Flom Test Labs
EMI, EMC, RF Testing Experts Since 1963
toll-free: (866) 311-3268
fax: (480) 926-3598
http://www.flomlabs.com
info@flomlabs.com

Date: March 28, 2007

Federal Communications Commission
Via: Electronic Filing

Attention: Authorization & Evaluation Division

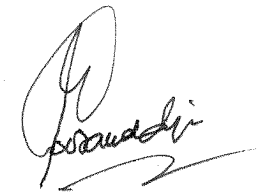
Applicant: Gigawave USA LLC
Equipment: Video Booster Amplifier
FCC ID: TO4-RFXPHT2027
FCC Rules: Part 74 (F)

Gentlemen:

On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,



Hoosamuddin S. Bandukwala, Lab Director

enclosure(s)
cc: Applicant
HSB/mdw

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Transmitter Certification

of

Model: RFX-PHT

to

Federal Communications Commission

Rule Part(s)
74(F)

Date of report: March 28, 2007

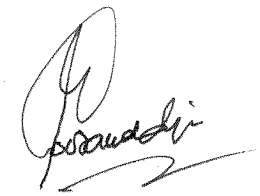
On the Behalf of the Applicant:

Gigawave USA LLC

At the Request of:

Gigawave USA LLC
777 American Drive
Bensalem, PA 19020

Attention of: Tom Sharkoski
215-633-1000; fax: 215-633-1085
Email: tsharkoski@totalrf.com



Supervised by: Hoosamuddin S. Bandukwala, Lab Director

List of Exhibits

(FCC **Certification** (Transmitters) - Revised 9/28/98)

Applicant: Gigawave USA LLC

FCC ID: TO4-RFXPHT2027

By Applicant:

1. Letter of Authorization

2. Confidentiality Request: 0.457 And 0.459

3. Identification Drawings, 2.1033(c)(11)
   - Label
   - Location of Label
   - Compliance Statement
   - Location of Compliance Statement

4. Photographs, 2.1033(c)(12)

5. Documentation: 2.1033(c)
   - (3) User Manual
   - (9) Tune Up Info
   - (10) Schematic Diagram
   - (10) Circuit Description
     - Block Diagram
     - Parts List
     - Active Devices

By M.F.A. Inc.:

A. Testimonial & Statement of Certification

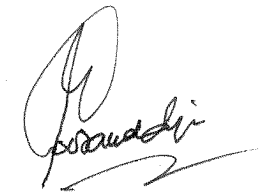
Table of Contents

Required information per ISO 17025-1995, paragraph 5.0:

a) **Test Report**

b) Laboratory: (FCC: 31040/SIT) (Canada: IC 2044)	Flom Test Lab 3356 N. San Marcos Place, Suite 107 Chandler, AZ 85225
c) Report Number:	d0730068
d) Client:	Gigawave USA LLC 777 American Drive Bensalem, PA 19020
e) Identification:	Model # RFX-PHT
EUT Description:	Video Booster Amplifer
f) EUT Condition:	Not required unless specified in individual tests.
g) Report Date: EUT Received:	March 28, 2007
h, j, k):	As indicated in individual tests.
i) Sampling method:	No sampling procedure used.
l) Uncertainty:	In accordance with MFA internal quality manual.

m) Supervised by:



Hoosamuddin S. Bandukwala, Lab Director

n) Results:	The results presented in this report relate only to the item tested.
o) Reproduction:	This report must not be reproduced, except in full, without written permission from this laboratory.

Accessories used during testing:

Type	Quantity	Manufacturer	Model	Serial No.	FCC ID

Sub-part 2.1033(c)(14):

Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

	15 – Radio Frequency Devices (unlicensed)
	21 – Domestic Public Fixed Radio Services
	22 – Public Mobile Services
	22 Subpart H - Cellular Radiotelephone Service
	22.901(d) - Alternative technologies and auxiliary services
	23 – International Fixed Public Radiocommunication services
	24 – Personal Communications Services
X	74 – Subpart F Television Broadcast Auxiliary Stations
	80 – Stations in the Maritime Services
	80 Subpart E - General Technical Standards
	80 Subpart F - Equipment Authorization for Compulsory Ships
	80 Subpart K - Private Coast Stations and Marine Utility Stations
	80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
	80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
	80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
	80 Subpart V - Emergency Position Indicating Radio Beacons (EPIRB'S)
	80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
	80 Subpart X - Voluntary Radio Installations
	87 – Aviation Services
	90 – Private Land Mobile Radio Services
	94 – Private Operational-Fixed Microwave Service
	95 Subpart A - General Mobile Radio Service (GMRS)
	95 Subpart C - Radio Control (R/C) Radio Service
	95 Subpart D - Citizens Band (CB) Radio Service
	95 Subpart E - Family Radio Service
	95 Subpart F - Interactive Video and Data Service (IVDS)
	97 - Amateur Radio Service
	101 – Fixed Microwave Services

A2LA

"A2LA has accredited Flom Test Labs, Inc. Chandler, AZ for technical competence in the field of Electrical Testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Please refer to www.a2la.org for current scope of accreditation.

Certificate Number: **2152.01**

List of General Information Required for Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to

Sub-part 2.1033

(c)(1): **Name and Address of Applicant**:

Gigawave USA LLC
777 American Drive
Bensalem, PA 19020

Manufacturer:

Gigawave USA LLC
777 American Drive
Bensalem, PA 19020

(c)(2): **FCC ID**: TO4-RFXPHT2027

Model Number: RFX-PHT

(c)(3): **Instruction Manual(s):**

Please see attached exhibits

(c)(4): **Type of Emission**: 7M75F3W, 12M0F8W, 12M0W7D

(c)(5): **Frequency Range, MHz**: 2450 to 2500
1990 to 2110

(c)(6): **Power Rating, Watts**: 6 (Max)

____ Switchable x Variable ____ N/A

FCC Grant Note:

(c)(7): **Maximum Power Rating, Watts**: 12.0

DUT Results: Passes x Fails ____

Subpart 2.1033 (continued)

(c)(9): **Tune-Up Procedure**:

Please see attached exhibits

(c)(10): **Circuit Diagram/Circuit Description**:
Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Please see attached exhibits

(c)(11): **Label Information**:

Please see attached exhibits

(c)(12): **Photographs**:

Please see attached exhibits

(c)(13): **Digital Modulation Description**:

___ Attached Exhibits
_x_ N/A

(c)(14): **Test and Measurement Data**:

Follows

Subpart 2.1033 (continued)
(c)(8): Voltages & currents in all elements in final RF stage, including final transistor or solid-state device:

Collector Current, A	=	6.0
Collector Voltage, Vdc	=	11.7
Supply Voltage, Vdc	=	12 vdc

(c)(14): **Test and Measurement Data**:

Follows

Name of Test: Carrier Output Power (Conducted)

Specification: 47 CFR 2.1046(a), 74.636

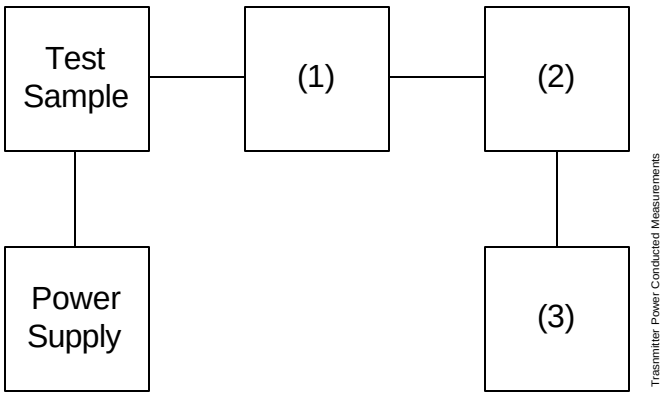
Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

Measurement Procedure

A) The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an RF Power Meter.

B) Measurement accuracy is ±3%.

Transmitter Test Set-Up: RF Power Output



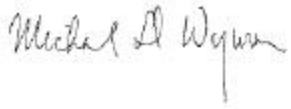
	Asset	Description	s/n	Cycle	Last Cal
(1)	**Coaxial Attenuator/Load Termination**				
X	i00231/2	PASTERNACK PE7021-30 (30 dB)	231 or 232	N/A	NCR
	i00122/3	NARDA 766 (10 dB)	7802 or 7802A	N/A	NCR
X	i00164	Termaline Coax Resistor 8201 50 ohm	8321	N/A	NCR
(2)	**Power Meters**				
	i00321	HP 8901A Power Mode	2239A02170	12 mo.	Sep-06
X	i00228	Agilent 4418B Power Meter		12 mo.	Aug-06
X	i00317	Agilent 8481A Power Head		12 mo.	Aug-06
(3)	**Frequency Counter**				
	i00321	HP 8901A Frequency Mode	2239A02170	12 mo.	Sep-06

Name of Test: Carrier Output Power (Conducted)

Measurement Results
(Worst case)

Frequency of Carrier, MHz	=	2483.5, 2450, 2110, 1990
Ambient Temperature	=	23°C ± 3°C

Frequency, MHz	Power, dBm	RF Power, Watts
Low Power		
1990	20.79	0.318
2110	20.07	0.303
2450	20.42	0.309
2483.5	19.87	0.298
High Power		
1990	38.70	5.87
2110	37.92	5.78
2450	37.54	5.74
2483.5	37.16	5.70



Performed by: Michael Wyman

Name of Test: RF Power Output (Radiated)

Specification: 47 CFR 2.1046(a), 74.636

Test Equipment: As per attached page

Measurement Procedure (Radiated)

1. The EUT was placed on an open-field site and its radiated field strength at a known distance was measured by means of a spectrum analyzer. Equivalent loading was calculated from the equation $P_t=((E \times R)^2/49.2)$ watts, where R = 3m.

2. Measurement accuracy is ±1.5 dB.

Measurement Results

g0730119: 2007-Mar-27 Tue 15:21:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz	Frequency Emission, MHz	Meter, dBuV/m	CF, dB	EIRP, dBm	EIRP, Watts
1990.000000	1987.700000	63.33	33.75	1.86	0.0014
2110.000000	2111.100000	58.33	34.28	-1.64	0.000025
2450.000000	2447.666667	55.83	35.6	-3.84	0.000045
2483.500000	2480.466667	54	35.71	-5.54	0.000028

Note: The EUT was connected to a 500 watt 50 ohm load for termination.

Name of Test: Spurious Emissions (Transmitter Conducted)

Specification: 47 CFR 2.1051, 74.637

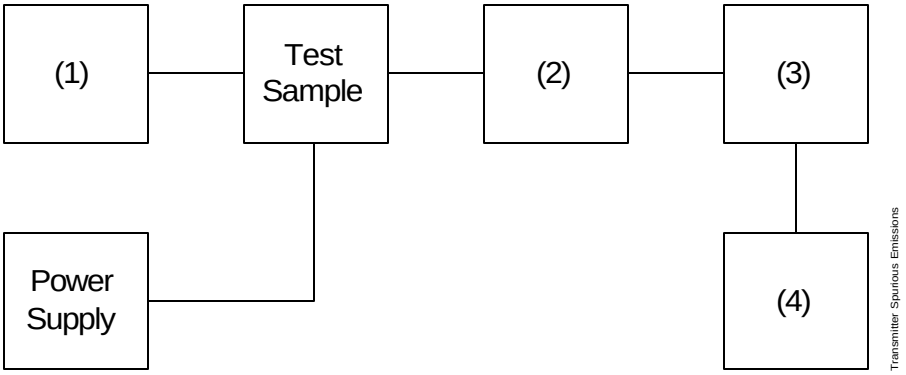
Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.13

Measurement Procedure

A) The emissions were measured for the worst case as follows:
   1). within a band of frequencies defined by the carrier frequency plus and minus one channel.
   2). from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.

B) The magnitude of spurious emissions that are attenuated more than 20 dB below the permissible value need not be specified.

Transmitter Test Set-Up: Spurious Emission



	Asset	Description	s/n		
(1) **Audio Oscillator/Generator**					
X	i00324	HP 8903B Audio Analyzer	3011A09079	12 mo.	Oct-06
	i00002	HP 3336B Synthesizer / Level Gen.	1931A01465	N/A	NCR
(2) **Coaxial Attenuator**					
X	i00231/2	PASTERNACK PE7021-30 (30 dB)	231 or 232	N/A	NCR
	i0012/3	NARDA 766 (10 dB)	7802 or 7802A	N/A	NCR
(3) **Filters; Notch, HP, LP, BP**					
				N/A	NCR
(4) **Spectrum Analyzer**					
X	i00048	HP 8566B Spectrum Analyzer	2511A01467	12 mo.	Aug-06
X	i00029	HP 8563E Spectrum Analyzer	3213A00104	12 mo.	Jan-06

Name of Test: Unwanted Emissions (Transmitter Conducted)

Measurement Results
(Worst Case)

Summary:

Frequency of carrier, MHz	=	2483.5, 2450, 2110, 1990
Spectrum Searched, GHz	=	0 to 10 x F_C
Limit(s), dBc		-80 (6 Watts)

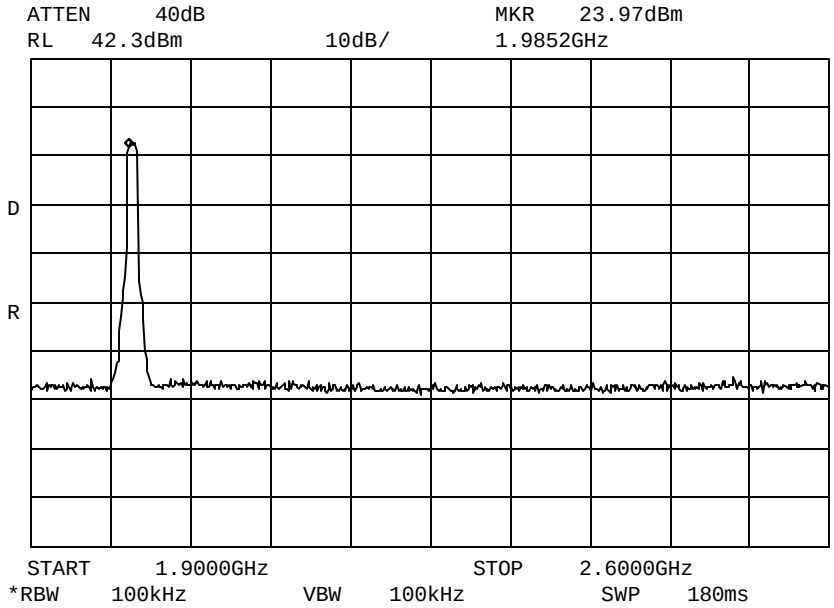
Graphical Results follow:

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0740138: 2007-Apr-04 Wed 16:01:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



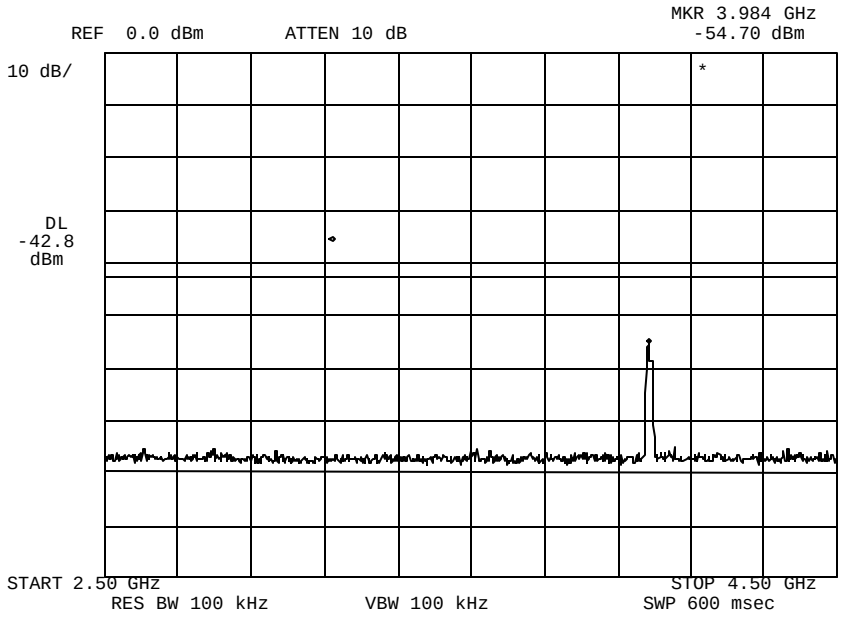
Power:	HIGH 1990
Modulation:	QAM64
TX Frequency	1900MHz

Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730077: 2007-Mar-27 Tue 14:07:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

Sample Calculation: 80 dBc = 37.2 dBm – (DL(dBm)); DL = 80 – 37.2 = 42.8

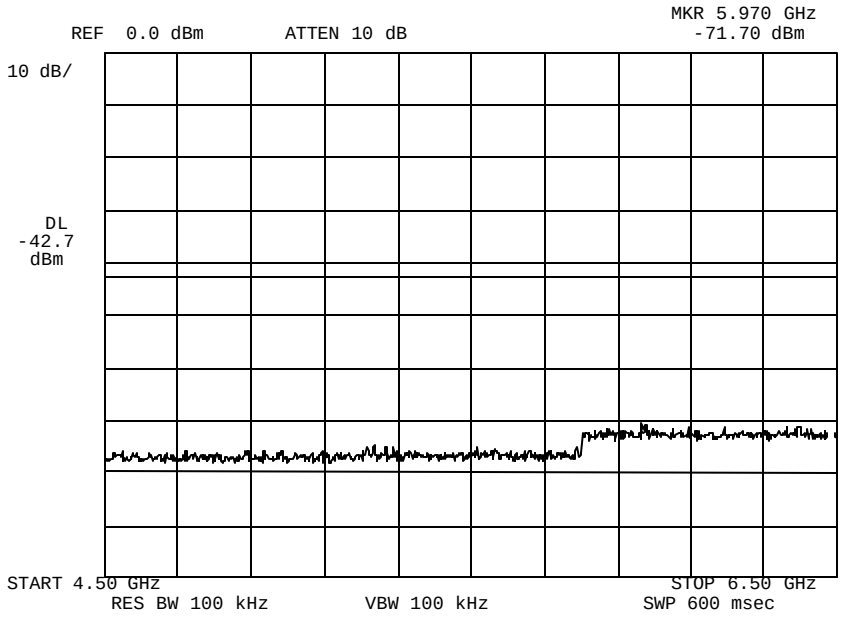
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730078: 2007-Mar-27 Tue 14:09:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

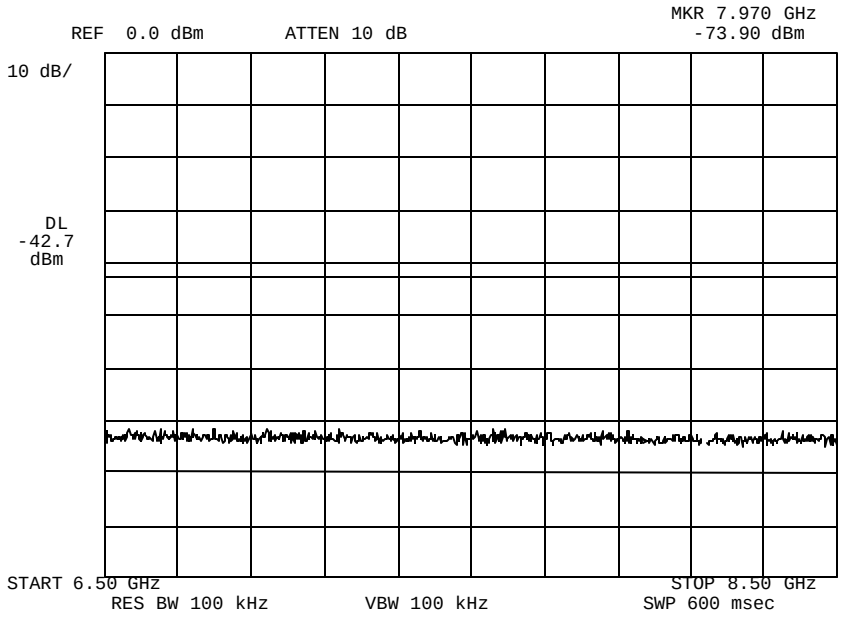
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730079: 2007-Mar-27 Tue 14:10:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

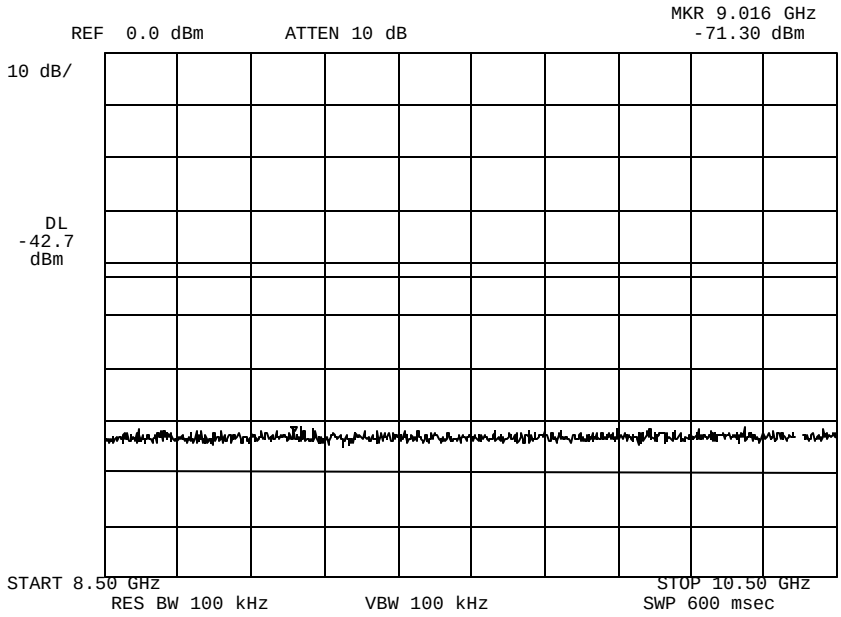
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730080: 2007-Mar-27 Tue 14:12:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

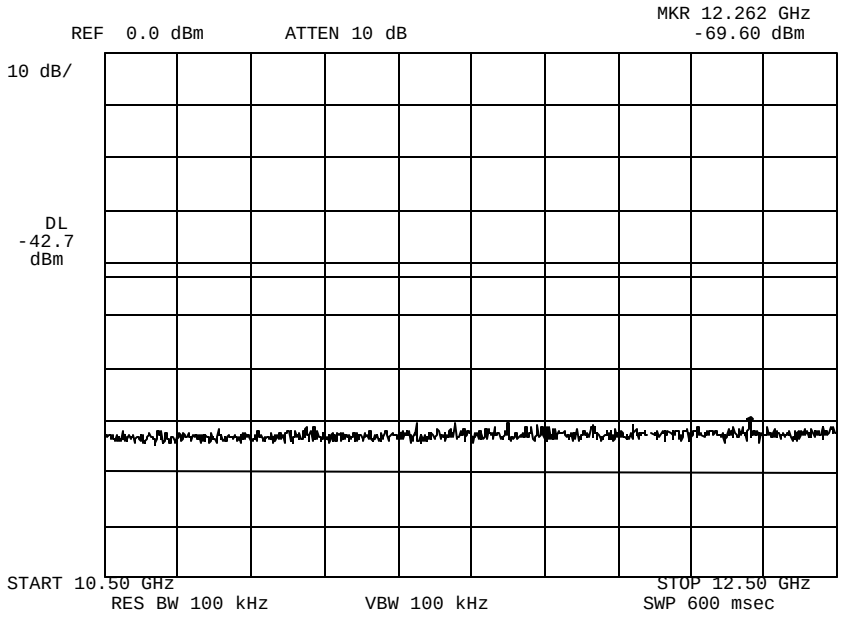
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730081: 2007-Mar-27 Tue 14:13:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

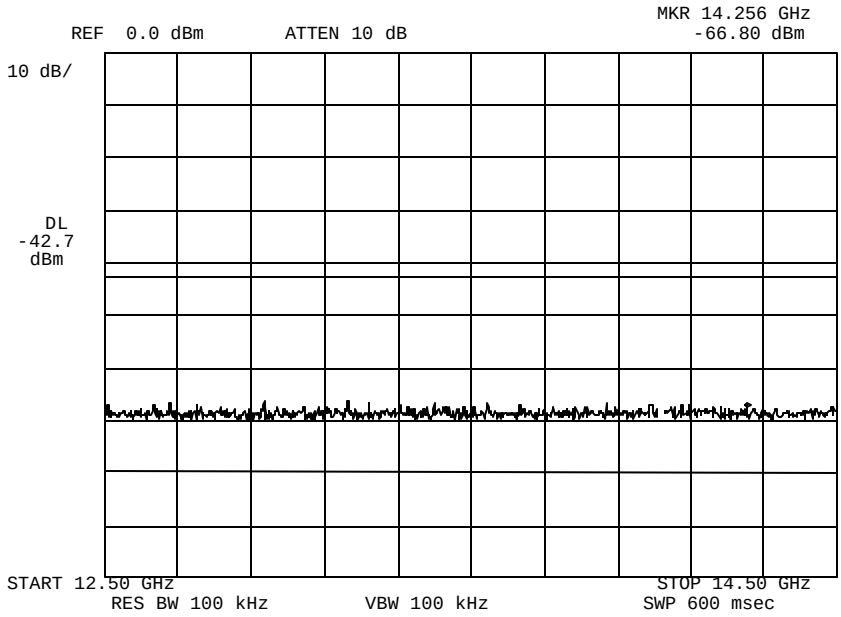
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730082: 2007-Mar-27 Tue 14:14:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

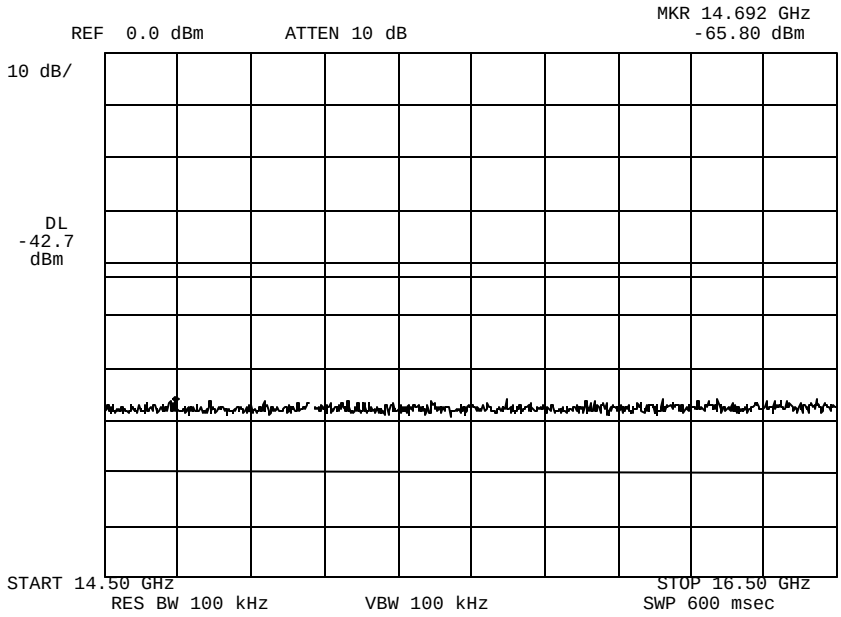
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730083: 2007-Mar-27 Tue 14:15:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

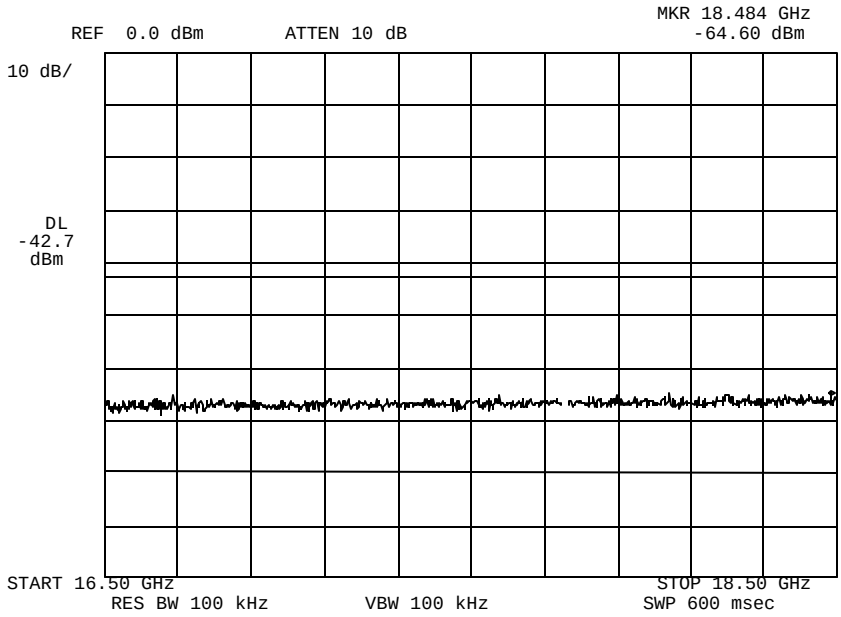
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730084: 2007-Mar-27 Tue 14:16:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

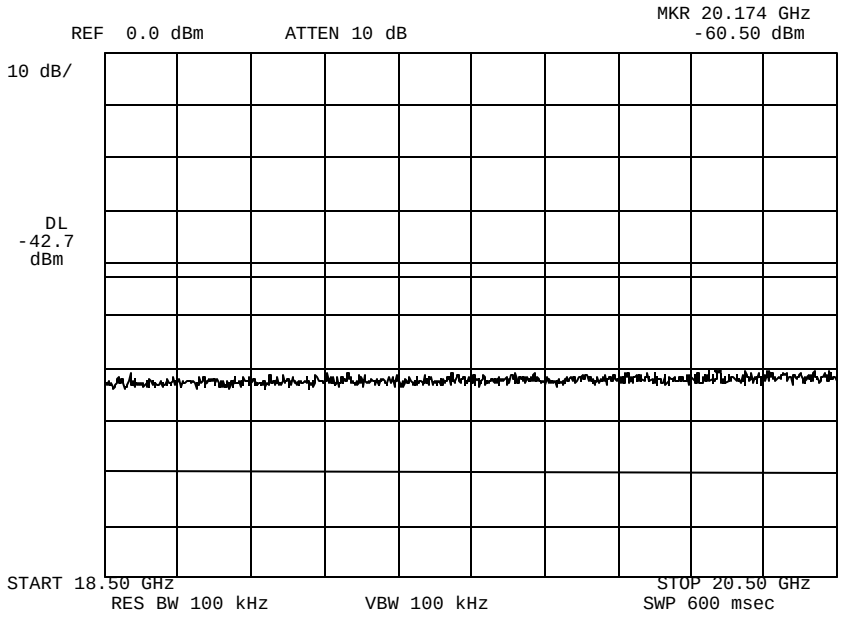
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730085: 2007-Mar-27 Tue 14:17:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



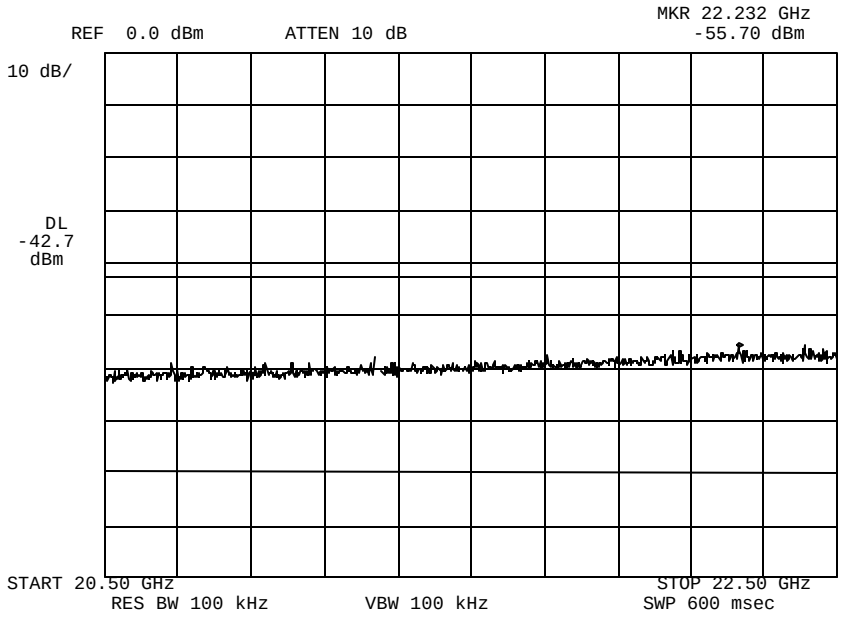
Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730086: 2007-Mar-27 Tue 14:18:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	1990MHz

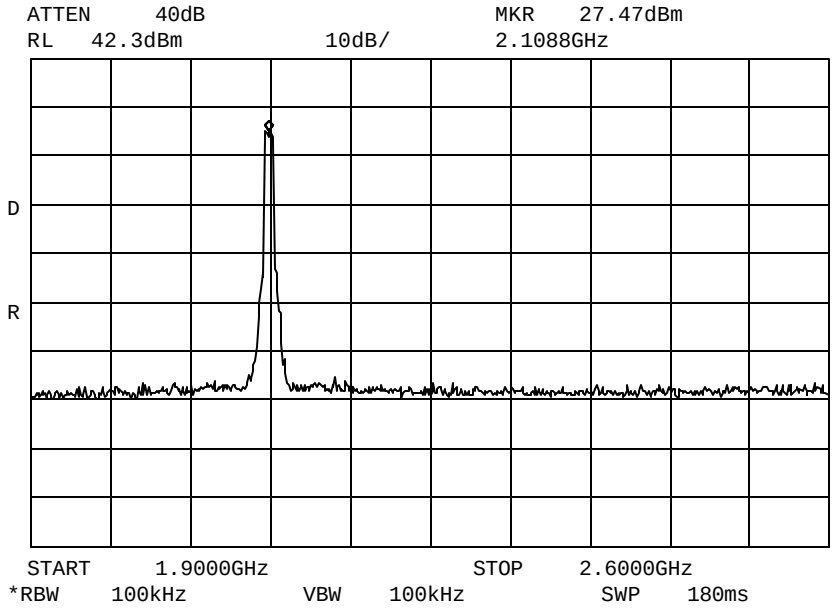
Performed by: Michael Wyman

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0740139: 2007-Apr-04 Wed 16:01:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH 2110
Modulation:	QAM64
TX Frequency	2110 MHz

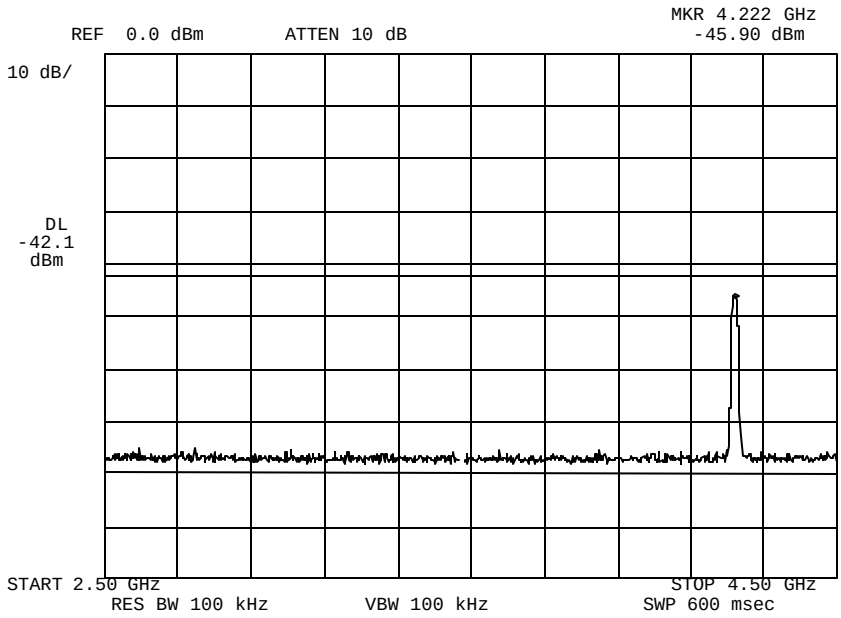
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730087: 2007-Mar-27 Tue 14:22:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

Sample Calculation: 80 dBc = 37.9 dBm – (DL(dBm)); DL = 80 – 37.9 = 42.1

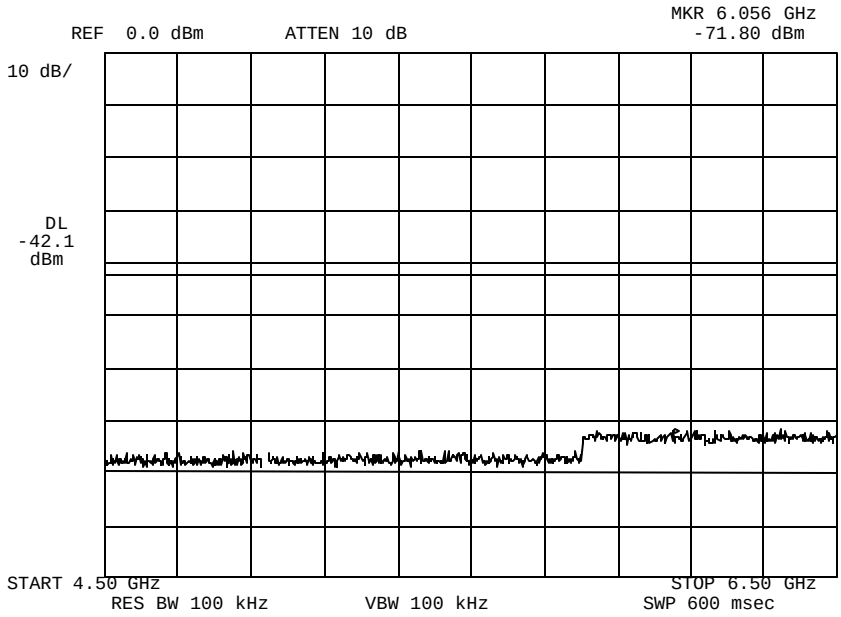
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730088: 2007-Mar-27 Tue 14:22:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

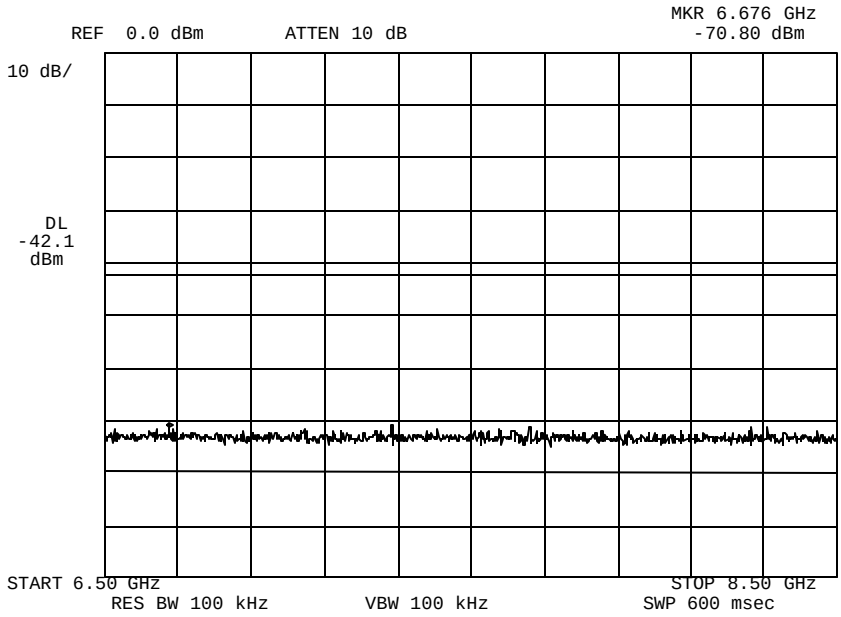
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730089: 2007-Mar-27 Tue 14:23:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

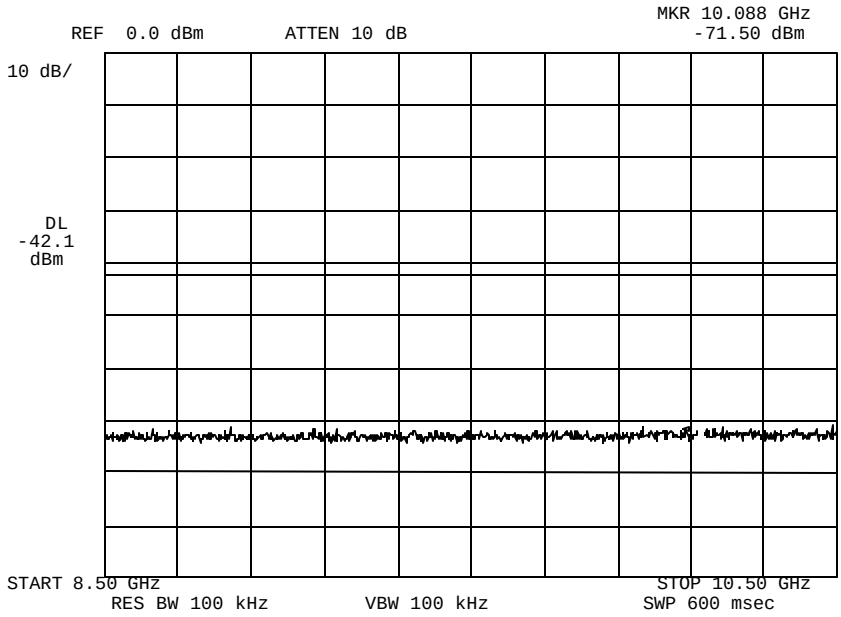
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730090: 2007-Mar-27 Tue 14:24:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

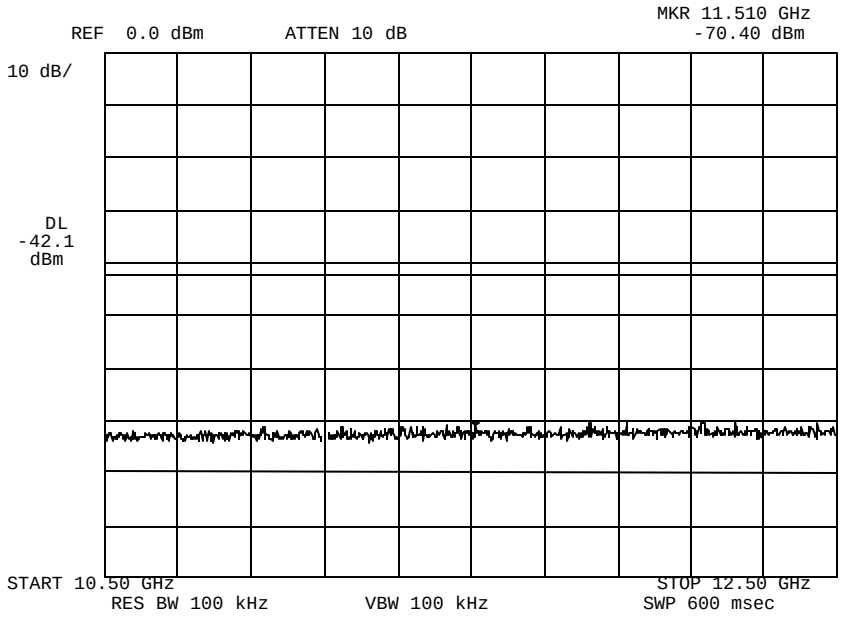
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730091: 2007-Mar-27 Tue 14:25:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

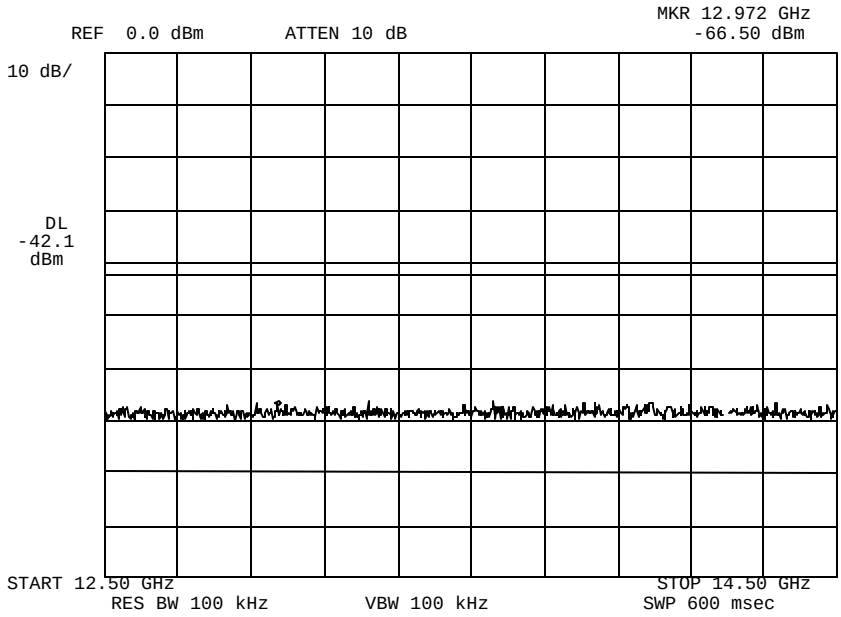
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730092: 2007-Mar-27 Tue 14:26:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

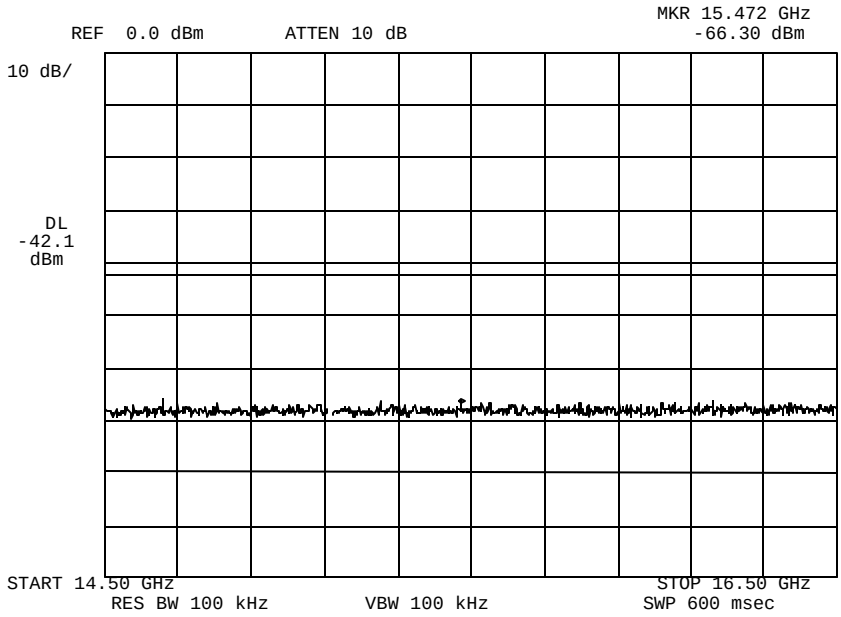
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730093: 2007-Mar-27 Tue 14:26:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

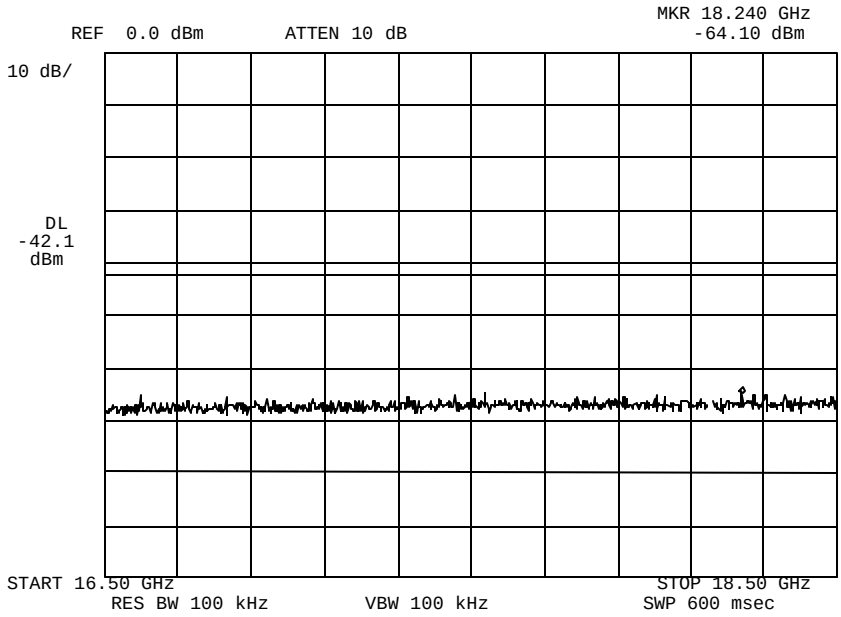
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730094: 2007-Mar-27 Tue 14:27:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

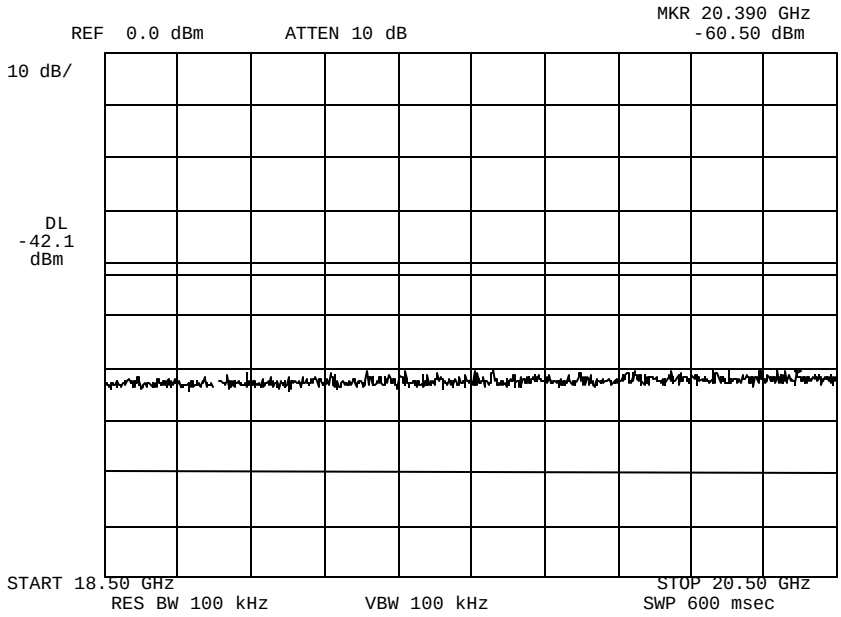
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730095: 2007-Mar-27 Tue 14:28:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



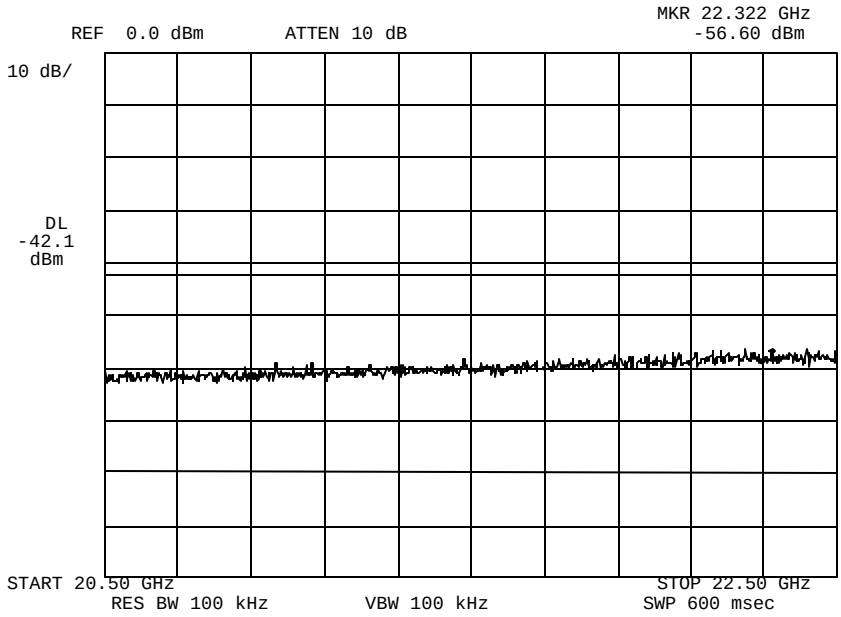
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730096: 2007-Mar-27 Tue 14:29:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2110MHz

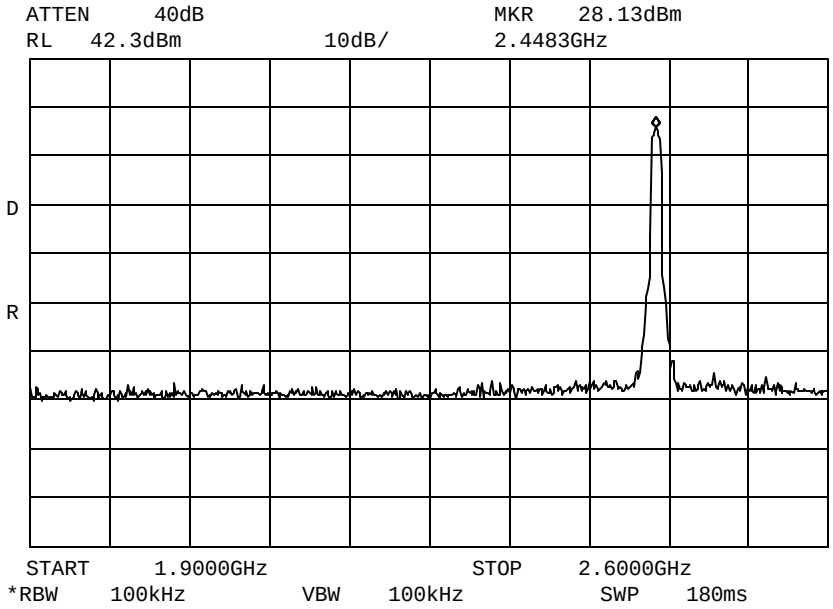
Performed by: Michael Wyman

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0740140: 2007-Apr-04 Wed 16:03:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH 2450
Modulation:	QAM64
TX Frequency	2450

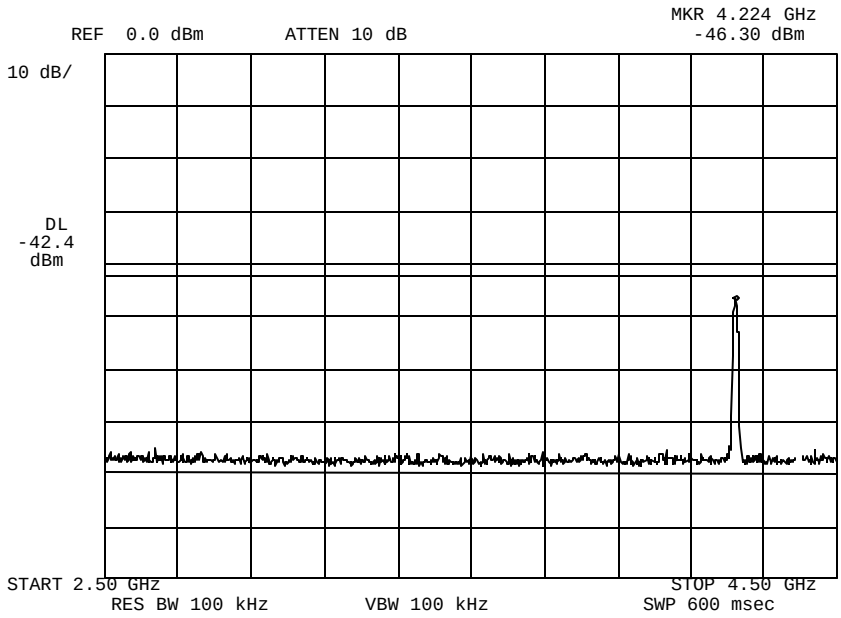
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730097: 2007-Mar-27 Tue 14:30:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

Sample Calculation: 80 dBc = 37.6 dBm – (DL(dBm)); DL = 80 – 37.6= 42.4

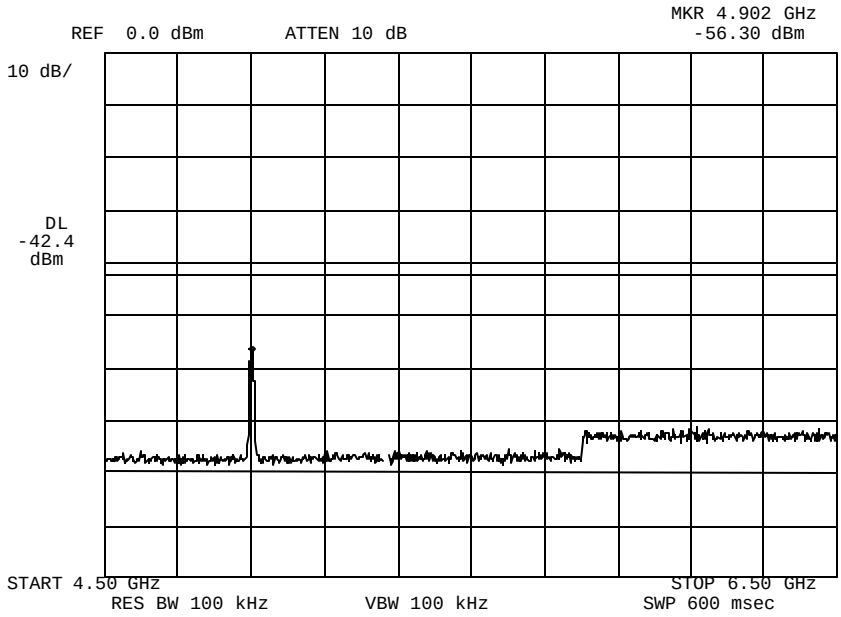
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730098: 2007-Mar-27 Tue 14:32:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

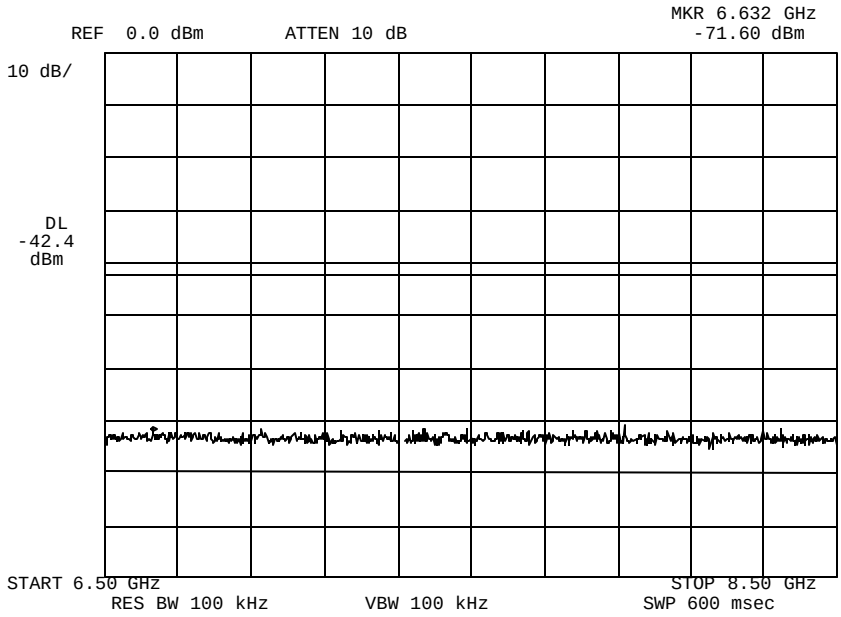
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730099: 2007-Mar-27 Tue 14:32:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

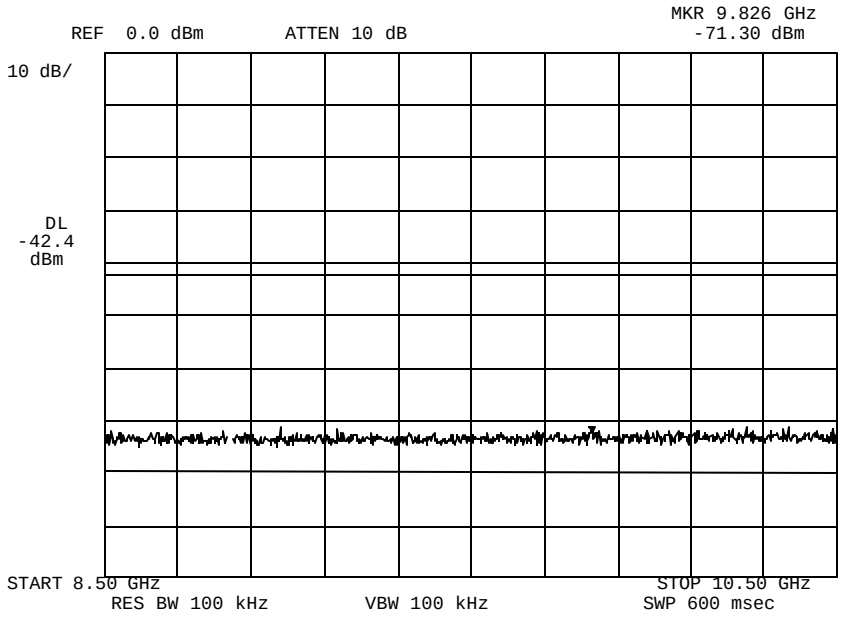
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730100: 2007-Mar-27 Tue 14:33:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

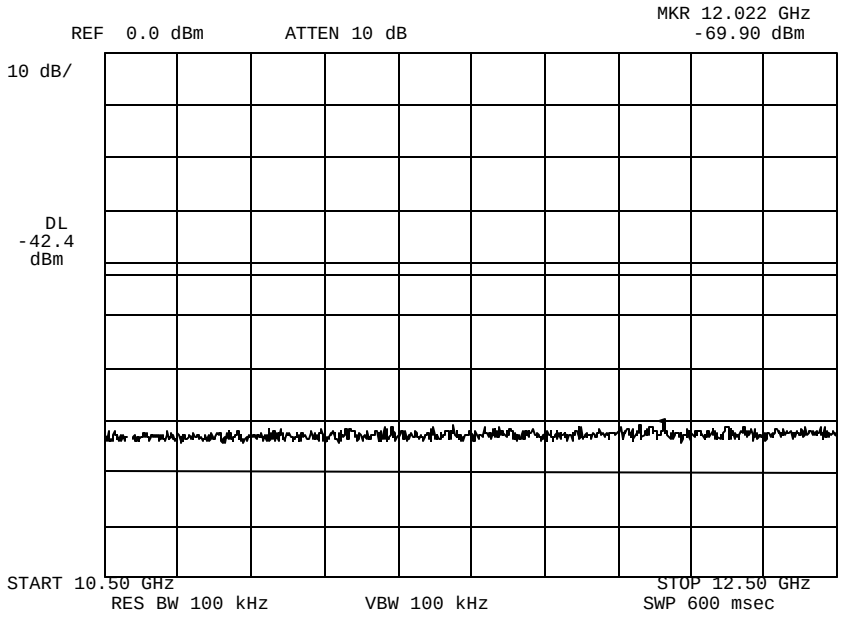
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730101: 2007-Mar-27 Tue 14:33:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

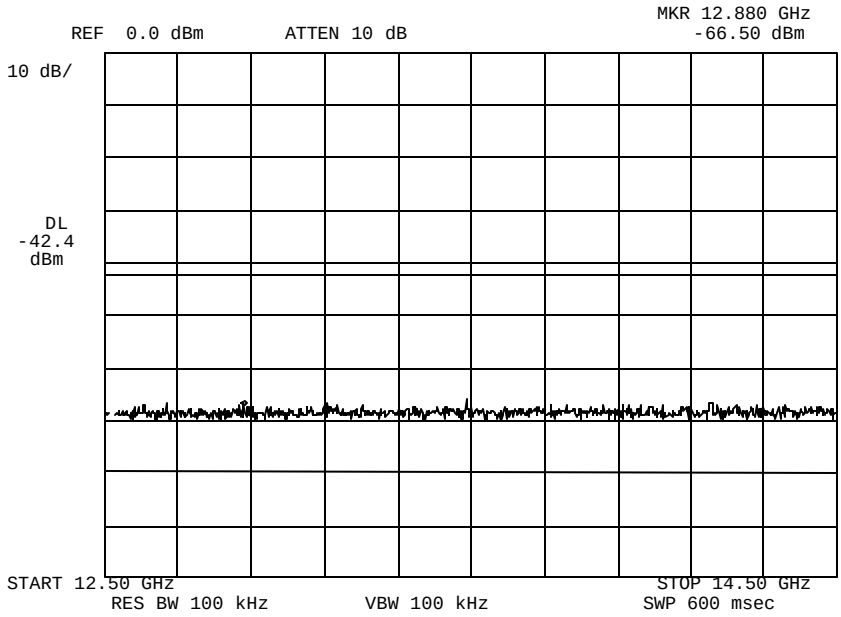
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730102: 2007-Mar-27 Tue 14:34:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

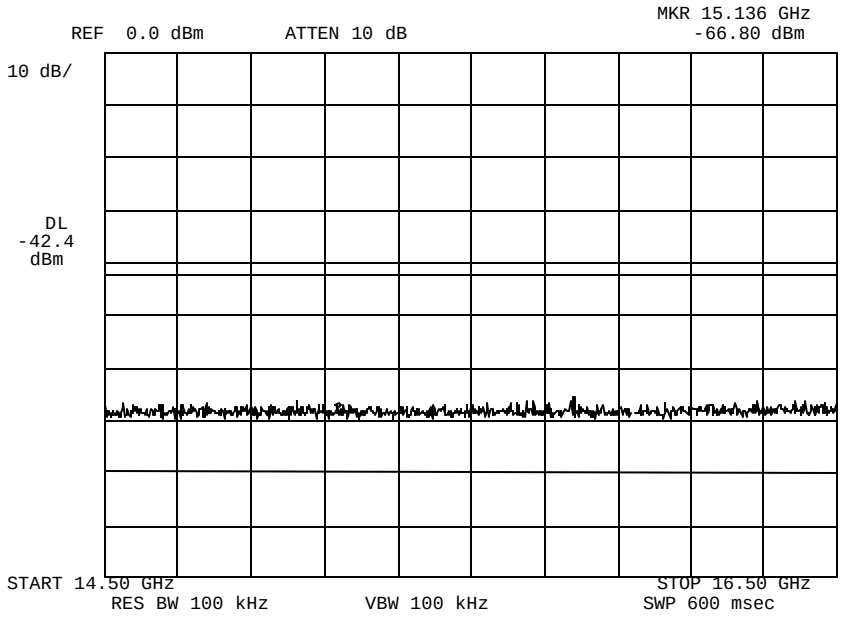
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730103: 2007-Mar-27 Tue 14:35:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

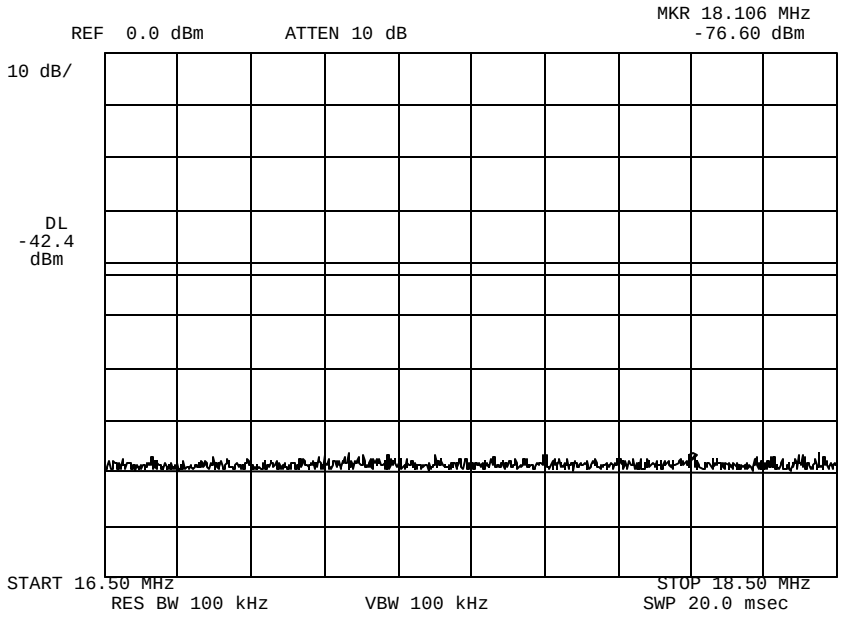
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730104: 2007-Mar-27 Tue 14:35:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



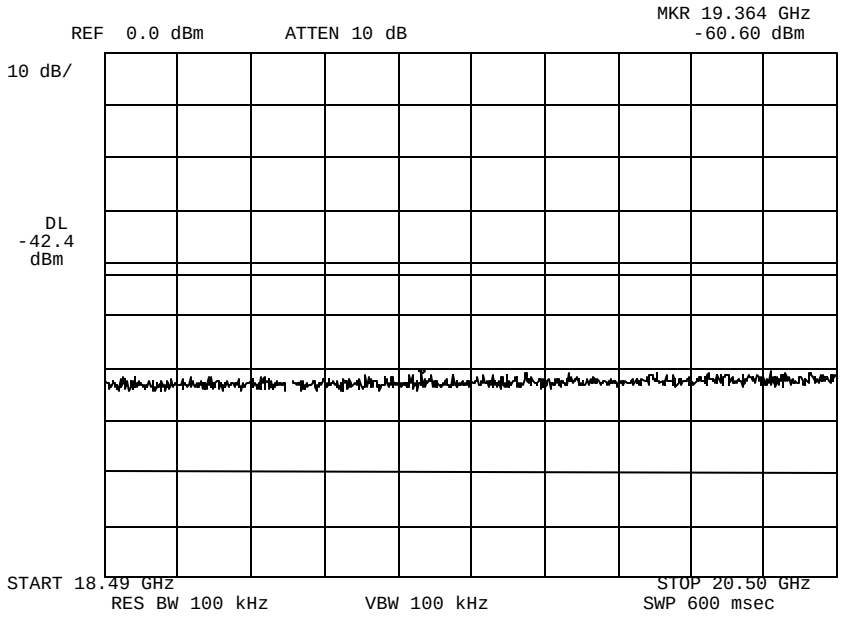
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730105: 2007-Mar-27 Tue 14:36:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



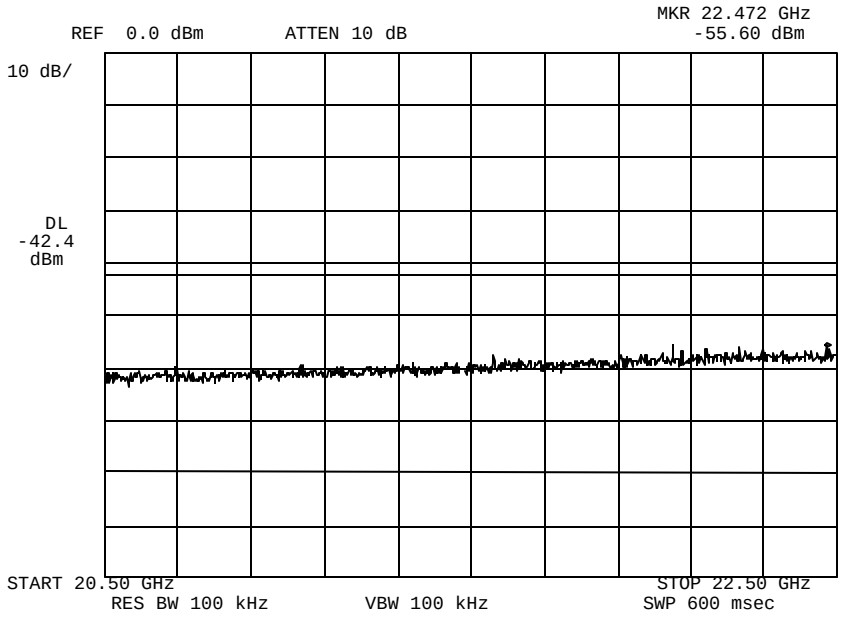
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730106: 2007-Mar-27 Tue 14:37:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

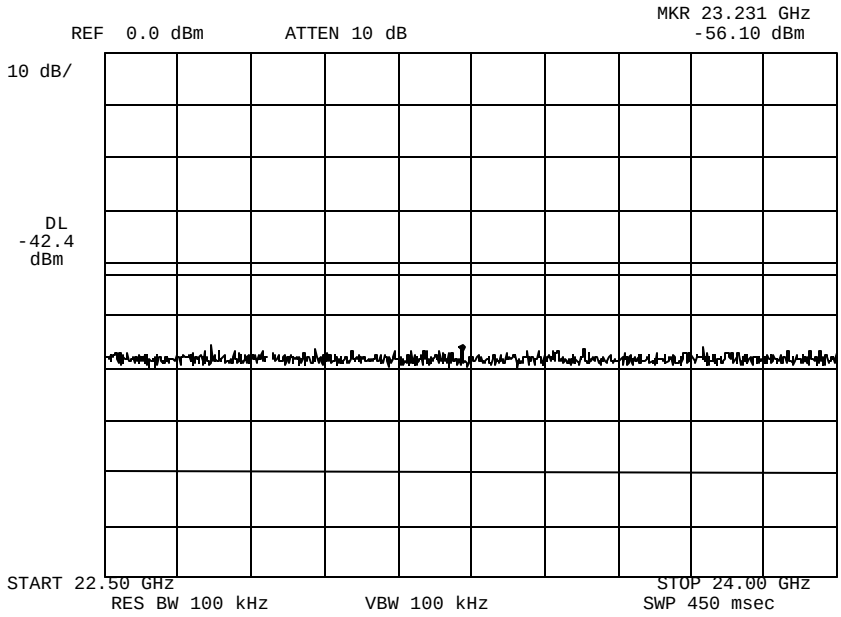
Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730107: 2007-Mar-27 Tue 14:37:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



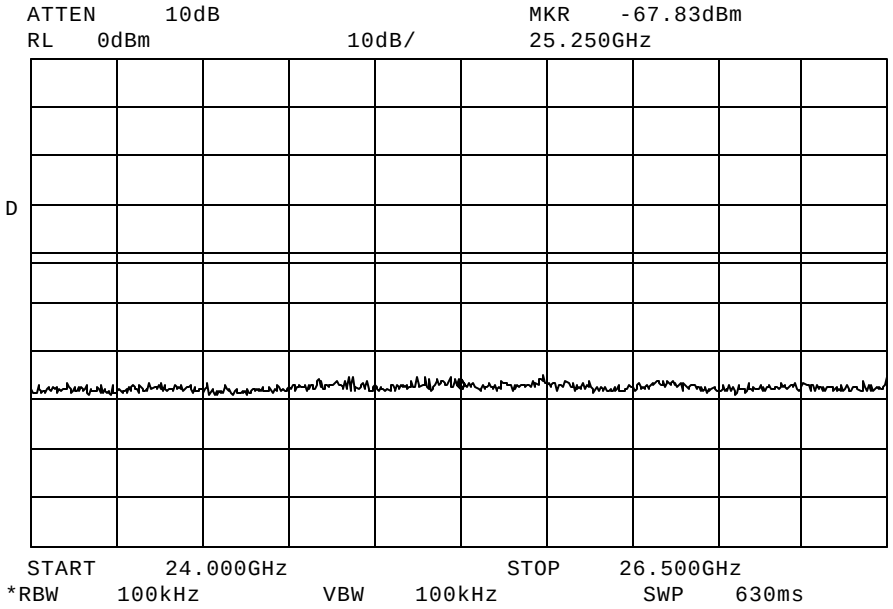
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

Performed by: Michael Wyman

Name of Test: Conducted Emissions

Measurement Results

g0730124: 2007-Mar-28 Wed 07:24:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2450MHz

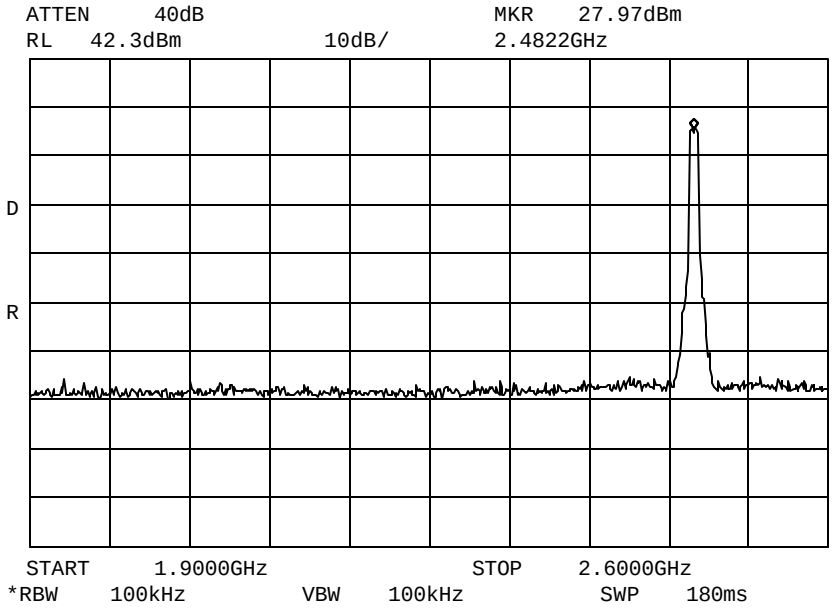
Performed by: Michael Wyman

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g0740141: 2007-Apr-04 Wed 16:04:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH 2483.5
Modulation:	QAM64
TX Frequency	2483.5MHz

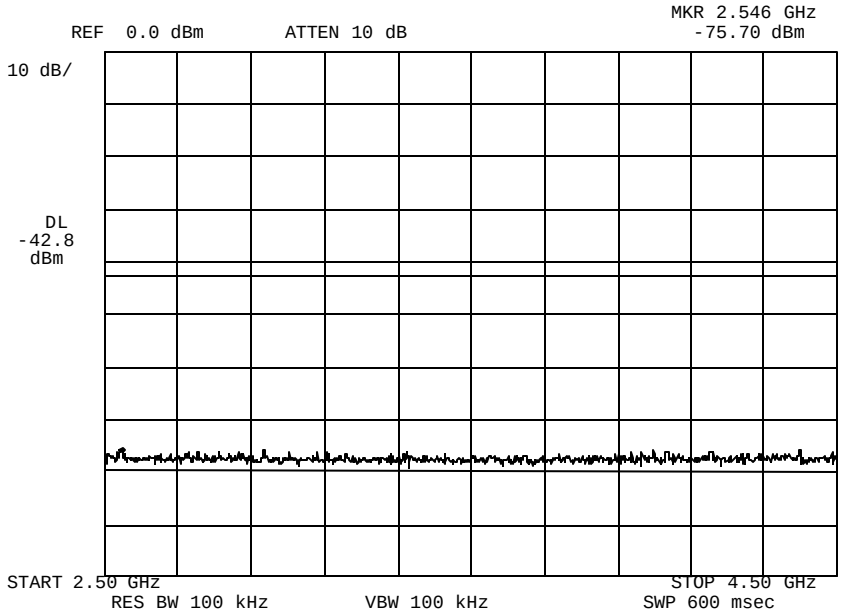
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730108: 2007-Mar-27 Tue 14:40:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



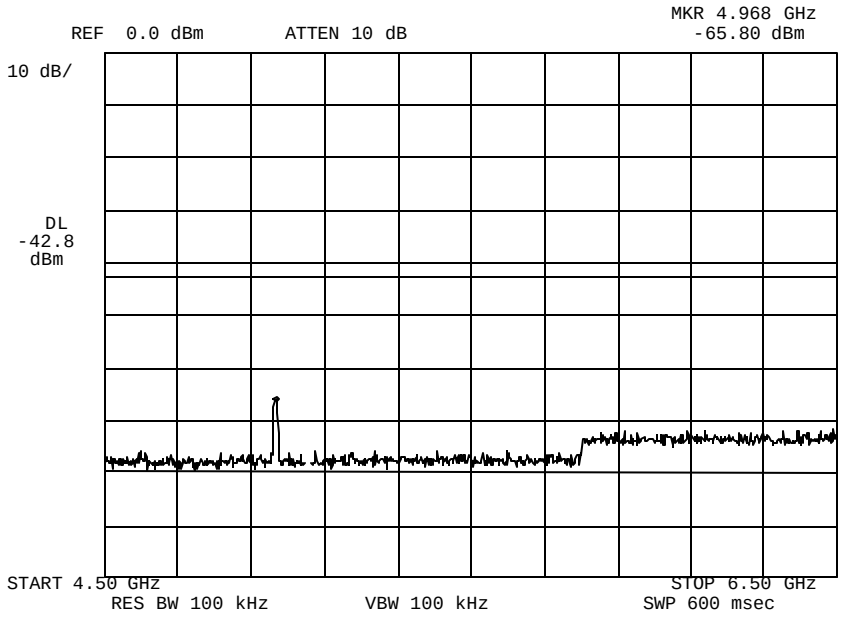
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730109: 2007-Mar-27 Tue 14:40:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

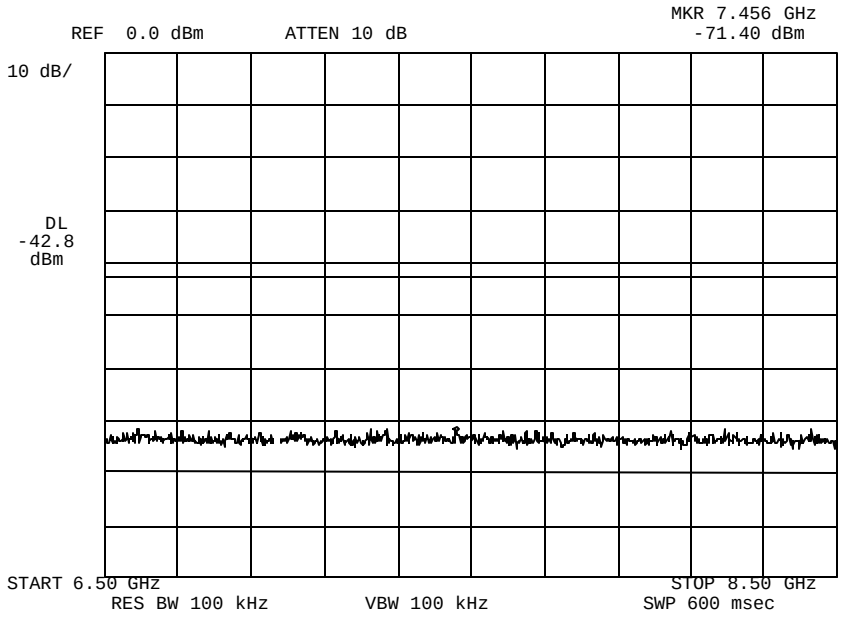
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730110: 2007-Mar-27 Tue 14:41:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

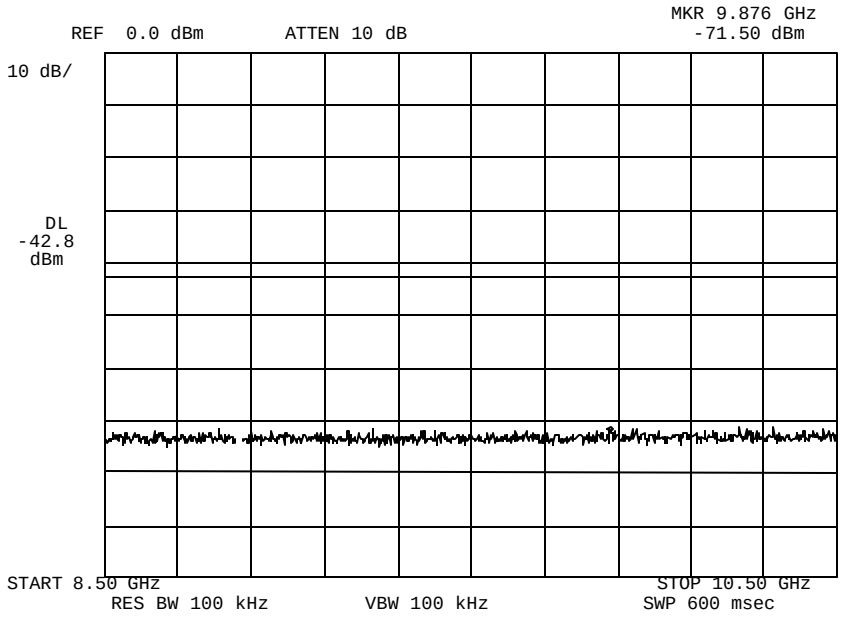
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730111: 2007-Mar-27 Tue 14:42:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



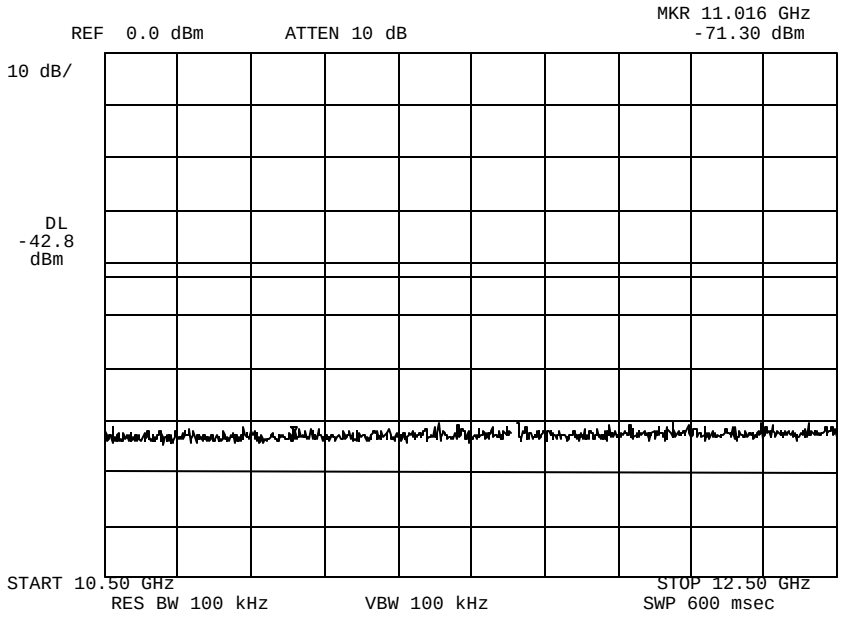
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730112: 2007-Mar-27 Tue 14:42:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

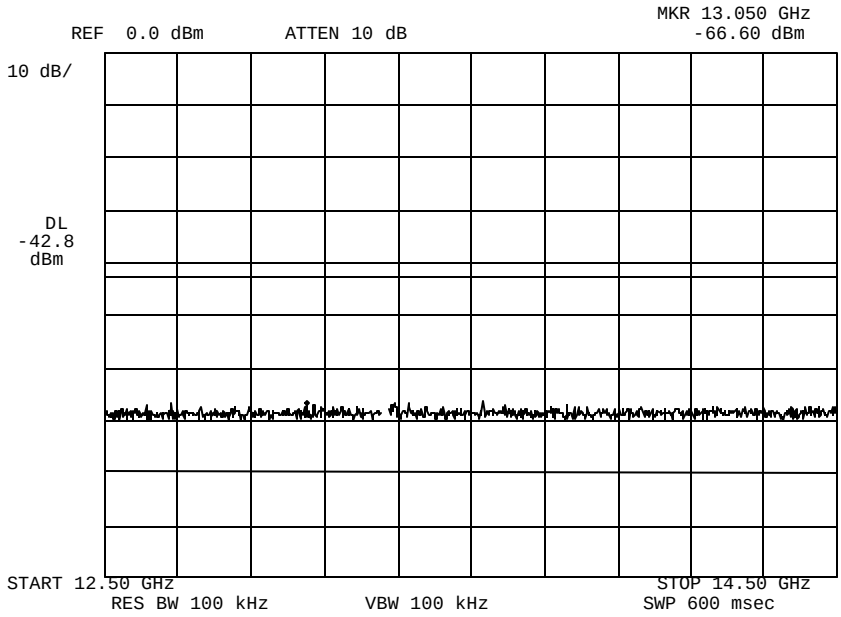
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730113: 2007-Mar-27 Tue 14:43:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

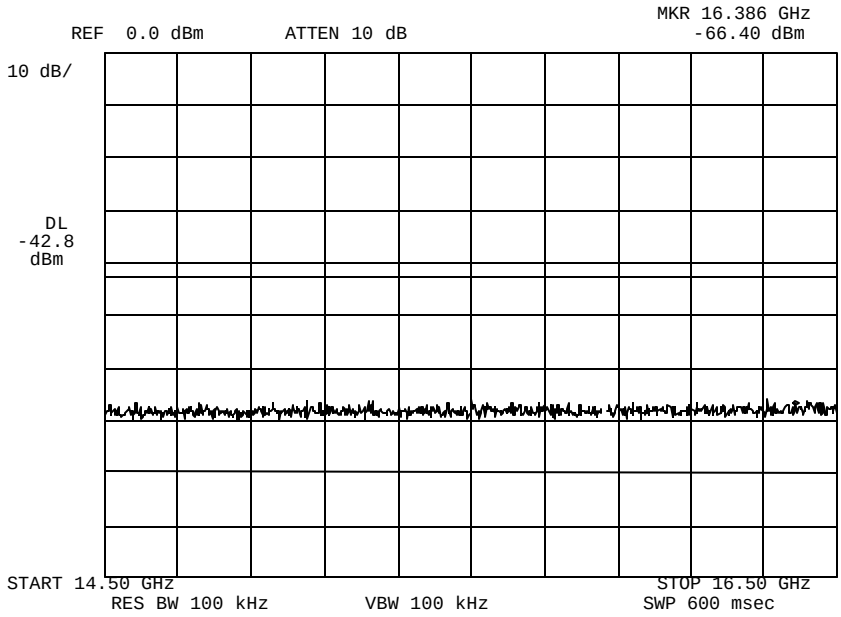
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730114: 2007-Mar-27 Tue 14:43:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



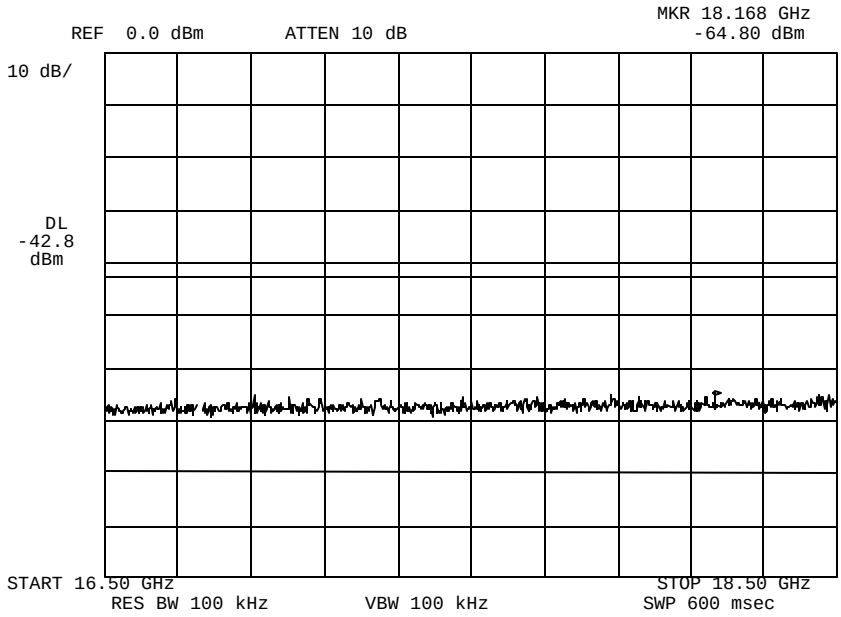
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730115: 2007-Mar-27 Tue 14:44:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

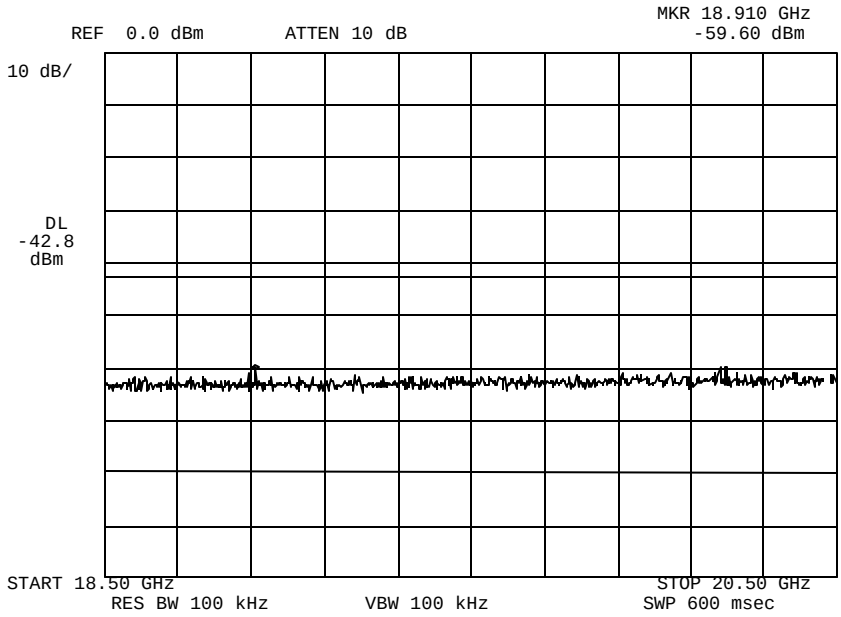
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730116: 2007-Mar-27 Tue 14:45:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

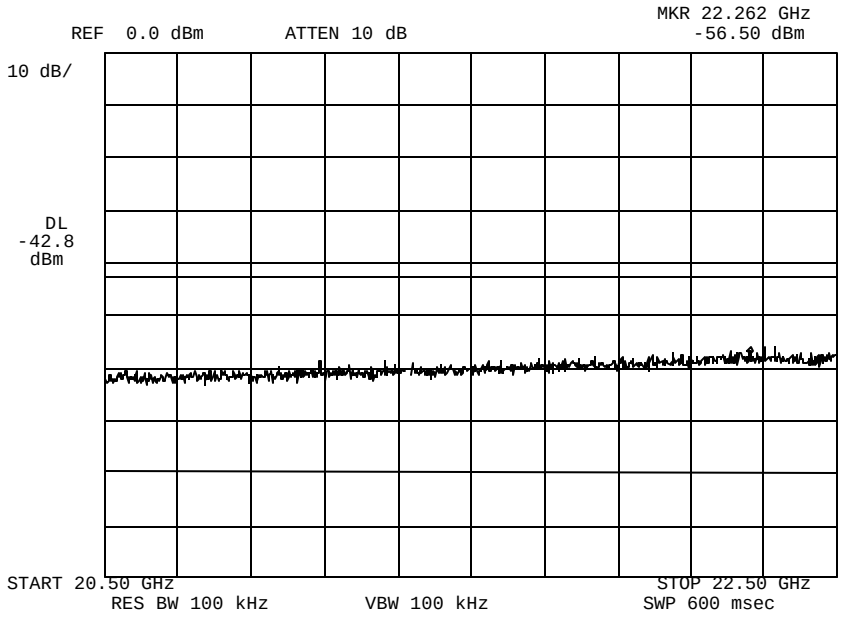
Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730117: 2007-Mar-27 Tue 14:46:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



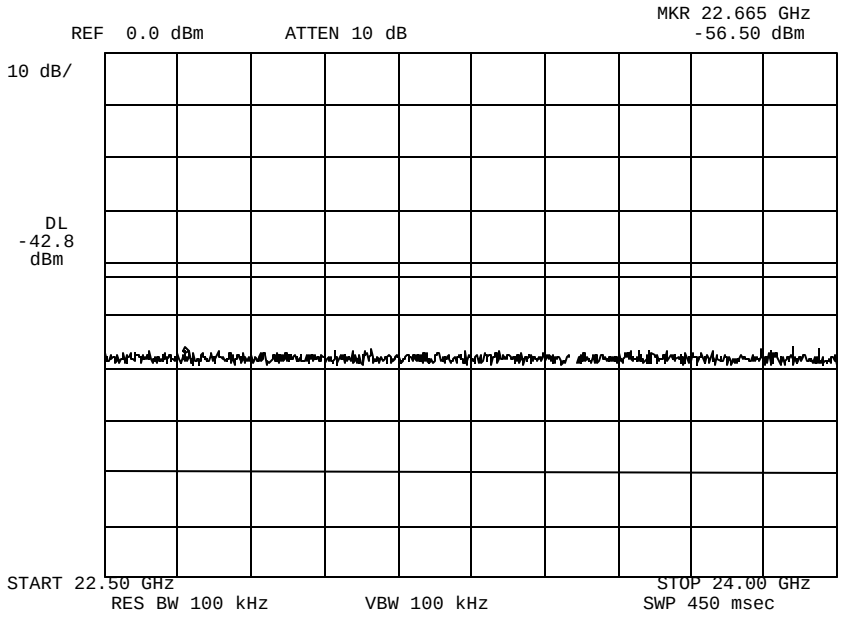
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730118: 2007-Mar-27 Tue 14:47:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



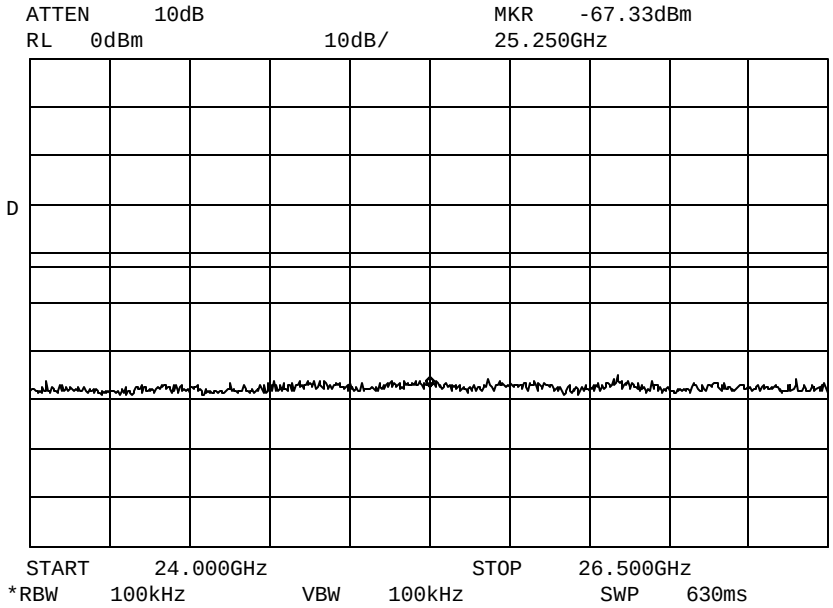
Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

Performed by: Michael Wyman

Name of Test: 2483.5MHz Conducted Emissions

Measurement Results

g0730125: 2007-Mar-28 Wed 07:26:00
State: 2:High Power Ambient Temperature: 23°C ± 3°C



Power:	HIGH
Modulation:	QAM 64
TX Frequency	2483.5MHz

Performed by: Michael Wyman

Name of Test: Field Strength of Spurious Radiation

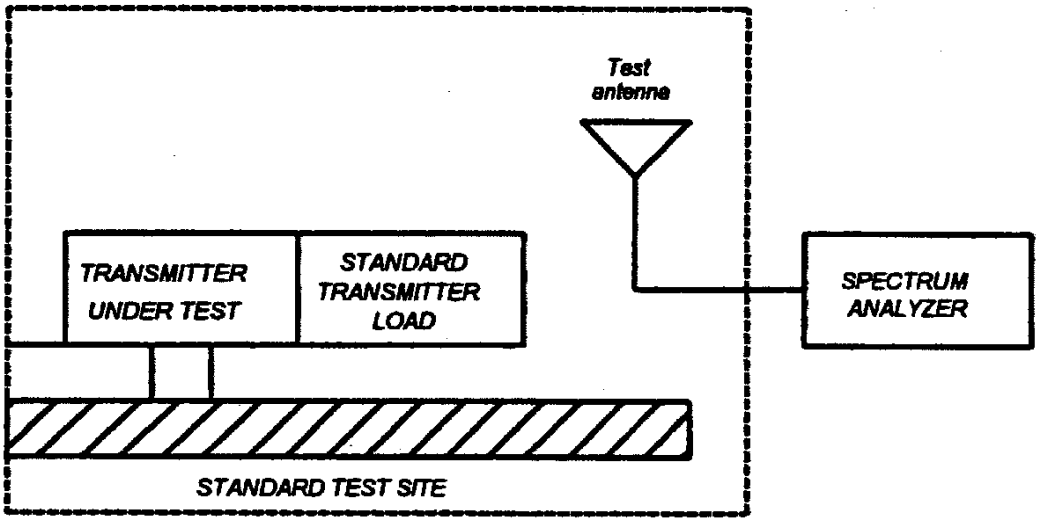
Specification: 47 CFR 2.1053(a)

Guide: ANSI/TIA/EIA-603-1992/2001, Paragraph 1.2.12 and Table 16, 47 CFR 22.917

Measurement Procedure

Definition:
Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

Method of Measurement:
A) Connect the equipment as illustrated
B) Adjust the spectrum analyzer for the following settings:
   1) Resolution Bandwidth 100 kHz (<1 GHZ), 1 MHZ (> 1GHz).
   2) Video Bandwidth = 3 times Resolution Bandwidth, or 30 kHz (22.917)
   3) Sweep Speed ≤2000 Hz/second
   4) Detector Mode = Mean or Average Power
C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load that is placed on the turntable. The RF cable to this load should be of minimum length.

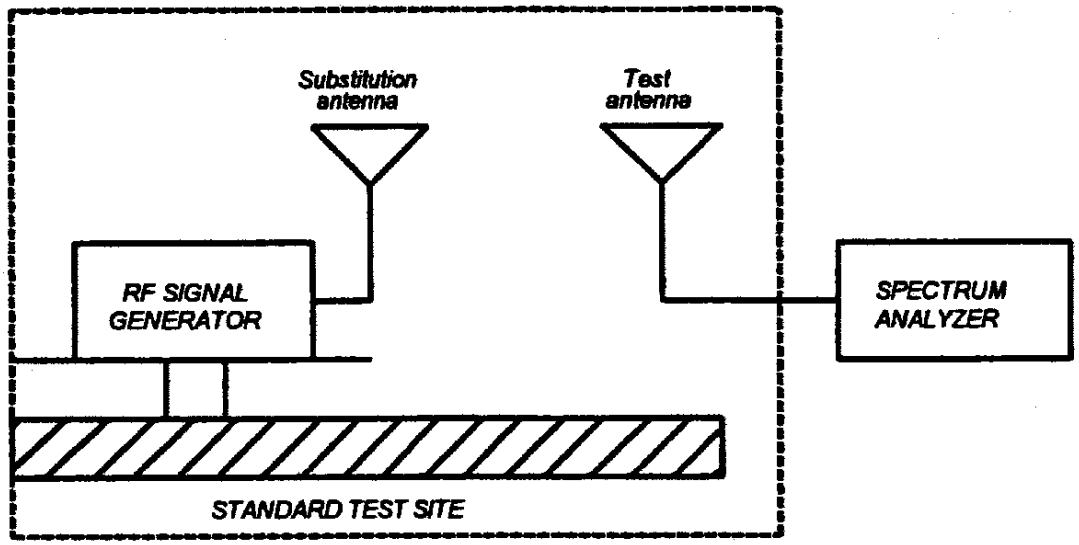


Name of Test: Field Strength of Spurious Radiation (Cont.)

D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to ± the test bandwidth (see section 1.3.4.4).

E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.



G) Reconnect the equipment as illustrated.

H) Keep the spectrum analyzer adjusted as in step B).

I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

Name of Test: Field Strength of Spurious Radiation (Cont.)

J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

K) Repeat step J) with both antennas vertically polarized for each spurious frequency.

L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.

M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions dB =

$10\log_{10}$(TX power in watts/0.001) – the levels in step l)

NOTE: It is permissible that other antennas provided can be referenced to a dipole.

Test Equipment

	Asset	Description	s/n	Cycle	Last Cal
Transducer					
X	i00088	EMCO 3109-B 25MHz-300MHz	2336	24 mo.	Oct-05
X	i00089	Aprel 2001 200MHz-1GHz	001500	24 mo.	Oct-05
X	i00103	EMCO 3115 1GHz-18GHz	9208-3925	36 mo.	Sep-06
Amplifier					
X	i00028	HP 8449A	2749A00121	12 mo.	Jun-06
Spectrum Analyzer					
X	i00029	HP 8563E	3213A00104	12 mo.	Jan-06
X	i00033	HP 85462A	3625A00357	12 mo.	Oct-05
Substitution Generator					
X	i00067	HP 8920A Communication TS	3345U01242	12 mo.	Jun-06
	i00207	HP 8753D Network Analyzer	3410A08514	12 mo.	May-06

Microphone, Antenna Port, and Cabling

Microphone _____ Cable Length _____ Meters

Antenna Port Terminated _____ Load _____ Antenna Gain _____

All Ports Terminated by Load _____ Peripheral _____

Name of Test: Field Strength of Spurious Radiation

Measurement Results

g0730120: 2007-Mar-27 Tue 15:28:00
STATE: 2:High Power Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz	Frequency Emission, MHz	EIRP, dBm
1990.000000	3980.233333	-41.54
1990.000000	5970.233333	-38.14
1990.000000	7960.233333	-34.24

Note: There were no observable signals past the 4th harmonic. The EUT was scanned to the 10th harmonic.

Name of Test: Field Strength of Spurious Radiation

Measurement Results

g0730121: 2007-Mar-27 Tue 15:35:00
STATE: 2:High Power Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz	Frequency Emission, MHz	EIRP, dBm
2110.000000	4220.233333	-42.64
2110.000000	6330.233333	-39.64
2110.000000	8440.233333	-32.94

Note: There were no observable signals past the 4th harmonic. The EUT was scanned to the 10th harmonic

Name of Test: Field Strength of Spurious Radiation

Measurement Results

g0730122: 2007-Mar-27 Tue 15:38:00
STATE: 2:High Power Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz	Frequency Emission, MHz	EIRP, dBm
2450.000000	4900.233333	-40.54
2450.000000	7350.233333	-35.04
2450.000000	9800.233333	-30.84

Note: There were no observable signals past the 4th harmonic. The EUT was scanned to the 10th harmonic

Name of Test: Field Strength of Spurious Radiation

Measurement Results

g0730123: 2007-Mar-27 Tue 15:42:00
STATE: 2:High Power Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz	Frequency Emission, MHz	EIRP, dBm
2483.500000	4967.233333	-41.44
2483.500000	7450.733333	-35.14
2483.500000	9934.233333	-32.04

Note: There were no observable signals past the 4th harmonic. The EUT was scanned to the 10th harmonic

Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Specification: 47 CFR 2.1049(c)(1)

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

Measurement Procedure

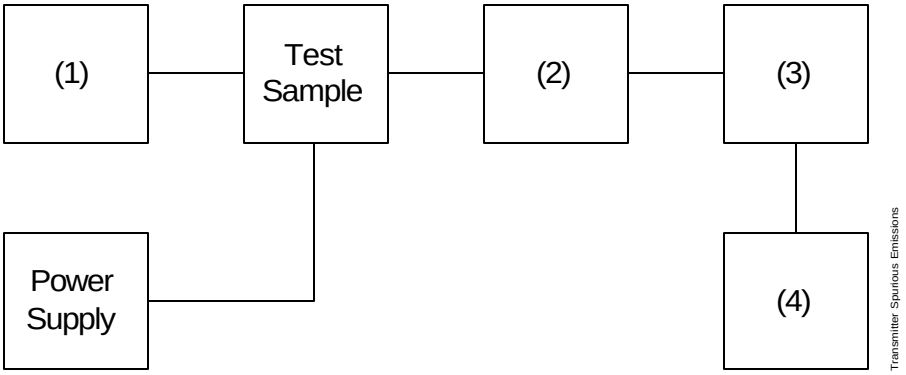
A) The EUT and test equipment were set up as shown below

B) For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for ±2.5/±1.25 kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.

C) For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.

D) The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

Transmitter Test Set-Up: Occupied Bandwidth



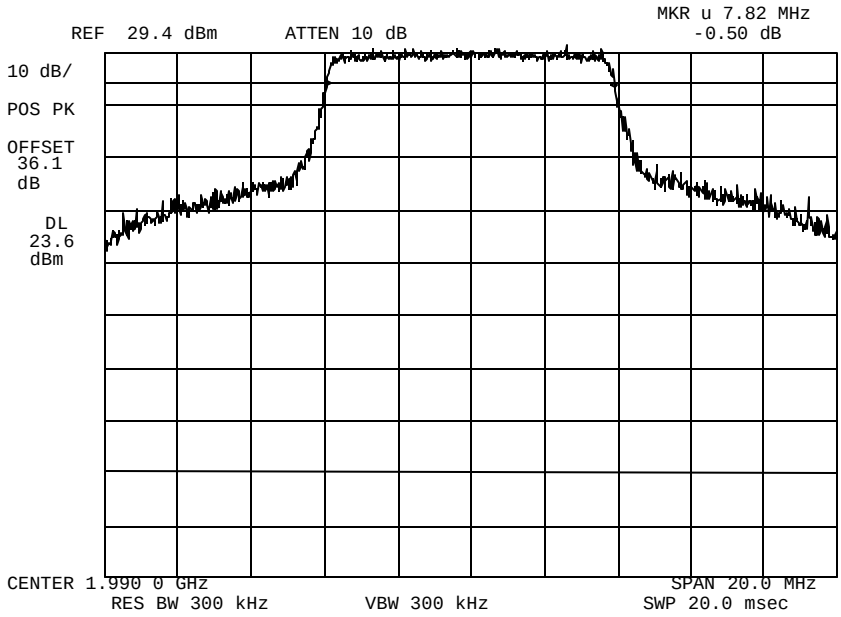
	Asset	Description	s/n	Cycle	Last Cal
(1) **Audio Oscillator/Generator**					
X	i00324	HP 8903B Modulation Meter	3011A09079	12 mo.	Oct-06
(2) **Coaxial Attenuator**					
X	i00231/2	PASTERNACK PE7021-30 (30 dB)	231 or 232	N/A	NCR
	i00123	NARDA 766 (10 dB)	7802A	N/A	NCR
(3) **Interface**					
X	i00021	HP 8954A Transceiver Interface	2146A00159	N/A	NCR
(4) **Spectrum Analyzer**					
X	i00048	HP 8566B Spectrum Analyzer	2511A01467	12 mo.	Aug-06
	i00029	HP 8563E Spectrum Analyzer	3213A00104	12 mo.	Jan-06

Name of Test: Occupied Bandwidth

Measurement Results

g0730051: 2007-Mar-26 Mon 13:46:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 1990
Modulation: QPSK
6DB BW = 7.82MHz

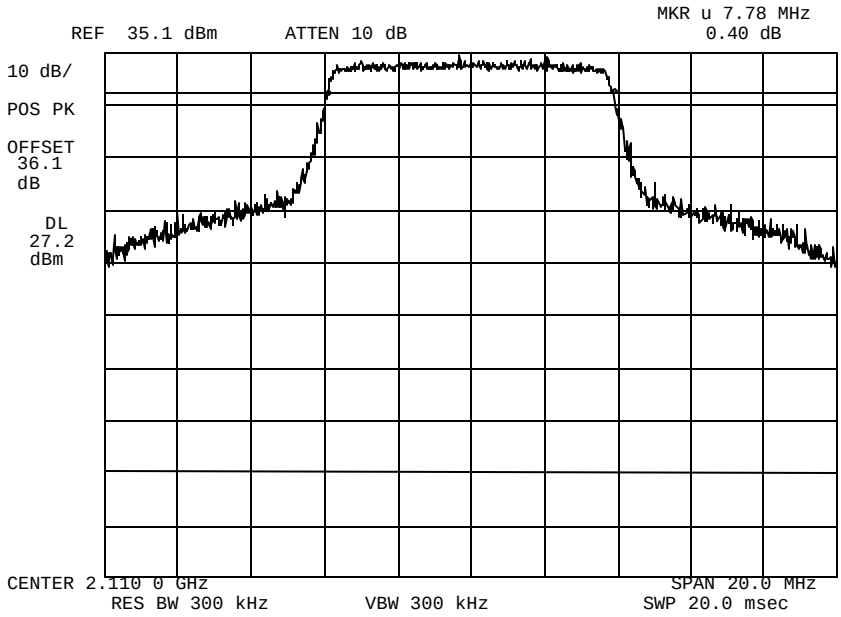
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730053: 2007-Mar-26 Mon 13:52:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2110
Modulation: QPSK
6DB BW = 7.78MHz

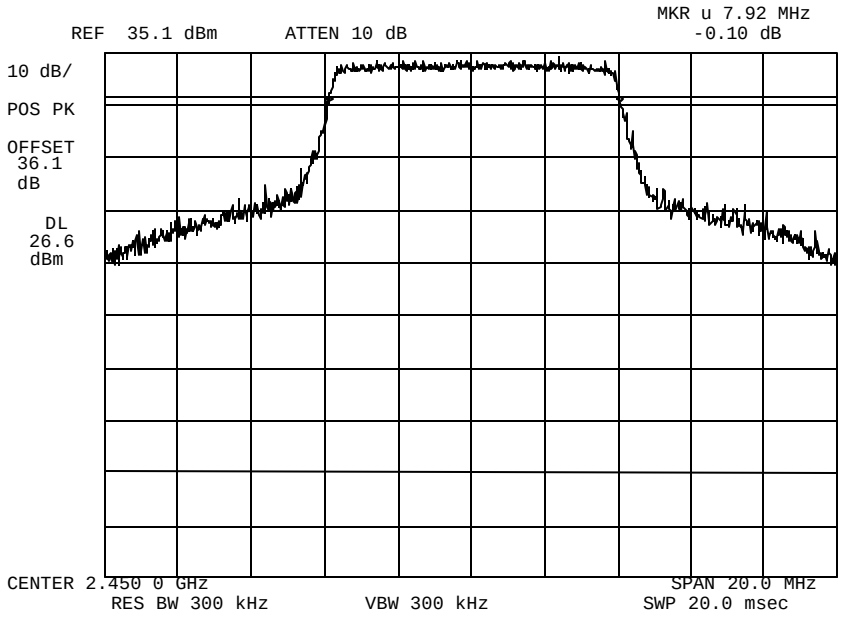
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730055: 2007-Mar-26 Mon 13:55:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2450
Modulation: QPSK
6DB BW = 7.92MHz

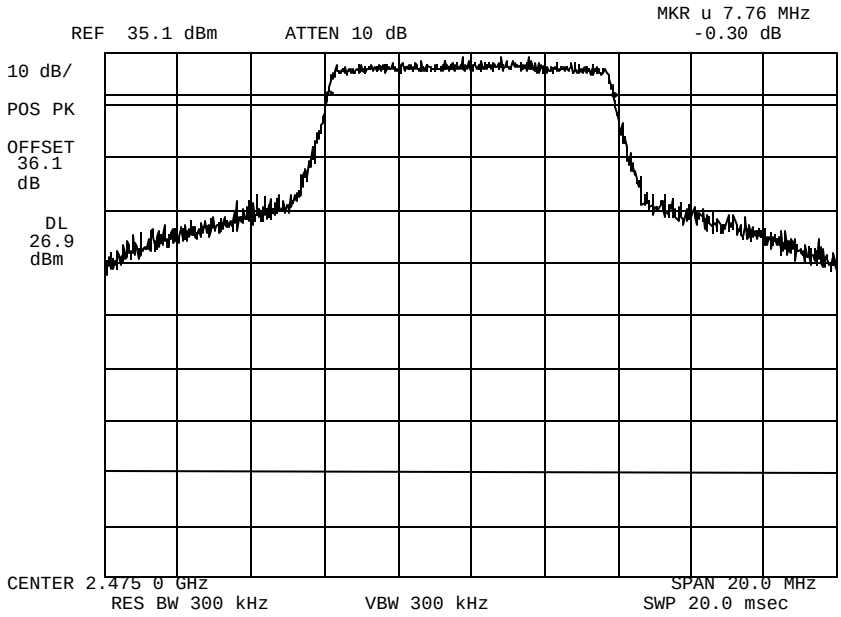
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730057: 2007-Mar-26 Mon 13:59:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2470
Modulation: QPSK
6DB BW = 7.76MHz

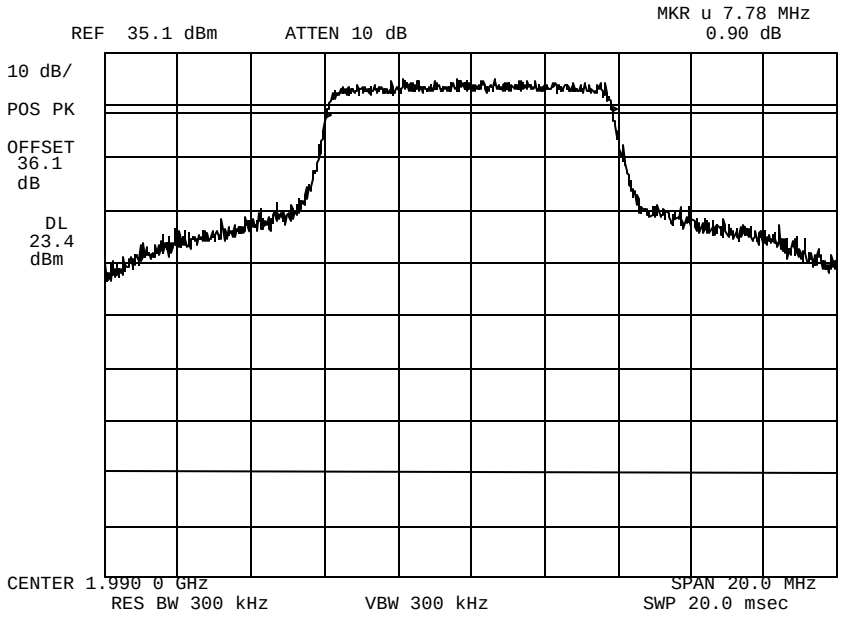
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730059: 2007-Mar-26 Mon 14:17:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 1990
Modulation: QAM 16
6DB BW = 7.78MHz

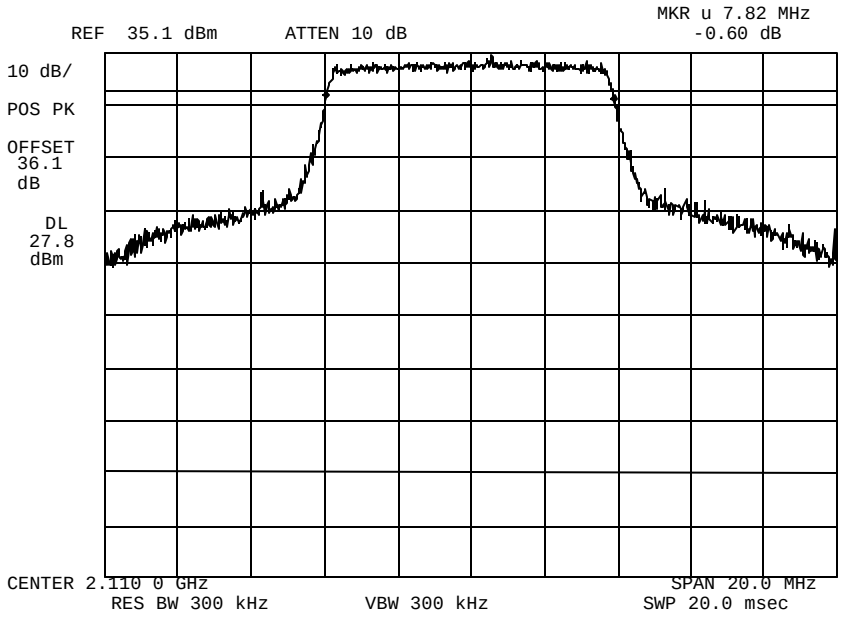
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730061: 2007-Mar-26 Mon 14:19:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2110
Modulation: QAM 16
6DB BW = 7.82MHz

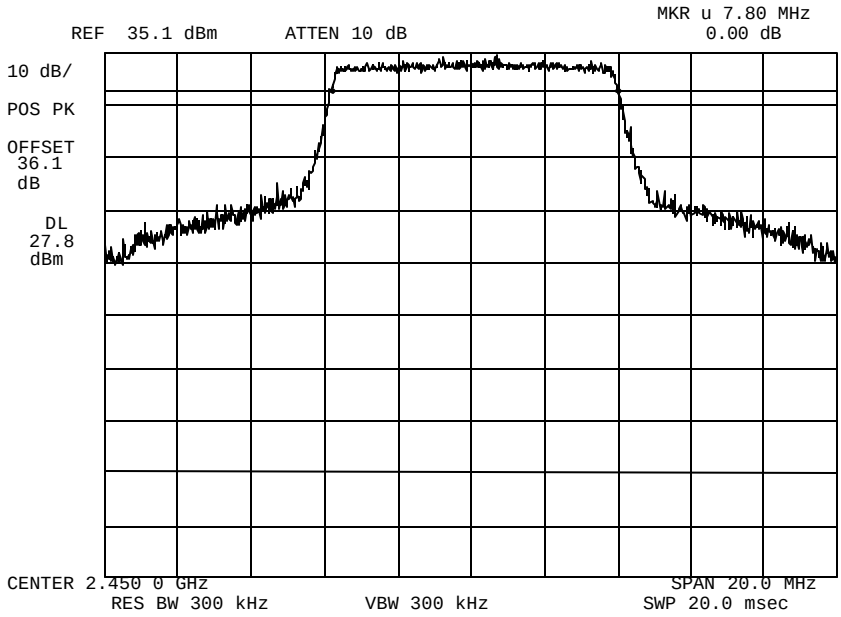
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730063: 2007-Mar-26 Mon 14:22:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2450
Modulation: QAM 16
6DB BW = 7.80MHz

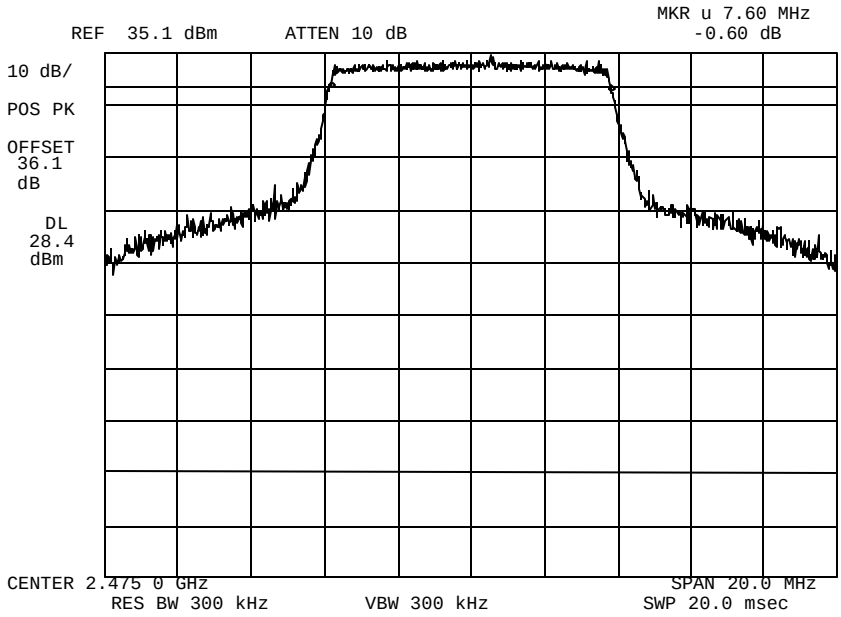
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730065: 2007-Mar-26 Mon 14:24:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2475
Modulation: QAM 16
6DB BW =7.60MHz

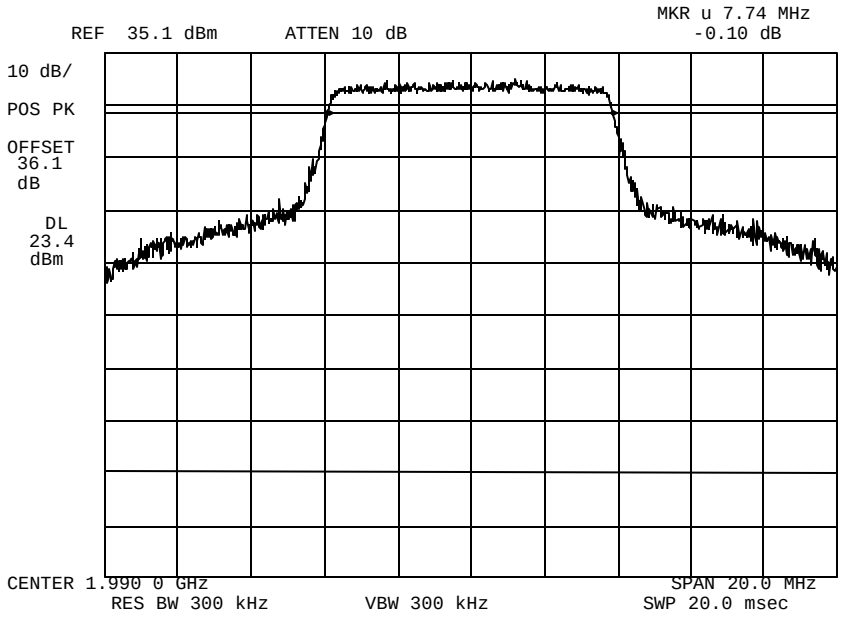
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730067: 2007-Mar-26 Mon 14:28:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 1990
Modulation: QAM 64
6DB BW = 7.74MHz

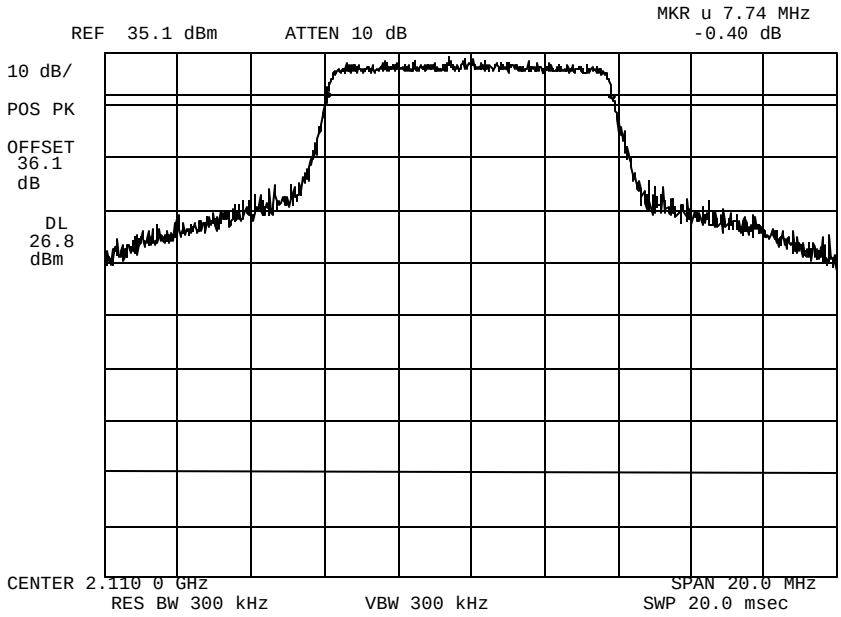
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730069: 2007-Mar-26 Mon 14:31:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2110
Modulation: QAM 64
6DB BW = 7.74MHz

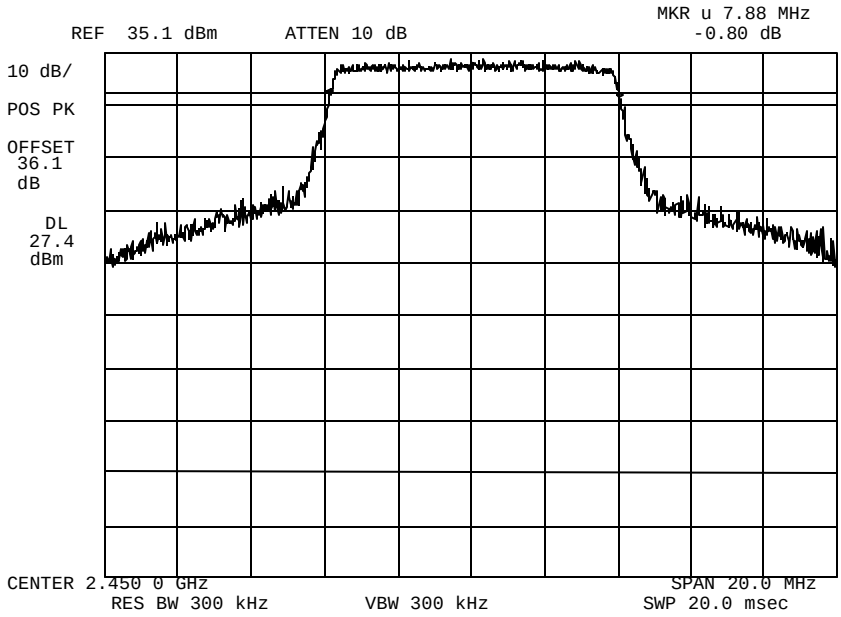
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730071: 2007-Mar-26 Mon 14:34:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2450
Modulation: QAM 64
6DB BW =7.88MHz

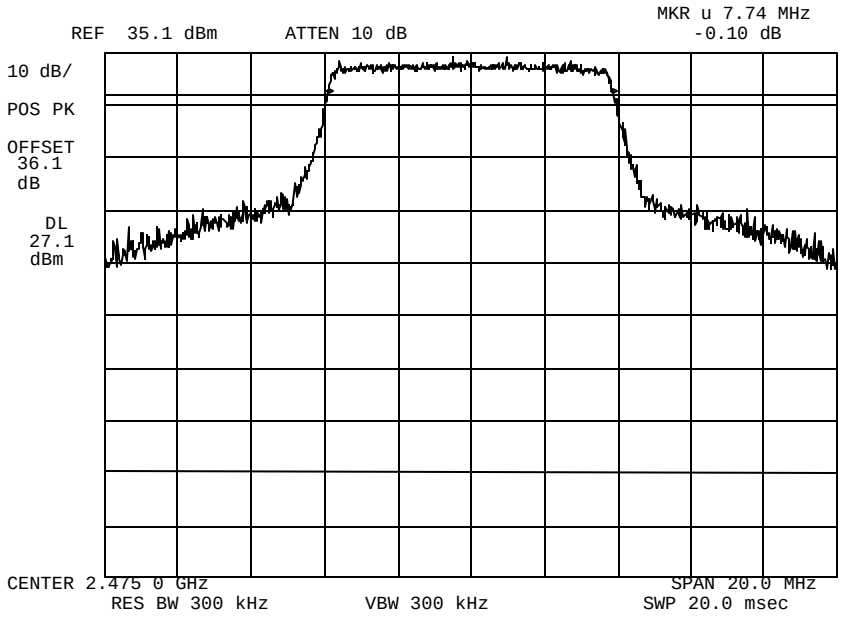
Performed by: Michael Wyman

Name of Test: Occupied Bandwidth

Measurement Results

g0730073: 2007-Mar-26 Mon 14:37:00
State: 2:High Power

Ambient Temperature: 23°C ± 3°C



Power: HIGH 2475
Modulation: QAM 64
6DB BW = 7.74MHz

Performed by: Michael Wyman

Name of Test: Necessary Bandwidth and Emission Bandwidth

Specification: 47 CFR 2.202(g)

Modulation = 7M75F3W

Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz	=	3
Maximum Deviation (D), kHz	=	5
Constant Factor (K)	=	1
Necessary Bandwidth (B_N), kHz	=	(2xM)+(2xDxK)
	=	16.0

Modulation = 12M0F8W

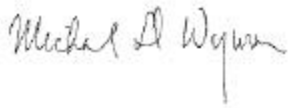
Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz	=	3
Maximum Deviation (D), kHz	=	5
Constant Factor (K)	=	1
Necessary Bandwidth (B_N), kHz	=	(2xM)+(2xDxK)
	=	16.0

Modulation = 12M0W7D

Necessary Bandwidth Calculation:

Maximum Modulation (M), kHz	=	3
Maximum Deviation (D), kHz	=	5
Constant Factor (K)	=	1
Necessary Bandwidth (B_N), kHz	=	(2xM)+(2xDxK)
	=	16.0



Performed by: Michael Wyman

END OF TEST REPORT

Flom Test Labs
EMI, EMC, RF Testing Experts Since 1963

Testimonial
and
Statement of Certification

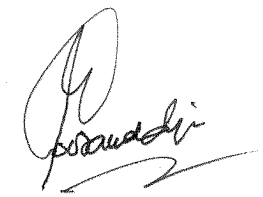
This is to Certify:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.



Certifying Engineer: Hoosamuddin S. Bandukwala, Lab Director

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