DLS ELECTRONIC SYSTEMS, INC.
NVLAP 100276-0

Company: Zebra Technologies Corporation
Model Tested: 110XiIII
Report Number: 11069

1250 Peterson Dr., Wheeling, IL 60090

FCC Rules and Regulations / Intentional Radiators

Operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands

Part 15, Subpart C, Section 15.247

THE FOLLOWING **"MEETS"** THE ABOVE TEST SPECIFICATION

Formal Name:	R110XiIII Plus
Kind of Equipment:	Thermal Transfer on demand barcode\RFID printer
Test Configuration:	Multiprotocol (Tested at 120 vac, 60 Hz)
Model Number(s):	110XiIII
Model(s) Tested:	110XiIII
Serial Number(s):	91C04430211
Date of Tests:	November 17 & 18, 2004
Test Conducted For:	Zebra Technologies Corporation 333 Corporate Woods Parkway Vernon Hills, Illinois 60061

1250 Peterson Dr., Wheeling, IL 60090

SIGNATURE PAGE

Report By:

Arnom C. Rowe
Test Engineer
EMC-001375-NE

Reviewed By:

William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

Company Official:

Zebra Technologies Corporation

1250 Peterson Dr., Wheeling, IL 6009

Company: Zebra Technologies Corporation
Model Tested: 110Xi111
Report Number: 11069

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

D.L.S. ELECTRONIC SYSTEMS, INC.

WHEELING, IL

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

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D.L.S. ELECTRONIC SYSTEMS, INC.
1250 Peterson Drive
Wheeling, IL 60090-6454
Mr. Brian J. Mattson
Phone: 847-537-6400 Fax: 847-537-6488
E-Mail: bmattson@dlsemc.com
URL: http://www.dlsemc.com

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/160D21	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 21 - Emission of Radio Frequency Energy
12/300220a	EN 300 220-1 V1.3.1 (2000-09): Electromagnetic compatibility and Radio spectrum Matters; Short Range Devices; Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 1: Technical characteristics and test methods
12/300386a	EN 300 386 V.1.2.1: Electromagnetic compatibility and radio spectrum matter (ERM); Telecommunication network equipment; Electromagnetic compatibility (EMC) requirements
12/C63.17	ANSI C63.17-1998: American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices

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DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

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NVLAP Code	*Designation / Description*
12/C6317a	ANSI C63.17-1998: American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices
12/CIS11	IEC/CISPR 11 + A1 (1997), EN 55011 (1998), AS/NZS CISPR 11 (2002), and CNS 13803 (1997): Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical Radio-Frequency Equipment
12/CIS13	IEC/CISPR 13 (2001-04), EN 55013 (2001), AS/NZS CISPR 13 (2003), and CNS 13439 (2001): Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and Methods of Measurement of Radio interference Characteristics of Household Electrical Appliances, Portable Tools and Similiar Electrical Apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993), A1 (1997), A2 (1999):
12/CIS14d	IEC/CISPR 14-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emissions
12/CIS14e	EN 55014-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission

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12/CIS14f	AS/NZS 1044 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS14g	CNS 13783-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS15	IEC/CISPR 15 (2000) + A1 (2001): Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15a	AS/NZS CISPR 15 (2002): Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15b	CNS 13439 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15c	EN 55015 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS22	IEC/CISPR 22 (1997) & EN 55022 (1998) + A1(2000): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993) and EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1 (1995) and Amendment 2 (1996)

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NVLAP Code	*Designation / Description*
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A)
12/EM03	IEC 61000-3-3(1995); EN 61000-3-3(1995); AS/NZS 2279.3(1995): EMC - Part 3: Limits - Section 3. Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to 16A
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/FCC15b	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart B: Unintentional Radiators
12/FCC15c	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart C: Intentional Radiators
12/FCC15d	ANSI C63.4(2001) with FCC Method 47 CFR Part 15, Subpart D: Unlicensed Personal Communications Service Devices

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NVLAP Code	*Designation / Description*
12/FCC15e	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart E: Unlicensed National Information Infrastructure Service Devices
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
12/VCCIa	Agreement of Voluntary Control Council for Interference by Information Technology Equipment - Technical Requirements: V-3/02.04

Immunity Test Methods:

12/1089a	GR-1089-CORE, Issue 3, October 2002: Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment (sections 2, 3.3, and 3.5)
12/160D16	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 16 - Power Input
12/160D17	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 17 - Voltage Spike
12/160D18	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 18 - Audio Frequency Conducted Susceptibility - Power Inputs

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NVLAP Code	*Designation / Description*
12/160D19	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 19 - Induced Signal Susceptibility
12/160D20	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 20 - Radio Frequency Susceptibility (Radiated and Conducted)
12/160D22	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 22 - Lightning Induced Transient Susceptibility
12/160D25	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 25 - Electrostatic Dischare (ESD)
12/I01	IEC 61000-4-2, Ed. 2.1 (2001), A1, A2; EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002): Radiated Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4(1995), A1(2000), A2(2001); EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test

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NVLAP Code	*Designation / Description*
12/I05	IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
12/I06	IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test
12/I07	IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/J111324	SAE J1113/24: Immunity to radiated electromagnetic fields; 10 kHz to 200 MHz - Crawford TEM cell and 10 kHz to 5 GHz - Wideband TEM cell
12/J111341	SAE J1113/41 (1995-07): Limits and methods of measurement of radio disturbance characteristics of components and modules for the protection of receivers used on board vehicles
Radio Test Methods	
12/RSS119	RSS-119, Issue 6 (March 25, 2000): Land Mobile and Fixed Radio Transmitters and Receivers, 27.41 to 960 MHz
12/RSS123	RSS-123, Issue 1, Rev. 2 (November 6, 1999): Low Power Licensed Radiocommunication Devices

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NVLAP Code	*Designation / Description*
12/RSS125	RSS-125 (March 25, 2000): Land Mobile and Fixed Radio Transmitters and Receivers, 1.705 to 50.0 MHz, Primarily Amplitude Modulated
12/RSS131	RSS-131, Issue 2 (July 2003): Zone Enhancers for the Land Mobile Service
12/RSS132	RSS-132, Issue 1 (August 2002): 800 MHz Cellular Telephones Employing New Technologies
12/RSS133	RSS-133, Issue 2, Rev. 1 (November 6, 1999): 2GHz Personal Communications Services
12/RSS134	RSS-134, Issue 1, Rev. 1 (March 25, 2000): 900 MHz Narrowband Personal Communication Service
12/RSS135	RSS-135, Issue 1 (October 26, 1996): Digital Scanner Receivers
12/RSS136	RSS-136, Issue 5 (October 2002): Land and Mobile Station Radiotelephone Transmitters and Receivers Operating in the 26.960 - 27.410 MHz General Radio Service Band
12/RSS137	RSS-137, Issue 1, Rev. 1 (September 25, 1999): Location and Monitoring Service (902 - 928 MHz)
12/RSS139	RSS-139, Isssue 1 (February 5, 2000): Licensed Radiocommunications Devices in the Band 2400 - 2483.5 MHz

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NVLAP Code	*Designation / Description*
12/RSS141	RSS-141, Issue 1 (July 2003): Aeronautical Radiocommunication Equipment in the Frequency Band 117.975 - 137 MHz
12/RSS142	RSS-142, Issue 2 (August 2002): Narrowband Multipoint Communication Systems in the 1,427 - 1,430 MHz and 1,493.5 - 1,496.5 MHz Bands
12/RSS170	RSS-170, Issue 1, Rev. 1 (November 6, 1999): Satellite Mobile Earth Stations
12/RSS191	RSS-191, Issue 2 (August 2002): Local Multipoint Communication Systems in the 28 GHz Band; Point-to-Point and Point-to-Multipoint Broadband Communication Systems in the 24 GHz and 38 GHz Bands
12/RSS192	RSS-192, Issue 1 (November 6, 1999): Fixed Wireless Access Systems in the Band 3400 - 3700 MHz
12/RSS193	RSS-193, Issue 1 (July 2003): Multipoint and Point-to-Point Communication Systems (MCS) in the Fixed Service Operating in the 2,150 - 2,160 MHz, 2,500 - 2,596 MHz and 2,686 - 2,690 MHz Bands
12/RSS210	RSS-210, Issue 5 (November 2001): Low Power Licence-Exempt Radiocommunication Devices
12/RSS212	RSS-212, Issue 1 (February 27, 1999): Test Facilities and Test Methods for Radio Equipment

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NVLAP Code	*Designation / Description*
12/RSS213	RSS-213, Issue 1 (April 24, 1999): 2 GHz Licence-Exempt Personal Communications Service Devices (PCS)
12/RSS215	RSS-215, Issue 1 (November 6, 1999): Analogue Scanner Receivers

Telecommunications Test Methods:

12/FCC2a2	TIA/EIA 603A (2001) with 47 CFR Part 2: Public Mobile Services in 47 CFR Part 22
12/FCC2b2	TIA/EIA 603A (2001) with 47 CFR Part 2: Private Land Mobile Radio Services in 47 CFR Part 90
12/FCC2d1	TIA/EIA 603A (2001) with 47 CFR Part 2: Experimental Radio, Auxiliary, Special Broadcast and Other Program Distributional Services in 47 CFR Part 74
12/FCC2e1	TIA/EIA 603A (2001) with 47 CFR Part 2: International Fixed Public Radiocommunication Services in 47 CFR Part 23
12/CIS15c	EN 55015 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

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NVLAP Code	*Designation / Description*
MIL-STD-462 : Conducted Emissions:	
12/A13	MIL-STD-462 Version D Method CE101
12/A14	MIL-STD-462 Version D Method CE102
12/A16	MIL-STD-461 Version E Method CE101
12/A17	MIL-STD-461 Version E Method CE102
12/A18	MIL-STD-461 Version E Method CE106
MIL-STD-462 : Conducted Susceptibility:	
12/B12	MIL-STD-462 Version D Method CS101
12/B13	MIL-STD-462 Version D Method CS103
12/B25	MIL-STD-461 Version E Method CS114
12/B26	MIL-STD-461 Version E Method CS115
12/B27	MIL-STD-461 Version E Method CS116

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NVLAP Code	*Designation / Description*
MIL-STD-462 : Radiated Emissions:	
12/D04	MIL-STD-462 Version D Method RE101
12/D05	MIL-STD-462 Version D Method RE102
12/D06	MIL-STD-462 Version D Method RE103
MIL-STD-462 : Radiated Susceptibility:	
12/E08	MIL-STD-462 Version D Method RS101
12/E09	MIL-STD-462 Version D Method RS103

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1.0 SUMMARY OF TEST REPORT

It was found that the R110XiIII Plus, Model Number(s) 110XiIII, **"meets"** the radio interference conducted and radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.247 for operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands.

This test report relates only to the items tested and contains the following number of pages.

Text: 193

2.0 INTRODUCTION

On November 17 & 18, 2004, a series of radio frequency interference measurements was performed on R110XiIII Plus, Model Number(s) 110XiIII, Serial Number: 91C04430211. The tests were performed according to the procedures of the FCC as stated in the "Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz" found in the American National Standards Institute, ANSI C63.4-2001. Tests were performedby personnel of D.L.S. Electronic Systems, Inc. who are responsible to Donald L. Sweeney, Senior EMC Engineer.

3.0 OBJECT

The purpose of this series of tests was to determine if the test sample could meet the radio frequency interference emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Sections 15.205, 15.209 & 15.247 for Intentional Radiators operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

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4.0 TEST SET-UP

All emission tests were performed at D.L.S. Electronic Systems, Inc. and set up according to the American National Standards Institute, ANSI C63.4-2001, Section 8, (Figures 11a and 11b).

All radiated emissions tests were performed with the test item placed on a 80 cm high rotating non-conductive table, located in the test room. Equipment normally operated on the floor was placed on a metal covered turntable which is flush with the surrounding conducting ground plane. The ground plane has an electrical isolation layer over its surface approximately 7 mm thick. The EUT is separated from the turntable ground plane by a non-conductive layer. The equipment under test was set up according to ANSI C63.4-2001, Sections 6 and 8.

5.0 TEST EQUIPMENT (Bandwidths and Detector Function)

All preliminary data below 1000 MHz was automatically plotted using the HP Spectrum Analyzer or ESI 26/40 Fixed Tuned Receiver. The data was taken using Peak, Quasi-Peak or the Average Detector Functions as required. This information was then used to determine the frequencies of maximum emissions. Above 1000 MHz, final data was taken using the Average Detector.

Below 1000 MHz, final data was taken using the HP Spectrum Analyzer and/or ESI 26/40 Fixed Tuned Receiver. These plots were made using the Peak or Quasi-Peak Detector functions, with manual measurements performed on the questionable frequencies using the Quasi-Peak or the Average Detector Function of the Analyzer or ESI 26/40 Fixed Tuned Receiver as required. Above 1000 MHz, final data was taken using the Average Detector on the Spectrum Analyzer.

The bandwidths shown below are specified by ANSI C63.4-2001, Section 4.2.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

A list of the equipment used can be found in Table 1. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

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6.0 AMBIENT MEASUREMENTS

For emissions measurements, broadband antennas and an EMI Test Receiver with a panoramic spectrum display are used. First the frequency range is scanned and displayed on the test receiver display. Next the scanned frequency range is divided into smaller ranges, and then it is manually tuned through to determine the emissions from the EUT. A headset or loudspeaker is connected to the test receiver's AM/FM demodulated output as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT. If there is any doubt as to the source of the emission, it is further investigated by rotating the EUT, or by disconnecting the power from the EUT.

The EUT is set up in its typical configuration and operated in its various modes. For tabletop systems, cables are manipulated within the range of likely configurations. For floor-standing equipment, the cables are located in the same manner as the user would install them and no further manipulation is made. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions. For each mode of operation, the frequency spectrum is monitored. Variations in antenna height, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) are explored to produce the emissions that have the highest amplitude relative to the limit. These methods are performed to the specifications in ANSI C63.4: 2001.

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7.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 8.0)

7.1 Description:

Zebra R110XiIII is a RFID Thermal Transfer on demand printer. Capable of printing RFID labels. Printer powered through an IEC 320 connector, from 90-264 VAC, 47-63 Hz. Printer uses ZPL programming language, capable of receiving data via Serial connector, Parallel connector (covered when other communications options are installed). For this test the Ethernet print server option is installed and used for sending data packets of label data to the printer, from a Dell Laptop Computer.

7.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Length:49.5cm x Width: 26.3 cm x Height: 39.5 cm

7.3 LINE FILTER USED:

Yunpen YL06T1, 6EGG
High - Low 06SS3-SR-Q

7.4 INTERNAL CLOCK FREQUENCIES:

Switching Power Supply Frequencies:

46 KHz, 56 KHz, 100 kHz

Clock Frequencies:

Printer CPU: 3.6469 MHz, 8.0 MHz, 16.0 MHz, 32.0 MHz
Print Server: 25 MHz, 33 MHz, 66 MHz, 133 MHz
RFID Reader: 16 MHz, 20 MHz

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7.0 DESCRIPTION OF TEST SAMPLE: (CON'T)

7.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. CPU Board Assembly	PN: 33008 Rev 4
2. Control Panel Board Assembly	PN: 49750, Rev 1
3. AC Power Supply Board Assembly	PN: 33050 Rev 1
4. DC Power Supply Board Assembly	PN: 49795 Rev 3
5. Print server, 10\100 Ethernet	PN: 47670 Rev 1
6. ASM MP UHF RFID RDR	PN: 27095 Rev B
7. ASSY UHF COUPLER ARRAY R110Xi3	PN: 2760 Rev C
8. Assy Xi RFID Reflc Sensor	PN: 27090 Rev B

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8.0 ADDITIONAL DESCRIPTION OF TEST SAMPLE:
(See also Paragraph 7.0)

1: There were no additional descriptions noted at the time of test.

I certify that the above, as described in paragraph 7.0, describes the equipment tested and will be manufactured as stated.

By: _____ _____
Signature Title

For: _____ _____
Company Date

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9.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 R110XiIII Plus
Model Number: 110XiIII Serial Number: 91C04430211

Item 1 Shielded Serial Cable with Metal Shells. 2.5m

Item 2 Shielded USB Cable with Metal Shells. 2m

Item 3 Non-shielded 10/100 Ethernet Cable with Plastic Shells. 50'

Item 4 Non-shielded AC Power Line Cord. 2.5m

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10.0 RADIATED PHOTOS TAKEN DURING TESTING

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10.0 CONDUCTED PHOTOS TAKEN DURING TESTING

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11.0 RESULTS OF TESTS

The radio interference emission charts results can be seen on the pages at the end of this report. Data sheets indicating the test measurements taken during testing can also be found at the end of this report. Points on the emission charts shown with a yellow mark are background frequencies that were verified during testing.

12.0 CONCLUSION

It was found that the R110XiIII Plus, Model Number(s) 110XiIII **"meets"** the radio interference conducted and radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.247 for operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands.

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TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Spectrum Analyzer	Hewlett/ Packard	8566B	2240A002041	100 Hz – 22 GHz	10/05
Quasi-Peak Adapter	Hewlett/ Packard	85650A	2043A00121	10 kHz – 1 GHz	10/05
Spectrum Analyzer	Hewlett/ Packard	8566B	2421A00452	100 Hz – 22 GHz	2/05
Quasi-Peak Adapter	Hewlett/ Packard	85650A	2043A00450	10 kHz – 1 GHz	2/05
Spectrum Analyzer	Hewlett/ Packard	8591A	3009A00700	9 kHz – 1.8 GHz	3/05
Receiver	Electrometrics	EMC-30	44168	10 kHz – 1 GHz	9/05
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	11/05
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	12/04
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	12/04
Antenna	EMCO	3104C	00054891	20 MHz – 200 MHz	2/05
Antenna	Electrometrics	LPA-25	1114	200 MHz – 1 GHz	3/05
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3/05

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

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TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Antenna	Electrometrics	3146	1205	200 MHz – 1 GHz	3/05
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	2/05
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	3/05
Antenna	EMCO	3115	2479	1 GHz – 18 GHz	8/05
Antenna	EMCO	3115	99035731	1 GHz – 18 GHz	4/05
Antenna	Rohde & Schwarz	HUF-Z1	829381001	20 MHz – 1 GHz	2/05
Antenna	Rohde & Schwarz	HUF-Z1	829381005	20 MHz – 1 GHz	8/05
LISN	Solar	8012-50-R-24-BNC	8305116	10 MHz – 30 MHz	8/05
LISN	Solar	8012-50-R-24-BNC	814548	10 MHz – 30 MHz	8/05
LISN	Solar	9252-50-R-24-BNC	961019	10 MHz – 30 MHz	12/04
LISN	Solar	9252-50-R-24-BNC	971612	10 MHz – 30 MHz	10/05
LISN	Solar	9252-50-R-24-BNC	92710620	10 MHz – 30 MHz	7/05

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

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APPENDIX A

TEST PROCEDURE

Part 15, Subpart C, Section 15.247 (a-h)

OPERATION WITHIN THE BAND 902-928 MHz, 2400-2483.5 MHz AND 5725-5857 MHz

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

1.0 CONDUCTED EMISSION MEASUREMENTS

If applicable, the conducted emissions were measured over the frequency range from 150 kHz to 30 MHz in accordance with the power line measurements as specified in the American National Standards Institute, ANSI C63.4-2001, Section 12. Since the device is operated from the public utility lines, the 115 Vac 60 Hz power leads, high and low sides, were to be measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. All signals were then recorded. The allowed levels for Intentional Radiators cannot exceed 250 uV (47.96 dBuV) at any frequency between 150 kHz and 30 MHz, as stated in Section 15.207a.

All conducted emissions measurements were made at a test room temperature of **72°F** at **42%** relative humidity.

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APPENDIX A

DATA AND GRAPH(S) TAKEN DURING TESTING

PART 15.207

FCC Part 15 Class B

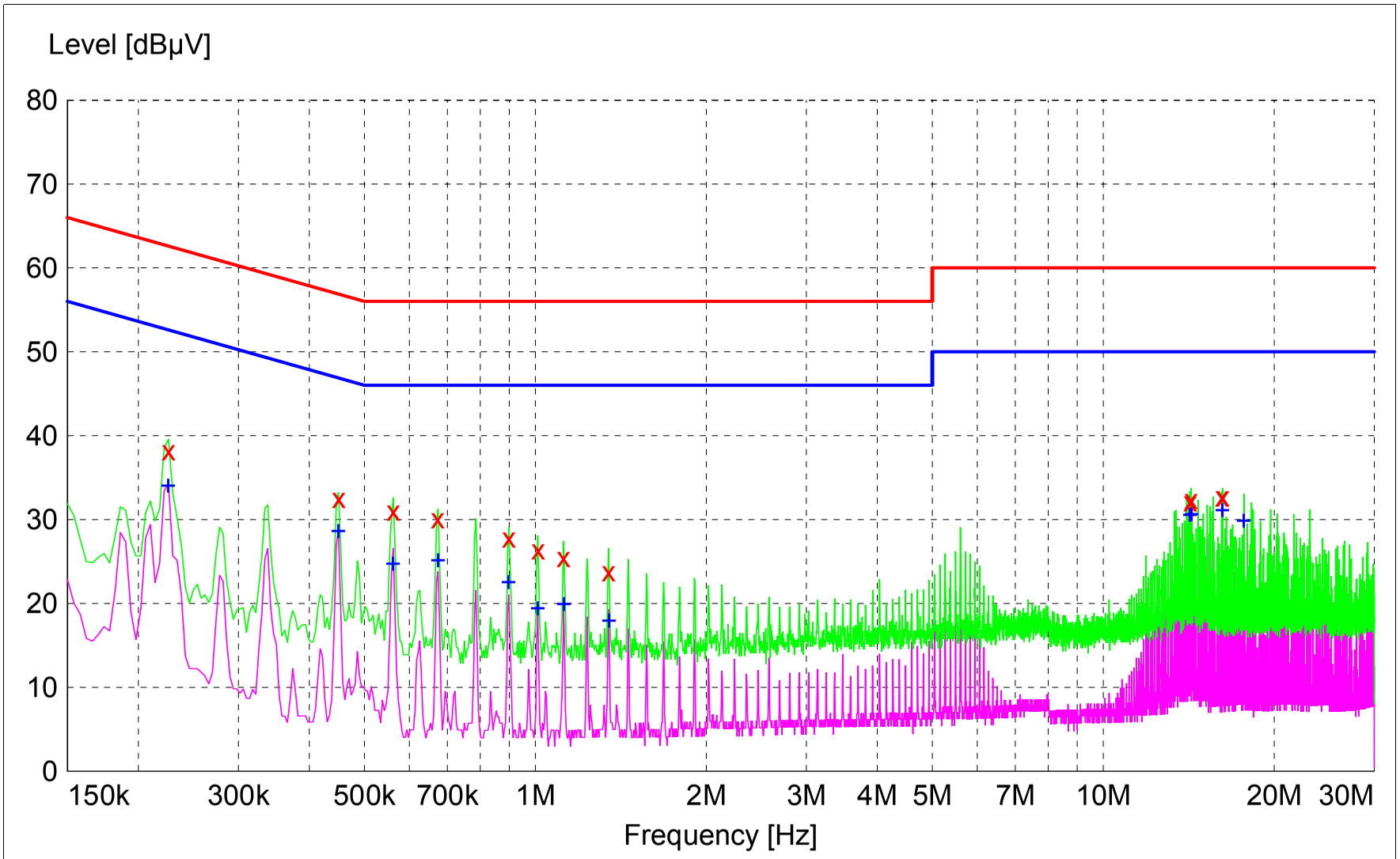
Voltage Mains Test

EUT:	110XiIII
Manufacturer:	Zebra
Operating Condition:	72 deg. F, 42% R.H.
Test Site:	DLS OF Screen Room
Operator:	Craig B.
Test Specification:	120 VAC, 60 Hz
Comment:	Line 1
	Date: 11/19/04

SCAN TABLE: "FCC ClassB Voltage"

Short Description: FCC Class B Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	LISN DLS#128



x x : MES zzlcl1_fin QP
+ + · MES zzlcl1_fin AV
MES zzlcl1_pre PK
MES zzlcl1_pre AV
LIM FCC ClassB V QP New Voltage Amplitude QP Limit
LIM FCC ClassB V AV New Voltage Amplitude AVG Limit

MEASUREMENT RESULT: "zzlcl1_fin QP"

11/19/2004 1:39PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.226000	38.20	11.0	63	24.4	1	---
0.450000	32.50	10.6	57	24.4	1	---
0.562000	31.00	10.5	56	25.0	1	---
0.674000	30.10	10.5	56	25.9	1	---
0.898000	27.80	10.5	56	28.2	1	---
1.010000	26.40	10.5	56	29.6	1	---
1.122000	25.50	10.4	56	30.5	1	---
1.346000	23.80	10.5	56	32.2	1	---
14.214000	32.10	11.6	60	27.9	1	---
14.274000	32.40	11.6	60	27.6	1	---
16.166000	32.70	11.8	60	27.3	1	---
16.230000	32.70	11.8	60	27.3	1	---

MEASUREMENT RESULT: "zzlcl1_fin AV"

11/19/2004 1:39PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.226000	34.00	11.0	53	18.6	1	---
0.450000	28.60	10.6	47	18.3	1	---
0.562000	24.70	10.5	46	21.3	1	---
0.674000	25.10	10.5	46	20.9	1	---
0.898000	22.50	10.5	46	23.5	1	---
1.010000	19.40	10.5	46	26.6	1	---
1.122000	19.90	10.4	46	26.1	1	---
1.346000	17.90	10.5	46	28.1	1	---
14.214000	30.50	11.6	50	19.5	1	---
14.274000	30.60	11.6	50	19.4	1	---
16.226000	31.10	11.8	50	18.9	1	---
17.694000	29.80	12.0	50	20.2	1	---

FCC Part 15 Class B

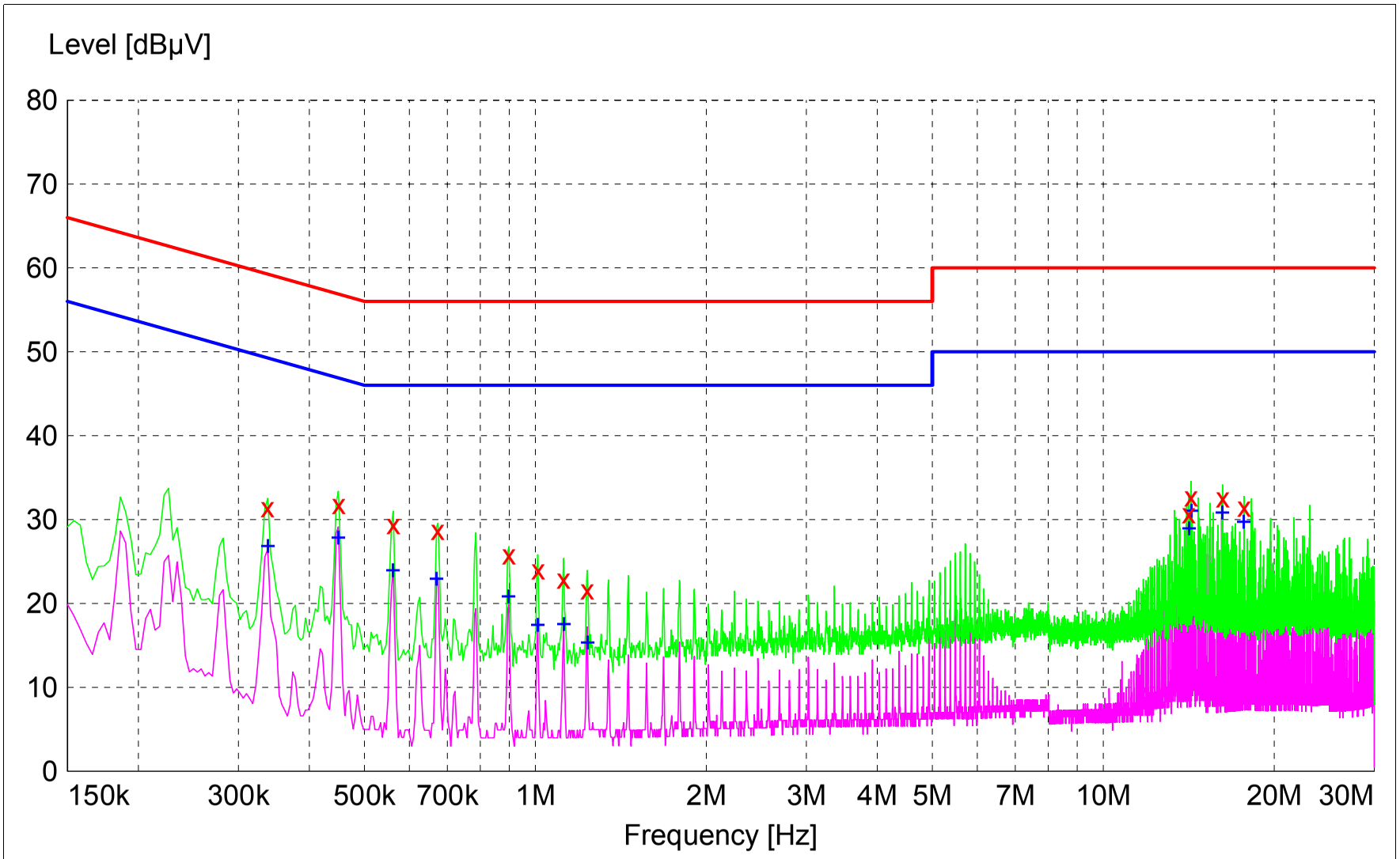
Voltage Mains Test

EUT:	110XiIII
Manufacturer:	Zebra
Operating Condition:	72 deg. F, 42% R.H.
Test Site:	DLS OF Screen Room
Operator:	Craig B.
Test Specification:	120 VAC, 60 Hz
Comment:	Line 2
	Date: 11/19/04

SCAN TABLE: "FCC ClassB Voltage"

Short Description: FCC Class B Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	LISN DLS#128



x x : MES zzlcl2_fin QP
+ + : MES zzlcl2_fin AV
MES zzlcl2_pre PK
MES zzlcl2_pre AV
LIM FCC ClassB V QP New Voltage Amplitude QP Limit
LIM FCC ClassB V AV New Voltage Amplitude AVG Limit

MEASUREMENT RESULT: "zzlcl2_fin QP"

11/19/2004 1:45PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.338000	31.40	10.6	59	27.8	1	---
0.450000	31.80	10.6	57	25.1	1	---
0.562000	29.40	10.5	56	26.6	1	---
0.674000	28.70	10.5	56	27.3	1	---
0.898000	25.80	10.5	56	30.2	1	---
1.010000	24.00	10.5	56	32.0	1	---
1.122000	22.90	10.4	56	33.1	1	---
1.234000	21.60	10.5	56	34.4	1	---
14.154000	30.70	11.6	60	29.3	1	---
14.274000	32.70	11.6	60	27.3	1	---
16.230000	32.60	11.8	60	27.4	1	---
17.694000	31.50	12.0	60	28.5	1	---

MEASUREMENT RESULT: "zzlcl2_fin AV"

11/19/2004 1:45PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.338000	26.80	10.6	49	22.4	1	---
0.450000	27.80	10.6	47	19.1	1	---
0.562000	23.90	10.5	46	22.1	1	---
0.670000	22.90	10.5	46	23.1	1	---
0.898000	20.80	10.5	46	25.2	1	---
1.010000	17.40	10.5	46	28.6	1	---
1.122000	17.50	10.4	46	28.5	1	---
1.234000	15.30	10.5	46	30.7	1	---
14.154000	28.90	11.6	50	21.1	1	---
14.274000	31.00	11.6	50	19.0	1	---
16.230000	30.80	11.8	50	19.2	1	---
17.694000	29.70	12.0	50	20.3	1	---

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APPENDIX A

2.0 SPURIOUS EMISSIONS AT ANTENNA TERMINALS – PART 15.247(c)

Spurious conducted emissions were measured at the antenna terminals. Plots were made showing the amplitude of each harmonic emission with the equipment operated. As shown by the radiated charts there was no reason to believe that there were any spurious emissions other than the harmonics that were than individually investigated when doing the conducted test at the antenna terminals. Measurements were made up to the 10^{th} harmonic of the fundamental.

The allowed emissions for transmitters operating in the 902 MHz to 928 MHz bands for R110XiIII Plus equipment are found under Part 15, Section 15.247(c). This paragraph states that in any 100 kHz bandwidth outside the frequency band which the spread spectrum intentional radiator is operating, the radio frequency power produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

NOTE: See the following pages for the data ad graphs of the actual measurements made:

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APPENDIX A

CONDUCTED EMISSION DATA AND GRAPH(S) TAKEN FOR

SPURIOUS EMISSION MEASUREMENTS MADE

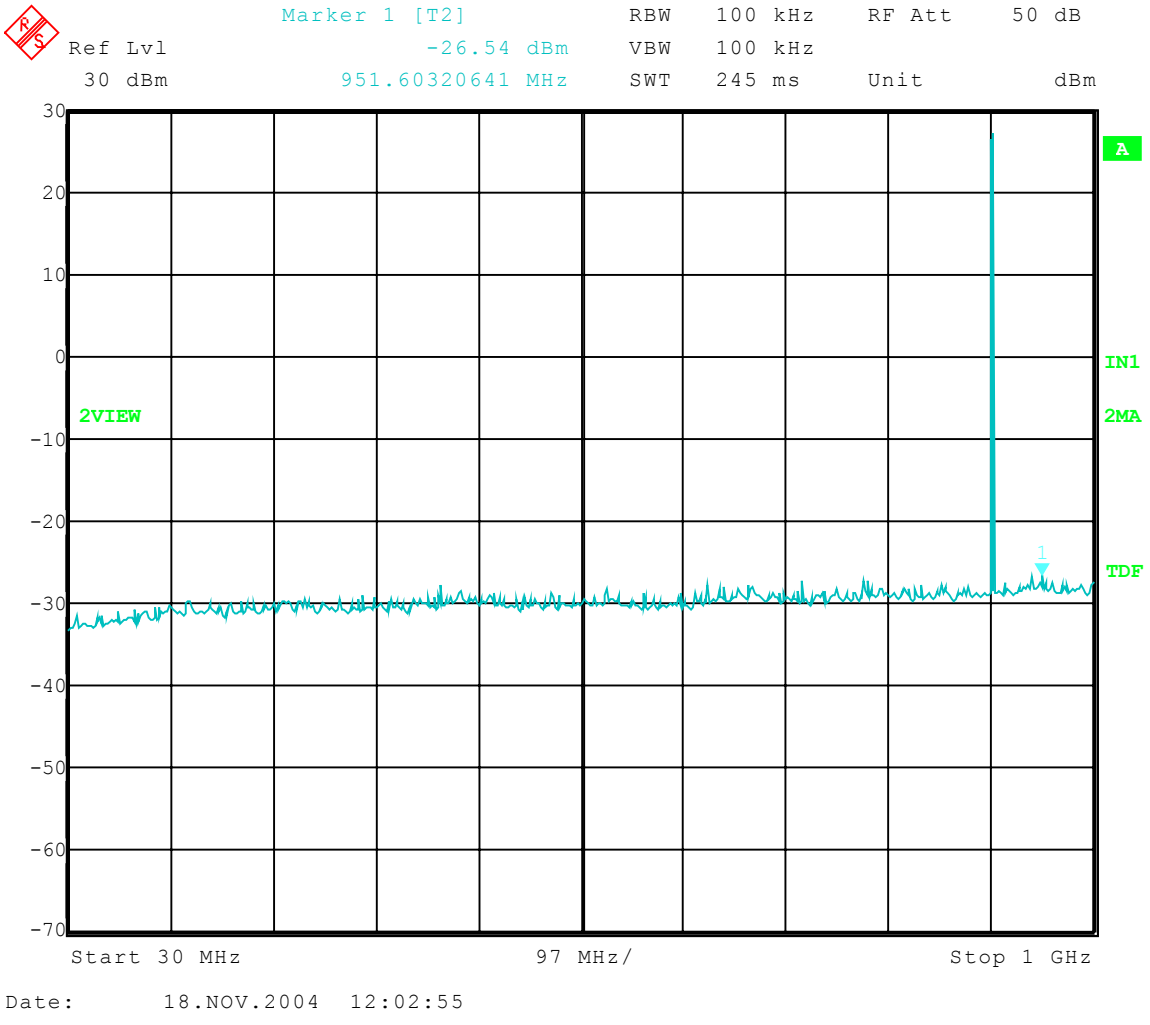
AT THE ANTENNA TERMINALS

PART 15.247(c)

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Transmit = 902.967 MHz
Frequency Range: 30 to 1000 MHz
Limit = 7.16 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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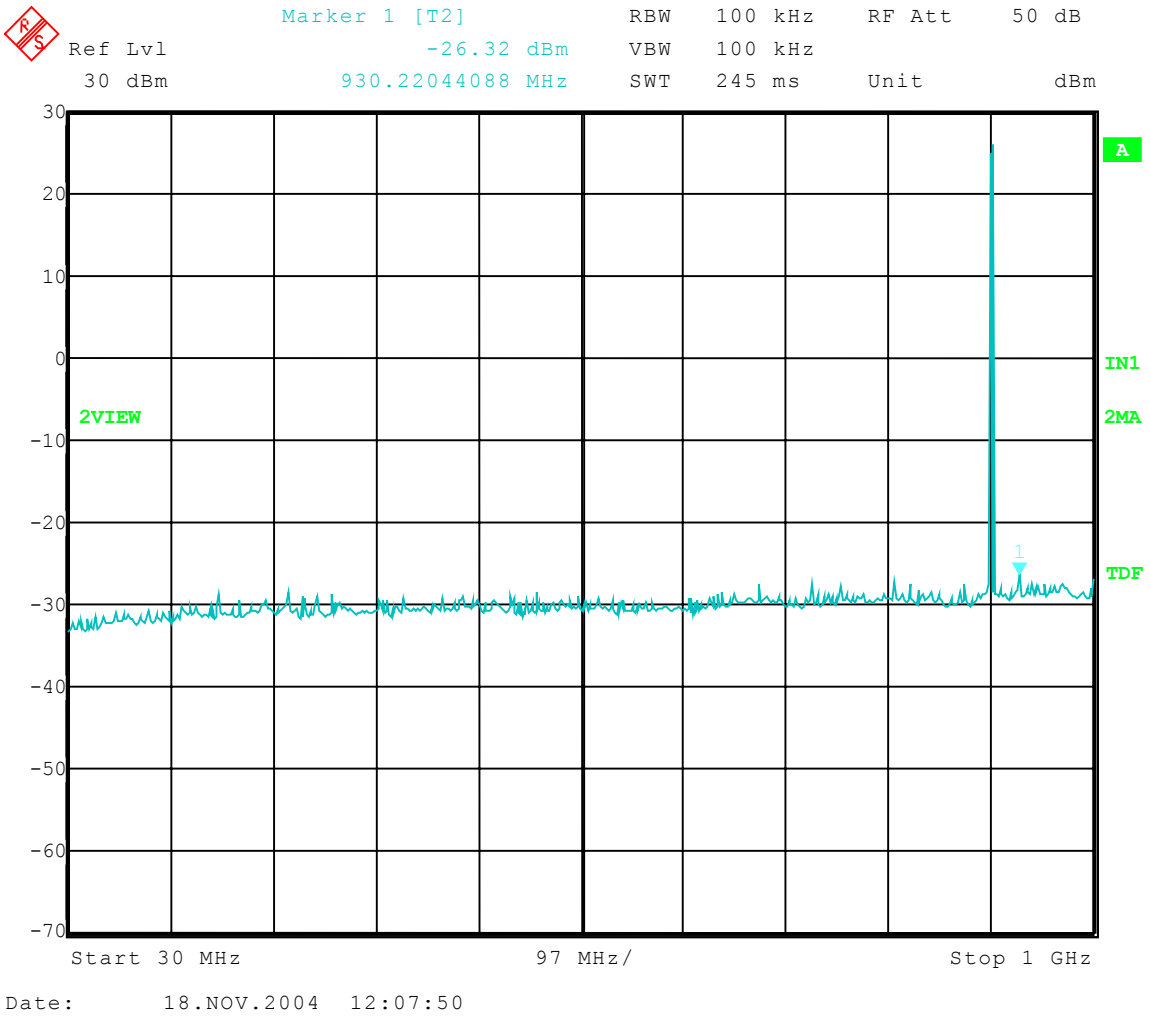
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Transmit = 902.967 MHz
Frequency Range: 30 to 1000 MHz
Limit = 5.75 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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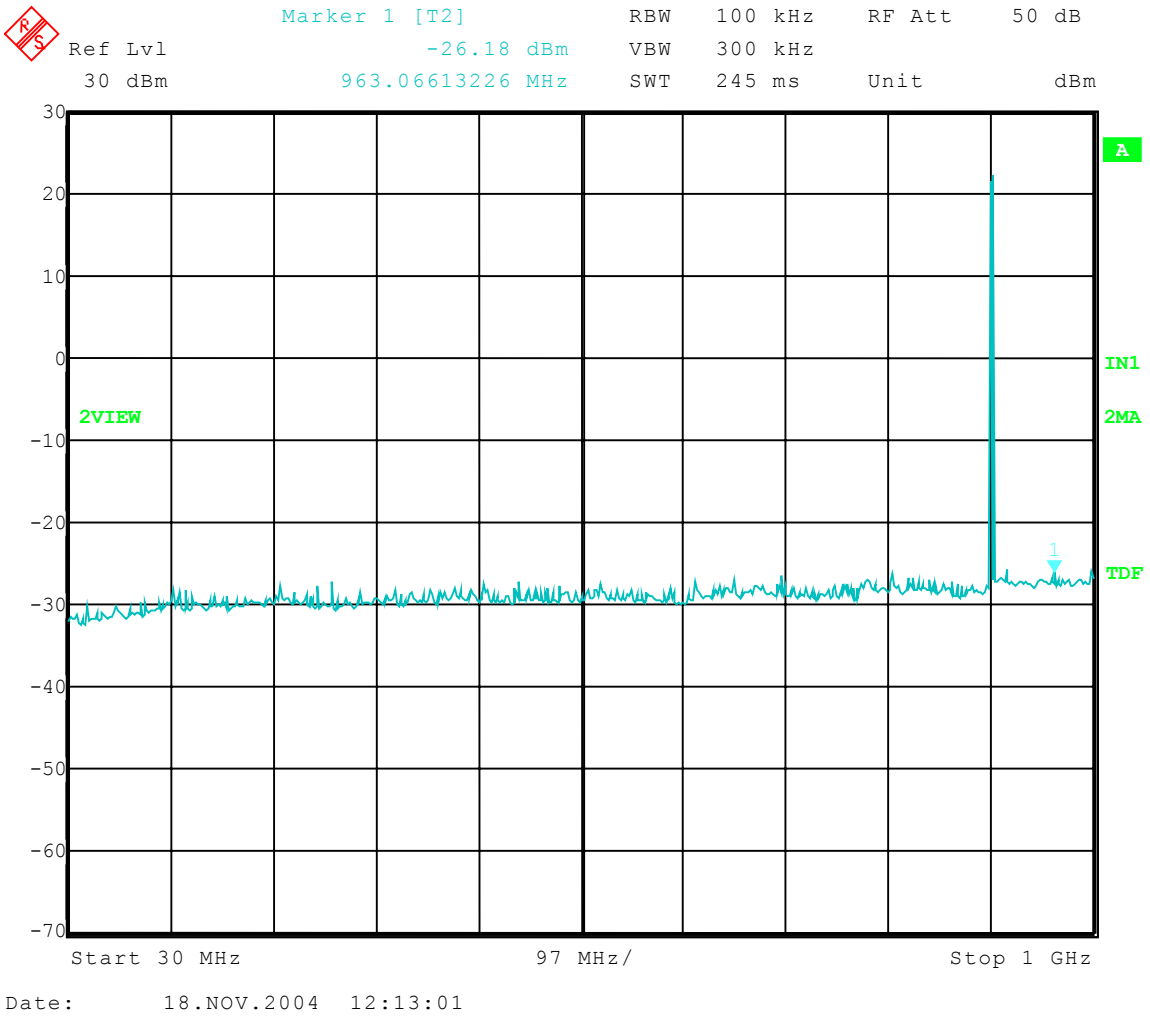
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Transmit = 902.967 MHz
Frequency Range: 30 to 1000 MHz
Limit = 2.02 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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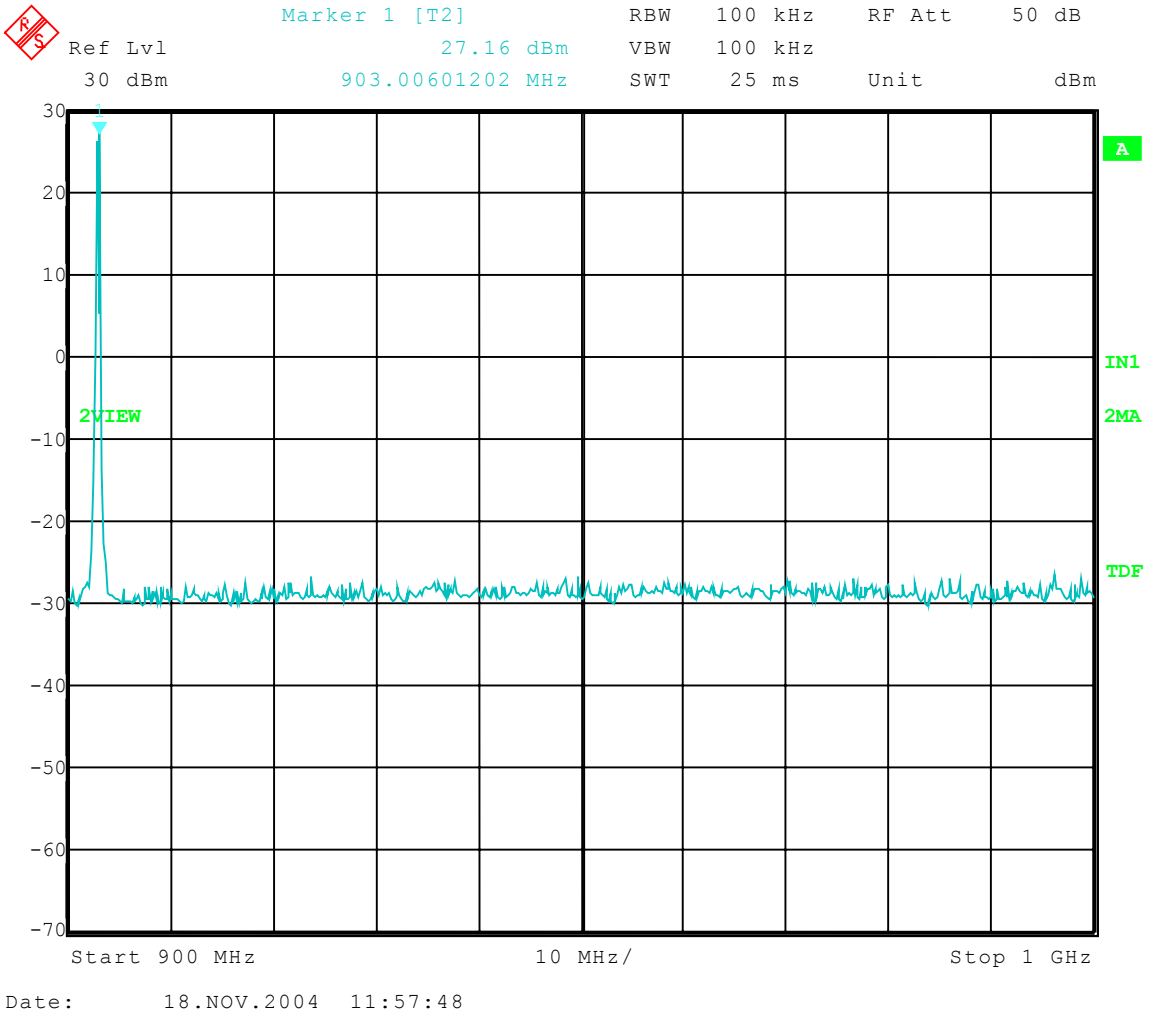
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Transmit = 902.967 MHz
Frequency Range: 900 to 1000 MHz
Limit = 7.16 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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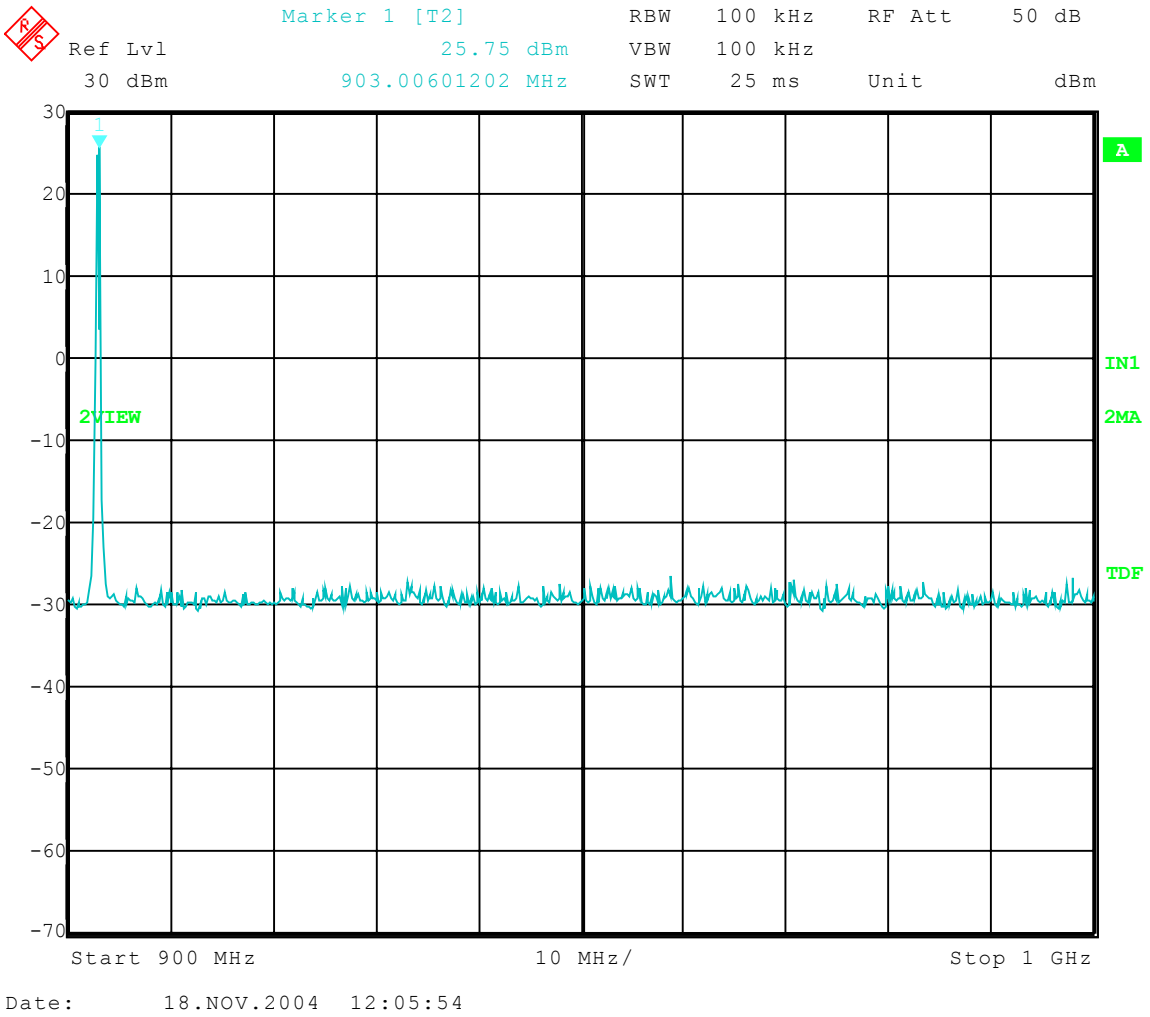
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Transmit = 902.967 MHz
Frequency Range: 900 to 1000 MHz
Limit = 5.75 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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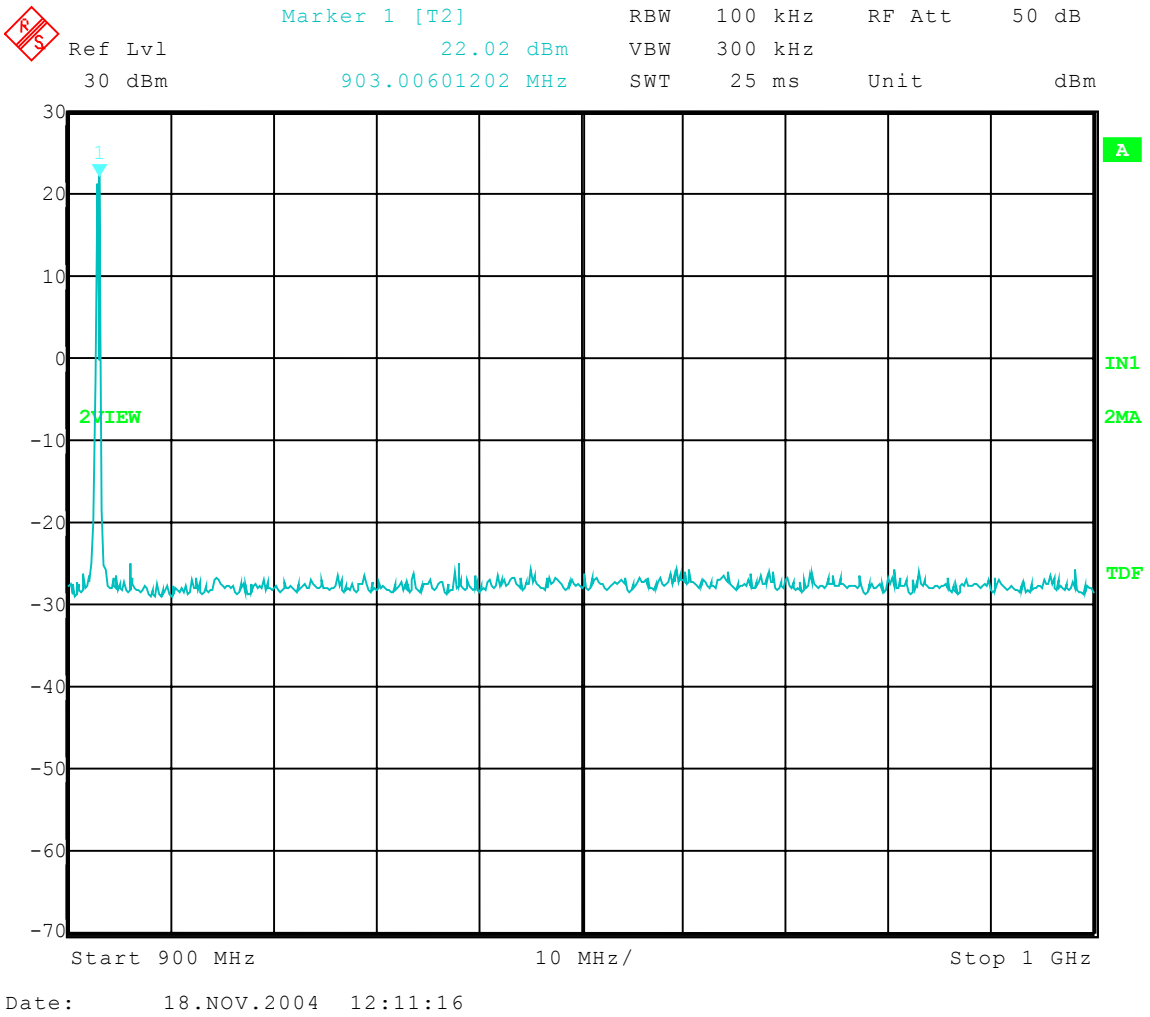
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Transmit = 902.967 MHz
Frequency Range: 900 to 1000 MHz
Limit = 2.02 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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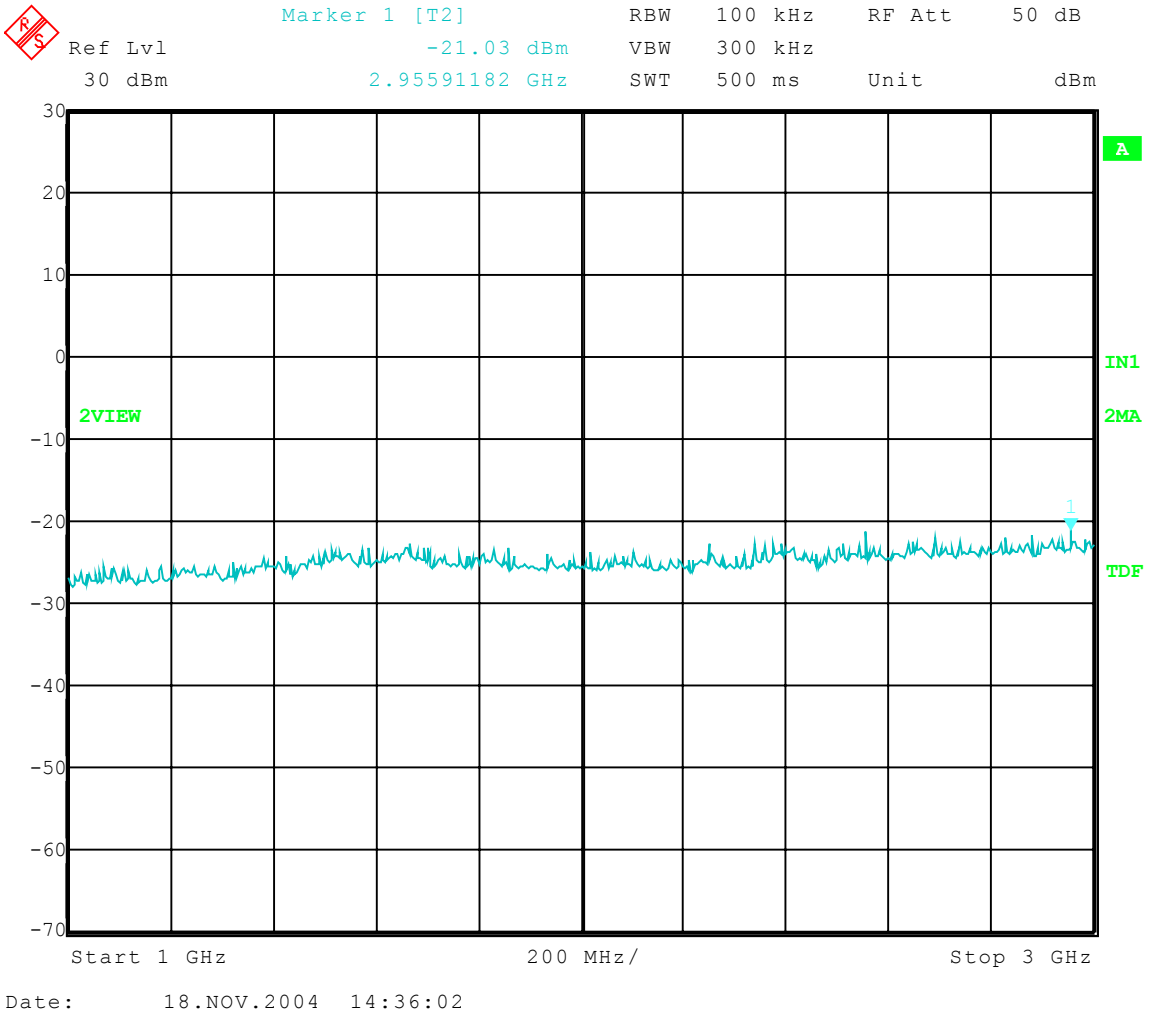
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Transmit = 902.967 MHz
Frequency Range: 1 to 3 GHz
Limit = 7.16 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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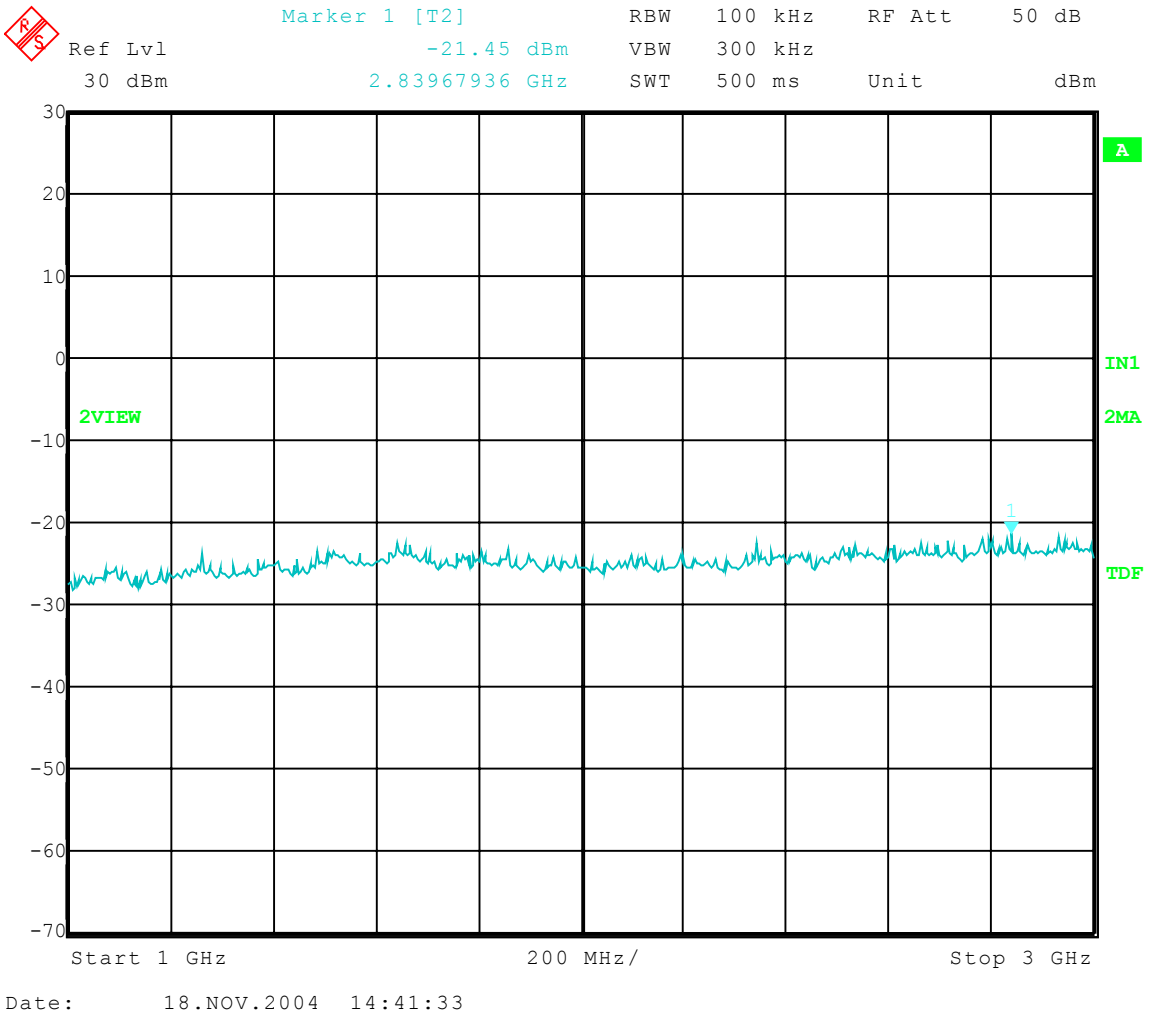
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Transmit = 902.967 MHz
Frequency Range: 1 to 3 GHz
Limit = 5.75 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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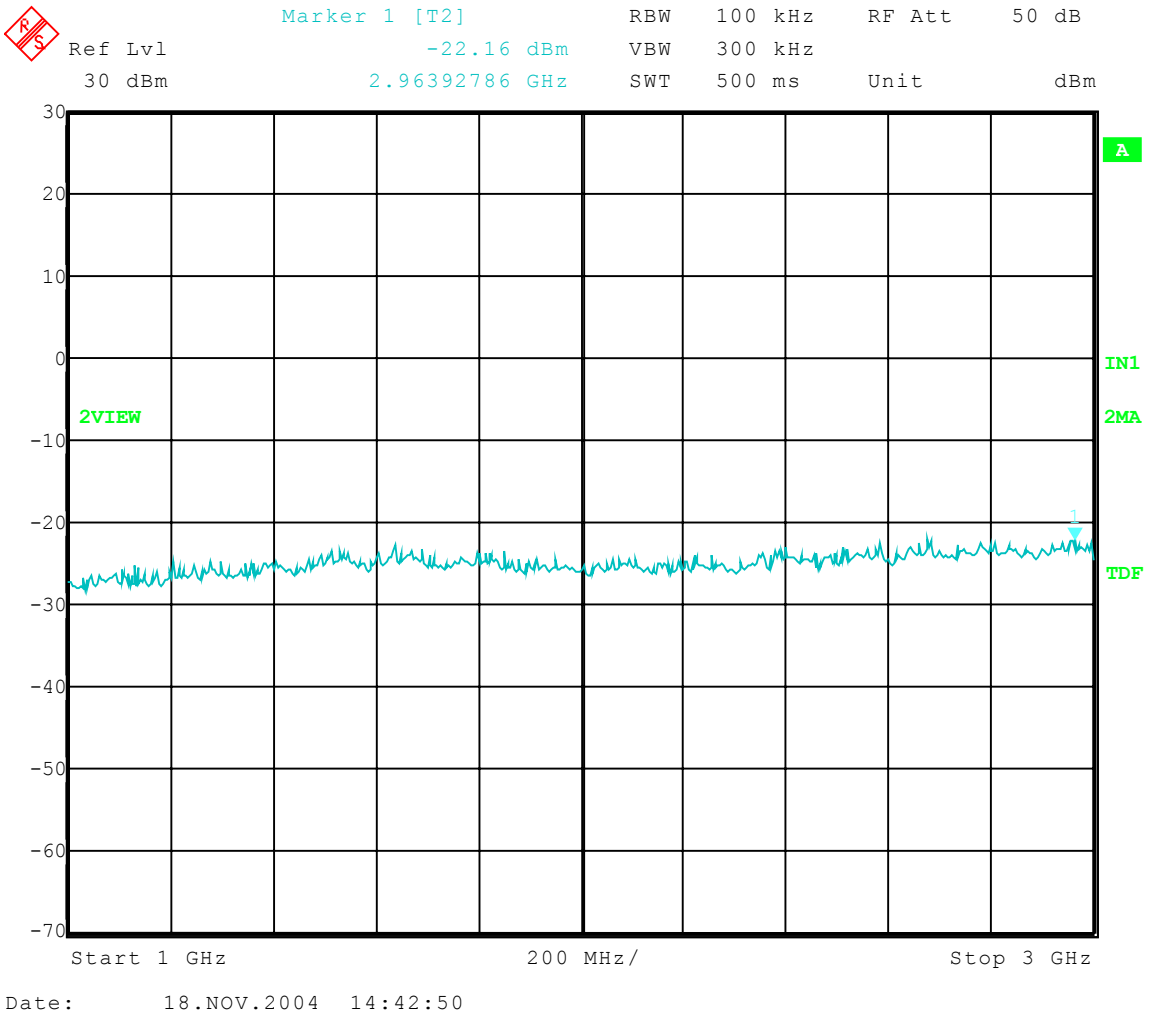
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Transmit = 902.967 MHz
Frequency Range: 1 to 3 GHz
Limit = 2.02 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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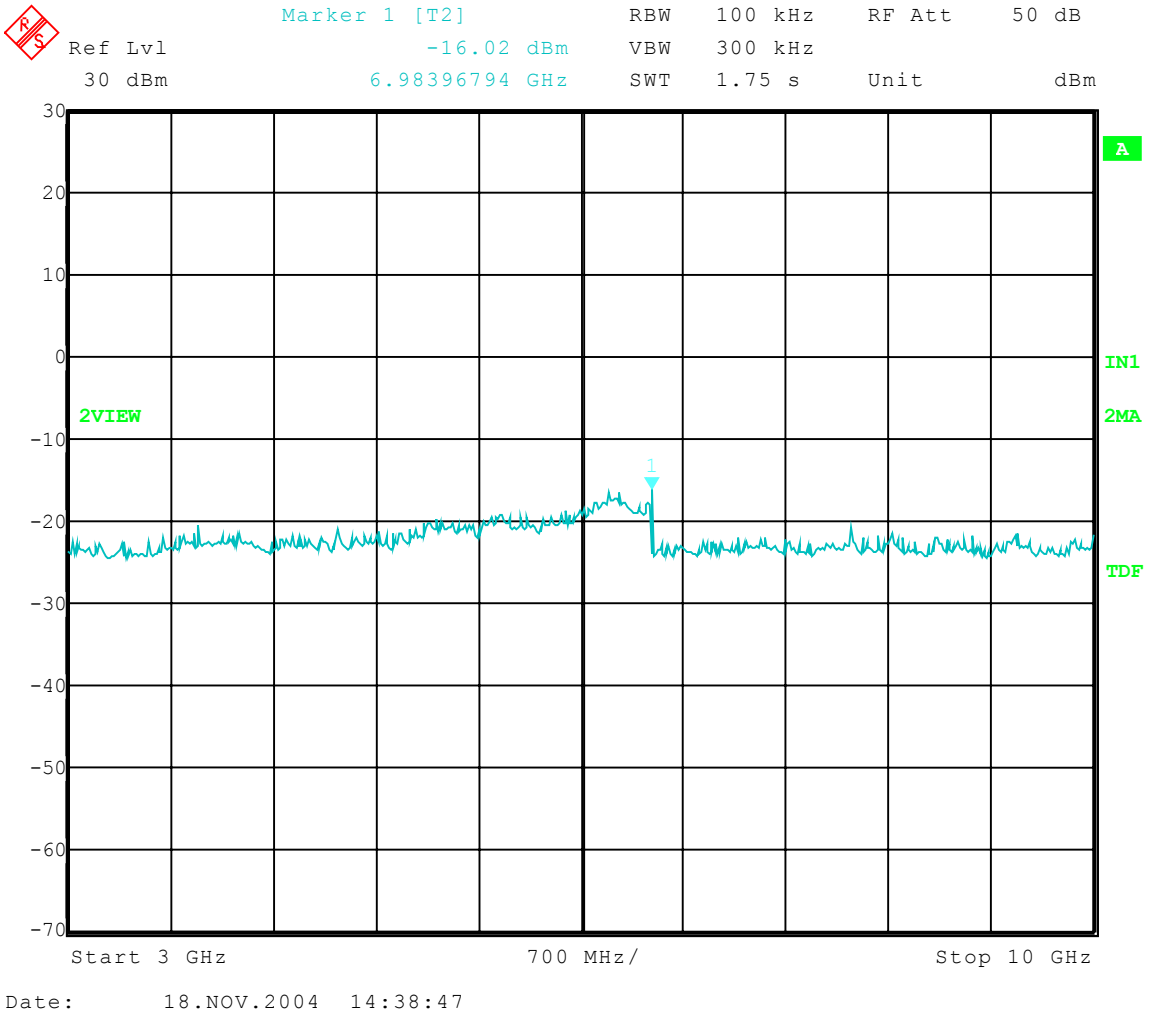
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Transmit = 902.967 MHz
Frequency Range: 3 to 10 GHz
Limit = 7.16 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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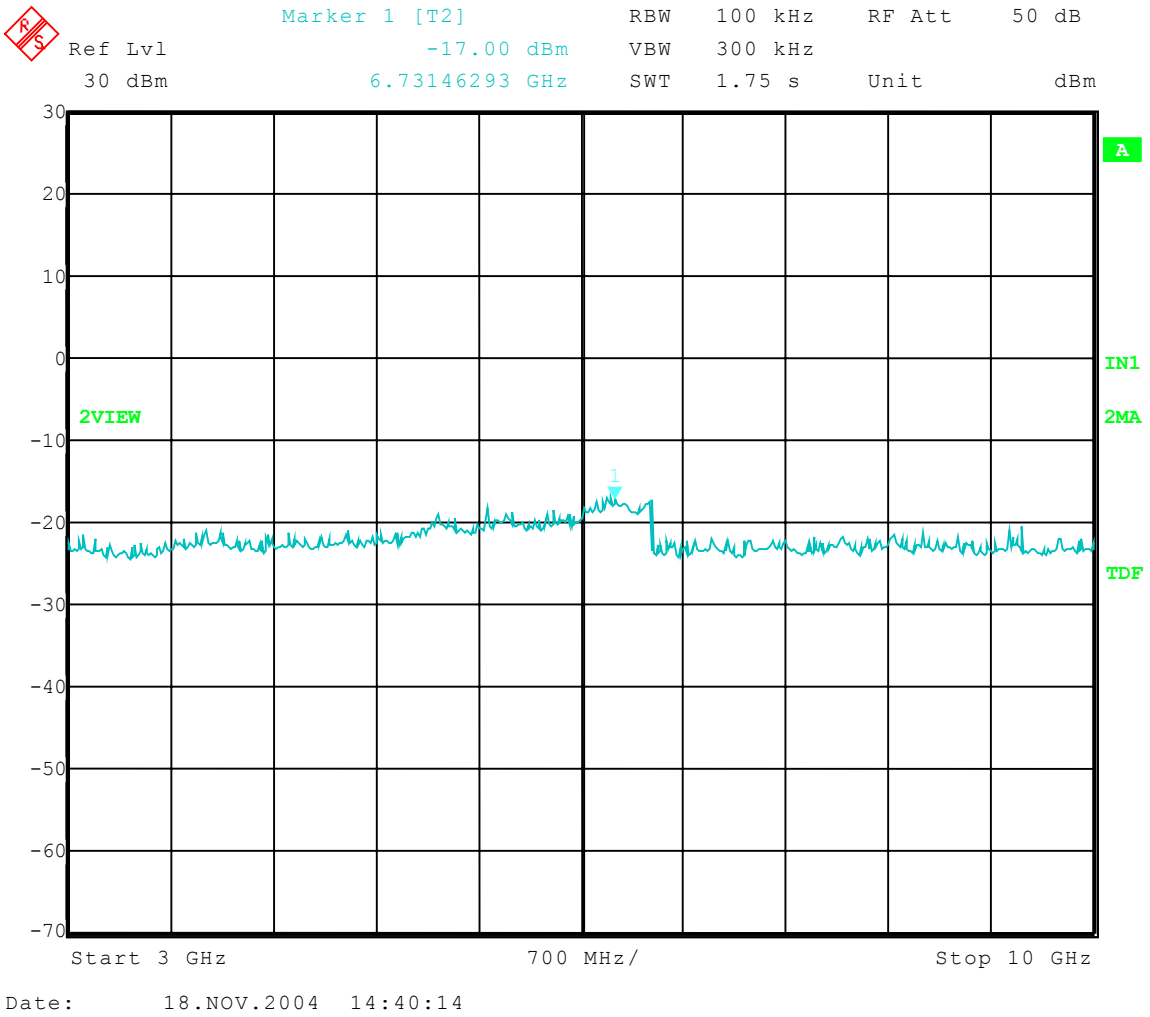
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Transmit = 902.967 MHz
Frequency Range: 3 to 10 GHz
Limit = 5.75 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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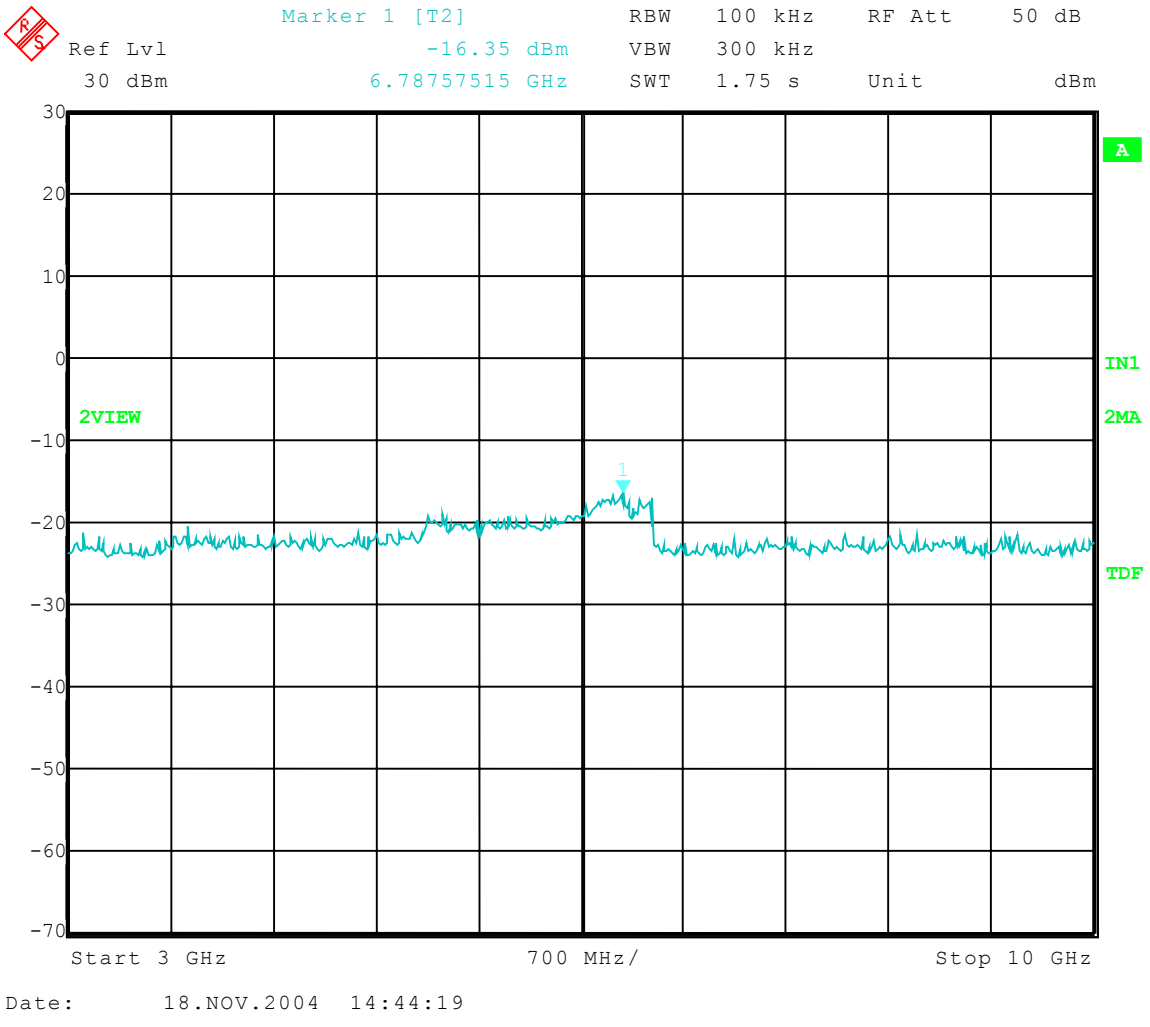
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Transmit = 902.967 MHz
Frequency Range: 3 to 10 GHz
Limit = 2.02 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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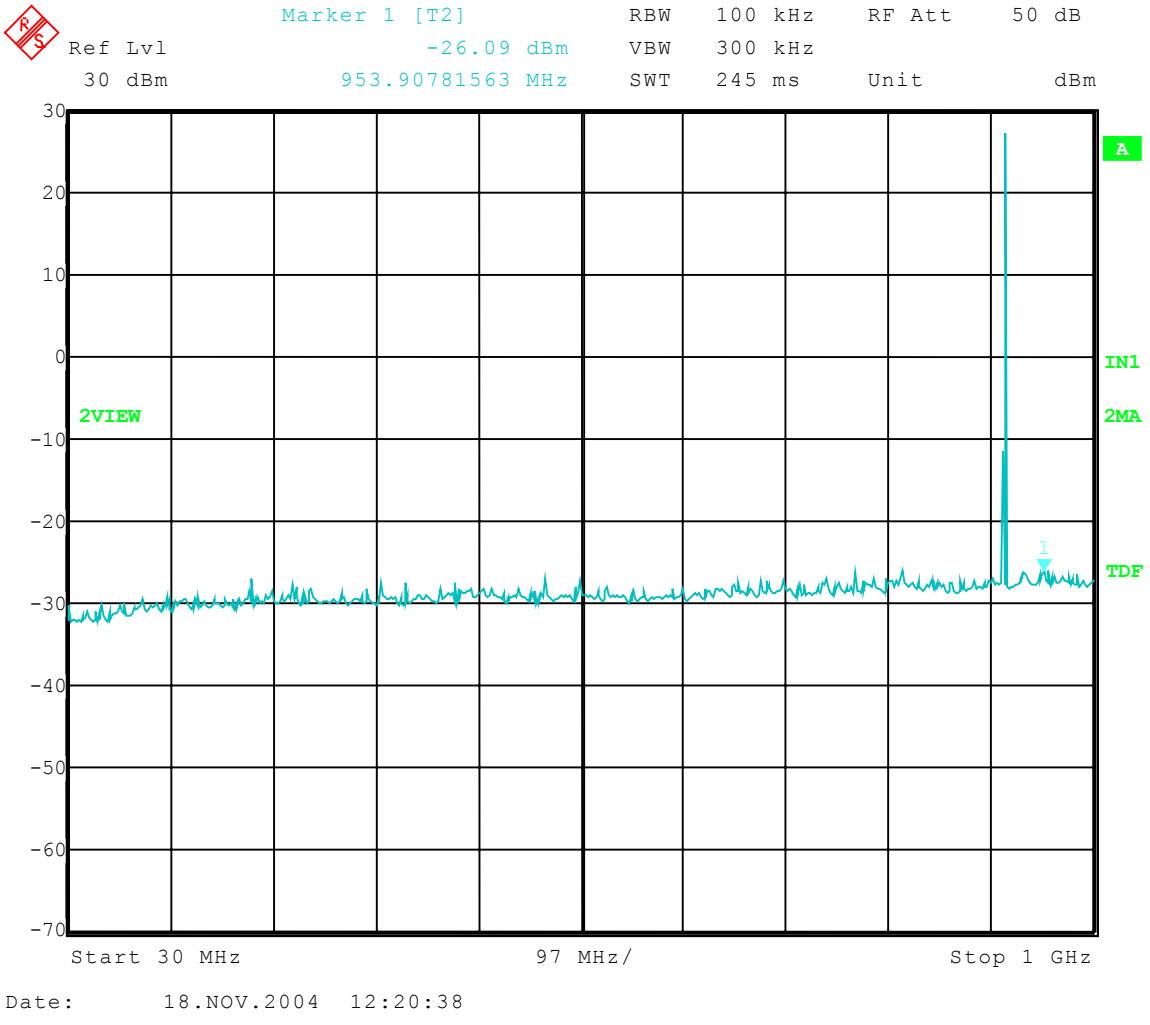
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; High Power: Transmit = 915.101 MHz
Frequency Range: 30 to 1000 MHz
Limit = 7.06 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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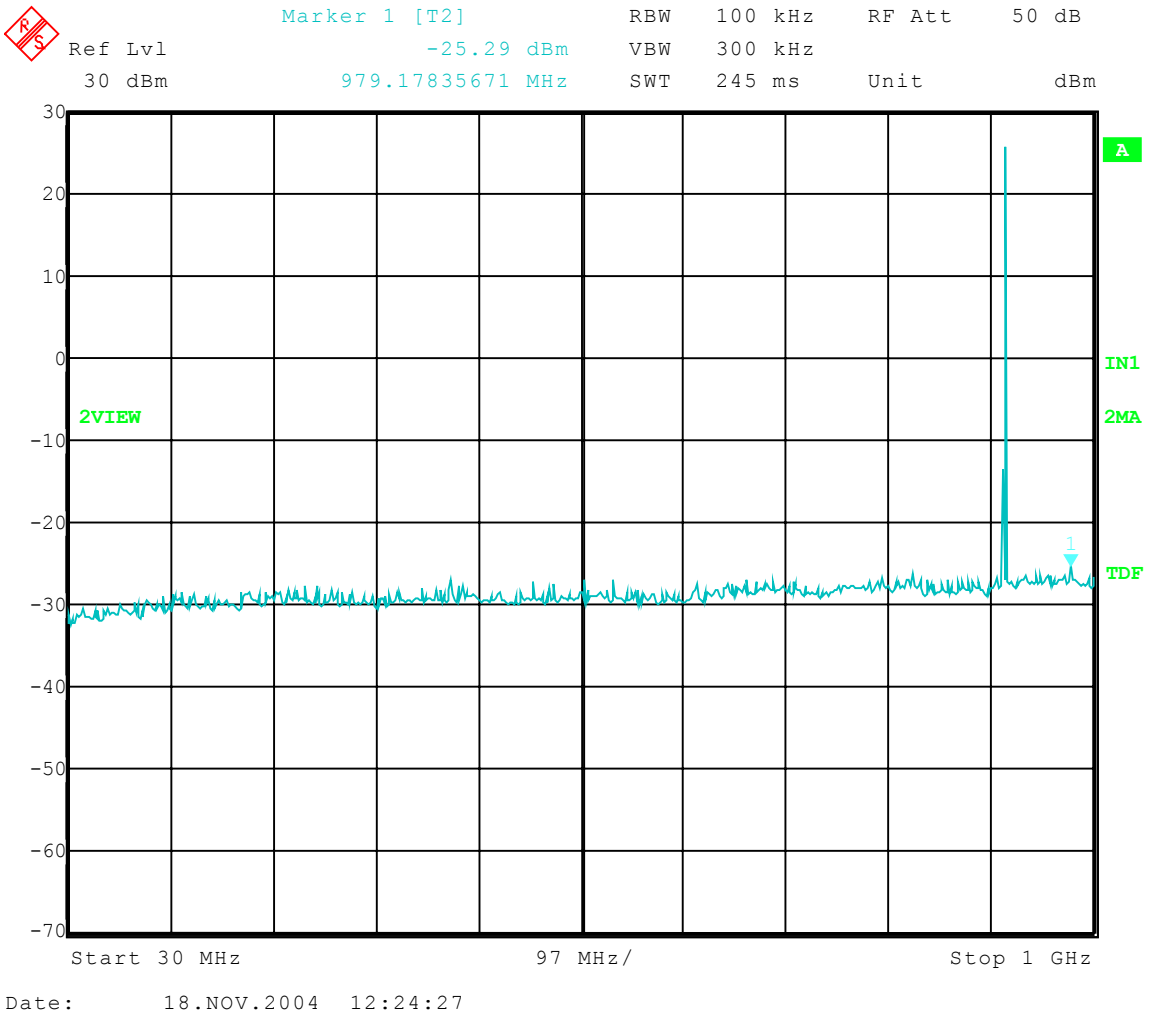
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; Mid Power: Transmit = 915.101 MHz
Frequency Range: 30 to 1000 MHz
Limit = 5.63 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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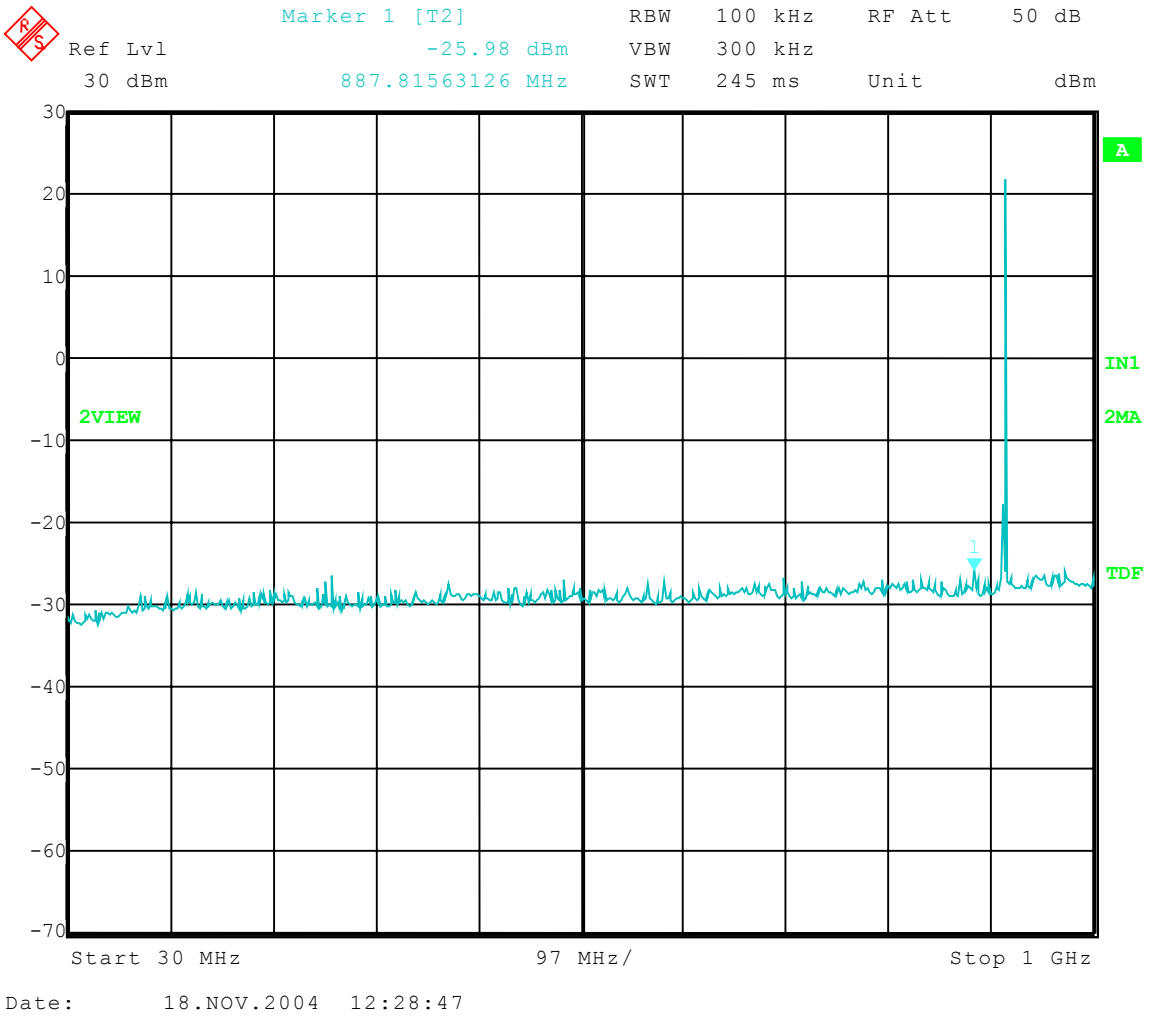
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; Low Power: Transmit = 915.101 MHz
Frequency Range: 30 to 1000 MHz
Limit = 1.67 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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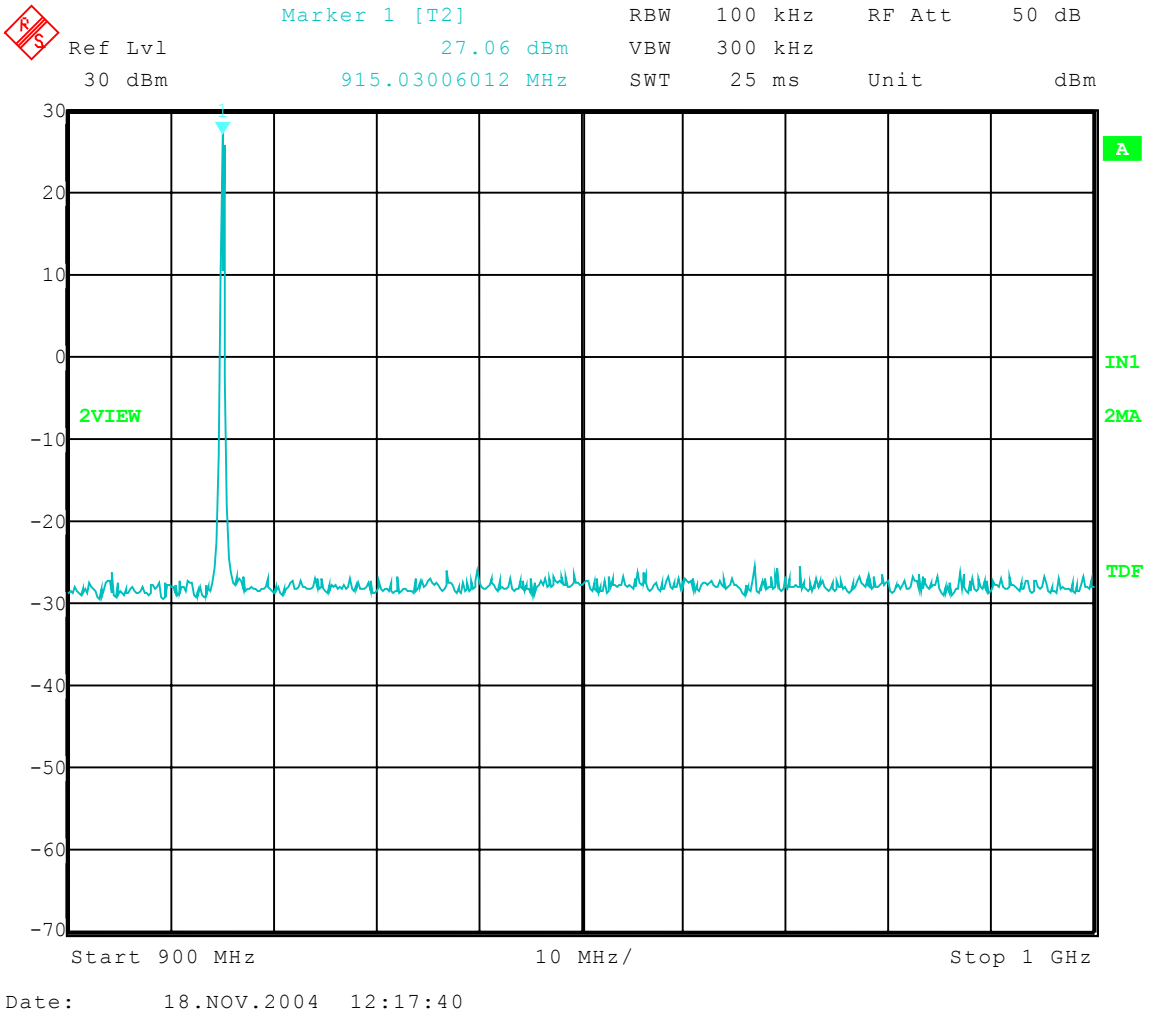
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; High Power: Transmit = 915.101 MHz
Frequency Range: 900 to 1000 MHz
Limit = 7.06 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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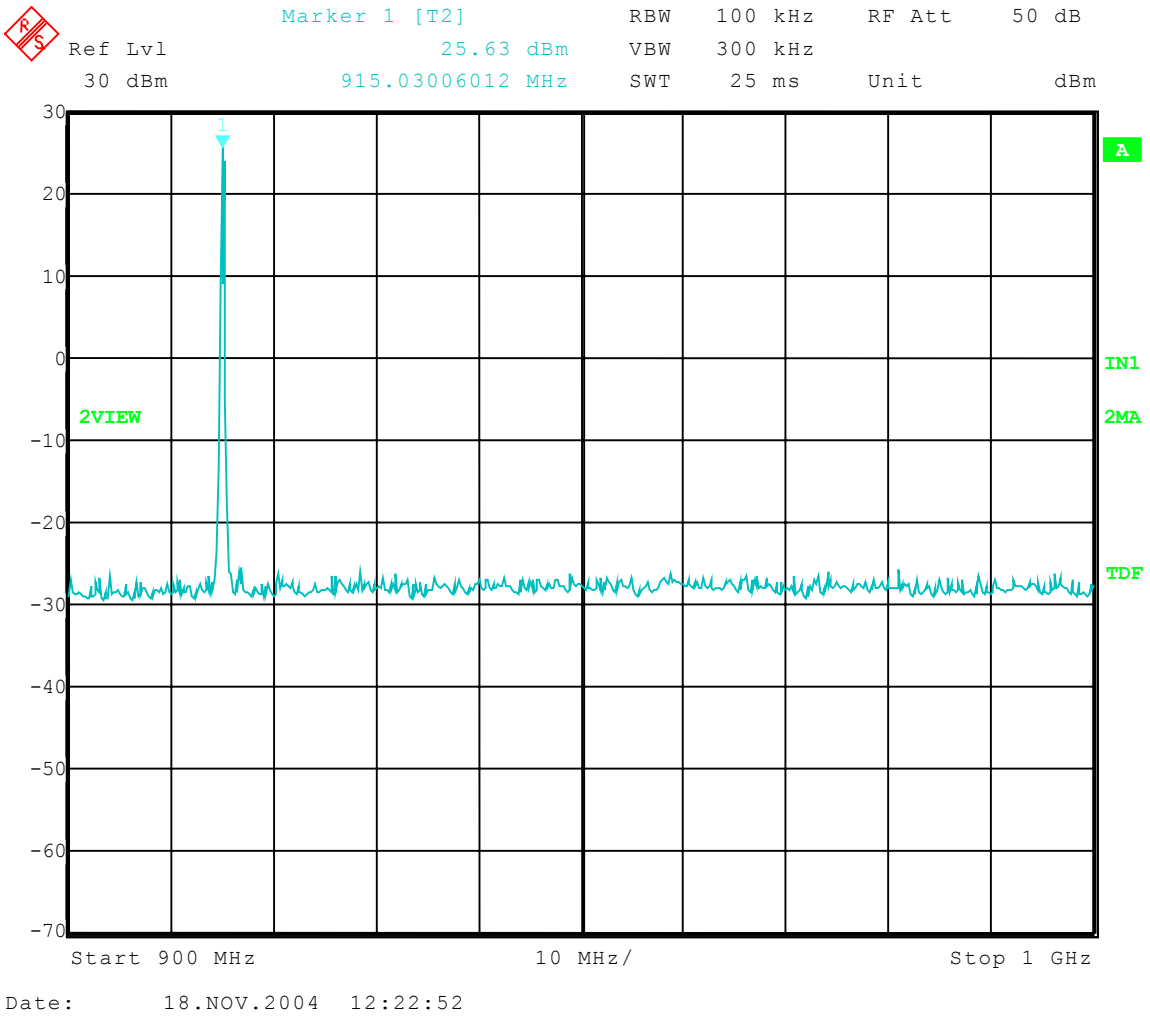
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; Mid Power: Transmit = 915.101 MHz
Frequency Range: 900 to 1000 MHz
Limit = 5.63 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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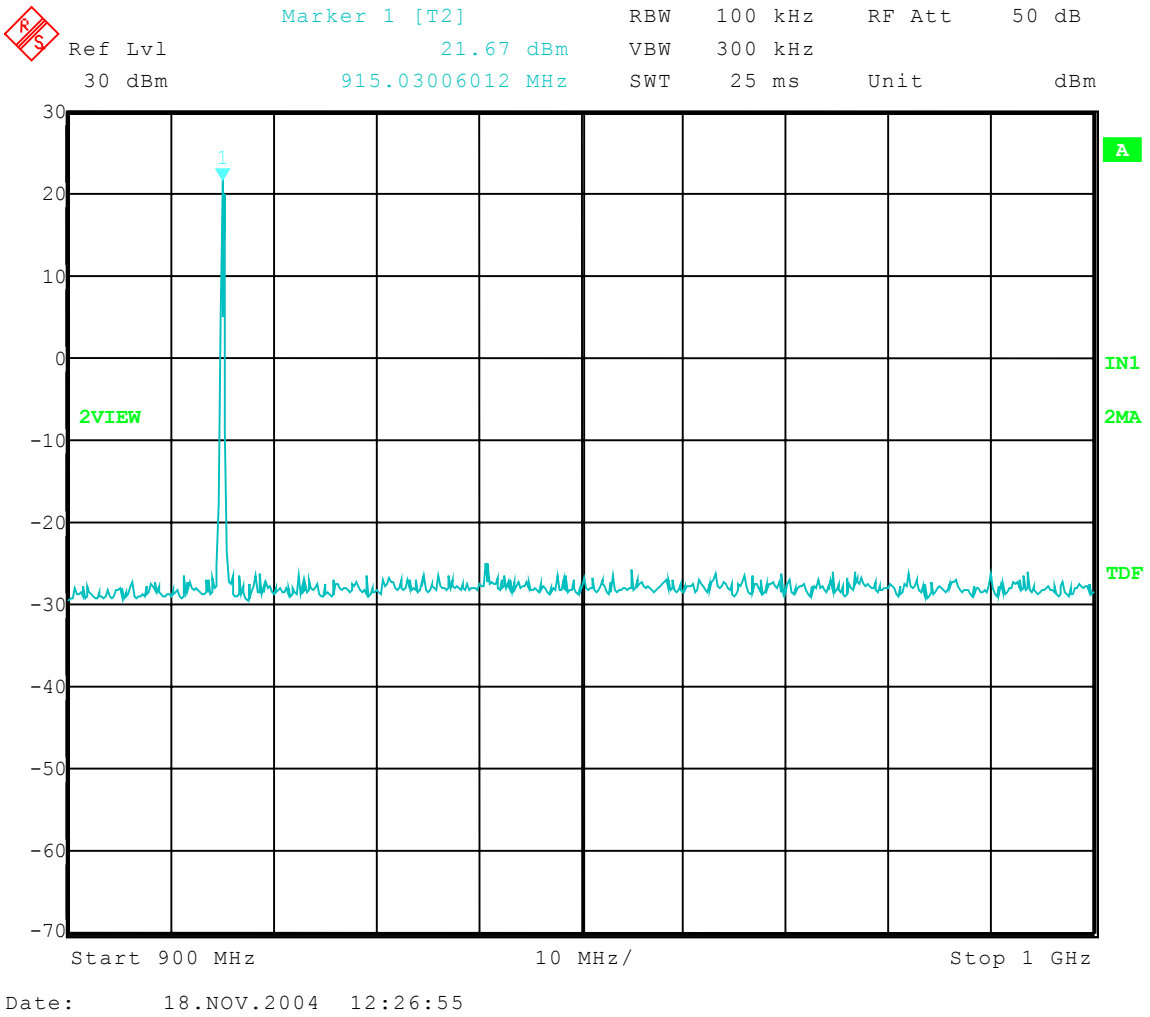
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; Low Power: Transmit = 915.101 MHz
Frequency Range: 900 to 1000 MHz
Limit = 1.67 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

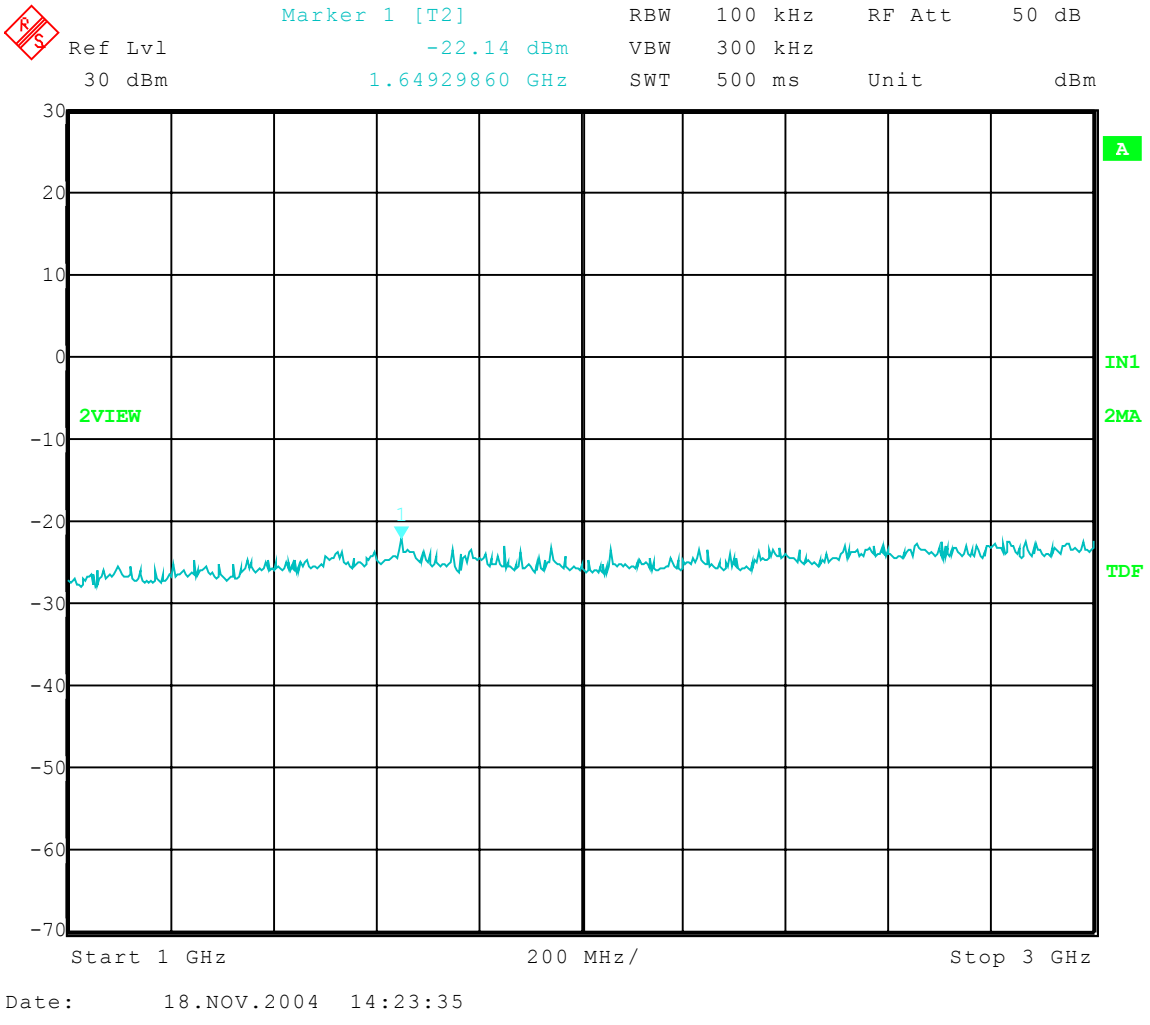


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; High Power: Transmit = 915.101 MHz
Frequency Range: 1 to 3 GHz
Limit = 7.06 dBm

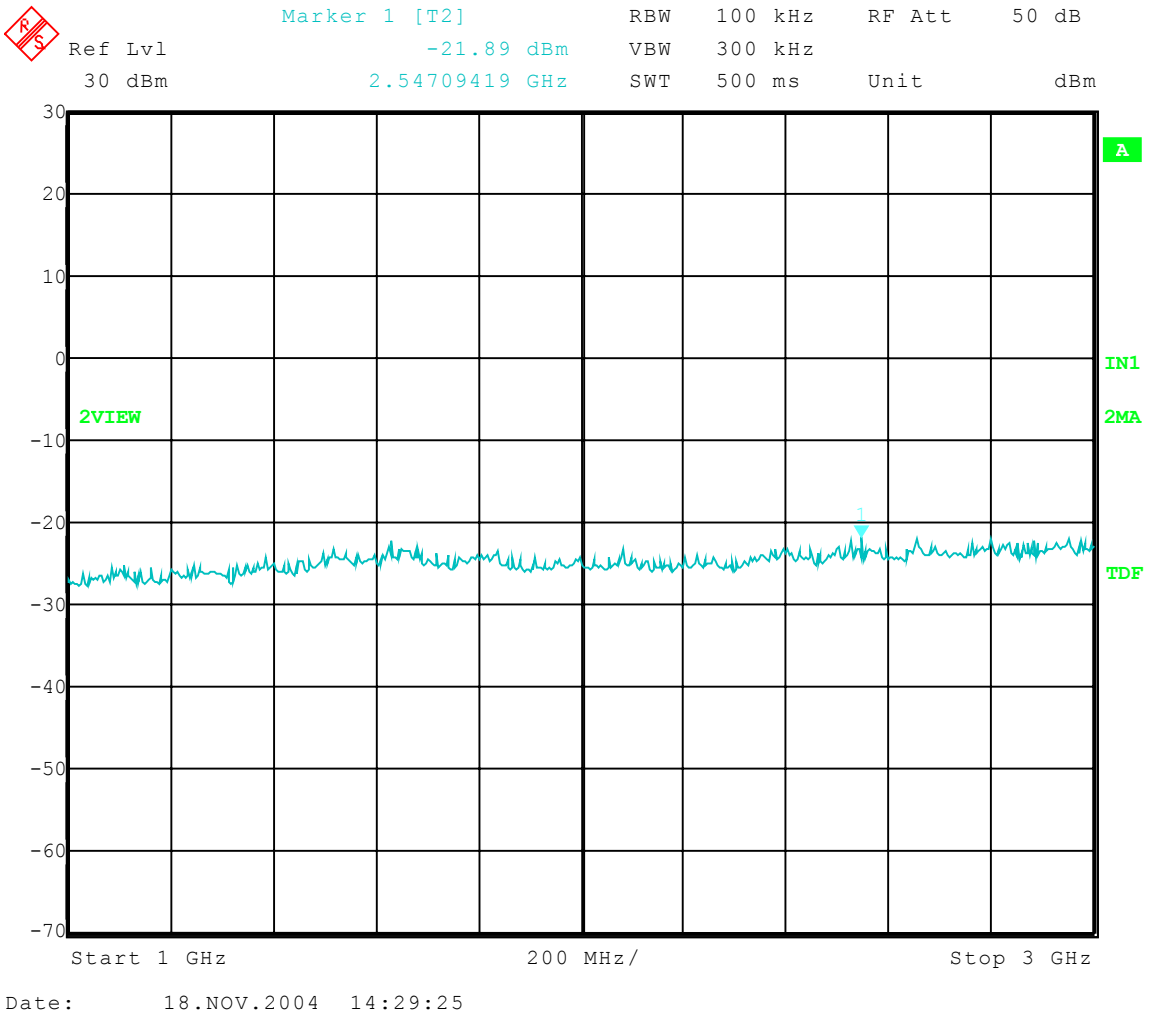
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; Mid Power: Transmit = 915.101 MHz
Frequency Range: 1 to 3 GHz
Limit = 5.63 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

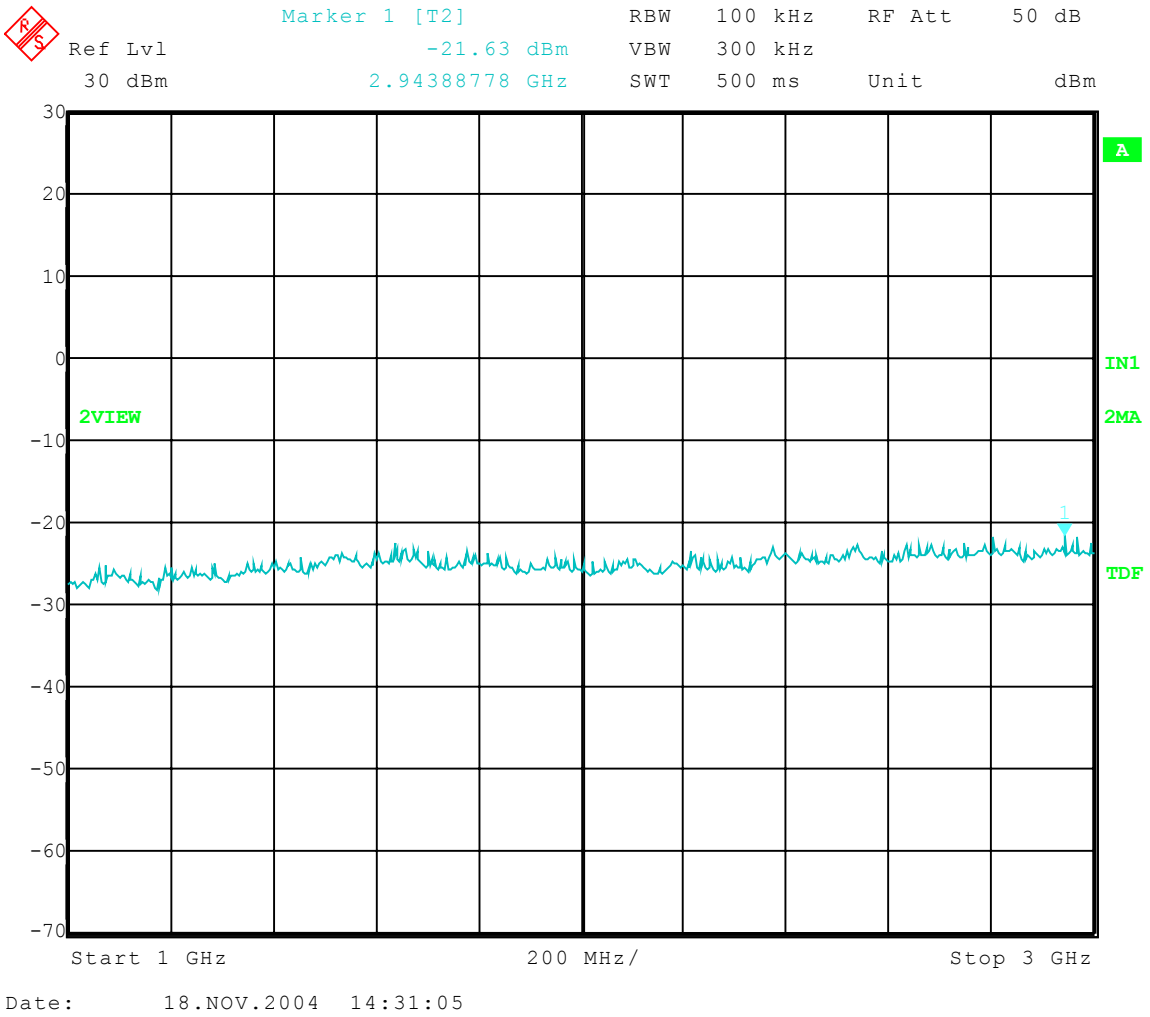


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Middle Channel; Low Power: Transmit = 915.101 MHz
Frequency Range: 1 to 3 GHz
Limit = 1.67 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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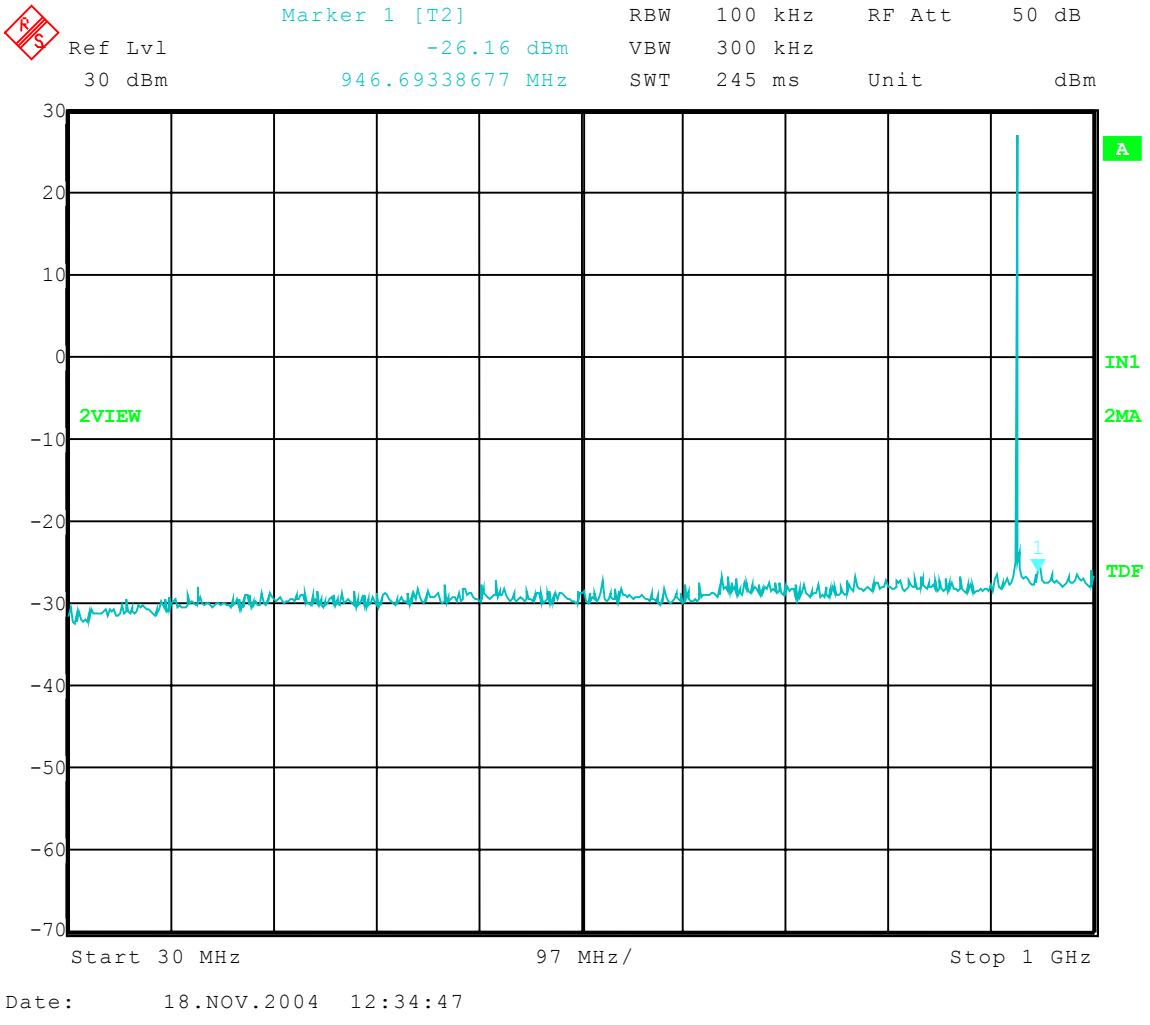
APPENDIX A

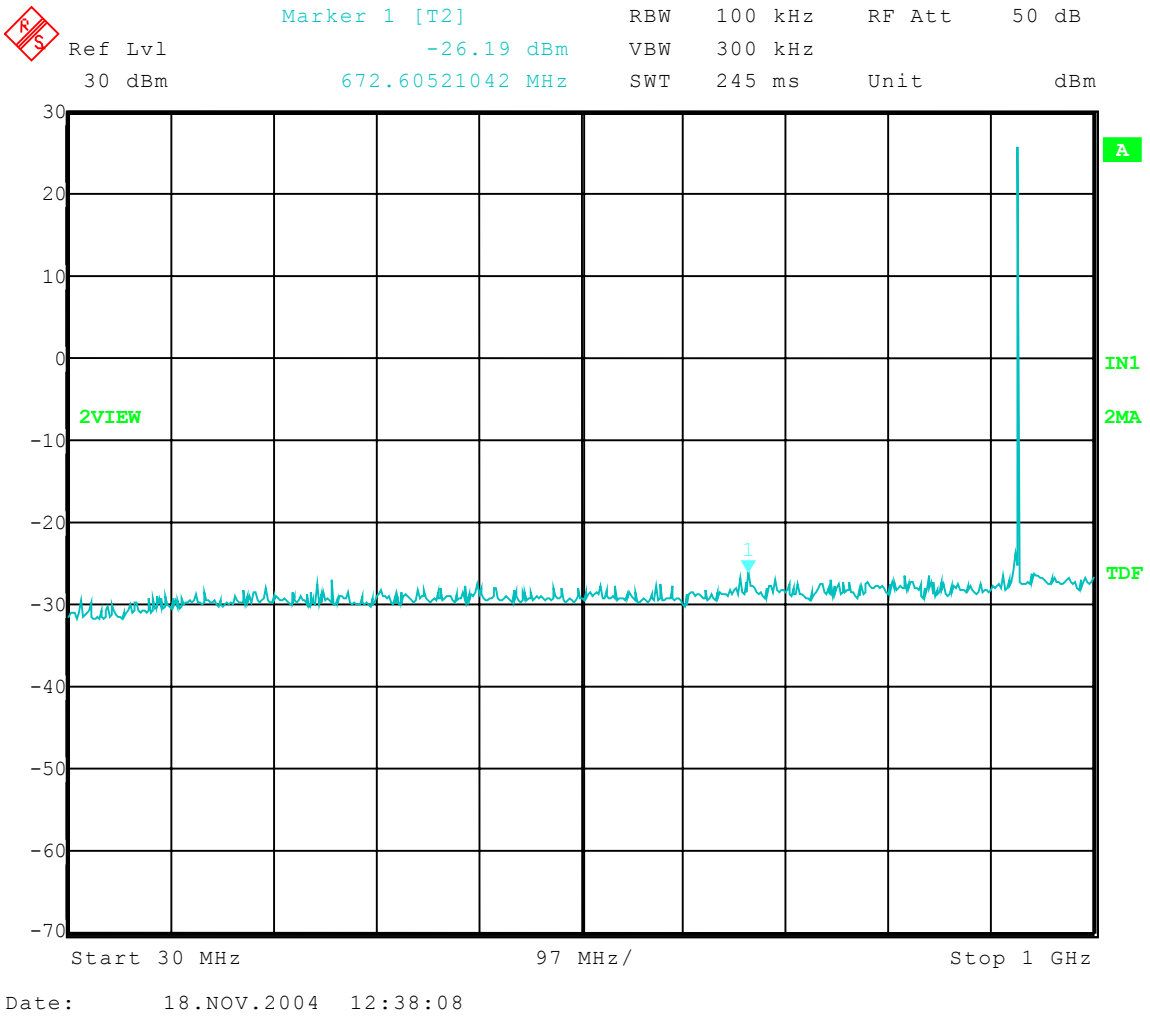
Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; High Power: Transmit = 927.233 MHz
Frequency Range: 30 to 1000 MHz
Limit = 6.91 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Transmit = 927.233 MHz
Frequency Range: 30 to 1000 MHz
Limit = 5.60 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

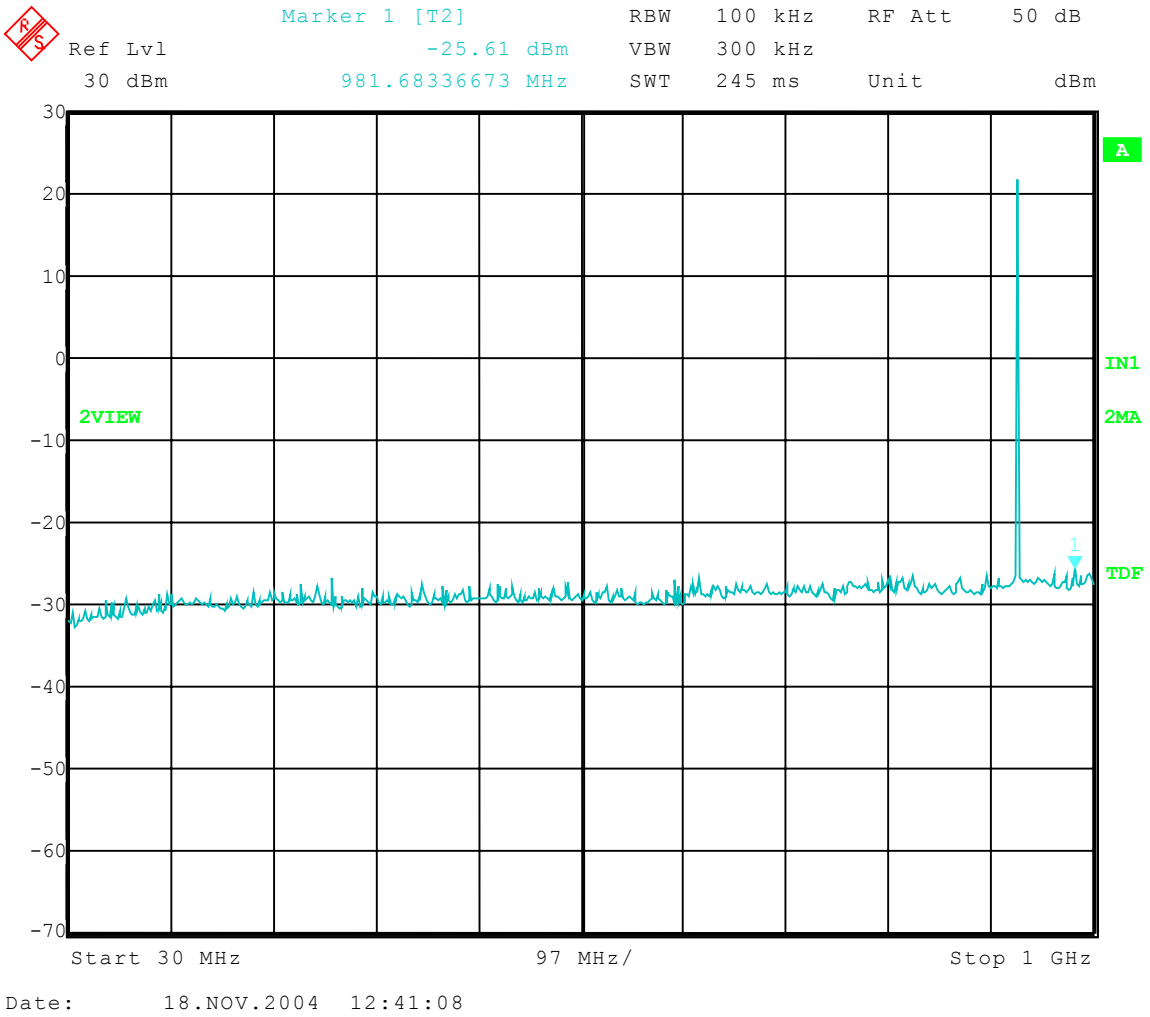


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Transmit = 927.233 MHz
Frequency Range: 30 to 1000 MHz
Limit = 1.59 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

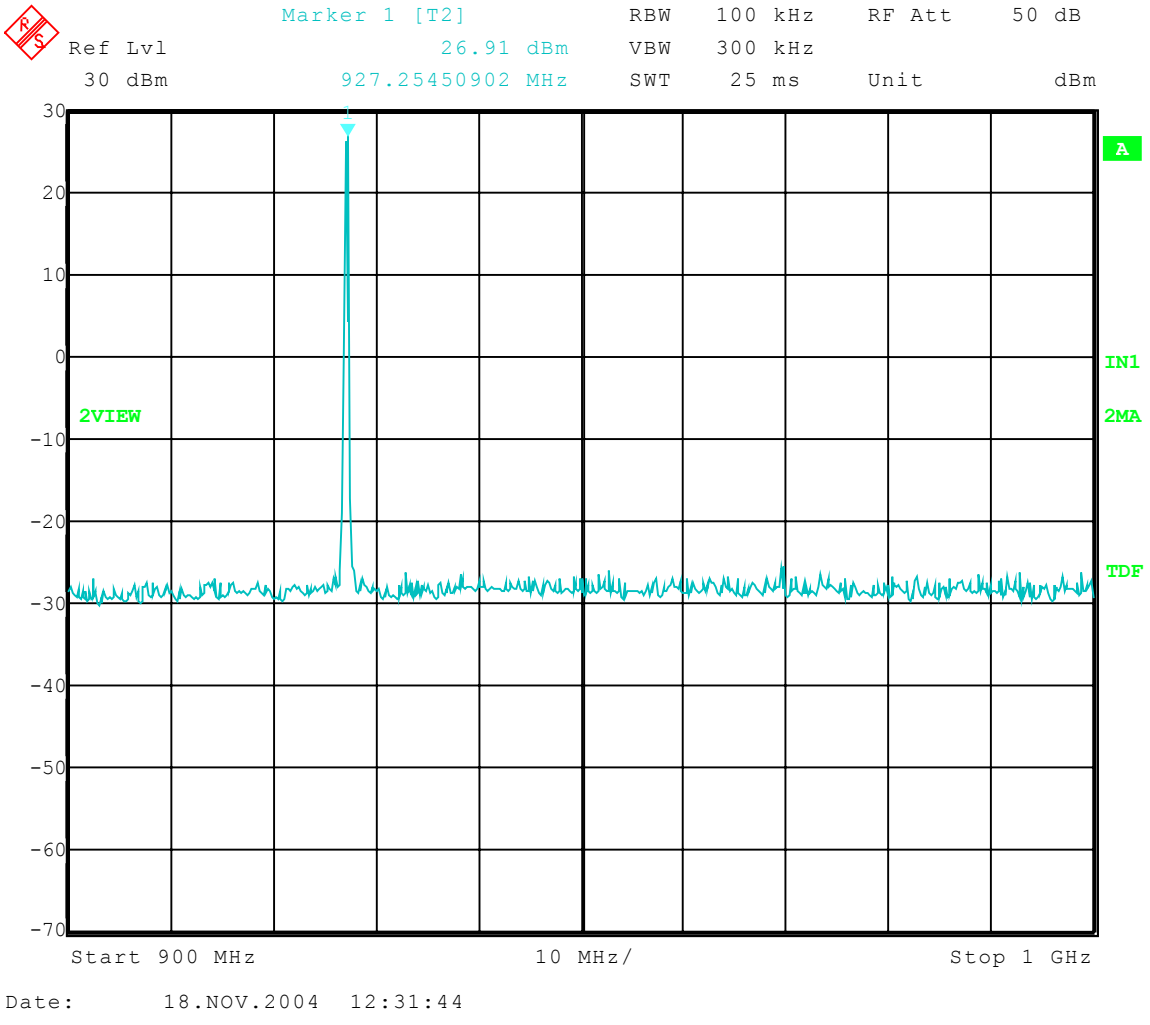


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; High Power: Transmit = 927.233 MHz
Frequency Range: 900 to 1000 MHz
Limit = 6.91 dBm

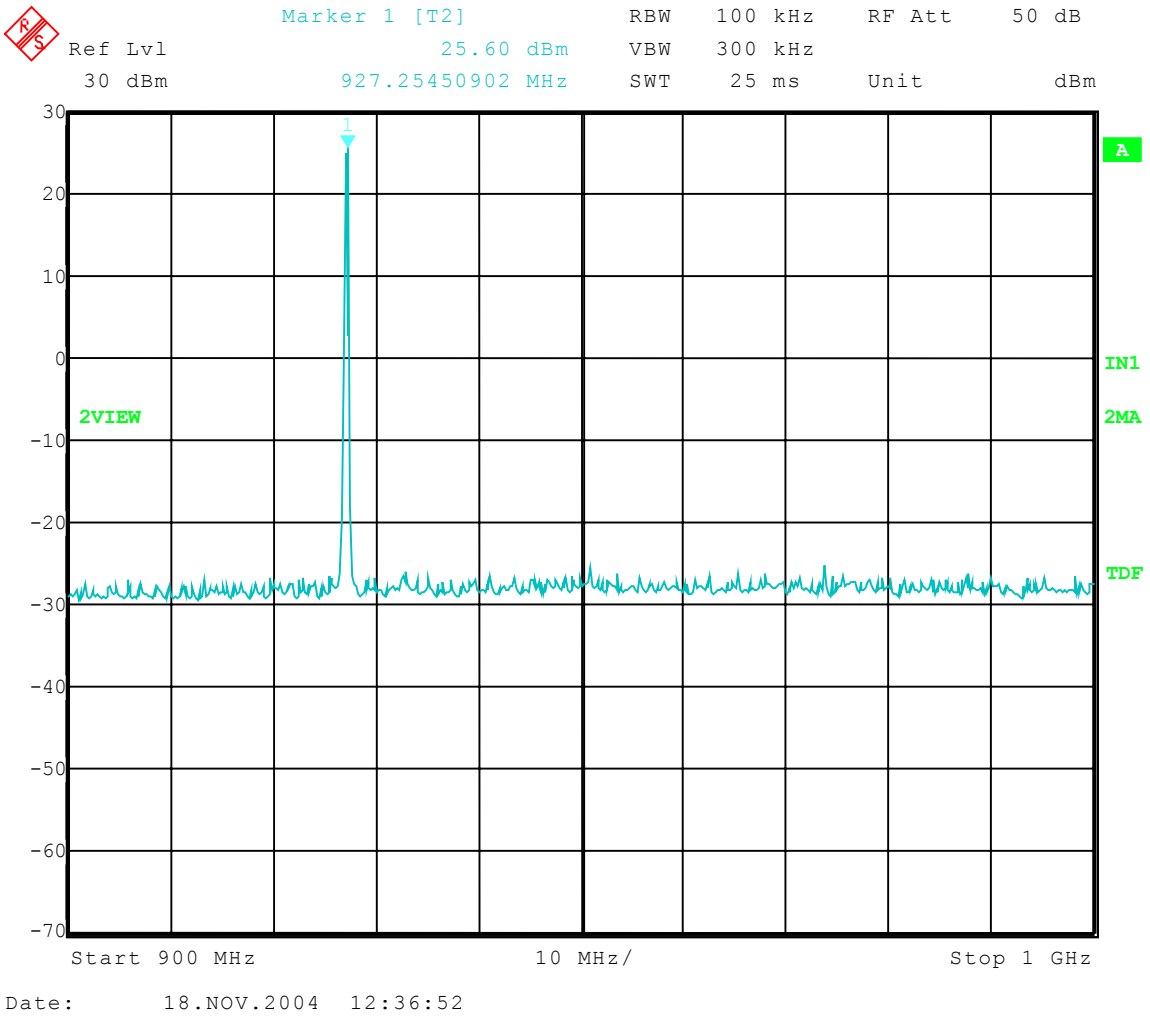
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Transmit = 927.233 MHz
Frequency Range: 900 to 1000 MHz
Limit = 5.60 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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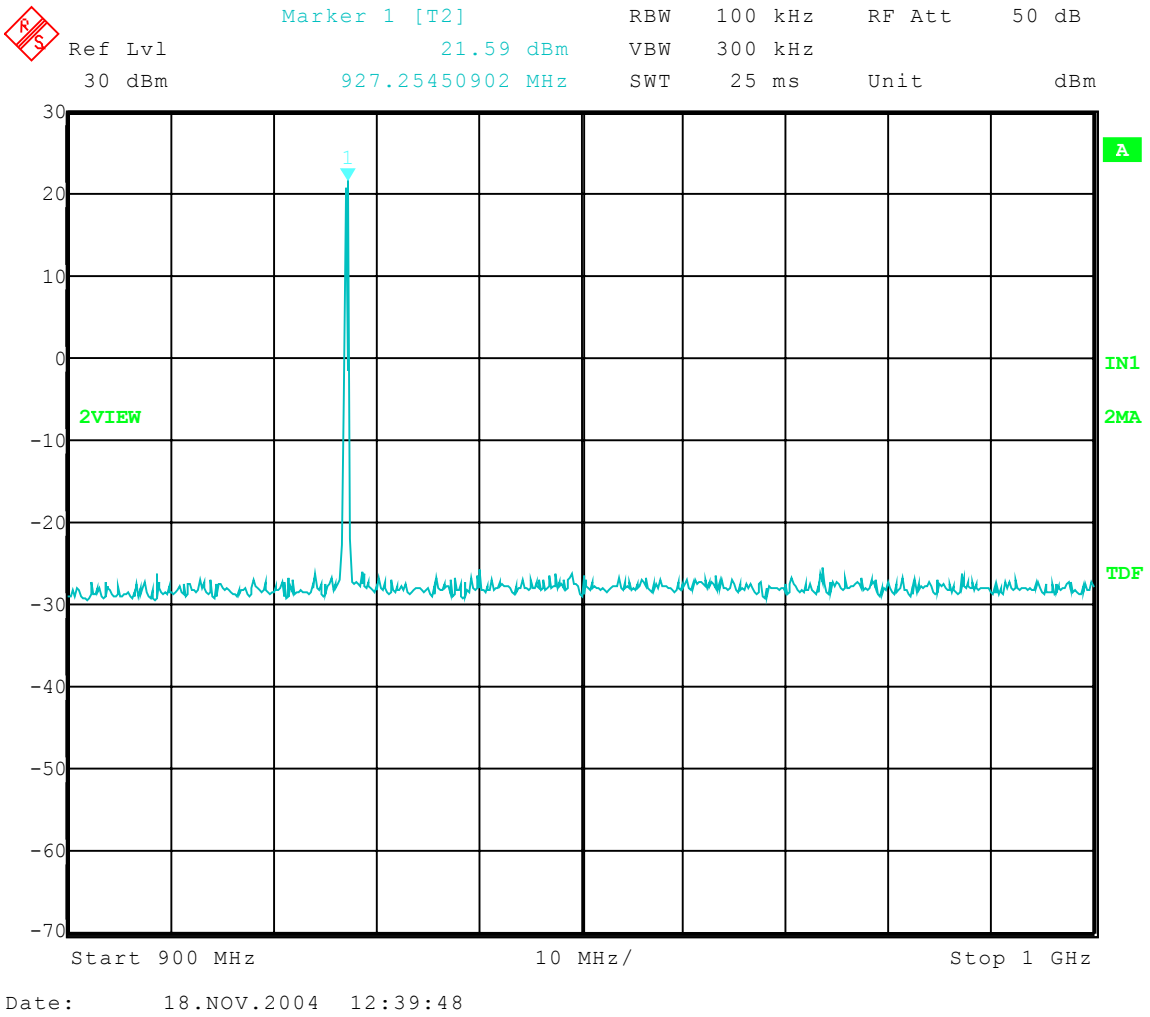
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Transmit = 927.233 MHz
Frequency Range: 900 to 1000 MHz
Limit = 1.59 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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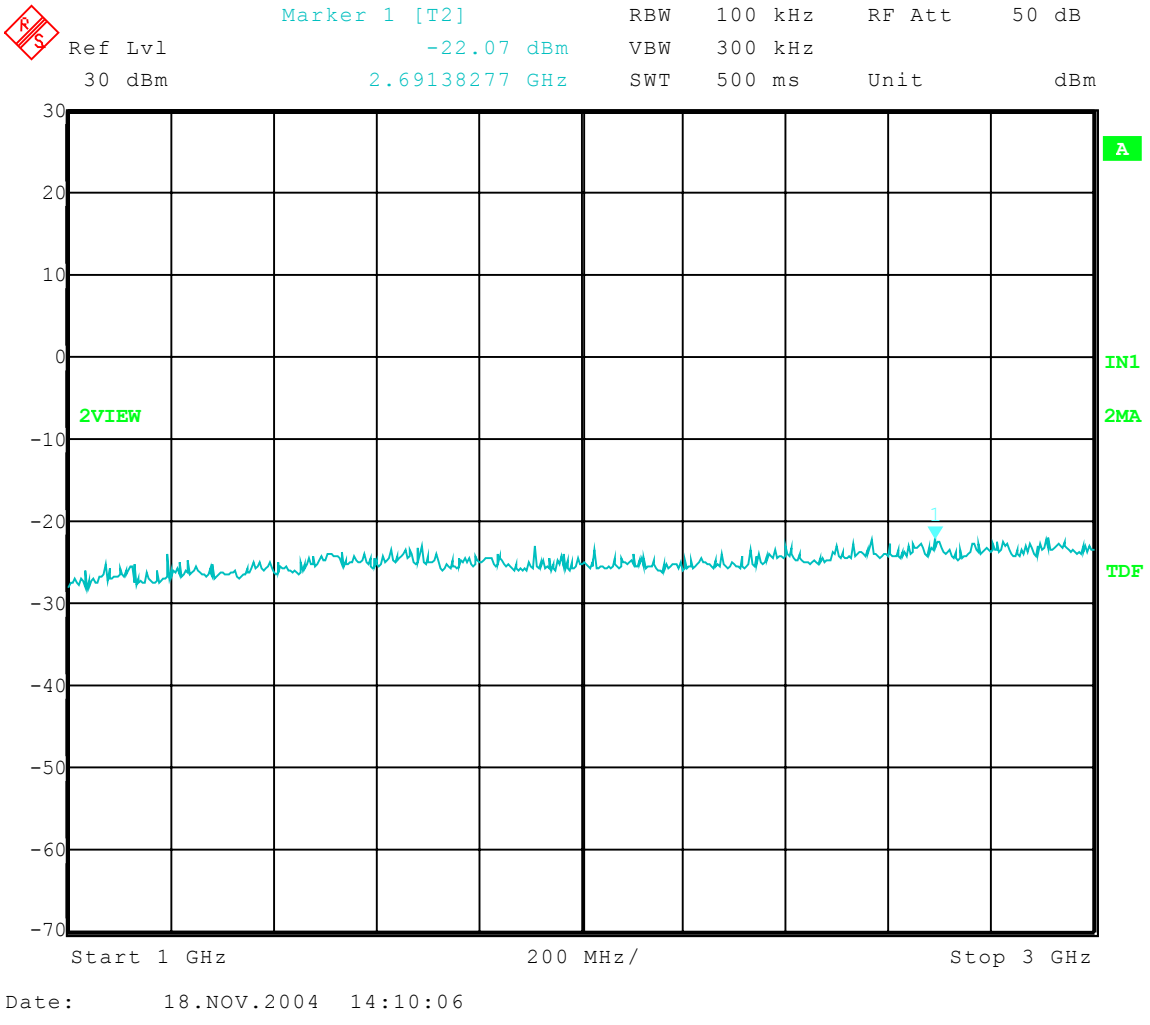
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; High Power: Transmit = 927.233 MHz
Frequency Range: 1 to 3 GHz
Limit = 6.91 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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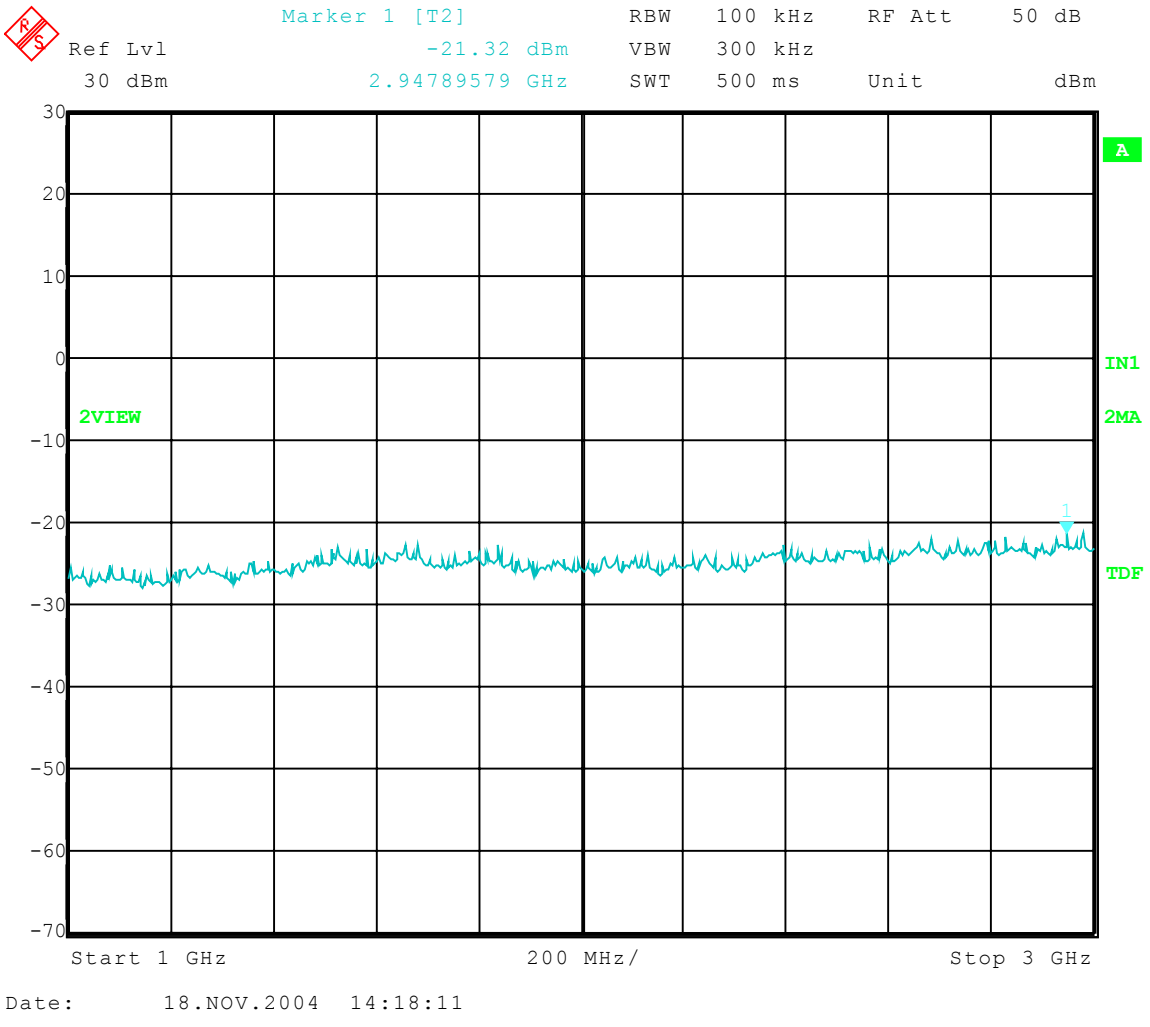
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Transmit = 927.233 MHz
Frequency Range: 1 to 3 GHz
Limit = 5.60 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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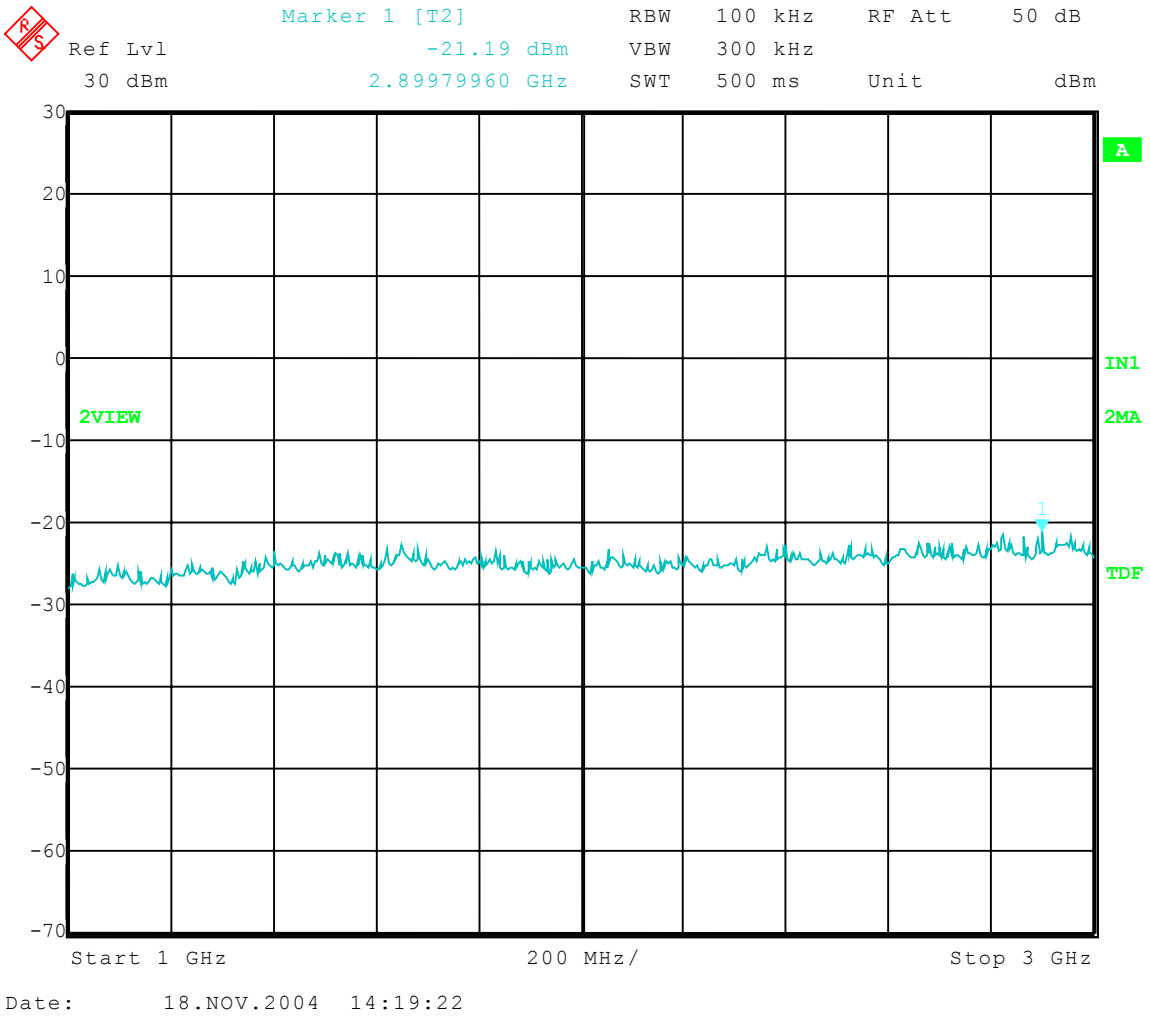
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Transmit = 927.233 MHz
Frequency Range: 1 to 3 GHz
Limit = 1.59 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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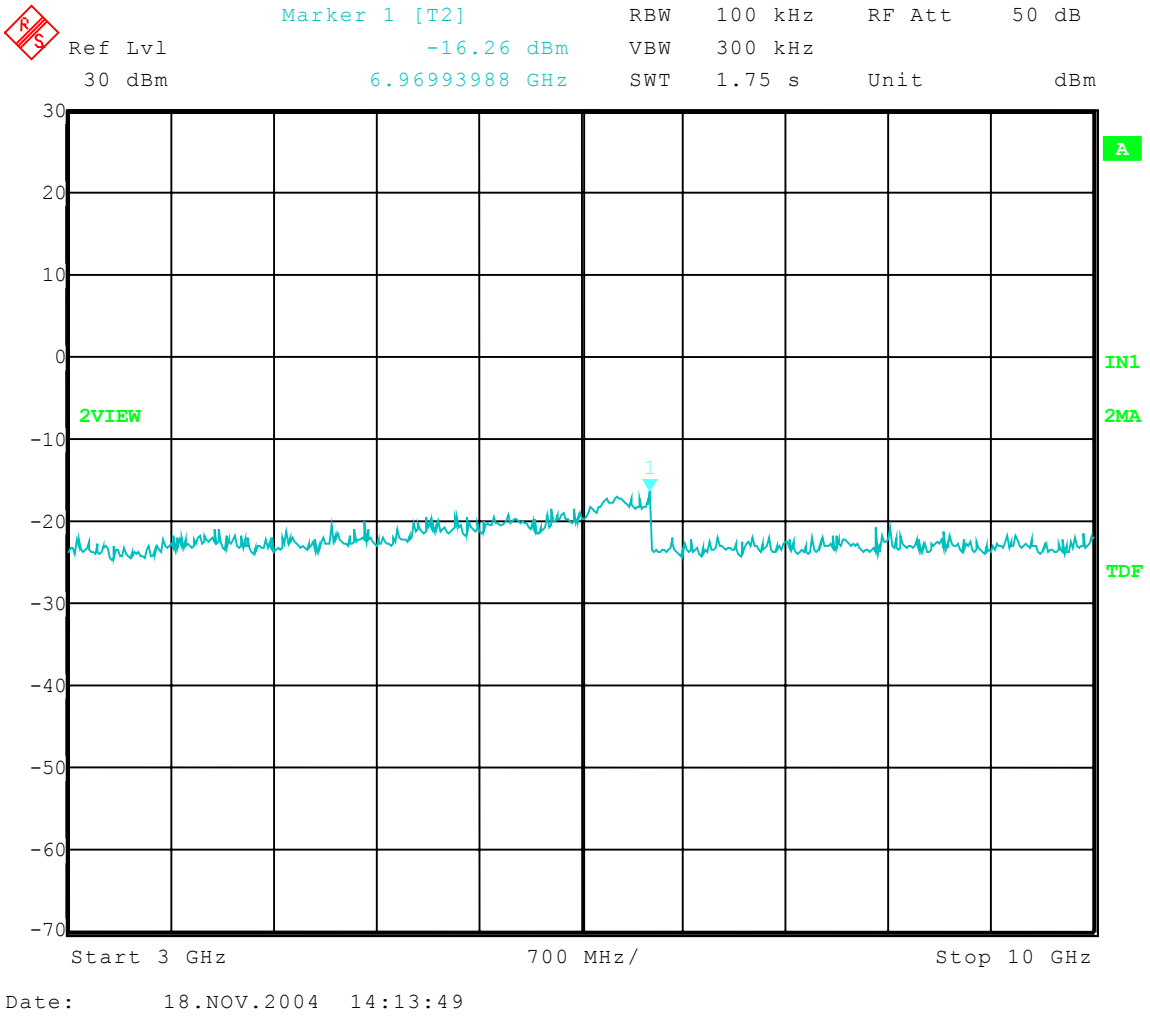
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; High Power: Transmit = 927.233 MHz
Frequency Range: 3 to 10 GHz
Limit = 6.91 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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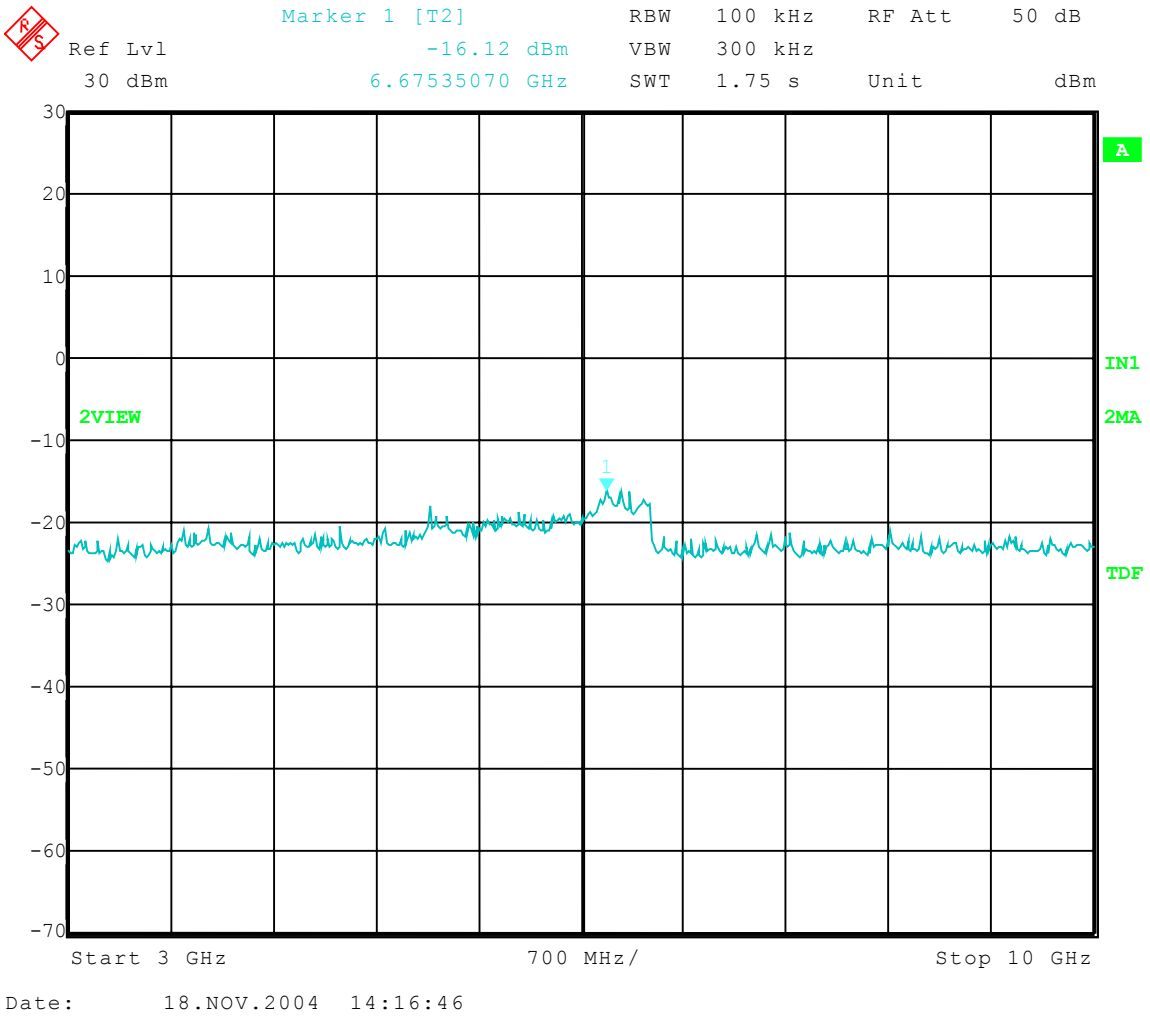
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Transmit = 927.233 MHz
Frequency Range: 3 to 10 GHz
Limit = 5.60 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



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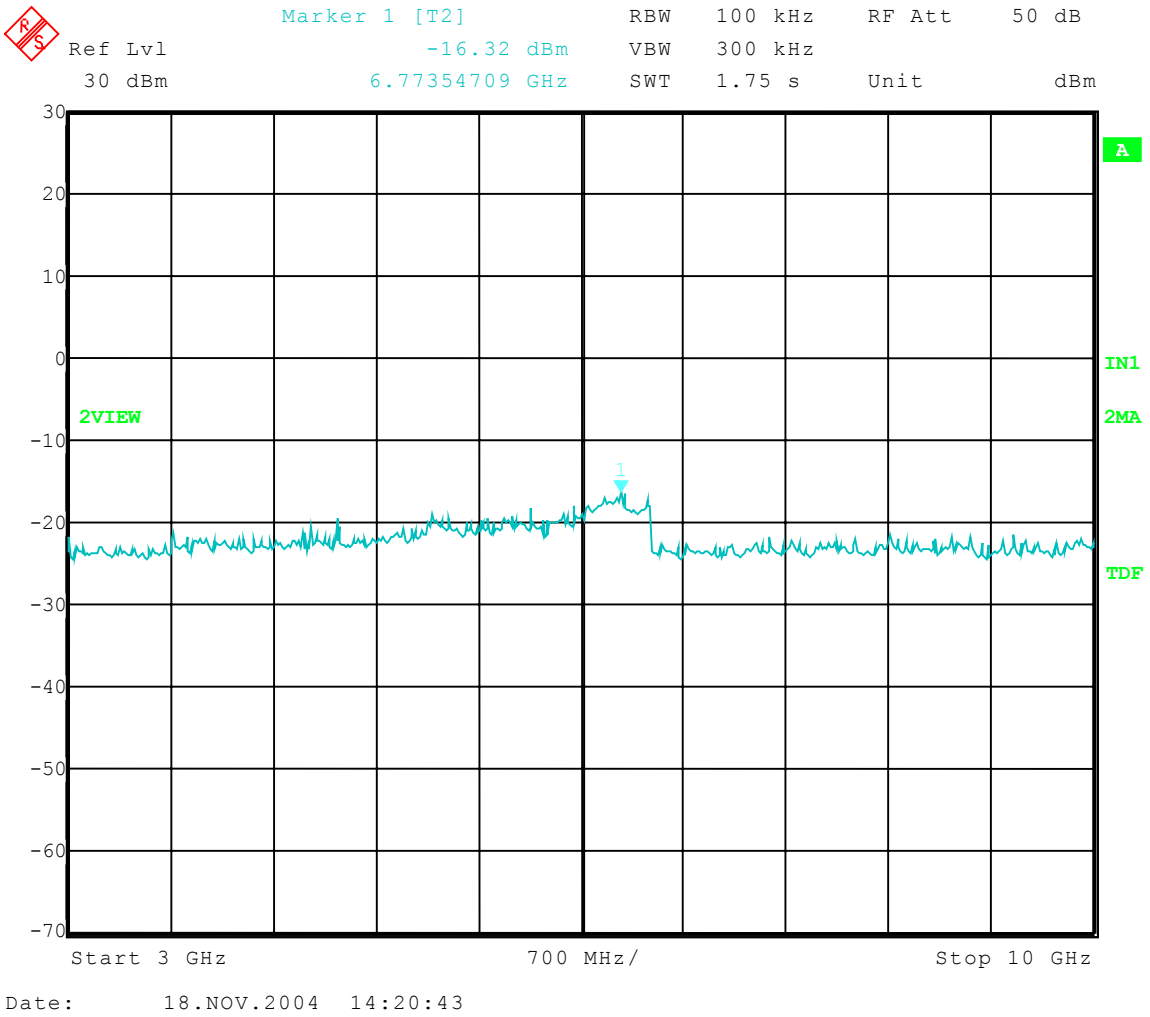
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Transmit = 927.233 MHz
Frequency Range: 3 to 10 GHz
Limit = 1.59 dBm

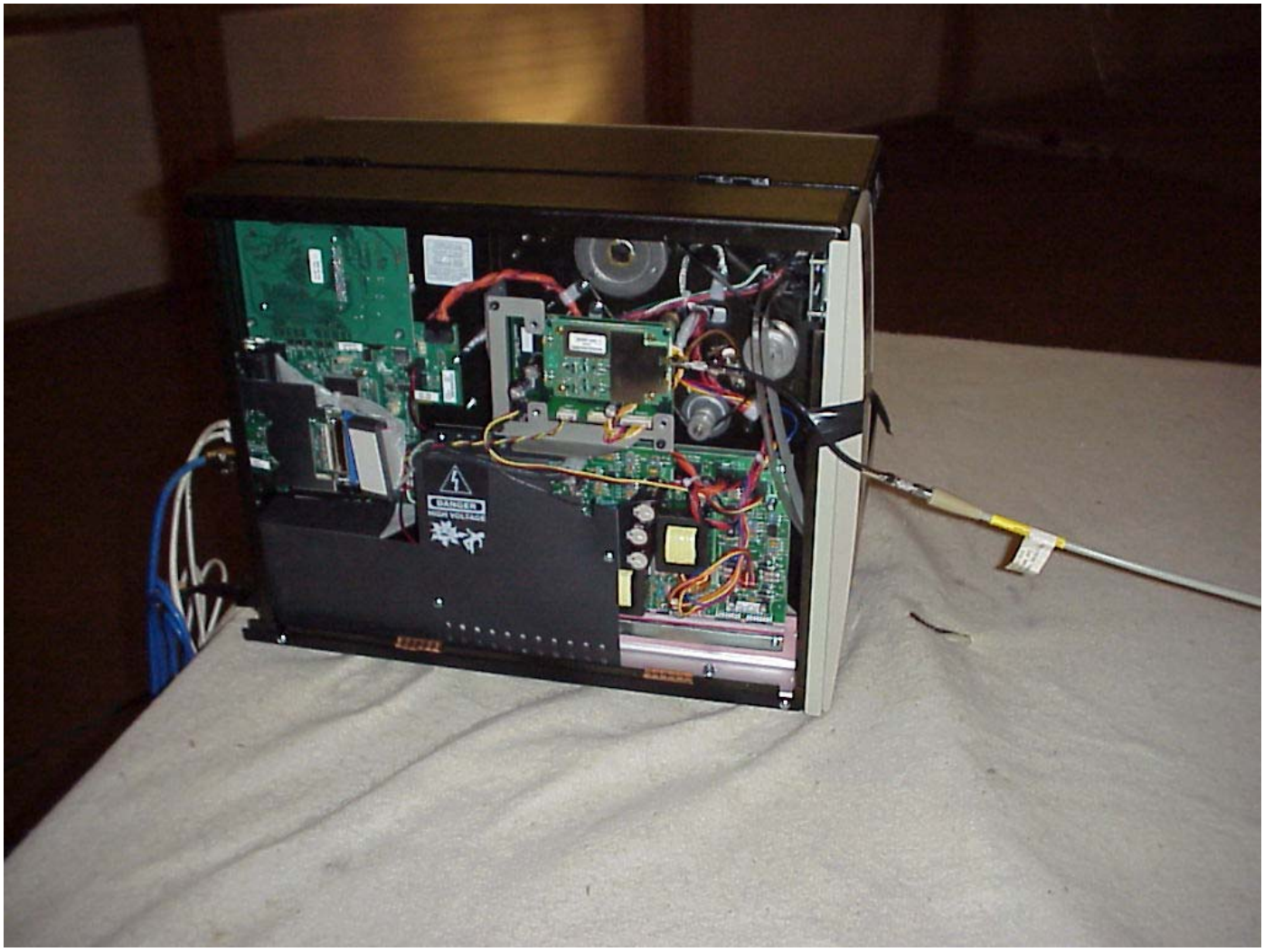
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

3.0 CONDUCTED EMISSIONS (ANTENNA TERMINAL) PHOTOS TAKEN DURING TESTING



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APPENDIX A

4.0 RESTRICTED BANDS

As stated in Section 15.205a, the fundamental emission from the R110XiIII Plus shall not fall within any of the bands listed below:

Frequency in MHz	Frequency in MHz	Frequency in MHz	Frequency in GHz
.0900 to .1100	162.0125 to 167.17	2310.0 to 2390	9.30 to 9.50
.4900 to .5100	167.7200 to 173.20	2483.5 to 2500	10.60 to 12.70
2.1735 to 2.1905	240.000 to 285.00	2655.0 to 2900	13.25 to 13.40
8.362 to 8.3660	322.200 to 335.40	3260.0 to 3267	14.47 to 14.50
13.36 to 13.410	399.900 to 410.00	3332.0 to 3339	15.35 to 16.20
25.50 to 25.670	608.000 to 614.00	3345.8 to 3358	17.70 to 21.40
37.50 to 38.250	960.000 to 1240.00	3600.0 to 4400	22.01 to 23.13
73.00 to 75.500	1300.000 to 1427.00	4500.0 to 5250	23.60 to 24.00
108.00 to 121.94	1435.000 to 1626.50	5350.0 to 5450	31.20 to 31.80
123.00 to 138.00	1660.000 to 1710.00	7250.0 to 7750	36.43 to 36.50
149.90 to 150.00	1718.800 to 1722.20	8025.0 to 8500	ABOVE 38.60
156.70 to 156.90	2200.000 to 2300.00	9000.0 to 9200	

NOTE:

The noise floor within the Restricted Bands for the EMC Receiver and HP Spectrum Analyzer will typically lay 20 dB below the limit.

5.0 BAND EDGE AND RESTRICT BAND COMPLIANCE

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the attenuation below the general limits specified in 15.209 is not required.

The field strength of any **radiated emissions** which fall within the restricted bands shall not exceed the general radiated emissions limits as stated Section 15.209.

NOTE: See the following page(s) for the graph(s) made showing compliance for Band Edge and Restrict Band:

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APPENDIX A

DATA AND GRAPH(S) TAKEN SHOWING THE BAND EDGE AND RESTRICT BAND COMPLIANCE

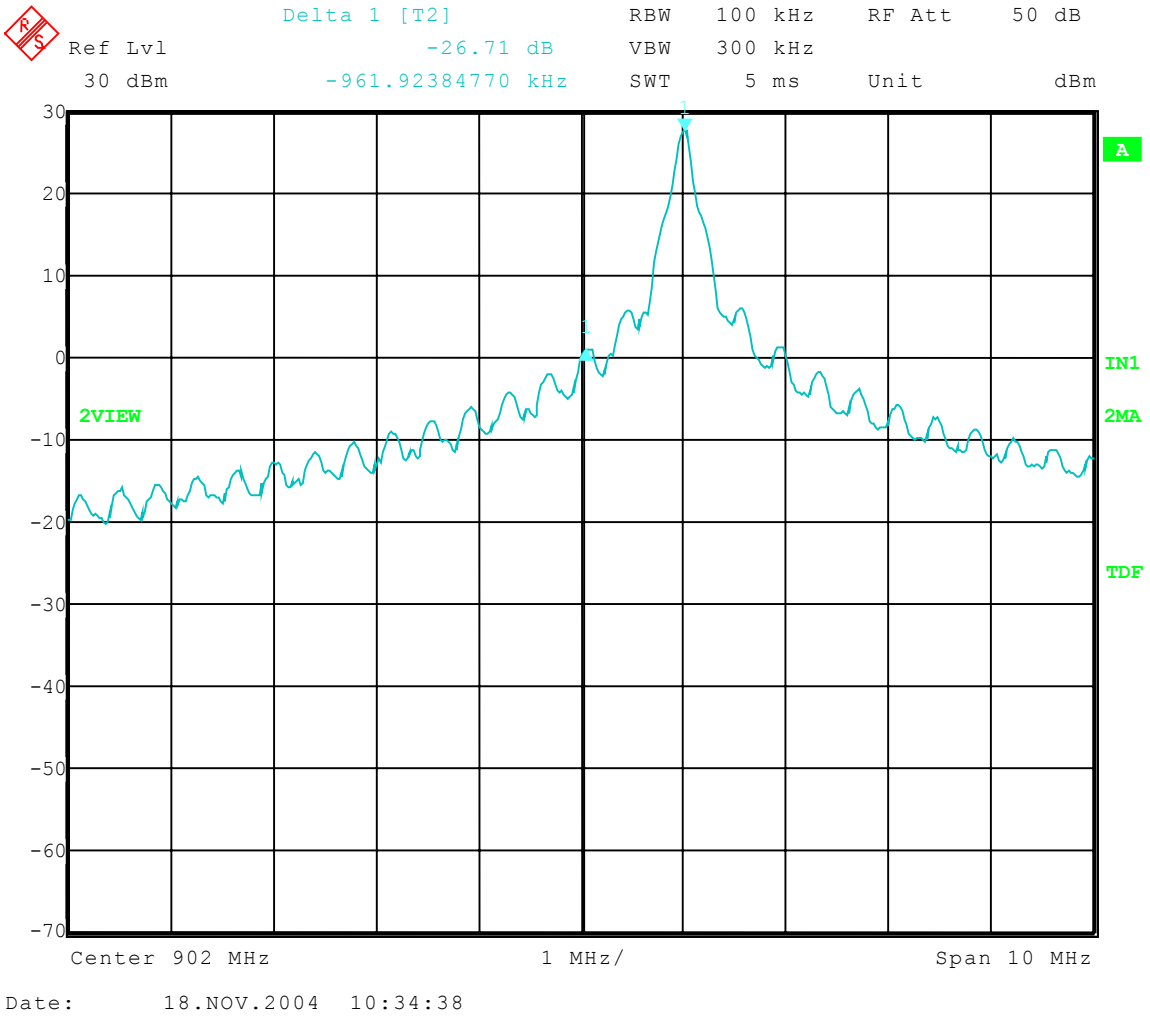
PART 15.247(c)

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Low Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Frequency – 902.967 MHz

Band-Edge Frequency = 902 MHz
Band-Edge > 20 dB Below Peak In-Band Emission

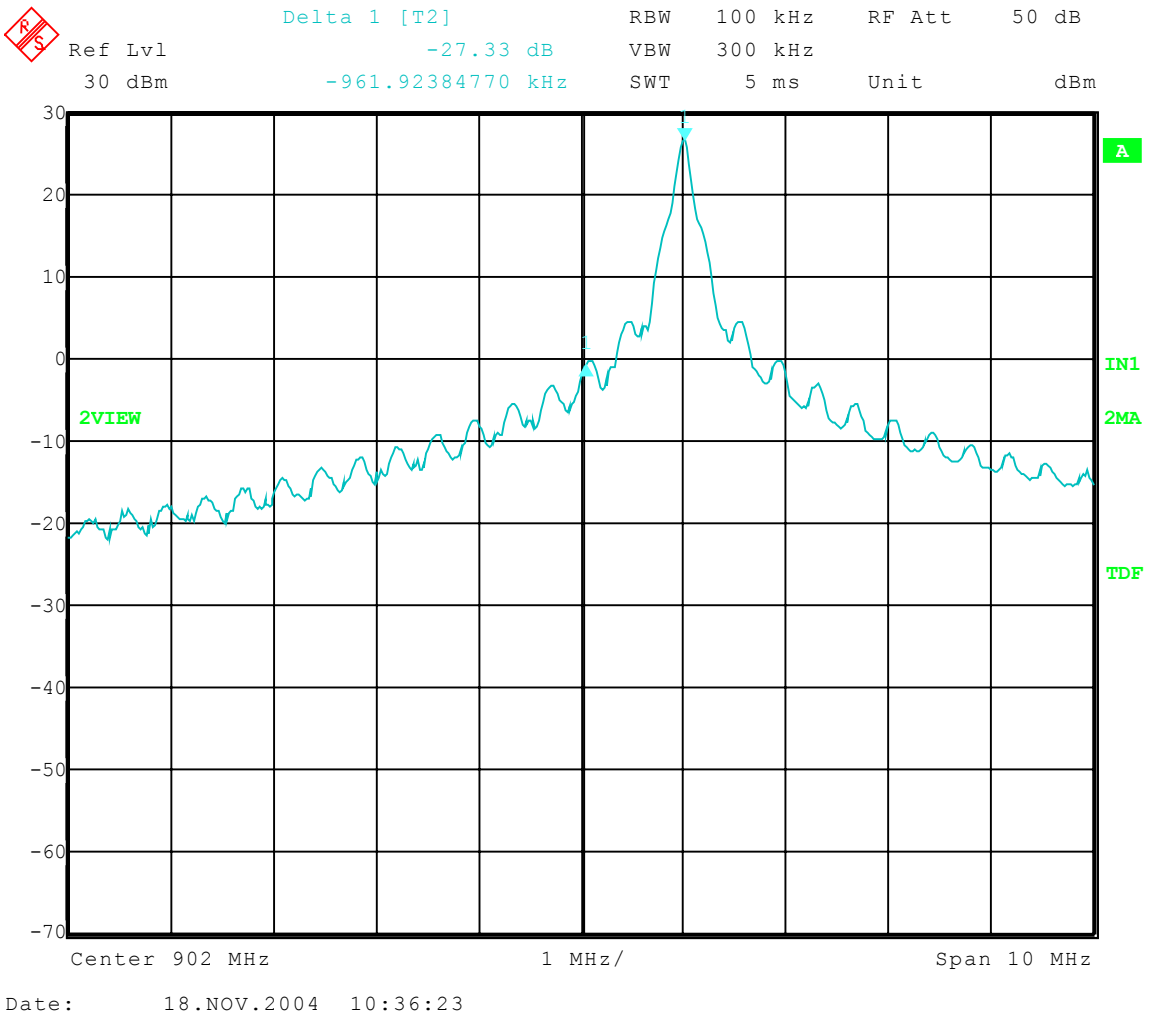


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Low Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Frequency – 902.967 MHz

Band-Edge Frequency = 902 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Low Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Frequency – 902.967 MHz

Band-Edge Frequency = 902 MHz
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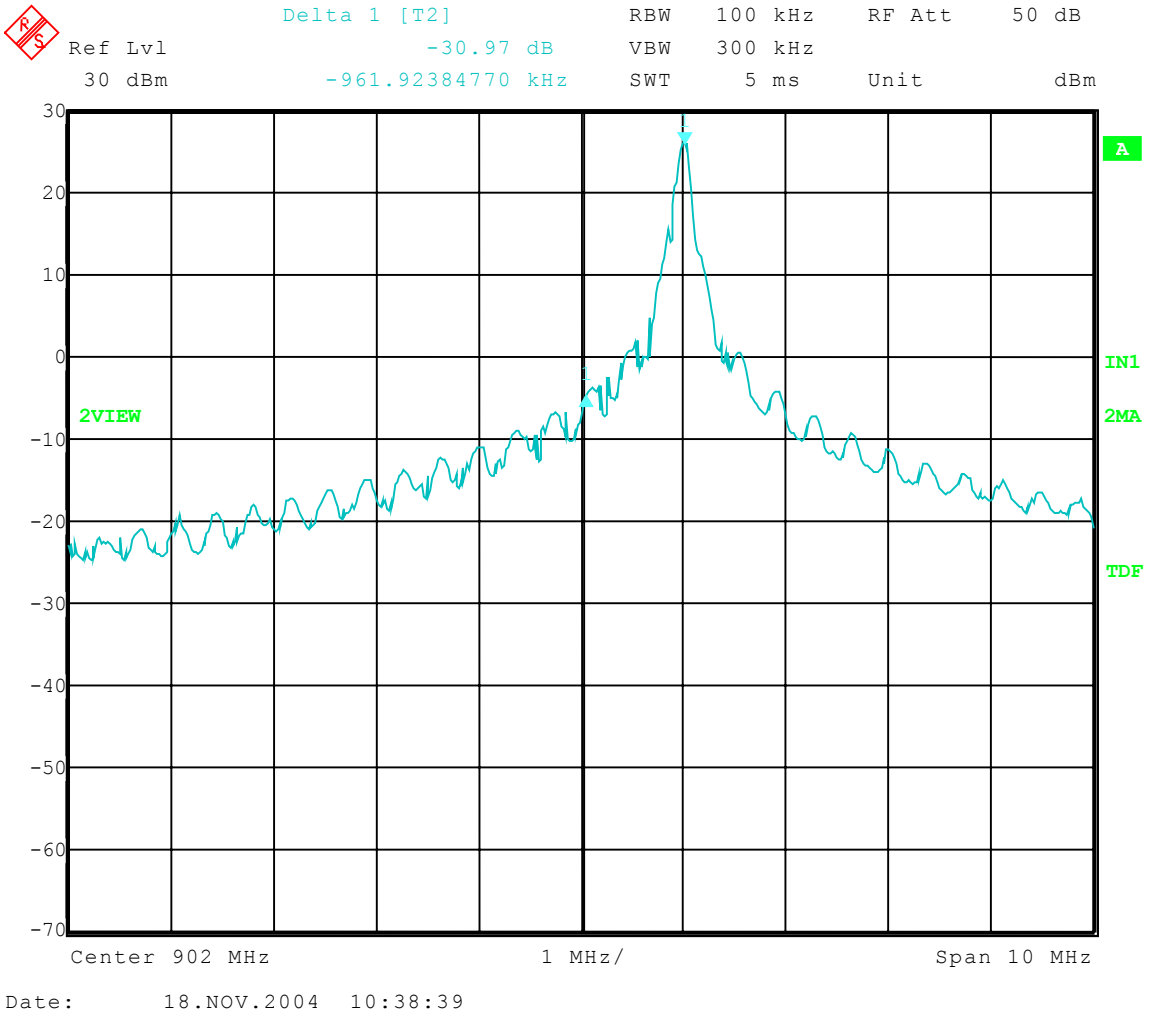
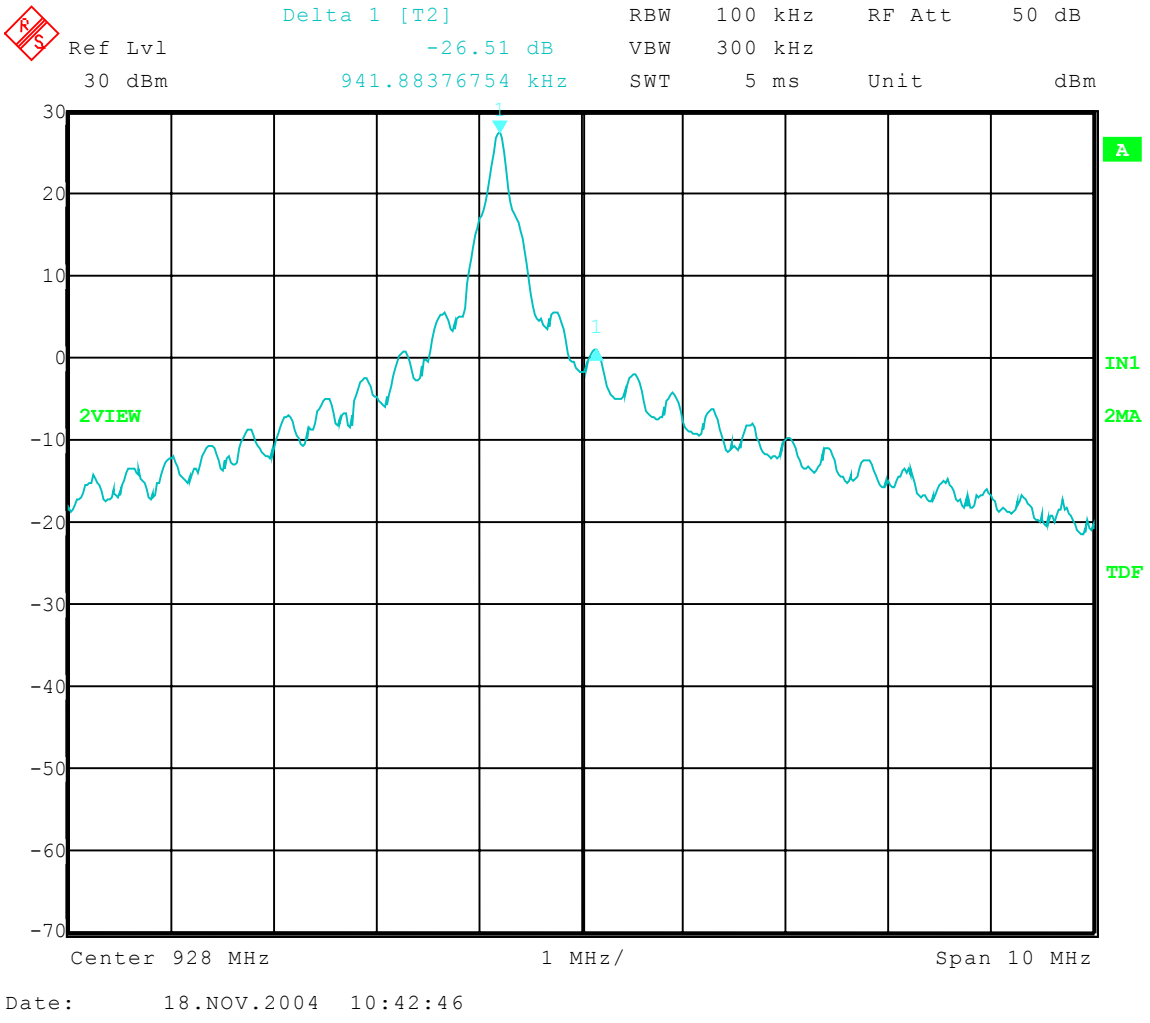


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: High Band-Edge Compliance - Conducted
Operator: Craig B
Comment: High Channel; High Power: Frequency – 927.223 MHz

Band-Edge Frequency = 928 MHz
Band-Edge > 20 dB Below Peak In-Band Emission

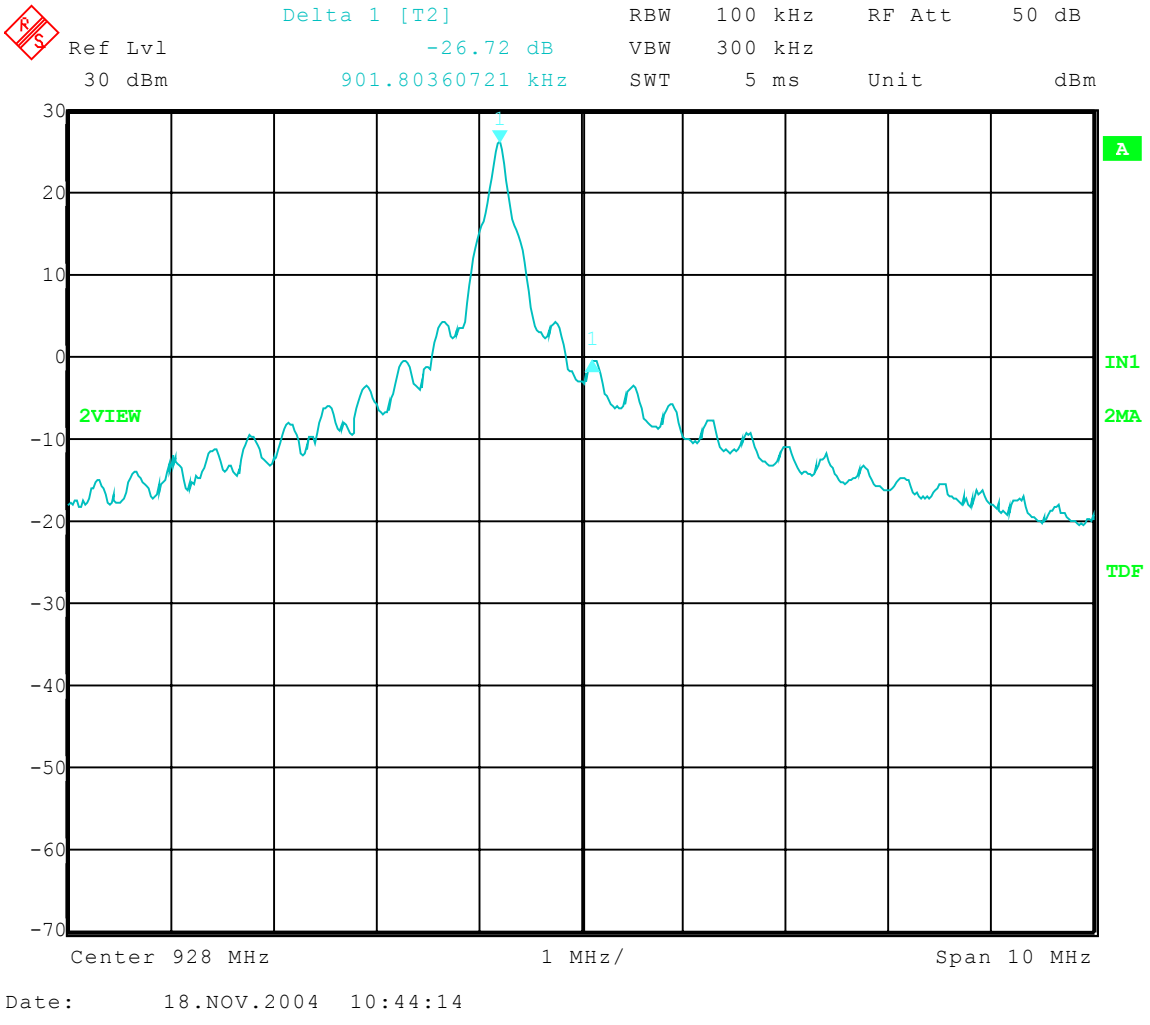


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: High Band-Edge Compliance - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Frequency – 927.223 MHz

Band-Edge Frequency = 928 MHz
Band-Edge > 20 dB Below Peak In-Band Emission

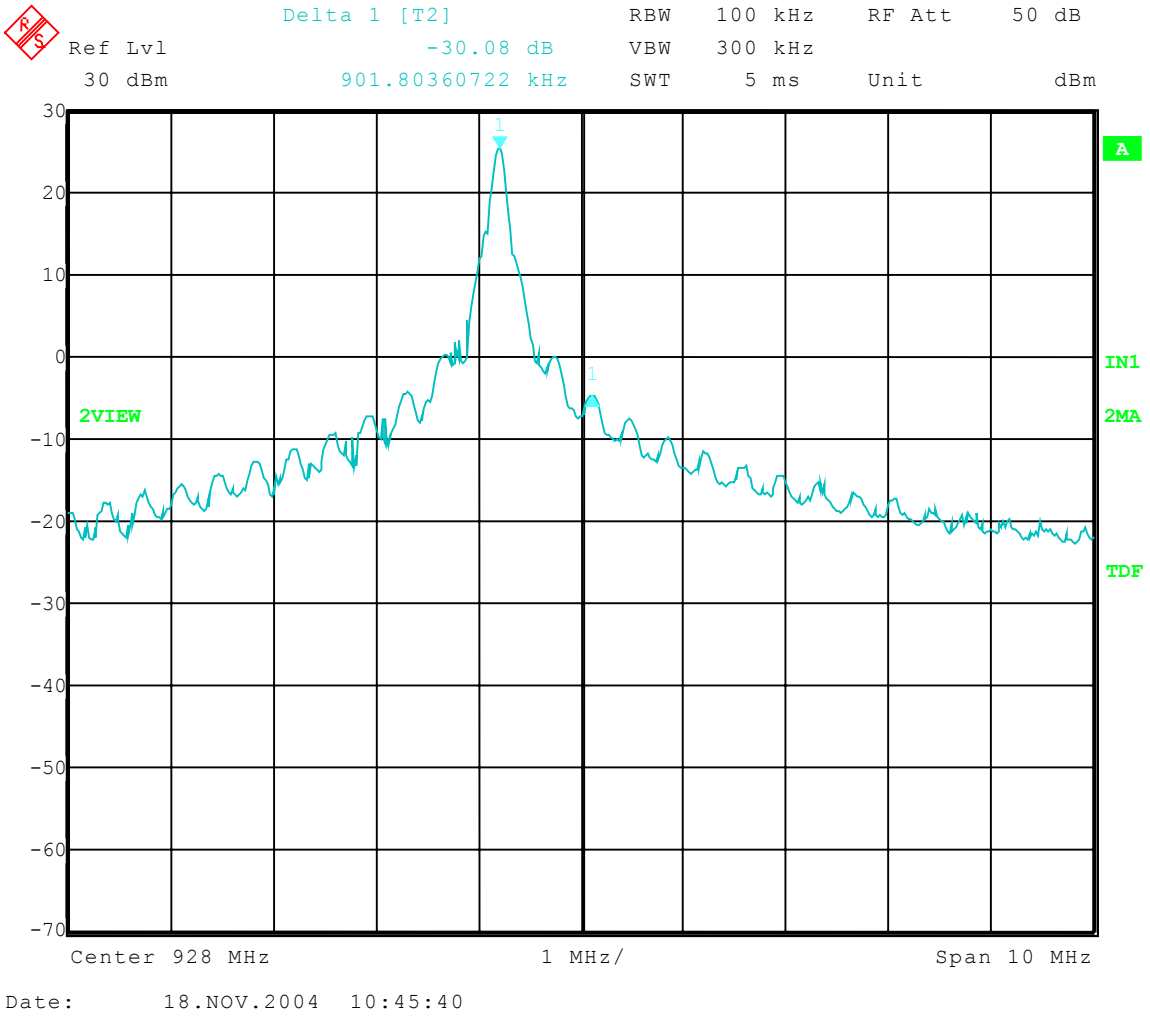


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: High Band-Edge Compliance - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Frequency – 927.223 MHz

Band-Edge Frequency = 928 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



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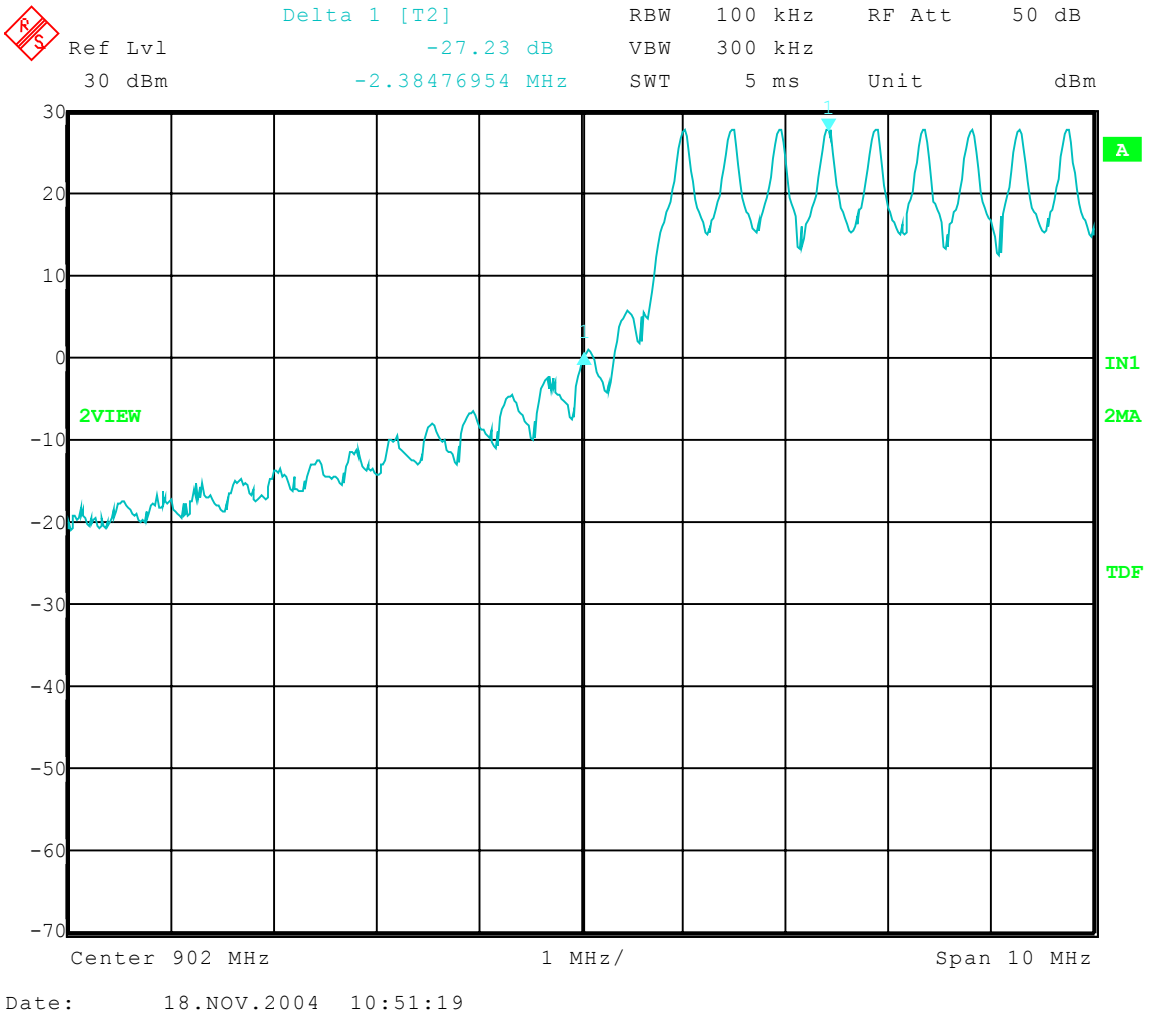
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Low Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Spread Spectrum Frequency Hopping On; High Power

Band-Edge Frequency = 902 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



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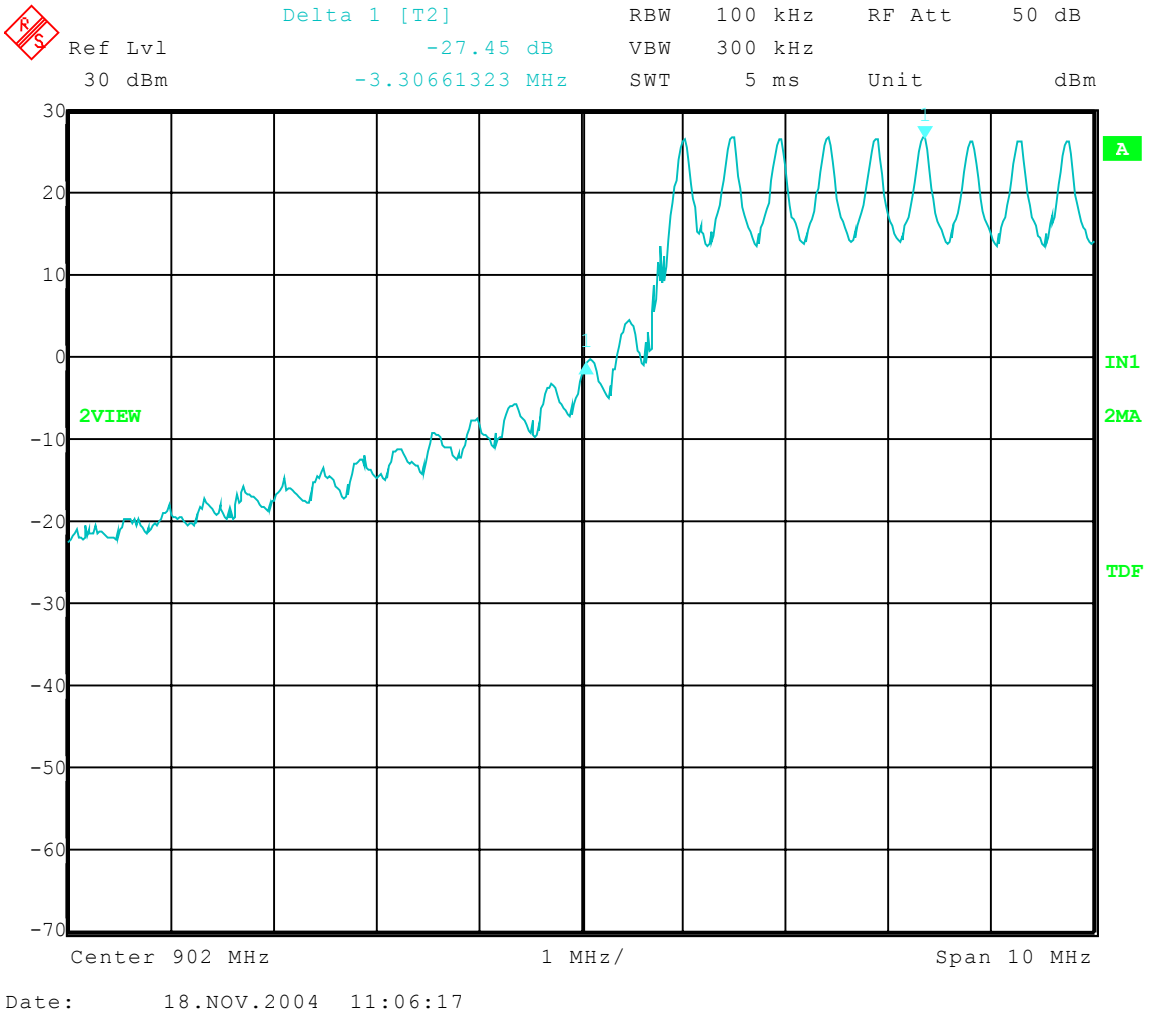
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Low Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Spread Spectrum Frequency Hopping On; Mid Power

Band-Edge Frequency = 902 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



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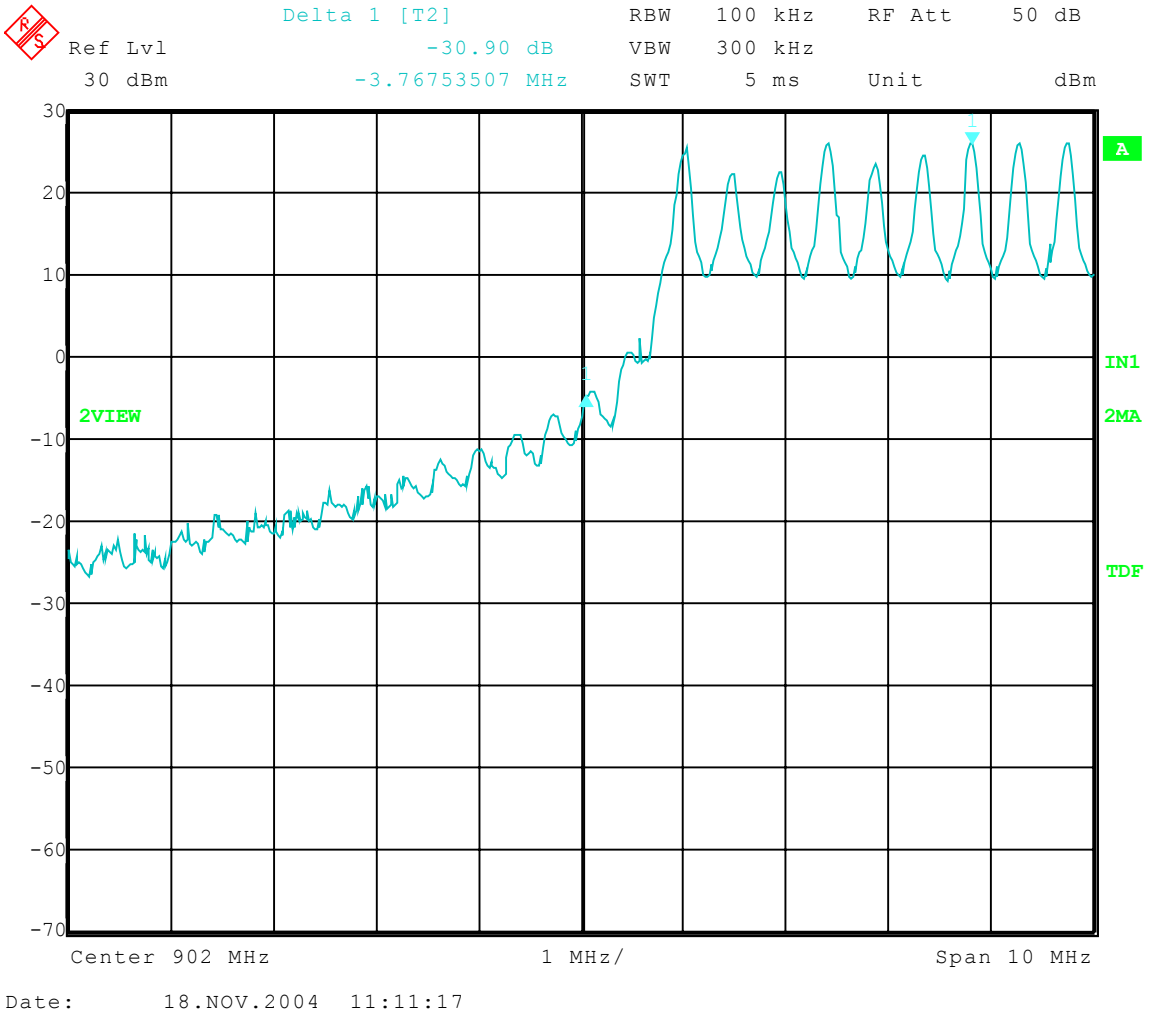
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Low Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Spread Spectrum Frequency Hopping On; Low Power

Band-Edge Frequency = 902 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



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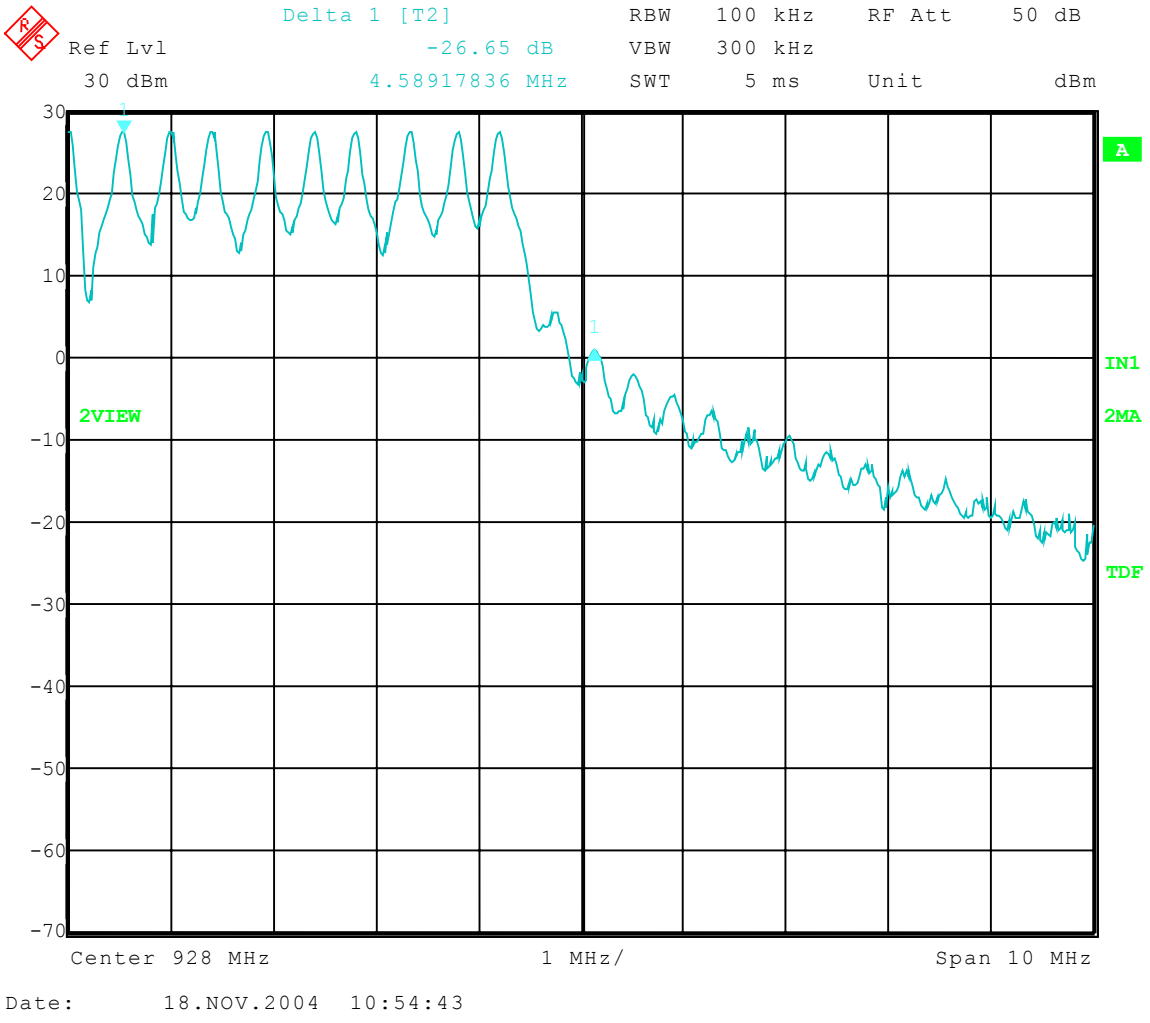
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: High Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Spread Spectrum Frequency Hopping On; High Power

Band-Edge Frequency = 928 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



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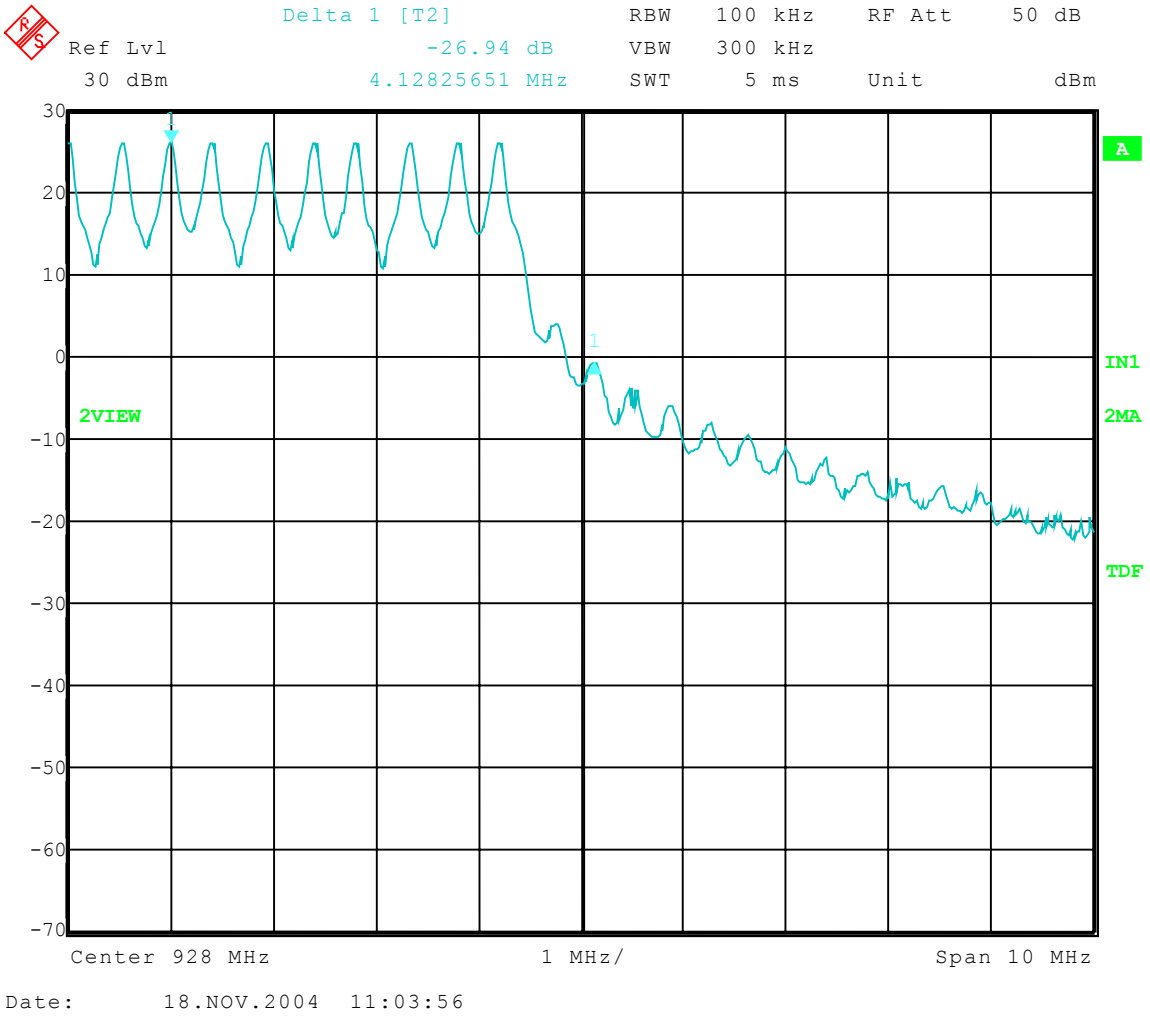
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: High Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Spread Spectrum Frequency Hopping On; Mid Power

Band-Edge Frequency = 928 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



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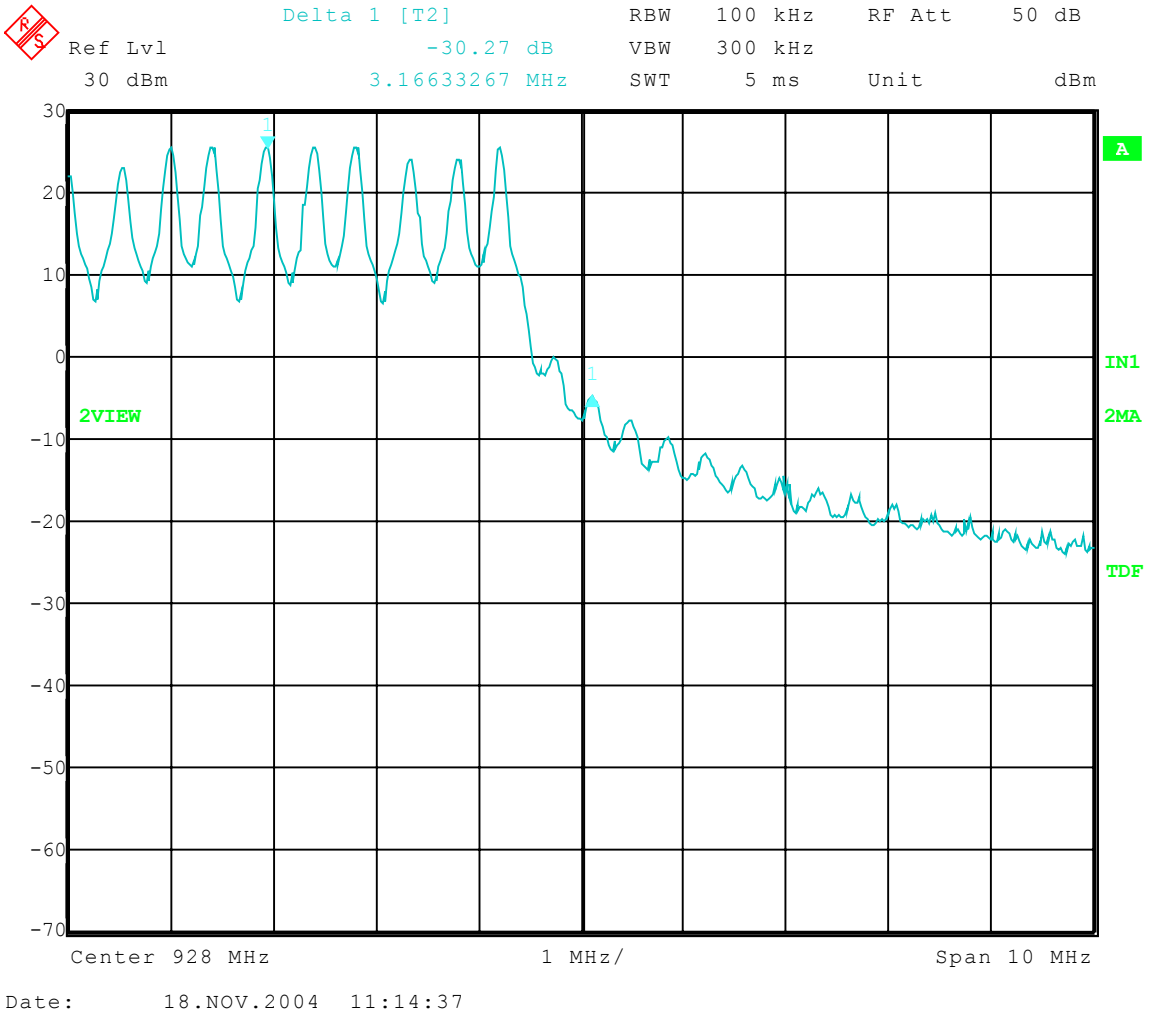
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: High Band-Edge Compliance - Conducted
Operator: Craig B
Comment: Spread Spectrum Frequency Hopping On; Low Power

Band-Edge Frequency = 928 MHz
Band-Edge > 20 dB Below Peak In-Band Emission



FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:
Comment:             Unintentional; Rx mode; Tx harmonics in restricted bands
                     Date: 11-17-2004
```

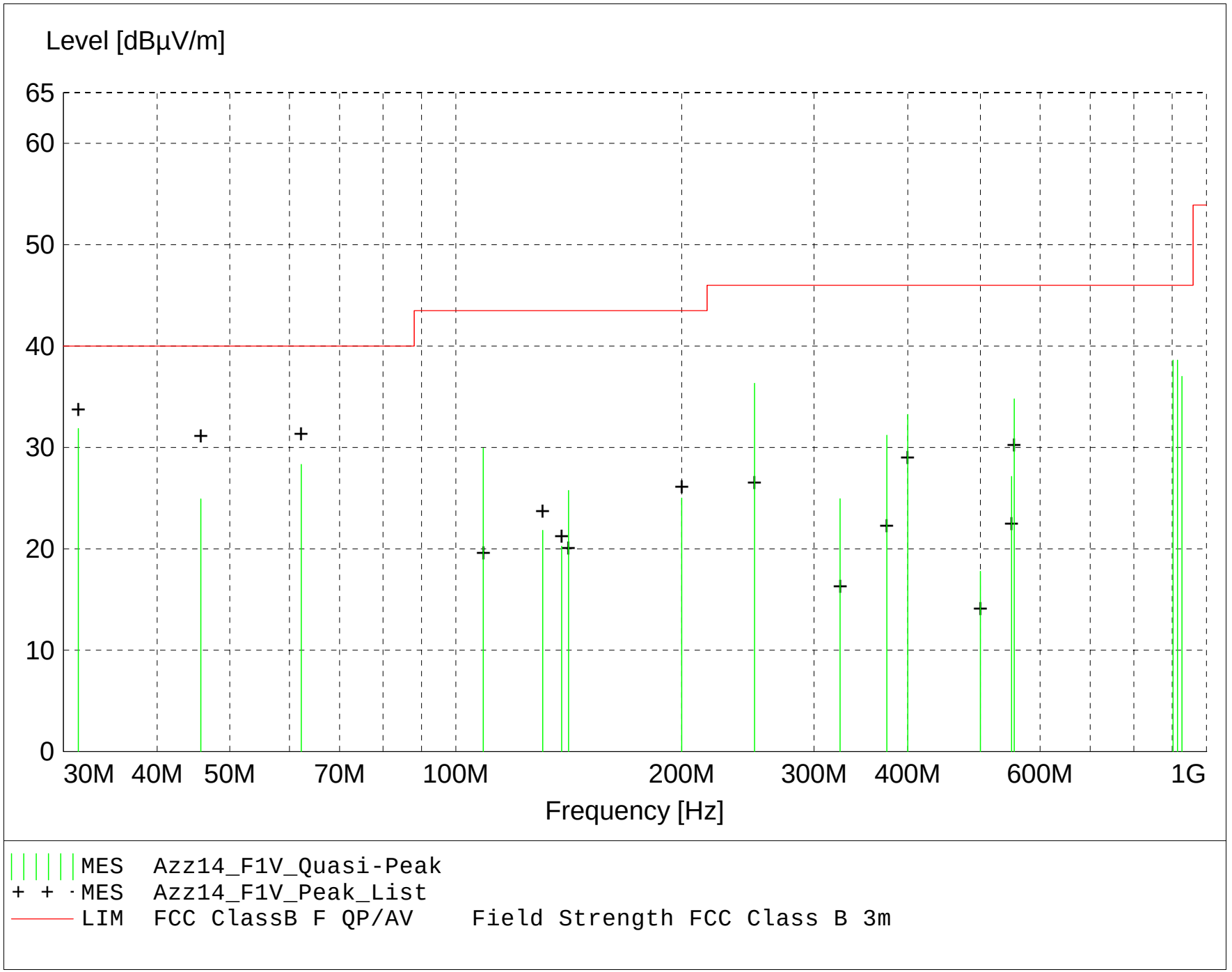
TEXT: "Site 3 MidV 3M"

```
  Short Description:            Test Set-up Vert30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837491/010

                Antennas ---
                Biconical    -- EMCO 3104C SN: 9701-4785
                Log Periodic -- EMCO 3146  SN: 9702-4895

                Pre-Amp  --- Rohde&Schwarz TS-PR10 SN: 032001/005

TEST SET-UP:    EuT Measured at 3 Meters with VERTICAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES Azz14_F1V_Quasi-Peak
MES Azz14_F1V_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz14_F1V_Final"

11/30/2004 12:34PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
915.130000	34.76	22.36	-18.5	38.6	46.0	7.4	1.10	315	QUASI-PEAK	None
902.990000	34.81	22.28	-18.5	38.6	46.0	7.4	1.10	315	QUASI-PEAK	None
31.405000	45.08	11.48	-24.7	31.9	40.0	8.1	1.00	180	QUASI-PEAK	None
927.190000	32.76	22.38	-18.2	37.0	46.0	9.0	1.10	315	QUASI-PEAK	None
250.000000	45.96	12.56	-22.2	36.3	46.0	9.7	1.00	0	QUASI-PEAK	None
554.320000	36.73	18.69	-20.6	34.8	46.0	11.2	1.10	135	QUASI-PEAK	None
62.225000	43.10	9.21	-24.0	28.3	40.0	11.7	1.00	135	QUASI-PEAK	None
400.000000	38.79	15.85	-21.4	33.2	46.0	12.8	1.70	270	QUASI-PEAK	None
108.785000	40.69	12.55	-23.3	29.9	43.5	13.6	1.00	0	QUASI-PEAK	None
375.000000	37.36	15.25	-21.4	31.2	46.0	14.8	1.00	225	QUASI-PEAK	None
45.750000	37.35	11.80	-24.2	24.9	40.0	15.1	1.00	270	QUASI-PEAK	None
141.225000	36.75	12.09	-23.1	25.8	43.5	17.7	1.00	30	QUASI-PEAK	None
200.000000	30.72	17.01	-22.7	25.0	43.5	18.5	1.00	90	QUASI-PEAK	None
550.000000	29.25	18.58	-20.7	27.1	46.0	18.9	1.00	180	QUASI-PEAK	None
325.000000	31.49	15.10	-21.7	24.9	46.0	21.1	1.00	180	QUASI-PEAK	None
130.515000	32.39	12.59	-23.2	21.8	43.5	21.7	1.00	180	QUASI-PEAK	None
138.300000	31.28	12.13	-23.1	20.3	43.5	23.2	1.00	30	QUASI-PEAK	None
500.000000	20.76	17.82	-20.8	17.8	46.0	28.2	1.00	180	QUASI-PEAK	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:
Comment:             Unintentional; Rx mode; Tx harmonics in restricted bands
                     Date: 11-17-2004
```

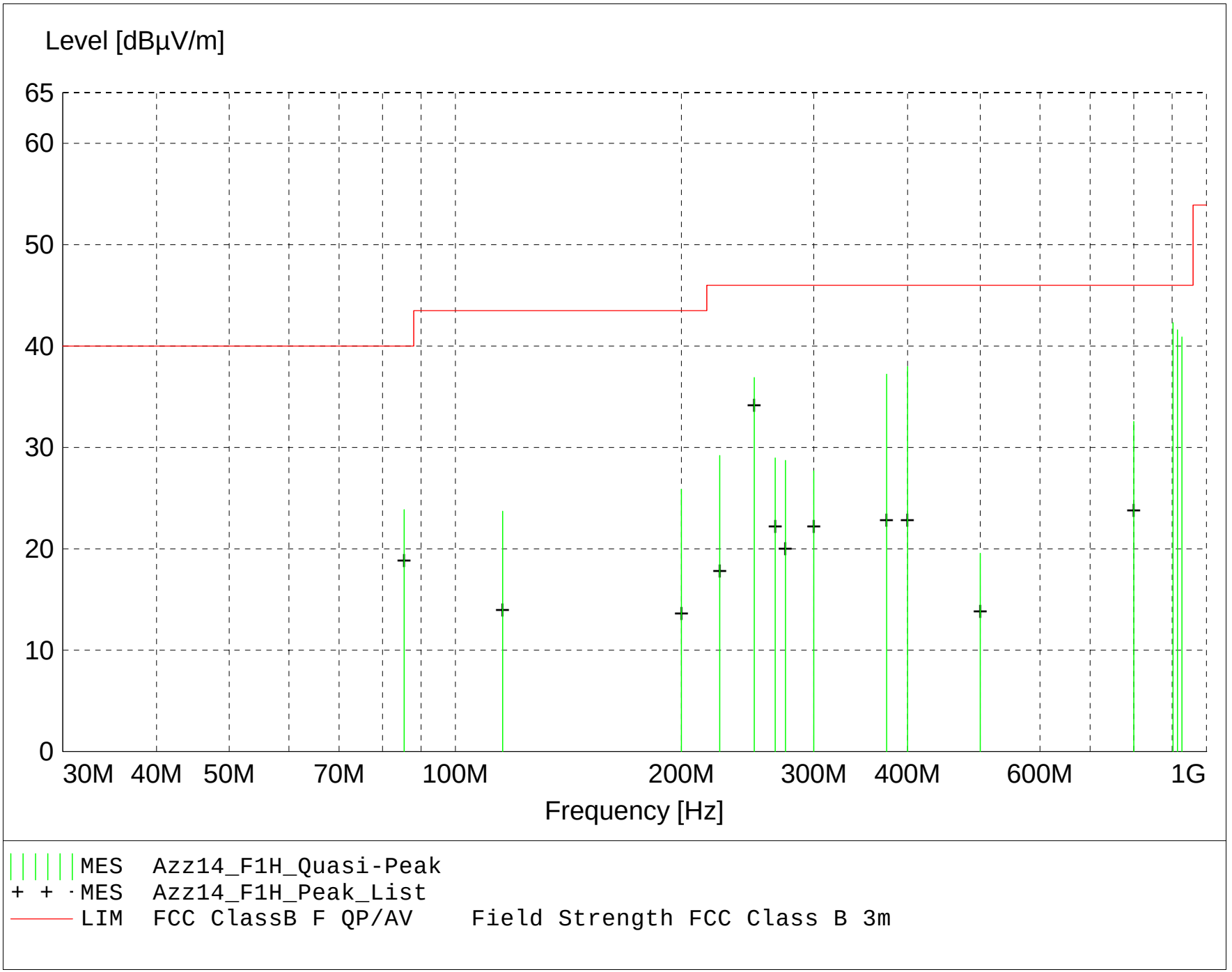
TEXT: "Site 3 MidH 3M"

```
  Short Description:            Test Set-up Horz30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Antennas ---
                Biconical    -- EMCO 3104C SN: 9701-4785
                Log Periodic -- EMCO 3146  SN: 9702-4895

                Pre-Amp  --- Rohde&Schwarz TS-PR10 SN: 032001/005

TEST SET-UP:    EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES Azz14_F1H_Quasi-Peak
MES Azz14_F1H_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz14_F1H_Final"

11/30/2004 12:39PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
902.990000	38.47	22.28	-18.5	42.3	46.0	3.7	1.10	150	QUASI-PEAK	None
915.130000	37.67	22.36	-18.5	41.6	46.0	4.4	1.10	150	QUASI-PEAK	None
927.200000	36.66	22.38	-18.2	40.9	46.0	5.1	1.10	150	QUASI-PEAK	None
400.000000	43.51	15.85	-21.4	38.0	46.0	8.0	1.00	315	QUASI-PEAK	None
375.000000	43.39	15.25	-21.4	37.2	46.0	8.8	1.00	315	QUASI-PEAK	None
250.000000	46.53	12.56	-22.2	36.9	46.0	9.1	1.50	315	QUASI-PEAK	None
800.000000	30.65	21.32	-19.4	32.6	46.0	13.4	1.80	180	QUASI-PEAK	None
85.455000	39.53	8.14	-23.8	23.9	40.0	16.1	2.50	135	QUASI-PEAK	None
225.000000	40.03	11.44	-22.3	29.2	46.0	16.8	2.20	315	QUASI-PEAK	None
266.660000	37.83	13.16	-22.0	29.0	46.0	17.0	1.00	315	QUASI-PEAK	None
275.000000	37.07	13.61	-22.0	28.7	46.0	17.3	1.00	270	QUASI-PEAK	None
200.000000	31.59	17.01	-22.7	25.9	43.5	17.6	1.50	270	QUASI-PEAK	None
300.000000	34.54	14.96	-21.8	27.7	46.0	18.3	1.40	315	QUASI-PEAK	None
115.610000	33.99	13.03	-23.3	23.7	43.5	19.8	3.00	90	QUASI-PEAK	None
500.000000	22.55	17.82	-20.8	19.6	46.0	26.4	1.00	90	QUASI-PEAK	None

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

6.0 FIELD STRENGTH OF SPURIOUS EMISSION MEASUREMENTS

The radiated measurements made at D.L.S. Electronic Systems, Inc., for the R110XiIII Plus, Model Number: 110XiIII, are shown in tabulated and graph form. Preliminary radiation measurements were performed at a 3 meter test distance with the limits adjusted linearly when required. The frequency range from 30 MHz to over 960 MHz, depending upon the fundamental frequency as stated in Part 15.33a, was automatically scanned and plotted at various angles.

Measurements for the R110XiIII Plus were made up to 10000 MHz, in accordance with Section 15.33a for Intentional Radiators with a fundamental frequency of 928 MHz. For intentional radiators, the frequency range to be investigated is determined by the lowest radio frequency generated by the device without going below 30 MHz, up to at least the tenth harmonic of the highest fundamental frequency or 10 GHz, whichever is lower. At those frequencies where significant signals were detected, measurements were made over the entire frequency range specified in FCC Part 15, Subpart C, Section 15.247 at the open field test site, located at Genoa City, Wisconsin, FCC file number **31040/SIT**. When required, levels were extrapolated from 10 meters to 3 meters using a linear extrapolation.

All signals in the frequency range of 30 MHz to 2000 MHz were measured with a Biconical Antenna or tuned dipoles and from 200 MHz to 1000 MHz, a Log Periodic or Tuned Dipoles were used. From 1000 MHz to 25 GHz Horn Antennas were used. During the test the equipment was rotated and the antenna was raised and lowered from 1 meter to 4 meters to find the maximum level of emissions. In order to find maximum emissions, the cables were moved through all the positions the equipment would be expected to experience in the field. The EUT, peripheral equipment and cables were configured to meet the conditions in ANSI C63.4-2001, Clauses 6 & 8. Tests were made with the receive antenna(s) in both the horizontal and vertical planes of polarization. In each case, the table was rotated to find the maximum emissions.

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APPENDIX A

6.0 FIELD STRENGTH OF SPURIOUS EMISSION MEASUREMENTS (CON'T)

As stated in Section 15.247(b) the allowed maximum peak output power of the transmitter shall not exceed 1 Watt. In any 100 kHz bandwidth outside these frequency bands (the power that is produced by the modulation products of the spreading sequence), the information sequence and the carrier frequency shall be either at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in 15.209 is not required.

Field strength limits are at a distance of 3 meters. The emission limits shown are based on measurement instrumentation employing an average detector.

Emissions radiated outside of the specified frequency bands, except for harmonics are attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Preliminary radiated emission measurements were performed at a 3 meter test distance. The frequency range from 30 MHz to 1000 MHz was automatically scanned and plotted at various angles.

NOTE:

All radiated emissions measurements were made at a test room temperature of **71°F** at **44%** relative humidity.

ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

RADIATED DATA AND GRAPH(S) TAKEN FOR

FIELD STRENGTH

SPURIOUS EMISSION MEASUREMENTS

PART 15.247

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Low Power; Low channel
Date: 11-17-2004

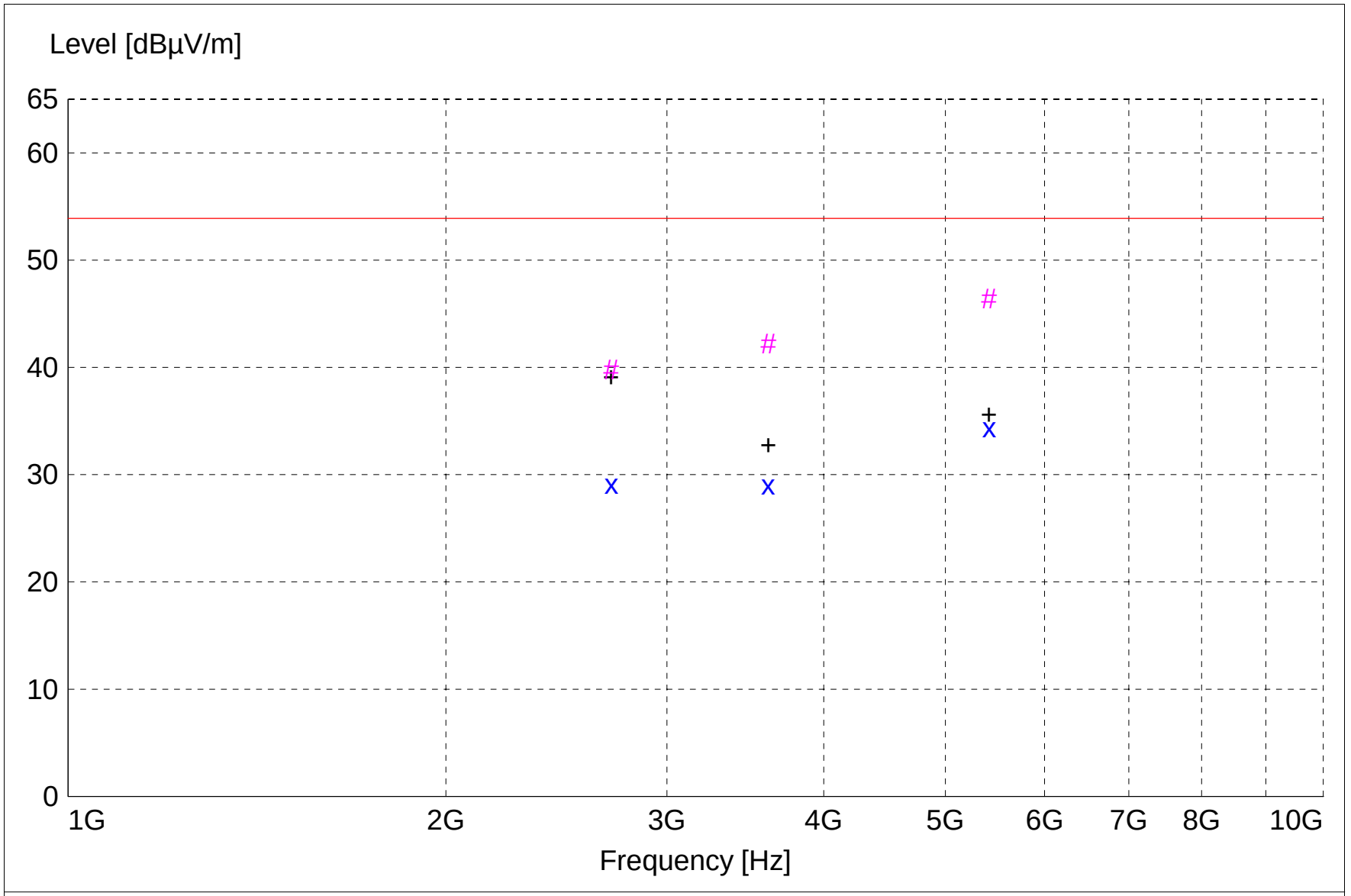
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation



x x MES Azz9_sv_Average
MES Azz9_sv_Peak
+ + MES Azz9_sv_Peak_List
——— LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz9_sv_Final"

11/17/2004 1:30PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
5417.950000	48.29	34.07	-35.9	46.4	53.9	7.5	1.00	45	MAX PEAK	None
3612.000000	48.15	31.51	-37.5	42.2	53.9	11.7	1.70	90	MAX PEAK	None
2709.000000	49.36	29.23	-38.8	39.8	53.9	14.1	1.00	340	MAX PEAK	None
5417.950000	36.24	34.07	-35.9	34.4	53.9	19.5	1.00	45	AVERAGE	None
2709.000000	38.64	29.23	-38.8	29.1	53.9	24.8	1.00	340	AVERAGE	None
3612.000000	34.96	31.51	-37.5	29.0	53.9	24.9	1.70	90	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:  Rx mode, Tx unintentonal and harmonics in restricted bands
Comment:             Low Power; Low channel
                     Date: 11-17-2004
```

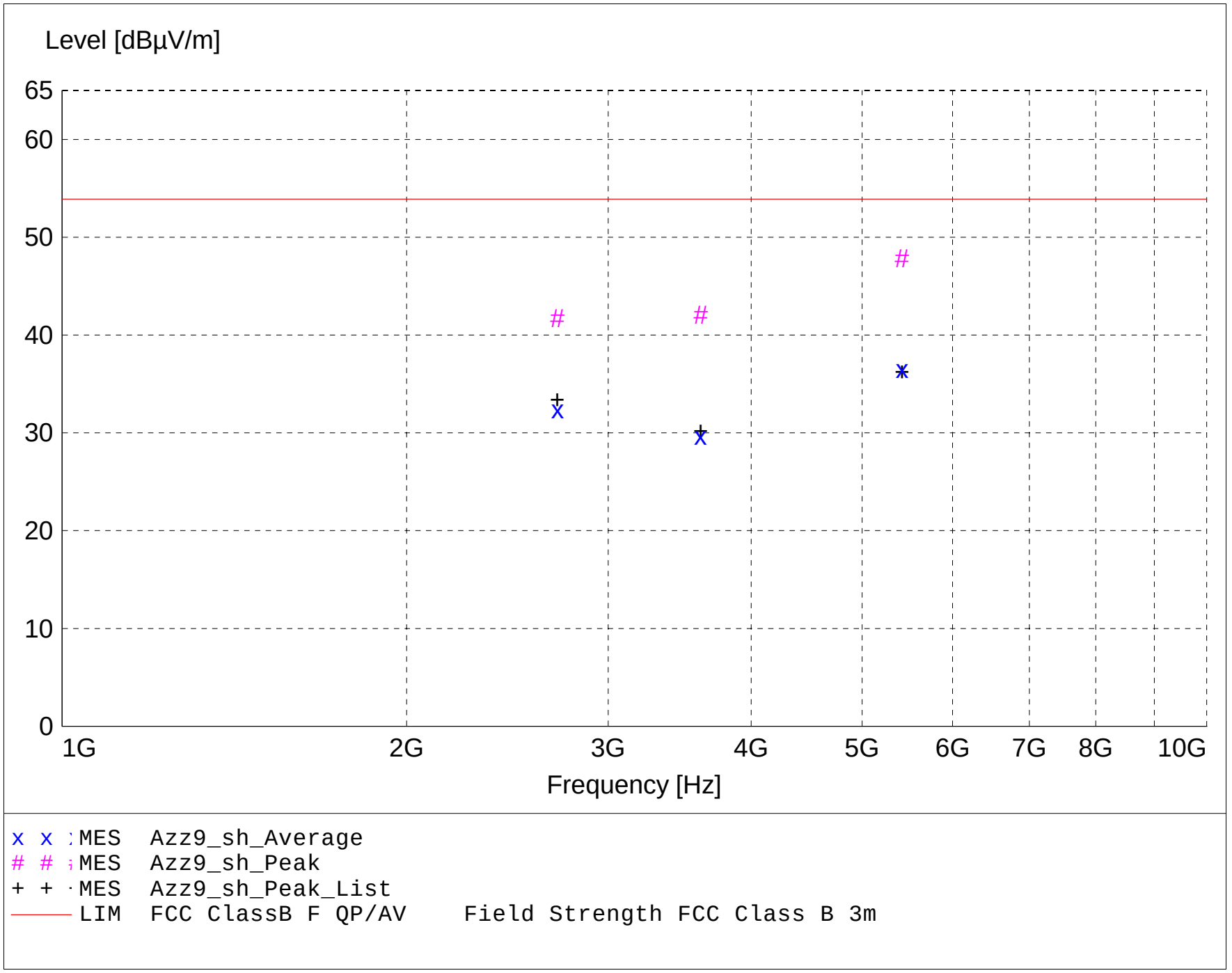
TEXT: "Site 3 5731&184 H3M"

```
  Short Description:            Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                                1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 682425
                                10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP:    EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz9_sh_Average
MES Azz9_sh_Peak
+ + MES Azz9_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz9_sh_Final"

11/17/2004 1:35PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
5417.950000	49.64	34.07	-35.9	47.8	53.9	6.1	1.00	135	MAX PEAK	None
3612.000000	48.02	31.51	-37.5	42.1	53.9	11.8	1.10	30	MAX PEAK	None
2709.000000	51.23	29.23	-38.8	41.7	53.9	12.2	1.00	270	MAX PEAK	None
5417.950000	38.34	34.07	-35.9	36.5	53.9	17.4	1.00	135	AVERAGE	None
2709.000000	41.96	29.23	-38.8	32.4	53.9	21.5	1.00	270	AVERAGE	None
3612.000000	35.63	31.51	-37.5	29.7	53.9	24.2	1.10	30	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:  Rx mode, Tx unintentonal and harmonics in restricted bands
Comment:             Low Power; Mid channel
                     Date: 11-17-2004
```

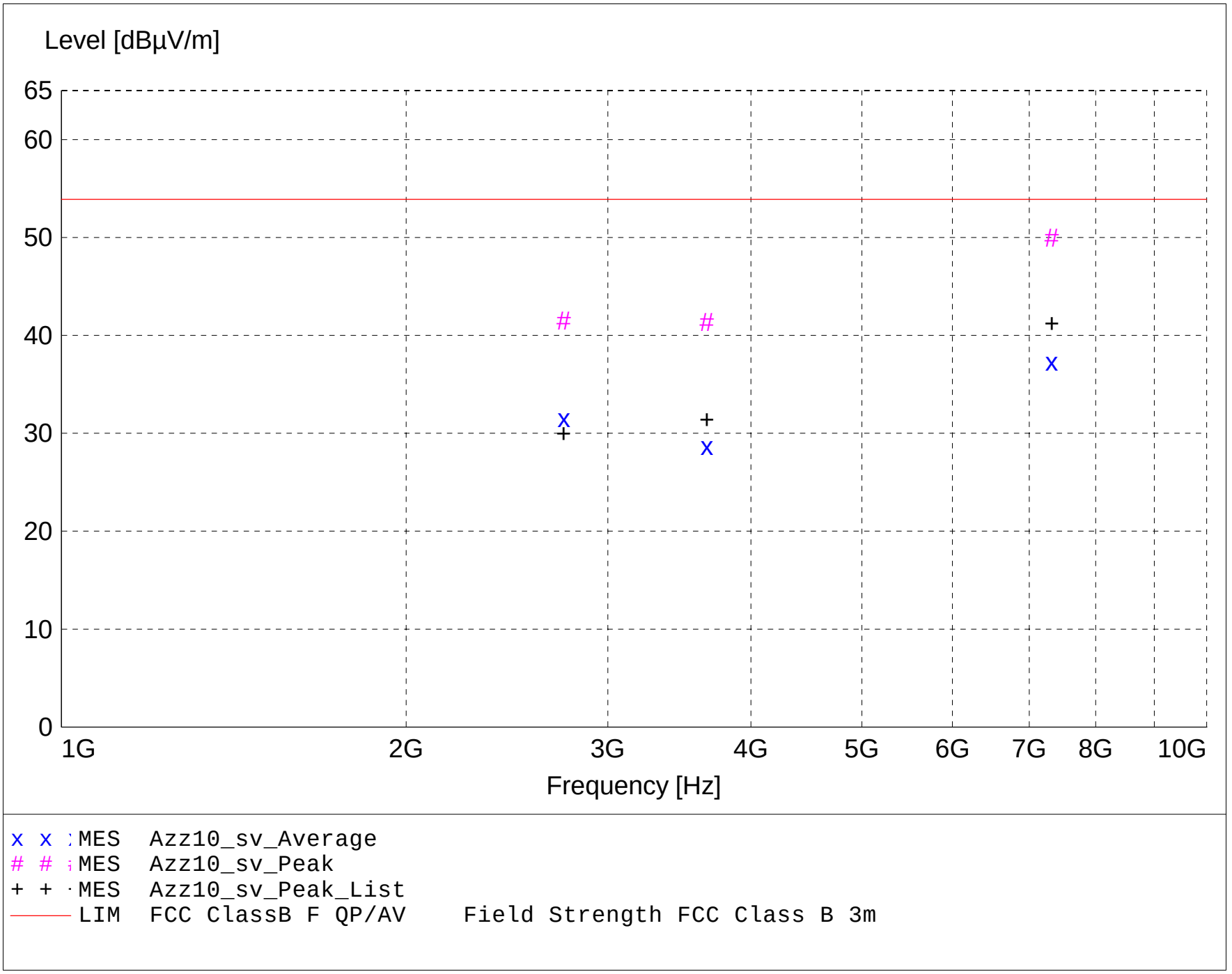
TEXT: "Site 3 5731&184 V3M"

```
  Short Description:            Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                                1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 682425
                                10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP:    EuT Measured at 3 Meters with VERTICAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz10_sv_Average
MES Azz10_sv_Peak
+ + MES Azz10_sv_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz10_sv_Final"

11/17/2004 1:43PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7321.000000	48.28	35.97	-34.3	49.9	53.9	4.0	1.00	135	MAX PEAK	None
2745.400000	50.70	29.34	-38.5	41.5	53.9	12.4	1.00	0	MAX PEAK	None
3660.500000	47.19	31.65	-37.5	41.3	53.9	12.6	1.00	180	MAX PEAK	None
7321.000000	35.61	35.97	-34.3	37.3	53.9	16.6	1.00	135	AVERAGE	None
2745.400000	40.75	29.34	-38.5	31.5	53.9	22.4	1.00	0	AVERAGE	None
3660.500000	34.58	31.65	-37.5	28.7	53.9	25.2	1.00	180	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Low Power; Mid channel
Date: 11-17-2004

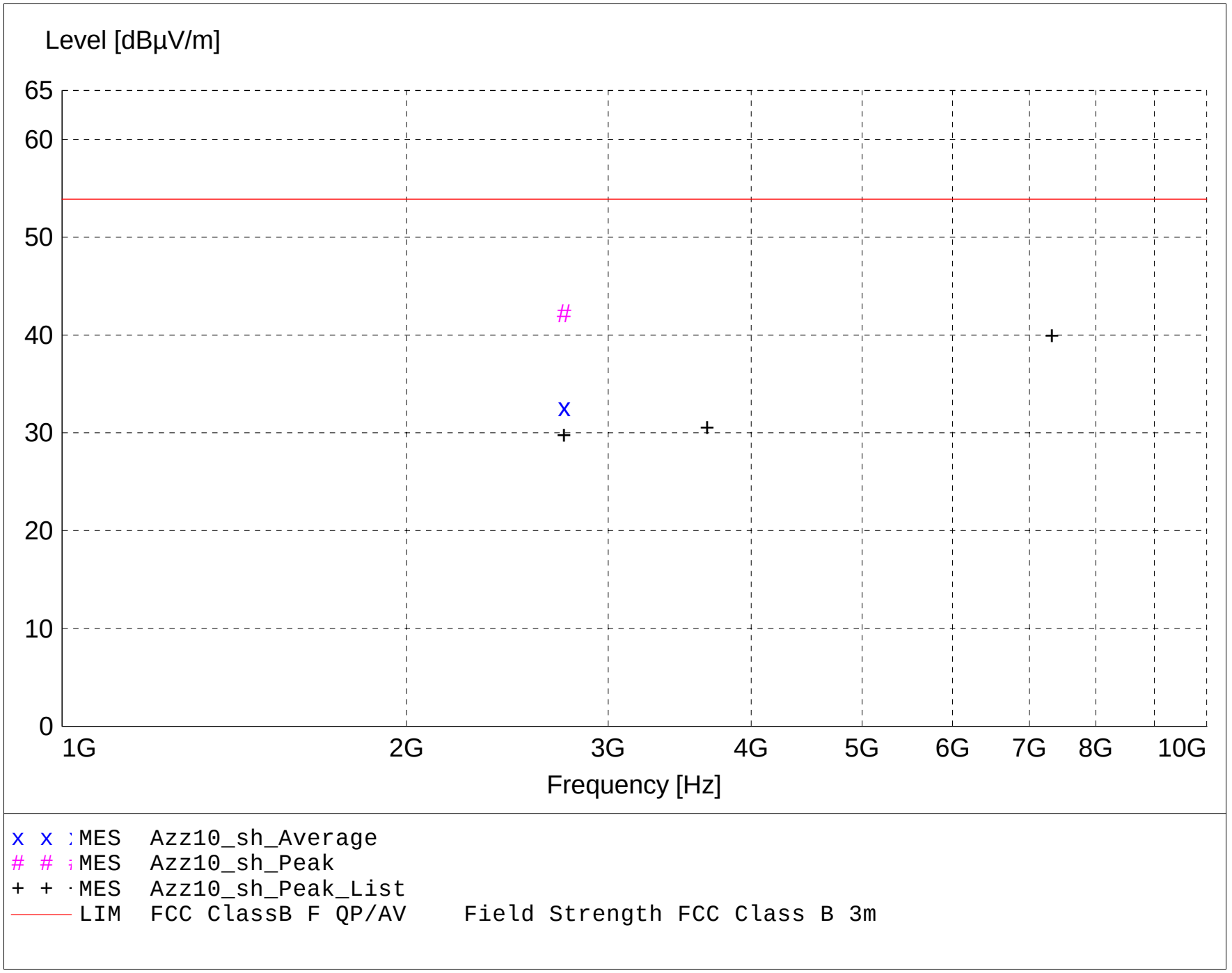
TEXT: "Site 3 5731&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz10_sh_Average
MES Azz10_sh_Peak
+ + MES Azz10_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz10_sh_Final"

11/17/2004 1:45PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2745.400000	51.37	29.34	-38.5	42.2	53.9	11.7	1.30	180	MAX PEAK	None
2745.400000	41.79	29.34	-38.5	32.6	53.9	21.3	1.30	180	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Low Power; High channel
Date: 11-17-2004

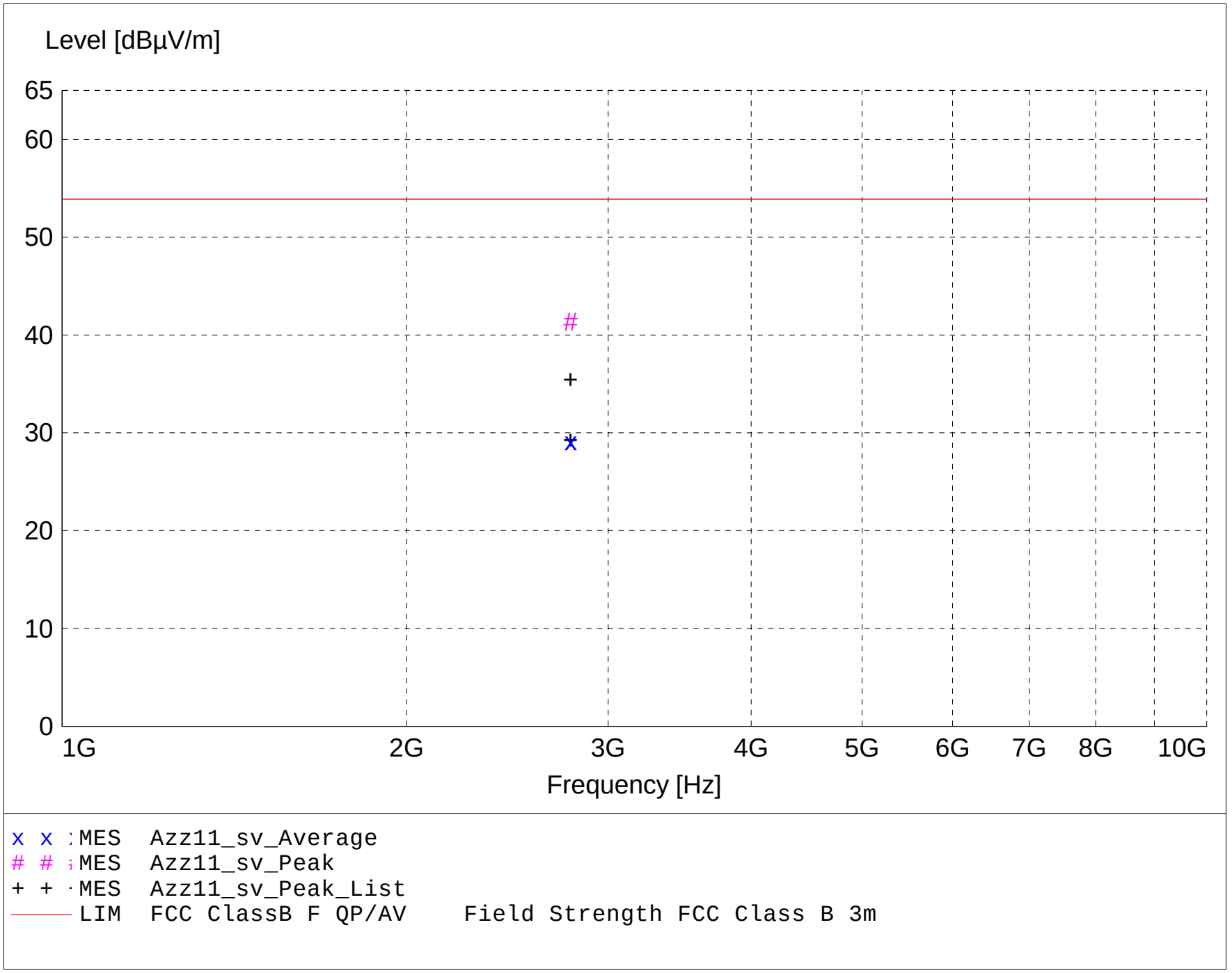
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz11_sv_Average
MES Azz11_sv_Peak
+ + MES Azz11_sv_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz11_sv_Final"

11/17/2004 1:48PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2781.600000	50.32	29.44	-38.4	41.4	53.9	12.5	1.10	0	MAX PEAK	None
2781.600000	38.01	29.44	-38.4	29.1	53.9	24.8	1.10	0	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Low Power; High channel
Date: 11-17-2004

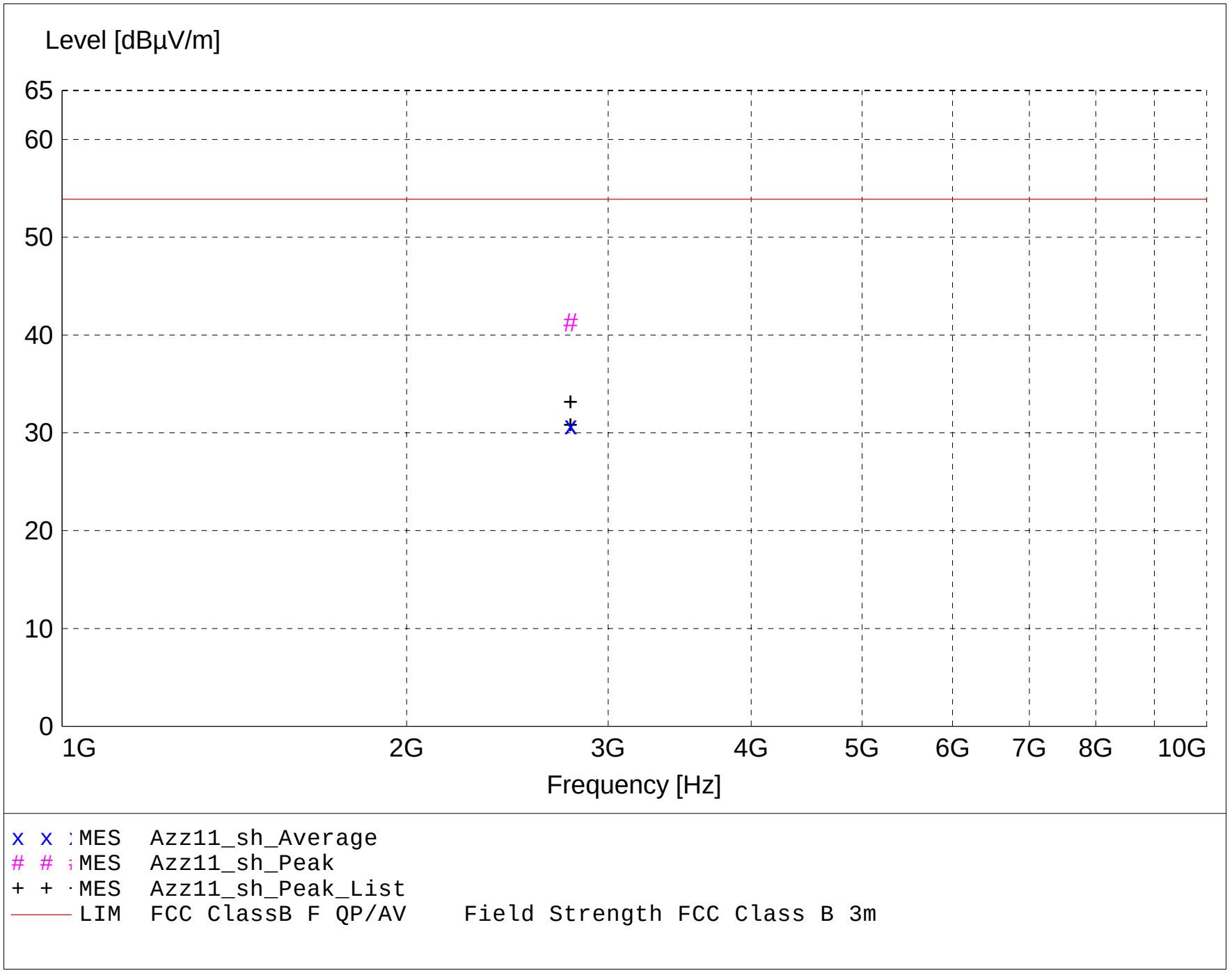
TEXT: "Site 3 5731&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz11_sh_Average
MES Azz11_sh_Peak
+ + MES Azz11_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz11_sh_Final"

11/17/2004 1:55PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2781.600000	50.19	29.44	-38.4	41.2	53.9	12.7	1.10	150	MAX PEAK	None
2781.600000	39.65	29.44	-38.4	30.7	53.9	23.2	1.10	150	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Mid Power; Low channel
Date: 11-17-2004

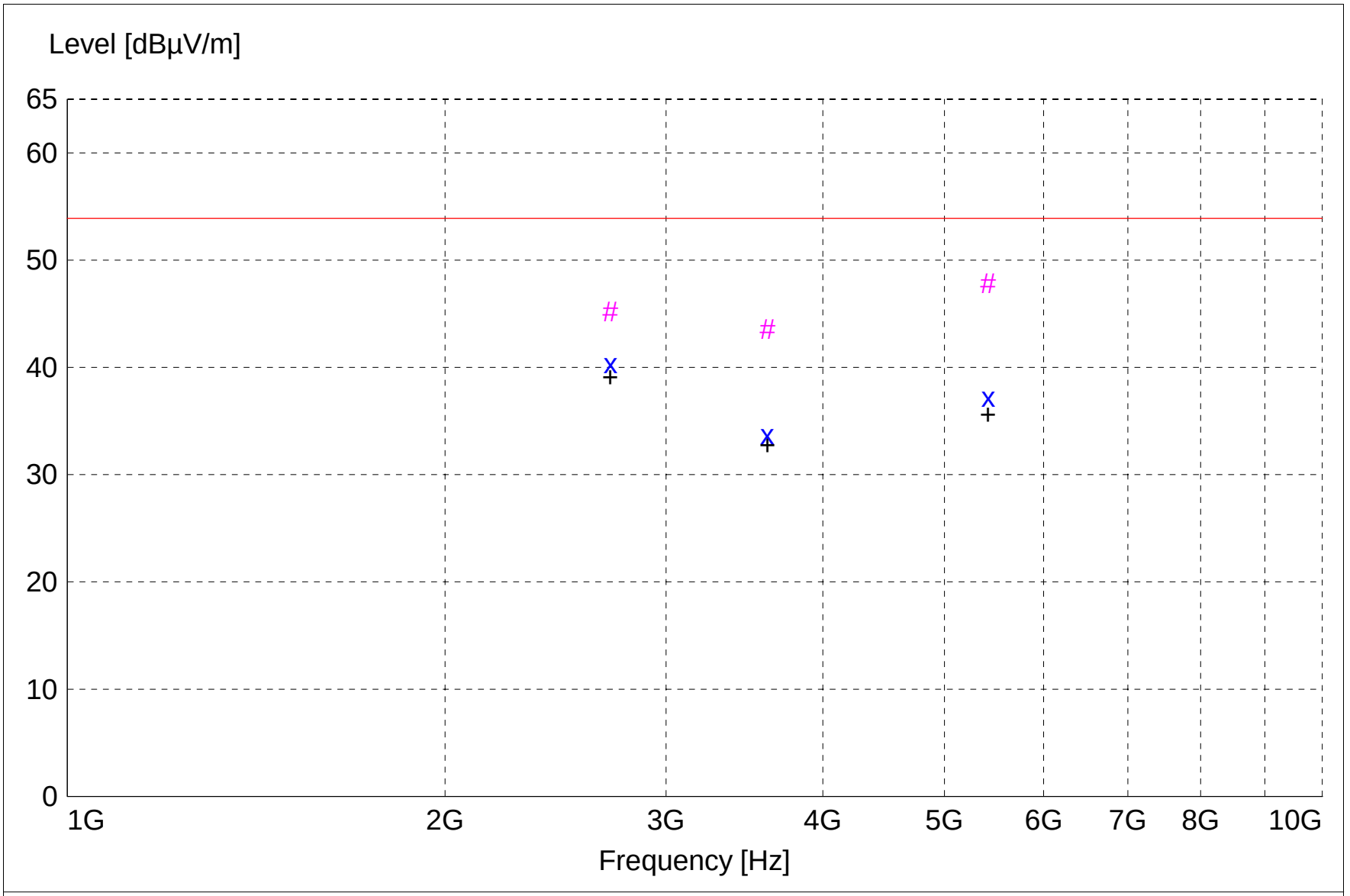
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation



x x MES Azz6_sv_Average
MES Azz6_sv_Peak
+ + MES Azz6_sv_Peak_List
——— LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz6_sv_Final"

11/17/2004 12:58PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
5417.950000	49.64	34.07	-35.9	47.8	53.9	6.1	1.00	45	MAX PEAK	None
2709.000000	54.72	29.23	-38.8	45.2	53.9	8.7	1.00	0	MAX PEAK	None
3612.000000	49.50	31.51	-37.5	43.5	53.9	10.4	1.00	135	MAX PEAK	None
2709.000000	49.89	29.23	-38.8	40.3	53.9	13.6	1.00	0	AVERAGE	None
5417.950000	39.06	34.07	-35.9	37.2	53.9	16.7	1.00	45	AVERAGE	None
3612.000000	39.71	31.51	-37.5	33.7	53.9	20.2	1.00	135	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:  Rx mode, Tx unintentonal and harmonics in restricted bands
Comment:             Mid Power; Low channel
                     Date: 11-17-2004
```

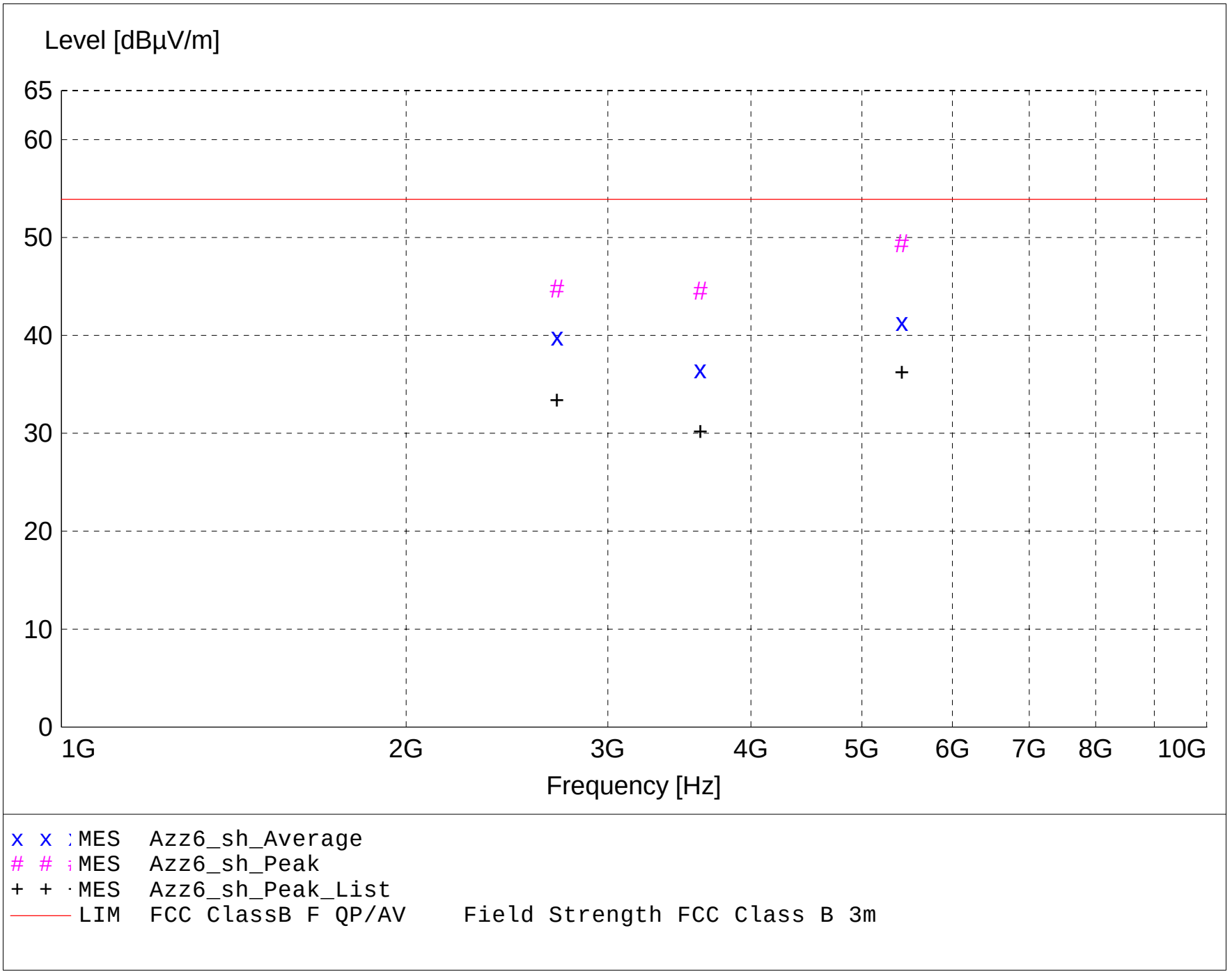
TEXT: "Site 3 5731&184 H3M"

```
  Short Description:           Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                               1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 682425
                               10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP:    EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz6_sh_Average
MES Azz6_sh_Peak
+ + MES Azz6_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz6_sh_Final"

11/17/2004 1:03PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
5417.950000	51.23	34.07	-35.9	49.4	53.9	4.5	1.00	135	MAX PEAK	None
2709.000000	54.31	29.23	-38.8	44.7	53.9	9.2	1.10	135	MAX PEAK	None
3612.000000	50.45	31.51	-37.5	44.5	53.9	9.4	1.20	30	MAX PEAK	None
5417.950000	43.22	34.07	-35.9	41.4	53.9	12.5	1.00	135	AVERAGE	None
2709.000000	49.40	29.23	-38.8	39.8	53.9	14.1	1.10	135	AVERAGE	None
3612.000000	42.48	31.51	-37.5	36.5	53.9	17.4	1.20	30	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:  Rx mode, Tx unintentonal and harmonics in restricted bands
Comment:             Mid Power; Mid channel
                     Date: 11-17-2004
```

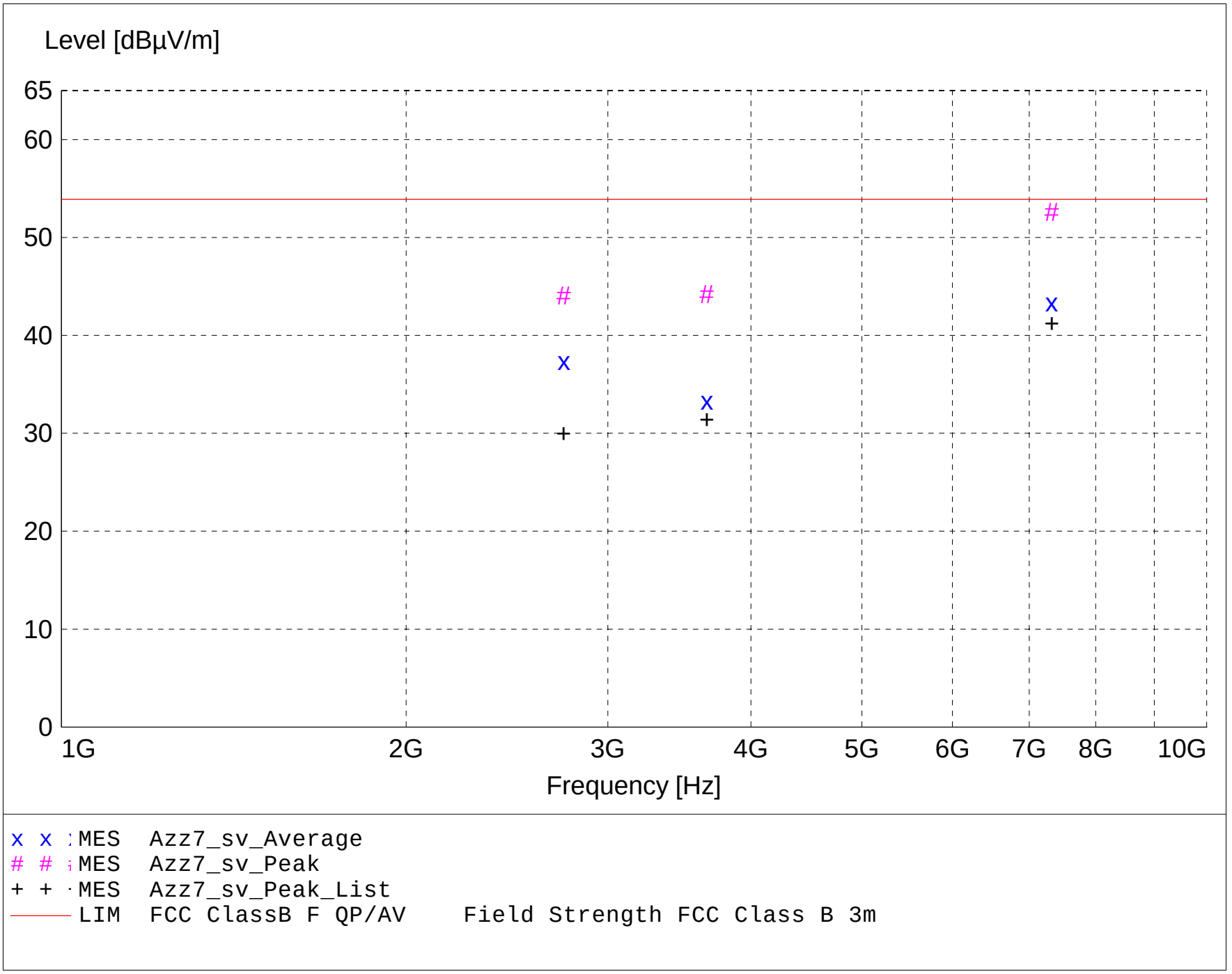
TEXT: "Site 3 5731&184 V3M"

```
  Short Description:           Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                               1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 682425
                               10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP:    EuT Measured at 3 Meters with VERTICAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz7_sv_Average
MES Azz7_sv_Peak
+ + MES Azz7_sv_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz7_sv_Final"

11/17/2004 1:09PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7321.000000	50.96	35.97	-34.3	52.6	53.9	1.3	1.00	160	MAX PEAK	None
3660.500000	50.06	31.65	-37.5	44.2	53.9	9.7	1.00	90	MAX PEAK	None
2745.400000	53.25	29.34	-38.5	44.0	53.9	9.9	1.00	0	MAX PEAK	None
7321.000000	41.64	35.97	-34.3	43.3	53.9	10.6	1.00	160	AVERAGE	None
2745.400000	46.57	29.34	-38.5	37.4	53.9	16.5	1.00	0	AVERAGE	None
3660.500000	39.20	31.65	-37.5	33.3	53.9	20.6	1.00	90	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:  Rx mode, Tx unintentonal and harmonics in restricted bands
Comment:             Mid Power; Mid channel
                     Date: 11-17-2004
```

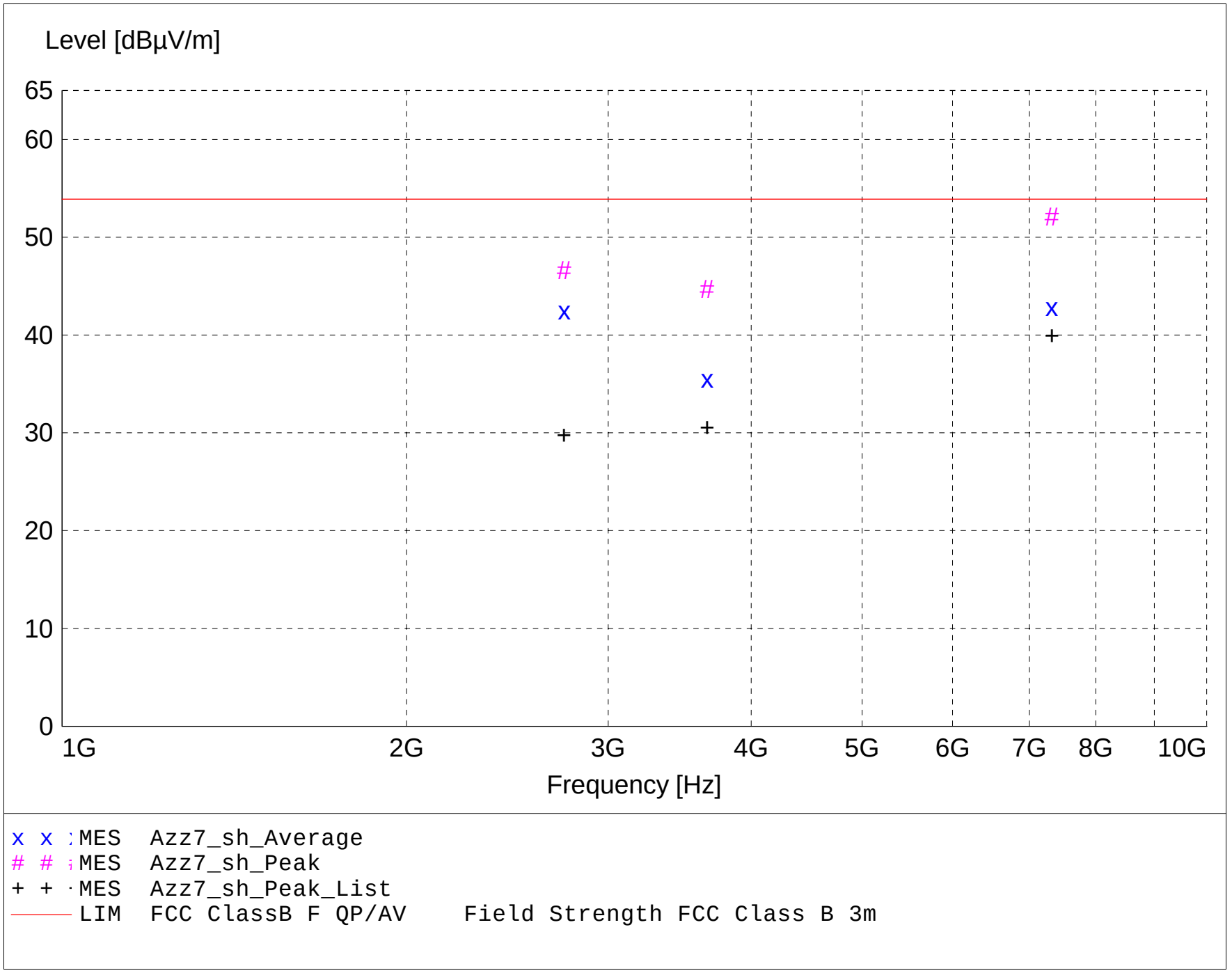
TEXT: "Site 3 5731&184 H3M"

```
  Short Description:            Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                                1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 682425
                                10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP:    EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation
```



x x MES Azz7_sh_Average
MES Azz7_sh_Peak
+ + MES Azz7_sh_Peak_List
——— LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz7_sh_Final"

11/17/2004 1:14PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7321.000000	50.44	35.97	-34.3	52.1	53.9	1.8	2.00	135	MAX PEAK	None
2745.400000	55.81	29.34	-38.5	46.6	53.9	7.3	1.30	180	MAX PEAK	None
3660.500000	50.58	31.65	-37.5	44.7	53.9	9.2	1.30	90	MAX PEAK	None
7321.000000	41.17	35.97	-34.3	42.8	53.9	11.1	2.00	135	AVERAGE	None
2745.400000	51.65	29.34	-38.5	42.5	53.9	11.4	1.30	180	AVERAGE	None
3660.500000	41.43	31.65	-37.5	35.5	53.9	18.4	1.30	90	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Mid Power; High channel
Date: 11-17-2004

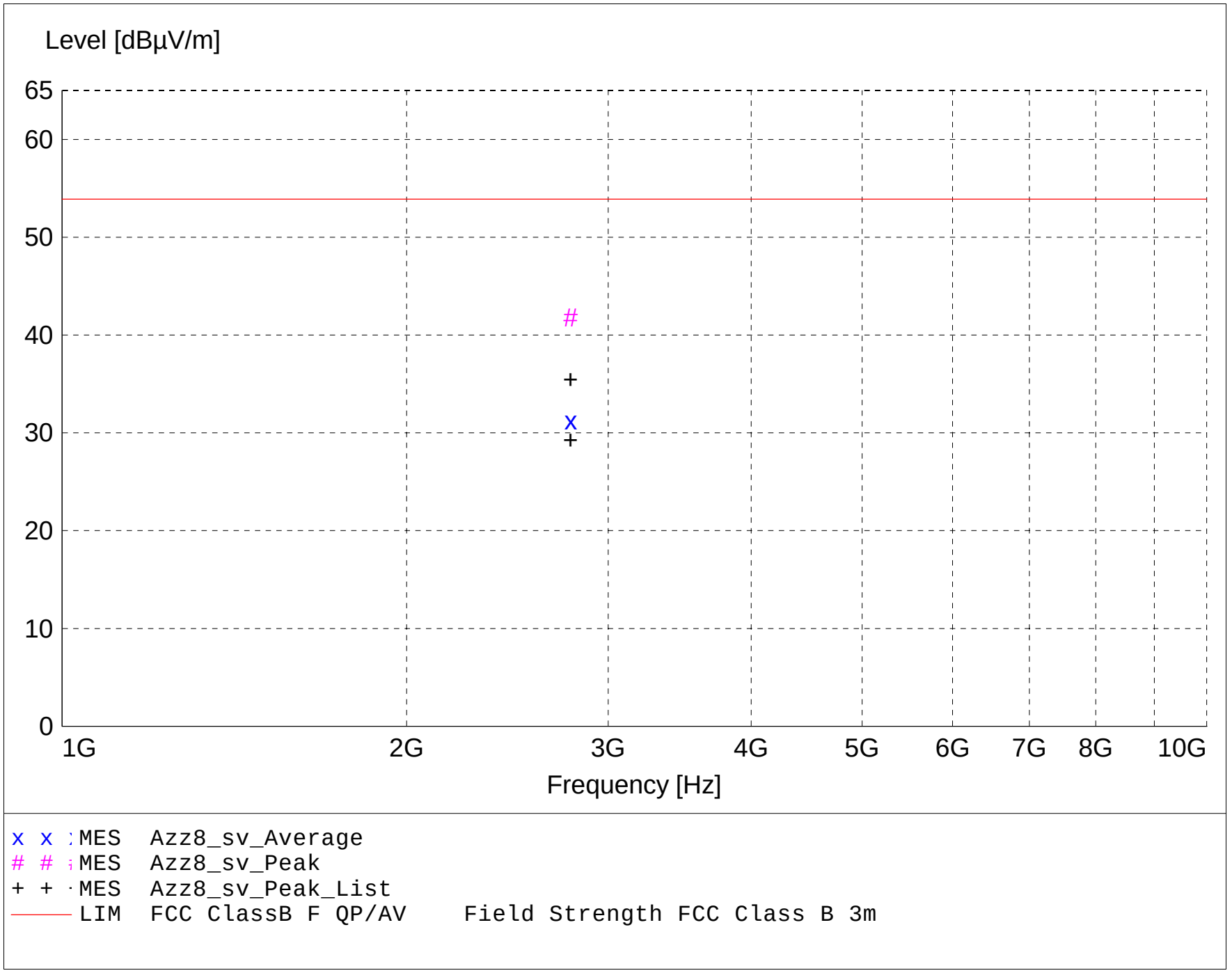
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz8_sv_Average
MES Azz8_sv_Peak
+ + MES Azz8_sv_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz8_sv_Final"

11/17/2004 1:19PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2781.550000	50.70	29.44	-38.4	41.8	53.9	12.1	1.40	30	MAX PEAK	None
2781.550000	40.18	29.44	-38.4	31.2	53.9	22.7	1.40	30	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: Mid Power; High channel
Date: 11-17-2004

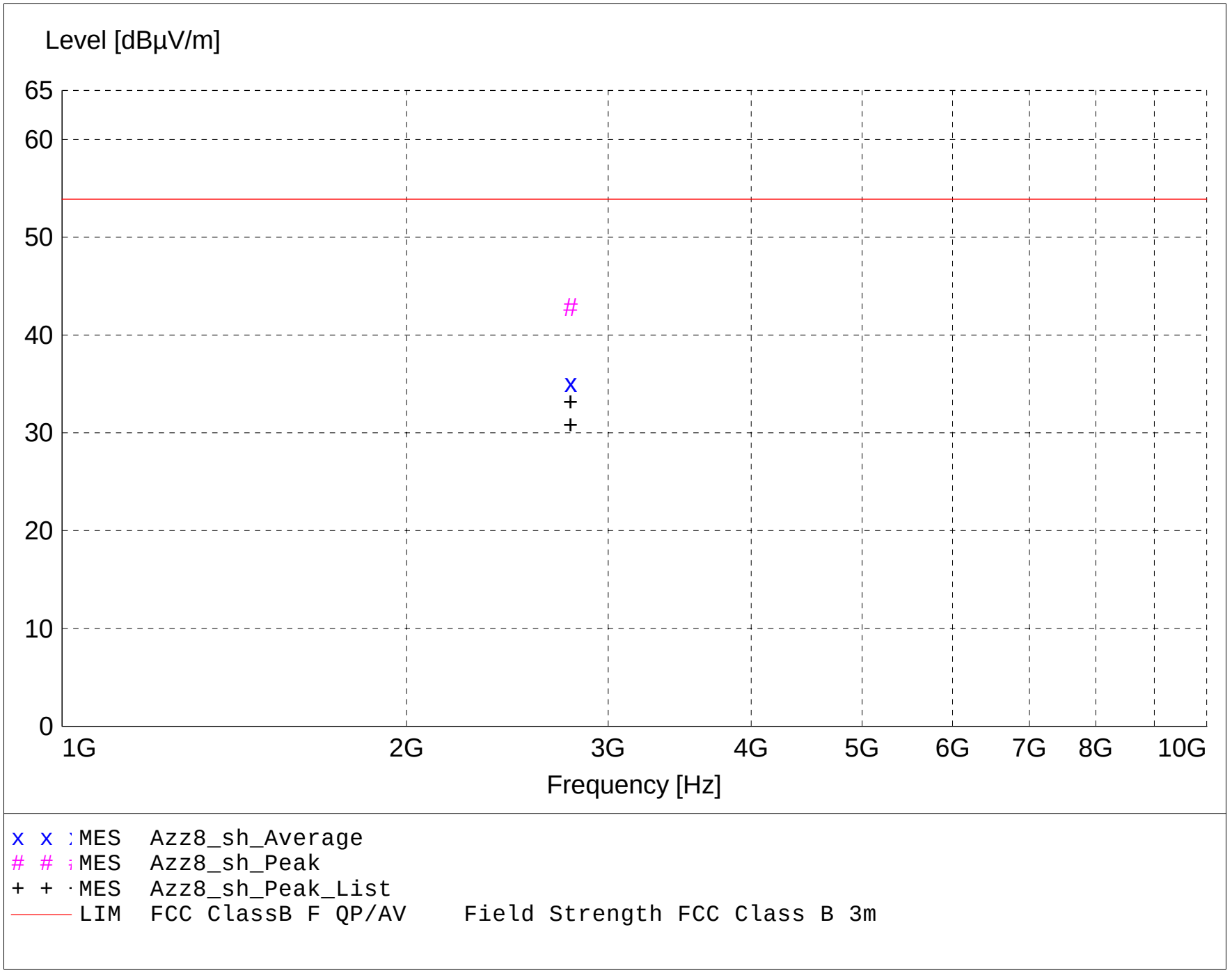
TEXT: "Site 3 5731&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz8_sh_Average
MES Azz8_sh_Peak
+ + MES Azz8_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz8_sh_Final"

11/17/2004 1:22PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2781.600000	51.78	29.44	-38.4	42.8	53.9	11.1	1.30	45	MAX PEAK	None
2781.600000	44.02	29.44	-38.4	35.1	53.9	18.8	1.30	45	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: High Power; Low channel
Date: 11-17-2004

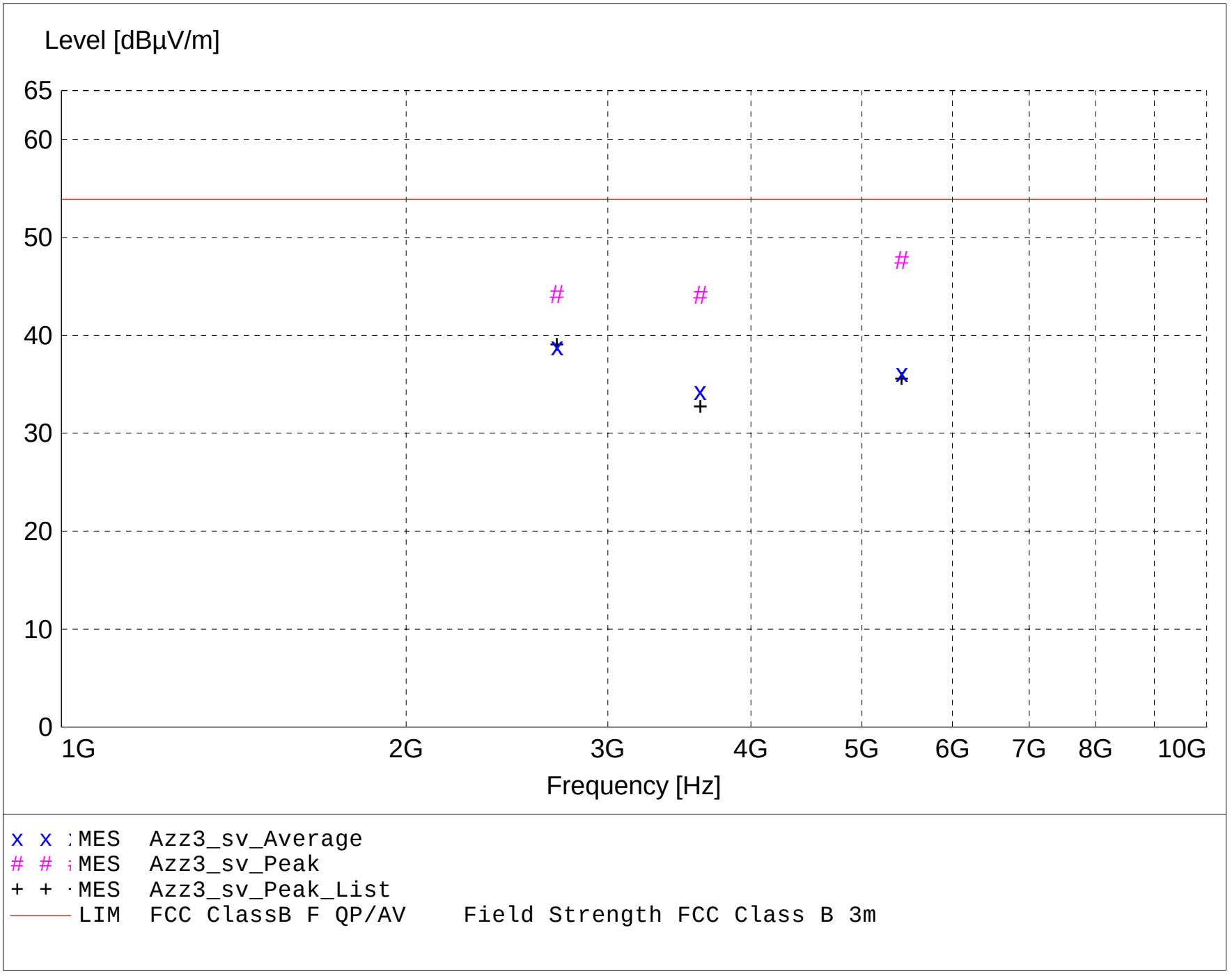
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz3_sv_Average
MES Azz3_sv_Peak
+ + MES Azz3_sv_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz3_sv_Final"

11/17/2004 11:16AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
5417.950000	49.50	34.07	-35.9	47.6	53.9	6.3	1.00	60	MAX PEAK	None
2709.000000	53.77	29.23	-38.8	44.2	53.9	9.7	1.00	0	MAX PEAK	None
3612.000000	50.06	31.51	-37.5	44.1	53.9	9.8	1.00	180	MAX PEAK	None
2709.000000	48.38	29.23	-38.8	38.8	53.9	15.1	1.00	0	AVERAGE	None
5417.950000	38.00	34.07	-35.9	36.1	53.9	17.8	1.00	60	AVERAGE	None
3612.000000	40.28	31.51	-37.5	34.3	53.9	19.6	1.00	180	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: High Power; Low channel
Date: 11-17-2004

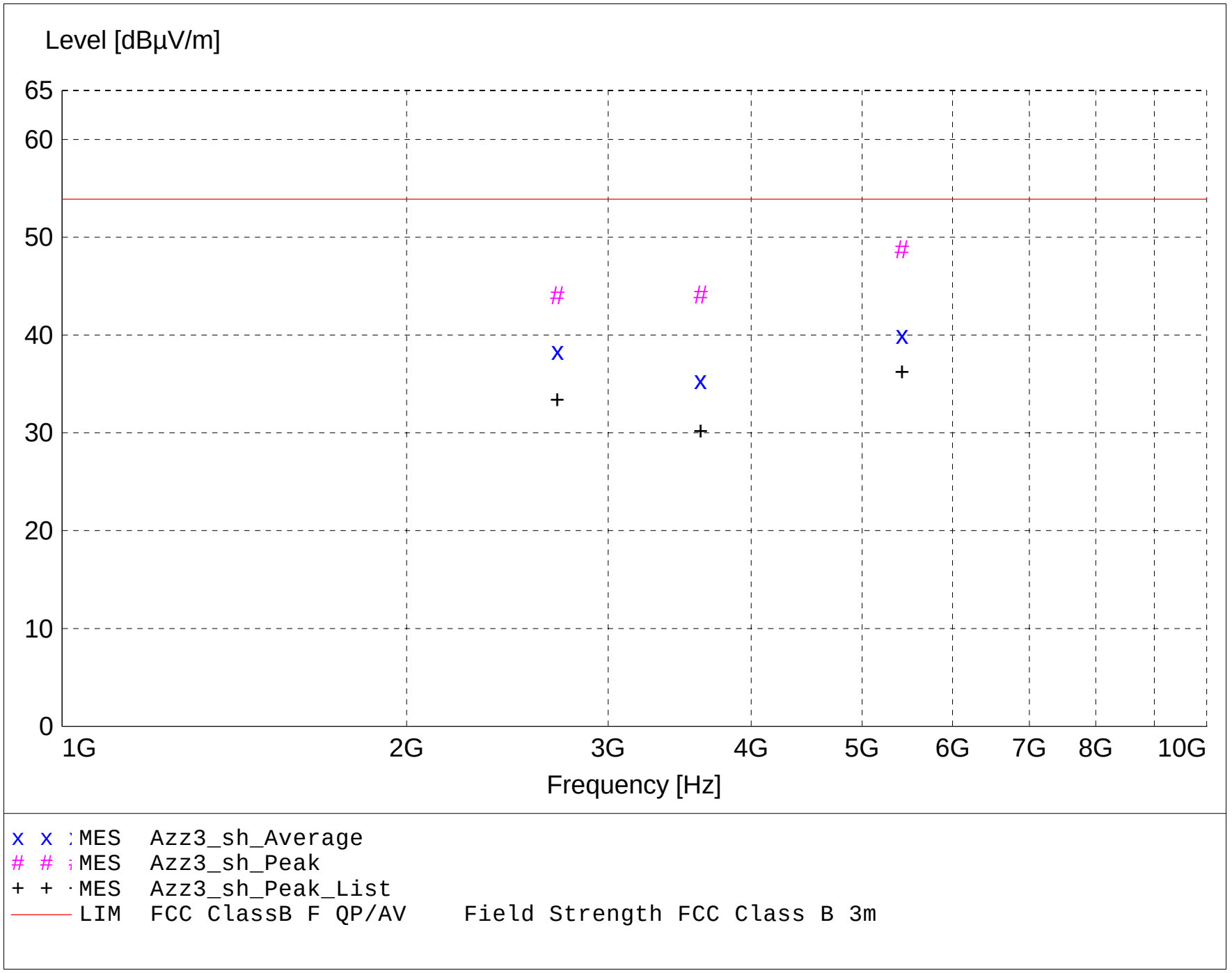
TEXT: "Site 3 5731&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz3_sh_Average
MES Azz3_sh_Peak
+ + MES Azz3_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz3_sh_Final"

11/17/2004 11:26AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
5417.950000	50.58	34.07	-35.9	48.7	53.9	5.2	1.00	135	MAX PEAK	None
3612.000000	50.06	31.51	-37.5	44.1	53.9	9.8	1.20	30	MAX PEAK	None
2709.000000	53.64	29.23	-38.8	44.1	53.9	9.8	1.00	30	MAX PEAK	None
5417.950000	41.83	34.07	-35.9	40.0	53.9	13.9	1.00	135	AVERAGE	None
2709.000000	47.90	29.23	-38.8	38.3	53.9	15.6	1.00	30	AVERAGE	None
3612.000000	41.33	31.51	-37.5	35.4	53.9	18.5	1.20	30	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: High Power; Mid channel
Date: 11-17-2004

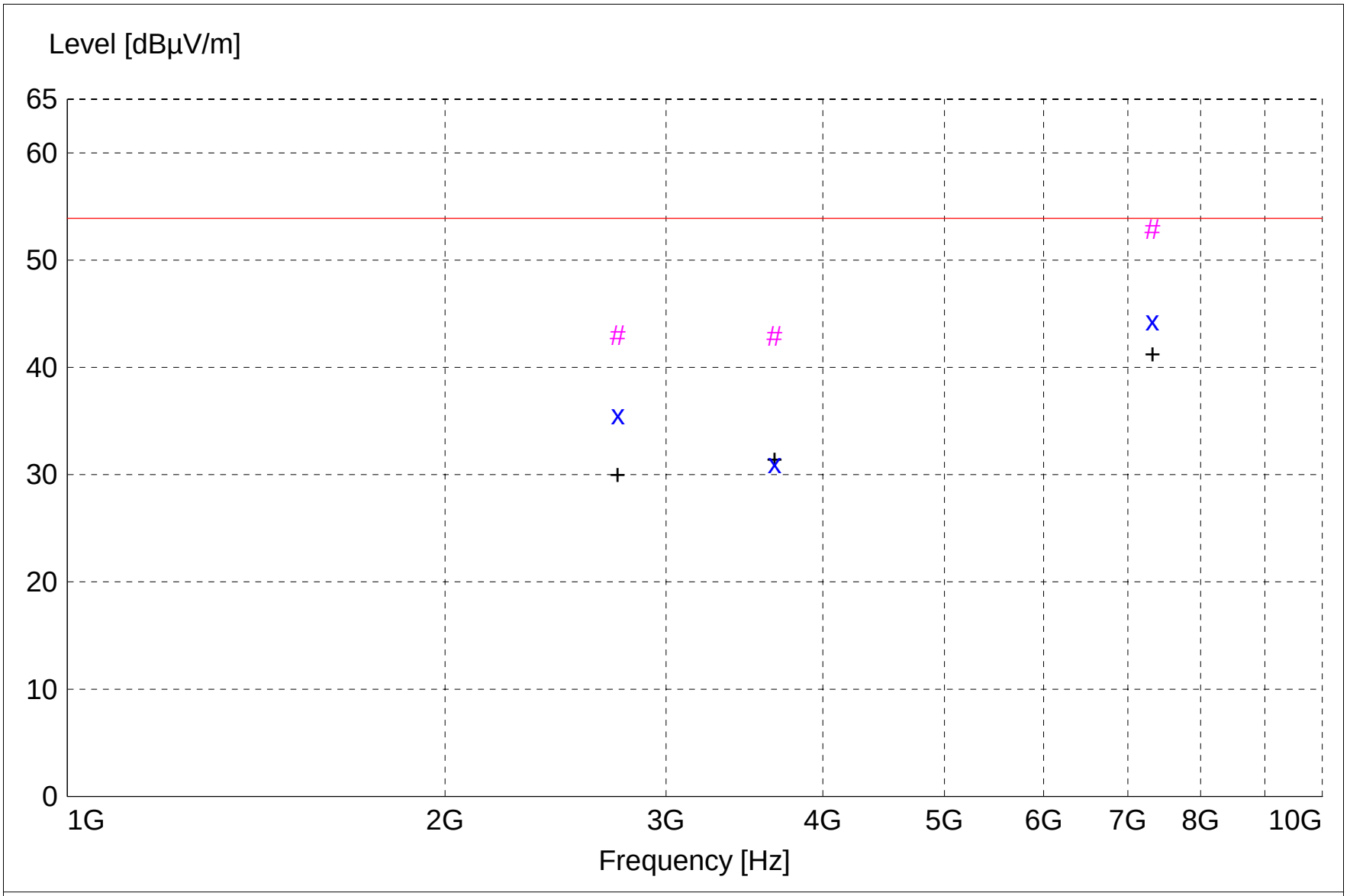
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation



x x MES Azz4_sv_Average
MES Azz4_sv_Peak
+ + MES Azz4_sv_Peak_List
——— LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz4_sv_Final"

11/17/2004 11:39AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7321.000000	51.23	35.97	-34.3	52.9	53.9	1.0	1.10	135	MAX PEAK	None
7321.000000	42.70	35.97	-34.3	44.3	53.9	9.6	1.10	135	AVERAGE	None
2745.400000	52.18	29.34	-38.5	43.0	53.9	10.9	1.20	0	MAX PEAK	None
3660.500000	48.81	31.65	-37.5	42.9	53.9	11.0	1.10	270	MAX PEAK	None
2745.400000	44.80	29.34	-38.5	35.6	53.9	18.3	1.20	0	AVERAGE	None
3660.500000	36.88	31.65	-37.5	31.0	53.9	22.9	1.10	270	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: High Power; Mid channel
Date: 11-17-2004

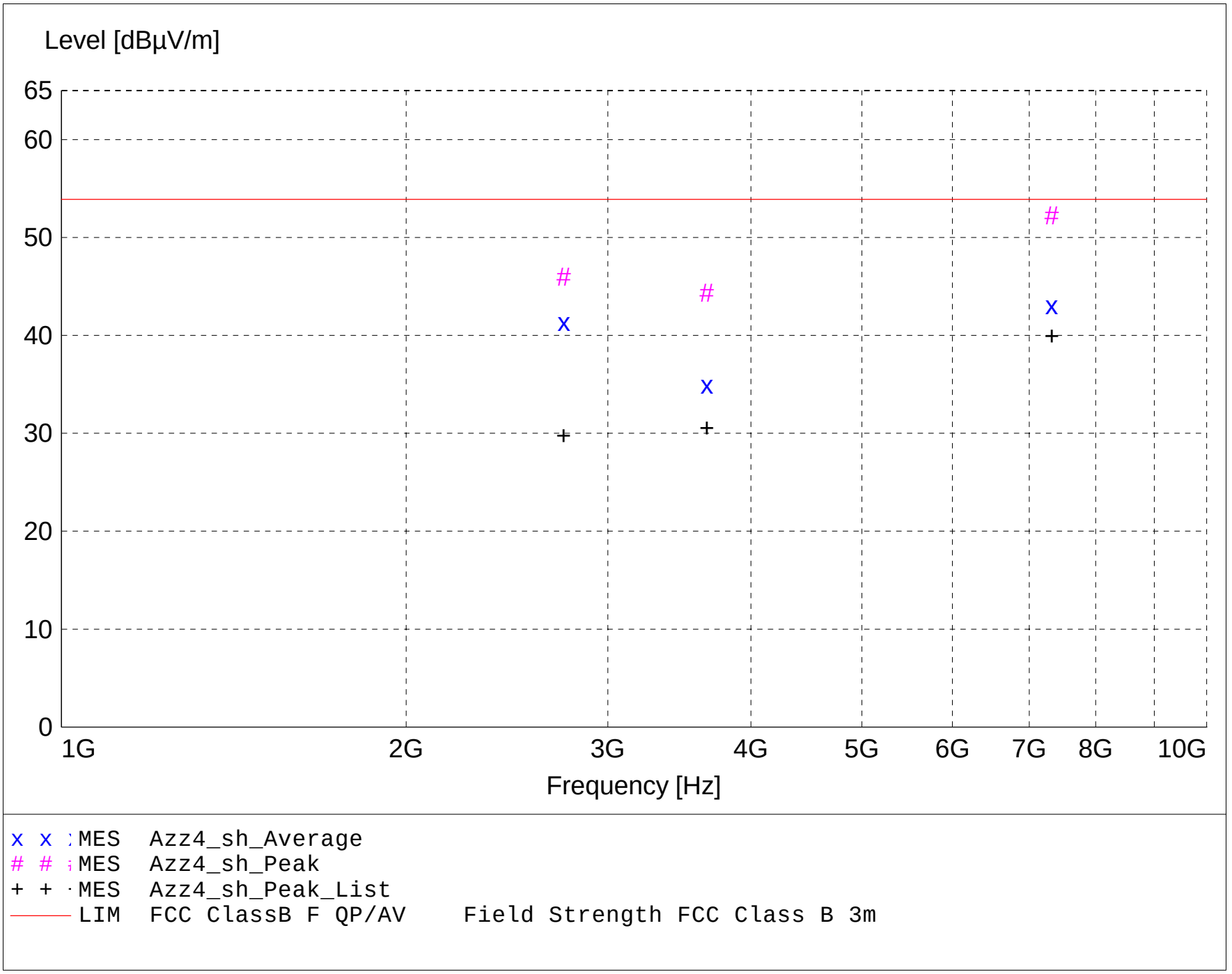
TEXT: "Site 3 5731&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz4_sh_Average
MES Azz4_sh_Peak
+ + MES Azz4_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz4_sh_Final"

11/17/2004 11:49AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7321.000000	50.57	35.97	-34.3	52.2	53.9	1.7	1.20	90	MAX PEAK	None
2745.400000	55.14	29.34	-38.5	45.9	53.9	8.0	1.30	180	MAX PEAK	None
3660.500000	50.19	31.65	-37.5	44.3	53.9	9.6	1.80	90	MAX PEAK	None
7321.000000	41.43	35.97	-34.3	43.1	53.9	10.8	1.20	90	AVERAGE	None
2745.400000	50.53	29.34	-38.5	41.3	53.9	12.6	1.30	180	AVERAGE	None
3660.500000	40.85	31.65	-37.5	35.0	53.9	18.9	1.80	90	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

EUT: 110XiIII
Manufacturer: Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site: DLS OF Site 3
Operator: Craig B.
Test Specification: Rx mode, Tx unintentonal and harmonics in restricted bands
Comment: High Power; High channel
Date: 11-17-2004

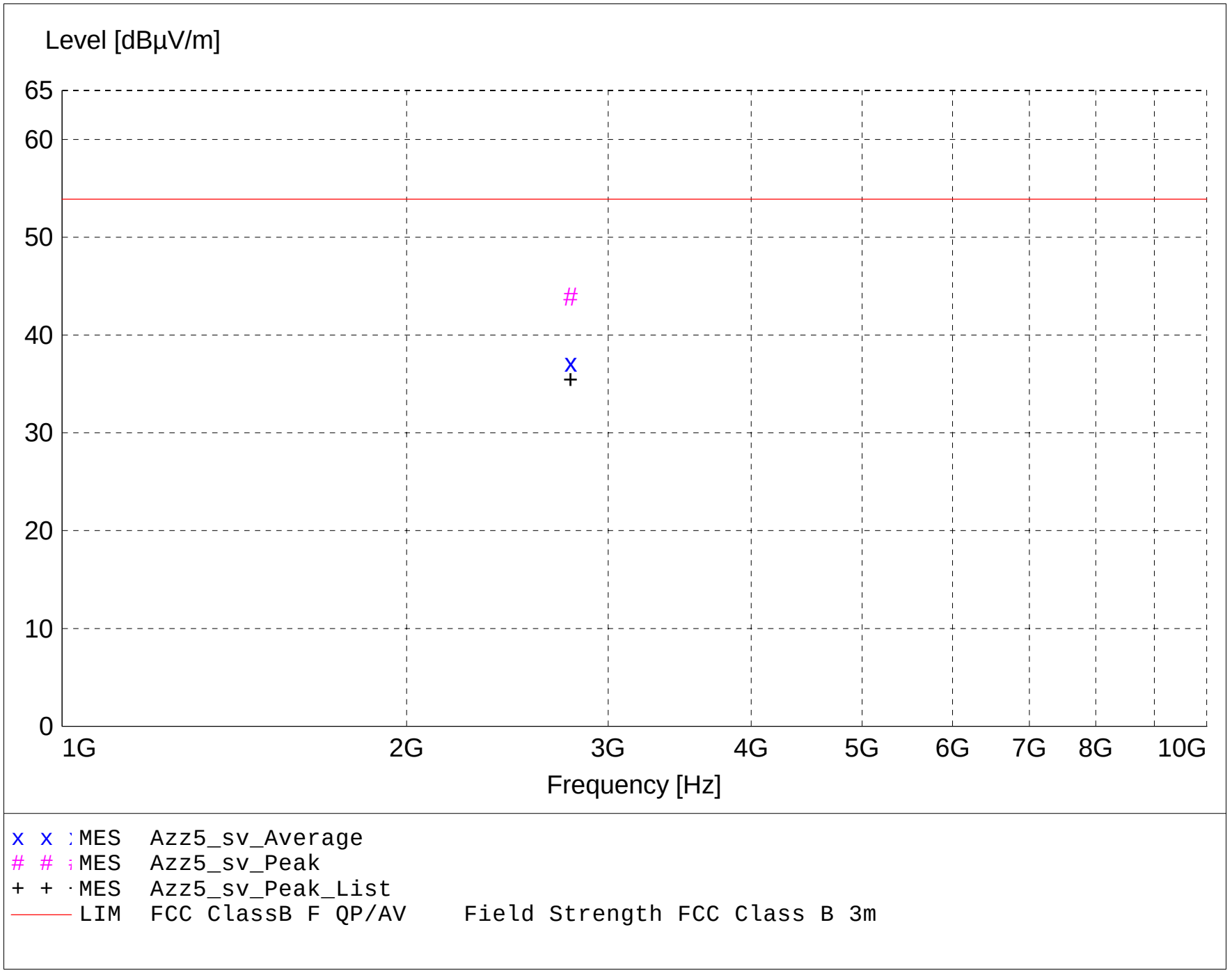
TEXT: "Site 3 5731&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- EMCO 3115 SN: 9903-5731

Pre-Amps ---
1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425
10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz5_sv_Average
MES Azz5_sv_Peak
+ + MES Azz5_sv_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz5_sv_Final"

11/17/2004 12:40PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2781.550000	52.86	29.44	-38.4	43.9	53.9	10.0	1.30	30	MAX PEAK	None
2781.550000	46.08	29.44	-38.4	37.1	53.9	16.8	1.30	30	AVERAGE	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 110XiIII
Manufacturer:        Zebra Technologies
Operating Condition: 71 deg. F; 44% R.H.
Test Site:           DLS OF Site 3
Operator:            Craig B.
Test Specification:  Rx mode, Tx unintentonal and harmonics in restricted bands
Comment:             High Power; High channel
                     Date: 11-17-2004
```

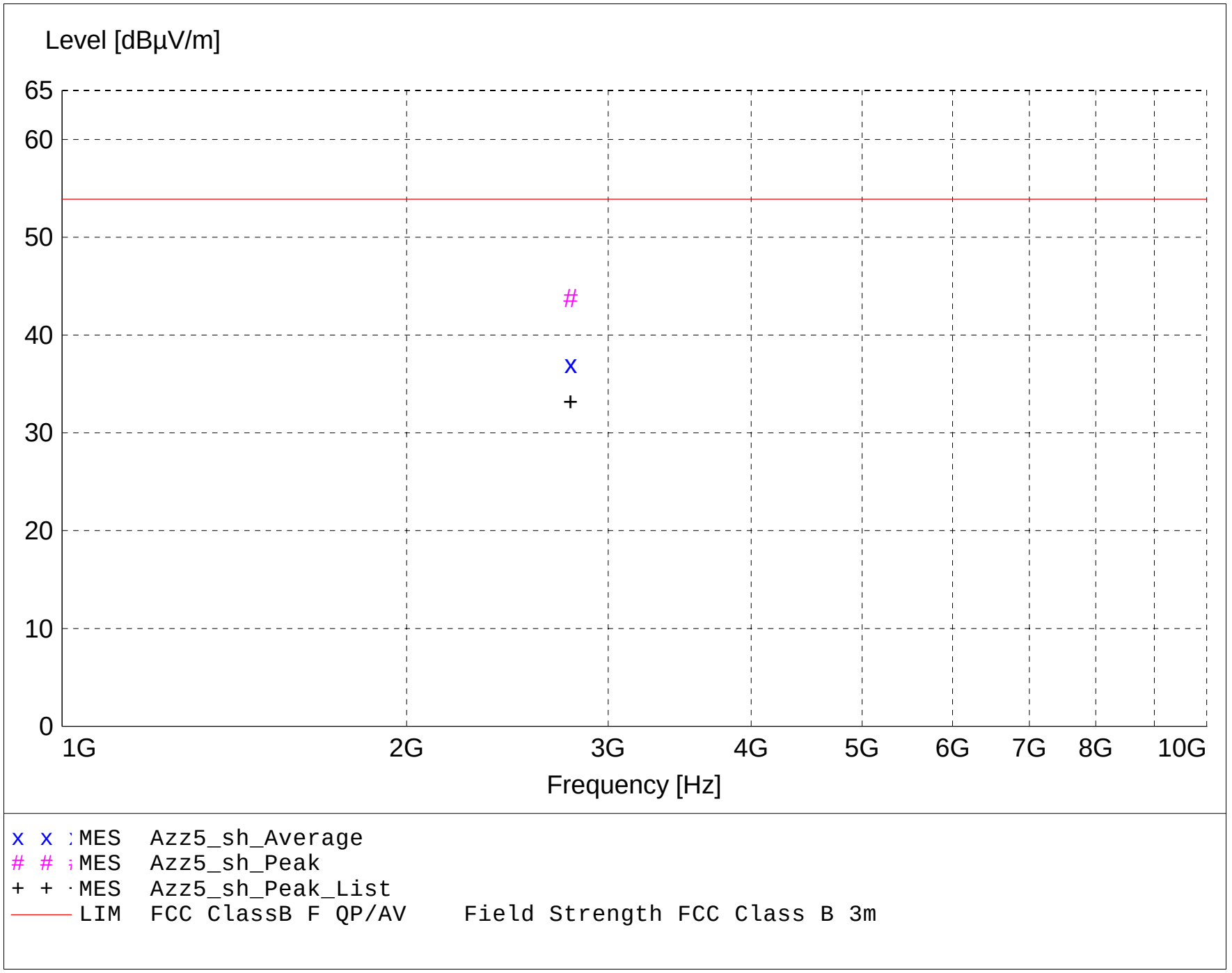
TEXT: "Site 3 5731&184 H3M"

```
  Short Description:           Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                               1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 682425
                               10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

TEST SET-UP:    EuT Measured at 3 Meters with HORIZONTAL Antenna Polarisation
```


Level [dBµV/m]
65
60
50
40
30
20
10
0
1G
2G
3G
4G
5G
6G
7G
8G
10G
Frequency [Hz]
x x MES Azz5_sh_Average
MES Azz5_sh_Peak
+ + MES Azz5_sh_Peak_List
LIM FCC ClassB F QP/AV Field Strength FCC Class B 3m

MEASUREMENT RESULT: "Azz5_sh_Final"

11/17/2004 12:47PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
2781.600000	52.72	29.44	-38.4	43.8	53.9	10.1	1.00	135	MAX PEAK	None
2781.600000	45.95	29.44	-38.4	37.0	53.9	16.9	1.00	135	AVERAGE	None

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

20 dB BANDWIDTH GRAPHS

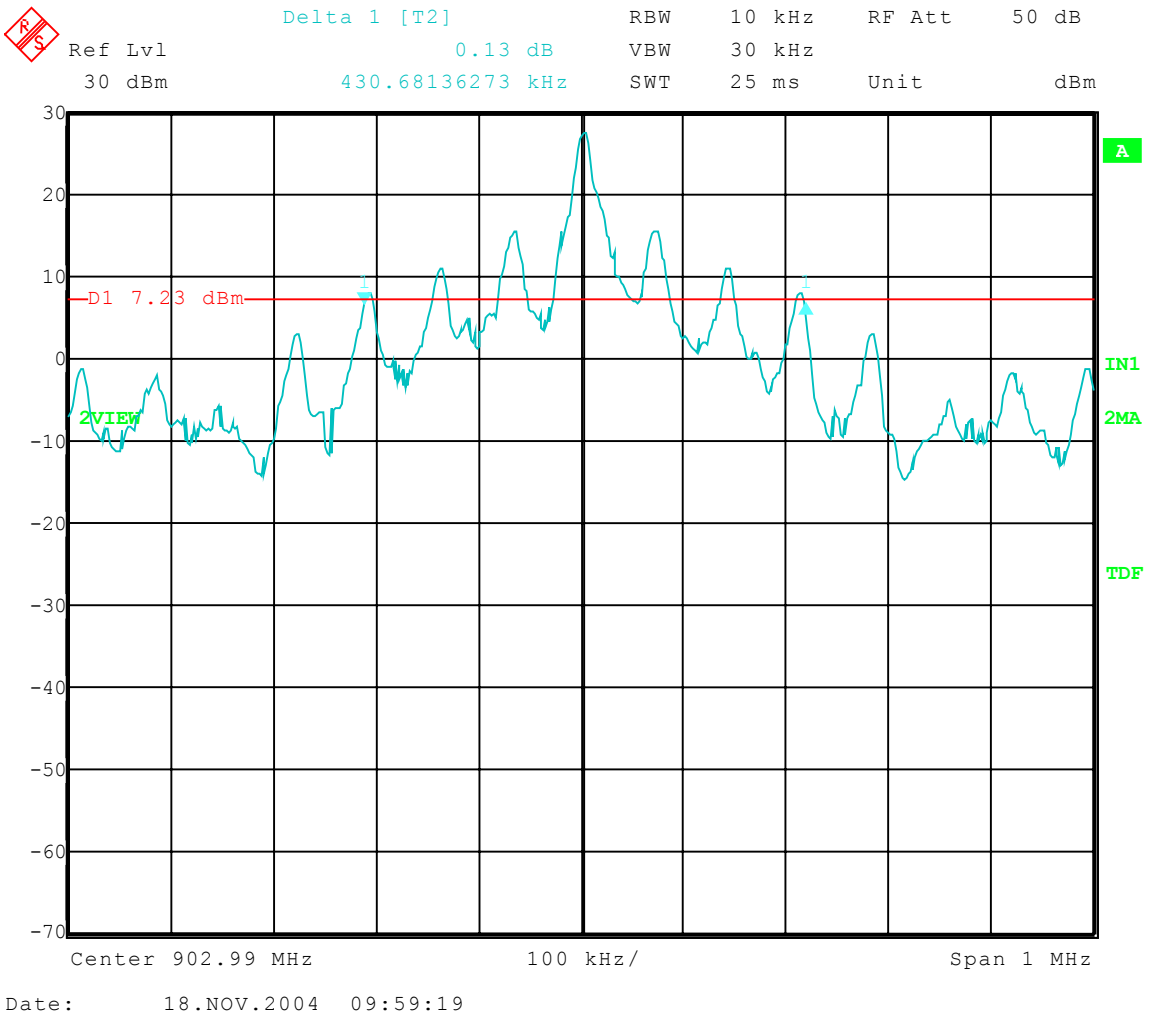
PART 15.247

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Frequency – 902.967 MHz

20 dB Bandwidth = 430.68 kHz

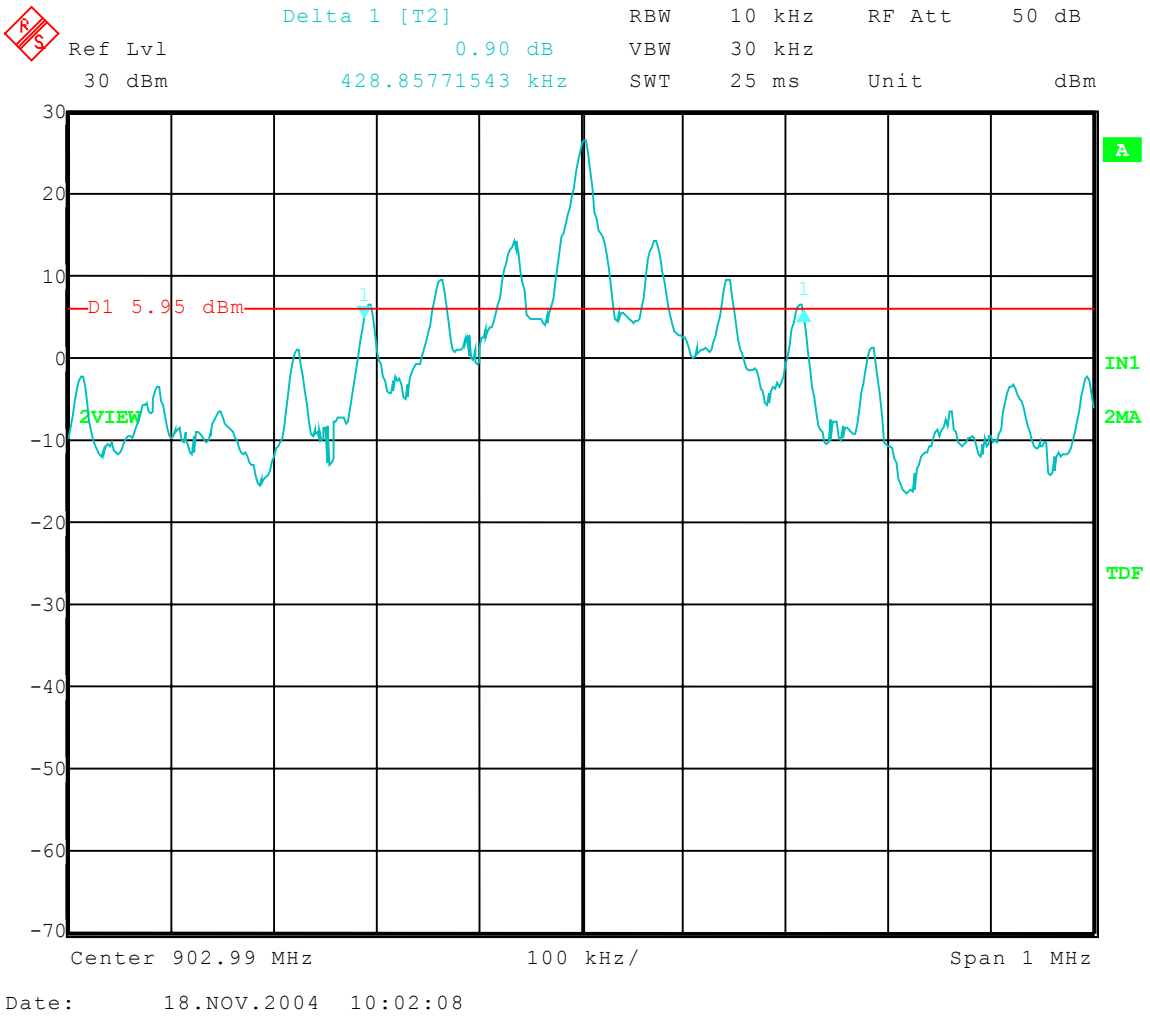


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Frequency – 902.967 MHz

20 dB Bandwidth = 428.86 kHz

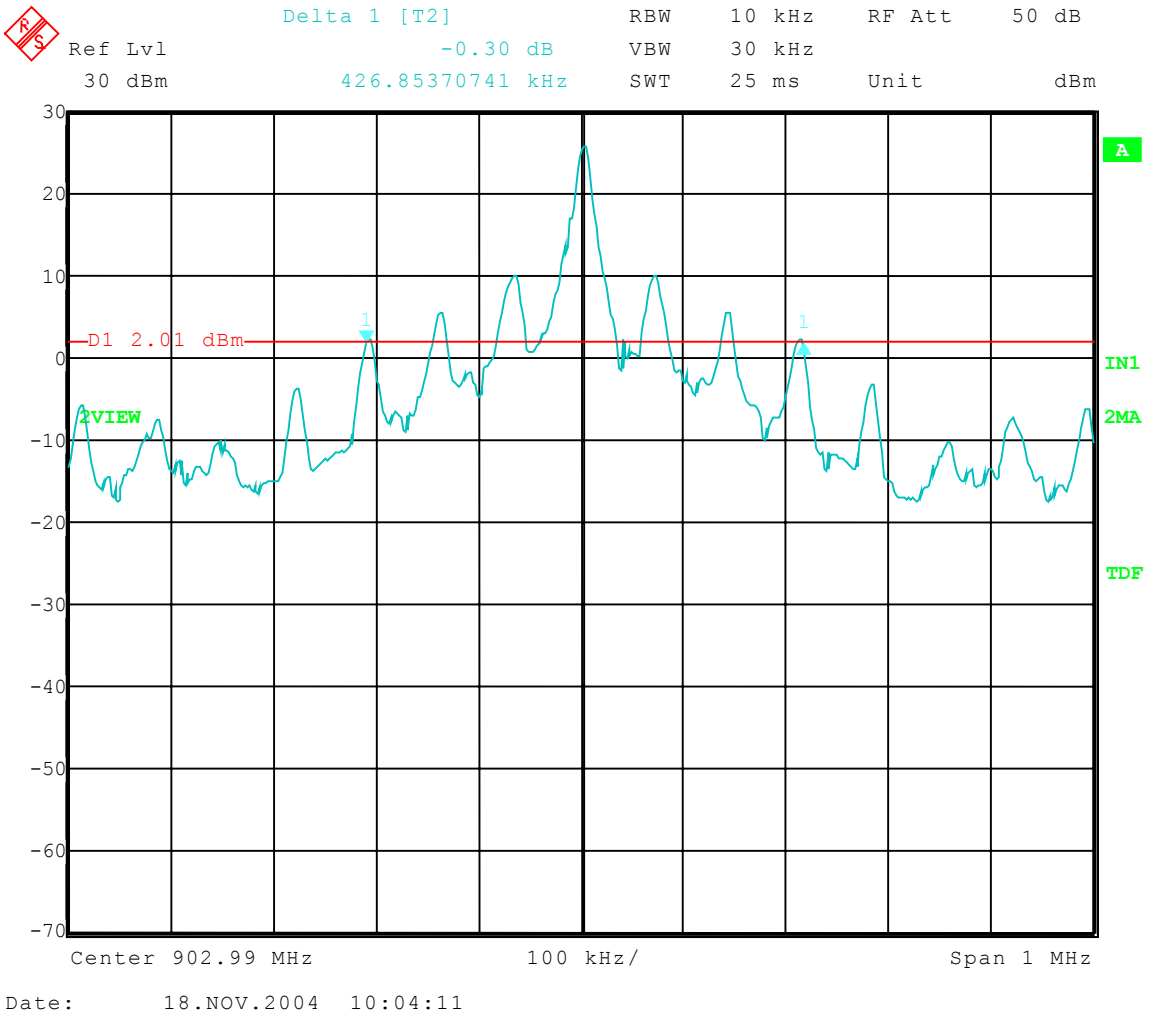


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Frequency – 902.967 MHz

20 dB Bandwidth = 426.85 kHz

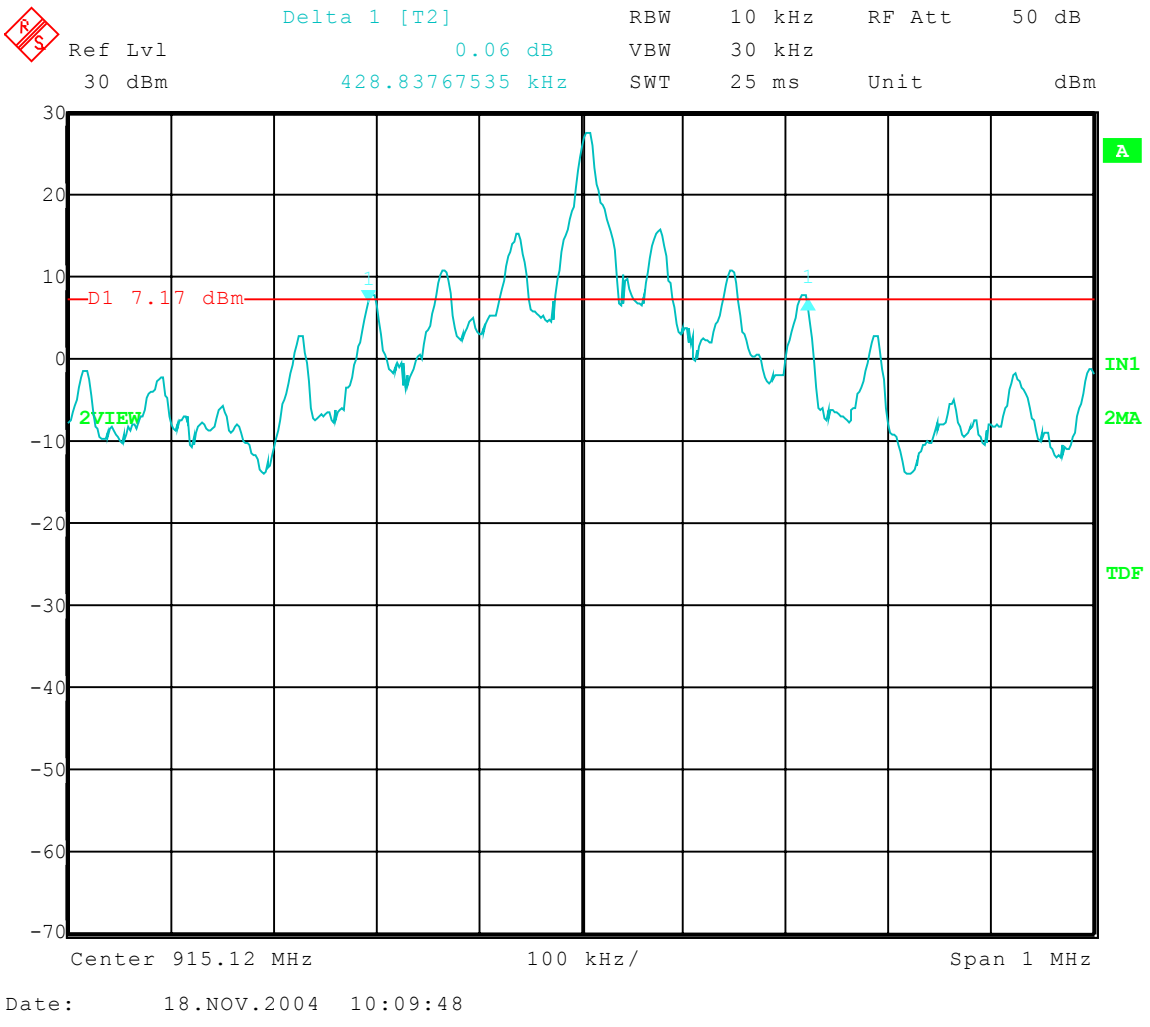


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: Middle Channel; High Power: Frequency – 915.101 MHz

20 dB Bandwidth = 428.84 kHz

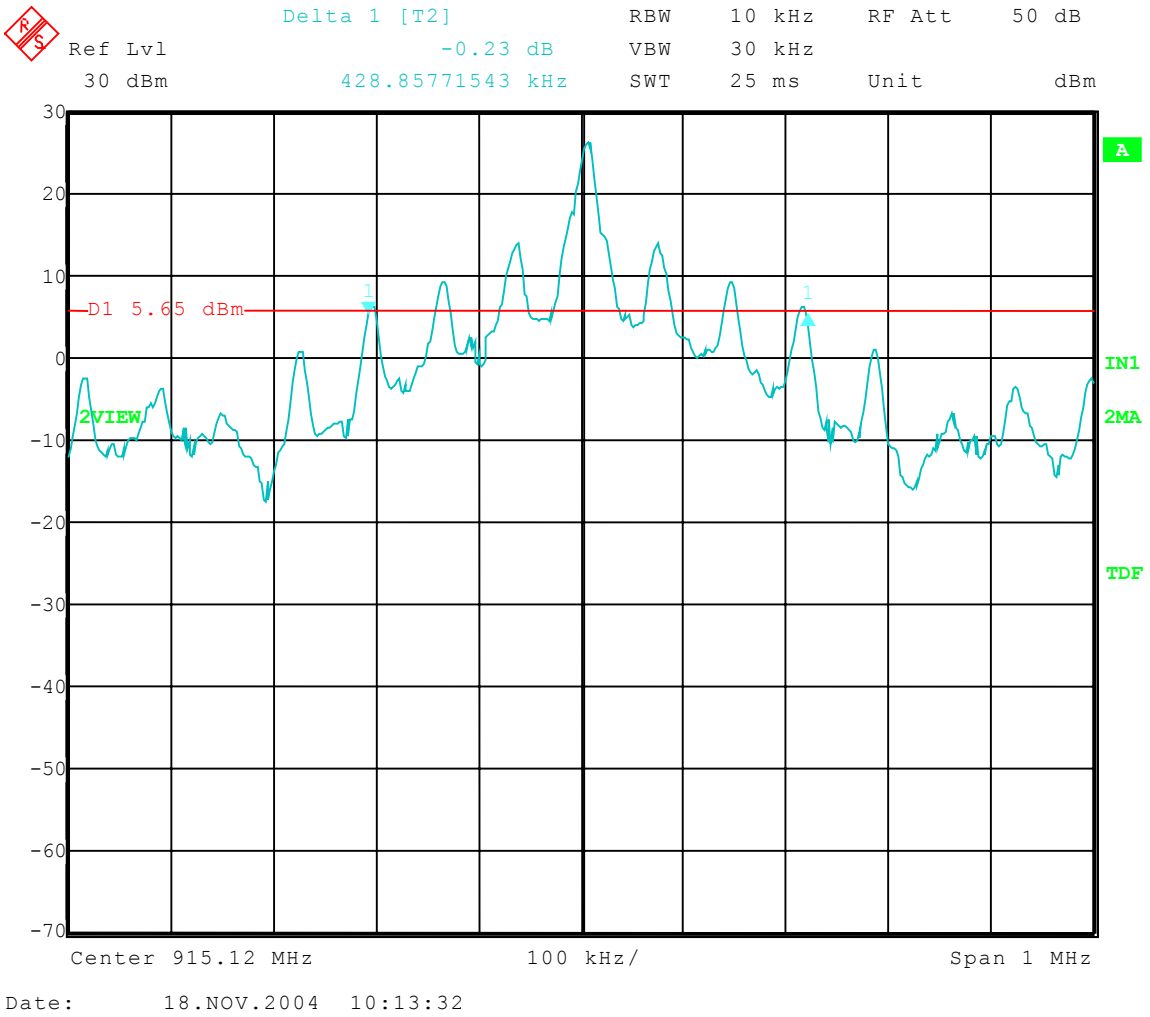


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: Middle Channel; Mid Power: Frequency – 915.101 MHz

20 dB Bandwidth = 428.86 kHz

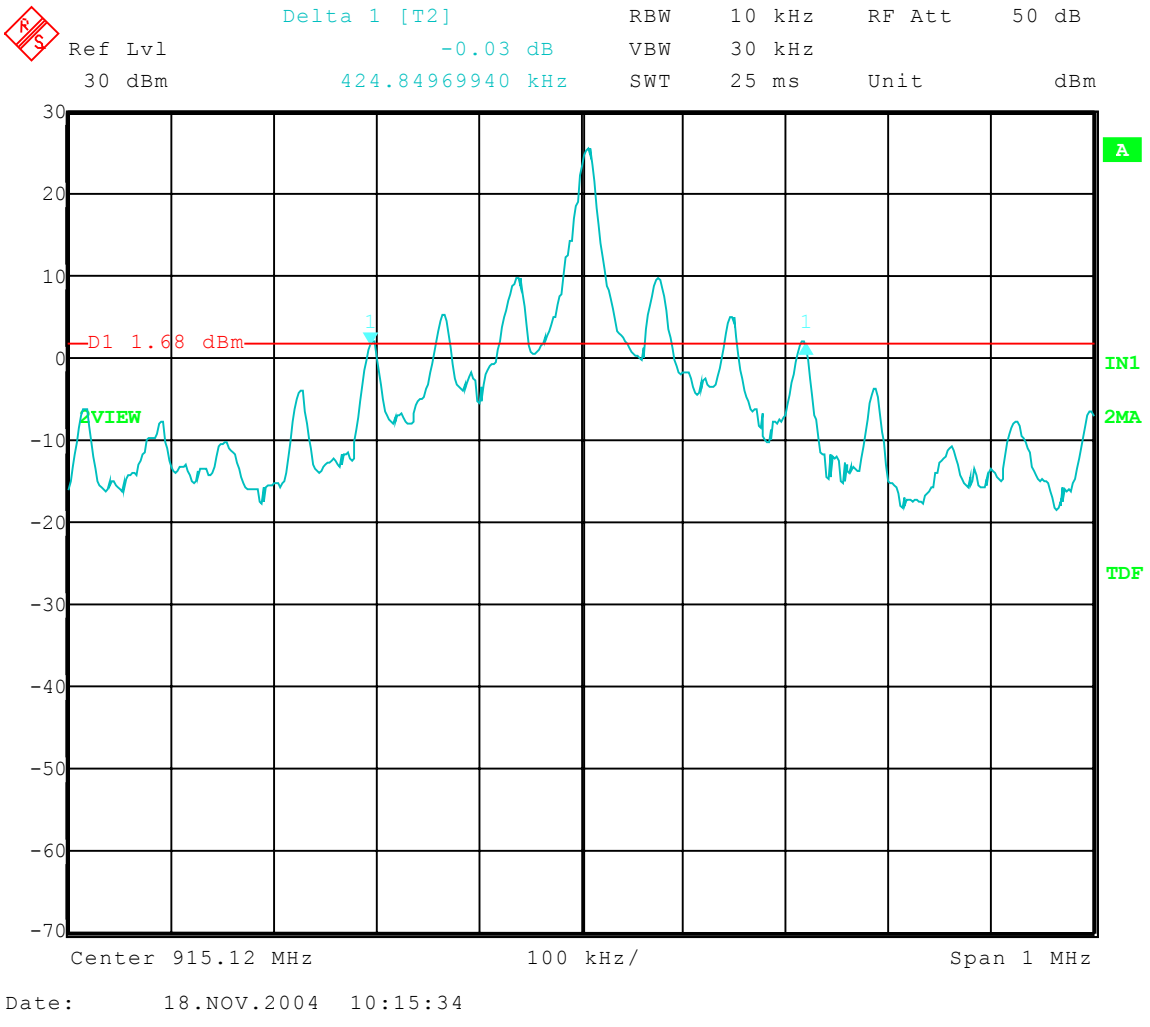


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: Middle Channel; Low Power: Frequency – 915.101 MHz

20 dB Bandwidth = 424.85 kHz

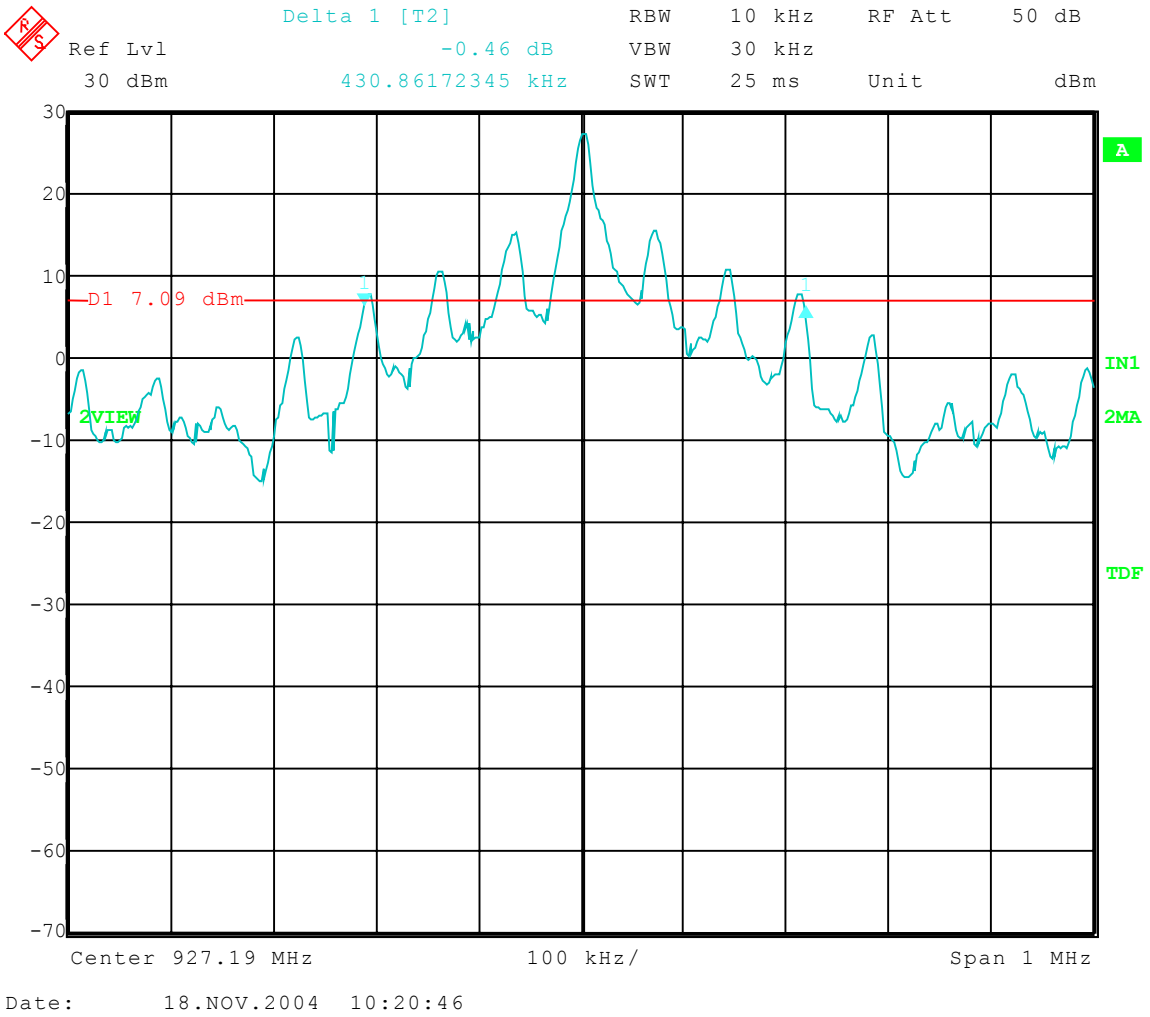


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: High Channel; High Power: Frequency – 927.233 MHz

20 dB Bandwidth = 430.86 kHz

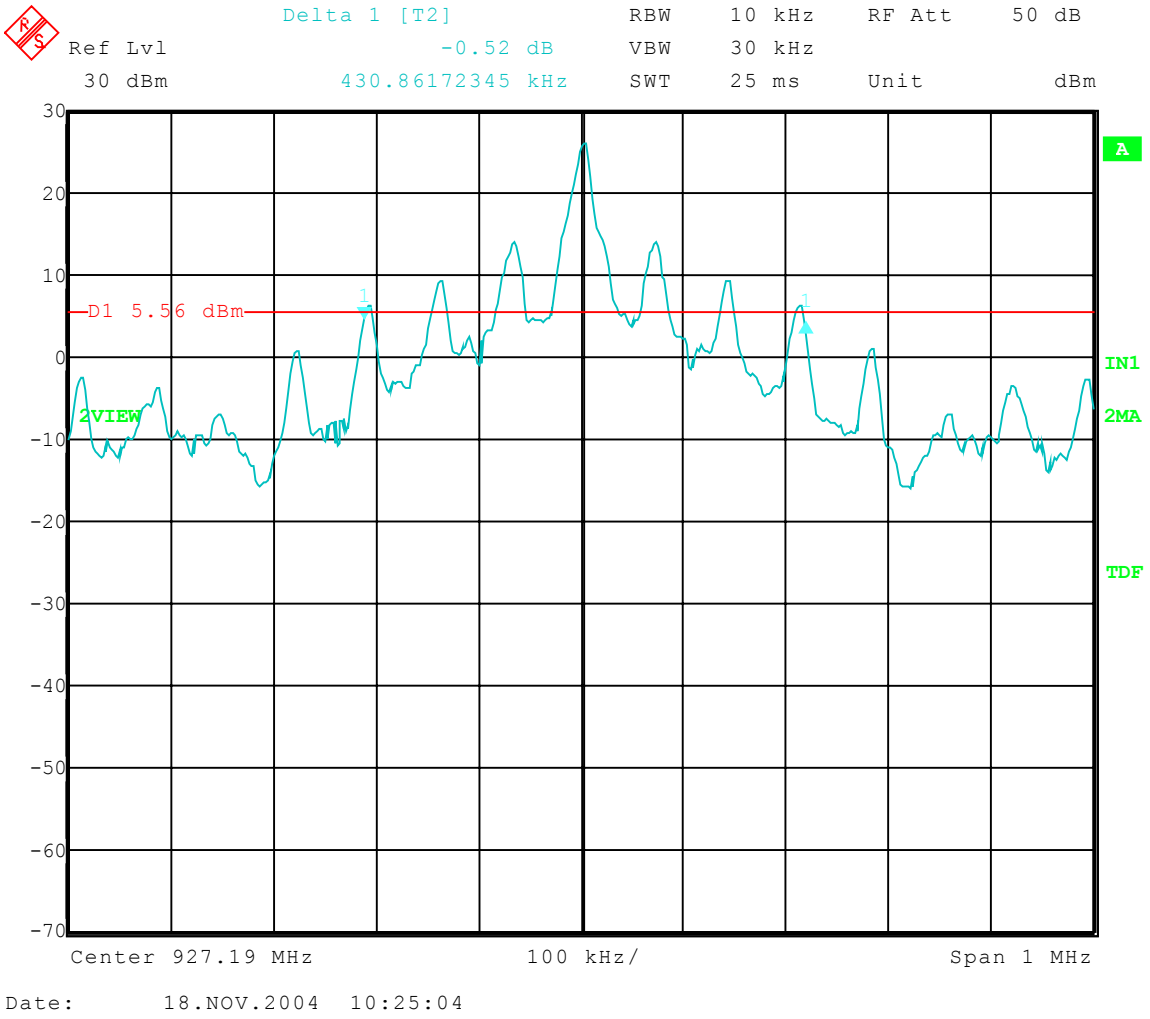


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Frequency – 927.233 MHz

20 dB Bandwidth = 430.86 kHz

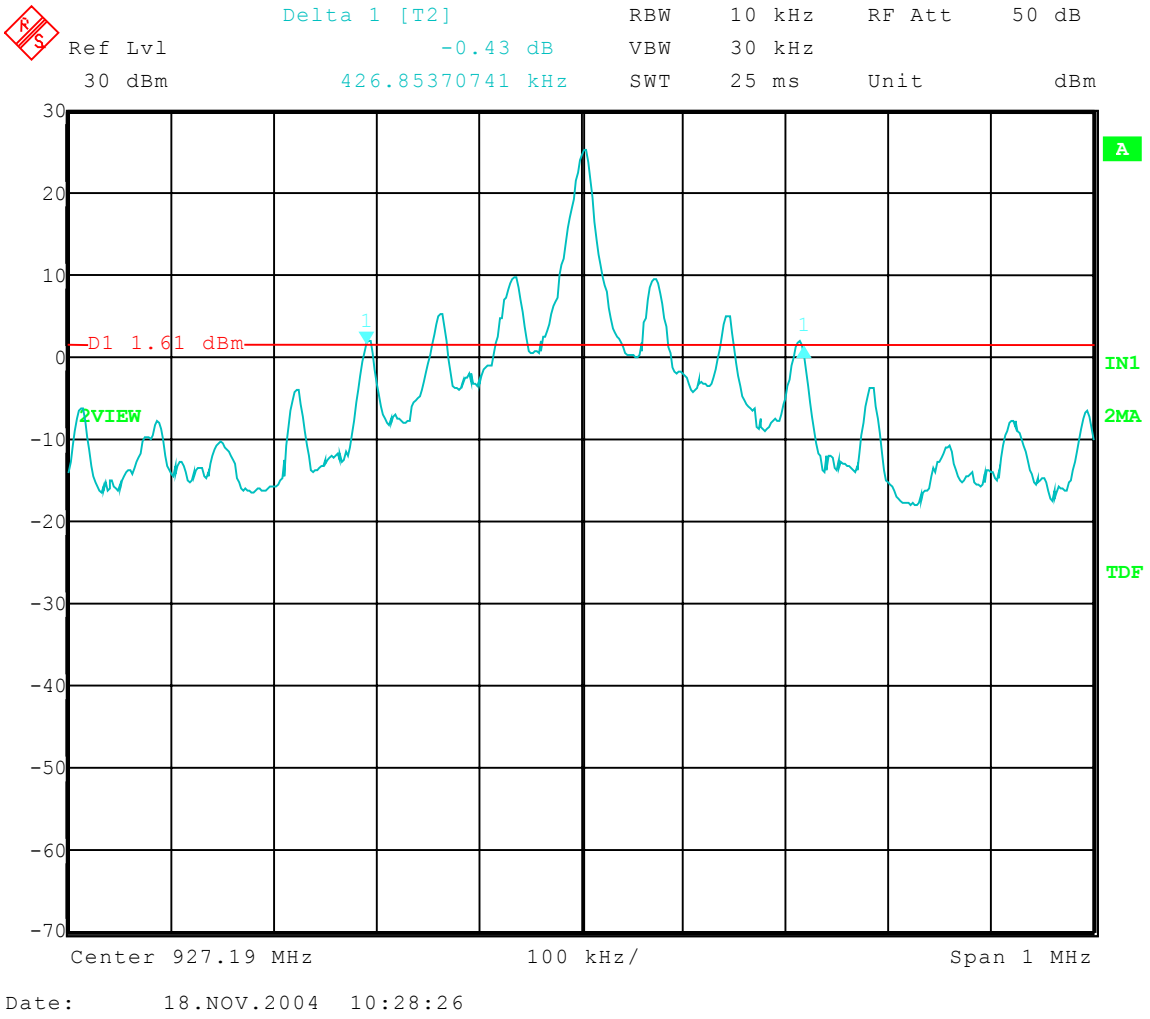


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: 20 dB Bandwidth - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Frequency – 927.233 MHz

20 dB Bandwidth = 426.85 kHz



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

CARRIER FREQUENCY SEPARATION GRAPH(S)

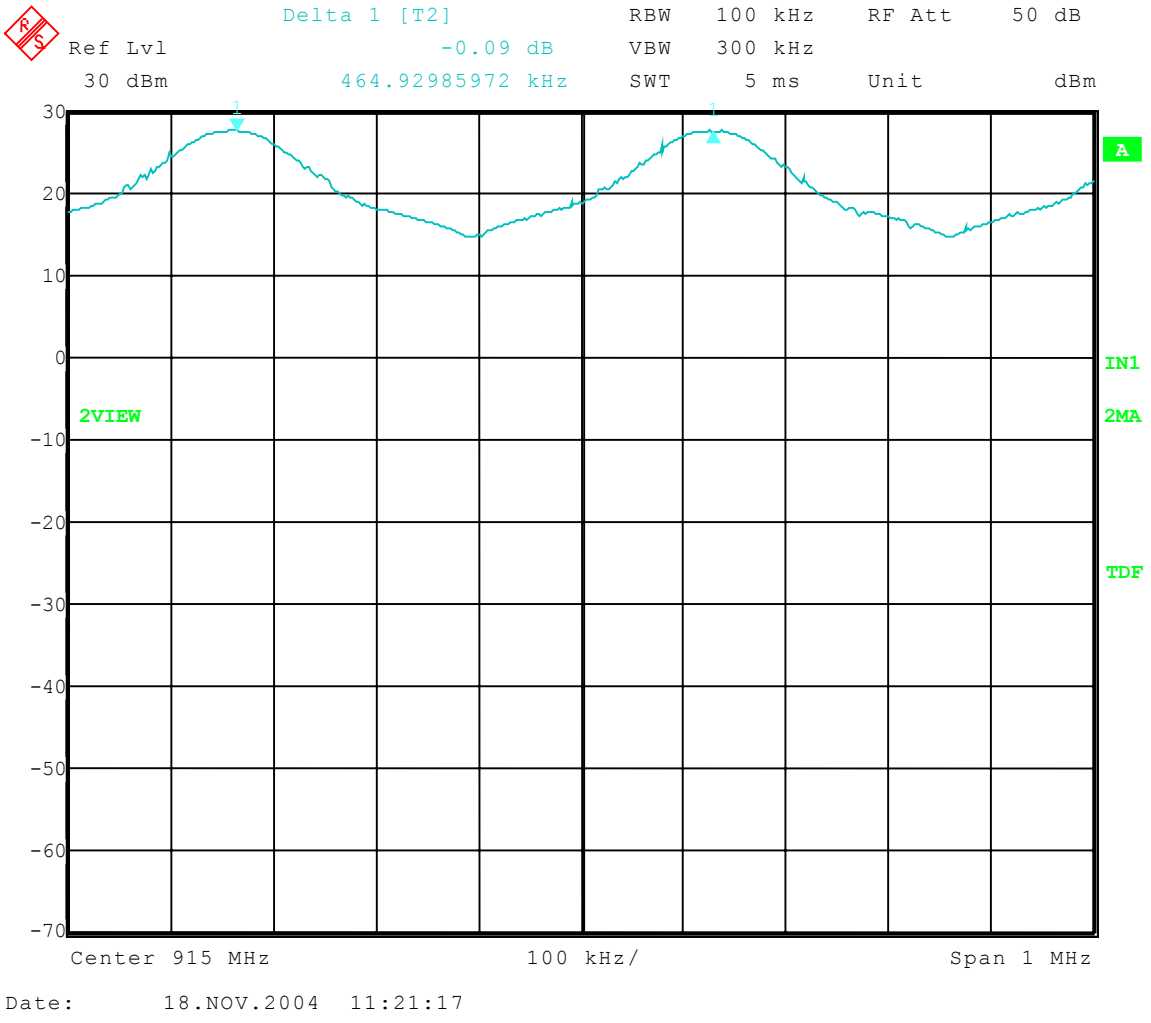
PART 15.247

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Carrier Frequency Separation - Conducted
Operator: Craig B
Comment: Frequency Hopping On

Carrier Freq Separation = 464.93 kHz



ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

NUMBER OF HOPPING FREQUENCIES GRAPH(S)

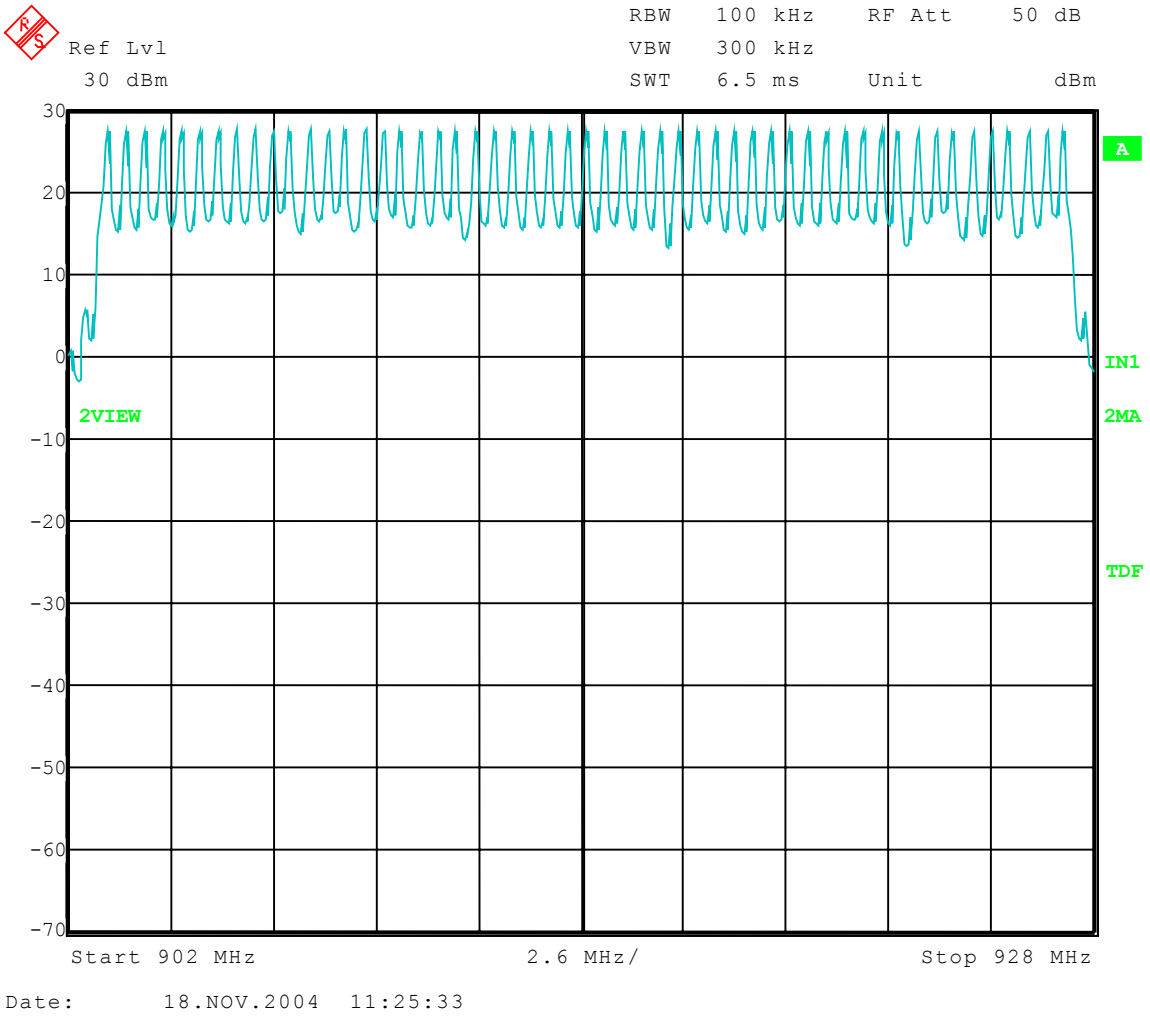
PART 15.247

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Number of Hopping Frequencies - Conducted
Operator: Craig B
Comment: Hopping Mode

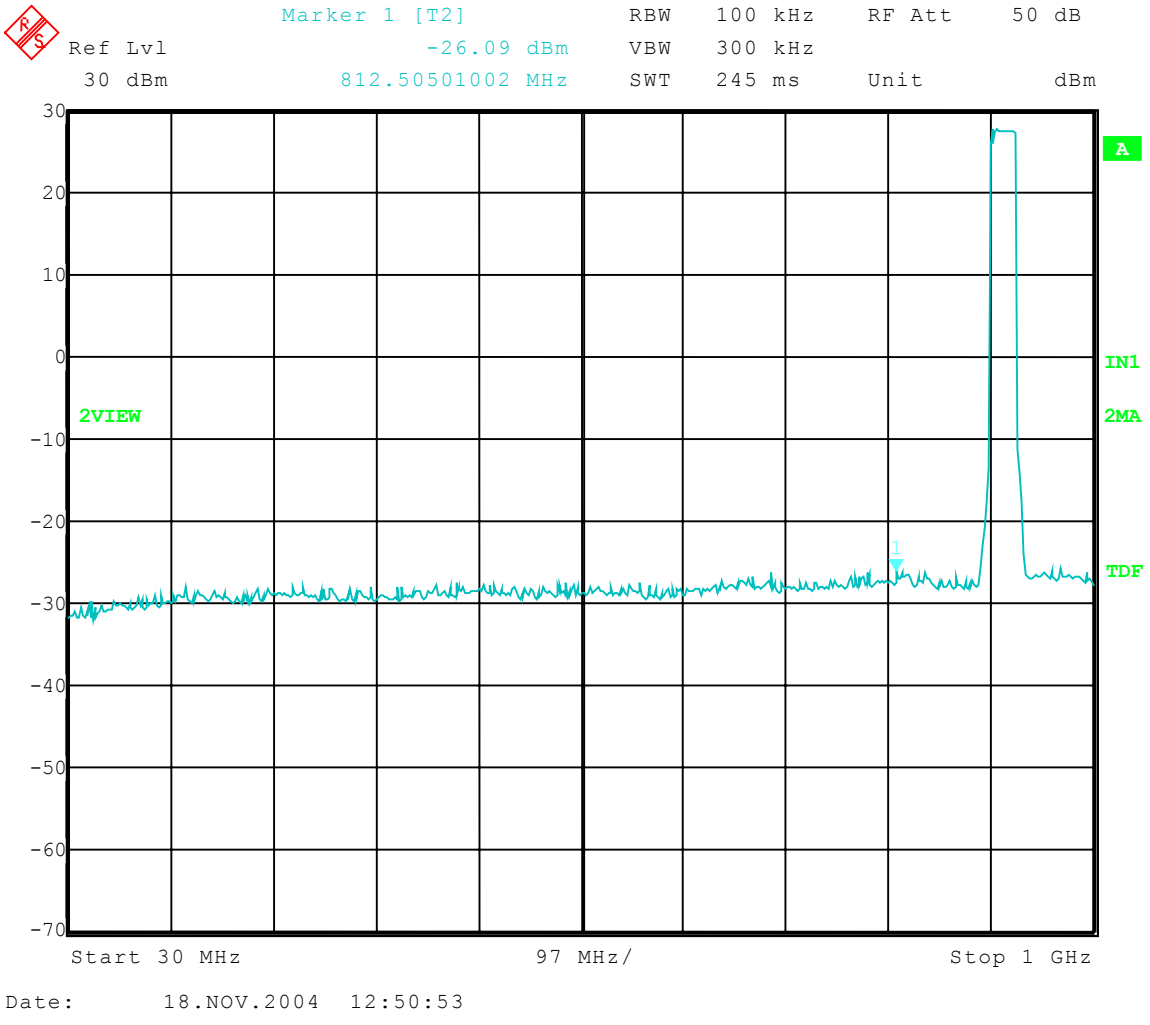
Frequency Range = 902 MHz to 928 MHz
Number of Frequencies in Range = 53



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; High Power
Frequency Range: 30 to 1000 MHz
Limit = 7.50 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

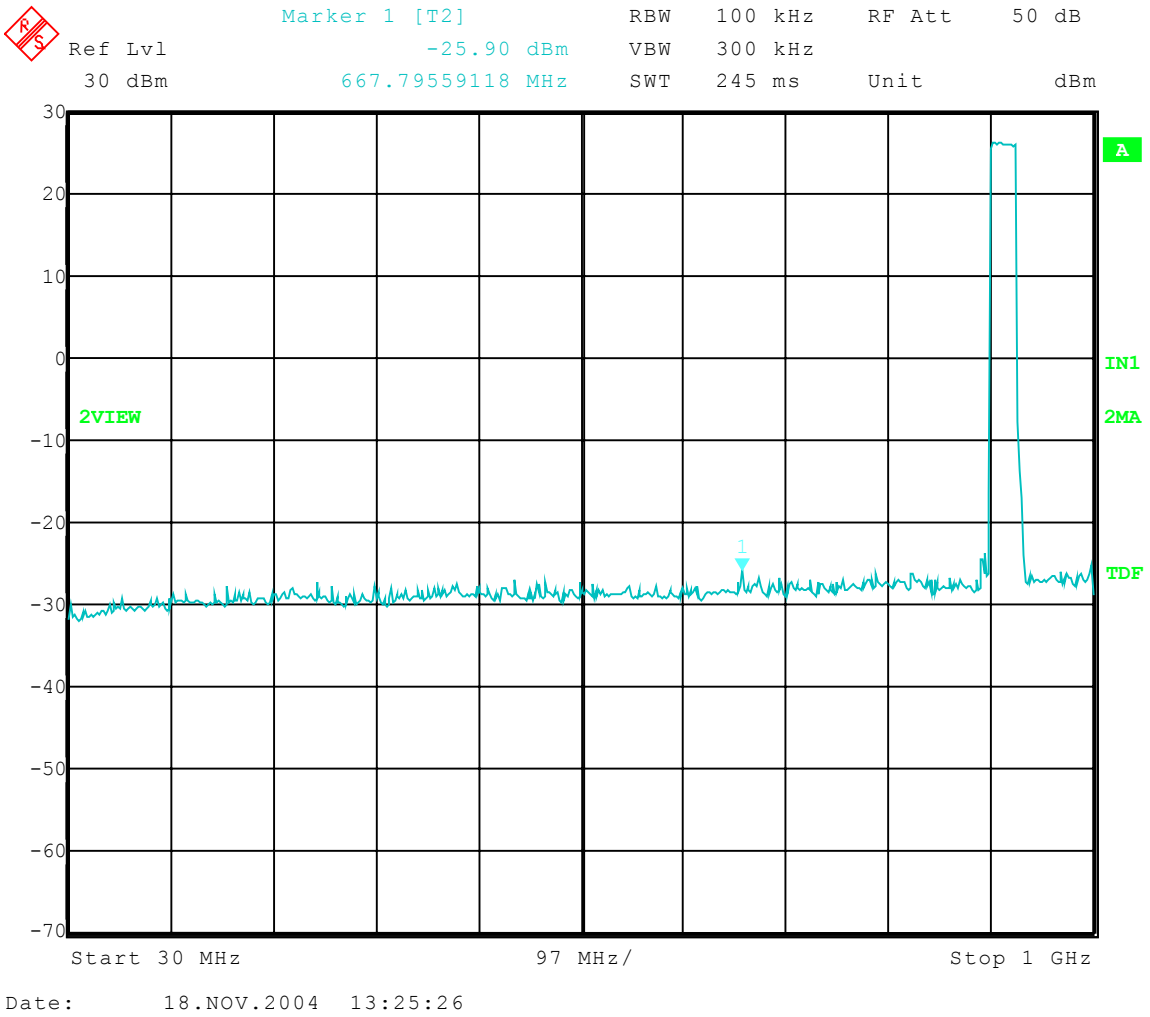


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Mid Power
Frequency Range: 30 to 1000 MHz
Limit = 6.61 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

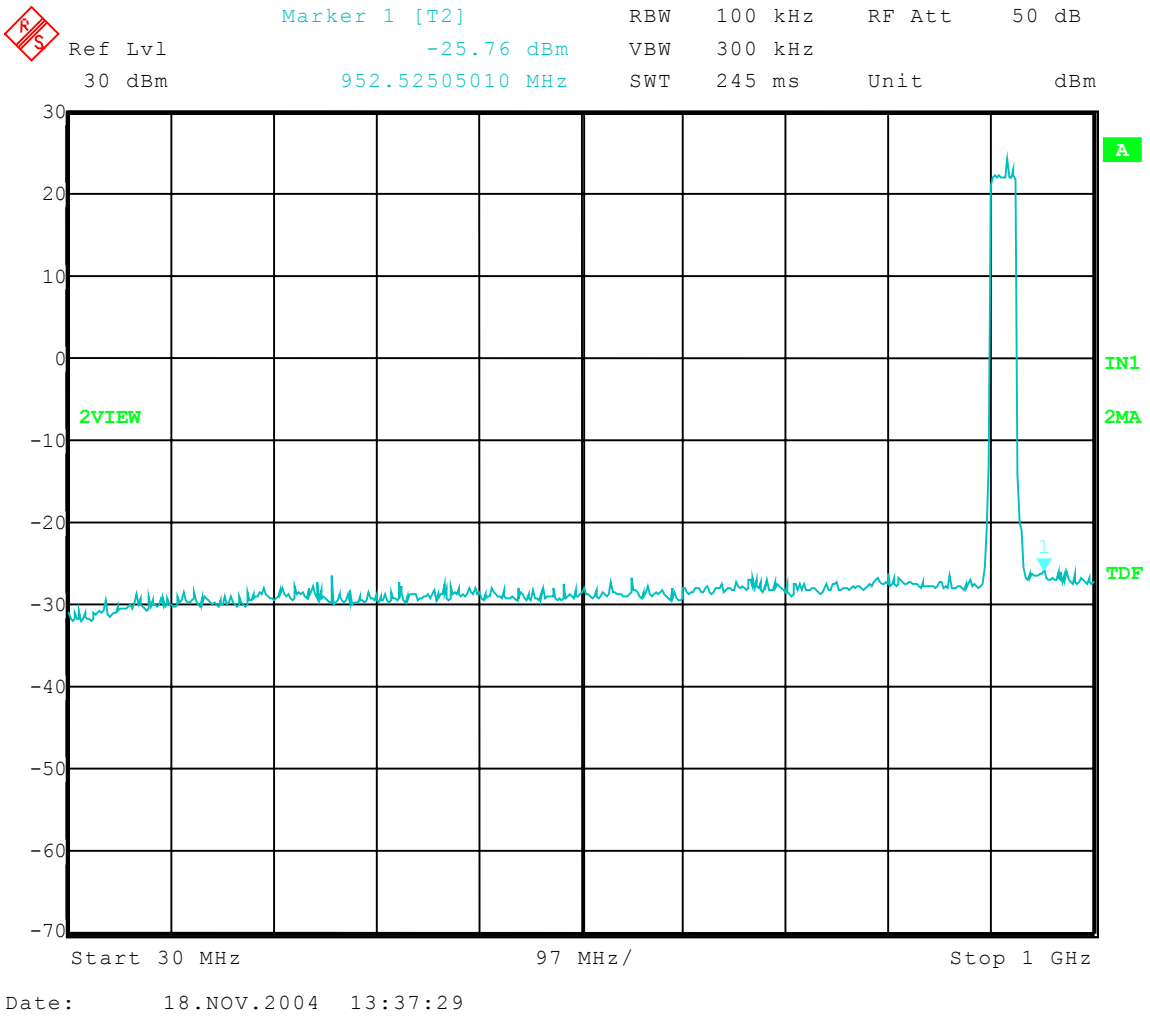


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Low Power
Frequency Range: 30 to 1000 MHz
Limit = 1.83 dBm

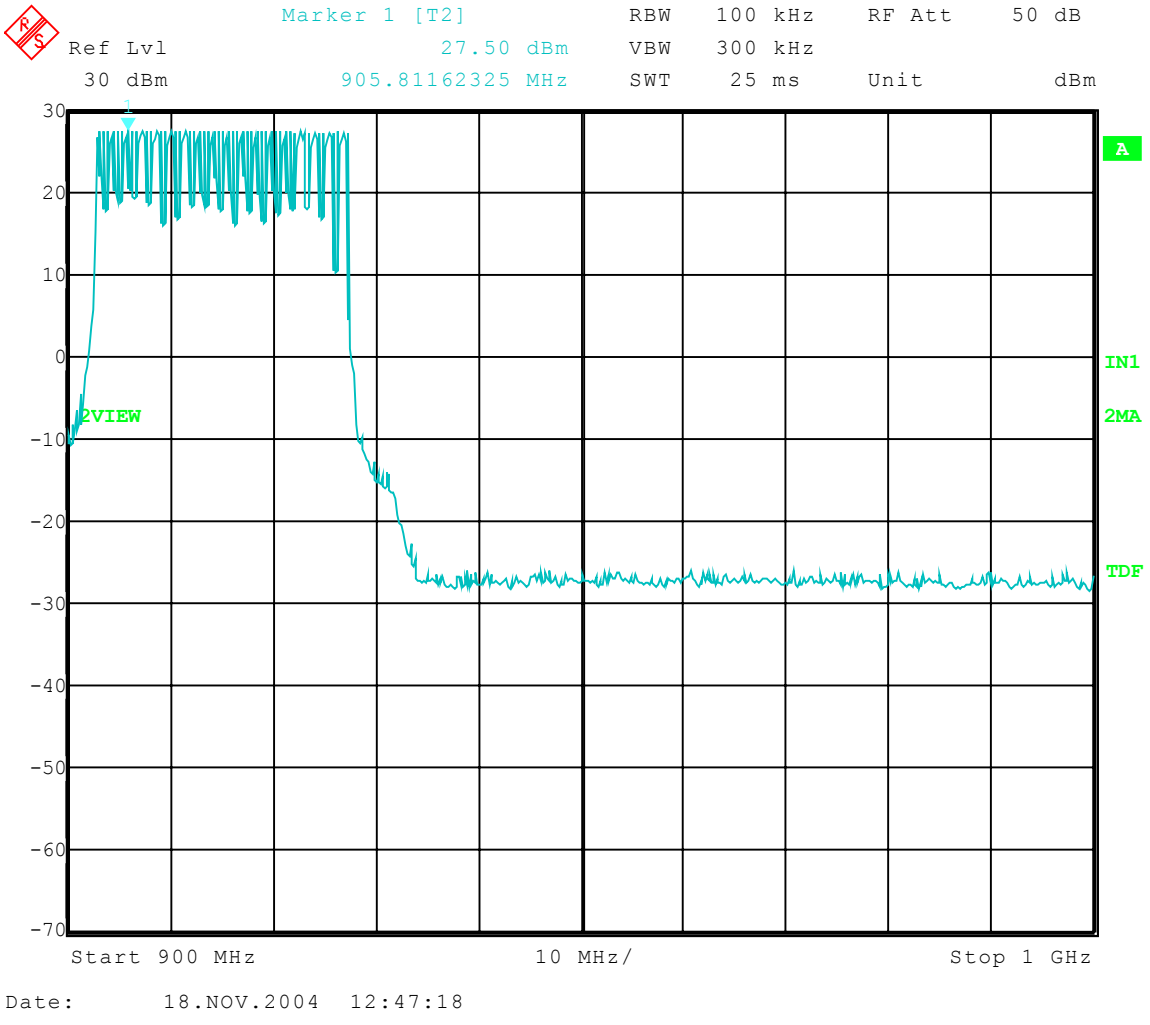
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; High Power
Frequency Range: 900 to 1000 MHz
Limit = 7.50 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

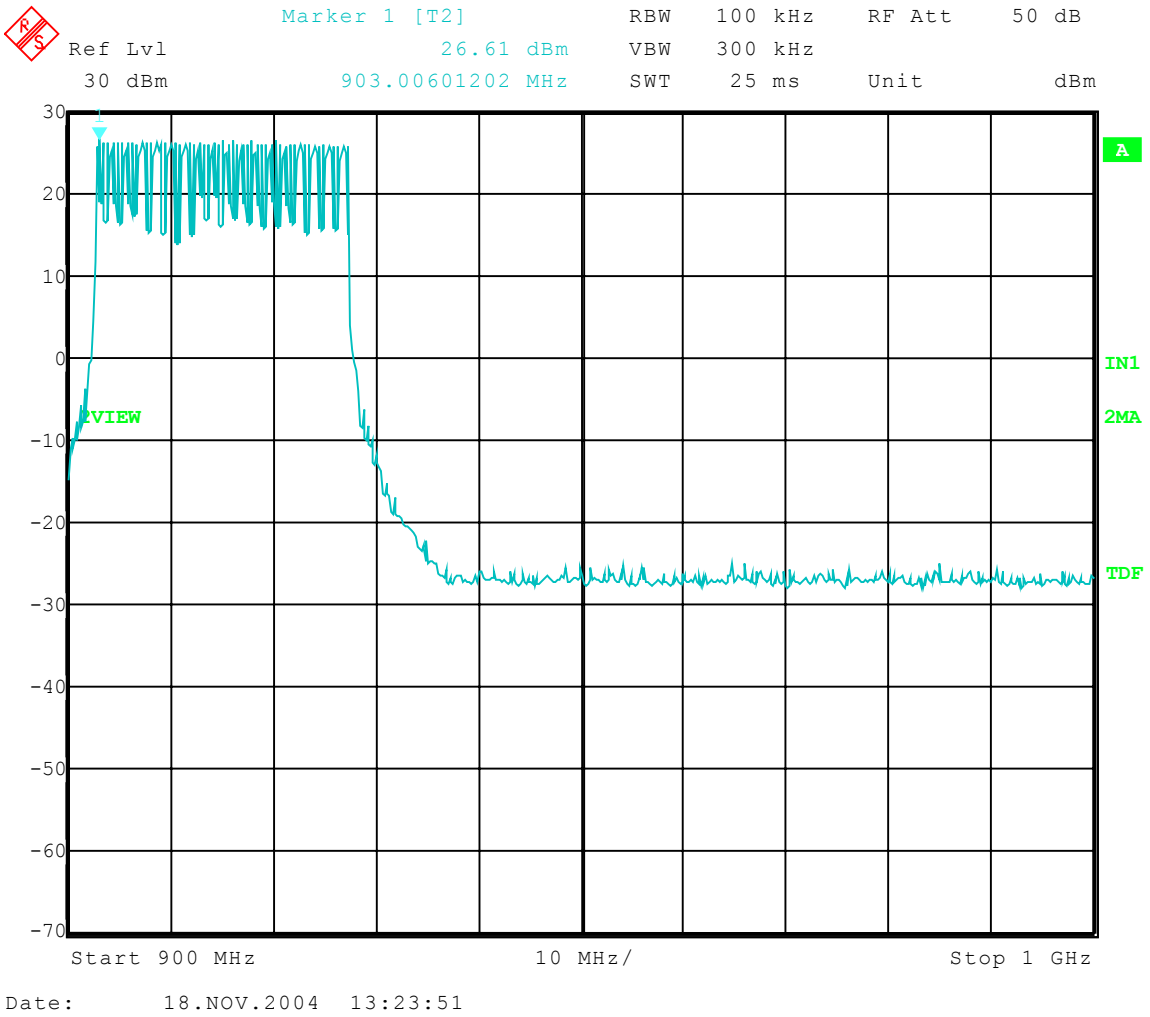


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Mid Power
Frequency Range: 900 to 1000 MHz
Limit = 6.61 dBm

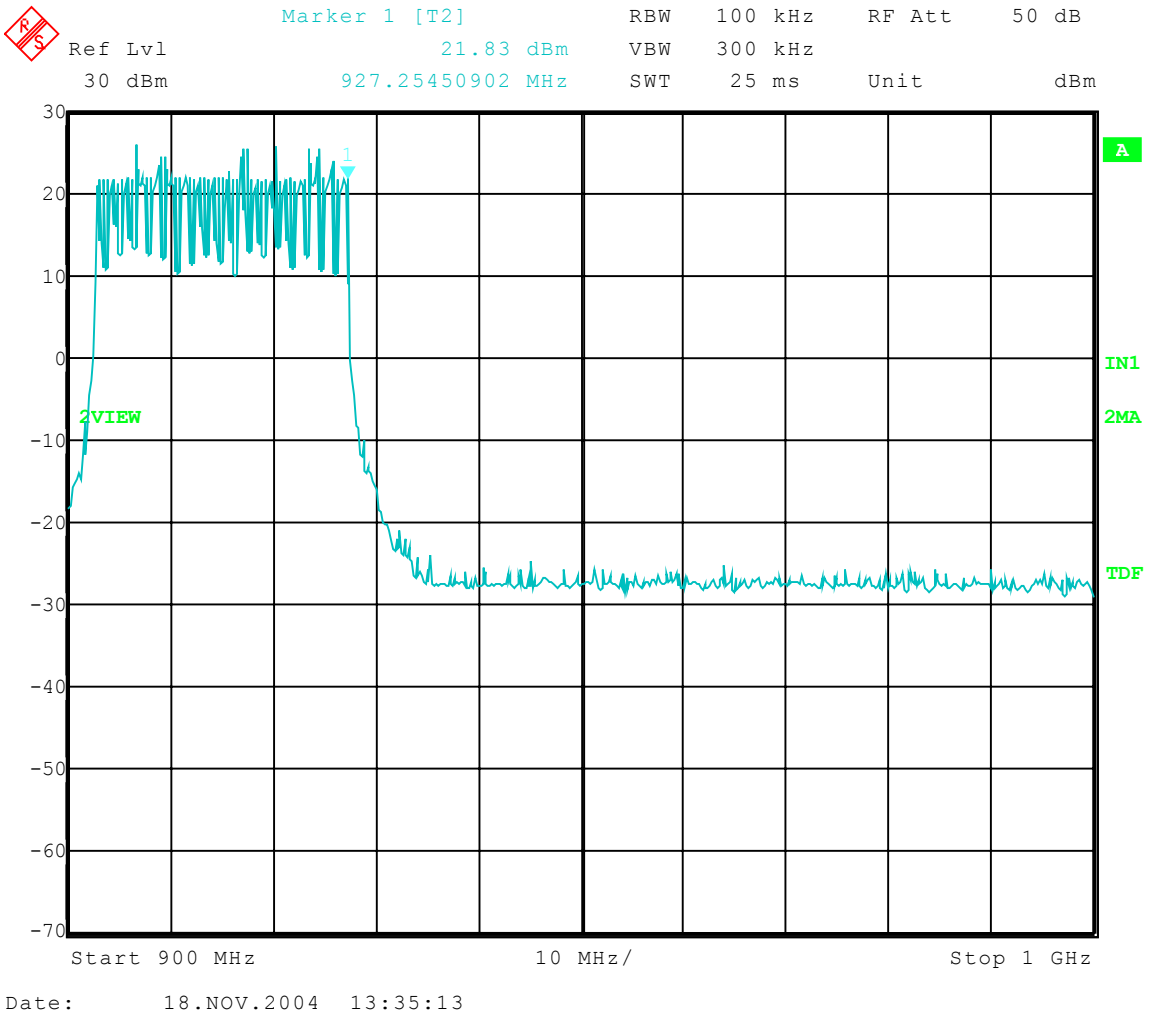
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Low Power
Frequency Range: 900 to 1000 MHz
Limit = 1.83 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

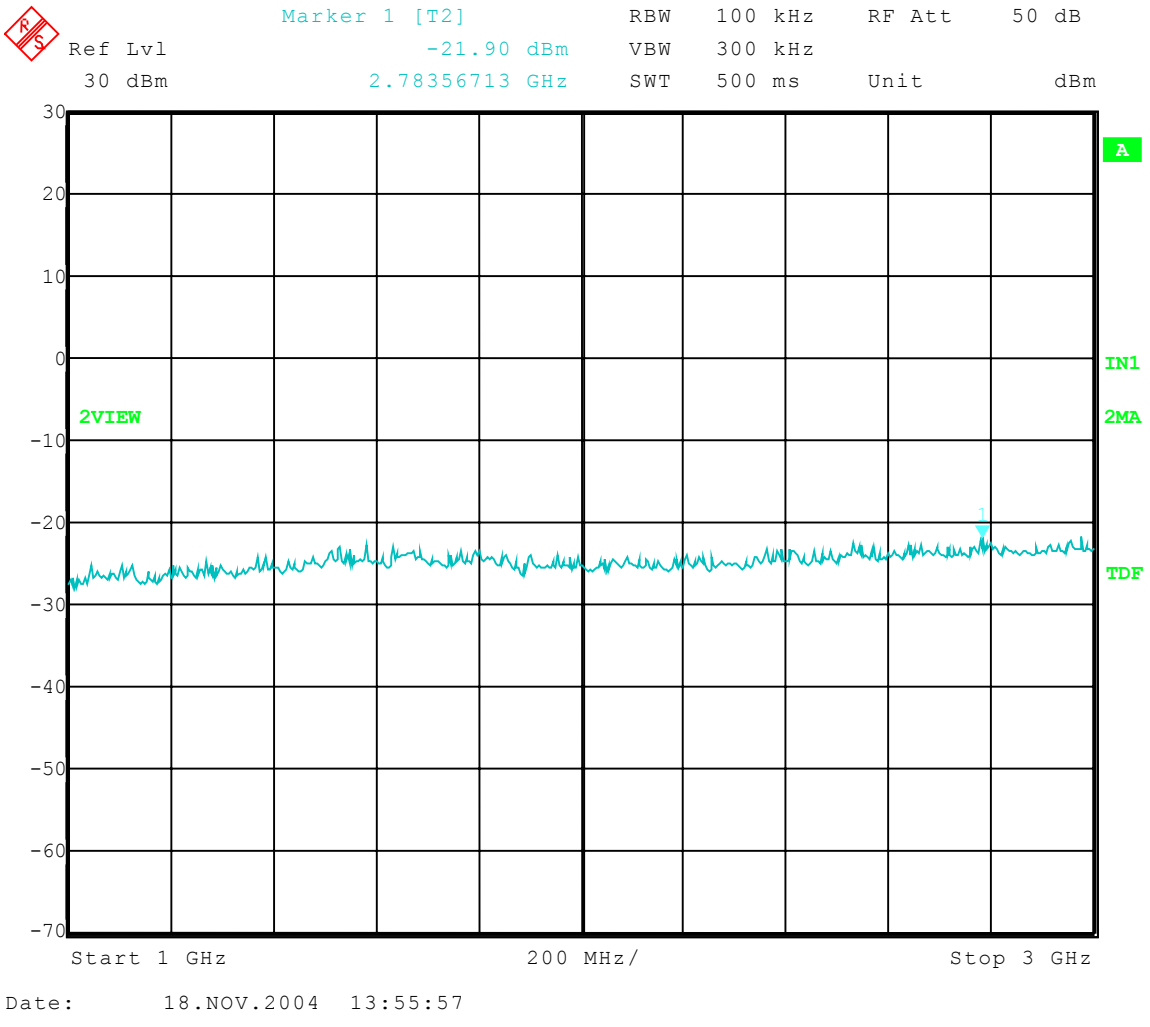


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; High Power
Frequency Range: 1 to 3 GHz
Limit = 7.50 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

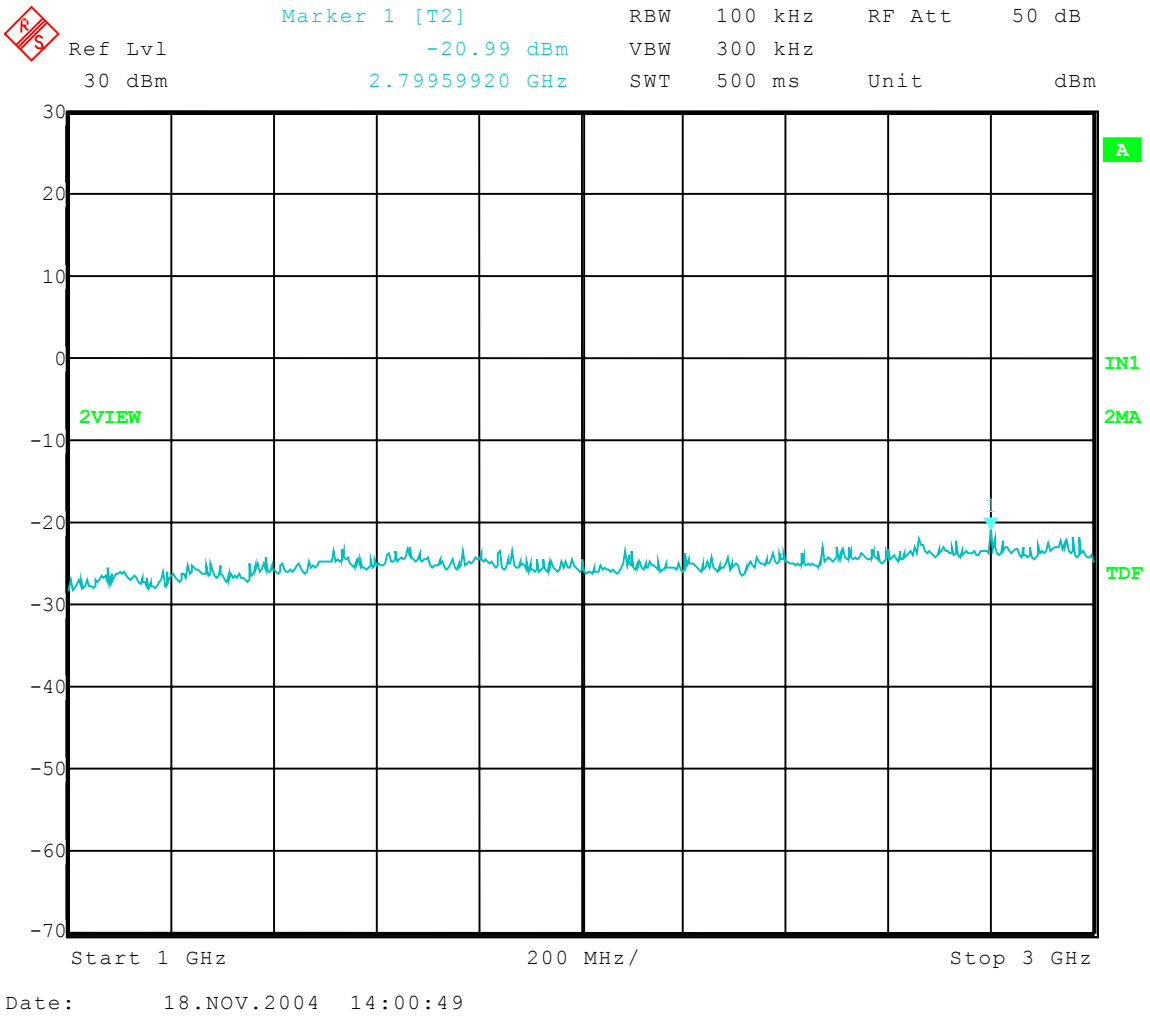


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Mid Power
Frequency Range: 1 to 3 GHz
Limit = 6.61 dBm

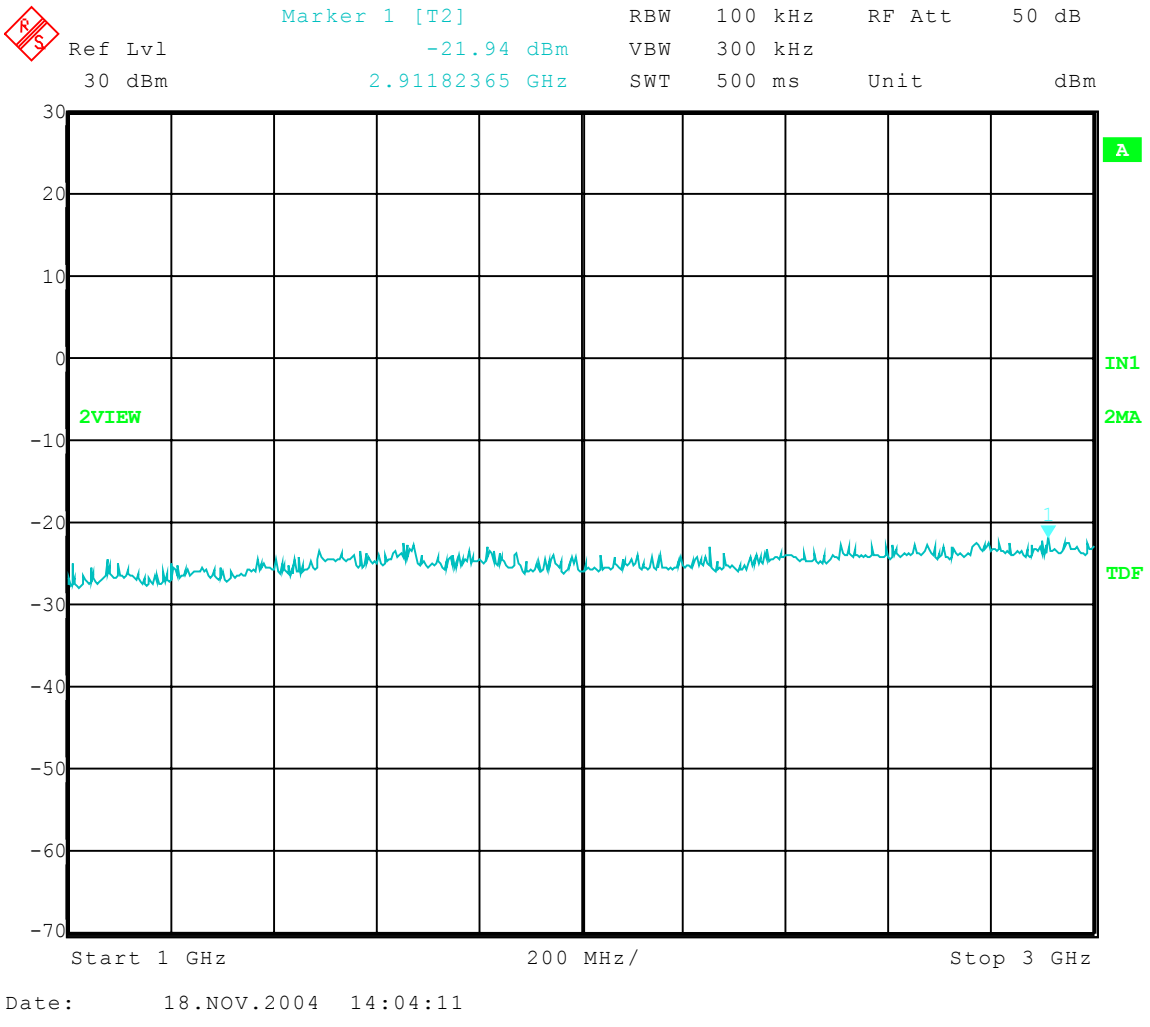
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

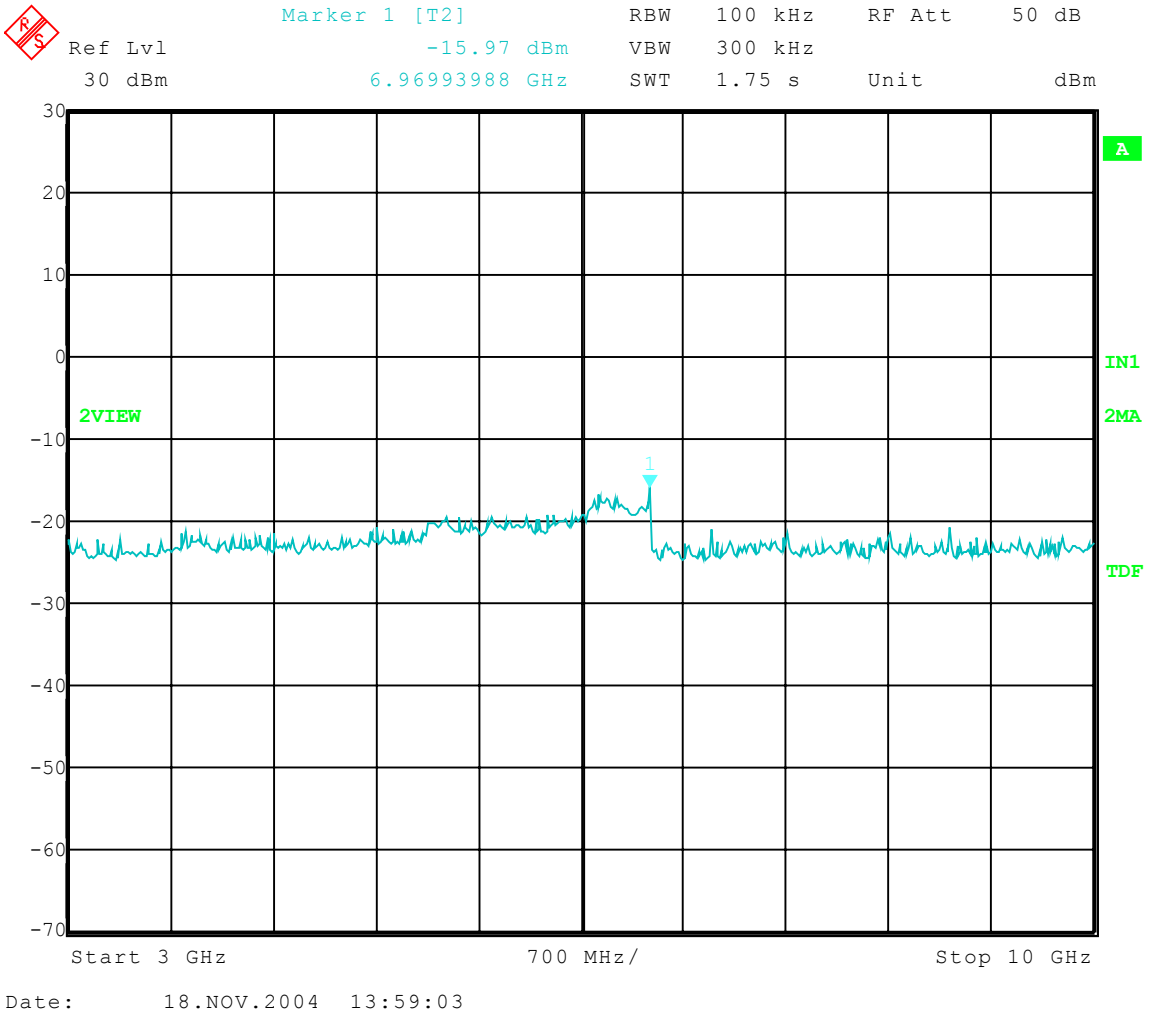
Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Low Power
Frequency Range: 1 to 3 GHz
Limit = 1.83 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

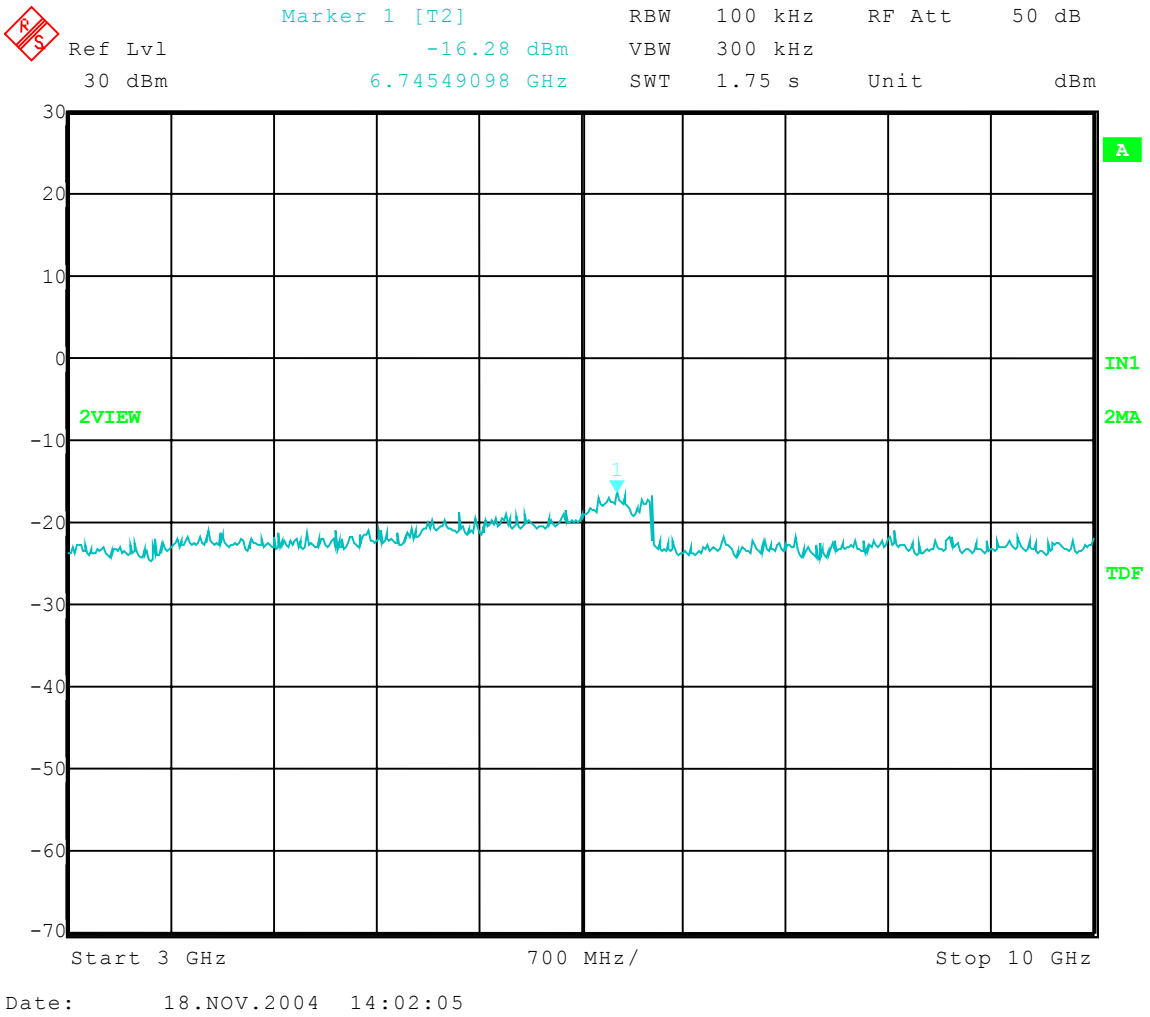
Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; High Power
Frequency Range: 3 to 10 GHz
Limit = 7.50 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Mid Power
Frequency Range: 3 to 10 GHz
Limit = 6.61 dBm
All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency

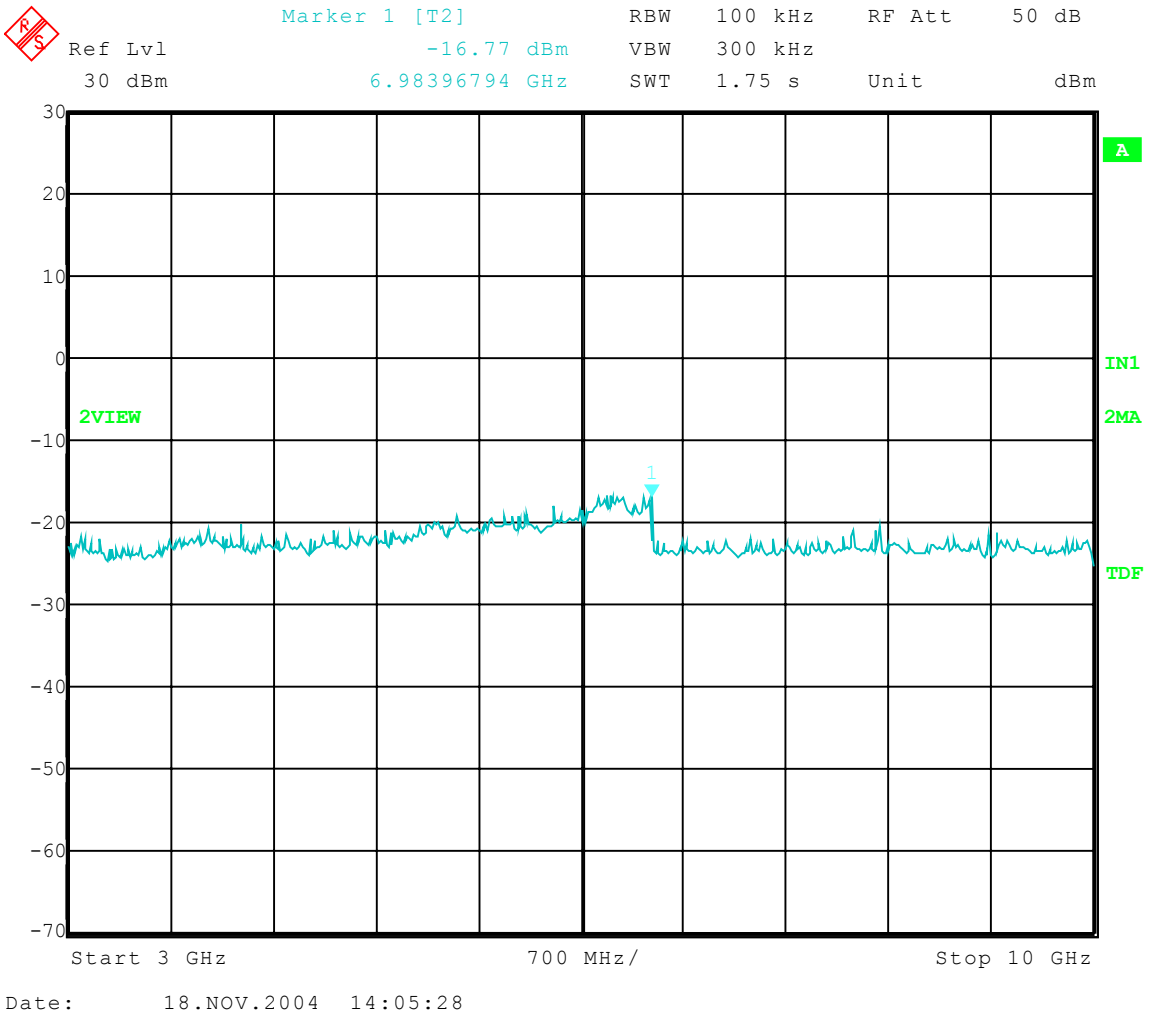


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Spurious Emissions - Conducted
Operator: Craig B
Comment: Spread Spectrum Hopping On; Low Power
Frequency Range: 3 to 10 GHz
Limit = 1.83 dBm

All Spurious Emissions at Least 20 dB below Peak Level of In Band Frequency



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

PSEUDORANDOM HOPPING

FREQUENCIES TABLE(S)

PART 15.247

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

The default frequency hop table has 53 entries spaced 466kHz apart. The default table is shown below:

1	927233
2	903900
3	920234
4	905767
5	923500
6	909033
7	917900
8	909967
9	921167
10	917434
11	902967
12	920700
13	907633
14	913234
15	924900
16	904367
17	919300
18	914634
19	923033
20	918834
21	925367
22	909500
23	908567
24	926300
25	913701
26	904834
27	906234
28	916034
29	915101
30	923967
31	922100
32	906700
33	916501
34	918367
35	910900
36	916967
37	907167
38	926767
39	912767
40	911833
41	910433
42	903434
43	914167
44	911367
45	921634
46	925833
47	915567
48	908100
49	912301
50	922567
51	924433
52	919767
53	905300

Table 3: Default frequency hop table values Hop Table Entry # Frequency in kHz.

ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TIME OF OCCUPANCY GRAPHS

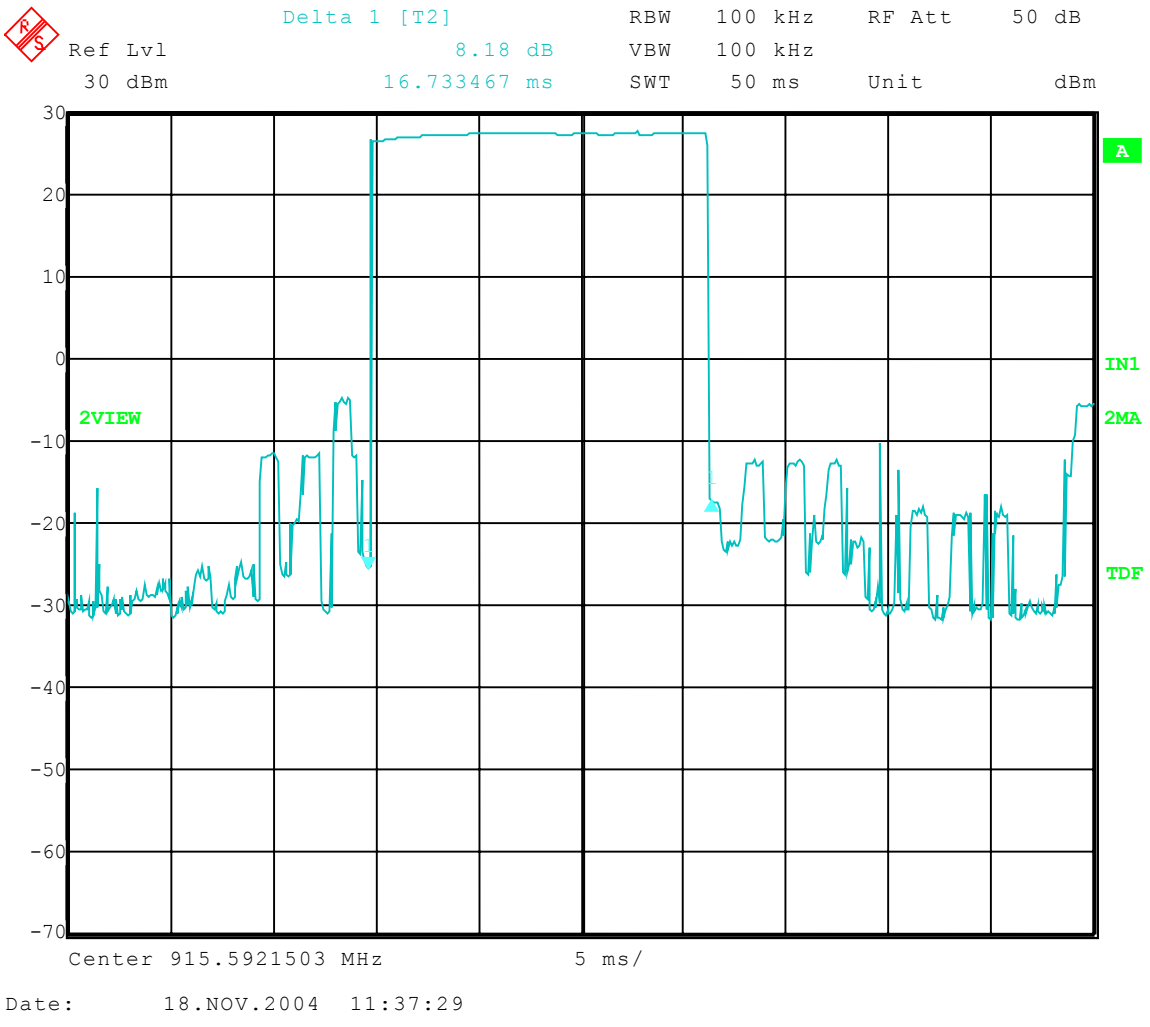
PART 15.247

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Dwell Time - Conducted
Operator: Craig B
Comment: Middle Channel - Hopping Mode On

Dwell Time = 16.73 mS

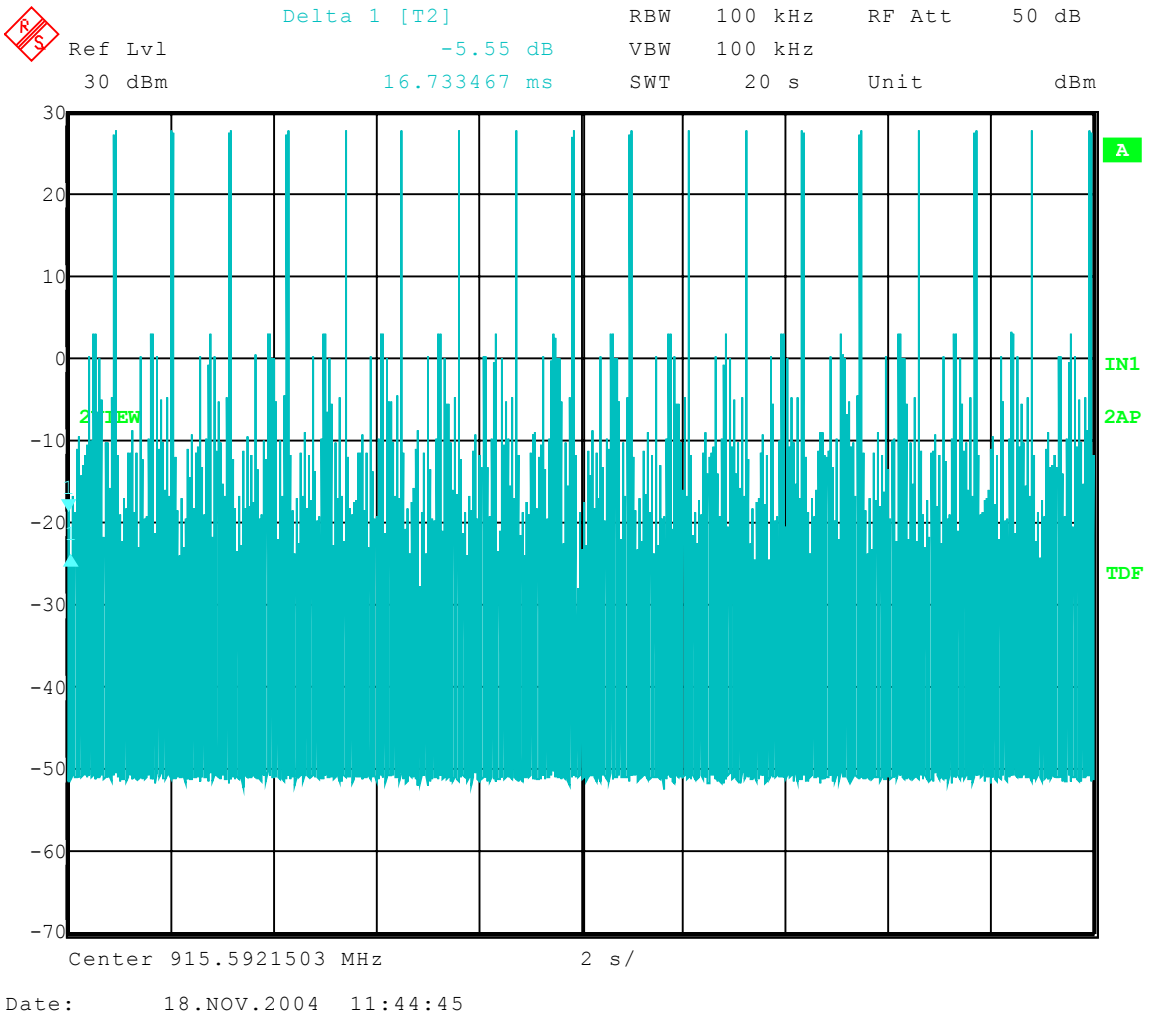


1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Dwell Time in 20 Seconds - Conducted
Operator: Craig B
Comment: Middle Channel – Hopping Mode On

Dwell Time Limit = 0.4 Seconds in 20 Seconds
Times ON in 20 Sec = 18
Dwell Time in 20 Sec = Time Slot Length X Times On in 20 s
0.301 Seconds = 16.73 ms X 18



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

CONDUCTED PEAK OUTPUT POWER GRAPHS

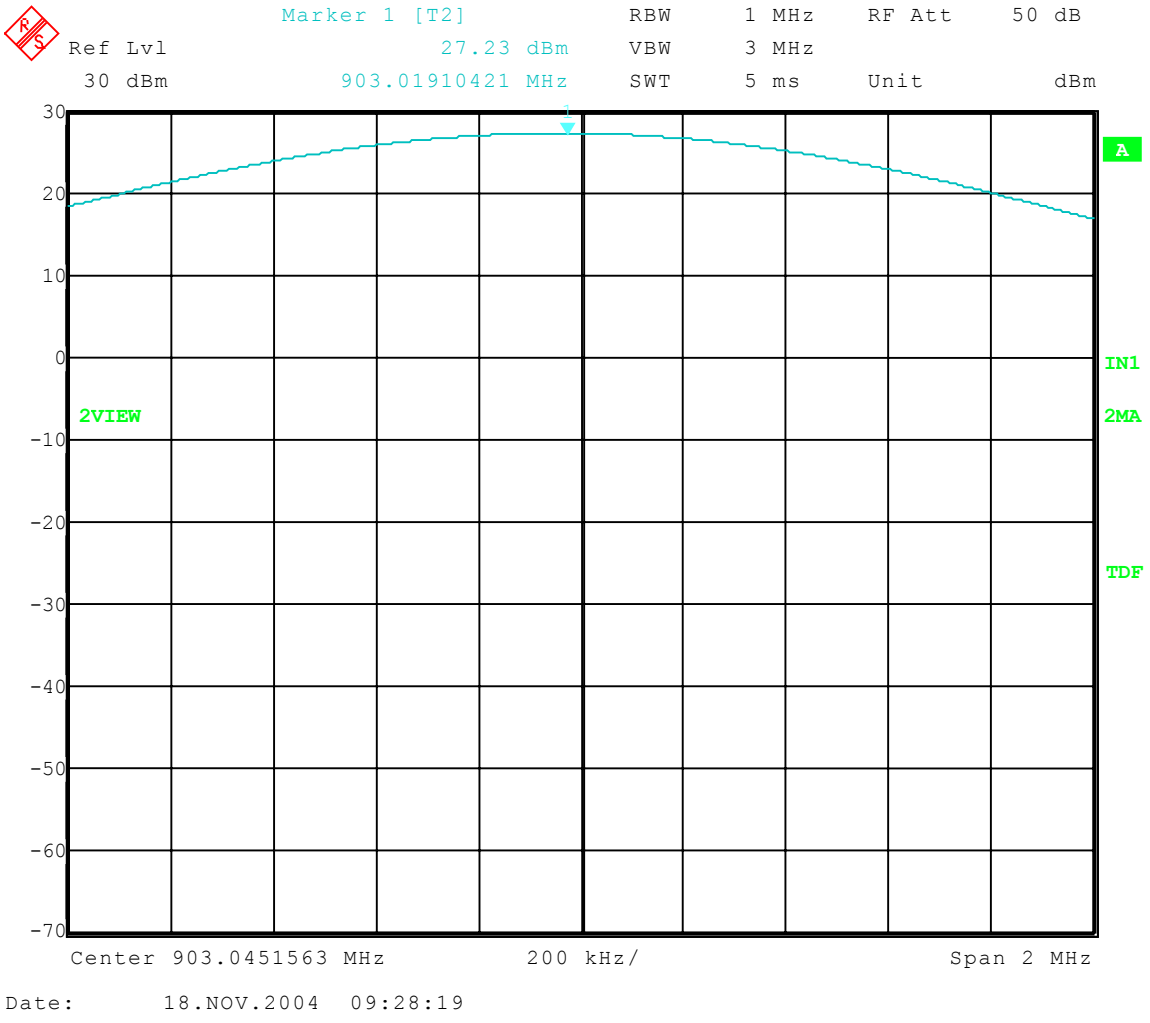
PART 15.247

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: Low Channel; High Power: Frequency – 902.967 MHz

Peak Output Power = 27.23 dBm = 528.4 mW



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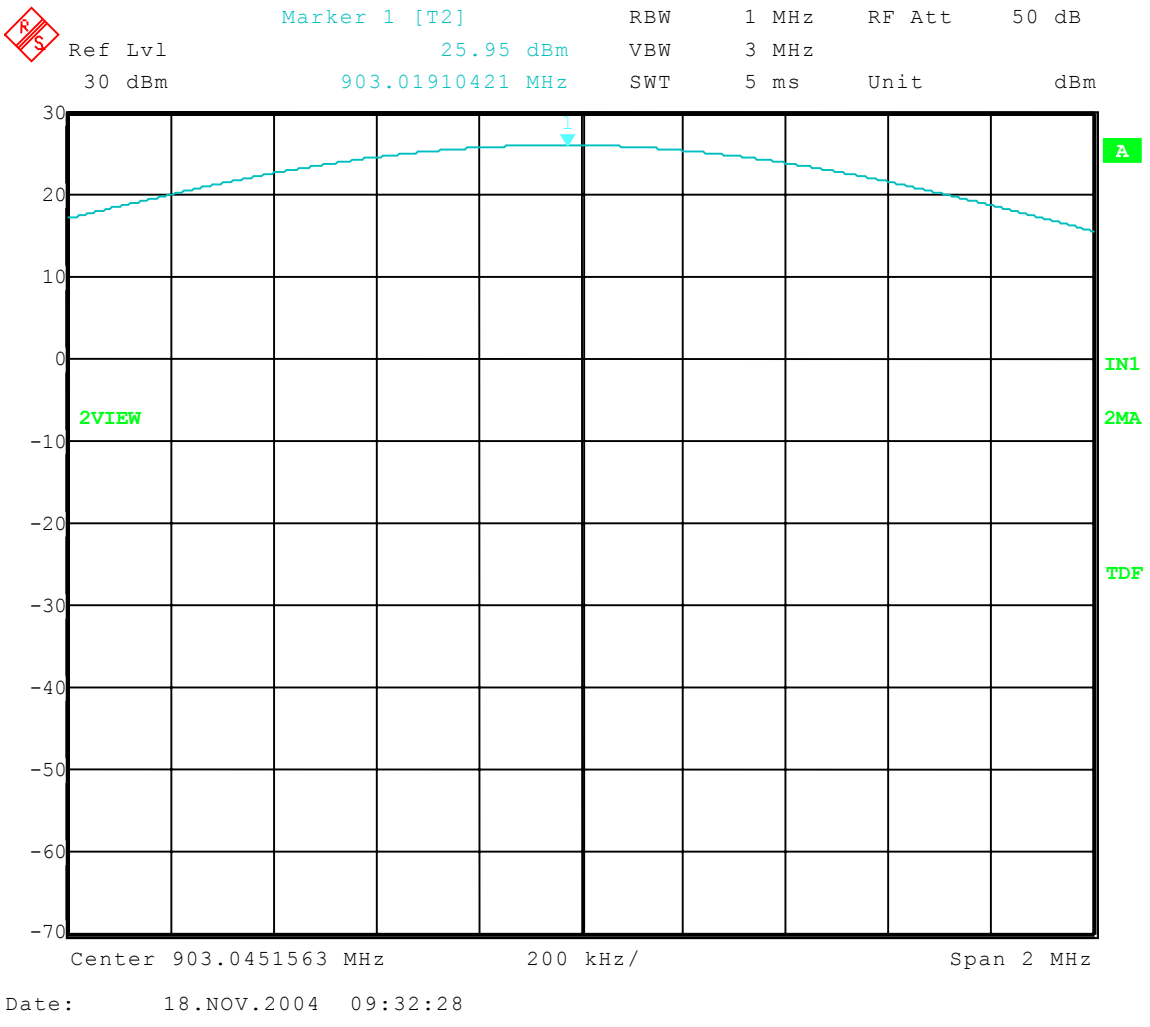
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: Low Channel; Mid Power: Frequency – 902.967 MHz

Peak Output Power = 25.95 dBm = 393.6 mW



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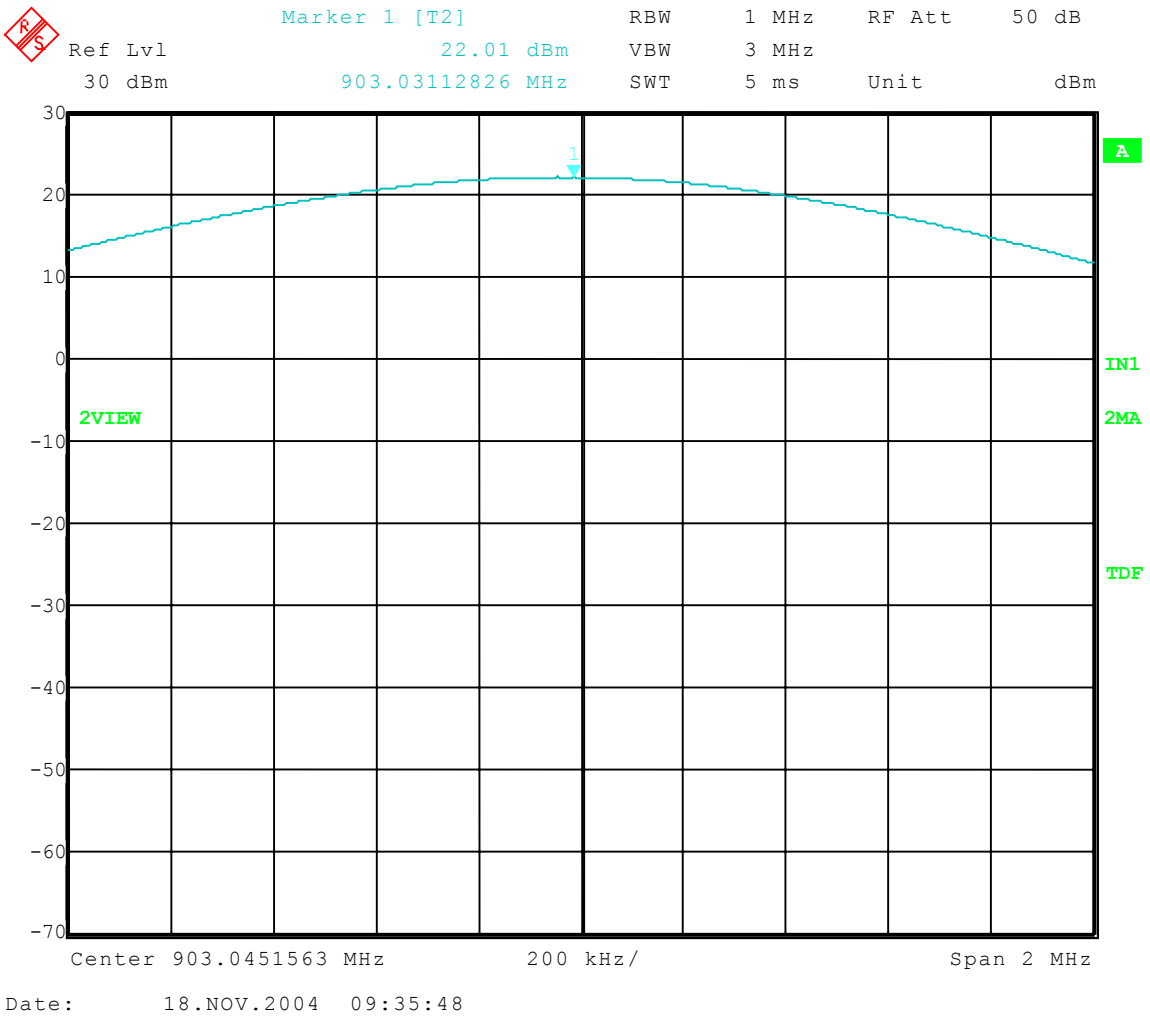
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: Low Channel; Low Power: Frequency – 902.967 MHz

Peak Output Power = 22.01 dBm = 158.8 mW



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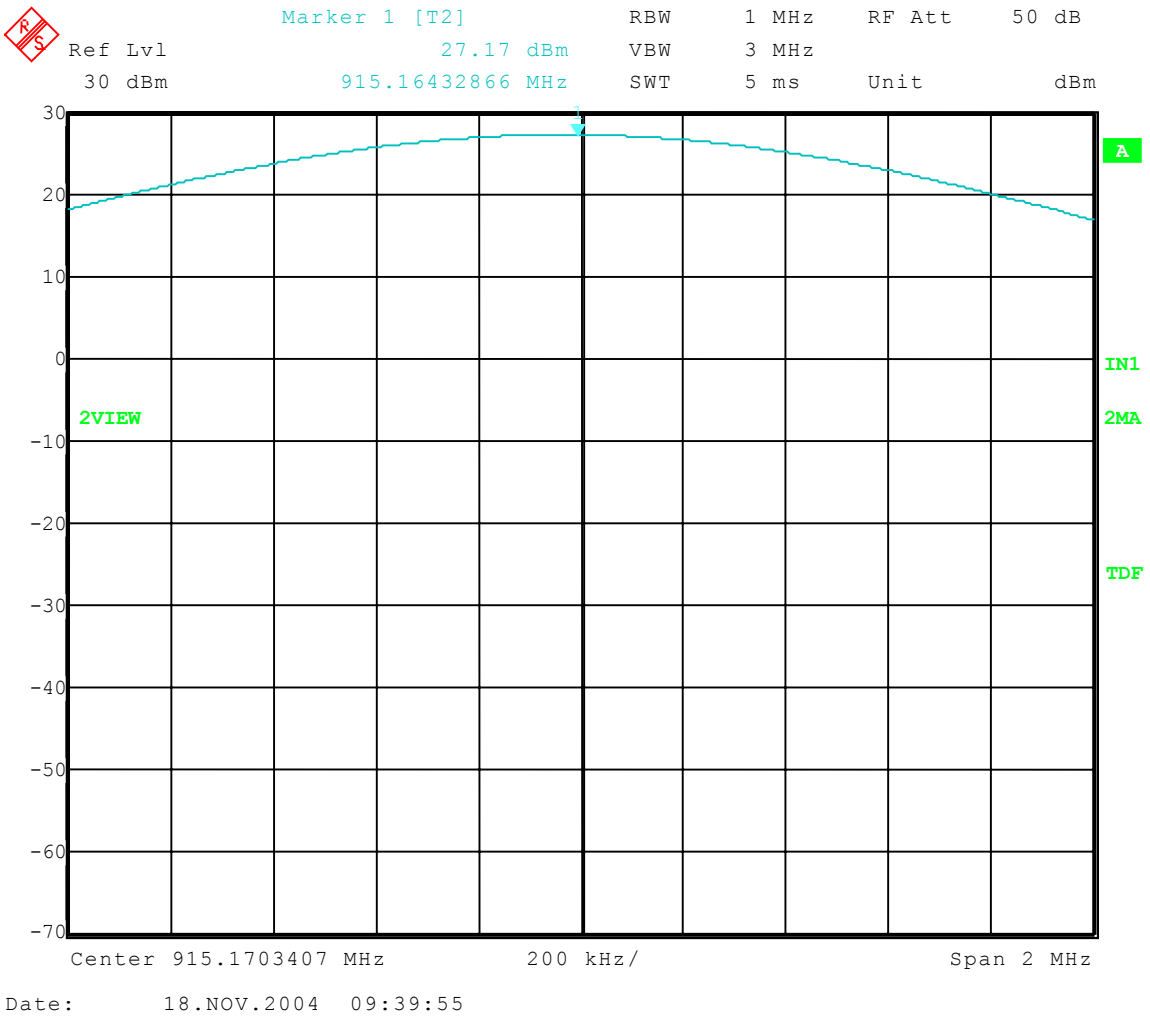
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: Middle Channel; High Power: Frequency – 915.101 MHz

Peak Output Power = 27.17 dBm = 521.2 mW



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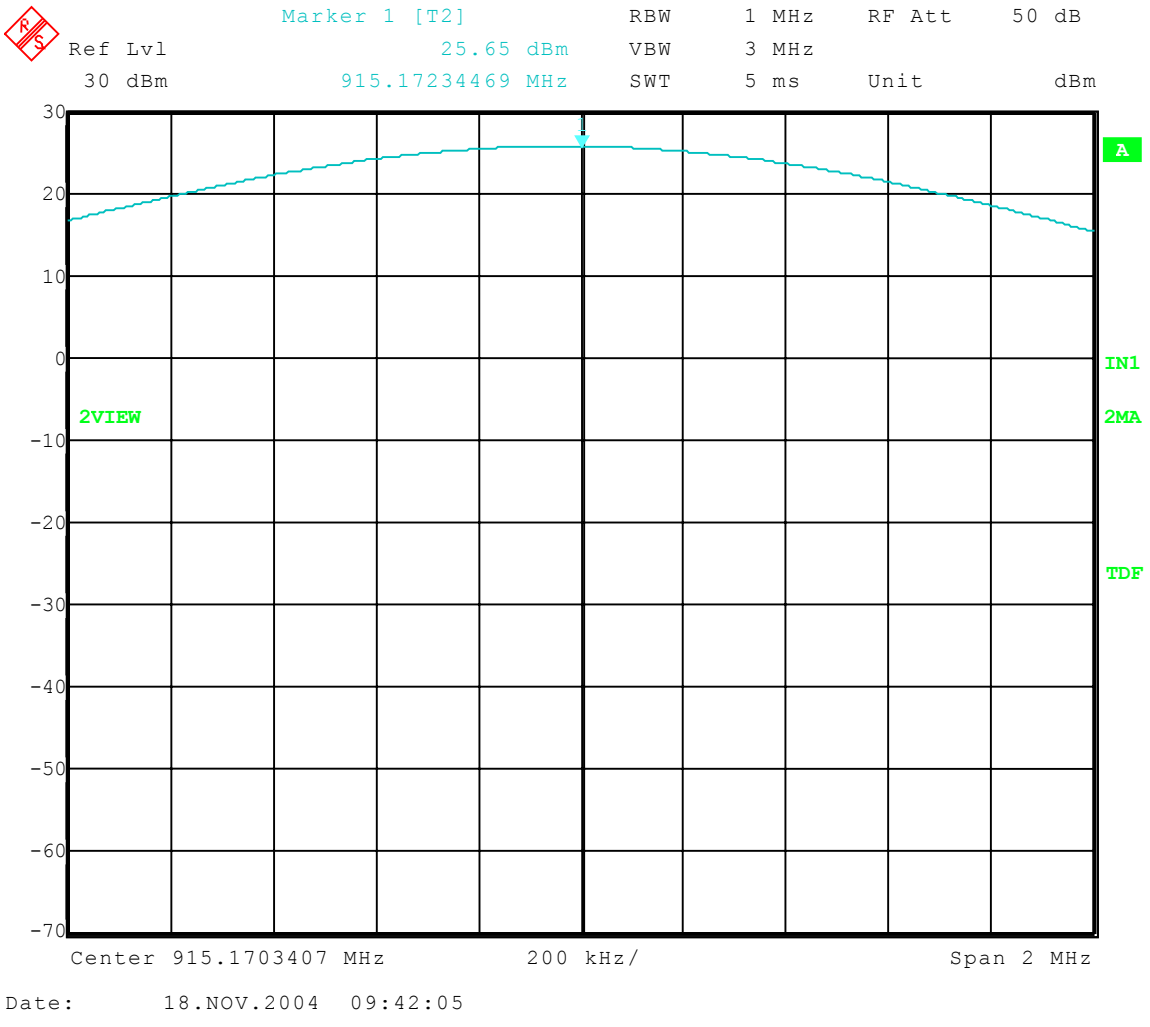
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: Middle Channel; Mid Power: Frequency – 915.101 MHz

Peak Output Power = 25.65 dBm = 367.3 mW



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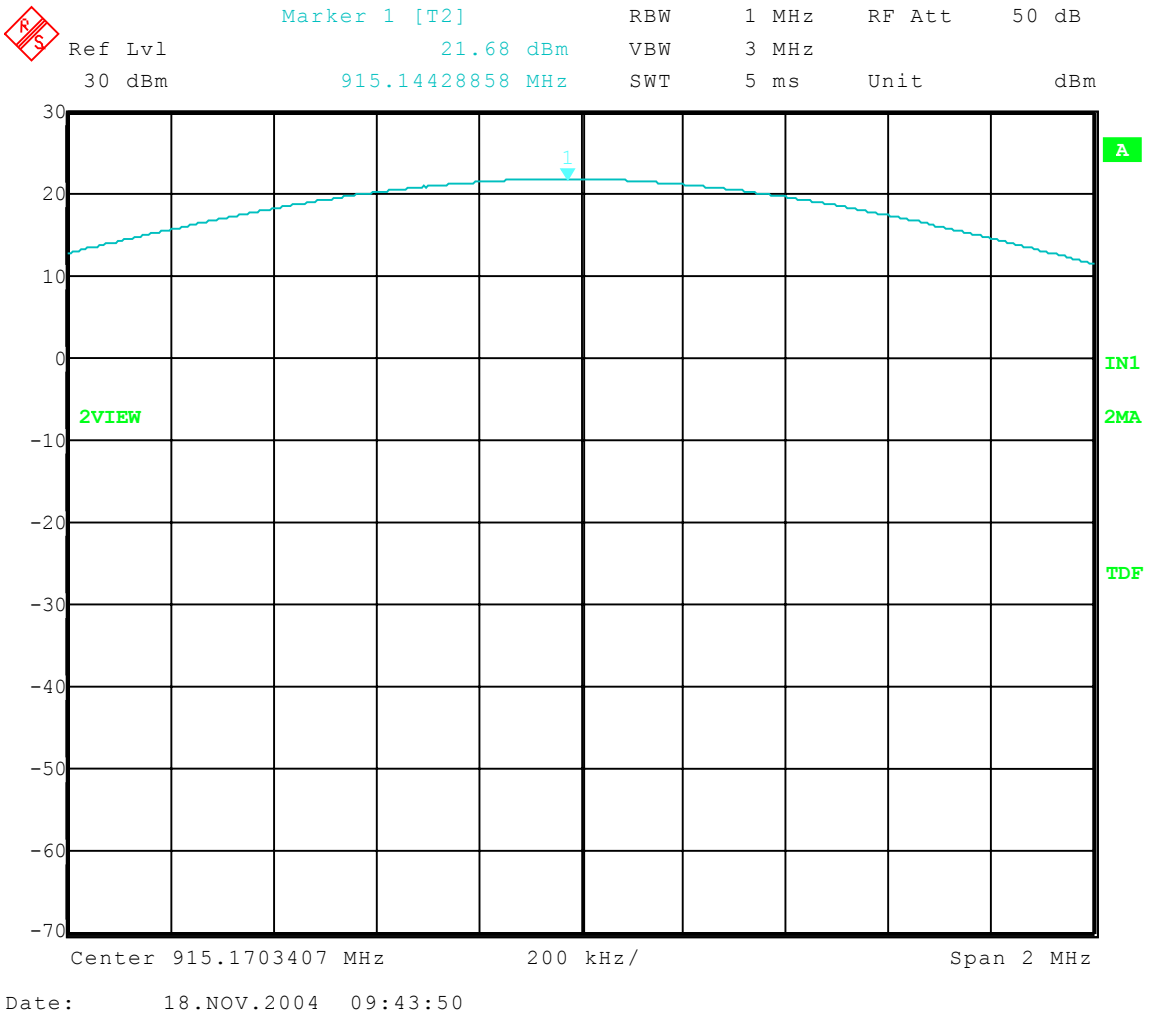
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: Middle Channel; Low Power: Frequency – 915.101 MHz

Peak Output Power = 21.68 dBm = 147.2 mW



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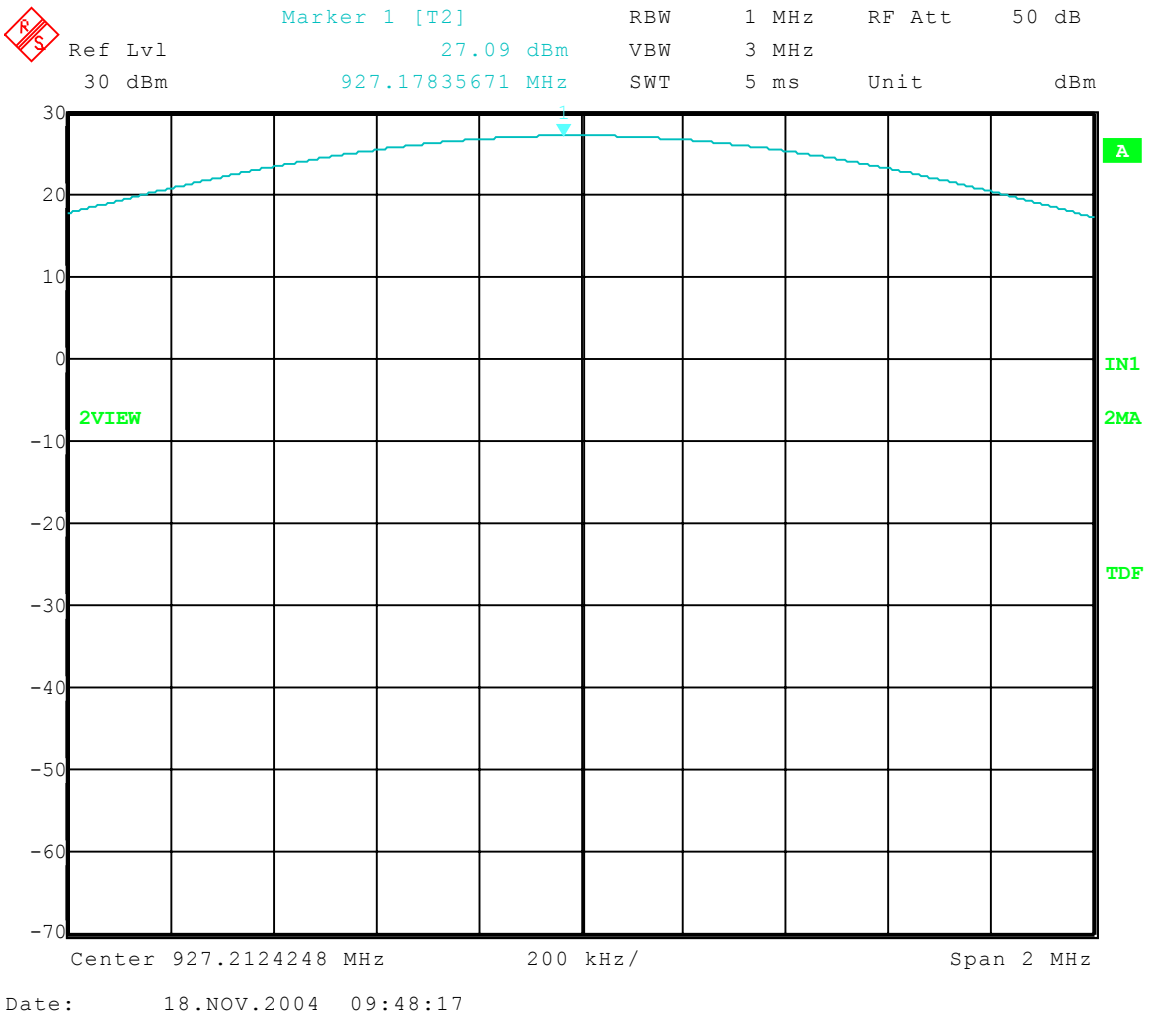
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: High Channel; High Power: Frequency – 927.233 MHz

Peak Output Power = 27.09 dBm = 511.7 mW



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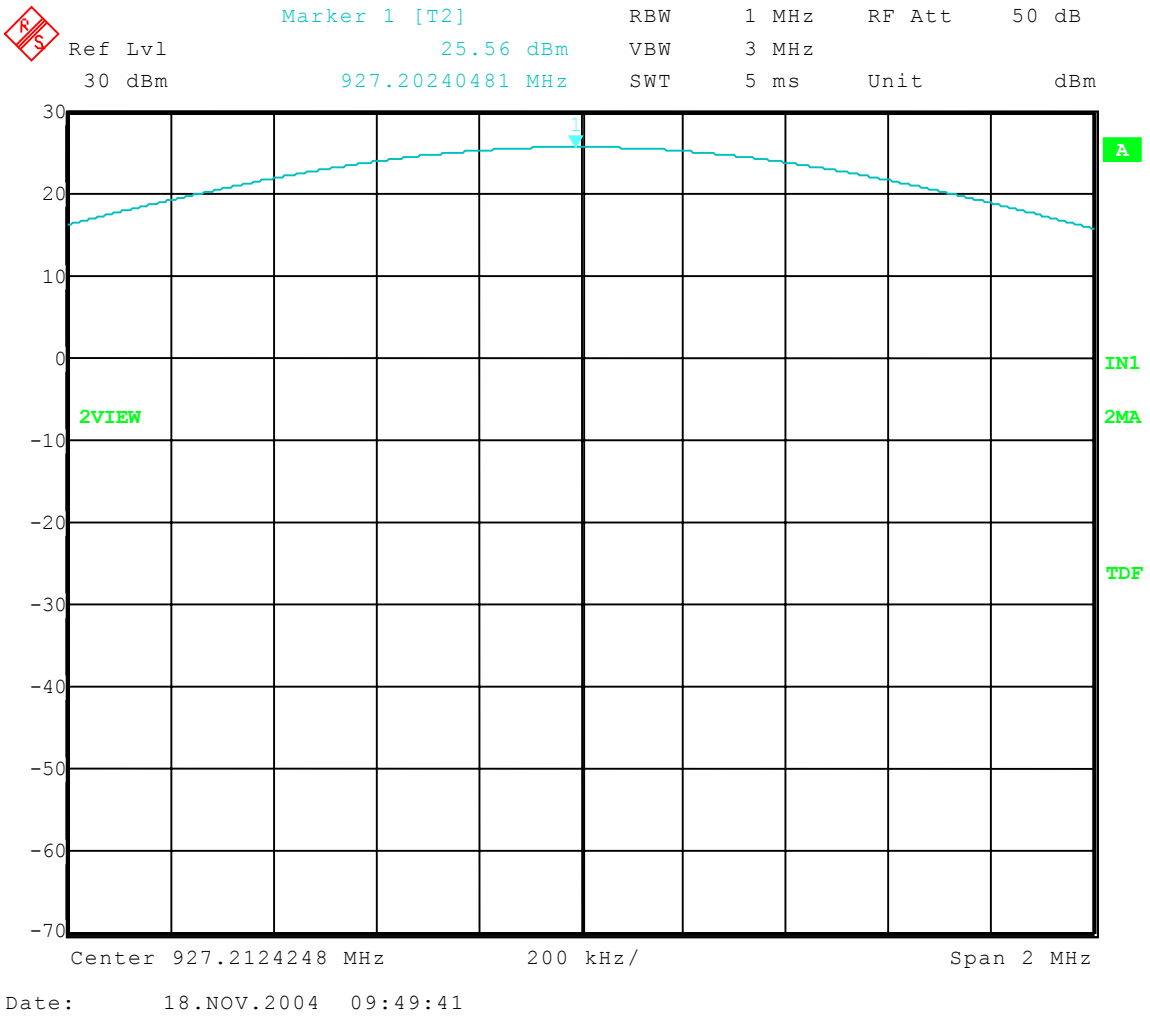
APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: High Channel; Mid Power: Frequency – 927.233 MHz

Peak Output Power = 25.56 dBm = 359.7 mW



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APPENDIX A

Test Date: 11-18-04
Company: Zebra Technologies
EUT: 110XiIII
Test: Peak Output Power - Conducted
Operator: Craig B
Comment: High Channel; Low Power: Frequency – 927.233 MHz

Peak Output Power = 21.61 dBm = 144.9 mW