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FCC PART 101

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on the

Model CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

FCC ID: NNS3214864

for

Bosch Telecom, Inc.
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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 (FFC 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 1rst, 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 fee 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 -.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 -.0.02 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 QSPK 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.

FRENQUENCY 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 Cº, -20 Cº, -10 Cº, 0 Cº, 10 Cº, 20 Cº, 30 Cº, 40 Cº, and 50 Cº.

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 3 # 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:

Ratio BW / [10 x log (RBW1/RBW2)] = - 23.979 = - 24.0 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:

Correction Factor (dB) = 20 log (10 m/3 m) = 10.5 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 m/30 m) = -9.5 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:

Ratio BW / [10 x log (RBW1/RBW2)] =23.979 = - 24.0 dBm.

dBc Limit Calculation:

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

Field Intensity (equivalent to 0.1 W into tuned dipole) = 20.0 dBm - 28.87 + 116 + 10.5 = 117.63 dB• 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 QPSKI), 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.

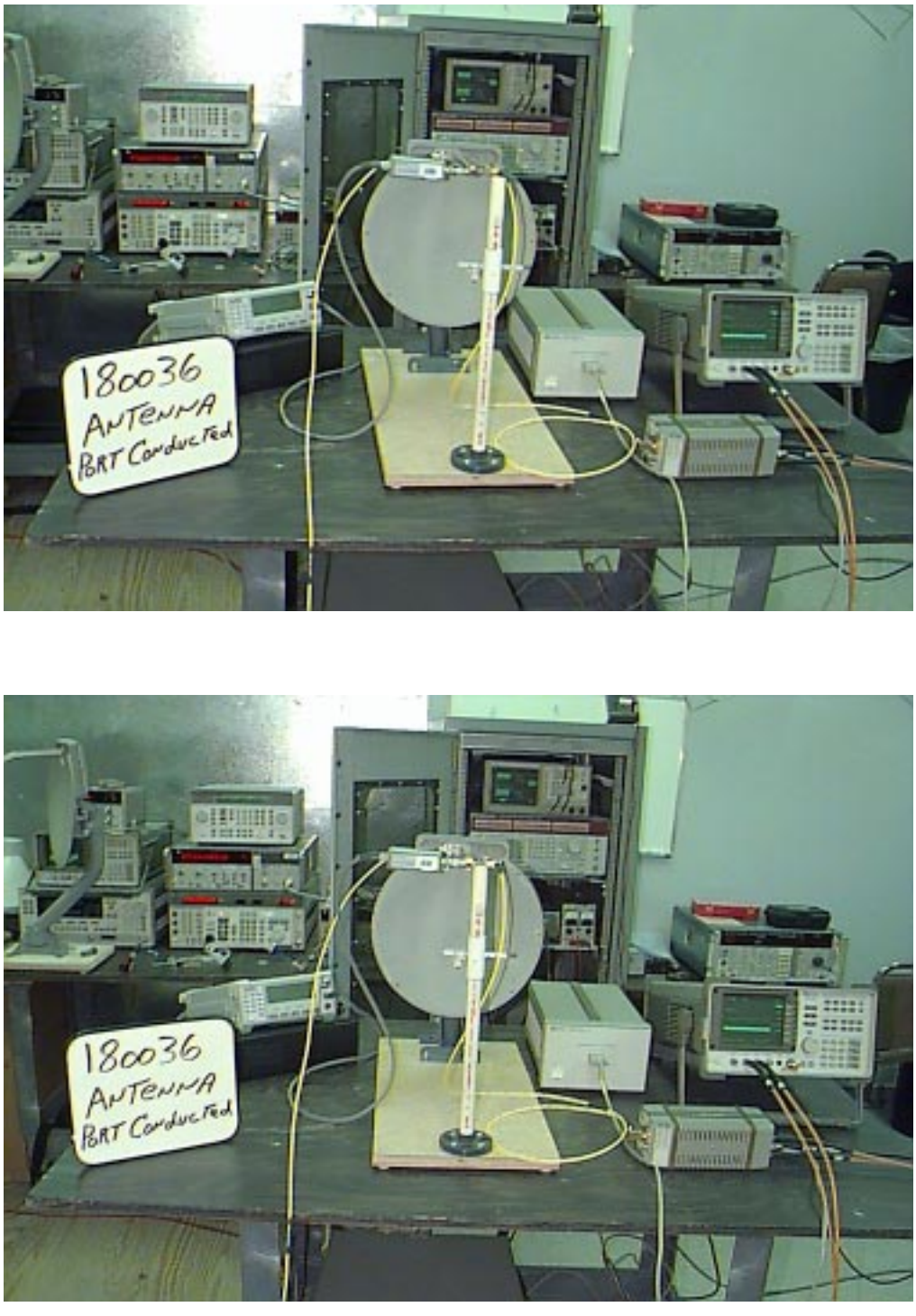


FIGURE D-4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS TEST SETUP

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. (dBµV/m)	FCC 2.993. Limit (dBµV/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. (dBµV/m)	FCC 2.993. Limit (dBµV/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. (dBµV/m)	FCC 2.991. Limit (dBµV/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. (dBµV/m)	FCC 2.991. Limit (dBµV/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).

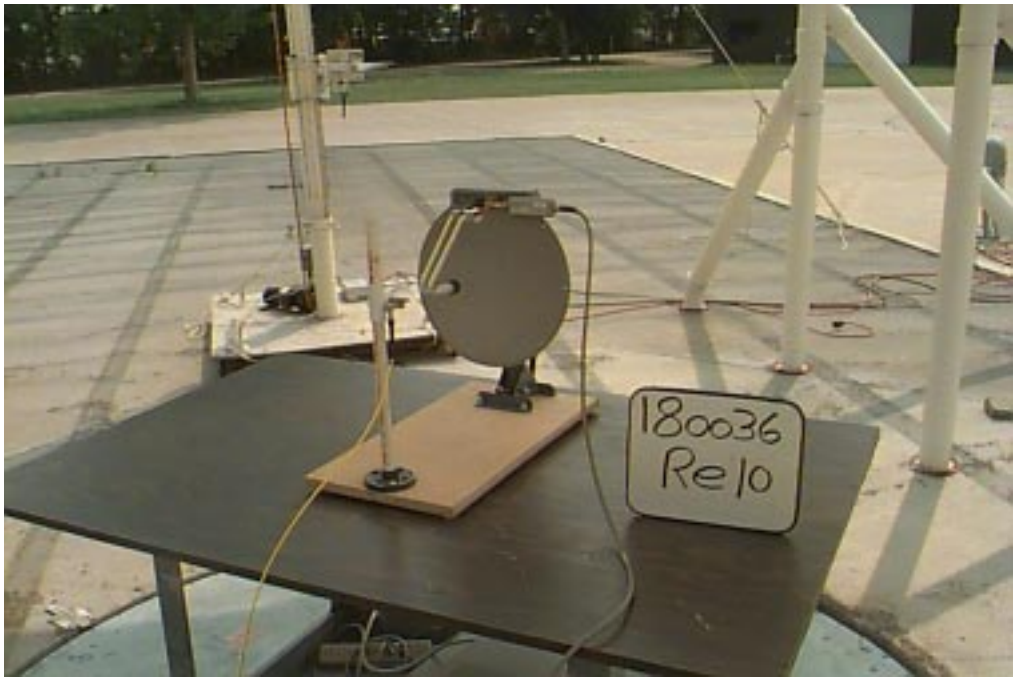
2. Amplitude was measured using the quasi-peak detector.

Notes:

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

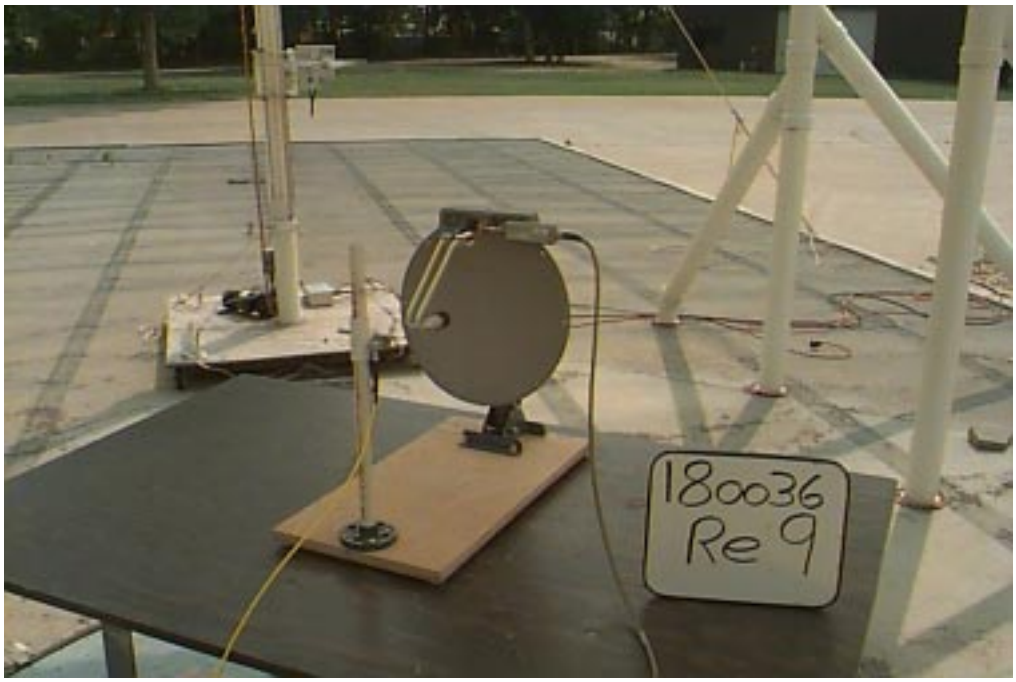
All other radiated emissions amplitudes were at least 10 dB within the FCC 2.991 Limits. Emissions were scanned from 30 MHz to 1 GHz with antennas in both the vertical and horizontal orientation. The specified radiated emissions antenna reference distance was 3 meters. Testing of the EUT was conducted 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. (dBµV/m)	FCC 2.993. Limit (dBµV/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. (dBµV/m)	FCC 2.993. Limit (dBµV/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. (dBµV/m)	FCC 2.993. Limit (dBµV/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. (dBµV/m)	FCC 2.993. Limit (dBµV/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)

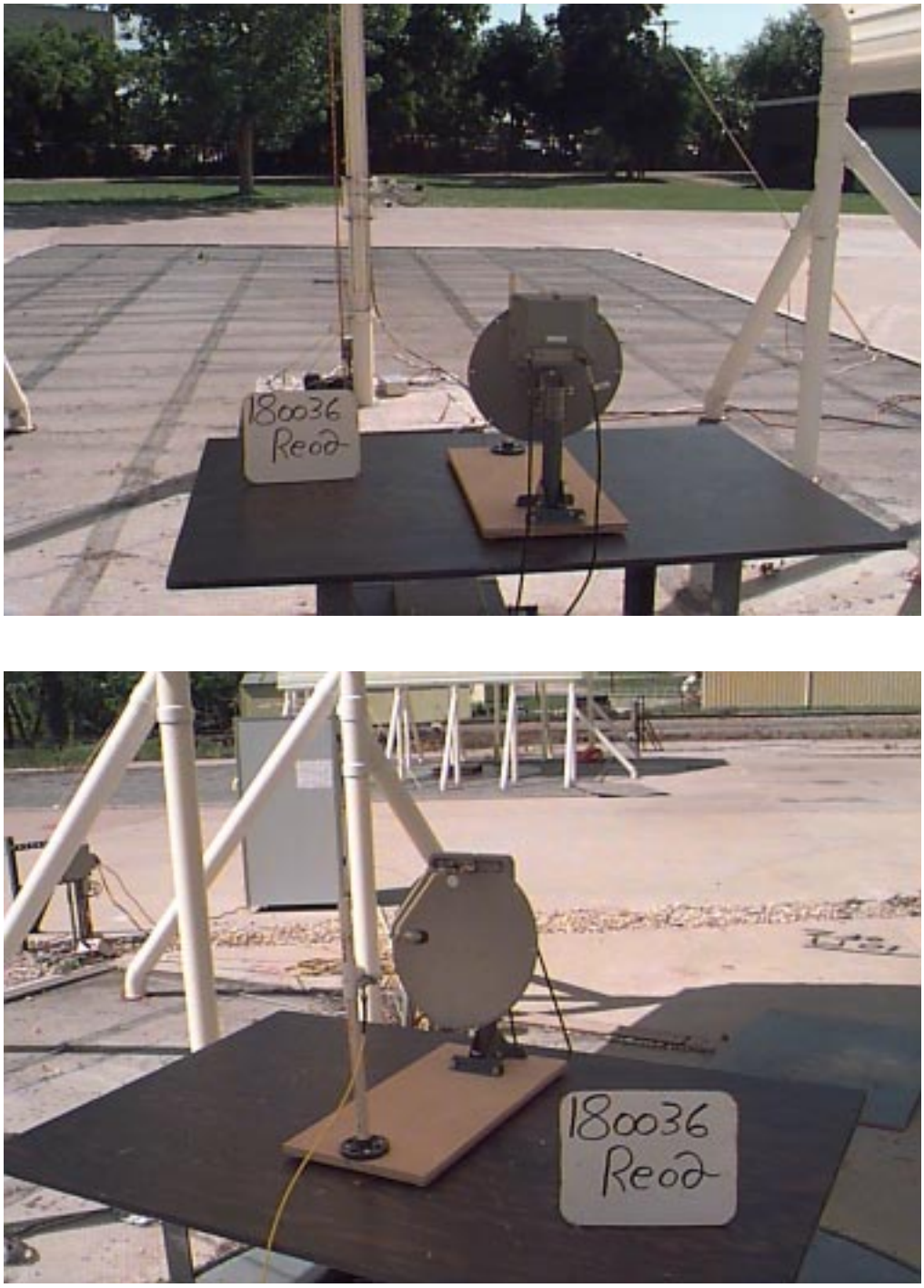
2. Amplitude was measured using the quasi-peak detector.

Notes:

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

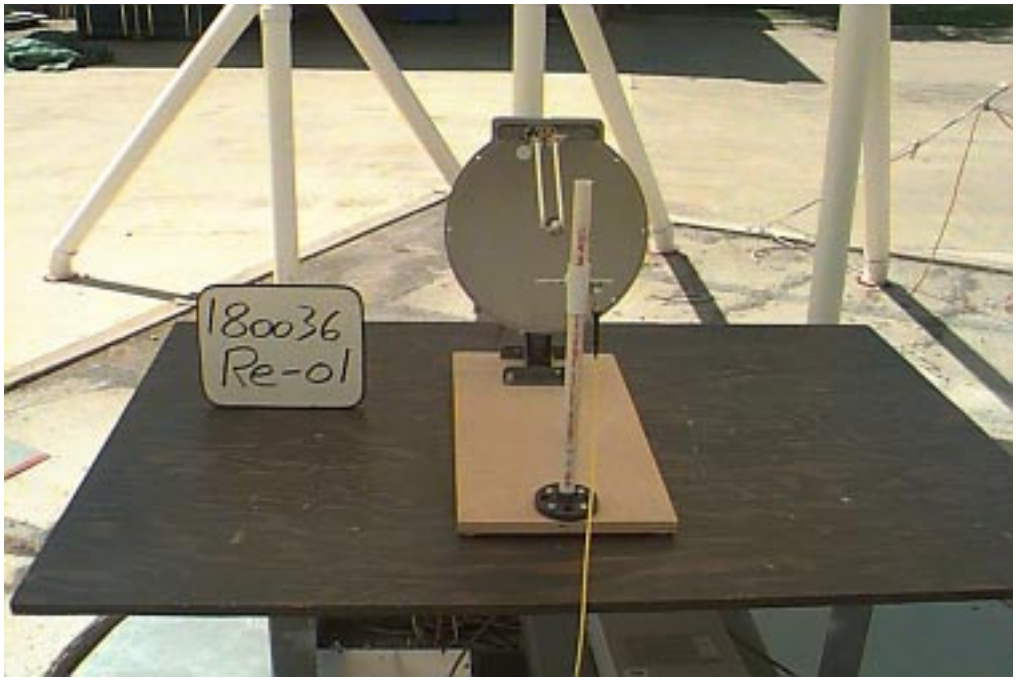
All other radiated emissions amplitudes were at least 10 dB within the FCC 2.991 Limits. Emissions were scanned from 30 MHz to 1 GHz with antennas in both the vertical and horizontal orientation. The specified radiated emissions antenna reference distance was 3 meters. Testing of the EUT was conducted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

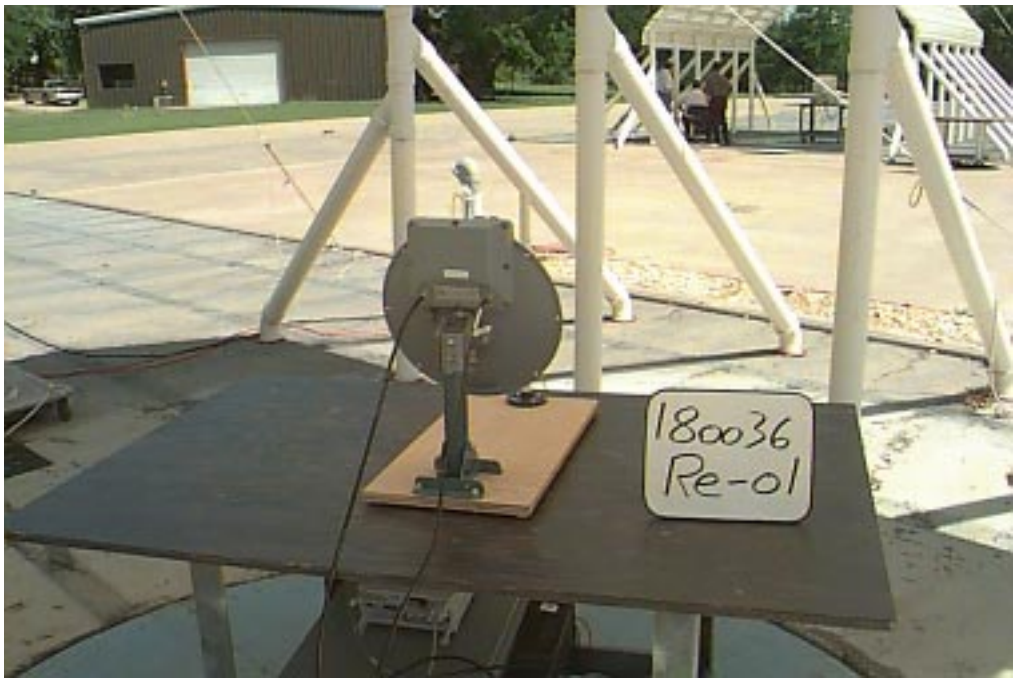
Amplitudes were measured using the CISPR quasi-peak detector. Reference detector specified in the limit is the CISPR quasi-peak detector.



Configuration: Lower Frequency (Simulated QPSK Signal)

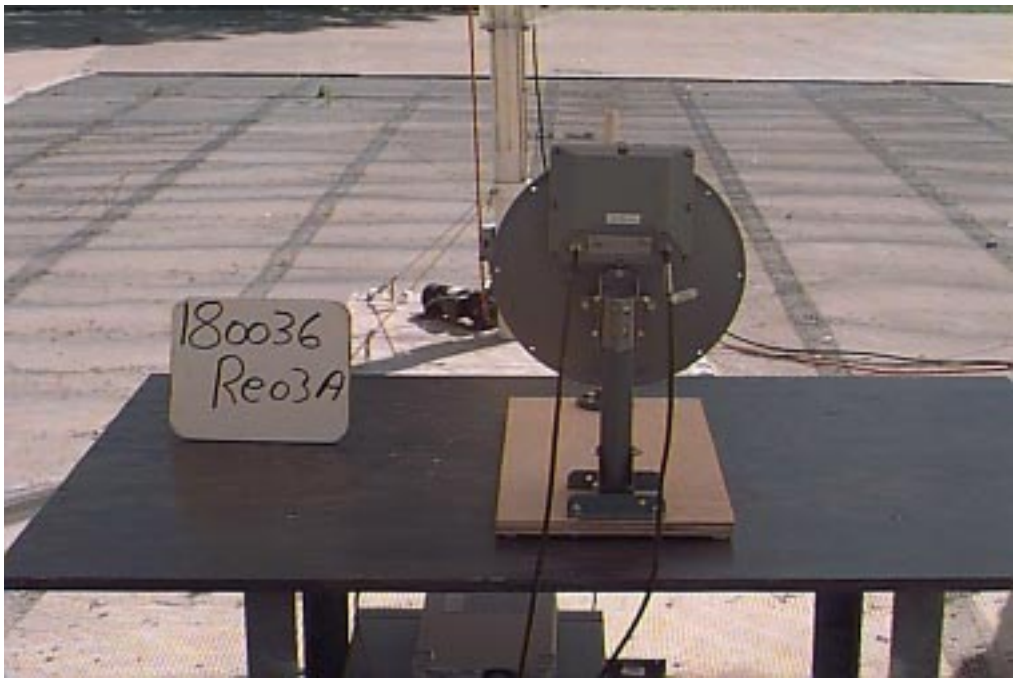
FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP





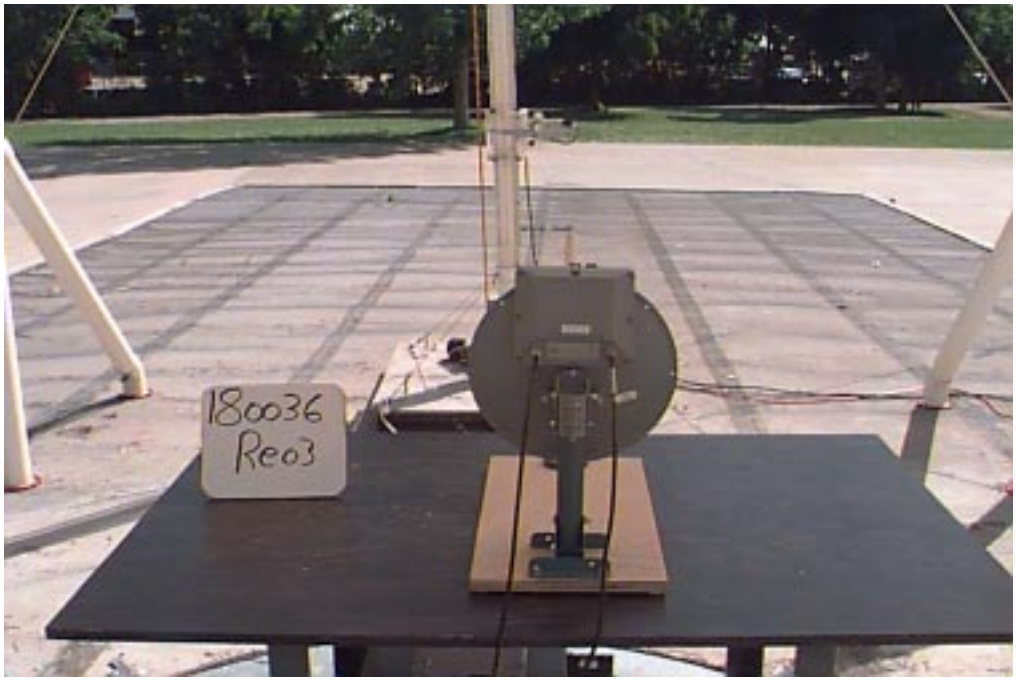
Configuration: Center Frequency (Simulated QPSK Signal)

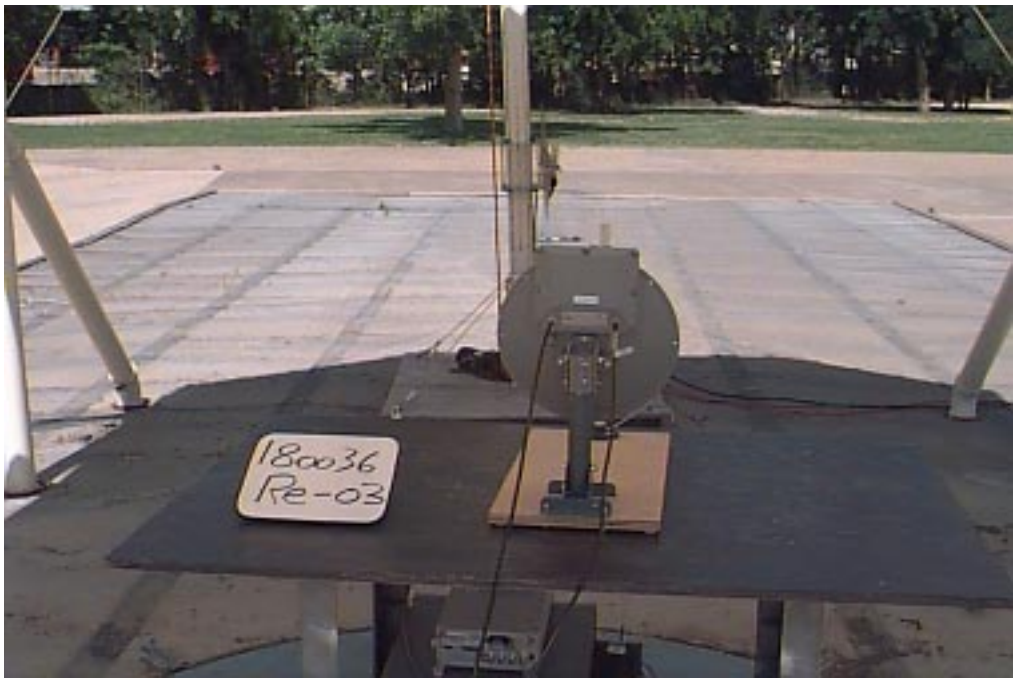
FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)



Configuration: High Frequency (Simulated QPSK Signal)

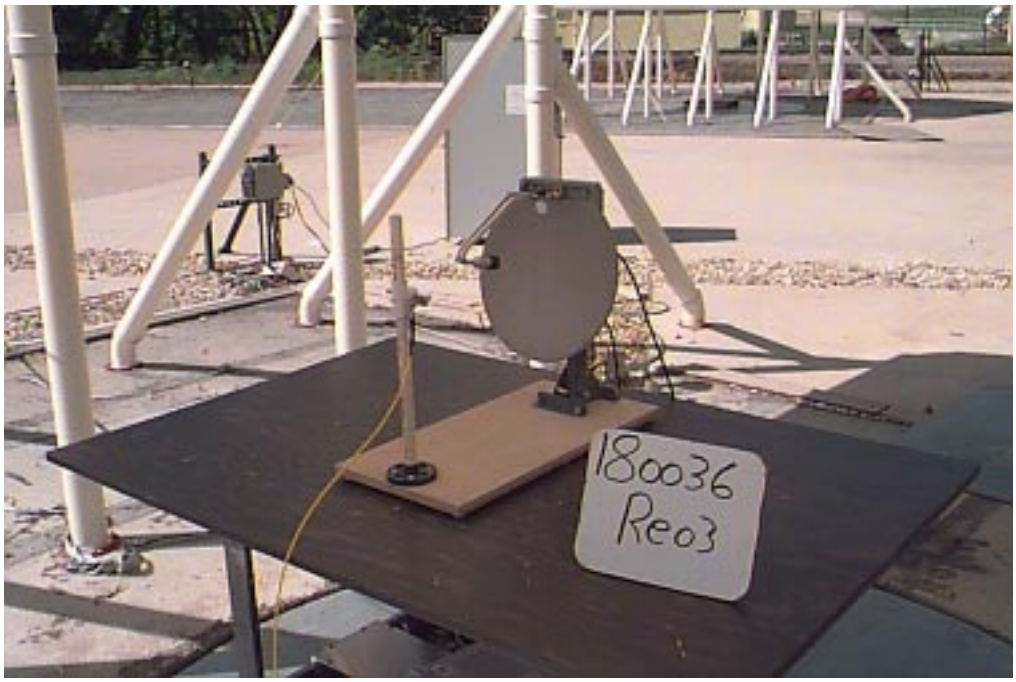
FIGURE D-6. WORST-CASE FIELD STRENGTH OF SPURIOUS RADAITED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 30 MHz – 1000 MHz) TEST SETUP (Continued)





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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (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
84.321	-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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (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 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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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)

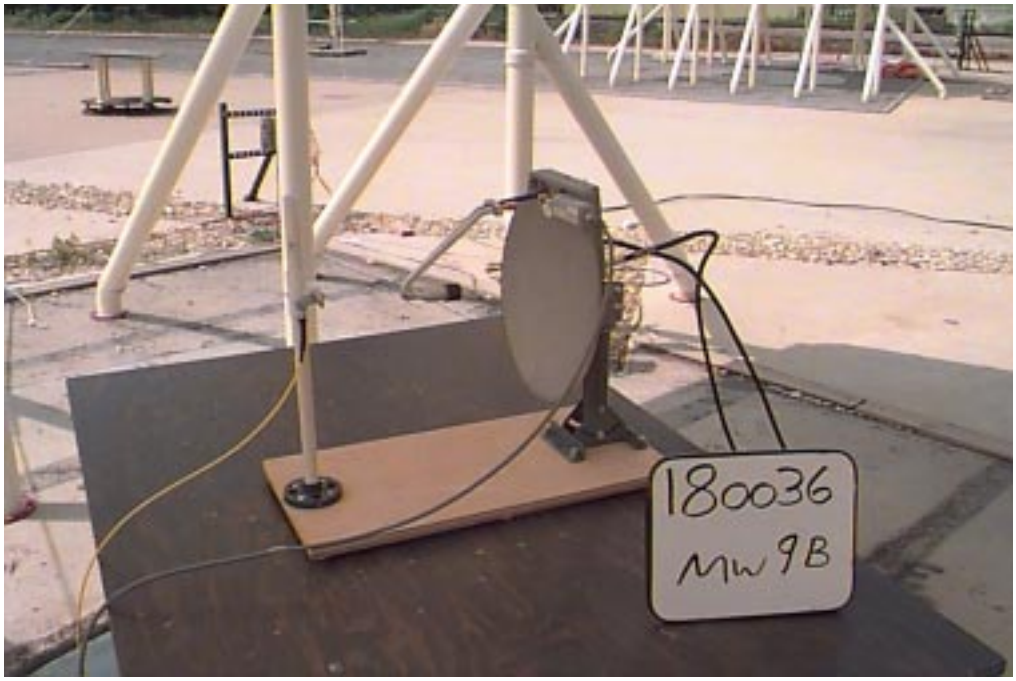
FIGURE D-7. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS ACTUAL QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP

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)

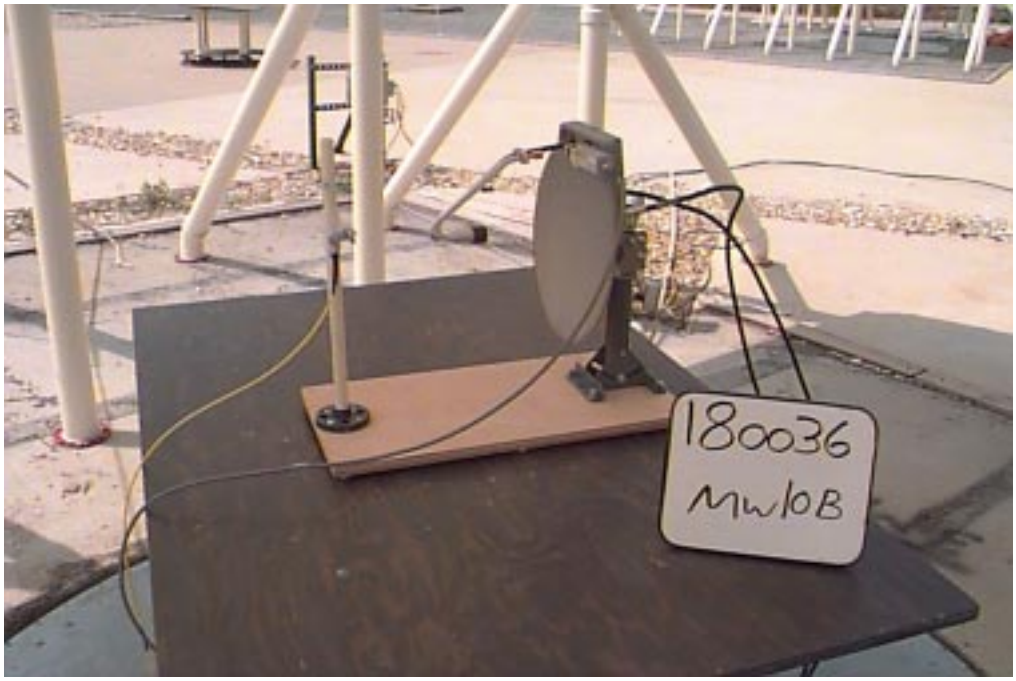


Configuration: Center Frequency (Actual QPSK Signal)

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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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 (dBµV/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:

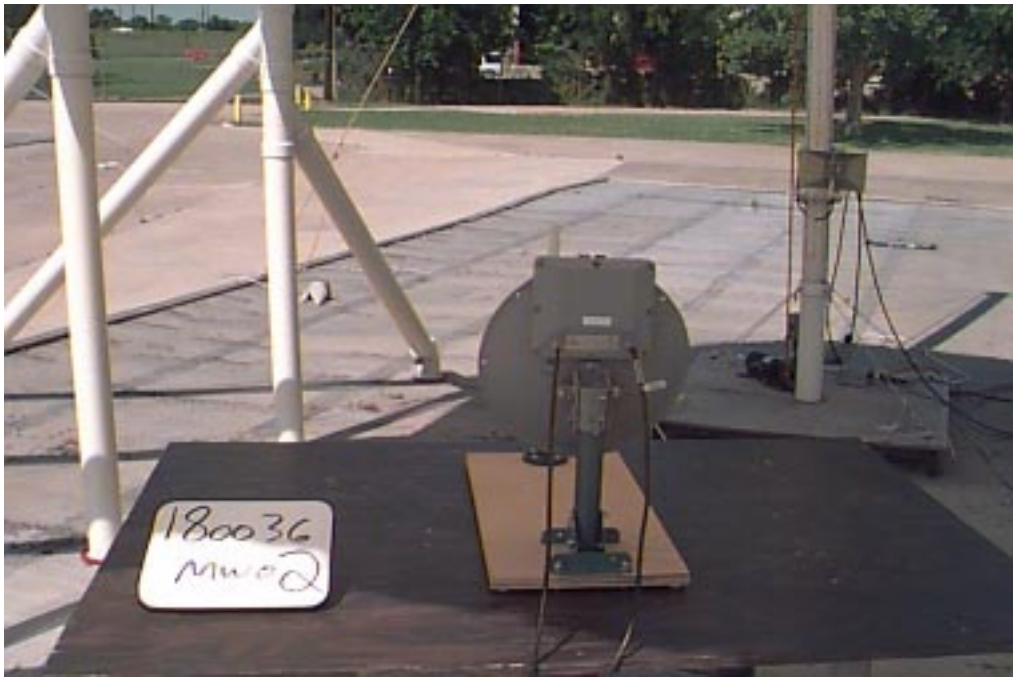
4 kHz RBW correction factor of -24 dB was added to the formula (refer to sample calculations).

*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.

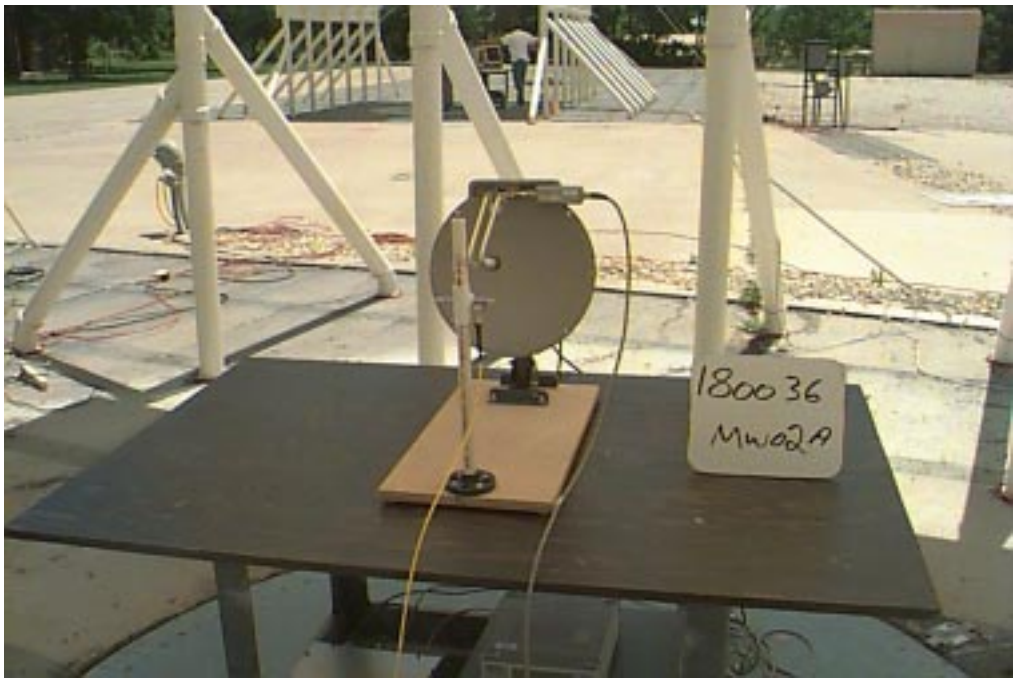
All other radiated emissions amplitudes were at least 10 dB within the FCC Part 2 Subpart 2.993 Limits. Emissions were scanned from 1 GHz to 18 GHz, 18GHz-26 GHz, 26 GHz to 40 GHz, 40 GHz to 60 GHz and 60 GHz to 100 GHz with antennas in both the vertical and horizontal orientation. The specified radiated 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.



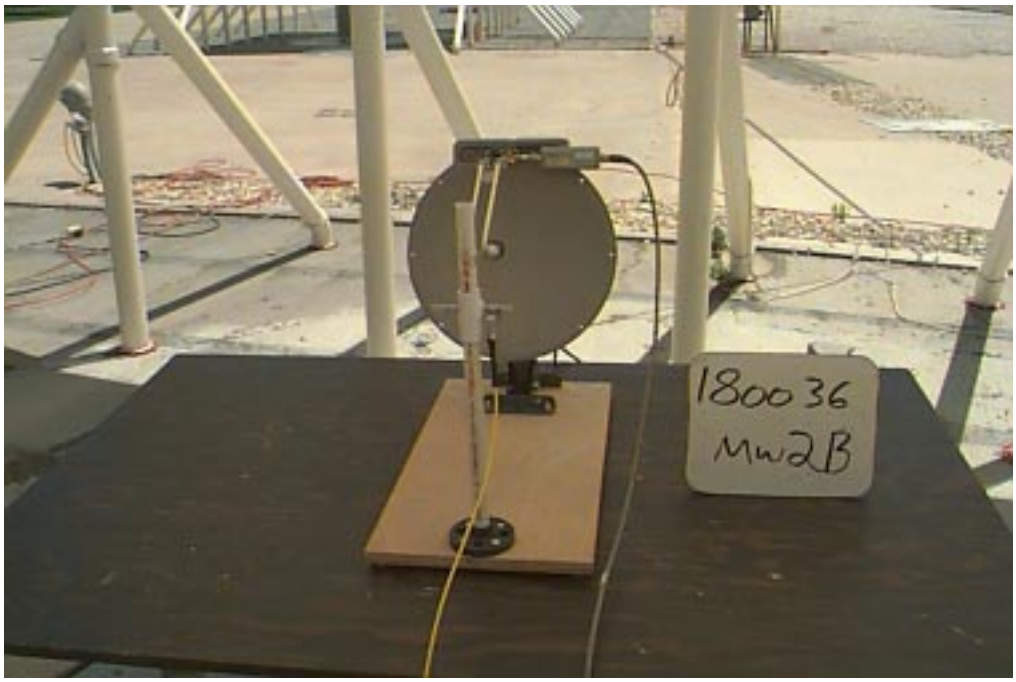
Configuration: Lower Frequency (Simulated QPSK Signal)

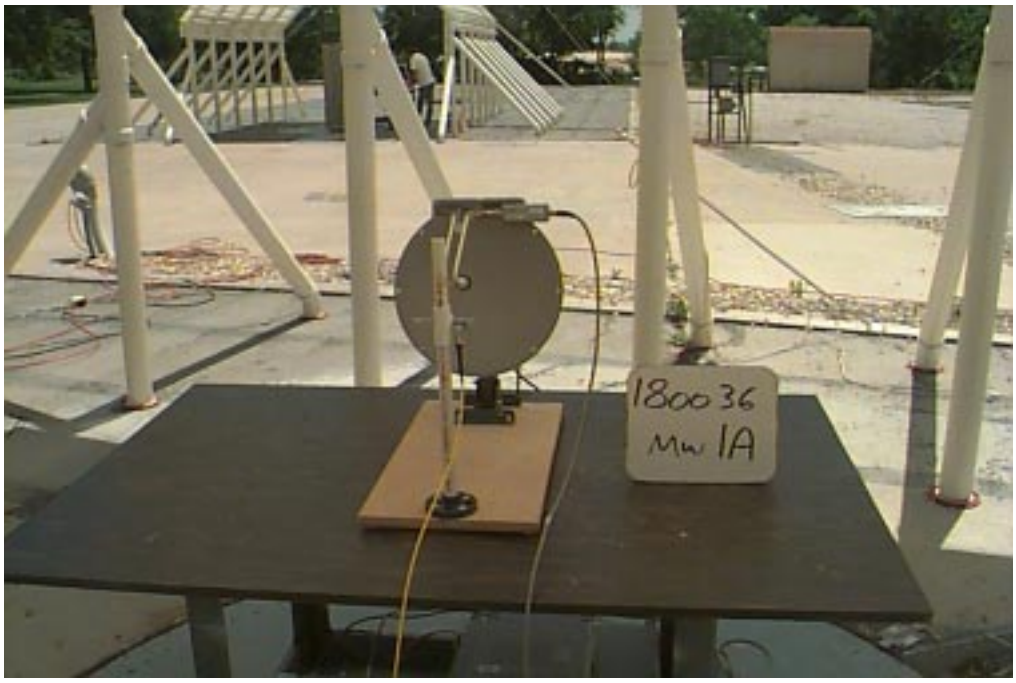
FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz - 100 GHz) TEST SETUP



Configuration: Lower Frequency (Simulated QPSK Signal)

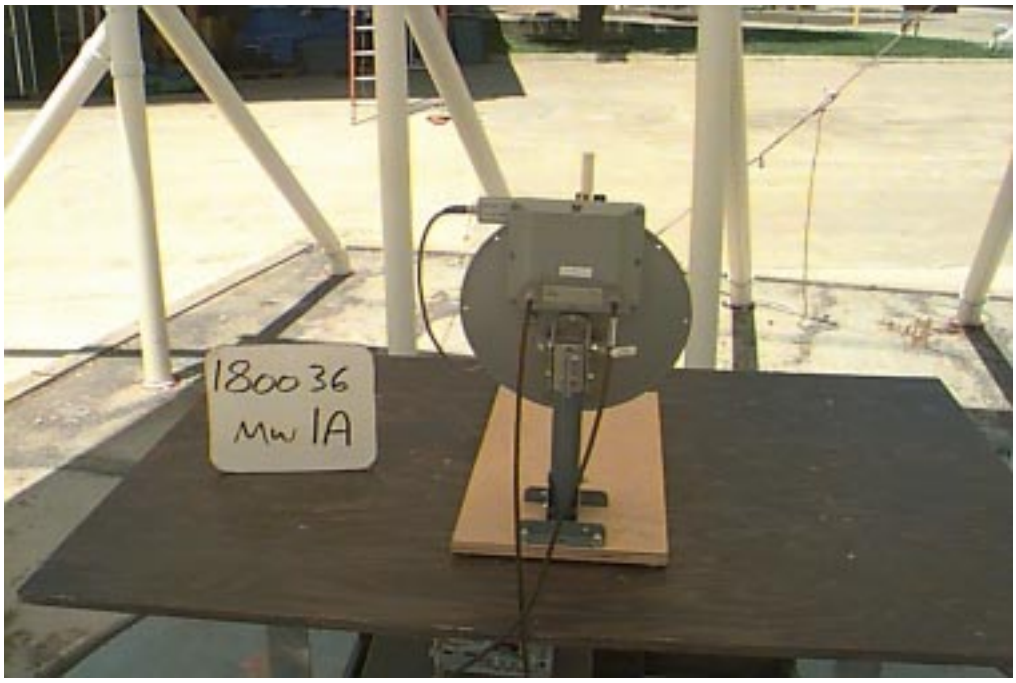
FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)

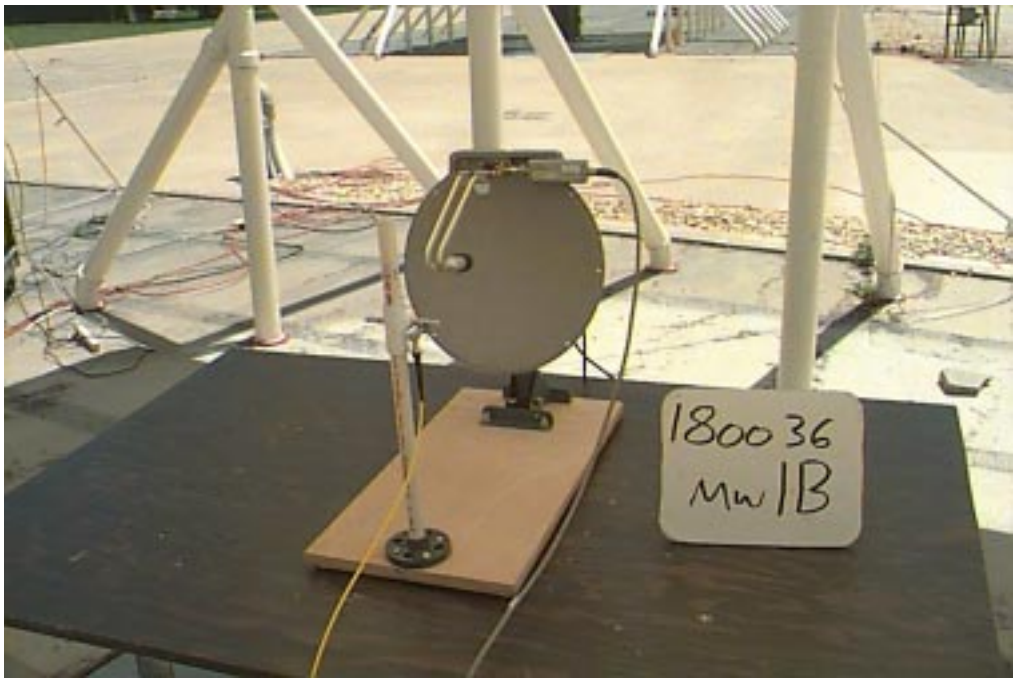




Configuration: Center Frequency (Simulated QPSK Signal)

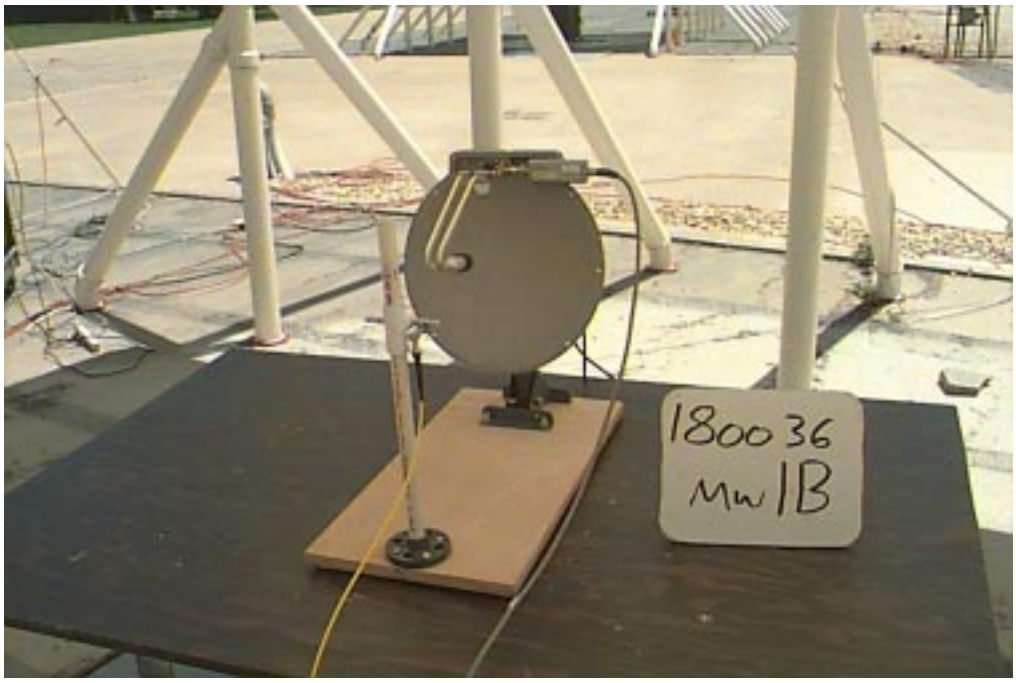
FIGURE D-8. WORST-CASE FILED STRNETH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz - 100 GHz) TEST SETUP (Continued)

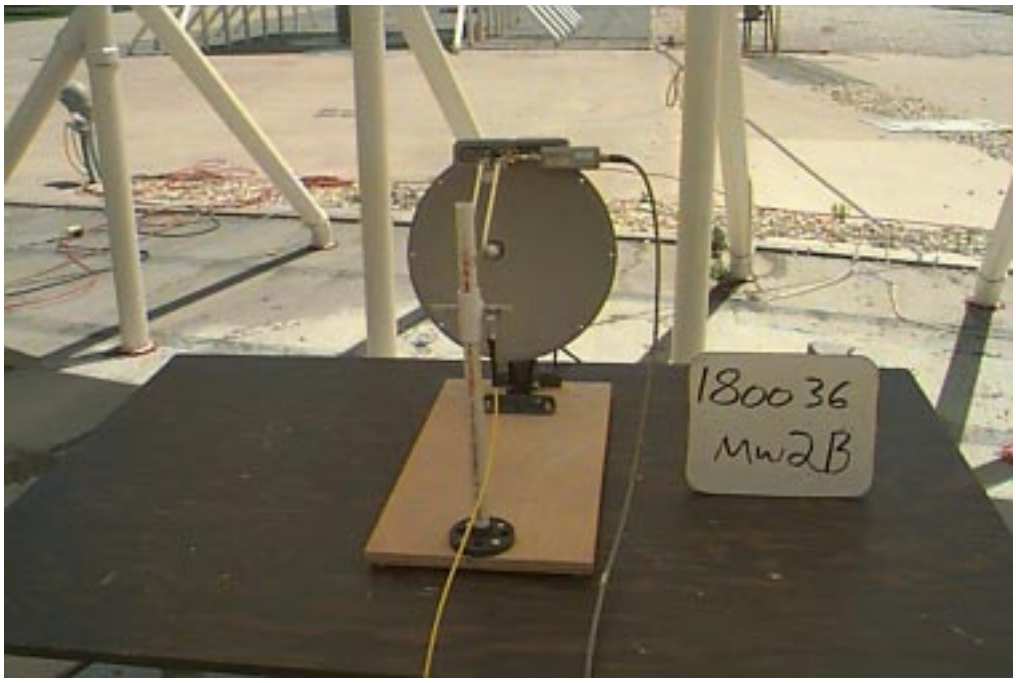




Configuration: Center Frequency (Simulated QPSK Signal)

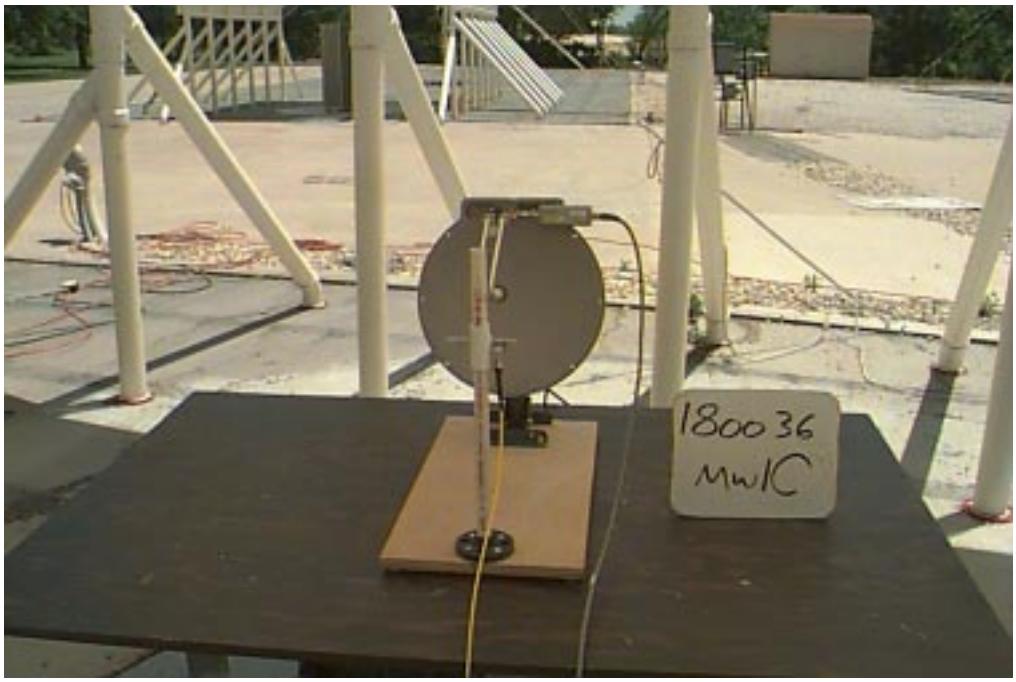
FIGURE D-8. WORST-CASE FILED STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)





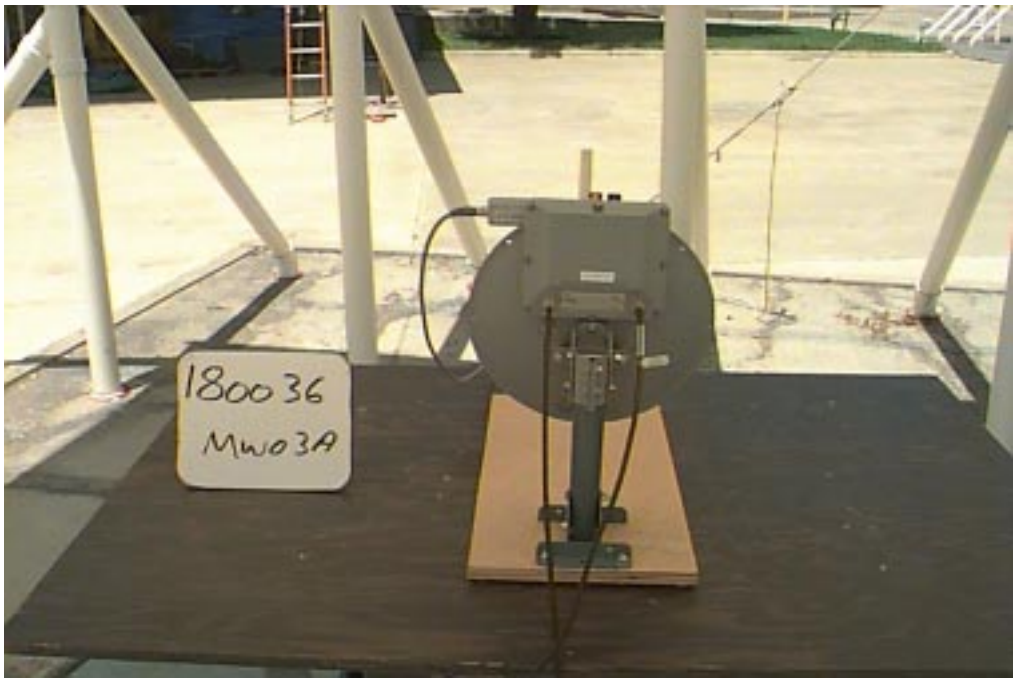
Configuration: Center Frequency (Simulated QPSK Signal)

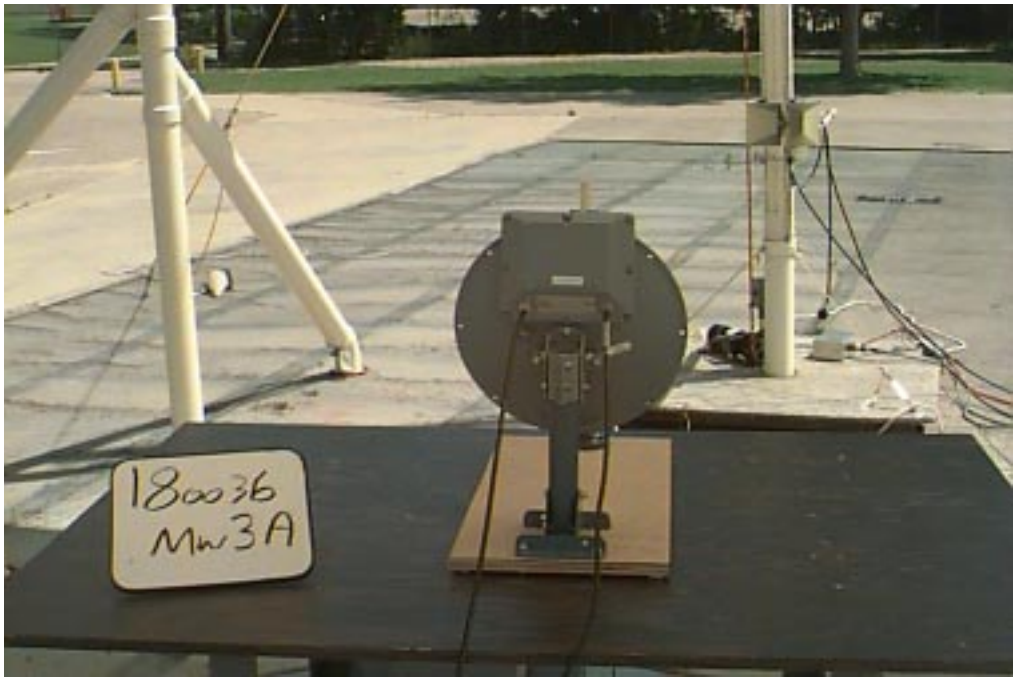
FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)



Configuration: Center Frequency (Simulated QPSK Signal)

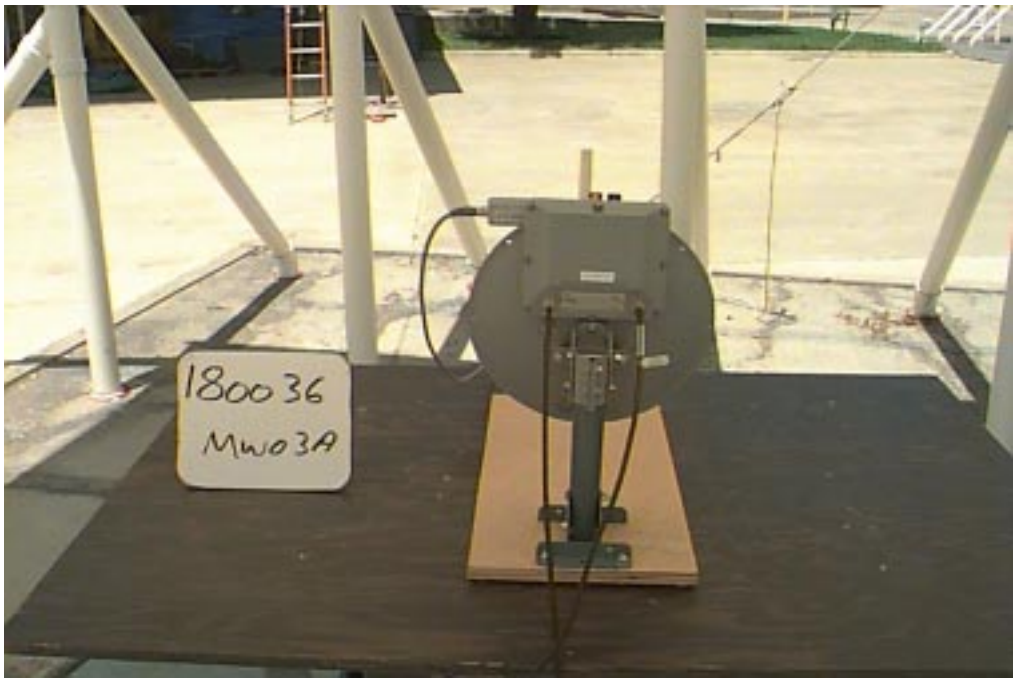
FIGURE D-8. WORST-CASE FILED STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)

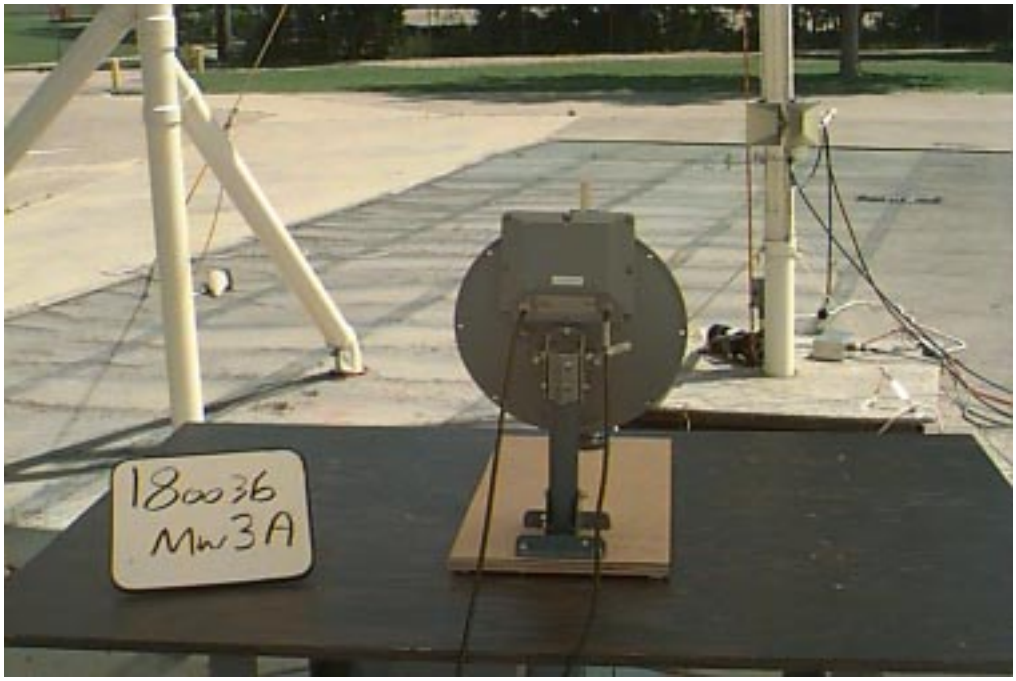




Configuration: Higher Frequency (Simulated QPSK Signal)

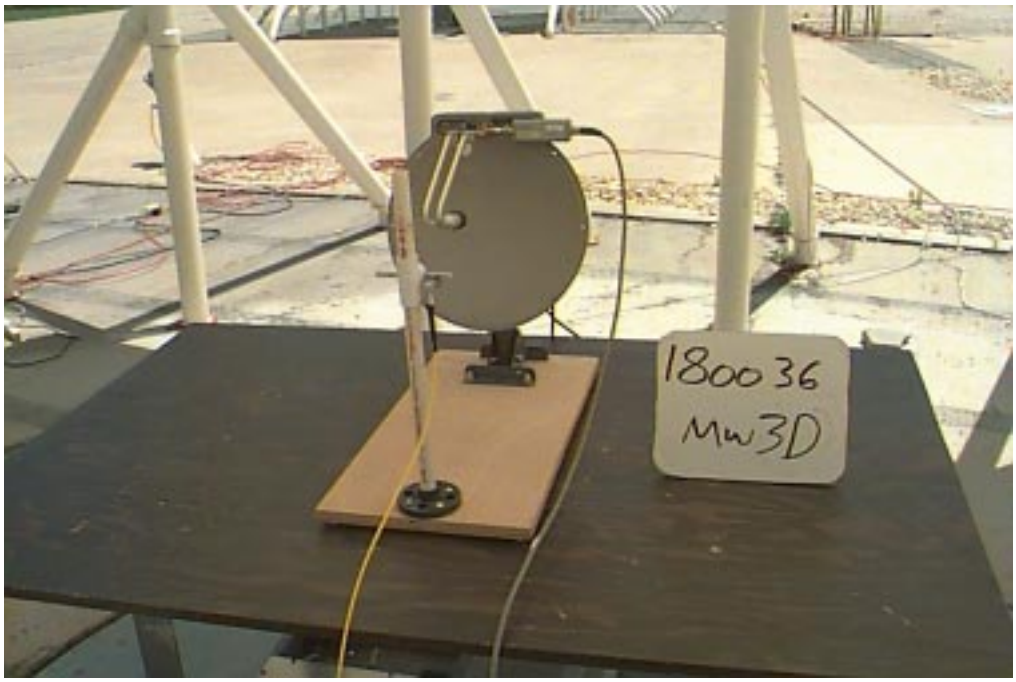
FIGURE D-8. WORST-CASE FIELD STRENGTH OF SPURIOUS RADIATED EMISSIONS SIMULATED QPSK SIGNAL (SCAN: 1 GHz – 100 GHz) TEST SETUP (Continued)

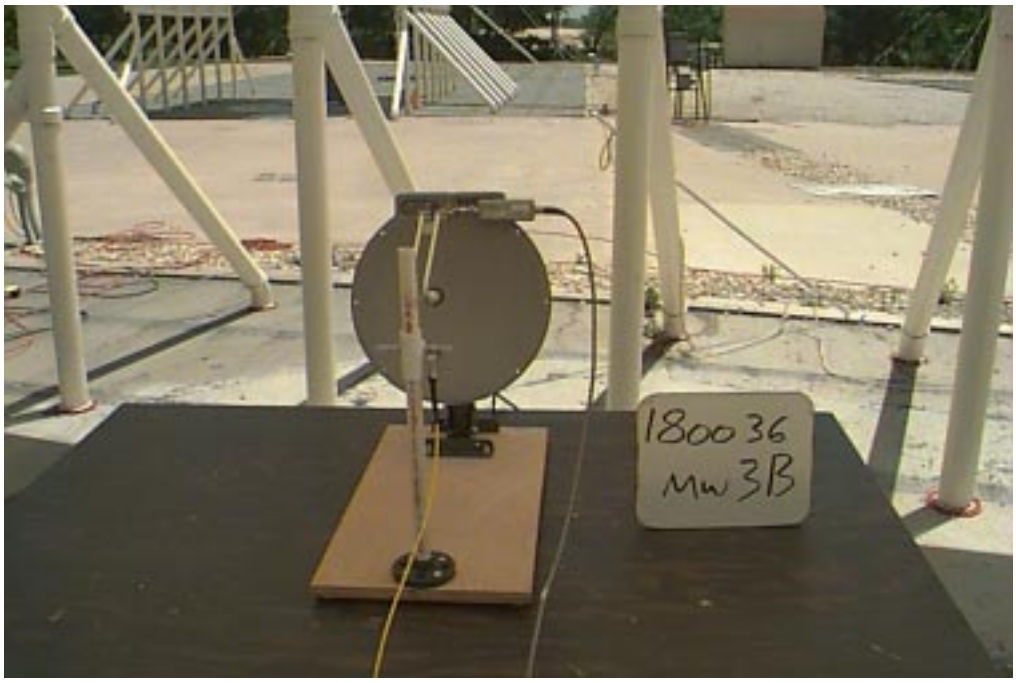




Configuration: Higher Frequency (Simulated QPSK Signal)

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 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000182 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000394 (RF) freq	-30 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1135
1.675000180 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000348 (RF) freq	-30 Cº	.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 Cº	.001% (+/- 279.2 kHz)		
28.225000638 (R/F) freq		.001% (+/- 279.2 kHz)		
1.675000181 I/F freq	-20 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1240
28.225000637 (RF) freq		.001% (+/- 279.2 kHz)		
1.675000183 I/F freq	-20 Cº	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
28.225000522 (RF) freq	-10 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000185 I/F freq		.001% (+/- 279.2 kHz)		
28.225000530 (RF) freq	-10 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1325
1.675000185 I/F freq		.001% (+/- 279.2 kHz)		
28.225000514 (RF) freq	-10 Cº	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000184 I/F freq		.001% (+/- 279.2 kHz)		
28.225000440 (RF) freq	0 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000454 (RF) freq	0 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1410
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000447 (RF) freq	0 Cº	.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 Cº	.001% (+/- 279.2 kHz)		
28.225000484 (r/F) freq		.001% (+/- 279.2 kHz)		
1.675000182 I/F freq	10 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1455
28.225000407 (RF) freq		.001% (+/- 279.2 kHz)		
1.675000183 I/F freq	10 Cº	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
28.225000359 (RF) freq	20 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000184 I/F freq		.001% (+/- 279.2 kHz)		
28.225000360 (RF) freq	20 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1540
1.675000183 I/F freq		.001% (+/- 279.2 kHz)		
28.225000374 (RF) freq	20 Cº	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000192 I/F freq		.001% (+/- 279.2 kHz)		
28.225000392(RF) freq	30 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000396(RF) freq	30 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1625
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000391(RF) freq	30 Cº	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000489 (RF) freq	40 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000473 (RF) freq	40 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1710
1.675000184 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000477 (RF) freq	40 Cº	.001% (+/- 279.2 kHz)	(+15%) 55.2 Vdc	
1.675000183 (I/F) freq		.001% (+/- 279.2 kHz)		
28.225000718(RF) freq	50 Cº	.001% (+/- 279.2 kHz)	(-15%) 40.8 Vdc	
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000714(RF) freq	50 Cº	.001% (+/- 279.2 kHz)	Nominal 48.0 Vdc	1755
1.675000182 I/F freq		.001% (+/- 279.2 kHz)		
28.225000731(RF) freq	50 Cº	.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 S***emi-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 S***emi-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).

KTL/(ICC) ID	Nomenclature	Manufacturer Model Number	Serial Number	Calibration Date
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).

KTL/(ICC) ID	Nomenclature	Manufacturer Model Number	Serial Number	Calibration Date
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).

KTL (ICC) ID	Nomenclature	Manufacturer Model Number Part Number	Serial Number	Calibration Date
	20 dB Directional Coupler	Millitech P/N 559A	DC9809	
	20 dB Attentuator	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

DATACOMMON\FORMS\TESTDATASHEETS\DATAREPORT

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

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.

Generic Description	Manufacturer	Model #	Serial #	3214864 001 Part # 002	FCC ID Status **
*CPE ROOF UNIT	BOSCH TELECOM	CPE ROOF UNIT	MSN-69	~~NONE~~	NONE
NIU	BOSCH TELECOM	NIU	003	3214845	

DataWorkOrders\MasterTestData\Data\Hardware
REV091797

ICC Forms Control # ET-018

** 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.)

FCC ID: NNS3214864

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

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.

Cable Type	Manufacturer	Model #	Serial #	Termination**	Length	Shield	Quantity	~~Hood~~ Connector Type
RG11	COMMSCOPE	5916	N/A	1	135ft	YES	1	F' Type

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

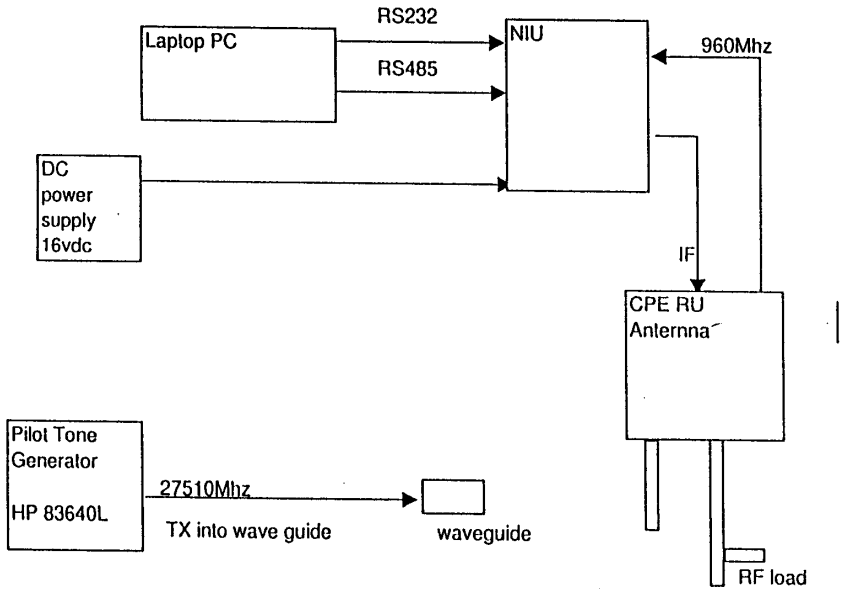
REV960716

FCC ID: NNS3214864

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	



036RADEMBLK03

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

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.

Generic Description	Manufacturer	Model #	Serial #	Part #	CAL DATE
SIGNAL GENERATOR	RHODE & SCHWARZ	SMHU-58	838496/015	UNK	7/11/97 Due 7/11/98
DC POWER SUPPLY	LAMBDA	LH 121 FM	UNK	UNK	NCR
Arbitrary Waveform Gen	SONY/TEKTRONIX	AWG2021	3300117	UNK	1/22/98 DUE 7/22/98
Junction Box	Bosch Telecom	None	None	None	NCR

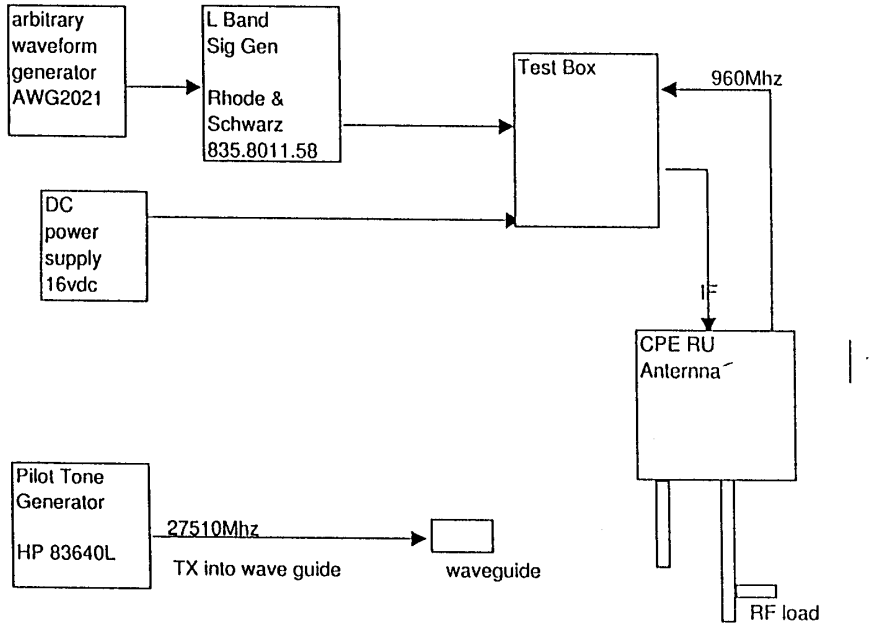
DataWorkOrders\MasterTestData\Data\Hardware
REV091797

ICC Forms Control # ET-018

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	



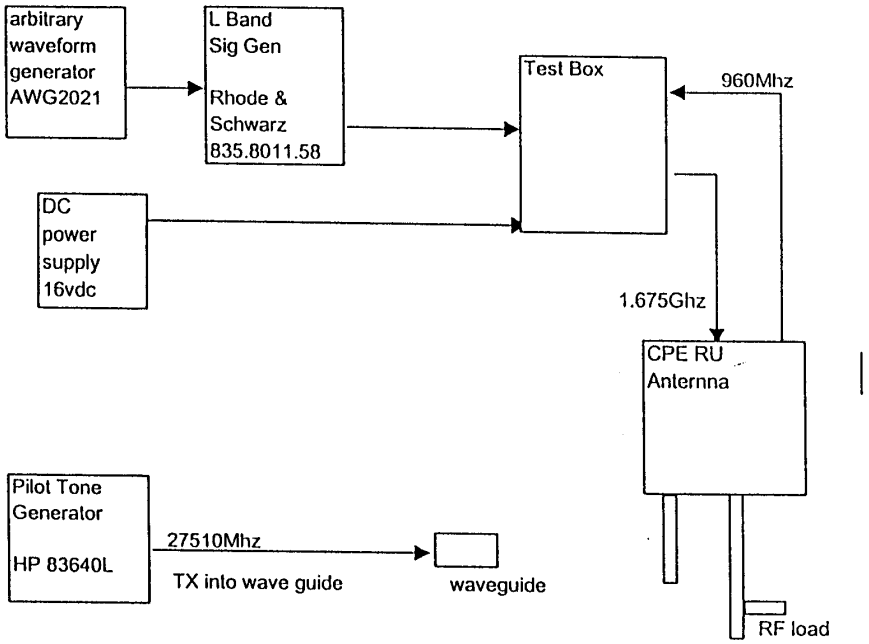
036blk01

FCC ID: NNS3214864

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

FCC ID: NNS3214864

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

BOSCH TELECOM HARDWARE USED IN ANTENNA TERMINAL CONDUCTED TESTING

Client: BOSCH TELECOM

EUT: CPE ROOF UNIT

Date: 6/11/98

W.O#: 180036

S/N: MSN-69

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

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

Generic Description	Manufacturer	Model #	Serial #	Part #	FCC ID Status **
Preselected RF Section	Hewlett Packard	11974A	3001A00297	11974A	UNK
Preselector power supply	Hewlett Packard	11974-60028	0415-0445	11974-60028	UNK

** 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.)

DataWorkOrders\MasterTestData\Data\Hardware
REV091797

ICC Forms Control # ET-018

FCC ID: NNS3214864

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

FREQUENCY STABILITY 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.

Generic Description	Manufacturer	Model #	Serial #	Part #	CAL DATE
SIGNAL GENERATOR	RHODE & SCHWARZ	SMHU-58	838496/015	UNK	7/11/97 Due 7/11/98
CW SIGNAL GENERATOR	HP	83640L	3722A00186	UNK	8/25/97
Arbitrary Waveform Gen	SONY/TEKTRONIX	AWG2021	3300117	UNK	1/22/98 DUE 7/22/98
SPECTRUM ANALYZER	HP	8564E	3517A00315	UNK	11/10/97 DUE 11/10/98
GHZ COUNTER	HP	5345A	2016A06589	UNK	4/22/98 DUE 4/22/99
GHZ COUNTER	HP	5355A	2242A01511	UNK	4/22/98 DUE 4/22/99
GHZ COUNTER	HP	5356C	2118A00739	UNK	4/22/98 DUE 4/22/99
L BAND COUNTER	HP	5342A	2542A10349	UNK	4/22/98 DUE 4/22/98

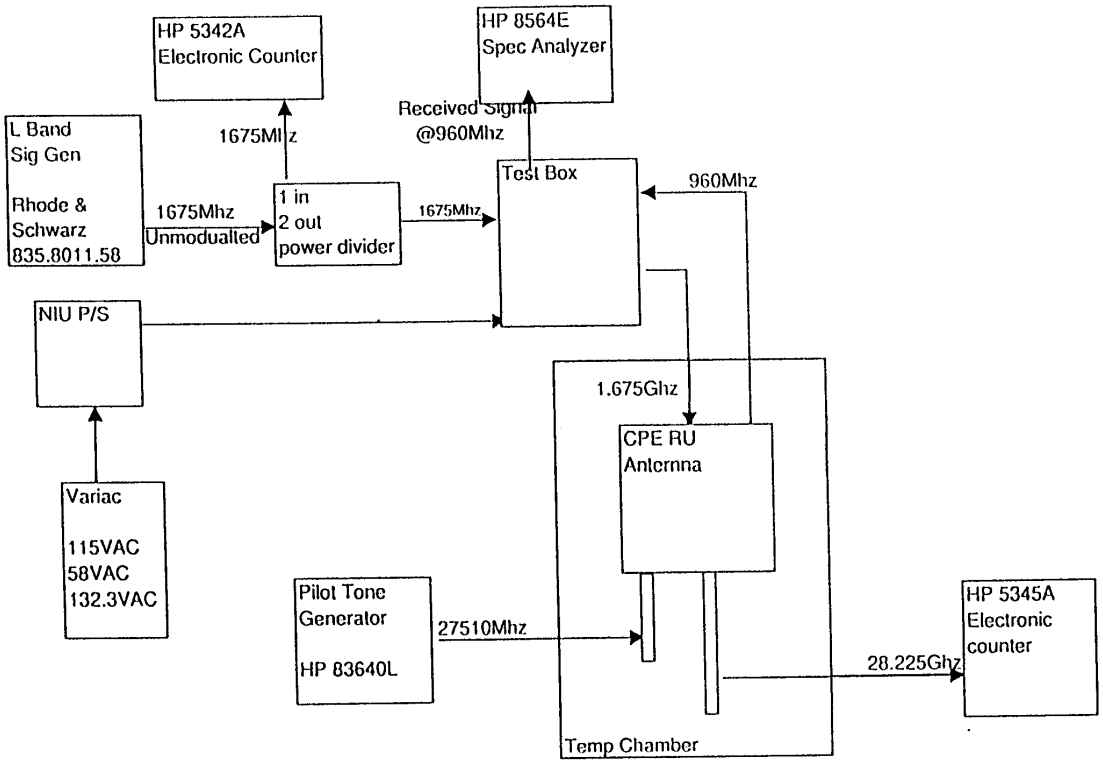
DataWorkOrders\MasterTestData\Data\Hardware
REV091797

ICC Forms Control # ET-018

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	



036FREQSTABBLK01

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.

Model # : CPE Roof Unit Transceiver (US)

W.O.#: 180036

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.

Model # : CPE Network Interface Unit

W.O.#: 180036

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)	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

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.

Model # : CPE Network Interface Unit

W.O.#: 180036

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

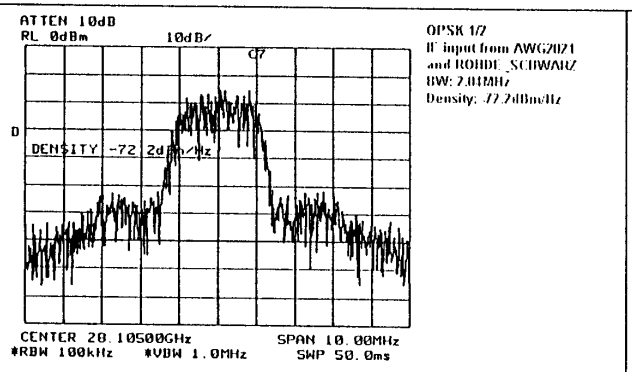
CPE ROOF UNIT QPSK (7/8 RATE)

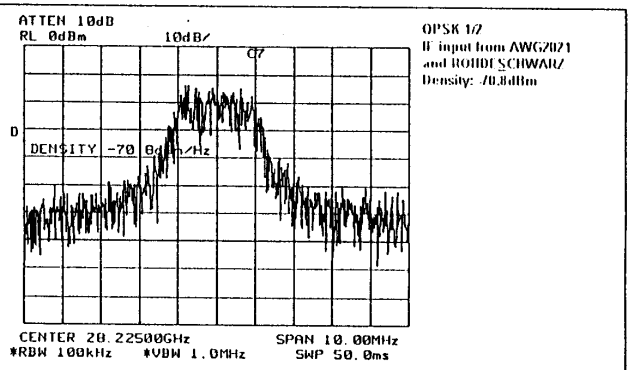
Center Frequency GHZ	Channel Bandwidth MHz	Analyzer Reading dBm/Hz	External Attenuation dB	Conversions		Antenna Gain dBi	Corrected Reading dBW/MHz	FCC Limit 101.113 dBW/MHz	Delta dB
				Hz to MHz (dB)	dBm to dBW (dB)				
28.105	1.165	-69.9	22.2	60	-30	38	20.3	42	-21.7
28.225	1.165	-70	22.2	60	-30	38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

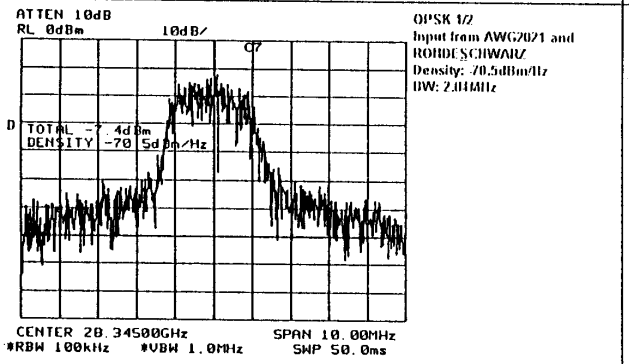
Equipment :

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

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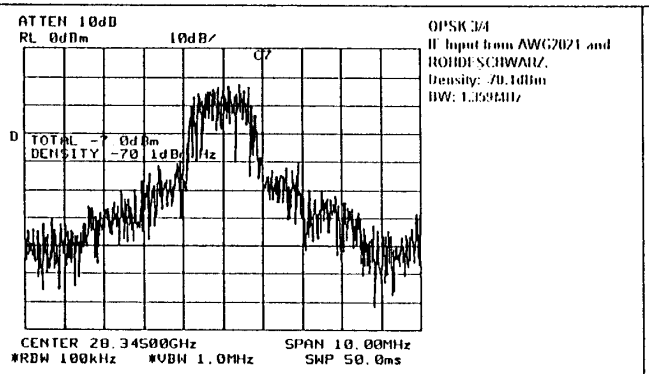

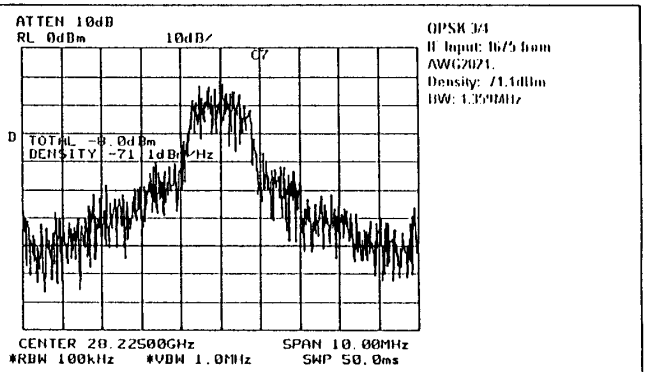

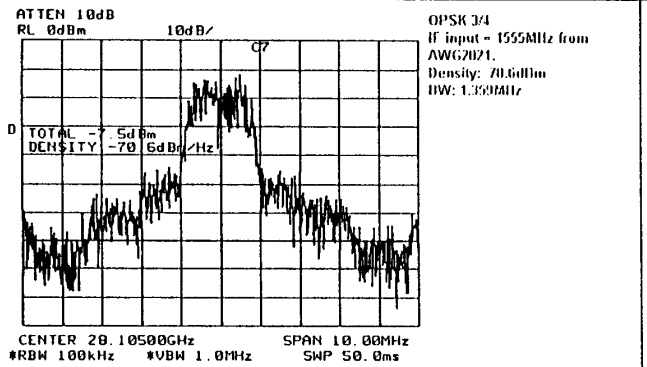

RF Power Measurements (Power Spectral Density)

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FCC Part 101 Paragraph 111.113

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

30 October 1998

Bosch Telecom, Inc. Proprietary Information

FCC ID: NNS3214864

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802 N. Kealy
Lewisville, TX 75057-3136
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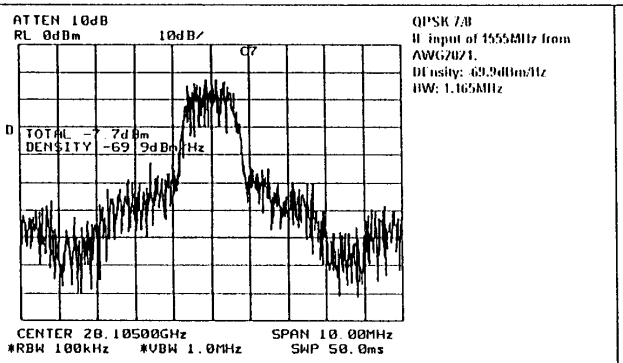

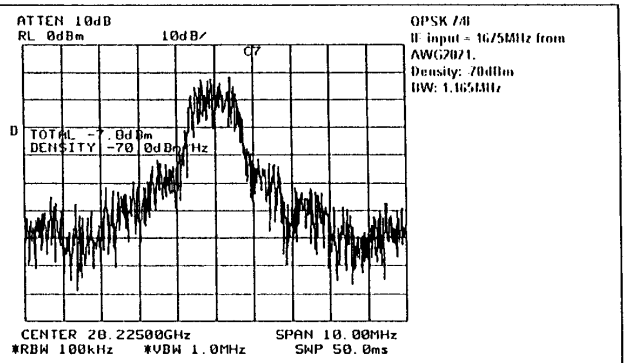

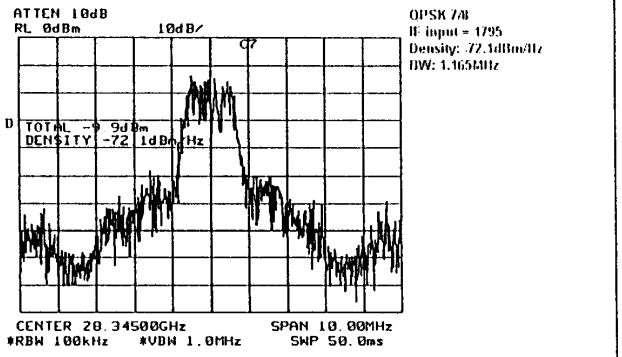

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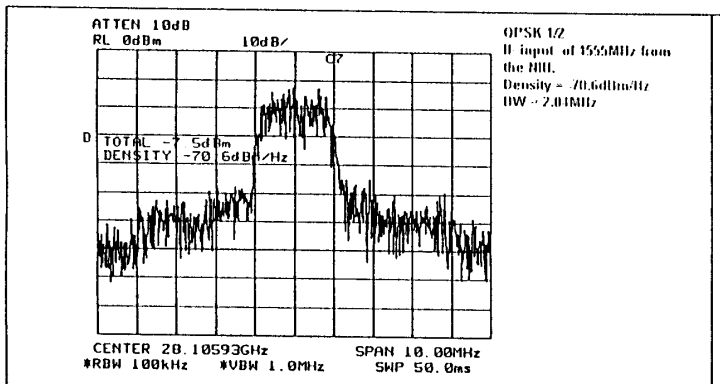

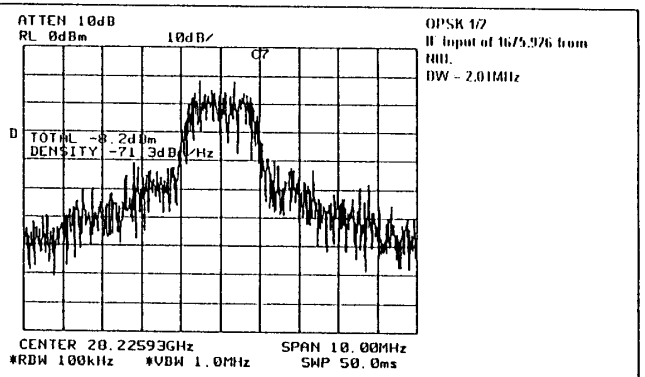

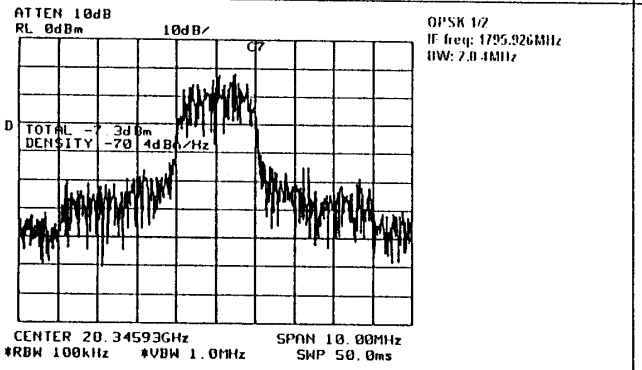

RF Power Measurements (Power Spectral Density)

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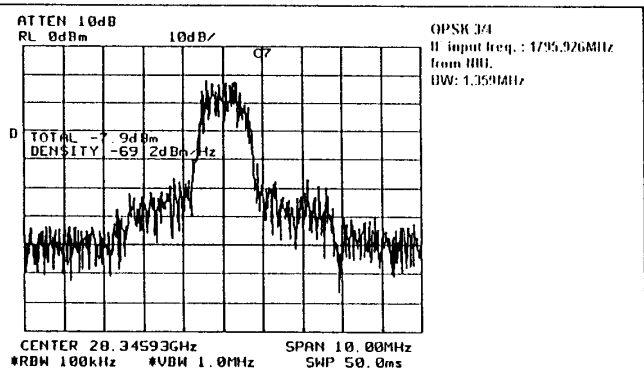

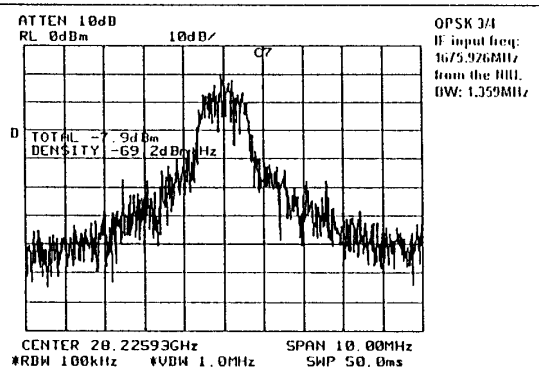

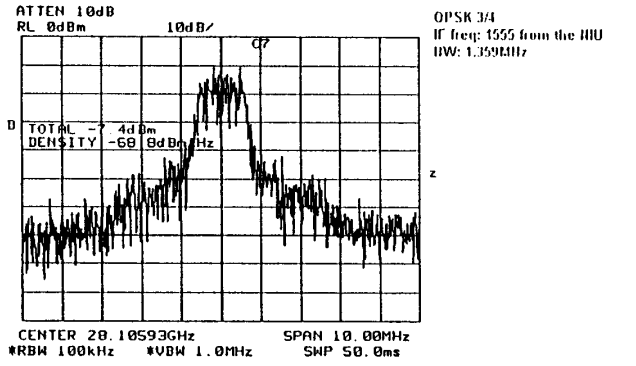

RF Power Measurements (Power Spectral Density)

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FCC Part 101 Paragraph 111.113

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

30 October 1998

FCC ID: NNS3214864

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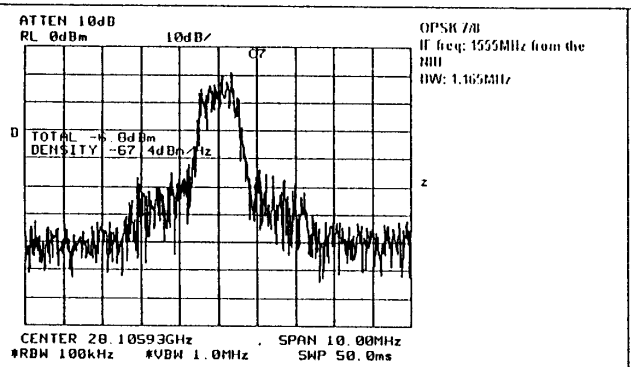

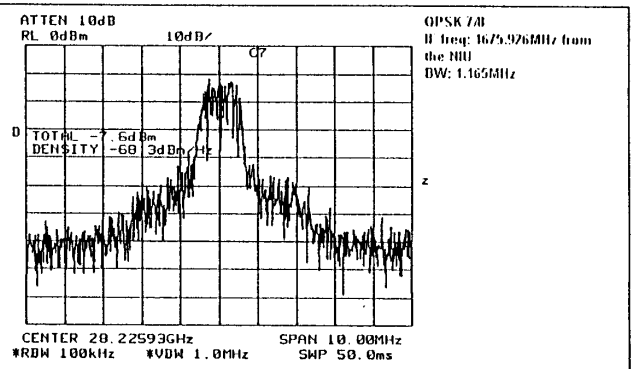

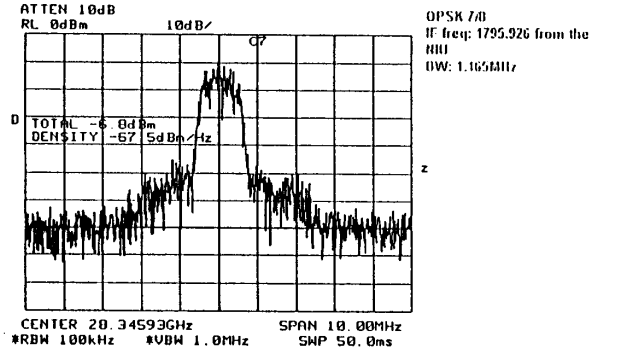

RF Power Measurements (Power Spectral Density)

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

Bosch Telecom, Inc. Proprietary Information

FCC ID: NNS3214864

Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

MODULATION CHARACTERISTICS
ACTUAL QPSK

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

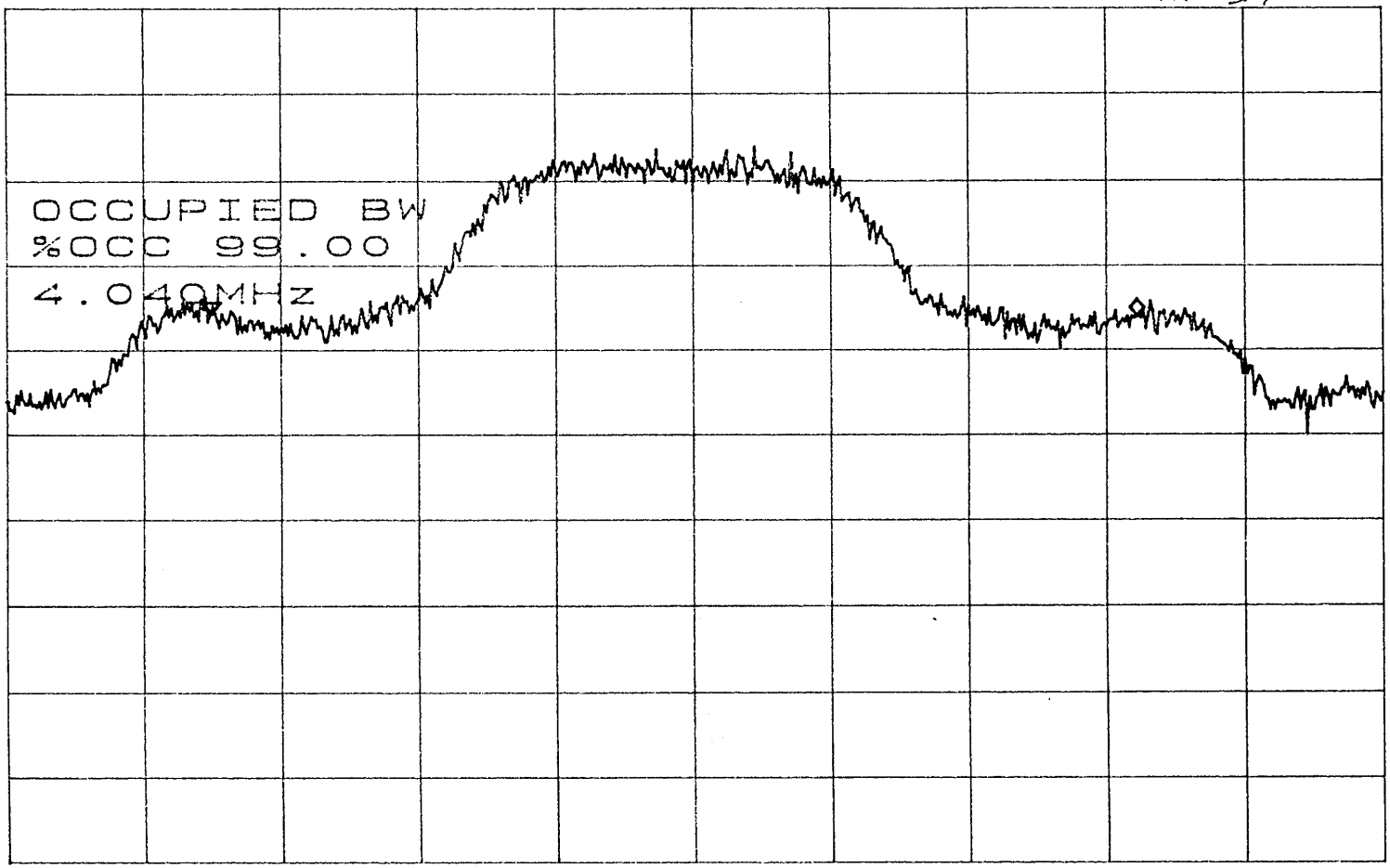
X Completed ___ Preliminary

75.41dBm INPUT

Reading through 20dB atten

CL 23.0dB AVG 10 MKR 1.33dB

RL -6.4dBm 10dB/ 4.040MHz +20dBm



CENTER 28.107000GHz SPAN 6.000MHz

*RBW 30kHz VBW 30kHz *SWP 50.0ms

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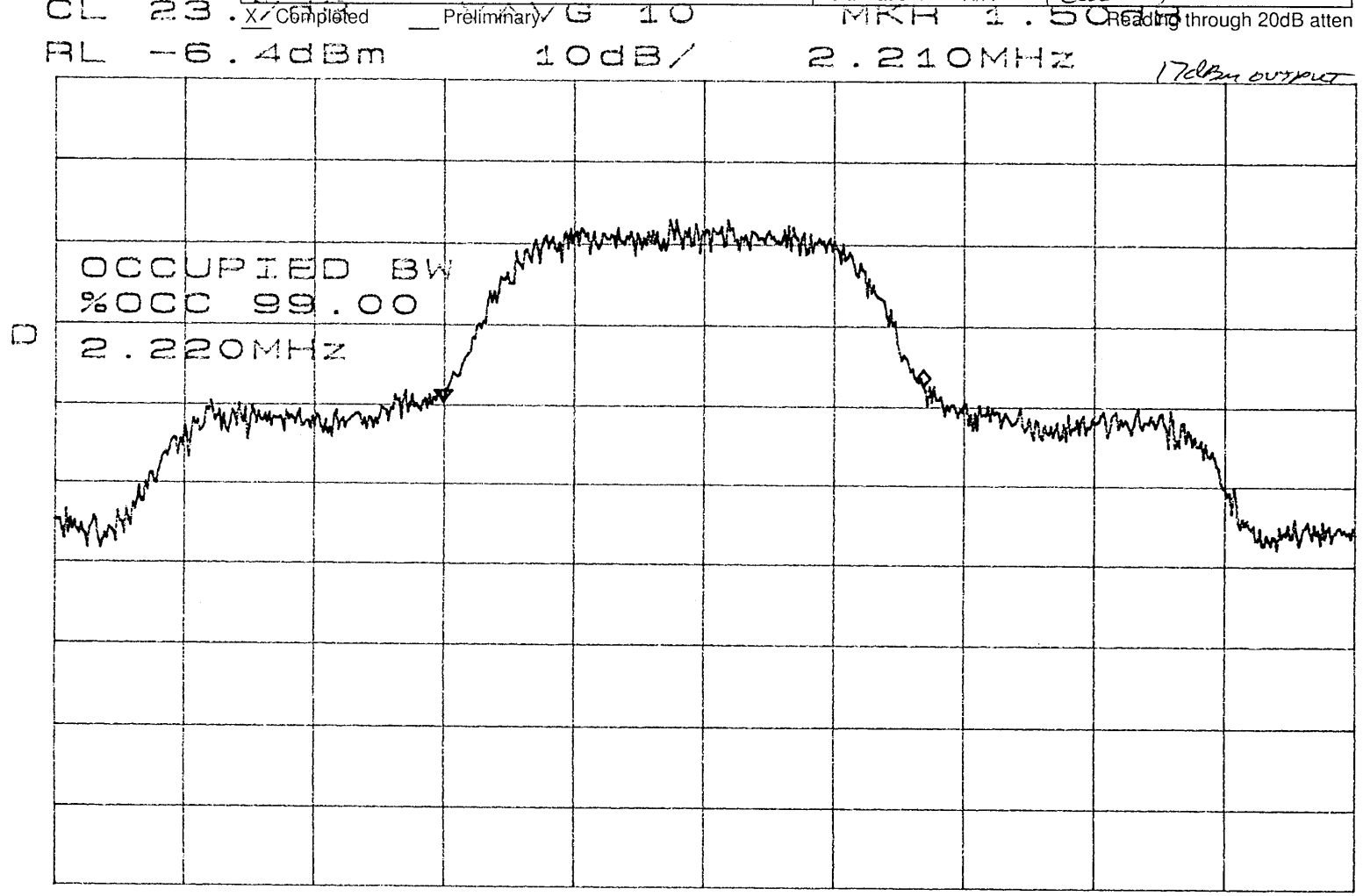
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) (Lab 2)
Test Date:	6/5/98	Polarization:	N/A

-20 dBm Input

X Completed ___ Preliminary

Reading through 20dB atten

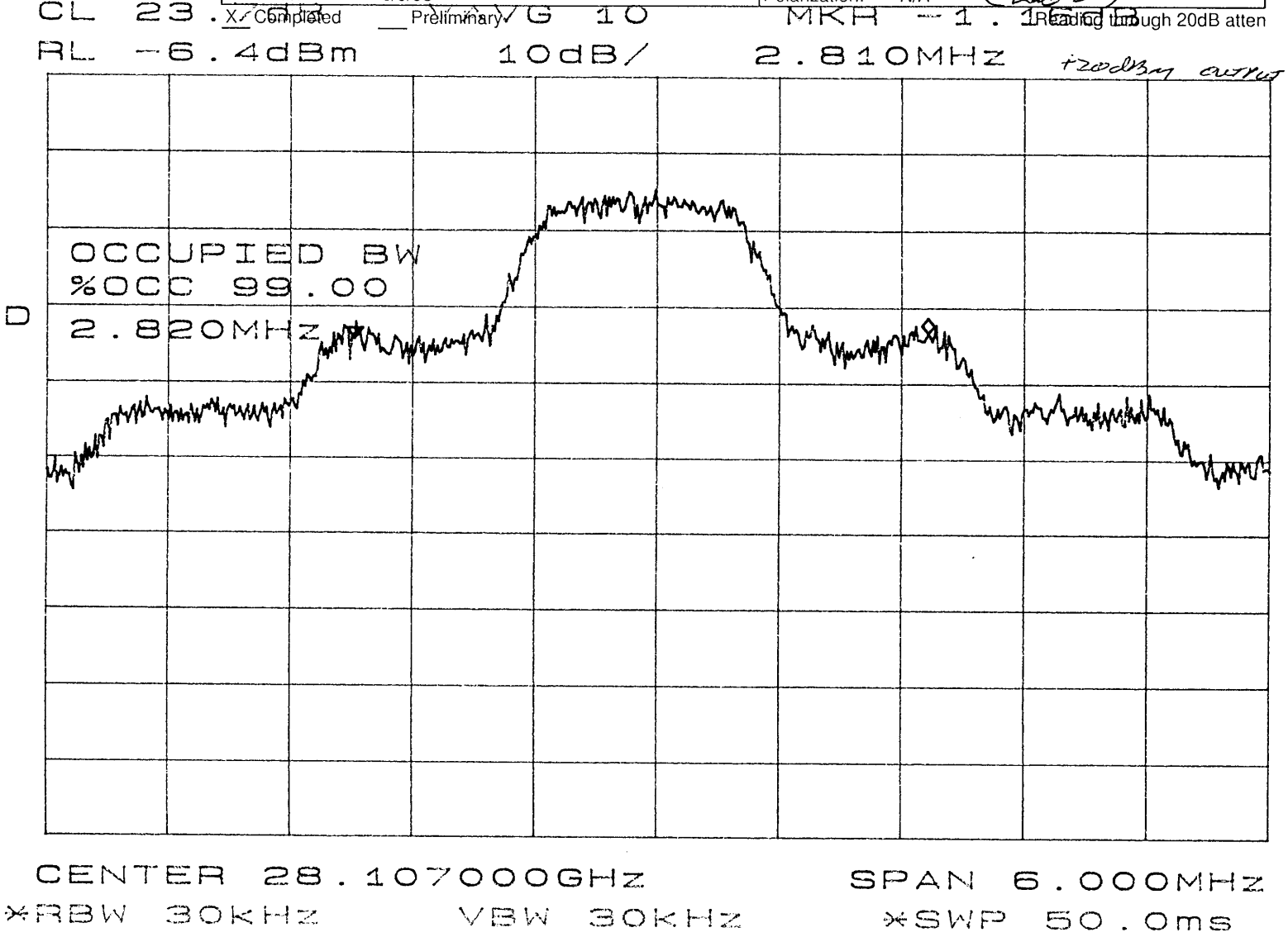


Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A

+5.65dB, 3/4 rate INPUT

(Lab 2)

X Completed ___ Preliminary ✓ Reading through 20dB atten



ICC.
International Compliance Corporation
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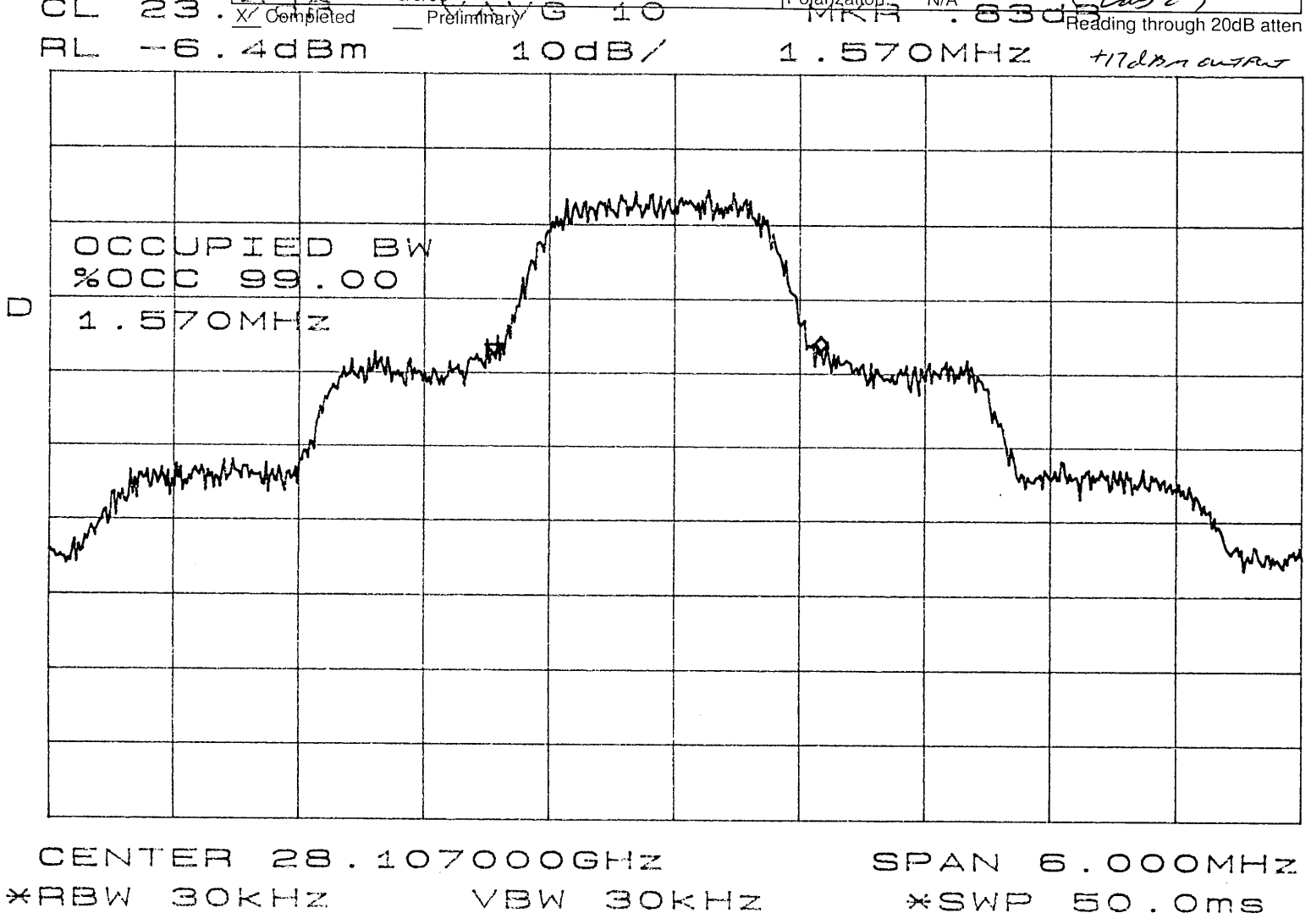
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 RATE
Test Date:	6/5/98	Polarization:	N/A

-0.4dB

X Completed ___ Preliminary

(Lab 2)

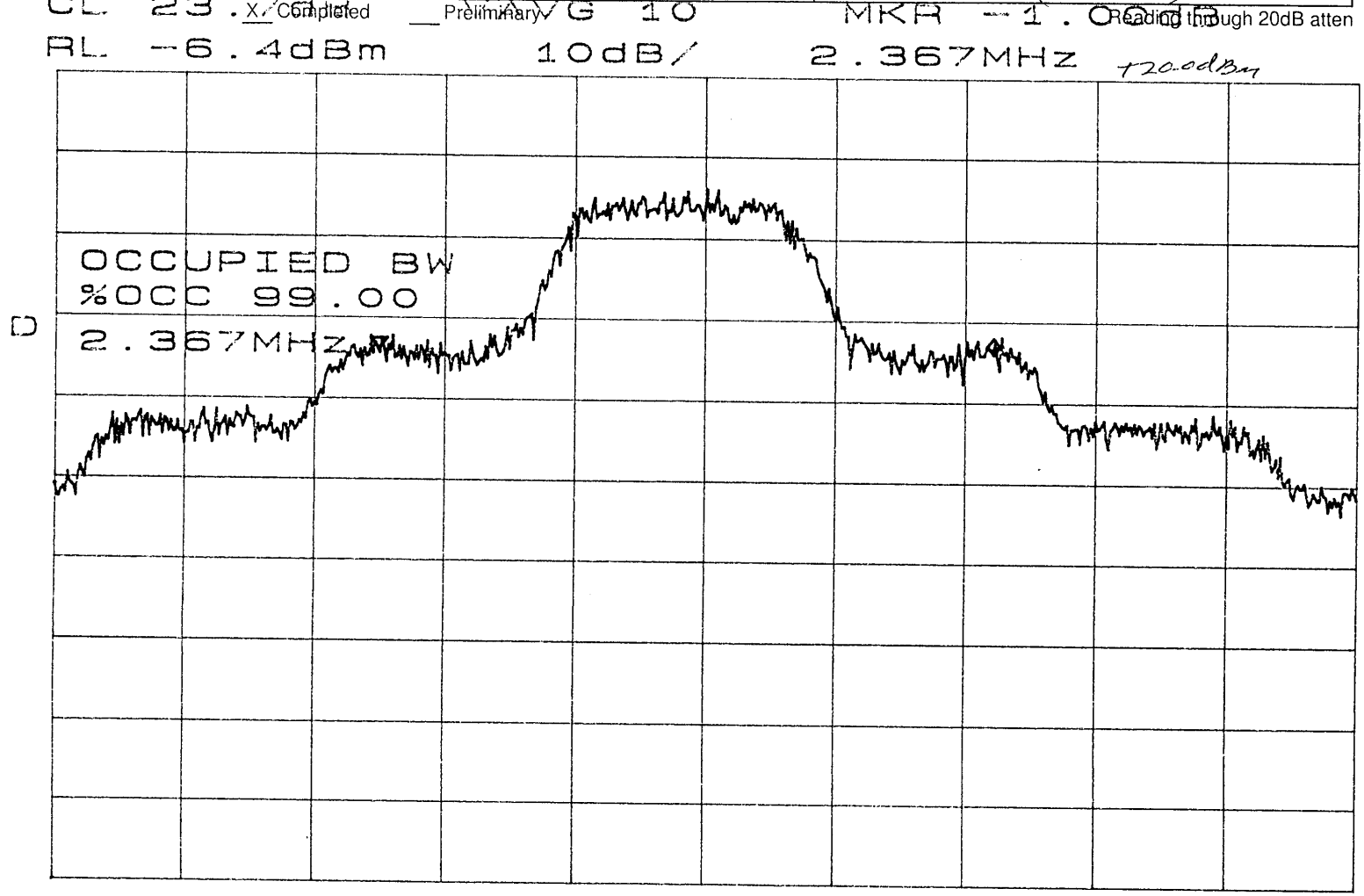
Reading through 20dB atten



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

X Completed ___ Preliminary

Reading through 20dB atten



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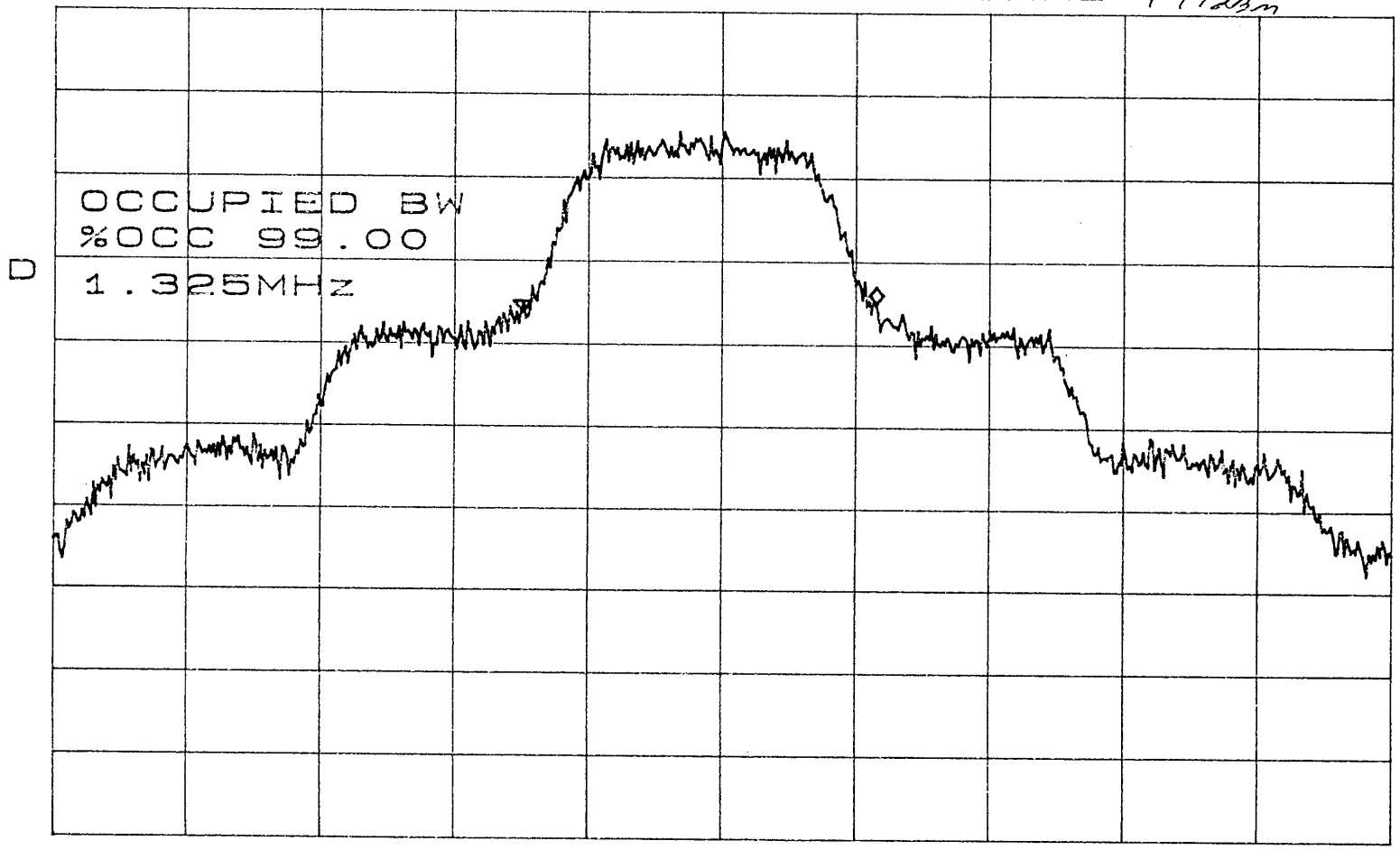
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A (Lab-2)

-0.02dBm Input

X Completed __ Preliminary Reading through 20dB atten

CL 23.6dBm AVG 10 MKR .50dB

RL -6.4dBm 10dB/ 1.333MHz +17dBm



CENTER 28.107000GHz SPAN 5.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

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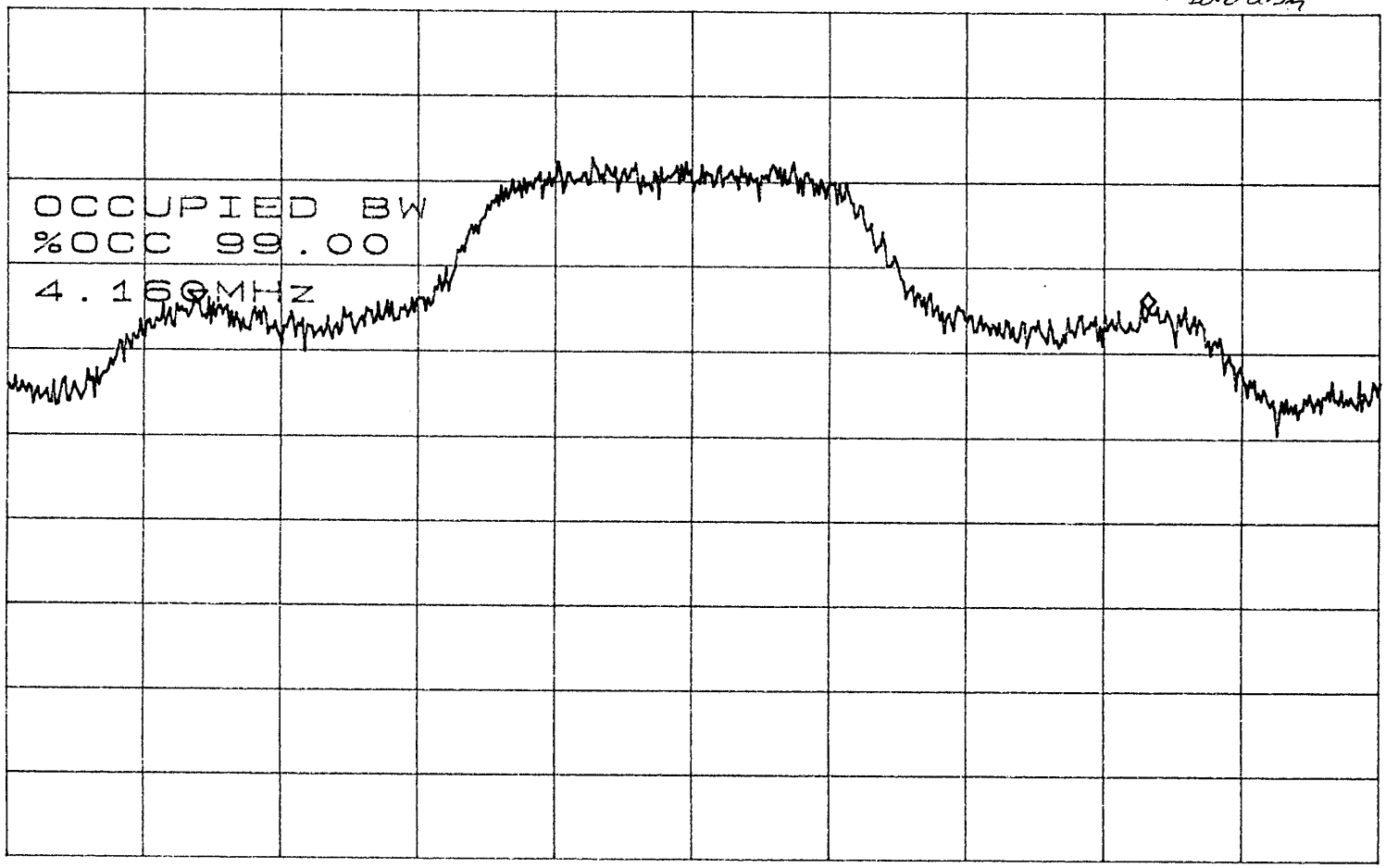
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/2 Rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

+5.95 dBm INPUT

X Completed ___ Preliminary Reading through 20dB atten

CL 23.[illegible]VG 10 MKR -.66[illegible]

RL -6.4dBm 10dB/ 4.170MHz +20.0 dBm



CENTER 28.225000GHz SPAN 6.000MHz

*RBW 30kHz VBW 30kHz *SWP 50.0ms

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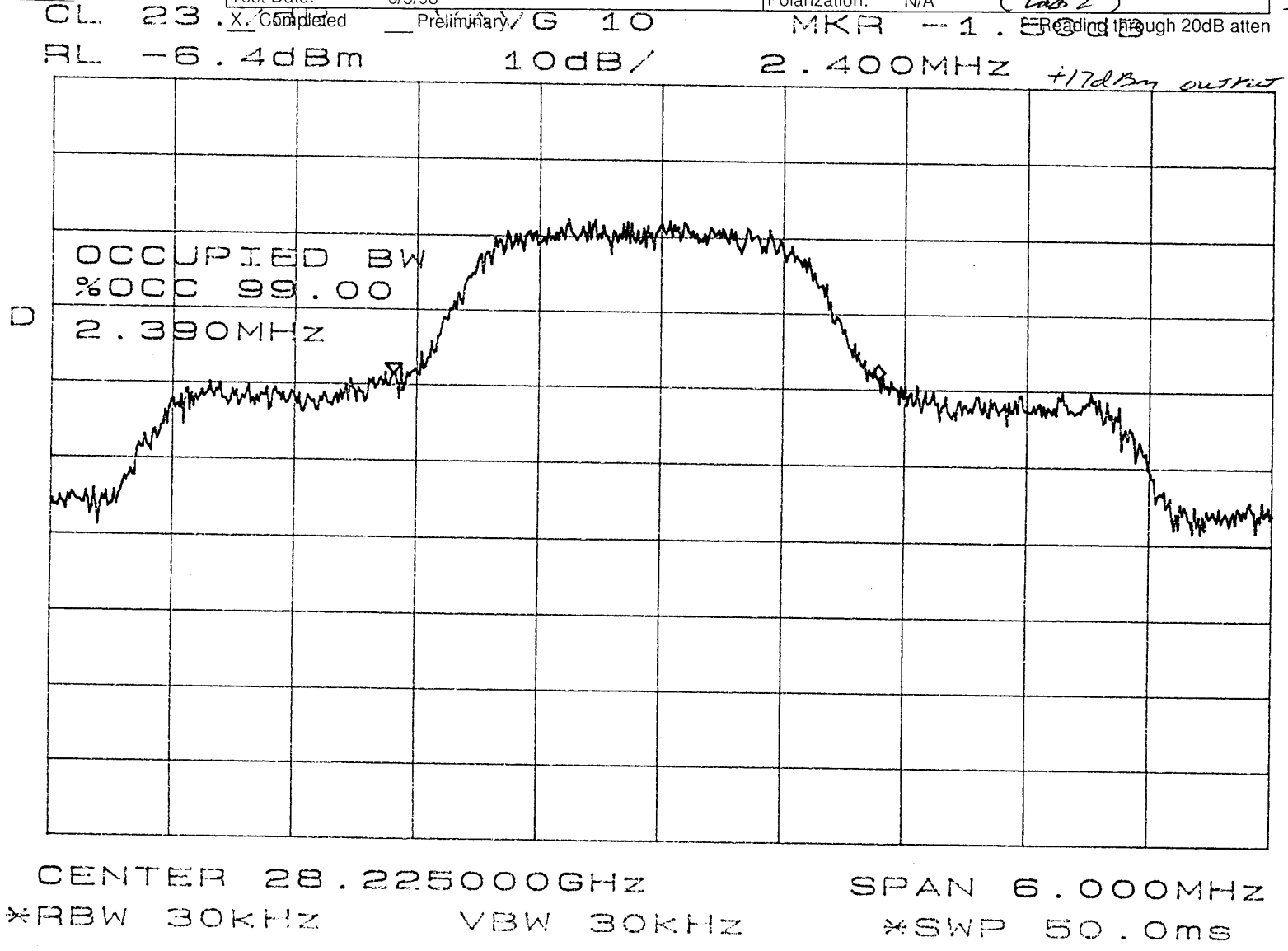
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 1/2 power
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

-1.07 dBm INPUT

__X__ Completed __ Preliminary



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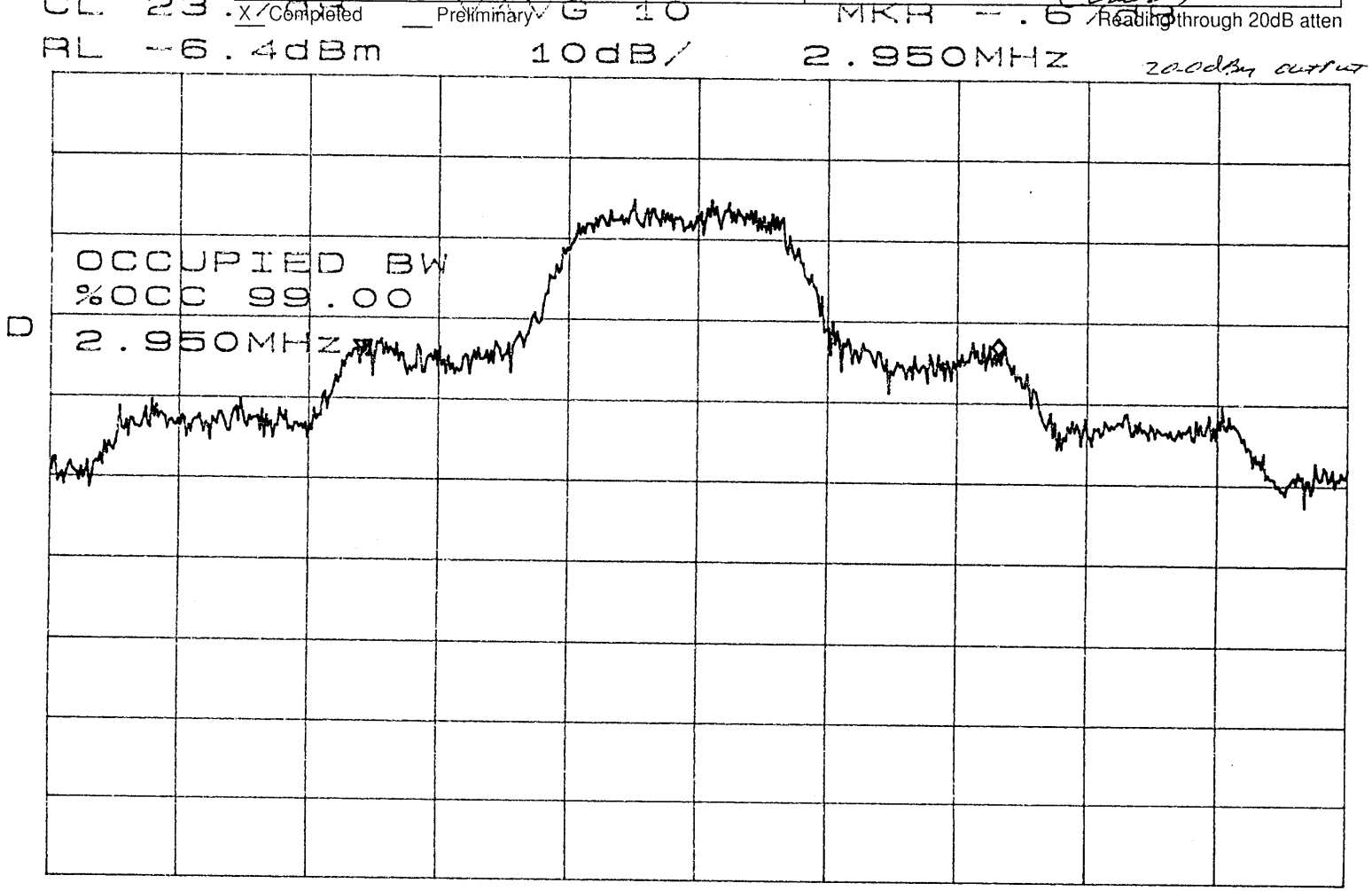
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 Rate
Test Date:	6/5/98	Polarization:	N/A

76.05dBuV EIRP

(Lab 2)

X Completed Preliminary Reading through 20dB atten



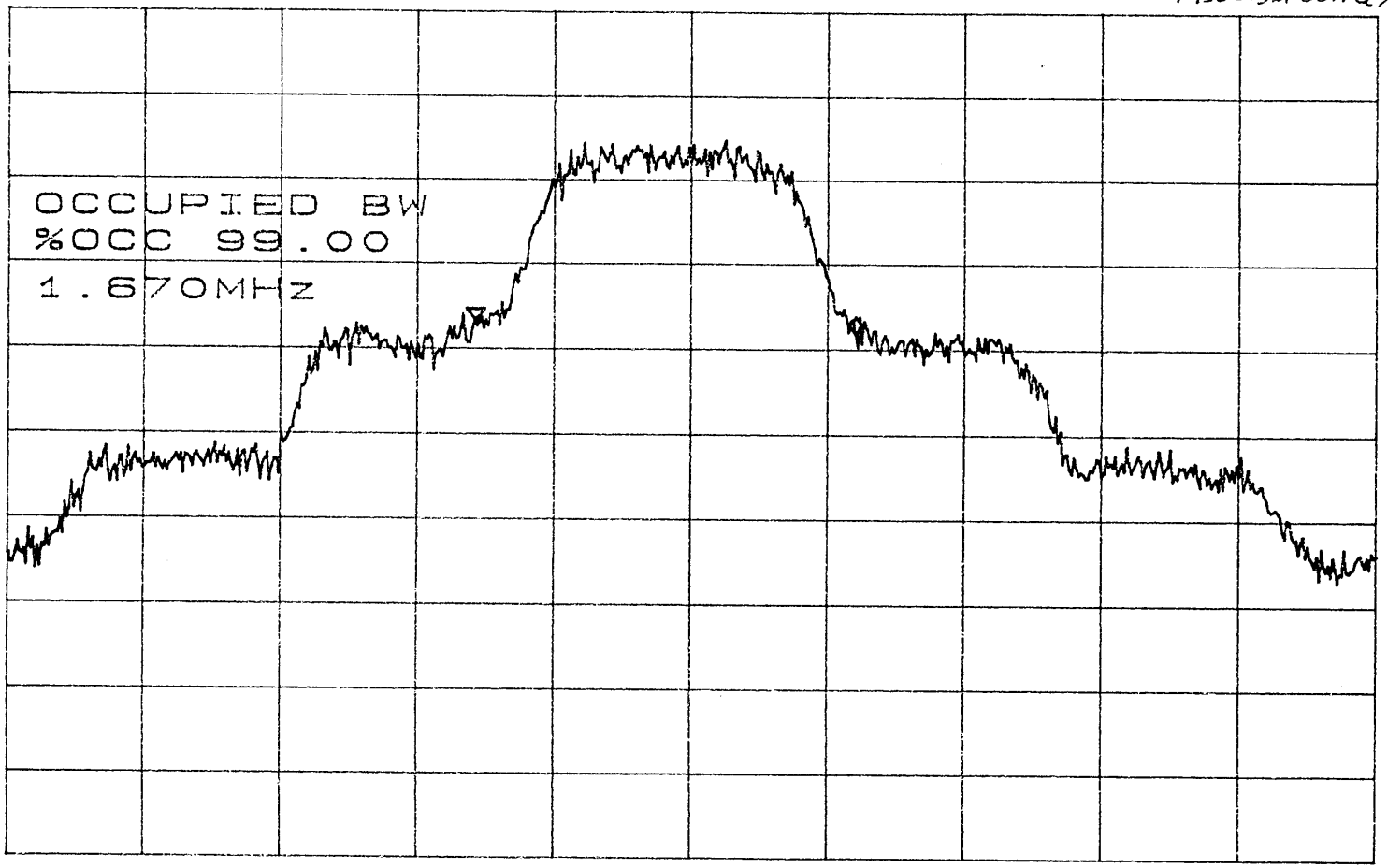
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 RATE
Test Date:	6/5/98	Polarization:	N/A

-0.96dB INPUT (Lab 27)

X Completed Preliminary Reading through 20dB atten

CL 23.4dBm VAVG 10 MKR .50dB

RL -6.4dBm 10dB/ 1.660MHz 10dBm atten



CENTER 28.2250000GHz SPAN 6.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

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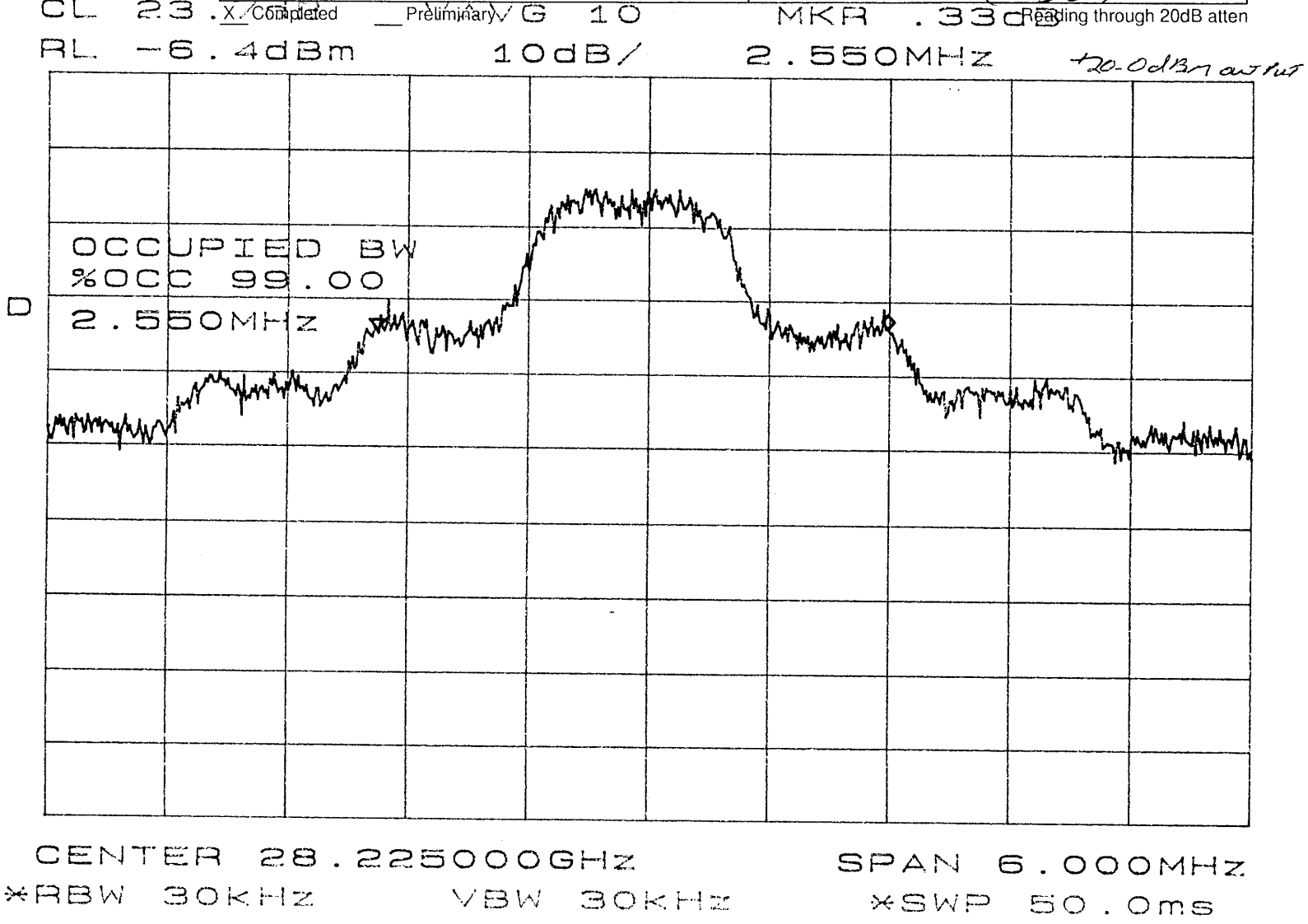
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 7/8 rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

6.16dBm Input

X Completed ___ Preliminary

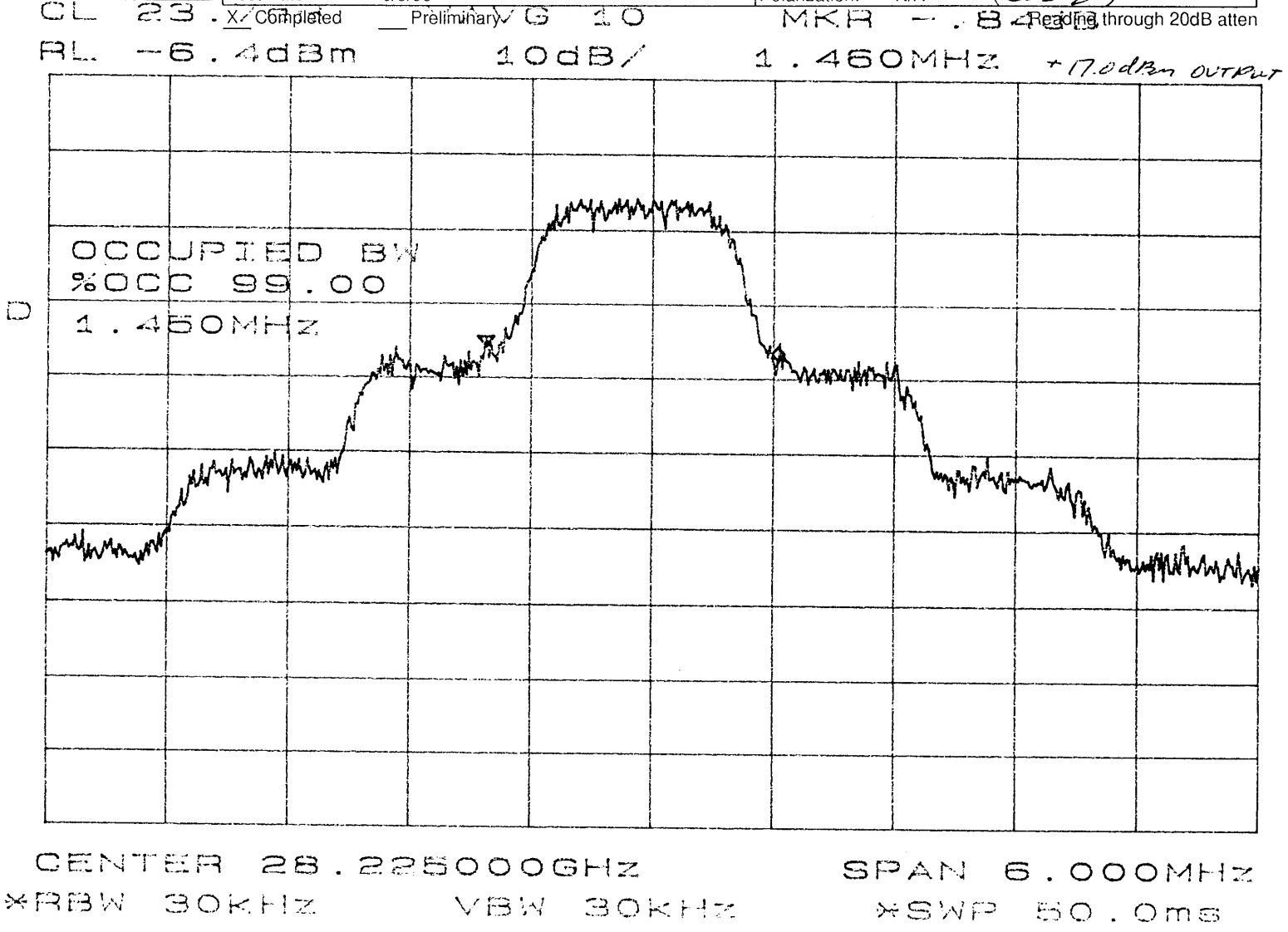


Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 Rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

-1.0 dBm Output

X Completed ___ Preliminary

Reading through 20dB atten



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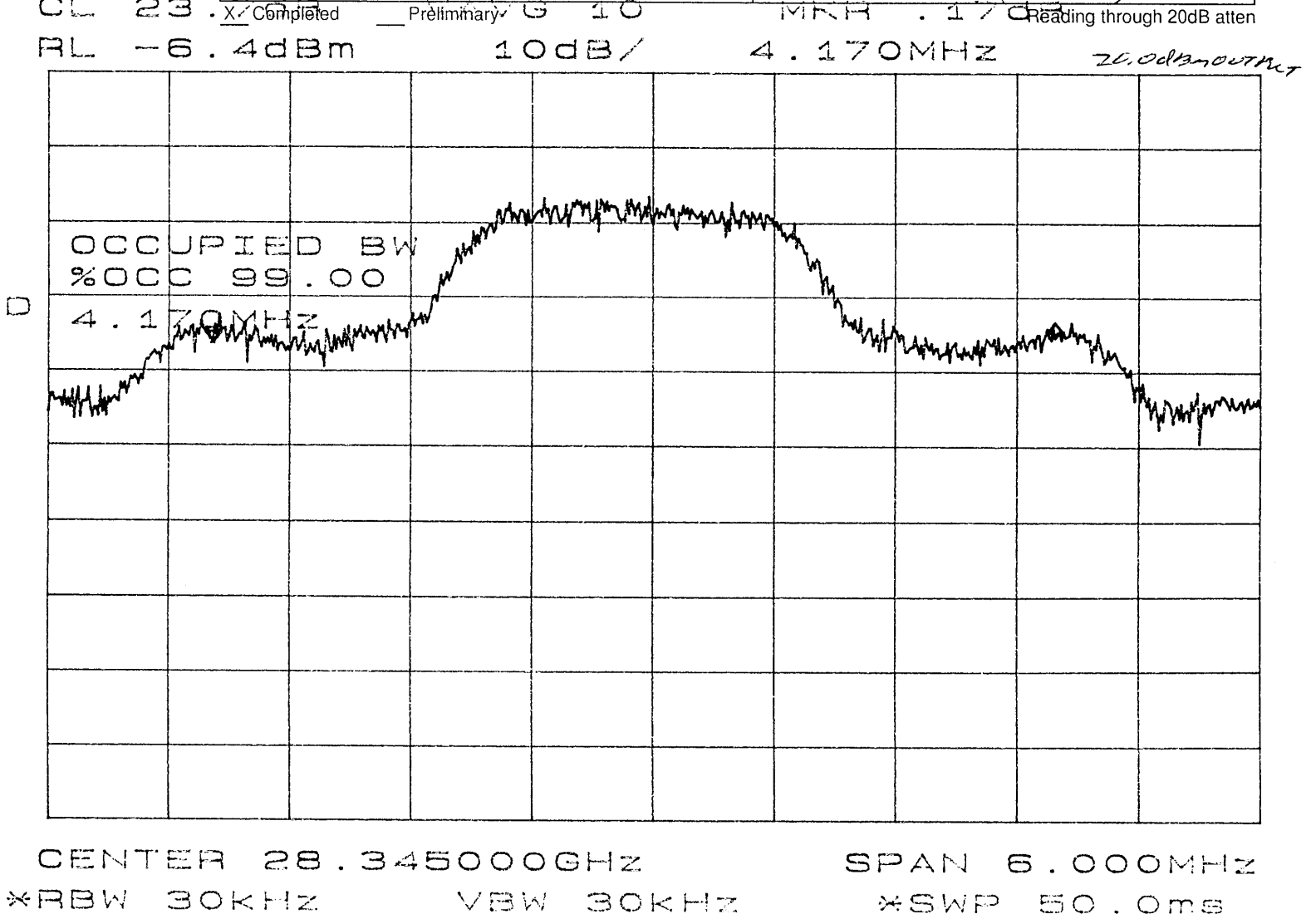
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A (lab 2)

+6.93 dBm INPUT

X Completed ___ Preliminary

Reading through 20dB atten



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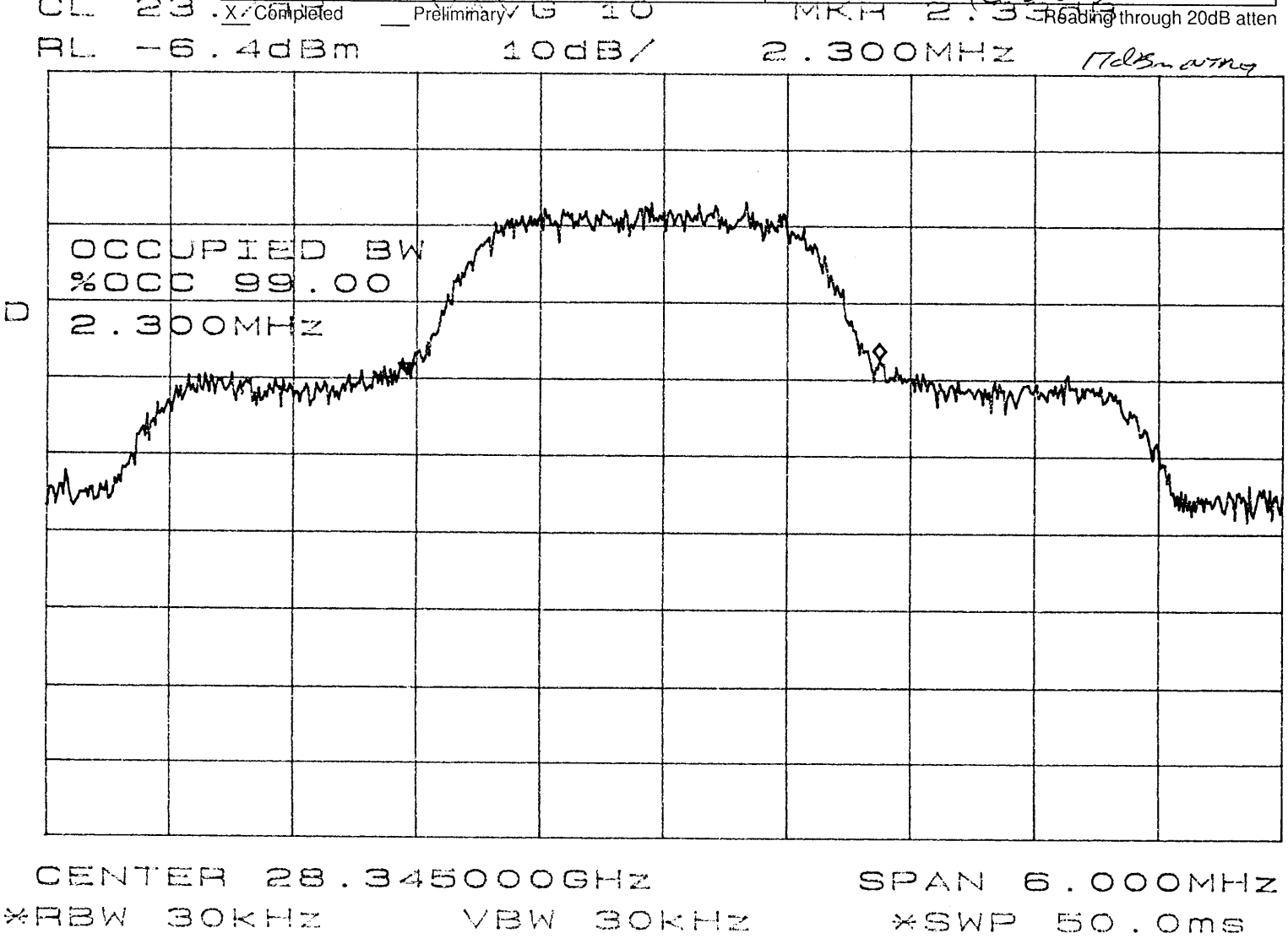
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A

X Completed ___ Prelimmary



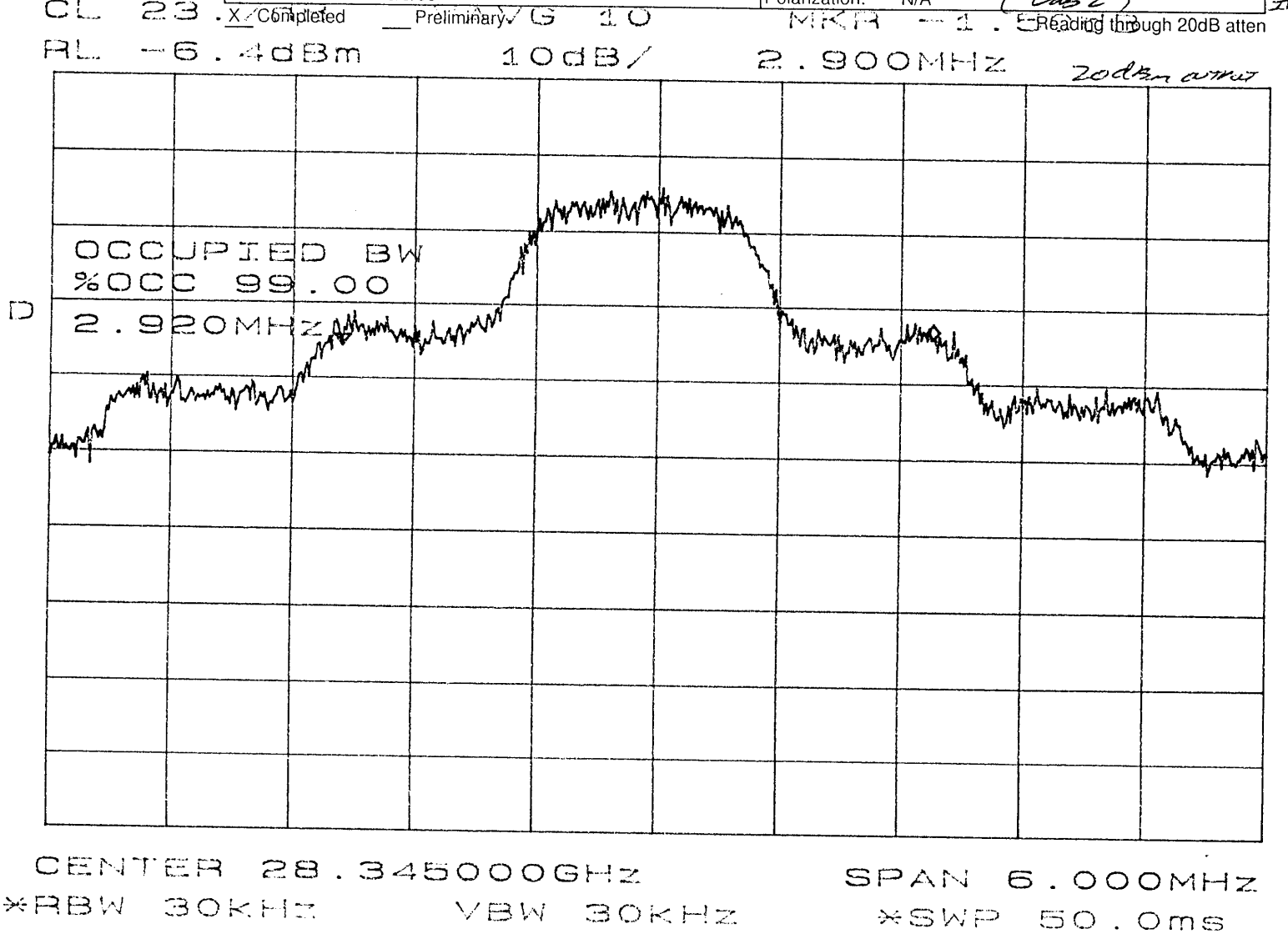
Reading through 20dB atten

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) 3/4 rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

T6.95 dBm INPUT

X Completed Preliminary Reading through 20dB atten



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)
Test Date:	6/5/98	Polarization:	N/A

-0.5 dBm 3/4 Rate INPUT (Lab 2)

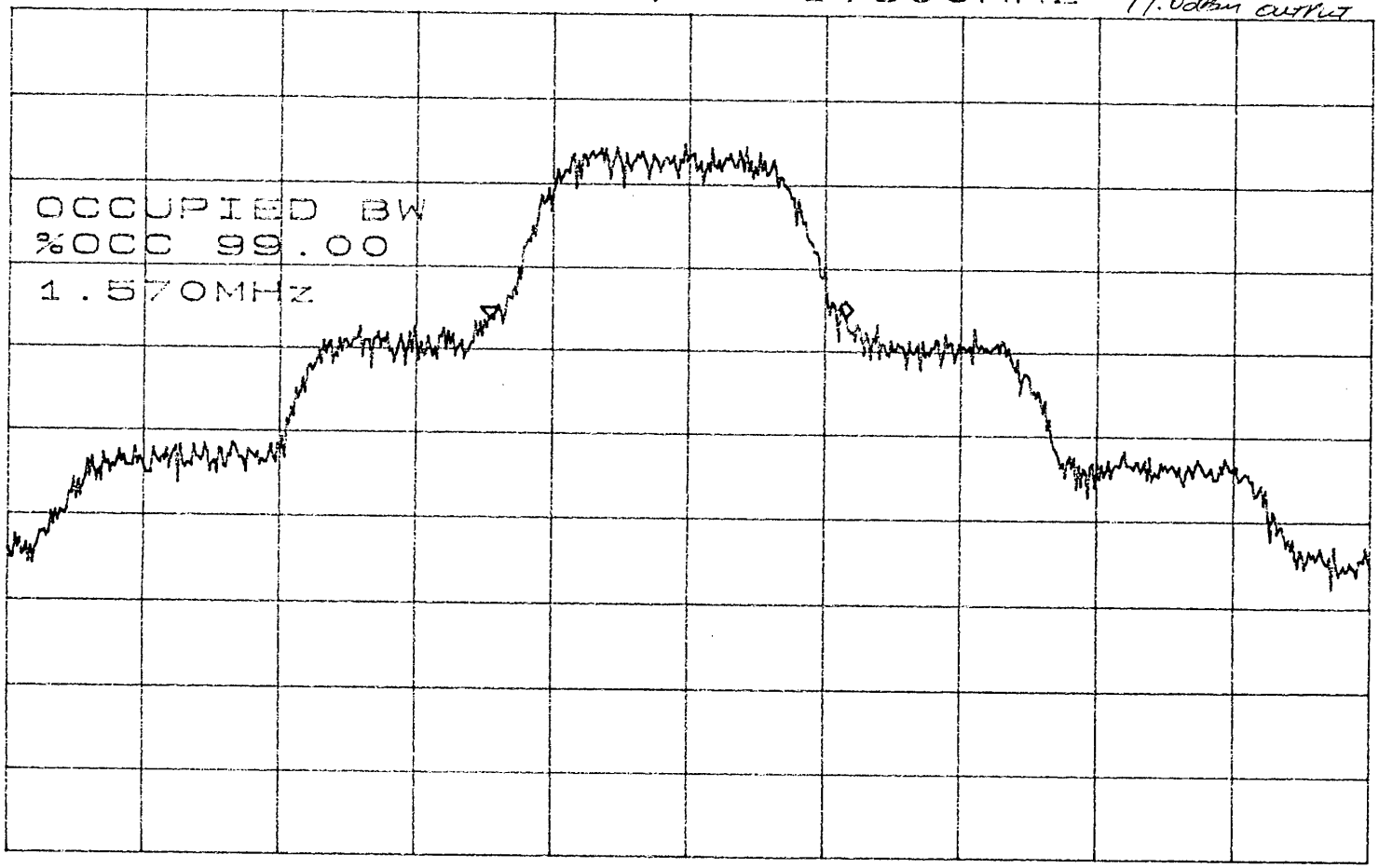
X Completed ___ Preliminary

Reading through 20dB atten

CL 23.

RL -6.4dBm 10dB/ MKR -1.1 1.600MHz

17.0dBm output



CENTER 28.345000GHz 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)
Test Date:	6/5/98	Polarization:	N/A

X Completed ___ Preliminary

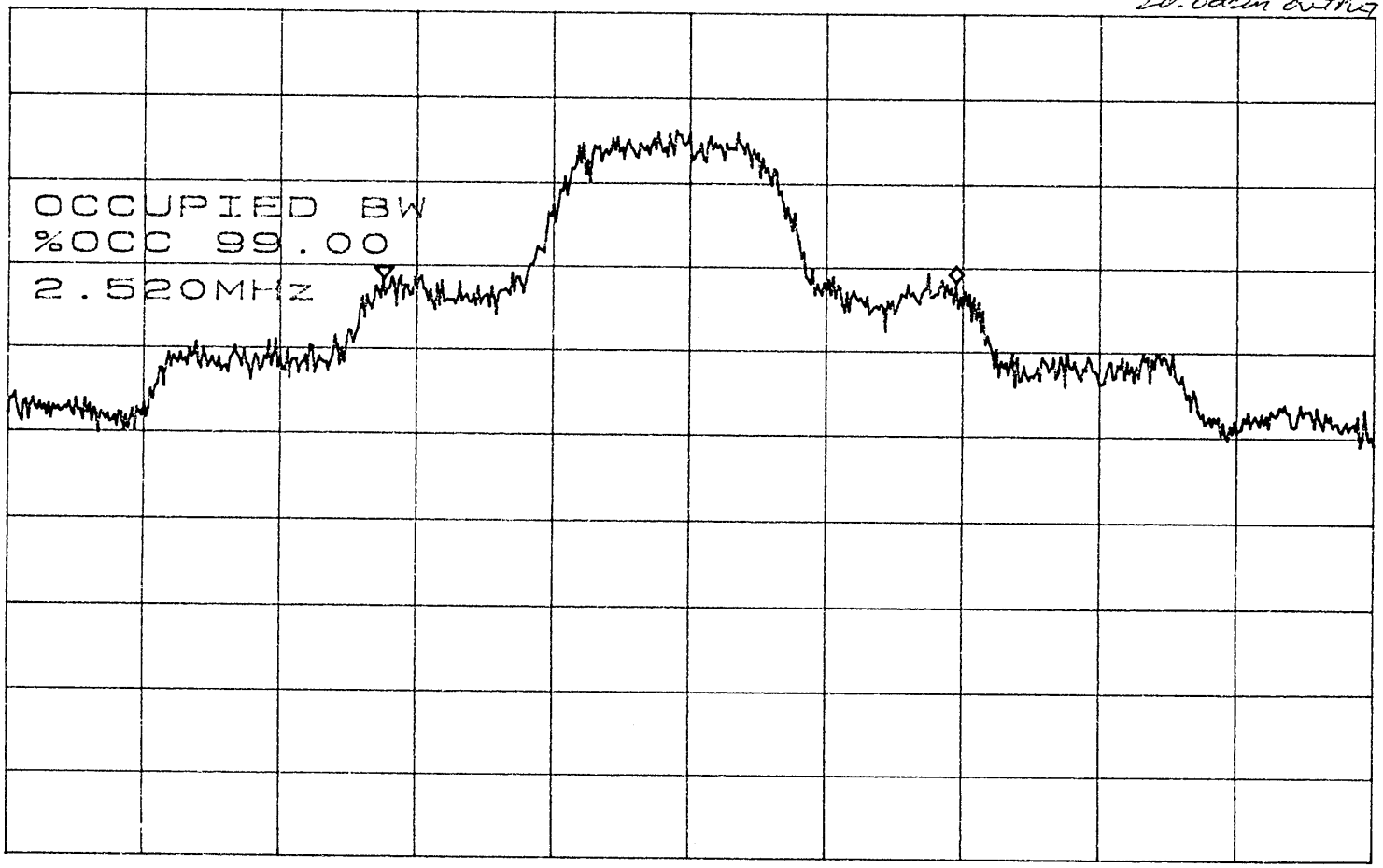
+7.09dB INPUT

1/8 Rate (Lab 2)

Reading through 20dB atten

CL 23.4dBm AVG 10 MKR -2.06dB

RL -6.4dBm 10dB/ 2.510MHz 20.0dBm output



CENTER 28.345000GHz SPAN 6.000MHz

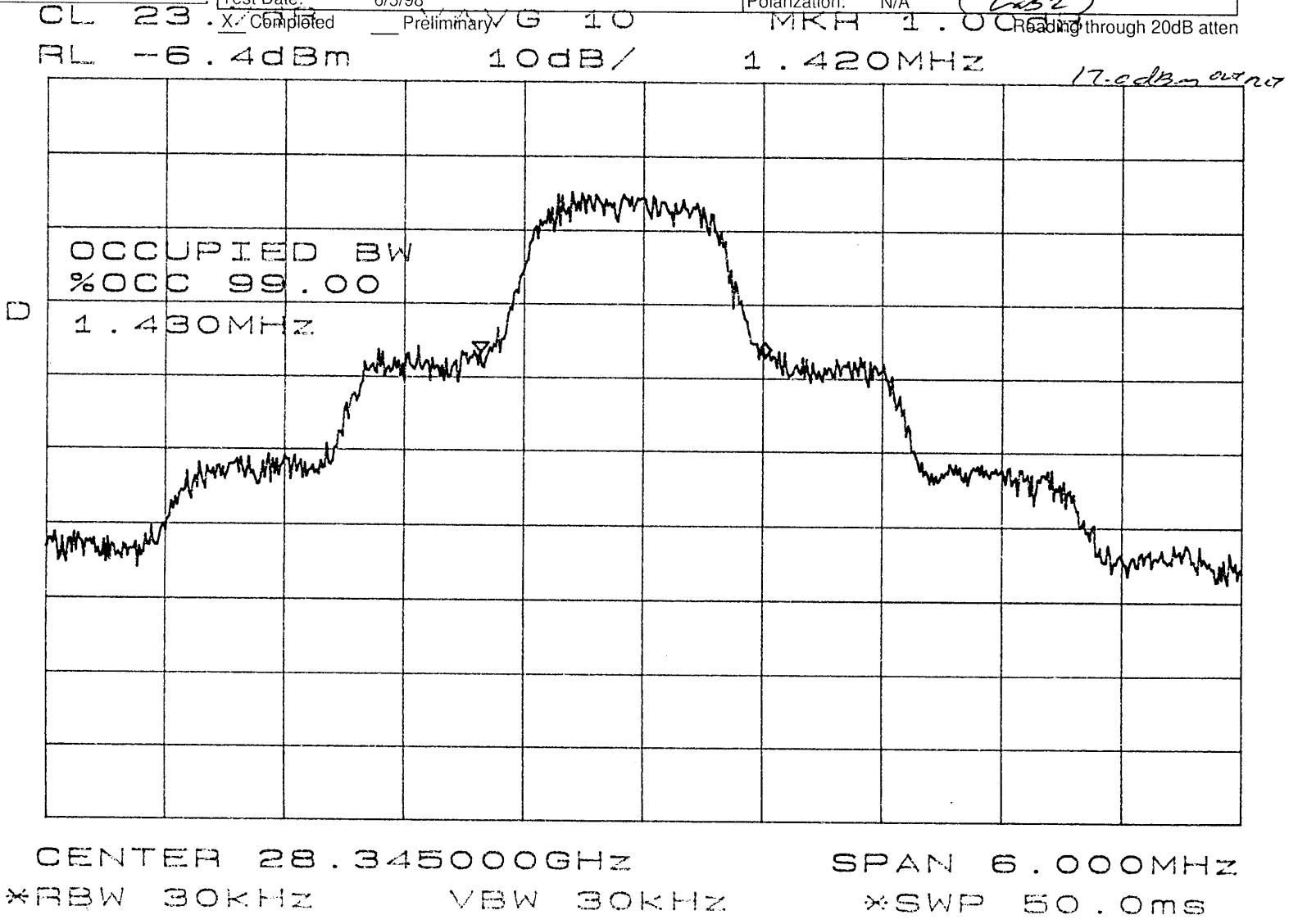
*RBW 30KHz VBW 30KHz *SWP 50.0ms

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) 3/4 rate
Test Date:	6/5/98	Polarization:	N/A

-0.54 dBm Input (Lab 2)

X Completed Preliminary Reading through 20dB atten



Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

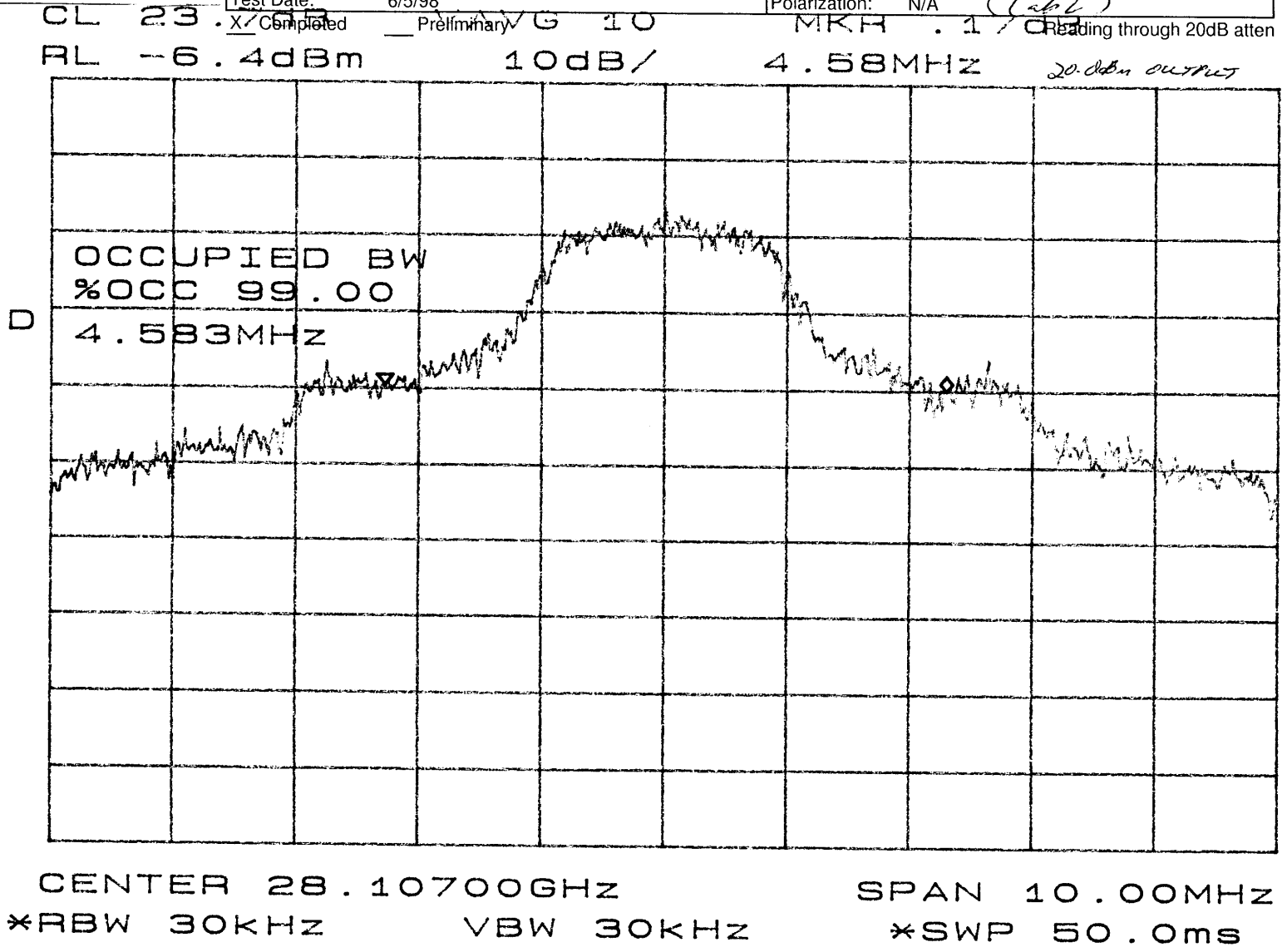
MODULATION CHARACTERISTICS
SIMULATED QPSK

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:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A

45.4dBm Input

X Completed Preliminary Reading through 20dB atten

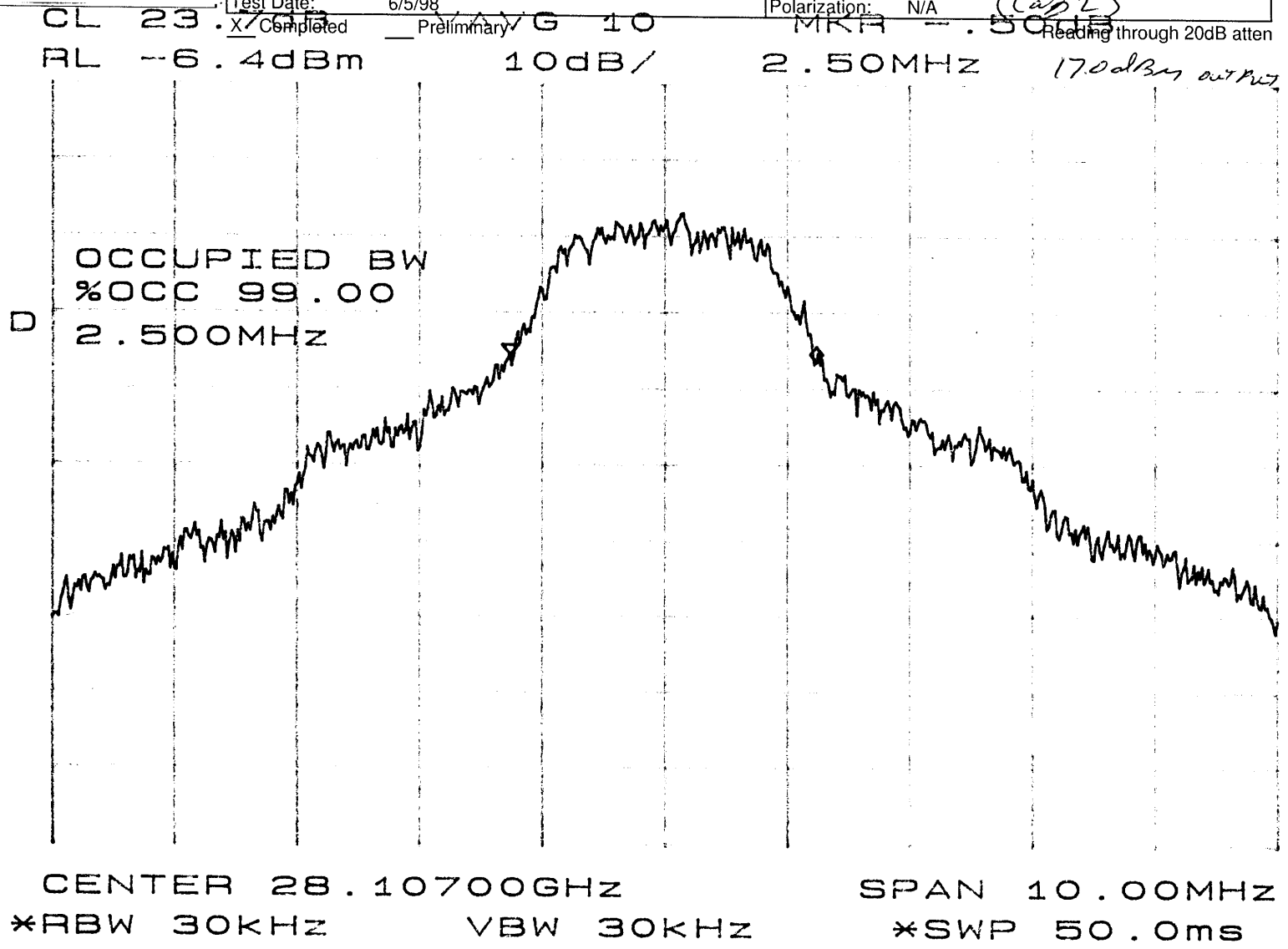


International Compliance Corporation
"Your Certification Solution" sm

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

-0.04dB INPUT (Lab 2)

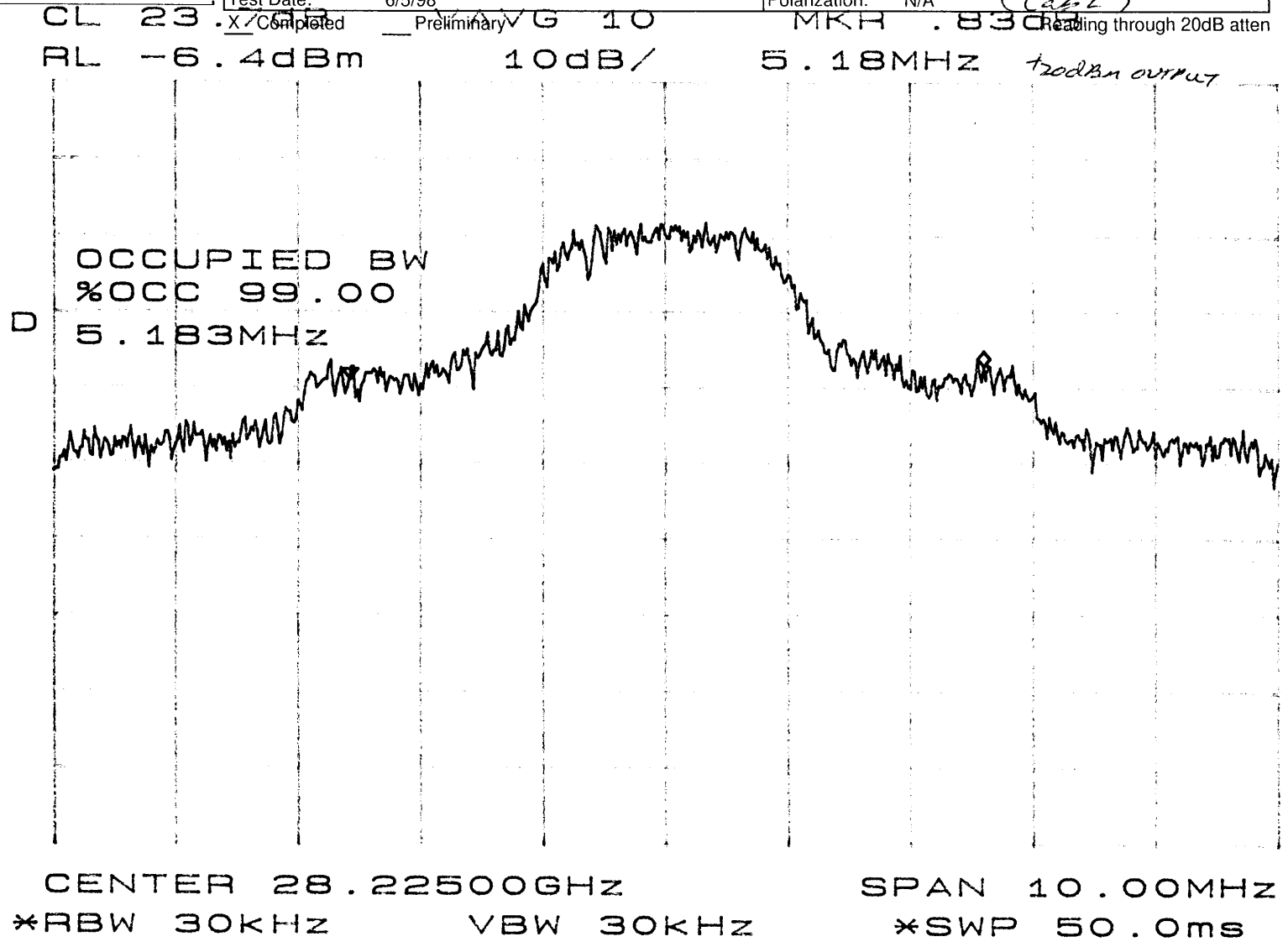
X Completed Preliminary Reading through 20dB atten



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

+5.76dBm INPUT (after)

X Completed Preliminary Reading through 20dB atten



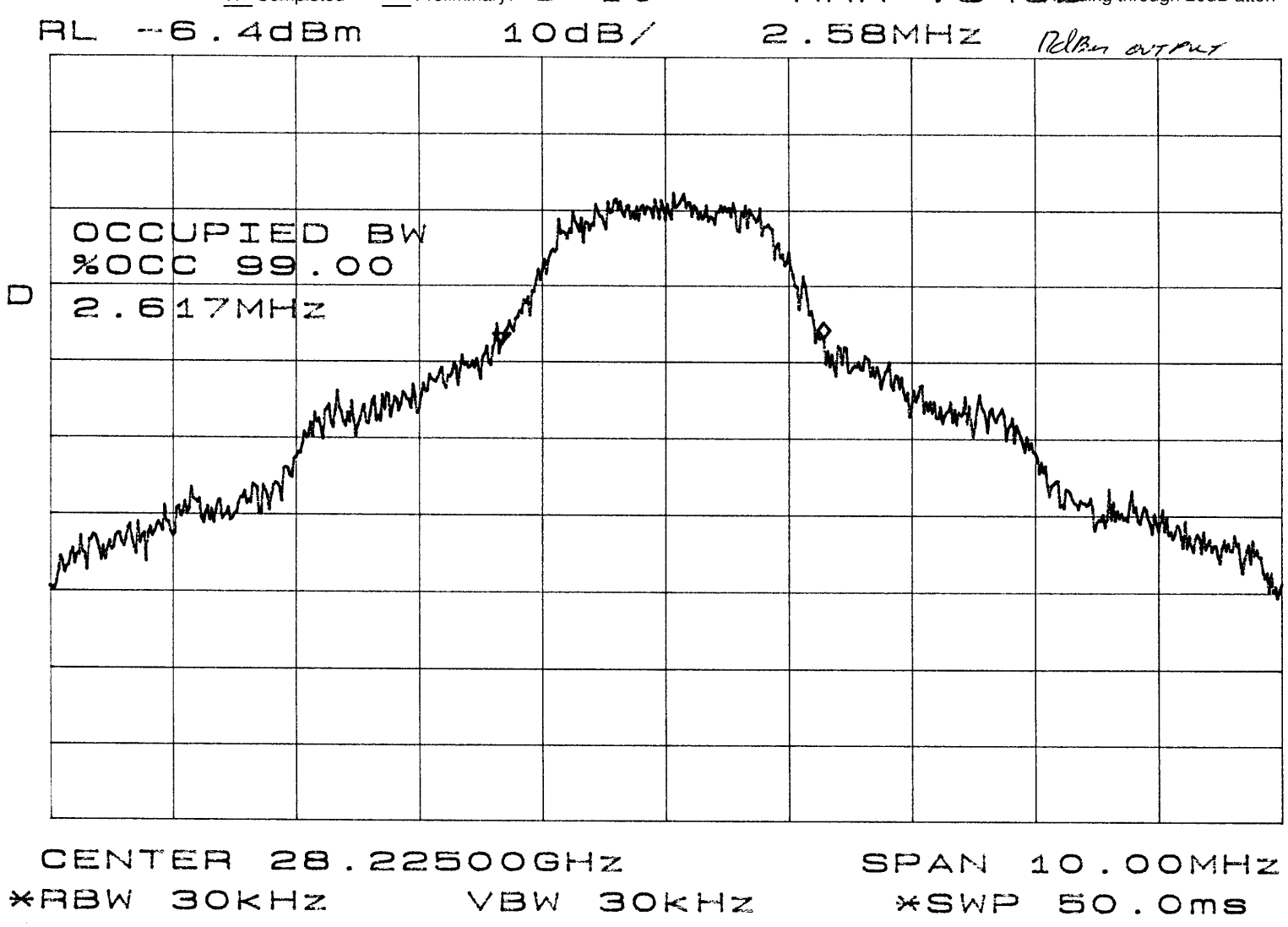
International Compliance Corporation
"Your Certification Solution" sm

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

-1.03dBm INPUT

(cable 2)

X Completed Preliminary Reading through 20dB atten

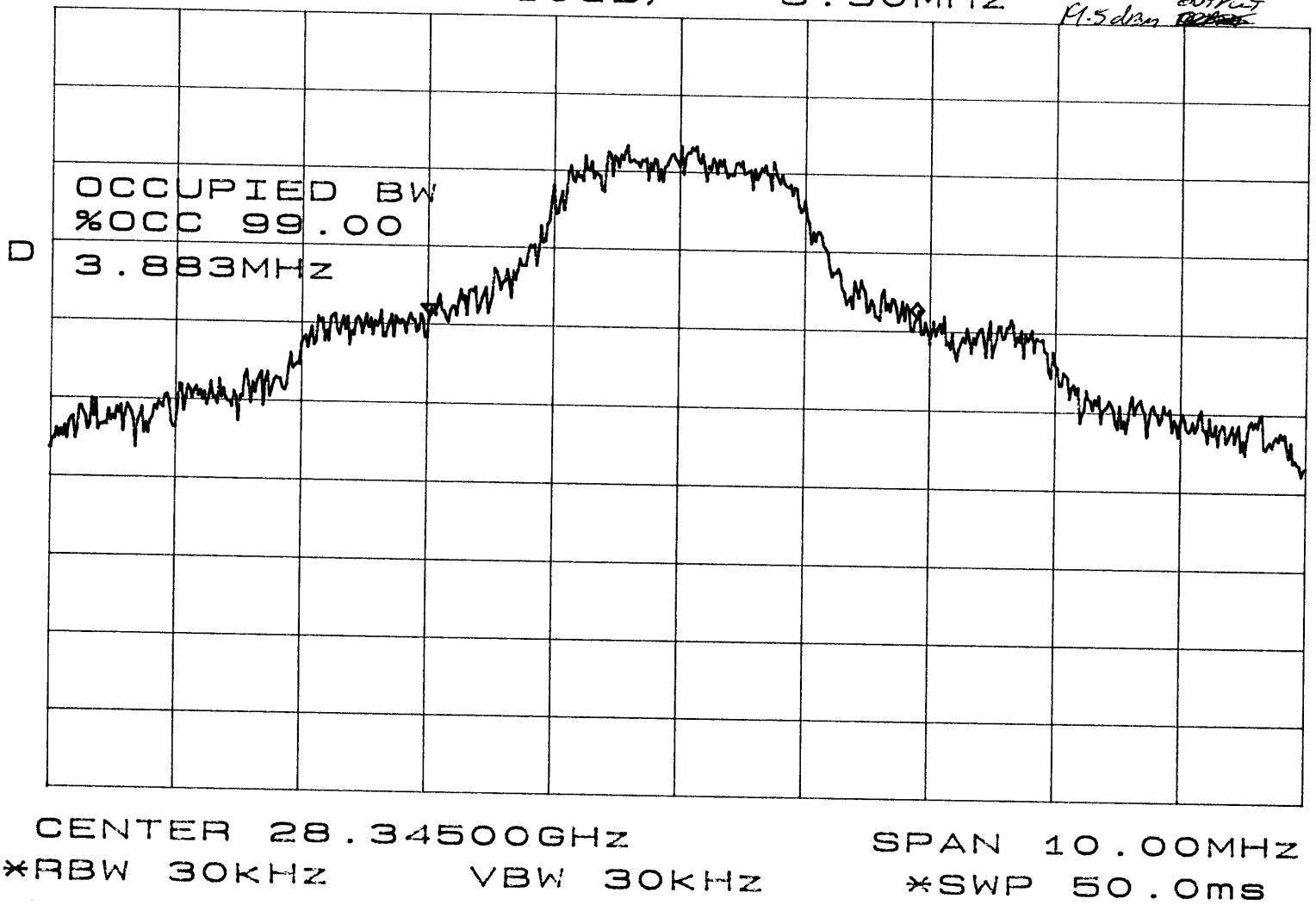


Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A (Ch 2)

X Completed Preliminary

13.47dBm Input

Reading through 20dB atten



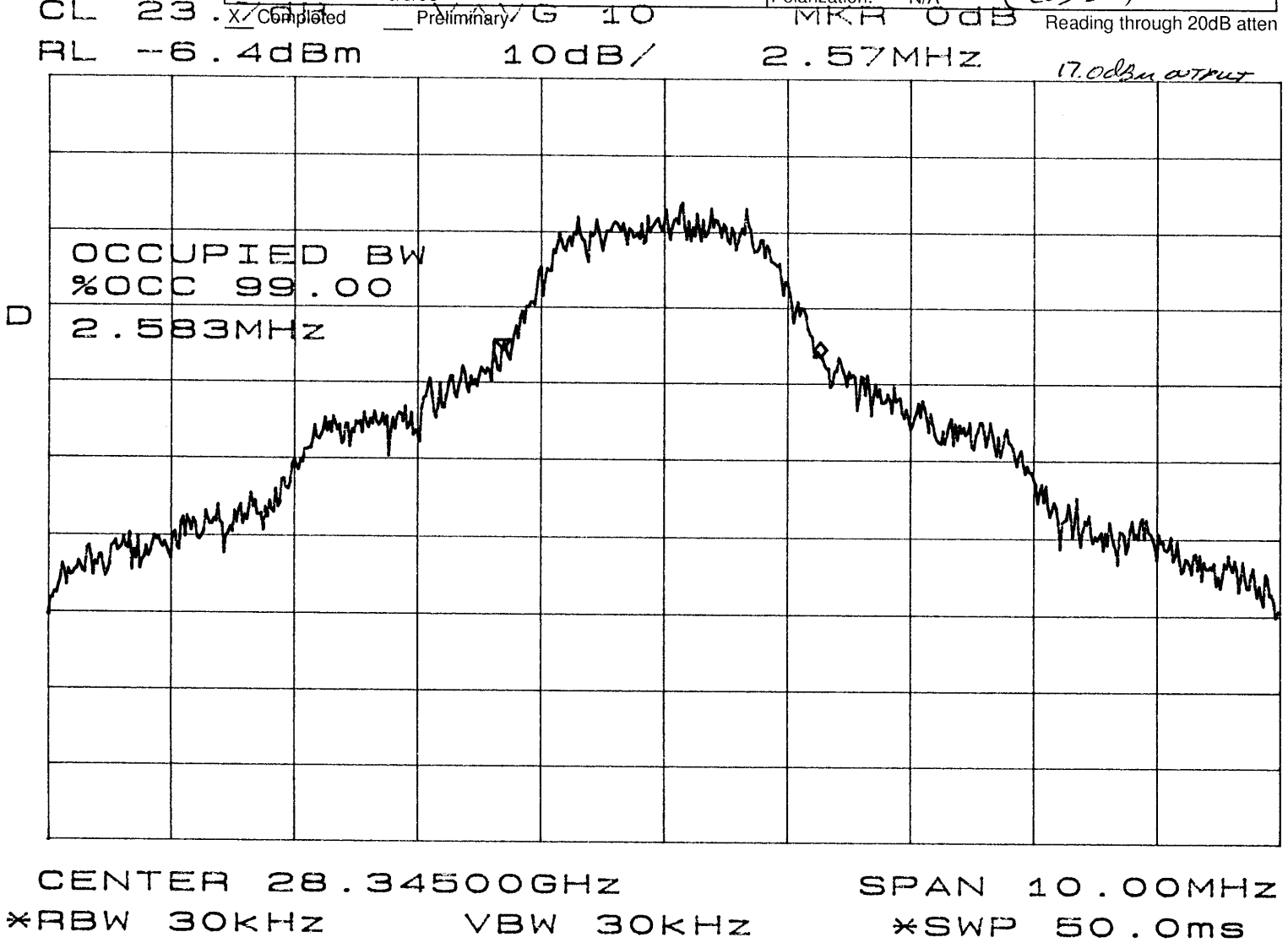
International Compliance Corporation
"Your Certification Solution" sm

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

-0.59dBm INPUT (Less)

X Completed ___ Preliminary

Reading through 20dB atten



Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

OCCUPIED BANDWIDTH
ACTUAL QPSK

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) 1/2 rate
Test Date:	6/5/98	Polarization:	N/A

X Completed ___ Preliminary

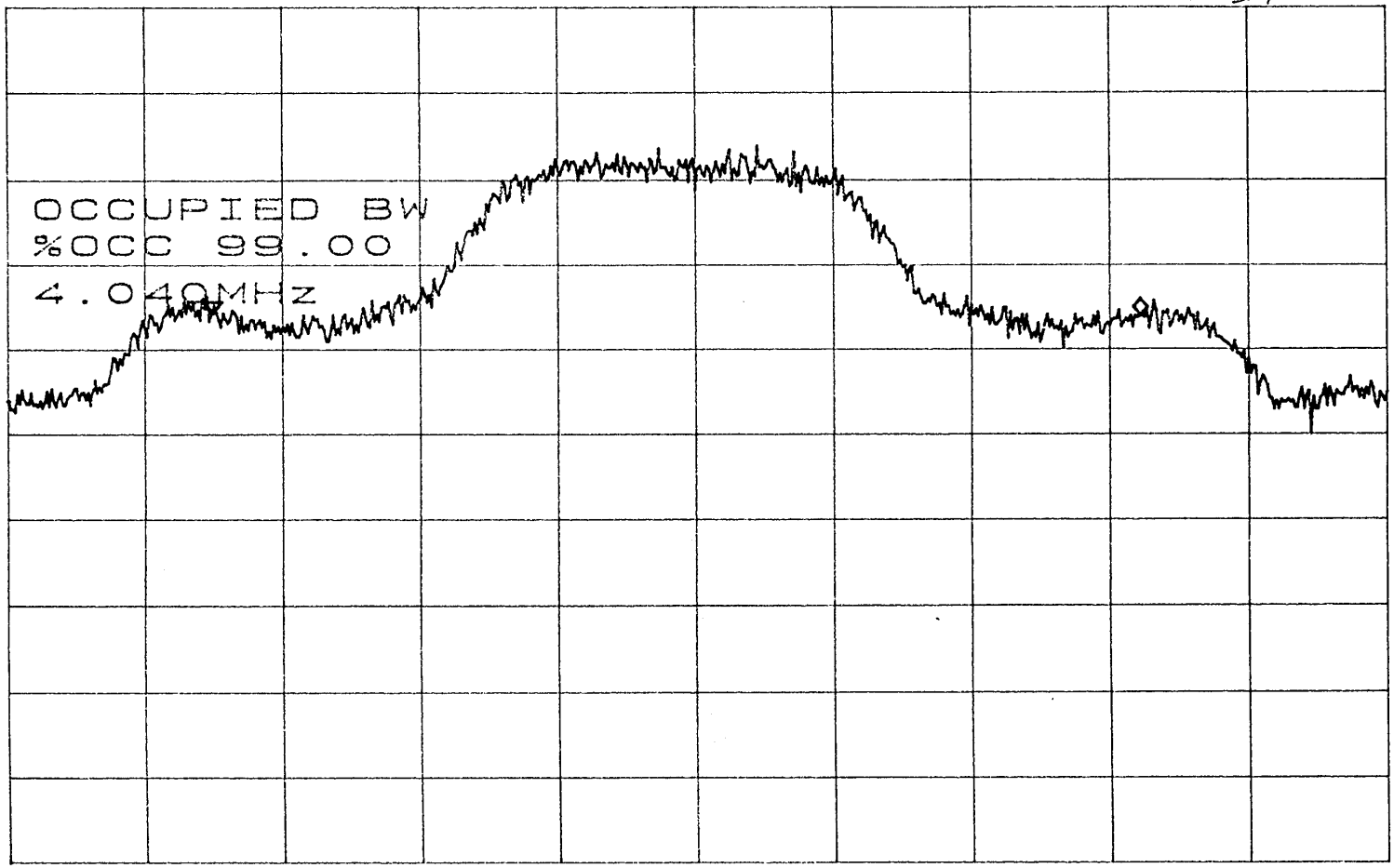
7.541dBm Input

(Lab 2)

Reading through 20dB atten

CL 23.0dB AVG 10 MKR1 -1.33dB

RL -6.4dBm 10dB/ 4.040MHz +20dBm



CENTER 28.107000GHz SPAN 6.000MHz

*RBW 30kHz VBW 30kHz *SWP 50.0ms

FCC ID: NNS3214864

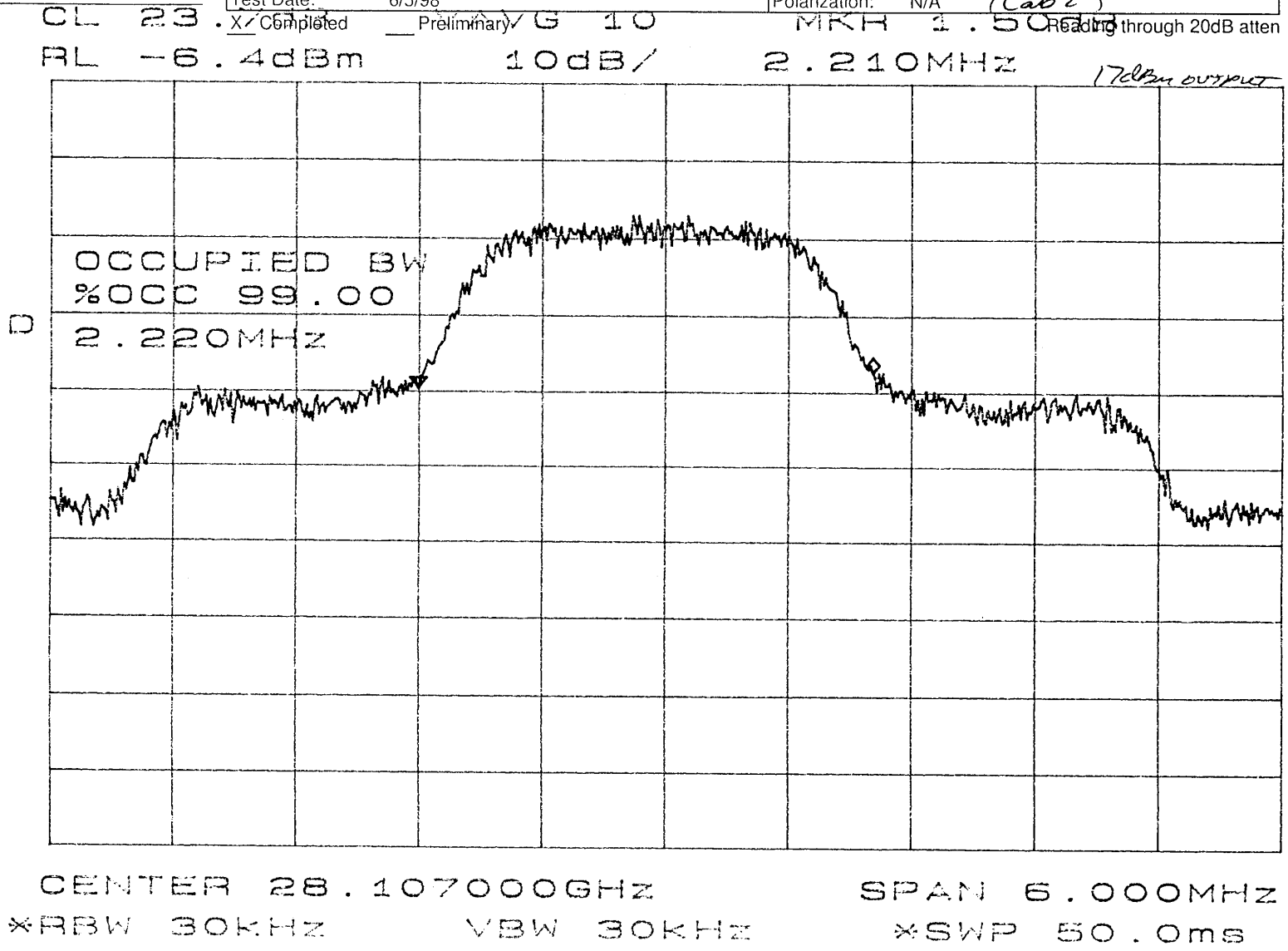
International Compliance Corporation
"Your Certification Solution" sm

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

-20.1 dBm Input

X Completed ___ Preliminary

Reading through 20dB atten



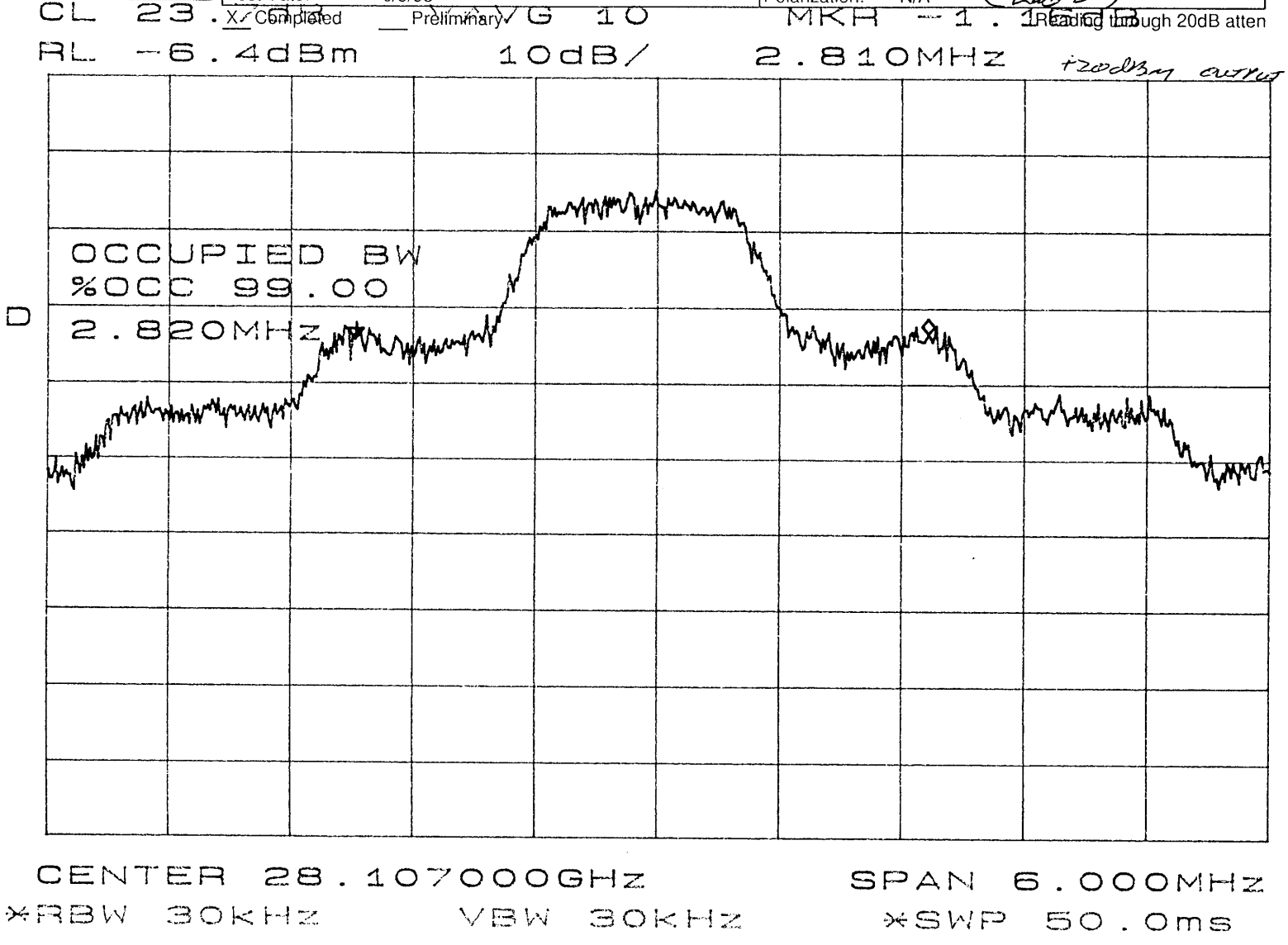
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A

+5.6dBm Marc Input

(Lab 2)

X Completed ___ Preliminary

Reading through 20dB atten



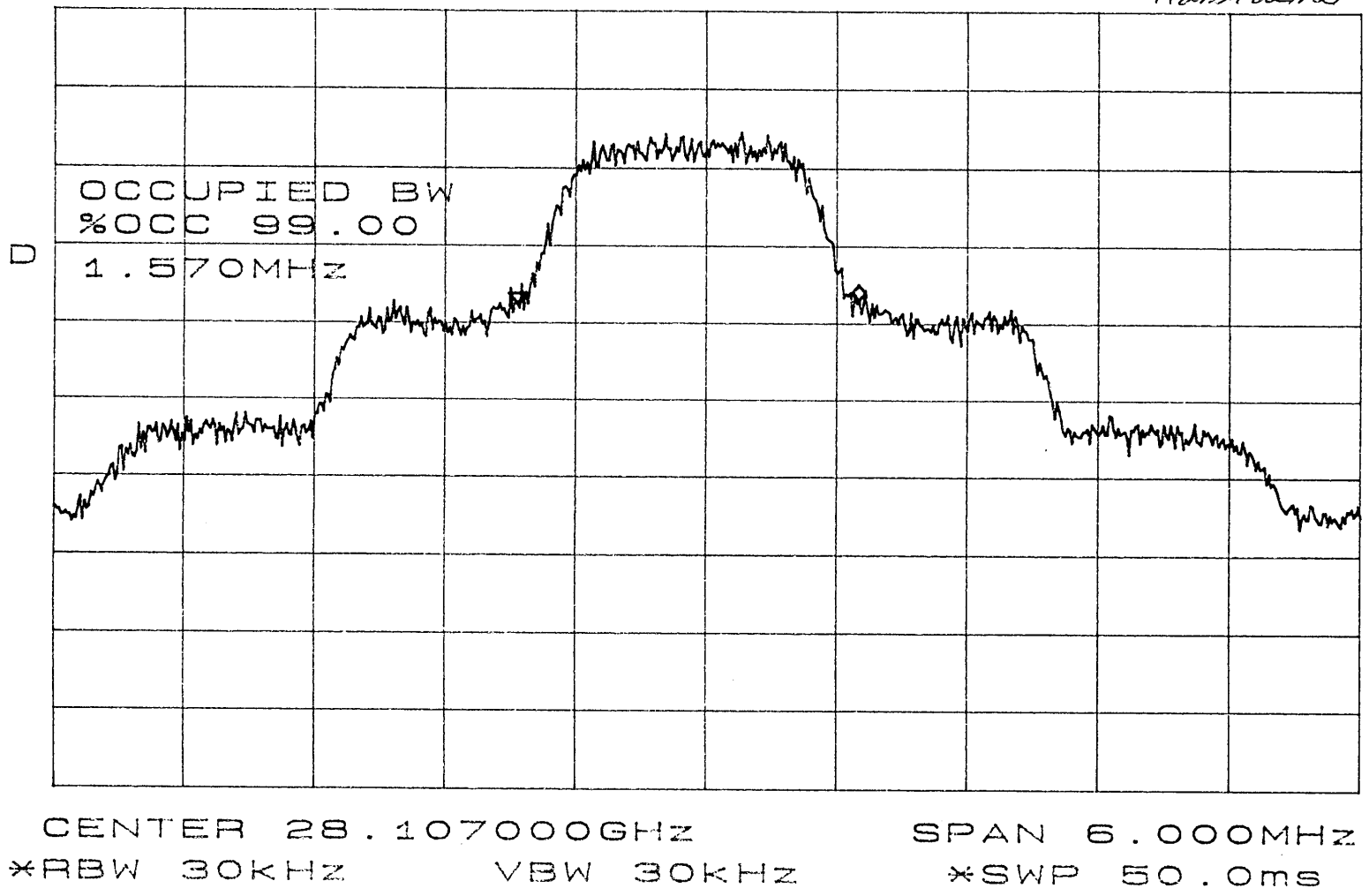
ICC.
International Compliance Corporation
"Your Certification Solution" sm

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

X Completed ___ Preliminary

-0.4dB

Reading through 20dB atten



FCC ID: NNS3214864

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)
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

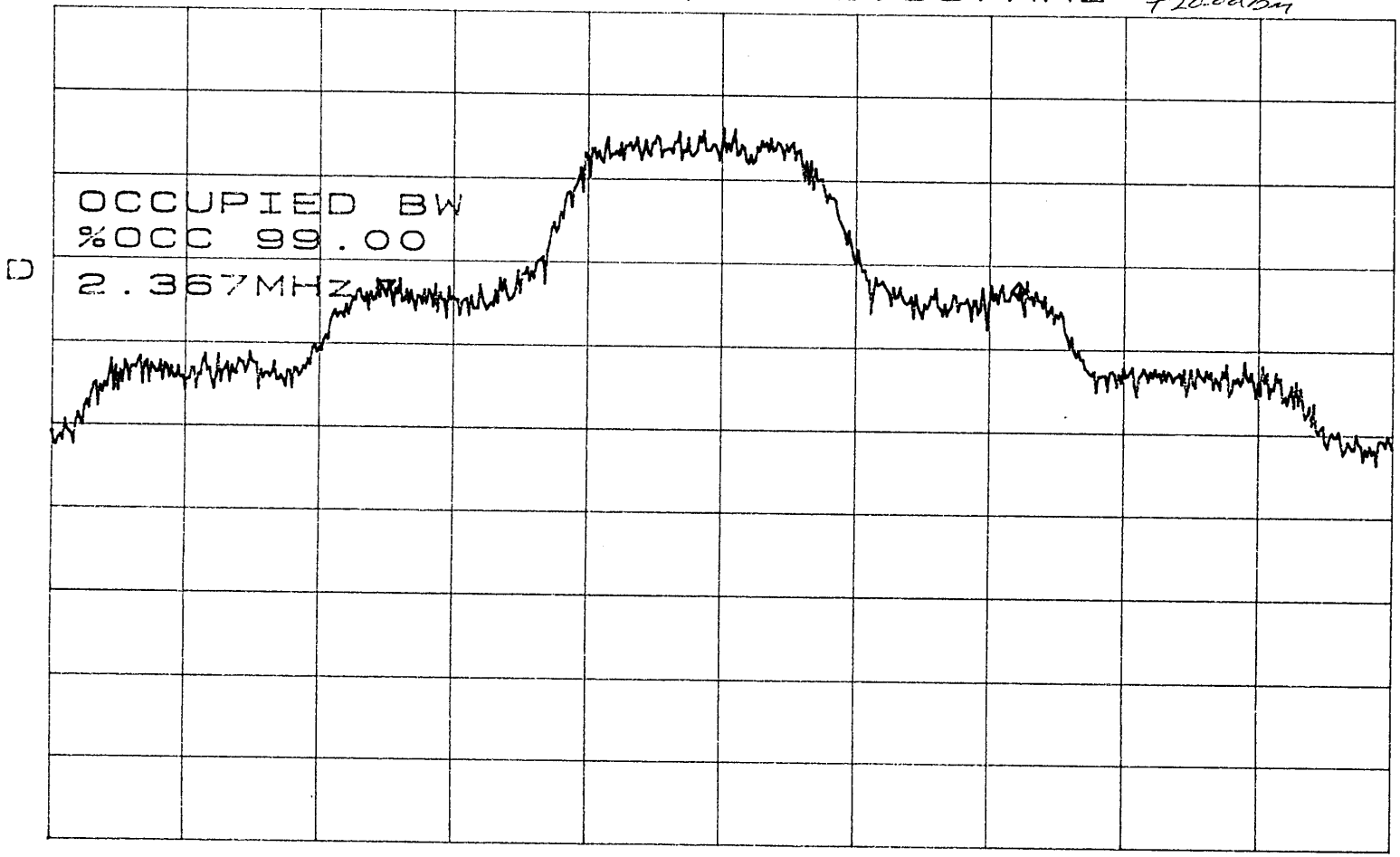
X Completed ___ Preliminary

+5-3 dB/1 INPUT

CL 23.0dBm AVG 10 MKR -1.0dB

RL -6.4dBm 10dB/ 2.367MHz +20.0dBm

Reading through 20dB atten



CENTER 28.107000GHz SPAN 5.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

FCC ID: NNS3214864

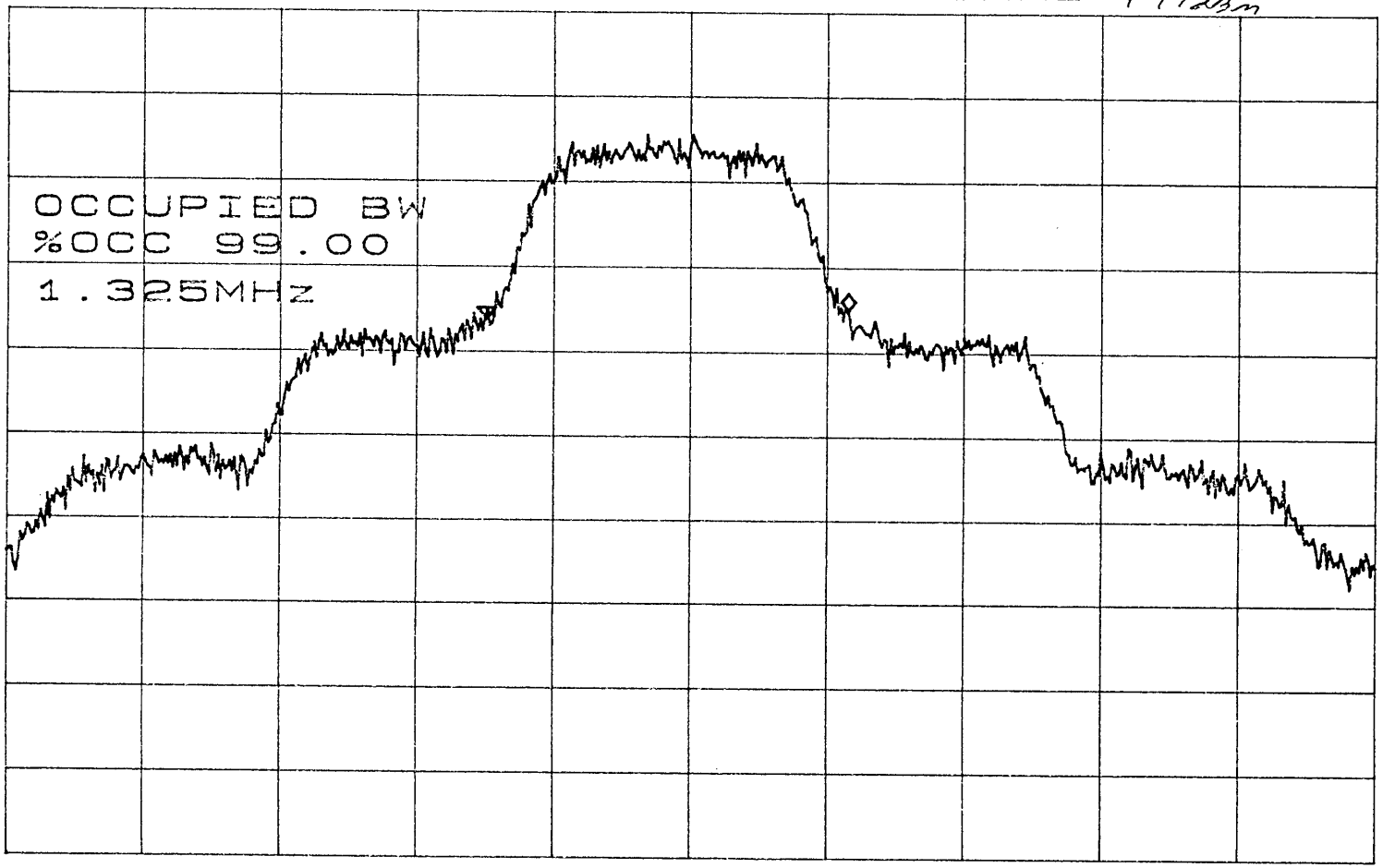
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A (Lab-2)

X Completed Preliminary Reading through 20dB atten

-0.02 dB Input

CL 23.5dBm AVG 10 MKR .500dB

RL -6.4dBm 10dB/ 1.333MHz +17dBm



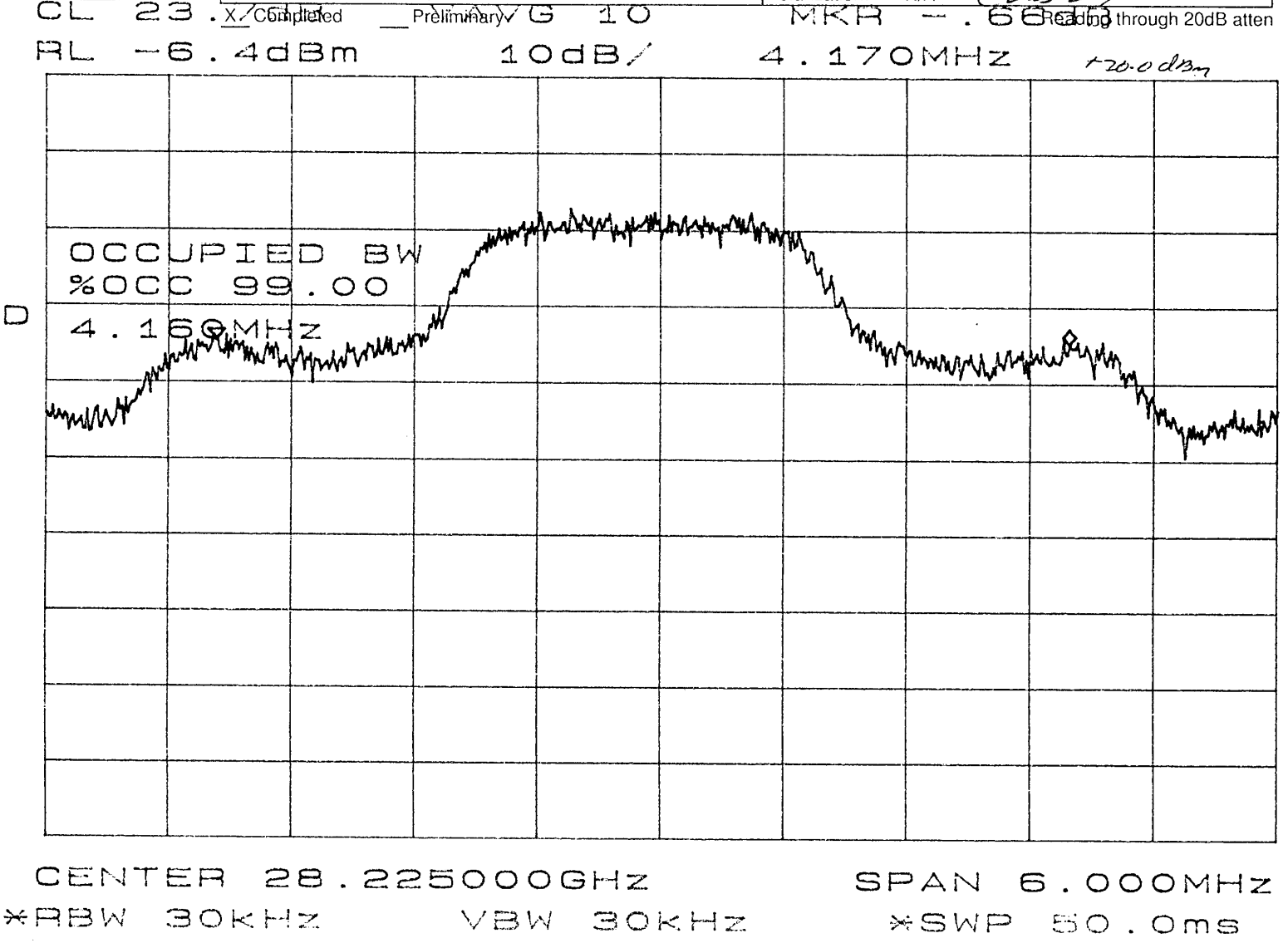
CENTER 28.107000GHz SPAN 5.000MHz

*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)
Test Date:	6/5/98	Polarization:	N/A

+5.95 dBm INPUT (Lab 2) ½ MUX

X Completed ___ Preliminary ✓ Reading through 20dB atten



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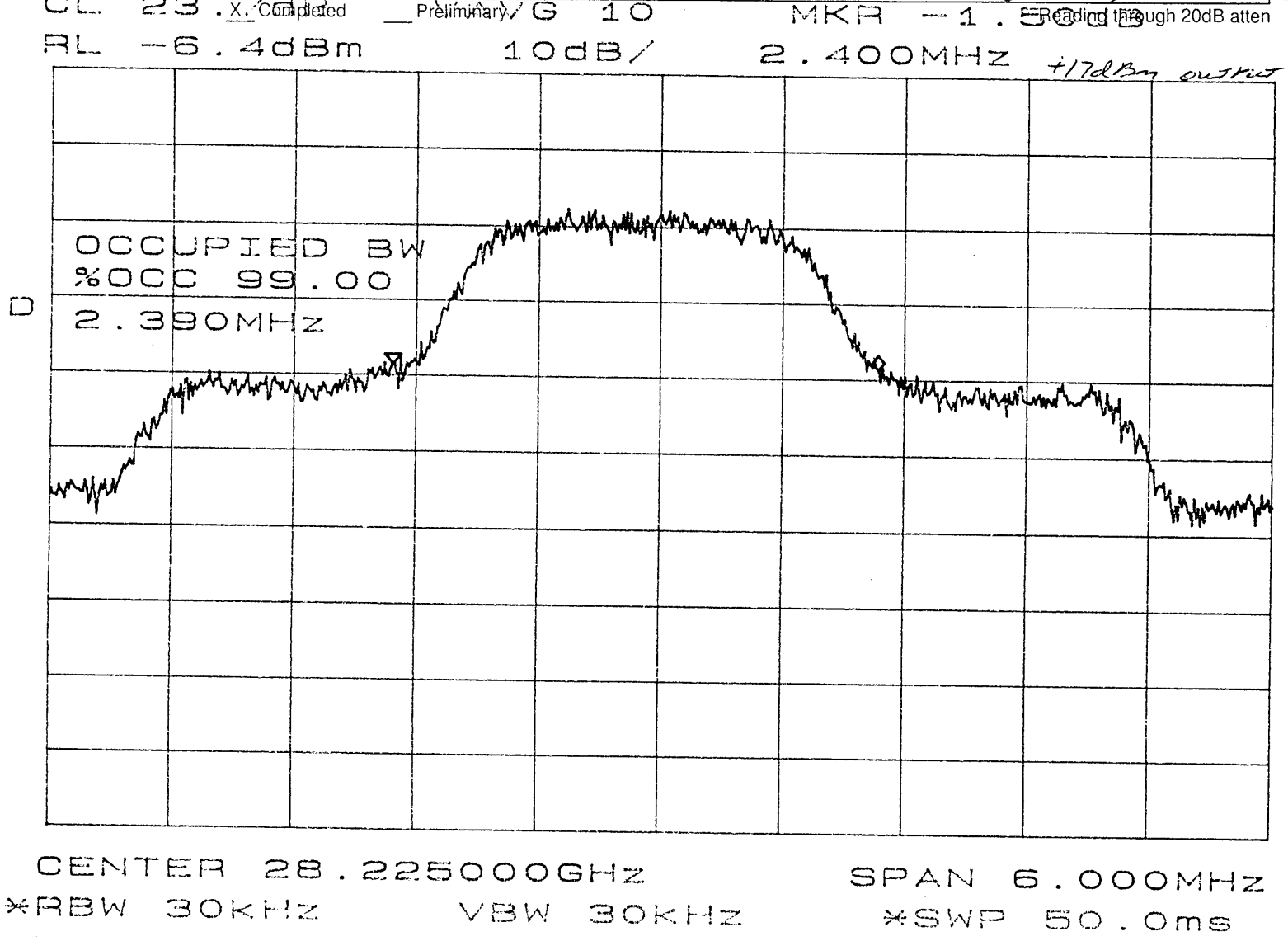
International Compliance Corporation
"Your Certification Solution" sm

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

-1.07 dBm Input

X Completed ___ Preliminary

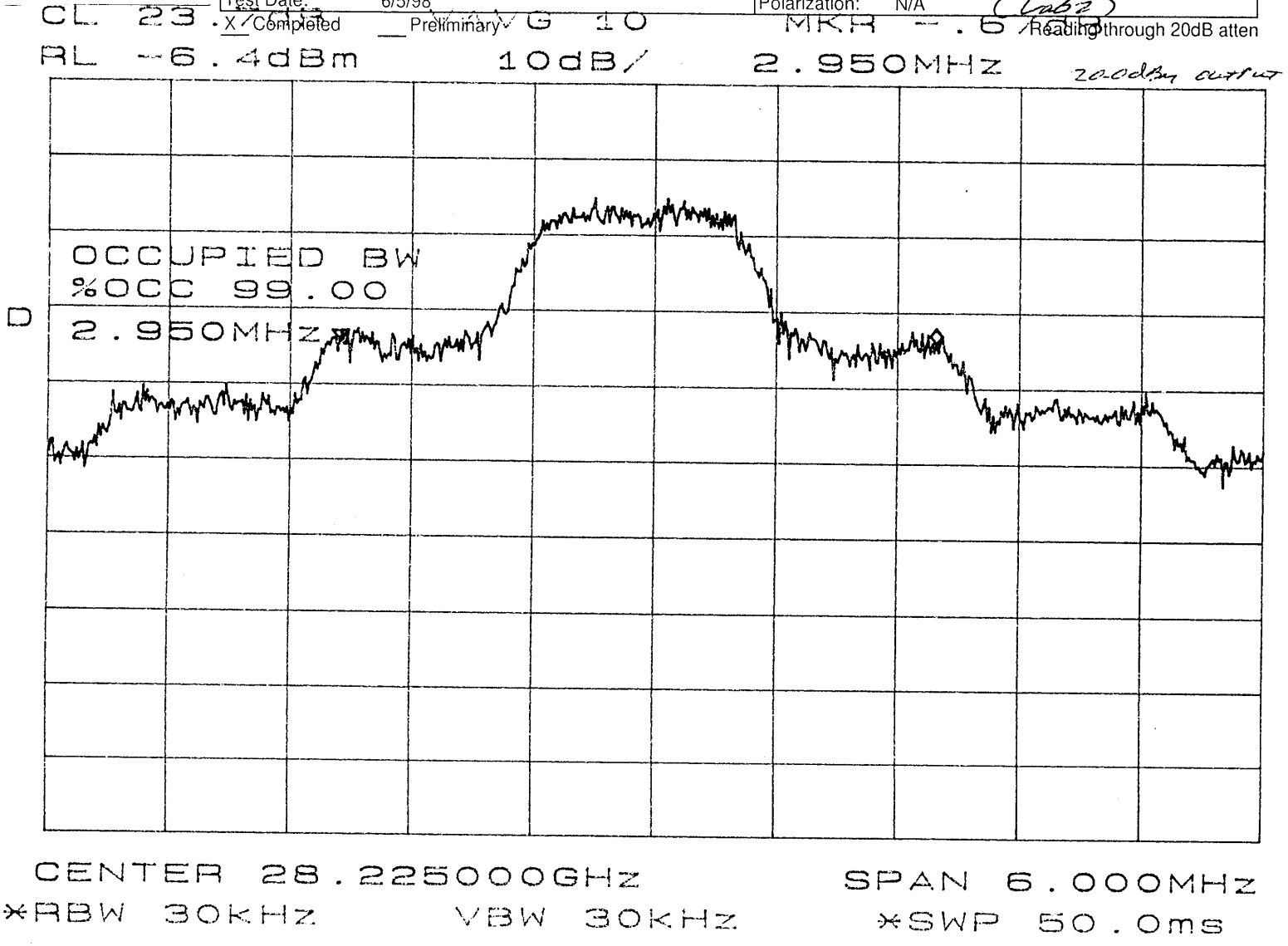


ICC.
International Compliance Corporation
"Your Certification Solution" sm

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

+6.05dBm into (Cable)

X Completed Preliminary Reading through 20dB atten



International Compliance Corporation
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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

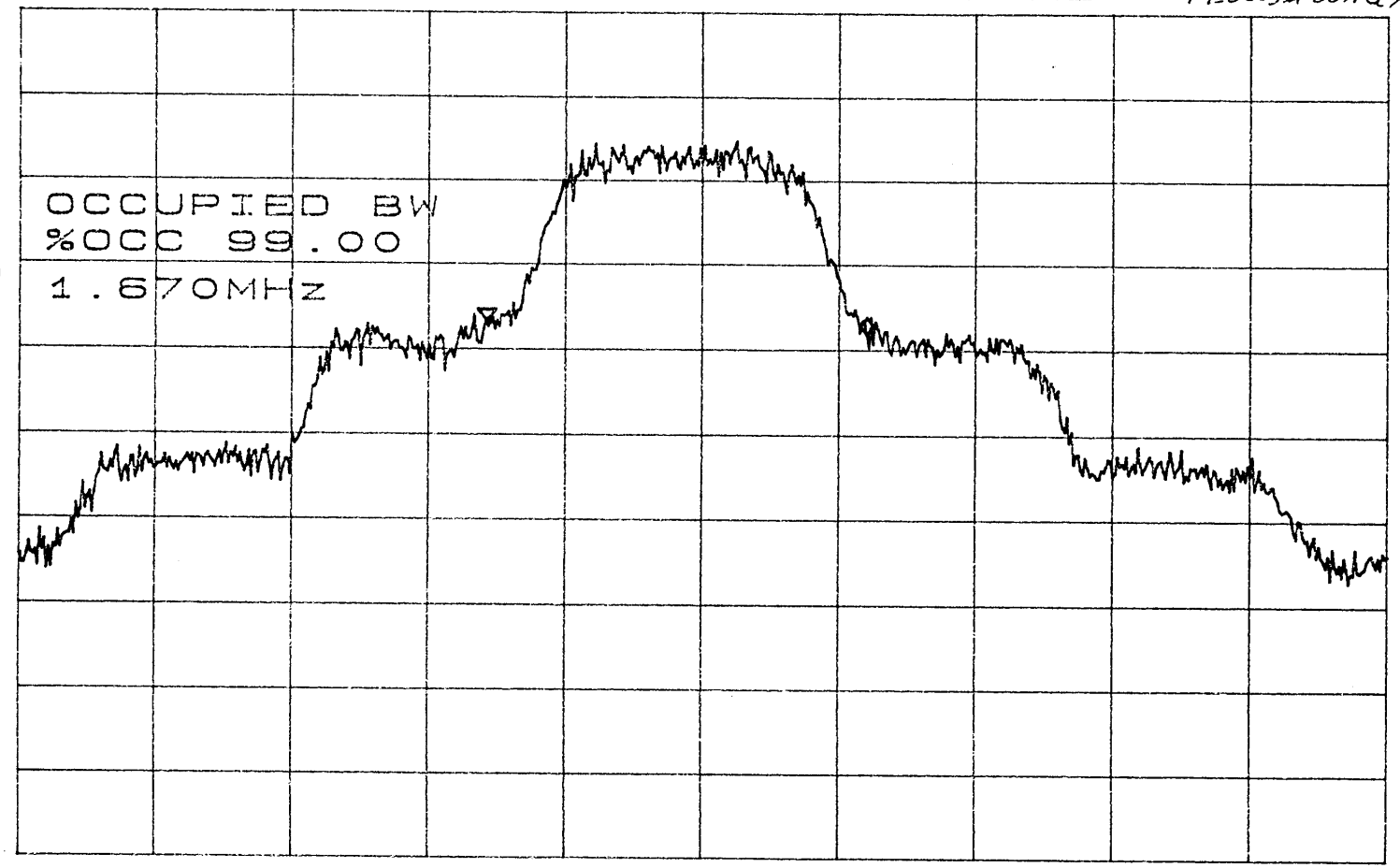
-0.96dB ext INPUT

(Lab 2)

X Completed Preliminary Reading through 20dB atten

CL 23.600 VAVG 10 MKR .500

RL -6.4dBm 10dB/ 1.660MHz 17.0dBm atten



CENTER 28.225000GHz SPAN 6.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

ICC
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) 7% Rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

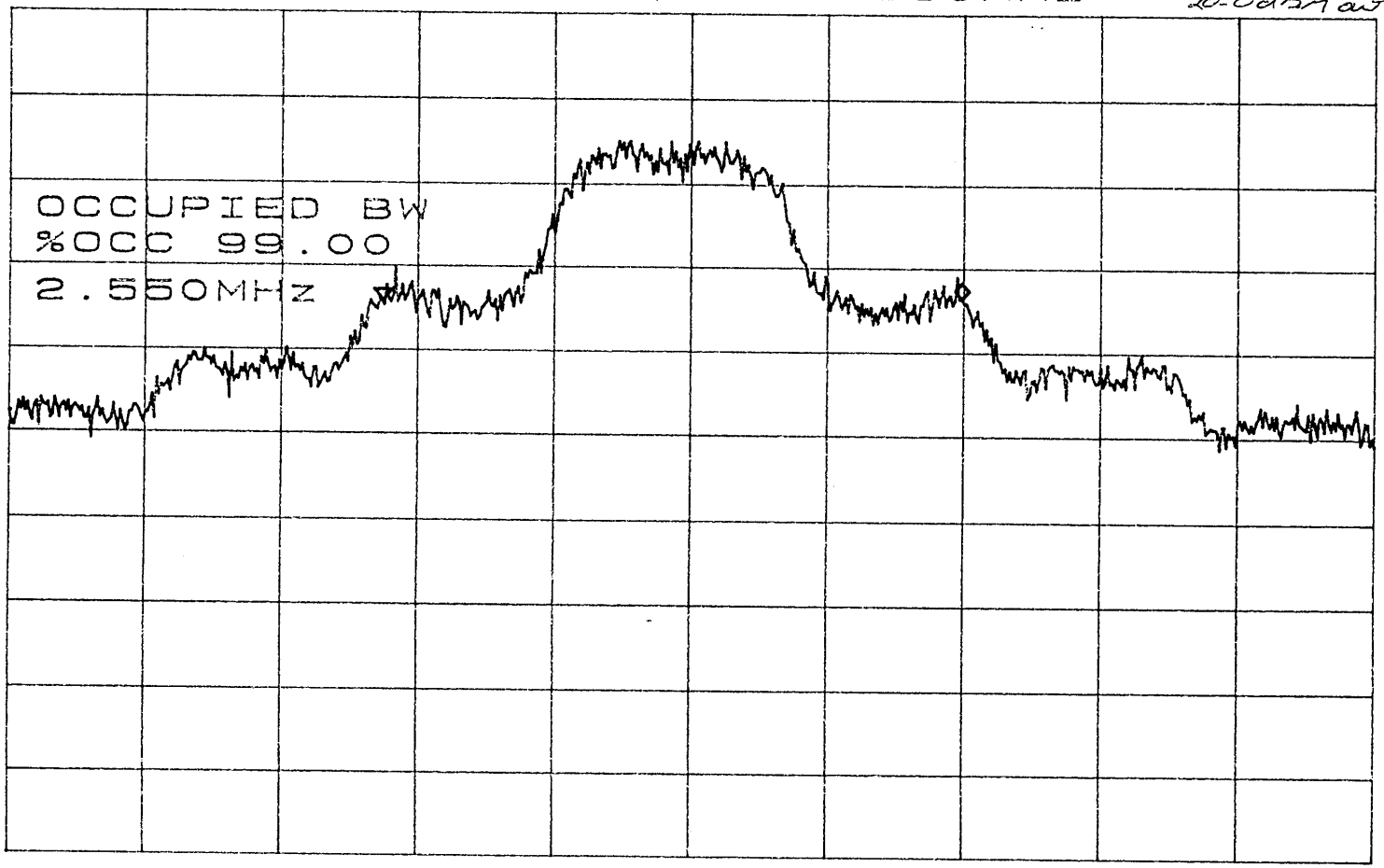
6.16dBm Input

X Completed ___ Preliminary

Reading through 20dB atten

CL 23.0dBm VG 10 MKR .33dB

RL -6.4dBm 10dB/ 2.550MHz +20.0dBm output



CENTER 28.225000GHz SPAN 6.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

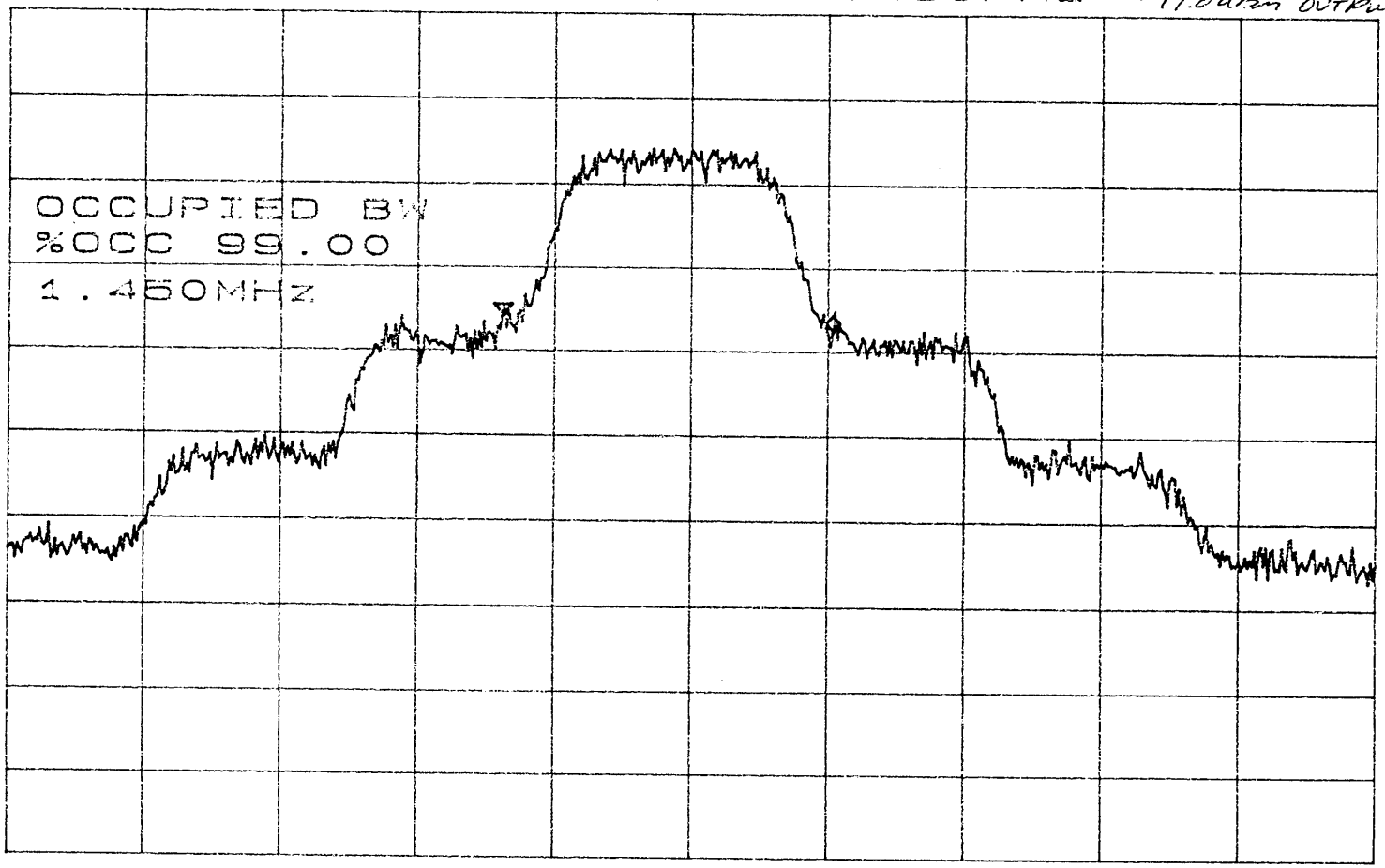
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 7/8 Rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

X Completed ___ Preliminary ✓ Reading through 20dB atten

-1.0 dBm Input

CL 23.7dBm VG 10 MKR -.8dBm

RL -6.4dBm 10dB/ 1.460MHz +17.0dBm OUTPUT



CENTER 28.225000GHz 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:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A

+6.93 dBm INPUT

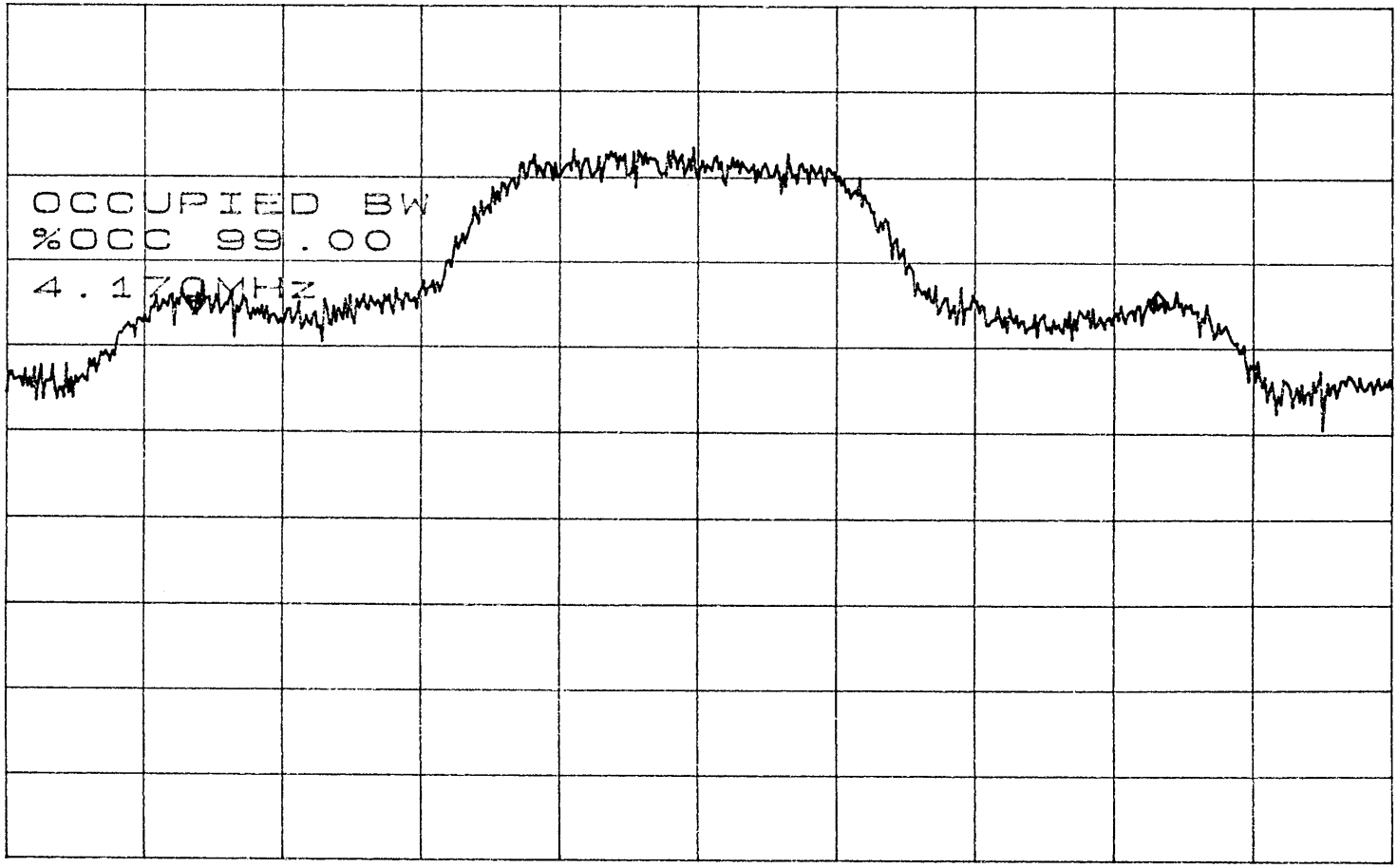
(lab 2)

X Completed ___ Preliminary ___ Reading through 20dB atten

CL 23.[illegible] G 10 MKR .17[illegible]

RL -6.4dBm 10dB/ 4.170MHz

20.0dBm OUTPUT



CENTER 28.345000GHz SPAN 6.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

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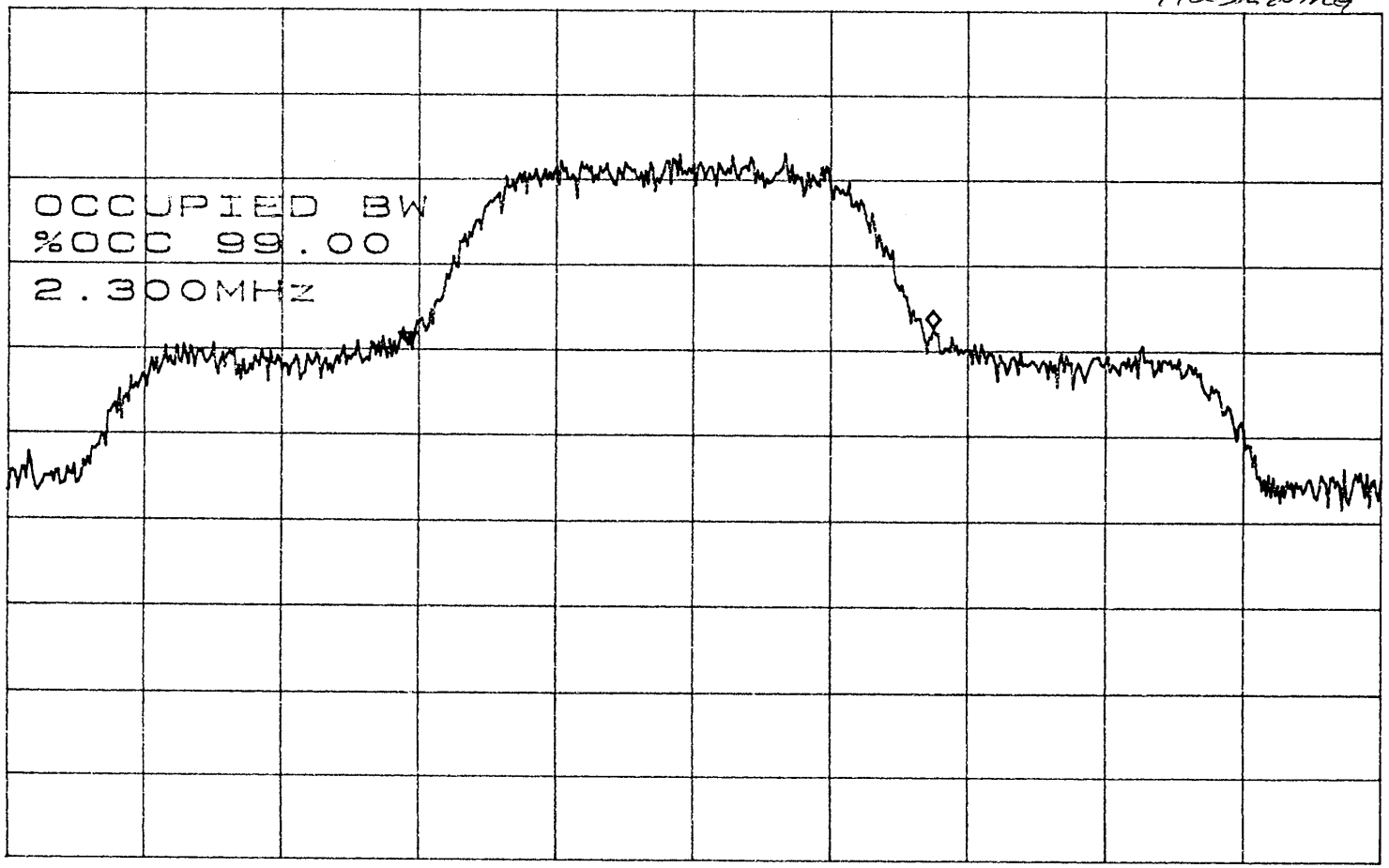
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU)
Test Date:	6/5/98	Polarization:	N/A

X Completed ___ Preliminary

Reading through 20dB atten

CL 23.[illegible] G 10 MKR 2.33[illegible]

RL -6.4dBm 10dB/ 2.300MHz



CENTER 28.345000GHz SPAN 6.000MHz

*RBW 30KHz VBW 30KHz *SWP 50.0ms

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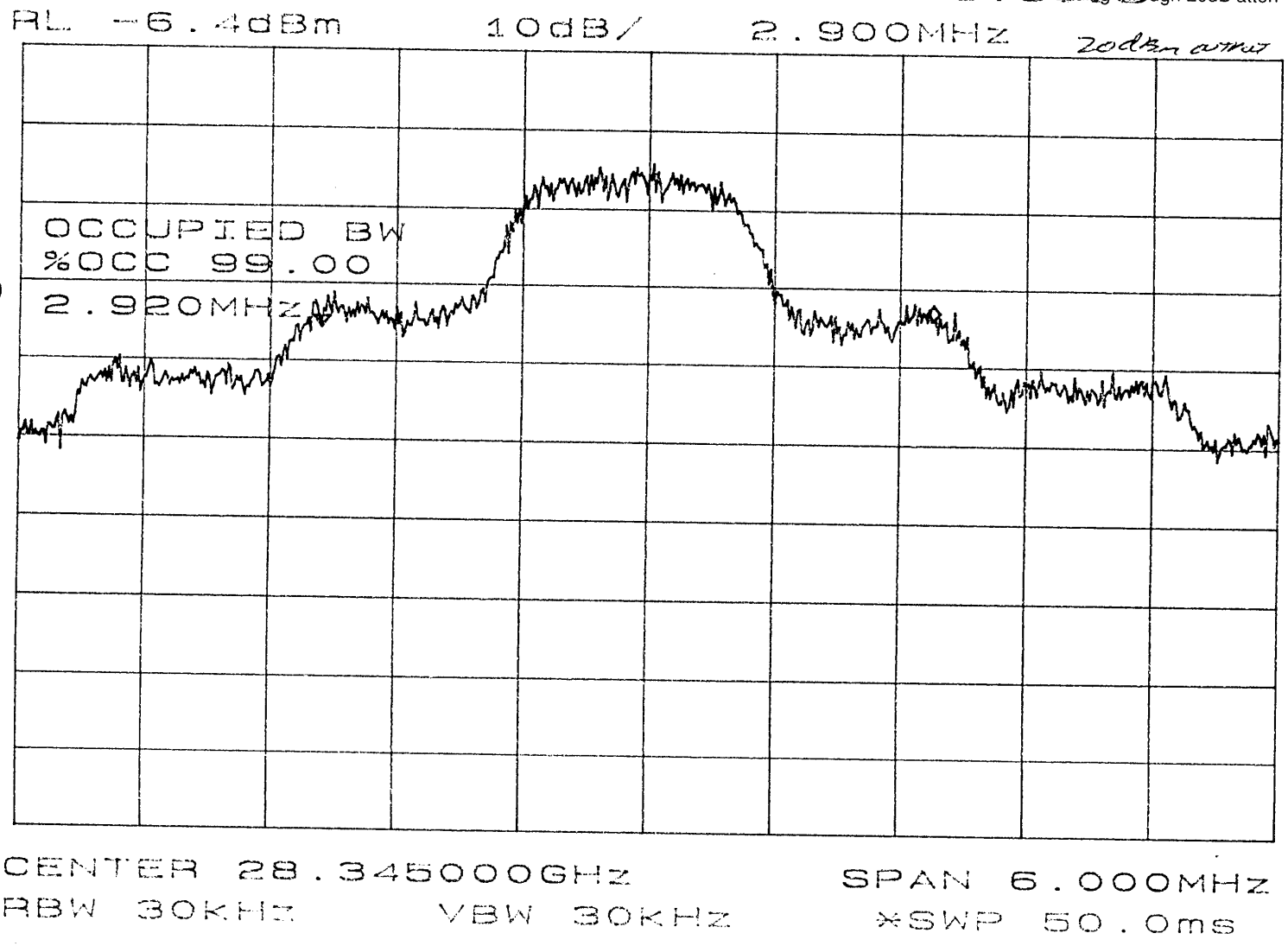
Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 3/4 rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

T6.95 dBm INPUT

X Completed Preliminary Reading through 20dB atten



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) 3/4 Rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

-0.5 dBm INPUT

X Completed ___ Preliminary Reading through 20dB atten

CL 23.
RL -6.4dBm 10dB/ MKR -1.
1.600MHz 17.0dBm output

OCCUPIED BW
%OCC 99.00
1.570MHz

CENTER 28.345000GHz SPAN 6.000MHz
*RBW 30KHz VBW 30KHz *SWP 50.0ms

FCC ID: NNS3214864

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)
Test Date:	6/5/98	Polarization:	N/A

X Completed ___ Preliminary

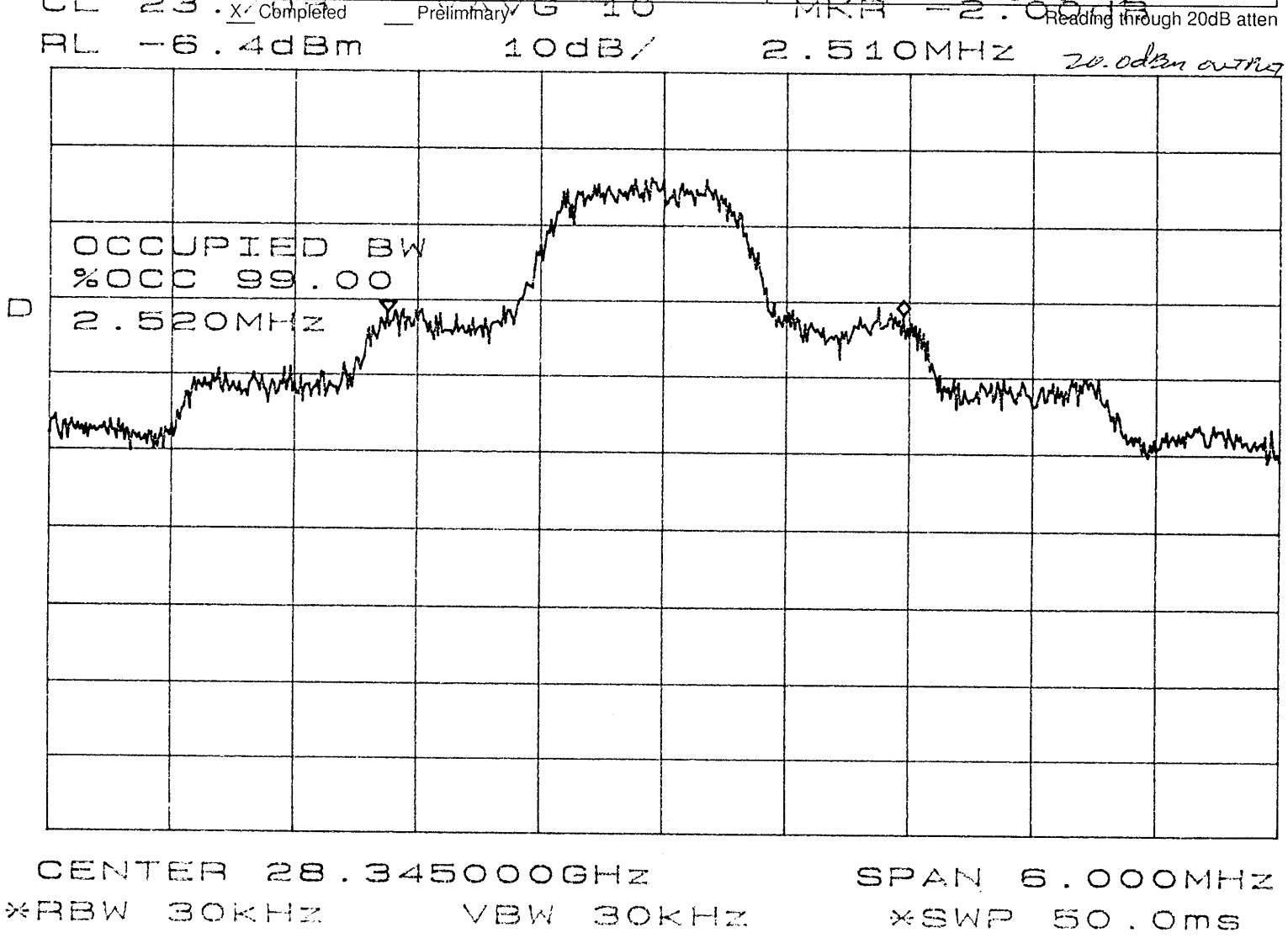
+7.09dB INPUT

1/8 Rect

(Lab 2)

Reading through 20dB atten

20.0dBm output

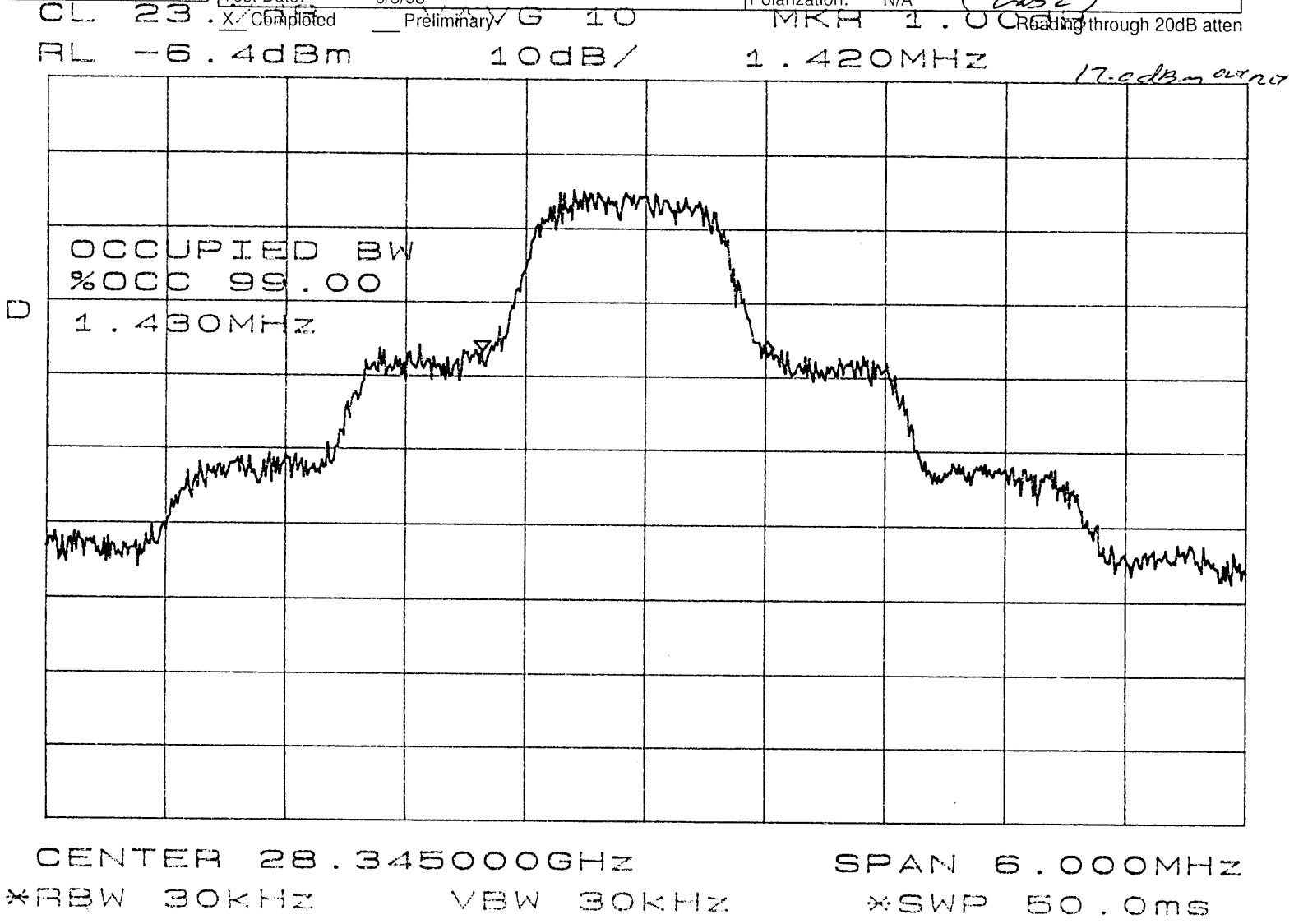


International Compliance Corporation
"Your Certification Solution" sm

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	ACTUAL QPSK (NIU) 7/8 rate
Test Date:	6/5/98	Polarization:	N/A (Lab 2)

-0.5 dB in Duct

X Completed __ Preliminary Reading through 20dB atten



Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

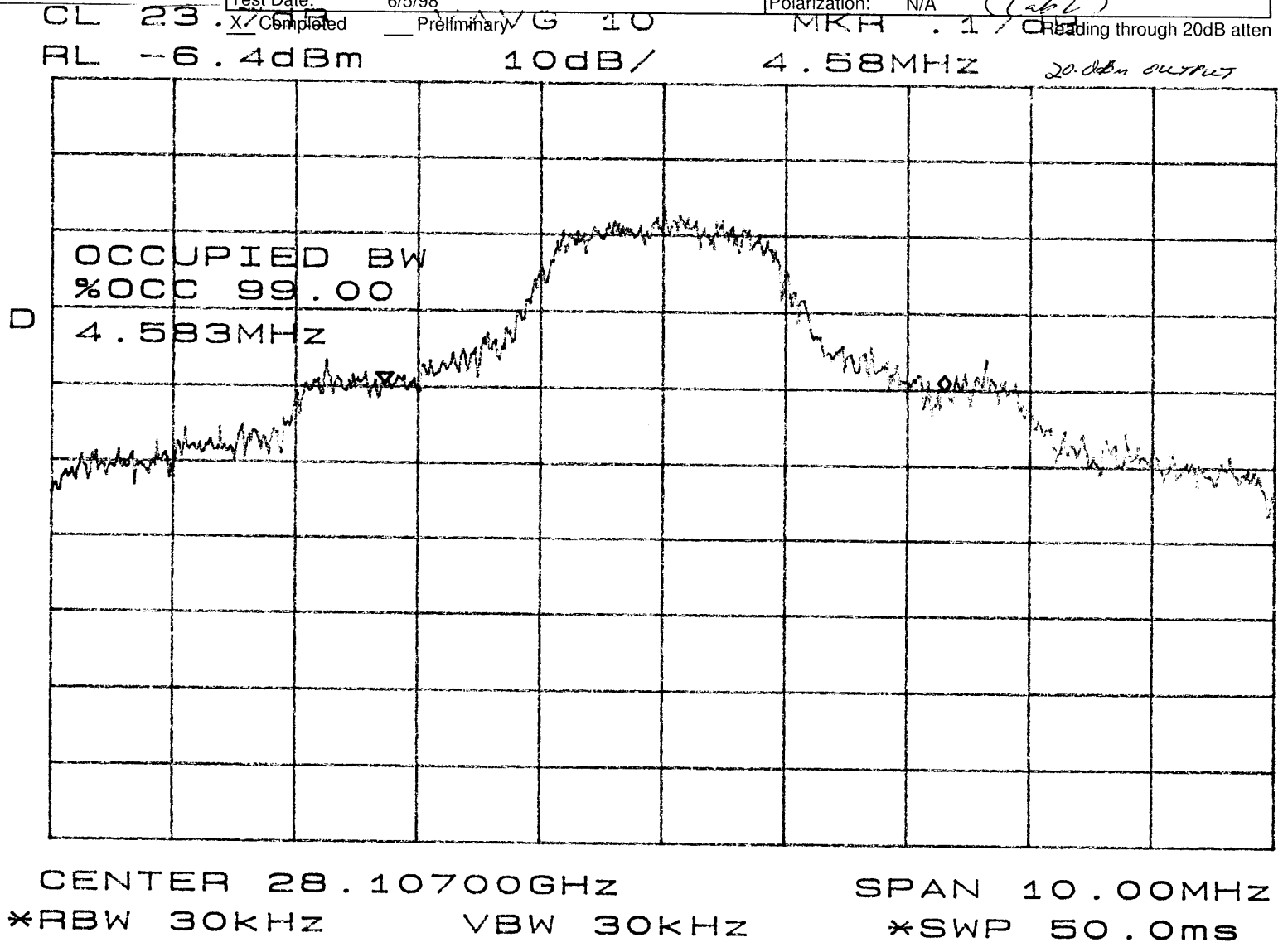
OCCUPIED BANDWIDTH
SIMULATED QPSK

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

45.1 Hdr Input

(Lab 2)

X Completed Preliminary Reading through 20dB atten



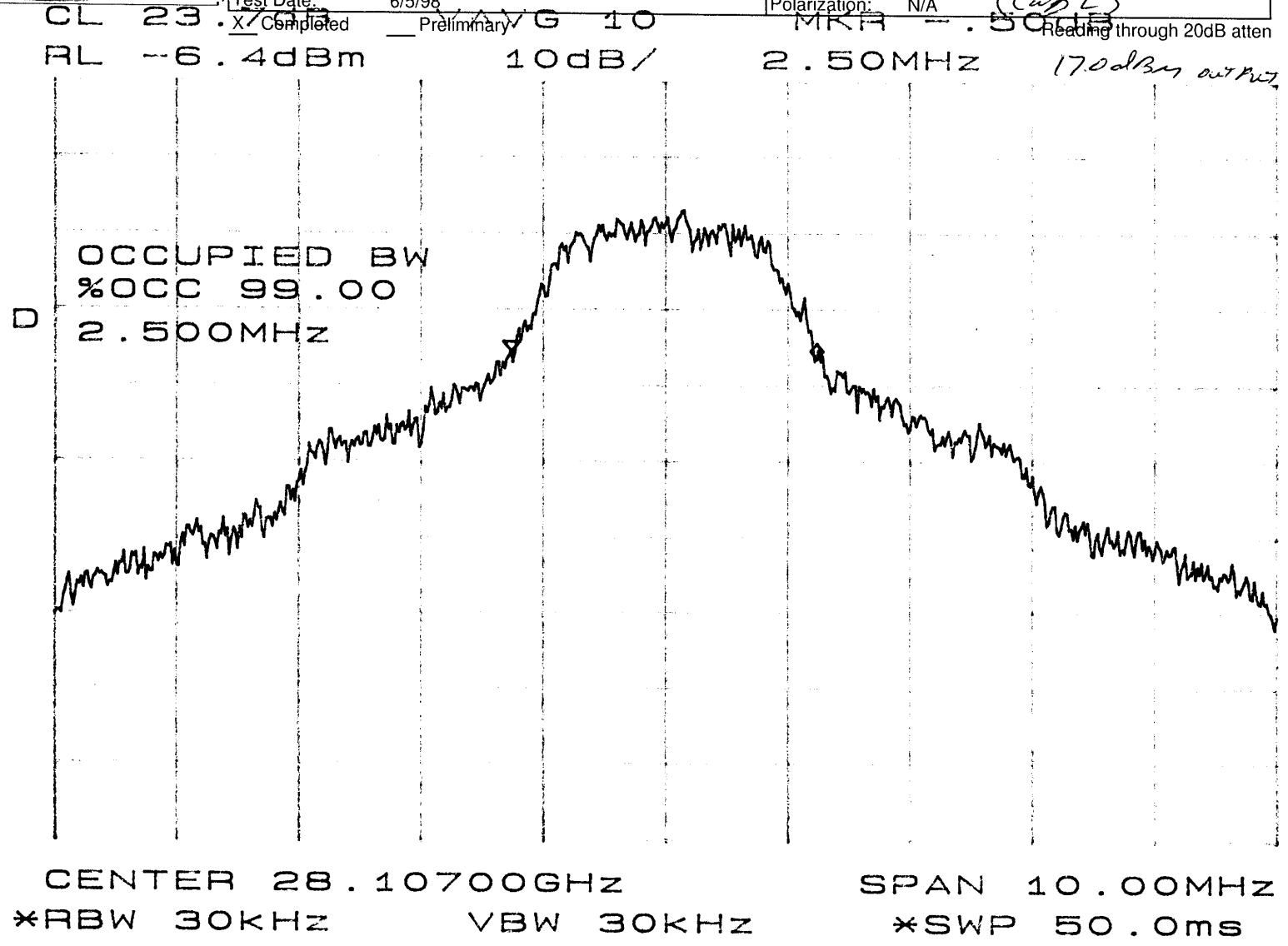
International Compliance Corporation
"Your Certification Solution" sm

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

X Completed ___ Preliminary

-0.04dB Input (adj 2)

Reading through 20dB atten



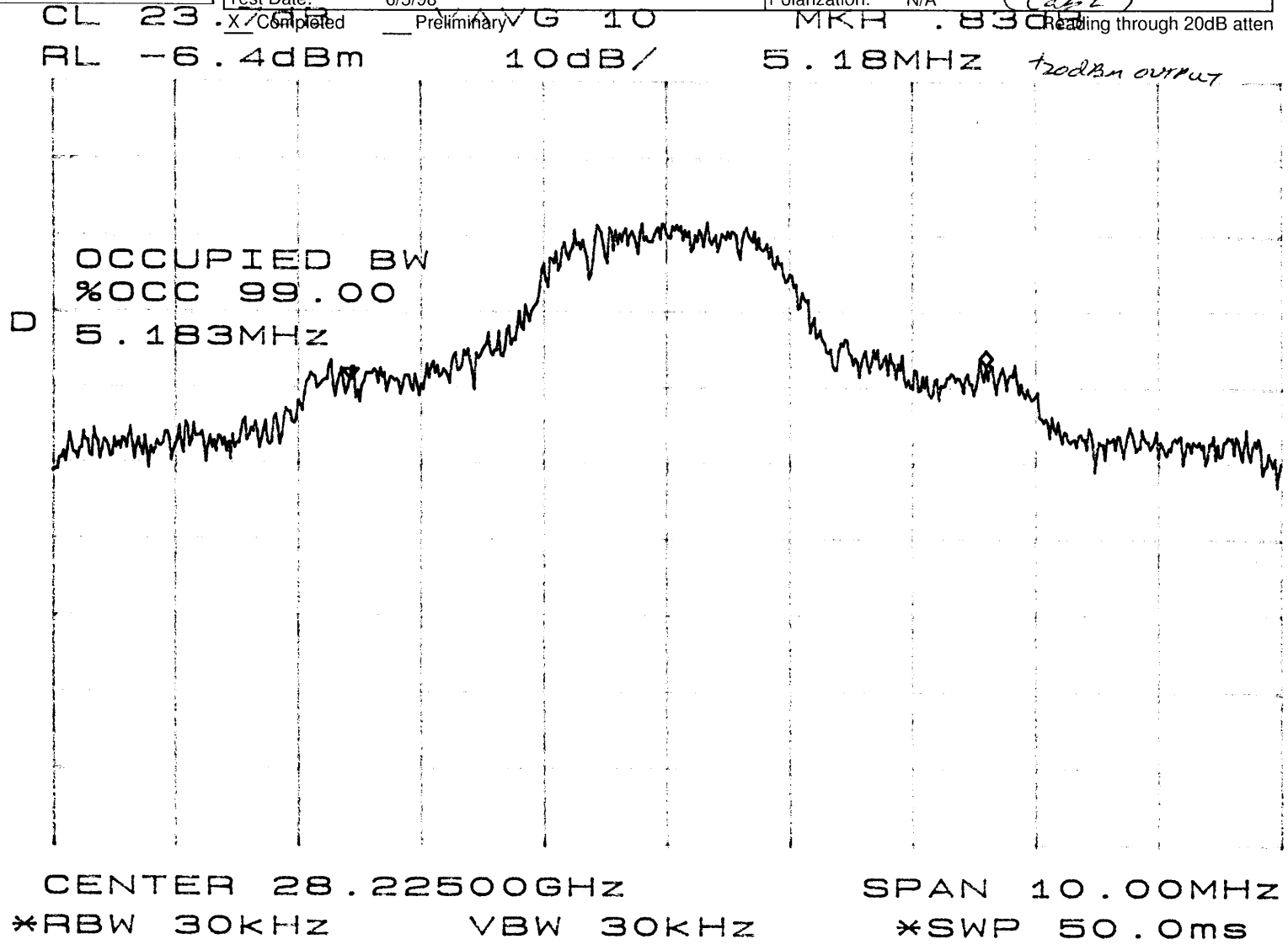
International Compliance Corporation
"Your Certification Solution" sm

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

+5.76dBm INPUT

(cable)

X Completed Preliminary Reading through 20dB atten



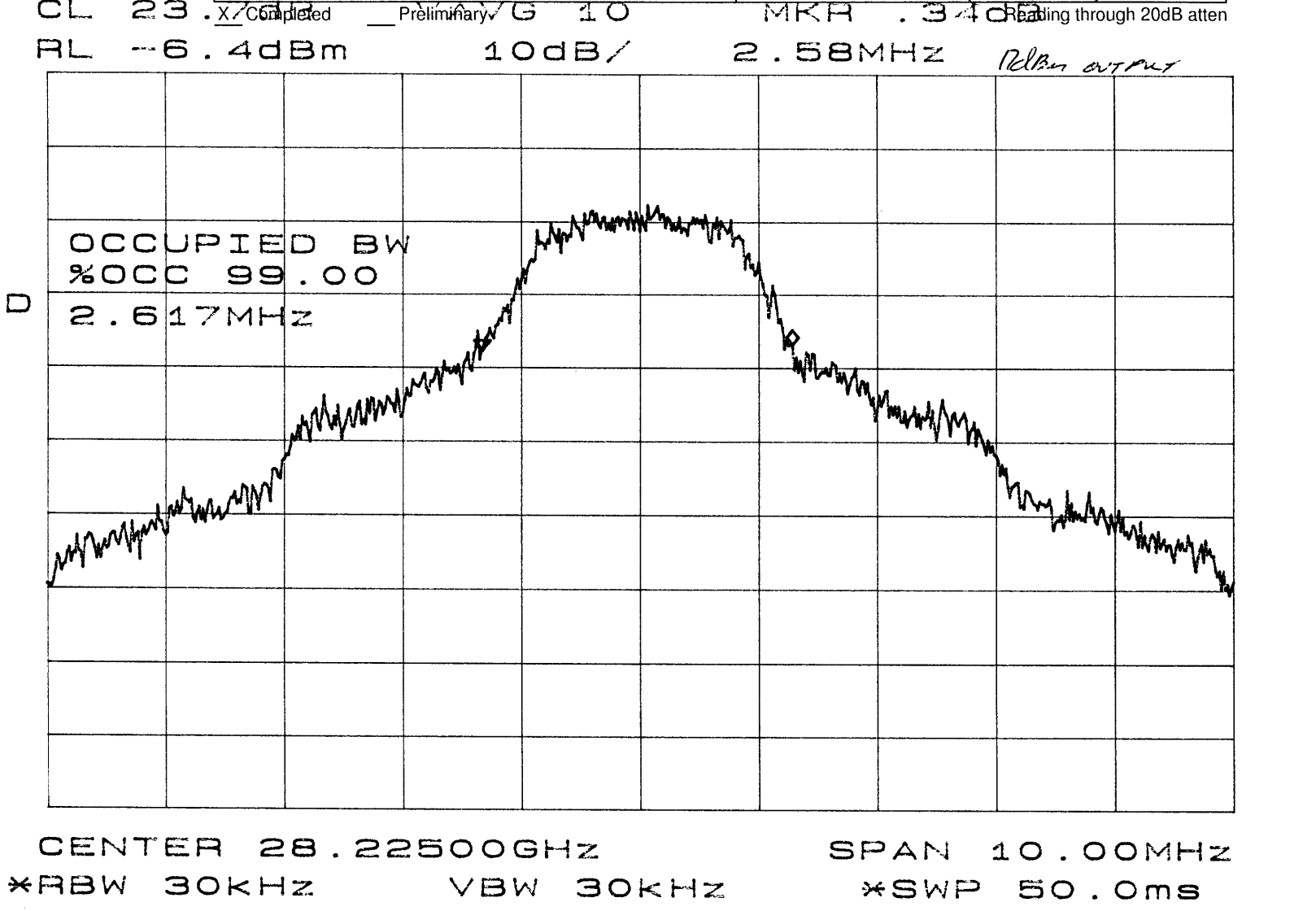
International Compliance Corporation
"Your Certification Solution" sm

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

-1.03dBm INPUT (cable 2)

X Completed __ Preliminary

Reading through 20dB atten

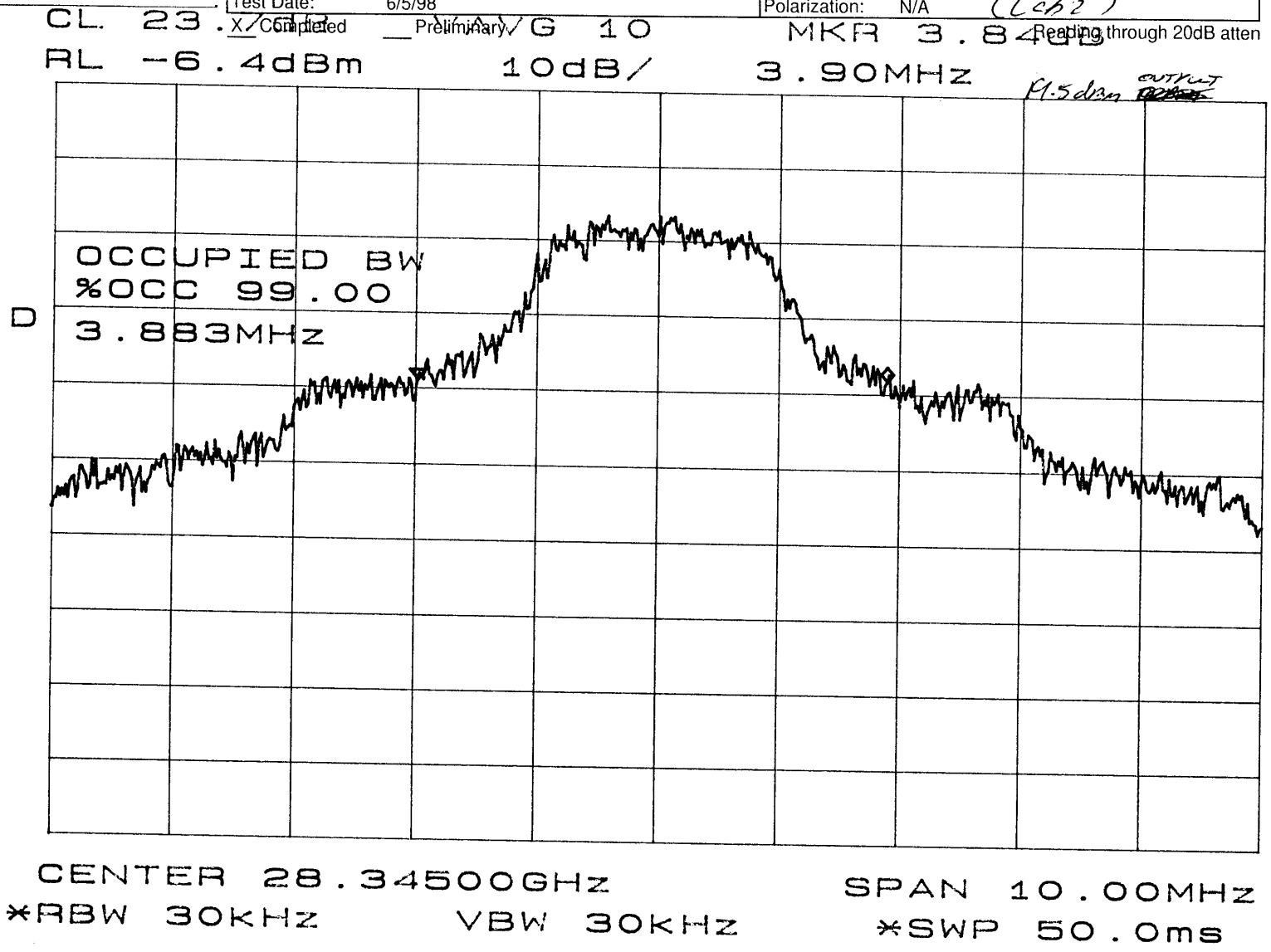


International Compliance Corporation
Your Certification Solution sm

Client Name:	BOSCH TELECOM	Work Order #:	180036
Model Number:	U.S. CPE ROOF UNIT SN: MSN-69	Plot Number:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A (Ch2)

13.47dBm INPUT

X Completed Preliminary Reading through 20dB atten



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:	SIMULATED QPSK
Test Date:	6/5/98	Polarization:	N/A (Lo Sz)

-0.59dBm INPUT

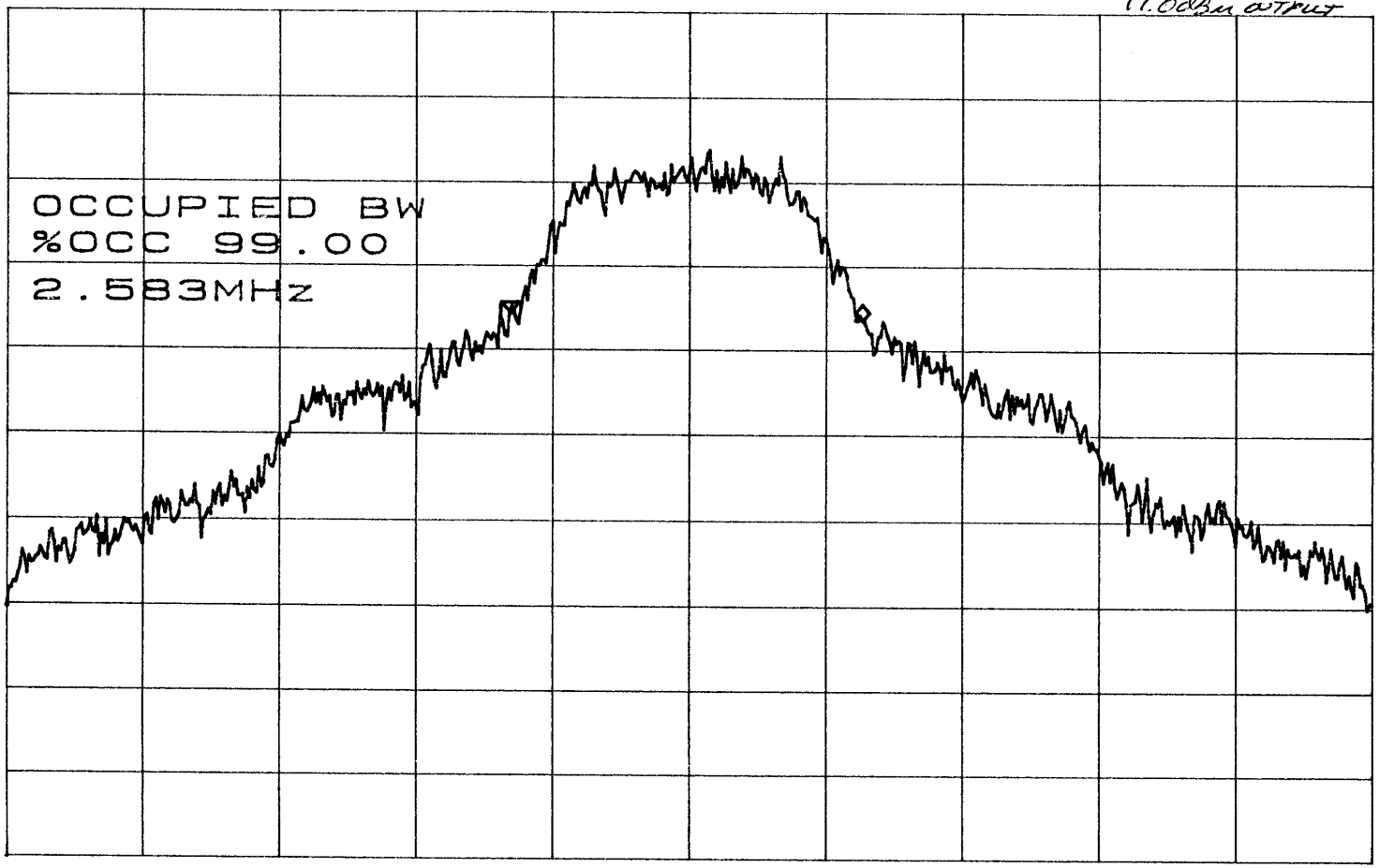
X Completed ___ Preliminary

Reading through 20dB atten

CL 23.[illegible] VAVG 10 MKR 0dB

RL --6.4dBm 10dB/ 2.57MHz

17.0dBm output



CENTER 28.34500GHz SPAN 10.00MHz

*RBW 30kHz VBW 30kHz *SWP 50.0ms

Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (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 #: 036V4A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V4A

Technician: MARK SEVERSON Specification: CFR 47 P 2.991 Lab: BOATS Date: 6/24/98

Equipment Used: 697

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:
Temperature: 22 C
Relative Humidity: 34 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm		Comments:
.960	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
1.556	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
3.112	-71	0	1.0	-24	20	-74.0	-13.0		Noise floor
4.668	-71	0	1.0	-24	20	-74.0	-13.0		Noise floor
									SCANNED
									30Mhz-26Ghz

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v04a

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V4 W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V4

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(ACTUAL QPSK)

Readings taken at antenna terminals

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

Climatic Conditions:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 996 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBM Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
26.550	-55.83	0	6.3	0	19	-30.5	-13.0	L/O (CW signal)
28.08	-48.17	0	7.83	0	19	-21.3	-13.0	(CW signal)
28.107	-7.17	0	7.83	-24	19	-4.3	N/A	Fundamental Freq.
28.132	-51.5	0	7.83	0	19	-24.7	-13.0	(CW signal)
								Scanned
								26-40Ghz

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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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 999 mbar

EUT Power:
___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
53.100	-77	0	1.0	-24	20	-80.0	-13.0	Noise floor
56.189	-77	0	1.0	-24	20	-80.0	-13.0	Noise floor
56.214	-41.8	0	1.0	-24	20	-44.8	-13.0	2nd Harmonic of Fund.
56.239	-75	0	1.0	0	20	-54.0	-13.0	(CW Signal)
79.65	-72	0	1.0	0	20	-51.0	-13.0	3rd Harmonic of L/O
84.321	-49	0	1.0	-24	20	-52.0	-13.0	3rd Harmonic of Fund.
								SCANNED
								40-100GHZ

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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:
Temperature: 22 C
Relative Humidity: 34 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm		Comments:
.960	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
1.674	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
3.348	-71	0	1.0	-24	20	-74.0	-13.0		Noise floor
5.022	-72	0	1.0	-24	20	-75.0	-13.0		Noise floor
									SCANNED
									30Mhz-26Ghz

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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: BOATS Date: 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: 100KHZ Antenna Distance n/a Detector:

Climatic Conditions:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 996 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
26.550	-55.7	0	6.3	0	19	-30.4	-13.0	L/O (CW Signal)
28.200	-48.5	0	7.83	0	19	-21.7	-13.0	(CW Signal)
28.225	-8.5	0	7.83	-24	19	-5.7	n/a	Fundamental
28.250	-50.5	0	7.83	0	19	-23.7	-13.0	(CW Signal)
								Scanned
								26-40Ghz

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V5b W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V5b

Technician: MARK SEVERSON Specification: CFR 47 P 2.991 Lab: BOATS Date: 6/24/98

Equipment Used: 697,881

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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
53.100	-77	0	1.0	-24	20	-80.0	-13.0	NOISE FLOOR
56.425	-72	0	1.0	0	20	-51.0	-13.0	(CW Signal)
56.45	-35	0	1.0	-24	20	-38.0	-13.0	2nd Harmonic of Fund.
56.475	-71.6	0	1.0	0	20	-50.6	-13.0	(CW Signal)
79.65	-72	0	1.0	-24	20	-75.0	-13.0	NOISE FLOOR
84.675	-51.5	0	1.0	-24	20	-54.5	-13.0	3rd Harmonic of Fund.
								SCANNED
								40-100GHZ

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V6 W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V6

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(ACTUAL QPSK)

Readings taken at antenna terminals

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

Climatic Conditions:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 996 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
26.550	-55.17	0	6.3	0	19	-29.9	-13.0	L/O (CW Signal)
28.320	-48.5	0	7.83	0	19	-21.7	-13.0	(CW Signal)
28.345	-8.33	0	7.83	-24	19	-5.5	N/A	Fundamental Frequency
28.370	-56.2	0	7.83	0	19	-29.4	-13.0	(CW Signal)
								Scanned
								26-40Ghz

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036v06

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V6b W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V6b

Technician: MARK SEVERSON Specification: CFR 47 P 2.991 Lab: BOATS Date: 6/24/98

Equipment Used: 697,881

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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 999 mbar

EUT Power:
___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
53.100	-77	0	1.0	-24	20	-80.0	-13.0	Noise floor
56.665	-71	0	1.0	0	20	-50.0	-13.0	(CW Signal)
56.690	-42	0	1.0	-24	20	-45.0	-13.0	2nd Harmonic of Fund.
56.715	-76.6	0	1.0	0	20	-55.6	-13.0	(CW Signal)
79.65	-72	0	1.0	-24	20	-75.0	-13.0	Noise floor
85.035	-62.2	0	1.0	-24	20	-65.2	-13.0	3rd Harmonic of Fund.
								SCANNED
								40-100GHZ

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036V06b

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___

Client: BOSCH TELECOM Test #: 036V6A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V6A

Technician: MARK SEVERSON Specification: CFR 47 P 2.991 Lab: BOATS Date: 6/24/98

Equipment 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:
Temperature: 22 C
Relative Humidity: 34 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten (dB)	Corrected Reading (dBm)	Lim -13dBm		Comments:
.960	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
1.794	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
3.588	-71	0	1.0	-24	20	-74.0	-13.0		Noise floor
5.382	-72	0	1.0	-24	20	-75.0	-13.0		Noise floor
									SCANNED
									30Mhz-26Ghz

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v06a

Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

SPURIOUS EMISSIONS AT ANTENNA TERMINALS
SIMULATED QPSK SIGNAL

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V01A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V01A

Technician: MARK SEVERSON Specification: CFR 47 P 2.991 Lab: 2 Date: 6/24/98

Equipment Used: 697

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

Readings taken at antenna terminals

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

Climatic Conditions:
Temperature: 22 C
Relative Humidity: 34 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	Atten (dB)	4kHz RBW Correction Factor	Corrected Reading (dBm)	Limit dBc (dBm)	Comments:
.960	-70	0	1.0	0	-24	-93.0	-13.0	Noise floor
1.556	-70	0	1.0	0	-24	-93.0	-13.0	Noise floor
3.112	-71	0	1.0	0	-24	-94.0	-13.0	Noise floor
4.668	-72	0	1.0	0	-24	-95.0	-13.0	Noise floor
								SCANNED
								30Mhz-26Ghz

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036v01a

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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:
Temperature: 25 C
Relative Humidity: 41 %
Atmospheric Pressure: 996 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	Atten (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBm)	Lim -13dBm (dB)	Comments:
26.550	-56	0	6.3	19	0	-30.7	-13.0	L/O (CW Signal)
28.107	-7.33	0	7.83	19	-24	-4.5	N/A	Fundamental Frequency
								Scanned
								26-40Ghz

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036v01

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V1B 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: 6/11/98

Equipment Used: 697,881

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

Readings taken at antenna terminals

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

Climatic Conditions:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4 kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
53.1	-77	0	1.0	-24	20	-80.0	-13.0	Noise floor
56.21	-37	0	1.0	-24	20	-40.0	-13.0	2nd Harmonic of Fund.
79.6	-72	0	1.0	-24	20	-75.0	-13.0	Noise floor
84.321	-51.5	0	1.0	-24	20	-54.5	-13.0	3rd Harmonic of Fund.
								SCANNED
								40-100GHZ

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary __ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V2A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V2A

Technician: D. LIGHT Specification: CFR 47 P 2.991 Lab: 2 Date: 6/25/98

Equipment Used: 697

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:
Temperature: 22 C
Relative Humidity: 34 %
Atmospheric Pressure: 999 mbar

EUT Power: __ 115 V.A.C. n/a 60 Hz
__ 208 V.A.C. n/a 50 Hz
__ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
__ Average

Freq. (GHz)	Meter (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4 kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm		Comments:
.960	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
1.674	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
3.348	-71	0	1.0	-24	20	-74.0	-13.0		Noise floor
5.022	-72	0	1.0	-24	20	-75.0	-13.0		Noise floor
									SCANNED
									30Mhz-26Ghz

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036v02a

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Lewisville, TX 75057
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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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 996 mbar

EUT Power: __ 115 V.A.C. n/a 60 Hz
__ 208 V.A.C. n/a 50 Hz
__ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
26.550	-56	0	6.3	0	19	-30.7	-13.0	L/O (CW Signal)
28.225	-7.17	0	7.83	-24	19	-4.3	n/a	Fundamental Frequency
								Scanned
								26-40Ghz

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v02

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

Antenna Terminal Conducted Emissions Data

Complete X 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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4 kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
53.100	-77	0	1.0	-24	20	-80.0	-13.0	Noise floor
56.45	-37	0	1.0	-24	20	-40.0	-13.0	2nd Harmonic of Fund.
79.65	-72	0	1.0	-24	20	-75.0	-13.0	Noise floor
84.675	-51.5	0	1.0	-24	20	-54.5	-13.0	3rd Harmonic of Fund.
								SCANNED
								40-100GHZ

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v02c

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Antenna Terminal Conducted Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: 036V3A W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 V3A

Technician: D. LIGHT Specification: CFR 47 P 2.991 Lab: 2 Date: 6/24/98

Equipment Used: 697

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:
Temperature: 22 C
Relative Humidity: 34 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm		Comments:
.960	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
1.794	-70	0	1.0	-24	20	-73.0	-13.0		Noise floor
3.588	-71	0	1.0	-24	20	-74.0	-13.0		Noise floor
5.382	-72	0	1.0	-24	20	-75.0	-13.0		Noise floor
									SCANNED
									30Mhz-26Ghz

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v03a

Dallas/Ft. Worth Headquarters:
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Lewisville, TX 75057
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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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 996 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

X Peak
___ Average

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm	Comments:
26.550	-54.5	0	6.3	0	19	-29.2	-13.0	L/O (CW Signal)
28.345	-7.5	0	7.83	-24	19	-4.7	N/A	Fundamental Freq.
								Scanned
								26-40Ghz

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036v03

Dallas/Ft. Worth Headquarters:
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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:
Temperature: 20 C
Relative Humidity: 37 %
Atmospheric Pressure: 999 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase

Freq. (GHz)	Meter Reading (dBm)	Antenna Factor (dB)	Cable Loss (dB)	4kHz RBW Correction Factor (dB)	Atten dB	Corrected Reading (dBm)	Lim -13dBm		Comments:
53.100	-77	0	1.0	-24	20	-80.0	-13.0		Noise floor
56.690	-42	0	1.0	-24	20	-45.0	-13.0		
79.65	-72	0	1.0	-24	20	-75.0	-13.0		Noise floor
85.035	-62.2	0	1.0	-24	20	-65.2	-13.0		
									SCANNED
									40-100GHZ

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

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

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM					W.O.#: 180036		DATE:		5/19/98
EUT MODEL:	CPE ROOF UNIT → 6Hz				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
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

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM					W.O.#: 180036	DATE:	5/19/98	
EUT MODEL:	CPE ROOF UNIT ~~6HZ~~ Agr					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-1~~GHZ~~ Agr
											MHz GHz

mpliance 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 ~~GHz~~ adj			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 GHz cpr					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
											SCANNED 30-300MHZ
											MHz

Compliance Data

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 FREQUENCY0 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 6Hz agc						SERIAL #: MSN(69)		TIME:		1430
EUT CONFIG.:	TX 28.345 (HIGHER FREQUENCY0 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

Compliance Certification Services

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:	1430	
EUT CONFIG.:	TX 28.345 (HIGHER FREQUENCY0 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 MHz GHz

Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (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 GHz			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#:	~~QP~~	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 ~~GHz~~ MHz			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#: ~~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 MHz GHz

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM			W.O.#: 180036	DATE:	5/01/98	
EUT MODEL:	CPE ROOF UNIT GHz		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#: ~~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

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM			W.O.#: 180036	DATE:	5/01/98	
EUT MODEL:	CPE ROOF UNIT		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#:	64184	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
											MHz GHz

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM					W.O.#: 180036		DATE:	5/04/98
EUT MODEL:	CPE ROOF UNIT 6HZ 24				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#:	41184	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				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#:	~~QP~~	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
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 30-300~~MHZ~~ MHz

INTERNATIONAL COMPLIANCE CORPORATION

RADIATED EMISSIONS DATA
ELECTRIC FIELD

CLIENT NAME:	BOSCH TELECOM			W.O.#:	180036	DATE:	5/01/98
EUT MODEL:	CPE ROOF UNIT ~~GHz~~ cgn			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#:	~~184~~	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 300~~MHZ~~-1~~GHZ~~ cgn
											~~MHz~~ ~~GHz~~

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

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 28.107GHZ (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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz ___ Peak
___ 208 V.A.C. n/a 50 Hz X Average
___ 230 V.A.C.
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

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036mw02

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

Microwave Radiated Emissions Data
Continuation Page

Complete X Preliminary ___ Page 2 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 P 2.993 Lab: BOATS Date: 4/30/98

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:
9.6	47	37.5	7.04	38.26	-24	29	-88.4	H	PEAK Noise floor
9.6	39	37.5	7.04	38.26	-24	21	-96.4	H	AVG Noise floor
9.6	47	37.5	7.04	38.26	-24	29	-88.4	V	PEAK Noise floor
9.6	39	37.5	7.04	38.26	-24	21	-96.4	V	AVG Noise floor
									SCANNED
									~~1-13GHZ~~ ofp
									1-18 GHz

REV 960717

036mw02

Dallas/Ft. Worth Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
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Microwave Radiated Emissions Data

Complete X Preliminary ___ Page 1 of 1

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~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
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
									18-40~~GHZ~~ GHz

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Microwave Radiated Emissions Data

Complete X Preliminary ___ Page 1 of 1

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~~ 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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. N/A 60 Hz
___ 208 V.A.C. N/A 50 Hz
___ 230 V.A.C.
X Other 16VDC N/A 1 Phase n/a 3 Phase
dBc limit = -33

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:
26.550	36	40.5	0.54	0	-24	53	-54.6	H	
27.510	29	43.4	0.54	0	-24	48.9	-58.7	H	Noise floor
28.107	36	43.42	0.54	0	-24	56	-51.7	H	Fundamental
26.550	29	40.5	0.54	0	-24	46	-61.6	V	Noise floor
27.510	29	43.4	0.54	0	-24	48.9	-58.7	V	Noise floor
28.107	33	43.42	0.54	0	-24	53	-54.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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Microwave Radiated Emissions Data

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

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

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

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

Configuration: TX 28.107~~GHZ~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/a 3 Phase
dBc limit = -33dB

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:
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
									40-60~~Ghz~~ GHz

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Microwave Radiated Emissions Data

Complete X Preliminary ___ Page 1 of 2

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

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

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/07/98

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

Configuration: TX 28.107GHZ (LOWER 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. X 60 Hz X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
___ 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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Continuation Page

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

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

Technician: MARK SEVERSON Specification: CFR 47 P 2.993 Lab: BOATS Date: 5/07/98

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	Pol.	Comments:
									below readings
									300Khz res bw
									30Khz video bw
79.65	30	44.74	0.54	0	-18.8	56.5	-61.2	V	Noise floor
82.53	30	45.05	0.54	0	-18.8	56.8	-60.8	V	Noise floor
84.321	30	45.2	0.54	0	-18.8	56.9	-60.7	V	Noise floor
79.65	30	44.74	0.54	0	-18.8	56.5	-61.2	H	Noise floor
82.53	30	45.05	0.54	0	-18.8	56.8	-60.8	H	Noise floor
84.321	30	45.2	0.54	0	-18.8	56.9	-60.7	H	Noise floor
									Scanned
									60~~Ghz~~-100~~Ghz~~ dgn
									GHz GHz

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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~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: X 115 V.A.C. X 60 Hz ___ Peak
___ 208 V.A.C. ___ 50 Hz X Average
___ 230 V.A.C.
___ 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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Continuation Page

Complete X Preliminary ___

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

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	47	37.5	7.04	38.26	-24	29	-88.4	H	PEAK Noise floor
9.6	39	37.5	7.04	38.26	-24	21	-96.4	H	AVG Noise floor
9.6	47	37.5	7.04	38.26	-24	29	-88.4	V	PEAK Noise floor
9.6	39	37.5	7.04	38.26	-24	21	-96.4	V	AVG Noise floor
									SCANNED
									1-13~~GHZ~~ GHz

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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 28.225~~GHZ~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: X 115 V.A.C. X 60 Hz ___ Peak
___ 208 V.A.C. ___ 50 Hz X Average
___ 230 V.A.C.
___ 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
									13-18~~GHZ~~ GHz

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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~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
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
									18-40~~GHZ~~ GHz

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Microwave Radiated Emissions Data

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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 28.225~~GHZ~~ GHz (CENTER FREQUENCY) 20.0dBm (SIMULATED QPSK)
20dBm at 10m = 107.63dBuV/m

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

Climatic Conditions:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. N/A 60 Hz X Peak
___ 208 V.A.C. N/A 50 Hz ___ Average
___ 230 V.A.C.
X 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:
26.550	36	40.5	0.54	0	-24	53	-54.6	H	
27.510	29	43.4	0.54	0	-24	49	-58.7	H	Noise floor
28.225	36	43.42	0.54	0	-24	56	-51.7	H	Fundamental
26.550	29	40.5	0.54	0	-24	46	-61.6	V	Noise floor
27.510	29	43.4	0.54	0	-24	49	-58.7	V	Noise floor
28.225	33	43.42	0.54	0	-24	53	-54.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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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 28.225GHZ (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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/ 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
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
									GHZ

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

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

Technician: MARK SEVERSON Specification: CFR 47 2.993 Lab: BOATS Date: 5/07/98

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

Configuration: TX 28.225~~GHZ~~ 6Hz (CENTER 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. X 60 Hz X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
___ 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	-62.3	V	Noise floor
65.0	35	43.7	0.54	0	-24	55	-62.4	V	Noise floor
70.0	35	44.0	0.54	0	-24	56	-62.1	V	Noise floor
60.0	35	43.8	0.54	0	-24	55	-62.3	H	Noise floor
65.0	35	43.7	0.54	0	-24	55	-62.4	H	Noise floor
70.0	35	44.0	0.54	0	-24	56	-62.1	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
84.675	35	45.2	0.54	0	-24	57	-60.9	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
84.675	35	45.2	0.54	0	-24	57	-60.9	H	Noise floor

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036MW1c

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Microwave Radiated Emissions Data
Continuation Page

Complete X Preliminary ___ Page 2 of 2

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

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

Technician: MARK SEVERSON Specification: CFR 47 P 2.993 Lab: BOATS Date: 5/07/98

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	Pol.	Comments:
									Below readings
									300KHz Res bw
									30KHz video bw
79.65	30	44.74	0.54	0	-18.8	56	-61.2	V	Noise floor
82.53	30	45.05	0.54	0	-18.8	57	-60.8	V	Noise floor
84.675	30	45.2	0.54	0	-18.8	57	-60.7	V	Noise floor
79.65	30	44.74	0.54	0	-18.8	56	-61.2	H	Noise floor
82.53	30	45.05	0.54	0	-18.8	57	-60.8	H	Noise floor
84.675	30	45.2	0.54	0	-18.8	57	-60.7	H	Noise floor
									Scanned
									60Ghz-100Ghz
									GHz GHz

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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~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: X 115 V.A.C. X 60 Hz ___ Peak
___ 208 V.A.C. ___ 50 Hz X Average
___ 230 V.A.C.
___ 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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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

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	47	37.5	7.04	38.26	-24	29	-88.4	H	PEAK Noise floor
9.6	39	37.5	7.04	38.26	-24	21	-96.4	H	AVG Noise floor
9.6	47	37.5	7.04	38.26	-24	29	-88.4	V	PEAK Noise floor
9.6	39	37.5	7.04	38.26	-24	21	-96.4	V	AVG Noise floor
									SCANNED
									1-13~~GHZ~~ GHz

REV 960717

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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 28.345~~GHZ~~ GHz (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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz ___ Peak
___ 208 V.A.C. n/a 50 Hz X Average
___ 230 V.A.C.
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
									13-18~~GHZ~~ GHz

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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 28.345GHZ (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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
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: BOATS Date: 6/10/98

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

Configuration: TX 28.345~~GHZ~~ GHz (HIGHER FREQUENCY) 20.0dBm (SIMULATED QPSK)
20dBm at 10m = 107.63dBuV/m

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

Climatic Conditions:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. N/A 60 Hz X Peak
___ 208 V.A.C. N/A 50 Hz ___ Average
___ 230 V.A.C.
X 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:
26.550	36	40.5	0.54	0	-24	53	-54.6	H	
27.510	29	43.4	0.54	0	-24	49	-58.7	H	Noise floor
28.345	36	43.42	0.54	0	-24	56	-51.7	H	Fundamental
26.550	29	40.5	0.54	0	-24	46	-61.6	V	Noise floor
27.510	29	43.4	0.54	0	-24	49	-58.7	V	Noise floor
28.345	34	43.42	0.54	0	-24	54	-53.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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

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

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

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

Configuration: TX 28.345~~GHZ~~ GHz (HIGHER FREQUENCY) 19.4dBm (Simulated QPSK signal)
20.0dBm at 3m = 117.63dBuv/m

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

Climatic Conditions:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
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	

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

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

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~~ 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:
Temperature: 22 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz X Peak
___ 208 V.A.C. n/a 50 Hz ___ Average
___ 230 V.A.C.
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
56.69	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
									40-60~~GHZ~~ GHz

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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~~GHZ~~ 6-Hz (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. X 60 Hz X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
___ 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
79.650	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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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

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4kHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	Spec. Limit (dBuV/m)	Pol.	Comments:
									Below readings
									300Khz Res bw
									30Khz video bw
79.650	30	44.74	0.54	0	-18.8	56.5	-61.2	V	Noise floor
82.530	30	45.05	0.54	0	-18.8	56.8	-60.8	V	Noise floor
85.035	30	45.2	0.54	0	-18.8	56.9	-60.7	V	Noise floor
79.650	30	44.74	0.54	0	-18.8	56.5	-61.2	H	Noise floor
82.530	30	45.05	0.54	0	-18.8	56.8	-60.8	H	Noise floor
85.035	30	45.2	0.54	0	-18.8	56.9	-60.7	H	Noise floor
									Scanned
									60~~Ghz~~-100Ghz GHz GHz

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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 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:
Temperature: 25 C
Relative Humidity: 42 %
Atmospheric Pressure: 1001 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/ 3 Phase
dBc limit = -33dBc

X Peak
X 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:
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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036mw10d

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Microwave Radiated Emissions Data
Continuation Page

Complete X Preliminary ___ Page 2 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 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
									1-18~~GHZ~~ GHz

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Microwave Radiated Emissions Data

Complete X Preliminary ___ Page 1 of 1

Client: BOSCH TELECOM Test #: MW-8c W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW8c

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/18/98

Equipment Used: 697,934

Configuration: TX 28.107~~GHZ~~ 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:
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
dBc limit = -33

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:
18	42	40.2	23.1	40	-24	41	-76.3	H	Noise floor
20	44	40.3	24.5	40	-24	45	-72.8	H	Noise floor
24	44	40.4	26.9	40	-24	47	-70.3	H	Noise floor
18	42	40.2	23.1	40	-24	41	-76.3	V	Noise floor
20	44	40.3	24.5	40	-24	45	-72.8	V	Noise floor
24	44	40.4	26.9	40	-24	47	-70.3	V	Noise floor
									Scanned
									18-26~~Ghz~~ GHz

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Microwave Radiated Emissions Data

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Client: BOSCH TELECOM Test #: MW-8 W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-8

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/15/98

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

Configuration: TX 28.107~~GHZ~~ 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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. ___ 60 Hz X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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 Corrrection Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
26.550	42	40.5	0.54	0	-24	59	-58.6	H	
27.510	36	43.4	0.54	0	-24	56	-61.7	H	Pilot tone
28.107	44	43.42	0.54	0	-24	64	-53.7	H	Fundamental
26.550	34	40.5	0.54	0	-24	51	-66.6	V	
27.510	33	43.4	0.54	0	-24	53	-64.7	V	Pilot tone
28.107	40	43.42	0.54	0	-24	60	-57.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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Client: BOSCH TELECOM Test #: MW-8H W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-8H

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~~ GHz LOWER 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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. N/A 60 Hz X Peak
___ 208 V.A.C. N/A 50 Hz ___ Average
___ 230 V.A.C.
X 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:
26.550	35	40.5	0.54	0	-24	52	-55.6	H	
27.510	29	43.4	0.54	0	-24	49	-58.7	H	Noise floor
28.107	37	43.42	0.54	0	-24	57	-50.7	H	Fundamental
26.550	29	40.5	0.54	0	-24	46	-61.6	V	Noise floor
27.510	29	43.4	0.54	0	-24	49	-58.7	V	Noise floor
28.107	33	43.42	0.54	0	-24	53	-54.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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Client: BOSCH TELECOM Test #: MW-8a W.O.#: 180036

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW8a

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/15/98

Equipment Used: CF20,CF21,697,881

Configuration: TX 28.107~~GHZ~~ 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:
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
dBc limit = -33

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:
53.10	30	41.22	0.54	0	-24	47.8	-69.9	H	Noise floor
55.02	30	41.4	0.54	0	-24	47.9	-69.7	H	Noise floor
56.214	30	41.6	0.54	0	-24	48.1	-69.5	H	Noise floor
53.10	30	41.22	0.54	0	-24	47.8	-69.9	V	Noise floor
55.02	30	41.4	0.54	0	-24	47.9	-69.7	V	Noise floor
56.214	30	41.6	0.54	0	-24	48	-69.5	V	Noise floor
									SCANNED
									40-60~~GHZ~~ GHz

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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~~ GHz afr (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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. ___ 60 Hz X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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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Continuation Page

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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

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:
									Below readings
									300khz Res bw
									30Khz video
79.65	29	44.74	0.54	0	-18.8	55	-62.2	H	Noise floor
82.53	29	45.05	0.54	0	-18.8	56	-61.8	H	Noise floor
84.321	29	45.2	0.54	0	-18.8	56	-61.7	H	Noise floor
79.65	29	44.74	0.54	0	-18.8	55	-62.2	V	Noise floor
82.53	29	45.05	0.54	0	-18.8	56	-61.8	V	Noise floor
84.321	29	45.2	0.54	0	-18.8	56	-61.7	V	Noise floor
									Scanned
									60~~Ghz~~-100~~Ghz~~ GHz GHz

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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)
20.0dBm at 3m = 117.63dBuV/m

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

Climatic Conditions:
Temperature: 25 C
Relative Humidity: 42 %
Atmospheric Pressure: 1001 mbar

EUT Power: ___115 V.A.C. n/a 60 Hz X Peak
___208 V.A.C. n/a 50 Hz X Average
___230 V.A.C.
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

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Continuation Page

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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 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
									1-18~~GHZ~~
									GHz

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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 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
									1-18~~GHZ~~ GHz

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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 28.225~~GHZ~~ GHz (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:
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

X Peak
___Average

N/A 1 Phase
dBc limit = -33

n/a 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:
18	42	40.2	23.1	40	-24	41	-76.3	H	Noise floor
20	44	40.3	24.5	40	-24	45	-72.8	H	Noise floor
24	44	40.4	26.9	40	-24	47	-70.3	H	Noise floor
18	42	40.2	23.1	40	-24	41	-76.3	V	Noise floor
20	44	40.3	24.5	40	-24	45	-72.8	V	Noise floor
24	44	40.4	26.9	40	-24	47	-70.3	V	Noise floor
									Scanned
									18-26~~Ghz~~ GHz

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036MW9c

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Microwave Radiated Emissions Data

Complete X Preliminary ___ Page 1 of 1

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

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW9

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/15/98

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

Configuration: TX 28.225~~GHZ~~ GHz (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:
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
dBc limit = -33

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:
26.550	43	40.5	0.54	0	-24	60	-57.6	H	
27.510	38	43.4	0.54	0	-24	58	-59.7	H	Pilot tone
28.225	46	43.42	0.54	0	-24	66	-51.7	H	Fundamental
26.550	34	40.5	0.54	0	-24	51	-66.6	V	
27.510	34	43.4	0.54	0	-24	54	-63.7	V	Pilot tone
28.225	42	43.42	0.54	0	-24	62	-55.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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Microwave Radiated Emissions Data

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

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW-9f

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 6/10/98

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

Configuration: TX 28.225~~GHZ~~ GHz (CENTER 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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. N/A 60 Hz X Peak
___ 208 V.A.C. N/A 50 Hz ___ Average
___ 230 V.A.C.
X 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:
26.550	35	40.5	0.54	0	-24	52	-55.6	H	
27.510	29	43.4	0.54	0	-24	49	-58.7	H	Noise floor
28.225	37	43.42	0.54	0	-24	57	-50.7	H	Fundamental
26.550	29	40.5	0.54	0	-24	46	-61.6	V	Noise floor
27.510	29	43.4	0.54	0	-24	49	-58.7	V	Noise floor
28.225	32	43.42	0.54	0	-24	52	-55.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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Microwave Radiated Emissions Data

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

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW9a

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/15/98

Equipment Used: CF20,CF21,697,881

Configuration: TX 28.225~~GHZ~~ GHz (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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. ___ 60 Hz X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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:
53.10	30	41.22	0.54	0	-24	48	-69.9	H	Noise floor
55.02	30	41.4	0.54	0	-24	48	-69.7	H	Noise floor
56.45	30	41.6	0.54	0	-24	48	-69.5	H	Noise floor
53.10	30	41.22	0.54	0	-24	48	-69.9	V	Noise floor
55.02	30	41.4	0.54	0	-24	48	-69.7	V	Noise floor
56.45	30	41.6	0.54	0	-24	48	-69.5	V	Noise floor
									SCANNED
									40-60~~GHZ~~ GHz

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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 28.225~~GHZ~~ GHz (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 % ___ 230 V.A.C.
Atmospheric Pressure: 998 mbar X 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
84.675	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
84.675	35	45.2	0.54	0	-24	57	-60.9	V	Noise floor

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Microwave Radiated Emissions Data
Continuation Page

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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

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:
									Below readings
									300Khz Res bw
									30Khz video
79.65	29	44.74	0.54	0	-18.8	55	-62.2	H	Noise floor
82.53	29	45.05	0.54	0	-18.8	56	-61.8	H	Noise floor
84.675	29	45.2	0.54	0	-18.8	56	-61.7	H	Noise floor
79.65	29	44.74	0.54	0	-18.8	55	-62.2	V	Noise floor
82.53	29	45.05	0.54	0	-18.8	56	-61.8	V	Noise floor
84.675	29	45.2	0.54	0	-18.8	56	-61.7	V	Noise floor
									Scanned
									60-100Ghz GHz

REV 960717

036MW9b

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Microwave Radiated Emissions Data

Complete X Preliminary ___ Page 1 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 2.993 Lab: BOATS Date: 5/19/98

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

Configuration: TX 28.345 GHz (HIGHER 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:
Temperature: 25 C
Relative Humidity: 42 %
Atmospheric Pressure: 1001 mbar

EUT Power: ___ 115 V.A.C. n/a 60 Hz
___ 208 V.A.C. n/a 50 Hz
___ 230 V.A.C.
X Other 16VDC n/a 1 Phase n/ 3 Phase

X Peak
X Average

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:
1.795	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
									1-18~~GHZ~~ C-1
									C-1/2

REV 960717

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Microwave Radiated Emissions Data

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

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW10c

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/18/98

Equipment Used: 697,934

Configuration: TX 28.345~~GHZ~~ GHz ajp (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 X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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:
18	42	40.2	23.1	40	-24	41.3	-76.3	H	Noise floor
20	44	40.3	24.5	40	-24	44.8	-72.8	H	Noise floor
24	44	40.4	26.9	40	-24	47.3	-70.3	H	Noise floor
18	42	40.2	23.1	40	-24	41.3	-76.3	V	Noise floor
20	44	40.3	24.5	40	-24	44.8	-72.8	V	Noise floor
24	44	40.4	26.9	40	-24	47.3	-70.3	V	Noise floor
									Scanned
									18-26~~GHz~~ GHz ajp

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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 28.345~~GHZ~~ GHz (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:
Temperature: 24 C
Relative Humidity: 38 %
Atmospheric Pressure: 998 mbar

EUT Power: ___ 115 V.A.C. N/ 60 Hz X Peak
___ 208 V.A.C. N/ 50 Hz ___ Average
___ 230 V.A.C.
X Other 16VDC N/A 1 Phase n/a 3 Phase
dBc limit = -33

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:
26.550	35	40.5	0.54	0	-24	52	-55.6	H	
27.510	29	43.4	0.54	0	-24	49	-58.7	H	Noise floor
28.345	37	43.42	0.54	0	-24	57	-50.7	H	Fundamental
26.550	29	40.5	0.54	0	-24	46	-61.6	V	Noise floor
27.510	29	43.4	0.54	0	-24	49	-58.7	V	Noise floor
28.345	33	43.42	0.54	0	-24	53	-54.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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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 28.345~~GHZ~~ 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 X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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:
26.550	42	40.5	0.54	0	-24	59	-58.6	H	
27.510	38	43.4	0.54	0	-24	58	-59.7	H	Pilot tone
28.345	46	43.42	0.54	0	-24	66	-51.7	H	Fundamental
26.550	36	40.5	0.54	0	-24	53	-64.6	V	
27.510	34	43.4	0.54	0	-24	54	-63.7	V	Pilot tone
28.345	42	43.42	0.54	0	-24	62	-55.7	V	Fundamental
									SCANNED
									26-40~~GHZ~~ GHz

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

EUT: CPE ROOF UNIT S/N: MSN(69) Photo ID: 180036 MW10a

Technician: MARK SEVERSON Specification: CFR 47 P. 2.993 Lab: BOATS Date: 5/15/98

Equipment Used: CF20,CF21,697,881

Configuration: TX 28.345~~GHZ~~ G-Hz (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 X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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:
53.10	30	41.22	0.54	0	-24	48	-69.9	H	Noise floor
55.02	30	41.4	0.54	0	-24	48	-69.7	H	Noise floor
56.69	30	41.6	0.54	0	-24	48	-69.5	H	Noise floor
53.10	30	41.22	0.54	0	-24	48	-69.9	V	Noise floor
55.02	30	41.4	0.54	0	-24	48	-69.7	V	Noise floor
56.69	30	41.6	0.54	0	-24	48	-69.5	V	Noise floor
									SCANNED
									40-60~~GHZ~~ G-Hz

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036MW10a

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

Microwave Radiated Emissions Data

Complete X Preliminary ___ 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~~GHZ~~ 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 X Peak
___ 208 V.A.C. ___ 50 Hz ___ Average
___ 230 V.A.C.
X 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
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

DATACOMMON\FORMS\TESTDATASHEETS\MICRORE REV 030597

036MW10b

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

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

Freq. (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	RF Gain (dB)	4KkHz RBW Correction Factor (dB)	Corrected Reading (dBuV/m)	dBc	Pol.	Comments:
									below readings
									300Khz Res bw
									30Khz video
79.65	29	44.74	0.54	0	-18.8	55	-62.2	H	Noise floor
82.53	29	45.05	0.54	0	-18.8	56	-61.8	H	Noise floor
85.035	29	45.2	0.54	0	-18.8	56	-61.7	H	Noise floor
79.65	29	44.74	0.54	0	-18.8	55	-62.2	V	Noise floor
82.53	29	45.05	0.54	0	-18.8	56	-61.8	V	Noise floor
85.035	29	45.2	0.54	0	-18.8	56	-61.7	V	Noise floor
									Scanned
									60-100~~Ghz~~ GHz

REV 960717

036MW10b

Model

CUSTOMER PREMISES EQUIPMENT ROOF UNIT TRANSCEIVER (US)

Bosch Telecom, Inc.

FREQUENCY STABILITY

KTL Dallas

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

FREQUENCY STABILITY

Clien 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)
1675000180 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:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

FREQUENCY STABILITY

Client: BOSCH TELECOM W.O.# 180036

EUT: CPE ROOF UNIT S/N: MSN(69)

Date: 4/28/98 Tech: MARK SEVERSON

EQUIPMENT USED: KTL #739, #313

CONFIGURATION: 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

KTL Dallas, Inc.

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

EQUIPMENT USED: KTL#739, #313

CONFIGURATION: 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)**