

MEASUREMENT AND TECHNICAL REPORT

WIDCOMM, INC.
9645 Scranton Road, Suite 205
San Diego, CA 92121

DATE: 23 July 2001

This Report Concerns:	Original Grant: X	Class II Change:
Equipment Type:	Bluegate 2100	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: Defer until:	No: X
Company Name agrees to notify the Commission by:	N/A	
of the intended date of announcement of the product so that the grant can be issued on that date.		
Transition Rules Request per 15.37?	Yes:	No: X*
(*) <i>FCC Part 15, Paragraphs 15.205; 15.209; 15.209(a); 15.247(a)(1)(i); 15.247(a)(1)(ii); 15.247(c)</i>		

Report Prepared by:

TÜV PRODUCT SERVICE

10040 Mesa Rim Road

San Diego, CA 92121-2912

Phone: 858 546 3999

Fax: 858 546 0364

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1 GENERAL INFORMATION

1.1 Product Description

Form

EMC Test Plan and Constructional Data Form



PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IN THE FIELD IS NO APPLICABLE.

Applicant -- NOTE: This information will be input into your test report as shown below

Company: Widcomm, Inc.

Address: 9645 Scranton Rd. #205
San Diego, CA 92121

Contact: Jeff Brayshaw Position: Hardware Lead/Senior Staff Engineer

Phone: 858-795-3335 Fax: 858-457-5735

E-mail Address: jbrayshaw@widcomm.com

General Equipment Description -- NOTE: This information will be input into your test report as shown below.

EUT Description: Bluetooth Network Access Point

EUT Name: Bluegate 2100

Model No.: Bluegate 2100 Serial No.: 498

Product Options: N/A

Configurations to be tested: Full operation with Ethernet active

Test Objective

<input type="checkbox"/> EMC Directive 89/336/EEC (EMC)	<input checked="" type="checkbox"/> FCC: Class	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	Part 15	<u>X</u>
Std: _____	<input type="checkbox"/> VCCI: Class	<input type="checkbox"/> A	<input type="checkbox"/> B		
<input type="checkbox"/> Machinery Directive 89/392/EEC (EMC)	<input type="checkbox"/> BCIQ: Class	<input type="checkbox"/> A	<input type="checkbox"/> B		
Std: _____	<input checked="" type="checkbox"/> Canada: Class	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B		
<input type="checkbox"/> Medical Device Directive 93/42/EEC (EMC)	<input type="checkbox"/> Australia: Class	<input type="checkbox"/> A	<input type="checkbox"/> B		
Std: _____	<input type="checkbox"/> Other: _____				
<input type="checkbox"/> Vehicle Directive 72/245/EEC (EMC)					
Std: _____					
<input type="checkbox"/> FDA Reviewers Guidance for Premarket Notification Submissions (EMC)					

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Form

EMC Test Plan and Constructional Data Form



TÜV Product Service Certification Requested

- | | |
|---|---|
| <input type="checkbox"/> Attestation of Conformity (AoC) | <input type="checkbox"/> International EMC Mark (IEM) |
| <input checked="" type="checkbox"/> Certificate of Conformity (CoC) | <input checked="" type="checkbox"/> Compliance Document |
| Protection Class (N/A for vehicles) | <input type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III |

Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure - Complete this section if testing will not be attended by the customer.

If a failure occurs, TÜV Product Service should:

- ☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____
- ☒ Continue testing to complete test series.
- ☐ Continue testing to define corrective action.
- ☐ Stop testing.

EUT Specifications and Requirements

Length: 7.5" Width: 6.5" Height: 1.5" Weight: 0.975 lbs.

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 6VDC (If battery powered, make sure battery life is sufficient to complete testing.)

of Phases: single

Current (Amps/phase(max)): 2 amp Current (Amps/phase(nominal)): 750mA

Other: DC Adapter is wall mount

Other Special Requirements

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Form

EMC Test Plan and Constructional Data Form



Typical Installation and/or Operating Environment

Free standing desk or table top installation, wall mount, or ceiling mount for industrial and small business use.

EUT Power Cable

- | | | |
|---|----|---|
| <input type="checkbox"/> Permanent | OR | <input checked="" type="checkbox"/> Removable |
| <input type="checkbox"/> Shielded | OR | <input type="checkbox"/> Unshielded |
| <input type="checkbox"/> Not Applicable | | |

Length (in meters): 2 meters typical

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Form

EMC Test Plan and Constructional Data Form



EUT Interface Ports and Cables												
Interface				Shielding								
Type	Analog	Digital	Qty	Yes	No	Type	Termination	Connector Type	Port Termination	Length (in meters)	Removable	Permanent
EXAMPLE: RS232	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Foil over braid	Coaxial	Metallized 9-pin D-Sub	Characteristic Impedance	6	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10/100 BaseT Ethernet	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	RJ45 Socket	CAT5	RJ45	100 Ohms	1m	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DC Adapter	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	Two Wire with EMI Chip	Wire	Power Connector	6VDC Power	2m	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>

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Form

EMC Test Plan and Constructional Data Form



EUT Software

Revision Level: BG1000_MB_REL_31.02.00

Description: Boot Code, Run Code, and Field Programmable Gate Array Image

EUT Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.
Consult with your TÜV Product Service Representative if additional assistance is required.

1. Receive Mode: Channel Search and Ethernet Active
2. Transmit Mode: Single Channel Hop { Low, Mid, High, or 1 of 79 channels }
3. Transmit Mode: Full Hop on all channels

EUT System Components -- List and describe all components which are part of the EUT. For FCC testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)

Description	Model #	Serial #	FCC ID #
1 meter CAT 5 Cable	N/A	N/A	N/A
Wall Mount DC Adapter(ITE)	ACMN-33	N/A	N/A

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Form

EMC Test Plan and Constructional Data Form



Support Equipment – List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)

<i>Description</i>	<i>Model #</i>	<i>Serial #</i>	<i>FCC ID #</i>
Toshiba Laptop	PT8100	60752144U	CJ6PN-27805-M5-E
Interface Adapter	Test Card	N/A	N/A

Oscillator Frequencies

<i>Frequency</i>	<i>Derived Frequency</i>	<i>Component # / Location</i>	<i>Description of Use</i>
16MHz		Y1	Crystal
50MHz		U3	MPU
10.000MHz		Y2	TCXO

Power Supply

<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Type</i>
Acropower	AXS12S-06/W1	N/A	<input checked="" type="checkbox"/> Switched-mode: (Frequency) 100kHz <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____
			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____

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Form

EMC Test Plan and Constructional Data Form



Power Line Filters

Manufacturer

Model #

Location in EUT

N/A

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

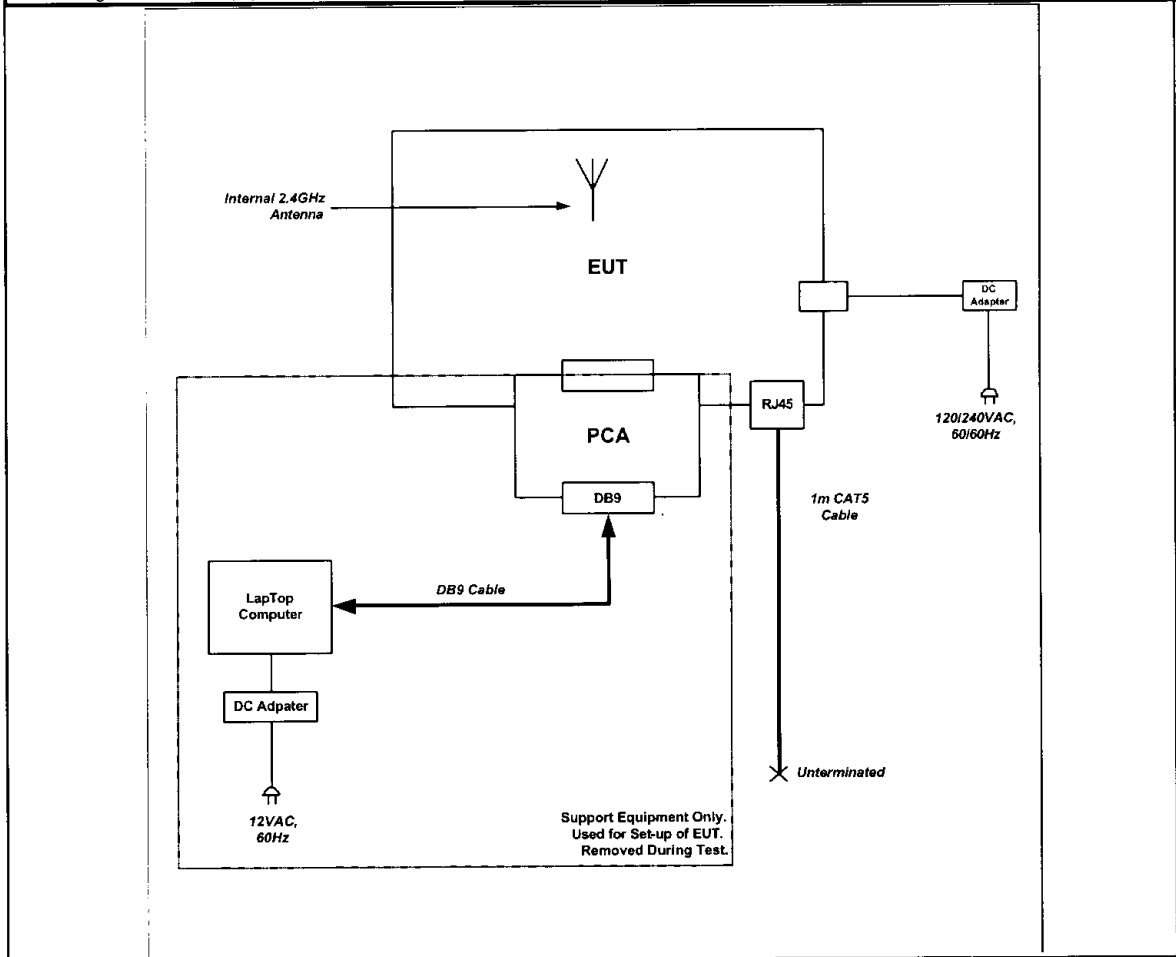
Internal top and bottom shield

Form

EMC Test Plan and Constructional Data Form



System Configuration Block Diagram -- Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



(PLEASE INSERT "ELECTRONIC SIGNATURE" BELOW IF POSSIBLE)

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1 GENERAL INFORMATION (continued)

1.2 Related Submittal/Grant

None

1.3 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the ANSI C63.4 setup.

Test Performed: X 1. Conducted Emissions, FCC Part 15, Paragraph 15.107(a); 15.247(a)(1)(i); 15.247(a)(1)(ii); 15.247(c)
2. Radiated Emissions EN55022: 1992 Class B limit, 30 - 1,000 MHz, 10 meters
X 3. Radiated Emission per FCC Part 15, Paragraphs 15.109(a); 15.205; 15.209(a); and 15.247
4. Engineering evaluations
5. Frequency Stability, Part 2, Paragraph 2.995, and Part 87, Paragraph 87.133

Both Conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8 - M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters (1 - 10 GHz).

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV PRODUCT SERVICE
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI 63.4 and are registered with the FCC, 7435 Oakland Mills Rd, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

2. SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emission in the following configuration:

See Block Diagram.

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Modification

None

2.5 Configuration of Tested System

See Block Diagram.

3 RADIATED EMISSION EQUIPMENT/DATA

The following data lists the significant emission frequencies, measured levels, correction factor (which includes cable and antenna corrections), the corrected reading, and the limit.

See following page(s).

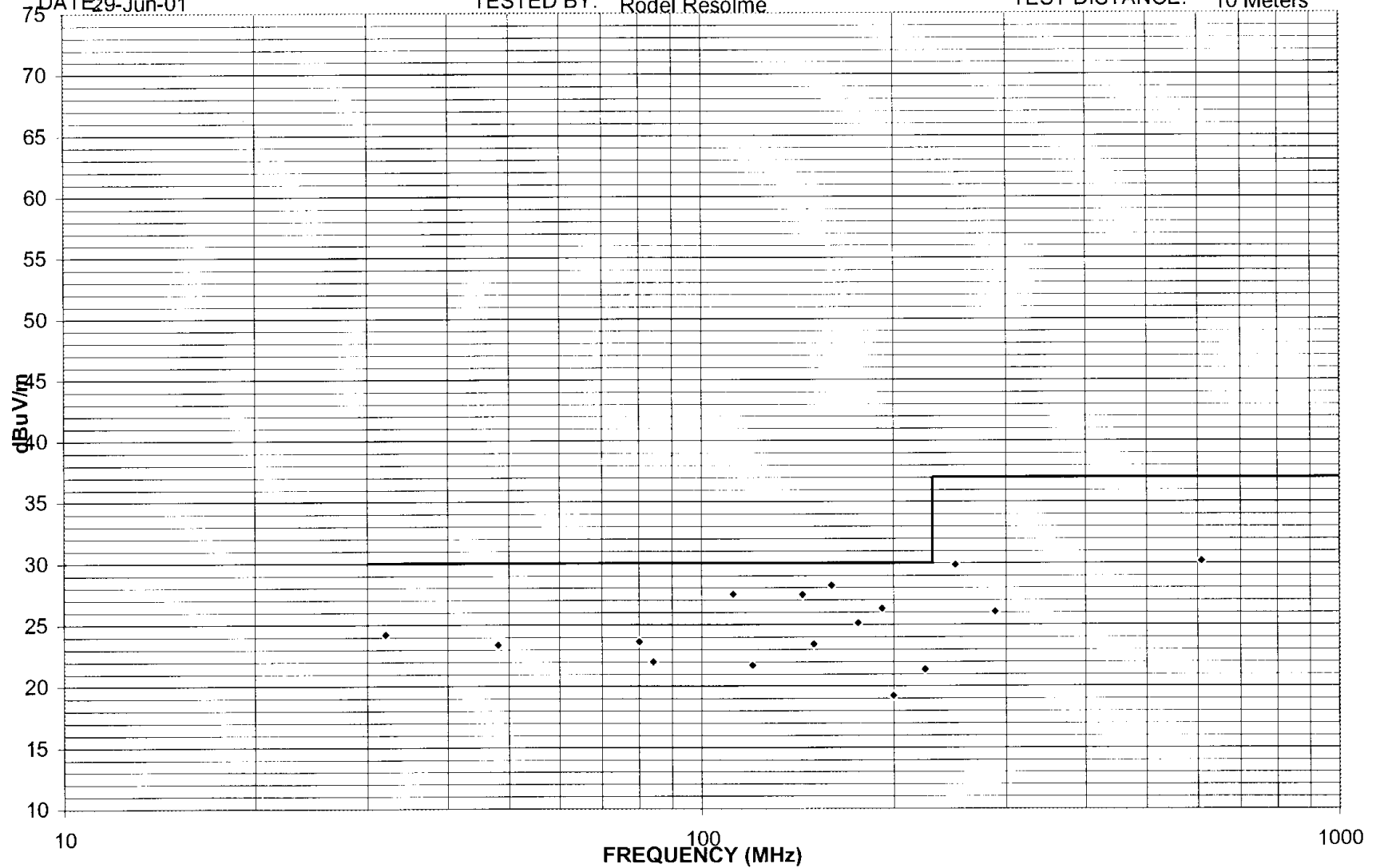
See test setup photos for radiated emissions test setup.

REPORT NO sc105179
COMPANY Widcomm, Inc.
EUT Bluegate 2100
EUT MODE Receive Normal
DATE 29-Jun-01

SPEC: FCC Part 15, Para 15.209(a)

TESTED BY: Rodol Resolme

TEST DISTANCE: 10 Meters



SPEC: FCC Part 15, Para. 15.209(a)

TEST DIST: 10 Meters

TEST SITE: 2

BICONICAL: 491

LOG PERIODIC: 418

RCVR: 427

EUT MARGIN -1.8 dB at 160 MHz

[illegible]

Emissions Test Conditions: RADIATED EMISSIONS

The *RADIATED EMISSIONS* measurements were performed at the following test location :

☐ - Test not applicable

Canyon #3 (Open Area Test Site), Carroll Canyon, San Diego
Roof, 3-meter Open Site

Testing was performed at a test distance of:

3 meters
10 meters

Test Equipment Used :

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Cal Date
3115	251	Antenna, Double Ridge Guide	EMCO	2495	10/01
3110B	491	Biconical Antenna	EMCO	9508-2134	07/01
3146	418	LP Antenna	EMCO	9402-3775	03/02
ESVS30	427	Receiver	Rohde & Schwarz	830350/006	11/01
HP8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	02/01
PreAmp 2- 20 GHz	752	PreAmp	TUV PS	--	N/A
HP8445B	809	Automatic Preselector	Hewlett Packard	1442A01127	*

Remarks: (*) Verified

Field Strength Calculation

If a preamplifier was used during the Radiated Emission Testing, it is required that the amplifier gain must be subtracted from the Spectrum Analyzer (Meter) Reading. In addition, a correction factor for the antenna , cable used and a distance factor, if any, must be applied to the Meter Reading before a true field strength reading can be obtained. In the automatic measurement, these considerations are automatically presented as a part of the print out. In the case of manual measurements and for greater efficiency and convenience, instead of using these correlation factors for each meter reading, the specification limit was modified to reflect these correlation factors at each frequency value so that the meter readings can be compared directly to the modified specification limit. This modified specification limit is referred to as the "Corrected Meter Reading Limit" or simply the CMRL, which is the actual field strength present at the antenna. The quantity can be derived in the following manner:

$$\text{Corrected Meter Reading Limit (CMRL)} = \text{SAR} + \text{AF} + \text{CL} - \text{AG} - \text{DC}$$

Where, SAR = Spectrum Analyzer Reading

AF = Antenna Factor

CL = Cable Loss

AG = Amplifier Gain (if any)

DC = Distance Correction (if any)

Assume the following situation: A meter reading of 29.4 dBuV was obtained from a Class A computing device measured at 83 MHz. Assume an antenna factor of 9.2 dB, a cable loss of 1.4 dB and amplifier gain of 20.0 dB at 83 MHz. The final field strength would be determined as follows:

$$\text{CMRL} = 29.4 \text{ dBuV} + 9.2 \text{ dB} - 1.4 \text{ dB} - 20 \text{ dB/M} - 0.0 \text{ dB}$$

$$\text{CMRL} = 20.0 \text{ dBuV/M}$$

This result is well below the FCC and CSA Class A limit of 29.5 dbuV/m at 83 MHz.

For the manual mode of measurement, a table of corrected meter reading limit was used to permit immediate comparison of the meter reading to determine if the measure emission amplitude exceeded the specification limit at that specific frequency.

4 CONDUCTED EMISSIONS EQUIPMENT/DATA (15.107(a); 15.247(a)(1)(i); 15.247(a)(1)(ii); and 15.247(c))

See following page(s).

Emissions Test Conditions: CONDUCTED EMISSIONS (15.107(a); 15.247(a)(1)(i); 15.247(a)(1)(ii); and 15.247(c))

The *CONDUCTED EMISSIONS* measurements were performed at the following test location :

☐ - Test not applicable

■ - SR-3, Shielded Room, 12' x 20' x 8', Metal Chamber

Test Equipment Used :

Spectrum Analyzer, Hewlett Packard, HP-8586B, P/N 10308, S/N2311A02209, Cal: 02/02
Antenna, Horn, Electro Mechanics, Model 3115, S/N 2595, P/N 453, Cal: 10/01
ESHS 30, P/N 459, EMI Test Receiver, Rohde & Schwarz, S/N 837055/001, Cal 01/02
CAT-20, P/N 610, 20 dB Attenuator, Mini-Circuits, Verified
FCC-LISN-50-25-2, P/N 552, LISN, Fischer Custom Comm., S/N 113, Cal 11/01

Remarks: _____

WIDCOMM
BLUE GATE 2000
OCCUPANCY TIME

15.247(a)(1)(i)

MKR Δ 360.0 μ sec
0.00 dB

hp REF 117.0 dB μ V ATTN 20 dB

10 dB/

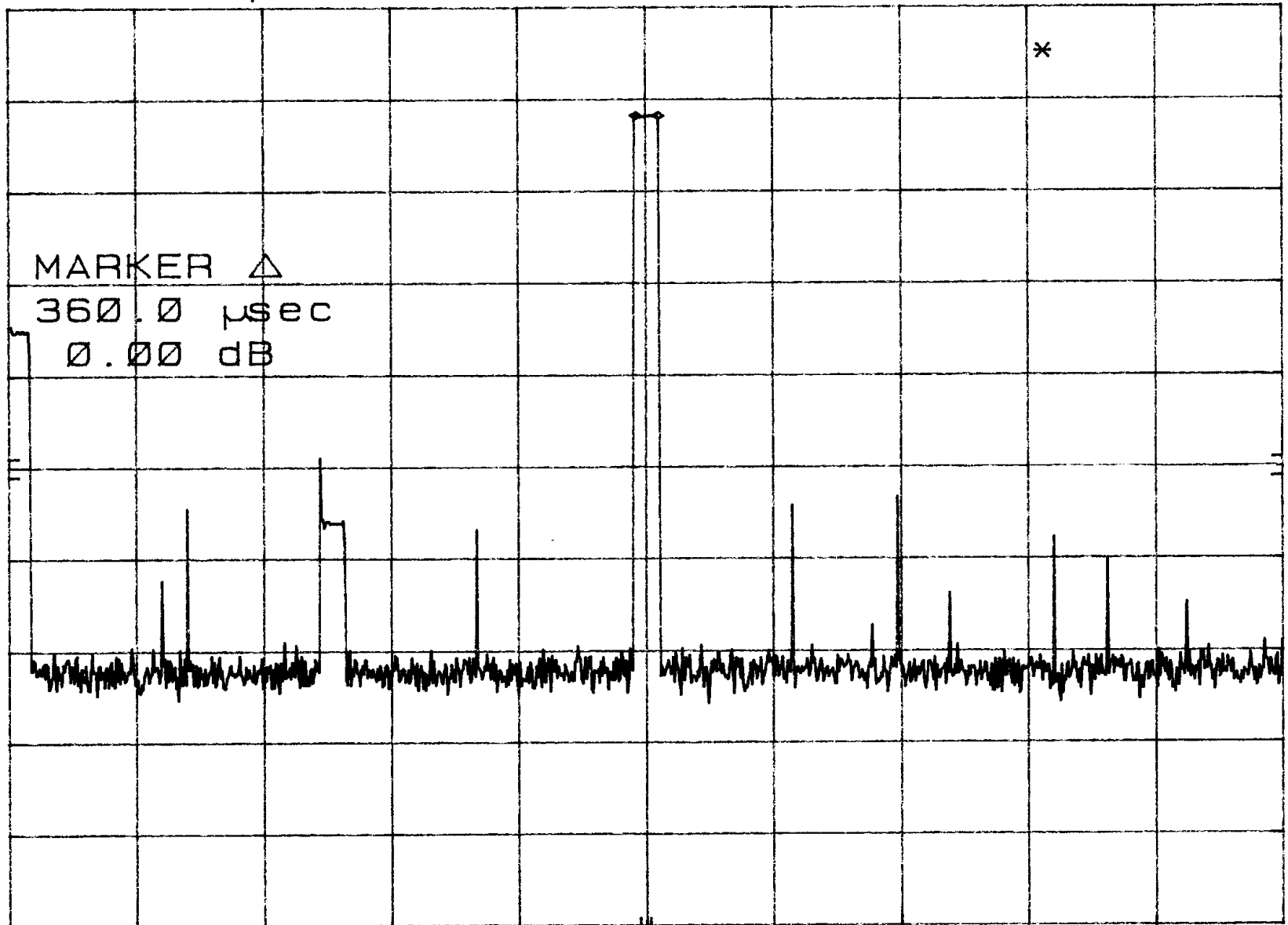
POS PK

MARKER Δ
360.0 μ sec
0.00 dB

CENTER 2.436 000 000 GHz
RES BW 1 MHz

VBW 1 MHz

SPAN 0 Hz
SWP 20.0 msec 23



cd29/21

WIDCOMM
BLUEWAVE 2100
300KHz BANDWIDTH

K5.247 (AKG/iii)

LOW

MKR Δ 1.010 MHz
1.10 dB

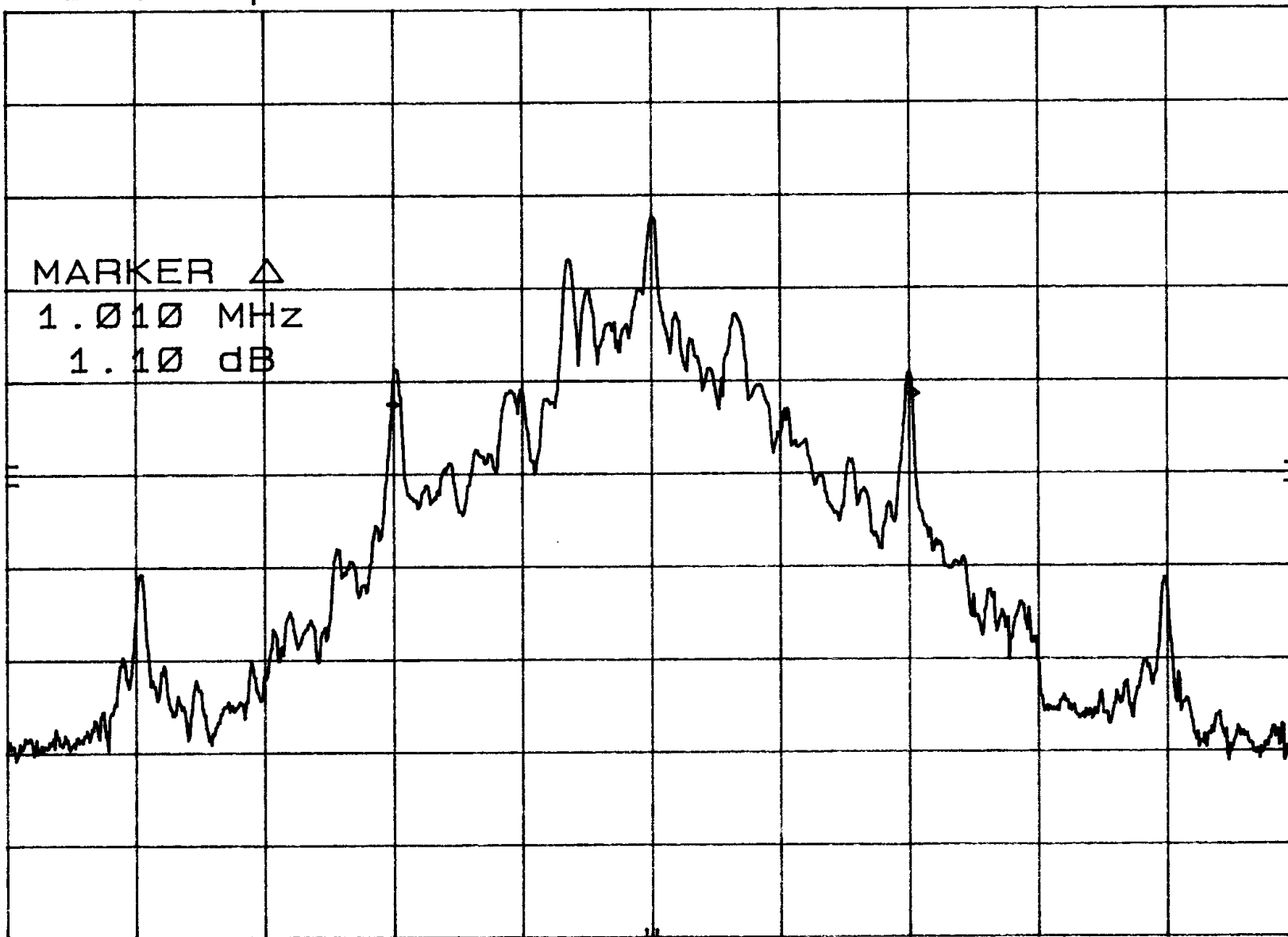
hp

REF 107.0 dB μ V ATTN 10 dB

10 dB/

POS PK

MARKER Δ
1.010 MHz
1.10 dB



CENTER 2.402 03 GHz
RES BW 10 kHz

VBW 100 kHz

SPAN 2.50 MHz
SWP 75.0 msec

24

12/29/01

WIDEN
BLUE GATE 2100
20dB BANDWIDTH
M10

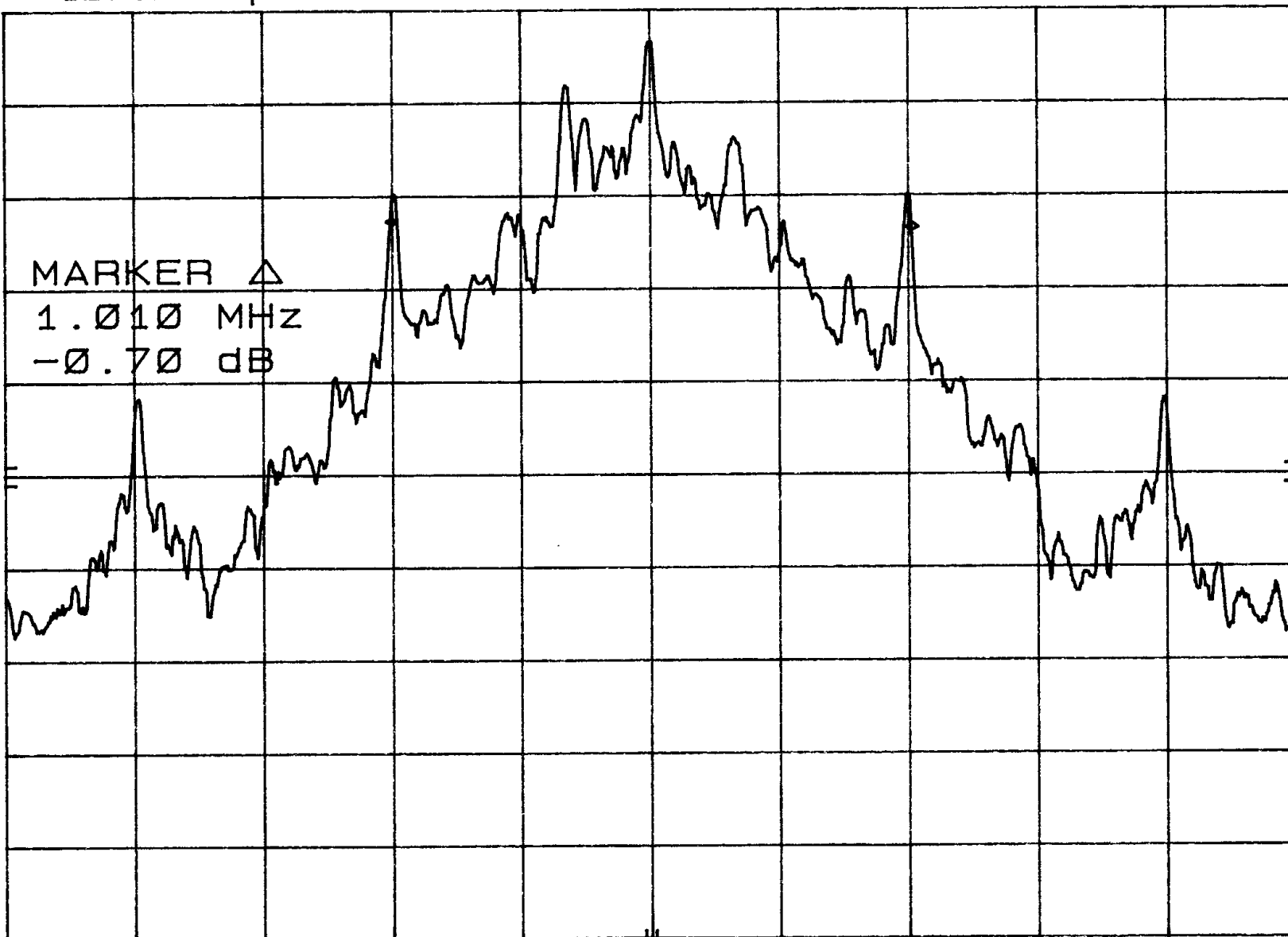
15 247 (a)(1) (X)(11)

MKR Δ 1.010 MHz
-0.70 dB

hp REF 107.0 dB μ V ATTN 10 dB

10 dB/

POS PK



CENTER 2.436 02 GHz
RES BW 10 kHz

VBW 100 kHz

SPAN 2.50 MHz
SWP 75.0 msec 25

6/29/01

WIDCOMM
BLUEGATE 2100
200dB BANDWIDTH

IS 247 (uXi) 00 (111)

HIGH

MKR Δ 1.010 MHz

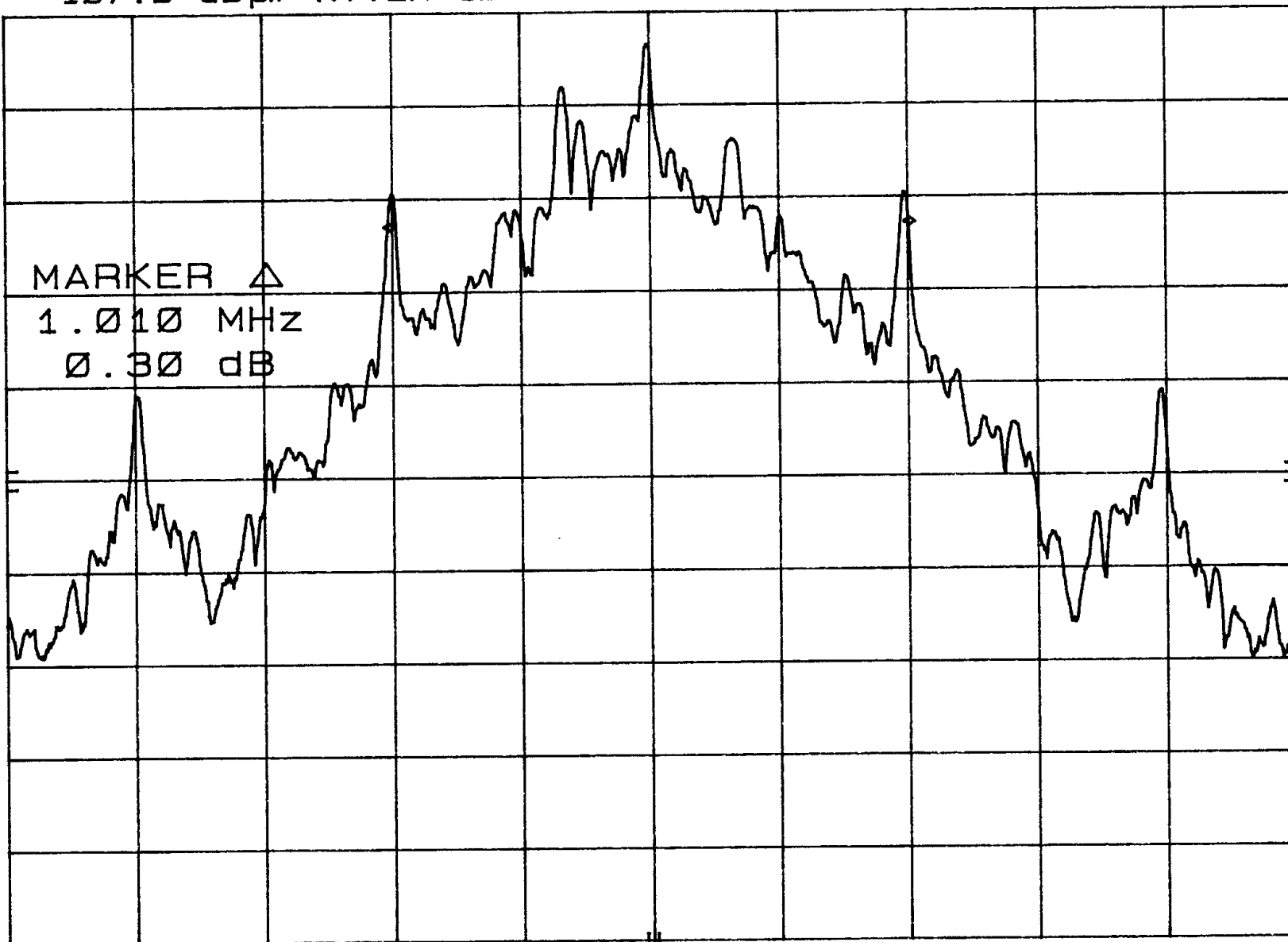
0.30 dB

hp

REF 107.0 dB μ V ATTEN 10 dB

10 dB/

POS PK



CENTER 2.480 03 GHz

RES BW 10 KHz

VBW 100 KHz

SPAN 2.50 MHz

SWP 75.0 msec 26

WIDCOMM

BLUEGATE 2100

HOP FREQUENCY SPACING

6/29/01

PRINT 15, 15.247(a)(1)(ii)

MKR Δ 990 KHz

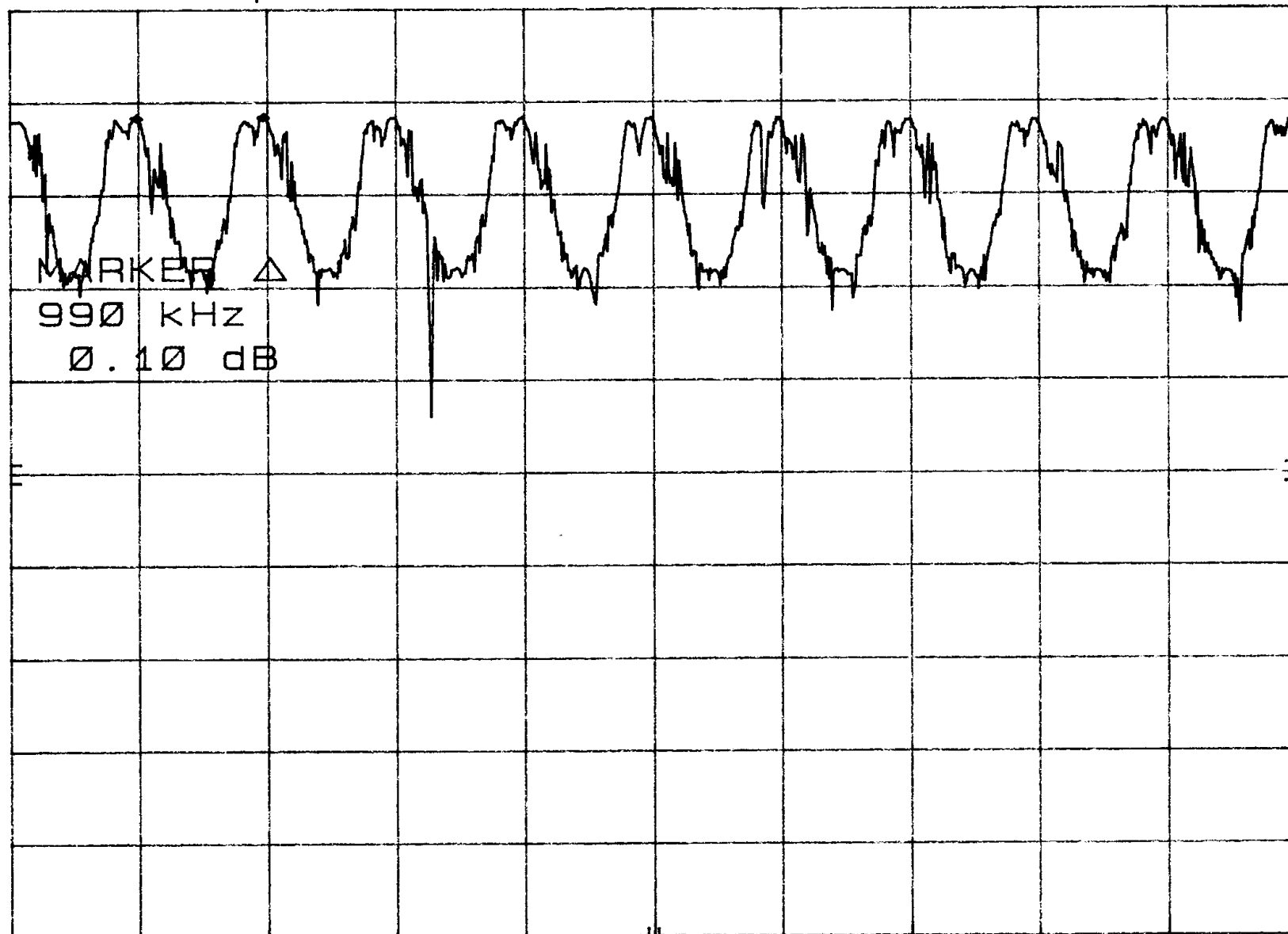
0.10 dB

HP

REF 117.0 dB μ V ATTEN 20 dB

10 dB/

POS PK



CENTER 2.440 0 GHz

RES BW 100 KHz

VBW 100 KHz

SPAN 10.0 MHz

SWP 20.0 msec 27

6/24/01

WIDCOMM

BLUE GATE 2100

NUMBER OF HOP FREQUENCIES > 75

PART 15, PARA 15.247(a)(1)(ii)

MKR Δ 77.3 MHz
-2.40 dB

HP REF 117.0 dB μ V ATTN 20 dB

10 dB/

POS PK

MARKER Δ
77.3 MHz
-2.40 dB

START 2.400 GHz

RES BW 300 KHz

VBW 3 MHz

STOP 2.500 GHz
SWP 20.0 msec

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BLUEGATE 2100
7-2-01 AAF
BANDEDGE

15.3476

MKR 2.480 67 GHz
52.70 dB μ V

hp REF 97.0 dB μ V ATTN 0 dB

10 dB/

POS PK

74.4 dB μ V

DL
74.0
dB μ V

MARKER
2.480 67 GHz
52.70 dB μ V

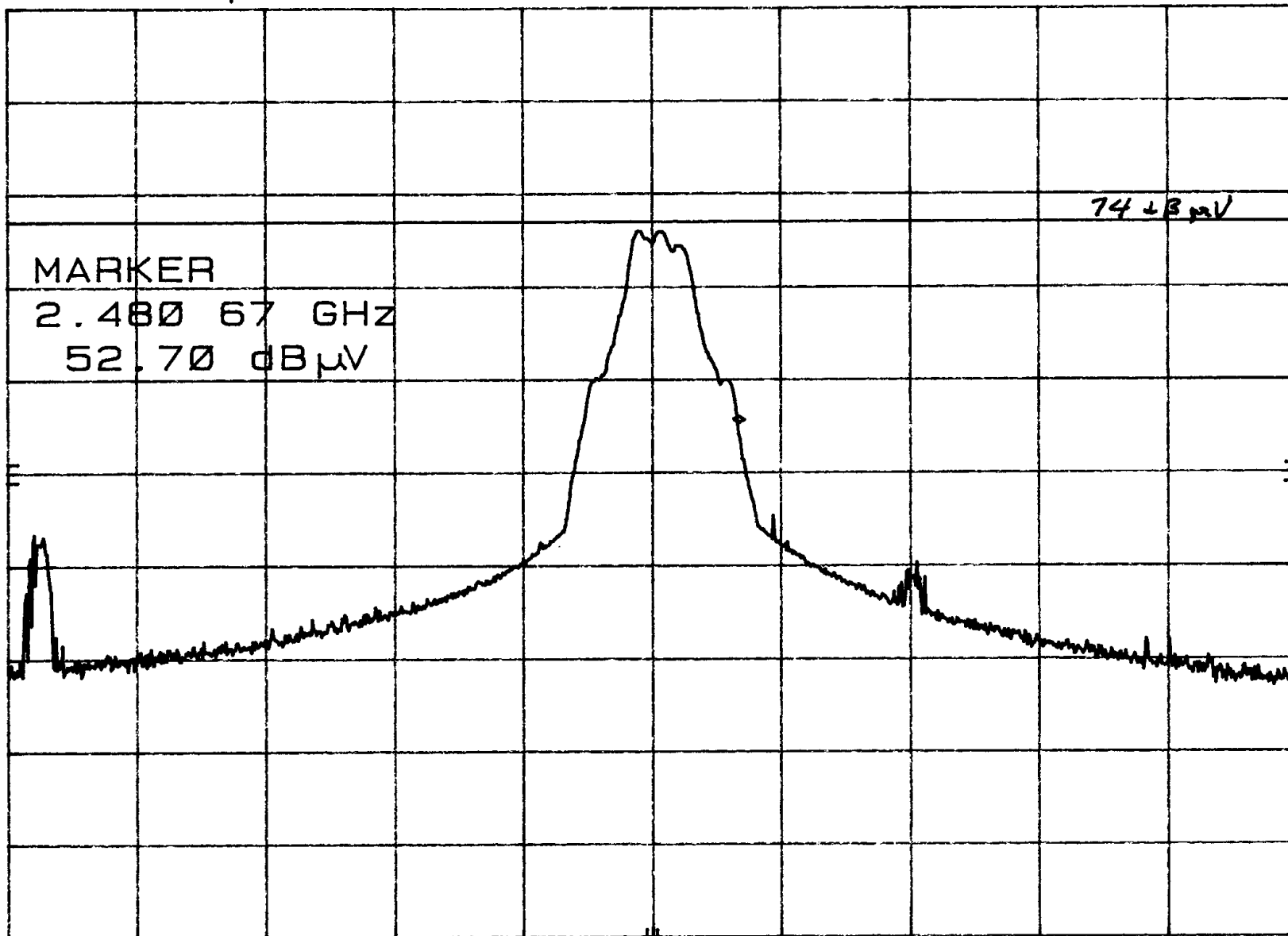
CENTER 2.480 0 GHz

RES BW 100 kHz

VBW 1 MHz

SPAN 10.0 MHz
SWP 20.0 msec

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TUV Product Service
Powerline Conducted Emissions

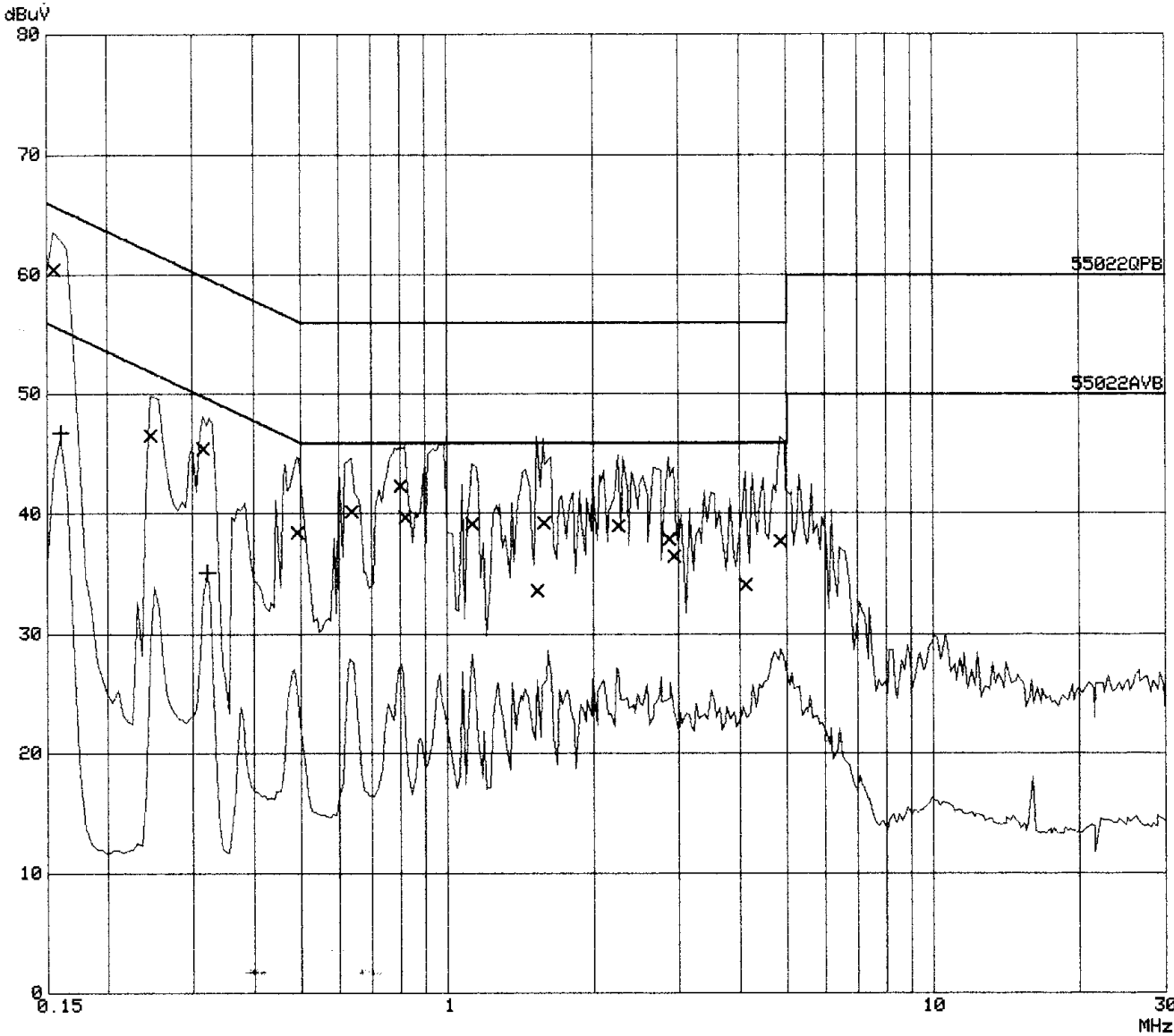
EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode Low
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115Vac 60Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 13:43

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 15dB



TUV Product Service Powerline Conducted Emissions

EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode Low
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115Vac 60Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 13:43

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	60.4	65.7
0.24500	46.5	61.9
0.31500	45.5	59.8
0.49000	38.5	56.2
0.63500	40.2	56.0
0.80000	42.3	56.0
0.82000	39.7	56.0
1.12500	39.2	56.0
1.53000	33.6	56.0
1.58000	39.2	56.0
2.25000	39.0	56.0
2.86500	37.9	56.0
2.92000	36.4	56.0
4.11000	34.1	56.0
4.84500	37.7	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	46.8	55.5
0.32000	35.1	49.7

* limit exceeded

TUV Product Service Powerline Conducted Emissions

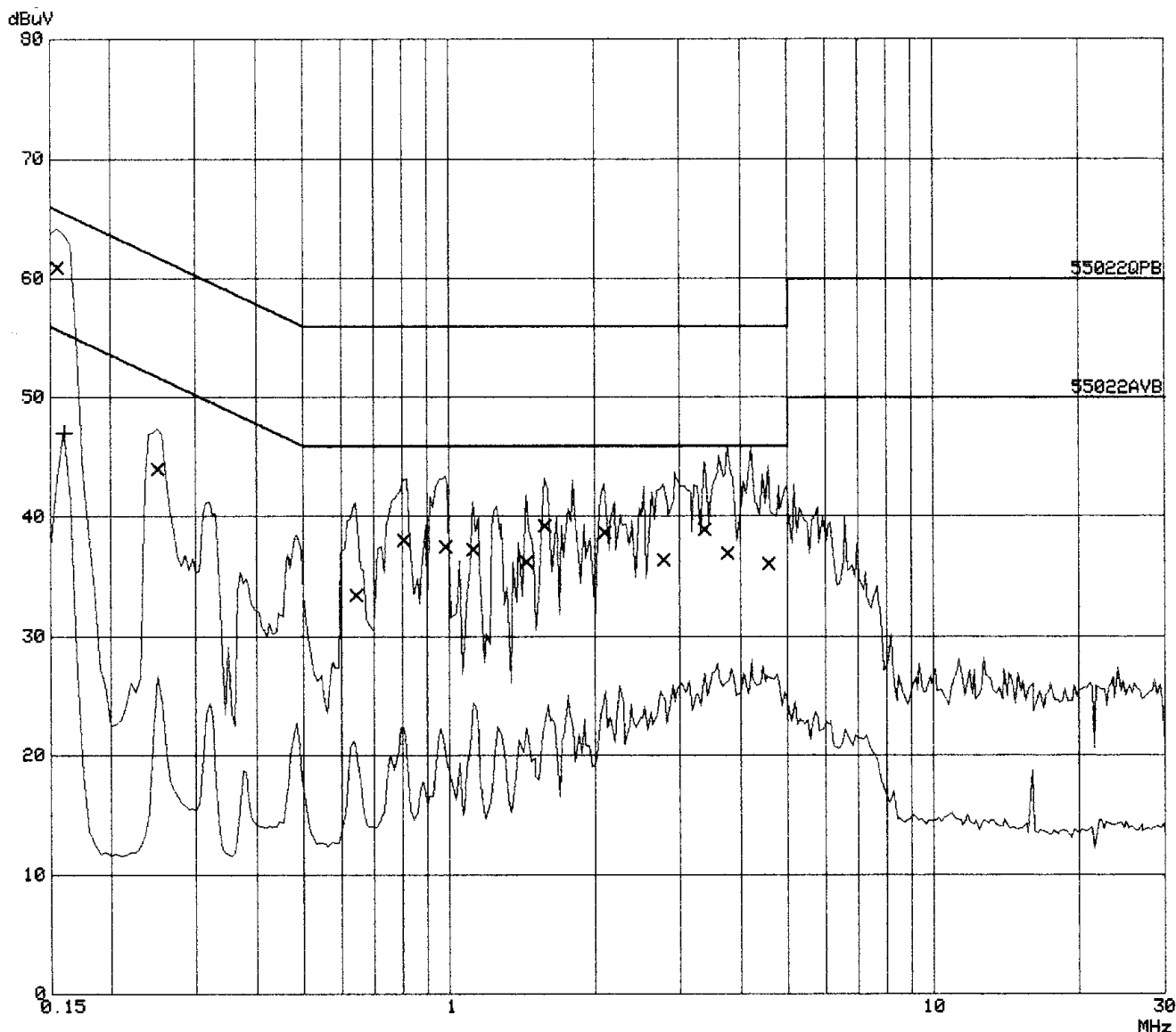
EUT: Bluegate 2100
 Manuf: Widcomm, Inc.
 Op Cond: Transmit Mode Low
 Operator: Rodel Resolme
 Test Spec: EN 55022 Class B
 Comment: 115Vac 60Hz Line 2
 SC105179 with shields no external antenna.
 Date: 28. Jun 01 13:51

Scan Settings (2 Ranges)

Frequencies			Receiver Settings						
Start	Stop	Step	IF	BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k		10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k		10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 15dB



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TUV Product Service
Powerline Conducted Emissions

EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode Low
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115Vac 60Hz Line 2
SC105179 with shields no external antenna.
Date: 28. Jun 01 13:51

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	60.9	65.7
0.25000	44.0	61.8
0.64000	33.4	56.0
0.80500	38.0	56.0
0.98000	37.5	56.0
1.12000	37.3	56.0
1.44000	36.2	56.0
1.57000	39.2	56.0
2.09500	38.7	56.0
2.77500	36.4	56.0
3.36500	38.9	56.0
3.75500	36.9	56.0
4.55500	36.1	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	47.0	55.5

* limit exceeded

TUV Product Service
Powerline Conducted Emissions

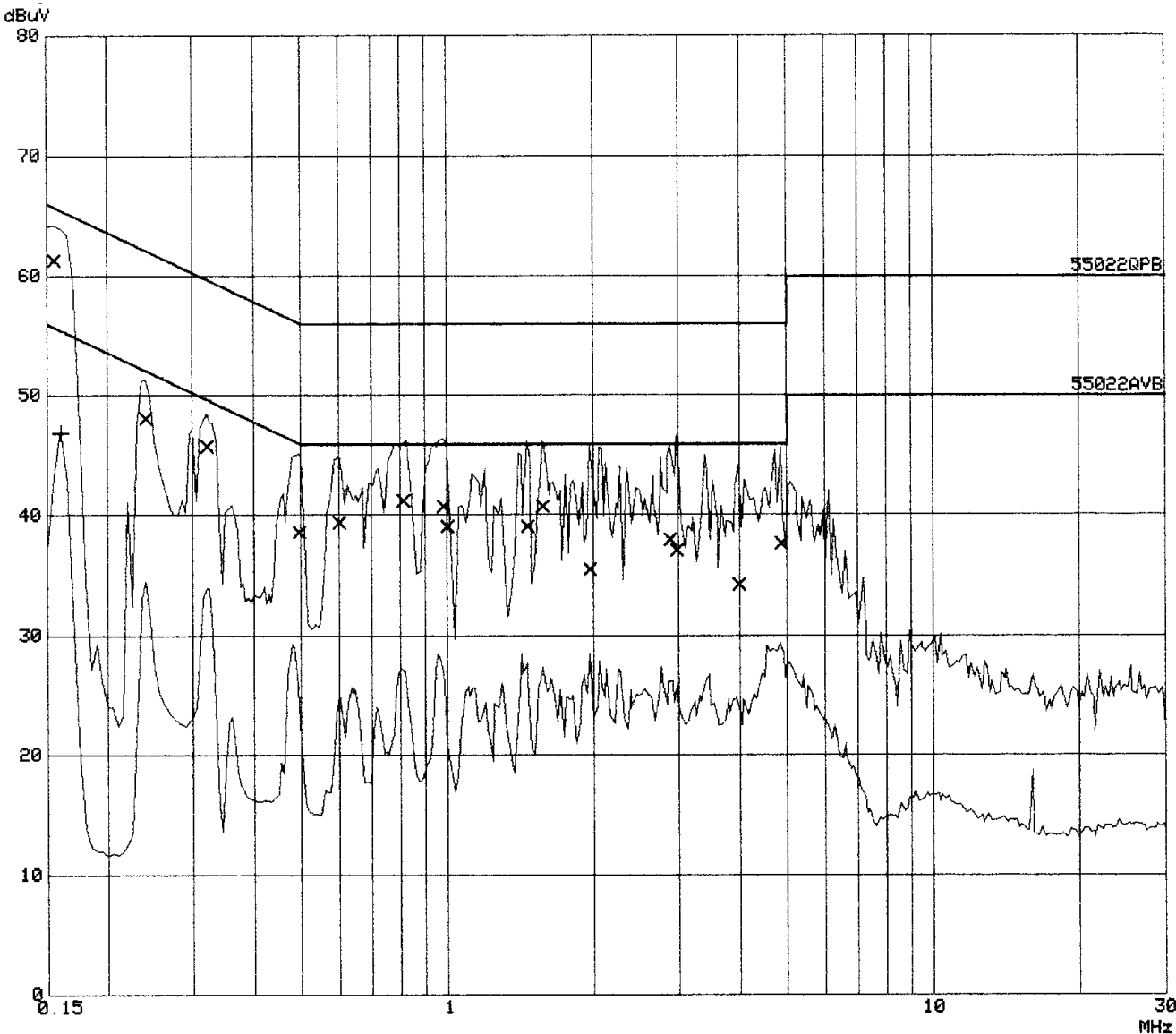
EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode Mid
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115Vac 60Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 13:34

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 15dB



TUV Product Service Powerline Conducted Emissions

EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode Mid
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115Vac 60Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 13:34

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	61.3	65.7
0.24000	48.1	62.1
0.32000	45.8	59.7
0.49500	38.6	56.1
0.60000	39.4	56.0
0.81000	41.2	56.0
0.98000	40.7	56.0
1.00000	39.1	56.0
1.46000	39.1	56.0
1.57500	40.7	56.0
1.96000	35.5	56.0
2.88000	38.0	56.0
2.96000	37.1	56.0
3.98000	34.2	56.0
4.85500	37.7	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	46.9	55.5

* limit exceeded

TUV Product Service Powerline Conducted Emissions

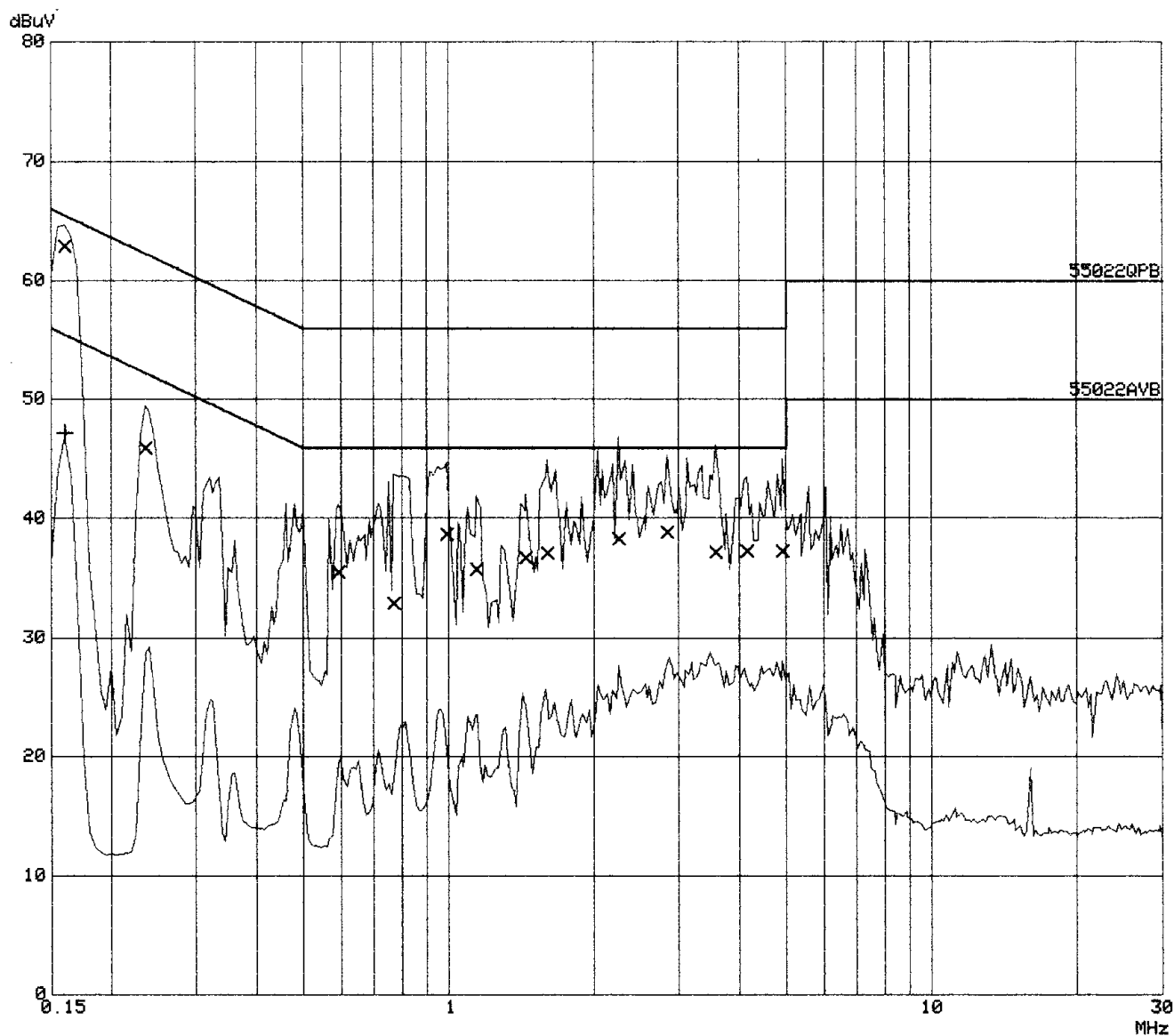
EUT: Bluegate 2100
 Manuf: Widcomm, Inc.
 Op Cond: Transmit Mode Mid
 Operator: Rodel Resolme
 Test Spec: EN 55022 Class B
 Comment: 115Vac 60Hz Line 2
 SC105179 with shields no external antenna.
 Date: 28. Jun 01 13:26

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 15dB



TUV Product Service Powerline Conducted Emissions

EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode Mid
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115Vac 60Hz Line 2
SC105179 with shields no external antenna.
Date: 28. Jun 01 13:26

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.16000	62.9	65.5
0.23500	45.9	62.3
0.59000	35.5	56.0
0.77000	32.9	56.0
0.99000	38.7	56.0
1.14000	35.7	56.0
1.44500	36.7	56.0
1.60500	37.1	56.0
2.24500	38.3	56.0
2.83000	38.8	56.0
3.58000	37.1	56.0
4.14500	37.3	56.0
4.91500	37.3	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	47.2	55.5

* limit exceeded

TUV Product Service
Powerline Conducted Emissions

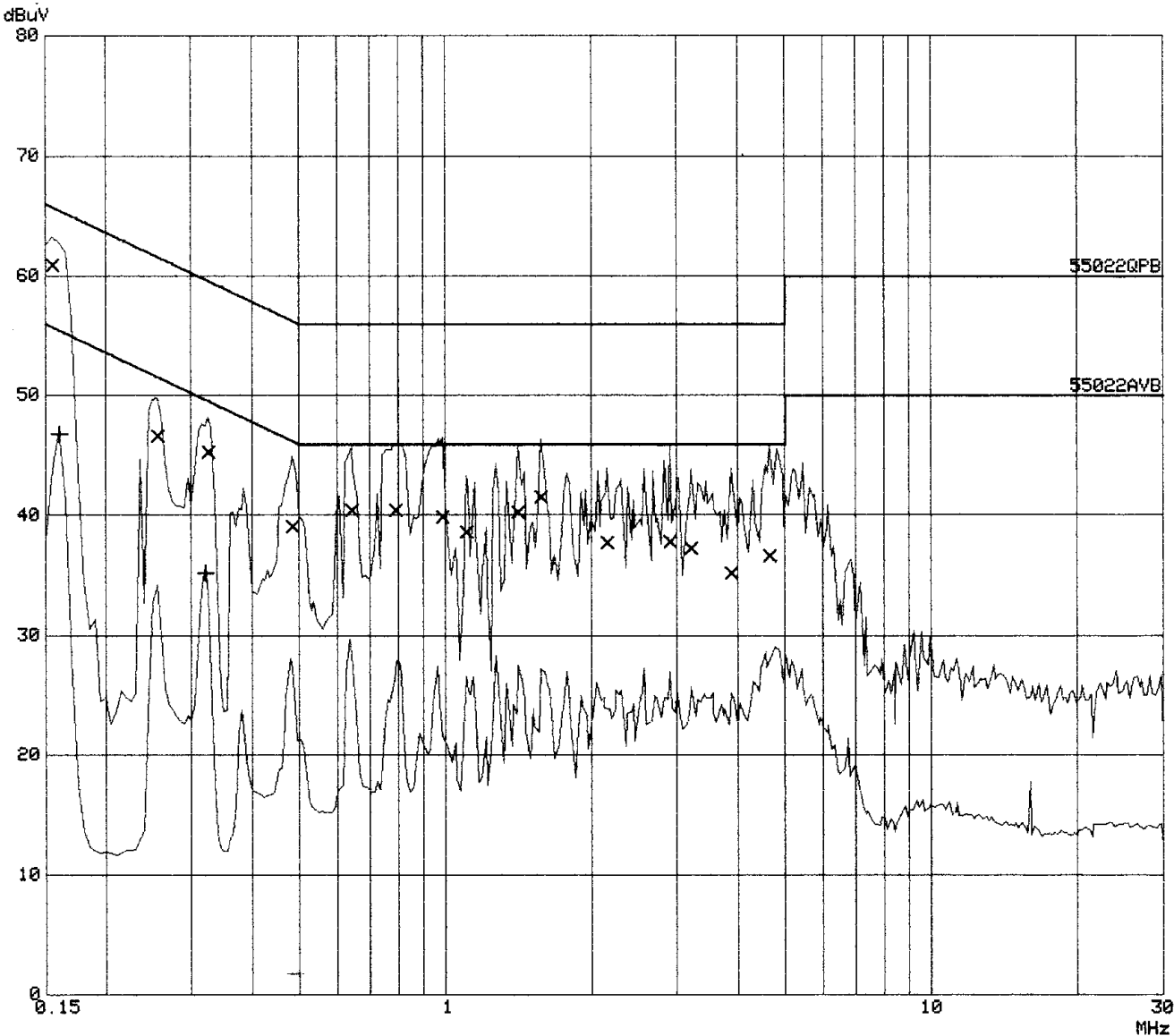
EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode High
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115 Vac 60 Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 10:24

Scan Settings (2 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO LN OFF	60dB

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 15dB



38

TUV Product Service Powerline Conducted Emissions

EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode High
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115 Vac 60 Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 10:24

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	60.9	65.7
0.25500	46.7	61.6
0.32500	45.3	59.6
0.48500	39.1	56.3
0.64000	40.5	56.0
0.79000	40.5	56.0
0.98500	39.9	56.0
1.10500	38.6	56.0
1.41000	40.3	56.0
1.57000	41.5	56.0
2.15000	37.7	56.0
2.89500	37.8	56.0
3.20500	37.3	56.0
3.87000	35.2	56.0
4.64500	36.6	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	46.8	55.5
0.32000	35.2	49.7

* limit exceeded

TUV Product Service
Powerline Conducted Emissions

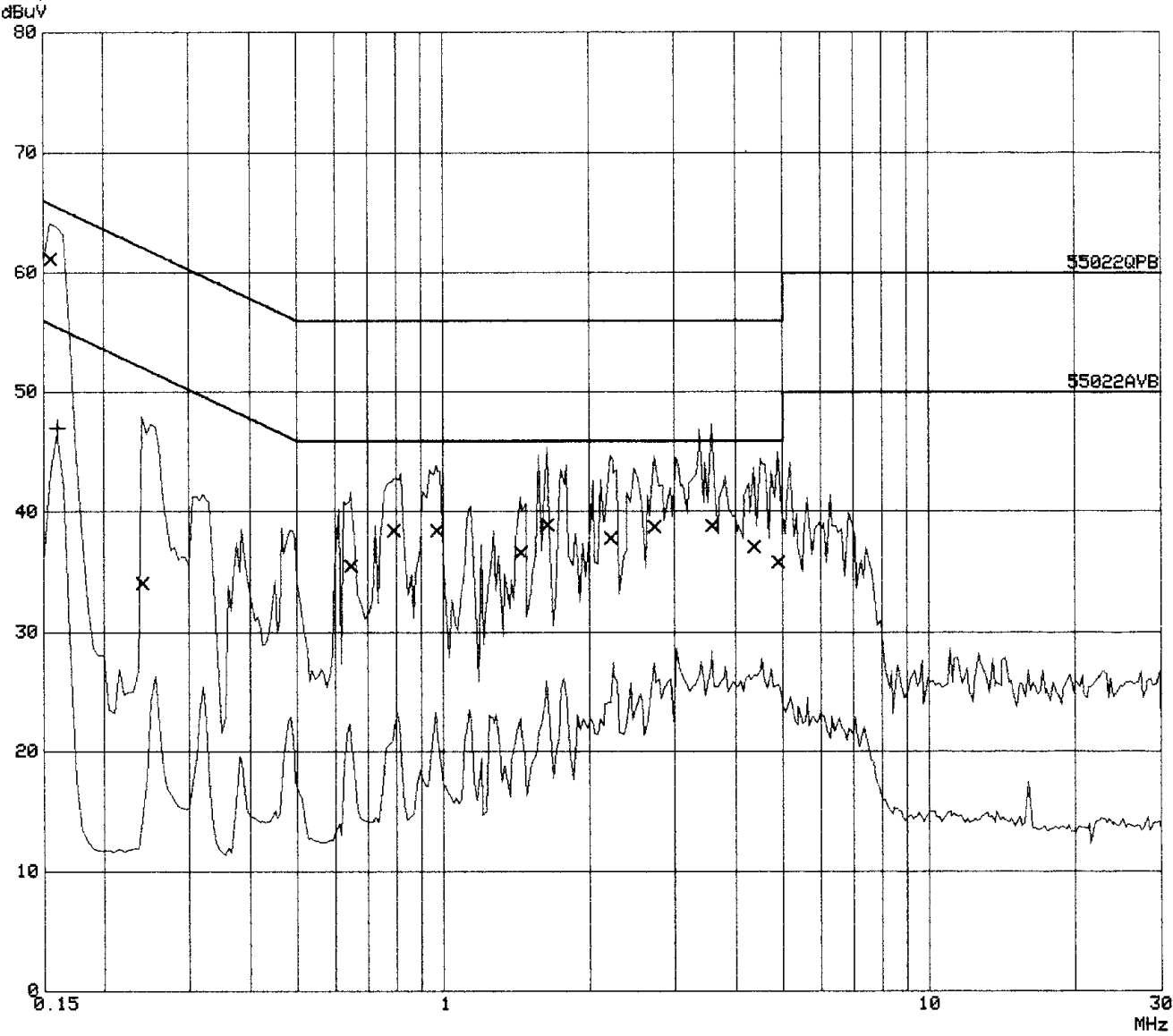
EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Transmit Mode High
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115 Vac 60 Hz Line 2
SC105179 with shields no external antenna.
Date: 28. Jun 01 10:33

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 15dB



TUV Product Service
Powerline Conducted Emissions

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Manuf: Widcomm, Inc.
Op Cond: Transmit Mode High
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115 Vac 60 Hz Line 2
SC105179 with shields no external antenna.
Date: 28. Jun 01 10:33

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	61.1	65.7
0.24000	34.1	62.1
0.64500	35.5	56.0
0.79000	38.5	56.0
0.97000	38.4	56.0
1.44000	36.6	56.0
1.63500	38.9	56.0
2.20500	37.8	56.0
2.72500	38.8	56.0
3.58000	38.8	56.0
4.36000	37.1	56.0
4.88000	35.8	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	47.0	55.5

* limit exceeded

TUV Product Service Powerline Conducted Emissions

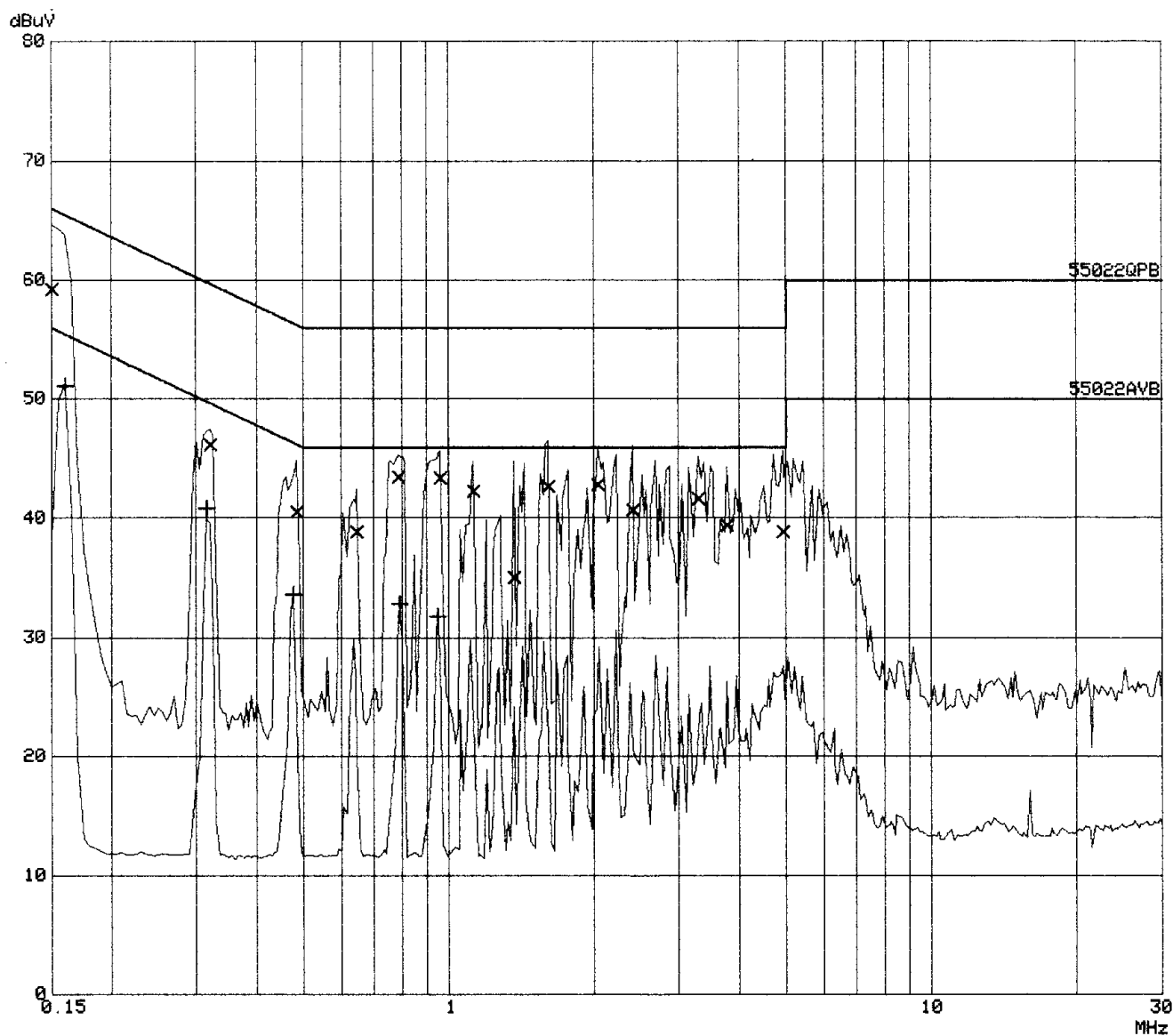
EUT: Bluegate 2100
 Manuf: Widcomm, Inc.
 Op Cond: Receive mode
 Operator: Rodel Resolme
 Test Spec: EN 55022 Class B
 Comment: 115 Vac 60 Hz Line 1
 SC105179 with shields no external antenna.
 Date: 28. Jun 01 09:29

Scan Settings (2 Ranges)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB	
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB	

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 15dB



TUV Product Service Powerline Conducted Emissions

EUT: Bluegate 2100
Manuf: Widcomm, Inc.
Op Cond: Receive mode
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115 Vac 60 Hz Line 1
SC105179 with shields no external antenna.
Date: 28. Jun 01 09:29

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15000	59.3	66.0
0.32000	46.2	59.7
0.48500	40.5	56.3
0.64500	38.8	56.0
0.78500	43.4	56.0
0.96000	43.4	56.0
1.12500	42.3	56.0
1.36500	35.0	56.0
1.61000	42.6	56.0
2.04000	42.8	56.0
2.41000	40.7	56.0
3.30000	41.6	56.0
3.77000	39.4	56.0
4.92000	38.9	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16000	51.1	55.5
0.31500	40.9	49.8
0.47500	33.6	46.4
0.79000	32.8	46.0
0.94500	31.8	46.0

* limit exceeded

TUV Product Service
Powerline Conducted Emissions

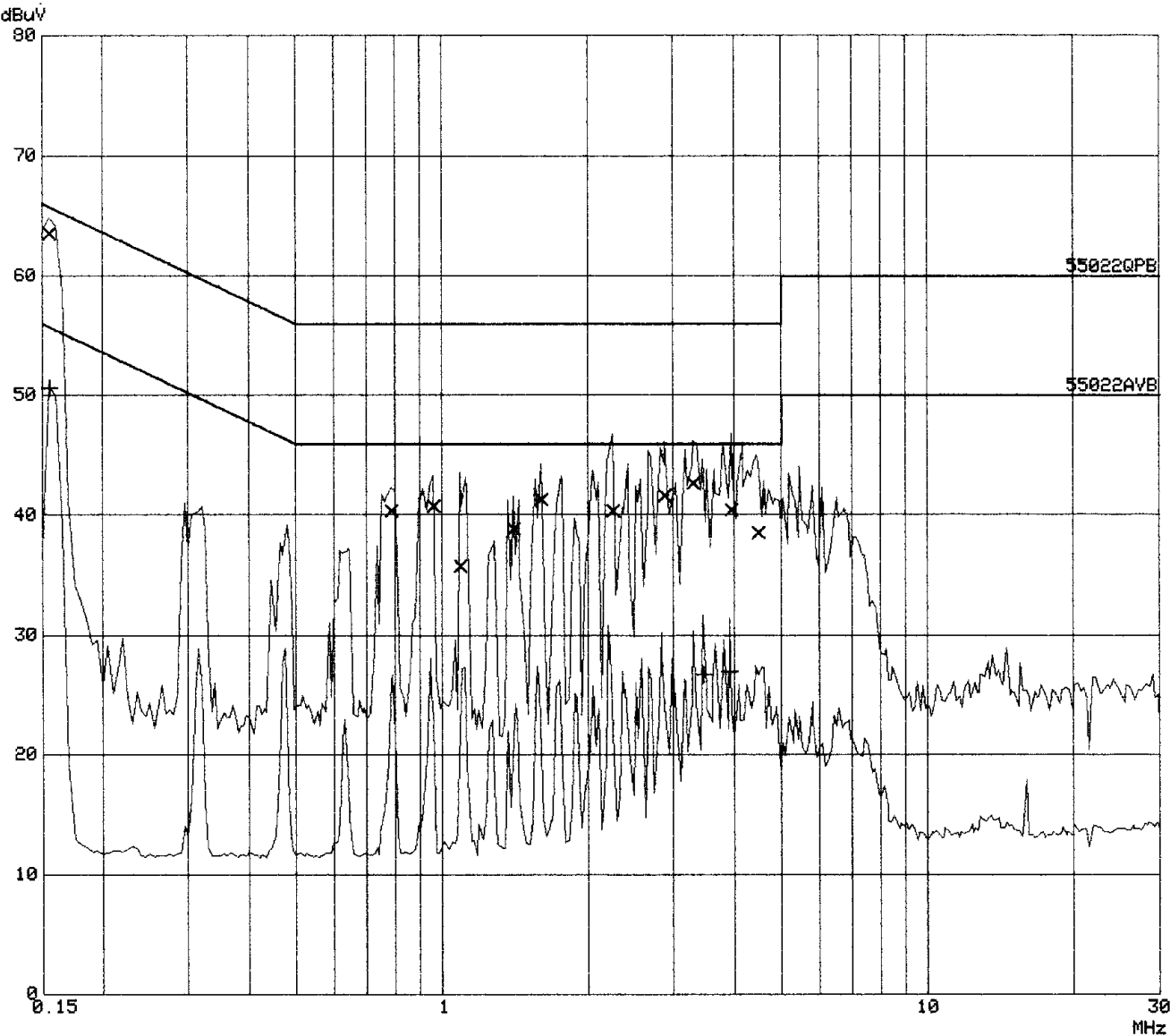
EUT: Bluegate 2100
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Op Cond: Receive mode
Operator: Rodel Resolme
Test Spec: EN 55022 Class B
Comment: 115 Vac 60 Hz Line 2
SC105179 with shields no external antenna.
Date: 28. Jun 01 09:38

Scan Settings (2 Ranges)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB	
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB	

Transducer No.	Start	Stop	Name
1	150k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 15dB



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Powerline Conducted Emissions

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Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15500	63.5	65.7
0.78500	40.3	56.0
0.96000	40.7	56.0
1.09000	35.8	56.0
1.40500	38.9	56.0
1.60500	41.3	56.0
2.25000	40.4	56.0
2.88000	41.6	56.0
3.29000	42.6	56.0
3.94000	40.4	56.0
4.47500	38.6	56.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.15500	50.6	55.7
3.45000	26.6	46.0
3.92000	26.9	46.0

* limit exceeded

ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per CFR 47, *FCC Part 15, Paragraphs 15.205; 15.209; 15.209(a); 15.247(a)(1)(i); 15.247(a)(1)(ii); 15.247(c)* were

■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of CFR 47, *FCC Part 15, Paragraphs 15.205; 15.209; 15.209(a); 15.247(a)(1)(i); 15.247(a)(1)(ii); 15.247(c)*

- TÜV PRODUCT SERVICE, INC. -

Responsible Engineer:



Jim Owen
(EMC Engineer)