

**Nemko Test Report:** 4L0613RUS1Rev4

**Applicant:** Motion Computing, Inc.  
8601 RR 2222 Bldg 2  
Building 1, Suite 250  
Austin, Texas 78730

**Equipment Under Test:  
(E.U.T.)** T004

**In Accordance With:** **FCC Part 15, Subpart E**  
UNII Band Transceiver

**Tested By:** Nemko Dallas Inc.  
802 N. Kealy  
Lewisville, Texas 75057-3136

**Authorized By:**

A handwritten signature in black ink, appearing to read 'Abe Cox', is written over a thin vertical red line.

Abe Cox, Frontline Engineer

**Date:** March 13, 2006

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EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4

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**Section 1. Summary of Test Results**

Manufacturer: Motion Computing, Inc.

Model No.: T004

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 for Direct Sequence Spread Spectrum devices. Radiated tests were conducted in accordance with ANSI C63.4-2001. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.



New Submission



Production Unit



Class II Permissive Change



Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. NONE  
See " Summary of Test Data".

**NVLAP LAB CODE: 100426-0**

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*EQUIPMENT:* T004TEST REPORT NO.: 4L0613RUS2Rev4

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**Summary Of Test Data**

| NAME OF TEST                              | PARA. NO. | RESULT   |
|-------------------------------------------|-----------|----------|
| Powerline Conducted Emissions             | 15.207(a) | Complies |
| 26 dB Bandwidth                           | 15.407(a) | Complies |
| Maximum Peak Power Output                 | 15.407(a) | Complies |
| Spurious Emissions<br>(Antenna Conducted) | 15.407(a) | N/A      |
| Spurious Emissions (Restricted Bands)     | 15.407(a) | Complies |
| Peak Power Spectral Density               | 15.407(a) | Complies |

**Footnotes:**

The antennas are integral to the radio modules.

## **Section 2. Equipment Under Test (E.U.T.)**

### **General Equipment Information**

**Frequency Band:**

☒ 5150 – 5250 MHz

☒ 5120 - 5350 MHz

**Channel Spacing:**

10 MHz

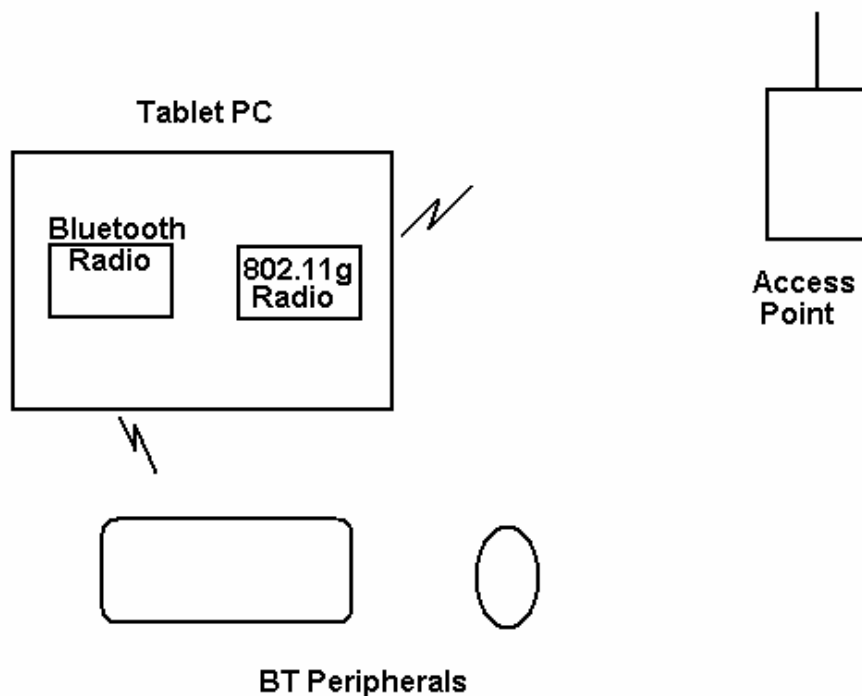
**User Frequency Adjustment:**

Software controlled

**Description of EUT**

The T400 is a portable computer platform based on ultra-portable tablet PC technology utilizing Microsoft's Tablet version of Windows XP. The PC is compatible with 802.11a, b and g technologies.

The PC also has Bluetooth capability.

**System Diagram**

**Section 3. Powerline Conducted Emissions**

|                                             |                      |
|---------------------------------------------|----------------------|
| NAME OF TEST: Powerline Conducted Emissions | PARA. NO.: 15.207(a) |
| TESTED BY: Kevin Rose                       | DATE: 12/20/04       |

**Test Results:** Complies.

**Measurement Data:** See attached plots.

**Measurement Uncertainty:** +/- 1.7 dB

**NOTE:** The device was tested with both radio modules transmitting simultaneously.

## Test Data – Powerline Conducted Emissions



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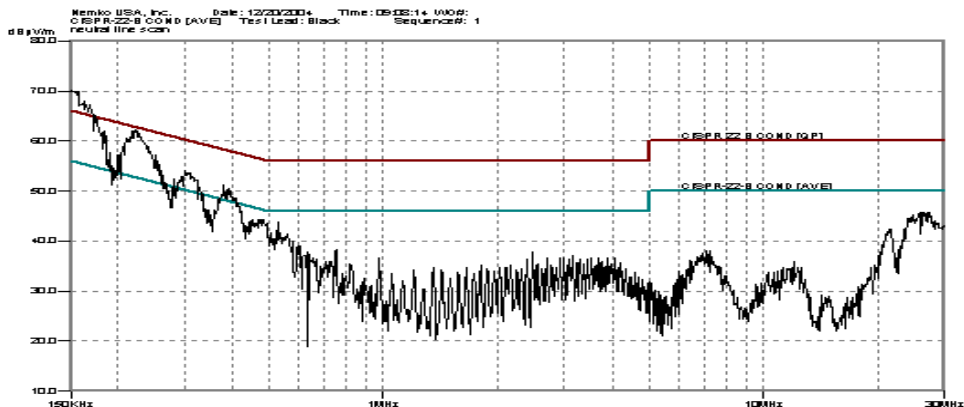
### Conducted Powerline Voltage Measurement

Complete X Job # : 4L0613e Test # : CEPV-01  
Preliminary \_\_\_\_\_ Page 1 of 2

Client Name : Motion Computing Inc.  
EUT Name : LE1600 Series  
EUT Model # : T004  
EUT Part # : EDX20  
EUT Serial # : 56  
EUT Config. : transmitting max power and DVD operating

Specification : FCC B Reference : EN 55022 Class B  
Transducer # : 969 Temp. (deg. C) : 20 Date : 12/20/04  
HP Filter # : 1433 Humidity (%) : 19 Time : 10:26  
Cable 1 # : 1998 EUT Voltage : 120 Staff : KEVIN ROSE  
Cable 2 # : 1129 EUT Frequency : 60 Location : ROOM 2  
Detector 1 # : 718 Peak Bandwidth: 10 kHz Photo ID: 4L0613E CEPV-01  
Detector 2 # : 966 QP Bandwidth 10 kHz  
Limiter # : Avg. Bandwidth 10 kHz

| Meas.<br>Freq.<br>(MHz) | EUT<br>Test<br>Point | Detector<br>Type<br>(P, QP, A) | Limit<br>Type<br>(QP, A) | Meter<br>Reading<br>(dBuV) | Path<br>Loss<br>(dB) | Transducer<br>Factor<br>(dB) | Corrected<br>Reading<br>(dBuV) | Spec. limit<br>(dBuV) |        | CR/SL<br>Diff.<br>(dB) | Pass<br>Fail<br>Unc. | Comment |
|-------------------------|----------------------|--------------------------------|--------------------------|----------------------------|----------------------|------------------------------|--------------------------------|-----------------------|--------|------------------------|----------------------|---------|
|                         |                      |                                |                          |                            |                      |                              |                                | Q.P.                  | Avg.   |                        |                      |         |
| 0.1527                  | Neutral              | A                              | A                        | 47.0                       | 0                    | 0                            | 47.0                           | 65.85                 | 55.852 | -8.9                   | Pass                 |         |
| 0.1527                  | Neutral              | QP                             | QP                       | 56.8                       | 0                    | 0                            | 56.8                           | 65.85                 | 55.852 | -9.1                   | Pass                 |         |
| 0.2298                  | Neutral              | A                              | A                        | 36.0                       | 0                    | 0                            | 36.0                           | 62.46                 | 52.457 | -16.5                  | Pass                 |         |
| 0.2298                  | Neutral              | QP                             | QP                       | 45.2                       | 0                    | 0                            | 45.2                           | 62.46                 | 52.457 | -17.3                  | Pass                 |         |
| 0.4568                  | Neutral              | A                              | A                        | 32.5                       | 0                    | 0                            | 32.5                           | 56.75                 | 46.751 | -14.3                  | Pass                 |         |
| 0.4568                  | Neutral              | QP                             | QP                       | 36.2                       | 0                    | 0                            | 36.2                           | 56.75                 | 46.751 | -20.6                  | Pass                 |         |



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## Test Data – Powerline Conducted Emissions



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Tel: (972) 436-9600  
Fax: (972) 436-2667

### Conducted Emissions Powerline Voltage Measurement

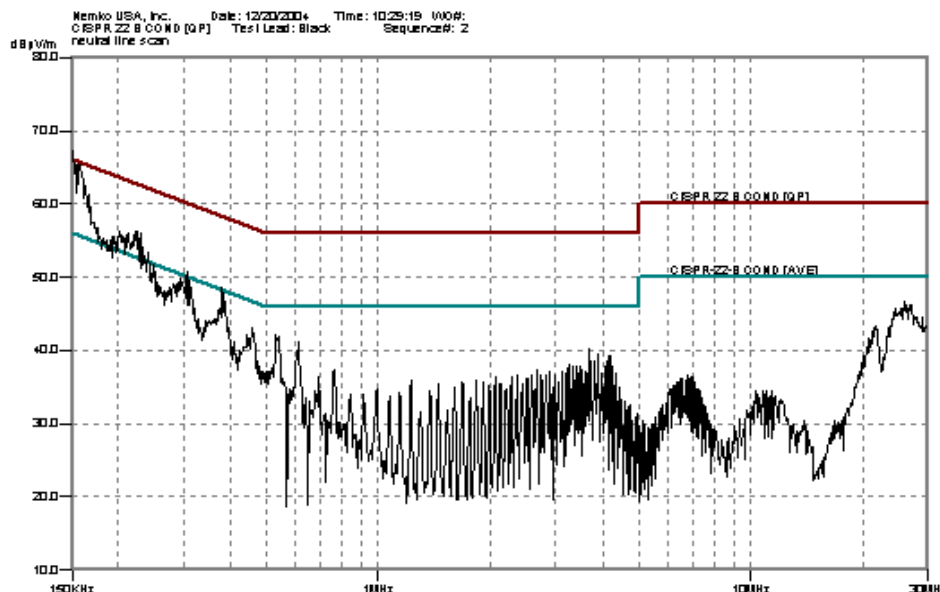
Complete   X    
Preliminary       

Job # : 4L0613e Test # : CEPV-01  
Page   2   of   2  

Client Name : Motion Computing Inc.  
EUT Name : LE1600 Series  
EUT Model # : T004  
EUT Part # : EDX20  
EUT Serial # : 56  
EUT Config : transmitting max power and DVD operating

Specification : FCC B Reference : EN 55022 Class B

| Meas. Freq. (MHz) | EUT Test Point | Detector Type (P,QP, A) | Limit Type (QP, A) | Meter Reading (dBuV) | Path Loss (dB) | Transducer Factor (dB) | Corrected Reading (dBuV) | Spec.limit (dBuV) |        | CR/SL Diff. (dB) | Pass Fail Unc. | Comment |
|-------------------|----------------|-------------------------|--------------------|----------------------|----------------|------------------------|--------------------------|-------------------|--------|------------------|----------------|---------|
|                   |                |                         |                    |                      |                |                        |                          | Q.P.              | Avg.   |                  |                |         |
| 0.1527            | Hot            | A                       | A                  | 46.0                 | 0.0            | 0.0                    | 46.0                     | 65.85             | 55.852 | -9.9             | Pass           |         |
| 0.1527            | Hot            | QP                      | QP                 | 57.2                 | 0.0            | 0.0                    | 57.2                     | 65.85             | 55.852 | -8.7             | Pass           |         |
| 0.2298            | Hot            | A                       | A                  | 38.0                 | 0.0            | 0.0                    | 38.0                     | 62.46             | 52.457 | -14.5            | Pass           |         |
| 0.2298            | Hot            | QP                      | QP                 | 47.0                 | 0.0            | 0.0                    | 47.0                     | 62.46             | 52.457 | -15.5            | Pass           |         |
| 0.4568            | Hot            | A                       | A                  | 25.6                 | 0.0            | 0.0                    | 25.6                     | 56.75             | 46.751 | -21.2            | Pass           |         |
| 0.4568            | Hot            | QP                      | QP                 | 35.2                 | 0.0            | 0.0                    | 35.2                     | 56.75             | 46.751 | -21.6            | Pass           |         |



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**Photos – Powerline Conducted Emissions**

Front



Side



*EQUIPMENT:* T004

TEST REPORT NO.: 4L0613RUS2Rev4

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**Section 4.        26 dB Occupied Bandwidth**

|                                  |                      |
|----------------------------------|----------------------|
| NAME OF TEST: Occupied Bandwidth | PARA. NO.: 15.407(a) |
| TESTED BY: Tom Tidwell           | DATE: 31 Dec. 2004   |

**Test Results:**                      Complies.

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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## Data Plot

## 26 dB Occupied Bandwidth

Page 1 of 6

Complete ☒ XPreliminary: ☐

Job No.: 4L0613 Date: 12/31/2004

Specification: CFR 47, Part 15 Temperature(°C):

Tested By: Tom Tidwell Relative Humidity(%)

E.U.T.: Motion Computing tablet PC with Intel ABG radio module

Configuration: Set for continuous TX power

Sample Number:

Location: Lab 1

RBW: Refer to plots

Detector Type: Peak

VBW: Refer to plots

## Test Equipment Used

Antenna:

Directional Coupler:

Pre-Amp:

Cable #1: 1626

Filter:

Cable #2:

Receiver: 1464

Cable #3:

Attenuator #1: 1470

Cable #4:

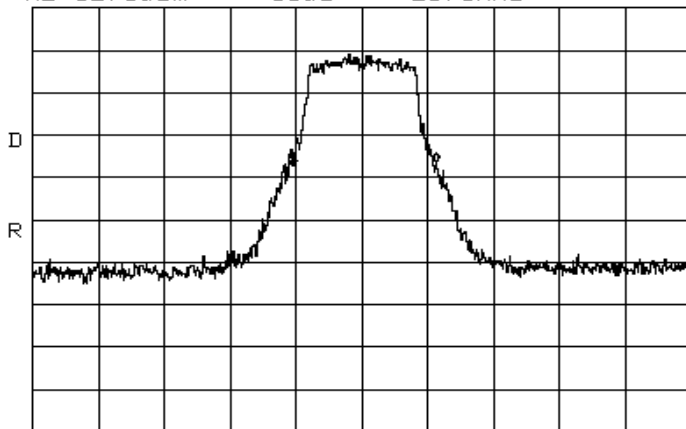
Attenuator #2: 1471

Mixer:

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB

ATTEN 10dB  
RL 12.3dBm 10dB/ ΔMKR 1.16dB  
21.8MHz



CENTER 5.1800GHz SPAN 100.0MHz  
\*RBW 300kHz \*VBW 1.0MHz SWP 50.0ms  
2

Notes: 5180 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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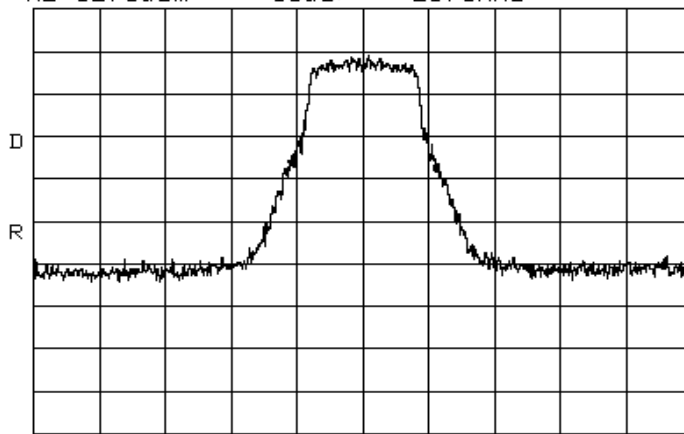
**Data Plot**

Page 2 of 6

**26 dB Occupied Bandwidth**

Job No.: 4L0613 Date: 12/31/2004  
CFR 47, Part 15 Temperature(°C):  
Tested By: Tom Tidwell Relative Humidity(%):  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

ATTEN 10dB  $\Delta$ MKR -1.33dB  
RL 12.3dBm 10dB/ 21.8MHz



CENTER 5.2100GHz SPAN 100.0MHz  
\*RBW 300kHz \*VBW 1.0MHz SWP 50.0ms  
2

Notes: 5210

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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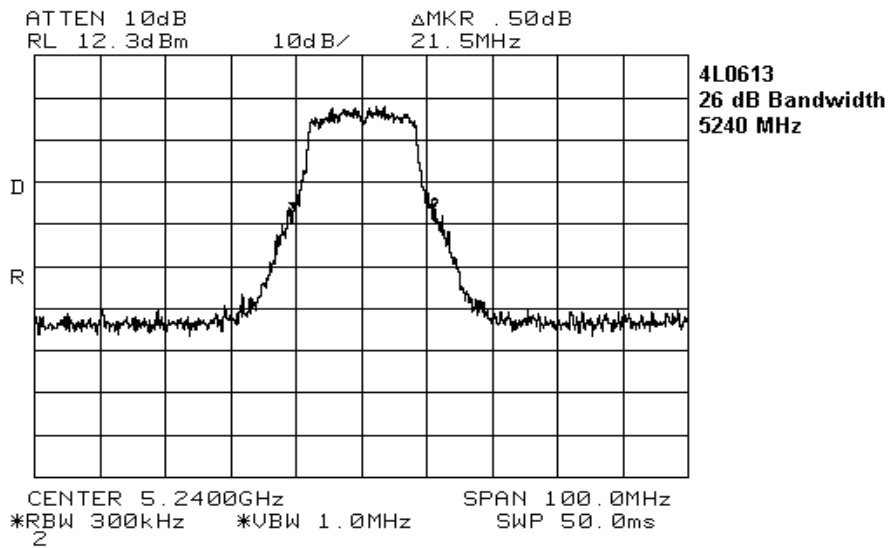
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**Data Plot****26 dB Occupied Bandwidth**

Page 3 of 6

Job No.: 4L0613 Date: 12/31/2004  
CFR 47,  
Specification: Part 15 Temperature(°C):  
Tested By: Tom Tidwell Relative Humidity(%)  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power



Notes: 5240 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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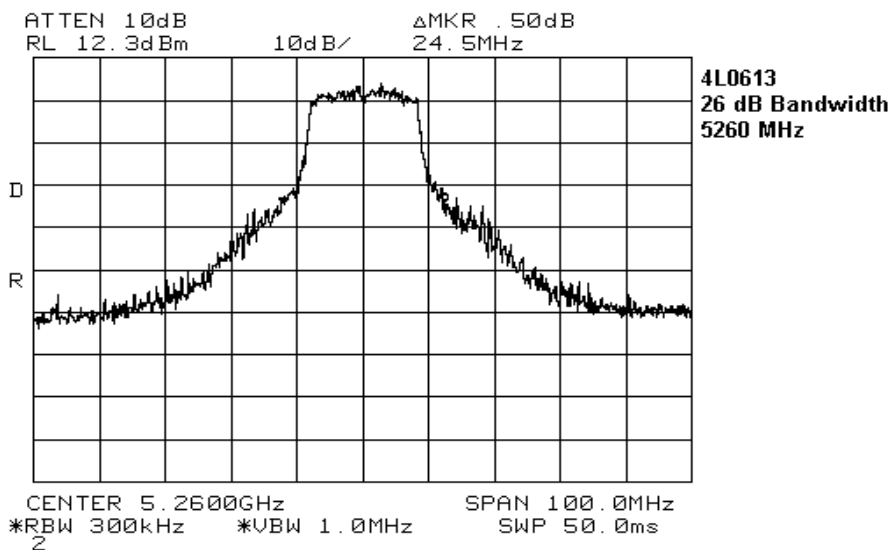
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**Data Plot****26 dB Occupied Bandwidth**

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Job No.: 4L0613 Date: 12/31/2004  
CFR 47, Part 15 Temperature(°C):  
Tested By: Tom Tidwell Relative Humidity(%):  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power



Notes: 5260

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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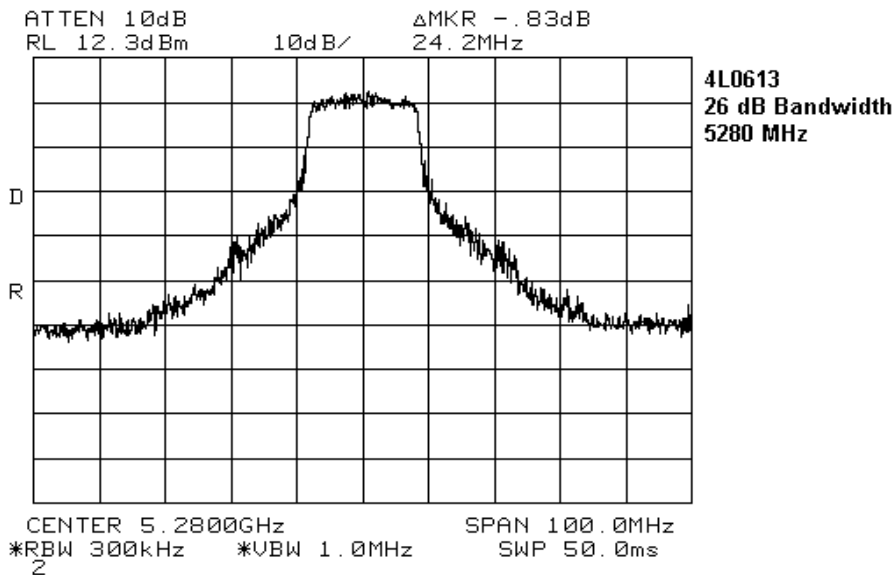
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**Data Plot****26 dB Occupied Bandwidth**

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Job No.: 4L0613 Date: 12/31/2004  
CFR 47, Part 15 Temperature(°C):  
Tested By: Tom Tidwell Relative Humidity(%):  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power



Notes: 5280 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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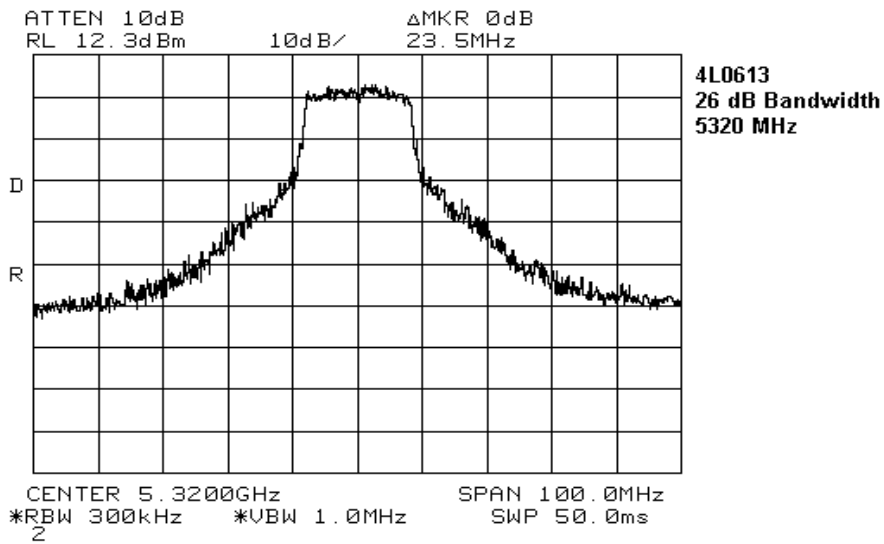
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**Data Plot**

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**26 dB Occupied Bandwidth**

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power



Notes: 5320 MHz

## Section 5. Maximum Peak Output Power

|                                         |                      |
|-----------------------------------------|----------------------|
| NAME OF TEST: Maximum Peak Output power | PARA. NO.: 15.407(a) |
| TESTED BY: Tom Tidwell                  | DATE: 03/13/06       |

- (1) For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz.

Limit = lesser of 50 mW(17 dBm) or 4 dBm + 10log(21.5) = 17.3 dBm

Limit = 50 mW(+17 dBm)

- (2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

Limit = lesser of 250 mW(24 dBm) or 11 dBm + 10log(23.5) = +24.7 dBm

Limit = 250 mW(+24 dBm)

**Test Results:** Complies.

**Measurement Data:** Refer to attached data

The measurement was repeated at +/- 15% of nominal supply voltage with no variation noted in rf power output.

Maximum Peak Power:

| Frequency<br>(MHz)   | Peak Power<br>(dBm) | Peak Power<br>(mW) |
|----------------------|---------------------|--------------------|
| 5150 – 5250 MHz band |                     |                    |
| 5180                 | 13.1                | 20.42              |
| 5210                 | 13.3                | 21.4               |
| 5240                 | 13.42               | 21.98              |
| 5250 – 5350 MHz band |                     |                    |
| 5260                 | 12.72               | 18.7               |
| 5280                 | 12.71               | 18.66              |
| 5320                 | 12.83               | 19.19              |

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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**Peak Transmit Power**

Page 1 of 6

Complete X

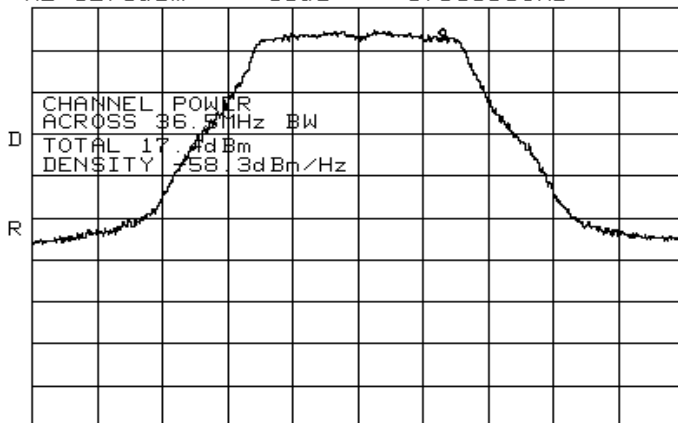
Preliminary: \_\_\_\_\_

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%): 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power  
Sample Number: \_\_\_\_\_  
Location: Lab 1 RBW: Refer to plots  
Detector Type: Peak VBW: Refer to plots

**Test Equipment Used**

Antenna: \_\_\_\_\_ Directional Coupler: \_\_\_\_\_  
Pre-Amp: \_\_\_\_\_ Cable #1: 1626  
Filter: \_\_\_\_\_ Cable #2: \_\_\_\_\_  
Receiver: 1464 Cable #3: \_\_\_\_\_  
Attenuator #1: 1470 Cable #4: \_\_\_\_\_  
Attenuator #2: 1471 Mixer: \_\_\_\_\_  
Additional equipment used: \_\_\_\_\_  
Measurement Uncertainty: +/-1.7 dB

ATTEN 10dB UAWG 100 MKR 5.47dBm  
RL 12.3dBm 10dB/ 5.18650GHz



4L0613  
Peak Transmit Power  
5180 MHz

CENTER 5.18000GHz SPAN 50.00MHz  
\*RBW 1.0MHz \*VBW 3.0MHz SWP 50.0ms  
z 64.4dBm/Hz

Notes: 5180 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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**Data Plot**

Page 2 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

**Peak Transmit Power**

ATTEN 10dB UAVG 100 MKR 4.30dBm  
RL 12.3dBm 10dB/ 5.21650GHz



**4L0613**  
**Peak Transmit Power**  
**5210 MHz**

CENTER 5.21000GHz SPAN 50.00MHz  
\*RBW 1.0MHz \*VBW 3.0MHz SWP 50.0ms  
z 64.4dBm/Hz

Notes: 5210 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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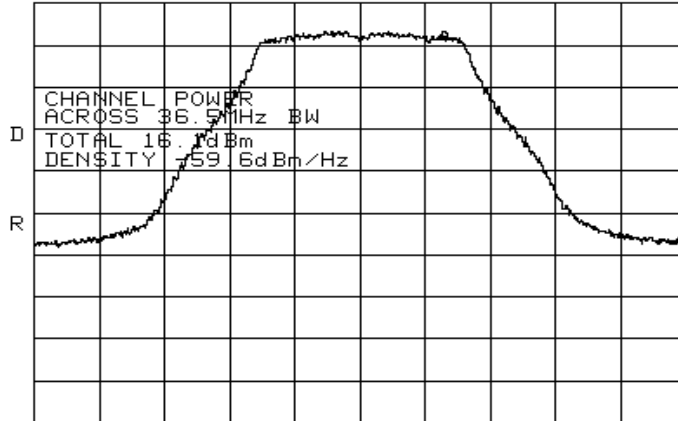
## Data Plot

Page 3 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

## Peak Transmit Power

ATTEN 10dB UAVG 100 MKR 3.80dBm  
RL 12.3dBm 10dB/ 5.24650GHz



4L0613  
Peak Transmit Power  
5240 MHz

CENTER 5.24000GHz SPAN 50.00MHz  
\*RBW 1.0MHz \*VBW 3.0MHz SWP 50.0ms  
Z

Notes: 5240 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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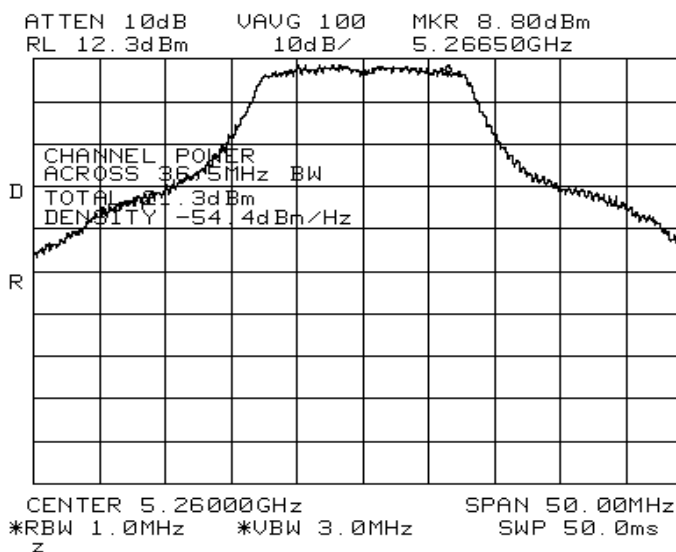
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## Data Plot

Page 4 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

## Peak Transmit Power



4L0613  
Peak Transmit Power  
5260 MHz

Notes: 5260 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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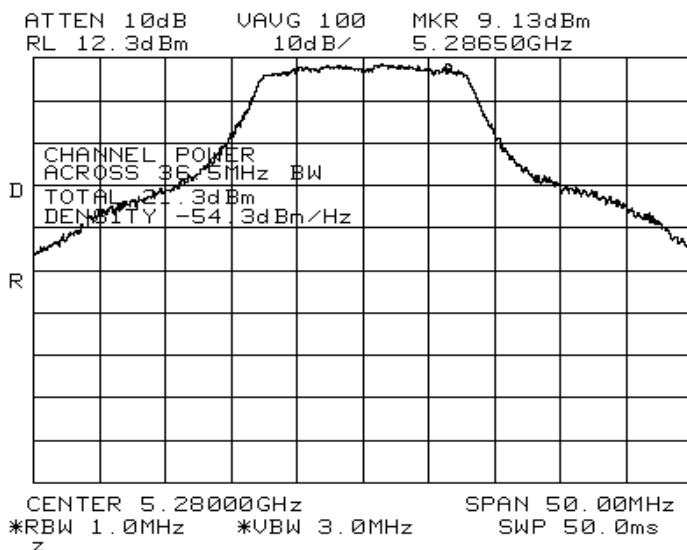
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**Data Plot**

Page 5 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

**Peak Transmit Power**

Notes: 5280 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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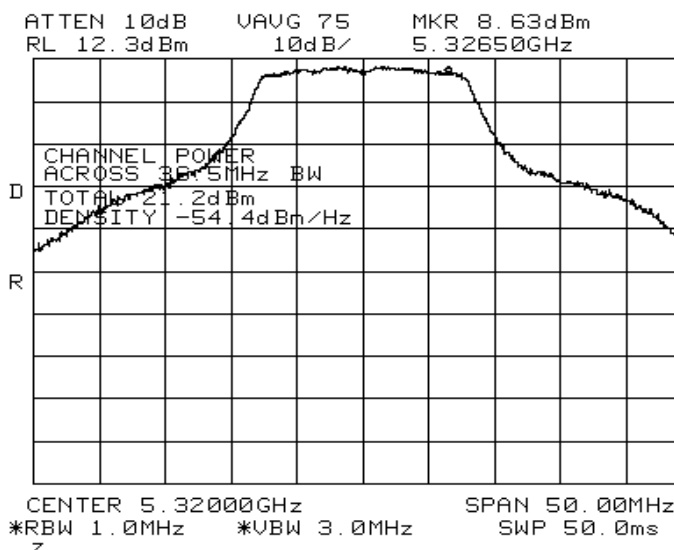
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## Data Plot

Page 6 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

## Peak Transmit Power



4L0613  
Peak Transmit Power  
5320 MHz

Notes: 5320 MHz

*EQUIPMENT:* T004

TEST REPORT NO.: 4L0613RUS2Rev4

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**Section 6. Peak Excursion**

|                           |                    |
|---------------------------|--------------------|
| NAME OF TEST: RF Exposure | PARA. NO.: 15. 407 |
| TESTED BY: Tom Tidwell    | DATE: 12/31/04     |

**Test Results:** Maximum excursion = 7.3 dB.

**Measurement Data:** See attached plots

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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**Peak Excursion**

Page 1 of 6

Complete X

Preliminary: \_\_\_\_\_

Job No.: 4L0613 Date: 12/31/2004

Specification: CFR 47, Part 15 Temperature(°C): 23

Tested By: Tom Tidwell Relative Humidity(%) 52

E.U.T.: Motion Computing tablet PC with Intel ABG radio module

Configuration: Set for continuous TX power

Sample Number: \_\_\_\_\_

Location: Lab 1

RBW: Refer to plots

Detector Type: Peak

VBW: Refer to plots

**Test Equipment Used**

Antenna: \_\_\_\_\_

Directional Coupler: \_\_\_\_\_

Pre-Amp: \_\_\_\_\_

Cable #1: 1626

Filter: \_\_\_\_\_

Cable #2: \_\_\_\_\_

Receiver: 1464

Cable #3: \_\_\_\_\_

Attenuator #1: 1470

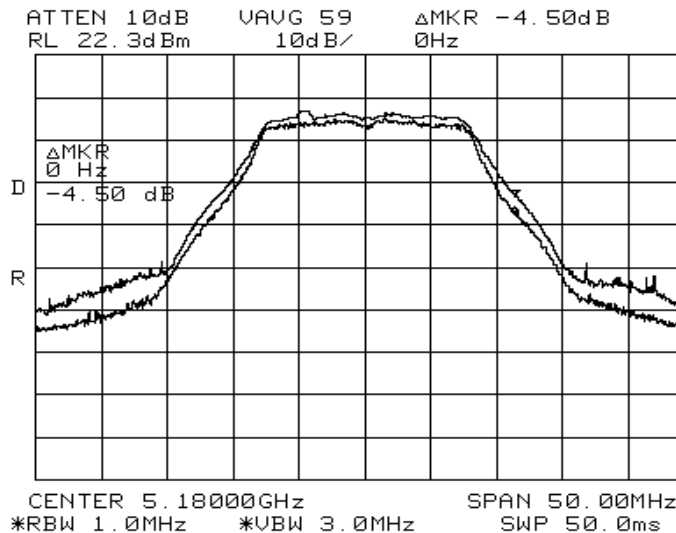
Cable #4: \_\_\_\_\_

Attenuator #2: 1471

Mixer: \_\_\_\_\_

Additional equipment used: \_\_\_\_\_

Measurement Uncertainty: +/-1.7 dB



Notes: 5180 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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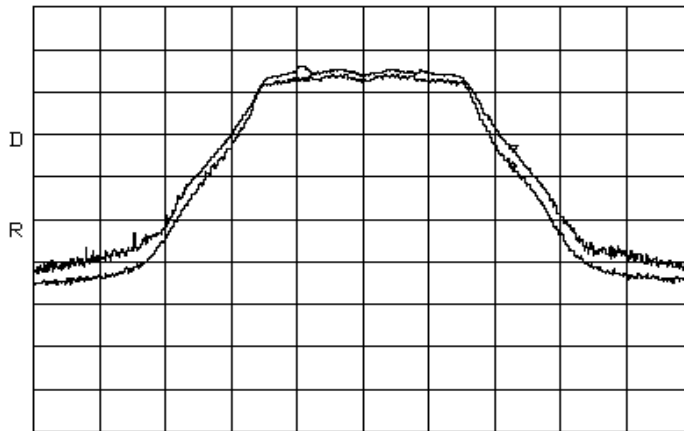
**Data Plot**

Page 2 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

**Peak Excursion**

ATTEN 10dB VAUG 100 ΔMKR -4.50dB  
RL 22.3dBm 10dB/ 0Hz



CENTER 5.21000GHz SPAN 50.00MHz  
\*RBW 1.0MHz \*VBW 3.0MHz SWP 50.0ms

Notes: 5210 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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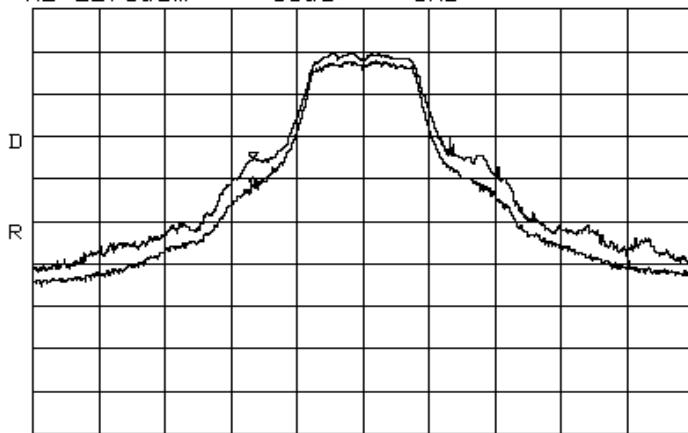
**Data Plot**

Page 3 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

**Peak Excursion**

ATTEN 10dB VAUG 100 ΔMKR -6.33dB  
RL 22.3dBm 10dB/ 0Hz



CENTER 5.3200GHz SPAN 100.0MHz  
\*RBW 1.0MHz \*VBW 3.0MHz SWP 50.0ms

Notes: 5240 MHz

EQUIPMENT: T004

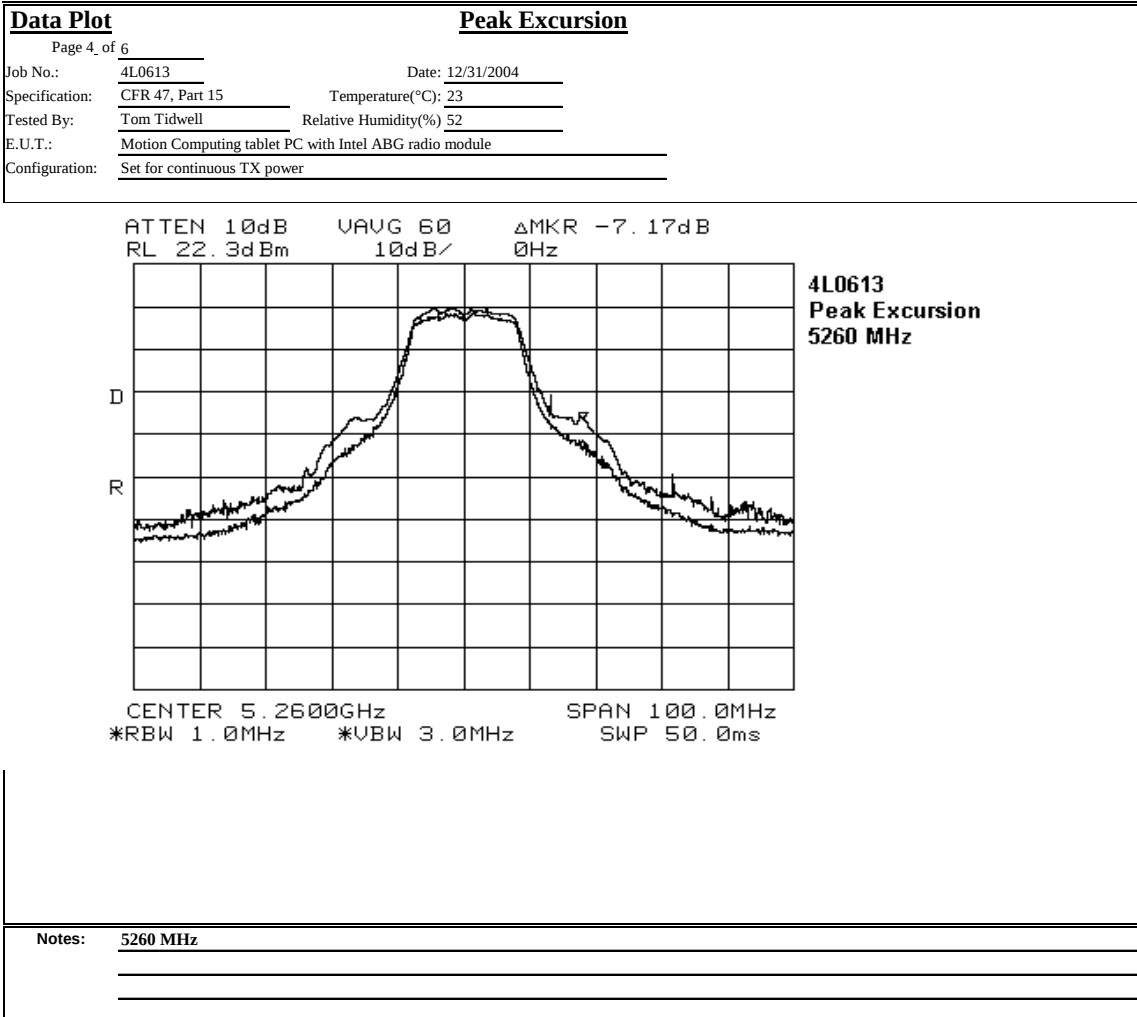
TEST REPORT NO.: 4L0613RUS2Rev4



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EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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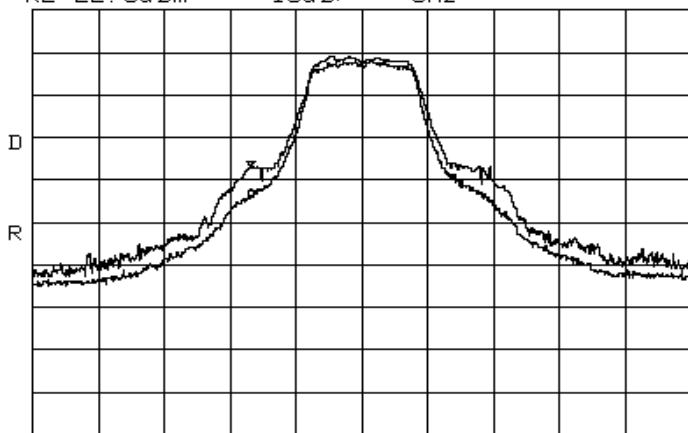
**Data Plot**

Page 5 of 6

Job No.: 4L0613 Date: 12/31/2004  
Specification: CFR 47, Part 15 Temperature(°C): 23  
Tested By: Tom Tidwell Relative Humidity(%) 52  
E.U.T.: Motion Computing tablet PC with Intel ABG radio module  
Configuration: Set for continuous TX power

**Peak Excursion**

ATTEN 10dB VAUG 100 ΔMKR -7.34dB  
RL 22.3dBm 10dB/ 0Hz



CENTER 5.2800GHz SPAN 100.0MHz  
\*RBW 1.0MHz \*VBW 3.0MHz SWP 50.0ms

Notes: 5280 MHz

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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| Data Plot      |                                                        | Peak Excursion       |            |
|----------------|--------------------------------------------------------|----------------------|------------|
| Page 6 of 6    |                                                        |                      |            |
| Job No.:       | 4L0613                                                 | Date:                | 12/31/2004 |
| Specification: | CFR 47, Part 15                                        | Temperature(°C):     | 23         |
| Tested By:     | Tom Tidwell                                            | Relative Humidity(%) | 52         |
| E.U.T.:        | Motion Computing tablet PC with Intel ABG radio module |                      |            |
| Configuration: | Set for continuous TX power                            |                      |            |

ATTEN 10dB    VAUG 100    ΔMKR -6.33dB  
RL 22.3dBm    10dB/    0Hz

CENTER 5.3200GHz    SPAN 100.0MHz  
\*RBW 1.0MHz    \*VBW 3.0MHz    SWP 50.0ms

|        |          |
|--------|----------|
| Notes: | 5320 MHz |
|        |          |
|        |          |
|        |          |

*EQUIPMENT:* T004

TEST REPORT NO.: 4L0613RUS2Rev4

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**Section 7. Spurious Emissions (radiated)**

|                                             |                       |
|---------------------------------------------|-----------------------|
| NAME OF TEST: Spurious Emissions (Radiated) | PARA. NO.: 15.247 (c) |
| TESTED BY: David Light                      | DATE: 1/29/04         |

**Test Results:** Complies.

**Measurement Data:** See attached table.

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4

**Test Data – Radiated Emissions**

| <b><u>Radiated Emissions</u></b>                                              |                      |                                |                 |                   |                            |                     |                        |                     |
|-------------------------------------------------------------------------------|----------------------|--------------------------------|-----------------|-------------------|----------------------------|---------------------|------------------------|---------------------|
| Page <u>1</u> of <u>1</u>                                                     |                      |                                |                 |                   |                            |                     |                        |                     |
| Job No.: 4L0613                                                               |                      | Date: 12/28/2004               |                 |                   |                            |                     |                        |                     |
| Specification: 15.247/15.205                                                  |                      | Temperature(°C): <u>20</u>     |                 |                   |                            |                     |                        |                     |
| Tested By: David Light                                                        |                      | Relative Humidity(%) <u>50</u> |                 |                   |                            |                     |                        |                     |
| E.U.T.: TABLET PC                                                             |                      |                                |                 |                   |                            |                     |                        |                     |
| Configuration: Upright on long edge - Continuous transmit @ 54 Mbps - 802.11a |                      |                                |                 |                   |                            |                     |                        |                     |
| Sample Number: 1                                                              |                      |                                |                 |                   |                            |                     |                        |                     |
| Location: AC 3                                                                |                      | RBW: 1 MHz                     |                 |                   |                            |                     |                        |                     |
| Detector Type: Peak                                                           |                      | Peak VBW: 1 MHz                |                 |                   |                            |                     |                        |                     |
|                                                                               |                      | Avg VBW 10 Hz                  |                 |                   |                            |                     |                        |                     |
| <b><u>Test Equipment Used</u></b>                                             |                      |                                |                 |                   |                            |                     |                        |                     |
| Antenna: 1304                                                                 |                      | Directional Coupler: #N/A      |                 |                   |                            |                     |                        |                     |
| Pre-Amp: 1016                                                                 |                      | Cable #1: 1484                 |                 |                   |                            |                     |                        |                     |
| Filter: 1650                                                                  |                      | Cable #2: 1485                 |                 |                   |                            |                     |                        |                     |
| Receiver: 1464                                                                |                      | Cable #3: #N/A                 |                 |                   |                            |                     |                        |                     |
| Attenuator #1: #N/A                                                           |                      | Cable #4: #N/A                 |                 |                   |                            |                     |                        |                     |
| Attenuator #2: #N/A                                                           |                      | Mixer: #N/A                    |                 |                   |                            |                     |                        |                     |
| Additional test equipment: 988-983-991-992                                    |                      |                                |                 |                   |                            |                     |                        |                     |
| Measurement Uncertainty: +/- 3.6 dB                                           |                      |                                |                 |                   |                            |                     |                        |                     |
| Frequency (GHz)                                                               | Meter Reading (dBuV) | Antenna Factor (dB)            | Cable Loss (dB) | Pre-Amp Gain (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector / Polarity |
|                                                                               |                      |                                |                 |                   |                            |                     |                        | Tx 5825 MHz         |
| 11650                                                                         | 47.0                 | 39.0                           | 7.2             | 35.4              | 57.8                       | 74                  | 54                     | Peak/Horizontal     |
| 11650                                                                         | 36.0                 | 39.0                           | 7.2             | 35.4              | 46.8                       | 74                  | 54                     | Avg/Horizontal      |
| 11650                                                                         | 47.0                 | 39.0                           | 7.2             | 35.4              | 57.8                       | 74                  | 54                     | Peak/Vertical       |
| 11650                                                                         | 35.6                 | 39.0                           | 7.2             | 35.4              | 46.4                       | 74                  | 54                     | Avg/Vertical        |
|                                                                               |                      |                                |                 |                   |                            |                     |                        | Tx 5785 MHz         |
| 11570                                                                         | 45.0                 | 39.0                           | 7.2             | 35.4              | 55.8                       | 74                  | 54                     | Peak/Horizontal     |
| 11570                                                                         | 36.5                 | 39.0                           | 7.2             | 35.4              | 47.3                       | 74                  | 54                     | Avg/Horizontal      |
| 11570                                                                         | 45.0                 | 39.0                           | 7.2             | 35.4              | 55.8                       | 74                  | 54                     | Peak/Vertical       |
| 11570                                                                         | 34.2                 | 39.0                           | 7.2             | 35.4              | 45.0                       | 74                  | 54                     | Avg/Vertical        |
|                                                                               |                      |                                |                 |                   |                            |                     |                        | Tx 5745 MHz         |
| 11490                                                                         | 45.0                 | 39.0                           | 7.2             | 35.4              | 55.8                       | 74                  | 54                     | Peak/Horizontal     |
| 11490                                                                         | 34.6                 | 39.0                           | 7.2             | 35.4              | 45.4                       | 74                  | 54                     | Avg/Horizontal      |
| 11490                                                                         | 45.0                 | 39.0                           | 7.2             | 35.4              | 55.8                       | 74                  | 54                     | Peak/Vertical       |
| 11490                                                                         | 34.6                 | 39.0                           | 7.2             | 35.4              | 45.4                       | 74                  | 54                     | Avg/Vertical        |
| Notes: Scanned all emissions to 40 GHz                                        |                      |                                |                 |                   |                            |                     |                        |                     |
| No emissions were detected above the noise floor                              |                      |                                |                 |                   |                            |                     |                        |                     |

## Radiated Photographs



*EQUIPMENT:* T004

TEST REPORT NO.: 4L0613RUS2Rev4

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**Section 8.        Peak Power Spectral Density**

|                                           |                      |
|-------------------------------------------|----------------------|
| NAME OF TEST: Peak Power Spectral Density | PARA. NO.: 15.247(d) |
| TESTED BY: Tom Tidwell                    | DATE: 12/31/04       |

**Test Results:**                Complies.

**Measurement Data:**    See attached data.

EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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| Data Plot                                                                                                                                                                                                                                                                                                                                     |                            | Peak Power Spectral Density |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------|--|
| Page 1 of 6                                                                                                                                                                                                                                                                                                                                   |                            |                             |  |
| Job No.: 410613                                                                                                                                                                                                                                                                                                                               | Date: 12/31/2004           | Complete: <u>X</u>          |  |
| Specification:                                                                                                                                                                                                                                                                                                                                | Temperature(°C): 23        | Preliminary: _____          |  |
| Tested By: Tom Tidwell                                                                                                                                                                                                                                                                                                                        | Relative Humidity(%): 52   |                             |  |
| E.U.T.: Motion Computing tablet PC with Intel ABG modem                                                                                                                                                                                                                                                                                       |                            |                             |  |
| Configuration: Set for continuous TX                                                                                                                                                                                                                                                                                                          |                            |                             |  |
| Sample Number: _____                                                                                                                                                                                                                                                                                                                          |                            |                             |  |
| Location: Lab 1                                                                                                                                                                                                                                                                                                                               | RBW: Refer to plots        |                             |  |
| Detector Type: Peak                                                                                                                                                                                                                                                                                                                           | VBW: Refer to plots        |                             |  |
| <b>Test Equipment Used</b>                                                                                                                                                                                                                                                                                                                    |                            |                             |  |
| Antenna: _____                                                                                                                                                                                                                                                                                                                                | Directional Coupler: _____ |                             |  |
| Pre-Amp: _____                                                                                                                                                                                                                                                                                                                                | Cable #1: 1626             |                             |  |
| Filter: _____                                                                                                                                                                                                                                                                                                                                 | Cable #2: _____            |                             |  |
| Receiver: 1036                                                                                                                                                                                                                                                                                                                                | Cable #3: _____            |                             |  |
| Attenuator #1: 1470                                                                                                                                                                                                                                                                                                                           | Cable #4: _____            |                             |  |
| Attenuator #2: 1471                                                                                                                                                                                                                                                                                                                           | Mixer: _____               |                             |  |
| Additional equipment used: _____                                                                                                                                                                                                                                                                                                              |                            |                             |  |
| Measurement Uncertainty: +/-0.7 dB                                                                                                                                                                                                                                                                                                            |                            |                             |  |
| <div><div><div>Ref Lvl<br/>10 dBm</div><div>Marker 1 [T1]<br/>2.89 dBm<br/>5.18166333 GHz</div></div><div><div>RBW<br/>1 MHz</div><div>VBW<br/>3 MHz</div><div>SWT<br/>5 ms</div></div><div><div>RF Att<br/>10 dB</div><div>Mixer<br/>-20 dBm</div><div>Unit<br/>dBm</div></div></div> <div>Center 5.18 GHz      2 MHz      Span 20 MHz</div> |                            |                             |  |

Notes: 5180 MHz  
54 Mbps  
Limit = +4 dBm

EQUIPMENT: T004

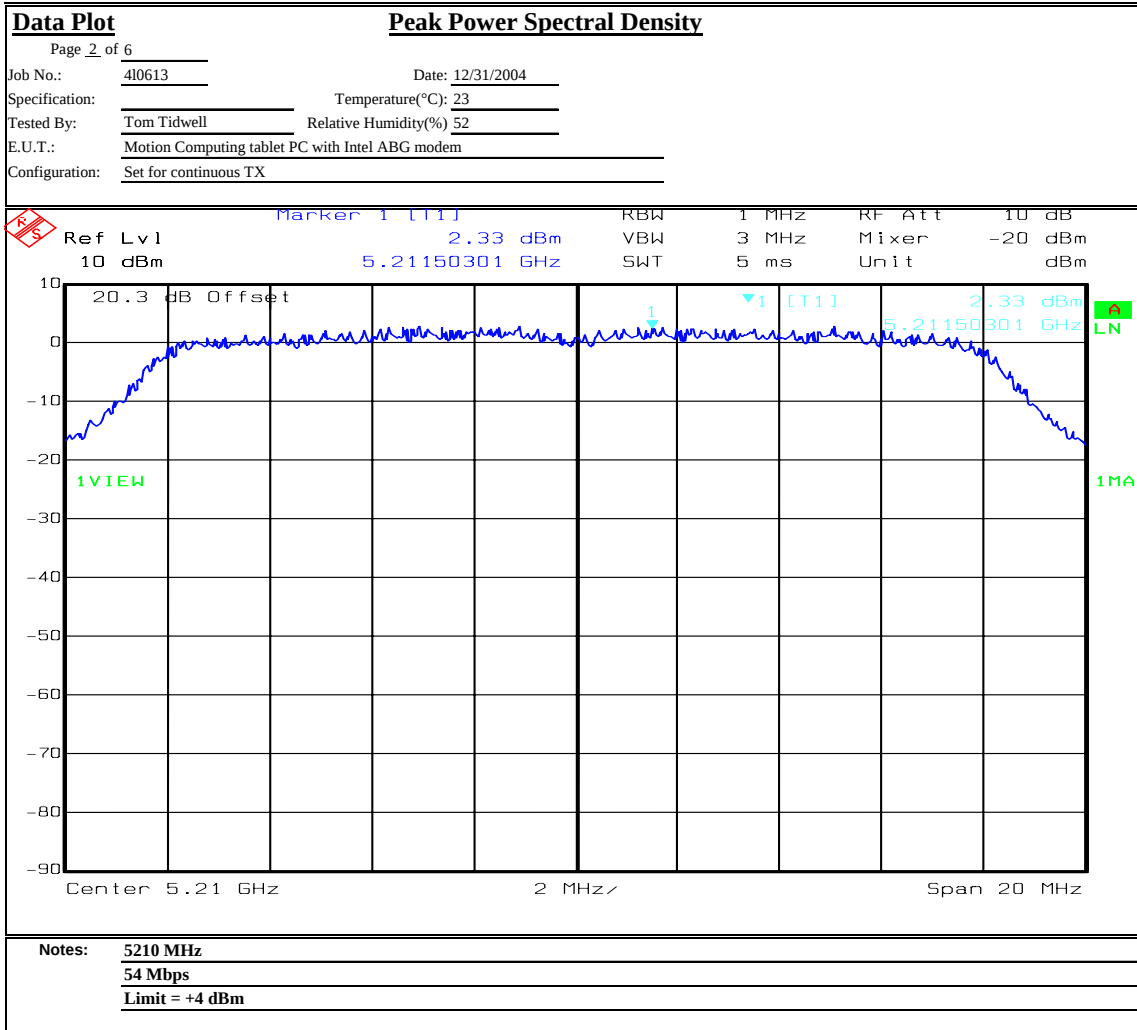
TEST REPORT NO.: 4L0613RUS2Rev4



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EQUIPMENT: T004

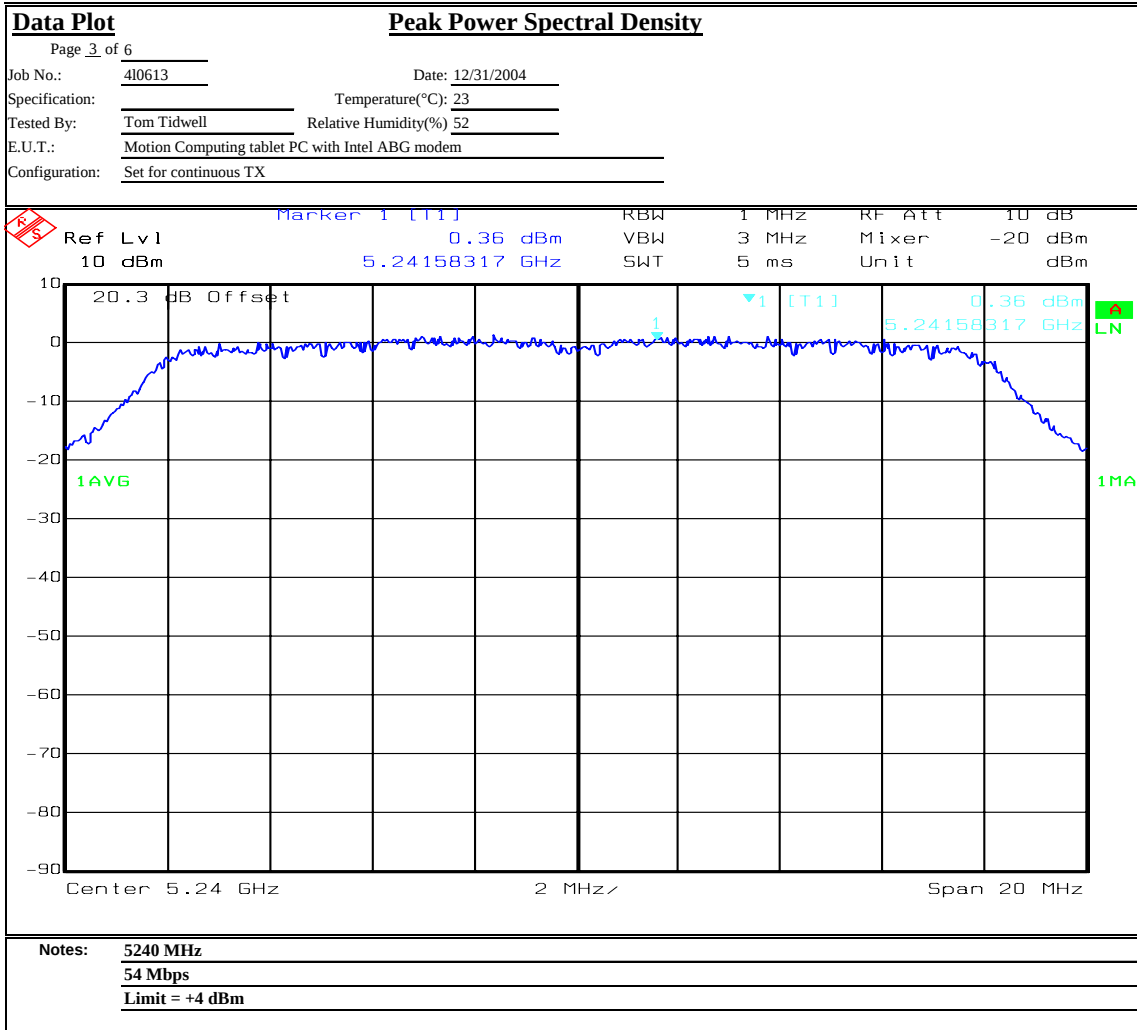
TEST REPORT NO.: 4L0613RUS2Rev4



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EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4



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## Data Plot

#N/A

Page 4 of 6

Job No.: 4L0613

Date: 12/31/2004

Complete X  
Preliminary: \_\_\_\_\_

Specification:

Temperature(°C): 23

Tested By: #N/A

Relative Humidity(%): 52

E.U.T.:

Motion Computing tablet PC with Intel ABG modem

Configuration:

Set for continuous TX

Sample Number:

Location:

#N/A

RBW: #N/A

Detector Type:

#N/A

VBW: #N/A

## Test Equipment Used

Antenna:

#N/A

Directional Coupler:

#N/A

Pre-Amp:

#N/A

Cable #1: 1626

Filter:

#N/A

Cable #2: #N/A

Receiver:

#N/A

Cable #3: #N/A

Attenuator #1:

#N/A

Cable #4: #N/A

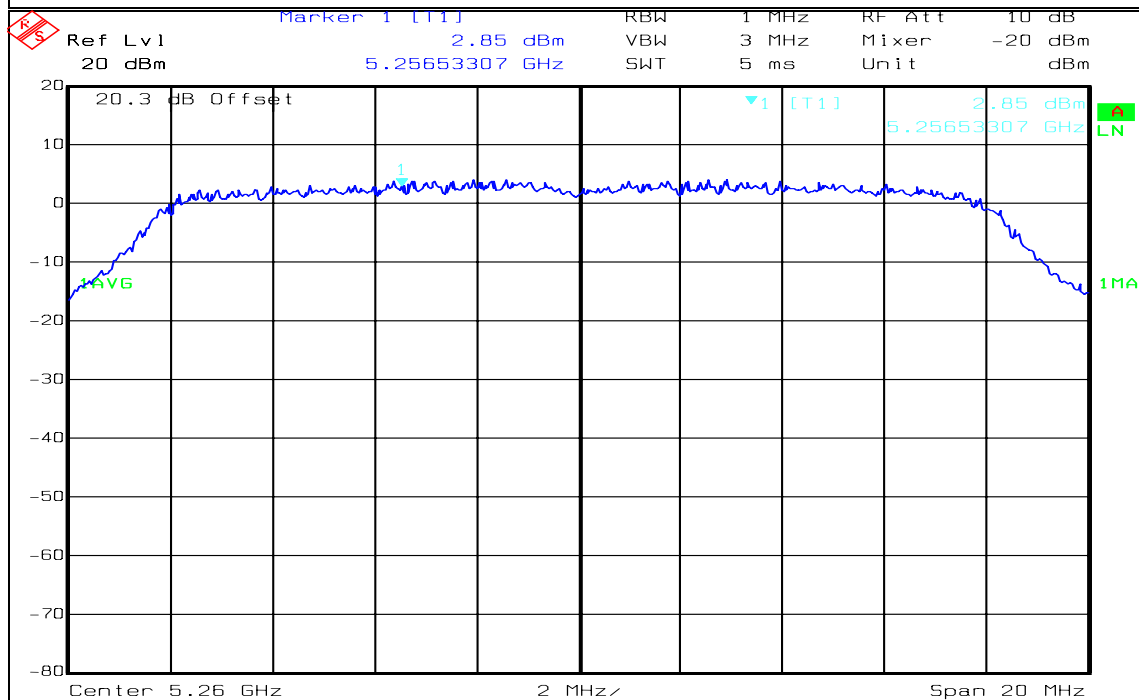
Attenuator #2:

#N/A

Mixer: #N/A

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: 5260 MHz

54 Mbps

Limit = +11 dBm

EQUIPMENT: T004

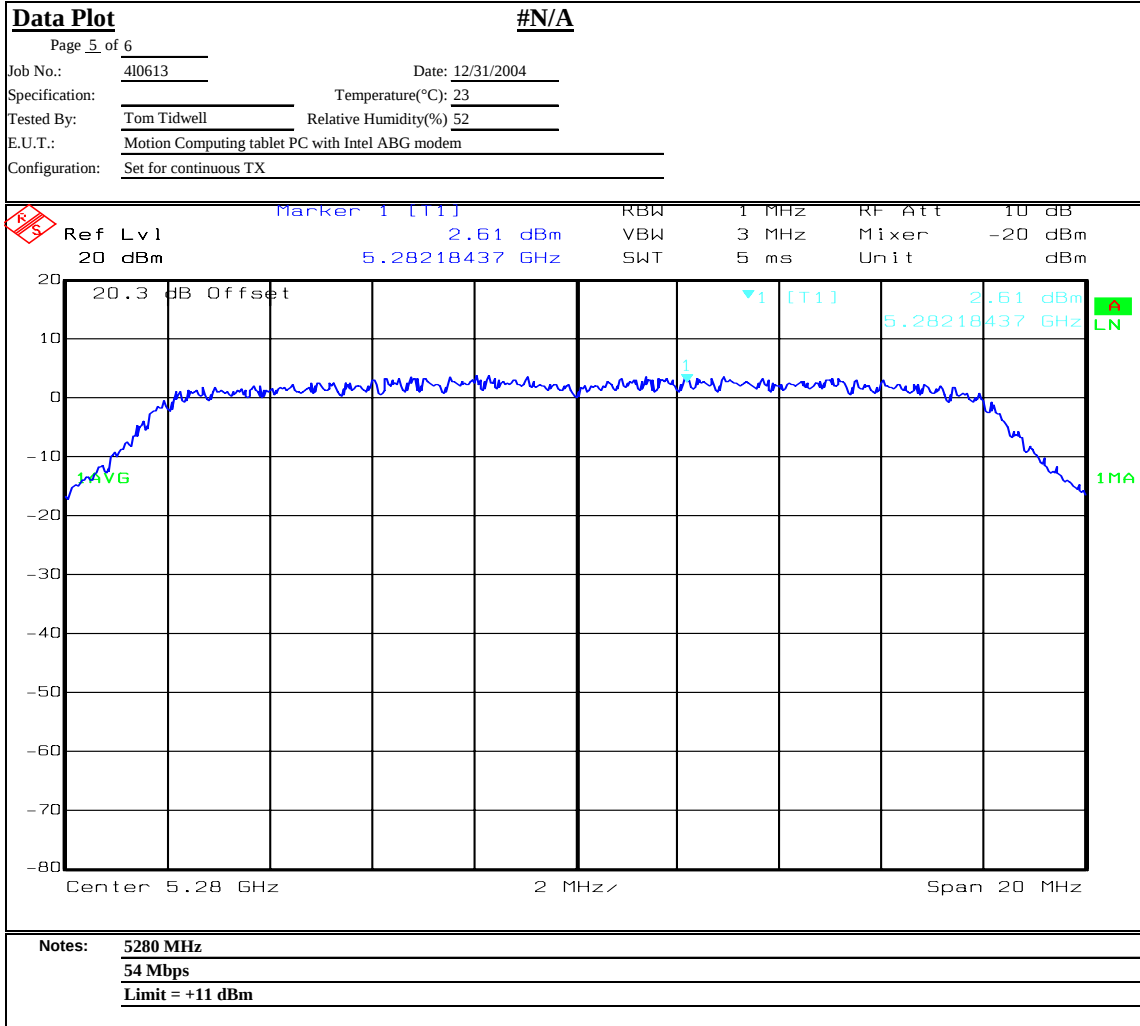
TEST REPORT NO.: 4L0613RUS2Rev4



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EQUIPMENT: T004

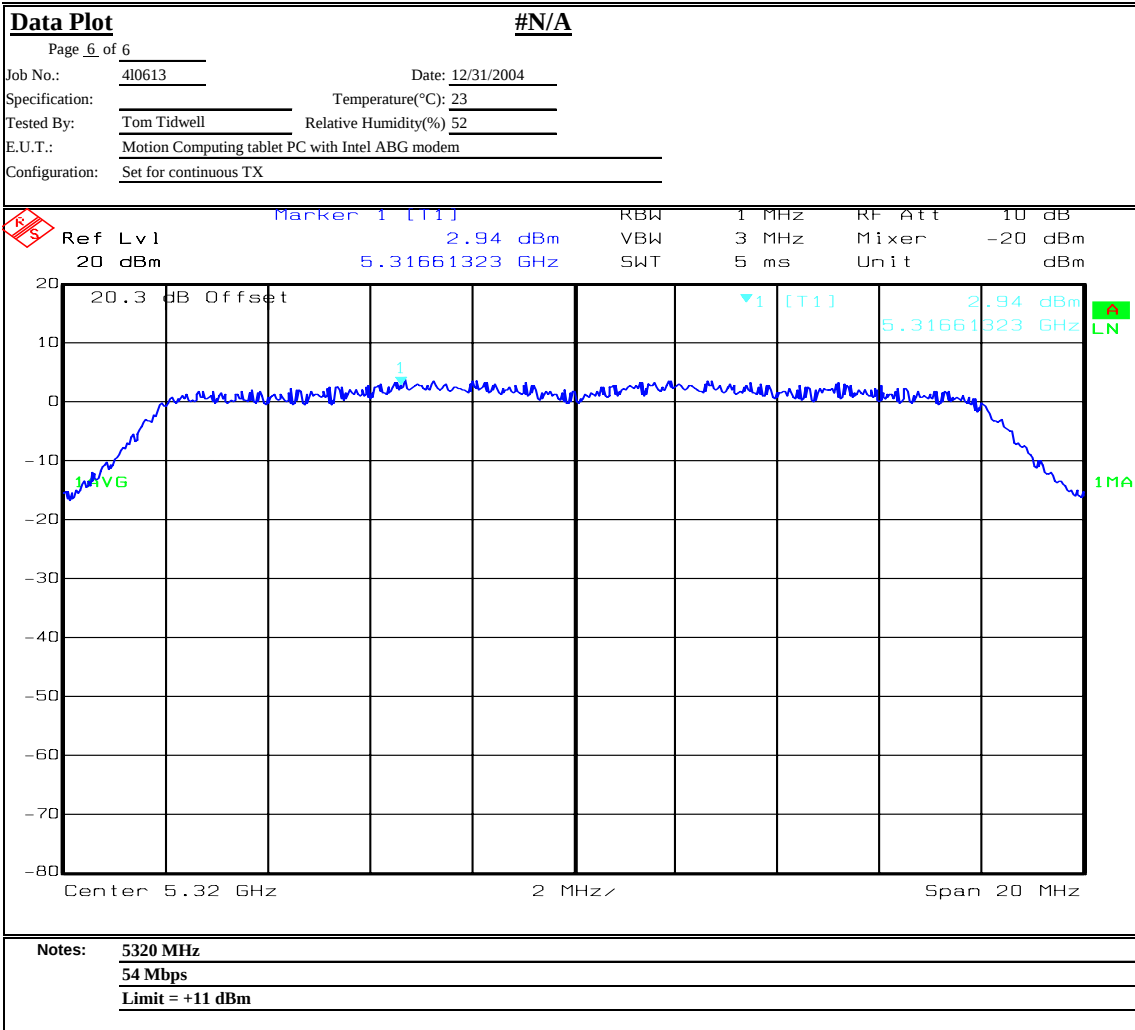
TEST REPORT NO.: 4L0613RUS2Rev4



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EQUIPMENT: T004

TEST REPORT NO.: 4L0613RUS2Rev4

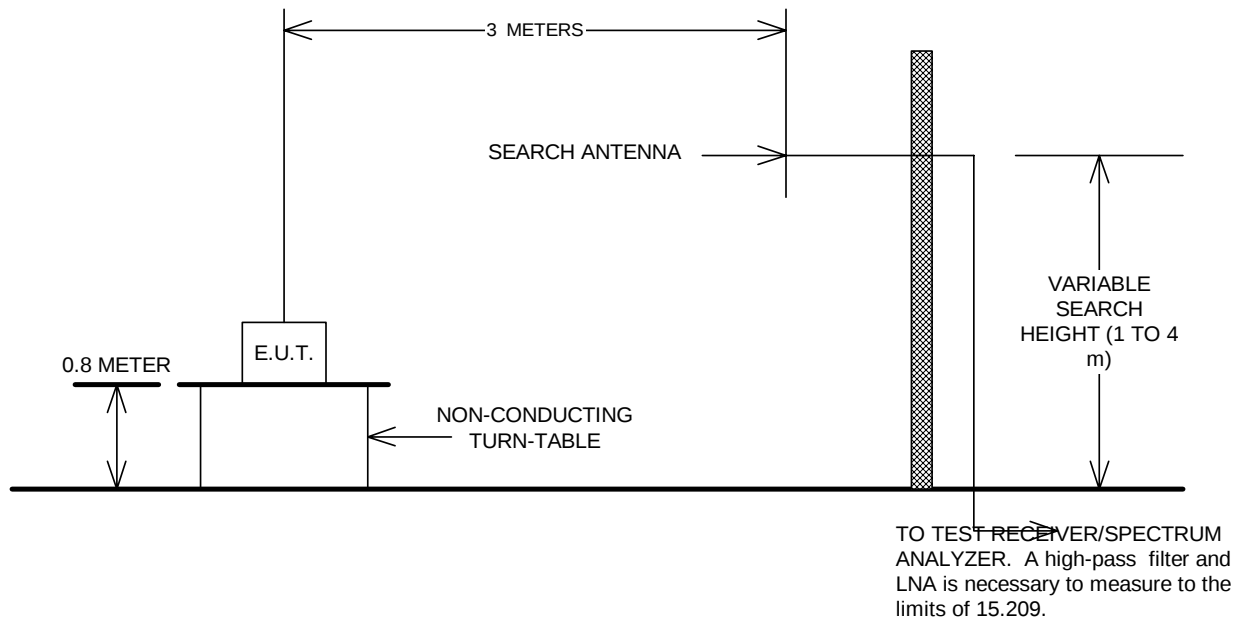
## Section 9. Test Equipment List

| Nemko ID | Description                | Manufacturer<br>Model Number   | Serial Number | Calibration<br>Date | Calibration<br>Due |
|----------|----------------------------|--------------------------------|---------------|---------------------|--------------------|
| 1036     | SPECTRUM ANALYZER          | ROHDE & SCHWARZ<br>FSEK30      | 830844/006    | 03/22/04            | 03/23/06           |
| 1626     | CABLE, 5 ft                | MEGAPHASE<br>10311 1GVT4       | N/A           | CBU                 | N/A                |
| 1471     | 10 db Attenuator DC 18 Ghz | MCL Inc.<br>BW-S10W2 10db-2WDC | NONE          | CBU                 | N/A                |
| 1470     | 10 db Attenuator DC 18 Ghz | MCL Inc.<br>BW-S10W2 10db-2WDC | NONE          | CBU                 | N/A                |
| 1464     | Spectrum analyzer          | Hewlett Packard<br>8563E       | 3551A04428    | 01/14/05            | 01/15/07           |
| 969      | lisn                       | Schwarzbeck<br>8120            | 8120281       | 09/17/04            | 09/17/05           |
| 1433     | High pass filter           | Solar<br>7930-5.0              | 933142        | 02/04/04            | 02/03/05           |
| 1129     | CABLE, 9.5m                | KTL<br>RG58                    | N/A           | 06/09/04            | 06/09/05           |
| 1998     | CABLE, 1m                  | KTL<br>RG223                   | N/A           | 06/09/04            | 06/09/05           |
| 718      | HP SPECTRUM ANALYZER       | HEWLETT PACKARD<br>8591EM      | 3639A00980    | 02/11/04            | 02/10/05           |
| 966      | Receiver                   | Rohde & Schwartz<br>ESH2       | 880370/029    | 09/20/04            | 09/20/05           |
| 1304     | HORN ANTENNA               | ELECTRO METRICS<br>RGA-60      | 6151          | 09/22/03            | 09/22/05           |
| 1484     | Cable 2.0-18.0 Ghz         | Storm<br>PR90-010-072          | N/A           | 08/26/04            | 08/26/05           |
| 1485     | Cable 2.0-18.0 Ghz         | Storm<br>PR90-010-216          | N/A           | 08/02/04            | 08/02/05           |
| 760      | Antenna biconical          | Electro Metrics<br>MFC-25      | 477           | 06/22/04            | 06/22/05           |
| 759      | ANTENNA, LOG PERIODIC      | A.H. SYSTEMS<br>SAS-200/510    | 556           | 07/23/04            | 07/23/05           |
| 791      | PREAMP, 25dB               | ICC<br>LNA25                   | 398           | 11/12/04            | 11/12/05           |
| 1983     | CABLE                      | KTL<br>Site A OATS             | N/A           | 03/11/04            | 03/11/05           |

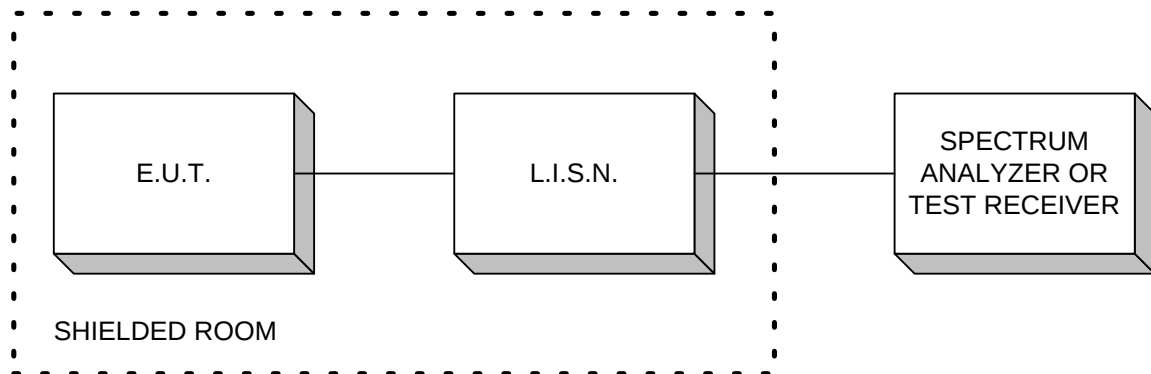
## **ANNEX A - TEST DETAILS**

## **ANNEX B - TEST DIAGRAMS**

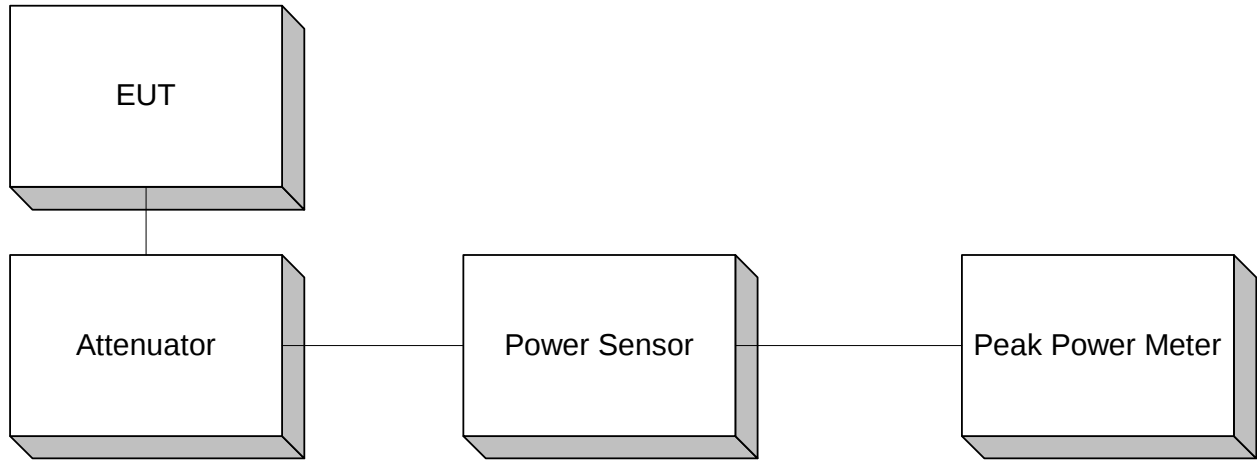
## Test Site For Radiated Emissions



## Conducted Emissions



**Peak Power At Antenna Terminals**



**Occupied Bandwidth  
Peak Power Spectral Density  
Spurious Emissions (conducted)  
Peak Excursion**

