

Test of Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Test Report Serial No.: EXLT19-A1 Rev A





Test of Model EX-2.4i-16

To FCC 47 CFR Part15.247 & IC RSS-210

Test Report Serial No.: EXLT19-A1 Rev A

This report supersedes None

Manufacturer: Exalt Communications, Inc
580 Division Street
Campbell, California 95008
USA

Product Function: 2.4 GHz Point to Point Fixed Link Radio

Copy No: pdf **Issue Date:** 28th Feb 2007

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
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www.micomlabs.com



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory



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ACCREDITATION & LISTINGS

MiCOM Labs, Inc. an accredited laboratory complies with the international standard BS EN ISO/IEC 17025. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-01.pdf>



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LISTINGS

MiCOM Labs test facilities are listed by the following organizations;

North America

United States of America

Federal Communications Commission (FCC) Listing #: 102167

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DOCUMENT HISTORY

| Document History | | |
|------------------|--------------------------------|--------------|
| Revision | Date | Comments |
| Draft | | |
| Rev A | 28 th February 2007 | First issue. |
| | | |
| | | |

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1. TEST RESULT CERTIFICATE

| | | | |
|---------------|---|------------|--|
| Manufacturer: | Exalt Communications, Inc 580 Division Street Campbell, California 95008 USA | Tested By: | MiCOM Labs, Inc. 440 Boulder Court Suite 200 Pleasanton California, 94566, USA |
| EUT: | EX-2.4i-16 2.4GHz Point to Point Fixed Link Radio | Telephone: | +1 925 462 0304 |
| Model: | EX-2.4i-16 | Fax: | +1 925 462 0306 |
| S/N: | SM44060018, & 001 | Website: | www.micomlabs.com |
| Test Date(s): | 28th Oct 05 to 24th Jan 06 | | |

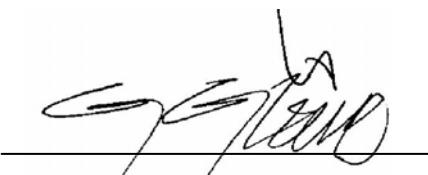
| STANDARD(S) | TEST RESULTS |
|------------------------------------|--------------------|
| FCC 47 CFR Part15.247 & IC RSS-210 | EQUIPMENT COMPLIES |

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

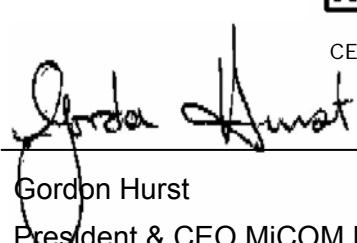
Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

Approved & Released for MiCOM Labs, Inc. by:



Graeme Grieve
Quality Manager MiCOM Labs,



Gordon Hurst
President & CEO MiCOM Labs, Inc.



CERTIFICATE #2381.01

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2. REFERENCES AND MEASUREMENT UNCERTAINTY

2.1. Normative References

| Ref. | Publication | Year | Title |
|--------|-------------------------|---------------------------------|--|
| (i) | FCC 47 CFR Part 15.247 | 2001 | Code of Federal Regulations |
| (ii) | Industry Canada RSS-210 | Issue 6 Sept 2005 | Low Power License-Exempt Radiocommunication Devices (All Frequency Bands) |
| (iii) | Industry Canada RSS-Gen | Issue 1 Sept 2005 | General Requirements and Information for |
| (iv) | ANSI C63.4 | 2003 | American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz |
| (v) | CISPR 22/ EN 55022 | 1997 1998 | Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment |
| (vi) | M 3003 | Edition 1 Dec. 1997 | Expression of Uncertainty and Confidence in Measurements |
| (vii) | LAB34 | Edition 1 Aug 2002 | The expression of uncertainty in EMC Testing |
| (viii) | ETSI TR 100 028 | 2001 | Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics |
| (ix) | A2LA | 14 th September 2005 | Reference to A2LA Accreditation Status – A2LA Advertising Policy |

2.2. Test and Uncertainty Procedures

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

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3. PRODUCT DETAILS AND TEST CONFIGURATIONS

3.1. Technical Details

| Details | Description |
|----------------------------------|---|
| Purpose: | Test of the Exalt Communications Inc Model EX-2.4i-16 to FCC and Industry Canada regulations. |
| Applicant: | Same as manufacturer |
| Manufacturer: | Exalt Communications, Inc 580 Division Street Campbell, California 95008 USA |
| Laboratory performing the tests: | MiCOM Labs, Inc. 440 Boulder Court, Suite 200 "B" Pleasanton, California 94566 USA |
| Test report reference number: | EXLT19-A1 Rev A |
| Standard(s) applied: | FCC 47 CFR Part15.247 & IC RSS-210 |
| Dates of test (from - to): | 28th Oct 05 to 24th Jan 06 |
| No of Units Tested: | 1 |
| Type of Equipment: | 2.4 GHz Point to Point Microwave Fixed Link |
| Manufacturers Trade Name: | Model EX-2.4i-16 |
| Model: | EX-2.4i-16 |
| Location for use: | Indoor use only |
| Declared Frequency Range(s): | 2,400 to 2,483.5 MHz |
| Type of Modulation: | QPSK; 16QAM; 64QAM |
| Declared Nominal Output Power: | +27 dBm |
| EUT Modes of Operation: | QPSK; 16QAM; and 64QAM modulation available at 9 MHz, 18 MHz, 36 MHz, & 72 MHz Bandwidths. |
| Transmit/Receive Operation: | Time Division Duplex (TDD) |
| Rated Input Voltage and Current: | -48 Vdc |
| Operating Temperature Range: | Declared -25 to +65°C |

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| | |
|--------------------------------|--|
| ITU Emission Designator: | <p><u>9 MHz Bandwidth</u> QPSK 10M2W7D 16'QAM 9M9W7D 64QAM 10M2W7D</p> <p><u>18 MHz Bandwidth</u> QPSK 17M3W7D 16QAM 19M0W7D 64QAM 20M2W7D</p> <p><u>36 MHz Bandwidth</u> QPSK 34M7W7D 16QAM 36M0W7D 64QAM 38M1W7D</p> <p><u>72 MHz Bandwidth</u> QPSK 60M7W7D 16QAM 61M3W7D 64QAM 61M7W7D</p> |
| Microprocessor(s) Model: | MPC852T |
| Clock/Oscillator(s): | Crystal: 25MHz, Oscillator: 10MHz, 2.048MHz, 44.736MHz/34.368MHz/12.880MHz |
| Frequency Stability: | ±7 ppm |
| Equipment Dimensions: | 17" x 14" x 2.63" |
| Weight: | 12 lbs |
| Primary function of equipment: | 2.4 GHz point-point microwave radio communications |

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3.2. Scope of Test Program

The scope of the test program was to test the Exalt Communications EX-2.4i-16 radio for compliance against FCC 47 CFR Part 15.247 and Industry Canada RSS-210 specifications.

The Exalt Communications EX-2.4i-16 employs QPSK, 16QAM & 64QAM modulation in the frequency ranges 2.400 to 2.4835 GHz.

The EX-2.4i-16 is identical to the EX-2.4i with the exception of the Interface PCB Assembly which has sixteen E1/T1 data tributaries (thus the -16 designation) as compared to the four found on the EX-2.4i version. As a result the test results used in this test report with the exception of the Radiated Emissions below 1 GHz are reproduced from the data used in test report EXLT01-A1 for the EX-2.4i.

**Exalt Communications Inc
Model EX-2.4i-16
2.4 GHz Point to Point Microwave Radio**

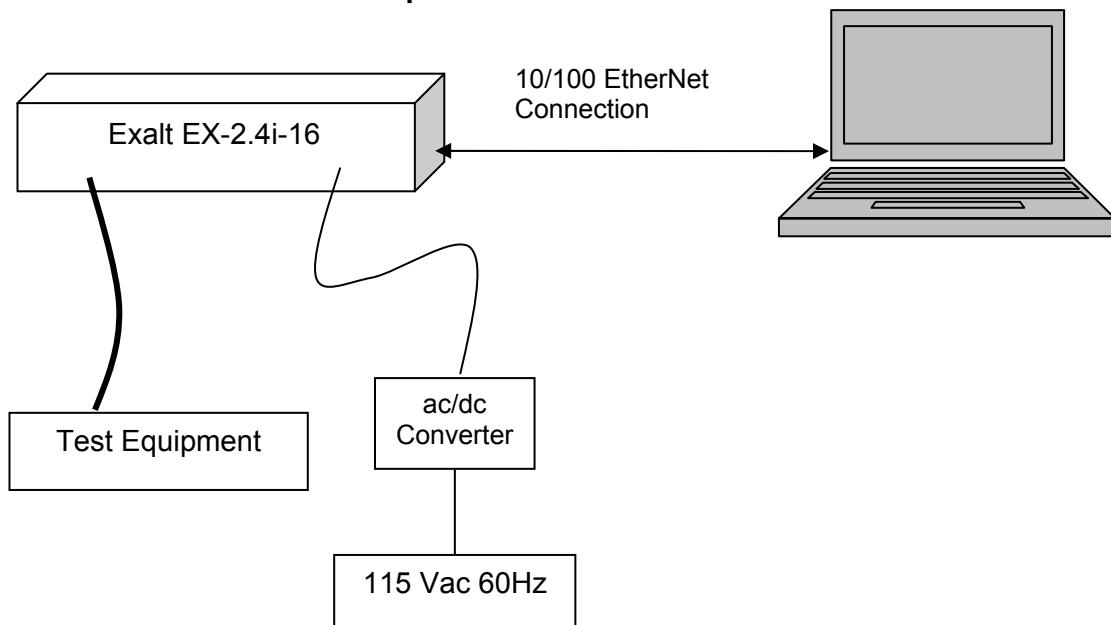


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3.3. Equipment Model(s) and Serial Number(s)

| EUT/ Support | Manufacturer | Equipment Description (Including Brand Name) | Model No. | Serial No. |
|-----------------|--------------------------|--|-------------|----------------|
| EUT | Exalt Communications Inc | EX-2.4i-16 2.4 GHz Point to Point Fixed Link Radio | EX-2.4i-16 | SM44060018 |
| Support | Power supply | International Power Sources | CUP70-18 B2 | 70480-0000106 |
| Support | IBM Laptop | Computer | 2896-72U | FX-05793 -4/03 |
| Support | IBM AC Adaptor | 100-240VAC 50/60Hz | 02K6749 | ZJ1MN33631NN |

Test Set-Up for Conducted Emissions



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3.4. Antenna Details

| Antenna Type | Gain (dBi) | Manufacturer | Model No. | Serial No. |
|--------------|------------|--------------|-----------|------------|
| Parabolic | 21.3 | Radio Waves | SP2-2.4 | 14734 |
| Parabolic | 30.3 | Radio Waves | SP6-2.4NS | 128434 |
| Panel | 20 | Super Pass | SPAPG20 | None |

3.5. Cabling and I/O Ports

Number and type of I/O ports

1. E1/T1: 16 ports
2. Ethernet: 2 ports
3. Sync Interface: 2 ports (In and Out)
4. Alarm: 1 port
5. Console: 1 port
6. RSL test point: 2
7. RF: 1 port
8. DC Voltage Supply port: 1 port

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3.6. Test Configurations

Matrix of test configurations

| BW (MHz) | Modulation | | | | | | | | |
|-------------|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | QPSK | | | 16QAM | | | 64QAM | | |
| | Low (MHz) | Mid (MHz) | High (MHz) | Low (MHz) | Mid (MHz) | High (MHz) | Low (MHz) | Mid (MHz) | High (MHz) |
| 9 | 2406 | 2437 | 2468 | 2406 | 2437 | 2468 | 2406 | 2437 | 2468 |
| 18 | 2417 | 2437 | 2465 | 2417 | 2437 | 2465 | 2417 | 2437 | 2465 |
| 36 | 2426 | 2437 | 2455 | 2426 | 2437 | 2455 | 2426 | 2437 | 2455 |
| 72 | | 2437 | | | 2437 | | | 2437 | |

Only worst case plots are provided for each test parameter are identified within this report. Plots not included are held on file by the test laboratory and available upon request with client permission.

3.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

3.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE

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3.9. Subcontracted Testing or Third Party Data

Radiated emissions are tested below and verified above 1 GHz at TUV Rheinland of North America's 10m chamber located at the following address;:-

2305 Mission College Blvd.
Santa Clara
California 95054
USA

TUV Rheinland of North America IC Registration Number: IC 4453-1

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4. TEST SUMMARY

List of Measurements

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247**, **Industry Canada RSS-210**, and **Industry Canada RSS-Gen**.

| Section(s) | Test Items | Description | Condition | Result | Test Report Section |
|---|--|---|-----------|----------|---------------------|
| 15.247(a)(2) 4.4 | 6 dB and 99 % Bandwidths | >=500 kHz | Conducted | Complies | 5.1.1 |
| 15.247(b) 15.31(e) A8.4(4) 4.6 | Peak Output Power Voltage Variation | Shall not exceed 1W Variation of supply voltage 85 % -115 % | Conducted | Complies | 5.1.2 |
| 15.247(d) A8.2 | Peak Power Spectral Density | Shall not be greater than +8 dBm in any 3 kHz band | Conducted | Complies | 5.1.3 |
| 15.247(i)) RSS-102 | Maximum Permissible Exposure | Exposure to radio frequency energy levels | Conducted | Complies | 5.1.4 |
| 15.247(c) 15.205(a) / 15.209(a) A8.5 4.7 | Spurious Emissions (30MHz - 26 GHz) | The radiated emission in any 100 kHz of out-band shall be at least 20 dB below the highest in-band spectral density | Conducted | Complies | 5.1.5 |

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List of Measurements (continued)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247**, **Industry Canada RSS-210**, and **Industry Canada RSS-Gen**.

| Section(s) | Test Items | Description | Condition | Result | Test Report Section |
|--|--|---|-----------|----------|---------------------|
| 15.247(c) 15.205(a) / 15.209(a) 2.2 | Radiated Emissions | Restricted Bands Spurious Emissions Band edge | Radiated | Complies | 5.1.6 |
| 2.6 4.7 | Transmitter Radiated Spurious Emissions | Emissions above 1 GHz | Radiated | Complies | 5.1.6.1 |
| 4.8 | Receiver Radiated Spurious Emissions | Emissions above 1 GHz | Radiated | Complies | 5.1.6.2 |
| | Peak Field Strength | Peak emission from intentional radiator | Radiated | Complies | 5.1.6.3 |
| | Radiated Band Edge | Band edge results | Radiated | Complies | 5.1.6.4 |
| 5.205(a) / 15.209(a) 2.2, | Radiated Spurious Emissions | Emissions <1 GHz (30M-1 GHz) | Radiated | Complies | 5.1.6.5 |
| 15.207 7.2.2 | AC Wireline Conducted Emissions 150 kHz–30 MHz | Conducted Emissions | Conducted | Complies | 5.1.7 |

Note 1: Test results reported in this document relate only to the items tested

Note 2: The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria

Note 3: Section 3.7 Equipment Modifications highlights the equipment modifications that were required to bring the product into compliance with the above test matrix

5. TEST RESULTS

5.1. Device Characteristics

5.1.1. 6 dB and 99 % Bandwidth

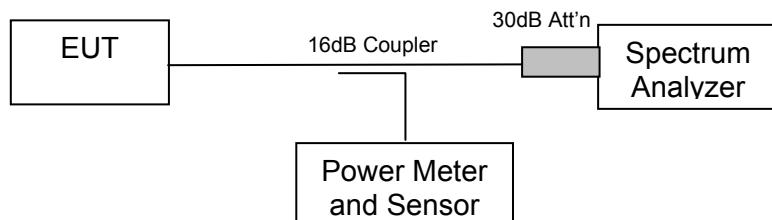
FCC, Part 15 Subpart C §15.247(a)(2)

Industry Canada RSS-Gen §4.4

Test Procedure

The bandwidth at 6 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency and maximum power. Using a 6 dB resolution bandwidth filter setting the spectrum analyzer was set to the following for both 6 dB BW and 99 % BW measurements;

Test Measurement Set up



Measurement set up for 6 dB and 99 % bandwidth test

Measurement Results for 6 dB and 99 % Operational Bandwidth(s)

Ambient conditions.

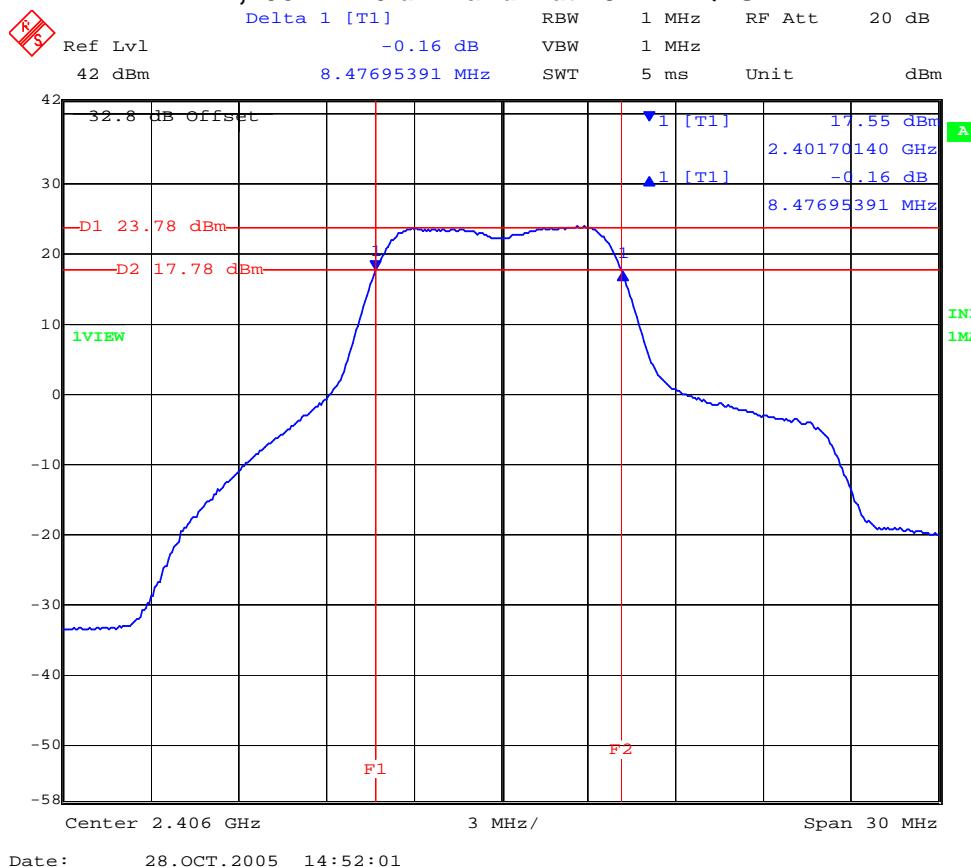
Temperature: 19 to 26 °C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

9 MHz Bandwidth Test Results

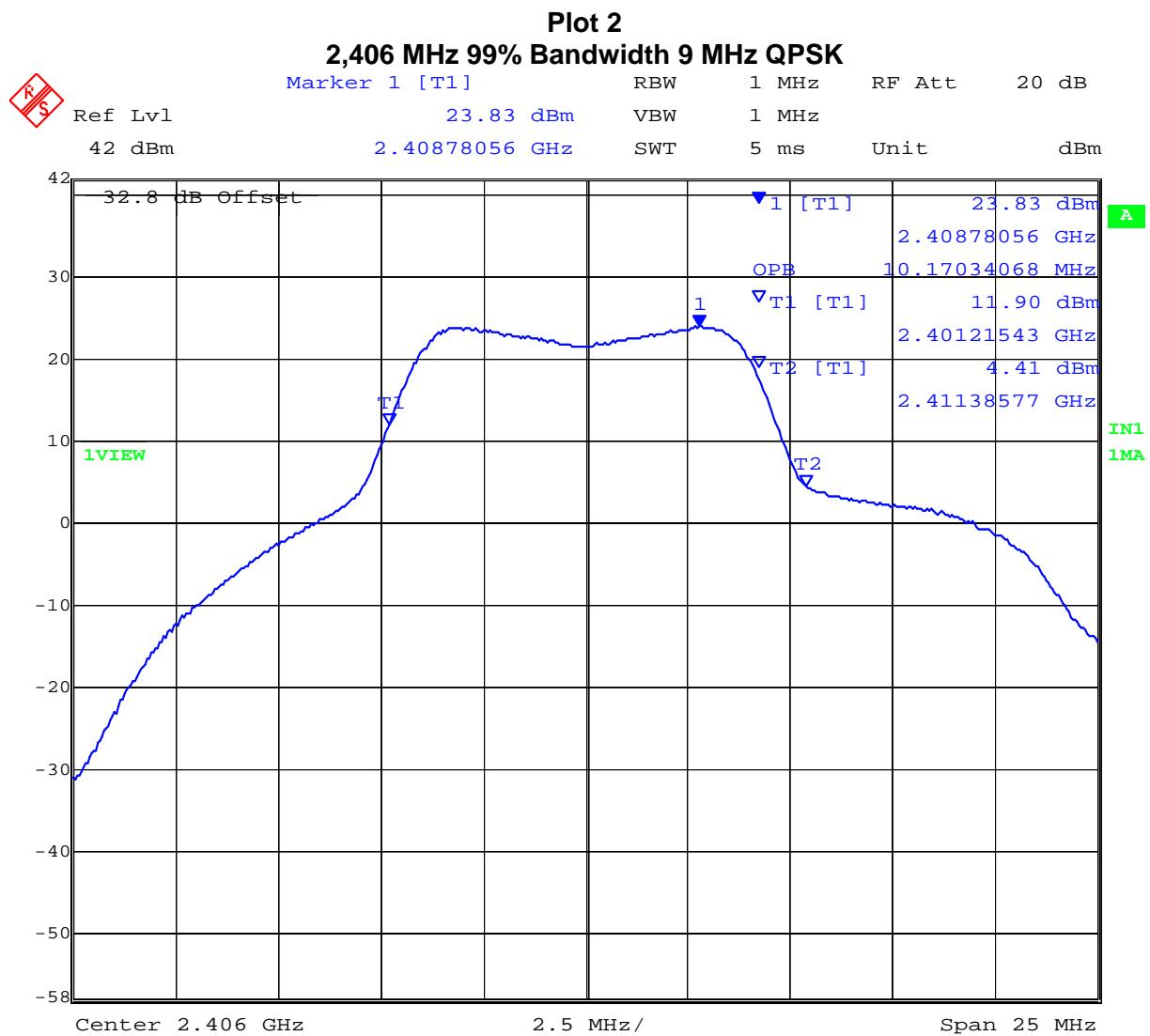
TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,406 | 8.4769 | 1 | 10.1703 | 2 |
| 2,437 | 8.4168 | On File | 9.1182 | On File |
| 2,468 | 8.4769 | On File | 9.0180 | On File |

Plot 1 2,406 MHz 6 dB Bandwidth 9 MHz QPSK



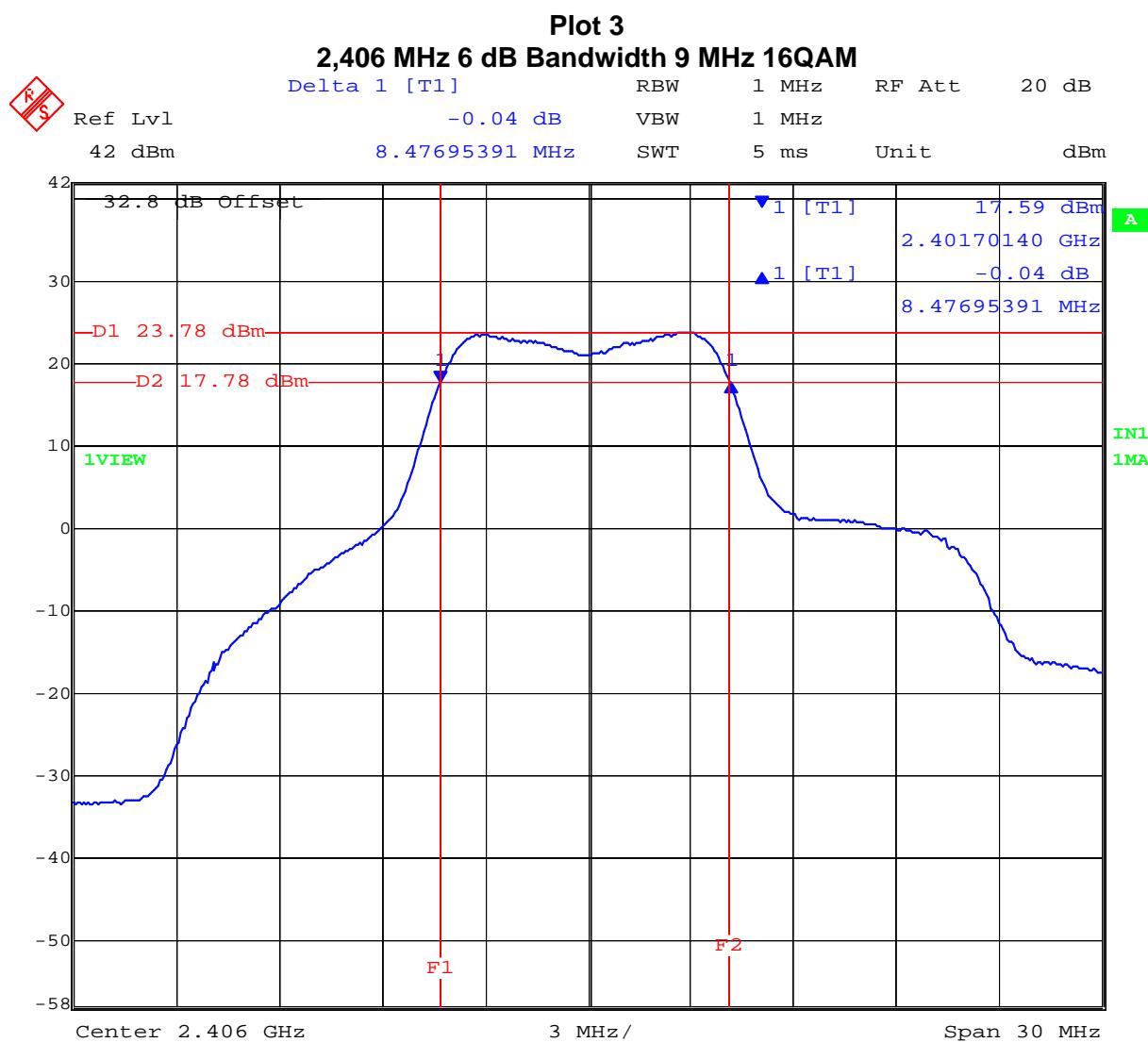
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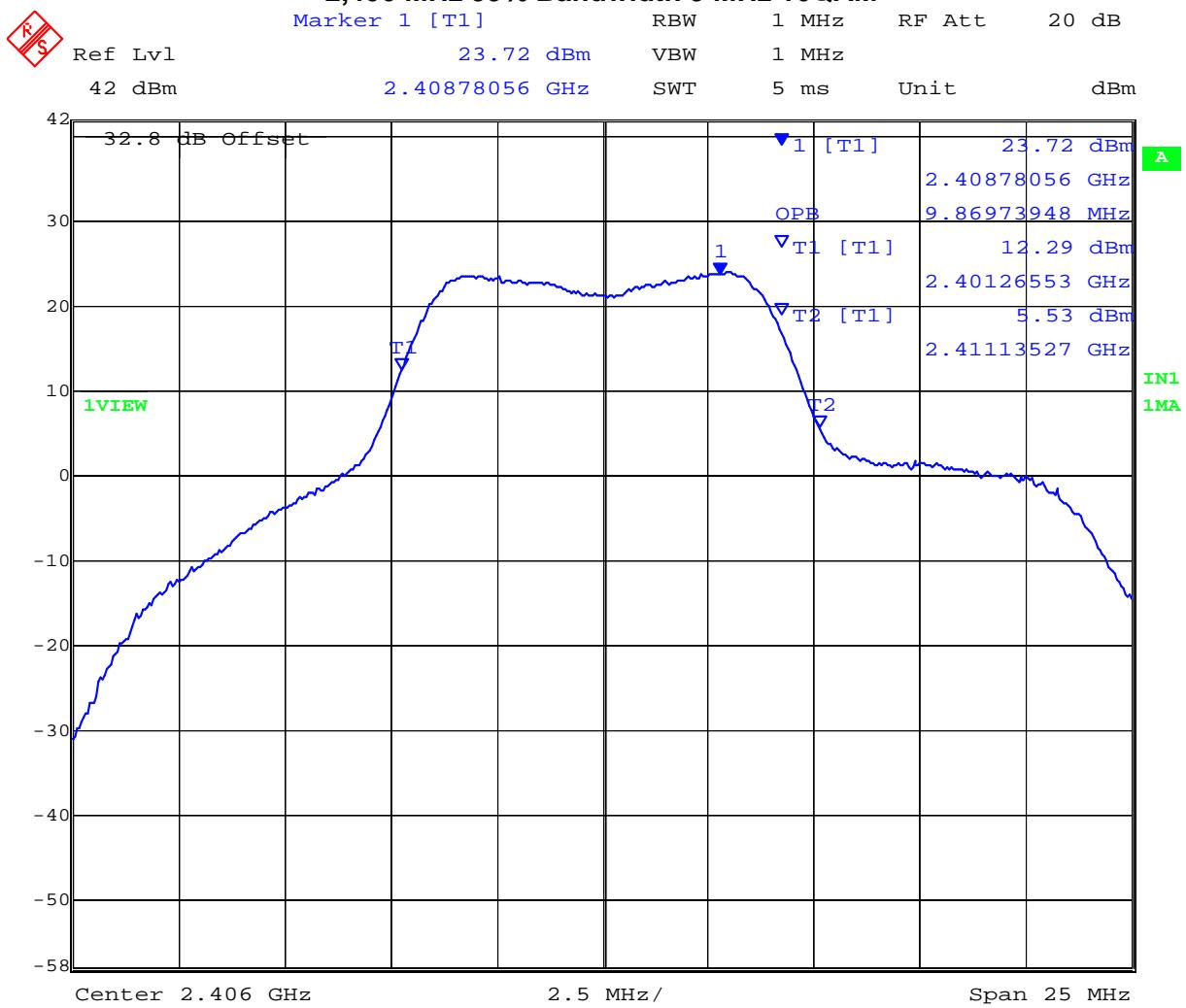
TABLE OF RESULTS – 9 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,406 | 8.4769 | 3 | 9.8697 | 4 |
| 2,437 | 8.4168 | On File | 9.2685 | On File |
| 2,468 | 8.4769 | On File | 9.1182 | On File |



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Plot 4 2,406 MHz 99% Bandwidth 9 MHz 16QAM

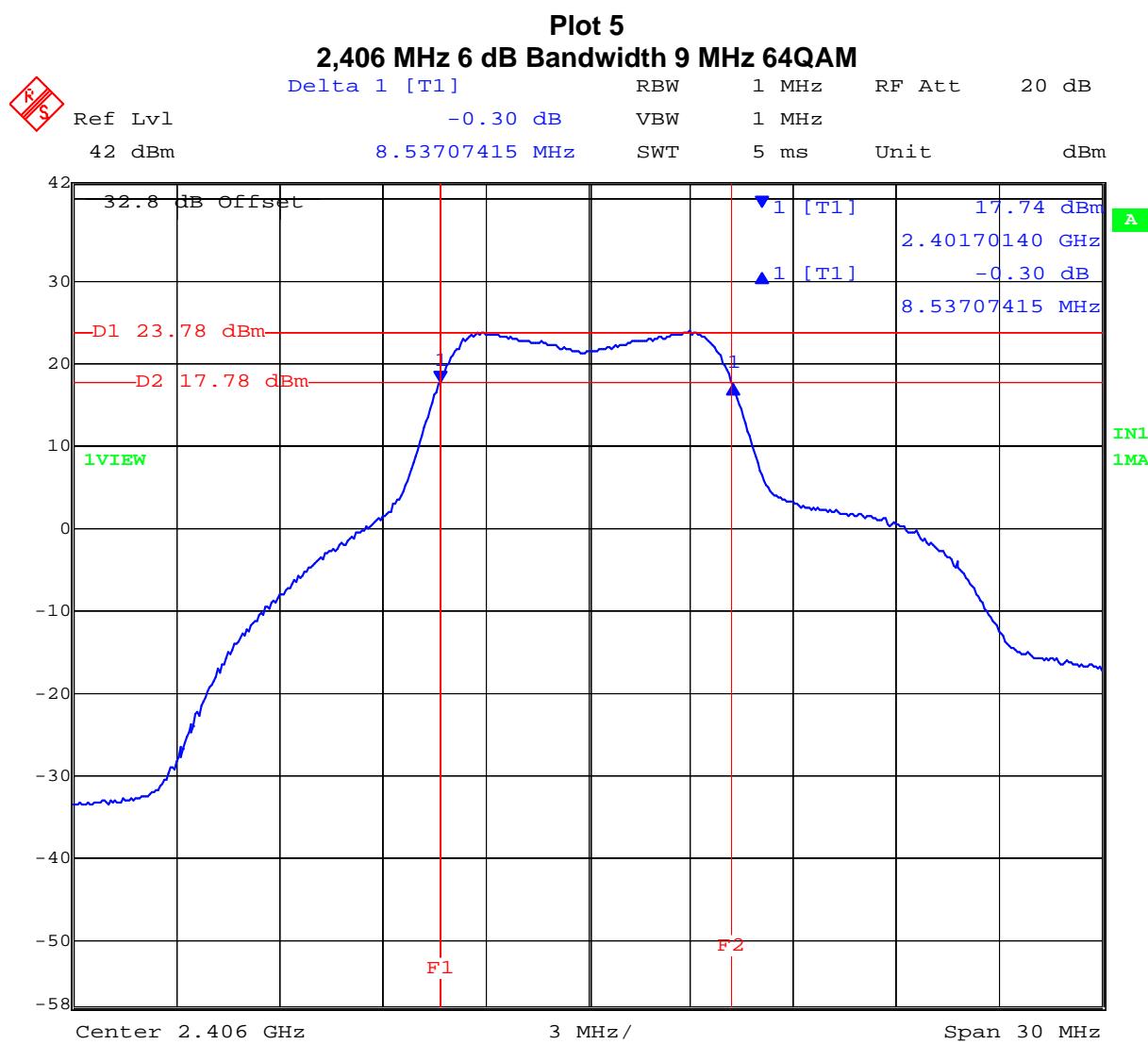


Date: 28.OCT.2005 13:47:39

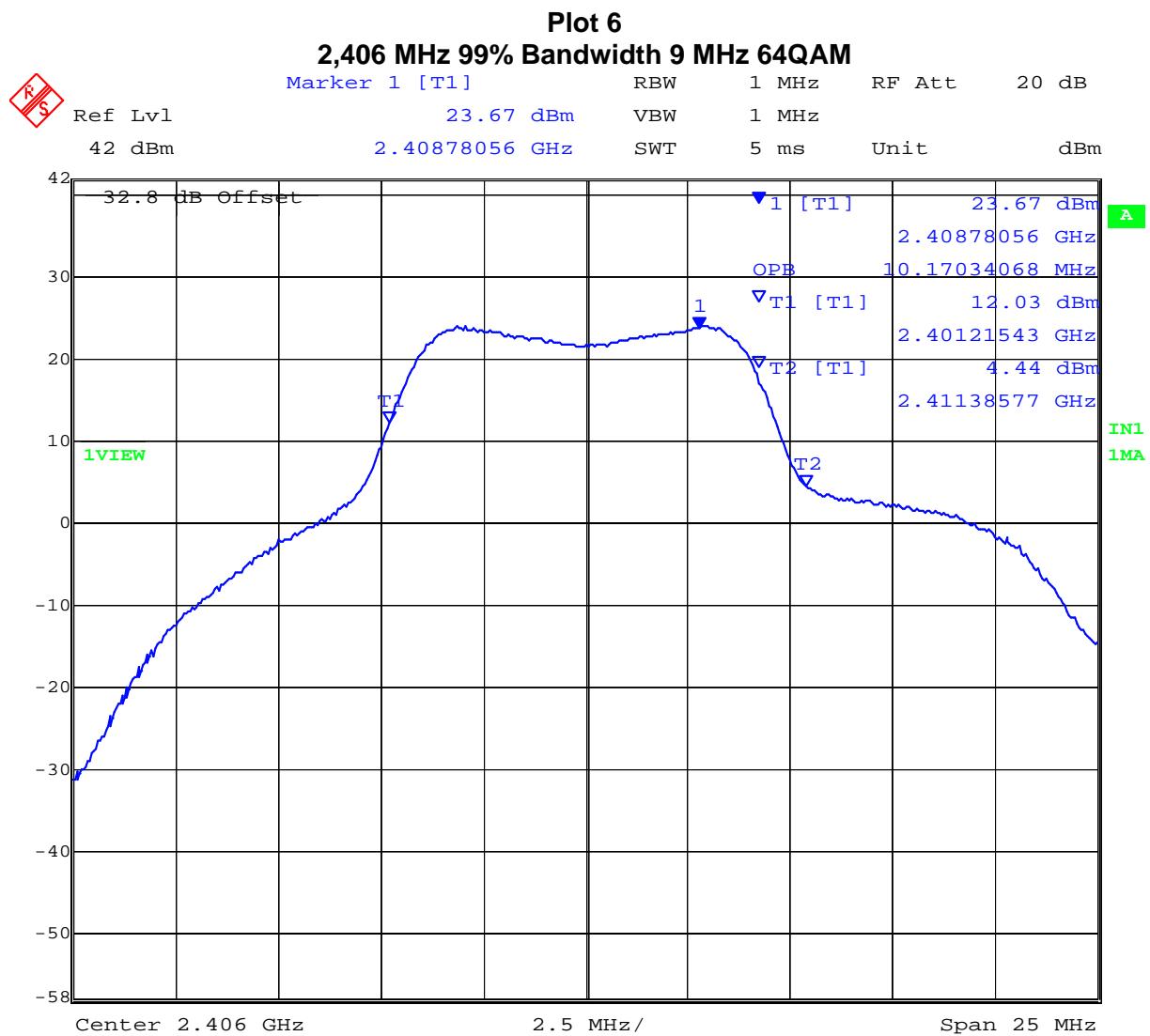
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TABLE OF RESULTS – 9 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,406 | 8.5371 | 5 | 10.1703 | 6 |
| 2,437 | 8.5371 | On File | 9.8697 | On File |
| 2,468 | 8.4769 | On File | 9.1683 | On File |



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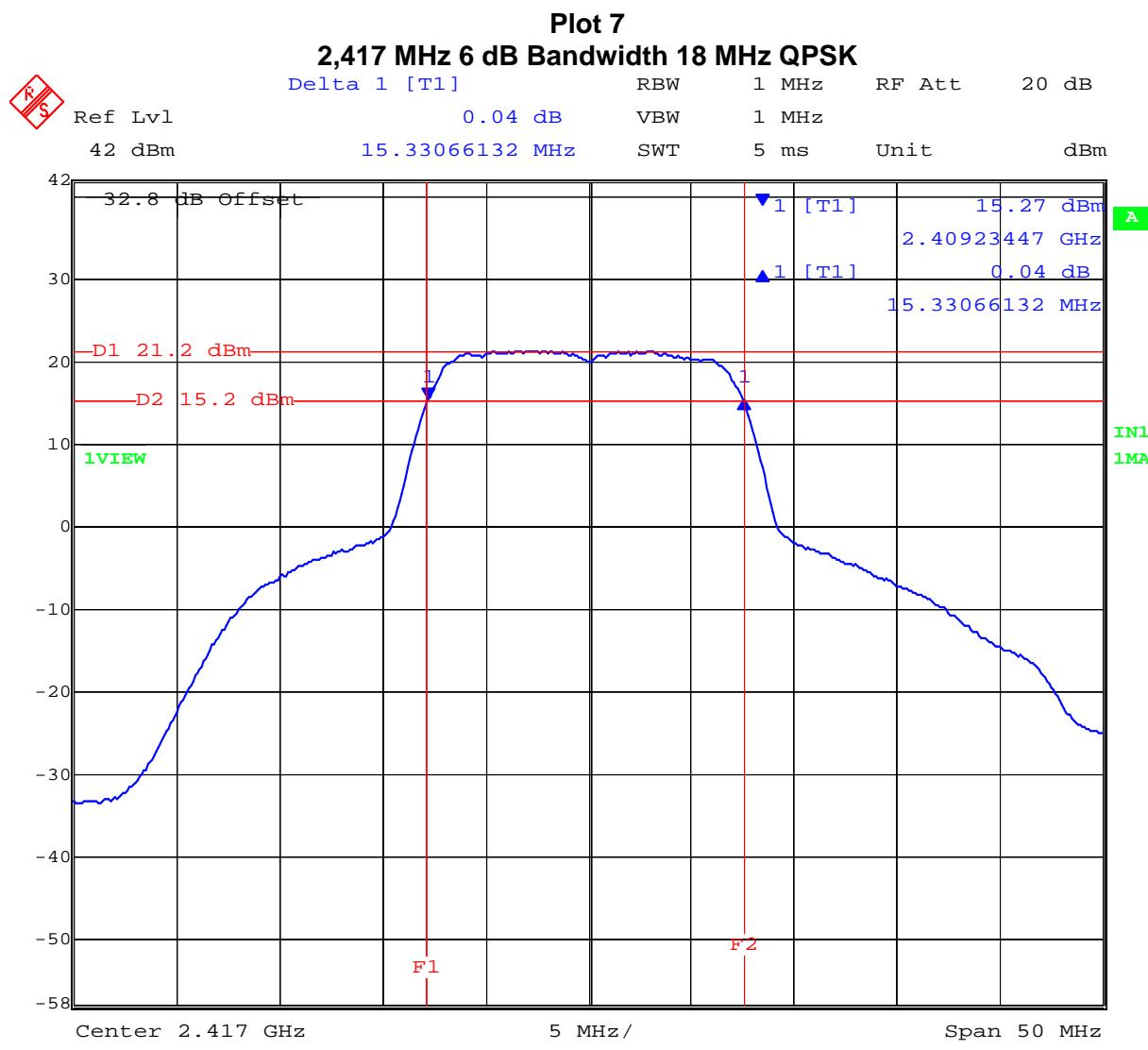


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18MHz Bandwidth Test Results

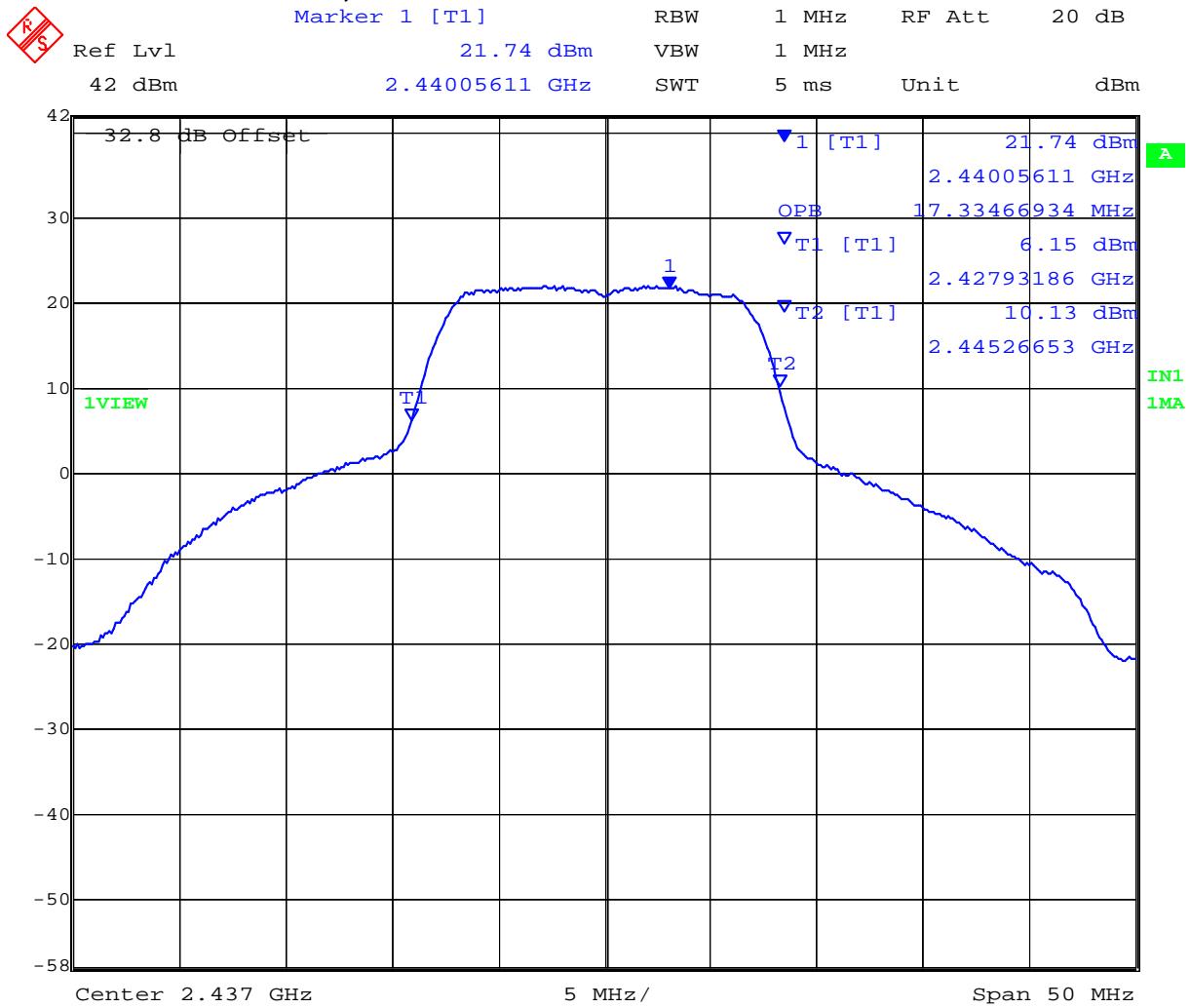
TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,417 | 15.3307 | 7 | 16.4329 | On File |
| 2,437 | 15.3307 | On File | 17.3347 | 8 |
| 2,465 | 15.3307 | On File | 17.0341 | On File |



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Plot 8
2,437 MHz 99% Bandwidth 18 MHz QPSK



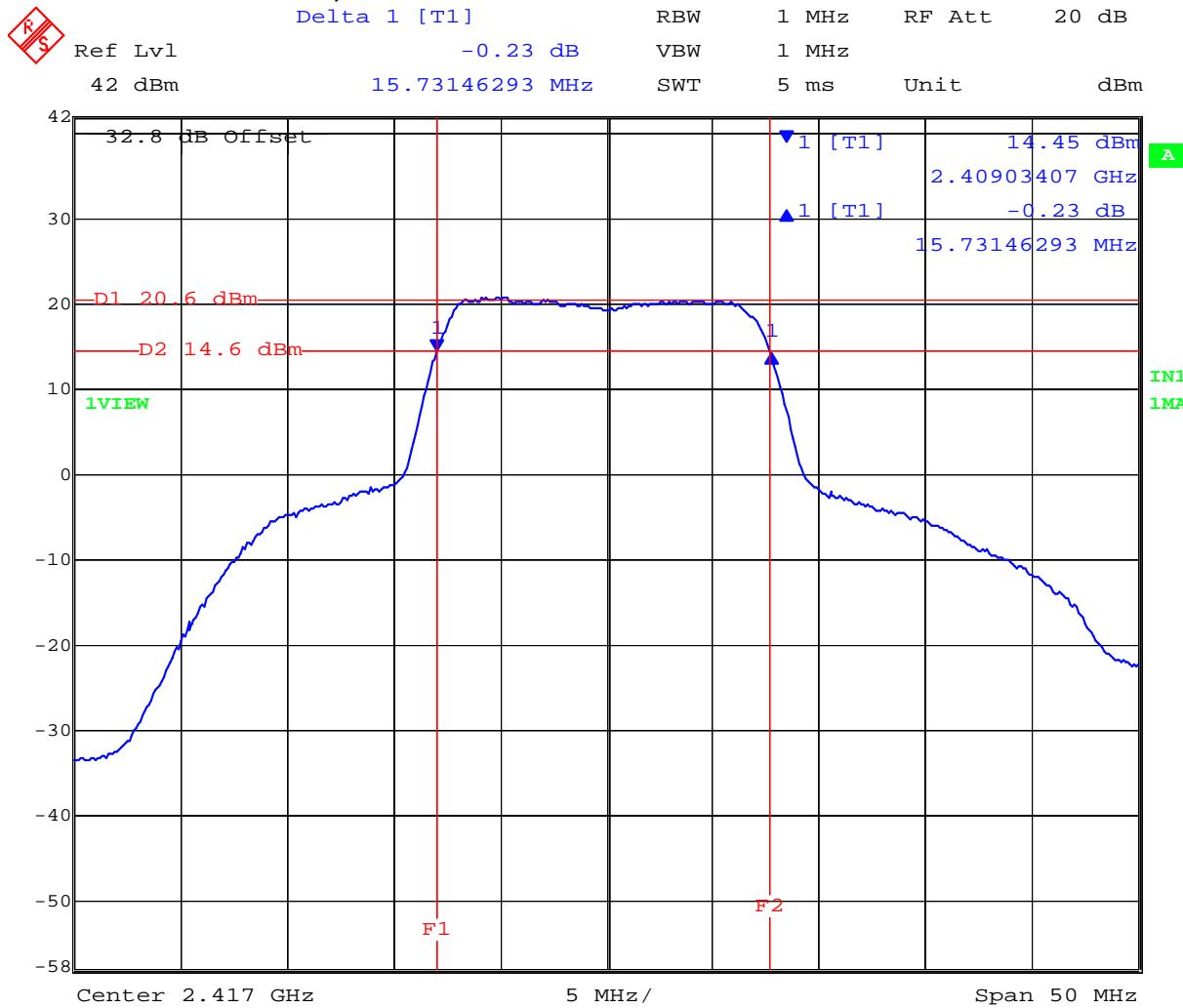
Date: 28.OCT.2005 14:00:53

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TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

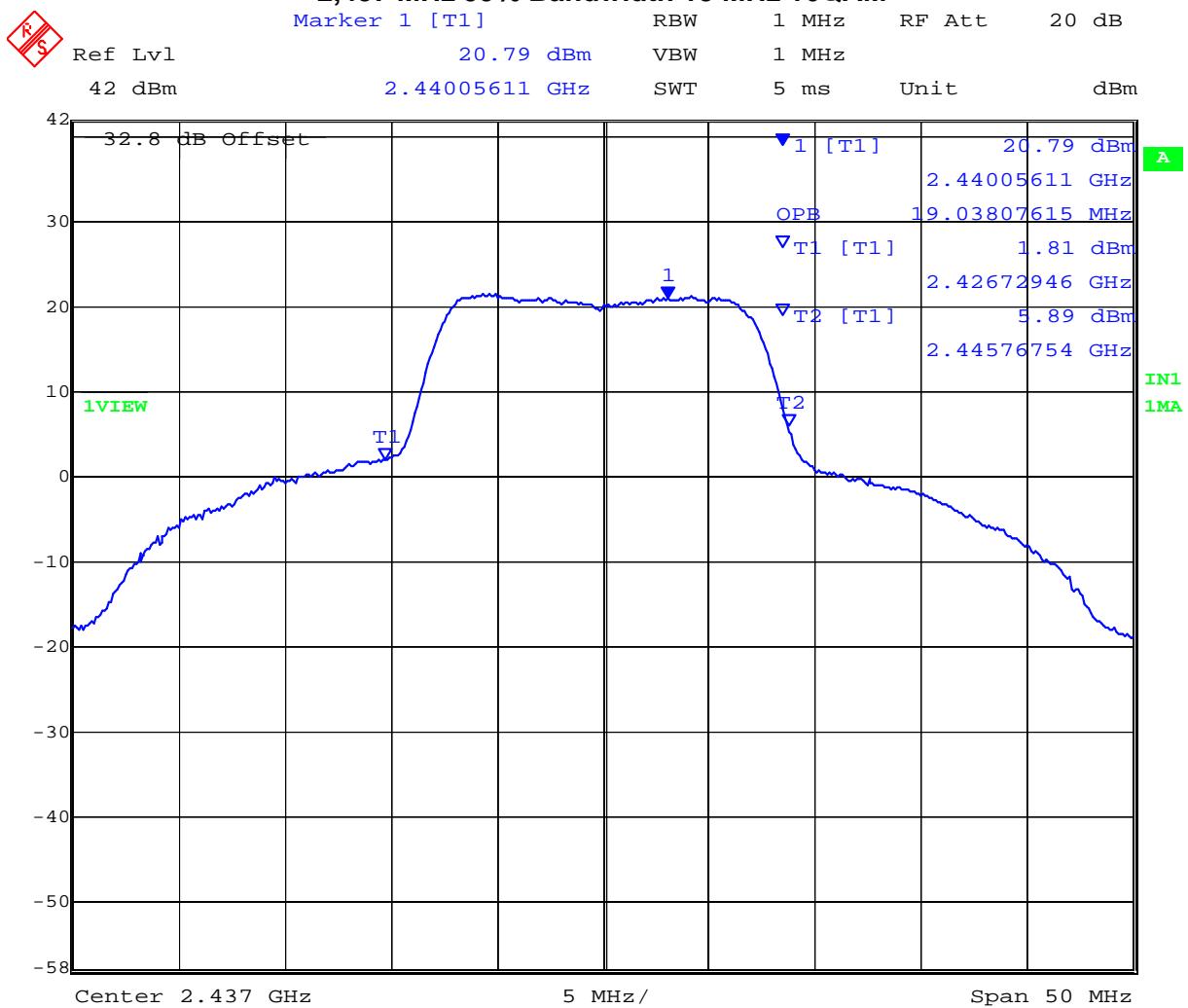
| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,417 | 15.7315 | 9 | 16.7335 | On File |
| 2,437 | 15.6313 | On File | 19.0381 | 10 |
| 2,465 | 15.4309 | On File | 18.4369 | On File |

Plot 9
2,417 MHz 6 dB Bandwidth 18 MHz 16QAM



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Plot 10
2,437 MHz 99% Bandwidth 18 MHz 16QAM

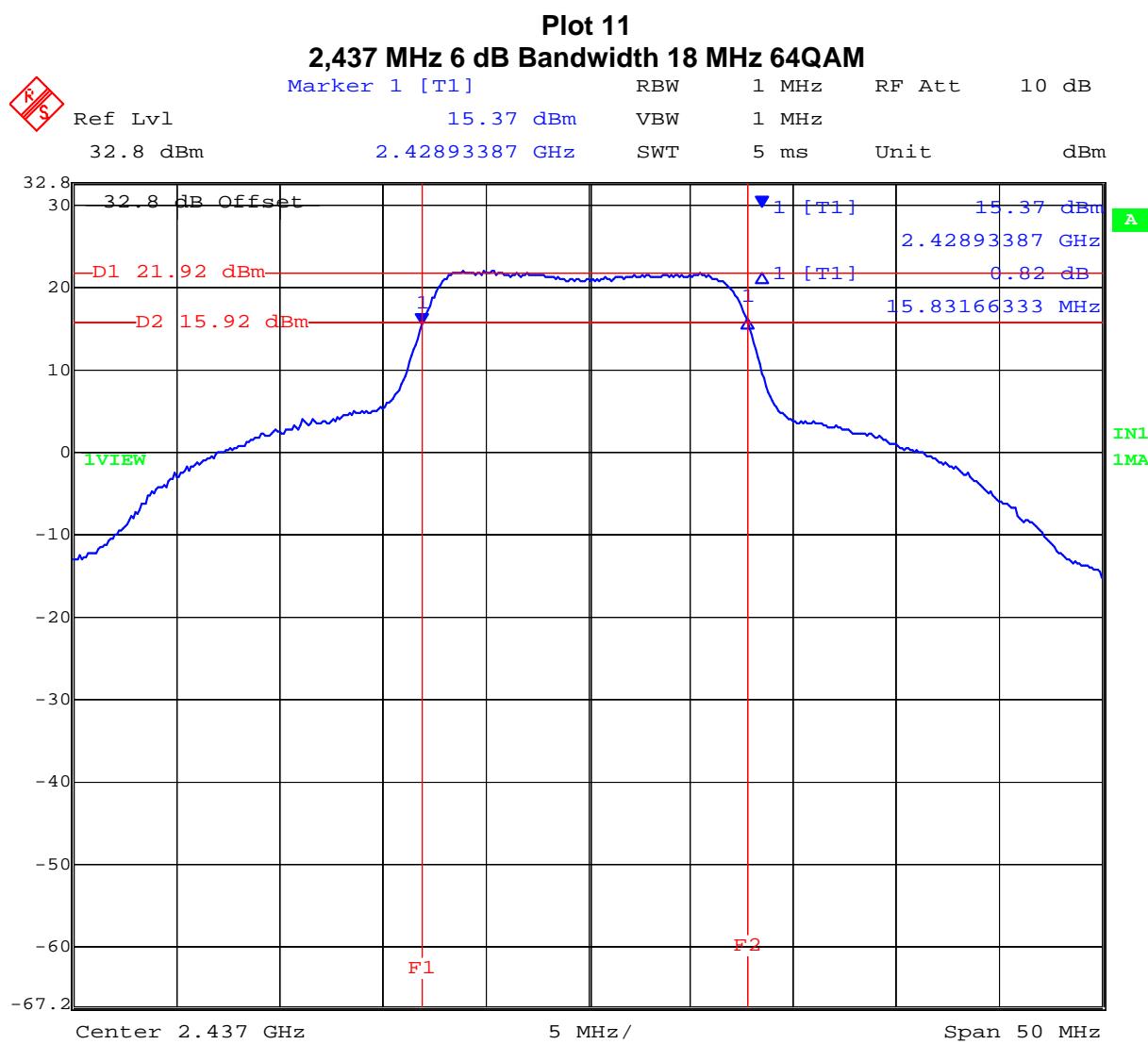


Date: 28.OCT.2005 14:01:40

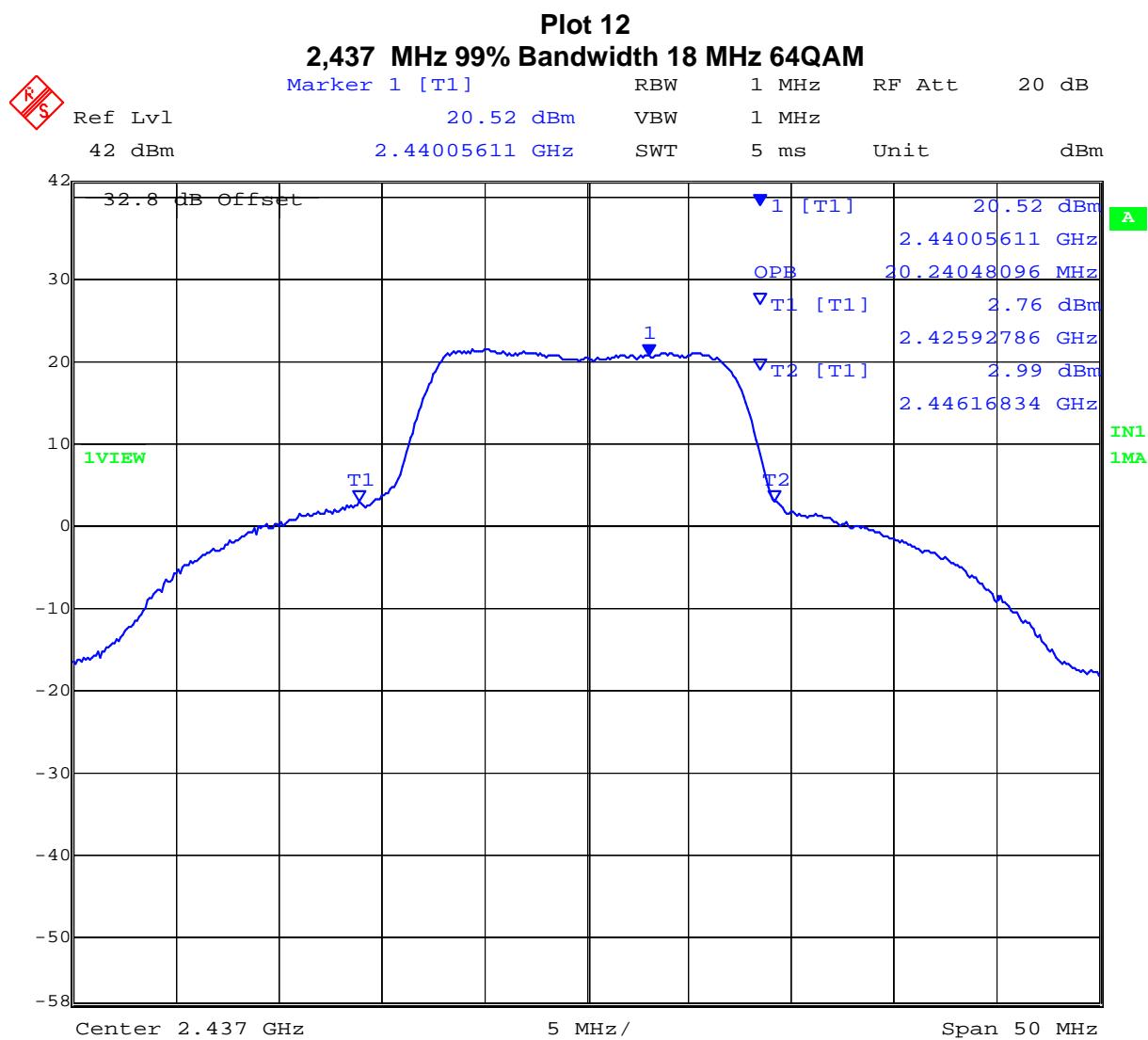
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.

TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,417 | 15.6313 | On File | 17.1343 | On File |
| 2,437 | 15.8317 | 11 | 20.2405 | 12 |
| 2,465 | 15.6313 | On File | 19.3387 | On File |



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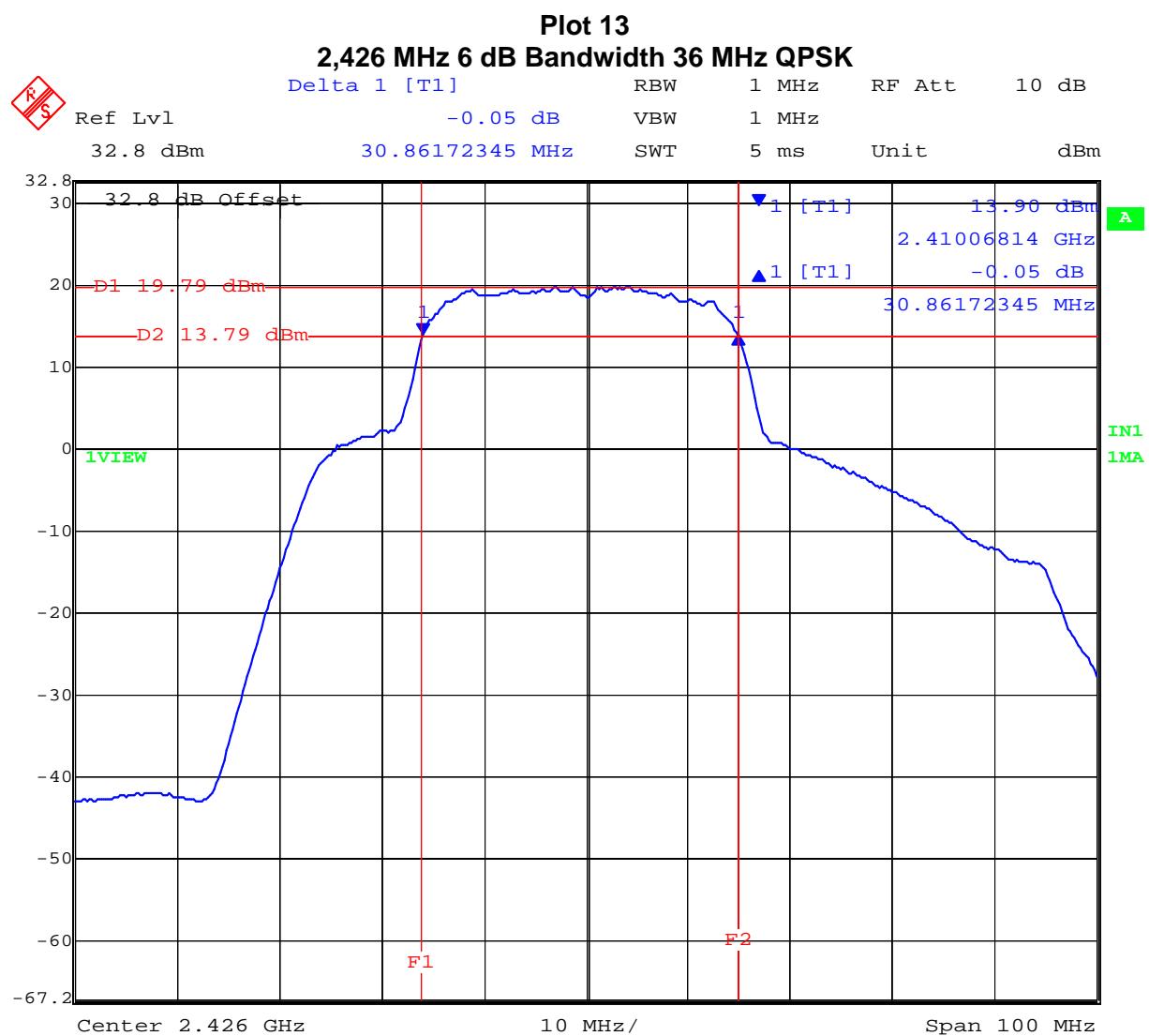


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36MHz Bandwidth Test Results

TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

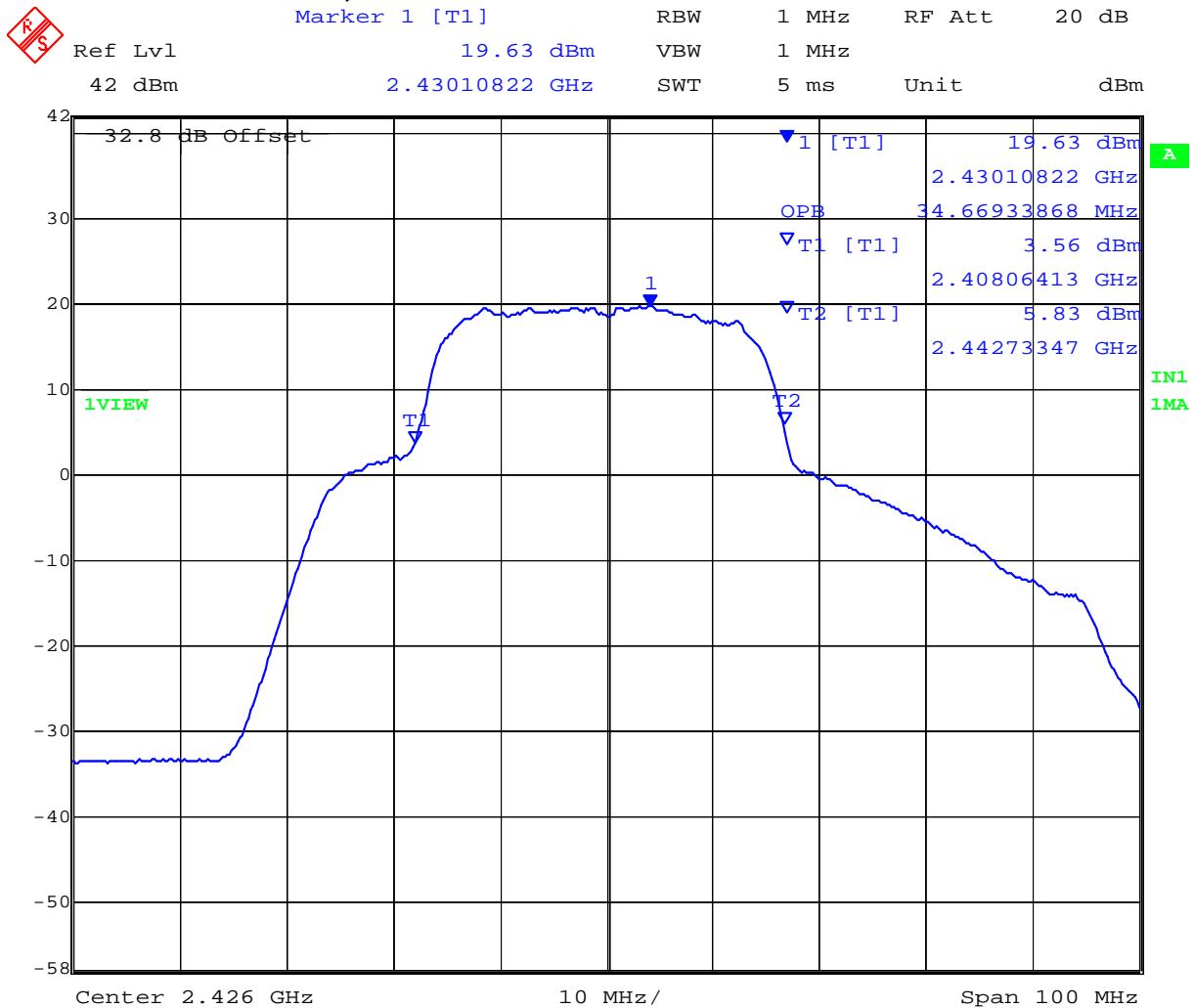
| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,426 | 30.8617 | 13 | 34.6693 | 14 |
| 2,437 | 30.8617 | On File | 32.4649 | On File |
| 2,455 | 30.6613 | On File | 32.2645 | On File |



Date: 28.OCT.2005 12:15:24

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Plot 14
2,426 MHz 99% Bandwidth 36 MHz QPSK

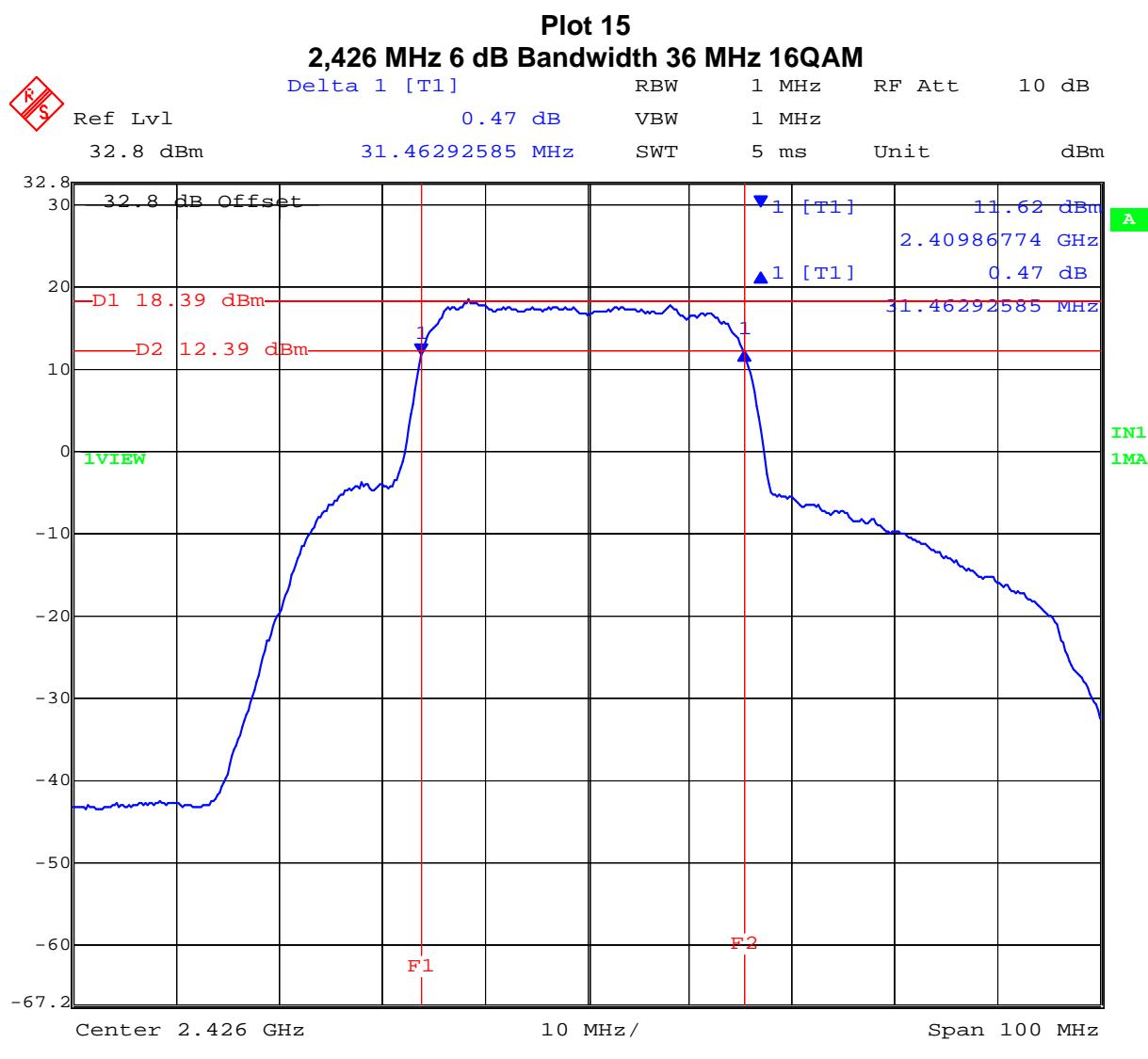


Date: 28.OCT.2005 14:14:34

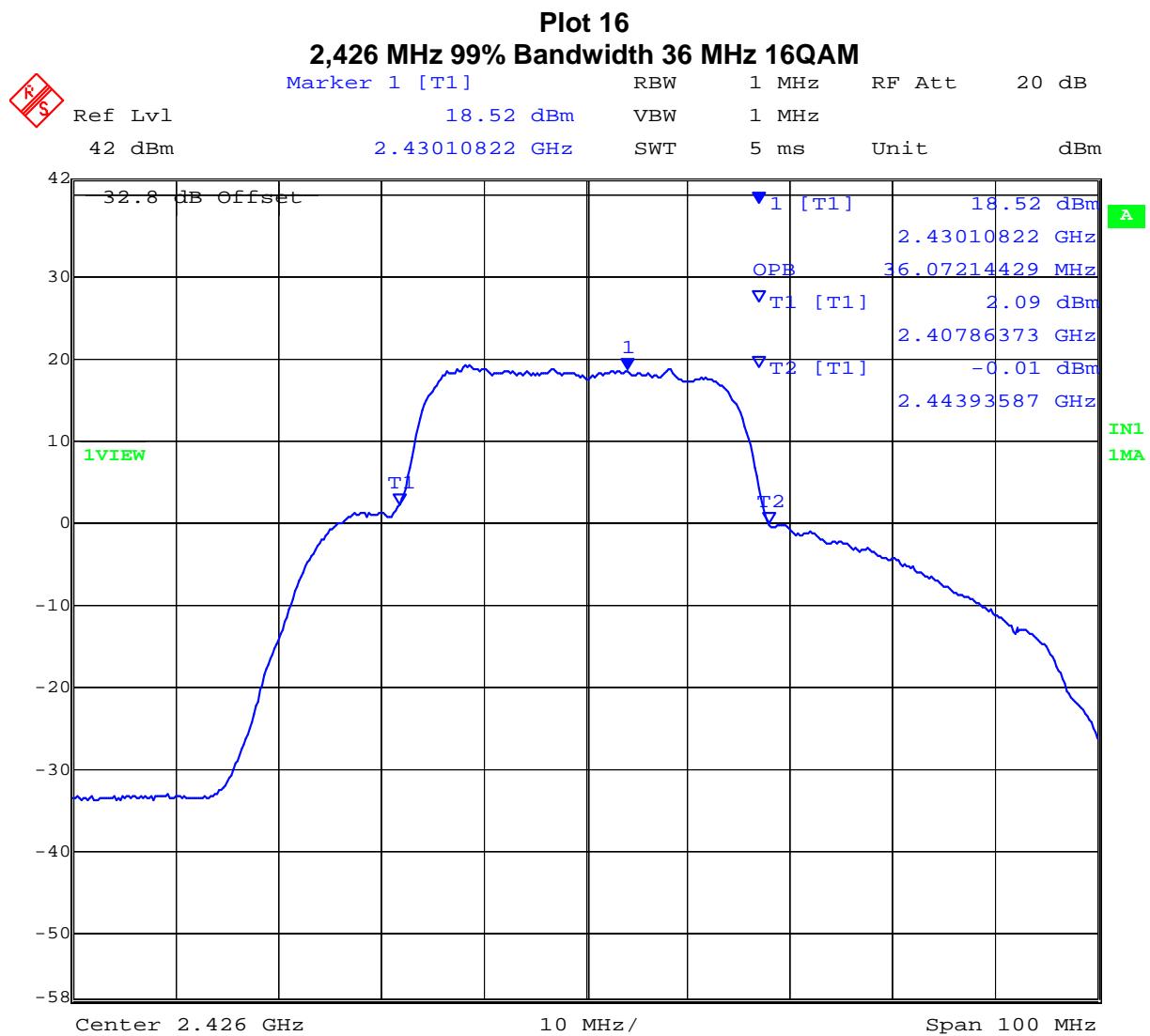
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TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,426 | 31.4629 | 15 | 36.0721 | 16 |
| 2,437 | 31.0621 | On File | 33.0661 | On File |
| 2,455 | 30.6613 | On File | 33.2665 | On File |



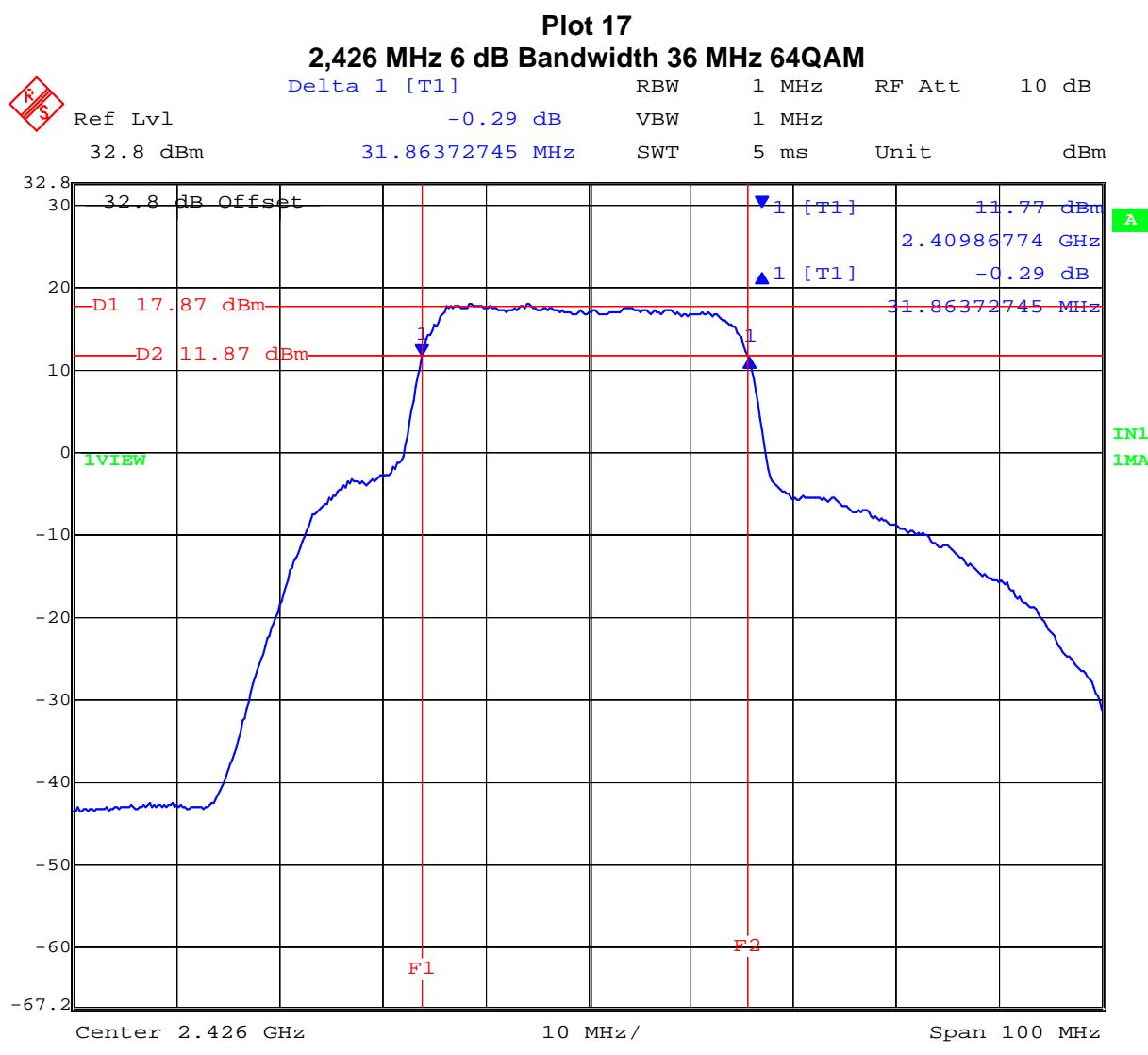
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. Any changes will be noted in the Document History section of the report.



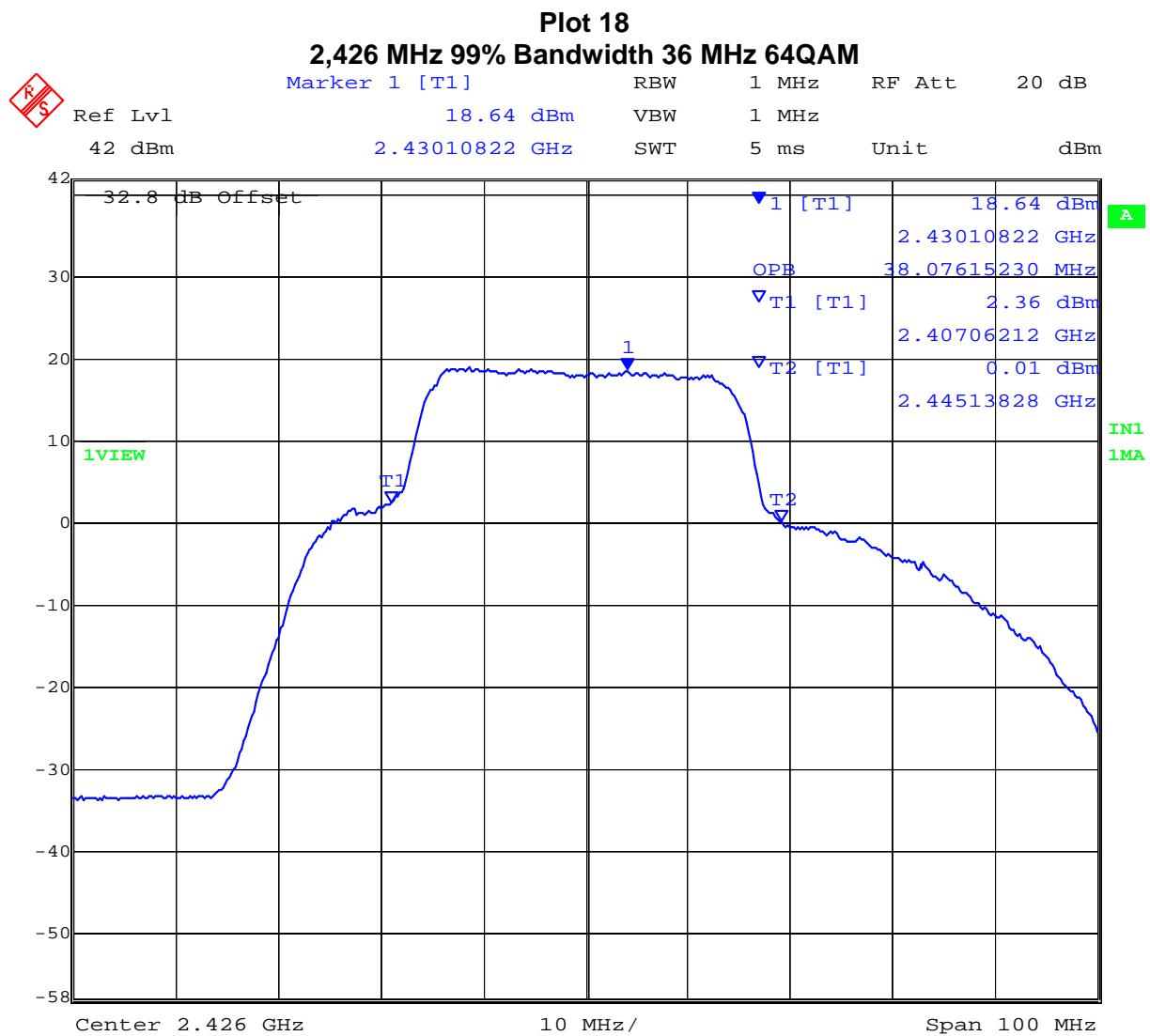
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TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,426 | 31.8637 | 17 | 38.0761 | 18 |
| 2,437 | 31.4629 | On File | 36.6733 | On File |
| 2,455 | 31.8637 | On File | 33.2665 | On File |



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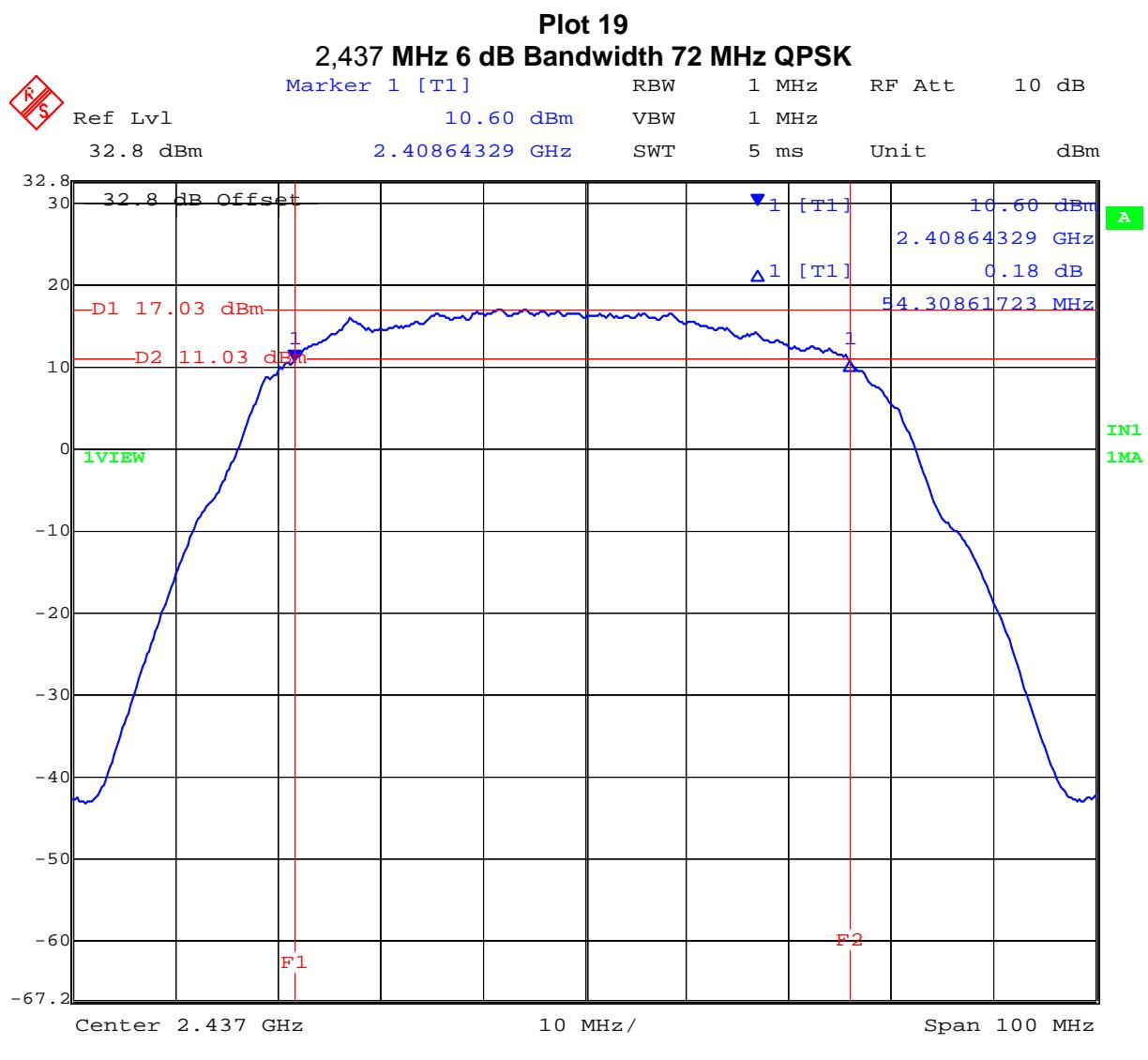
Date: 28.OCT.2005 14:15:55

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72MHz Bandwidth Test Results

TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,437 | 54.3086 | 19 | 60.7214 | 20 |

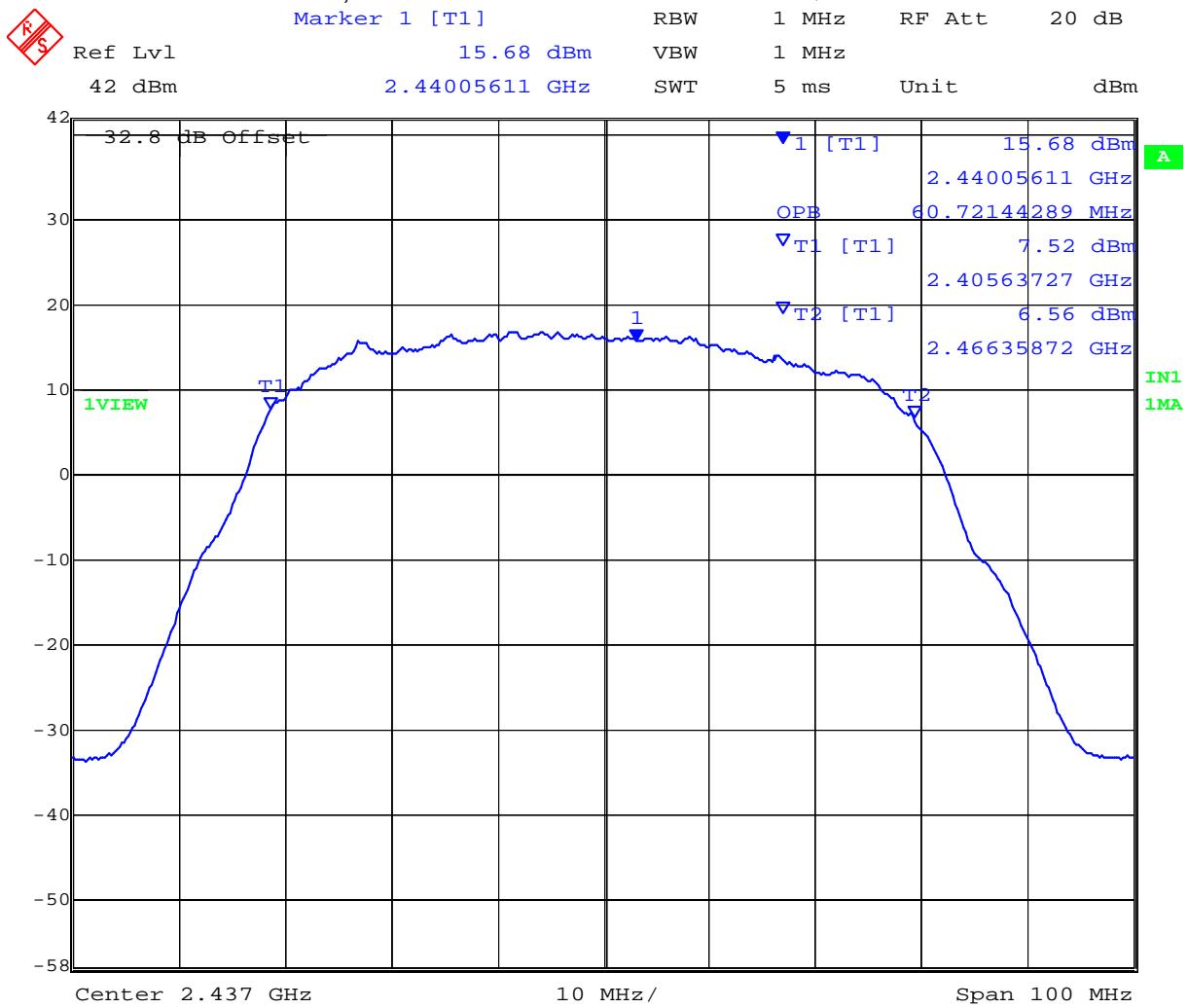


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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
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Plot 20
2,437 MHz 99% Bandwidth 72 MHz QPSK



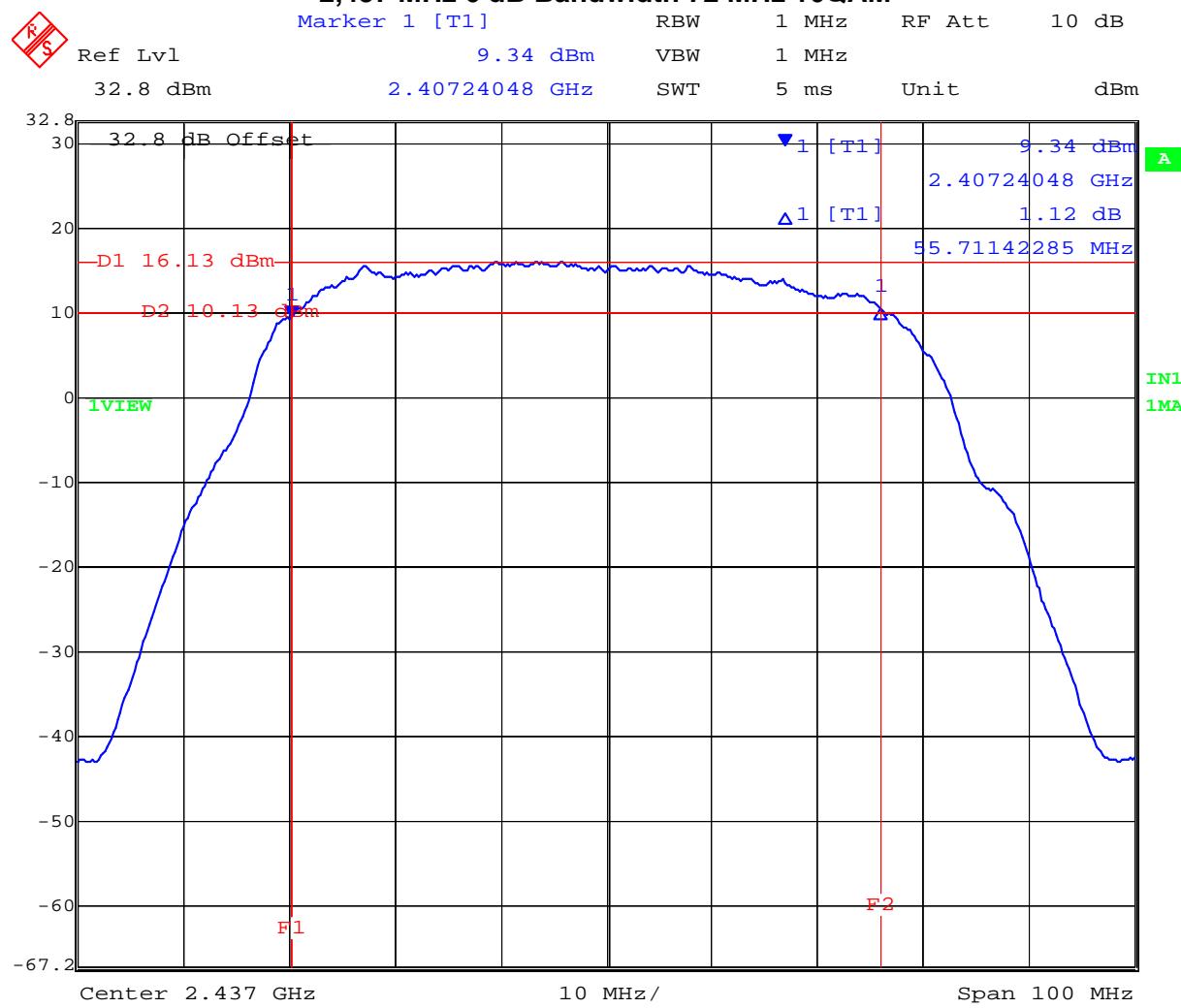
Date: 28.OCT.2005 14:09:11

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TABLE OF RESULTS – 72 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,437 | 55.7114 | 21 | 61.3226 | 22 |

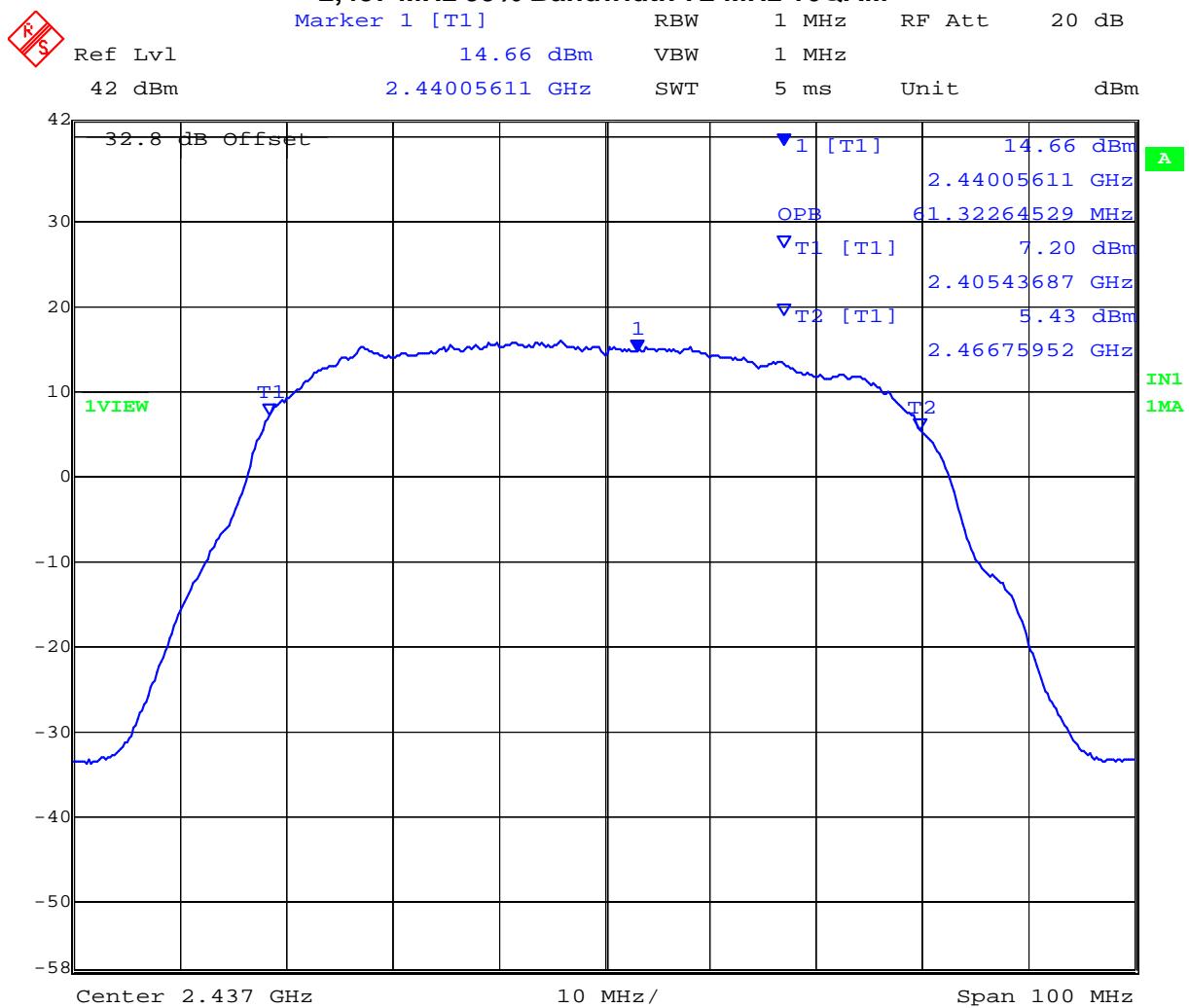
Plot 21
2,437 MHz 6 dB Bandwidth 72 MHz 16QAM



Date: 28.OCT.2005 10:53:02

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Plot 22
2,437 MHz 99% Bandwidth 72 MHz 16QAM



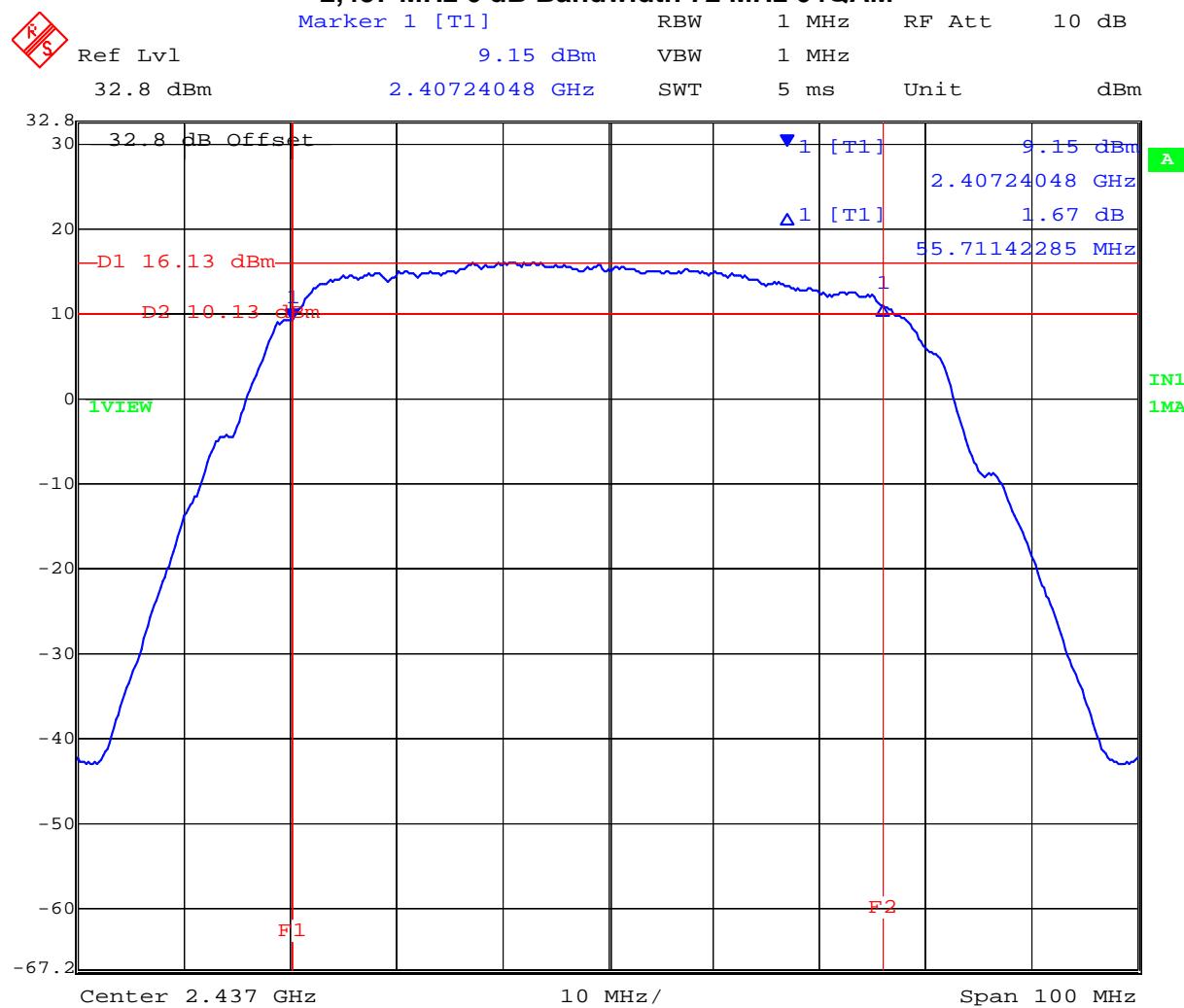
Date: 28.OCT.2005 14:09:58

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TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | 6 dB Bandwidth (MHz) | 6 dB Plot # | 99 % BW (MHz) | 99 % BW Plots |
|------------------------|----------------------|-------------|---------------|---------------|
| 2,437 | 55.7114 | 23 | 61.7234 | 24 |

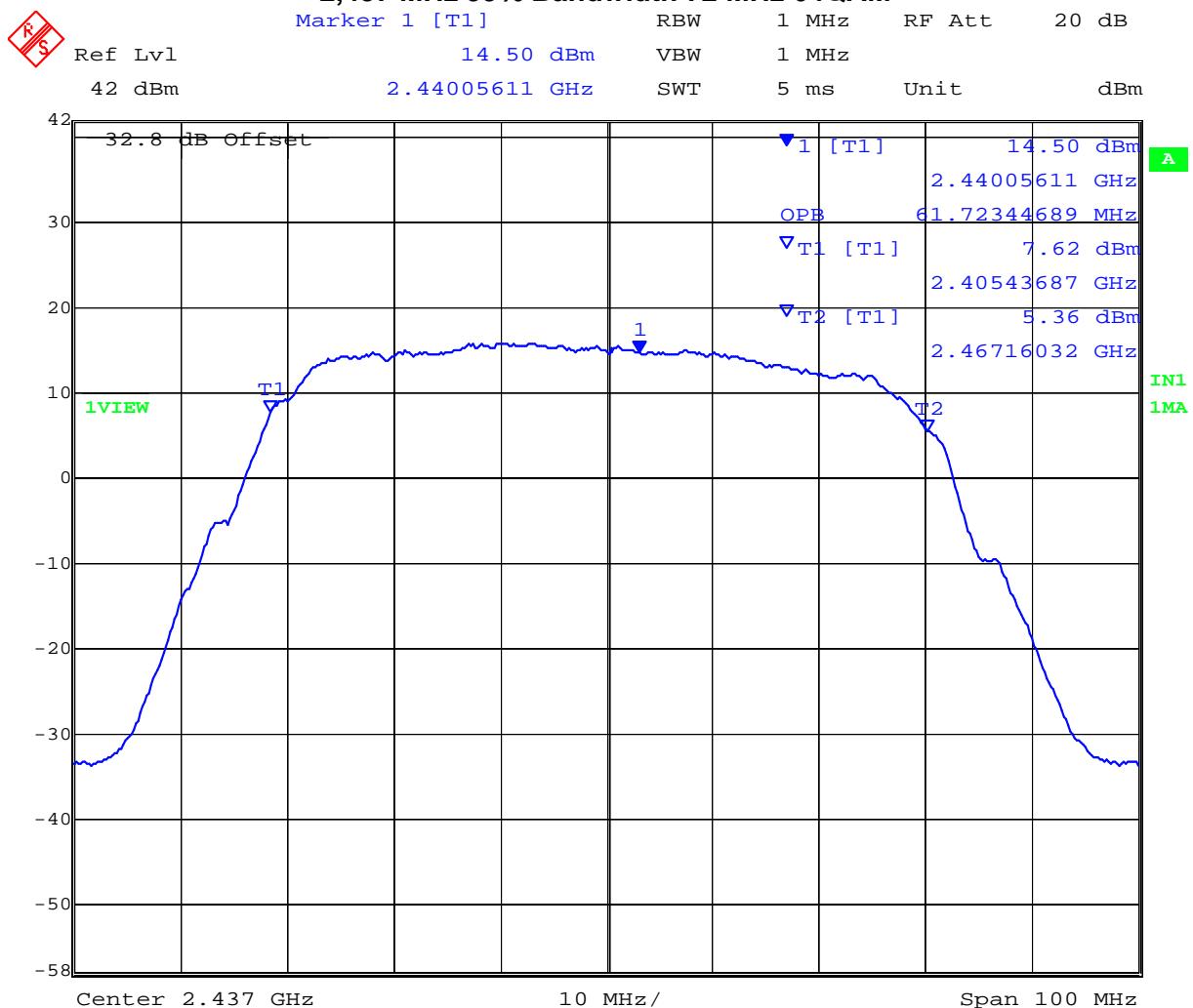
Plot 23
2,437 MHz 6 dB Bandwidth 72 MHz 64QAM



Date: 28.OCT.2005 10:51:07

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Plot 24
2,437 MHz 99% Bandwidth 72 MHz 64QAM



Date: 28.OCT.2005 14:10:37

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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
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Specification

Limits

§15.247 (a)(2) For direct sequence systems the minimum 6 dB bandwidth shall be at least 500 kHz
IC RSS-Gen §4.4.1 The transmitted bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.
§ IC RSS-Gen 4.4.2 Where indicated, the 6 dB bandwidth is measured at the points when the spectral density of the signal is 6 dB down from the in –band spectral density of the modulated signal, with the transmitter modulated by a representative signal.

Laboratory Measurement Uncertainty for Spectrum Measurement

| | |
|-------------------------|----------|
| Measurement uncertainty | ±2.81 dB |
|-------------------------|----------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-03 'Measurement of RF Spectrum Mask' | 0070, 0116, 0158, 0193, 0252, 0313, 0314 |

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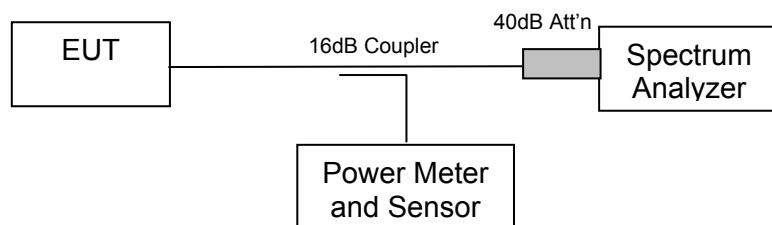
5.1.2. Peak Output Power

FCC, Part 15 Subpart C §15.247(b)
 Industry Canada RSS-210 § A8.4(4), RSS-Gen § 4.6

Test Procedure

The transmitter terminal of EUT was connected to the input of the spectrum analyzer set to measure peak power. The resolution filter bandwidth was set to 6 dB, peak detector selected and the analyzer built-in power function was used to measure peak power over the maximum 99 % bandwidth for each modulation and bandwidth.

Test Measurement Set up



Measurement set up for Transmitter Peak Output Power

Antenna Gain - Maximum Allowable Power Level

For fixed point to point operation.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

| Antenna Type | Gain (dBi) | Antenna Gain >6dBi (dB) | Power Reduction (dB) | Maximum Peak Power (dBm) |
|--------------|------------|-------------------------|----------------------|--------------------------|
| Parabolic | 21.3 | 15.3 | 5.10 | +24.9 |
| Parabolic | 30.3 | 24.3 | 8.10 | +21.9 |
| Panel | 20.0 | 14.0 | 4.67 | +25.3 |

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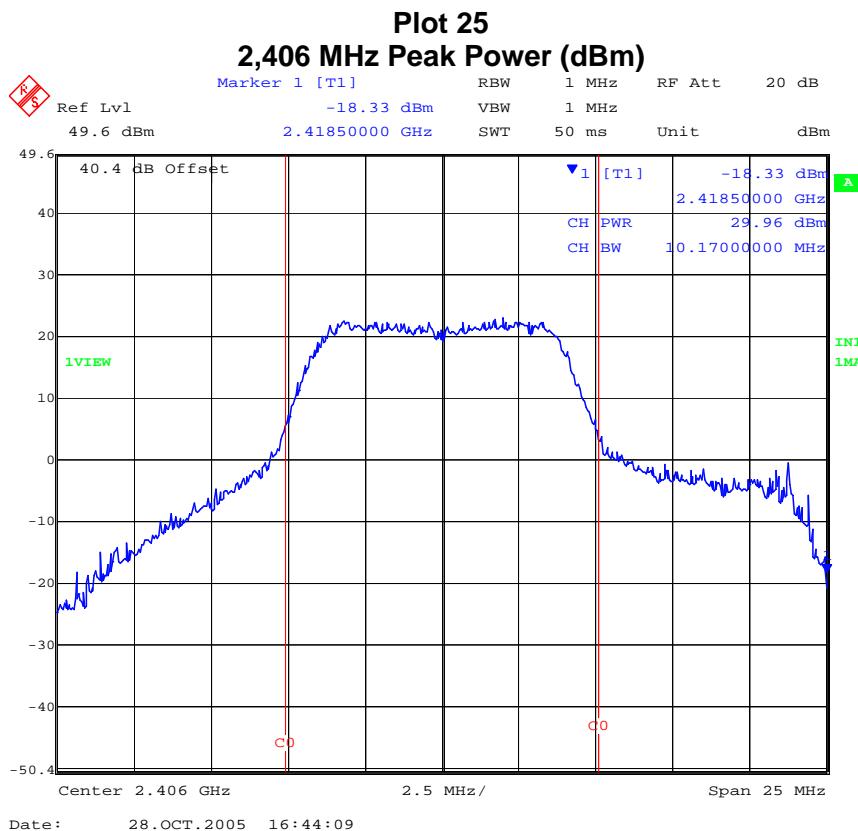
Measurement Results for Peak Output Power

Ambient conditions.

Temperature: 19 to 26 °C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

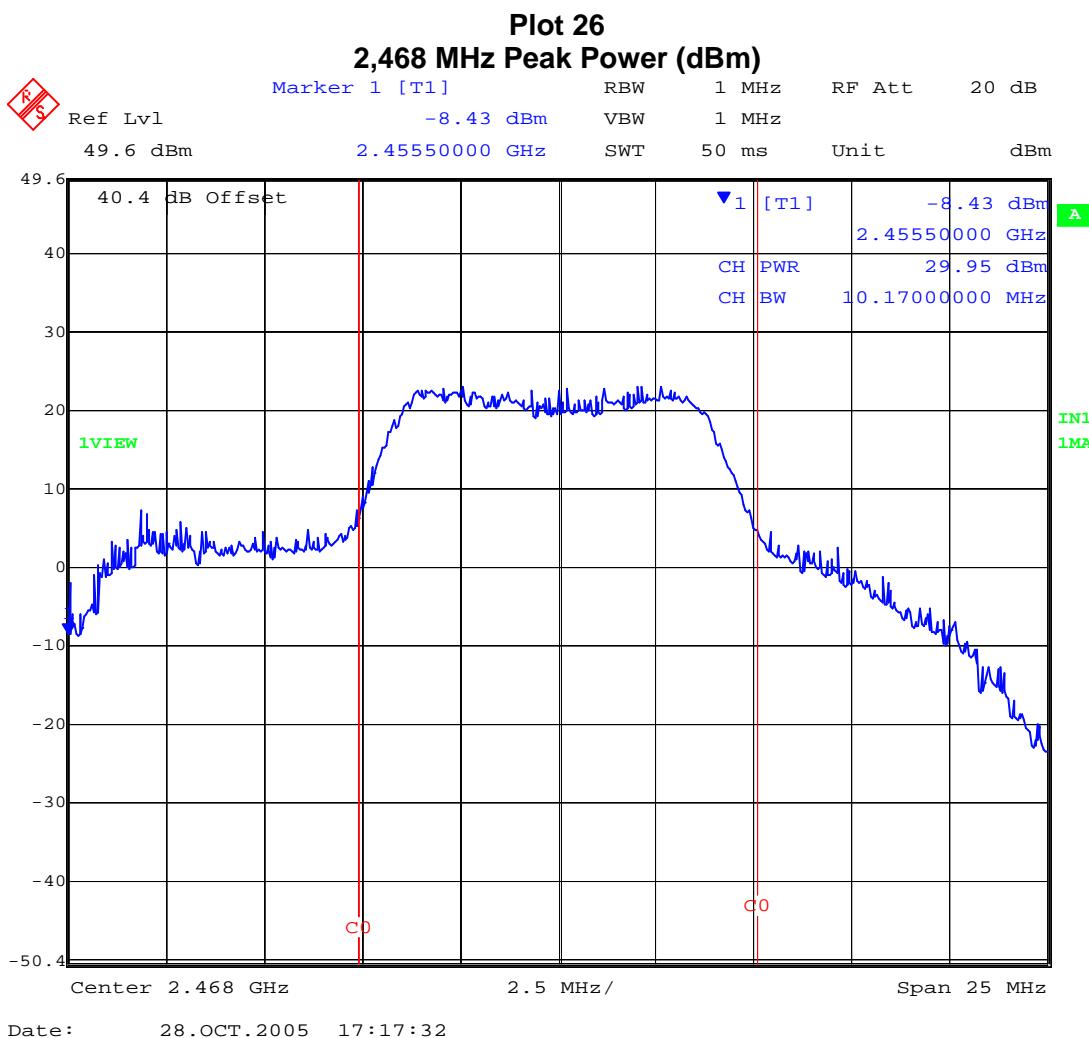
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,406 | 10.170 | 29.96 | 23.63 | 25 |
| 2,437 | 10.170 | 29.76 | 23.62 | On File |
| 2,468 | 10.170 | 29.71 | 23.56 | On File |



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TABLE OF RESULTS – 9 MHz Bandwidth 16QAM Modulation

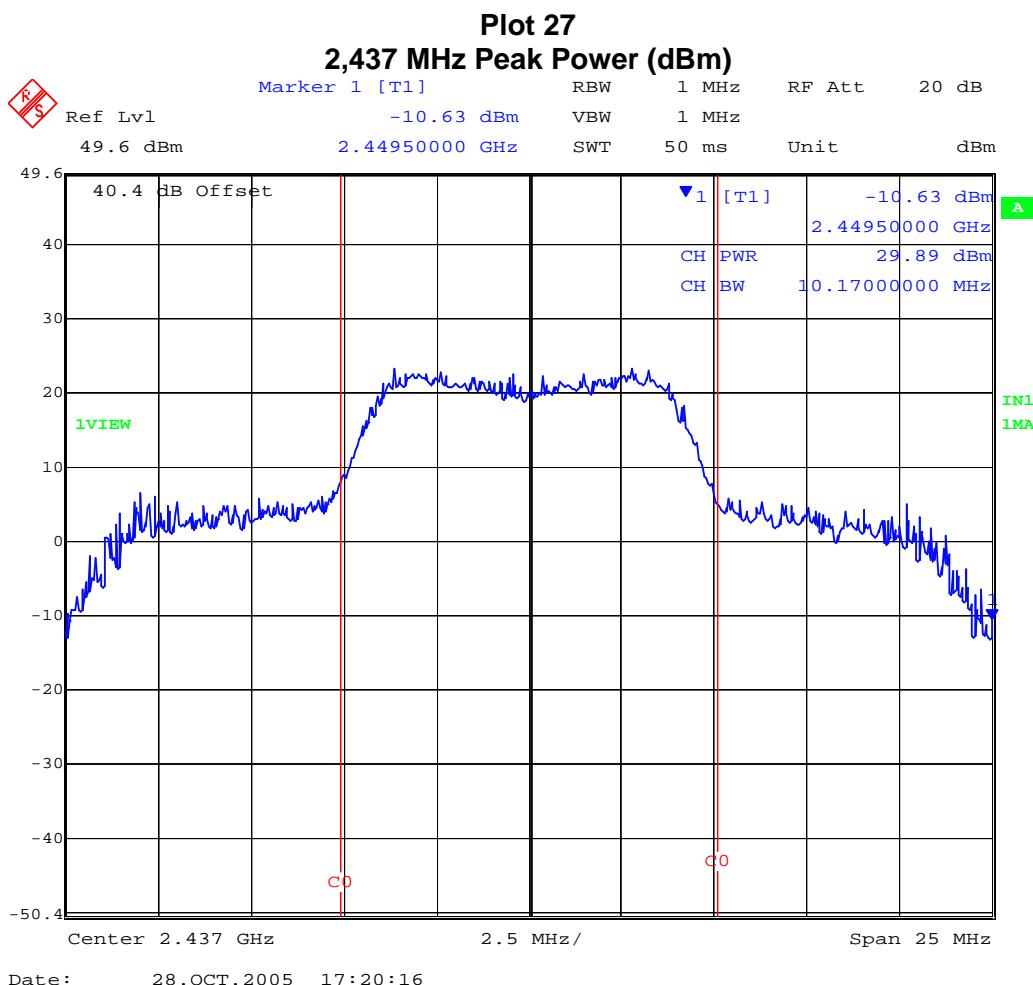
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,406 | 10.170 | 29.74 | 23.21 | On File |
| 2,437 | 10.170 | 29.59 | 23.59 | On File |
| 2,468 | 10.170 | 29.95 | 23.68 | 26 |



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TABLE OF RESULTS – 9 MHz Bandwidth 64QAM Modulation

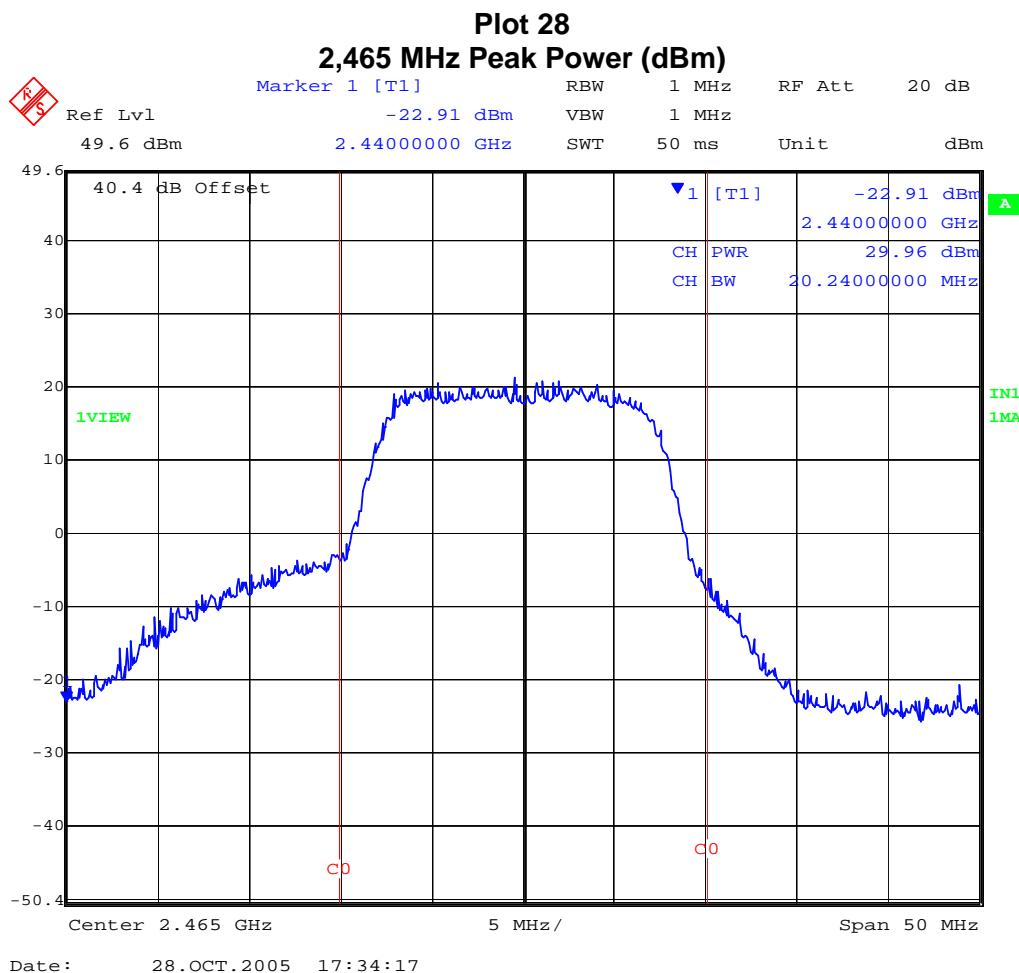
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,406 | 10.170 | 29.72 | 23.17 | On File |
| 2,437 | 10.170 | 29.89 | 23.53 | 27 |
| 2,468 | 10.170 | 29.64 | 23.27 | On File |



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TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

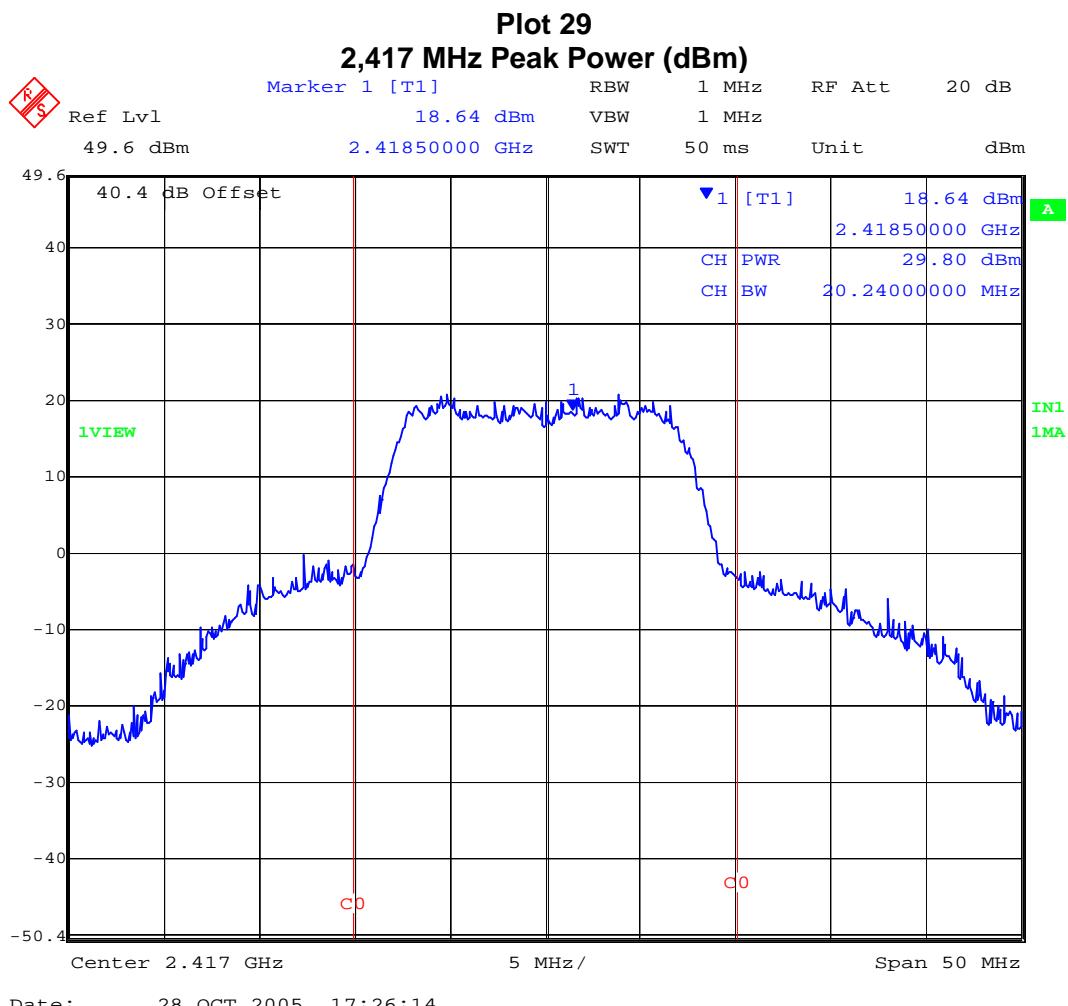
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,417 | 20.24 | 29.84 | 22.60 | On File |
| 2,437 | 20.24 | 29.94 | 23.19 | On File |
| 2,465 | 20.24 | 29.96 | 23.17 | 28 |



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TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

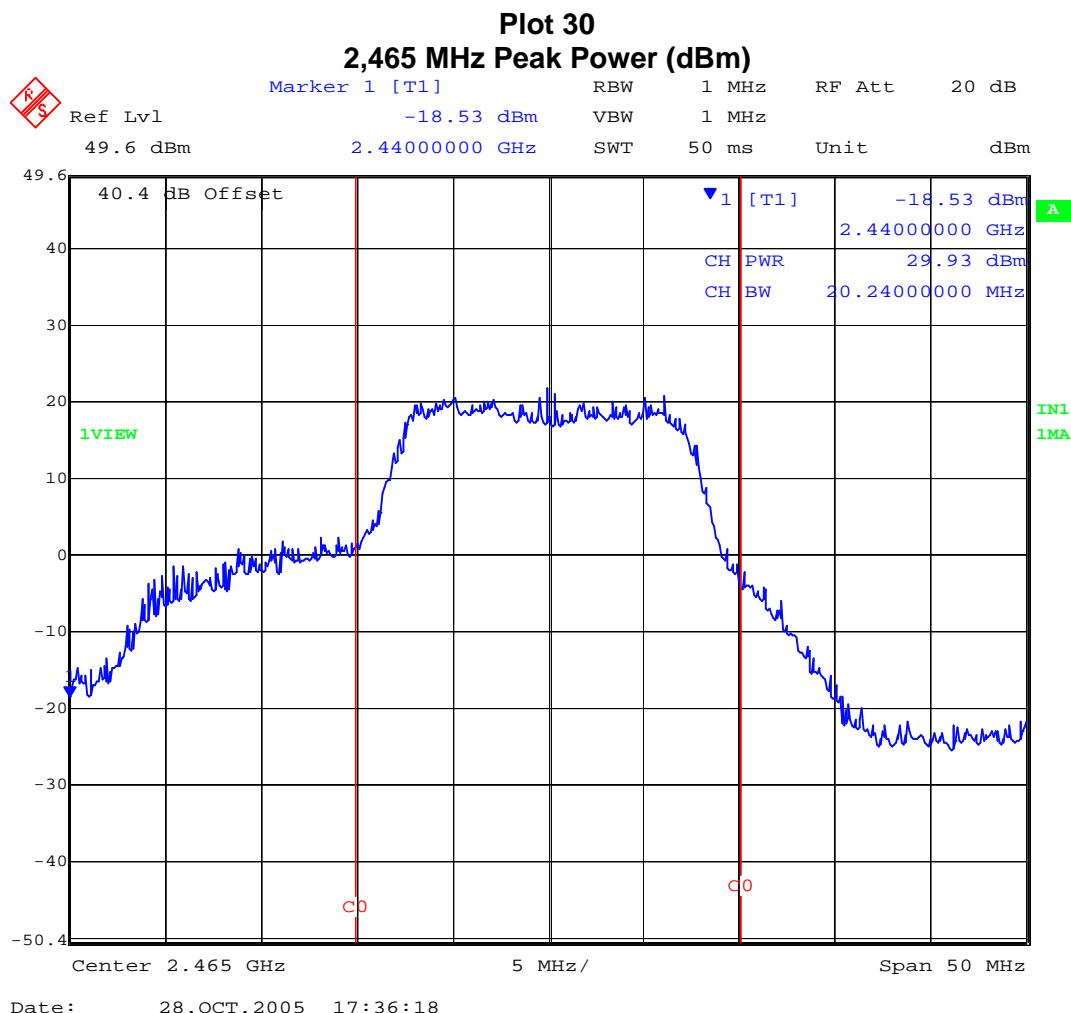
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,417 | 20.24 | 29.80 | 23.05 | 29 |
| 2,437 | 20.24 | 29.72 | 23.04 | On File |
| 2,465 | 20.24 | 29.73 | 23.08 | On File |



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TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

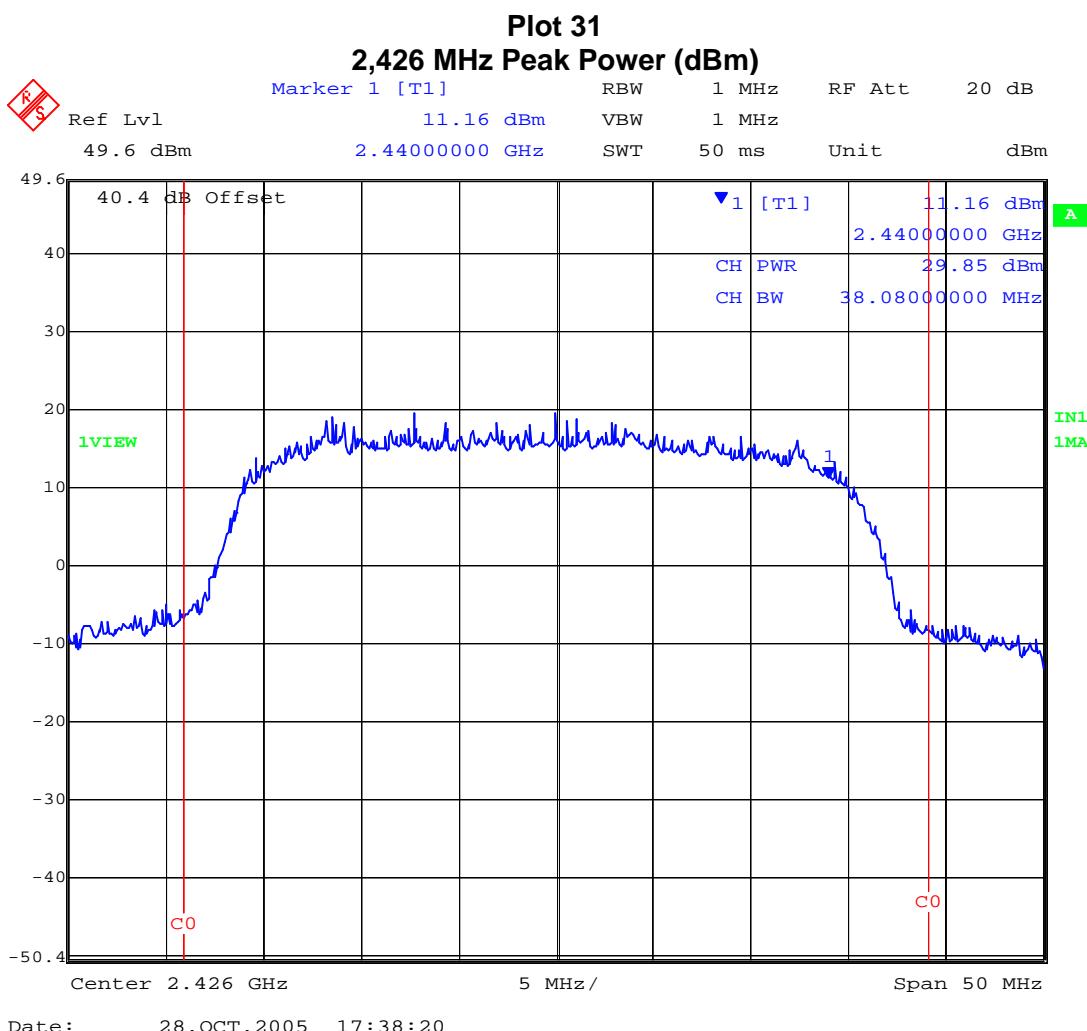
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,417 | 20.24 | 29.83 | 23.00 | On File |
| 2,437 | 20.24 | 29.76 | 23.07 | On File |
| 2,465 | 20.24 | 29.93 | 23.15 | 30 |



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TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

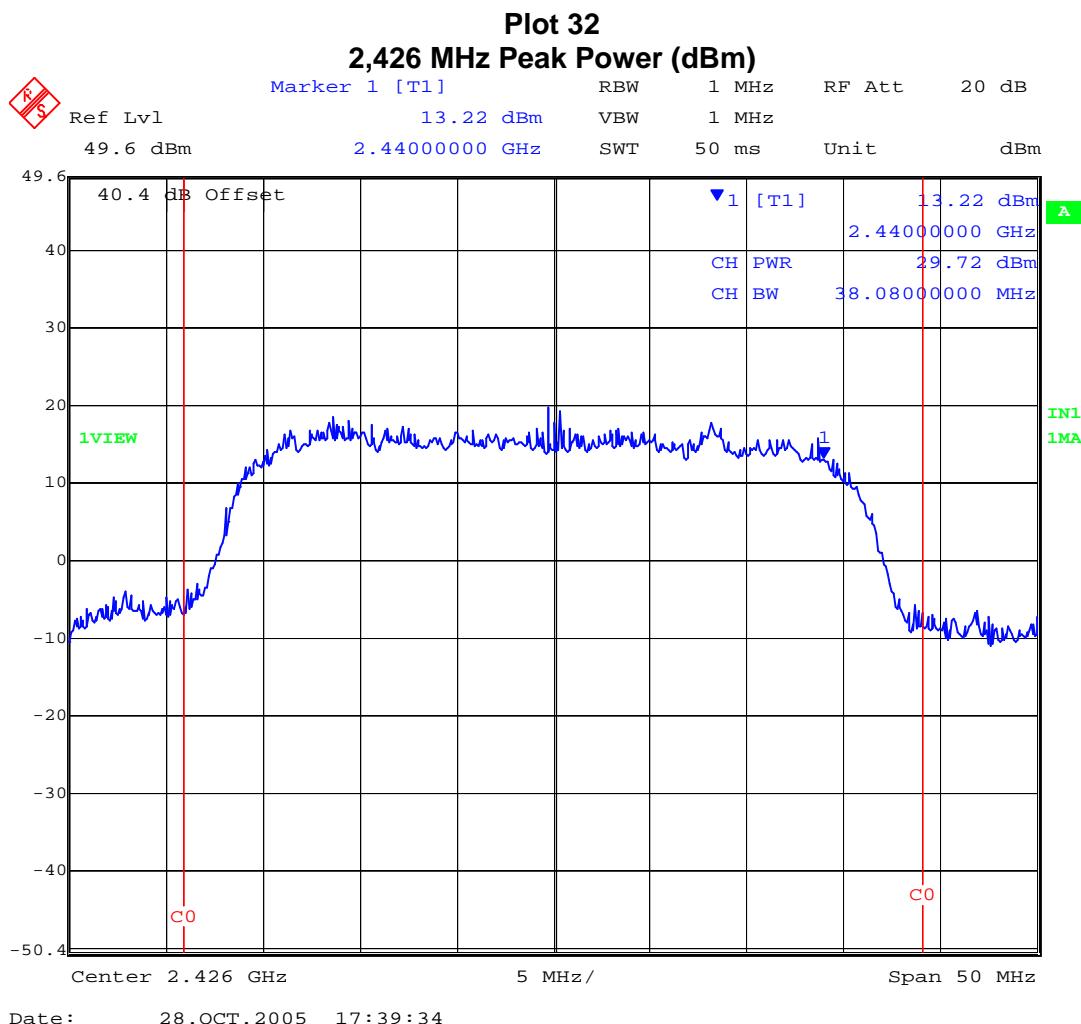
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,426 | 38.08 | 29.85 | 22.97 | 31 |
| 2,437 | 38.08 | 29.71 | 22.88 | On File |
| 2,455 | 38.08 | 29.65 | 22.85 | On File |



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TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

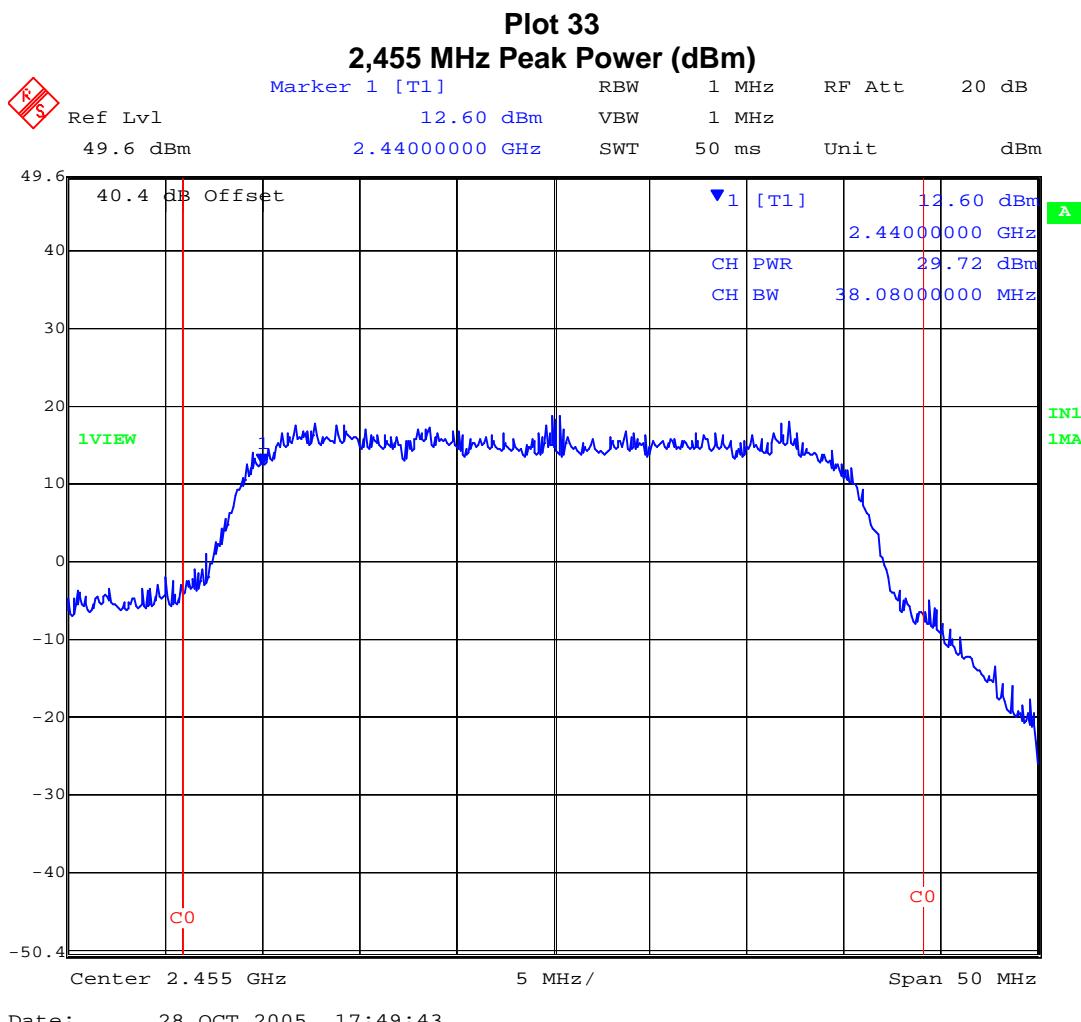
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,426 | 38.08 | 29.72 | 22.87 | 32 |
| 2,437 | 38.08 | 29.66 | 22.86 | On File |
| 2,455 | 38.08 | 29.72 | 22.82 | On File |



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TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

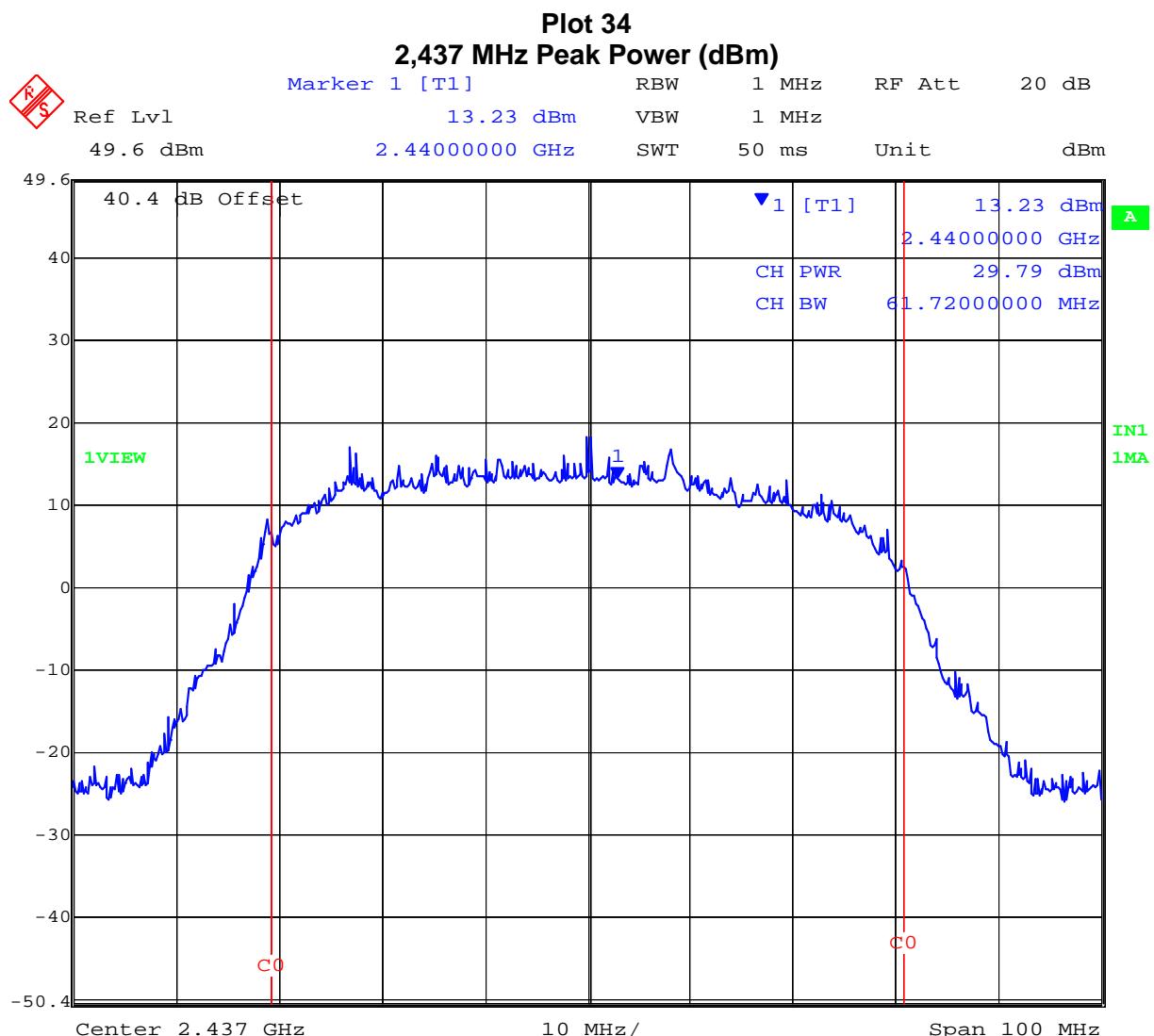
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|---------|
| 2,426 | 38.08 | 29.66 | 22.67 | On File |
| 2,437 | 38.08 | 29.65 | 22.74 | On File |
| 2,455 | 38.08 | 29.72 | 22.84 | 33 |



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TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

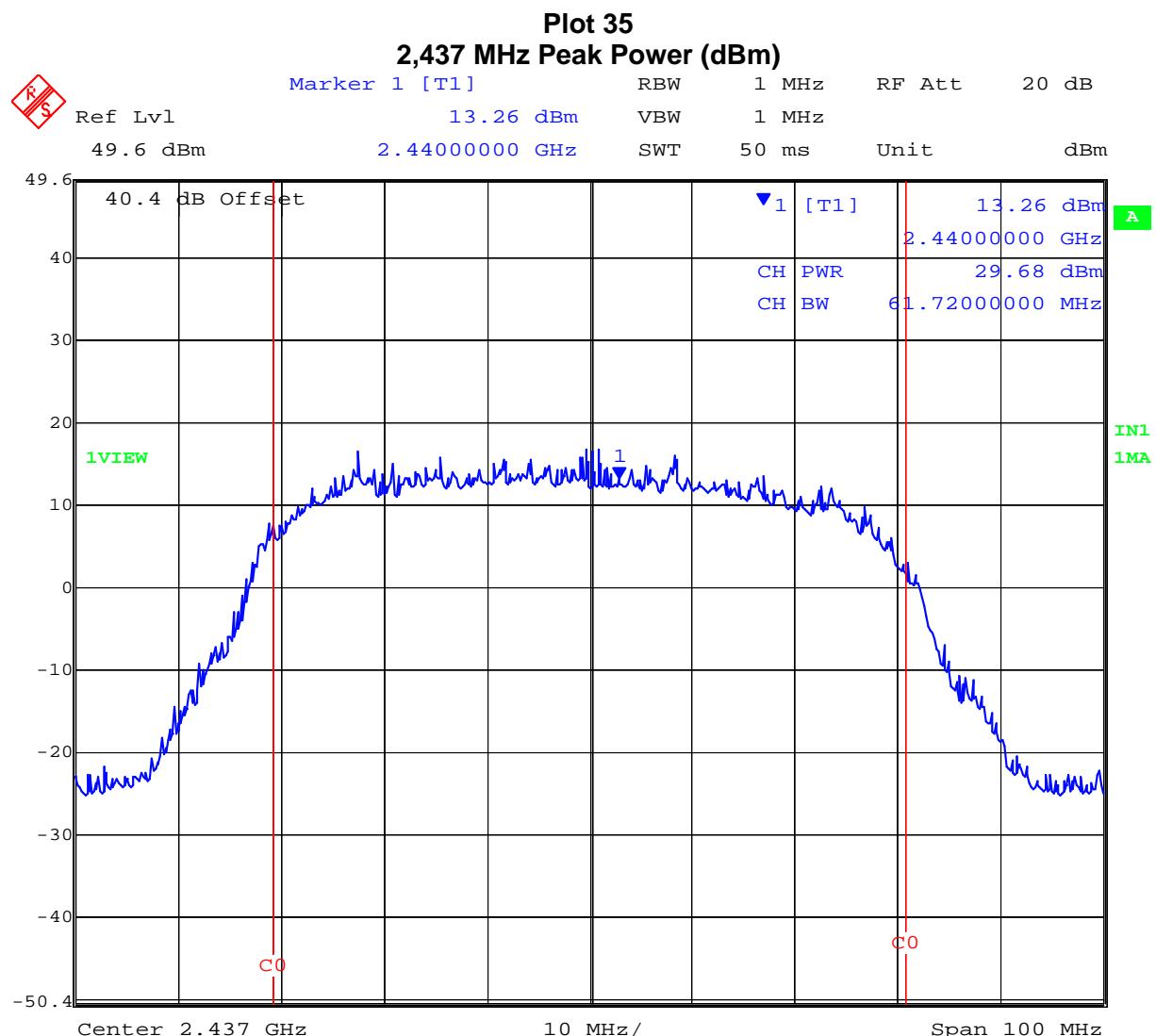
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|--------|
| 2,437 | 61.72 | 29.79 | 22.82 | 34 |



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TABLE OF RESULTS – 72 MHz Bandwidth 16QAM Modulation

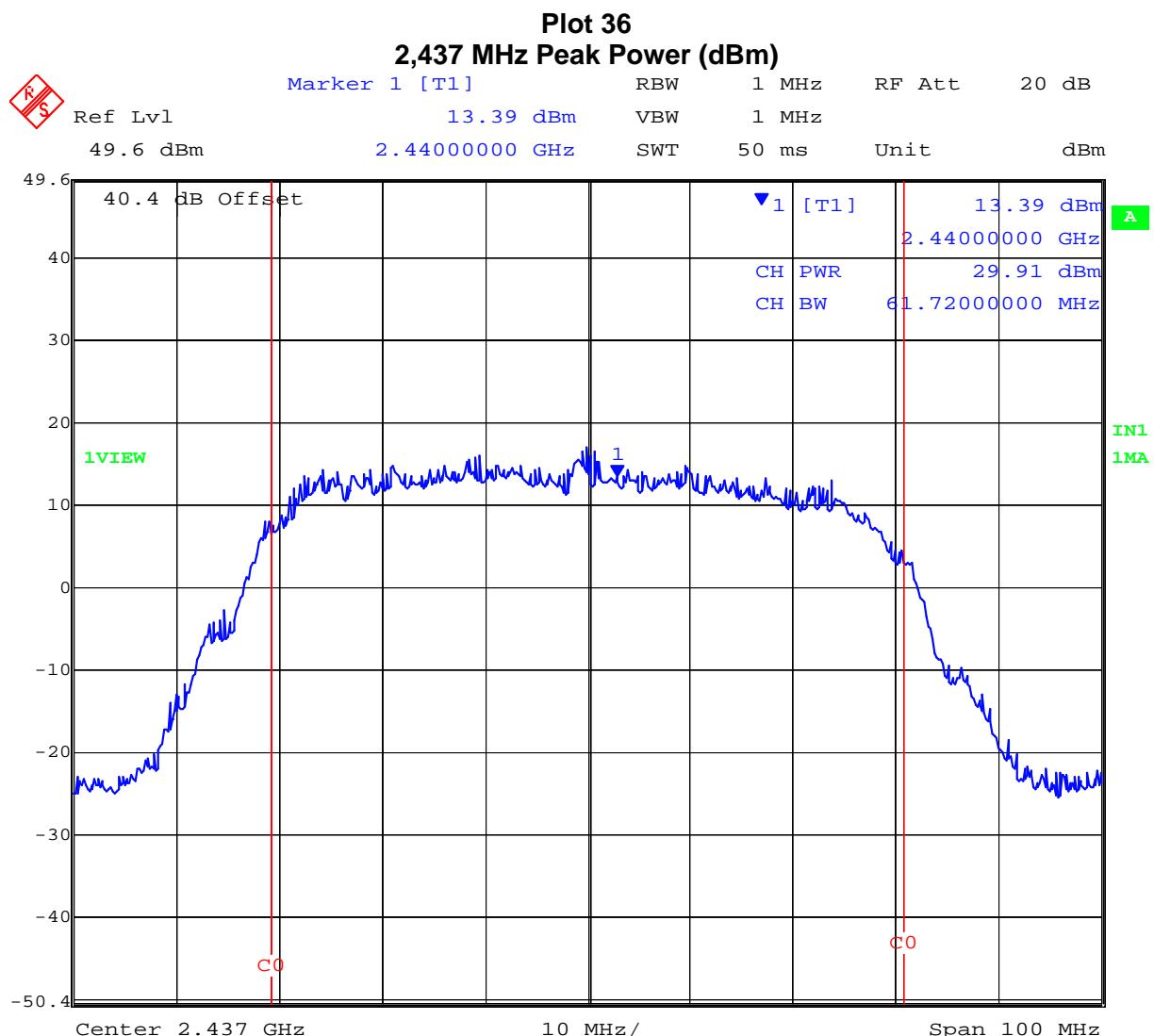
| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|--------|
| 2,437 | 61.72 | 29.68 | 22.71 | 35 |



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TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | 99% Measurement Bandwidth (MHz) | Peak Power (dBm) | Average Power (dBm) | Plot # |
|------------------------|---------------------------------|------------------|---------------------|--------|
| 2,437 | 61.72 | 29.91 | 22.83 | 36 |



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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
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Supply Voltage Variation

The supply voltage was varied between 97.75 Vac and 132.25 Vac. The system operated as intended at either extreme with no change in the above measurement bandwidths.

Specification

Limits

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands: 1watt

§15.247 (b) (4) Except as shown in paragraphs (b)(3)(i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b) (1) or (b)(2) of this section, as appropriate by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 § A8.4(4) For systems employing digital modulation techniques operating in the 2400 – 2483.5 MHz band, the maximum peak conducted power shall not exceed 1 W.

Laboratory Measurement Uncertainty for Power Measurements

| | |
|-------------------------|----------|
| Measurement uncertainty | ±1.33 dB |
|-------------------------|----------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-01 'Measuring RF Output Power' | 0070, 0116, 0158, 0193, 0252, 0313, 0314 |

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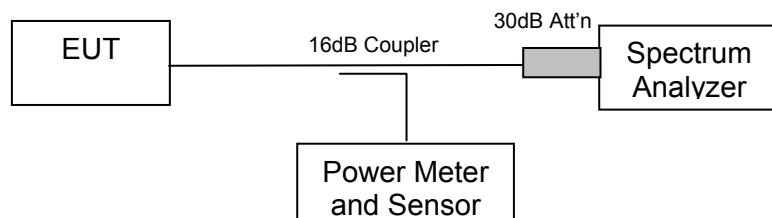
5.1.3. Peak Power Spectral Density

FCC, Part 15 Subpart C §15.247(d)
Industry Canada RSS-210 § A8.2

Test Procedure

The transmitter output was connected to a spectrum analyzer and the maximum level in a 3 kHz bandwidth was measured. A peak value was found over the full emission bandwidth and the frequency span reduced to obtain enhanced resolution. Sweep time => span / 3 kHz with video averaging turned off. The Peak Power Spectral Density is the highest level found across the emission in a 3 kHz resolution bandwidth.

Test Measurement Set up



Measurement set up for Peak Power Spectral Density

Measurement Results for Peak Power Spectral Density

Ambient conditions.

Temperature: 19 to 26 °C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

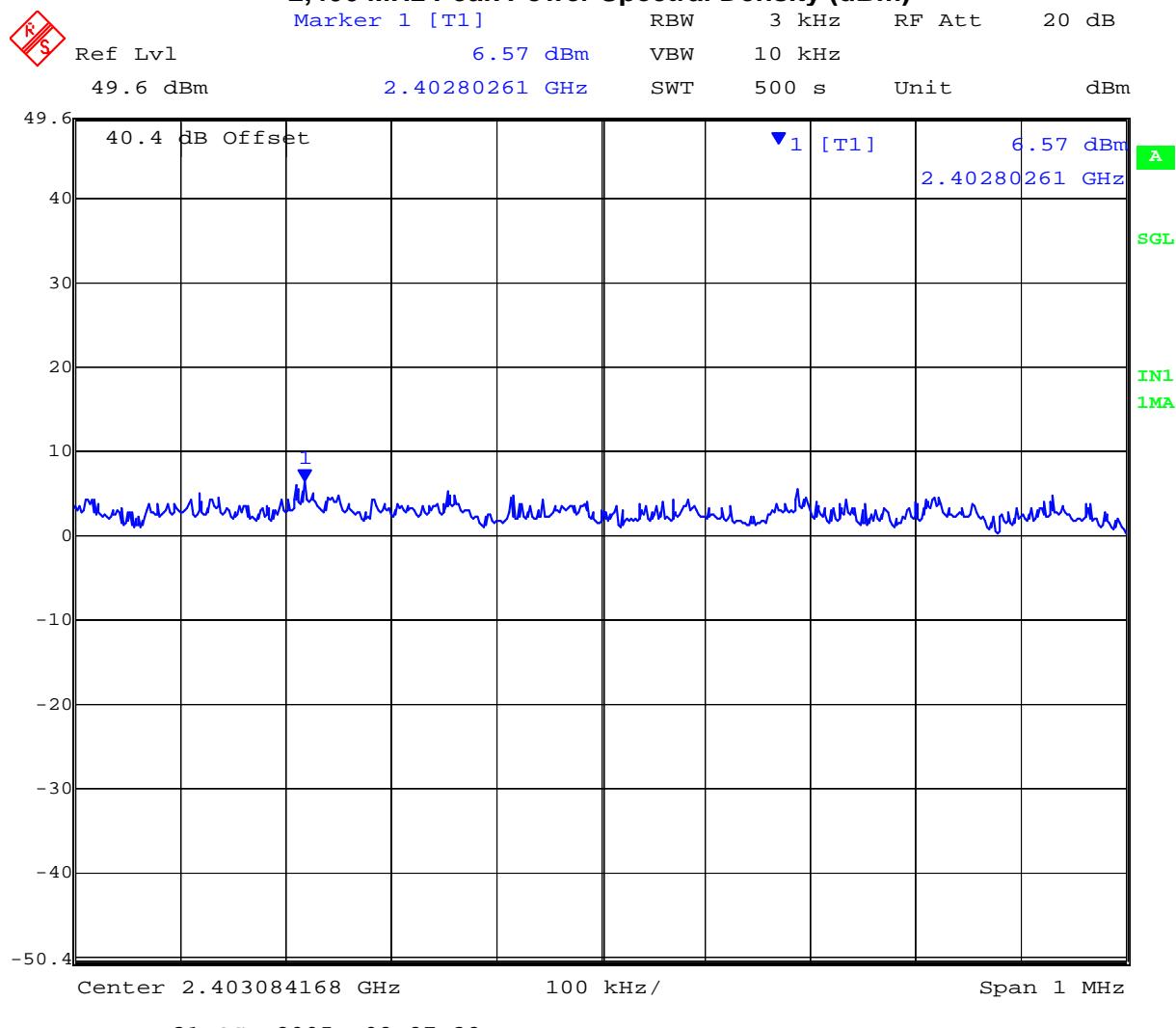
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TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|---------|
| 2,406 | 2402.80261 | 6.57 | 37 |
| 2,437 | 2433.80160 | 6.19 | On File |
| 2,468 | 2464.80060 | 5.66 | On File |

Plot 37

2,406 MHz Peak Power Spectral Density (dBm)



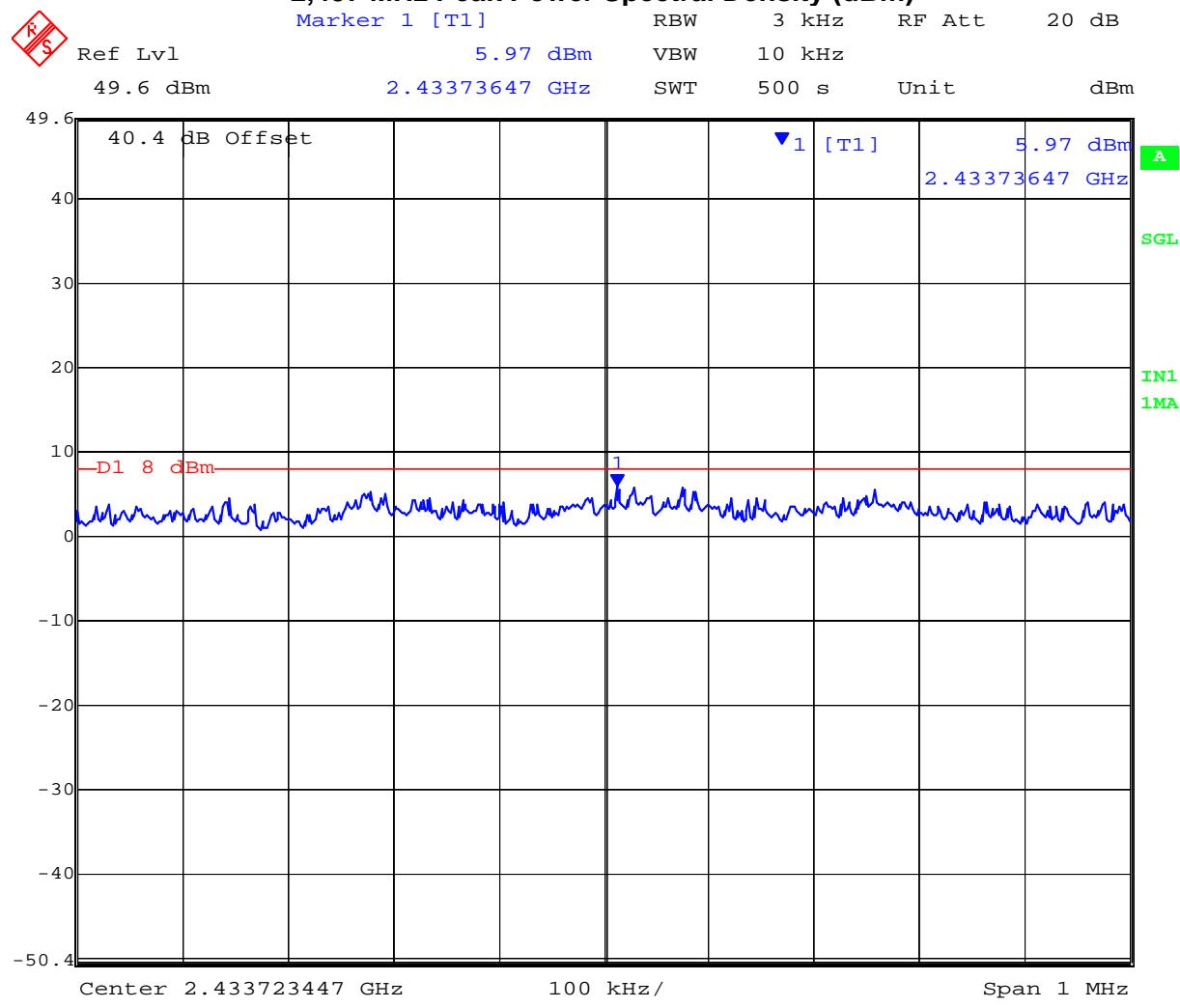
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TABLE OF RESULTS – 9 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|---------|
| 2,406 | 2409.07916 | 5.70 | On File |
| 2,437 | 2433.73647 | 5.97 | 38 |
| 2,468 | 2464.97896 | 5.95 | On File |

Plot 38

2,437 MHz Peak Power Spectral Density (dBm)



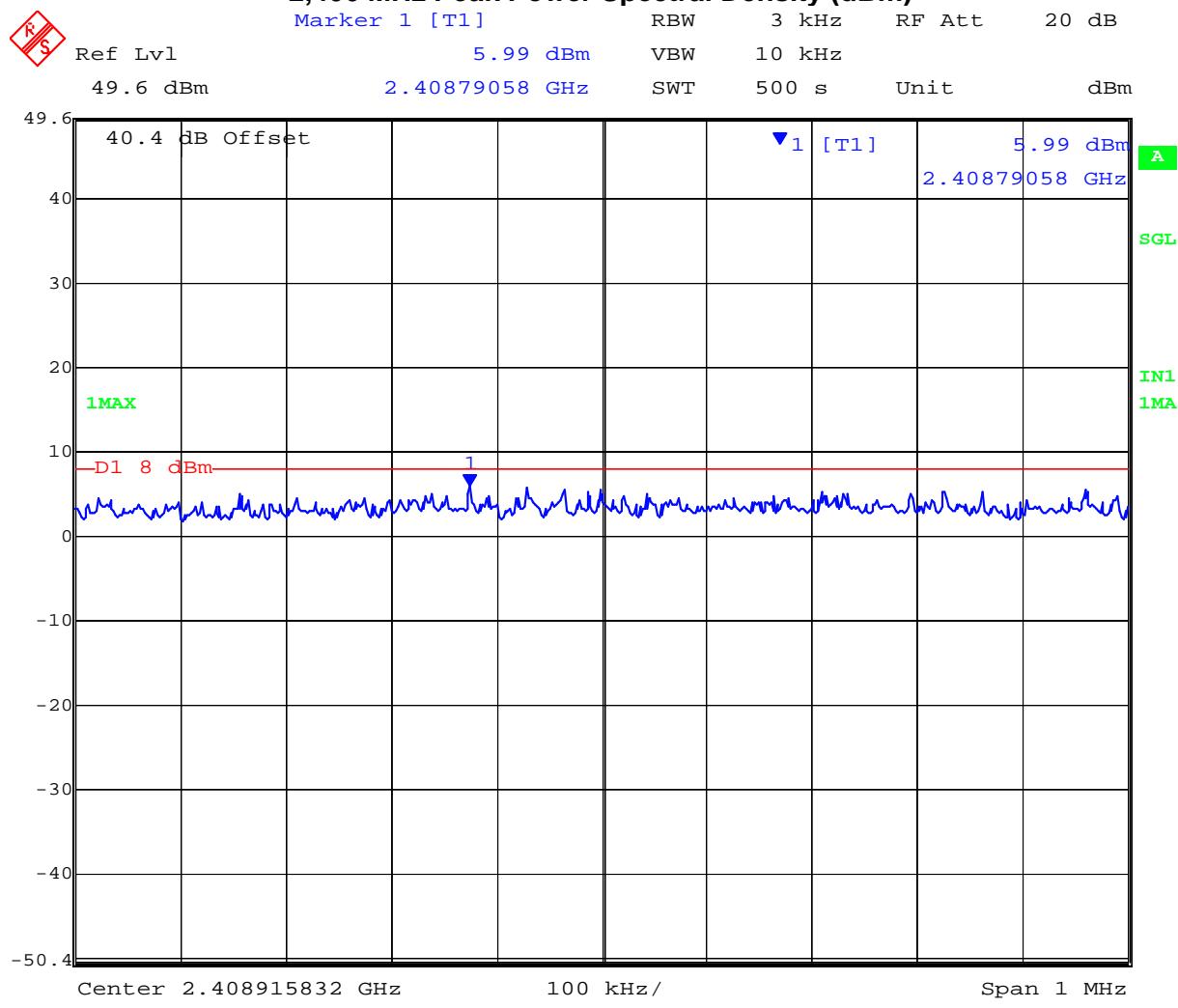
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TABLE OF RESULTS – 9 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|---------|
| 2,406 | 2408.79058 | 5.99 | 39 |
| 2,437 | 2439.78858 | 5.09 | On File |
| 2,468 | 2464.78457 | 5.95 | On File |

Plot 39

2,406 MHz Peak Power Spectral Density (dBm)

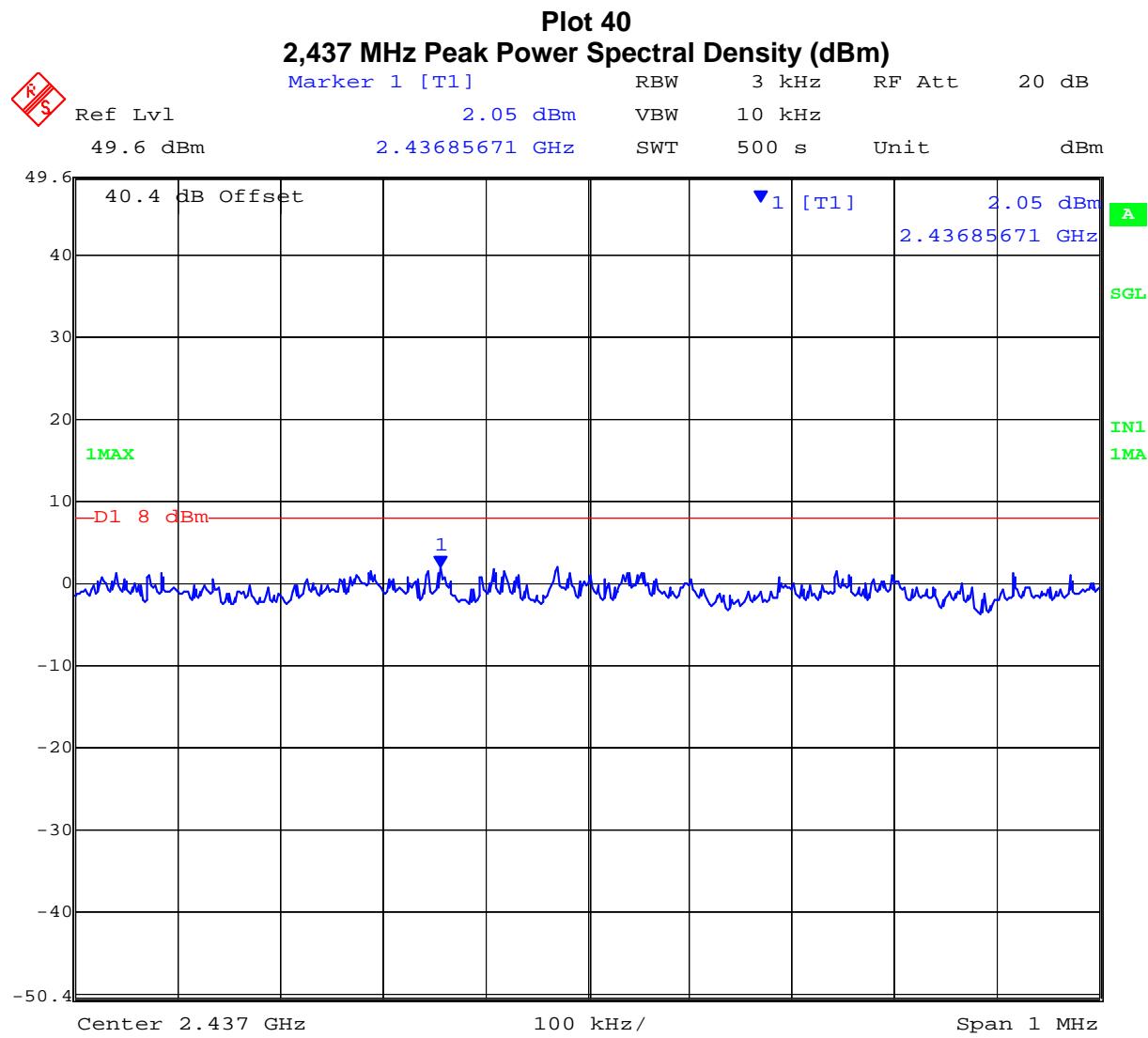


Date: 31.OCT.2005 09:39:21

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TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2436.85671 | 2.05 | 40 |

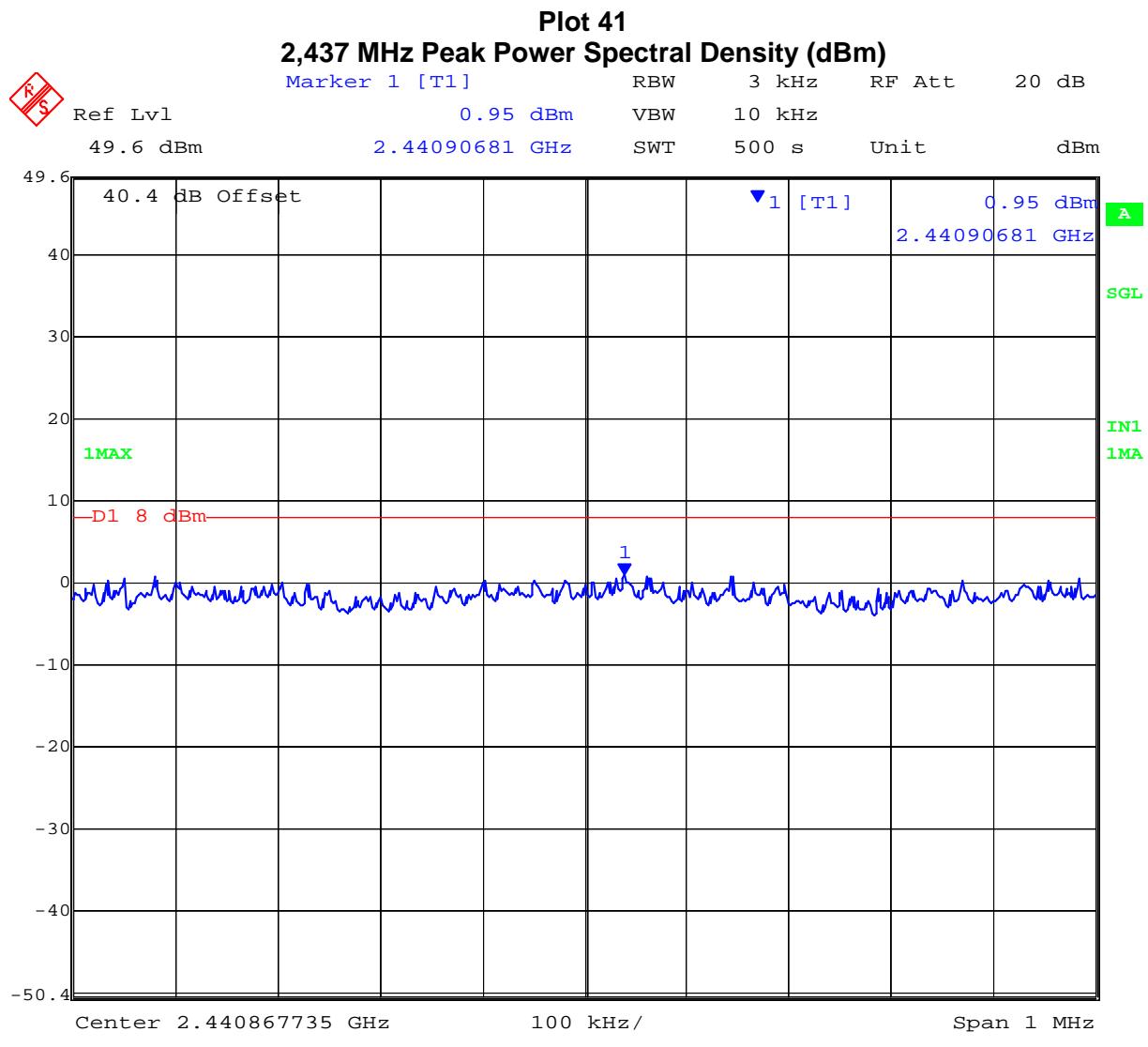


Date: 31.OCT.2005 08:52:11

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TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

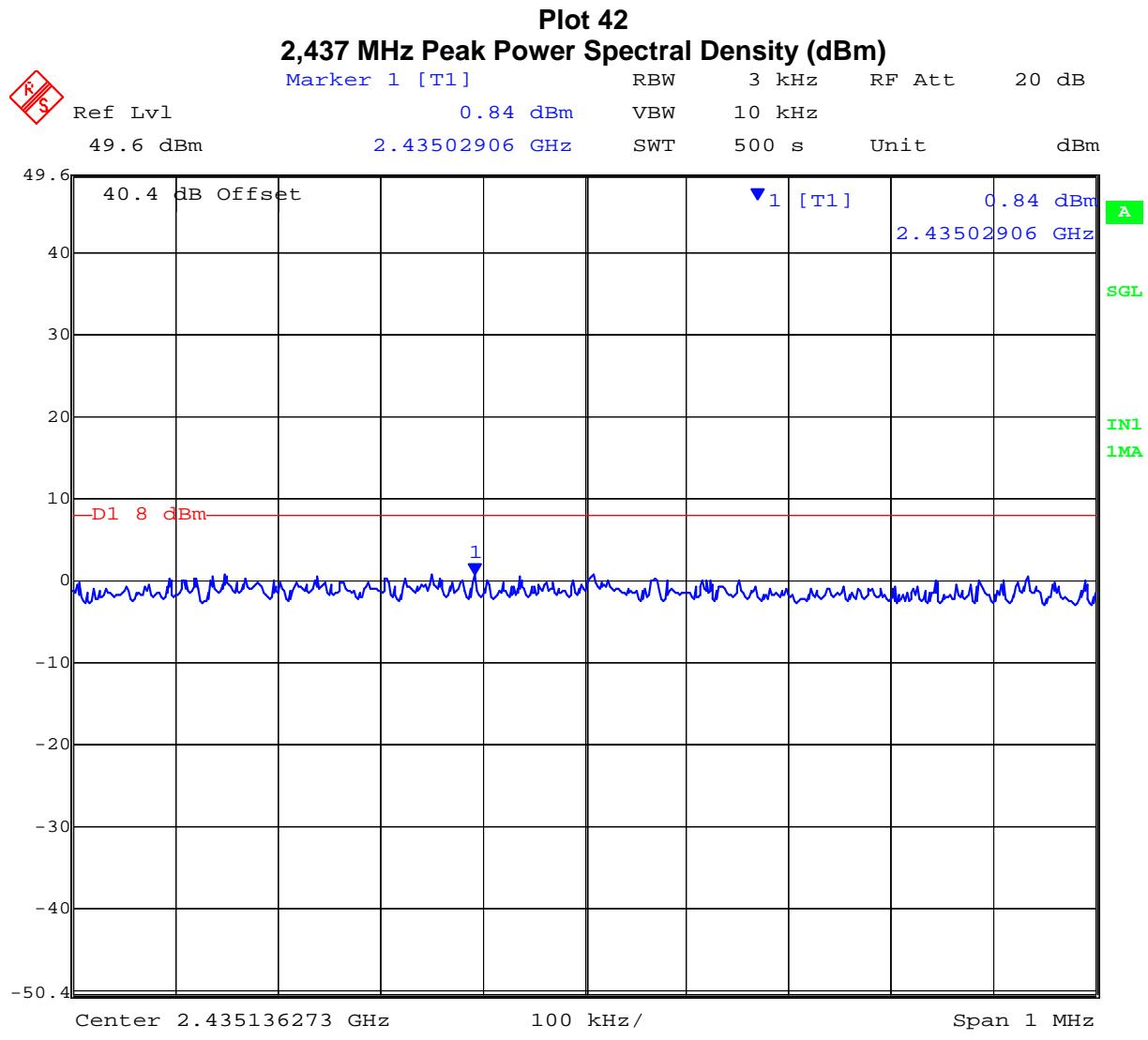
| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2440.90681 | 0.95 | 41 |



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TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

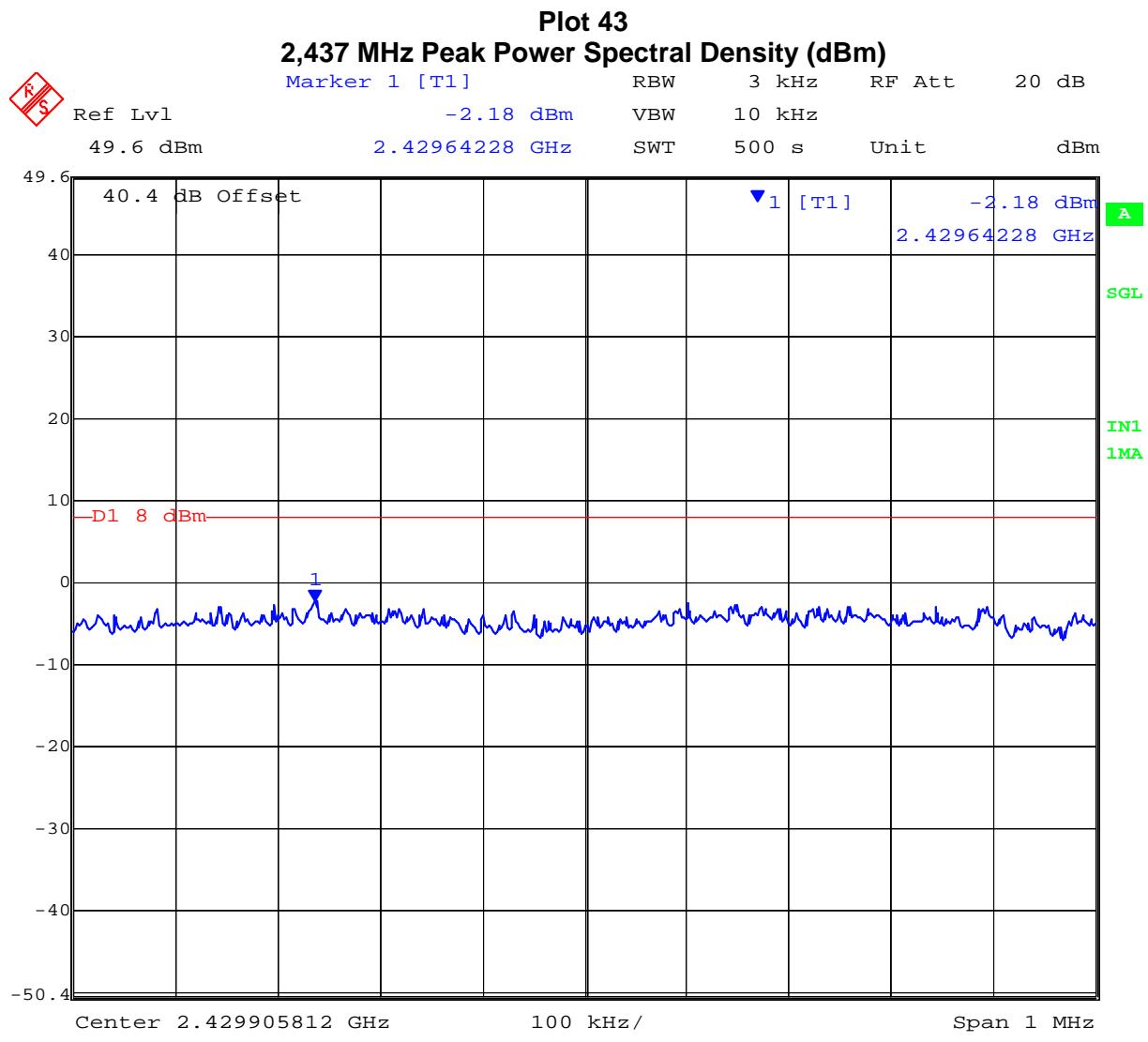
| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2435.02906 | 0.84 | 42 |



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TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2429.64228 | -2.18 | 43 |

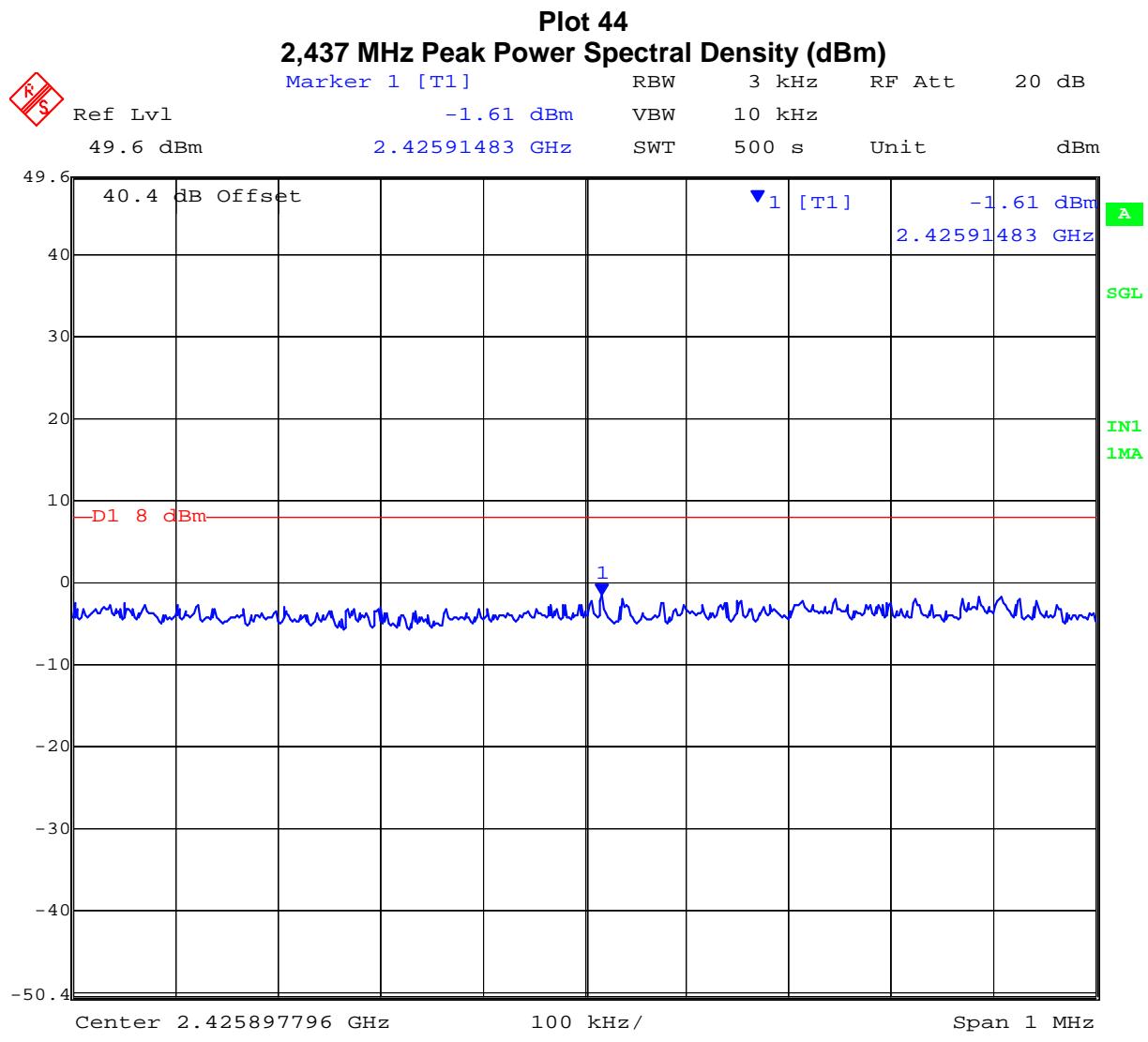


Date: 31.OCT.2005 10:24:24

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TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

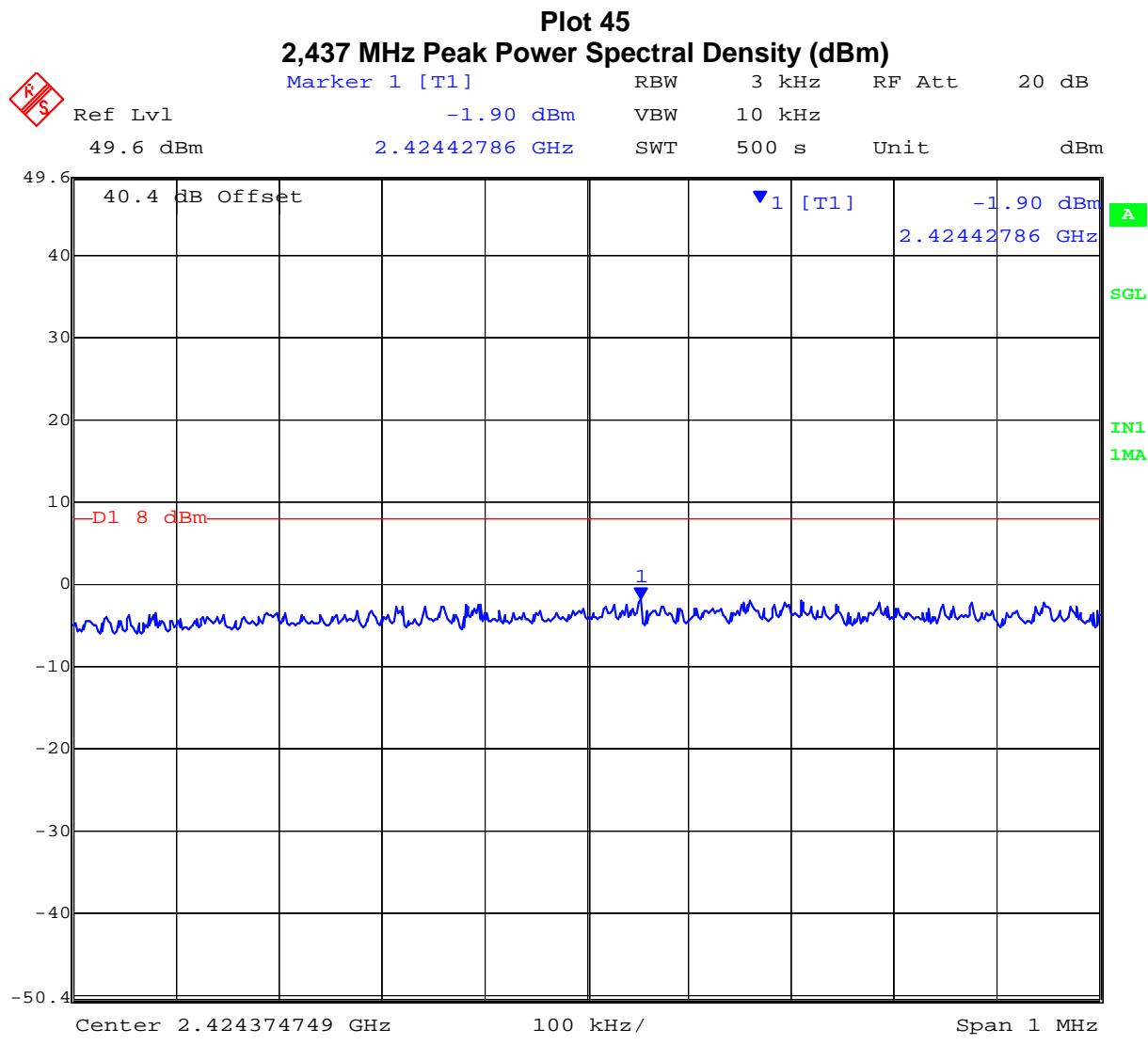
| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2425.91483 | -1.61 | 44 |



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TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2424.42786 | -1.90 | 45 |

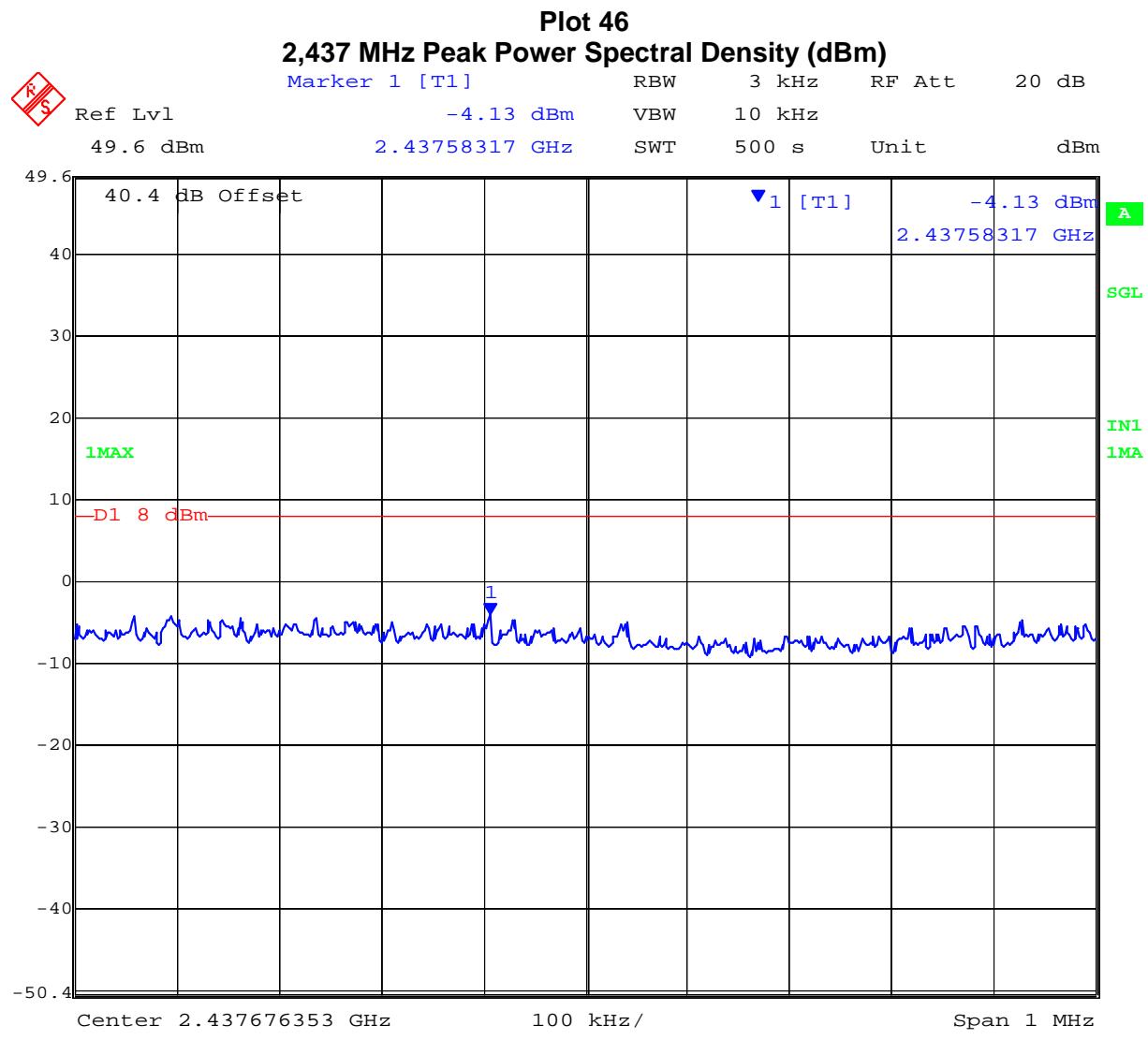


Date: 31.OCT.2005 11:02:58

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TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2437.58317 | -4.13 | 46 |

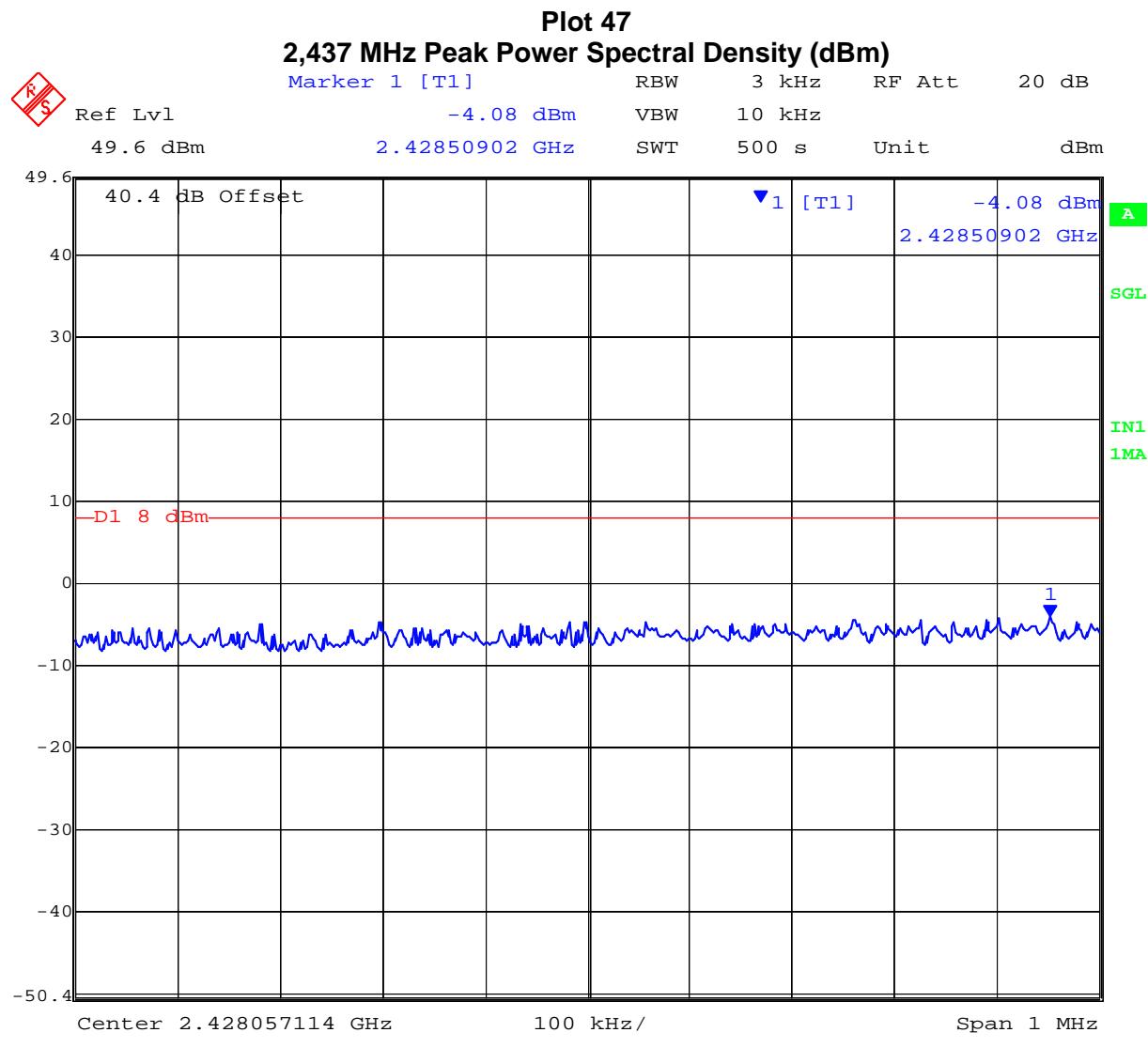


Date: 31.OCT.2005 11:14:43

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TABLE OF RESULTS – 72 MHz Bandwidth 16QAM Modulation

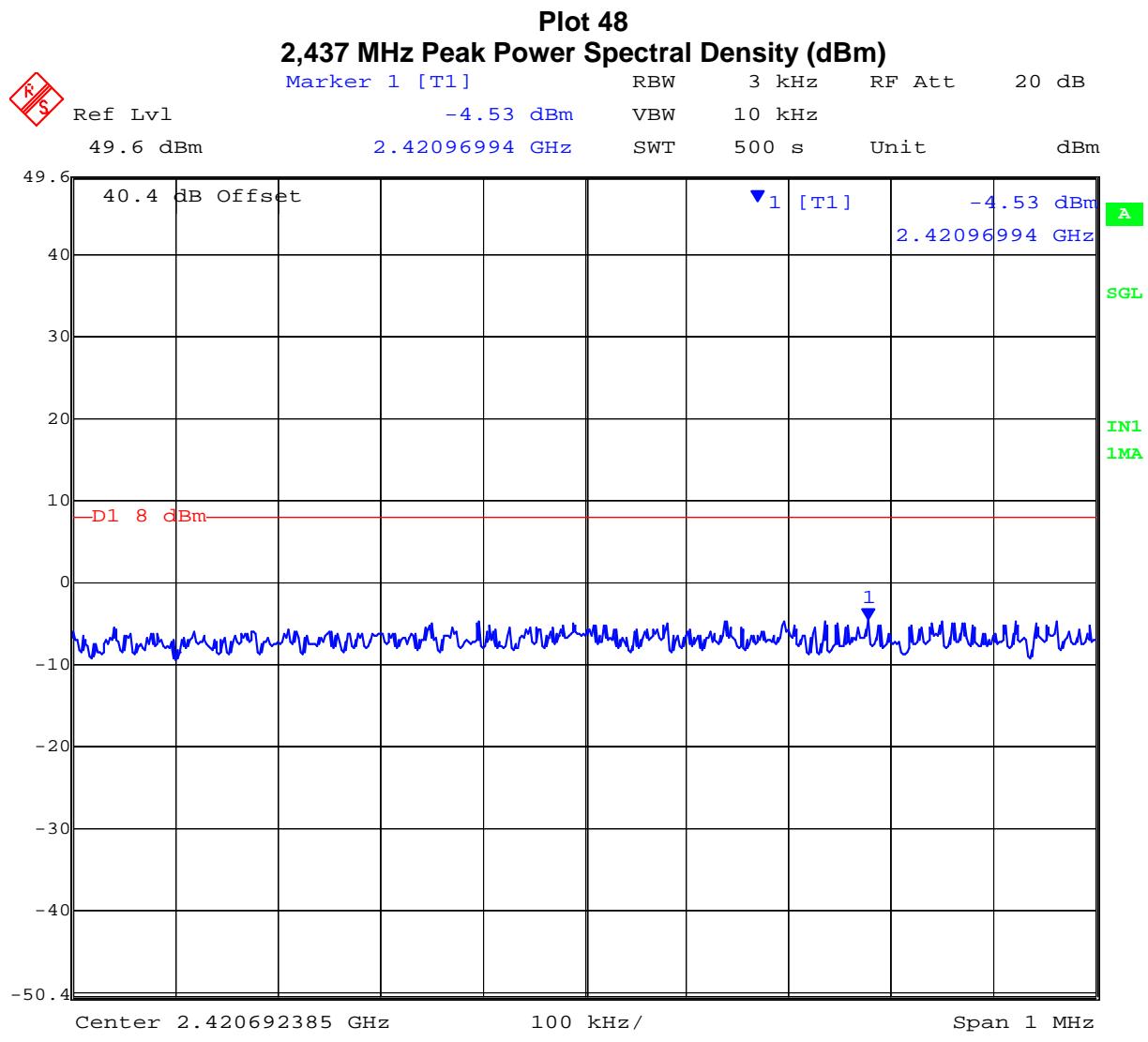
| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2428.50902 | -4.08 | 47 |



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TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | Peak Frequency (MHz) | PPSD (dBm) | Plot # |
|------------------------|----------------------|------------|--------|
| 2,437 | 2420.96994 | -4.53 | 48 |



Date: 31.OCT.2005 11:37:46

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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
Page: 72 of 248

Specification

Peak Power Spectral Density Limits

§15.247 (d) For direct sequence systems the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission

IC-RSS-210 § A8.2(2) The transmitter power spectral density (into the antenna) shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0 second duration.

Laboratory Measurement Uncertainty for Spectral Density

| | |
|-------------------------|----------|
| Measurement uncertainty | ±1.33 dB |
|-------------------------|----------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-01 'Measuring RF Output Power' | 0070, 0116, 0158, 0193, 0252, 0313, 0314 |

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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
Page: 73 of 248

5.1.4. Maximum Permissible Exposure

FCC, Part 15 Subpart C §15.247(i), §1.1310

Industry Canada RSS-102

Calculations for Maximum Permissible Exposure Levels

Power Density = P_d (mW/cm²) = EIRP/(4πd²)

EIRP = P * G

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

Numeric Gain = 10 ^ (G (dBi)/10)

P (worst case) = +29.96 dBm, 990.80 mW

Antenna Gain (Worst Case) = 30.3 dBi, 1071.5 numeric

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm²

The MPE calculations are calculated using the maximum allowable power levels calculated for each antenna in Section 5.1.2 "Peak Output Power" of the report.

| Antenna Gain (dBi) | Numeric Gain (numeric) | Max Allowable Peak Power (dBm) | Max Allowable Peak Power (mW) | Calculated Safe Distance at 1 mW/cm ² (cm) |
|--------------------|------------------------|--------------------------------|-------------------------------|---|
| 21.3 | 134.9 | 24.9 | 309.03 | 57.60 |
| 30.3 | 1071.5 | 21.9 | 154.88 | 114.92 |
| 20.0 | 100 | 25.3 | 338.84 | 51.93 |

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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
Page: 74 of 248

Specification

Maximum Permissible Exposure Limits

§15.247 (b)(5) Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency levels in excess of the Commission's guidelines. See §1.1307 (b)(1) of this chapter.

Limit S = 1mW / cm² from 1.310 Table 1

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

IC-RSS-Gen §5.5 Before equipment certification is granted, the procedures of RSS-102 shall be met.

Laboratory Measurement Uncertainty for Power Measurements

| | |
|-------------------------|----------|
| Measurement uncertainty | ±1.33 dB |
|-------------------------|----------|

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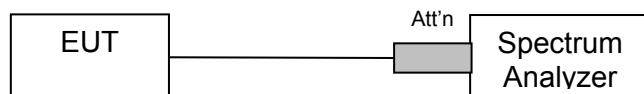
5.1.5. Conducted Spurious Emissions

FCC, Part 15 Subpart C §15.247(c)
Industry Canada RSS-210 § A8.5, & IC RSS-Gen § 4.7

Test Procedure

Conducted emissions were measured at a limit of 20 dB below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Emissions at the band edge were measured and recorded. Measurements were made while EUT was operating in transmit mode of operation at the appropriate center frequency.

Test Measurement Set up



Band-edge measurement test configuration

Measurement Results of Conducted Spurious Emissions

Ambient conditions.

Temperature: 19 to 26 °C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

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Conducted Band-Edge Results

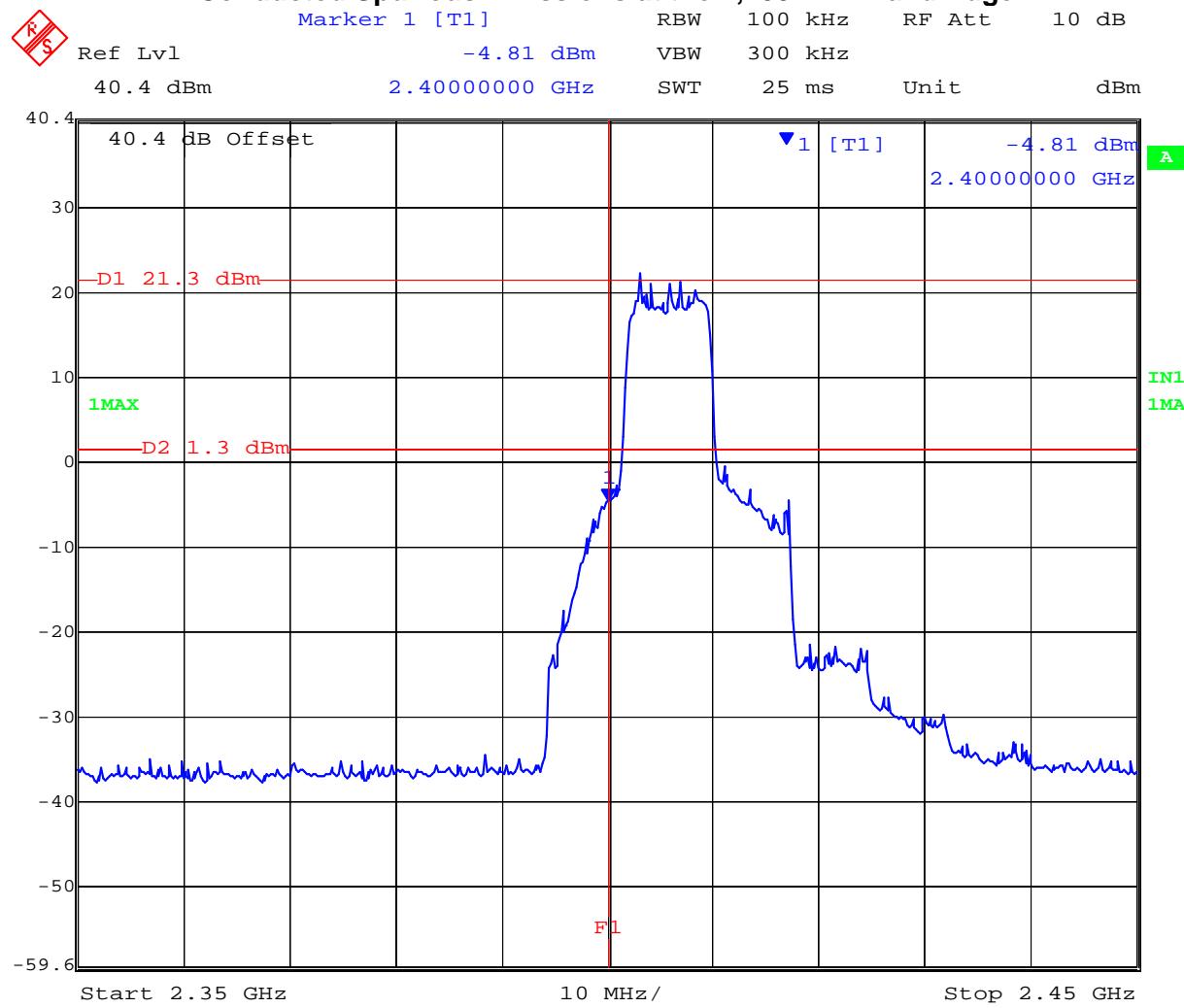
TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,406 | 2,400 | 1.30 | -4.81 | 49 | -6.11 |
| 2,468 | 2,483.5 | 1.90 | -36.27 | 50 | -38.17 |

Plot 49

9 MHz Bandwidth QPSK Modulation

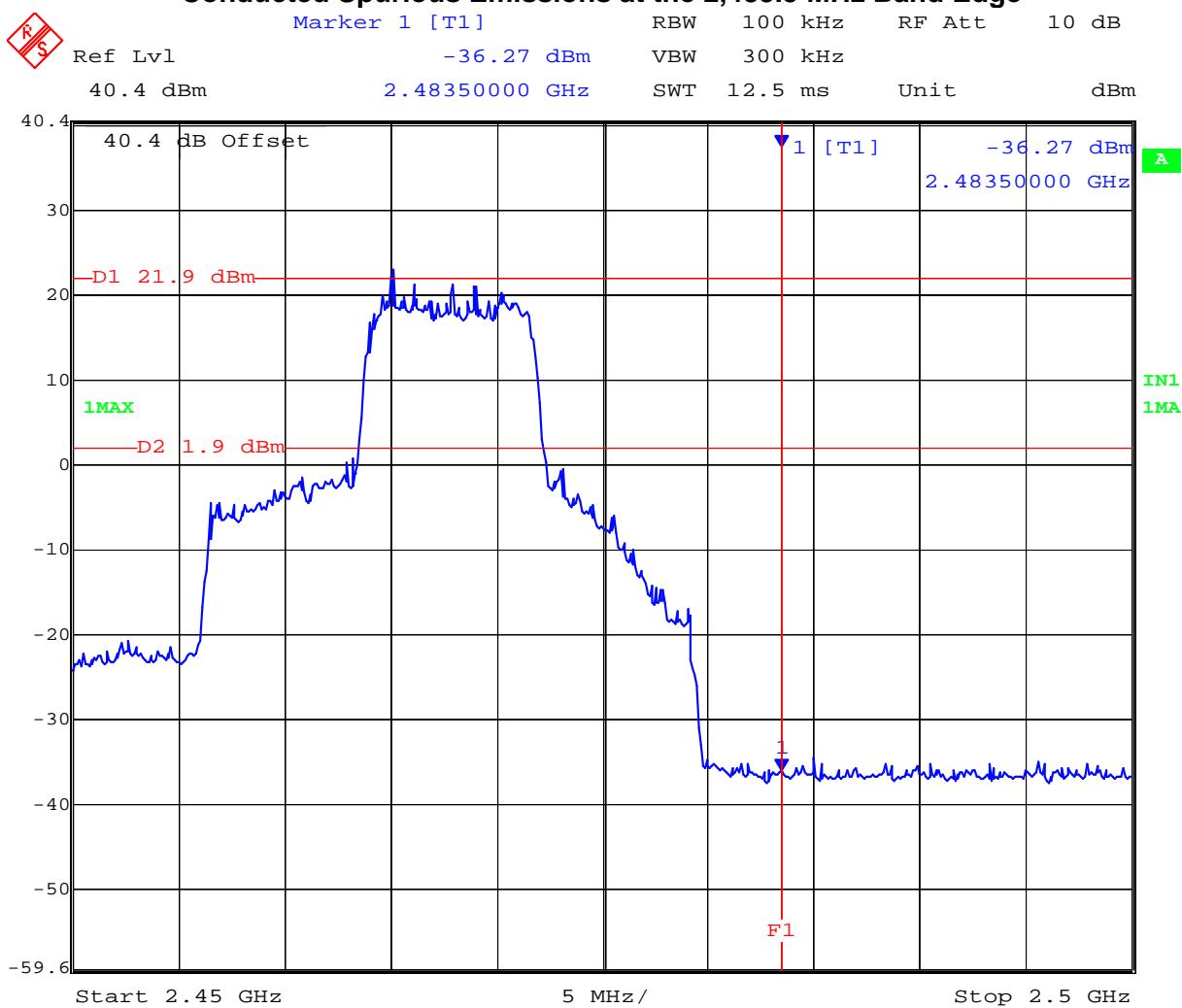
Conducted Spurious Emissions at the 2,400 MHz Band Edge



Date: 31.OCT.2005 14:02:35

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Plot 50
9 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions at the 2,483.5 MHz Band Edge

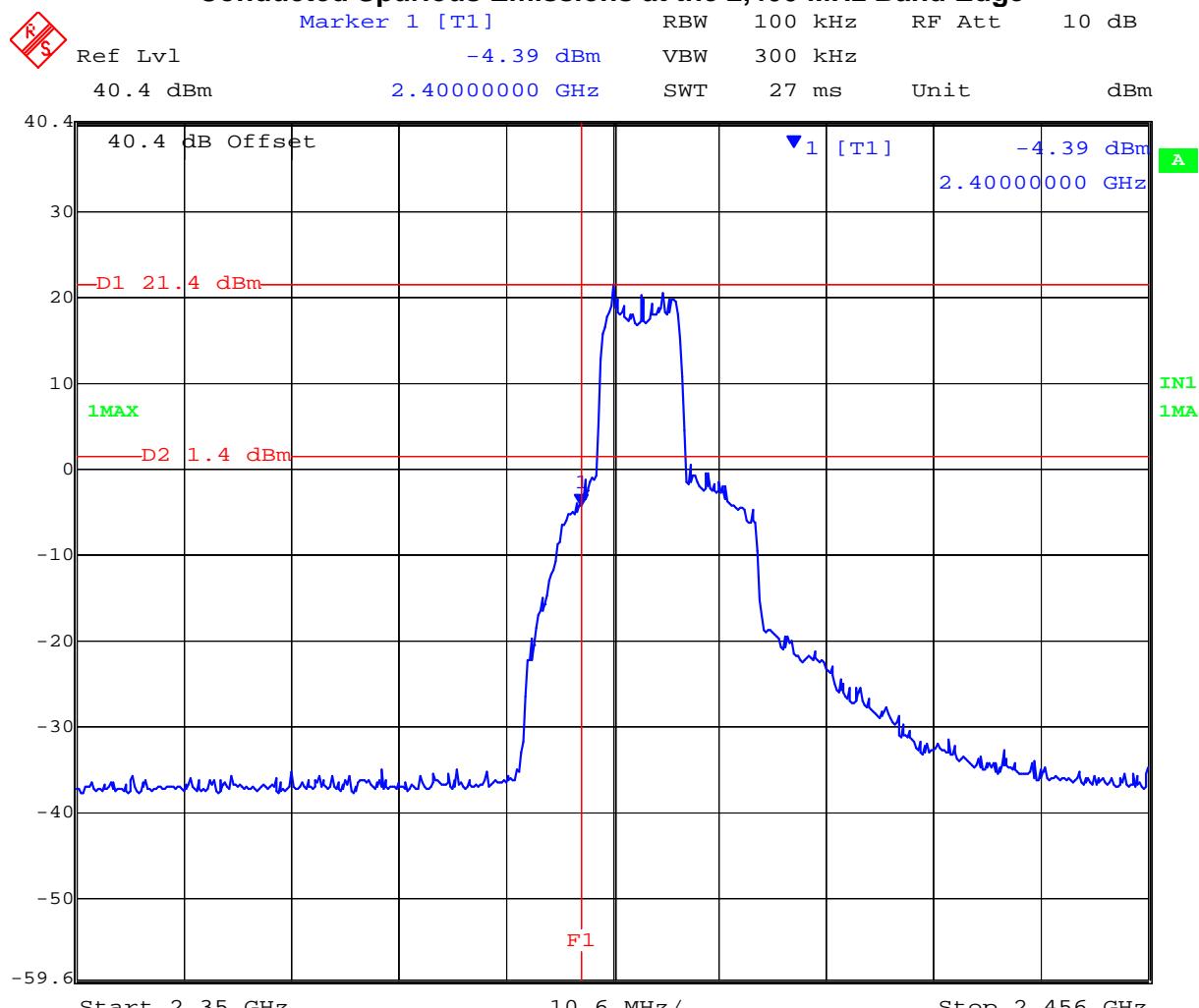


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TABLE OF RESULTS – 9 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,406 | 2,400 | 1.40 | -4.39 | 51 | -5.79 |
| 2,468 | 2,483.5 | 1.30 | -36.35 | 52 | -37.65 |

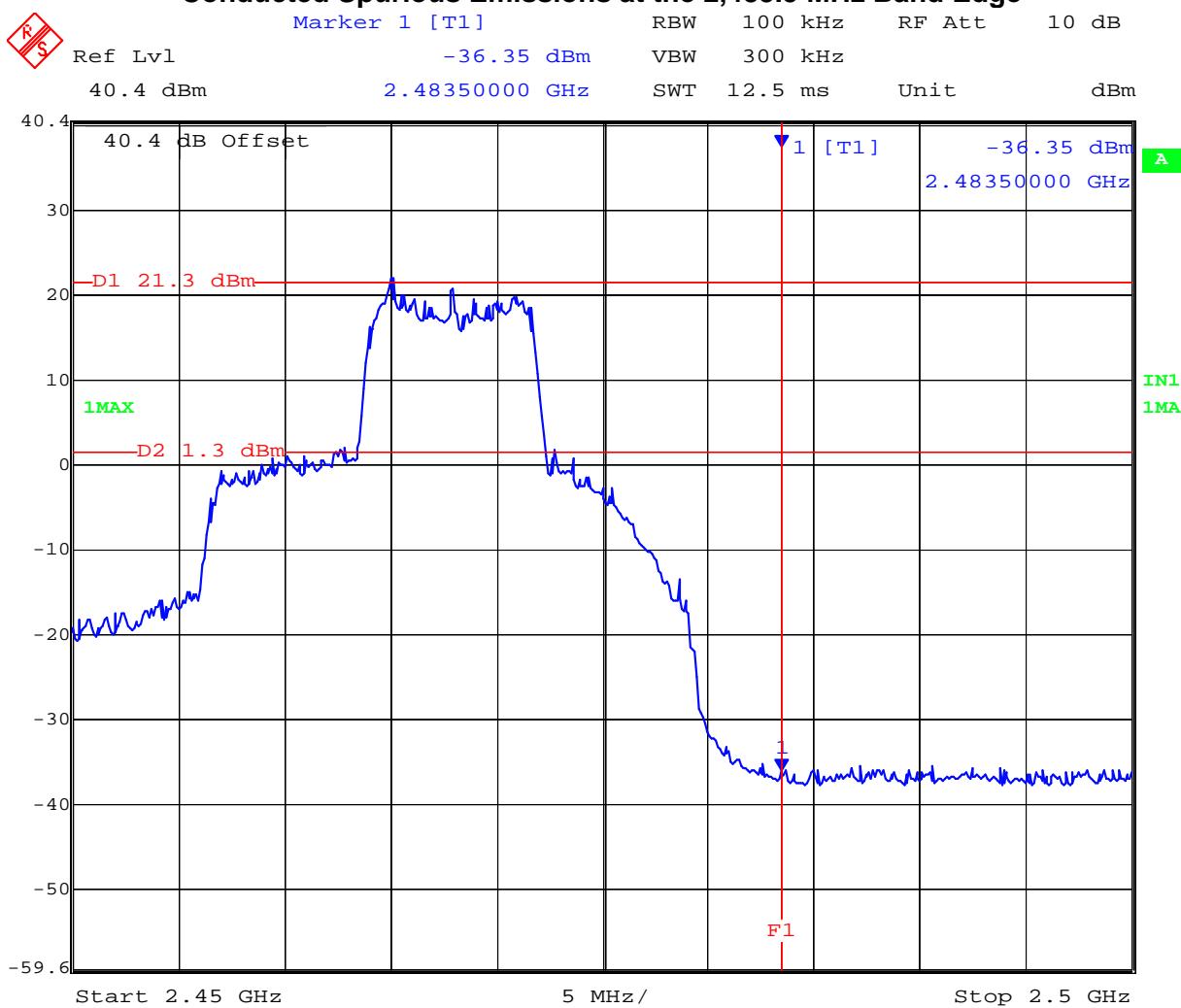
Plot 51
9 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions at the 2,400 MHz Band Edge



Date: 31.OCT.2005 13:07:18

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Plot 52
9 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



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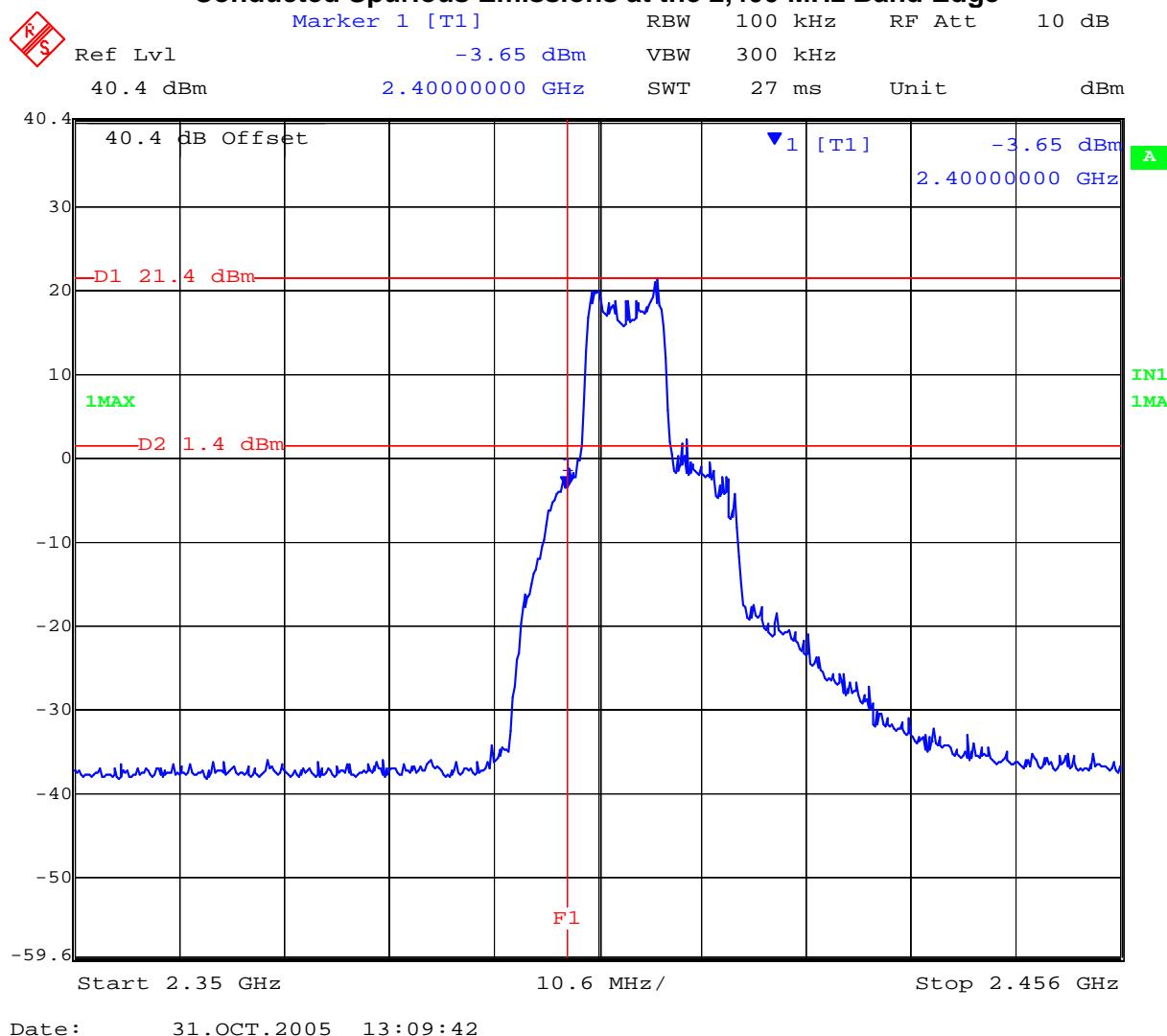
TABLE OF RESULTS – 9 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,406 | 2,400 | 1.40 | -3.65 | 53 | -5.05 |
| 2,468 | 2,483.5 | 1.30 | -37.13 | 54 | -38.43 |

Plot 53

9 MHz Bandwidth 64QAM Modulation

Conducted Spurious Emissions at the 2,400 MHz Band Edge

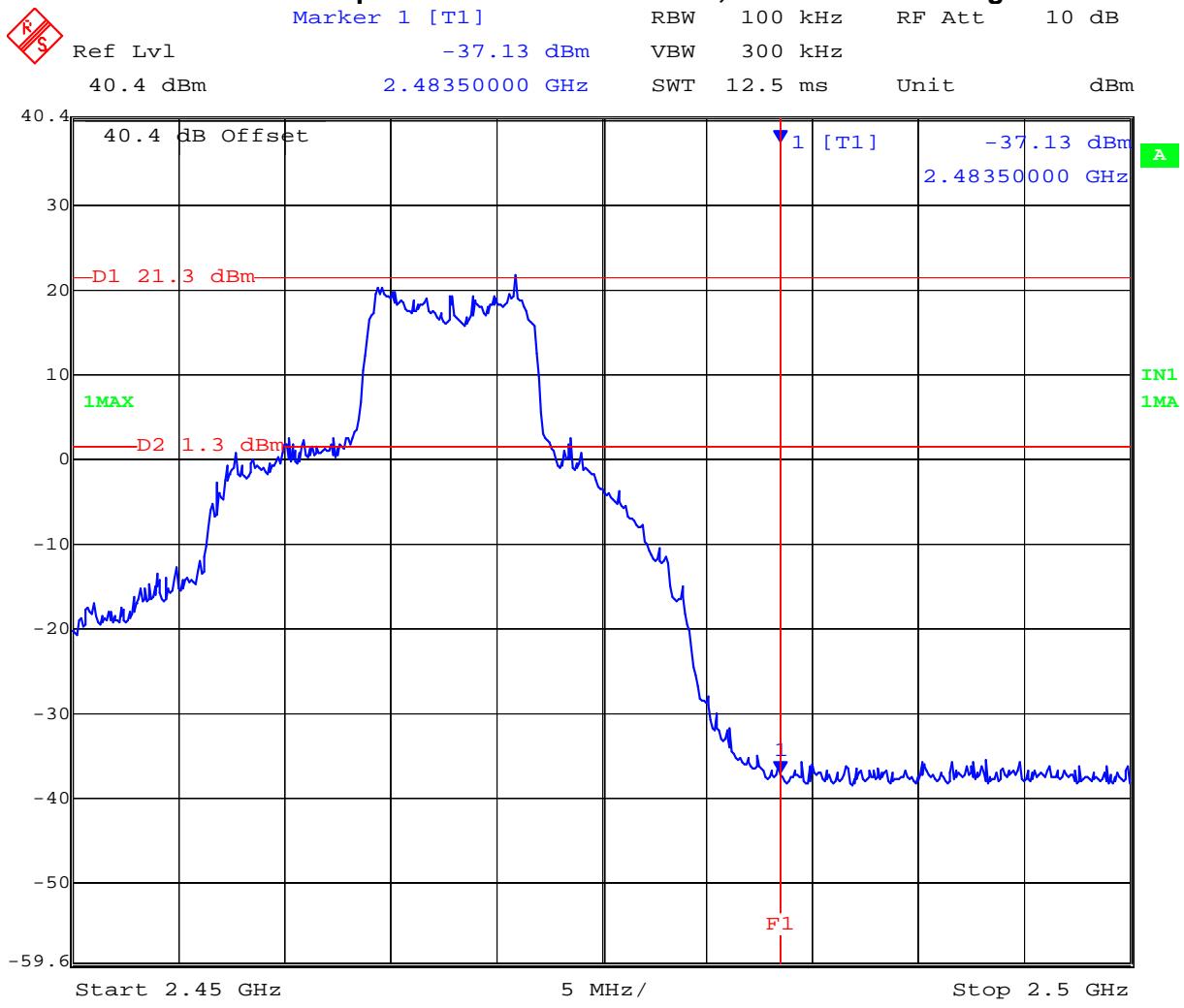


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Plot 54

9 MHz Bandwidth 64QAM Modulation

Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



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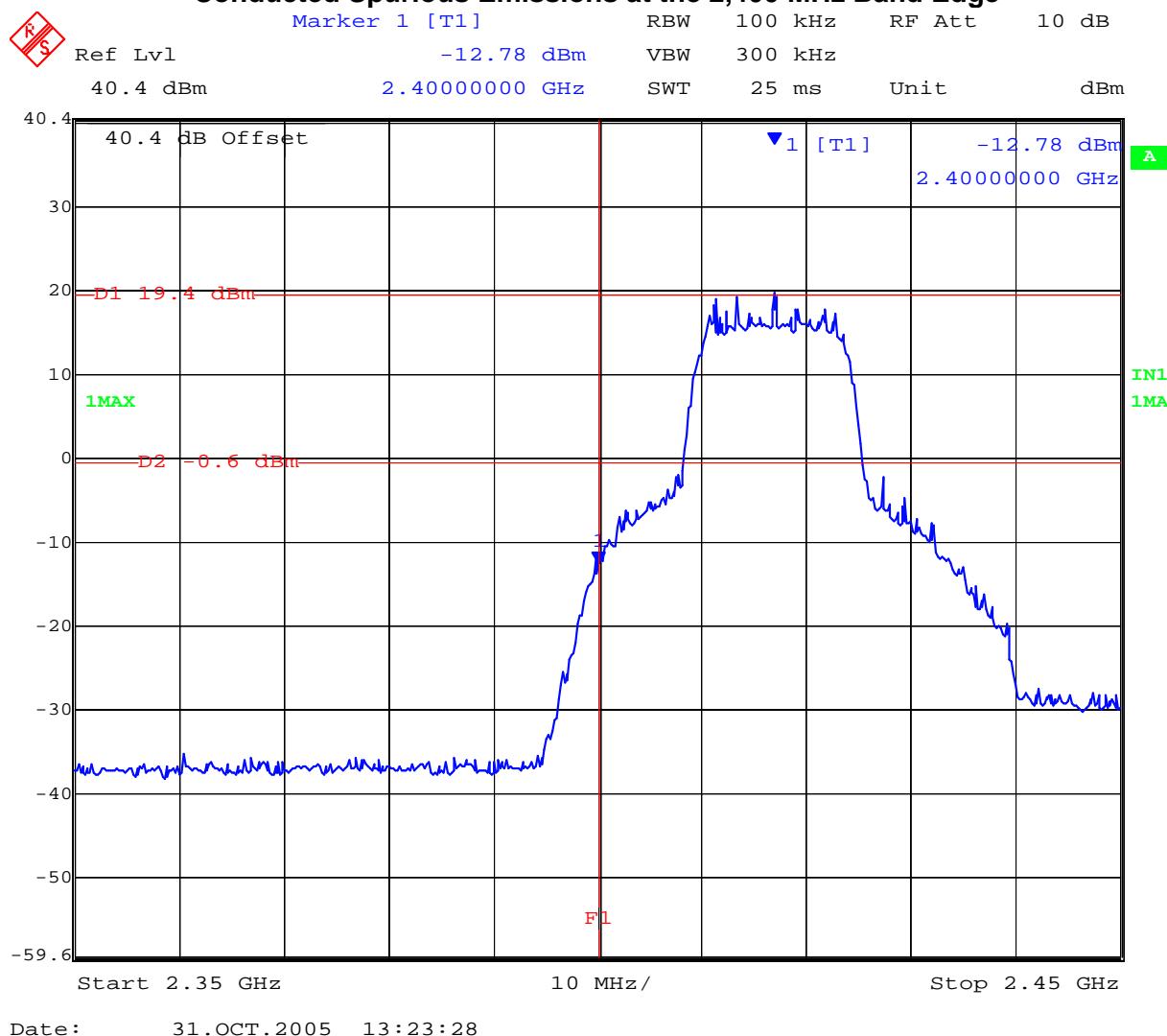
TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,417 | 2,400 | -0.60 | -12.78 | 55 | -12.18 |
| 2,465 | 2,483.5 | -2.50 | -36.80 | 56 | -34.30 |

Plot 55

18 MHz Bandwidth QPSK Modulation

Conducted Spurious Emissions at the 2,400 MHz Band Edge

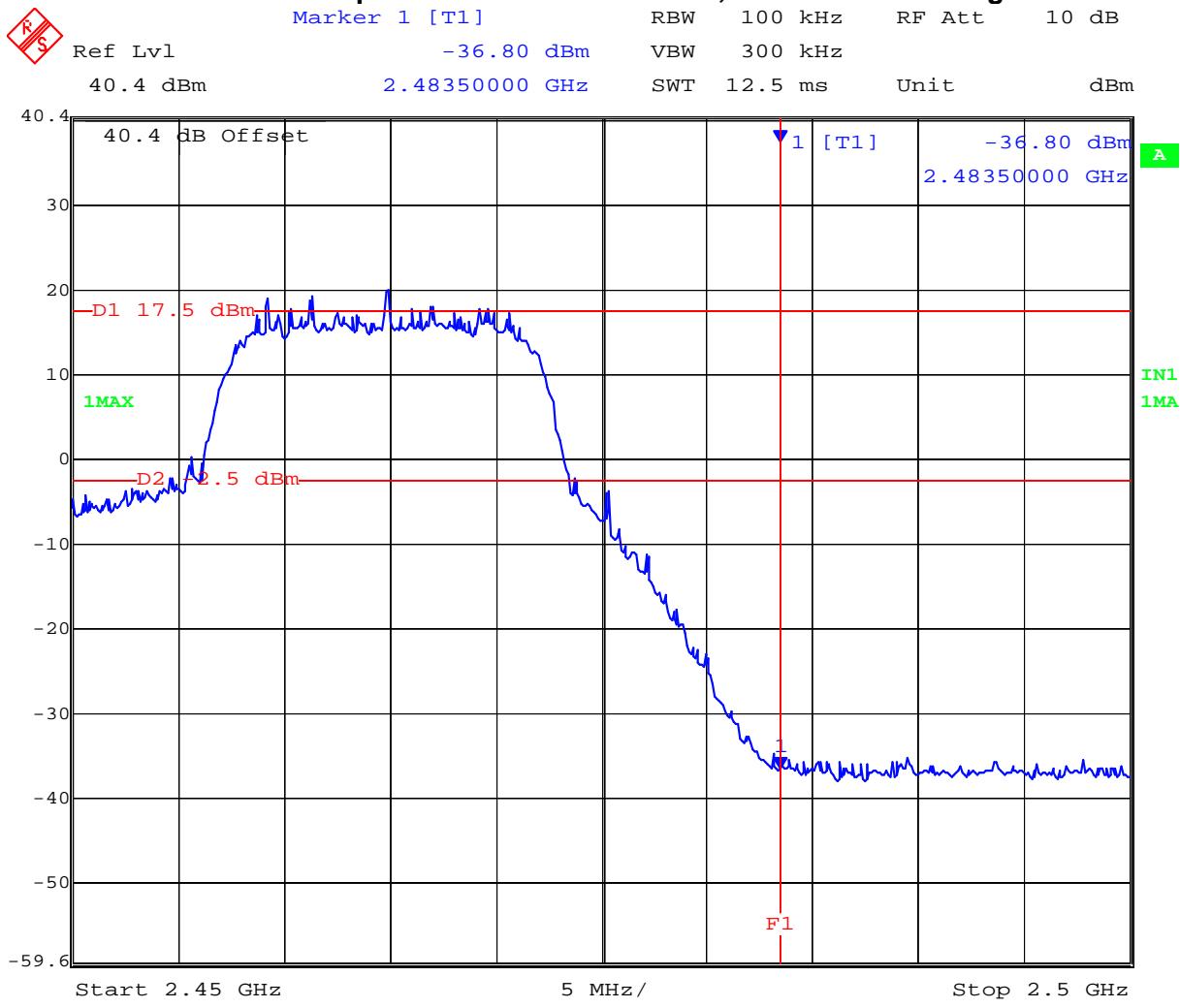


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Plot 56

18 MHz Bandwidth QPSK Modulation

Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



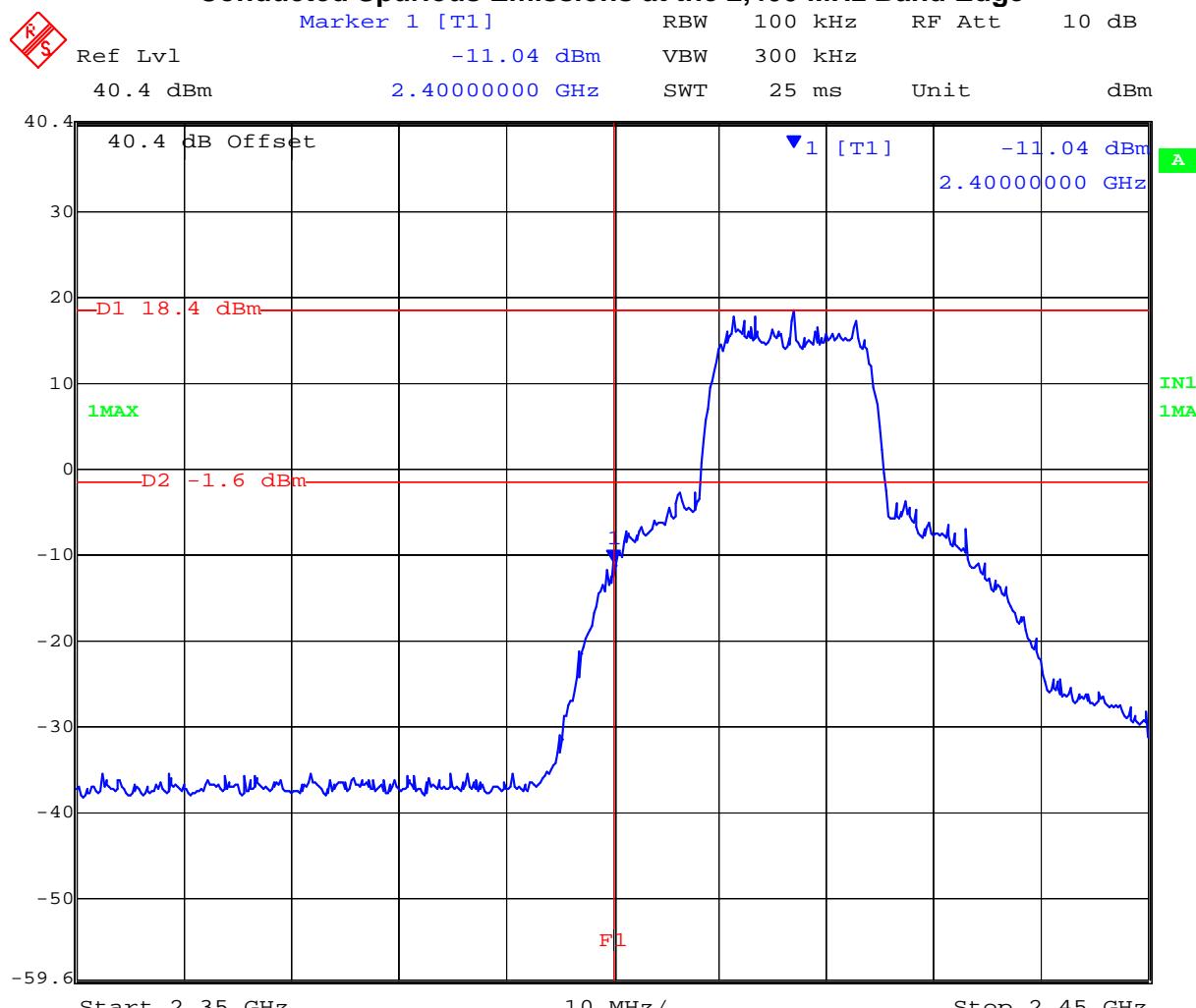
Date: 31.OCT.2005 13:34:41

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TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,417 | 2,400 | -1.60 | -11.04 | 57 | -9.44 |
| 2,465 | 2,483.5 | -2.50 | -36.88 | 58 | -34.38 |

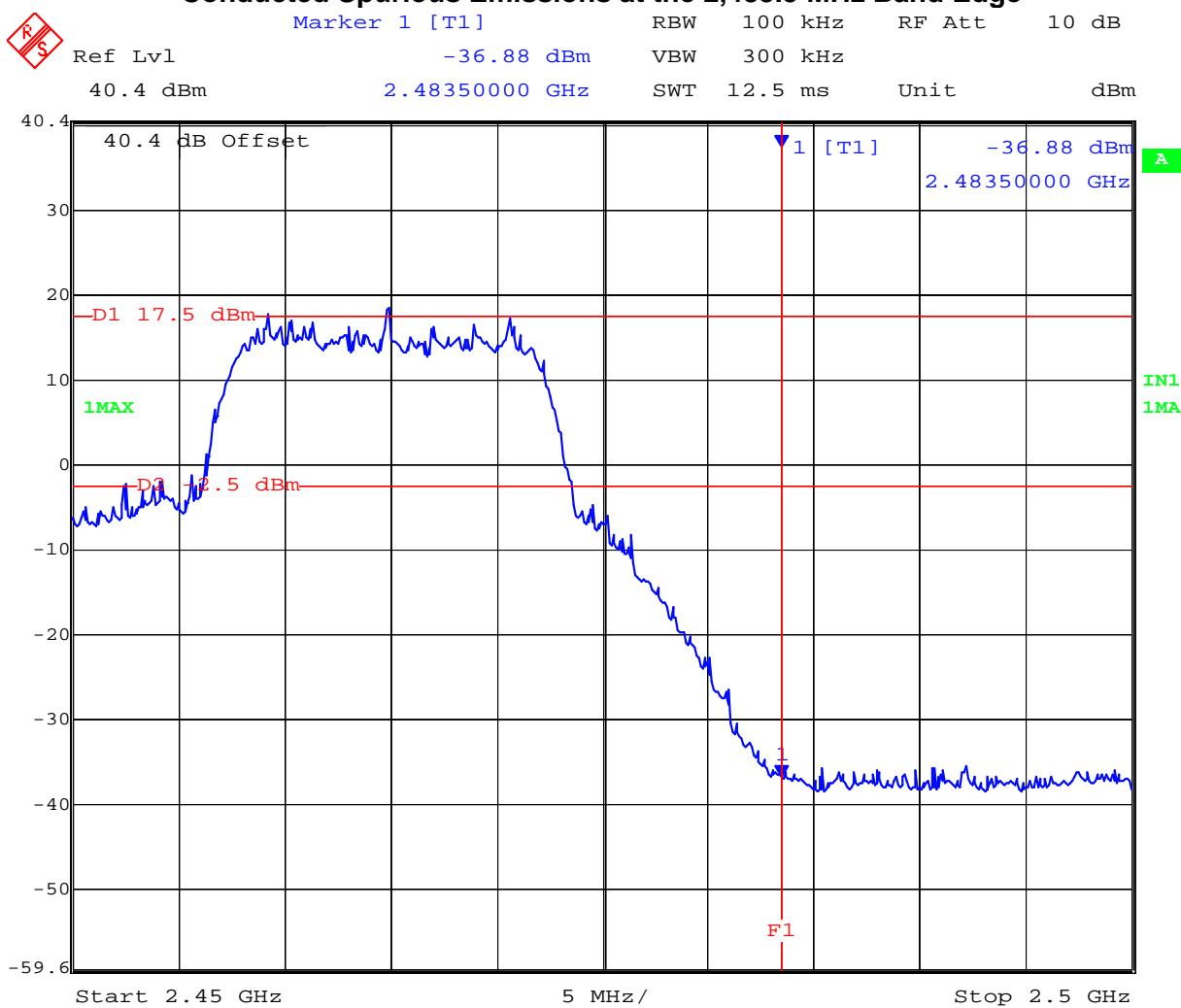
Plot 57
18 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions at the 2,400 MHz Band Edge



Date: 31.OCT.2005 13:27:30

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Plot 58
18 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



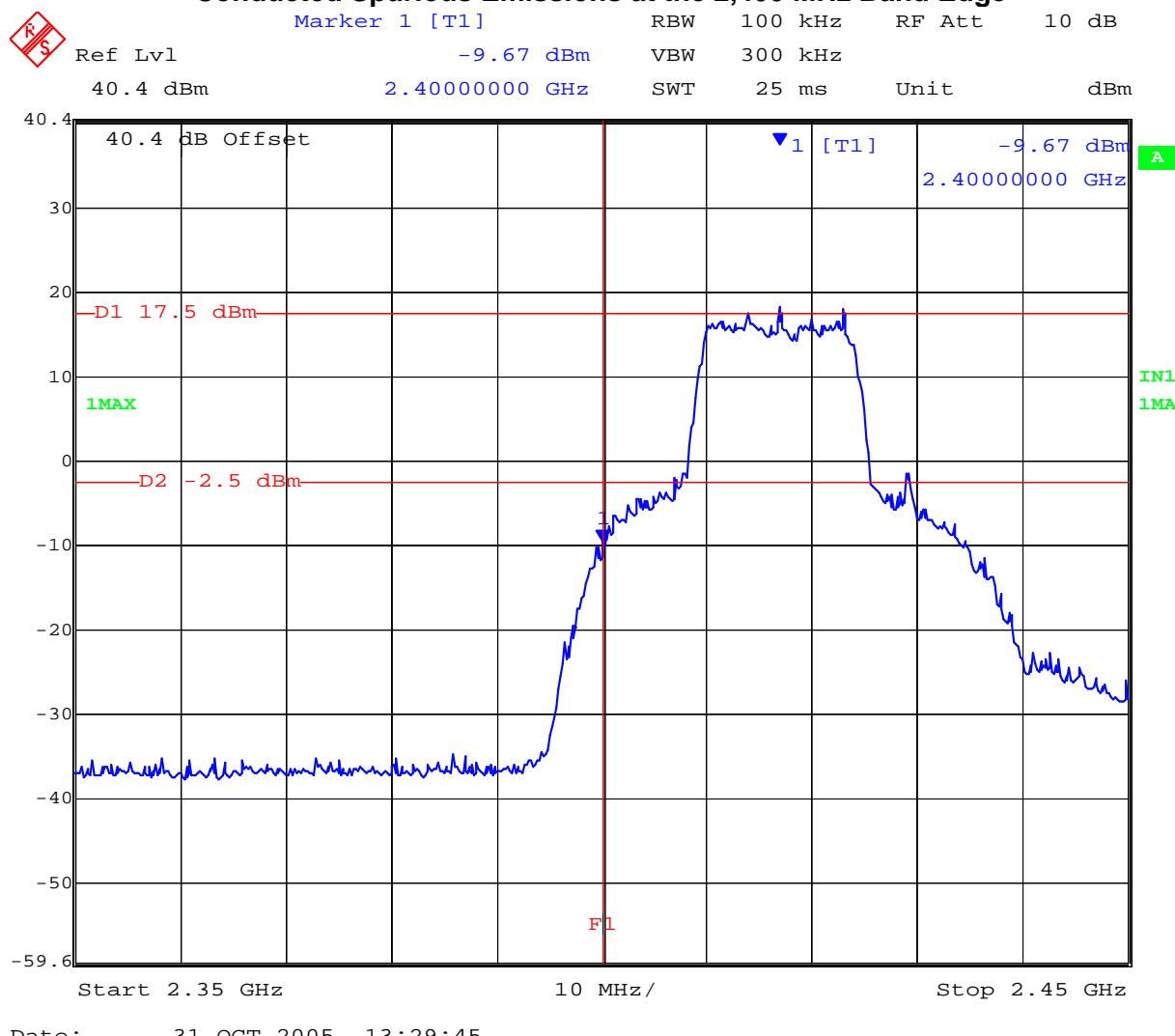
Date: 31.OCT.2005 13:36:37

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TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

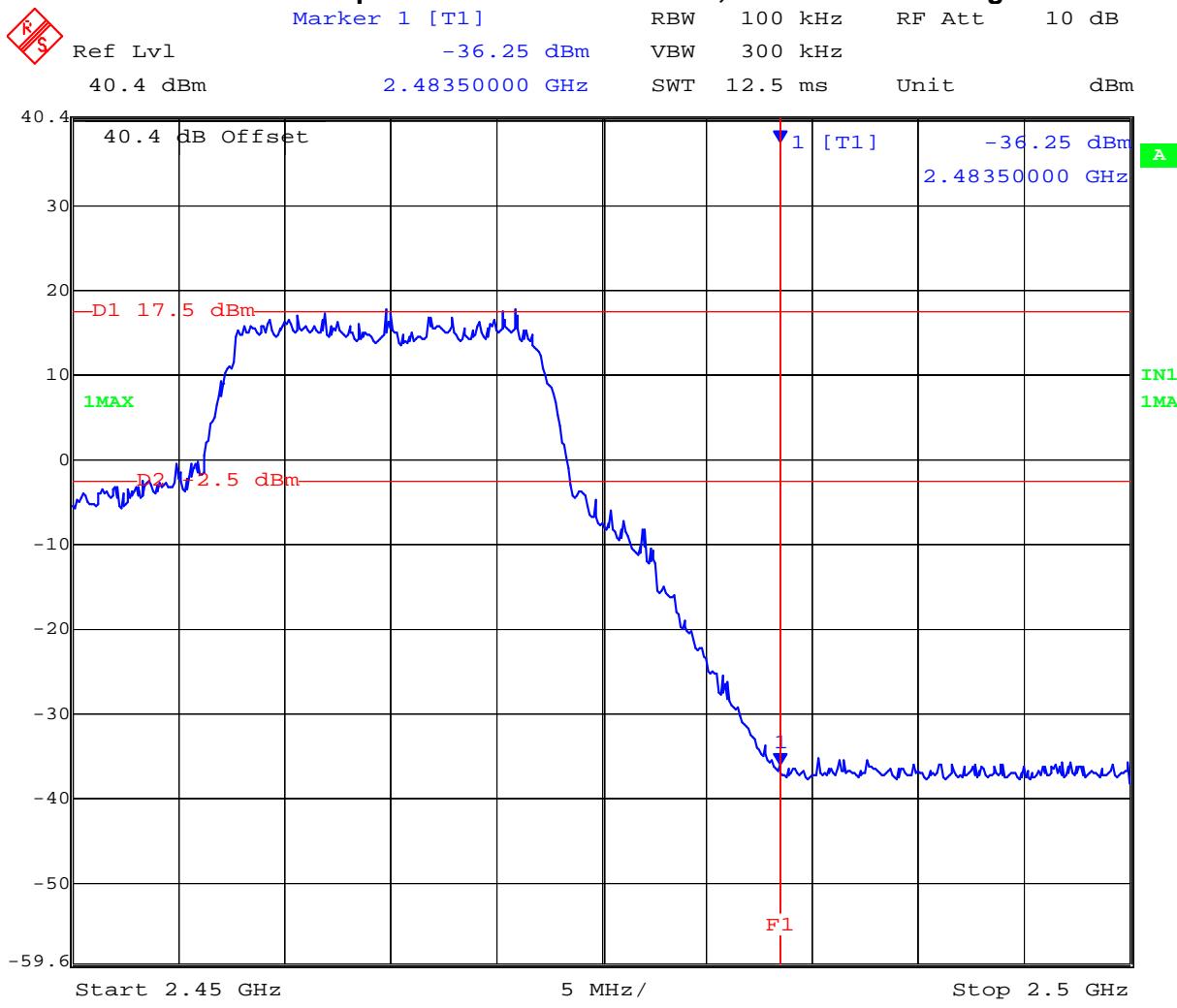
| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,417 | 2,400 | -2.50 | -9.67 | 59 | -7.17 |
| 2,465 | 2,483.5 | -2.50 | -36.25 | 60 | -33.75 |

Plot 59
18 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions at the 2,400 MHz Band Edge



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Plot 60
18 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



Date: 31.OCT.2005 13:38:44

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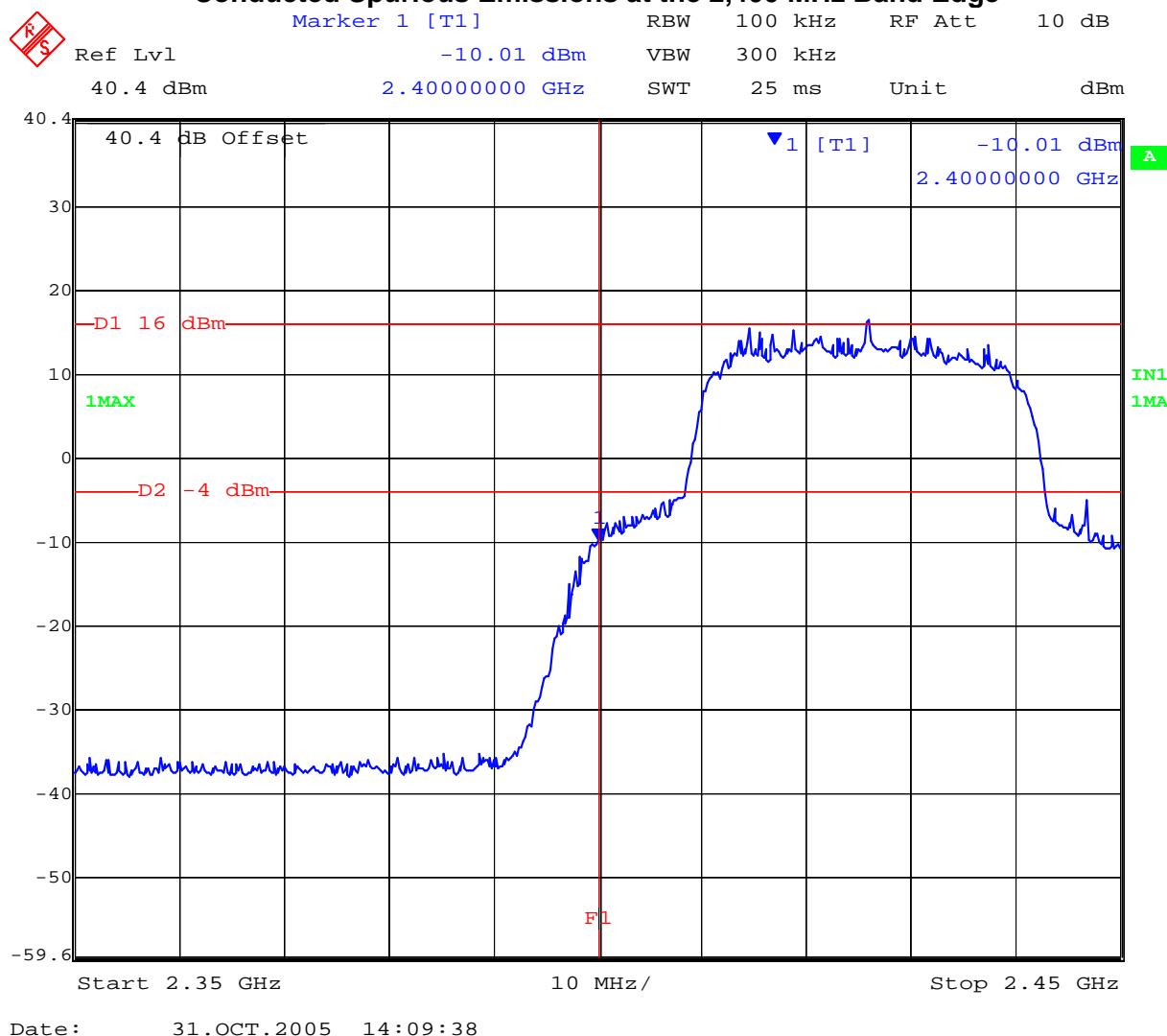
TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,426 | 2,400 | -4.00 | -10.01 | 61 | -6.01 |
| 2,455 | 2,483.5 | -4.90 | -36.50 | 62 | -31.60 |

Plot 61

36 MHz Bandwidth QPSK Modulation

Conducted Spurious Emissions at the 2,400 MHz Band Edge

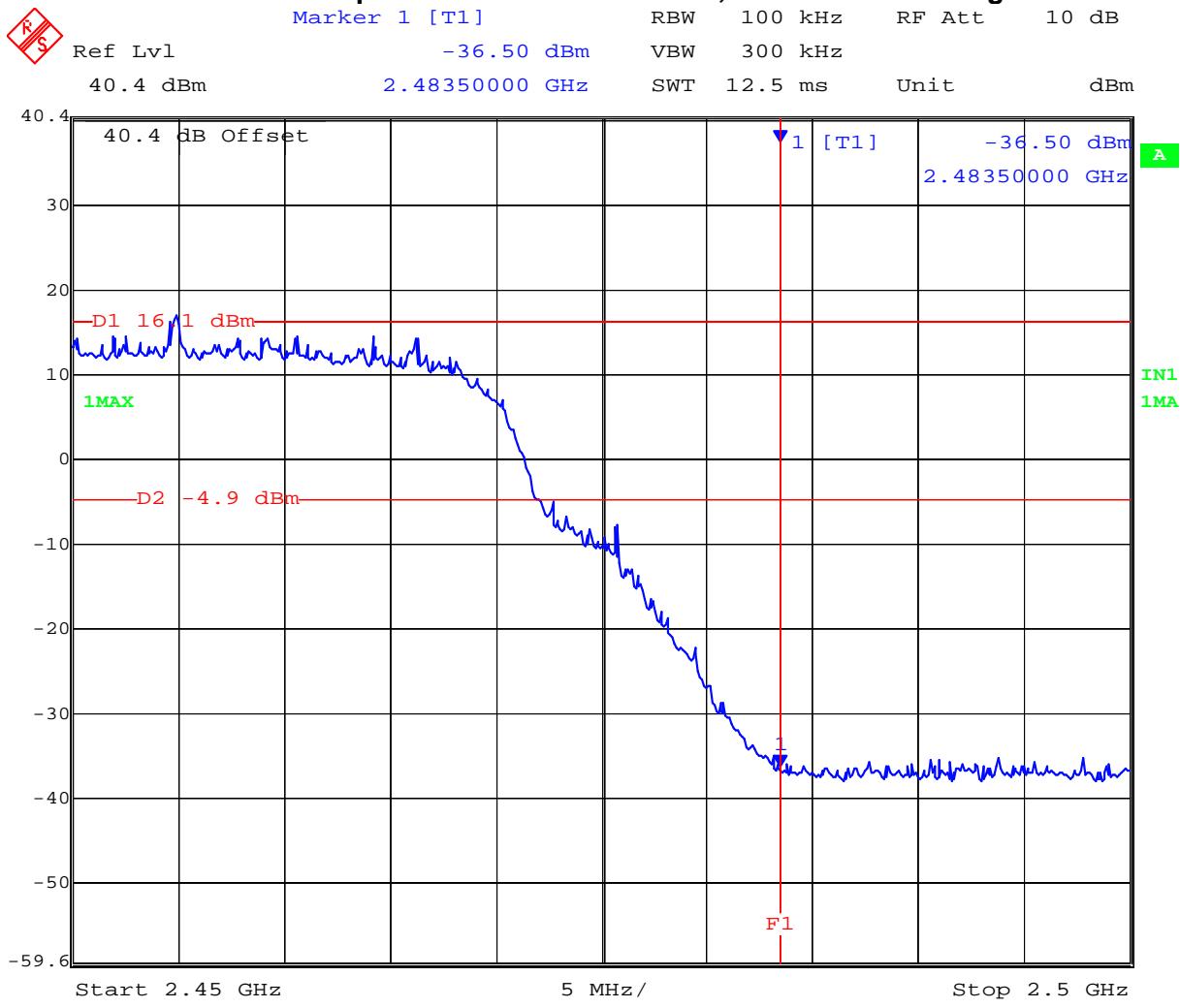


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Plot 62

36 MHz Bandwidth QPSK Modulation

Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



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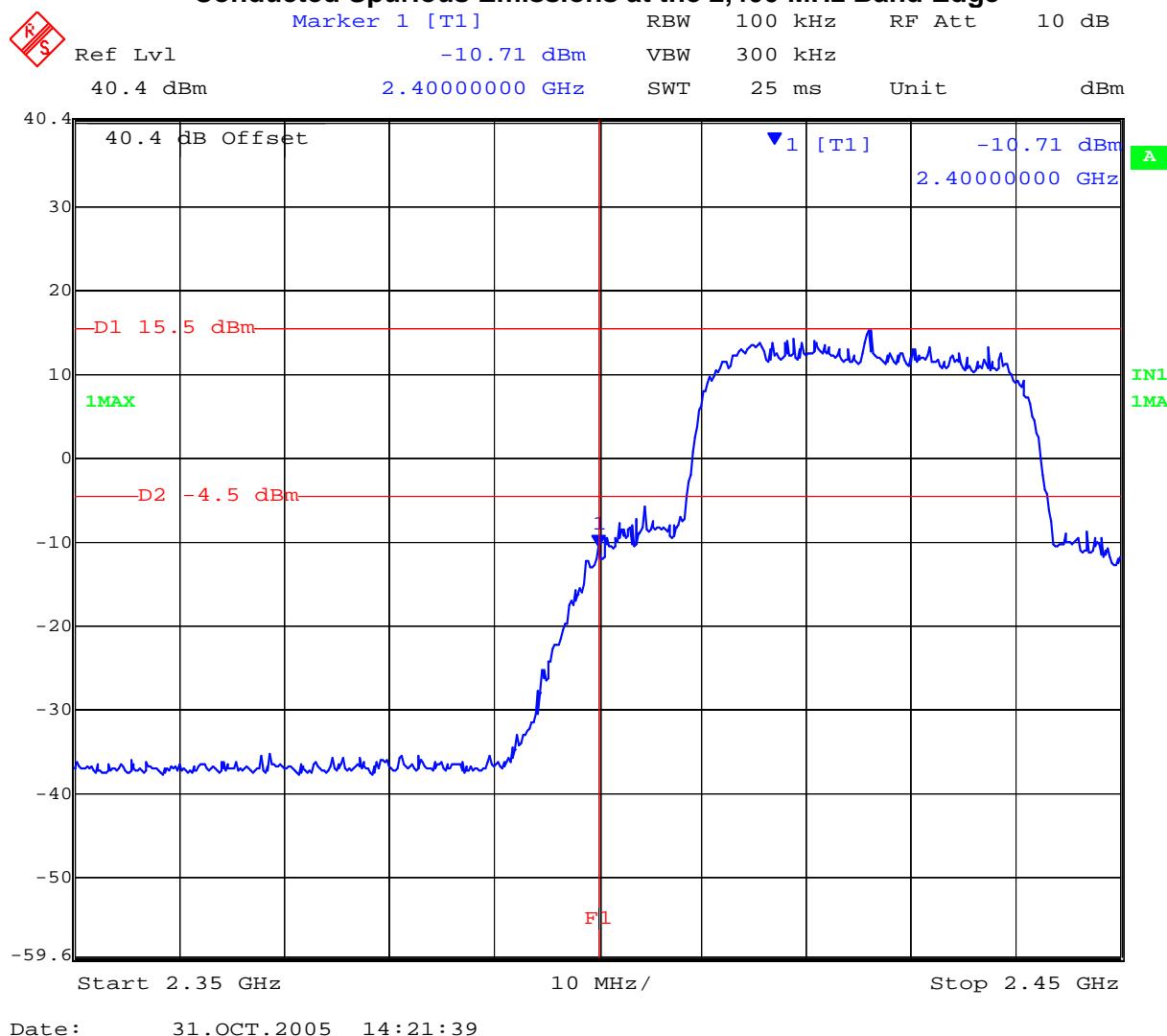
TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,426 | 2,400 | -4.50 | -10.71 | 63 | -6.21 |
| 2,455 | 2,483.5 | -4.40 | -37.19 | 64 | -32.79 |

Plot 63

36 MHz Bandwidth 16QAM Modulation

Conducted Spurious Emissions at the 2,400 MHz Band Edge

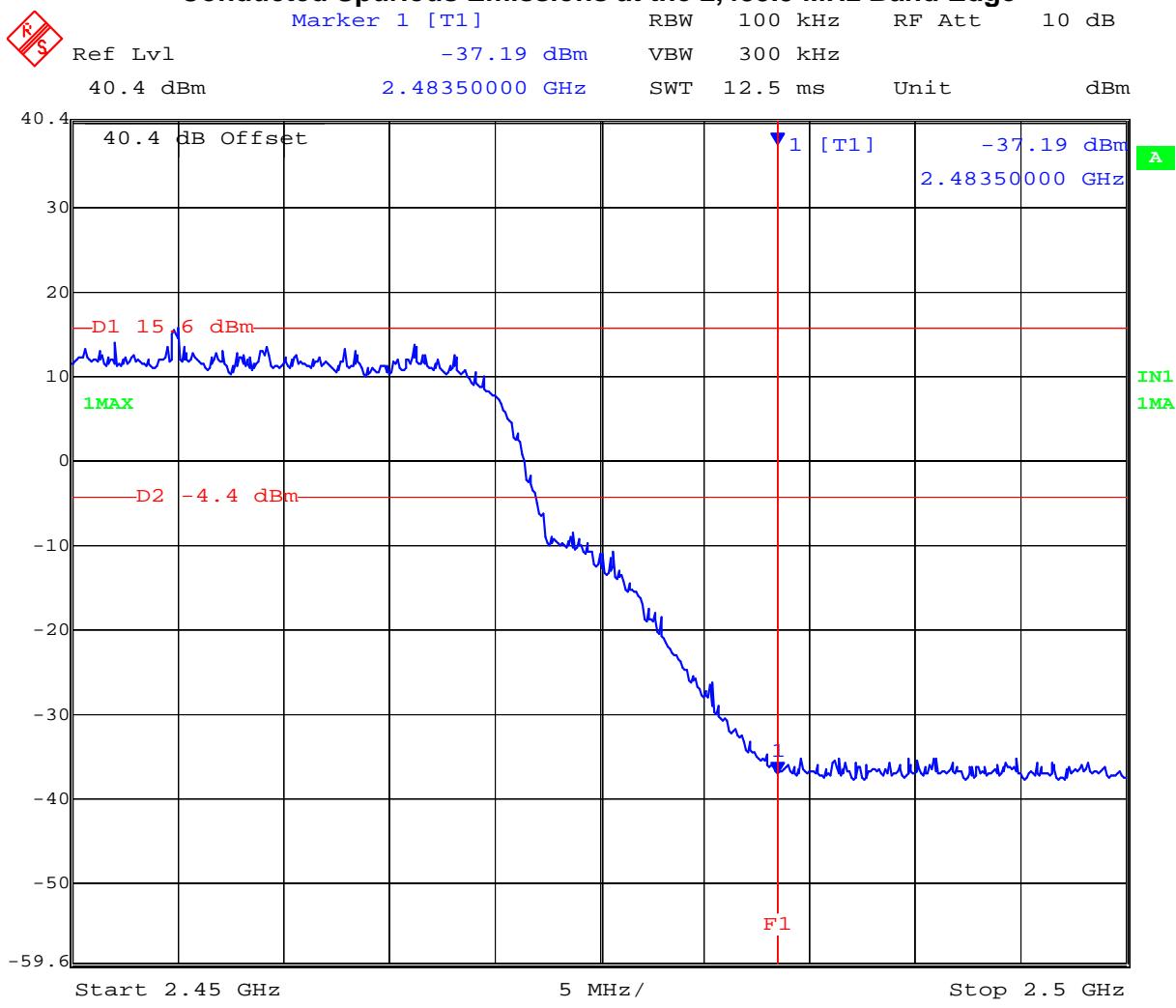


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Plot 64

36 MHz Bandwidth 16QAM Modulation

Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



Date: 31.OCT.2005 14:34:39

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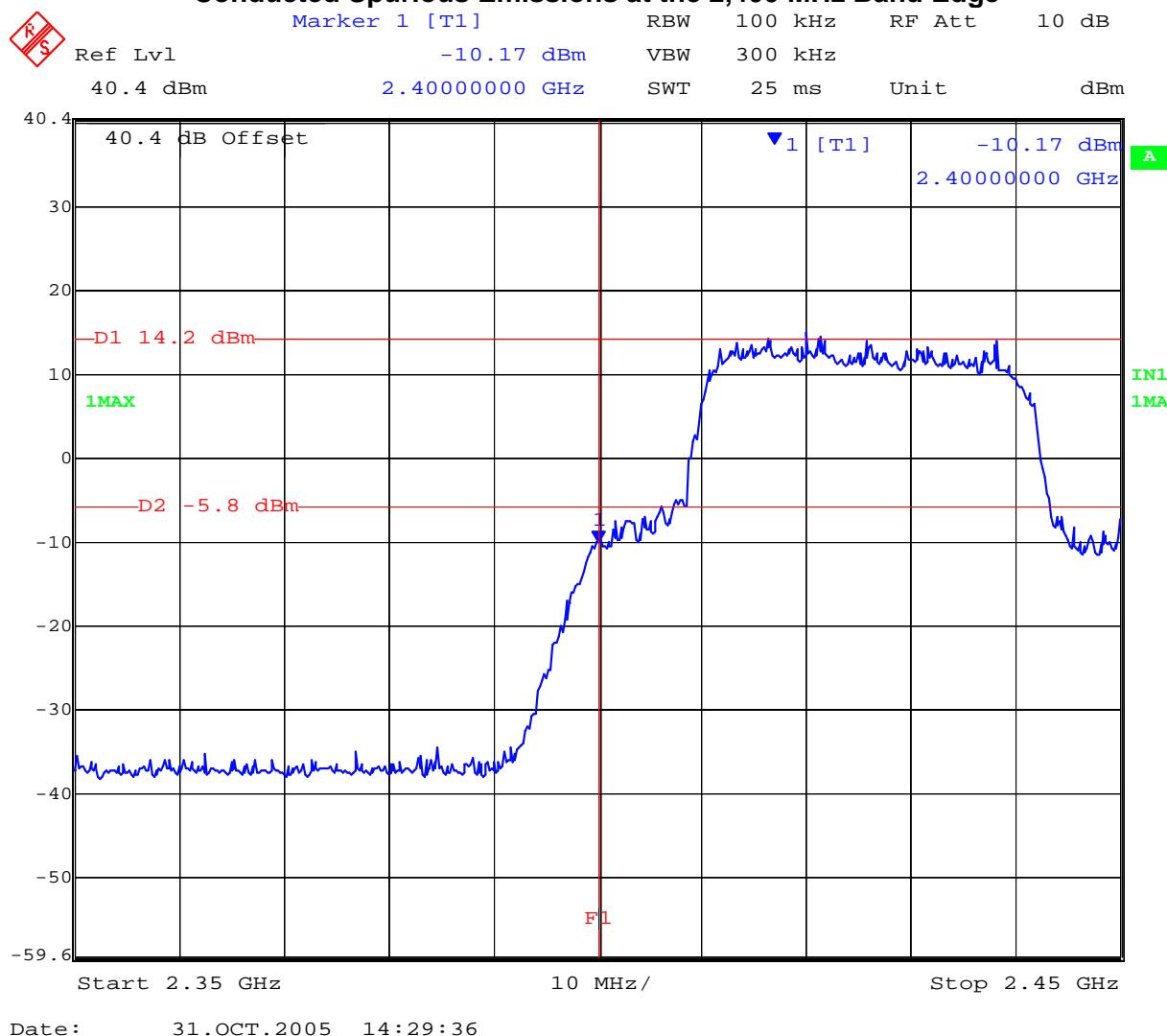
TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,426 | 2,400 | -5.80 | -10.17 | 65 | -4.37 |
| 2,455 | 2,483.5 | -5.60 | -36.52 | 66 | -30.92 |

Plot 65

36 MHz Bandwidth 64QAM Modulation

Conducted Spurious Emissions at the 2,400 MHz Band Edge

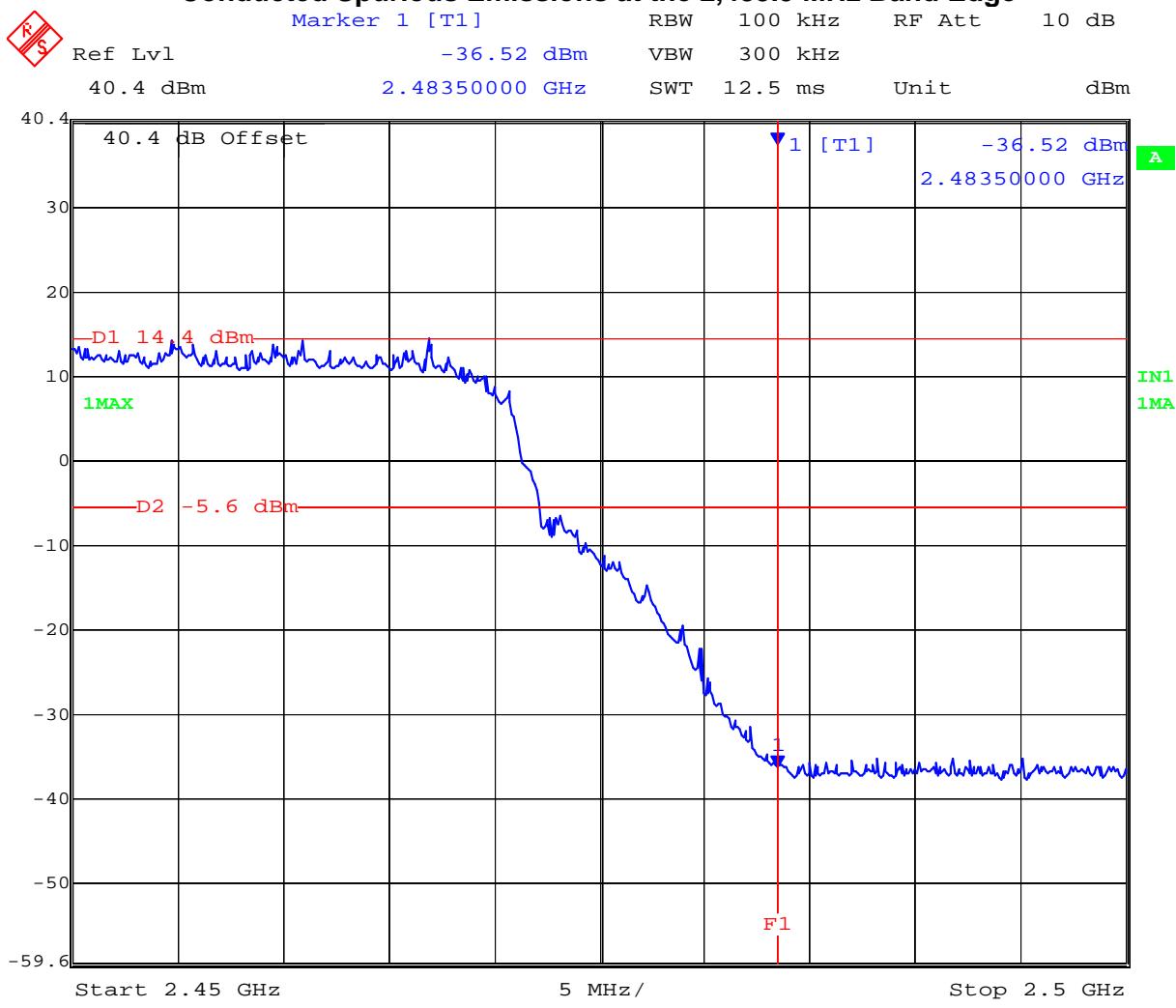


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Plot 66

36 MHz Bandwidth 64QAM Modulation

Conducted Spurious Emissions at the 2,483.5 MHz Band Edge



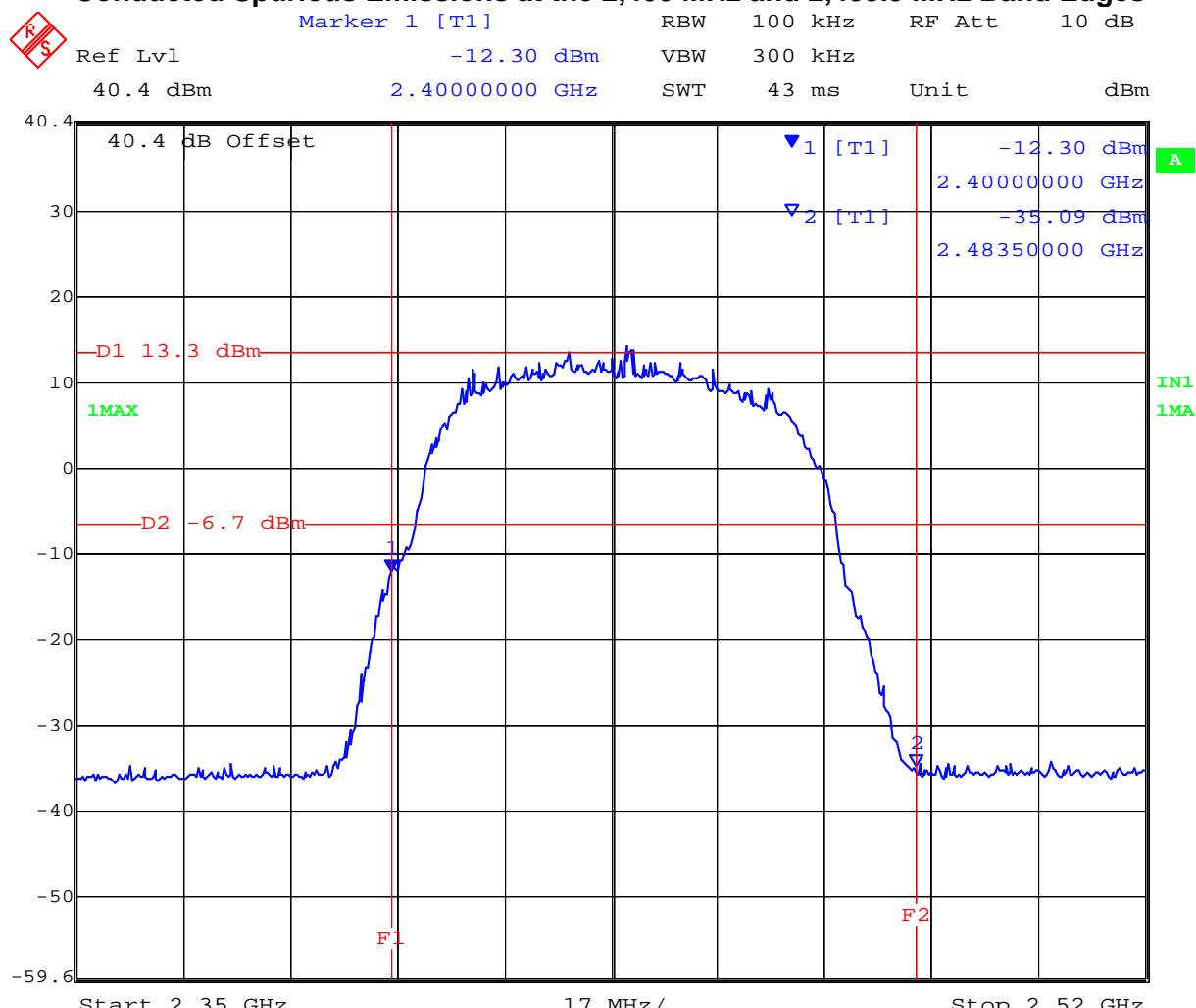
Date: 31.OCT.2005 14:36:42

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TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,437 | 2,400 | -6.70 | -12.30 | 67 | -5.60 |
| | 2,483.5 | -6.70 | -35.09 | 67 | -28.39 |

Plot 67
72 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions at the 2,400 MHz and 2,483.5 MHz Band Edges



Date: 31.OCT.2005 15:02:29

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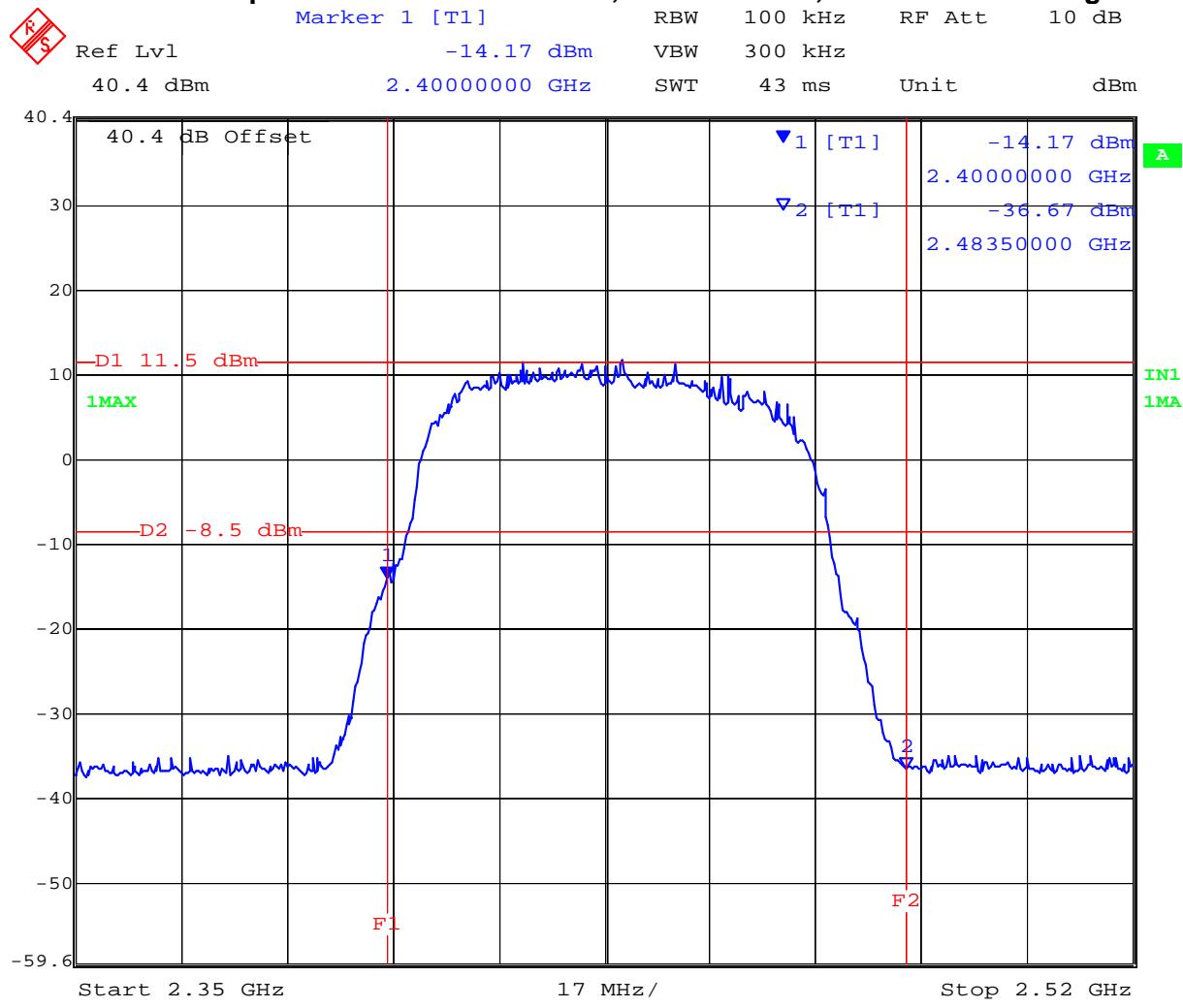
TABLE OF RESULTS – 72 MHz Bandwidth 16QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,437 | 2,400 | -8.50 | -14.17 | 68 | -5.67 |
| | 2,483.5 | -8.50 | -36.67 | 68 | -28.17 |

Plot 68

72 MHz Bandwidth 16QAM Modulation

Conducted Spurious Emissions at the 2,400 MHz and 2,483.5 MHz Band Edges



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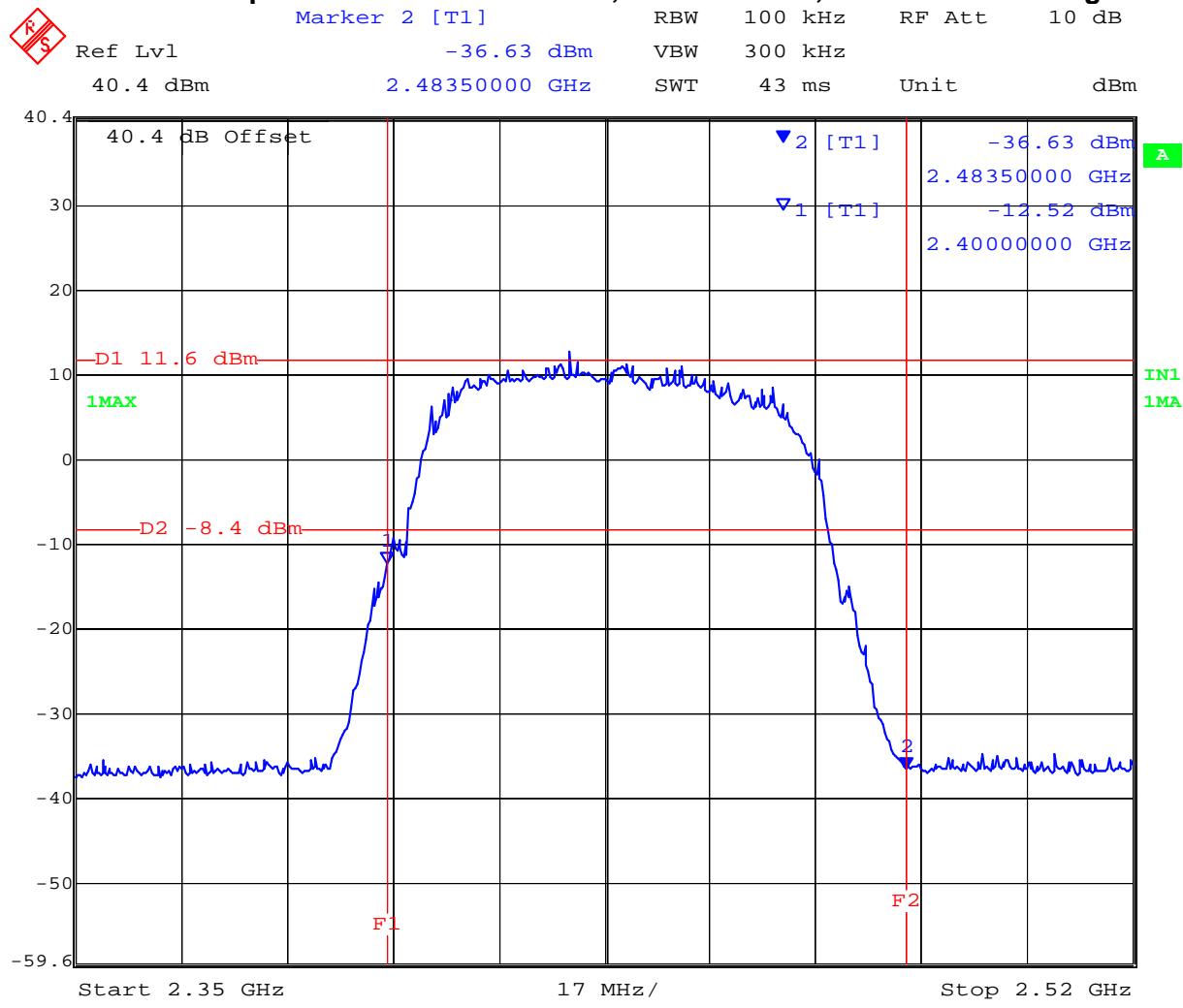
TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

| Center Frequency (MHz) | Band edge Frequency (MHz) | Limit (20 dB below peak of fundamental) | Amplitude @ Band edge (dBm) | Plot # | Margin (dB) |
|------------------------|---------------------------|---|-----------------------------|--------|-------------|
| 2,437 | 2,400 | -8.40 | -12.52 | 69 | -4.12 |
| | 2,483.5 | -8.40 | -36.63 | 69 | -28.23 |

Plot 69

72 MHz Bandwidth 64QAM Modulation

Conducted Spurious Emissions at the 2,400 MHz and 2,483.5 MHz Band Edges



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Conducted Spurious Emissions (1-26 GHz)

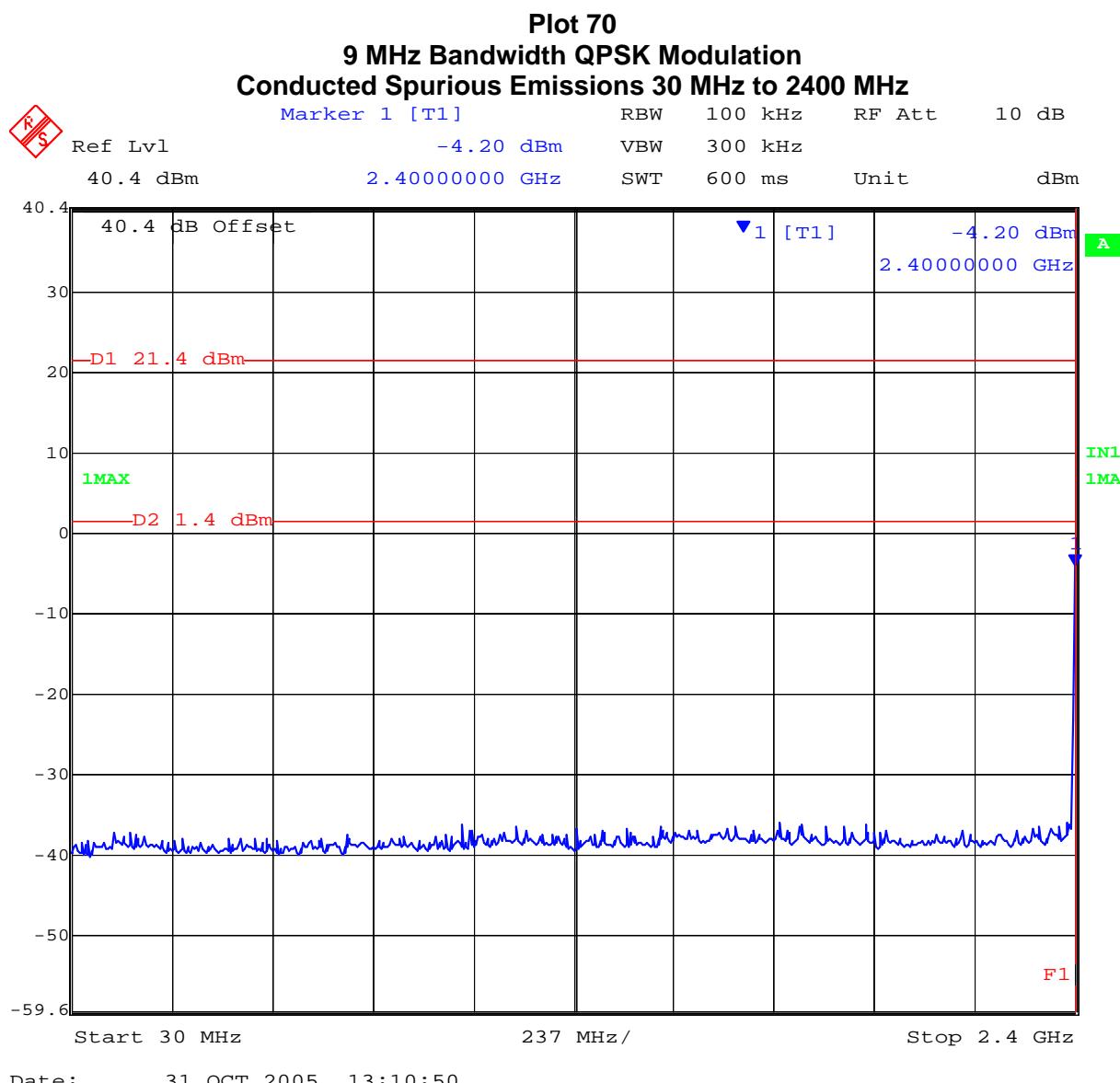
Conducted spurious emissions (1-26 GHz) are provided indicated by the following matrix. Measurements were performed with the transmitter tuned to the channel closest to the band-edge being measured. All emissions were maximized during measurement. Limits which were derived from the band-edge measurements provided below are drawn on each plot.

Conducted Spurious Emissions were measured for each modulation scheme, QPSK, 16QAM and 64QAM for each bandwidth.

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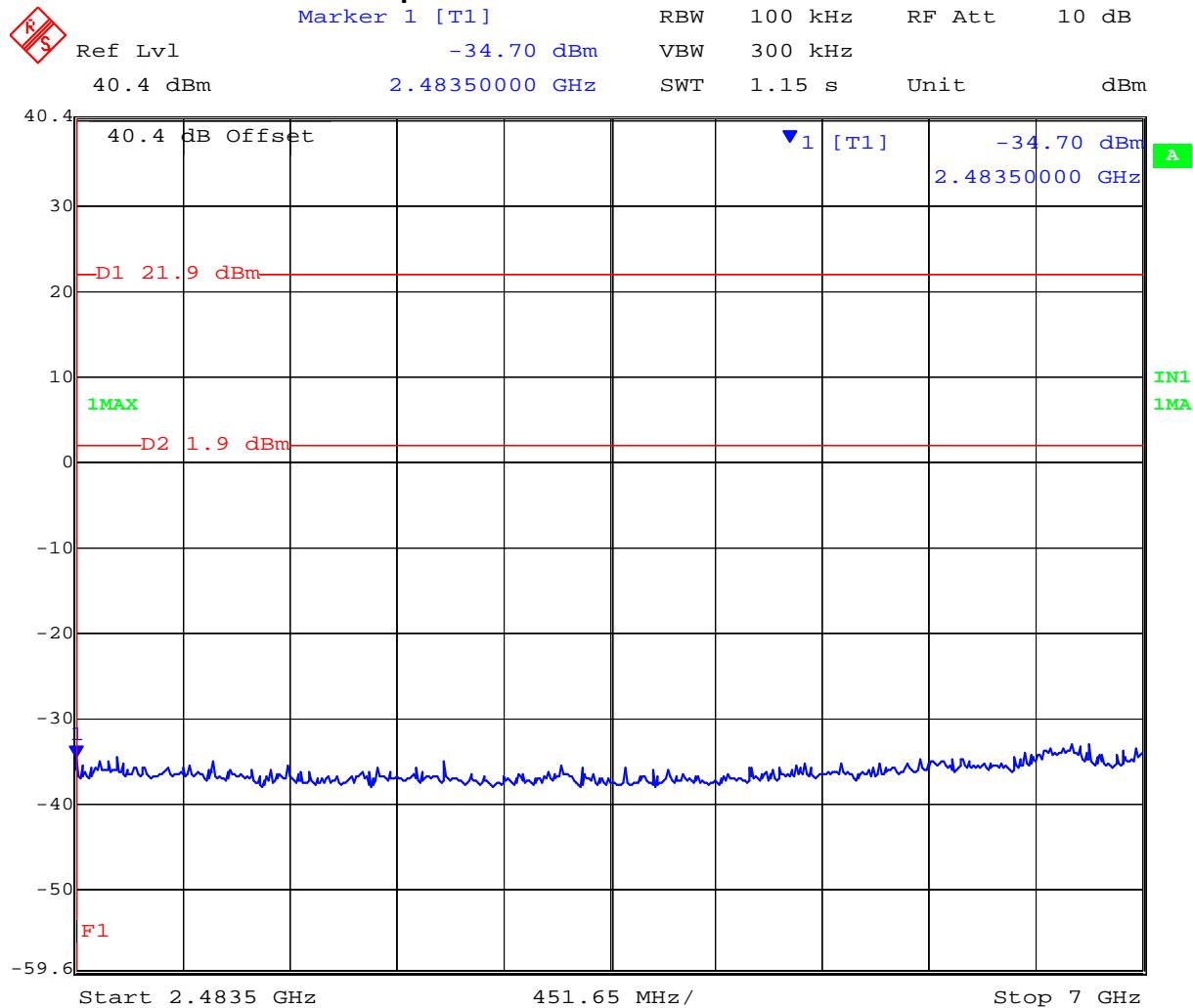
TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -4.20 | 1.4 | 70 | -5.60 |
| 2,437 | 2483.5 | 7000 | -34.7 | 1.9 | 71 | -36.6 |
| 2,437 | 7000 | 26000 | -26.83 | 1.9 | 72 | -28.73 |



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Plot 71
9 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



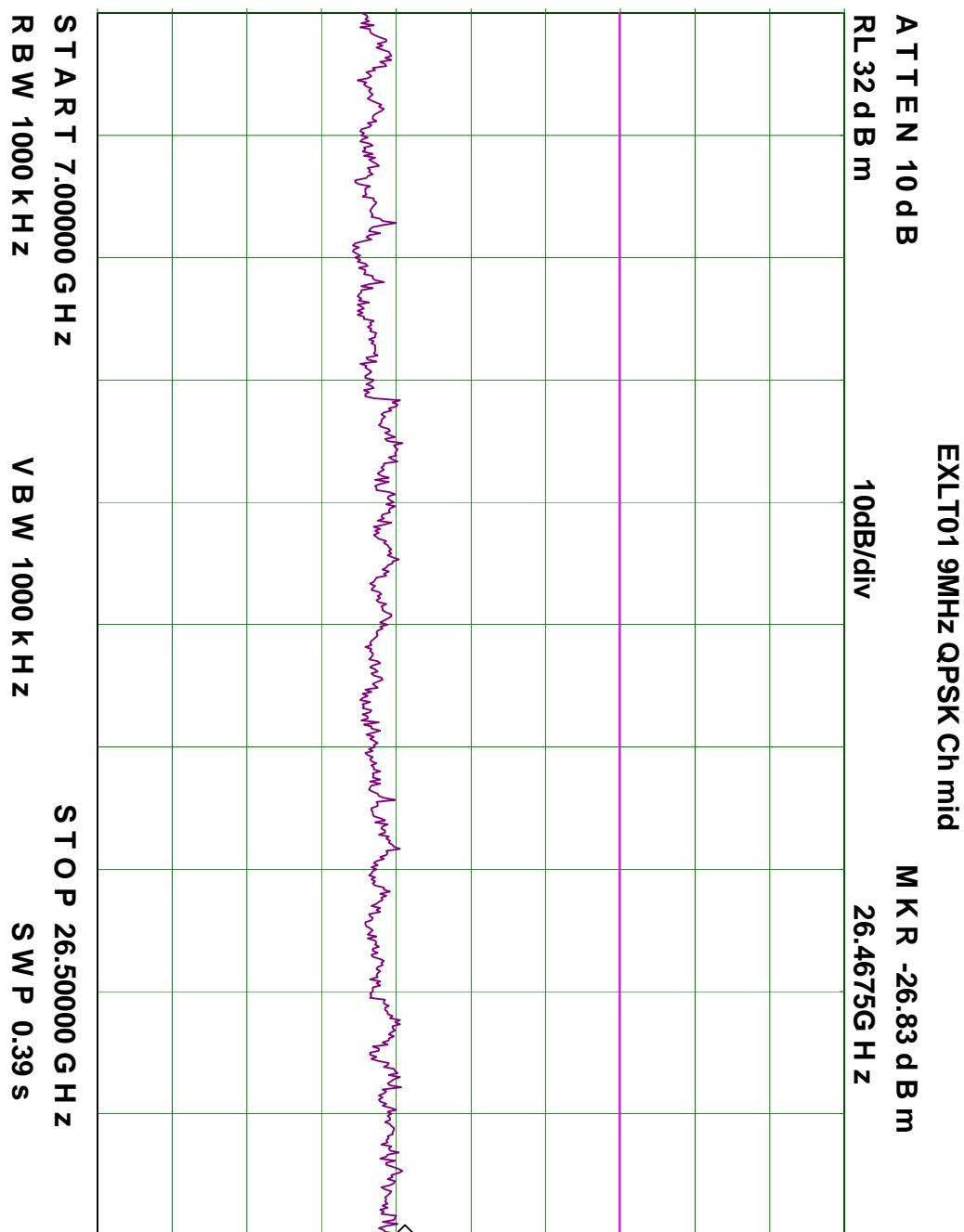
Date: 31.OCT.2005 13:15:39

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Plot 72
9 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

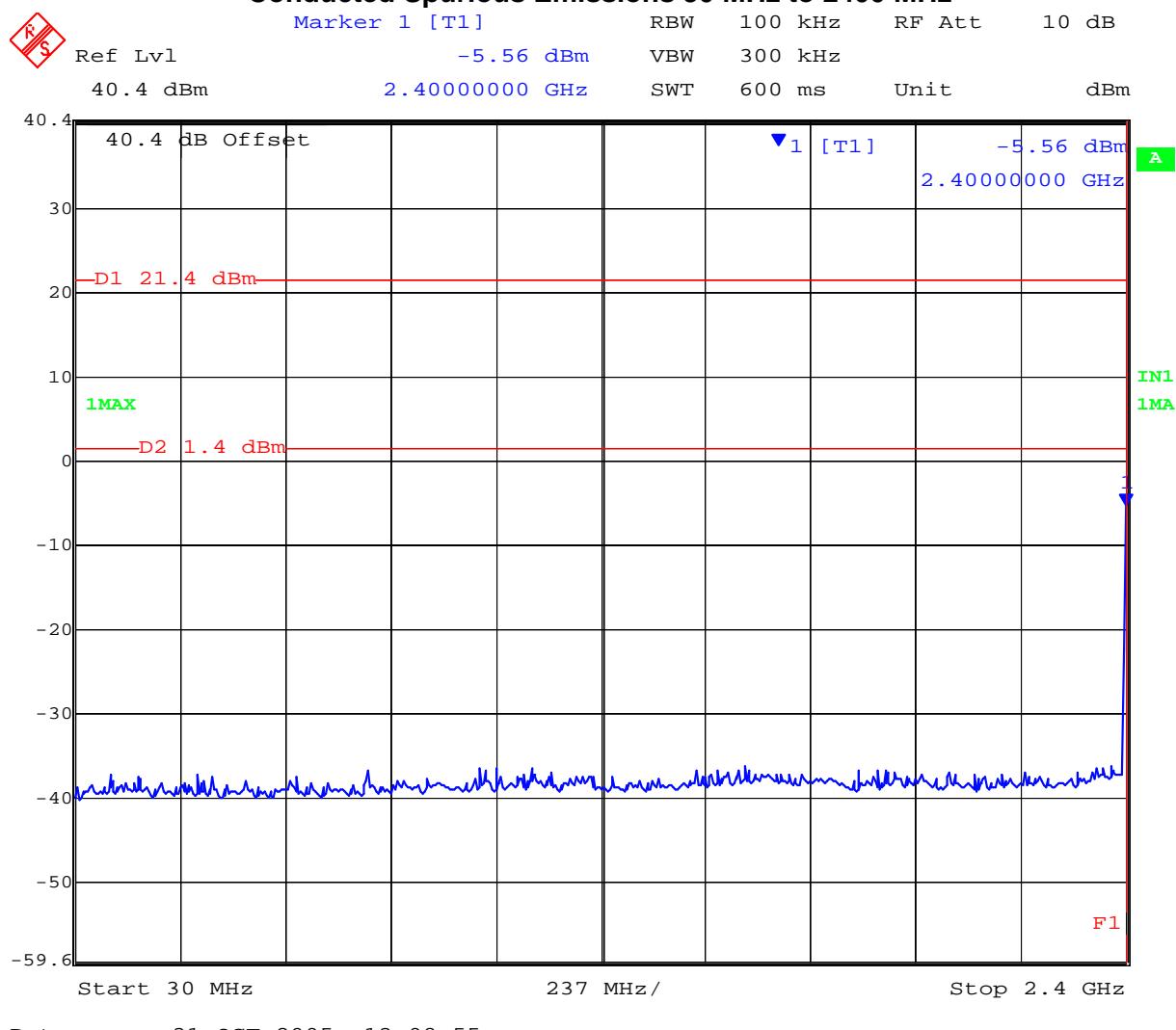


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TABLE OF RESULTS – 9 MHz Bandwidth 16QAM Modulation

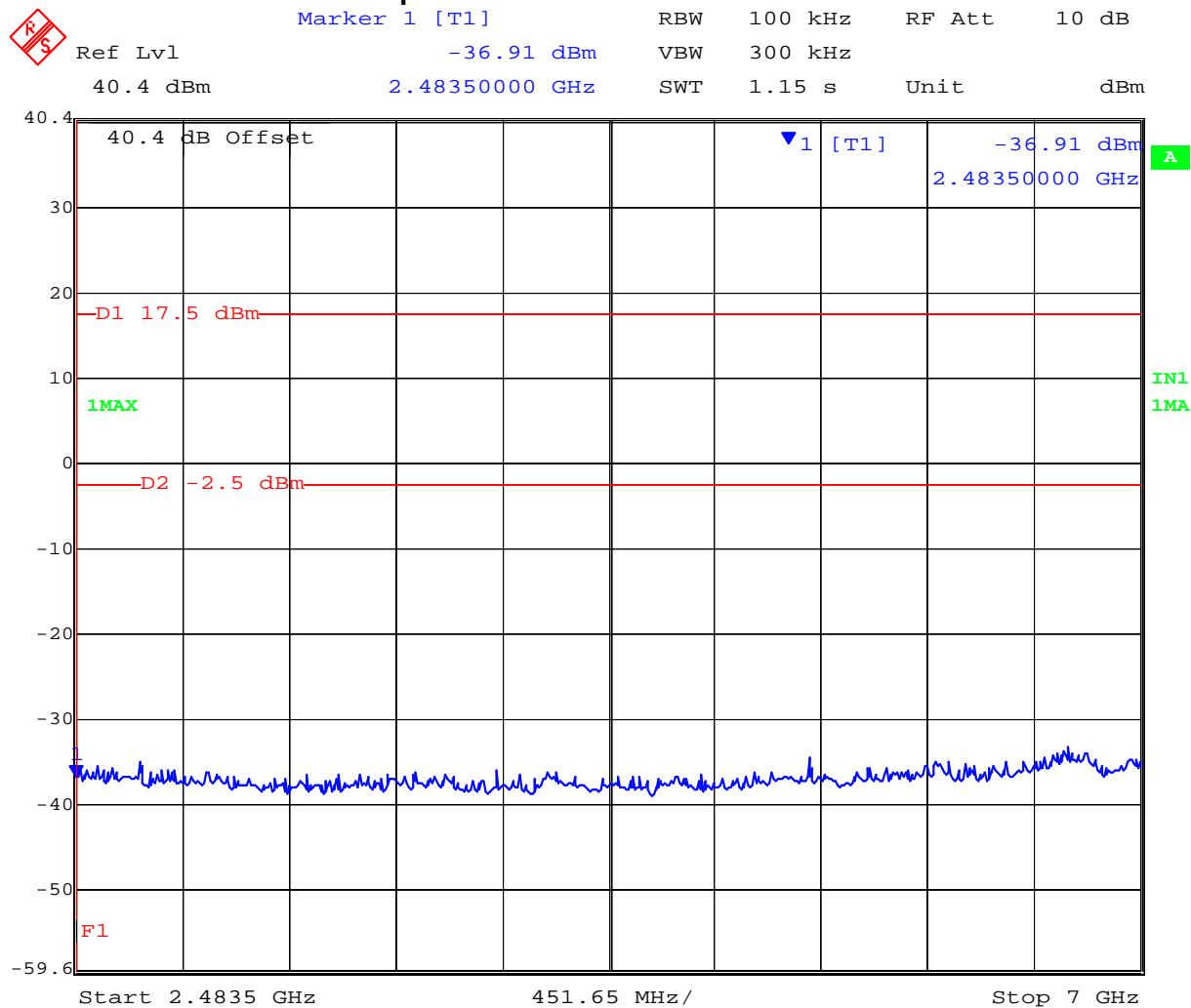
| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -5.56 | 1.4 | 73 | -6.96 |
| 2,437 | 2483.5 | 7000 | -36.91 | -2.5 | 74 | -34.41 |
| 2,437 | 7000 | 26000 | -25.66 | -2.5 | 75 | -23.16 |

Plot 73
9 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



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Plot 74
9 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



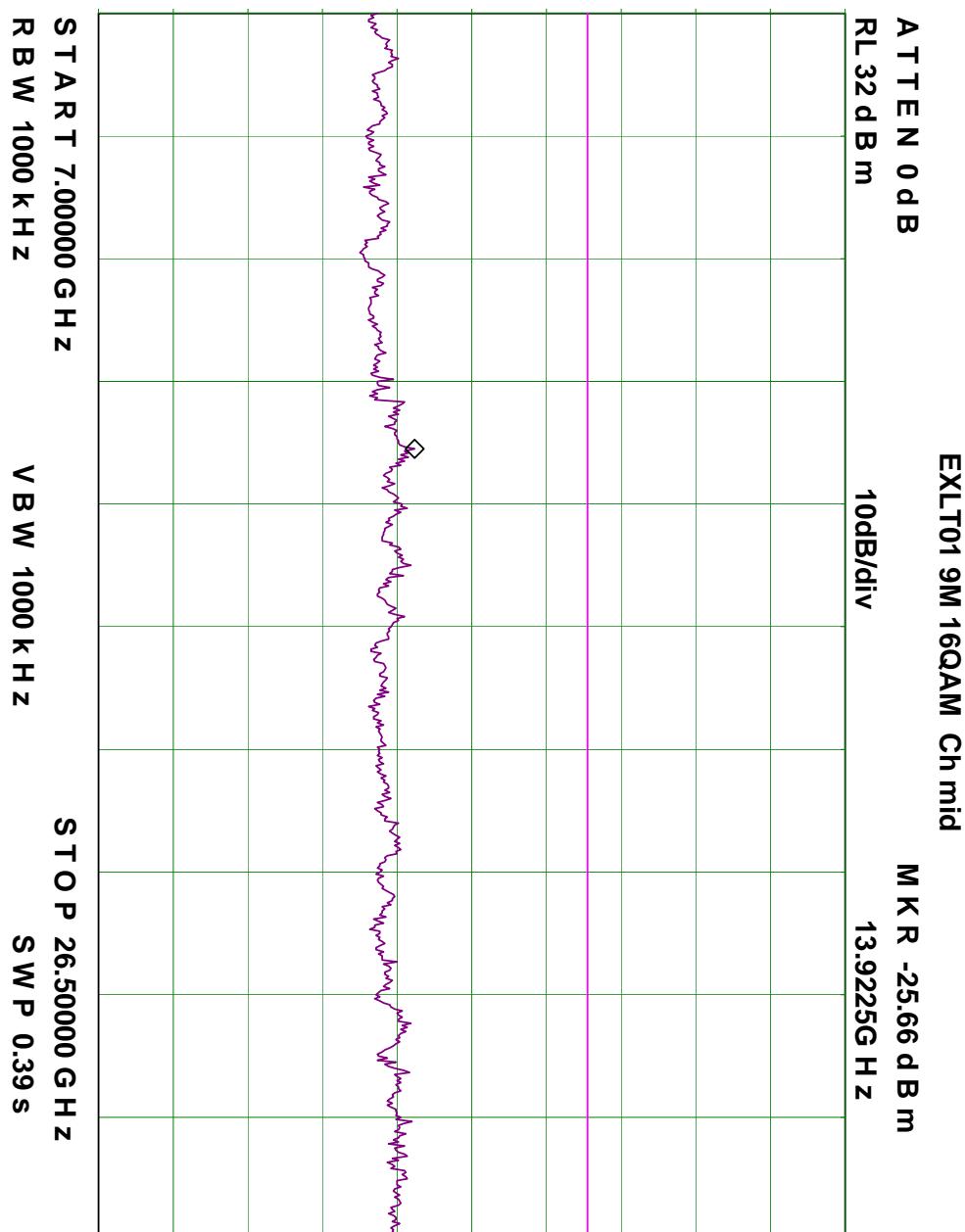
Date: 31.OCT.2005 13:37:28

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Plot 75
9 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

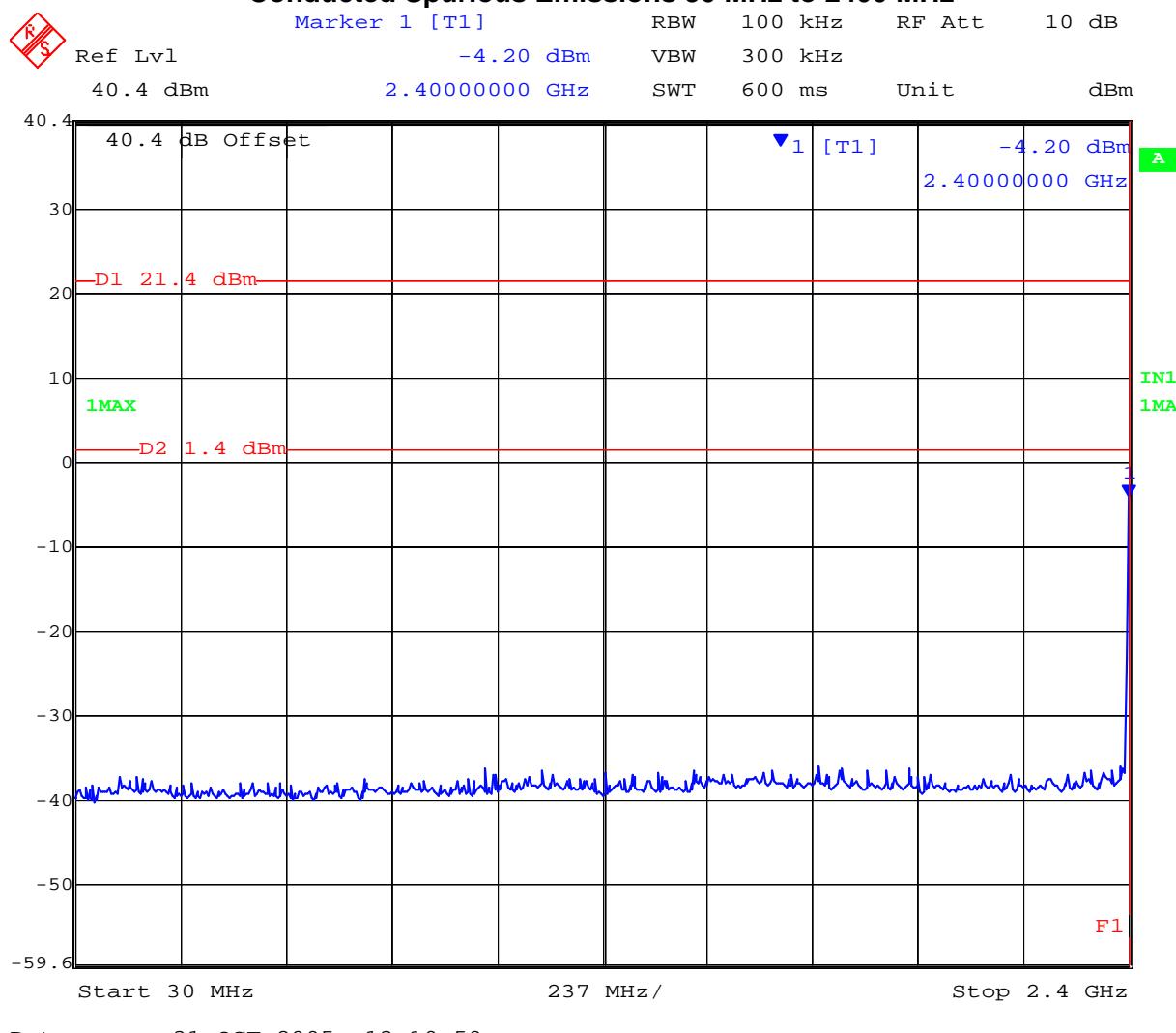


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TABLE OF RESULTS – 9 MHz Bandwidth 64QAM Modulation

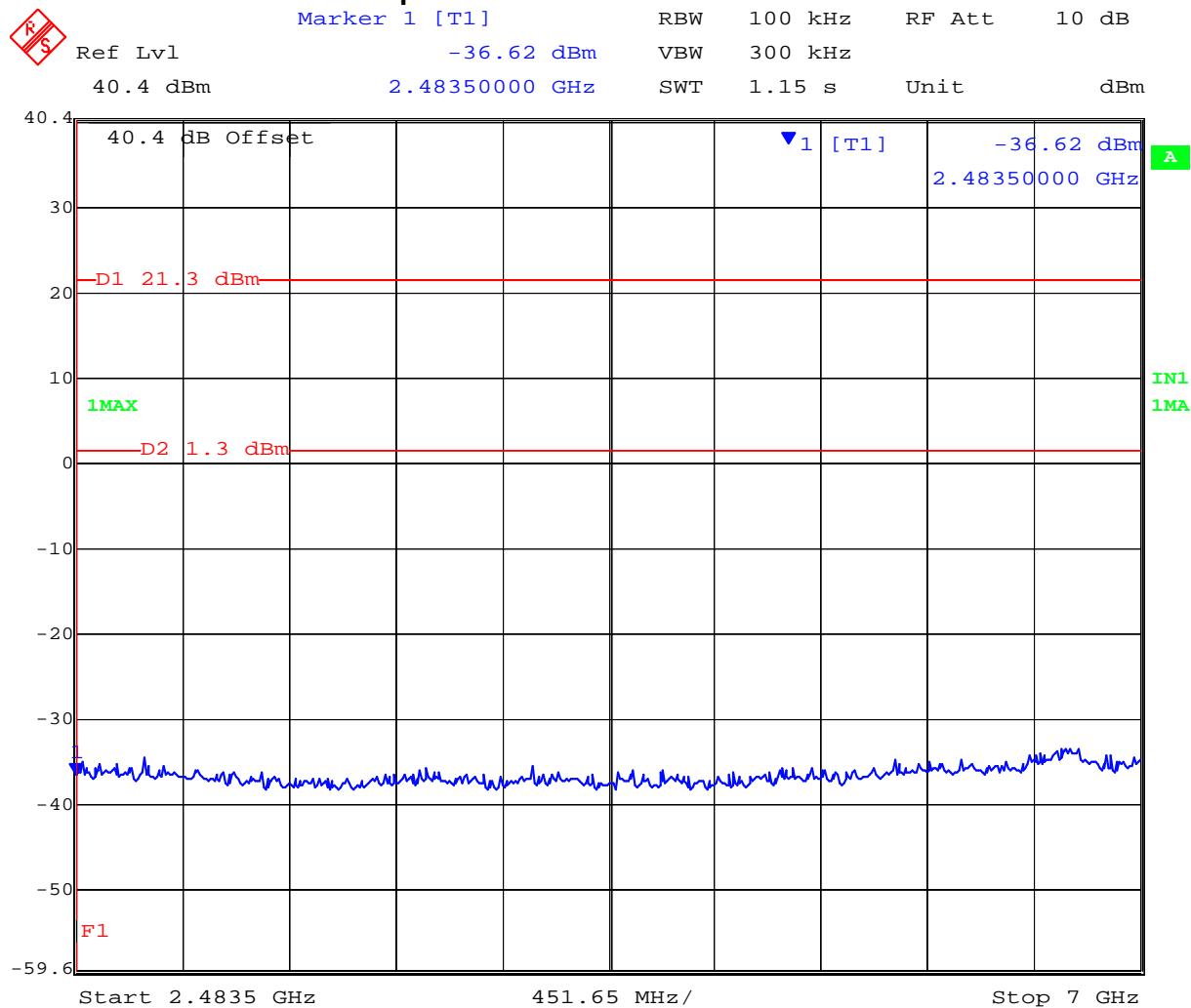
| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -4.20 | 1.4 | 76 | -5.6 |
| 2,437 | 2483.5 | 7000 | -36.62 | 1.3 | 77 | -37.92 |
| 2,437 | 7000 | 26000 | -26.33 | 1.3 | 78 | -27.63 |

Plot 76
9 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



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Plot 77
9 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



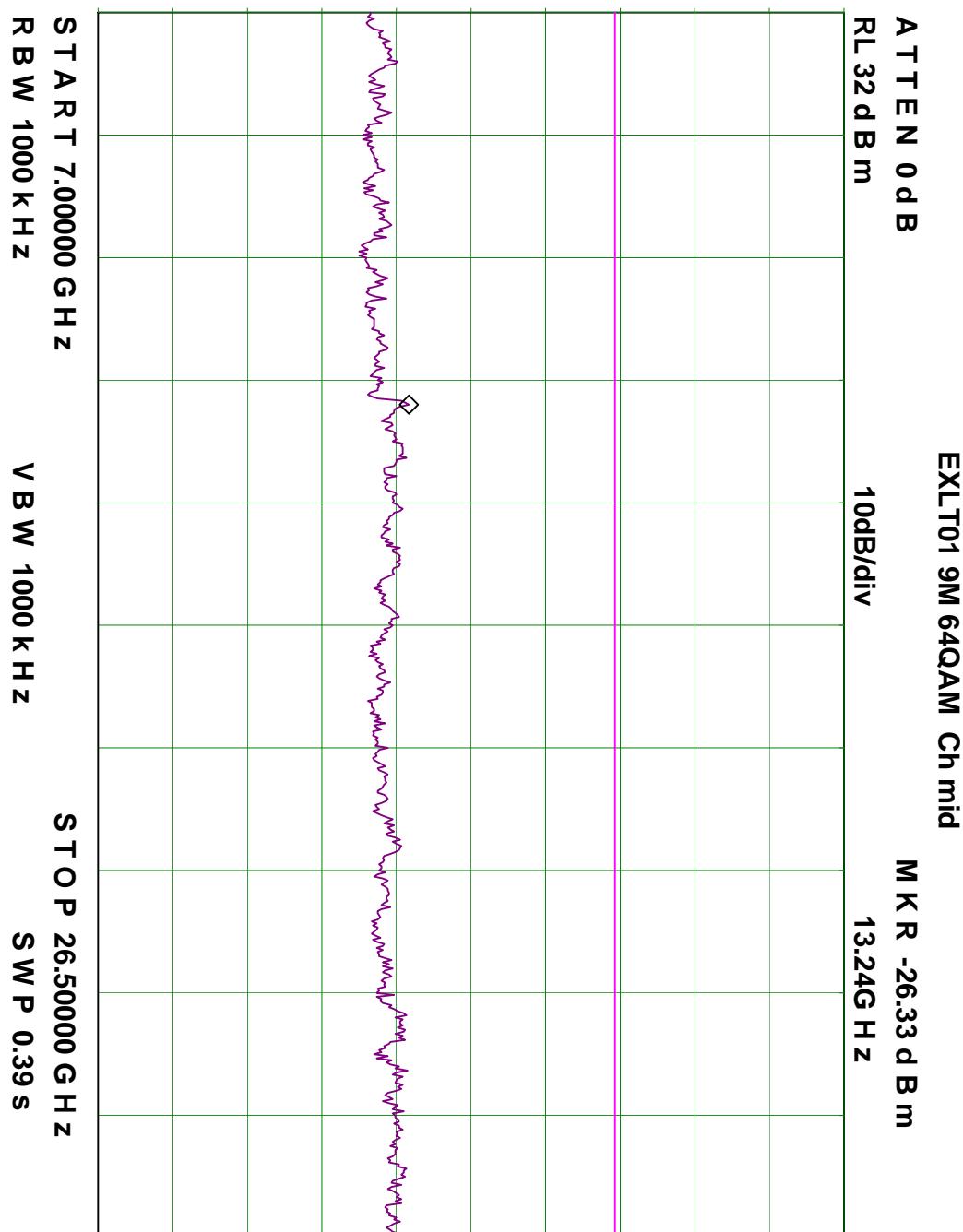
Date: 31.OCT.2005 14:04:18

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Plot 78
9 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

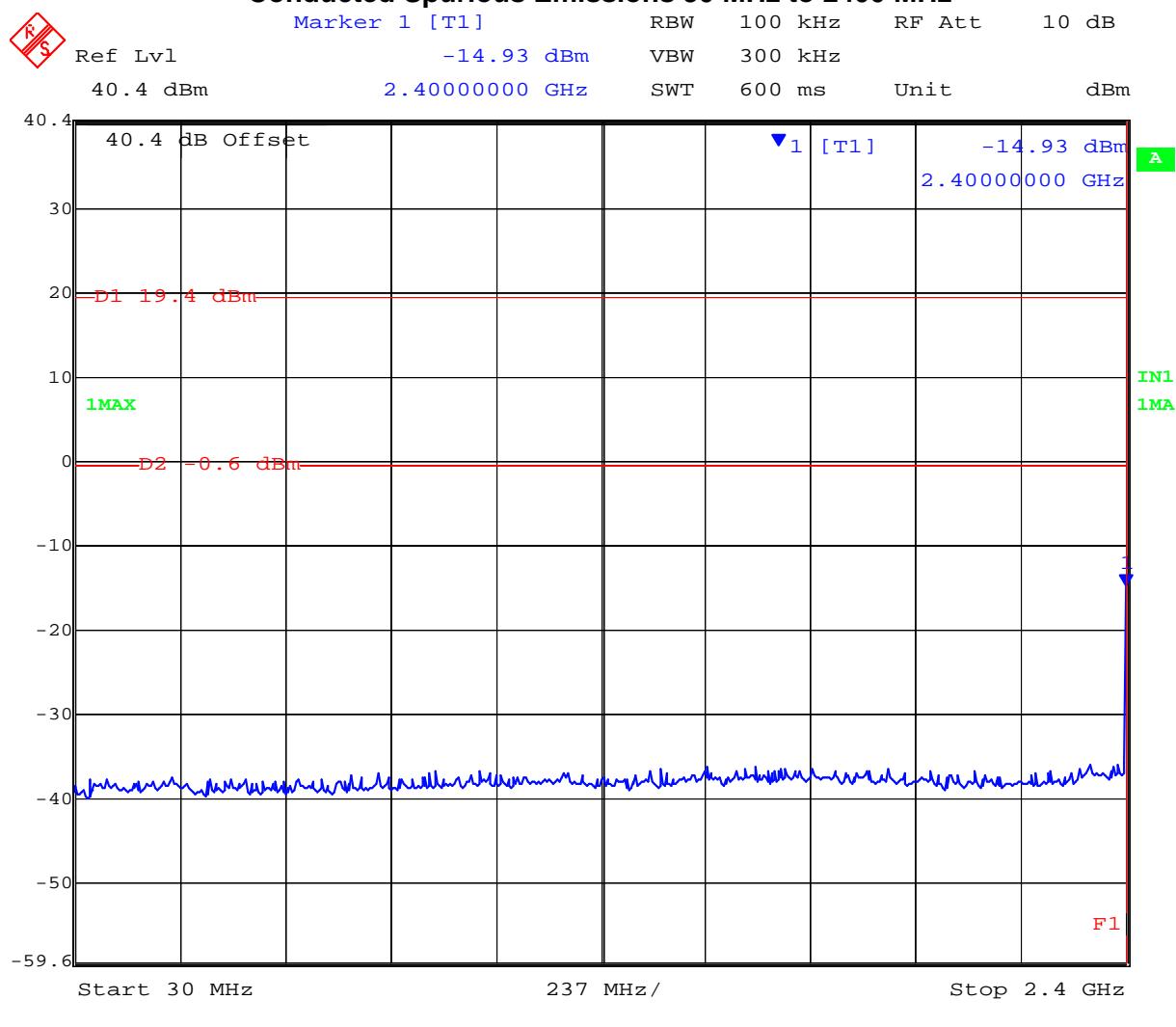


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TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -14.93 | -0.6 | 79 | -14.33 |
| 2,437 | 2483.5 | 7000 | -36.39 | -2.5 | 80 | -33.89 |
| 2,437 | 7000 | 26000 | -26.66 | -2.5 | 81 | -24.16 |

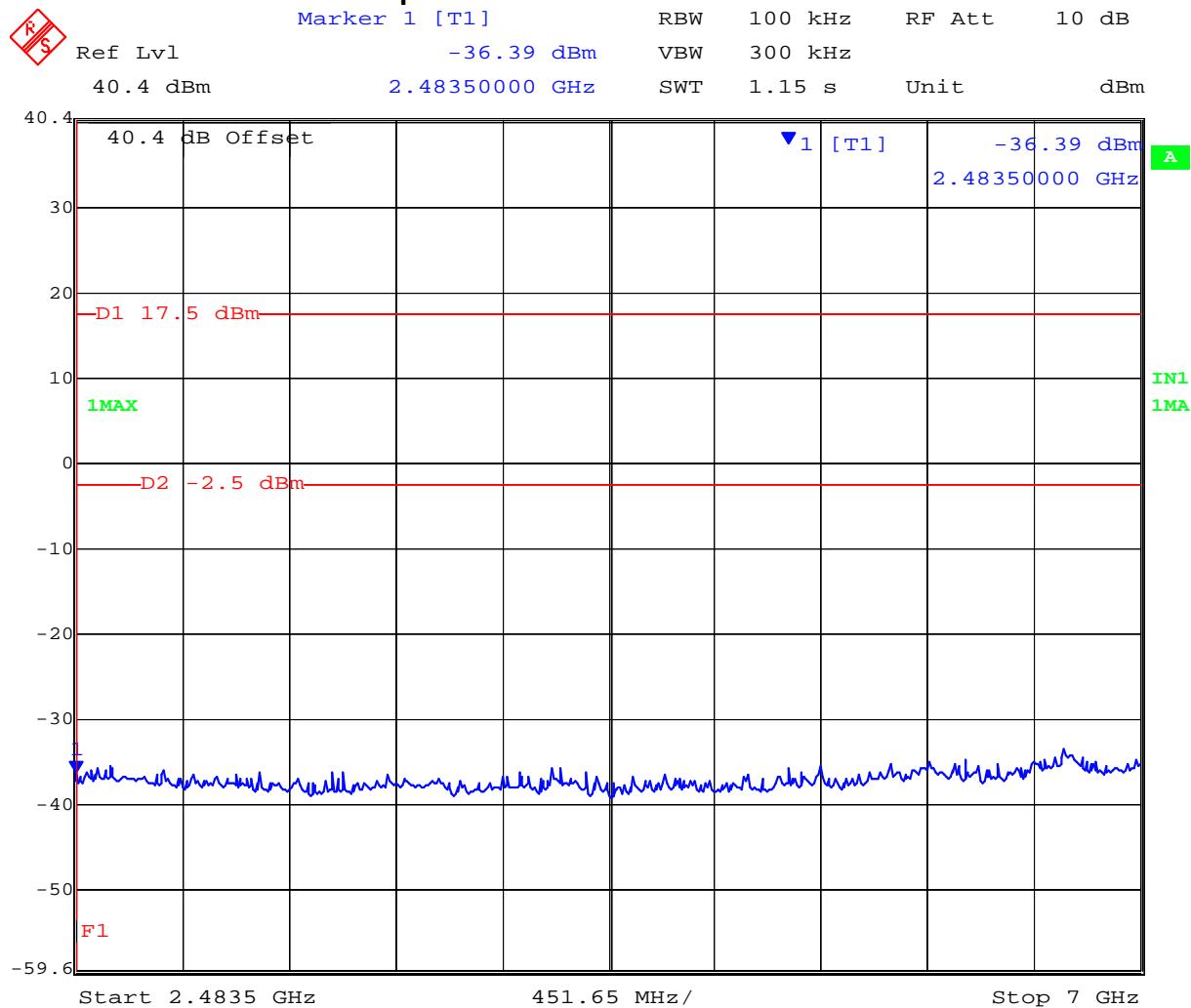
Plot 79
18 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



Date: 31.OCT.2005 13:25:59

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Plot 80
18 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



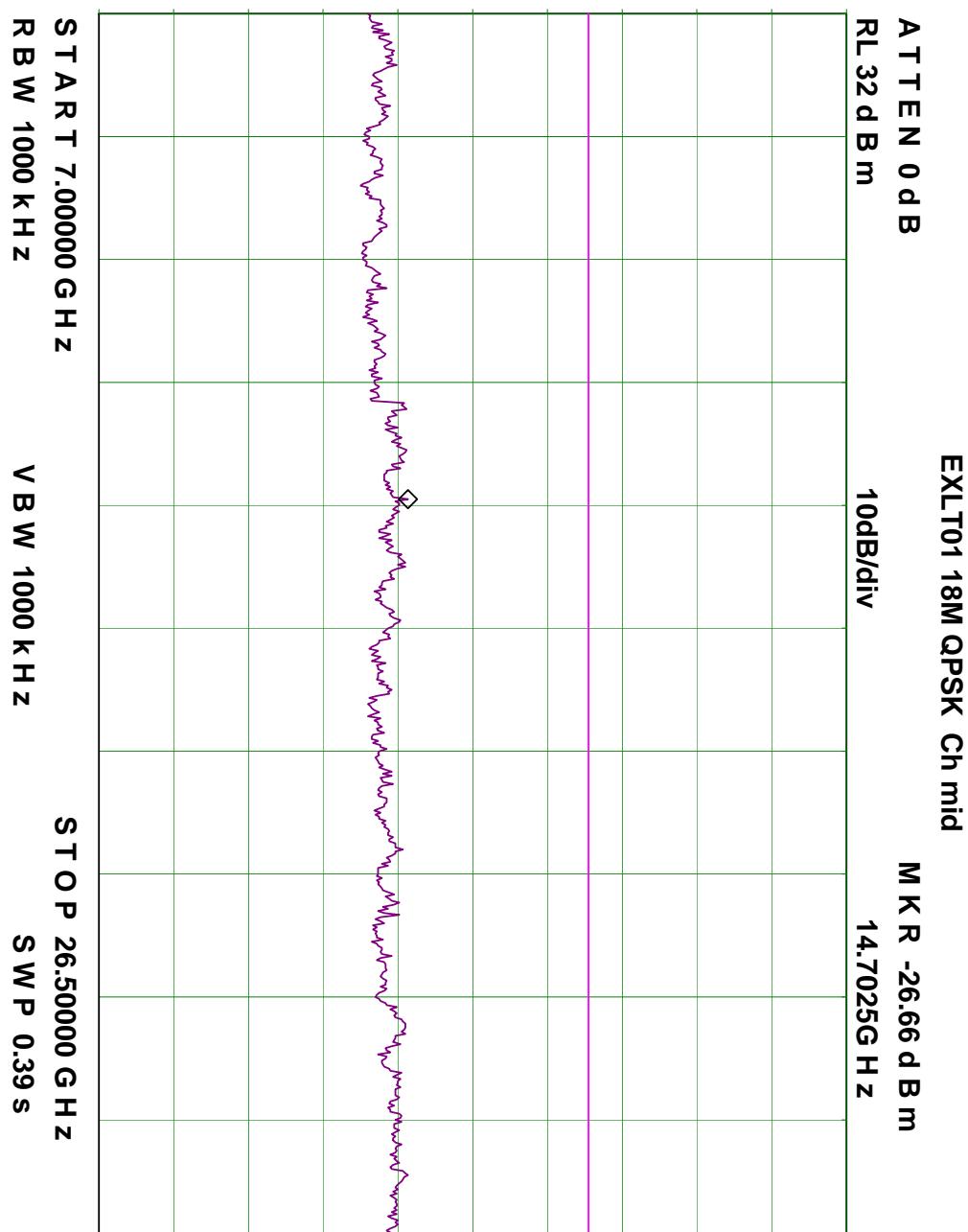
Date: 31.OCT.2005 13:35:26

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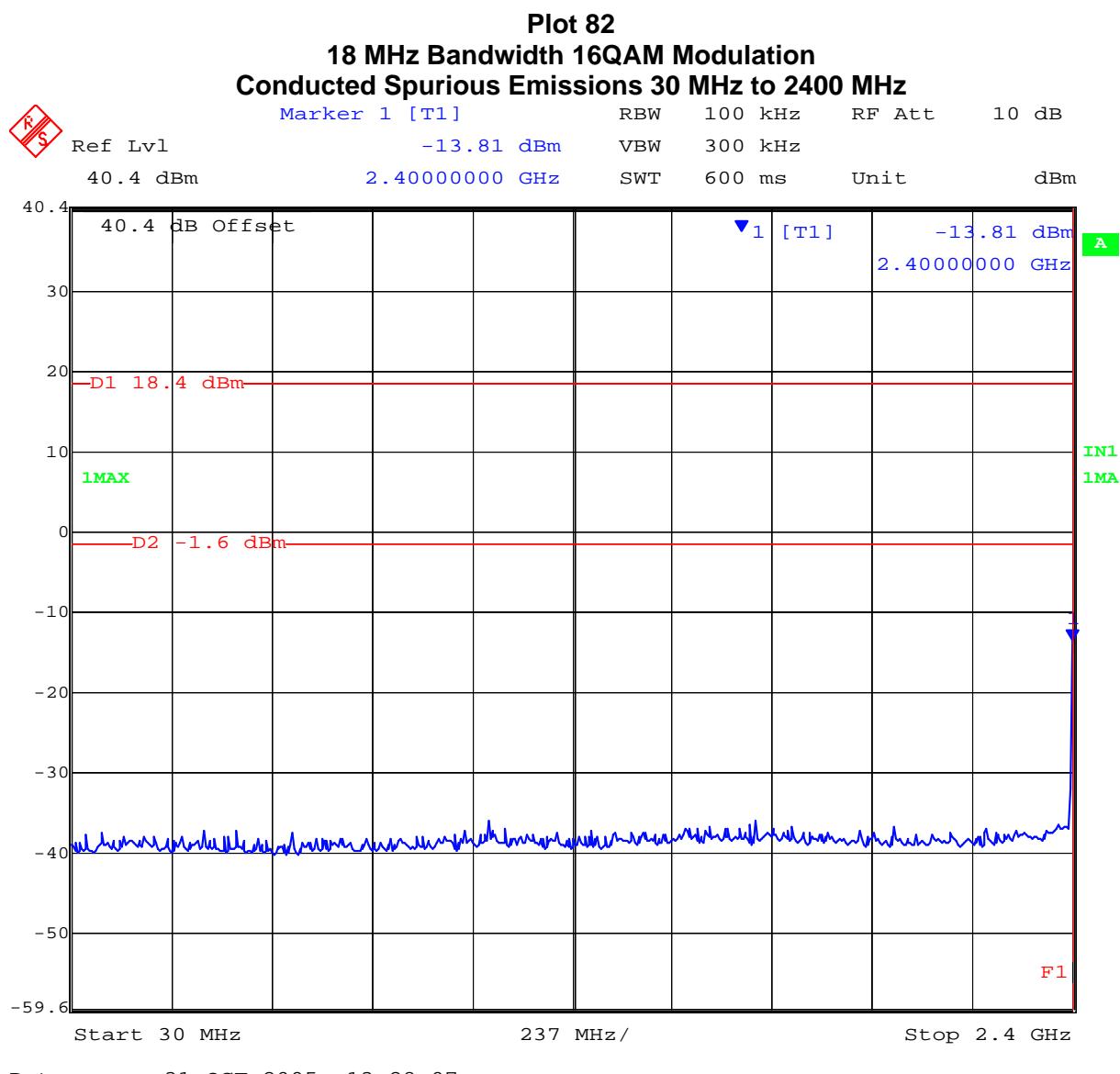
Plot 81
18 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz



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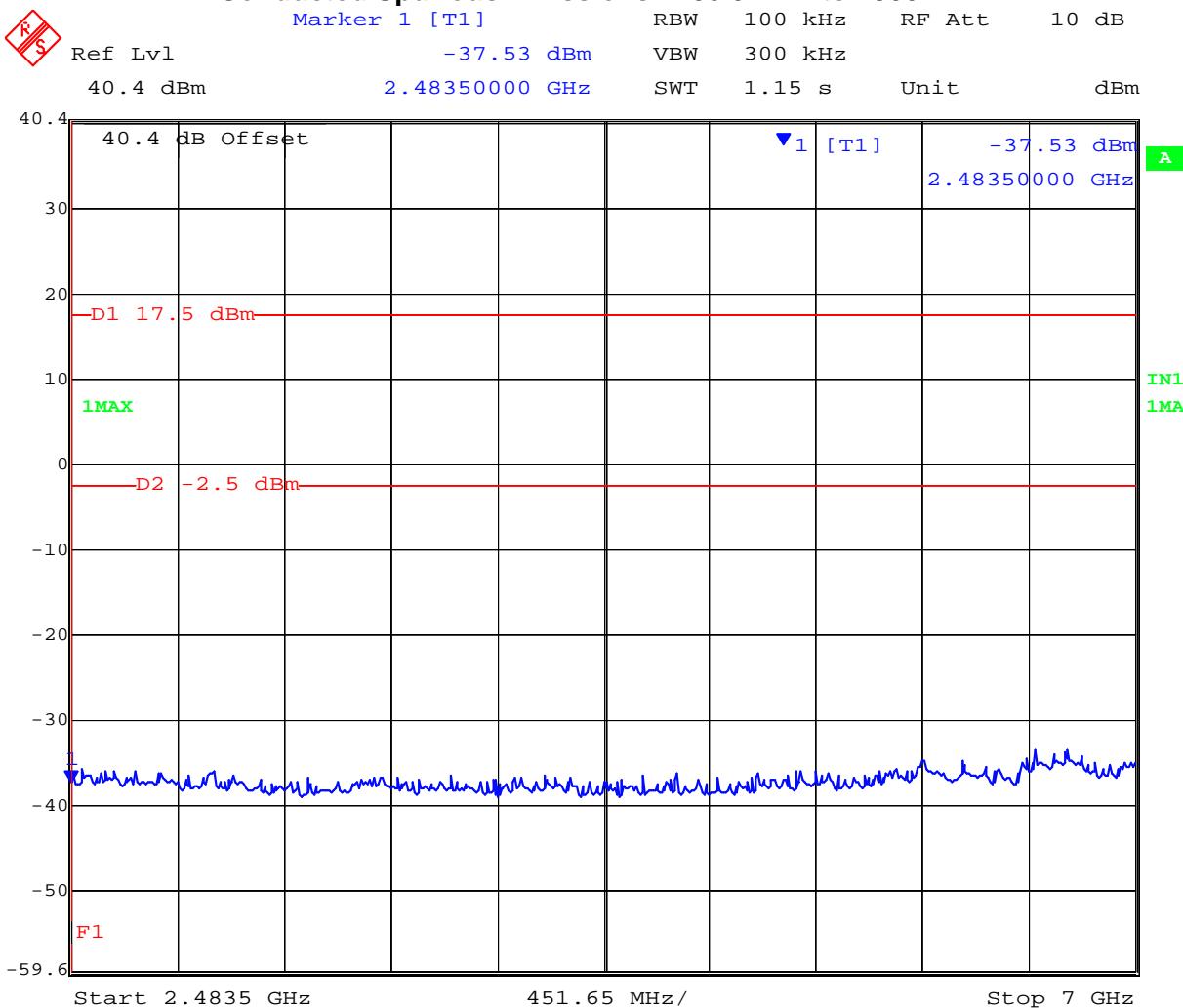
TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -13.81 | -1.6 | 82 | -12.21 |
| 2,437 | 2483.5 | 7000 | -37.53 | -2.5 | 83 | -35.03 |
| 2,437 | 7000 | 26000 | -26.50 | -2.5 | 84 | -24.0 |



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Plot 83
18 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



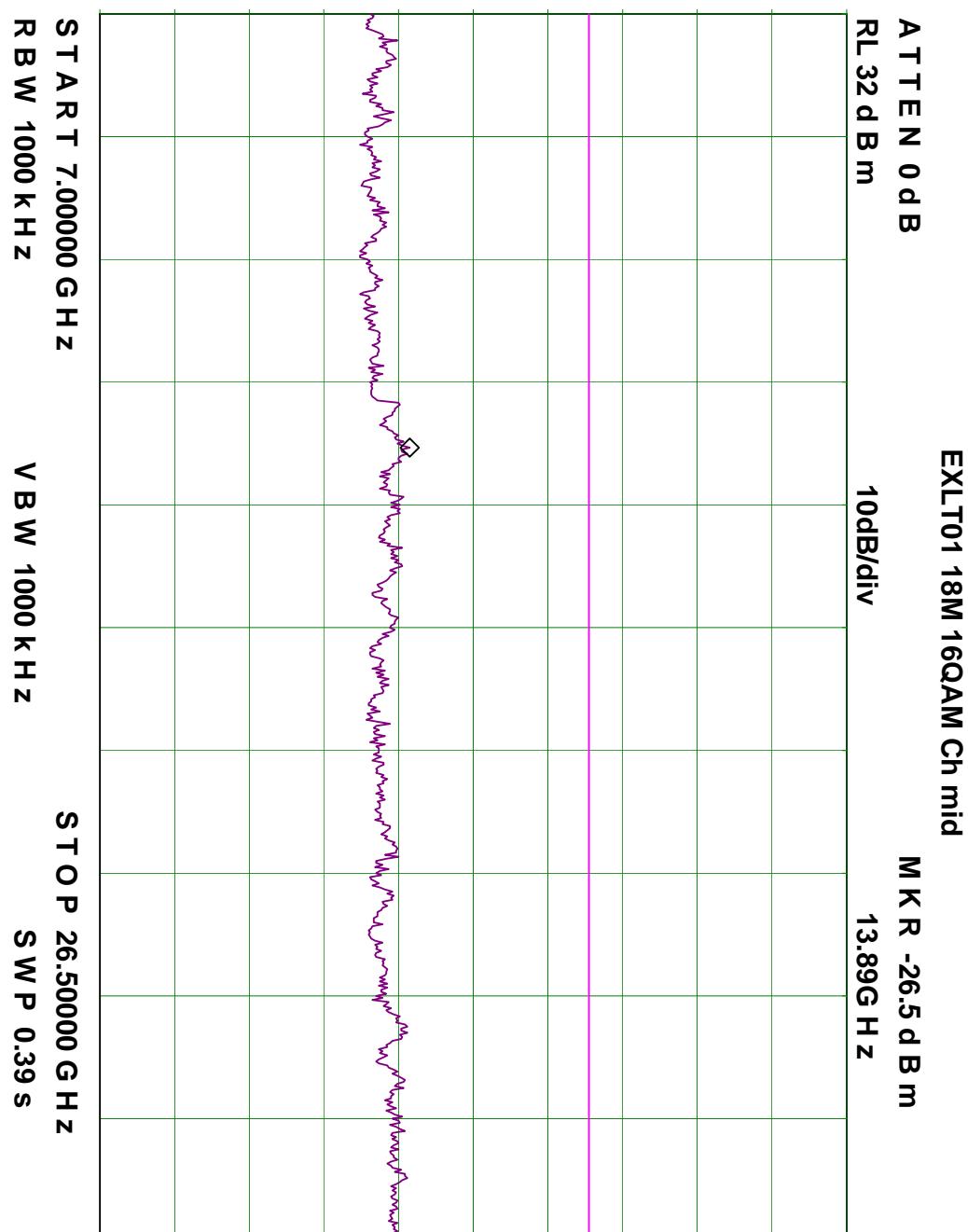
Date: 31.OCT.2005 14:05:55

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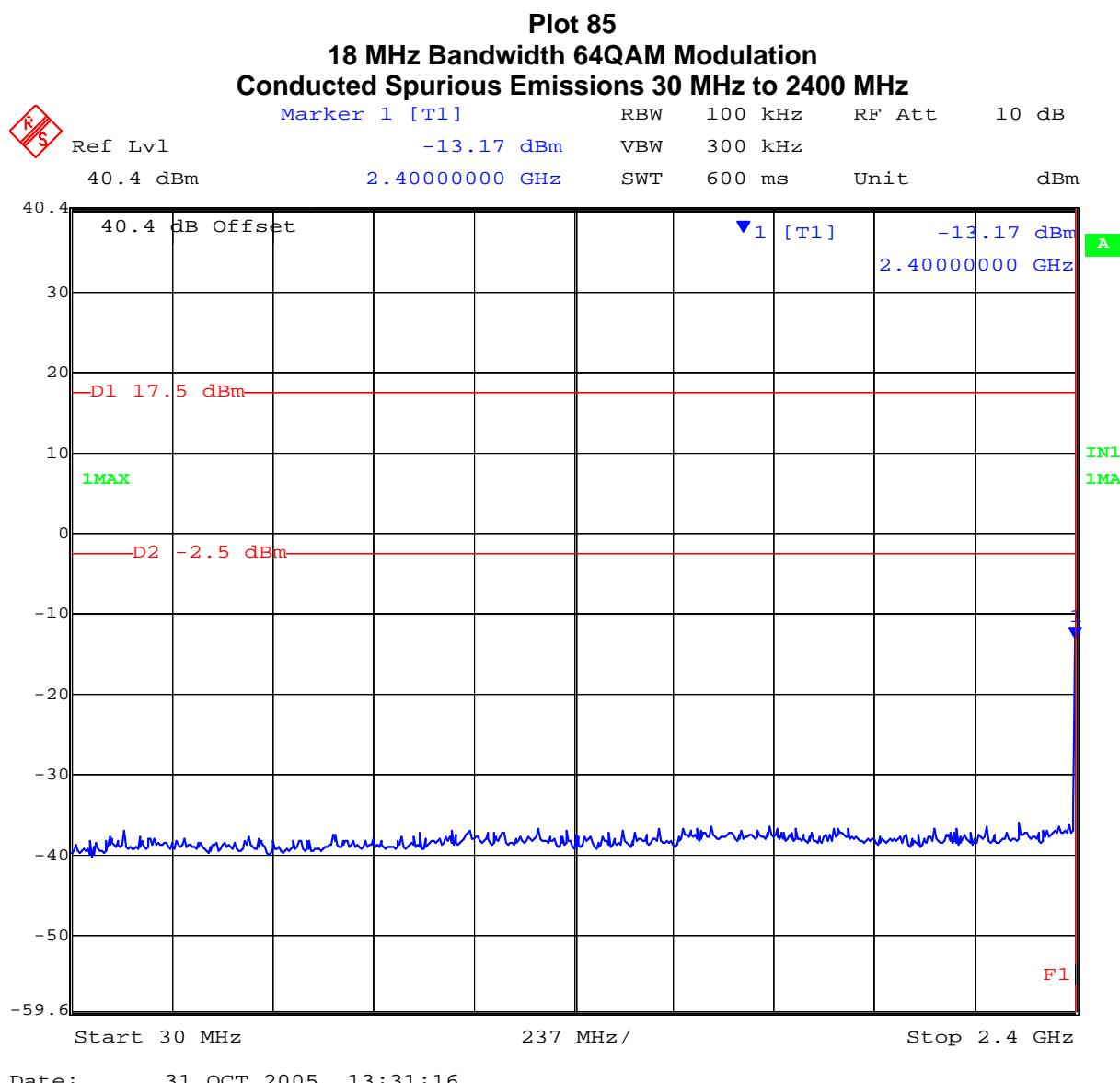
Plot 84
18 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz



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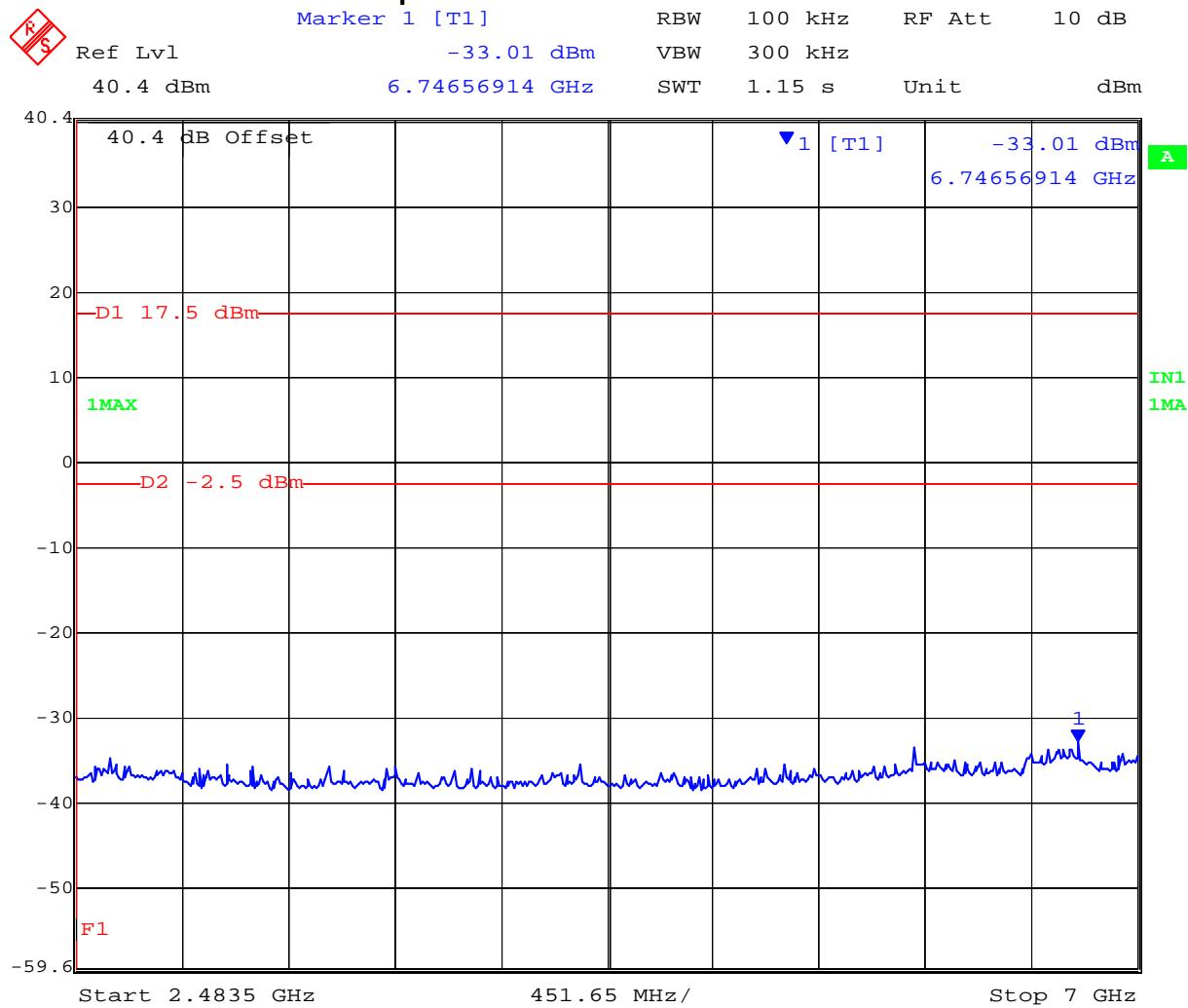
TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -13.17 | -2.5 | 85 | -10.67 |
| 2,437 | 2483.5 | 7000 | -33.01 | -2.5 | 86 | -30.51 |
| 2,437 | 7000 | 26000 | -25.83 | -2.5 | 87 | -23.33 |



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Plot 86
18 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



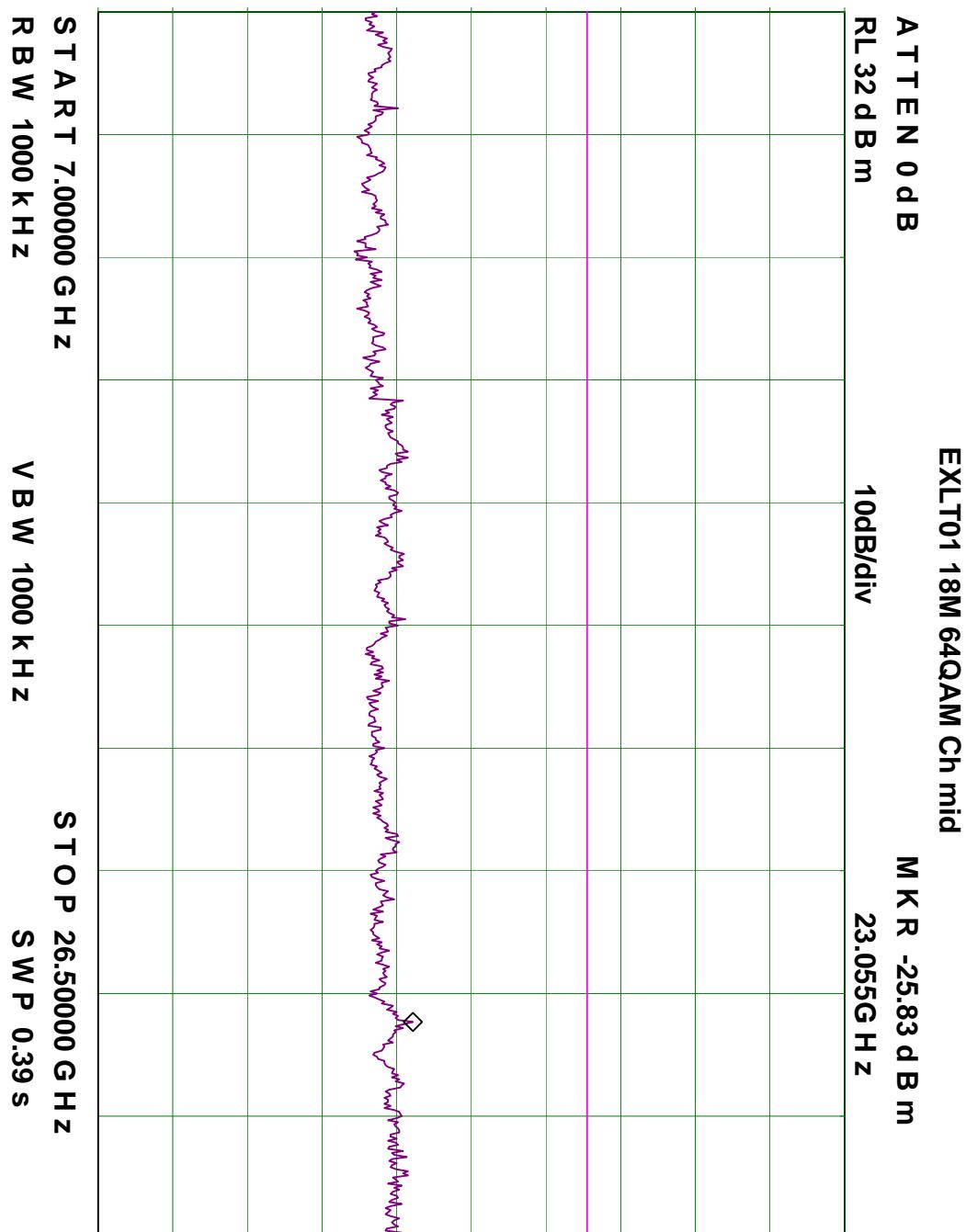
Date: 31.OCT.2005 14:07:08

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Plot 87
18 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

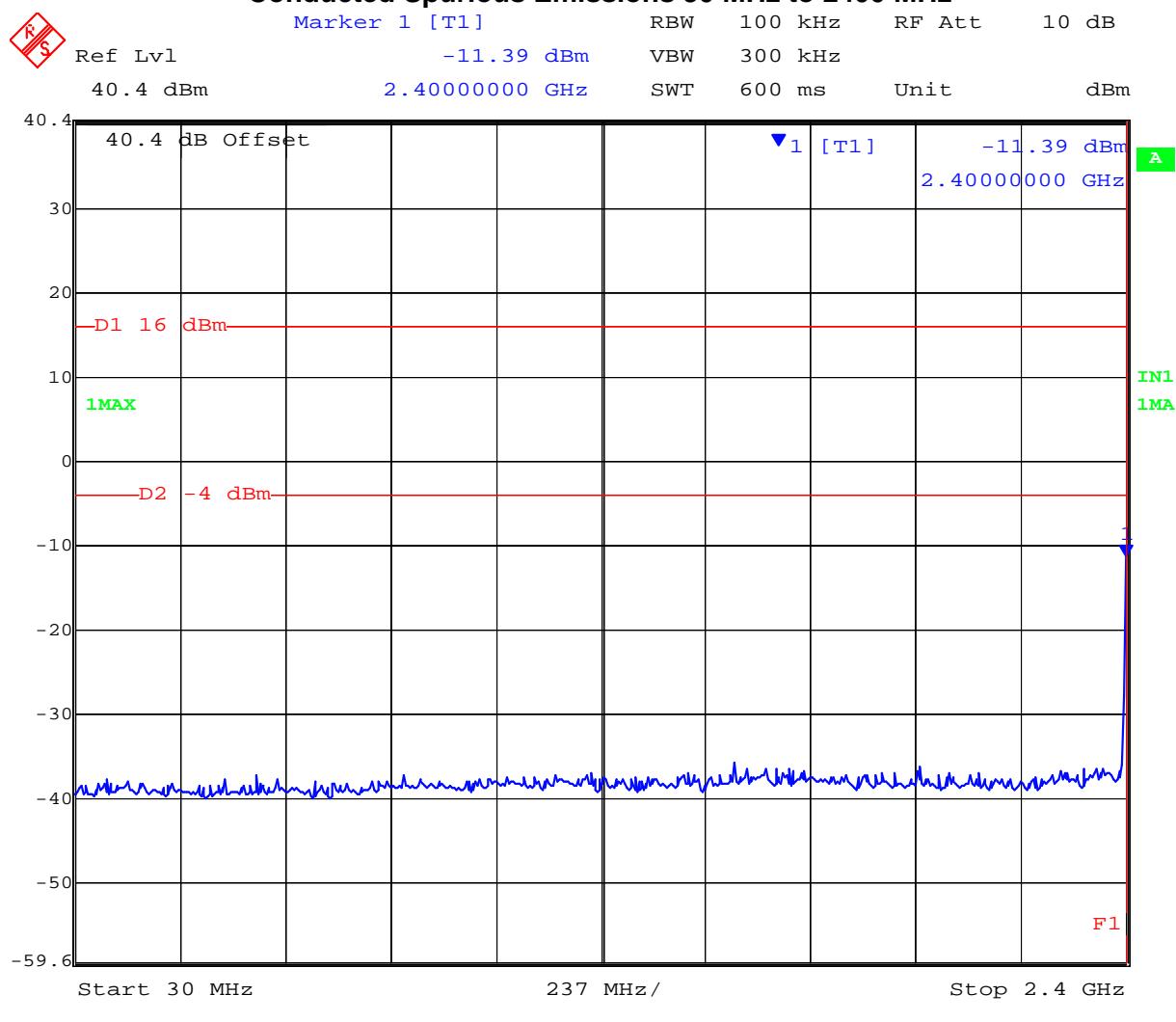


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TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -11.39 | -4.0 | 88 | -7.39 |
| 2,437 | 2483.5 | 7000 | -36.21 | -4.9 | 89 | -31.31 |
| 2,437 | 7000 | 26000 | -25.50 | -4.9 | 90 | -20.60 |

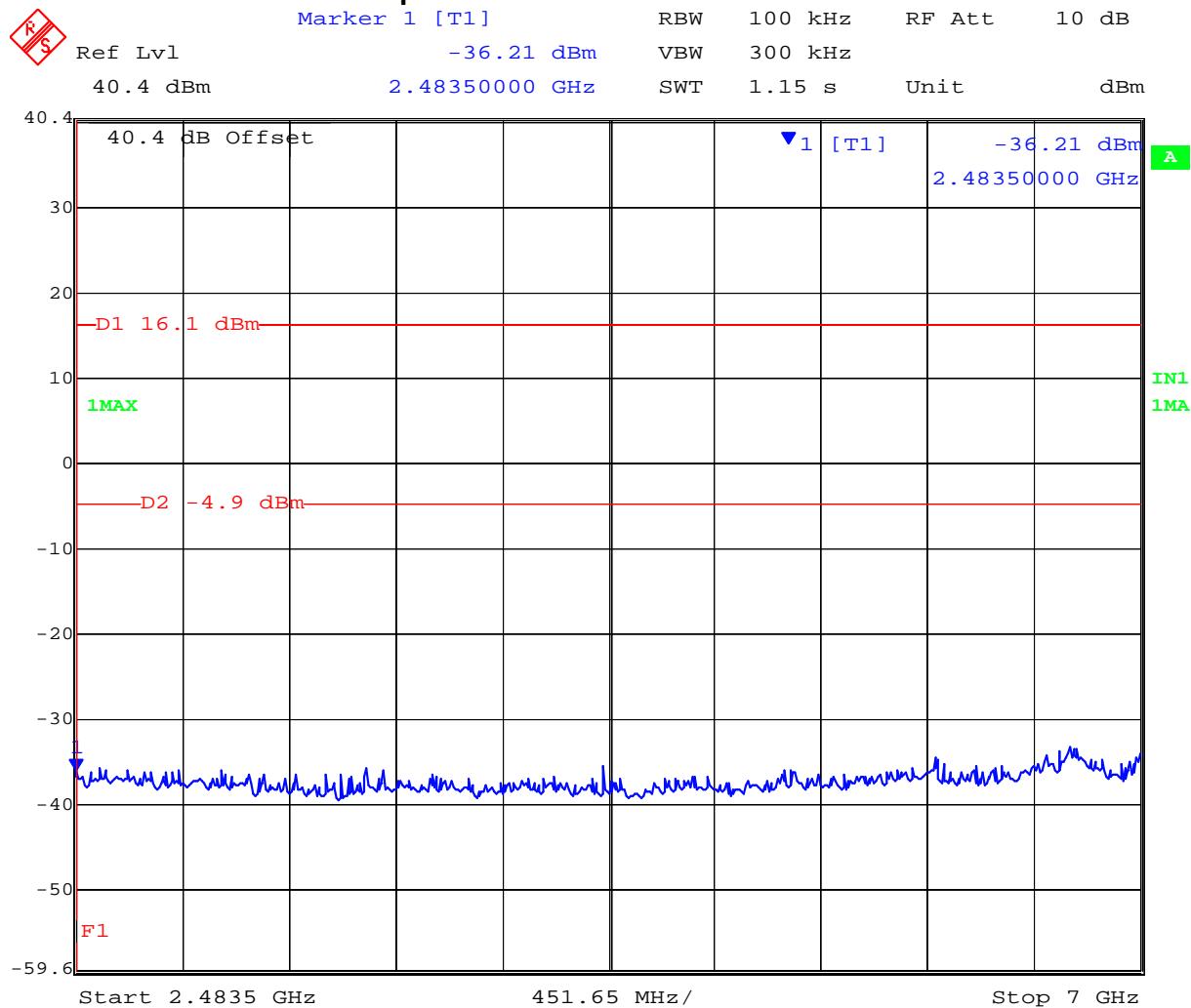
Plot 88
36 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



Date: 31.OCT.2005 14:10:43

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Plot 89
36 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



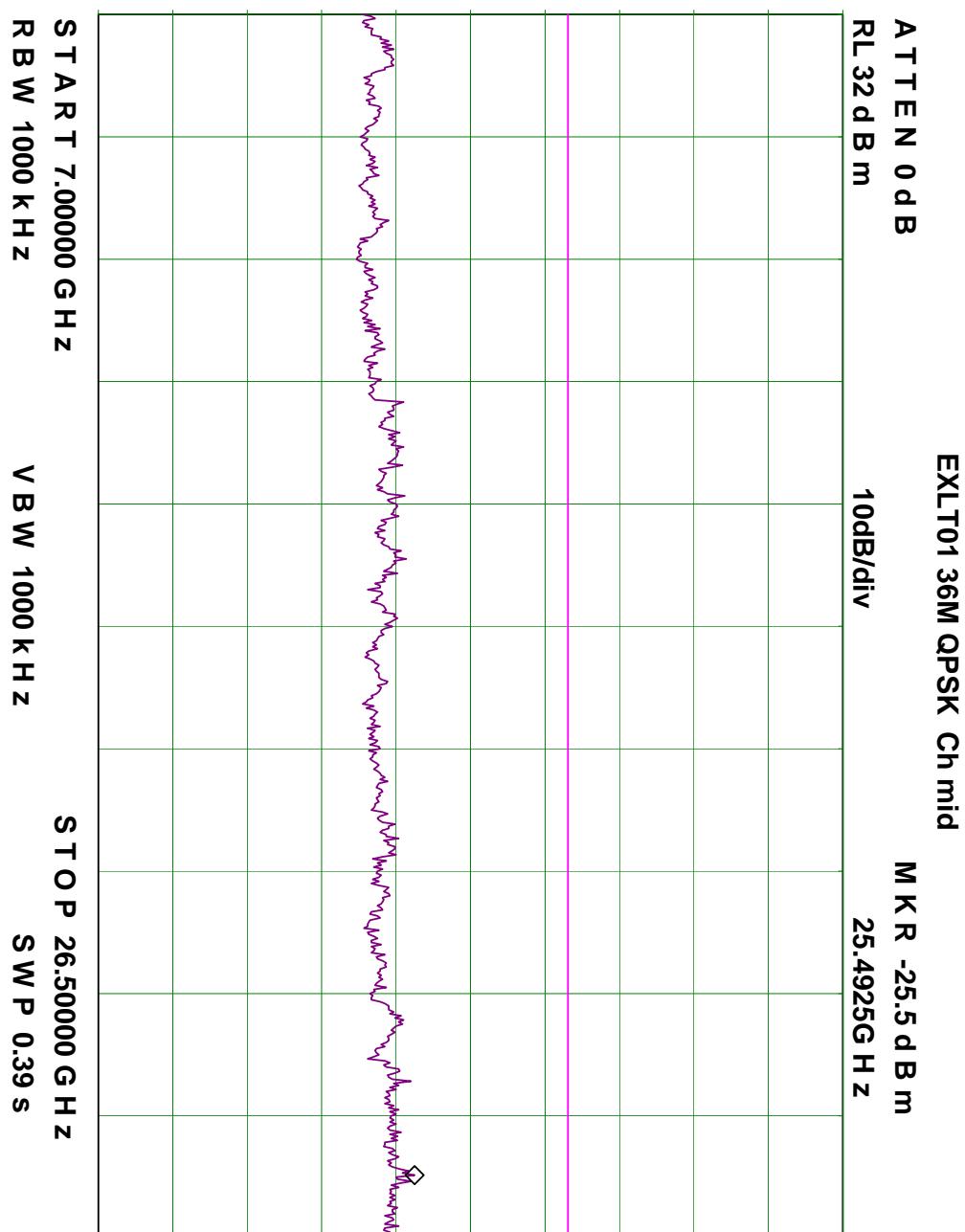
Date: 31.OCT.2005 14:33:13

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Plot 90
36 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

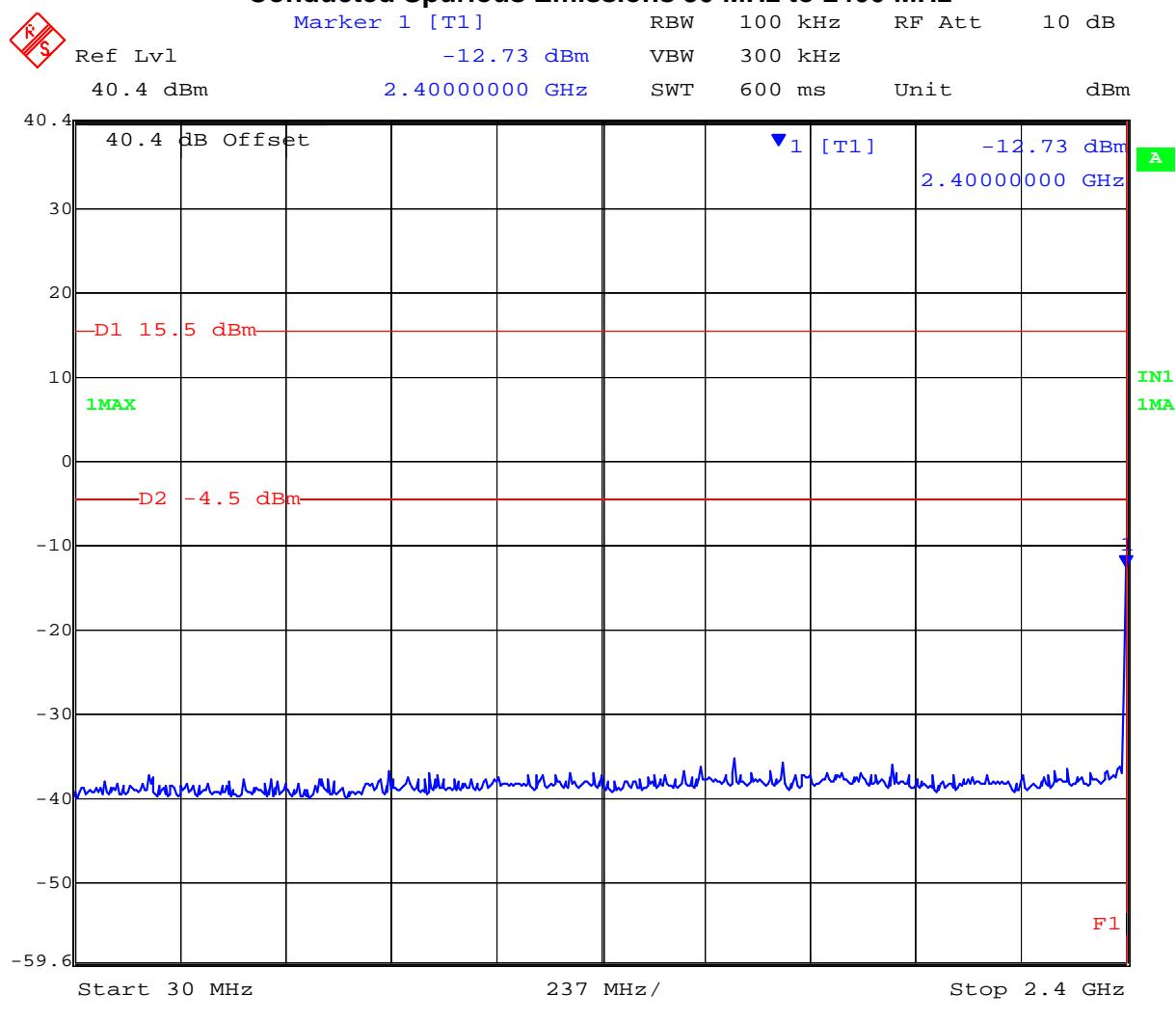


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TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

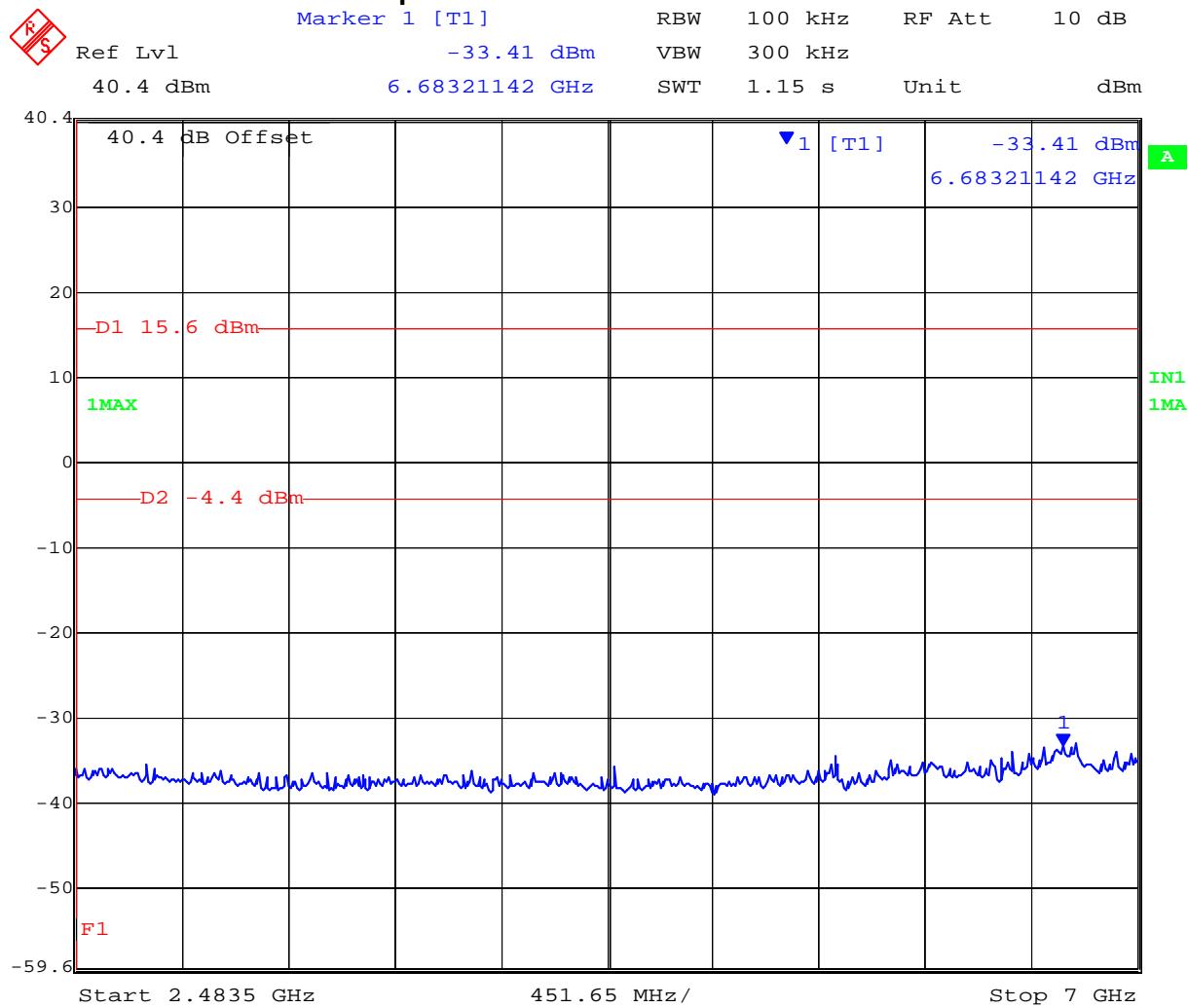
| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -12.73 | -4.5 | 91 | -8.23 |
| 2,437 | 2483.5 | 7000 | -33.41 | -4.4 | 92 | -29.01 |
| 2,437 | 7000 | 26000 | -26.33 | -4.4 | 93 | -21.99 |

Plot 91
36 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



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Plot 92
36 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



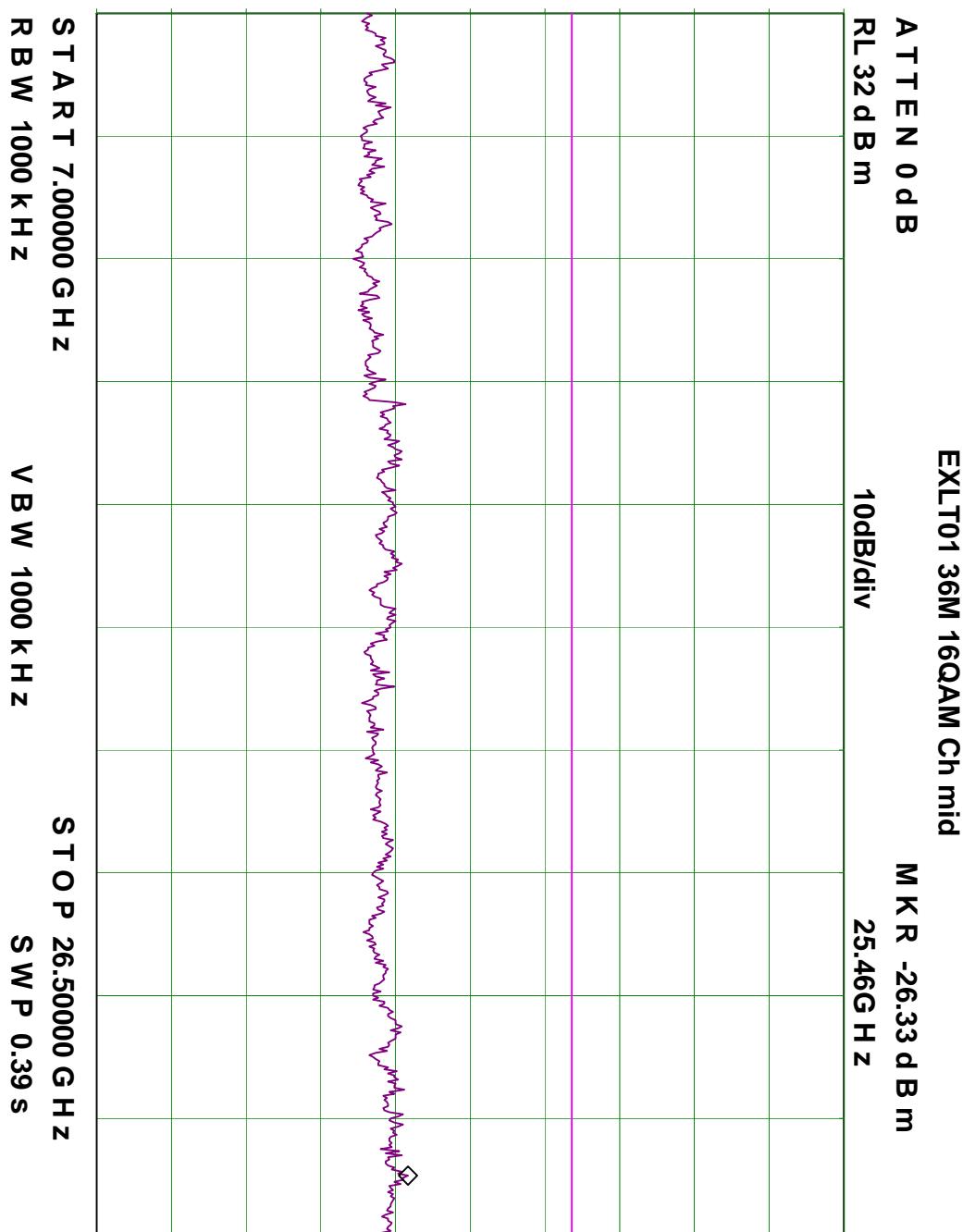
Date: 31.OCT.2005 14:35:37

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Plot 93
36 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

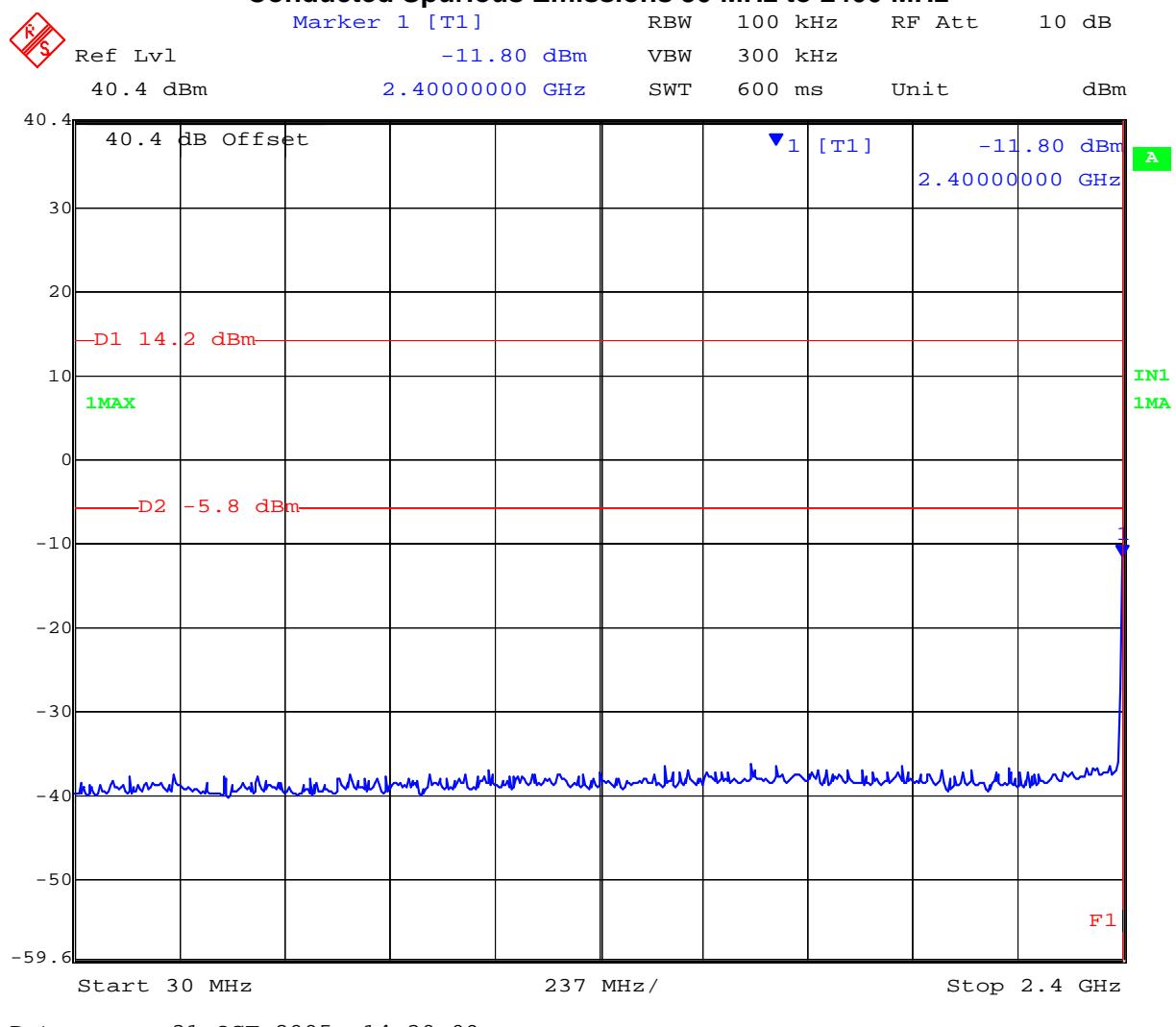


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TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

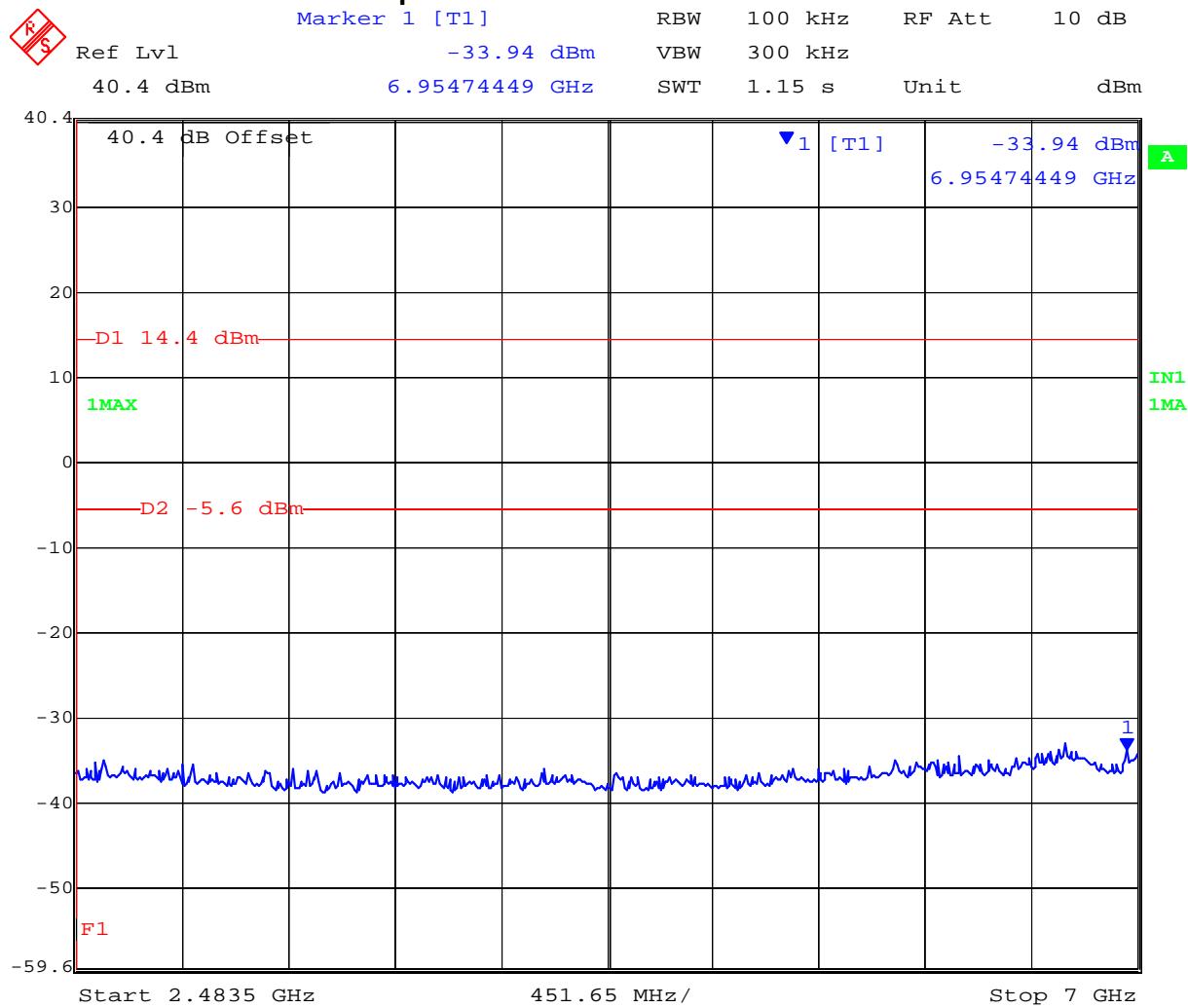
| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -11.80 | -5.80 | 94 | -6.00 |
| 2,437 | 2483.5 | 7000 | -33.94 | -5.60 | 95 | -28.34 |
| 2,437 | 7000 | 26000 | -26.16 | -5.60 | 96 | -20.56 |

Plot 94
36 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



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Plot 95
36 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



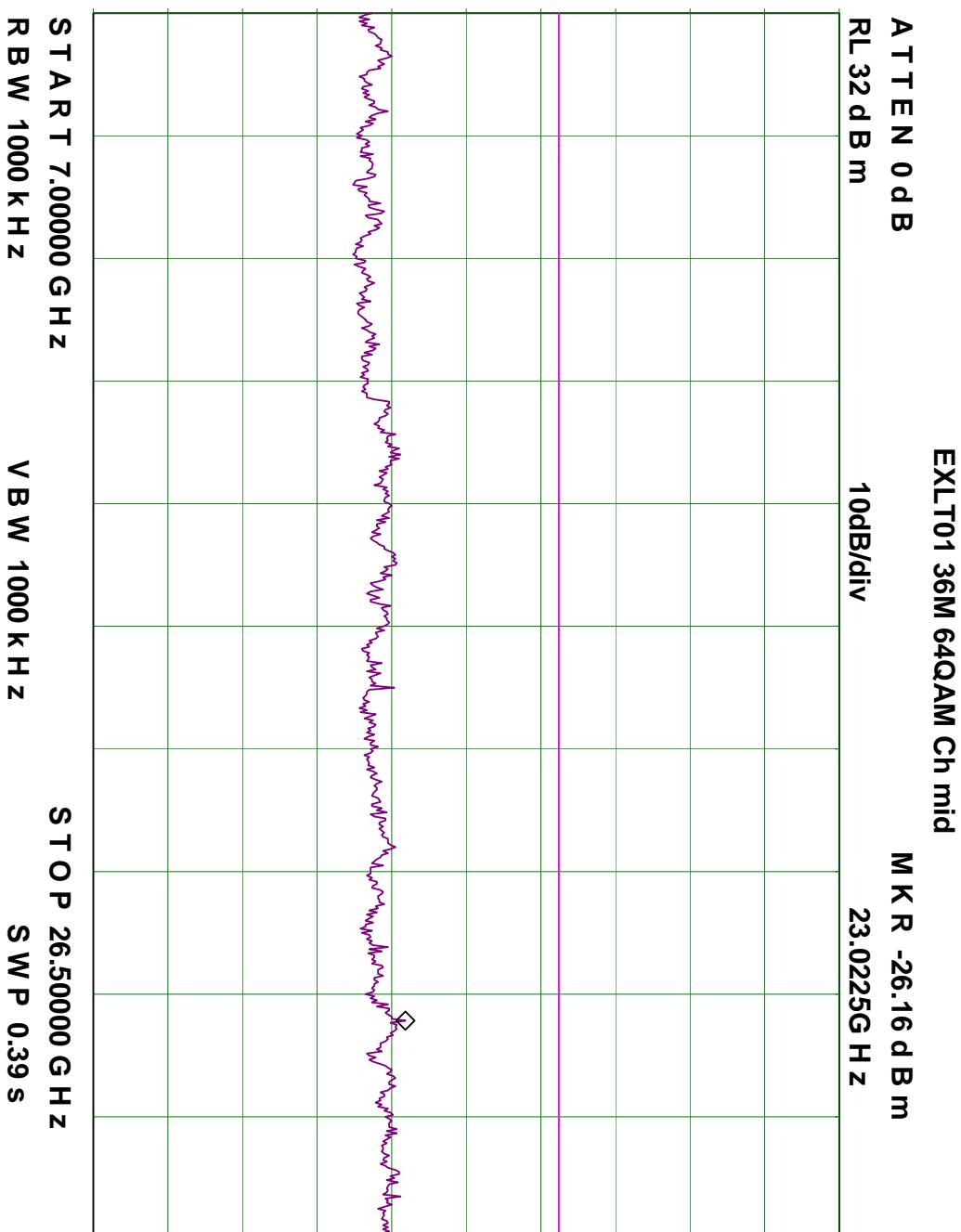
Date: 31.OCT.2005 14:37:30

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Plot 96
36 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

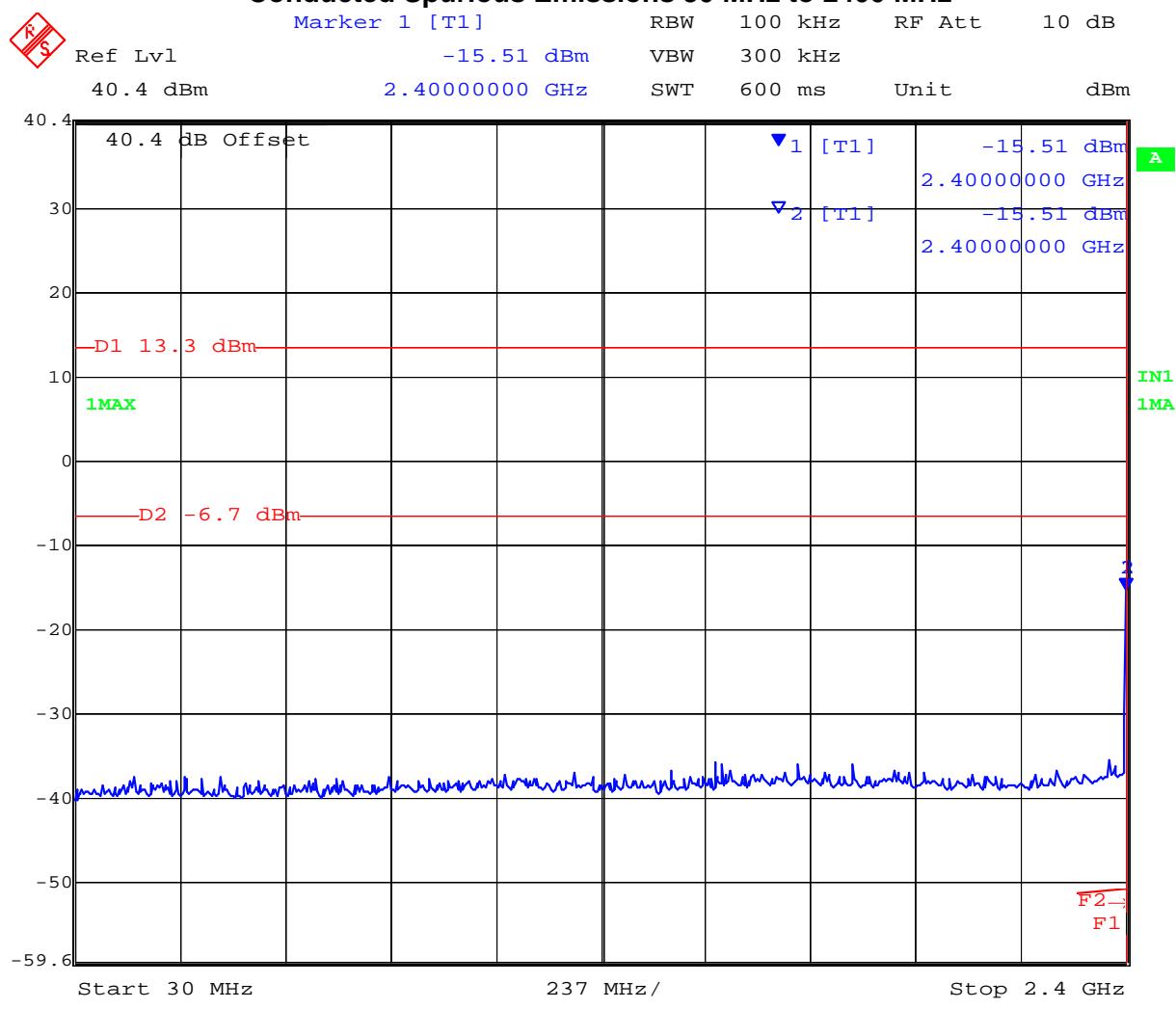


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TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

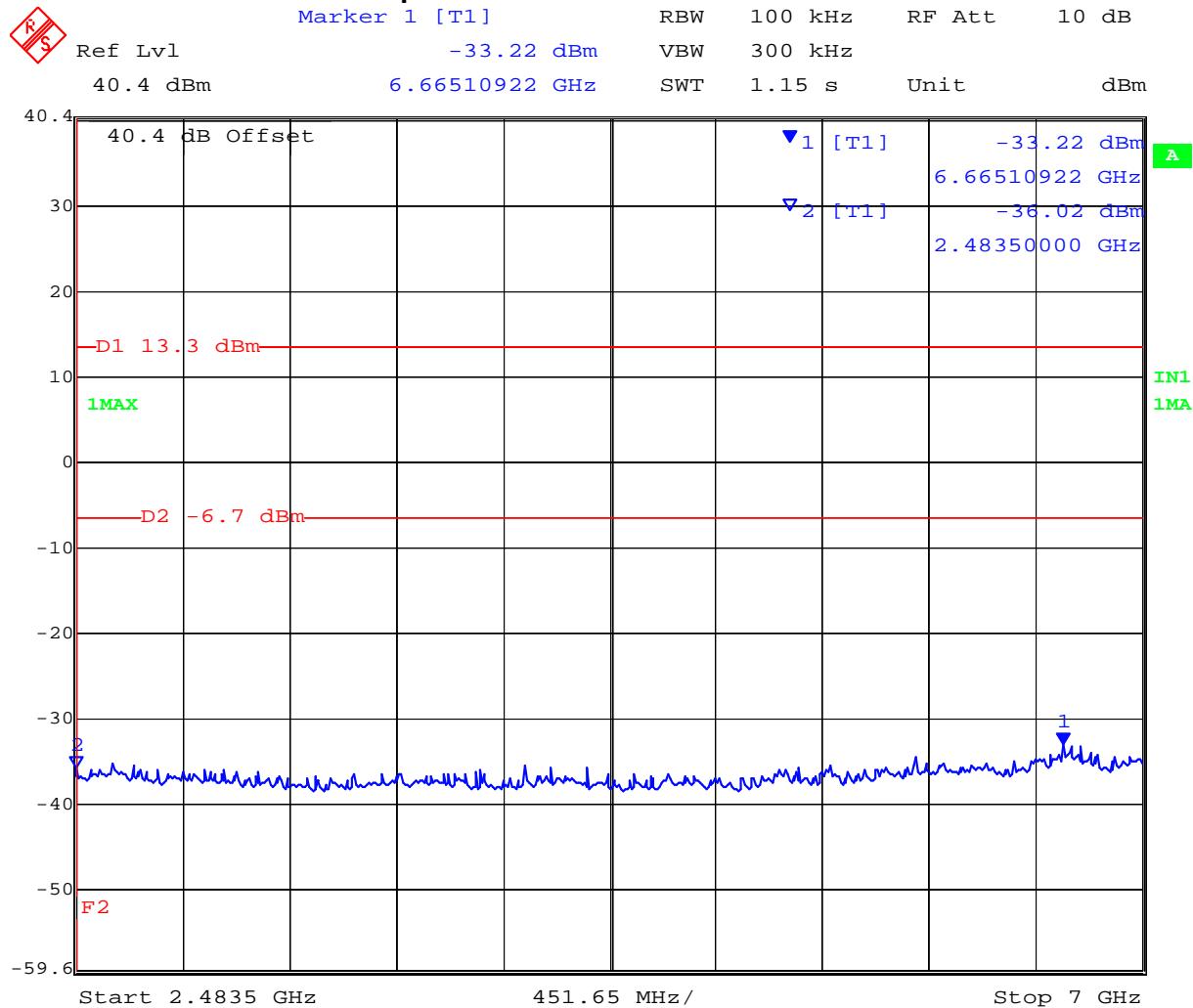
| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -15.51 | -6.7 | 97 | -8.81 |
| 2,437 | 2483.5 | 7000 | -33.22 | -6.7 | 98 | -26.52 |
| 2,437 | 7000 | 26000 | -26.16 | -6.7 | 99 | -19.46 |

Plot 97
72 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



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Plot 98
72 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



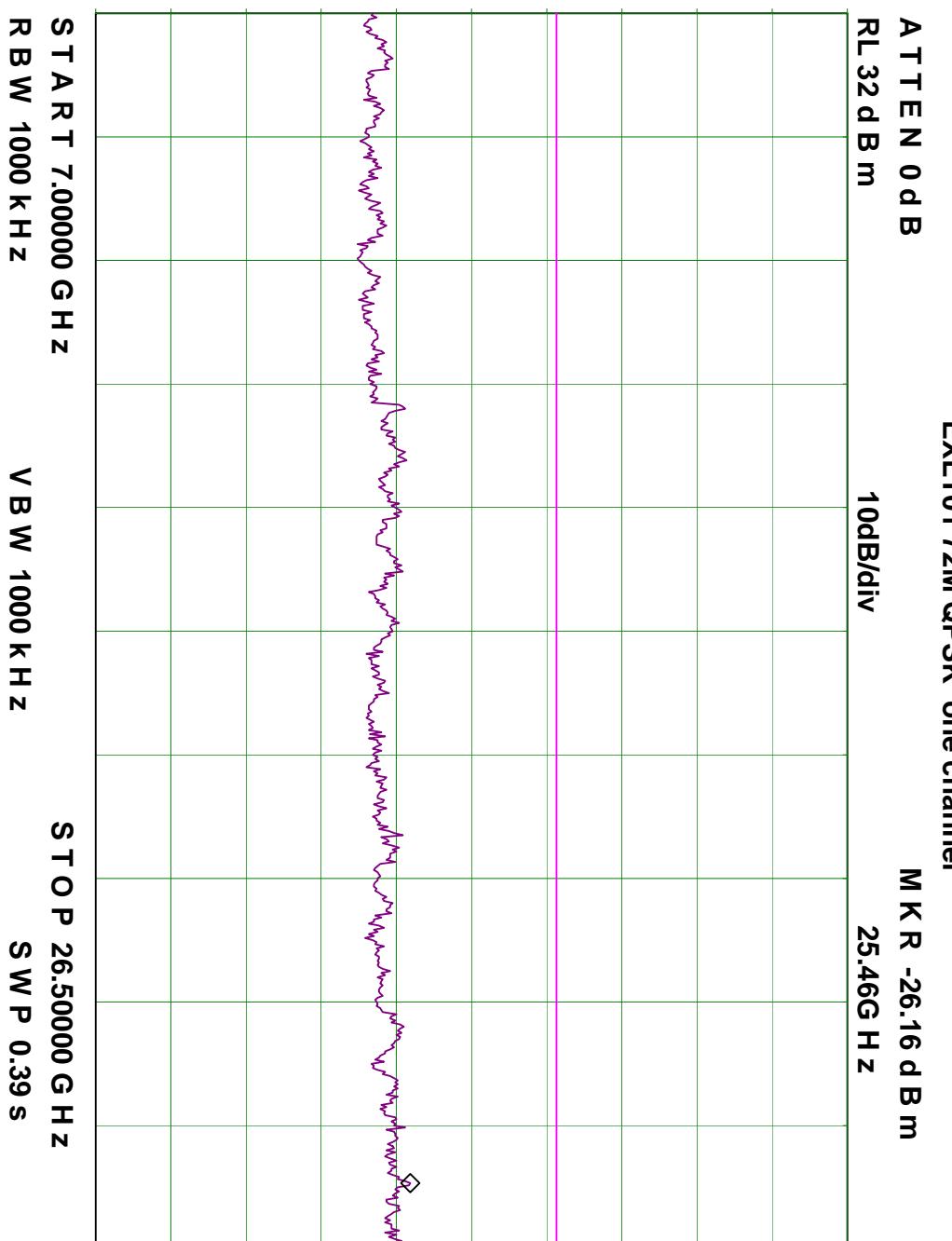
Date: 31.OCT.2005 15:04:22

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Plot 99
72 MHz Bandwidth QPSK Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz



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TABLE OF RESULTS – 72 MHz Bandwidth 16QAM Modulation

| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -16.33 | -8.5 | 100 | -7.83 |
| 2,437 | 2483.5 | 7000 | -33.29 | -8.5 | 101 | -24.79 |
| 2,437 | 7000 | 26000 | -26.16 | -8.5 | 102 | -17.66 |

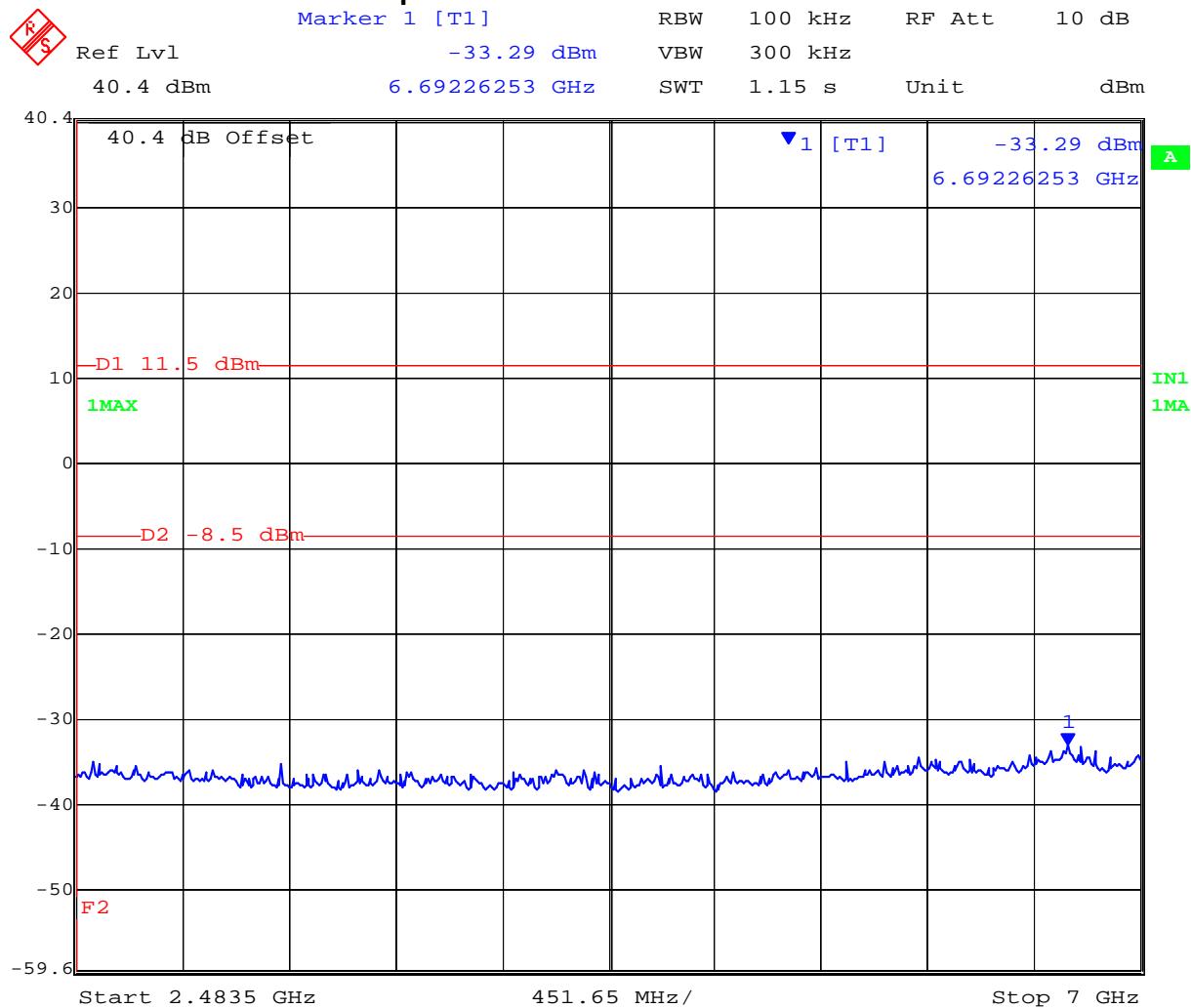
Plot 100
72 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



Date: 31.OCT.2005 15:08:09

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Plot 101
72 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



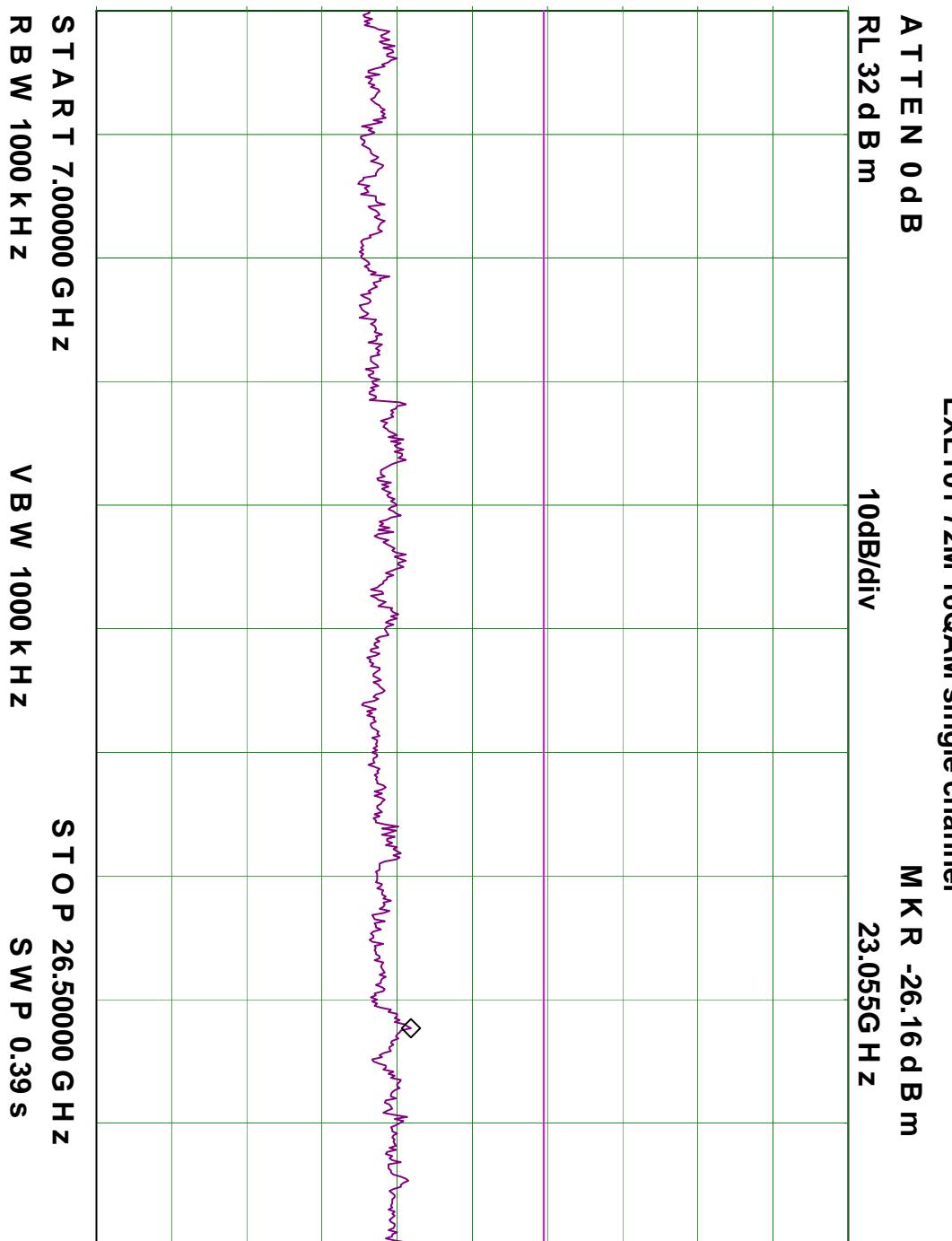
Date: 31.OCT.2005 15:09:07

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Plot 102
72 MHz Bandwidth 16QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz

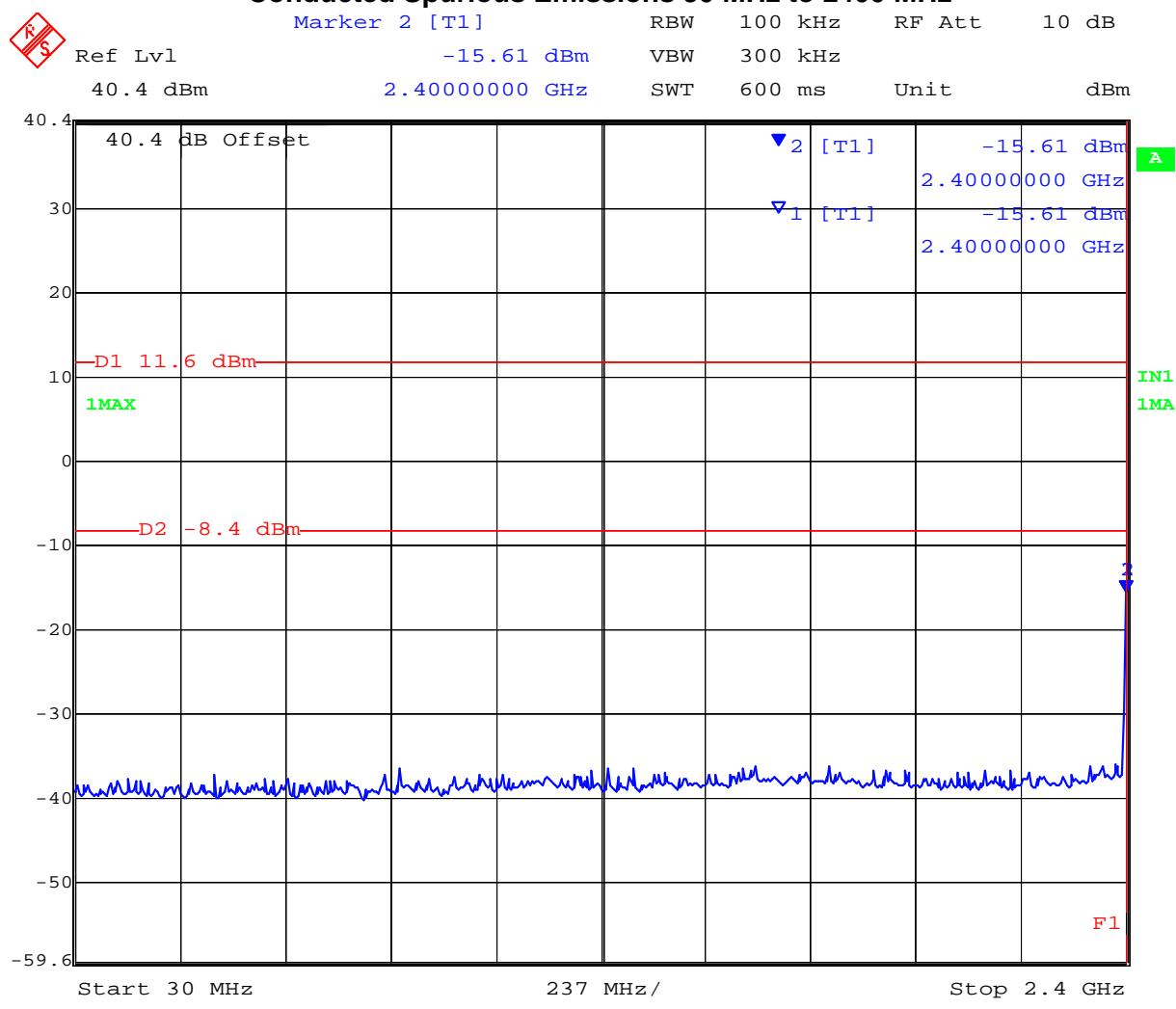


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TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

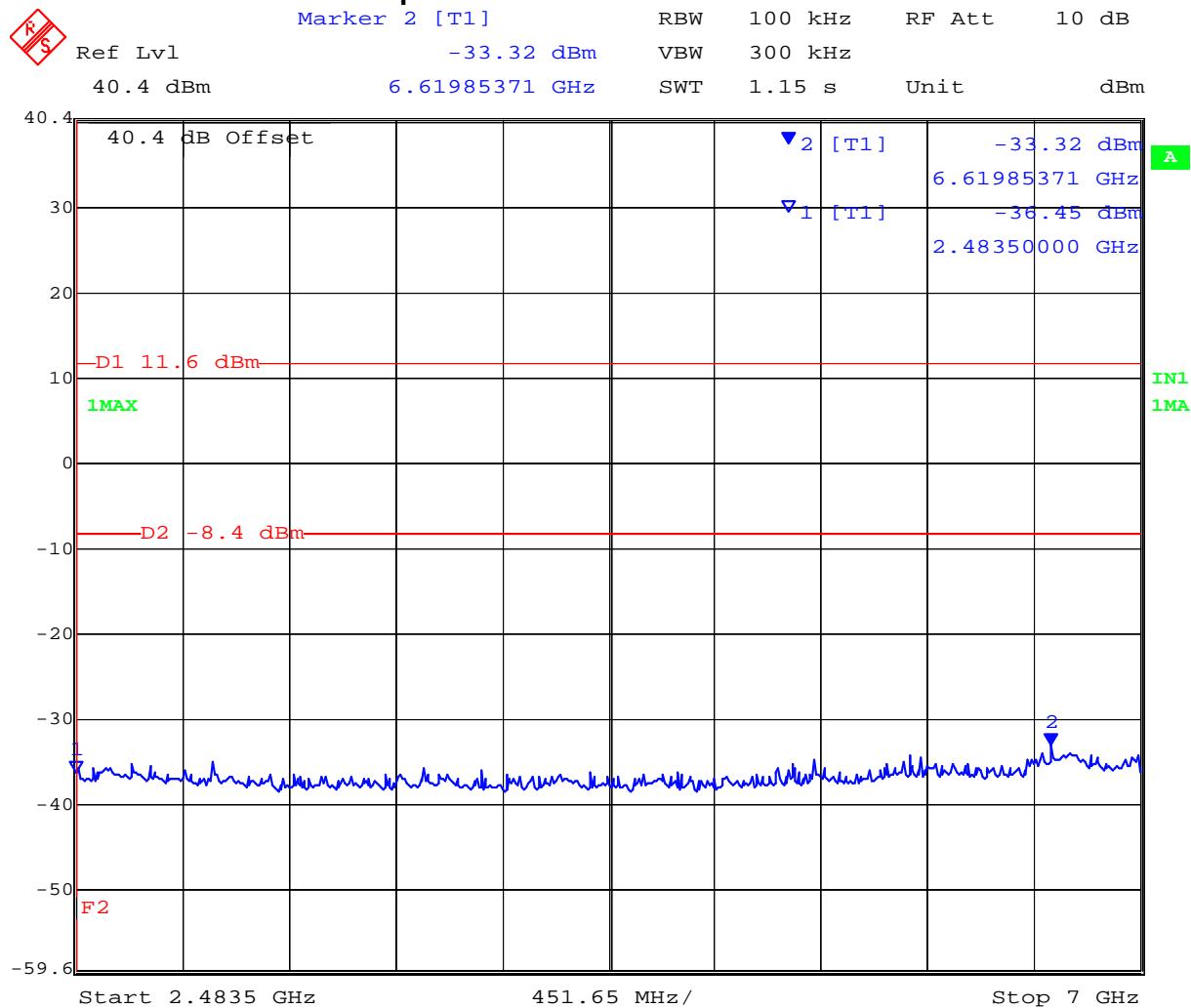
| Channel Centre Frequency | Start Frequency (MHz) | Stop Frequency (MHz) | Maximum Emission Observed (dBm) | Limit (dBm) | Plot # | Margin (dB) |
|--------------------------|-----------------------|----------------------|---------------------------------|-------------|--------|-------------|
| 2,437 | 30 | 2400 | -15.61 | -8.4 | 103 | -7.21 |
| 2,437 | 2483.5 | 7000 | -33.32 | -8.4 | 104 | -25.42 |
| 2,437 | 7000 | 26000 | -25.66 | -8.4 | 105 | -17.26 |

Plot 103
72 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 30 MHz to 2400 MHz



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Plot 104
72 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 2483.5 MHz to 7000 MHz



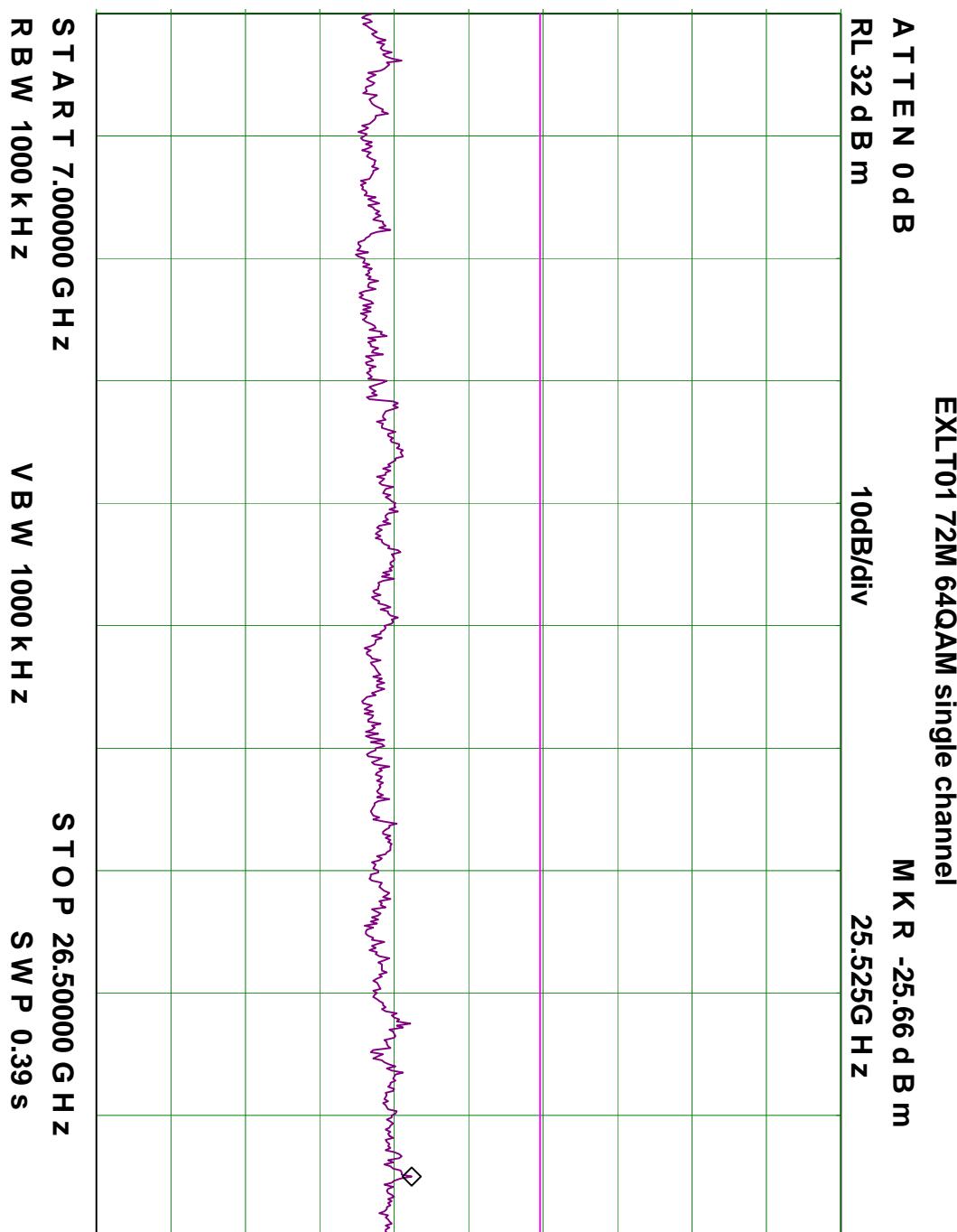
Date: 31.OCT.2005 15:12:31

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Plot 105
72 MHz Bandwidth 64QAM Modulation
Conducted Spurious Emissions 7000 MHz to 26000 MHz



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Specification

Limits Band-Edge

| Lower Limit Band-edge | Upper Limit Band-edge | Limit below highest level of desired power |
|--------------------------|--------------------------|---|
| 2,400 MHz | 2,483.5 MHz | ≥ 20 dB |

§15.247(c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is 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, based on either an RF conducted or radiated measurement. Attenuation below the general limits specified in **§15.209(a)** is not required.

IC RSS-210 § A8.5 In any 100 kHz bandwidth outside the operating frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced 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.

IC RSS-Gen § 4.7 The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device, or from 30 MHz, whichever is the lowest frequency, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

Laboratory Measurement Uncertainty for Conducted Spurious Emissions

| | |
|-------------------------|----------|
| Measurement uncertainty | ±2.37 dB |
|-------------------------|----------|

Traceability

| Method | Test Equipment Used |
|---|------------------------------|
| Measurements were made per work instruction WI-05 'Measurement of Spurious Emissions' | 0158, 0088, 0193, 0252, 0314 |

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5.1.6. Radiated Emissions

5.1.6.1. Transmitter Radiated Spurious Emissions (above 1 GHz)

FCC, Part 15 Subpart C §15.247(c), §15.205(a), §15.209(a)
Industry Canada RSS-Gen §4.7, RSS-210 §2.2, §2.6

Test Procedure

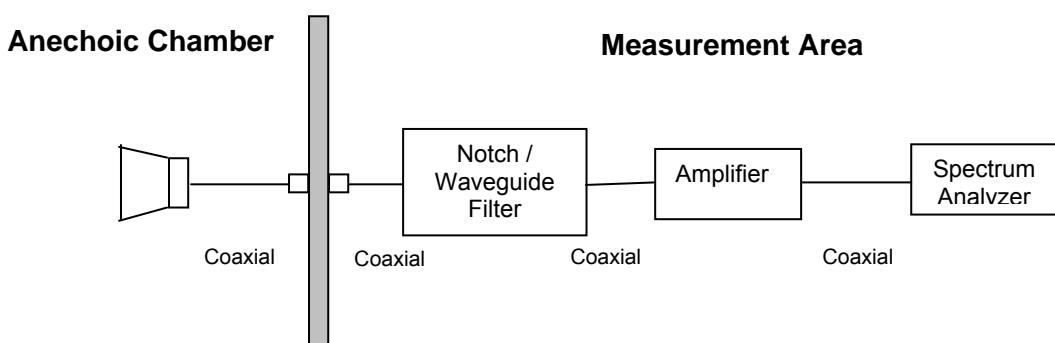
Radiated emissions above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

All measurements on any frequency or frequencies over 1 MHz are based on the use of measurement instrumentation employing an average detector function. All measurements above 1 GHz were performed using a minimum resolution bandwidth of 1 MHz.

Peak power at EUT was measured in Section 5.1.2 'Peak Output Power'

Peak Power delivered to 21.3 dBi antenna: +24.9 dBm

Test Measurement Set up



Measurement set up for Radiated Emission Test

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Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

$$FS = R + AF + CORR - FO$$

where: FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss or Waveguide Loss

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For example:

Given receiver input reading of 51.5 dB μ V; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 \text{ dB}\mu\text{V/m}$$

Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log} (\text{level (}\mu\text{V/m)})$$

$$40 \text{ dB}\mu\text{V/m} = 100 \mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250 \mu\text{V/m}$$

Measurement Results Transmitter Radiated Spurious Emissions above 1 GHz

| Antenna Configuration |
|-----------------------|
| 21.3 dBi Parabolic |
| 30.3 dBi Parabolic |
| 20 dBi Panel |

Ambient conditions.

Temperature: 19 to 26°C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

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21.3 dBi Parabolic

TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

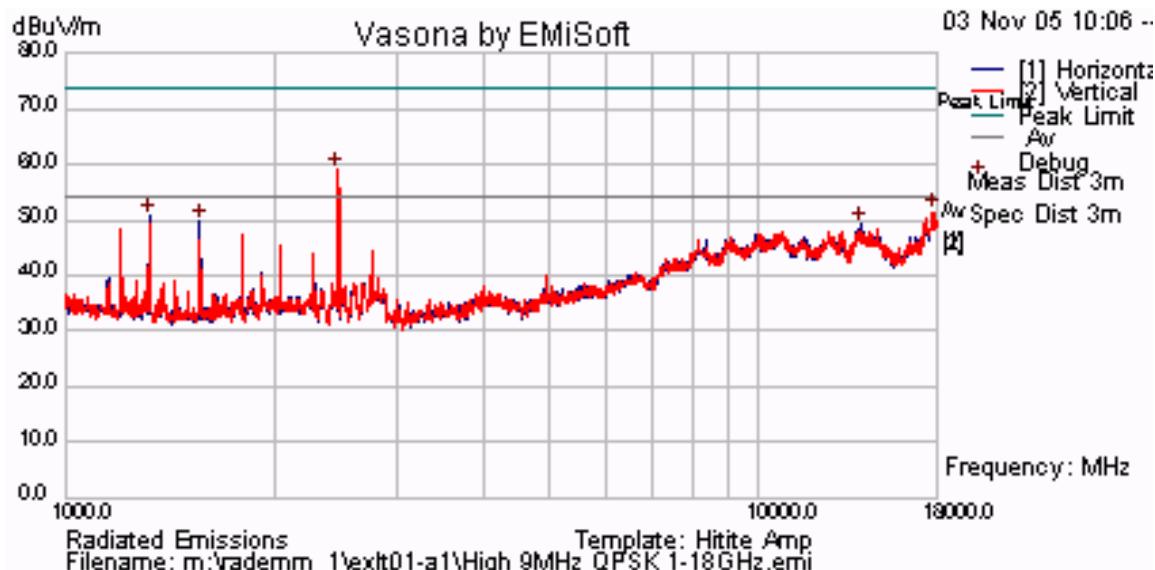
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 106

2,468 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS –9 MHz Bandwidth 16QAM Modulation

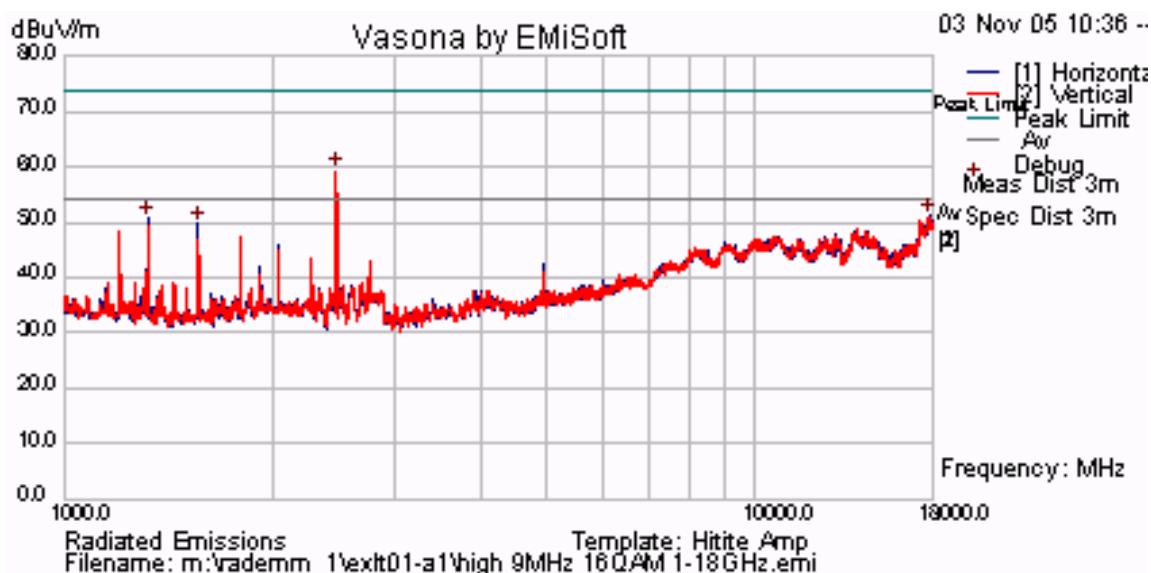
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 107

2,468 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS— 9 MHz Bandwidth 64QAM Modulation

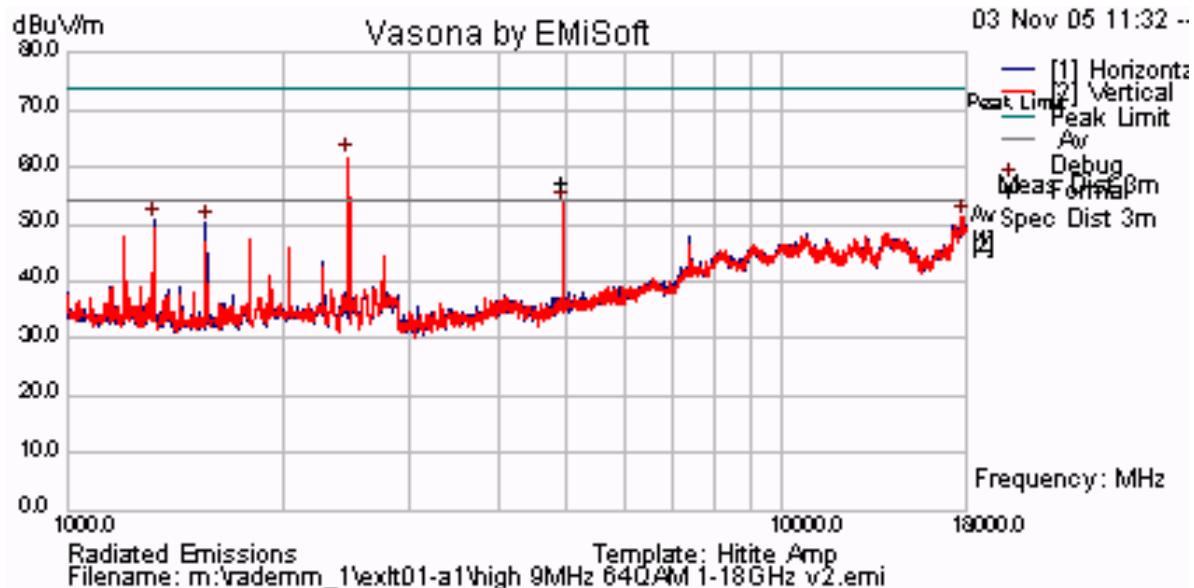
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 108

2,468 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

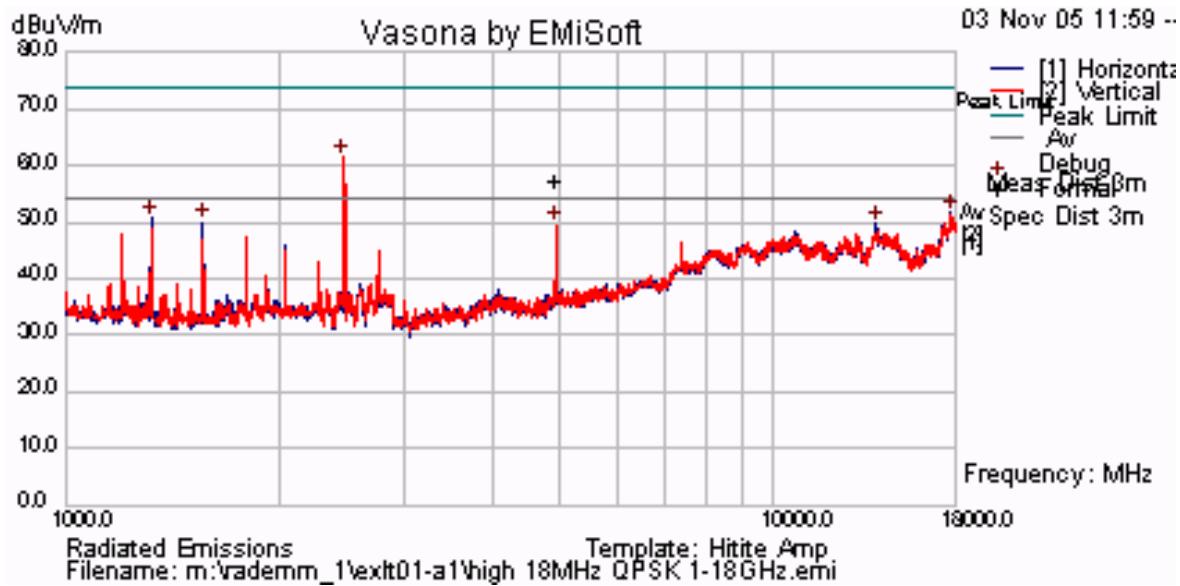
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,465 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 109

2,465 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

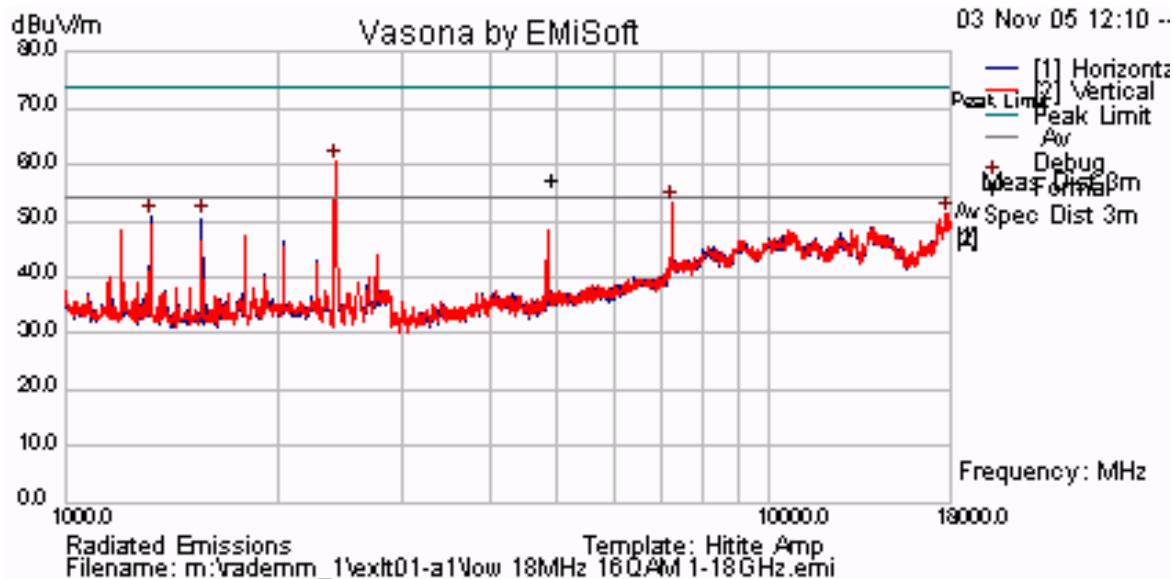
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,417 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 110

2,417 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

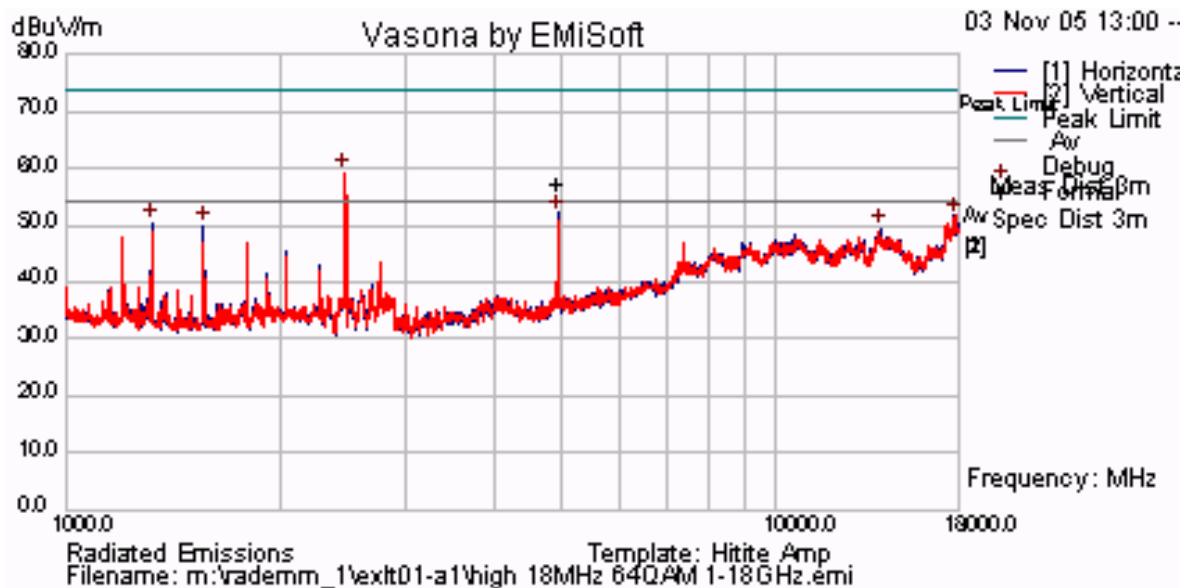
| Table of Results for 10 MHz Bandwidth S-Qua/m Modulation | | | | | | | |
|--|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
| 2,465 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 111

2.465 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

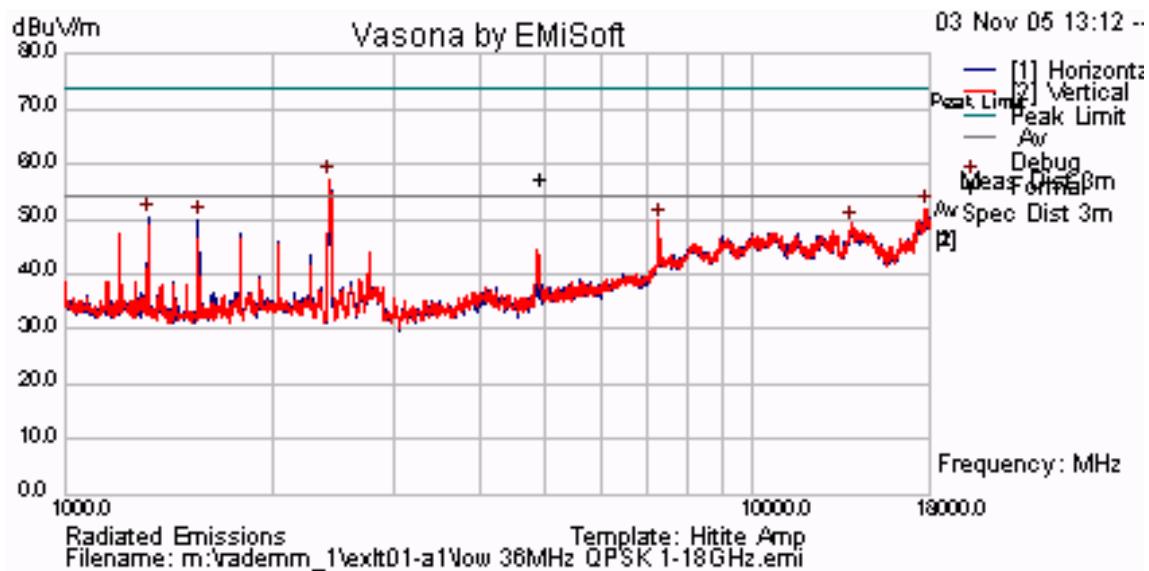
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,426 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 112

2,426 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

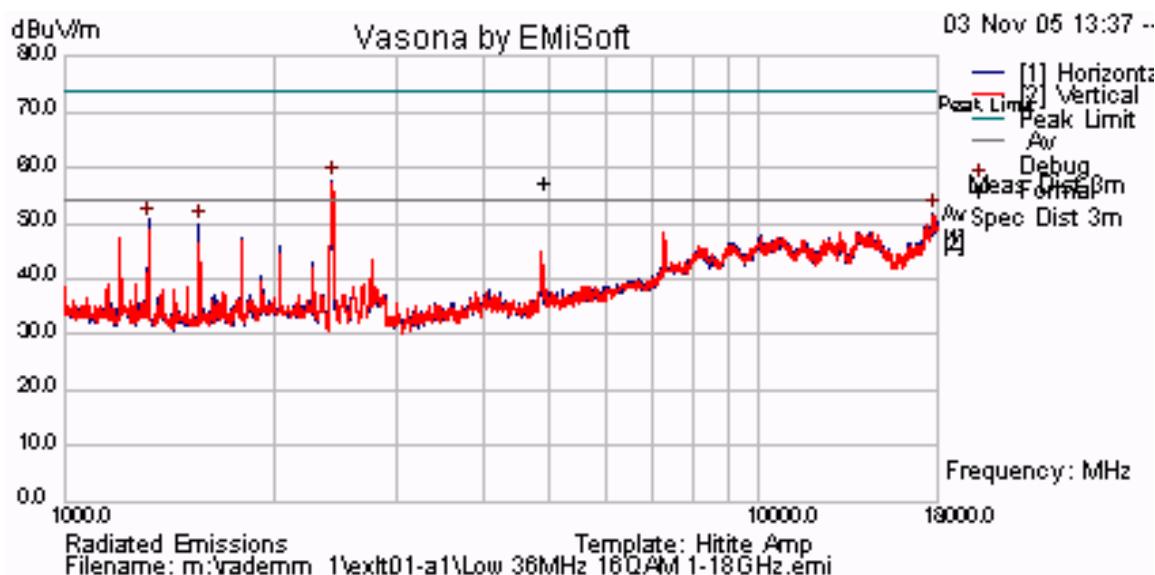
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,426 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 113

2,426 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

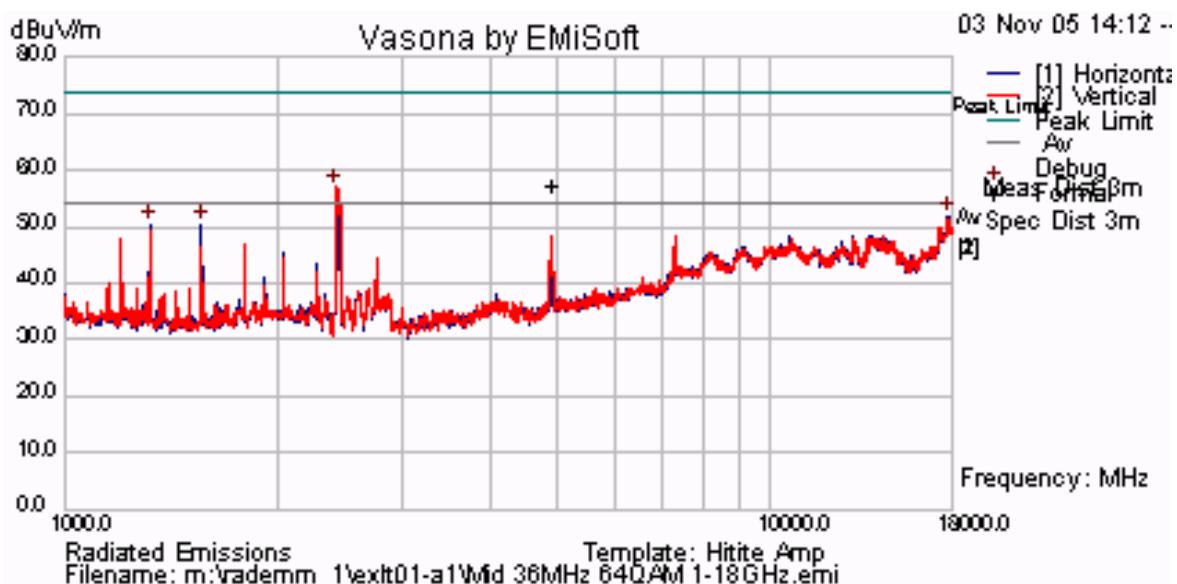
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 114

2,437 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

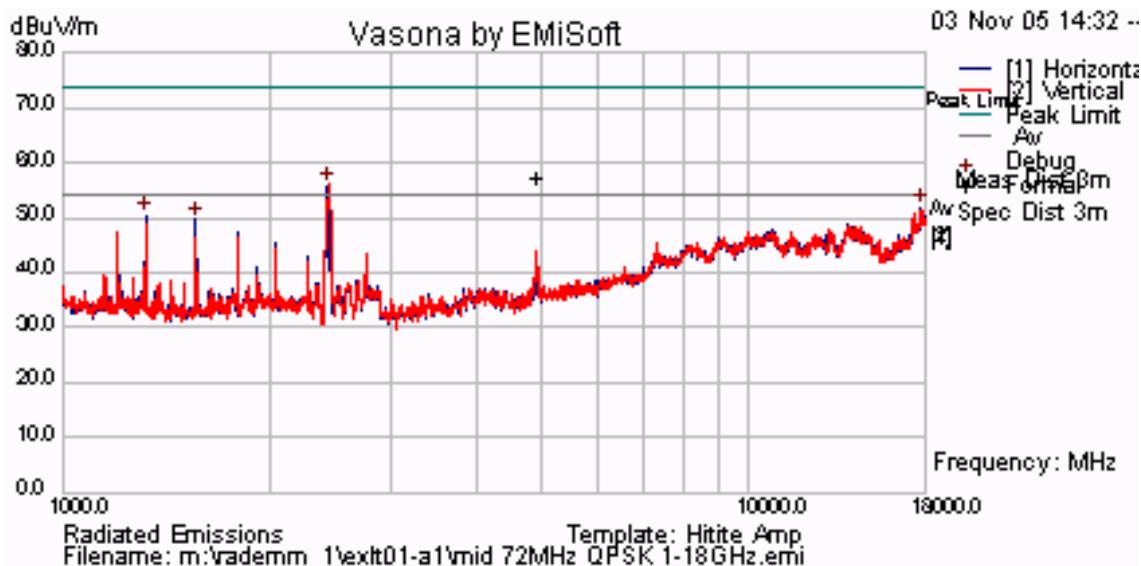
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 115

2,437 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS– 72 MHz Bandwidth 16QAM Modulation

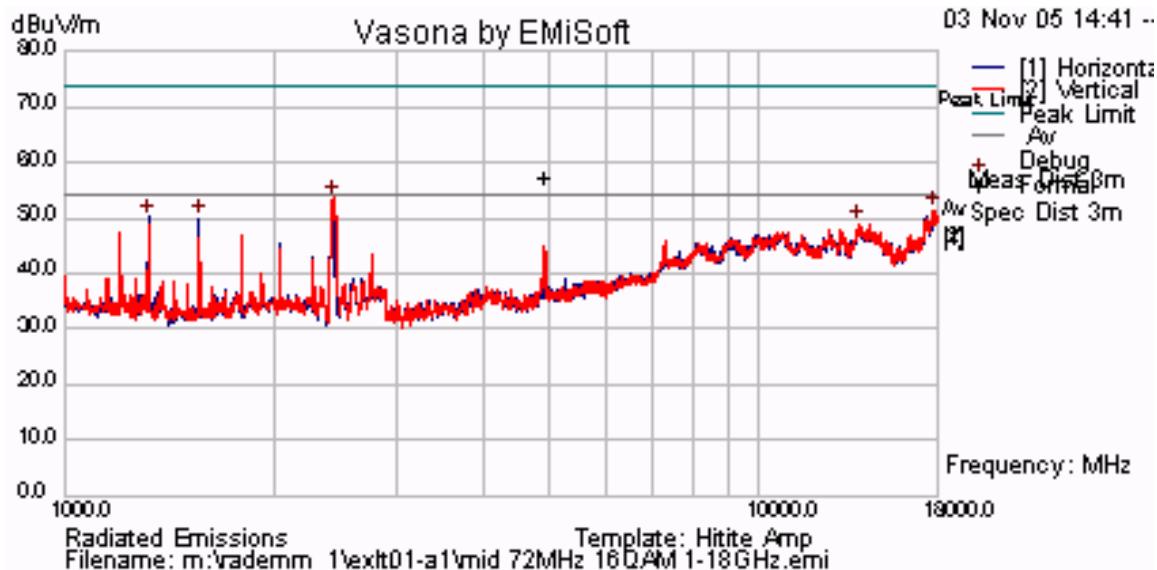
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 116

2,437 MHz Radiated Spurious Emissions > 1GHz



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21.3 dBi Parabolic

TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

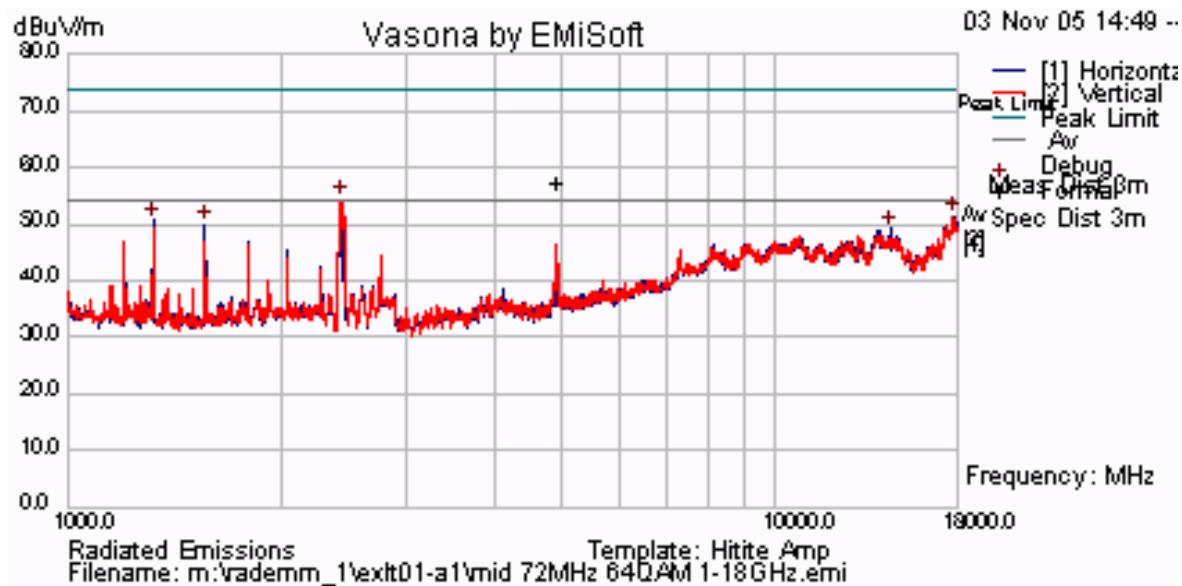
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 117

2,437 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

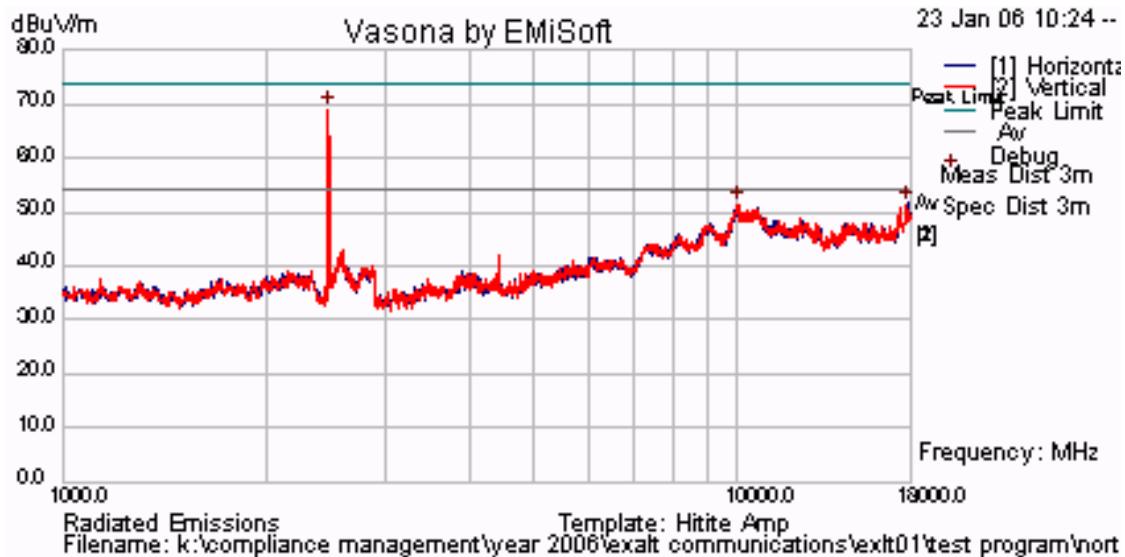
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 118

2,468 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS –9 MHz Bandwidth 16QAM Modulation

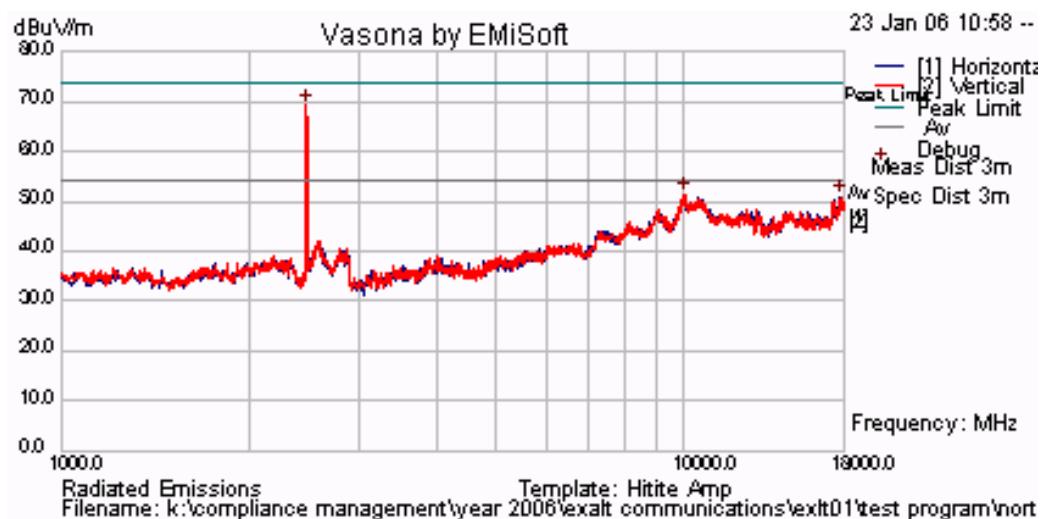
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 119

2,468 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS— 9 MHz Bandwidth 64QAM Modulation

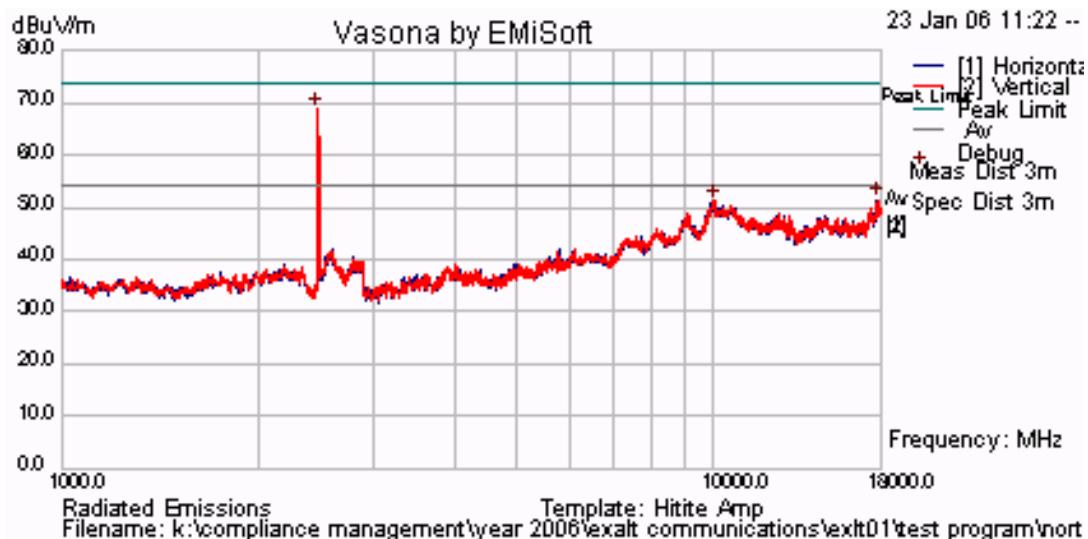
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 120

2,468 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

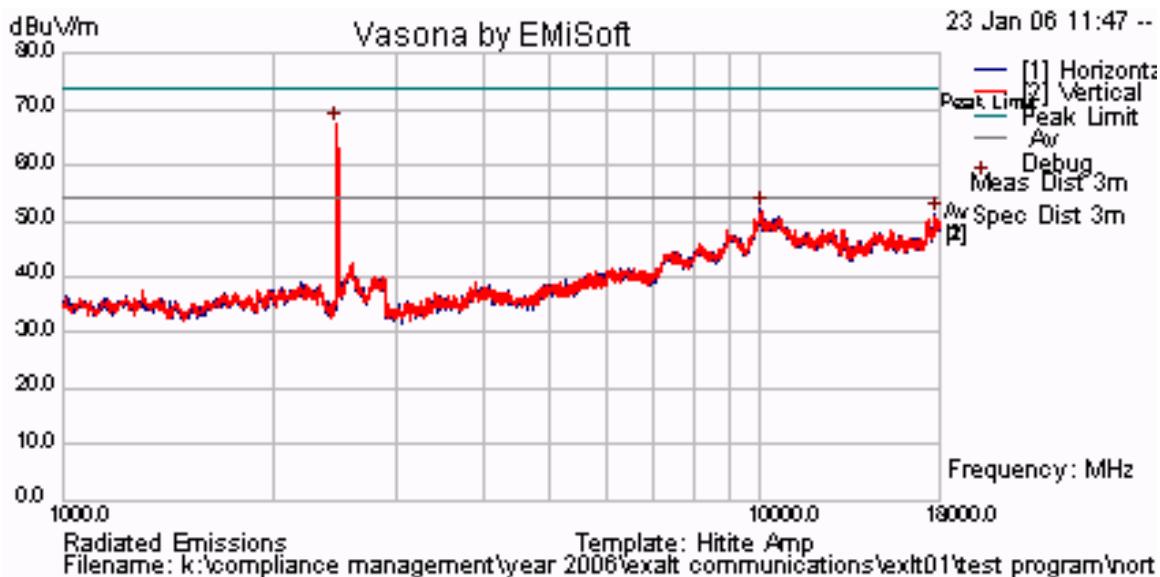
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,465 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 121

2,465 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

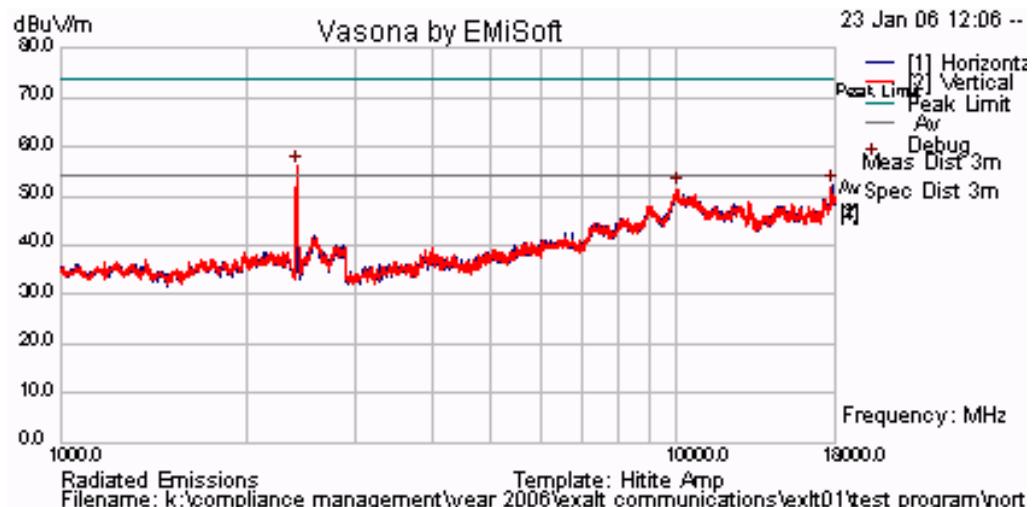
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,417 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 122

2,417 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

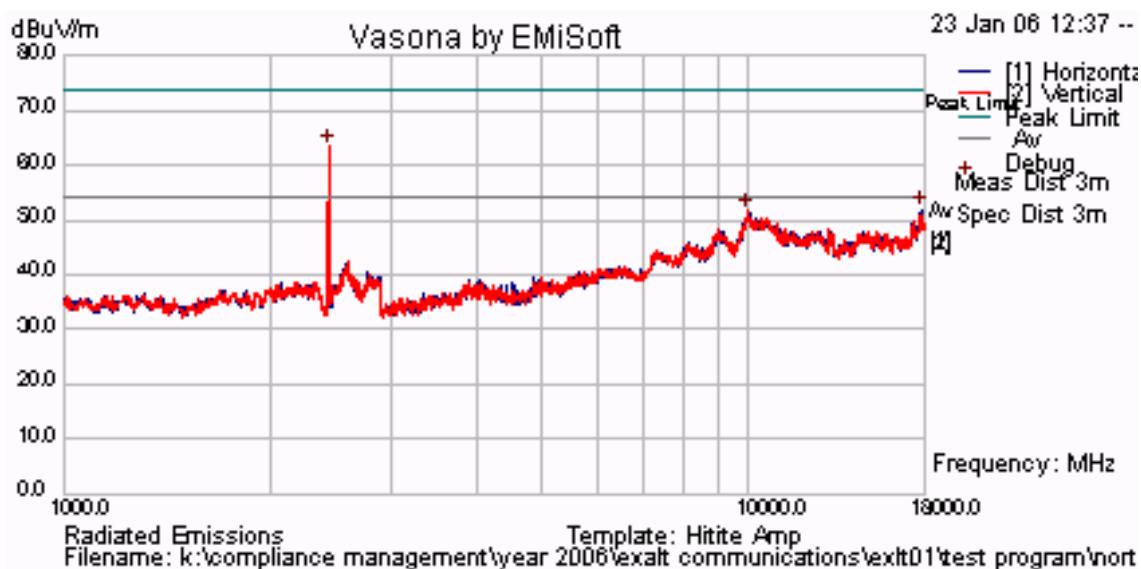
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,465 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 123

2,465 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

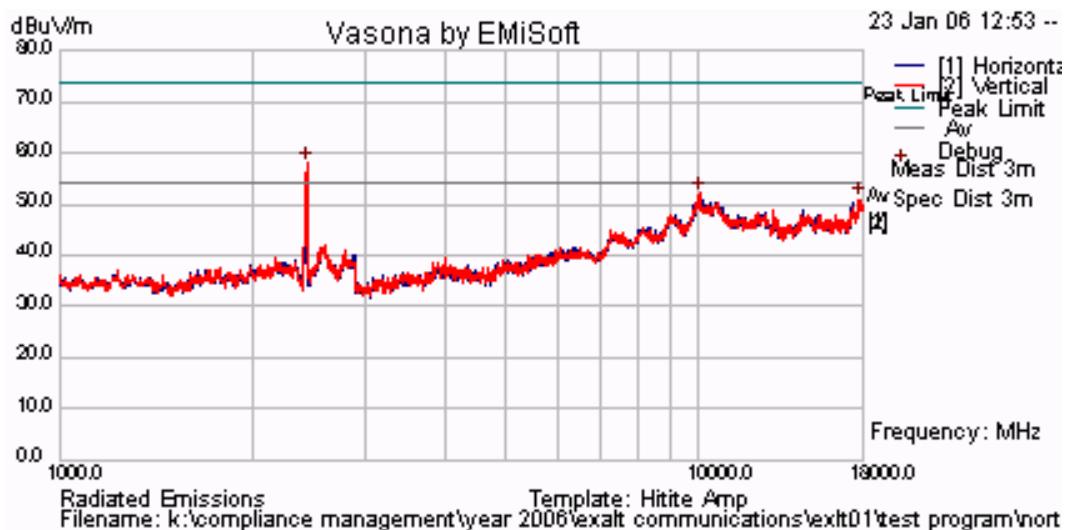
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,426 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 124

2,426 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

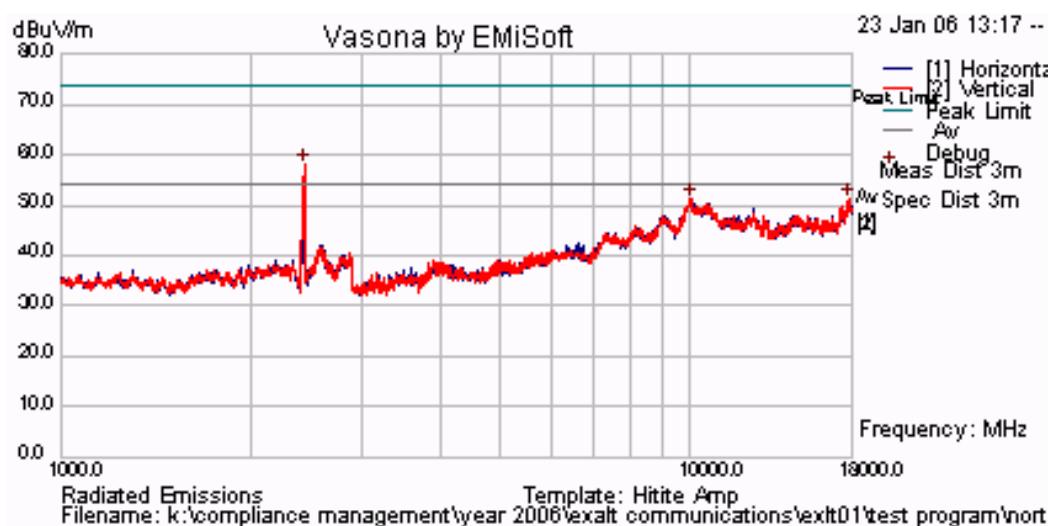
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,426 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 125

2,426 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

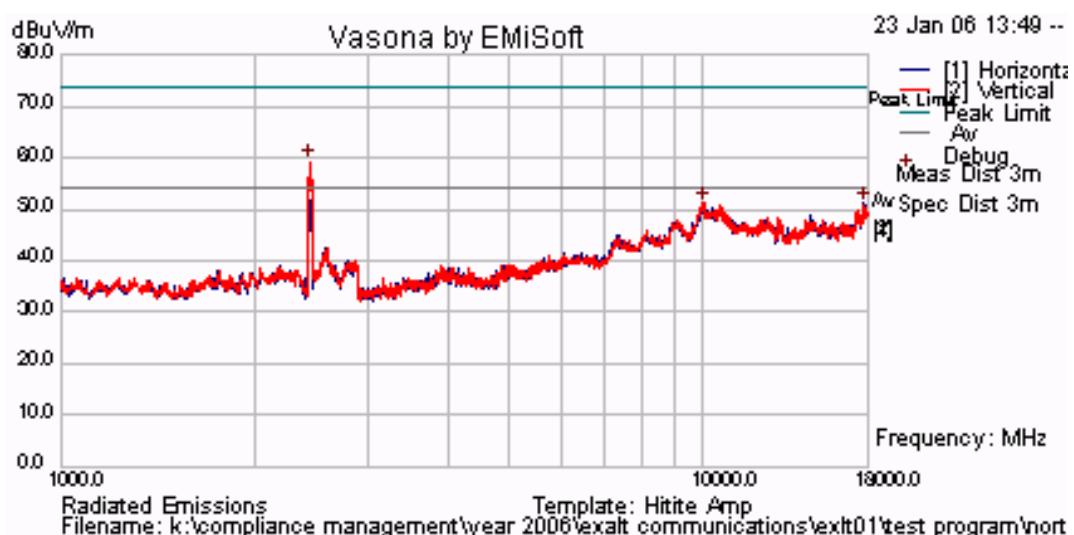
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 126

2,437 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

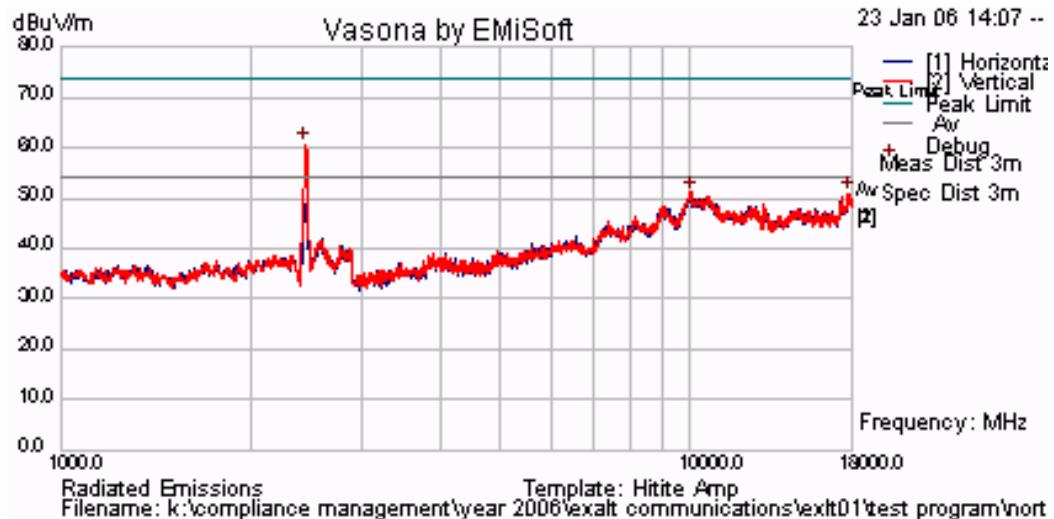
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 127

2,437 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS– 72 MHz Bandwidth 16QAM Modulation

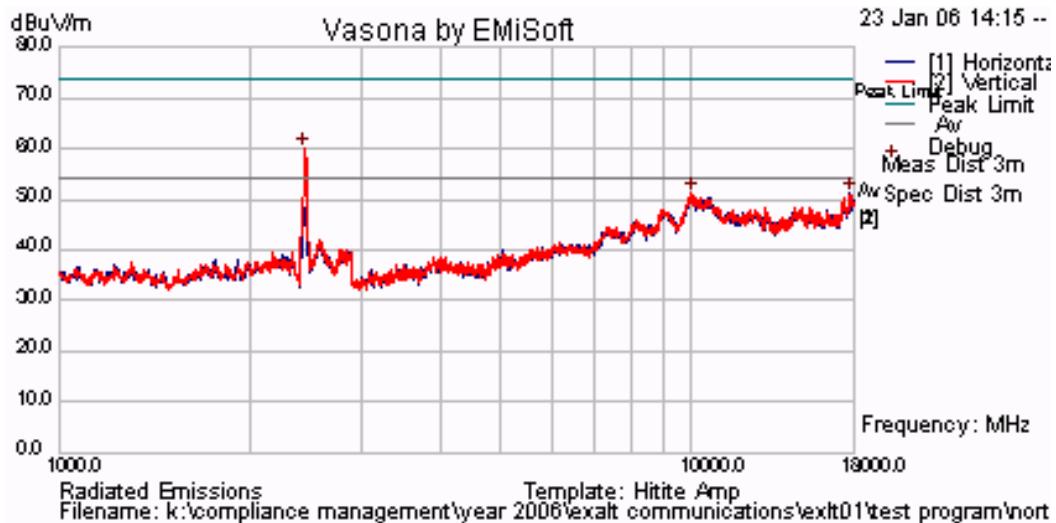
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 128

2,437 MHz Radiated Spurious Emissions > 1GHz



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30.3 dBi Parabolic

TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

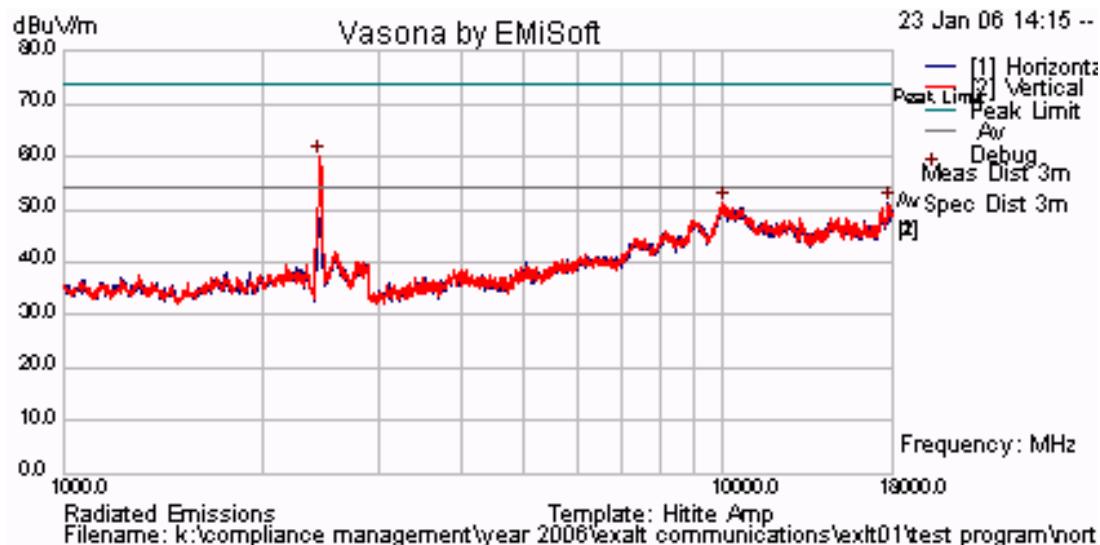
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 129

2,437 MHz Radiated Spurious Emissions > 1GHz



Radiated Emissions Template: Hitite Amp
 Filename: k:\compliance management\year 2006\exalt communications\exlt01\test program\nort

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20 dBi Panel

TABLE OF RESULTS – 9 MHz Bandwidth QPSK Modulation

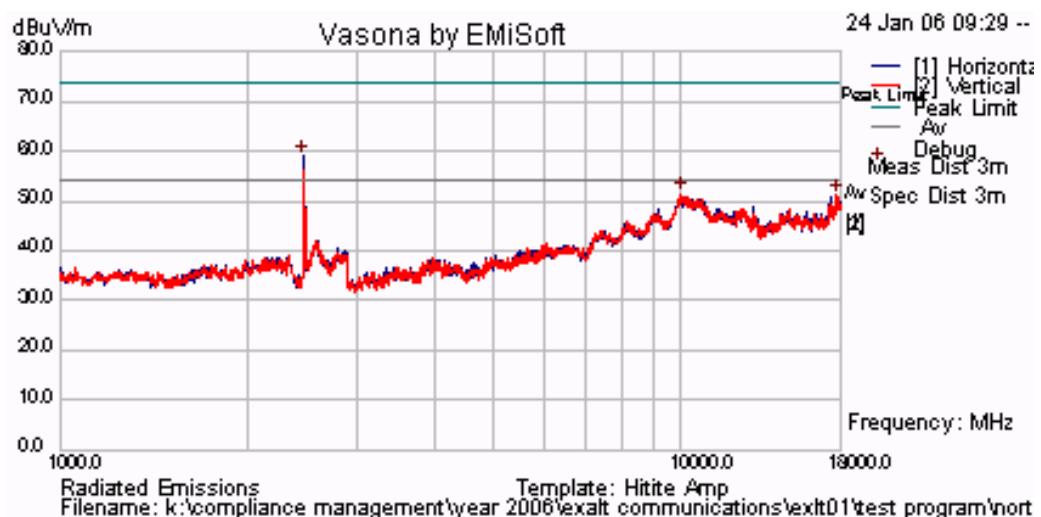
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 130

2,468 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS –9 MHz Bandwidth 16QAM Modulation

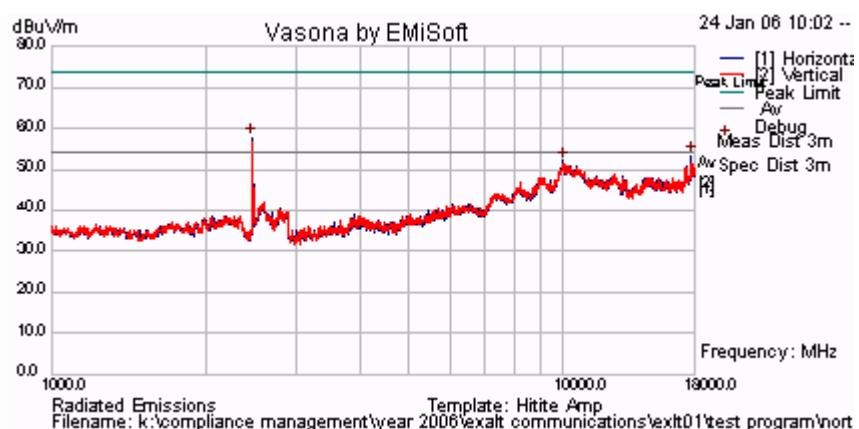
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 131

2,468 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS— 9 MHz Bandwidth 64QAM Modulation

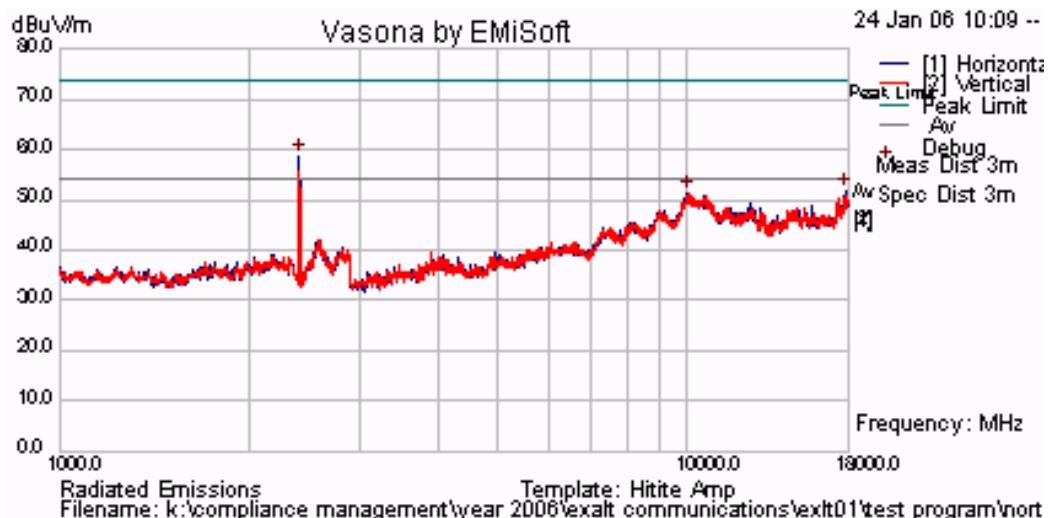
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,468 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 9 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 132

2,468 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 18 MHz Bandwidth QPSK Modulation

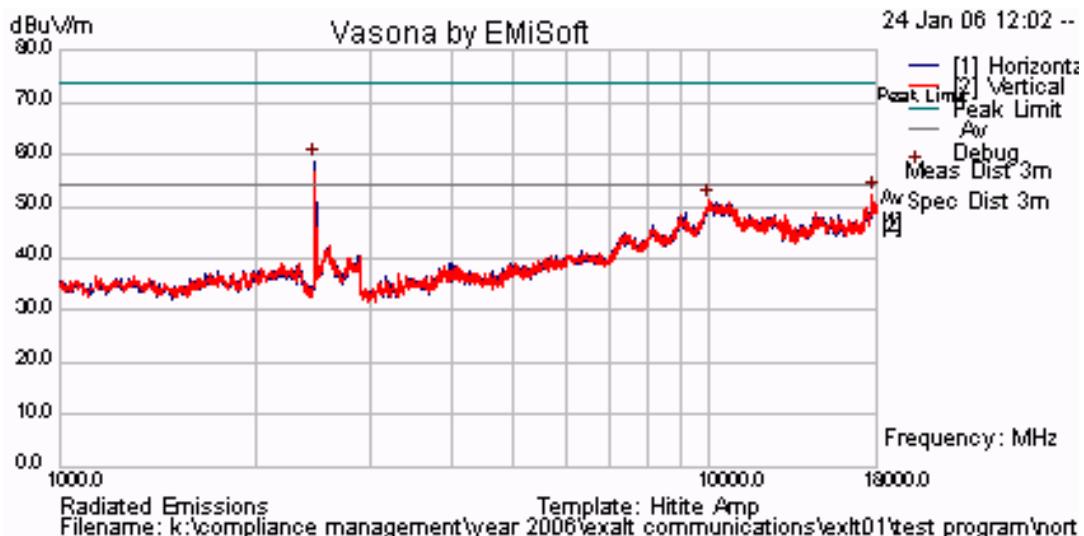
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,465 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 133

2,465 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 18 MHz Bandwidth 16QAM Modulation

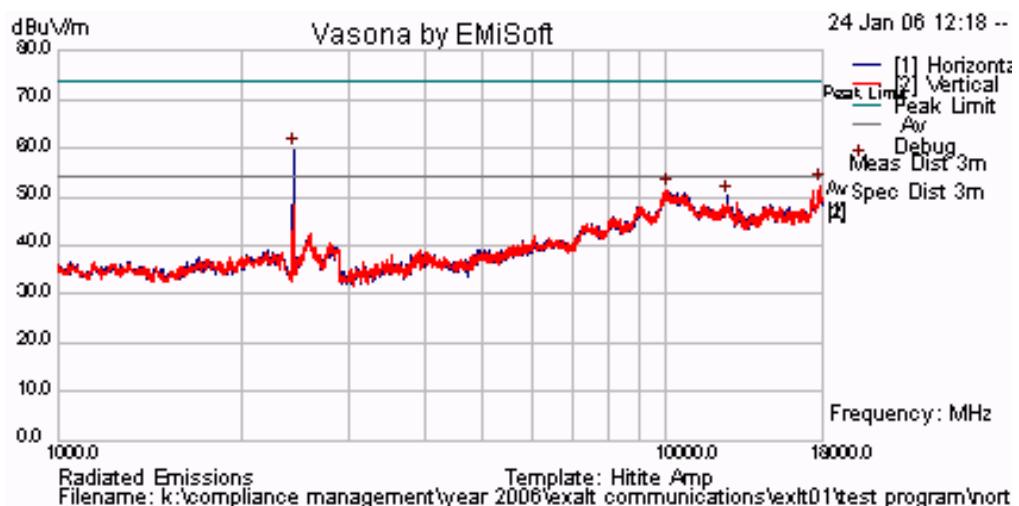
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,417 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 134

2,417 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 18 MHz Bandwidth 64QAM Modulation

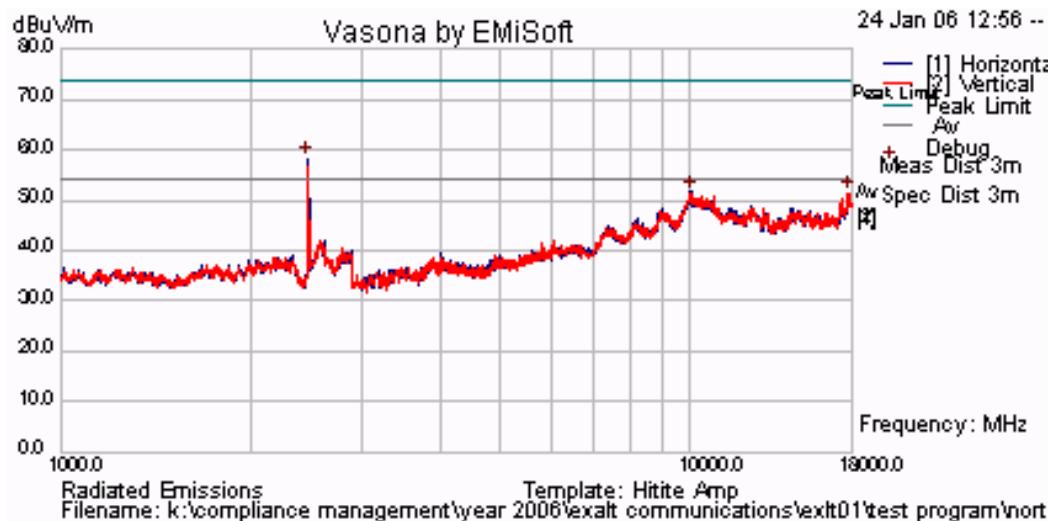
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,465 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 18 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 135

2,465 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 36 MHz Bandwidth QPSK Modulation

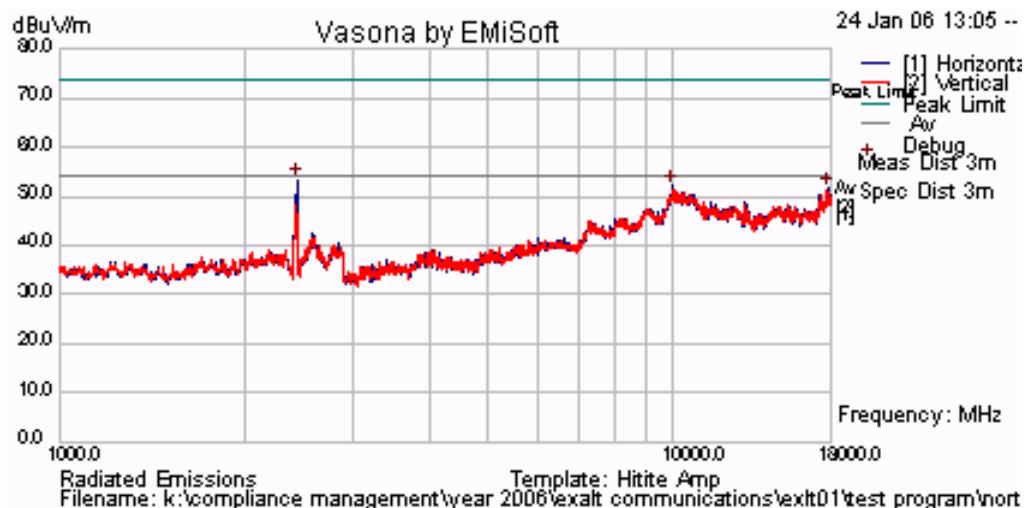
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,426 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 136

2,426 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 36 MHz Bandwidth 16QAM Modulation

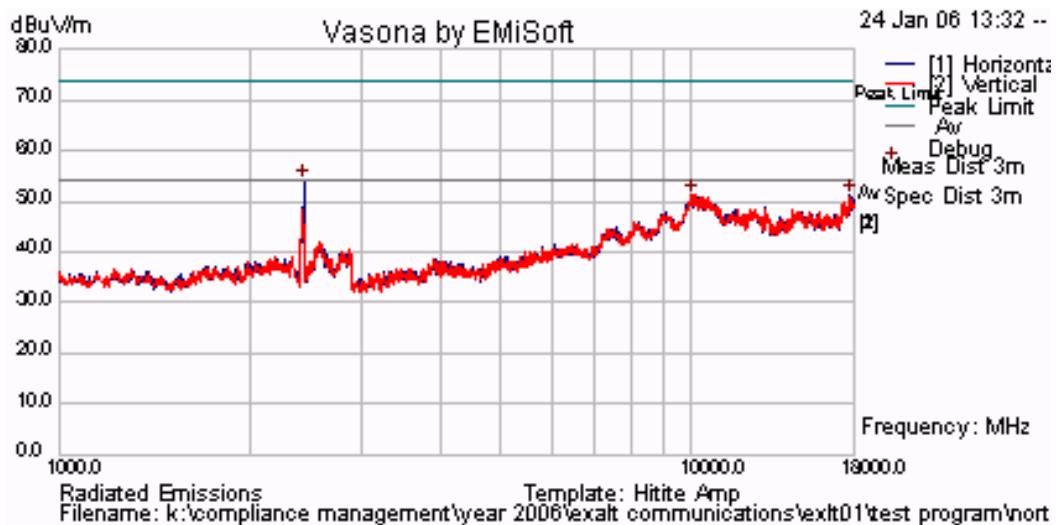
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,426 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 137

2,426 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 36 MHz Bandwidth 64QAM Modulation

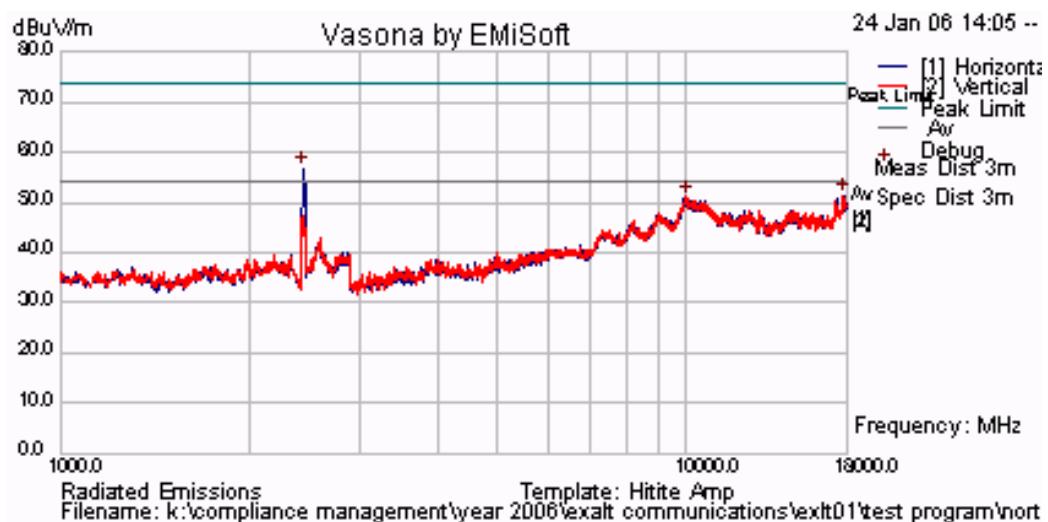
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 36 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 138

2,437 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 72 MHz Bandwidth QPSK Modulation

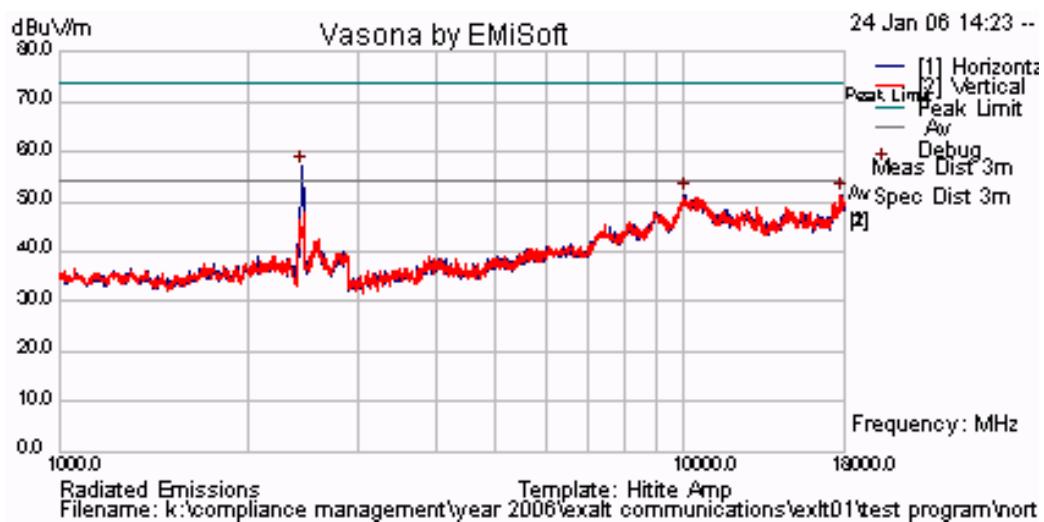
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|-------------|------------|----------------------------|------------------------|---|----------------------|-------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth QPSK Modulation. All other results for this bandwidth and modulation are held on file.

Plot 139

2,437 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS– 72 MHz Bandwidth 16QAM Modulation

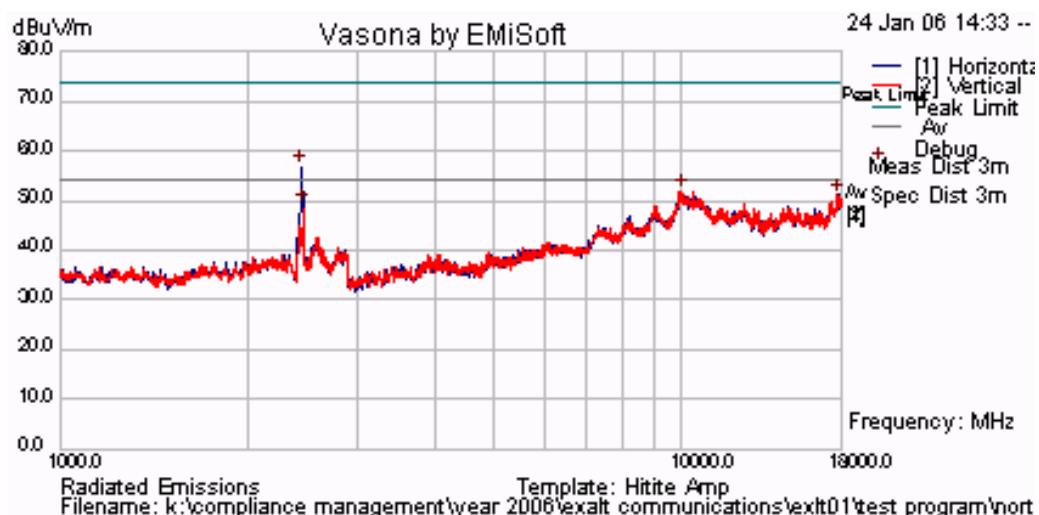
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth 16QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 140

2,437 MHz Radiated Spurious Emissions > 1GHz



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20 dBi Panel

TABLE OF RESULTS – 72 MHz Bandwidth 64QAM Modulation

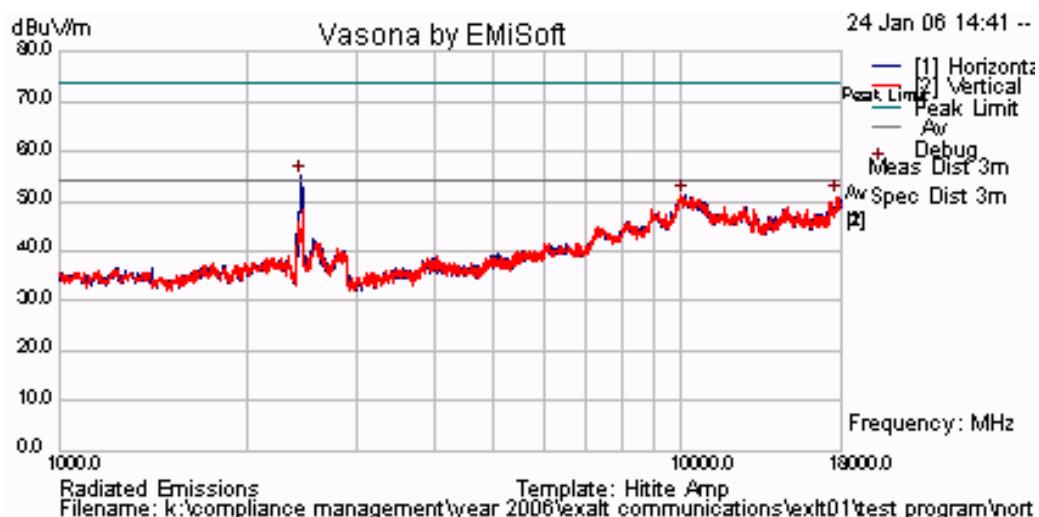
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. The peak emission shown in the graph below is fundamental breaking through the notch filter. No other emissions were observed above the limit line.

Worst case plot shown for 72 MHz Bandwidth 64QAM Modulation. All other results for this bandwidth and modulation are held on file.

Plot 141

2,437 MHz Radiated Spurious Emissions > 1GHz



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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
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Specification

Limits

§15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

§15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

IC RSS-Gen § 4.7 The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device, or from 30 MHz, whichever is the lowest frequency, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

| Frequency (MHz) | Field Strength (μ V/m) | Field Strength (dB μ V/m) | Measurement Distance (meters) |
|-----------------|-----------------------------|-------------------------------|-------------------------------|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

Laboratory Measurement Uncertainty for Radiated Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | +5.6/ -4.5 dB |
|-------------------------|---------------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions' | 0088, 0158, 0134, 0304, 0315, 0310, 0312 |

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5.1.6.2. Receiver Radiated Spurious Emissions (above 1 GHz)

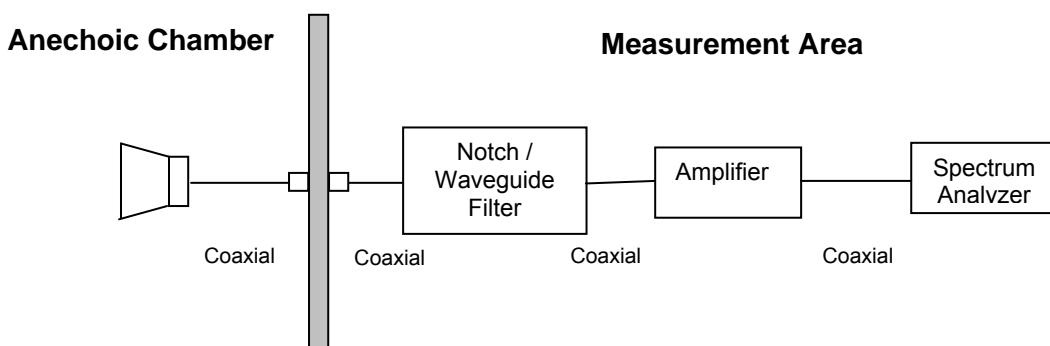
Industry Canada RSS-Gen §4.8

Test Procedure

Radiated emissions above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

All measurements above 1 GHz were performed using a minimum resolution bandwidth of 1 MHz.

Test Measurement Set up



Measurement set up for Radiated Emission Test

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

$$FS = R + AF + CORR - FO$$

where: FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL - AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss or Waveguide Loss



Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
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For example:

Given receiver input reading of 51.5 dB μ V; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 \text{ dB}\mu\text{V/m}$$

Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log} (\text{level (\mu V/m)})$$

$$40 \text{ dB}\mu\text{V/m} = 100 \mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250 \mu\text{V/m}$$

Receiver Radiated Spurious Emissions above 1 GHz

Ambient conditions.

Temperature: 19 to 26°C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

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Receiver Radiated Spurious Emissions above 1 GHz

21.3 dBi Parabolic

TABLE OF RESULTS – 9 MHz Bandwidth all modulations

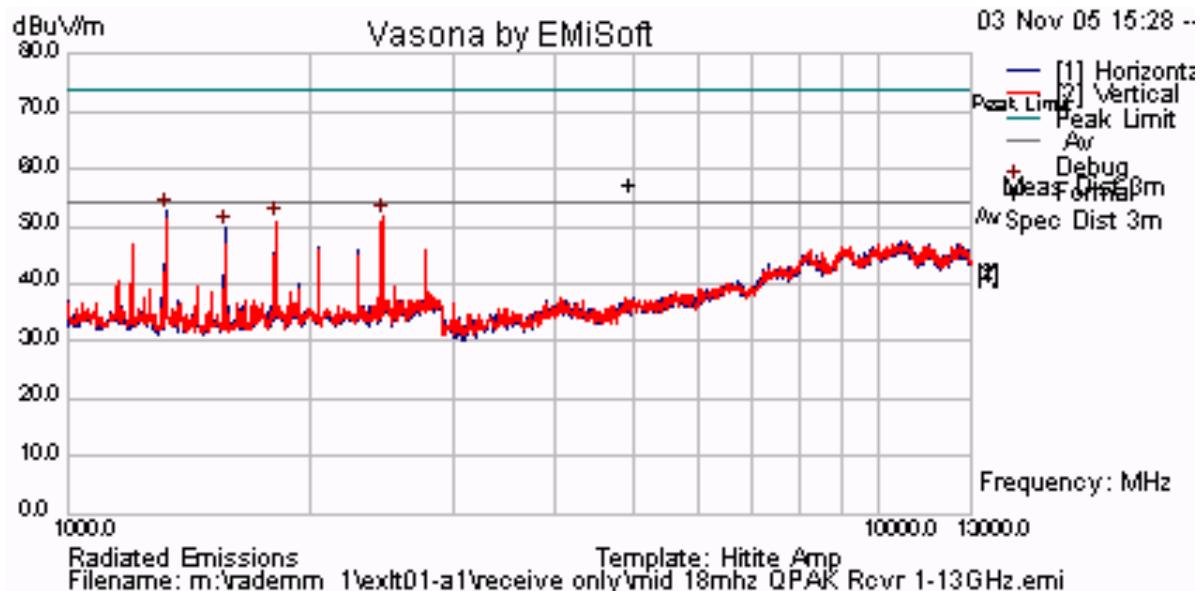
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Worst case plot is shown for 9 MHz Bandwidth QPSK Modulation. Results for other modulations in this bandwidth are held on file.

Plot 142

9 MHz BW QPSK Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

21.3 dBi Parabolic

TABLE OF RESULTS – 18 MHz Bandwidth all modulations

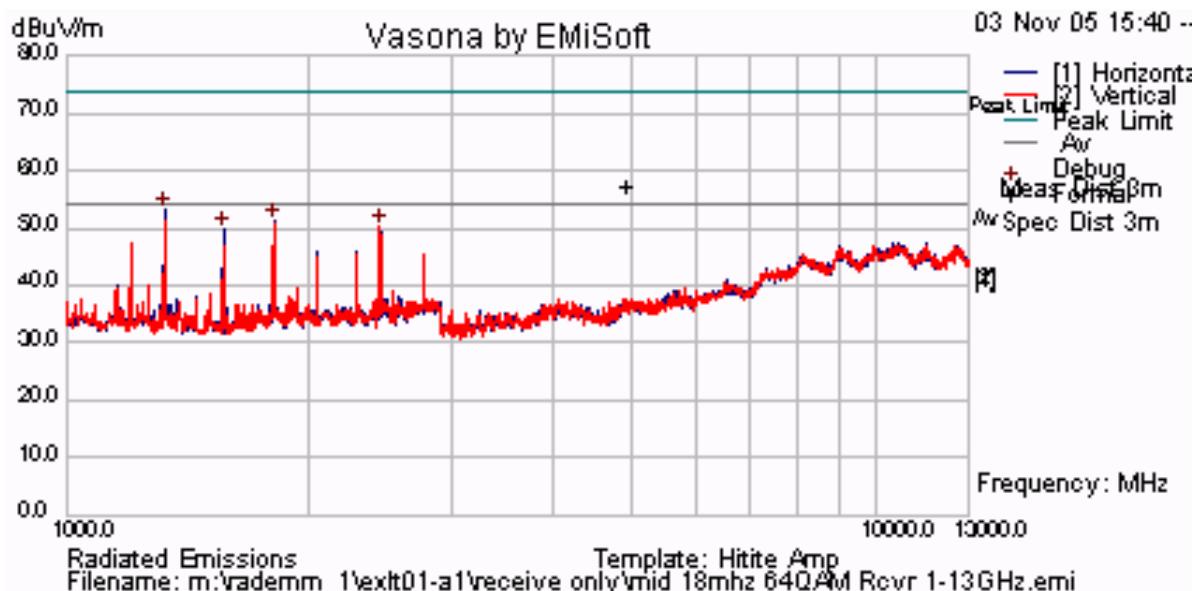
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Worst case plot is shown for 18 MHz Bandwidth 64QAM Modulation. Results for other modulations in this bandwidth are held on file.

Plot 143

18 MHz BW 64QAM Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

21.3 dBi Parabolic

TABLE OF RESULTS – 36 MHz Bandwidth all modulations

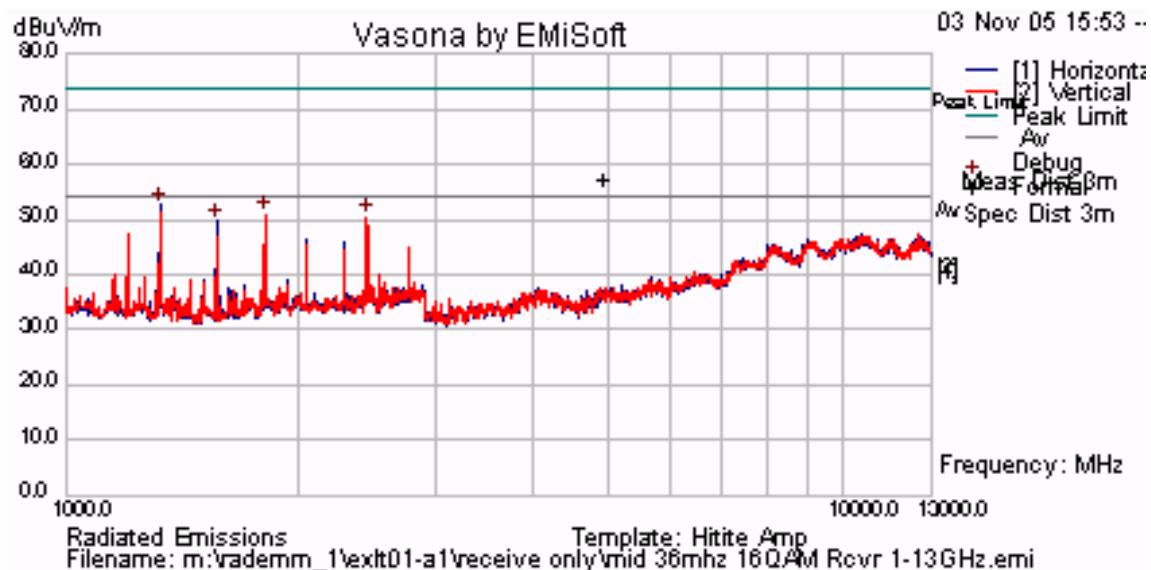
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Worst case plot is shown for 36 MHz Bandwidth 16QAM Modulation. Results for other modulations in this bandwidth are held on file.

Plot 144

36 MHz BW 16QAM Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

21.3 dBi Parabolic

TABLE OF RESULTS – 72 MHz Bandwidth all modulations

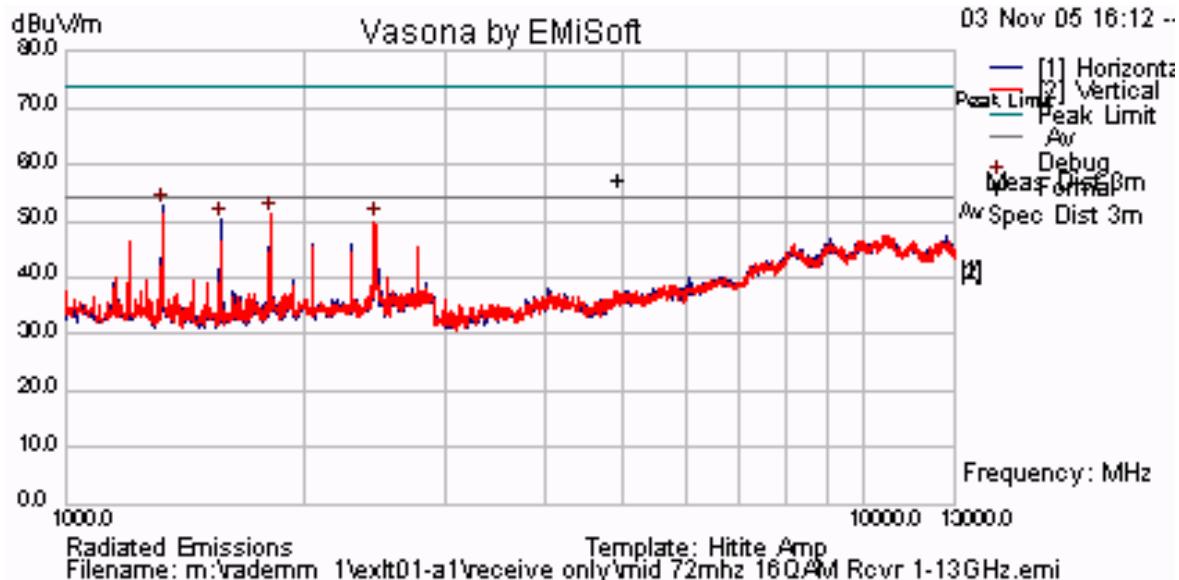
| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Worst case plot is shown for 72 MHz Bandwidth 16QAM Modulation. Results for other modulations in this bandwidth are held on file.

Plot 145

72 MHz BW 16QAM Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

30.3 dBi Parabolic

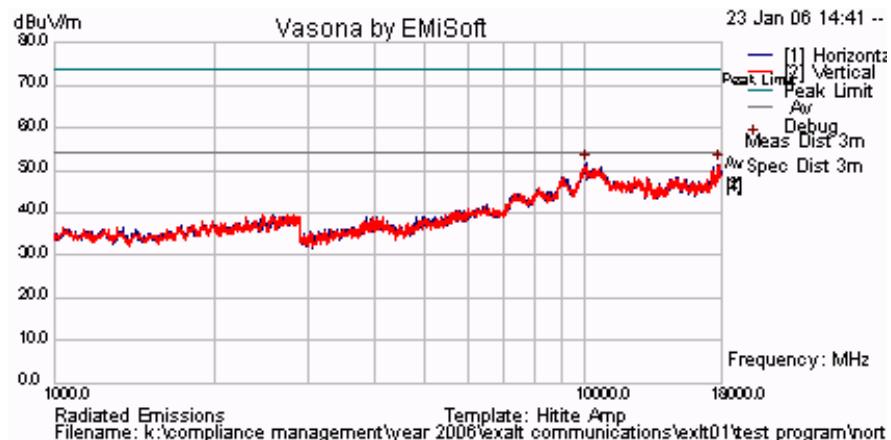
TABLE OF RESULTS – 18 MHz Bandwidth QPSK

| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Plot 146

18 MHz BW QPSK Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

30.3 dBi Parabolic

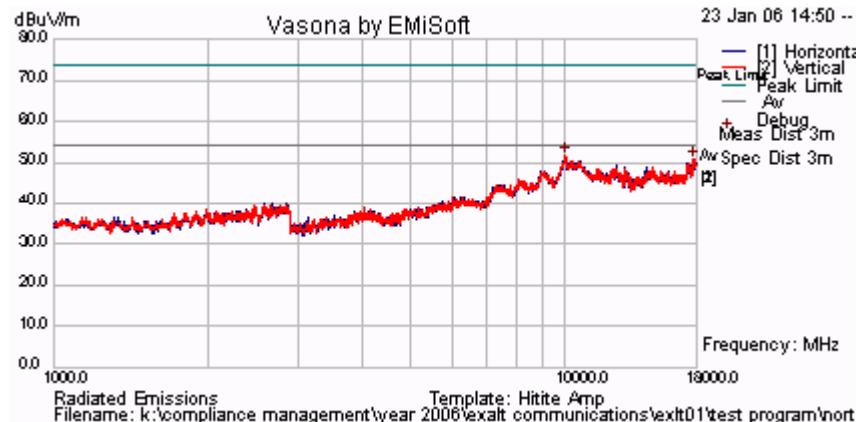
TABLE OF RESULTS – 18 MHz Bandwidth 16QAM

| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Plot 147

18 MHz BW 16QAM Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

30.3 dBi Parabolic

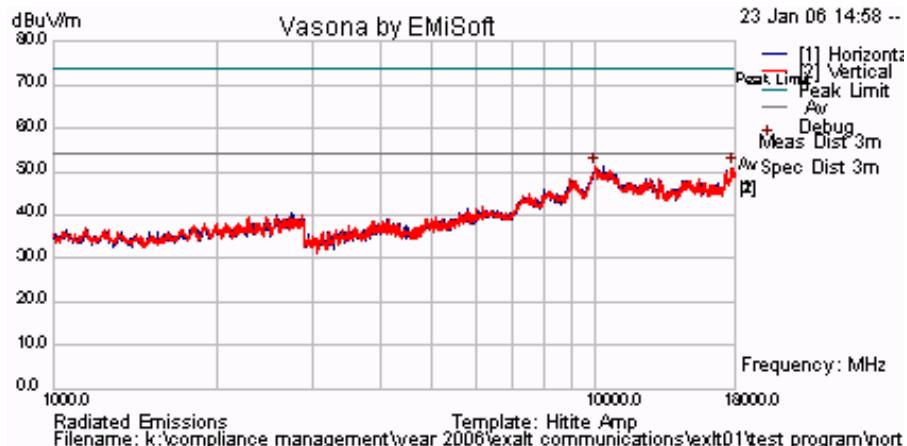
TABLE OF RESULTS – 18 MHz Bandwidth 64QAM

| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Plot 148

18 MHz BW 64QAM Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

20 dBi Parabolic

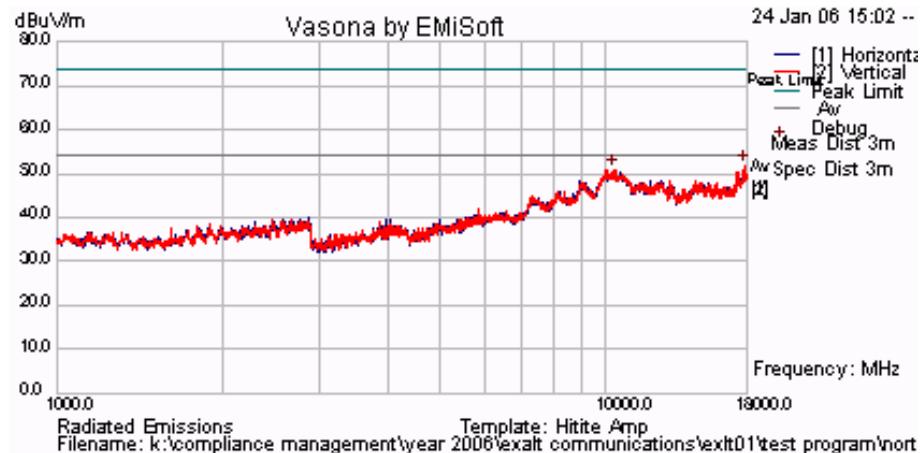
TABLE OF RESULTS – 18 MHz Bandwidth QPSK

| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Plot 149

18 MHz BW QPSK Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

20 dBi Panel

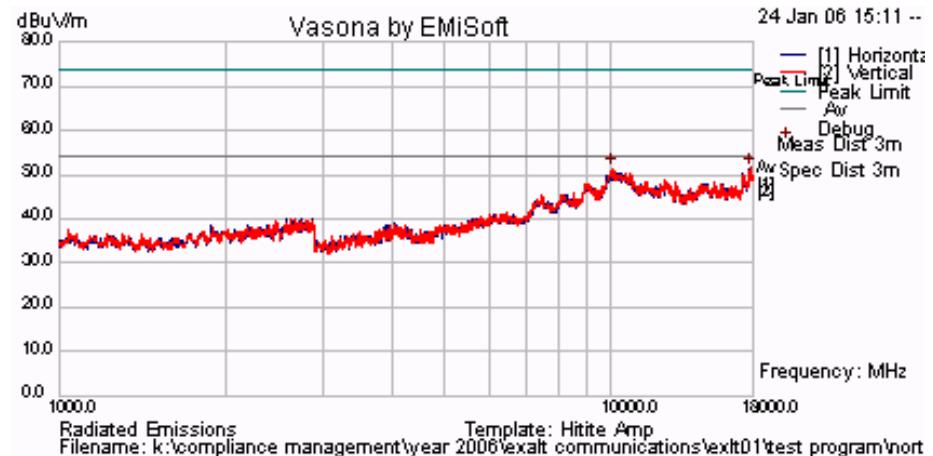
TABLE OF RESULTS – 18 MHz Bandwidth 16QAM

| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Plot 150

18 MHz BW 16QAM Receiver Radiated Spurious Emissions > 1GHz



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Receiver Radiated Spurious Emissions above 1 GHz

20 dBi Panel

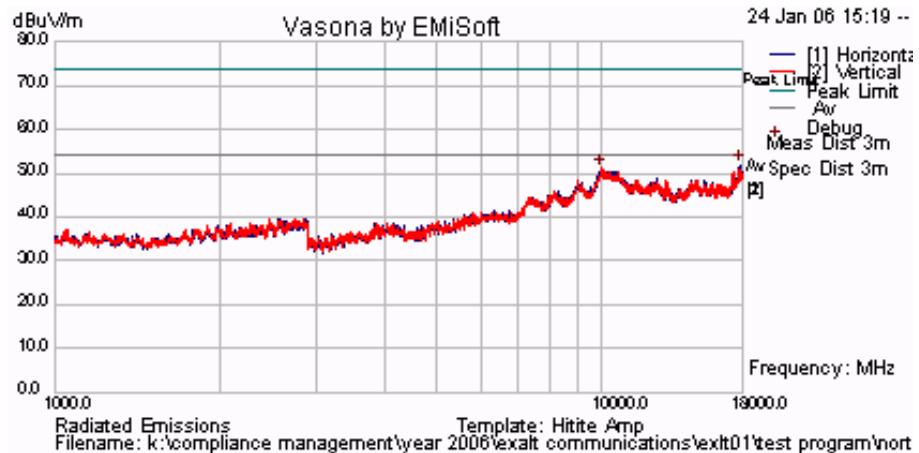
TABLE OF RESULTS – 18 MHz Bandwidth 64QAM

| CH. | Freq. (MHz) | Pol. (H/V) | Raw Reading (dB μ V/m) | Correction Factor (dB) | Corrected Field Strength (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-------|----------------|---------------|----------------------------------|------------------------------|---|-------------------------|----------------|
| 2,437 | | | Note | | | 54.00 | |

Note. No emissions were observed above the limit.

Plot 151

18 MHz BW 64QAM Receiver Radiated Spurious Emissions > 1GHz



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5.1.6.3. Peak Field Strength Measurements

Peak Field Strength for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH QPSK MODULATION

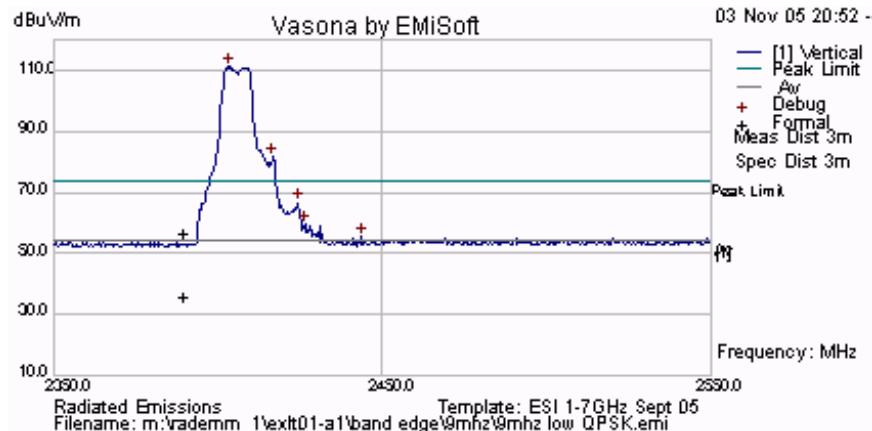
NOTE:

As a result of the higher power levels and to protect the test equipment a 16.0 dB attenuator was inserted between the transmit port and the antenna under test for the 21.3 dBi antenna. 16 dB was added to the value identified in all peak plots.

Power output power was fixed at the highest permissible power level for the 21.3 dBi antenna = +24.9 dBm, see Section 5.1.2 Peak Output Power

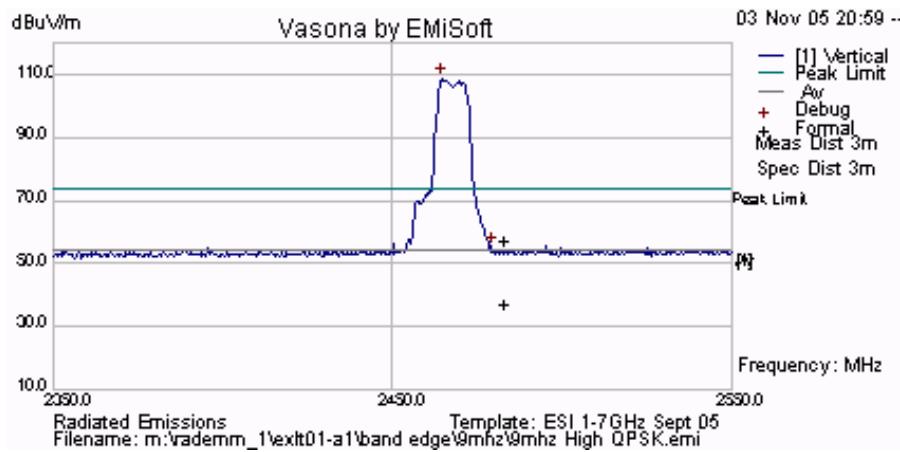
Plot 152 2,406 MHz

Peak Emission = $111.46 + 16.0 = 127.46 \text{ dB}\mu\text{V/m}$



Plot 153 2,468 MHz

Peak Emission = $108.85 + 16 = 124.85 \text{ dB}\mu\text{V/m}$



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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH 16QAM MODULATION

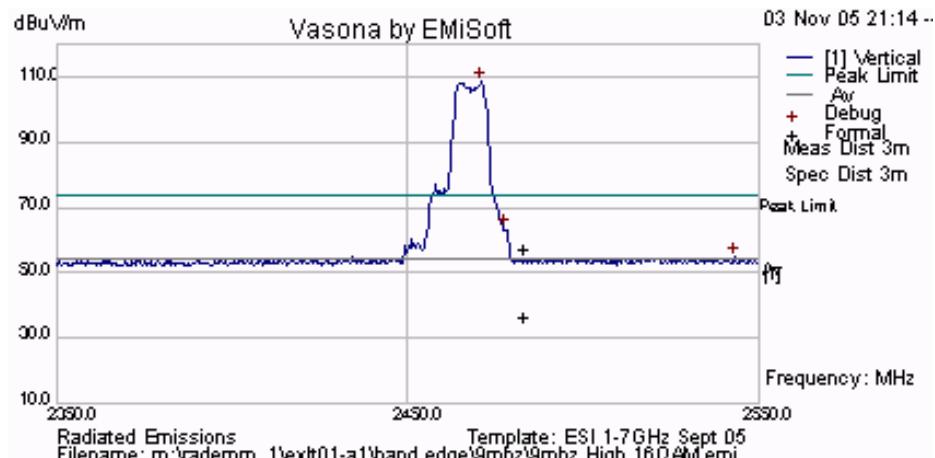
Plot 154 2,406 MHz

Peak Emission = $111.64 + 16 = 127.64 \text{ dB}\mu\text{V/m}$



Plot 155 2,468 MHz

Peak Emission = $108.59 + 16 = 124.59 \text{ dB}\mu\text{V/m}$



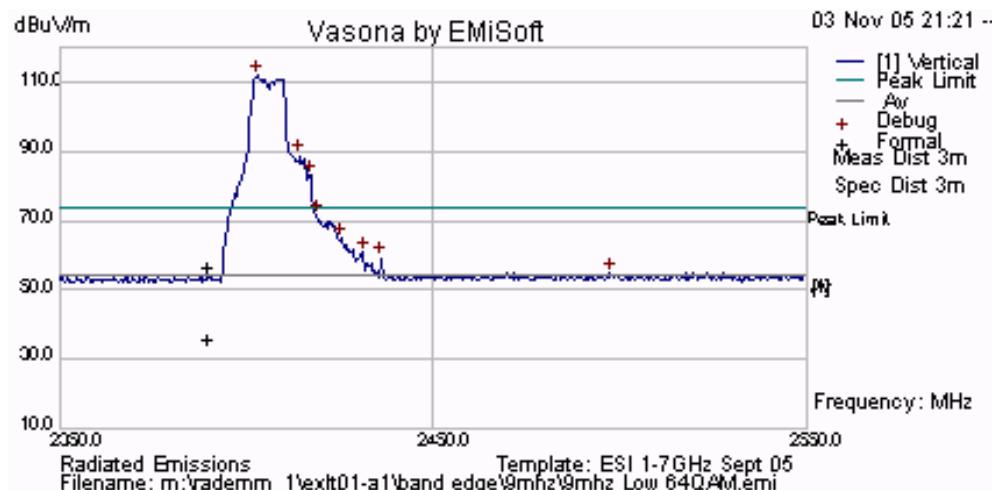
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH 64QAM MODULATION

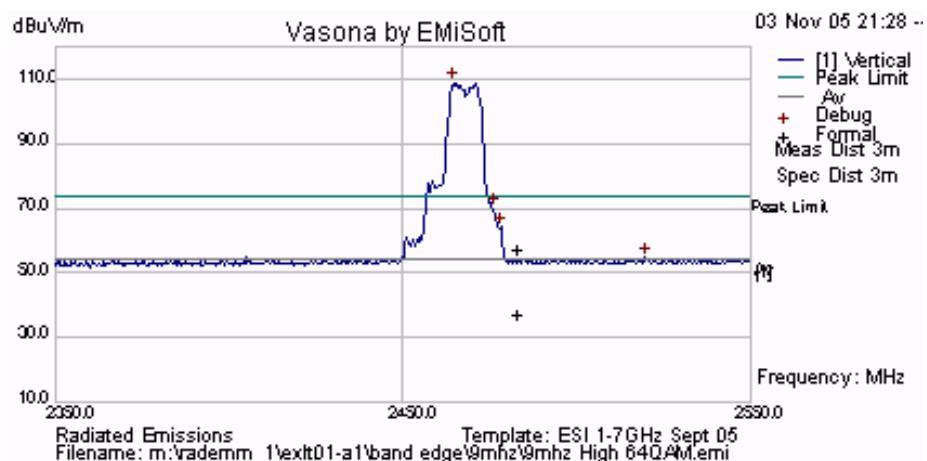
Plot 156 2,406 MHz

Peak Emission = $111.91 + 16 = 127.91 \text{ dB}\mu\text{V/m}$



Plot 157 2,468 MHz

Peak Emission = $108.93 + 16 = 124.93 \text{ dB}\mu\text{V/m}$



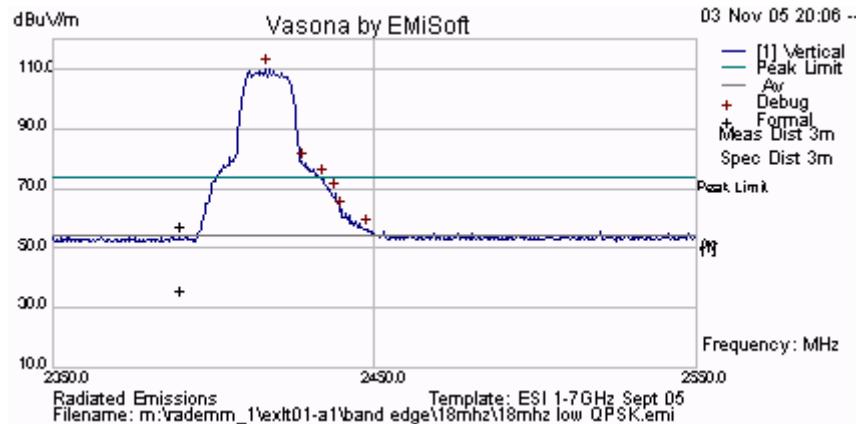
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH QPSK MODULATION

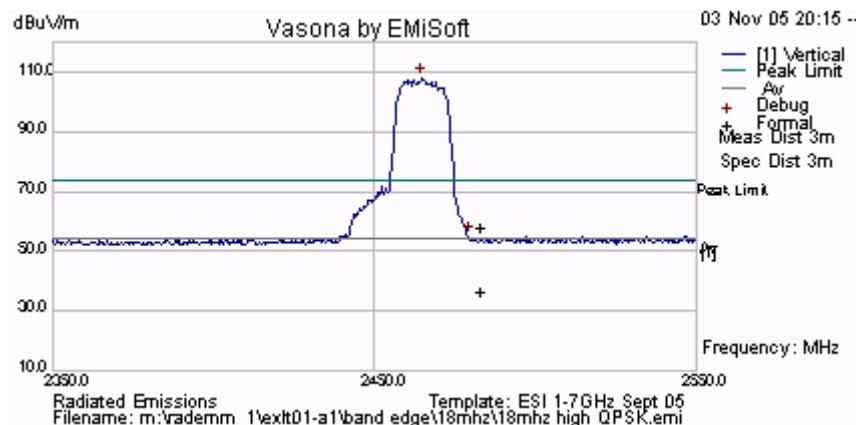
Plot 158 2,417 MHz

Peak Emission = $110.35 + 16 = 126.35 \text{ dB}\mu\text{V/m}$



Plot 159 2,465 MHz

Peak Emission = $108.39 + 16 = 124.39 \text{ dB}\mu\text{V/m}$



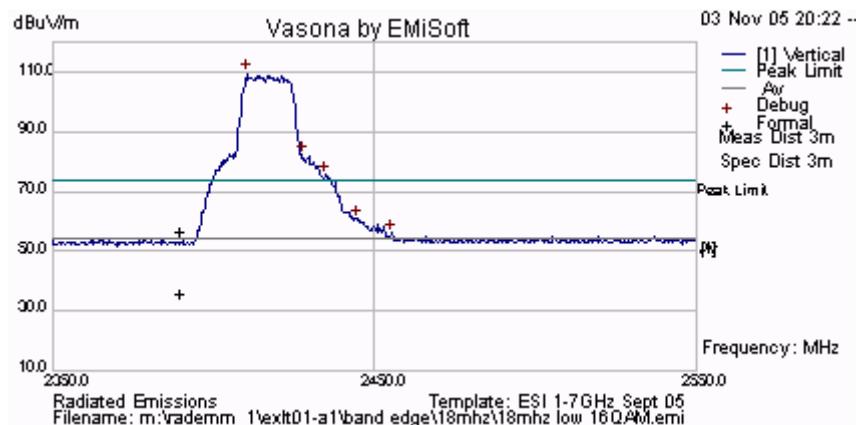
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH 16QAM MODULATION

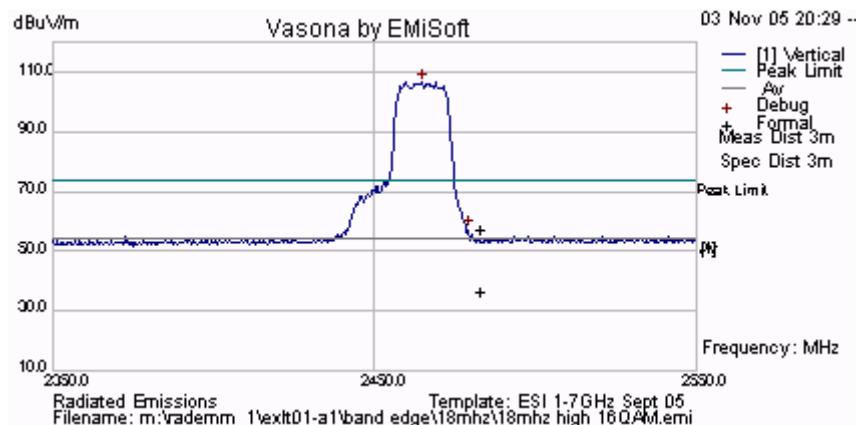
Plot 160 2,417 MHz

Peak Emission = $109.59 + 16 = 125.59 \text{ dB}\mu\text{V/m}$



Plot 161 2,465 MHz

Peak Emission = $106.55 + 16 = 122.55 \text{ dB}\mu\text{V/m}$



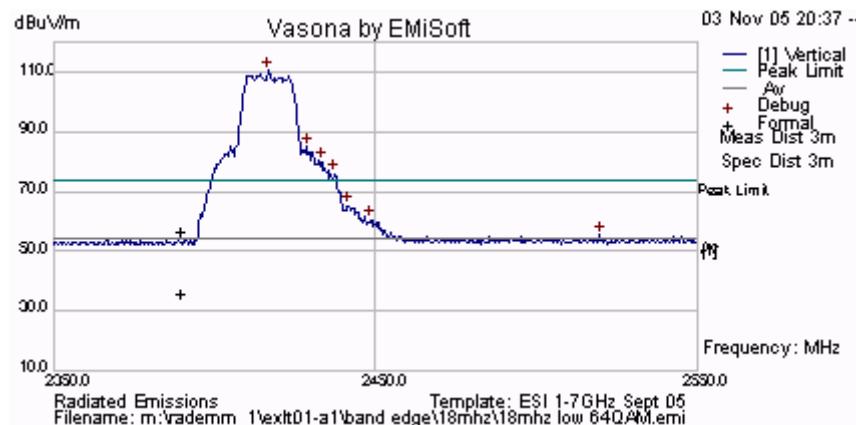
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH 64QAM MODULATION

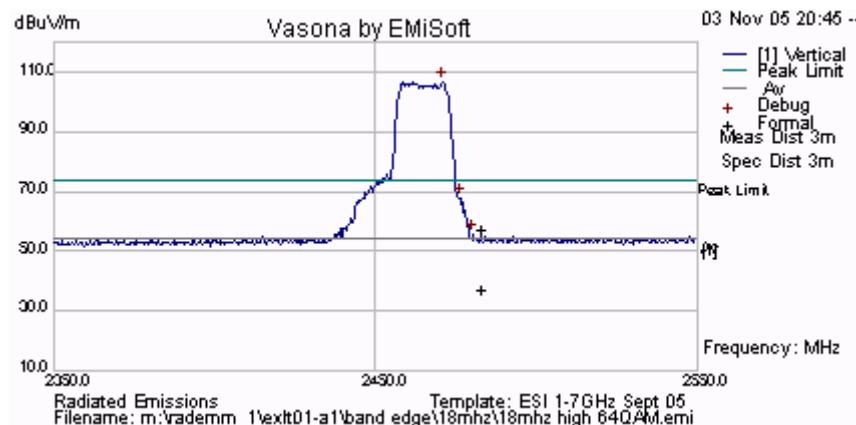
Plot 162 2,417 MHz

Peak Emission = $110.61 + 16 = 126.61 \text{ dB}\mu\text{V/m}$



Plot 163 2,465 MHz

Peak Emission = $107.06 + 16 = 123.06 \text{ dB}\mu\text{V/m}$



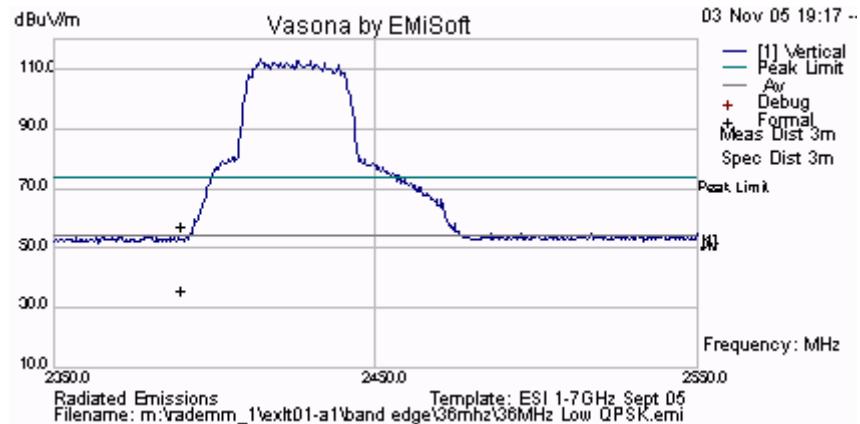
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH QPSK MODULATION

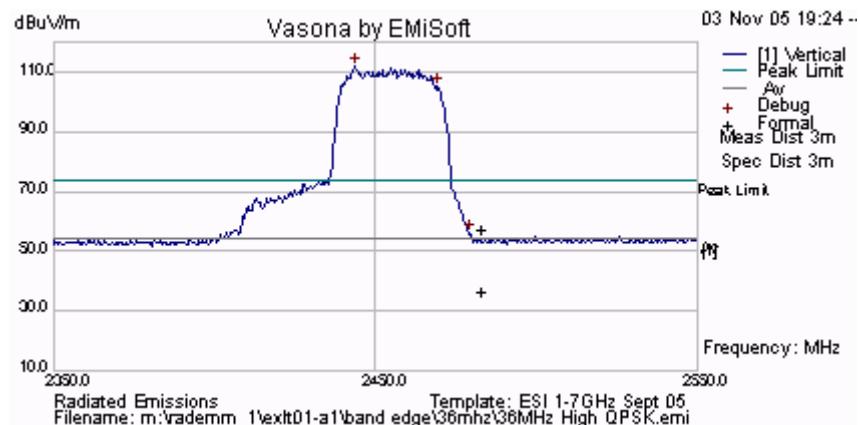
Plot 164 2,426 MHz

Peak Emission = $106.37 + 16 = 122.37 \text{ dB}\mu\text{V/m}$



Plot 165 2,455 MHz

Peak Emission = $105.96 + 16 = 121.96 \text{ dB}\mu\text{V/m}$



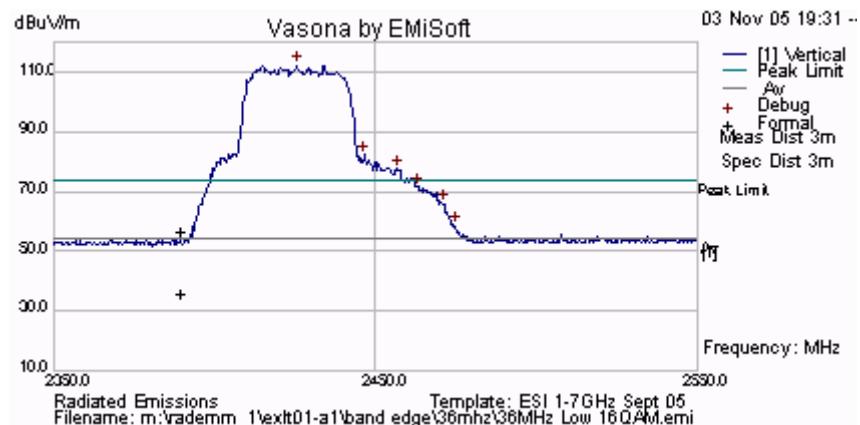
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH 16QAM MODULATION

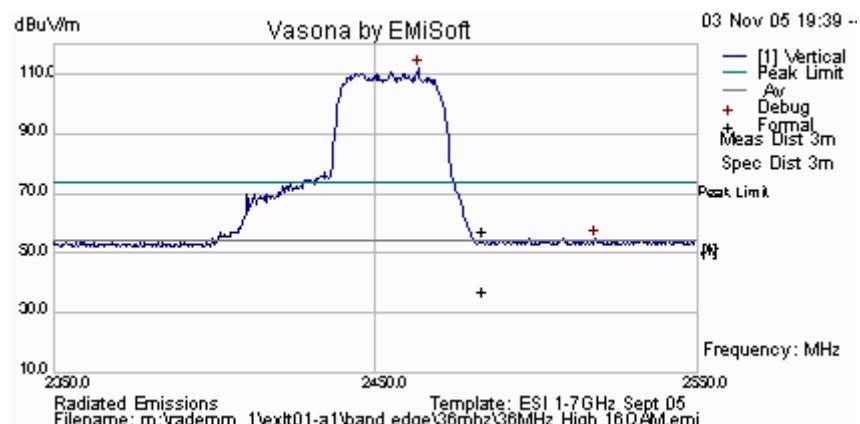
Plot 166 2,426 MHz

Peak Emission = $106.20 + 16 = 122.20 \text{ dB}\mu\text{V/m}$



Plot 167 2,455 MHz

Peak Emission = $105.86 + 16 = 121.86 \text{ dB}\mu\text{V/m}$



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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH 64QAM MODULATION

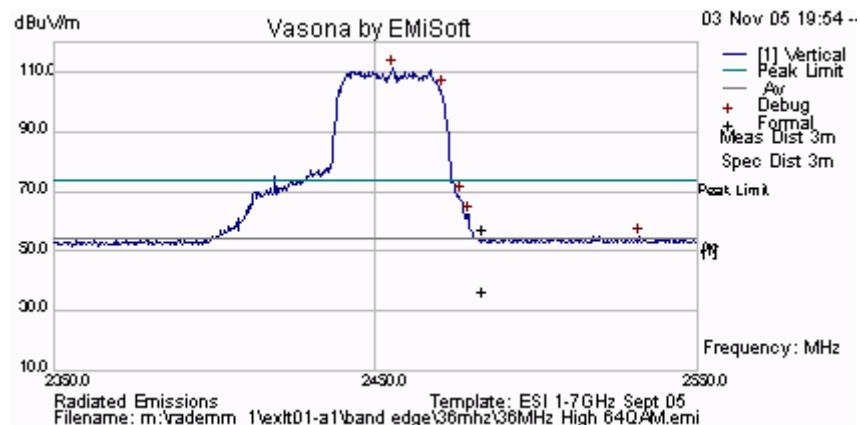
Plot 168 2,426 MHz

Peak Emission = $107.12 + 16 = 123.12 \text{ dB}\mu\text{V/m}$



Plot 169 2,455 MHz

Peak Emission = $105.18 + 16 = 121.18 \text{ dB}\mu\text{V/m}$



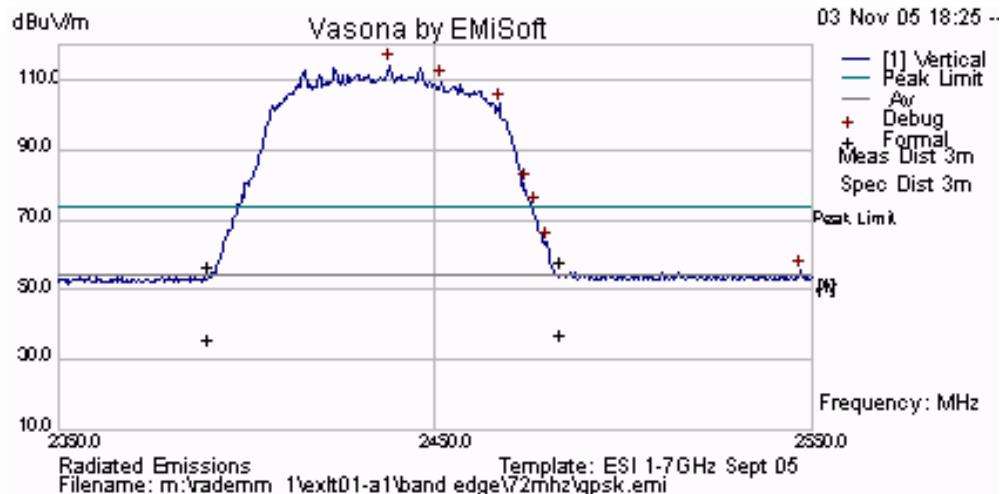
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH QPSK MODULATION

Plot 170 2,437 MHz

Peak Emission = $108.45 + 16 = 124.45 \text{ dB}\mu\text{V/m}$



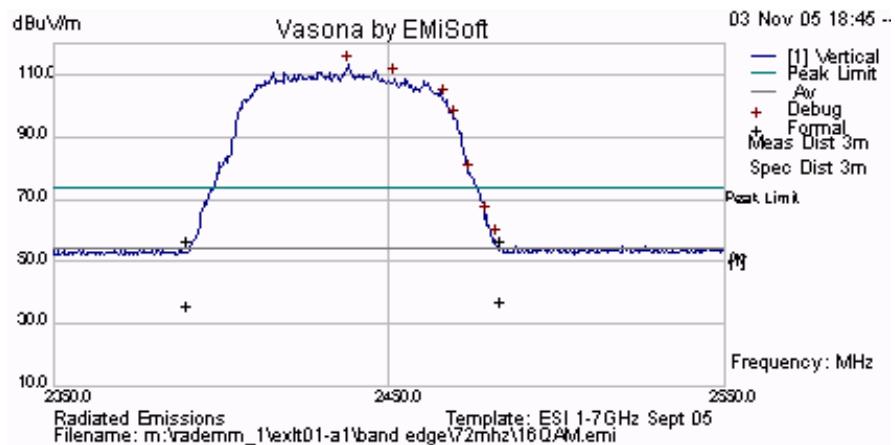
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH 16QAM MODULATION

Plot 171 2,437 MHz

Peak Emission = $107.28 + 16 = 123.28 \text{ dB}\mu\text{V/m}$



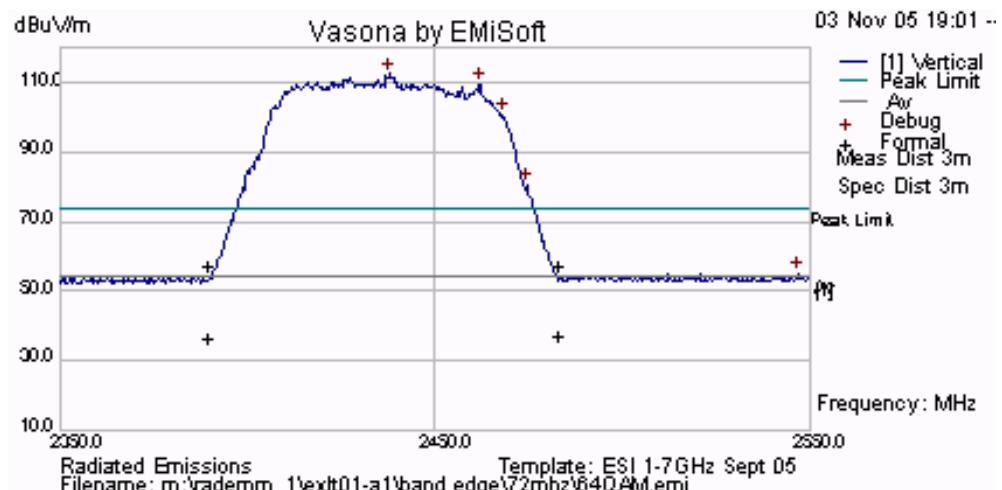
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Peak Field Strength Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH 64QAM MODULATION

Plot 172 2,437 MHz

Peak Emission = $106.58 + 16 = 122.58 \text{ dB}\mu\text{V/m}$



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Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

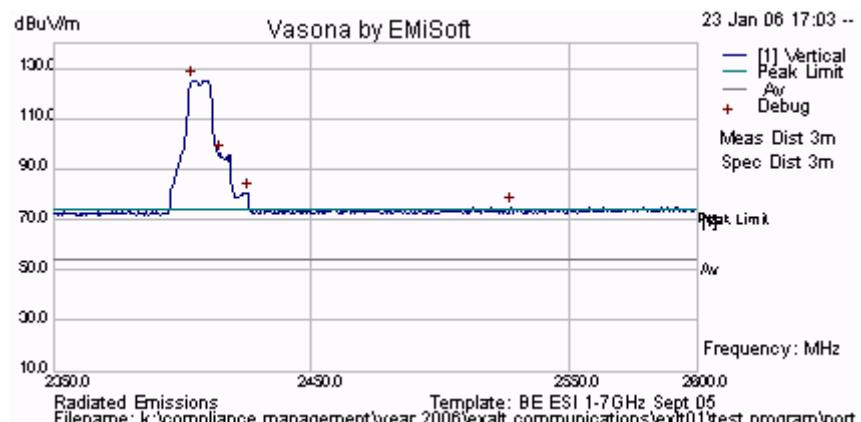
TABLE OF RESULTS – 9 MHZ BANDWIDTH QPSK MODULATION

NOTE:

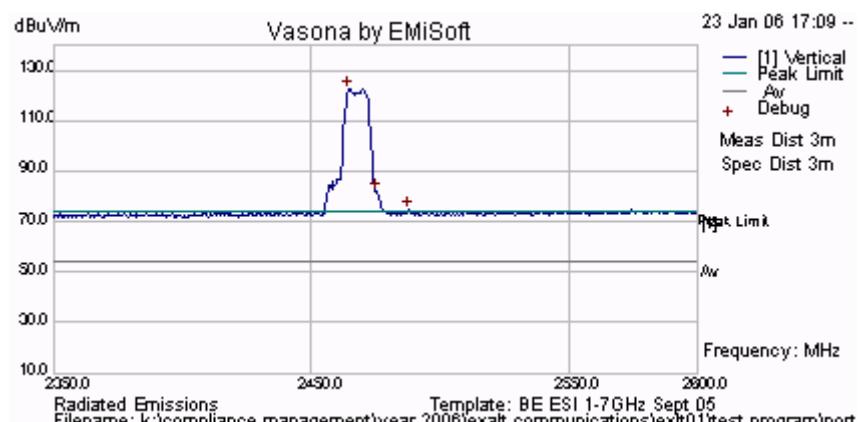
As a result of the output power level and the antenna gain (30.3 dBi) protection of the test equipment was a priority and additional front end attenuation (30dB) was added to the spectrum analyzer. System noise floor is a function of front end analyzer attenuation and not a limiting factor of the EUT.

Power output power was fixed at the highest permissible power level for the 30.3 dBi antenna = +21.9 dBm, see Section 5.1.2 Peak Output Power

Plot 173 2,406 MHz Peak Emission = 125.5 dB μ V/m



Plot 174 2,468 MHz Peak Emission = 122.57 dB μ V/m

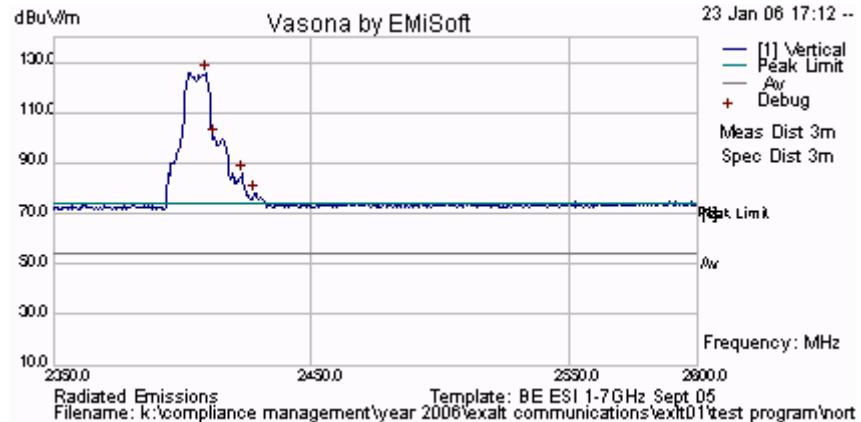


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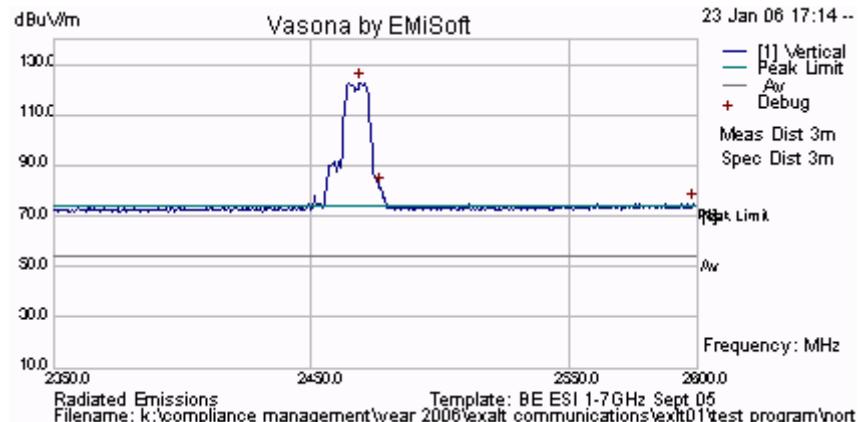
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH 16QAM MODULATION

Plot 175 2,406 MHz Peak Emission = 125.88 dB μ V/m



Plot 176 2,468 MHz Peak Emission =122.91 dBuV/m

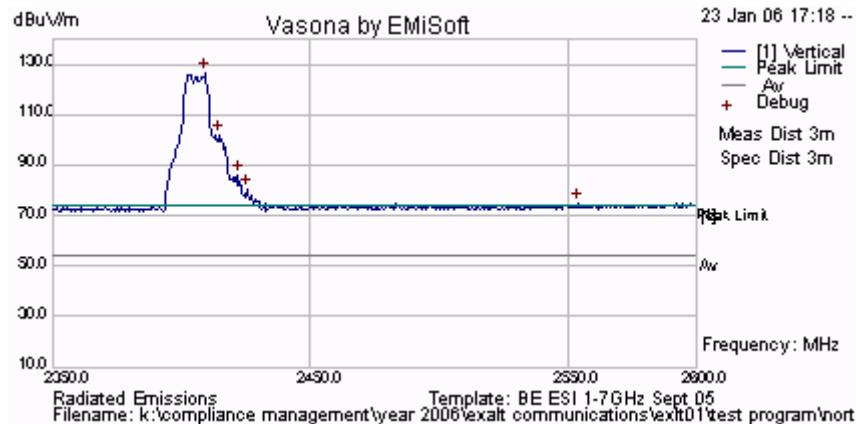


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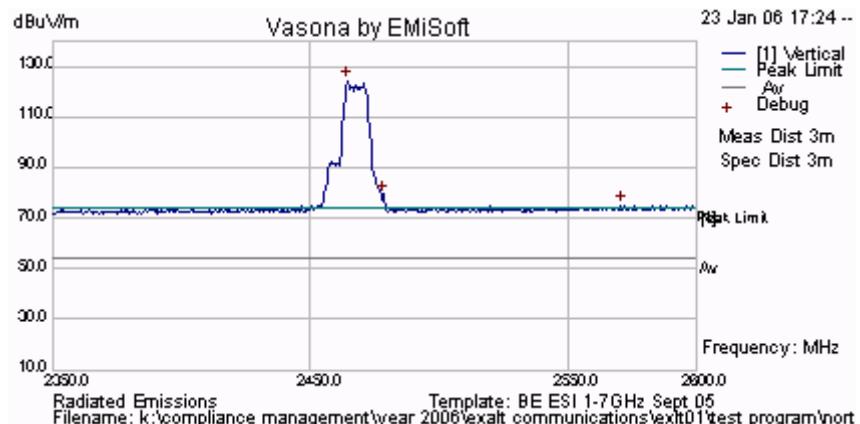
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH 64QAM MODULATION

Plot 177 2,406 MHz Peak Emission = 126.96 dB μ V/m



Plot 178 2,468 MHz Peak Emission =124.47 dB μ V/m

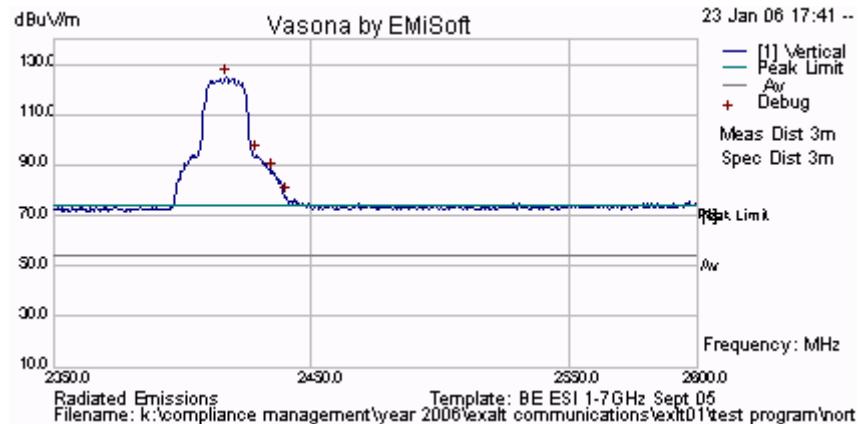


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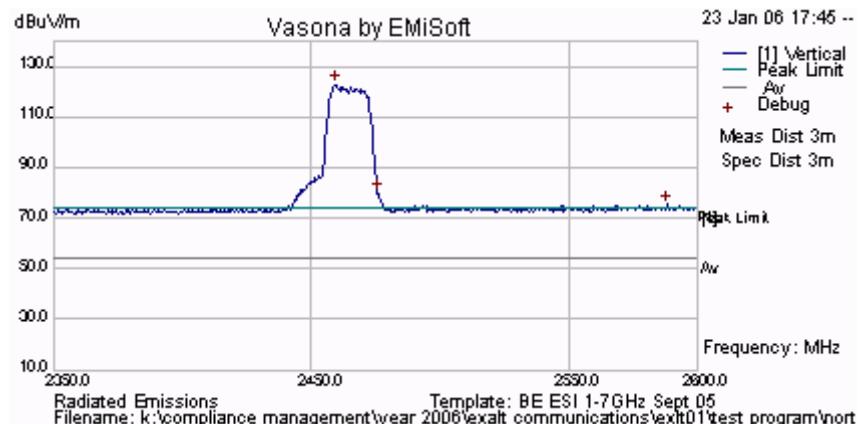
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH QPSK MODULATION

Plot 179 2,417 MHz Peak Emission = 124.76 dB μ V/m



Plot 180 2,465 MHz Peak Emission = 122.99 dB μ V/m

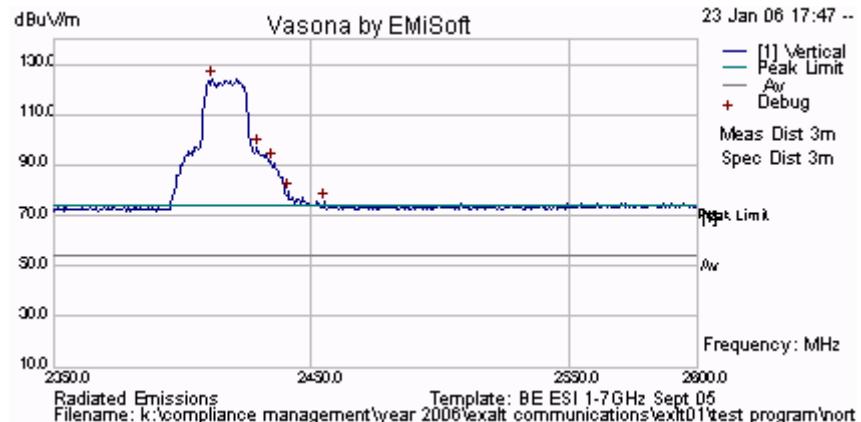


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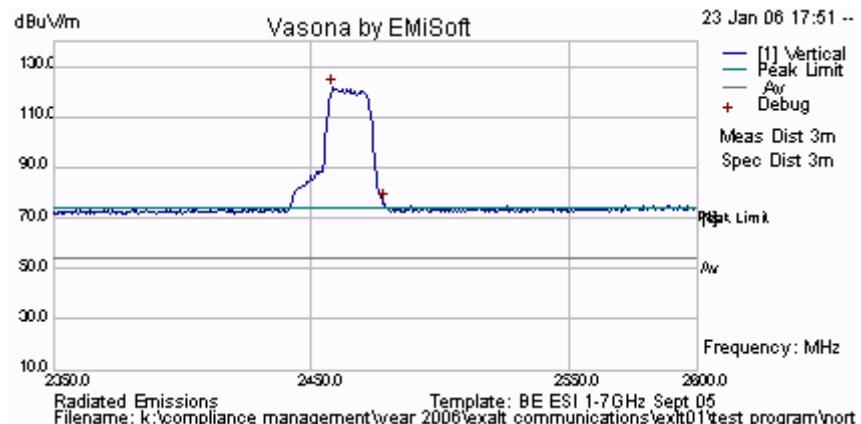
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH 16QAM MODULATION

Plot 181 2,417 MHz Peak Emission = 124.32 dB μ V/m



Plot 182 2,465 MHz Peak Emission =121.70 dB μ V/m

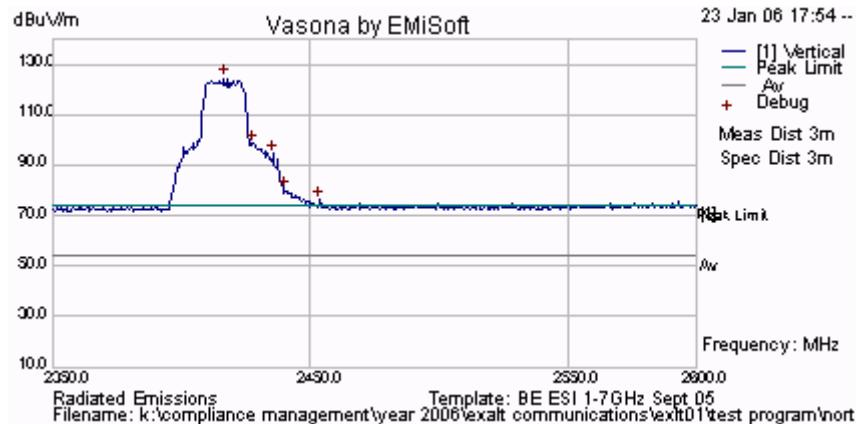


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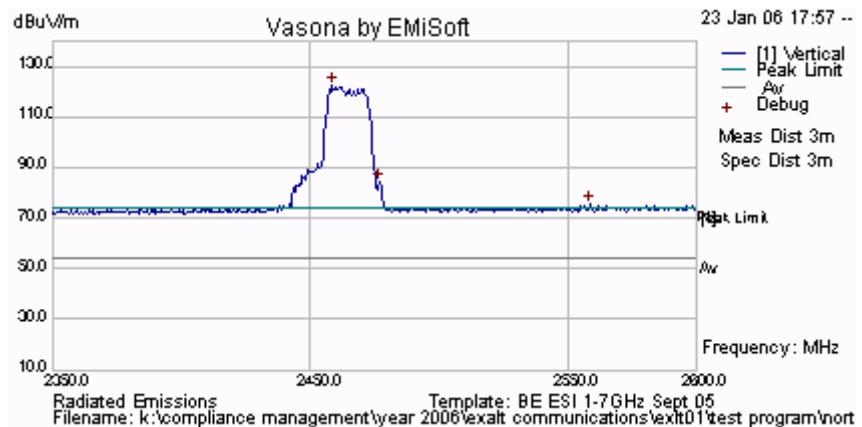
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH 64QAM MODULATION

Plot 183 2,417 MHz Peak Emission = 124.63 dB μ V/m



Plot 184 2,465 MHz Peak Emission =122.48 dB μ V/m

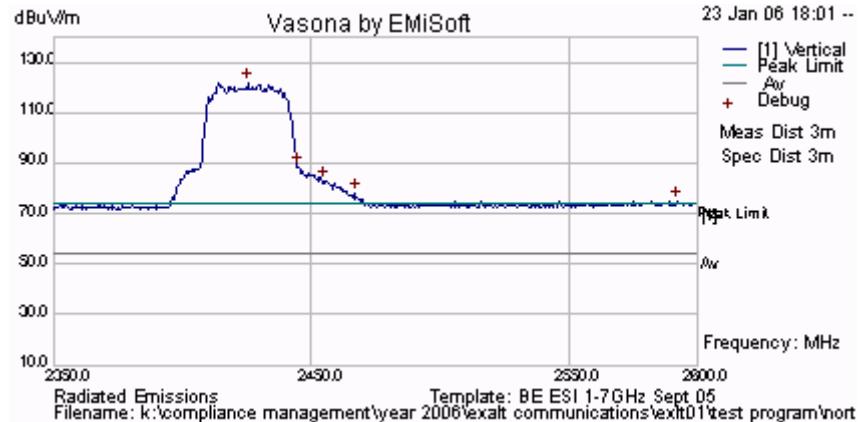


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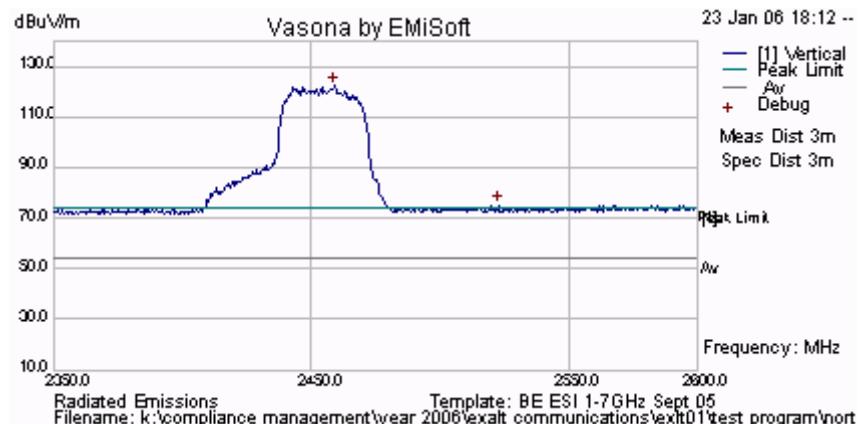
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH QPSK MODULATION

Plot 185 2,426 MHz Peak Emission = 122.29 dB μ V/m



Plot 186 2,455 MHz Peak Emission = 122.54 dB_uV/m

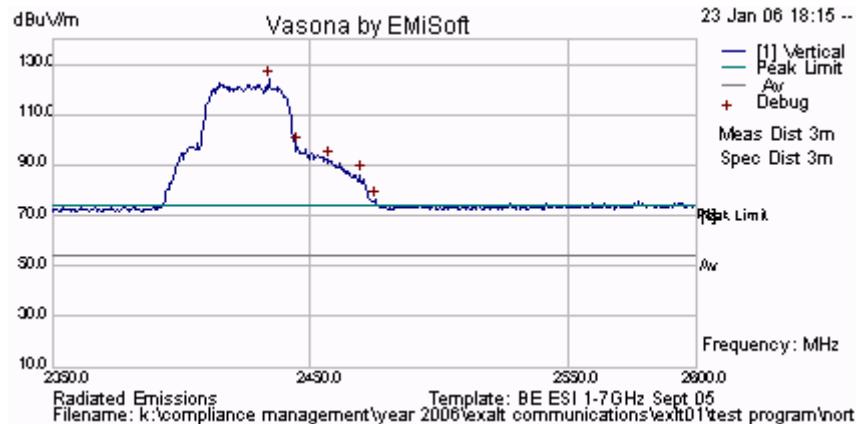


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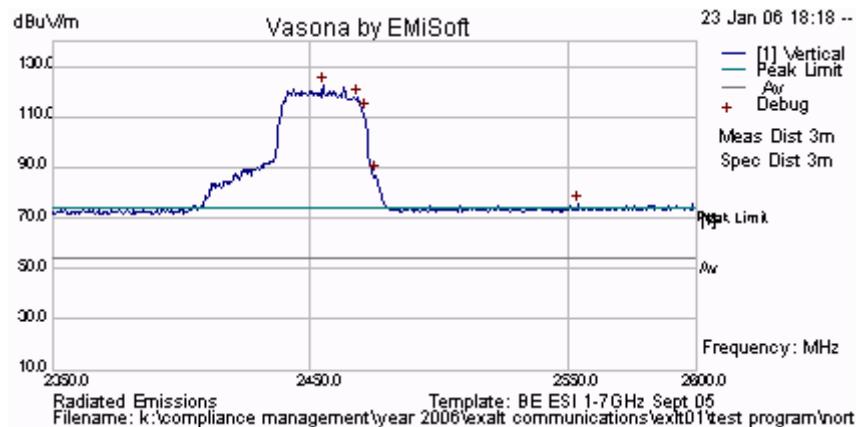
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH 16QAM MODULATION

Plot 187 2,426 MHz Peak Emission = 124.04 dB μ V/m



Plot 188 2,455 MHz Peak Emission = 122.49 dB μ V/m

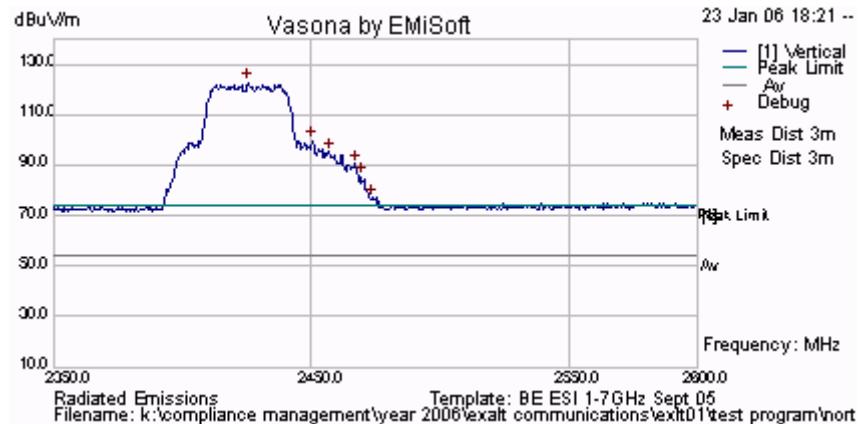


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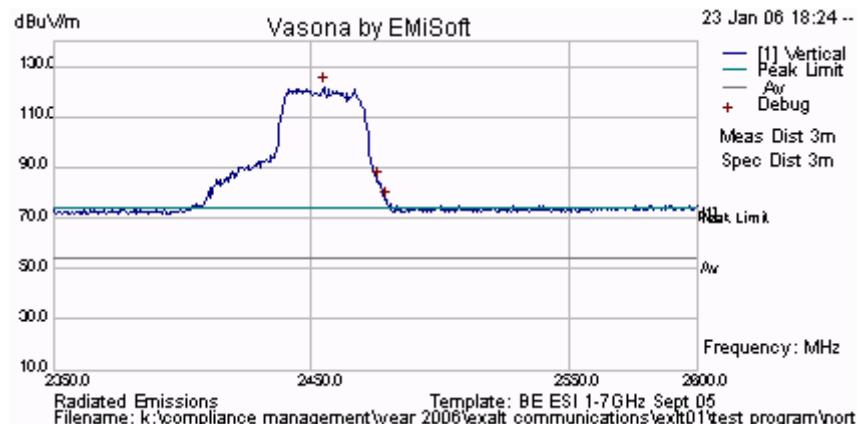
Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH 64QAM MODULATION

Plot 189 2,426 MHz Peak Emission = 123.03 dB μ V/m



Plot 190 2,455 MHz Peak Emission = 122.05 dB μ V/m

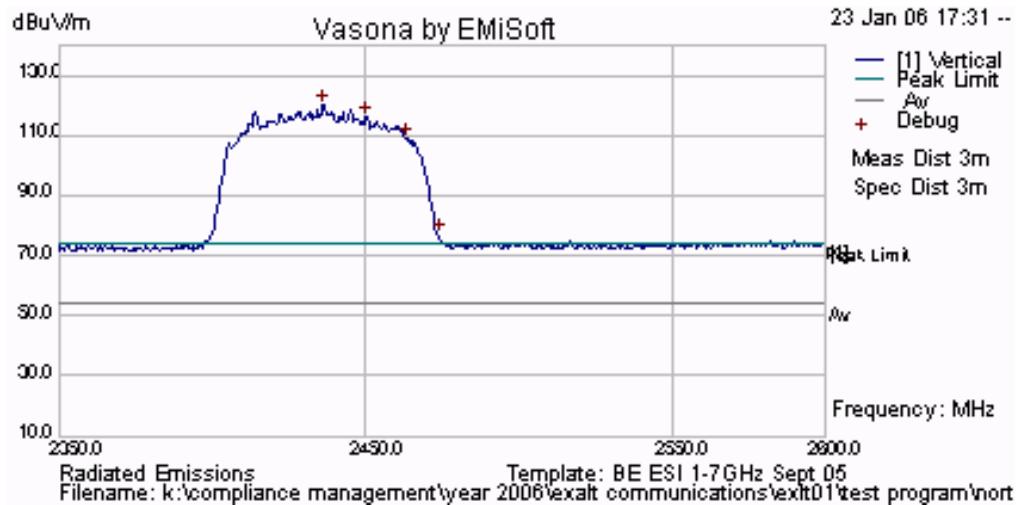


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Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH QPSK MODULATION

Plot 191 2,437 MHz - Peak Emission = 120.16 dB μ V/m

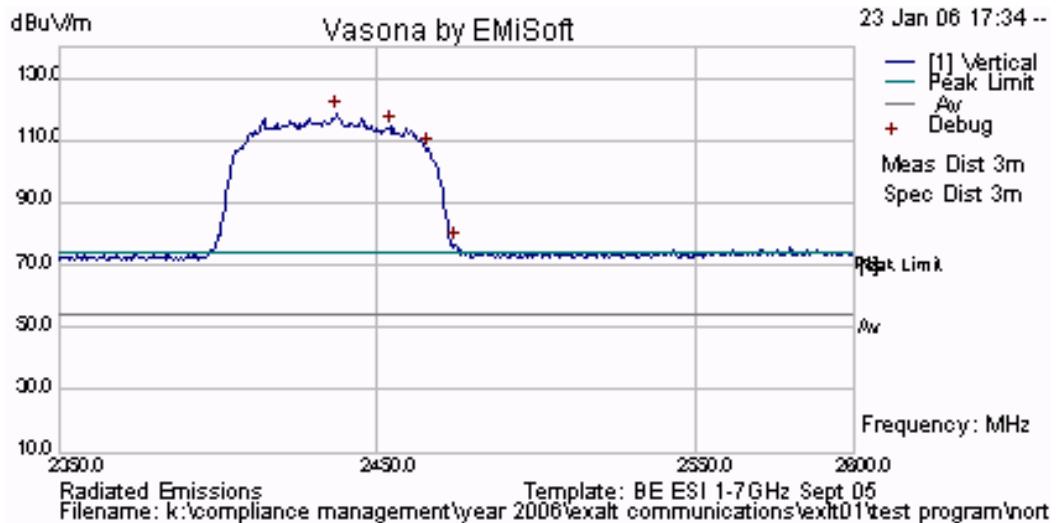


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Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH 16QAM MODULATION

Plot 192 2,437 MHz - Peak Emission = 119.16 dB μ V/m

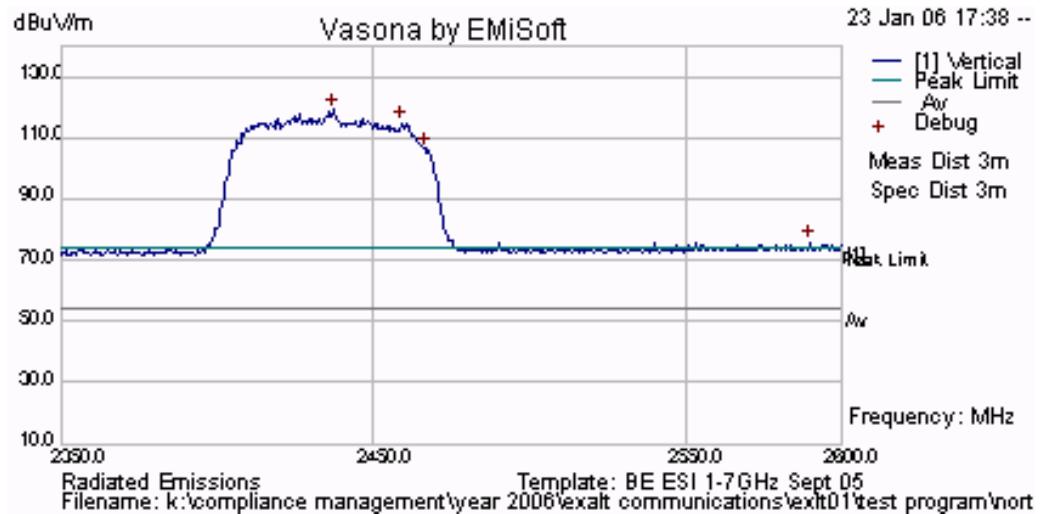


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Peak Field Strength Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH 64QAM MODULATION

Plot 193 2,437 MHz - Peak Emission = 119.33 dB μ V/m



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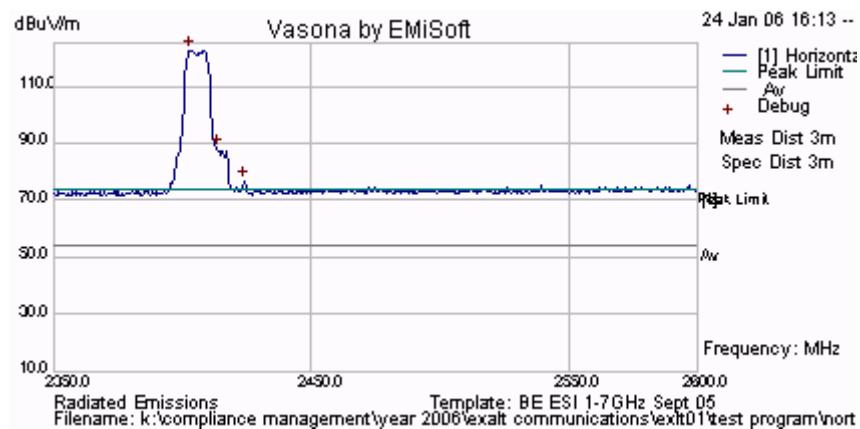
Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

NOTE:

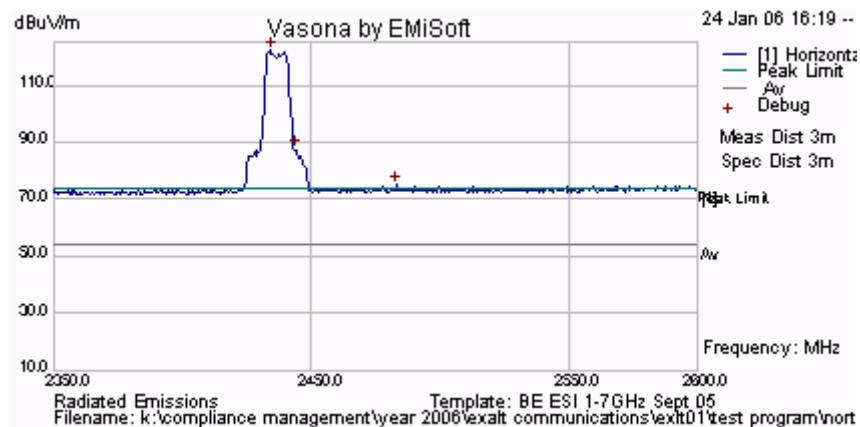
As a result of the output power level and the antenna gain (20 dBi) protection of the test equipment was a priority and additional front end attenuation (30dB) was added to the spectrum analyzer. System noise floor is a function of front end analyzer attenuation and not a limiting factor of the EUT.

Power output power was fixed at the highest permissible power level for the 20 dBi antenna = +25.3 dBm, see Section 5.1.2 Peak Output Power

Plot 194 2,406 MHz Peak Emission = 122.64 dB μ V/m



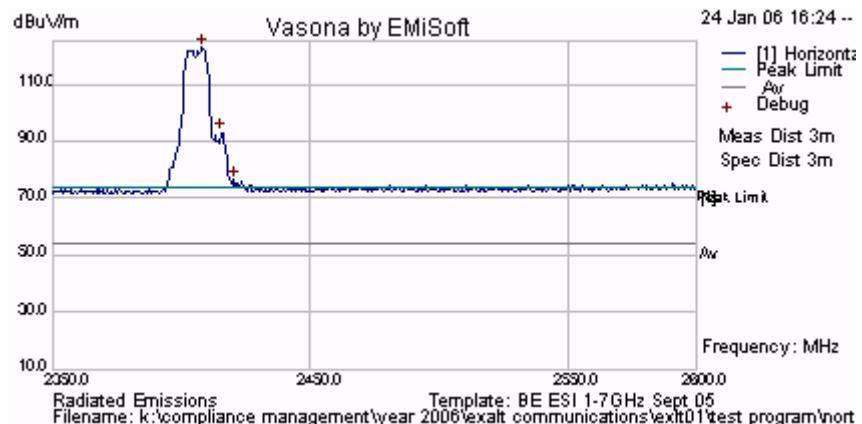
Plot 195 2,468 MHz Peak Emission =121.02 dB μ V/m



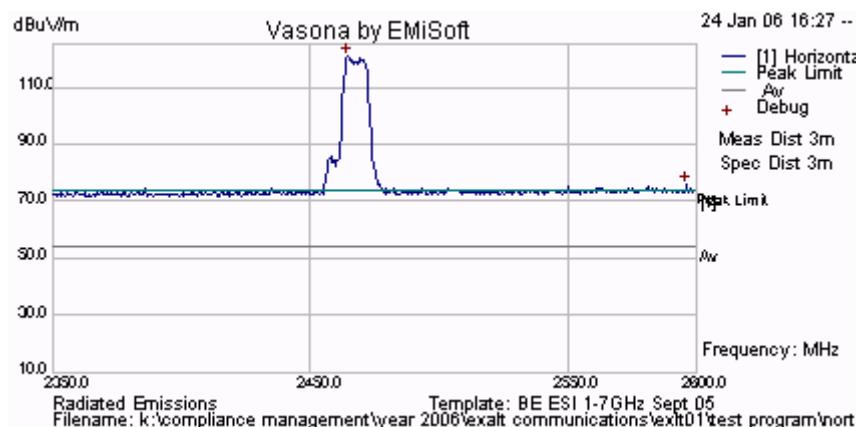
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 196 2,406 MHz Peak Emission = 122.77 dB_uV/m



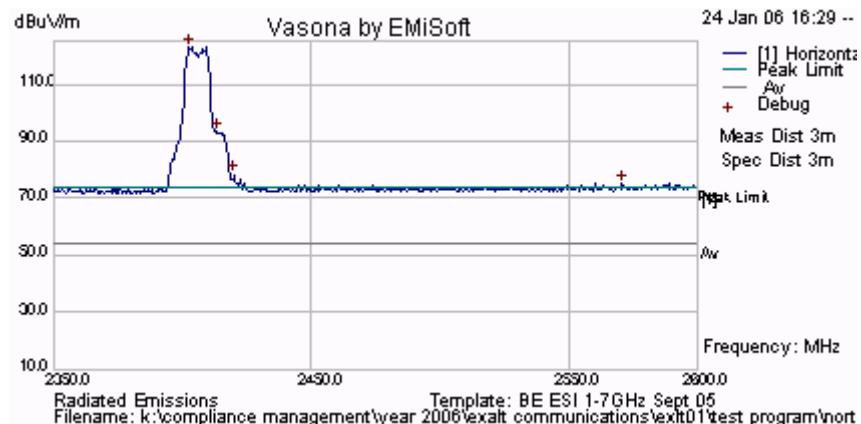
Plot 197 2,468 MHz Peak Emission = 120.93 dB_µV/m



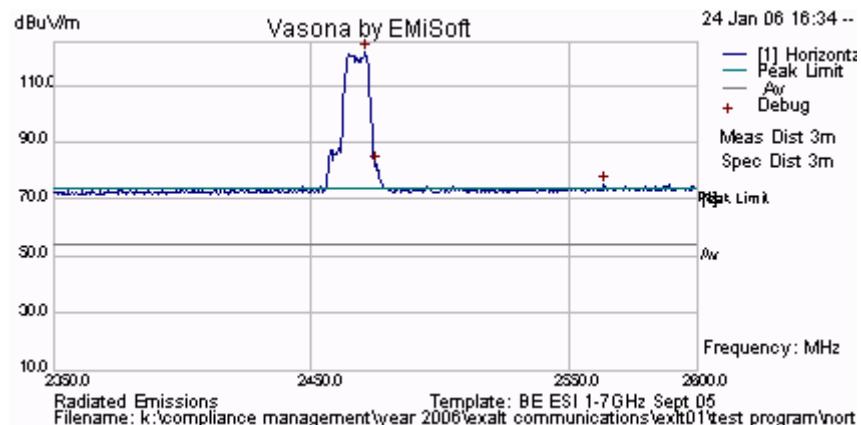
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 198 2,406 MHz Peak Emission = 123.09 dB μ V/m



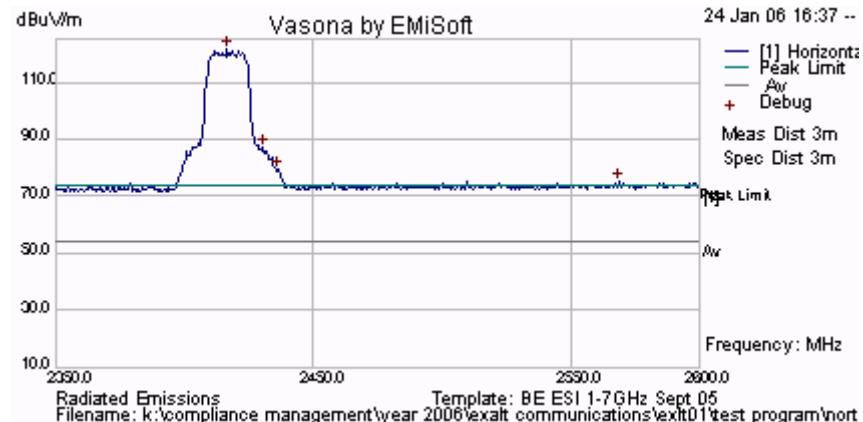
Plot 199 2,468 MHz Peak Emission = 121.76 dB μ V/m



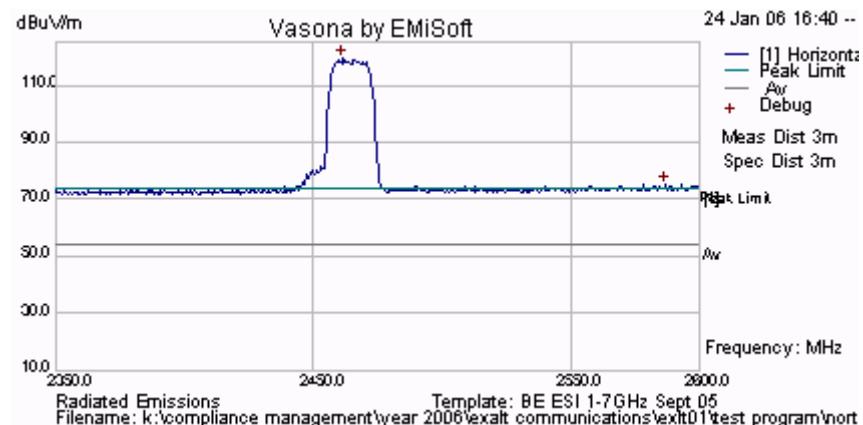
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 200 2,417 MHz Peak Emission = 121.41 dB μ V/m



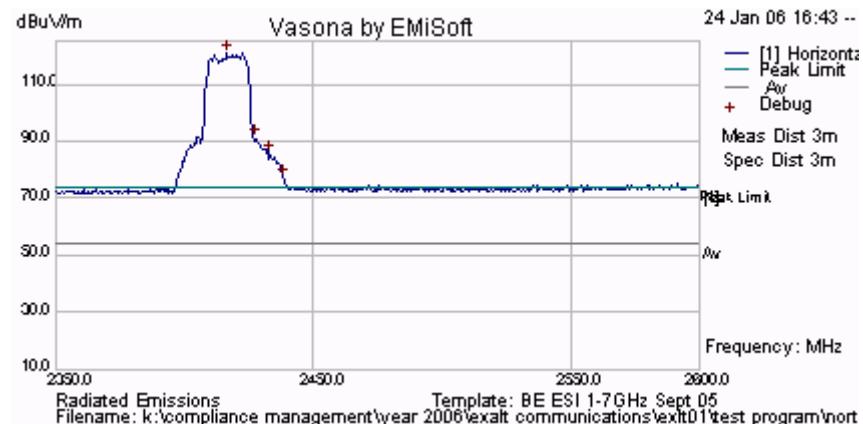
Plot 201 2,465 MHz Peak Emission = 119.54 dB μ V/m



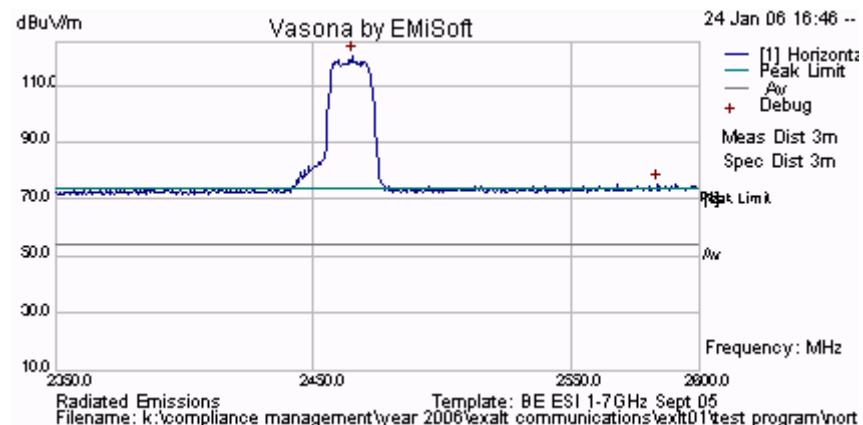
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 202 2,417 MHz Peak Emission = 120.73 dB μ V/m



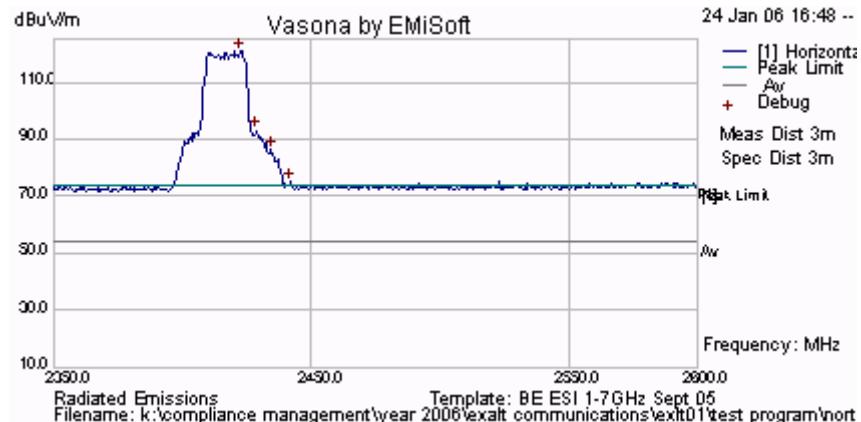
Plot 203 2,465 MHz Peak Emission = 120.46 dB μ V/m



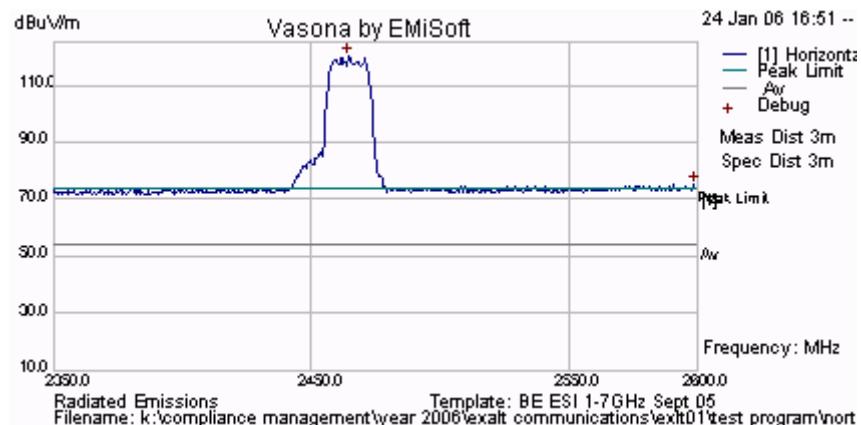
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 204 2,417 MHz Peak Emission = 121.03 dB μ V/m



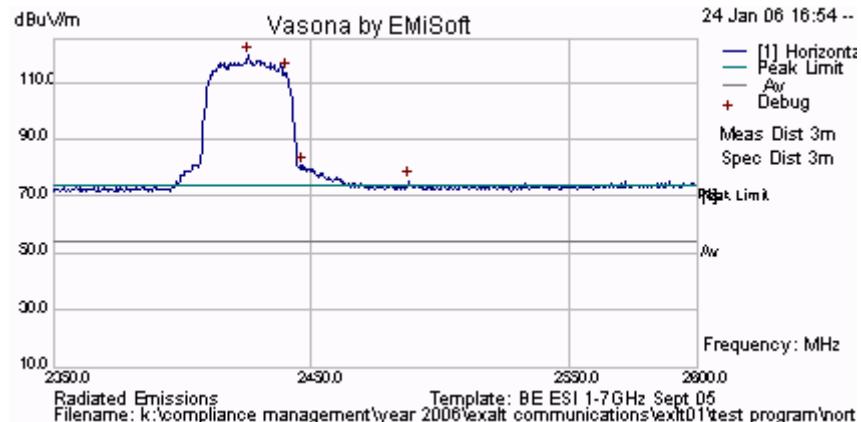
Plot 205 2,465 MHz Peak Emission = 120.31 dB μ V/m



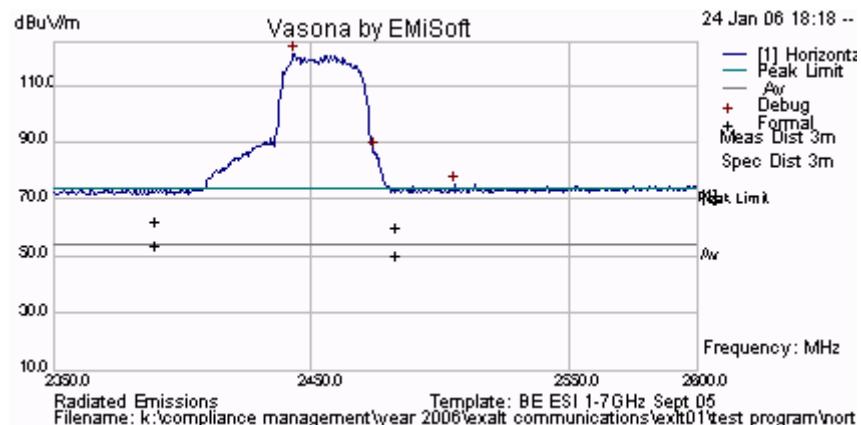
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 206 2,426 MHz Peak Emission = 119.34 dB_uV/m



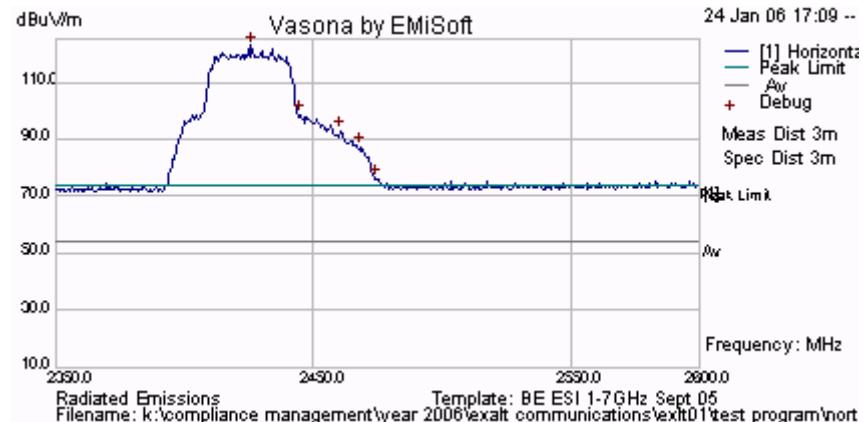
Plot 207 2,455 MHz Peak Emission = 120.98 dB_µV/m



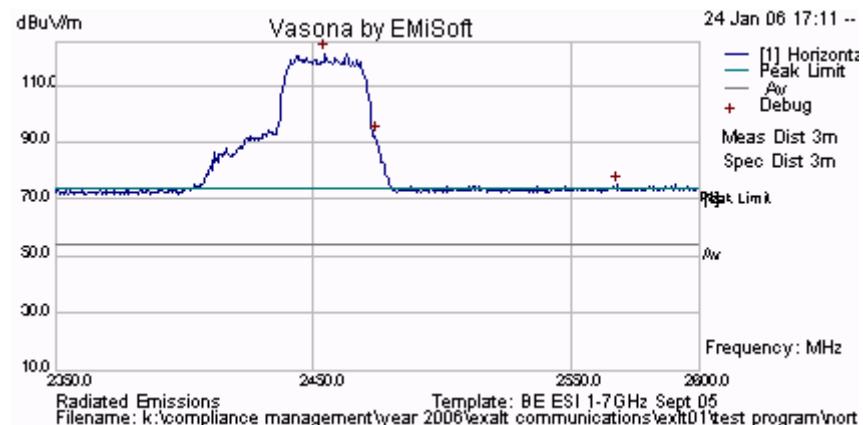
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 208 2,426 MHz Peak Emission = 122.78 dB μ V/m



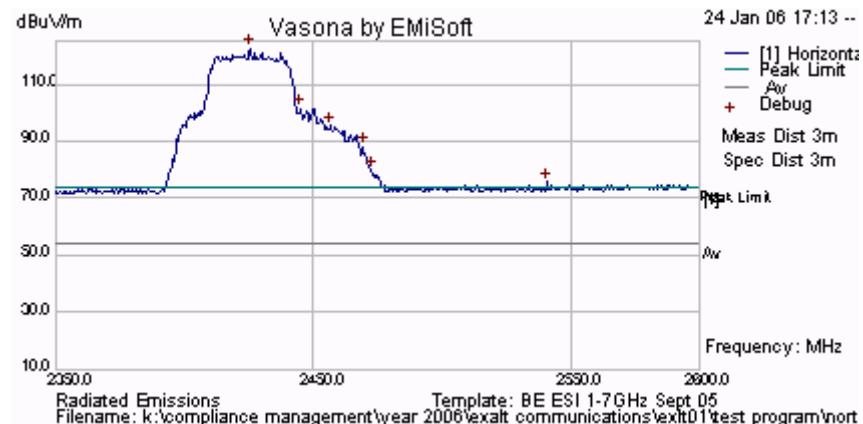
Plot 209 2,455 MHz Peak Emission = 121.12 dB μ V/m



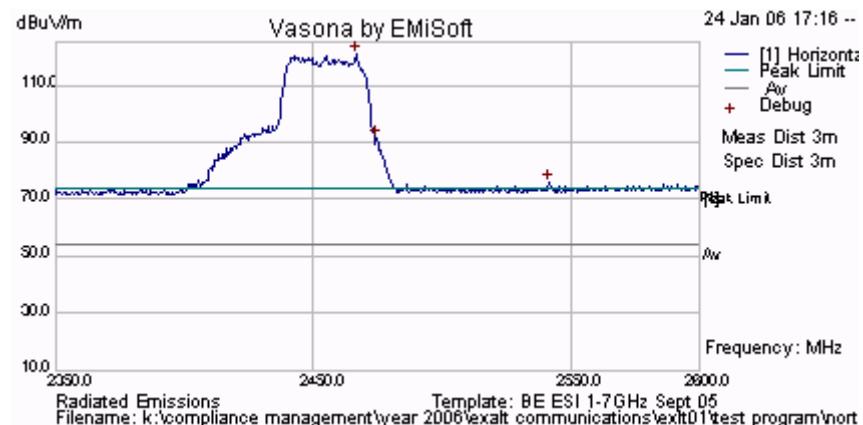
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 210 2,426 MHz Peak Emission = 122.58 dB μ V/m

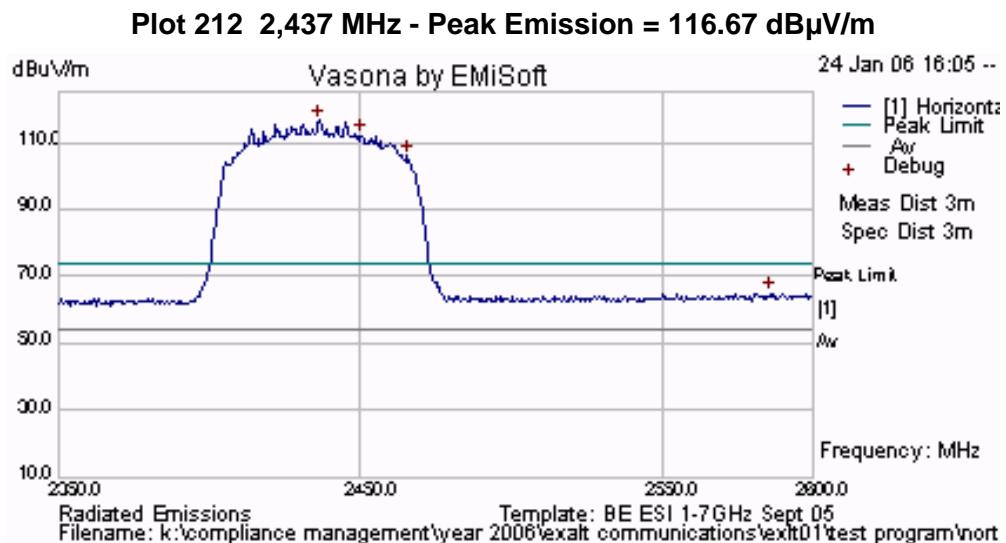


Plot 211 2,455 MHz Peak Emission = 120.67 dB μ V/m



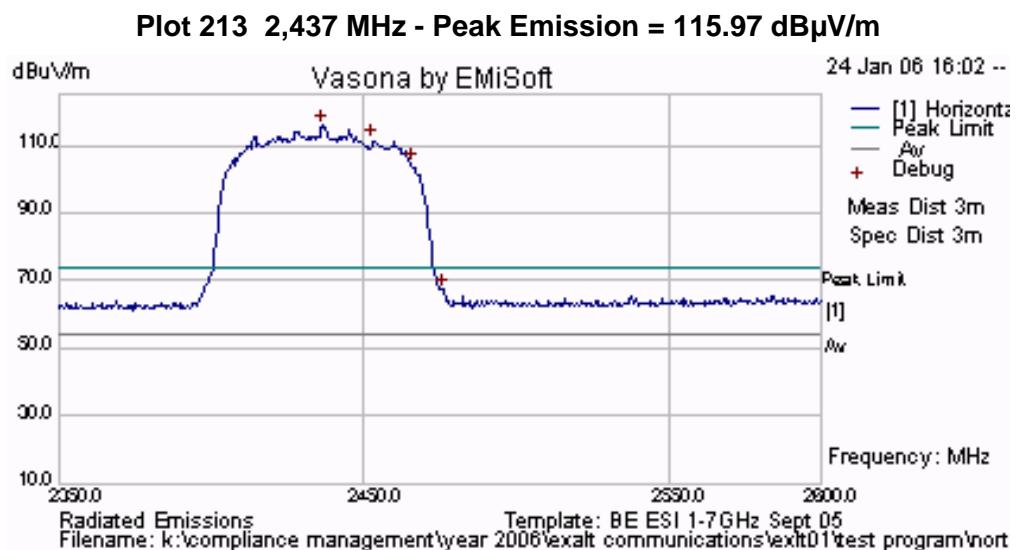
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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna



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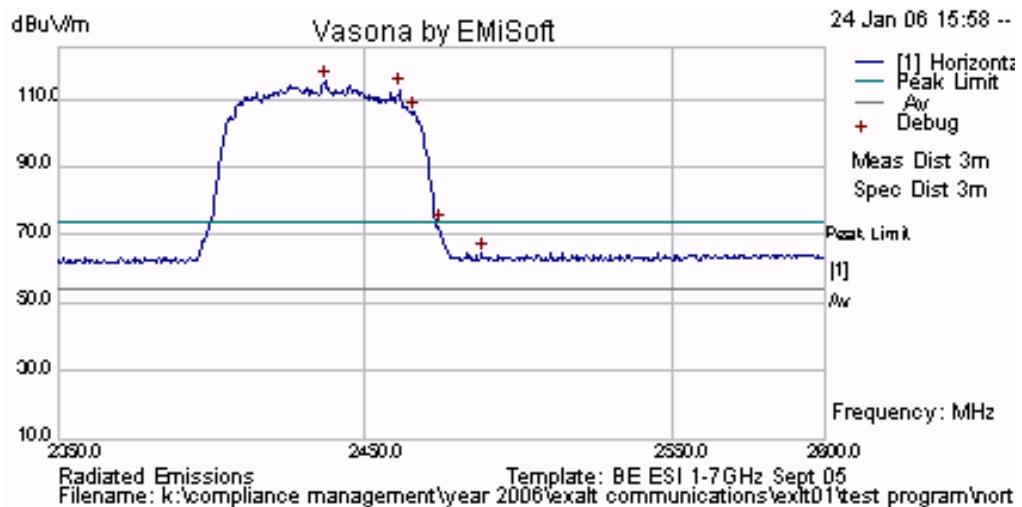
Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna



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Peak Field Strength Test Results for 2.4 GHz 20 dBi Antenna

Plot 214 2,437 MHz - Peak Emission = 115.04 dB μ V/m



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5.1.6.4. Radiated Band-Edge – Restricted Bands

Radiated Band Edge Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,406 _{PEAK} | 2,390 | 69.46 | 74 | -4.54 |
| | 2,406 _{AVE} | 2,390 | 48.42 | 54 | -5.58 |
| | 2,468 _{PEAK} | 2,483.5 | 69.90 | 74 | -4.10 |
| | 2,468 _{AVE} | 2,483.5 | 49.37 | 54 | -4.63 |

TABLE OF RESULTS – 9 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,406 _{PEAK} | 2,390 | 70.13 | 74 | -3.87 |
| | 2,406 _{AVE} | 2,390 | 48.42 | 54 | -5.58 |
| | 2,468 _{PEAK} | 2,483.5 | 69.76 | 74 | -4.24 |
| | 2,468 _{AVE} | 2,483.5 | 49.27 | 54 | -4.73 |

TABLE OF RESULTS – 9 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,406 _{PEAK} | 2,390 | 69.33 | 74 | -4.67 |
| | 2,406 _{AVE} | 2,390 | 48.42 | 54 | -5.58 |
| | 2,468 _{PEAK} | 2,483.5 | 70.17 | 74 | -3.83 |
| | 2,468 _{AVE} | 2,483.5 | 49.37 | 54 | -4.63 |

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Radiated Band Edge Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,417 _{PEAK} | 2,390 | 69.73 | 74 | -4.27 |
| | 2,417 _{AVE} | 2,390 | 48.42 | 54 | -5.58 |
| | 2,465 _{PEAK} | 2,483.5 | 70.30 | 74 | -3.70 |
| | 2,465 _{AVE} | 2,483.5 | 49.27 | 54 | -4.73 |

TABLE OF RESULTS – 18 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,417 _{PEAK} | 2,390 | 69.07 | 74 | -4.93 |
| | 2,417 _{AVE} | 2,390 | 48.42 | 54 | -5.58 |
| | 2,465 _{PEAK} | 2,483.5 | 69.76 | 74 | -4.24 |
| | 2,465 _{AVE} | 2,483.5 | 49.27 | 54 | -4.73 |

TABLE OF RESULTS – 18 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,417 _{PEAK} | 2,390 | 69.07 | 74 | -4.93 |
| | 2,417 _{AVE} | 2,390 | 48.42 | 54 | -5.58 |
| | 2,465 _{PEAK} | 2,483.5 | 60.03 | 74 | -3.97 |
| | 2,465 _{AVE} | 2,483.5 | 49.37 | 54 | -4.63 |

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Radiated Band Edge Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,426 _{PEAK} | 2,390 | 63.73 | 74 | -10.27 |
| | 2,426 _{AVE} | 2,390 | 42.42 | 54 | -11.58 |
| | 2,455 _{PEAK} | 2,483.5 | 63.76 | 74 | -10.24 |
| | 2,455 _{AVE} | 2,483.5 | 43.27 | 54 | -10.73 |

TABLE OF RESULTS – 36 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,426 _{PEAK} | 2,390 | 63.07 | 74 | -10.93 |
| | 2,426 _{AVE} | 2,390 | 42.42 | 54 | -11.58 |
| | 2,455 _{PEAK} | 2,483.5 | 64.03 | 74 | -9.97 |
| | 2,455 _{AVE} | 2,483.5 | 43.37 | 54 | -10.63 |

TABLE OF RESULTS – 36 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,426 _{PEAK} | 2,390 | 63.59 | 74 | -10.41 |
| | 2,426 _{AVE} | 2,390 | 42.42 | 54 | -11.58 |
| | 2,455 _{PEAK} | 2,483.5 | 64.03 | 74 | -9.97 |
| | 2,455 _{AVE} | 2,483.5 | 43.27 | 54 | -10.73 |

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Radiated Band Edge Test Results for 2.4 GHz 21.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,437 _{PEAK} | 2,390 | 63.46 | 74 | -10.54 |
| | 2,437 _{AVE} | 2,390 | 42.42 | 54 | -11.58 |
| | 2,437 _{PEAK} | 2,483.5 | 64.44 | 74 | -9.56 |
| | 2,437 _{AVE} | 2,483.5 | 43.37 | 54 | -10.63 |

TABLE OF RESULTS – 72 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,437 _{PEAK} | 2,390 | 63.07 | 74 | -10.93 |
| | 2,437 _{AVE} | 2,390 | 42.42 | 54 | -11.58 |
| | 2,437 _{PEAK} | 2,483.5 | 63.50 | 74 | -10.50 |
| | 2,437 _{AVE} | 2,483.5 | 43.37 | 54 | -10.63 |

TABLE OF RESULTS – 72 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +24.9 | 2,437 _{PEAK} | 2,390 | 63.86 | 74 | -10.14 |
| | 2,437 _{AVE} | 2,390 | 42.99 | 54 | -11.01 |
| | 2,437 _{PEAK} | 2,483.5 | 63.90 | 74 | -10.10 |
| | 2,437 _{AVE} | 2,483.5 | 43.48 | 54 | -10.52 |

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Radiated Band Edge Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,406 _{PEAK} | 2,390 | 53.24 | 74 | -20.76 |
| | 2,406 _{AVE} | 2,390 | 44.23 | 54 | -9.77 |
| | 2,468 _{PEAK} | 2,483.5 | 52.13 | 74 | -21.87 |
| | 2,468 _{AVE} | 2,483.5 | 41.83 | 54 | -12.17 |

TABLE OF RESULTS – 9 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,406 _{PEAK} | 2,390 | 56.51 | 74 | -17.49 |
| | 2,406 _{AVE} | 2,390 | 45.62 | 54 | -8.38 |
| | 2,468 _{PEAK} | 2,483.5 | 51.93 | 74 | -22.07 |
| | 2,468 _{AVE} | 2,483.5 | 43.67 | 54 | -10.33 |

TABLE OF RESULTS – 9 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,406 _{PEAK} | 2,390 | 62.51 | 74 | -11.49 |
| | 2,406 _{AVE} | 2,390 | 48.12 | 54 | -5.88 |
| | 2,468 _{PEAK} | 2,483.5 | 52.07 | 74 | -21.93 |
| | 2,468 _{AVE} | 2,483.5 | 43.67 | 54 | -10.33 |

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Radiated Band Edge Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,417 _{PEAK} | 2,390 | 55.25 | 74 | 18.75 |
| | 2,417 _{AVE} | 2,390 | 45.29 | 54 | -8.71 |
| | 2,465 _{PEAK} | 2,483.5 | 57.05 | 74 | -16.95 |
| | 2,465 _{AVE} | 2,483.5 | 47.85 | 54 | -6.15 |

TABLE OF RESULTS – 18 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,417 _{PEAK} | 2,390 | 57.28 | 74 | -16.72 |
| | 2,417 _{AVE} | 2,390 | 46.24 | 54 | -7.76 |
| | 2,465 _{PEAK} | 2,483.5 | 58.98 | 74 | -15.02 |
| | 2,465 _{AVE} | 2,483.5 | 48.11 | 54 | -5.89 |

TABLE OF RESULTS – 18 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,417 _{PEAK} | 2,390 | 58.48 | 74 | -15.52 |
| | 2,417 _{AVE} | 2,390 | 46.54 | 54 | -7.46 |
| | 2,465 _{PEAK} | 2,483.5 | 58.35 | 74 | -15.65 |
| | 2,465 _{AVE} | 2,483.5 | 49.05 | 54 | -4.95 |

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Radiated Band Edge Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,426 _{PEAK} | 2,390 | 60.86 | 74 | -13.14 |
| | 2,426 _{AVE} | 2,390 | 51.8 | 54 | -2.20 |
| | 2,455 _{PEAK} | 2,483.5 | 55.31 | 74 | -18.69 |
| | 2,455 _{AVE} | 2,483.5 | 47.05 | 54 | -6.95 |

TABLE OF RESULTS – 36 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,426 _{PEAK} | 2,390 | 55.05 | 74 | -18.95 |
| | 2,426 _{AVE} | 2,390 | 48.59 | 54 | -5.41 |
| | 2,455 _{PEAK} | 2,483.5 | 53.48 | 74 | -20.52 |
| | 2,455 _{AVE} | 2,483.5 | 44.83 | 54 | -9.17 |

TABLE OF RESULTS – 36 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,426 _{PEAK} | 2,390 | 58.08 | 74 | -15.92 |
| | 2,426 _{AVE} | 2,390 | 48.59 | 54 | -5.41 |
| | 2,455 _{PEAK} | 2,483.5 | 55.02 | 74 | -18.98 |
| | 2,455 _{AVE} | 2,483.5 | 46.17 | 54 | -7.83 |

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Radiated Band Edge Test Results for 2.4 GHz 30.3 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,437 _{PEAK} | 2,390 | 56 | 74 | -18.00 |
| | 2,437 _{AVE} | 2,390 | 46.24 | 54 | -7.76 |
| | 2,437 _{PEAK} | 2,483.5 | 54.81 | 74 | -19.19 |
| | 2,437 _{AVE} | 2,483.5 | 46.47 | 54 | -7.53 |

TABLE OF RESULTS – 72 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,437 _{PEAK} | 2,390 | 53.82 | 74 | -20.18 |
| | 2,437 _{AVE} | 2,390 | 47.36 | 54 | -6.64 |
| | 2,437 _{PEAK} | 2,483.5 | 53.65 | 74 | -20.35 |
| | 2,437 _{AVE} | 2,483.5 | 46.17 | 54 | -7.83 |

TABLE OF RESULTS – 72 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +21.9 | 2,437 _{PEAK} | 2,390 | 56.38 | 74 | -17.62 |
| | 2,437 _{AVE} | 2,390 | 47.36 | 54 | -6.64 |
| | 2,437 _{PEAK} | 2,483.5 | 56.69 | 74 | -17.31 |
| | 2,437 _{AVE} | 2,483.5 | 46.17 | 54 | -7.83 |

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Radiated Band Edge Test Results for 2.4 GHz 20 dBi Antenna

TABLE OF RESULTS – 9 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,406 _{PEAK} | 2,390 | 54.56 | 74 | -19.44 |
| | 2,406 _{AVE} | 2,390 | 43.84 | 54 | -10.16 |
| | 2,468 _{PEAK} | 2,483.5 | 52.53 | 74 | -21.47 |
| | 2,468 _{AVE} | 2,483.5 | 43.25 | 54 | -10.75 |

TABLE OF RESULTS – 9 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,406 _{PEAK} | 2,390 | 57.55 | 74 | -16.45 |
| | 2,406 _{AVE} | 2,390 | 45.29 | 54 | -8.71 |
| | 2,468 _{PEAK} | 2,483.5 | 52.00 | 74 | -20.00 |
| | 2,468 _{AVE} | 2,483.5 | 43.25 | 54 | -10.75 |

TABLE OF RESULTS – 9 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,406 _{PEAK} | 2,390 | 56.5 | 74 | -17.5 |
| | 2,406 _{AVE} | 2,390 | 45.62 | 54 | -8.38 |
| | 2,468 _{PEAK} | 2,483.5 | 52.77 | 74 | -21.23 |
| | 2,468 _{AVE} | 2,483.5 | 42.8 | 54 | -11.2 |

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Radiated Band Edge Test Results for 2.4 GHz 20 dBi Antenna

TABLE OF RESULTS – 18 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,417 _{PEAK} | 2,390 | 52.35 | 74 | -21.65 |
| | 2,417 _{AVE} | 2,390 | 43.02 | 54 | -10.98 |
| | 2,465 _{PEAK} | 2,483.5 | 55.1 | 74 | -18.90 |
| | 2,465 _{AVE} | 2,483.5 | 46.17 | 54 | -7.83 |

TABLE OF RESULTS – 18 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,417 _{PEAK} | 2,390 | 54.11 | 74 | -19.89 |
| | 2,417 _{AVE} | 2,390 | 44.23 | 54 | -9.77 |
| | 2,465 _{PEAK} | 2,483.5 | 58.17 | 74 | -15.83 |
| | 2,465 _{AVE} | 2,483.5 | 47.33 | 54 | -6.67 |

TABLE OF RESULTS – 18 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,417 _{PEAK} | 2,390 | 54.63 | 74 | -19.37 |
| | 2,417 _{AVE} | 2,390 | 44.23 | 54 | -9.77 |
| | 2,465 _{PEAK} | 2,483.5 | 58.96 | 74 | -15.04 |
| | 2,465 _{AVE} | 2,483.5 | 47.85 | 54 | -6.15 |

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Radiated Band Edge Test Results for 2.4 GHz 20 dBi Antenna

TABLE OF RESULTS – 36 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,426 _{PEAK} | 2,390 | 55.32 | 74 | -18.68 |
| | 2,426 _{AVE} | 2,390 | 48.59 | 54 | -5.41 |
| | 2,455 _{PEAK} | 2,483.5 | 52.15 | 74 | -21.85 |
| | 2,455 _{AVE} | 2,483.5 | 45.18 | 54 | -8.82 |

TABLE OF RESULTS – 36 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,426 _{PEAK} | 2,390 | 58.83 | 74 | -15.17 |
| | 2,426 _{AVE} | 2,390 | 50.8 | 54 | -3.20 |
| | 2,455 _{PEAK} | 2,483.5 | 55.57 | 74 | -18.43 |
| | 2,455 _{AVE} | 2,483.5 | 45.52 | 54 | -8.48 |

TABLE OF RESULTS – 36 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,426 _{PEAK} | 2,390 | 58.68 | 74 | -15.32 |
| | 2,426 _{AVE} | 2,390 | 50.25 | 54 | -3.75 |
| | 2,455 _{PEAK} | 2,483.5 | 56.95 | 74 | -17.05 |
| | 2,455 _{AVE} | 2,483.5 | 46.47 | 54 | -7.53 |

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Radiated Band Edge Test Results for 2.4 GHz 20 dBi Antenna

TABLE OF RESULTS – 72 MHZ BANDWIDTH QPSK MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,437 _{PEAK} | 2,390 | 56.56 | 74 | -17.44 |
| | 2,437 _{AVE} | 2,390 | 47.10 | 54 | -6.90 |
| | 2,437 _{PEAK} | 2,483.5 | 54.11 | 74 | -19.89 |
| | 2,437 _{AVE} | 2,483.5 | 45.85 | 54 | -8.15 |

TABLE OF RESULTS – 72 MHZ BANDWIDTH 16QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,437 _{PEAK} | 2,390 | 55.30 | 74 | -18.70 |
| | 2,437 _{AVE} | 2,390 | 47.36 | 54 | -6.64 |
| | 2,437 _{PEAK} | 2,483.5 | 52.76 | 74 | -21.24 |
| | 2,437 _{AVE} | 2,483.5 | 45.52 | 54 | -8.48 |

TABLE OF RESULTS – 72 MHZ BANDWIDTH 64QAM MODULATION

| Tx Pwr (dBm) | Tx Freq. (MHz) | Restricted Band Edge Frequency (MHz) | Measured (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------|-----------------------|--------------------------------------|-------------------|----------------|-------------|
| +25.3 | 2,437 _{PEAK} | 2,390 | 56.66 | 74 | -17.34 |
| | 2,437 _{AVE} | 2,390 | 47.88 | 54 | -6.12 |
| | 2,437 _{PEAK} | 2,483.5 | 54.47 | 74 | -19.53 |
| | 2,437 _{AVE} | 2,483.5 | 44.83 | 54 | -9.17 |

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Specification

Limits

§15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

§15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

IC RSS-Gen § 4.7 The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device, or from 30 MHz, whichever is the lowest frequency, to the 5th harmonic of the highest frequency generated without exceeding 40 GHz.

| Frequency (MHz) | Field Strength (μ V/m) | Field Strength (dB μ V/m) | Measurement Distance (meters) |
|-----------------|-----------------------------|-------------------------------|-------------------------------|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

Laboratory Measurement Uncertainty for Radiated Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | +5.6/ -4.5 dB |
|-------------------------|---------------|

Traceability

| Method | Test Equipment Used |
|---|--|
| Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions' | 0088, 0158, 0134, 0304, 0315, 0310, 0312 |

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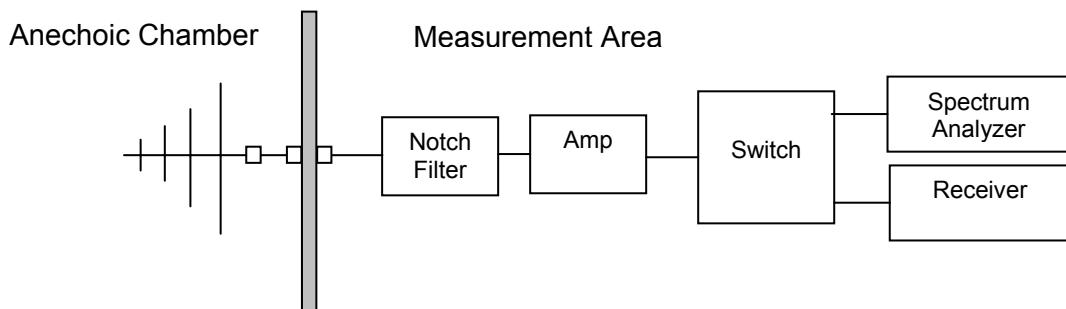
5.1.6.5. Radiated Spurious Emissions (30M-1 GHz)

FCC, Part 15 Subpart C §15.247(c)/ §15.209
Industry Canada RSS-210 §2.2

Test Procedure

Testing 30M-1 GHz was subcontracted to the company identified in Section 3.9 Subcontracted Testing. Preliminary radiated emissions are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarity. The emissions are recorded with a spectrum analyzer in peak hold mode. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed. The anechoic chamber test set-up is identified in Section 6 Test Set-Up Photographs.

Test Measurement Set up



Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

$$FS = R + AF + CORR$$

where:

FS = Field Strength

R = Measured Receiver Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss

AG = Amplifier Gain



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For example:

Given a Receiver input reading of 51.5dB μ V; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 \text{ dB}\mu\text{V/m}$$

Conversion between dB μ V/m (or dB μ V) and μ V/m (or μ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log} (\text{level (}\mu\text{V/m)})$$

$$40 \text{ dB}\mu\text{V/m} = 100\mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250\mu\text{V/m}$$

Measurement Results for Spurious Emissions (30 MHz – 1 GHz)

Ambient conditions.

Temperature: 19 to 26 °C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

Radio parameters.

Antenna Type: Super Pass Panel 20 dBi

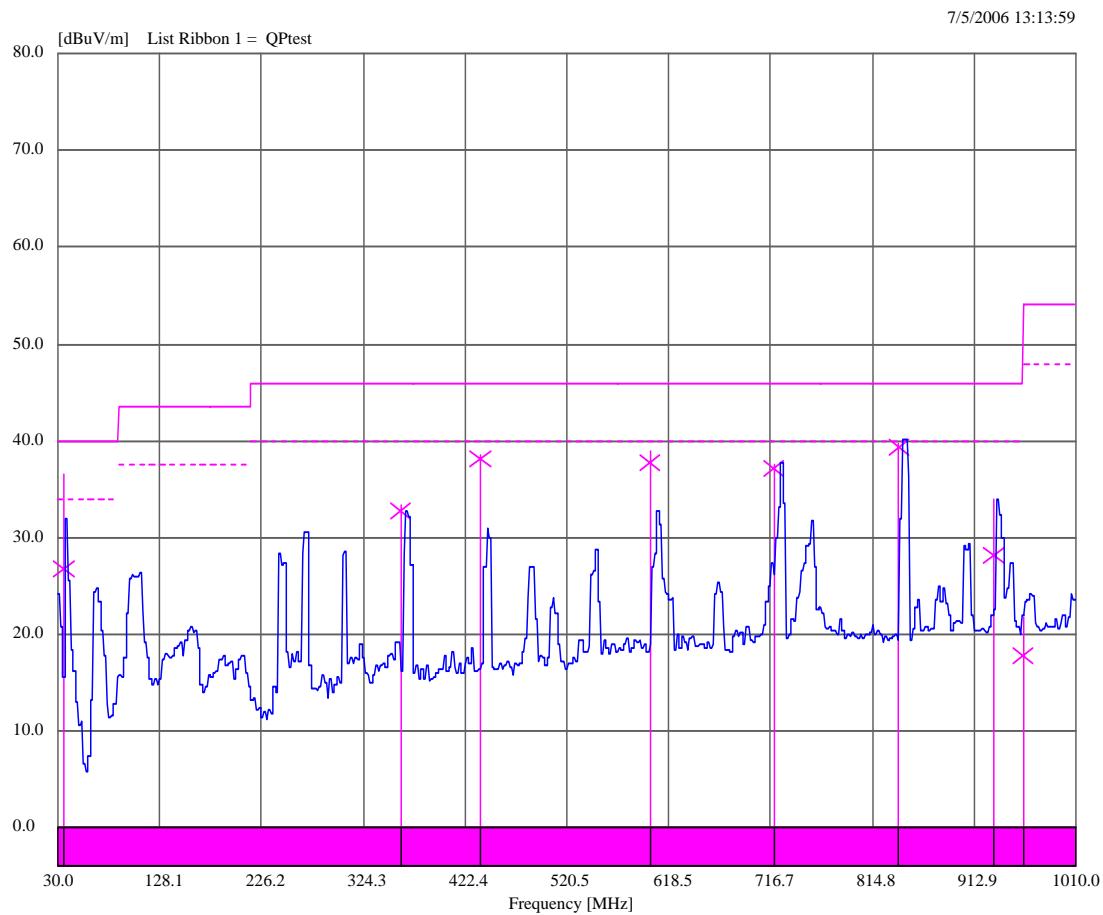
Transmission: Mid channel, 100% duty cycle, full power

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TABLE OF RESULTS

| Freq. (MHz) | Peak (dBuV/m) | QP (dBuV/m) | QP Lmt (dBuV/m) | QP Margin (dB) | Angle (deg) | Height (cm) | Pol | Total Correc- tion Factor |
|----------------|------------------|----------------|--------------------|----------------------|----------------|----------------|------|------------------------------------|
| 36.088766 | 36.51 | 26.83* | 40.00 | -13.17 | 99 | 194 | Vert | -9.76 |
| 359.993123 | 33.28 | 32.83 | 46.00 | -13.17 | 2 | 102 | Horz | -8.46 |
| 436.903156 | 38.56 | 38.21 | 46.00 | -7.79 | 86 | 104 | Horz | -7.10 |
| 599.996152 | 39.02 | 37.81 | 46.00 | -8.19 | 330 | 128 | Horz | -5.48 |
| 720.002176 | 37.50 | 37.22 | 46.00 | -8.78 | 205 | 103 | Horz | -4.47 |
| 840.002687 | 39.76 | 39.36 | 46.00 | -6.64 | 203 | 103 | Horz | -3.52 |
| 931.862720 | 33.86 | 28.16 | 46.00 | -17.84 | 242 | 102 | Vert | -2.42 |
| 959.993707 | 21.81 | 17.67 | 46.00 | -28.33 | 261 | 118 | Horz | -1.36 |

Plot 215 Radiated Spurious Emissions 30 MHz to 1 GHz



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Specification

Limits

§15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

§15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

| Frequency(MHz) | Field Strength (μ V/m) | Field Strength (dB μ V/m) | Measurement Distance (meters) |
|----------------|--------------------------------|----------------------------------|----------------------------------|
| 30-88 | 100 | 40.0 | 3 |
| 88-216 | 150 | 43.5 | 3 |
| 216-960 | 200 | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

Laboratory Measurement Uncertainty for Radiated Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | +5.6/ -4.5 dB |
|-------------------------|---------------|

Traceability

| Method | Test Equipment Used |
|--|---|
| Measurements were made per TUV Rheinland of North America work instruction | 8546A HP Receiver and RF Filter, HP Pre-amp, Antenna EMCO Biconilog |

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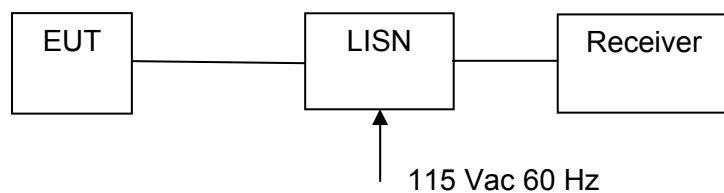
5.1.7. AC Wireline Conducted Emissions (150 kHz – 30 MHz)

FCC, Part 15 Subpart C §15.207
Industry Canada RSS-Gen §7.2.2

Test Procedure

The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

Test Measurement Set up



Measurement set up for AC Wireline Conducted Emissions Test

Measurement Results for AC Wireline Conducted Emissions (150 kHz – 30 MHz)

Ambient conditions.

Temperature: 19 to 26 °C Relative humidity: 31 to 57 % Pressure: 999 to 1009 mbar

Radio parameters.

Transmission: Mid channel, 100% duty cycle, full power

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TABLE OF RESULTS

LINE - LIVE

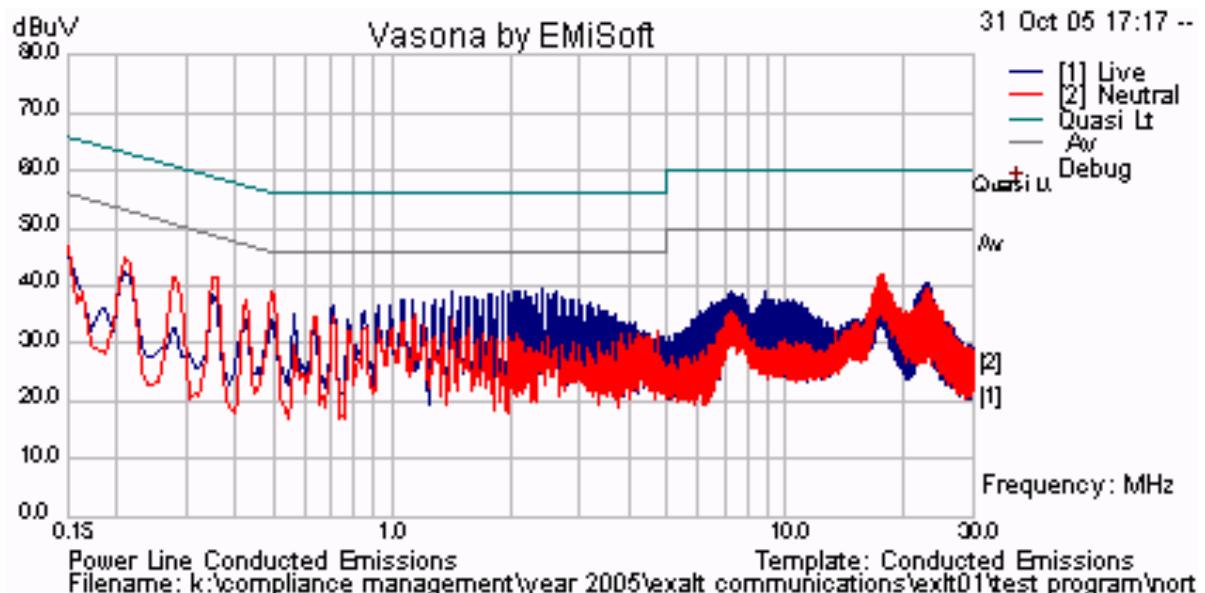
| Frequency (MHz) | Peak (dB μ V) | QP (dB μ V) | QP Limit (dB μ V) | QP Margin (dB) | Ave. (dB μ V) | Ave. Limit (dB μ V) | Ave. Margin (dB) |
|-----------------|-------------------|-----------------|-----------------------|----------------|-------------------|-------------------------|------------------|
| --.-- | Note | --.-- | --.-- | --.-- | --.-- | --.-- | --.-- |

LINE - NEUTRAL

| Frequency (MHz) | Peak (dB μ V) | QP (dB μ V) | QP Limit (dB μ V) | QP Margin (dB) | Ave. (dB μ V) | Ave. Limit (dB μ V) | Ave. Margin (dB) |
|-----------------|-------------------|-----------------|-----------------------|----------------|-------------------|-------------------------|------------------|
| --.-- | Note | --.-- | --.-- | --.-- | --.-- | --.-- | --.-- |

Note. No emissions were observed above the limit.

Plot 216 AC Wireline Conducted Emissions (150 kHz – 30 MHz)



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Specification

Limit

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 $\mu\Omega$ line impedance stabilization network (LISN), see §15.207 (a) matrix below. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

IC RSS-Gen §7.2.2 Except when the requirements applicable to a given device state otherwise, for any license-exempt radio communication device equipped to operate from the public utility AC power supply, either directly or indirectly, the radio frequency voltage that is conducted back into the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table below.

§15.207 (a) & IC RSS-Gen Limit Matrix

The lower limit applies at the boundary between frequency ranges

| Frequency of Emission (MHz) | Conducted Limit (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency

Laboratory Measurement Uncertainty for Conducted Emissions

| | |
|-------------------------|---------------|
| Measurement uncertainty | ± 2.64 dB |
|-------------------------|---------------|

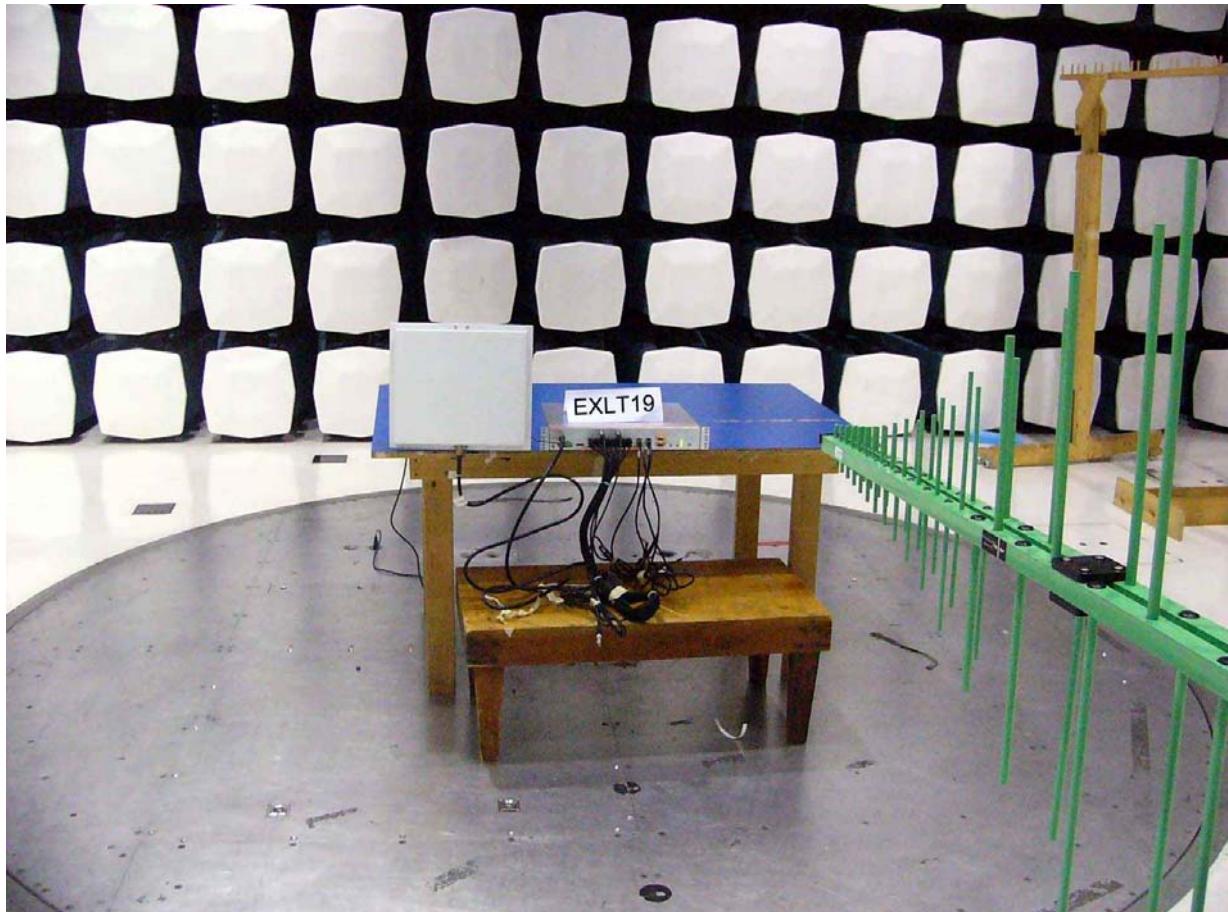
Traceability

| Method | Test Equipment Used |
|--|------------------------------------|
| Measurements were made per work instruction WI-EMC-01 'Measurement of Conducted Emissions' | 0158, 0184, 0193, 0190, 0293, 0307 |

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6. PHOTOGRAPHS

6.1. Radiated Emissions (30 MHz-1 GHz)



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6.2. Radiated Emissions >1 GHz



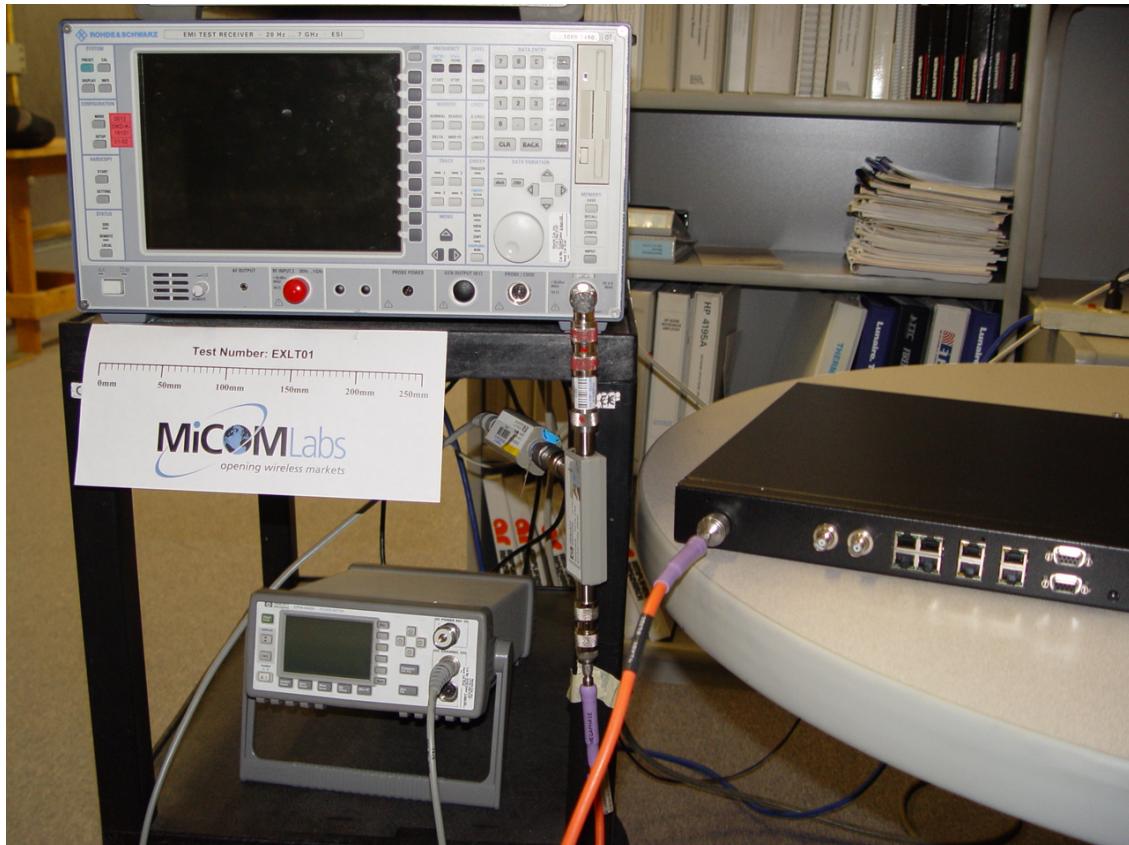
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6.3. Conducted Emissions (150 kHz - 30 MHz)



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6.4. General Measurement Test Set-Up



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Title: Exalt EX-2.4i-16 Fixed Link Radio
To: FCC 47 CFR Part15.247 & IC RSS-210
Serial #: EXLT19-A1 Rev A
Issue Date: 28th Feb 2007
Page: 247 of 248

7. TEST EQUIPMENT DETAILS

| Asset # | Instrument | Manufacturer | Part # | Serial # |
|---------|------------------------|-------------------------------|-----------------------|-------------|
| 0088 | Spectrum Analyzer | Hewlett Packard | 8564E | 3410A00141 |
| 0104 | 1-18GHz Horn Antenna | The Electro-Mechanics Company | 3115 | 9205-3882 |
| 0134 | Amplifier | Com Power | PA 122 | 181910 |
| 0158 | Barometer /Thermometer | Control Co. | 4196 | E2846 |
| 0193 | EMI Receiver | Rhode & Schwartz | ESI 7 | 838496/007 |
| 0252 | SMA Cable | Megaphase | Sucoflex 104 | None |
| 0304 | 2.4GHz Notch Filter | Micro-Tronics | -- | 001 |
| 0310 | 2m SMA Cable | Micro-Coax | UFA210A-0-0787-3G03G0 | 209089-001 |
| 0312 | 3m SMA Cable | Micro-Coax | UFA210A-1-1181-3G0300 | 209092-001 |
| 0313 | Coupler | Hewlett Packard | 86205A | 3140A01285 |
| 0314 | 30dB N-Type Attenuator | ARRA | N9444-30 | 1623 |
| 0070 | Power Meter | Hewlett Packard | 437B | 3125U11552 |
| 0116 | Power Sensor | Hewlett Packard | 8485A | 3318A19694 |
| 0117 | Power Sensor | Hewlett Packard | 8487D | 3318A00371 |
| 0184 | Pulse Limiter | Rhode & Schwartz | ESH3Z2 | 357.8810.52 |
| 0190 | LISN | Rhode & Schwartz | ESH3Z5 | 836679/006 |
| 0293 | BNC Cable | Megaphase | 1689 1GVT4 | 15F50B001 |
| 0307 | BNC Cable | Megaphase | 1689 1GVT4 | 15F50B002 |

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