.5	41.22	0.54	0	-24	72	-45.4	H	NOISE FLOOR
56.69	54.5	41.6	0.54	0	-24	73	-45.0	H	NOISE FLOOR
55.07	54.5	41.4	0.54	0	-24	72	-45.2	H	NOISE FLOOR
									Below readings are
									300kHz Res Bw
									30kHz Video
53.1	29.5	41.22	0.54	0	-18.8	52	-65.2	V	
56.69	29.5	41.6	0.54	0	-18.8	53	-64.8	V	
55.02	29.5	41.4	0.54	0	-18.8	53	-65.0	V	
53.1	29.5	41.22	0.54	0	-18.8	52	-65.2	H	
56.69	29.5	41.6	0.54	0	-18.8	53	-64.8	H	
55.07	29.5	41.4	0.54	0	-18.8	53	-65.0	H	
									SCANNED
									40-60GHz

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036MW3d



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Client: BOSCH TELECOM

Test #: MW-3E

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-3E

Technician: MARK SEVERSON

Specification: CFR 47 2.993

Lab: BOATS Date: 5/07/98

Equipment Used: CF20,CF21,697,958,879

Configuration: TX 28.345 ^{6-Hz}GHZ (HIGHER FREQUENCY) 20.0dBm (Simulated QPSK signal)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: 100Khz Antenna Distance 3 m Detector:

Climatic Conditions:

Temperature: 22 C

Relative Humidity: 38 %

Atmospheric Pressure: 998 mbar

EUT Power: X 115 V.A.C.

 208 V.A.C.

 230 V.A.C.

 Other

X 60 Hz

 50 Hz

X Peak

 Average

 1 Phase 3 Phase

dBc limit = -33dB

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
60.0	35	43.8	0.54	0	-24	55.3	-62.3	V	Noise floor
65.0	35	43.7	0.54	0	-24	55.2	-62.4	V	Noise floor
70.0	35	44.0	0.54	0	-24	55.5	-62.1	V	Noise floor
60.0	35	43.8	0.54	0	-24	55.3	-62.3	H	Noise floor
65.0	35	43.7	0.54	0	-24	55.2	-62.4	H	Noise floor
70.0	35	44.0	0.54	0	-24	55.5	-62.1	H	Noise floor
79.650	35	44.74	0.54	0	-24	56.3	-61.4	V	Noise floor
82.530	35	45.05	0.54	0	-24	56.6	-61.0	V	Noise floor
85.035	35	45.2	0.54	0	-24	56.7	-60.9	V	Noise floor
79.650	35	44.74	0.54	0	-24	56.3	-61.4	H	Noise floor
82.530	35	45.05	0.54	0	-24	56.6	-61.0	H	Noise floor
85.035	35	45.2	0.54	0	-24	56.7	-60.9	H	Noise floor

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Continuation Page

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Client: BOSCH TELECOM

Test #: MW-3E

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-3E

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 5/07/98

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Microwave Radiated Emissions Data

Complete X Preliminary Page 1 of 2

Client: BOSCH TELECOM Test #: MW-10D W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW10D

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/19/98

Equipment Used: 494,103,452,430,421,cf31

Configuration: TX 28.107^{GHz} (LOWER FREQUENCY) 20.0dBm (ACTUAL QPSK)

20.0dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz X Peak
Temperature: 25 C 208 V.A.C. n/a 50 Hz X Average
Relative Humidity: 42 % 230 V.A.C.
Atmospheric Pressure: 1001 mbar X Other 16VDC n/a 1 Phase n/ 3 Phase
dBc limit = -33dBc

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
1.557	27	25.1	1.72	22.49	-24	7.3	-110.3	V	Peak, Noise floor
1.557	21	25.1	1.72	22.49	-24	1.3	-116.3	V	Avg, Noise floor
1.920	29	28.2	2.23	22.49	-24	13	-104.7	V	Peak, Noise floor
1.920	23	28.2	2.23	22.93	-24	6.5	-111.1	V	Avg, Noise floor
3.114	29	30.8	3.68	20.73	-24	19	-98.9	V	Peak, Noise floor
3.114	23	30.8	3.68	20.73	-24	13	-104.9	V	Avg, Noise floor
1.557	27	25.1	1.72	22.49	-24	7.3	-110.3	H	Peak, Noise floor
1.557	21	25.1	1.72	22.49	-24	1.3	-116.3	H	Avg, Noise floor
1.920	29	28.2	2.23	22.49	-24	13	-104.7	H	Peak, Noise floor
1.920	23	28.2	2.23	22.93	-24	6.5	-111.1	H	Avg, Noise floor
3.114	29	30.8	3.68	20.73	-24	19	-98.9	H	Peak, Noise floor
3.114	23	30.8	3.68	20.73	-24	13	-104.9	H	Avg, Noise floor

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Client: BOSCH TELECOM

Test #: MW-10D

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW10D

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS

Date: 5/19/98

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
9.6	43	37.9	7.04	38.26	-24	26	-92.0	V	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	20	-98.0	V	Avg, Noise floor
9.6	43	37.9	7.04	38.26	-24	26	-92.0	H	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	20	-98.0	H	Avg, Noise floor
13	45	40.0	7.9	45.6	-24	23	-94.3	V	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17	-100.3	V	Avg, Noise floor
15	45	41.8	8.92	45.6	-24	26	-91.5	V	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20	-97.5	V	Avg, Noise floor
18	45	44.4	9.94	45.6	-24	30	-87.9	V	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	24	-93.9	V	Avg, Noise floor
13	45	40.0	7.9	45.6	-24	23	-94.3	H	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17	-100.3	H	Avg, Noise floor
15	45	41.8	8.92	45.6	-24	26	-91.5	H	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20	-97.5	H	Avg, Noise floor
18	45	44.4	9.94	45.6	-24	30	-87.9	H	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	24	-93.9	H	Avg, Noise floor
									SCANNED
									1-18GHz
									GHz

036mw10d



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Client: BOSCH TELECOM

Test #: MW-8b

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW8b

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS Date: 5/18/98

Equipment Used: CF20,CF21,697,958,879

Configuration: TX 28.107 ^{GHz} (LOWER FREQUENCY) 20.0dBm (ACTUAL QPSK signal driven by NIU)

20dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: 100Khz Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. 60 Hz ☒ Peak
Temperature: 24 C 208 V.A.C. 50 Hz ☐ Average
Relative Humidity: 38 % 230 V.A.C.
Atmospheric Pressure: 998 mbar ☒ Other 16VDC N/A 1 Phase n/a 3 Phase
dBc limit = -33

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
60	34	43.8	0.54	0	-24	54	-63.3	H	Noise floor
65	34	43.7	0.54	0	-24	54	-63.4	H	Noise floor
70	34	44.0	0.54	0	-24	55	-63.1	H	Noise floor
60	34	43.8	0.54	0	-24	54	-63.3	V	Noise floor
65	34	43.7	0.54	0	-24	54	-63.4	V	Noise floor
70	34	44.0	0.54	0	-24	55	-63.1	V	Noise floor
79.65	35	44.74	0.54	0	-24	56	-61.4	H	Noise floor
82.53	35	45.05	0.54	0	-24	57	-61.0	H	Noise floor
84.321	35	45.2	0.54	0	-24	57	-60.9	H	Noise floor
79.65	35	44.74	0.54	0	-24	56	-61.4	V	Noise floor
82.53	35	45.05	0.54	0	-24	57	-61.0	V	Noise floor
84.321	35	45.2	0.54	0	-24	57	-60.9	V	Noise floor

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036MW8b



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Client: BOSCH TELECOM Test #: MW-9D W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW9D

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/19/98

Equipment Used: 494,103,452,430,421,cf31

Configuration: TX 28.225(center FREQUENCY) 20.0dBm (ACTUAL QPSK)

Bandwidth: 1MHZ Video Bandwidth: N/A Antenna Distance 3 m Detector:

Climatic Conditions: EUT Power: 115 V.A.C. n/a 60 Hz X Peak
Temperature: 25 C 208 V.A.C. n/a 50 Hz X Average
Relative Humidity: 42 % 230 V.A.C.
Atmospheric Pressure: 1001 mbar X Other 16VDC n/a 1 Phase n/a 3 Phase
dBc limit = -33dBc

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
1.675	27	25.1	1.72	22.49	-24	7.3	-110.3	V	Peak, Noise floor
1.675	21	25.1	1.72	22.49	-24	1.3	-116.3	V	Avg, Noise floor
1.920	29	28.2	2.23	22.49	-24	13	-104.7	V	Peak, Noise floor
1.920	23	28.2	2.23	22.93	-24	6.5	-111.1	V	Avg, Noise floor
3.35	29	30.8	3.68	20.73	-24	19	-98.9	V	Peak, Noise floor
3.35	23	30.8	3.68	20.73	-24	13	-104.9	V	Avg, Noise floor
1.675	27	25.1	1.72	22.49	-24	7.3	-110.3	H	Peak, Noise floor
1.675	21	25.1	1.72	22.49	-24	1.3	-116.3	H	Avg, Noise floor
1.920	29	28.2	2.23	22.49	-24	13	-104.7	H	Peak, Noise floor
1.920	23	28.2	2.23	22.93	-24	6.5	-111.1	H	Avg, Noise floor
3.35	29	30.8	3.68	20.73	-24	19	-98.9	H	Peak, Noise floor
3.35	23	30.8	3.68	20.73	-24	13	-104.9	H	Avg, Noise floor

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036mw9d



Dallas/Ft. Worth Headquarters:

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Microwave Radiated Emissions Data
Continuation Page

Complete X Preliminary

Page 2 of 2

Client: BOSCH TELECOM

Test #: MW-9D

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW9D

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 5/19/98

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
9.6	43	37.9	7.04	38.26	-24	26	-92.0	V	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	20	-98.0	V	Avg. Noise floor
9.6	43	37.9	7.04	38.26	-24	26	-92.0	H	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	20	-98.0	H	Avg. Noise floor
13	45	40.0	7.9	45.6	-24	23	-94.3	V	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17	-100.3	V	Avg. Noise floor
15	45	41.8	8.92	45.6	-24	26	-91.5	V	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20	-97.5	V	Avg. Noise floor
18	45	44.4	9.94	45.6	-24	30	-87.9	V	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	24	-93.9	V	Avg. Noise floor
13	45	40.0	7.9	45.6	-24	23	-94.3	H	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17	-100.3	H	Avg. Noise floor
15	45	41.8	8.92	45.6	-24	26	-91.5	H	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20	-97.5	H	Avg. Noise floor
18	45	44.4	9.94	45.6	-24	30	-87.9	H	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	24	-93.9	H	Avg. Noise floor
									SCANNED
									1-18GHz
									GHz

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036mw9d



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Microwave Radiated Emissions Data
Continuation Page

Complete X Preliminary

Page 2 of 2

Client: BOSCH TELECOM

Test #: MW-9D

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW9D

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 5/19/98

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
9.6	43	37.9	7.04	38.26	-24	26	-92.0	V	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	20	-98.0	V	Avg, Noise floor
9.6	43	37.9	7.04	38.26	-24	26	-92.0	H	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	20	-98.0	H	Avg, Noise floor
13	45	40.0	7.9	45.6	-24	23	-94.3	V	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17	-100.3	V	Avg, Noise floor
15	45	41.8	8.92	45.6	-24	26	-91.5	V	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20	-97.5	V	Avg, Noise floor
18	45	44.4	9.94	45.6	-24	30	-87.9	V	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	24	-93.9	V	Avg, Noise floor
13	45	40.0	7.9	45.6	-24	23	-94.3	H	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17	-100.3	H	Avg, Noise floor
15	45	41.8	8.92	45.6	-24	26	-91.5	H	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20	-97.5	H	Avg, Noise floor
18	45	44.4	9.94	45.6	-24	30	-87.9	H	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	24	-93.9	H	Avg, Noise floor
									SCANNED
									1-18GHz
									GHz

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036mw9d

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Microwave Radiated Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: MW-9c

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW9c

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS

Date: 5/18/98

Equipment Used: 697,934

Configuration: TX 28.225GHz (CENTER FREQUENCY) 20.0dBm (ACTUAL QPSK signal driven by NIU)
20dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ

Video Bandwidth: 100Khz

Antenna Distance

3 m

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

60 Hz

X Peak

Temperature: 24 C

208 V.A.C.

50 Hz

 Average

Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

230 V.A.C.

N/A 1 Phase

n/a 3 Phase

dBc limit = -33

[illegible]

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036MW9c

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Microwave Radiated Emissions Data

Complete X Preliminary

Page 1 of 2

Client: BOSCH TELECOM

Test #: MW-9b

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW9b

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS Date: 5/18/98

Equipment Used: CF20,CF21,697,958,879

Configuration: TX 28.225GHz (center FREQUENCY) 20.0dBm (ACTUAL QPSK signal driven by NIU)

$$20\text{dBm at } 3\text{m} = 117.63\text{dBuV/m}$$

Bandwidth: 1MHZ

Video Bandwidth: 100Khz

Antenna Distance 3 m

Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

60 Hz

X Peak

Temperature: 24 C

208 V.A.C.

50 Hz

Average

Relative Humidity: 38 %

230 V.A.C.

N/A 1 Phase

n/a 3 Phase

dBc limit = -33

[illegible]

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036MW9b

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Microwave Radiated Emissions DataComplete ☒ Preliminary ☐Page 1 of 2Client: BOSCH TELECOMTest #: MW-8DW.O. #: 180036EUT: CPE ROOF UNITS/N: MSN(69)Photo ID: 180036 MW8DTechnician: MARK SEVERSONSpecification: CFR 47 2.993Lab: BOATS Date: 5/19/98Equipment Used: 494,103,452,430,421,cf31Configuration: TX 28.345 (HIGHER FREQUENCY) 20.0dBm (ACTUAL QPSK)20.0dBm at 3m = 117.63dBuV/mBandwidth: 1MHZVideo Bandwidth: N/AAntenna Distance 3 m

Detector:

Climatic Conditions:

Temperature: 25 CRelative Humidity: 42 %Atmospheric Pressure: 1001 mbarEUT Power: 115 V.A.C.208 V.A.C.230 V.A.C.☒ Other 16VDCn/a 60 Hzn/a 50 Hzn/a 1 PhasedBc limit = -33dBc☒ Peak☒ Averagen/ 3 Phase

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
1.795	27	25.1	1.72	22.49	-24	52.3	-65.3	V	Peak, Noise floor
1.795	20	25.1	1.72	22.49	-24	45.3	-72.3	V	Avg, Noise floor
1.920	29	28.2	2.23	22.49	-24	57.9	-59.7	V	Peak, Noise floor
1.920	23	28.2	2.23	22.93	-24	52.4	-65.3	V	Avg, Noise floor
3.59	29	30.8	3.68	20.73	-24	60.2	-57.4	V	Peak, Noise floor
3.59	23	30.8	3.68	20.73	-24	54.2	-63.4	V	Avg, Noise floor
1.795	27	25.1	1.72	22.49	-24	52.3	-65.3	H	Peak, Noise floor
1.795	21	25.1	1.72	22.49	-24	46.3	-71.3	H	Avg, Noise floor
1.920	29	28.2	2.23	22.49	-24	57.9	-59.7	H	Peak, Noise floor
1.920	23	28.2	2.23	22.93	-24	52.4	-65.3	H	Avg, Noise floor
3.59	29	30.8	3.68	20.73	-24	60.2	-57.4	H	Peak, Noise floor
3.59	23	30.8	3.68	20.73	-24	54.2	-63.4	H	Avg, Noise floor

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036mw8d



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Microwave Radiated Emissions Data

Continuation Page

Complete X Preliminary

Page 2 of 2

Client: BOSCH TELECOM

Test #: MW-8D

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW8D

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 5/19/98

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
9.6	43	37.9	7.04	38.26	-24	25.7	-92.0	V	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	19.7	-98.0	V	Avg, Noise floor
9.6	43	37.9	7.04	38.26	-24	25.7	-92.0	H	Peak, Noise floor
9.6	37	37.9	7.04	38.26	-24	19.7	-98.0	H	Avg, Noise floor
13	47	40.0	7.9	45.6	-24	25.3	-92.3	V	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17.3	-100.3	V	Avg, Noise floor
15	45	41.8	8.92	45.6	-24	26.1	-91.5	V	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20.1	-97.5	V	Avg, Noise floor
18	45	44.4	9.94	45.6	-24	29.7	-87.9	V	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	23.7	-93.9	V	Avg, Noise floor
13	45	40.0	7.9	45.6	-24	23.3	-94.3	H	Peak, Noise floor
13	39	40.0	7.9	45.6	-24	17.3	-100.3	H	Avg, Noise floor
15	45	41.8	8.92	45.6	-24	26.1	-91.5	H	Peak, Noise floor
15	39	41.8	8.92	45.6	-24	20.1	-97.5	H	Avg, Noise floor
18	45	44.4	9.94	45.6	-24	29.7	-87.9	H	Peak, Noise floor
18	39	44.4	9.94	45.6	-24	23.7	-93.9	H	Avg, Noise floor
									SCANNED
									1-18GHZ
									6-172

REV 960717

036mw8d

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Microwave Radiated Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: MW-8G

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW-8G

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS

Date: 6/10/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.345GHz (HIGHER FREQUENCY) 20.0dBm (ACTUAL QPSK signal driven by NIU)
20dBm at 10m = 107.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: 100Khz Antenna Distance 10 m Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

N/ 60 Hz

X Peak

Temperature: 24 C

208 V.A.C.

 $\overline{N} = 50 \text{ Hz}$

Average

Relative Humidity: 38 %

230 V.A.C.

N/A 1 Phase

n/a 3 Phase

dBc limit = -33

[illegible]

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036mw8g

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Microwave Radiated Emissions Data

Complete X Preliminary

Page 1 of 1

Client: BOSCH TELECOM

Test #: MW-10

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW10

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS

Date: 5/15/98

Equipment Used: CF20,934,CF21,935,697

Configuration: TX 28.345GHz (higher FREQUENCY) 20.0dBm (ACTUAL QPSK signal driven by NIU)
20dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ Video Bandwidth: 100Khz Antenna Distance 3 m Detector:

Climatic Conditions:

EUT Power: 115 V.A.C.

60 Hz

X Peak

Temperature: 24 C

208 V.A.C.

50 Hz

— Average

Relative Humidity: 38 %

230 V.A.C.

Keywords: *workplace spirituality, organizational commitment, organizational trust, organizational identification, organizational citizenship behaviors*

—

Atmospheric Pressure: 998 mbar

X Other 16VDC

N/A 1 Phase

n/a 3 Phase

dBc limit = -33

[illegible]

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036mw10



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Microwave Radiated Emissions Data

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Page 1 of 2

Client: BOSCH TELECOM

Test #: MW-10b

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW10b

Technician: MARK SEVERSON

Specification: CFR 47 P. 2.993

Lab: BOATS

Date: 5/18/98

Equipment Used: CF20,CF21,697,958,879

Configuration: TX 28.345 ^{G-Hz 47}GHz (higher FREQUENCY) 20.0dBm (ACTUAL QPSK signal driven by NIU)
20dBm at 3m = 117.63dBuV/m

Bandwidth: 1MHZ

Video Bandwidth: 100Khz

Antenna Distance 3 m

Detector:

Climatic Conditions:

Temperature: 24 C

Relative Humidity: 38 %

Atmospheric Pressure: 998 mbar

EUT Power: 115 V.A.C.

60 Hz

208 V.A.C.

50 Hz

230 V.A.C.

X Other 16VDC

N/A 1 Phase

n/a 3 Phase

-33 dBc limit =

X Peak

 Average

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
60	34	43.8	0.54	0	-24	54	-63.3	H	Noise floor
65	34	43.7	0.54	0	-24	54	-63.4	H	Noise floor
70	34	44.0	0.54	0	-24	55	-63.1	H	Noise floor
60	34	43.8	0.54	0	-24	54	-63.3	V	Noise floor
65	34	43.7	0.54	0	-24	54	-63.4	V	Noise floor
70	34	44.0	0.54	0	-24	55	-63.1	V	Noise floor
79.65	35	44.74	0.54	0	-24	56	-61.4	H	Noise floor
82.53	35	45.05	0.54	0	-24	57	-61.0	H	Noise floor
85.035	35	45.2	0.54	0	-24	57	-60.9	H	Noise floor
79.65	35	44.74	0.54	0	-24	56	-61.4	V	Noise floor
82.53	35	45.05	0.54	0	-24	57	-61.0	V	Noise floor
85.035	35	45.2	0.54	0	-24	57	-60.9	V	Noise floor

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036MW10b

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Microwave Radiated Emissions Data

Continuation Page

Complete X Preliminary

Page 2 of 2

Client: BOSCH TELECOM

Test #: MW10B

W.O.#: 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Photo ID: 180036 MW10B

Technician: MARK SEVERSON

Specification: CFR 47 P 2.993

Lab: BOATS Date: 5/18/98

[illegible]

REV 960717

036MW10b

Model

**CUSTOMER PREMISES EQUIPMENT ROOF UNIT
TRANSCEIVER (US)**

Bosch Telecom, Inc.

FREQUENCY STABILITY



KTL Dallas

Dallas/Ft. Worth Headquarters:

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FREQUENCY STABILITY

Client BOSCH TELECOM

W.O.# 180036

EUT: CPE ROOF UNIT

S/N: MSN(69)

Date: 4/28/98

Tech: MARK SEVERSON

Tested IAW CFR 47 P2.995

EQUIPMENT USED: KTL #739, #313

CONFIGURATION: TX 28.225000Ghz

FREQUENCY(GHz)	TEMP(C°)	VOLTAGE		TIME	FREQUENCY TOLERANCE
28.225000404 (R/F)freq	-30°C	(-15%)	40.8Vdc		.001% (+/- 279.2 kHz)
1.675000182 I/F freq					
28.225000394 (R/F)freq	-30°C	(Nominal)	48 Vdc	1135	.001% (+/- 279.2kHz)
1.675000180 I/F freq					
28.225000348 (R/F)freq	-30°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000180 I/F freq					
28.225000637 (R/F)freq	-20°C	(-15%)	40.8Vdc		.001% (+/- 279.2kHz)
1.675000181 I/F freq					
28.225000638 (R/F)freq	-20°C	(Nominal)	48 Vdc	1240	.001% (+/- 279.2kHz)
1.675000181 I/F freq					
28.225000637 (R/F)freq	-20°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000183 I/F freq					
28.225000522 (R/F)freq	-10°C	(-15%)	40.8Vdc		.001% (+/- 279.2kHz)
1.675000185 I/F freq					
28.225000530 (R/F)freq	-10°C	(Nominal)	48 Vdc	1325	.001% (+/- 279.2kHz)
1.675000185 I/F freq					
28.225000514 (R/F)freq	-10°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000184 I/F freq					

REV 960717



KTL Dallas, Inc.

Dallas Headquarters:

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FREQUENCY STABILITYClient: BOSCH TELECOMW.O.# 180036EUT: CPE ROOF UNITS/N: MSN(69)Date: 4/28/98Tech: MARK SEVERSONEQUIPMENT USED: KTL #739, #313CONFIGURATION: 28.225000Ghz

FREQUENCY (GHz)	TEMP(C°)	VOLTAGE		TIME	FREQUENCY TOLREANCE
28.225000440 (R/F)freq	0°C	(-15%)	40.8Vdc		.001% (+/- 279.2 kHz)
1.675000184 I/F freq					
28.225000454 (R/F)freq	0°C	(Nominal)	48 Vdc	1410	.001% (+/- 279.2kHz)
1.675000184 I/F freq					
28.225000447 (R/F)freq	0°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000183 I/F freq					
28.225000394 (R/F)freq	10°C	(-15%)	40.8Vdc		.001% (+/- 279.2kHz)
1.675000183 I/F freq					
28.225000484 (R/F)freq	10°C	(Nominal)	48 Vdc	1455	.001% (+/- 279.2kHz)
1.675000182 I/F freq					
28.225000407 (R/F)freq	10°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000183 I/F freq					
28.225000359 (R/F)freq	20°C	(-15%)	40.8Vdc		.001% (+/- 279.2kHz)
1.675000184 I/F freq					
28.225000360 (R/F)freq	20°C	(Nominal)	48 Vdc	1540	.001% (+/- 279.2kHz)
1.675000183 I/F freq					
28.225000374 (R/F)freq	20°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000192 I/F freq					

FREQ. STAB 01



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Lewisville, TX 75057
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Fax: (972) 436-2667

FREQUENCY STABILITYClient: BOSCH TELECOMW.O.# 180036EUT: CPE ROOF UNITS/N: MSN(69)Date: 4/28/98Tech: MARK SEVERSONEQUIPMENT USED: KTL#739, #313CONFIGURATION: 28.225000Ghz

FREQUENCY (GHz)	TEMP(C°)	VOLTAGE		TIME	FREQUENCY TOLERANCE
28.225000392 (R/F)freq	30°C	(-15%)	40.8Vdc		.001% (+/- 279.2 kHz)
1.675000182 I/F freq					
28.225000396 (R/F)freq	30°C	(Nominal)	48 Vdc	1625	.001% (+/- 279.2kHz)
1.675000182 I/F freq					
28.225000391 (R/F)freq	30°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000182 I/F freq					
28.225000489 (R/F)freq	40°C	(-15%)	40.8Vdc		.001% (+/- 279.2kHz)
1.675000184 I/F freq					
28.225000473 (R/F)freq	40°C	(Nominal)	48 Vdc	1710	.001% (+/- 279.2kHz)
1.675000184 I/F freq					
28.225000477 (R/F)freq	40°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000183 I/F freq					
28.225000718 (R/F)freq	50°C	(-15%)	40.8Vdc		.001% (+/- 279.2kHz)
1.675000182 I/F freq					
28.225000714 (R/F)freq	50°C	(Nominal)	48 Vdc	1755	.001% (+/- 279.2kHz)
1.675000182 I/F freq					
28.225000731 (R/F)freq	50°C	(+15%)	55.2 Vdc		.001% (+/- 279.2kHz)
1.675000182 I/F freq					

FREQ. STAB 01

APPENDIX C - CERTIFICATIONS AND RECOGNITIONS

CERTIFICATIONS AND RECOGNITIONS

NORTH AMERICA:

- **FEDERAL COMMUNICATIONS COMMISSION (United States of America)**
- **NVLAP (United States of America)**
- **UNDERWRITERS LABORATORIES (United States of America)**

EUROPE:

- **ACEMARK EUROPE LTD (United Kingdom)**

European EMC Competent Bodies: **BSI Testing**
 Chase EMC, Ltd.
 Dedicated Micros, Ltd.
 EURO EMC SERVICE (EES)
 Gastec NV
 GEC Marconi Avionics
 Hursley EMC Services
 KTL
 LUCAS VARITY
 Motor Industry Research Association (MIRA)
 SGS EMC, Ltd.
 TRL EMC, Ltd.
 TRIPLE C
 KCS CERTIFICATION
 YORK EMC SERVICES

- **INTERFERENCE TECHNOLOGY INTERNATIONAL, LTD. (United Kingdom)**
- **NEMKO (Norway)**

ASIA:

- **VCCI (Japan)**
- **BCIQ (Taiwan)**

SOUTH PACIFIC:

- **MINISTRY OF COMMERCE (New Zealand)**