Nemko Test Report:	8452RUS1
Applicant:	Motorola 1475 W. Shure Drive Arlington Heights, IL 60004 USA
Equipment Under Test:	WAP25400 MOTOwi4™ Diversity Access
FCC ID:	IHET7HT1
In Accordance With:	**FCC PART 27, Subpart M** Broadband Radio Service and Educational Broadband Service
Tested By:	Nemko USA Inc. 802 N. Kealy Lewisville, Texas 75057-3136

TESTED BY: _____ DATE: 08 November 2007

David Light, Senior Wireless Engineer **Date**

APPROVED BY: _____ DATE: 15 November, 2007

Mike Cantwell, Frontline Manager **Date**

Total Number of Pages: 40

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Section 1. Summary of Test Results

Manufacturer: Motorola

Model No.: WAP25400 MOTOwi4™ Diversity Access Point

Serial No.: 170Z7H0WR (Tyco Power Supply)
170ZH70WH (Power One Power Supply)

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 FCC Part 27,

☒ 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.

Testing on the XDAP model was originally accomplished June 06, 2007 and submitted under Nemko test report number 5117RUS1 and approved under FCC ID IHET7HN1. Data and details from those tests have been included in this report.

Summary of Test Data

NAME OF TEST	PARA. NO.	SPEC. LIMIT	RESULT
RF Power Output	2.1046	33 dBW + 10log(X/Y) dBW	Complies
Occupied Bandwidth	2.1049	Not Specified	Complies
Spurious Emissions @ Antenna Terminals	2.1051	-13 dBm	Complies
Field Strength of Spurious Radiation	2.1053	-13 dBm	Complies
Frequency Stability	2.1055	Must remain within authorized bandwidth	Complies Note 1

Note 1: Frequency Stability data provided as separate exhibit.

Section 2. General Equipment Specification

Power Supply	-48 Vdc
Frequency Range:	2496 to 2690 MHz
Operating Frequencies	2498.5 to 2687.5 MHz (5MHz carrier) 2498.75 MHz to 2687.25MHz (5.5 MHz carrier) 2499.00 MHz to 2687.00 MHz (6 MHz carrier) 2501 to 2685 MHz (10 MHz carrier)

Type(s) of Modulation:

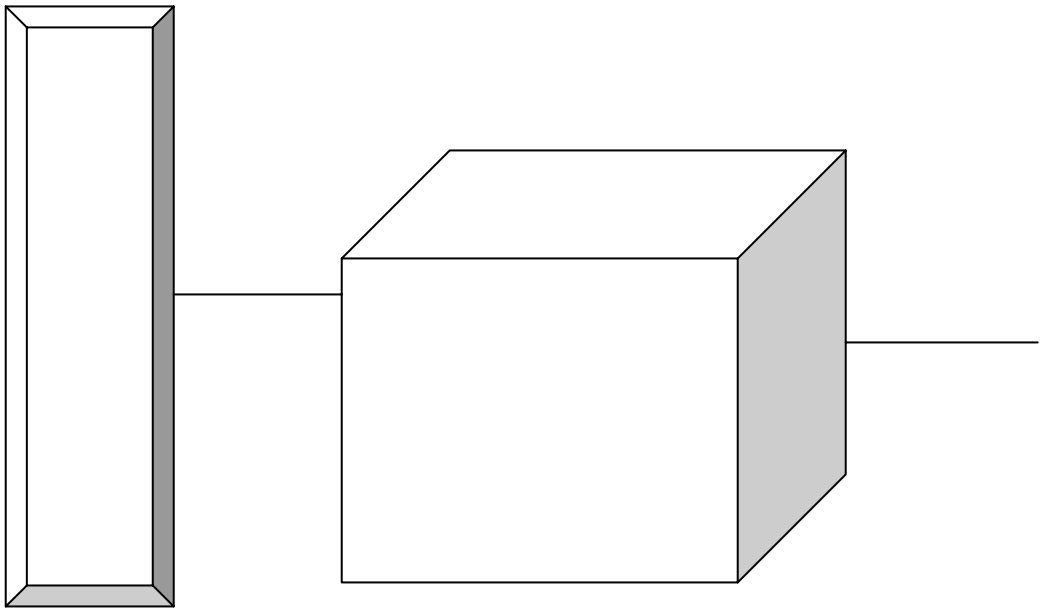
F3E (Voice)	F1D	F2D	W7D	F9W
☐	☐	☐	☒	☐

Emission Designator	5M5W7D, 5M0W7D, 6MW7D and 10M0W7D
Output Impedance:	50 ohms
RF Power Output:	33 dBm Conducted (all carriers)
Duty Cycle:	75% (max)

Description of EUT

The WAP25400 MOTOwi4™ Diversity Access Point is a Base station transceiver.

System Diagram



Section 3. RF Power Output

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: David Light	DATE: 06 June 2007 & 08 November 2007

Test Results: Complies

Measurement Data: See Tables.

Test Equipment: 1082-1064-1065-Agilent E4440A Spectrum analyzer

MAX RF POWER OUTPUT

Power One power supply

5 MHz Mode

Frequency (MHz)	Average Power (dBm)	Average Power (Watts)
2498.5	32.93	1.96
2597.5	32.83	1.92
2687.5	33.07	2.03

6 MHZ Mode

Frequency (MHz)	Average Power (dBm)	Average Power (Watts)
2499	32.89	1.95
2597	32.80	1.91
2687	32.90	1.95

10 MHz Mode

Frequency (MHz)	Average Power (dBm)	Average Power (Watts)
2501.0	33.13	2.06
2595.0	33.12	2.05
2685.0	33.24	2.11

5.5 MHZ Mode

Frequency (MHz)	Average Power (dBm)	Average Power (Watts)
2498.75	33.15	2.07
2597.25	33.06	2.02
2687.25	33.15	2.07

Tyco power supply

5 MHz Mode

Frequency (MHz)	Average Power (dBm)	Average Power (Watts)
2498.5	33.27	2.12
2597.5	33.18	2.08
2687.5	33.14	2.06

10 MHz Mode

Frequency (MHz)	Average Power (dBm)	Average Power (Watts)
2501.0	33.40	2.19
2595.0	33.48	2.23
2685.0	33.31	2.14

RBW=100 kHz
VBW= 1 MHz
Average detector
Power integrated across the carrier bandwidth

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: David Light	DATE: 06 June 2007 & 08 November 2007

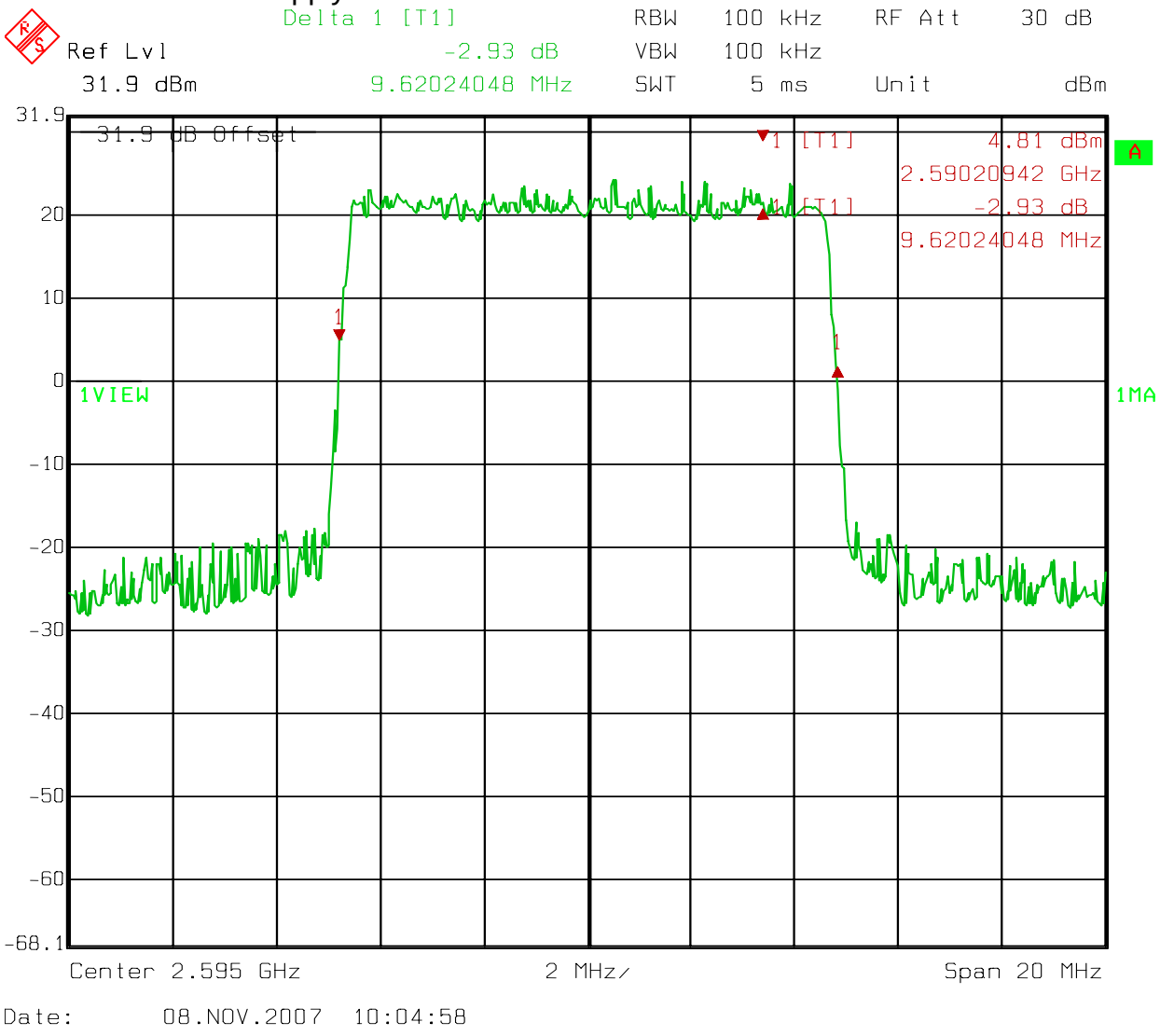
Test Results: Complies

Measurement Data: See attached plots.

Test Equipment: 1036-1082-1064-1065

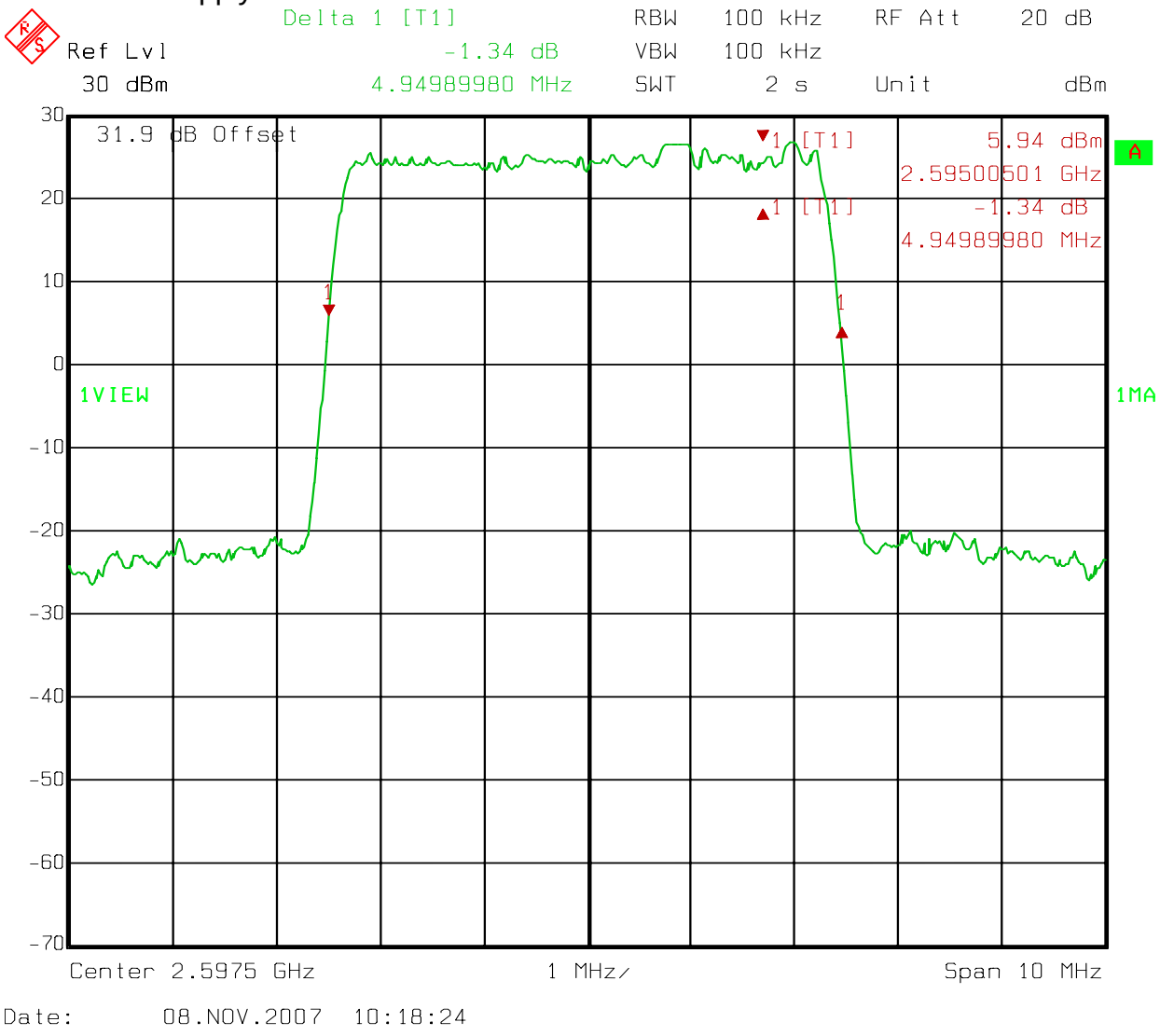
Test Data – 99% Occupied Bandwidth

Center Channel
10 MHz Carrier Bandwidth
Power One Power Supply



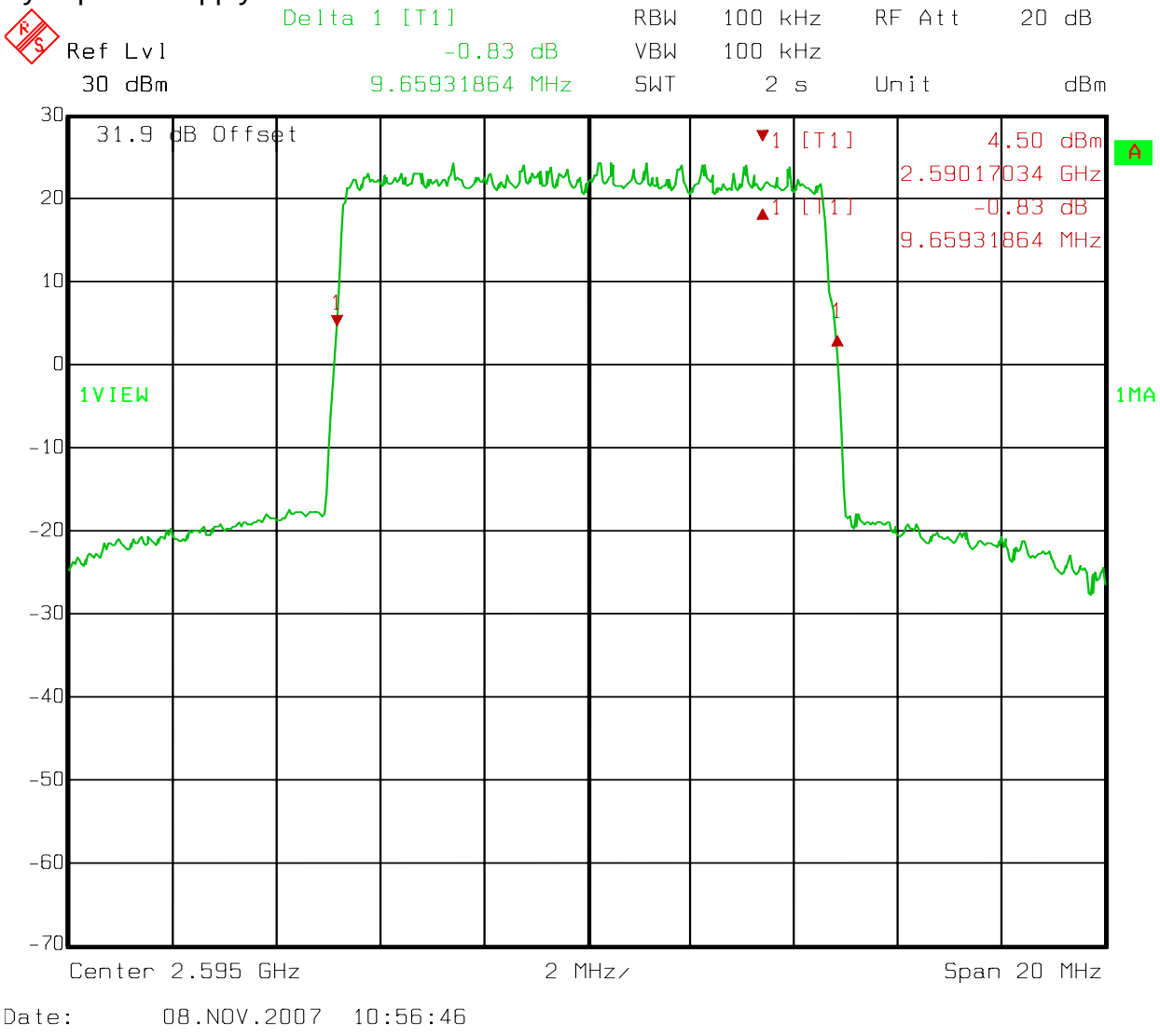
Test Data – 99% Occupied Bandwidth

Center Channel
5 MHz Carrier Bandwidth
Power One Supply



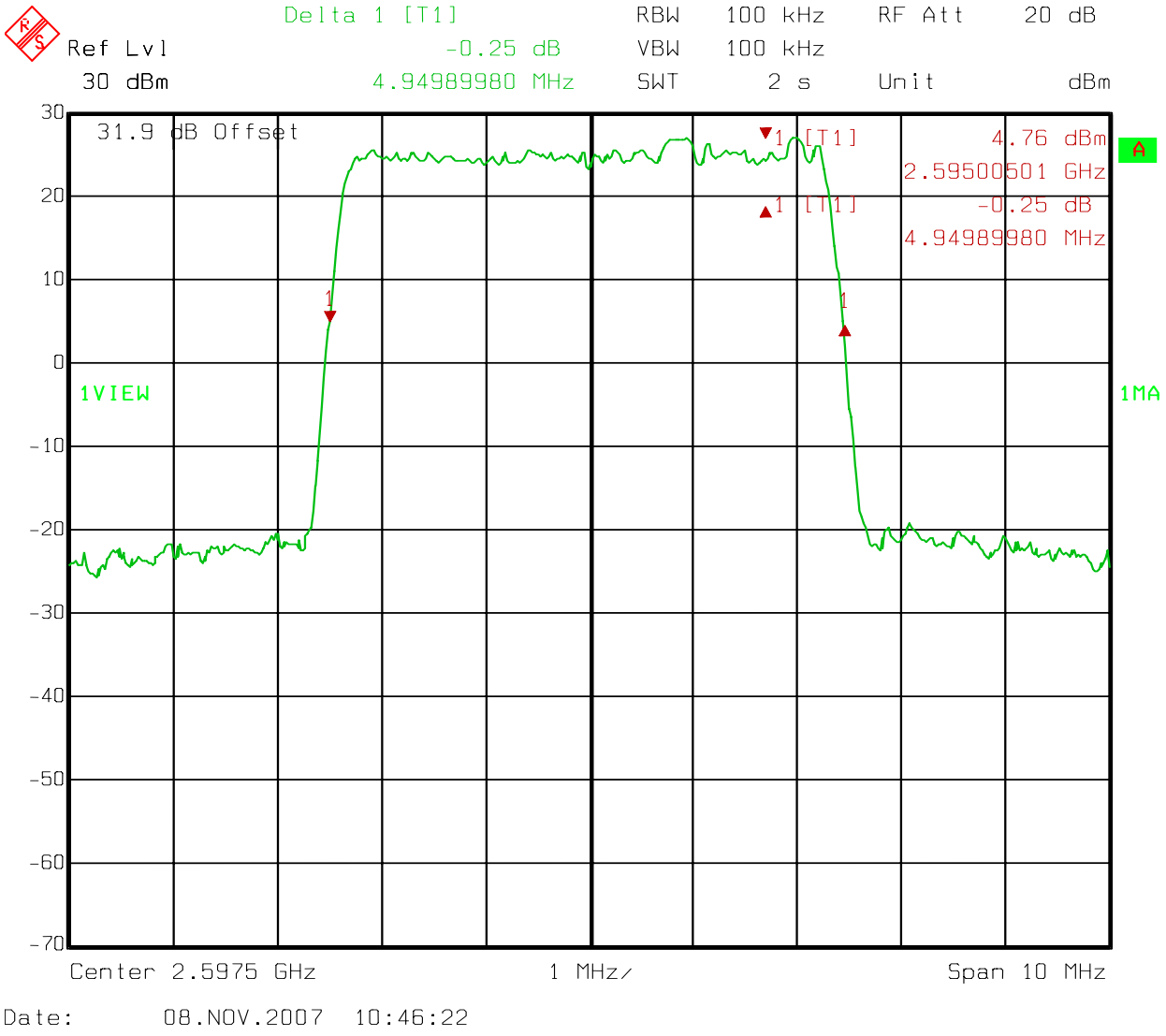
Test Data – 99% Occupied Bandwidth

Center Channel
10 MHz Carrier Bandwidth
Tyco power supply



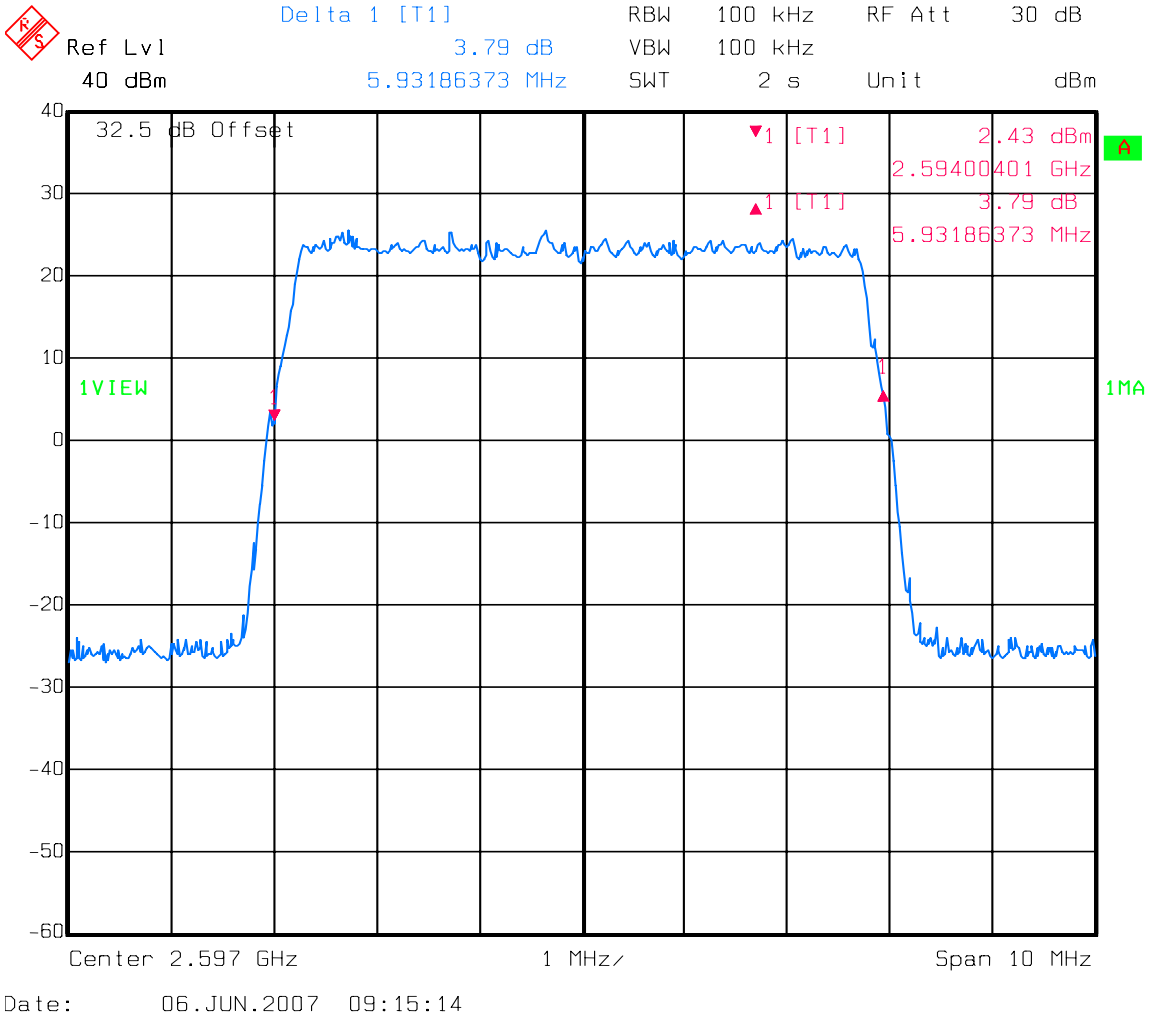
Test Data – 99% Occupied Bandwidth

Center Channel
5 MHz Carrier Bandwidth
Tyco power supply



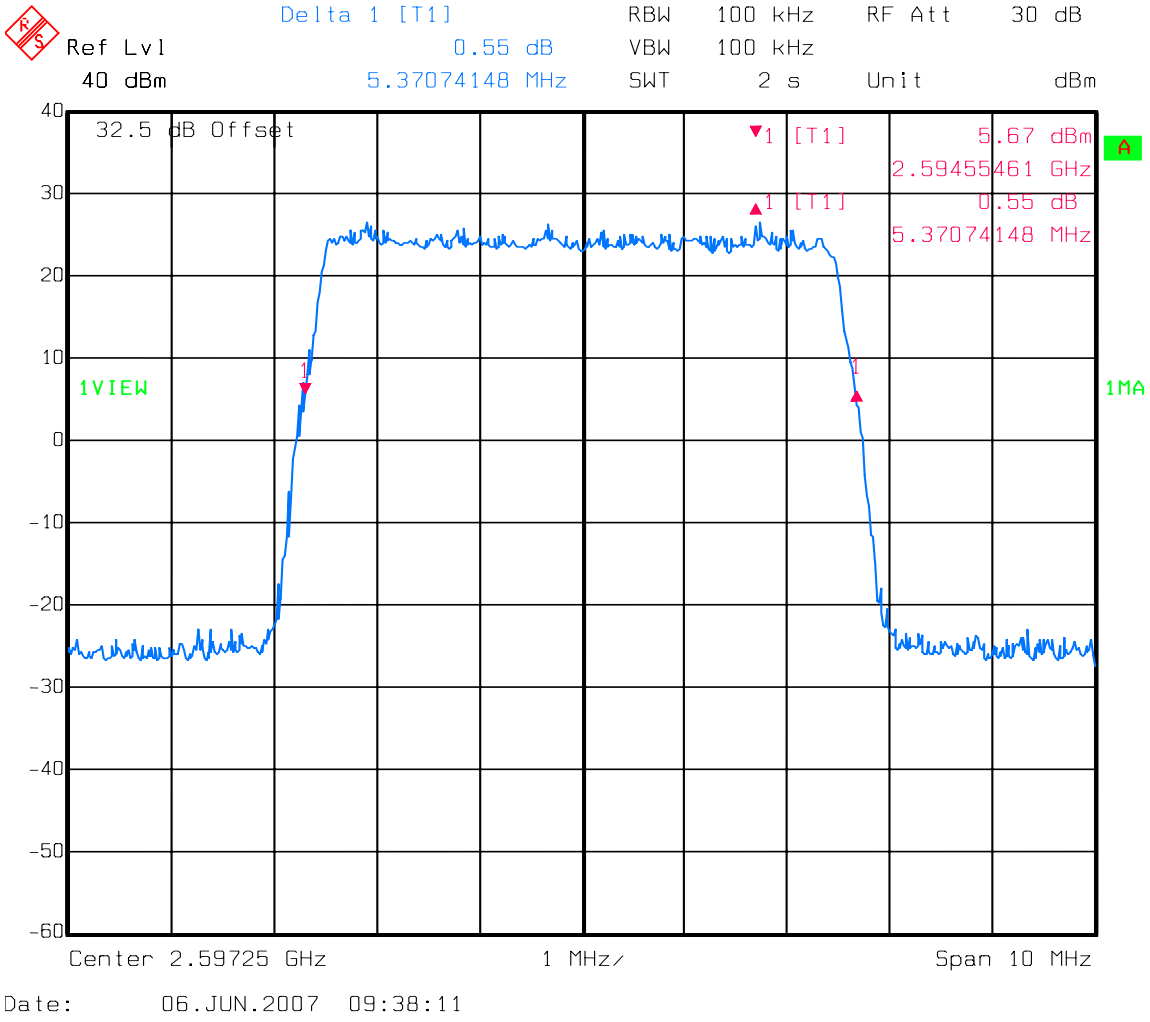
Test Data – 99% Occupied Bandwidth

6 MHz Carrier Bandwidth



Test Data – 99% Occupied Bandwidth

5.5 MHz Carrier Bandwidth



Section 5. Conducted Spurious Emissions

NAME OF TEST: Conducted Spurious Emissions	PARA. NO.: 2.1051
TESTED BY: David Light	DATE: 06 June 2007 & 08 November 2007

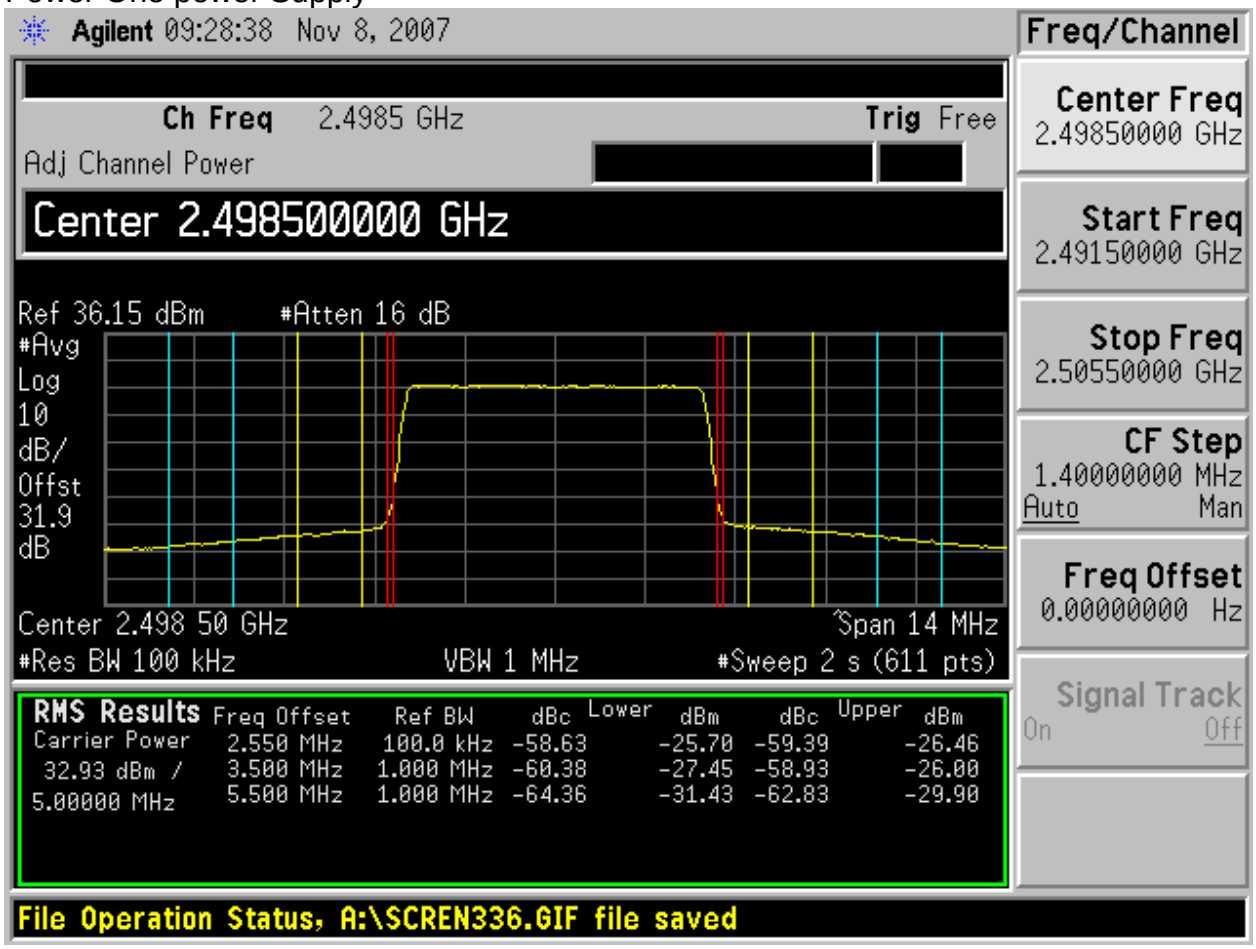
Test Results: Complies

Measurement Data: See attached plots.

Test Equipment: 1082-1064-1065-1036-Agilent E4440A Spectrum analyzer

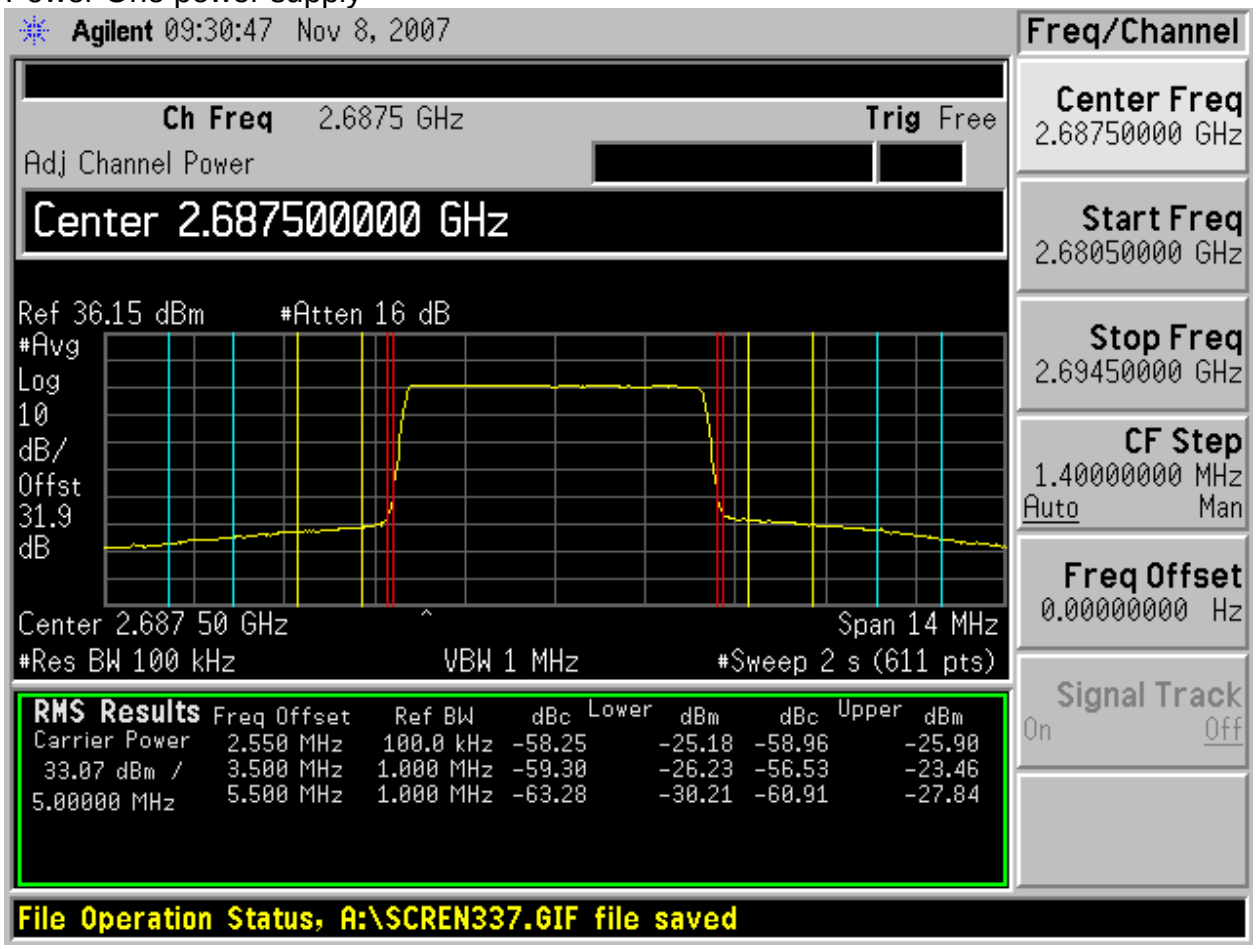
Test Data – Spurious Emissions at Antenna Terminals

Lower band edge 5 MHz carrier
Power One power Supply



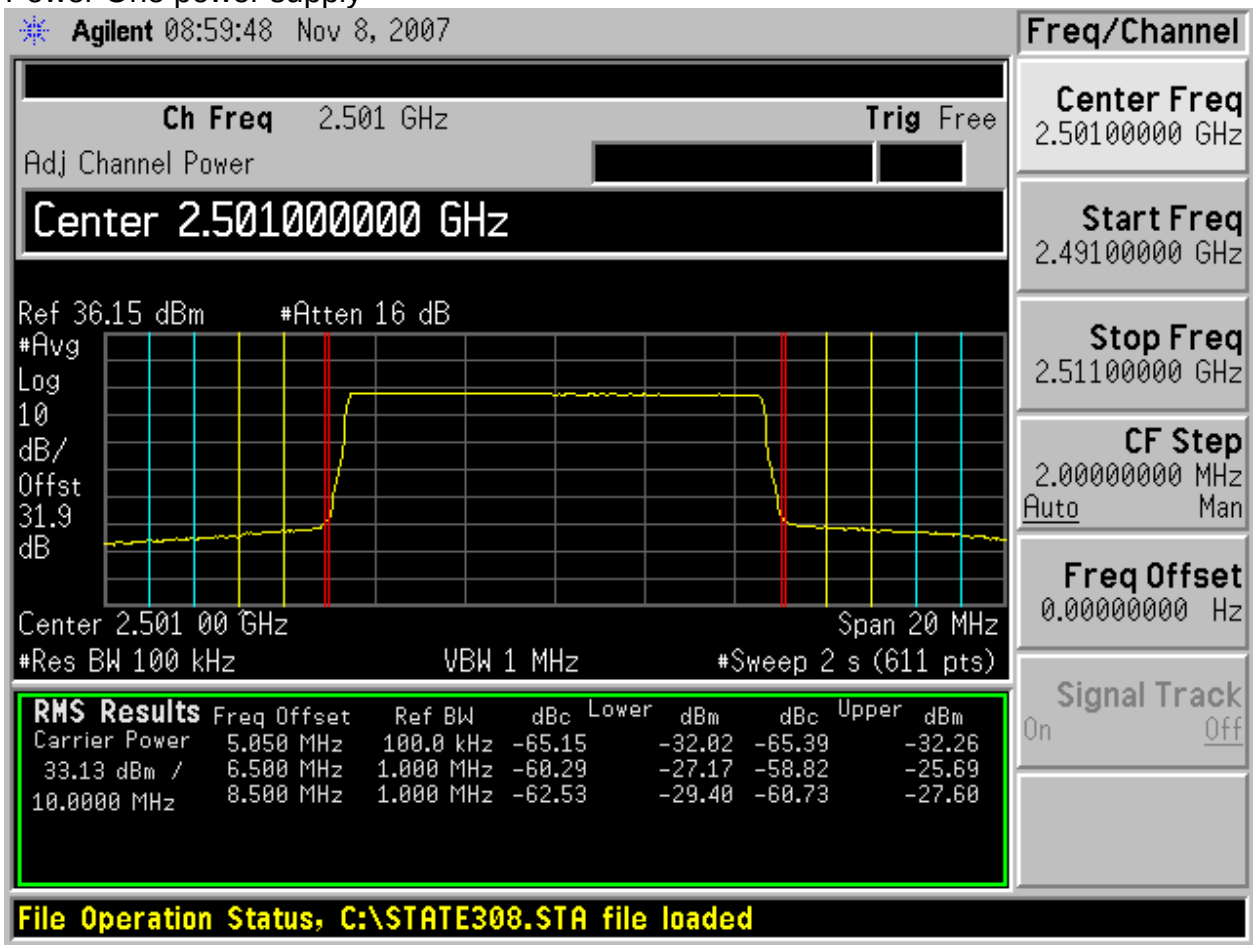
Test Data – Spurious Emissions at Antenna Terminals

Upper band edge 5 MHz Carrier
Power One power supply



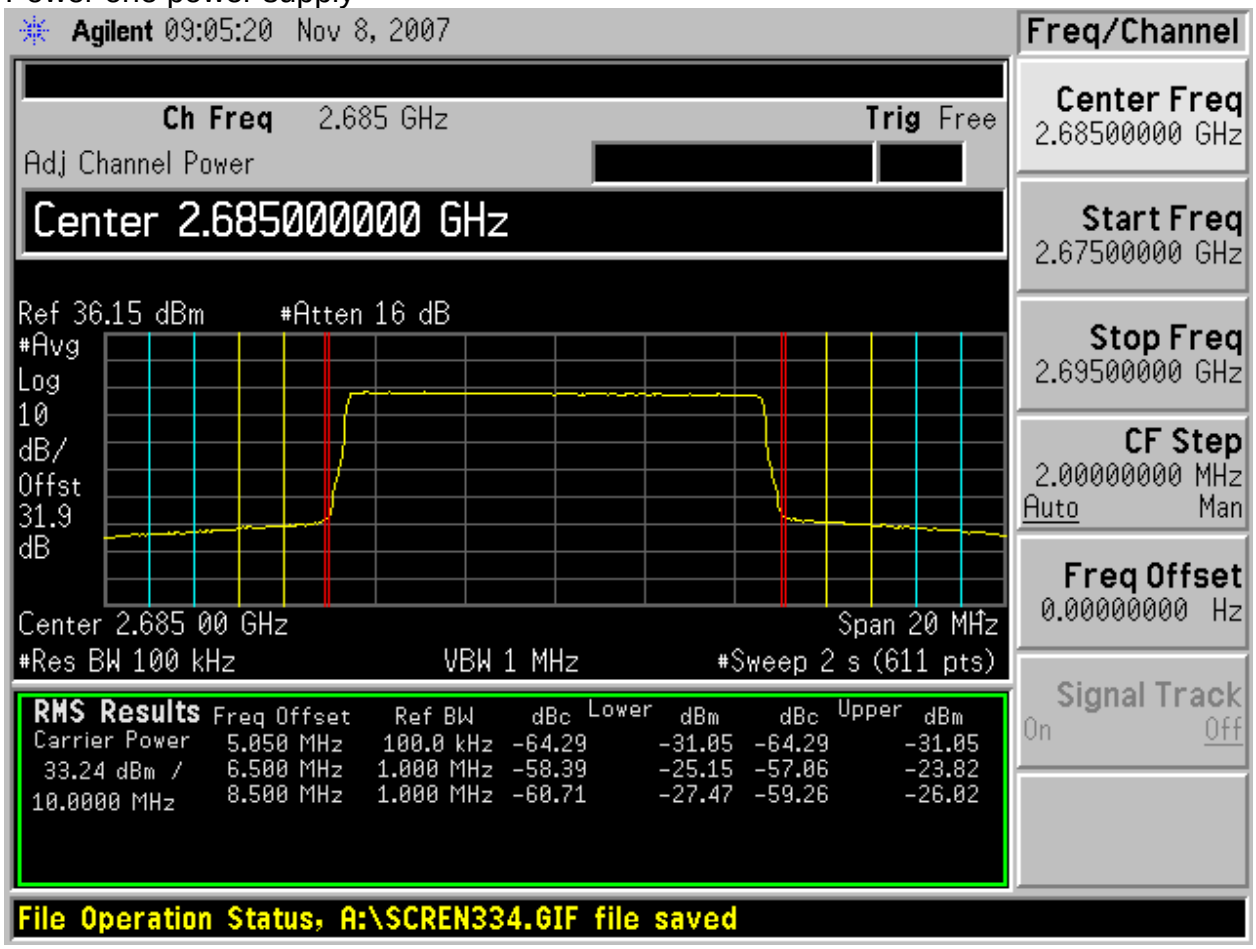
Test Data – Spurious Emissions at Antenna Terminals

Lower band edge 10 MHz carrier
Power One power supply



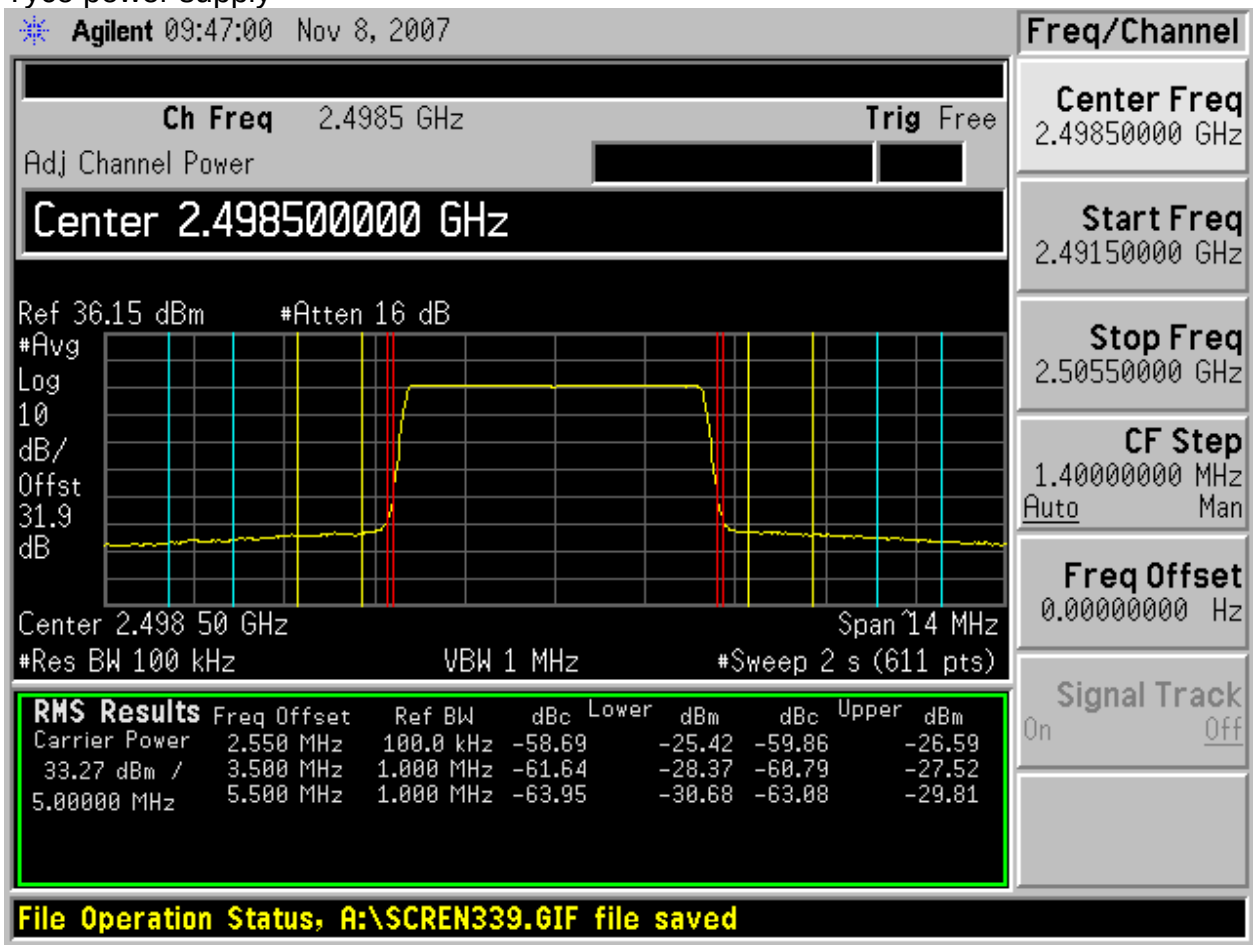
Test Data – Spurious Emissions at Antenna Terminals

Upper band edge 10 MHz carrier
Power one power supply



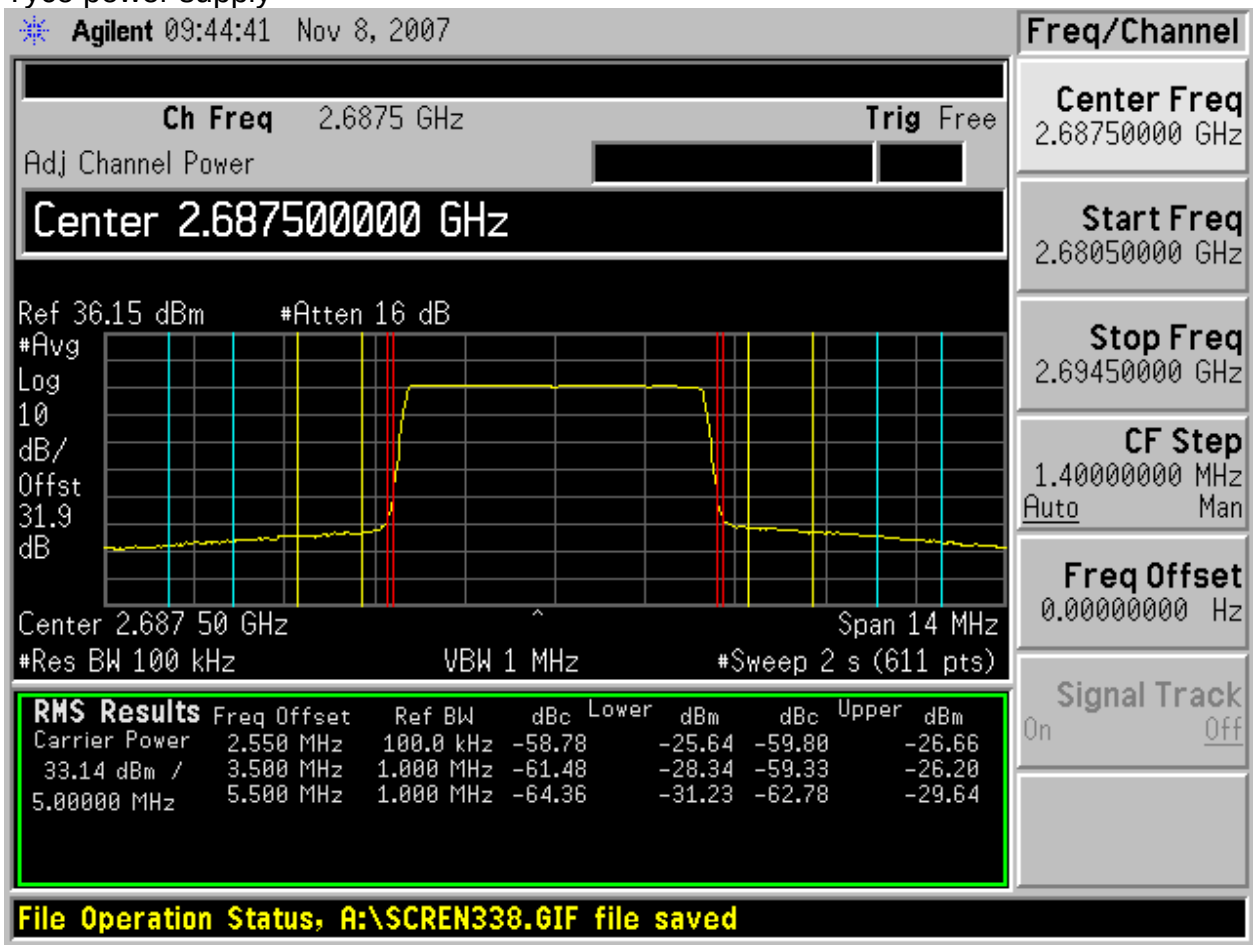
Test Data – Spurious Emissions at Antenna Terminals

Lower band edge 5 MHz carrier
Tyco power supply



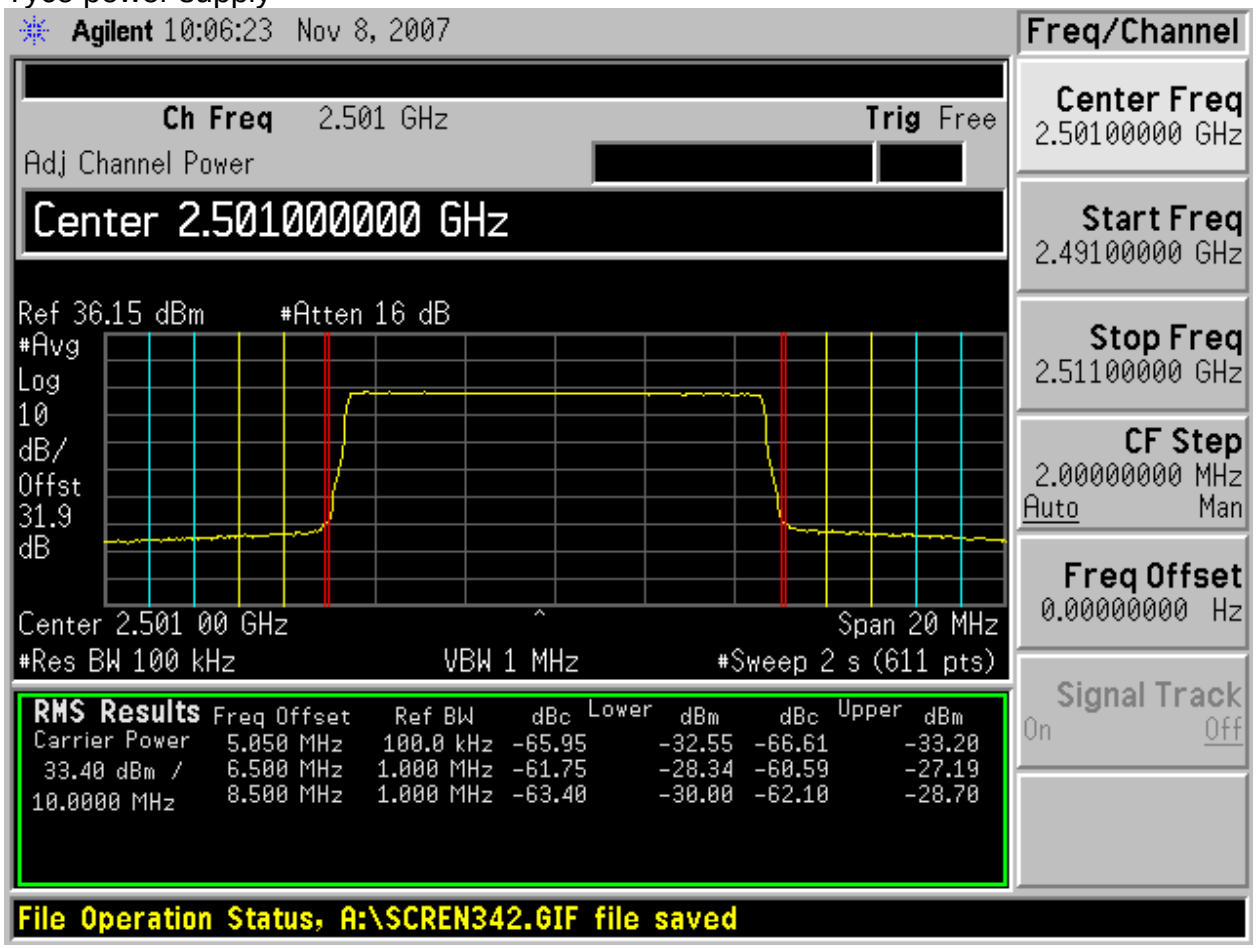
Test Data – Spurious Emissions at Antenna Terminals

Upper band edge 5 MHz carrier
Tyco power supply



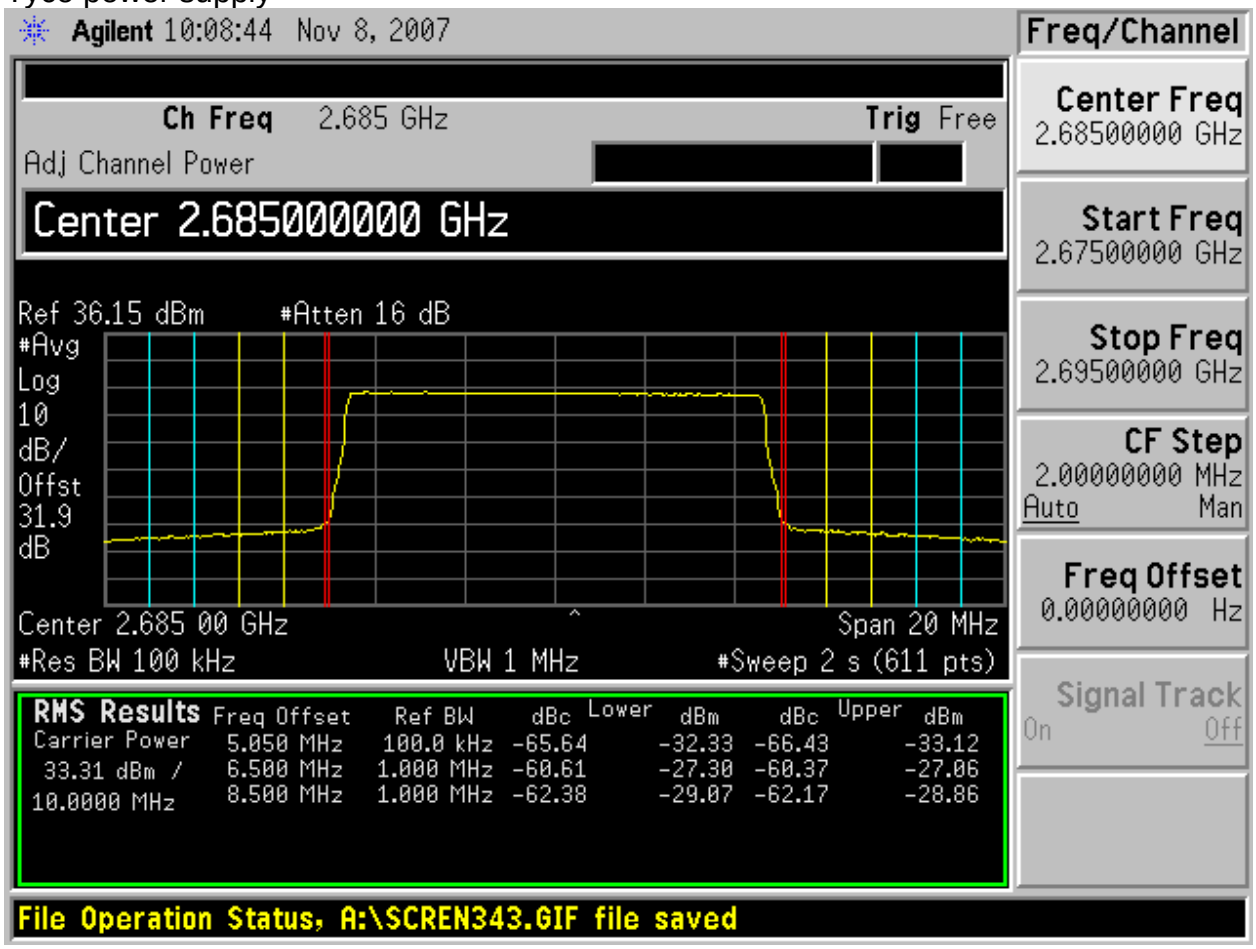
Test Data – Spurious Emissions at Antenna Terminals

Lower band edge 10 MHz Carrier
Tyco power supply



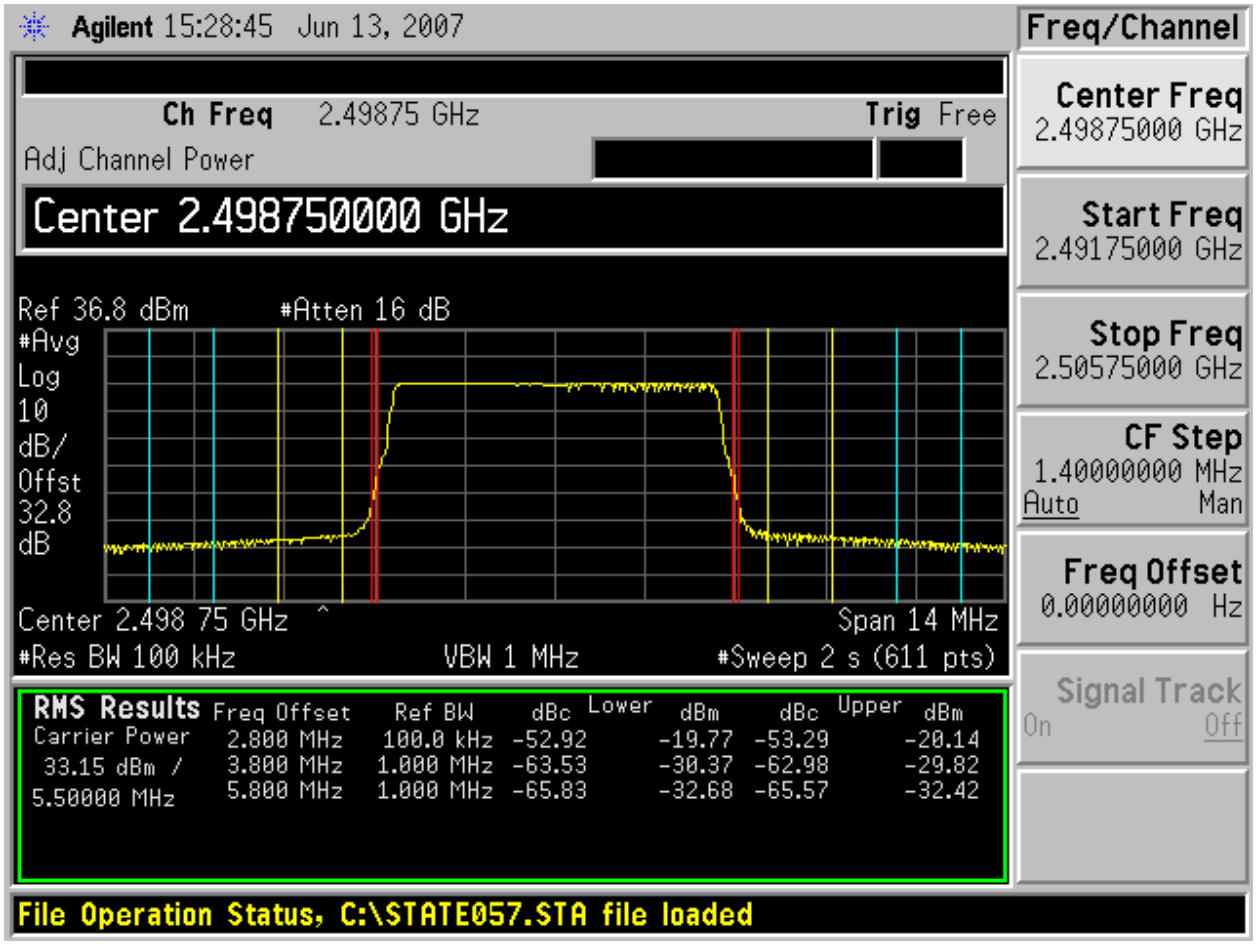
Test Data – Spurious Emissions at Antenna Terminals

Upper band edge 10 MHz carrier
Tyco power supply



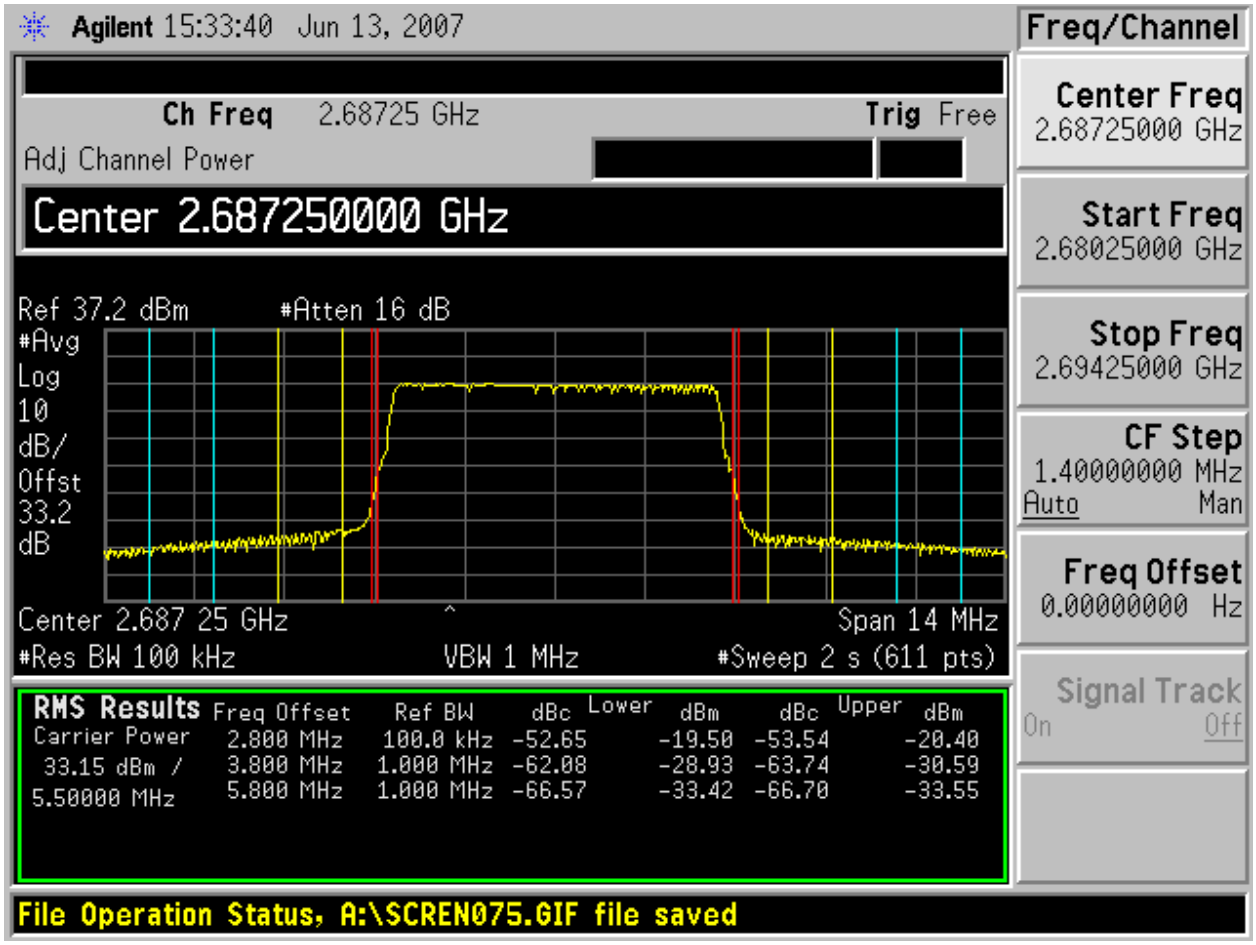
Test Data – Spurious Emissions at Antenna Terminals

Lower Bandedge
5.5 MHz Carrier Bandwidth



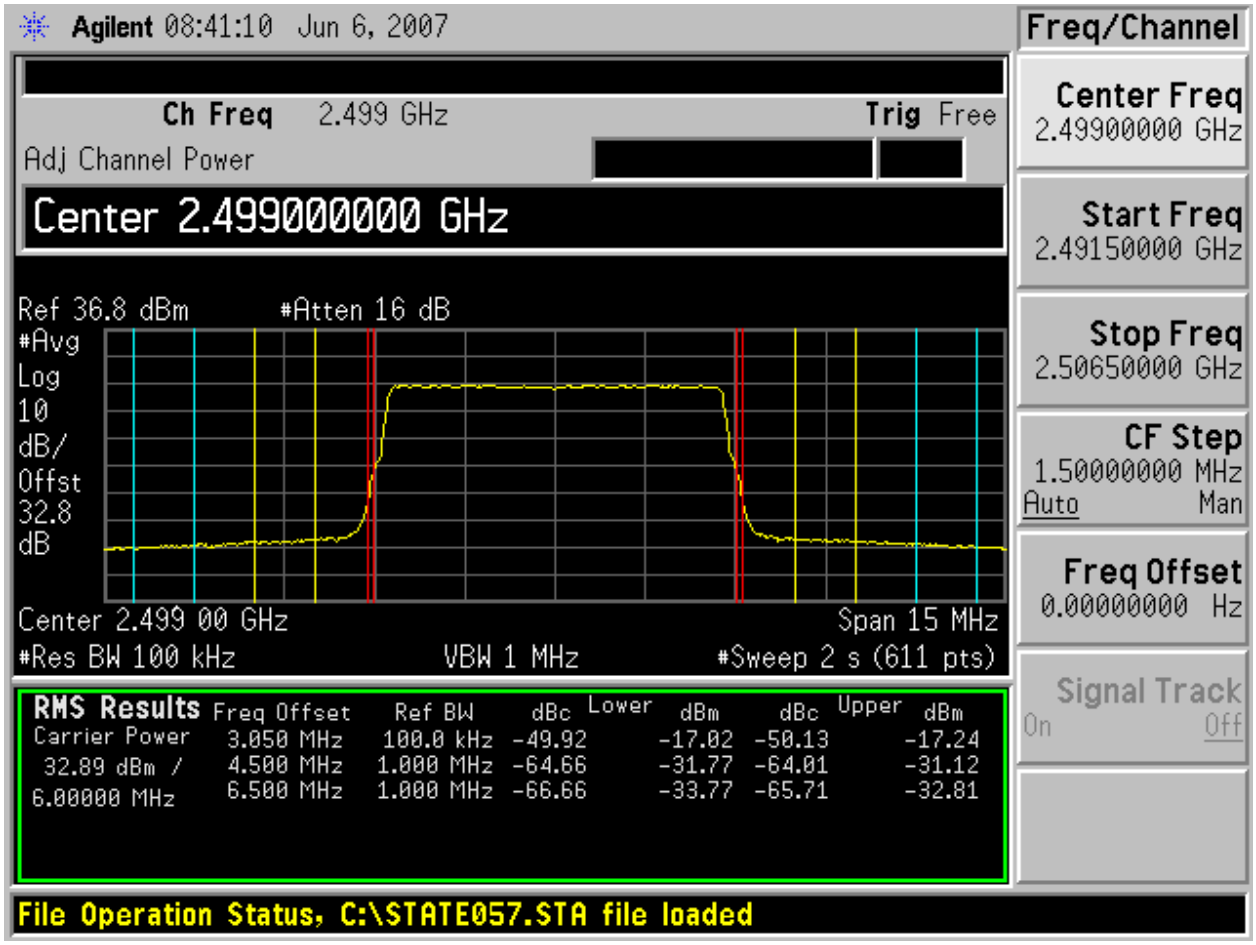
Test Data – Spurious Emissions at Antenna Terminals

Upper Bandedge
5.5 MHz Carrier Bandwidth



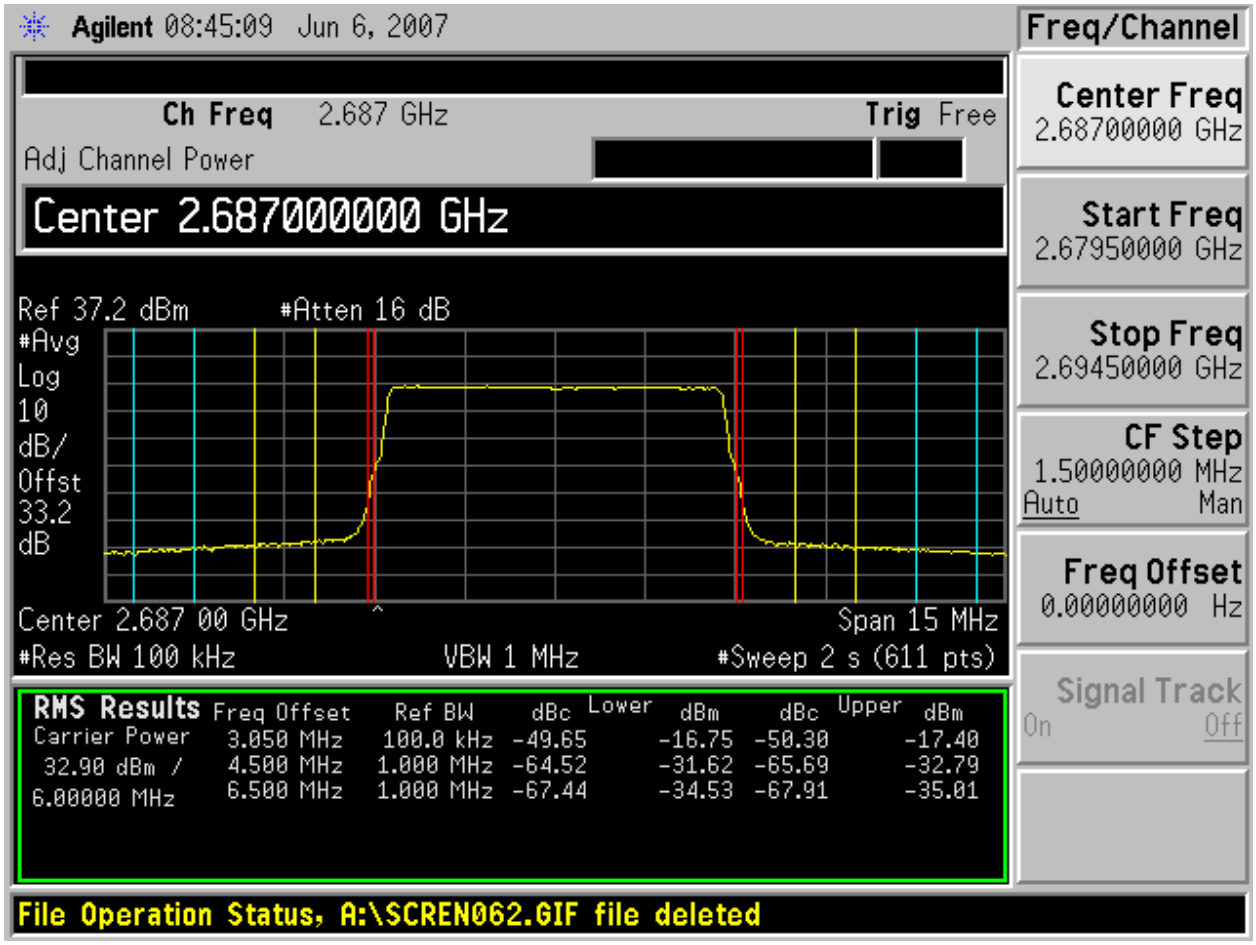
Test Data – Spurious Emissions at Antenna Terminals

Lower Bandedge
6 MHz Carrier Bandwidth



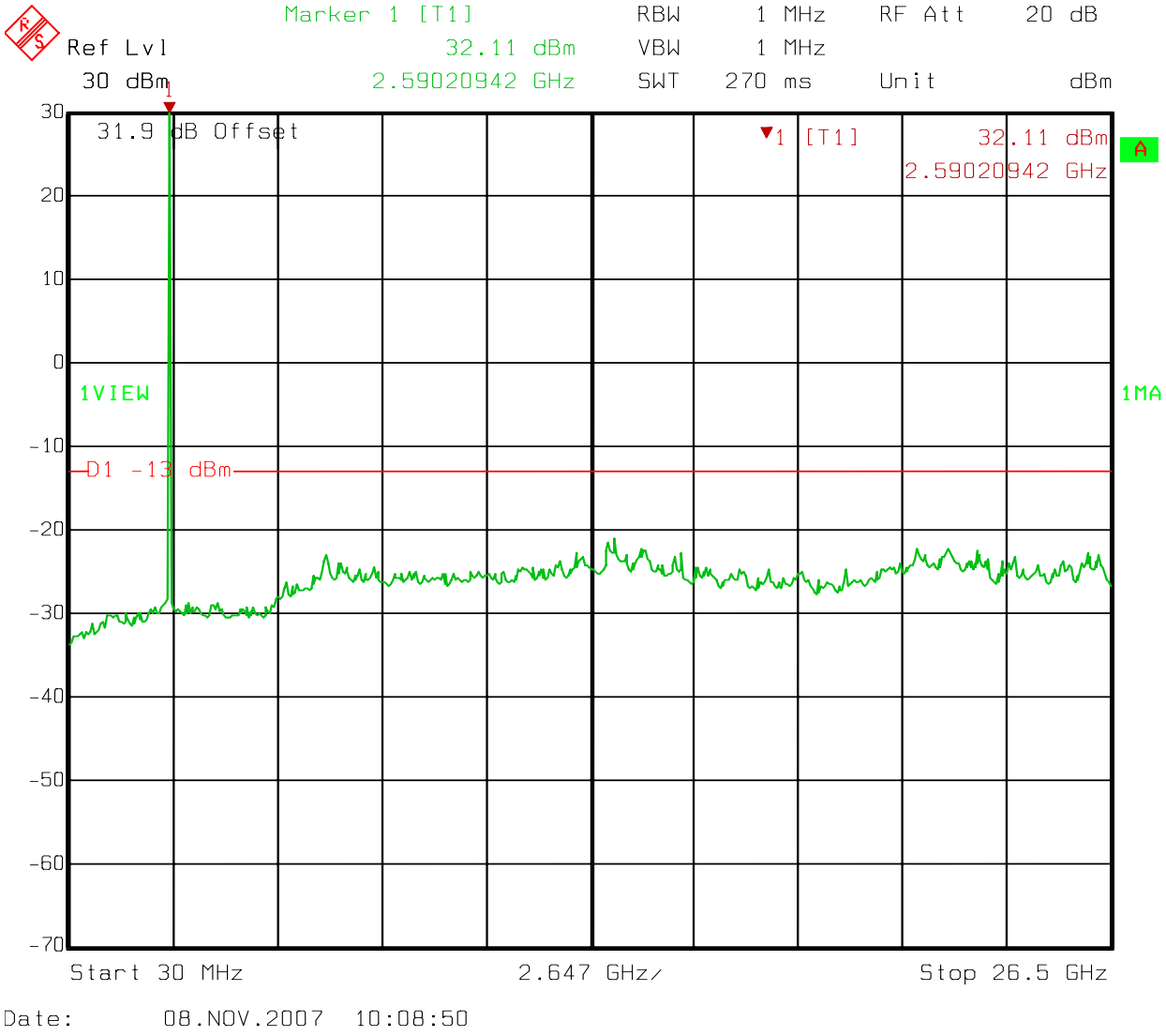
Test Data – Spurious Emissions at Antenna Terminals

Upper Bandedge
6 MHz Carrier Bandwidth



Test Data – Spurious Emissions at Antenna Terminals

Power One Supply
10 MHz carrier on center channel.



The spectrum was investigated on three channels and on all modulation widths. The noise floor data presented is representative of all conditions tested.

Section 6. Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious Emissions	PARA. NO.: 2.1053
TESTED BY: David Light	DATE: 06 June 2007 & 08 November 2007

Test Results: Complies.

Measurement Data: No Emissions were detected within 20db of the limit. All emissions within 20 dB of the specification limit are reported per 2.1057(c).

Test Equipment: 1484-1485-993-1016-791-759-760-1464

The spectrum was searched from 30 MHz to the 10^{th} harmonic of the carrier.

RBW = VBW =1 MHz, Peak detector

Section 7. Test Equipment List

Equipment list for data taken June 6, 2007

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	05/26/06	05/26/08
1082	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A	CBU	N/A
1064	ATTENUATOR	NARDA 776B-20	NONE	CBU	N/A
1065	ATTENUATOR	NARDA 776B-10	NONE	CBU	N/A
1484	Cable	Storm PR90-010-072	N/A	05/02/07	05/01/08
1485	Cable	Storm PR90-010-216	N/A	05/02/07	05/01/08
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/24/07	01/24/09
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/01/05	08/02/07
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	05/01/07	04/30/08
791	PREAMP, 25dB	Nemko USA, Inc. LNA25	398	05/01/07	04/30/08
759	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	03/30/07	03/29/08
1479	Bi Conical Antenna 20-330 Mhz	A. H. Systems SAS-200/540	496	07/27/06	07/27/07
Motorola	PSA Series Spectrum Analyzer	Agilent E4440A	US45303133	01/26/07	01/26/08

Equipment list for data taken November 8, 2007

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	05/26/06	05/26/08
1082	CABLE 2m	Astrolab 32027-2-29094-72TC	N/A	CBU	N/A
1064	ATTENUATOR	NARDA 776B-20	NONE	CBU	N/A
1065	ATTENUATOR	NARDA 776B-10	NONE	CBU	N/A
1484	Cable	Storm PR90-010-072	N/A	05/02/07	05/01/08
1485	Cable	Storm PR90-010-216	N/A	05/02/07	05/01/08
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/24/07	01/24/09
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/31/07	08/31/09
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	05/01/07	04/30/08
791	PREAMP, 25dB	Nemko USA, Inc. LNA25	398	05/01/07	04/30/08
759	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	03/30/07	03/29/08
760	Antenna biconical	Electro Metrics MFC-25	477	01/19/07	01/19/08
Motorola	PSA Series Spectrum Analyzer	Agilent E4440A	US45303133	01/26/07	01/26/08

ANNEX A - TEST DETAILS

NAME OF TEST: RF Power Output	**PARA. NO.: 2.1046**

Method Of Measurement:

Antenna Conducted:
The AVG power at antenna terminals is measured using a Spectrum Analyzer or Power Meter. Power output is measured with the maximum rated input level.

E.I.R.P.:
If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts
E = the maximum measured field strength in V/m
R = the measurement range (3 meters)
G = the numeric gain of the transmit antenna in relation to an isotropic radiator

NAME OF TEST: Occupied Bandwidth	**PARA. NO.: 2.1049**

Method Of Measurement:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of at least 1% of the bandwidth of the transmitted signal. The resolution bandwidth is chosen so as not to reduce the peak level of the measured waveform.

The appropriate bandwidth mask is applied to the output waveform to verify compliance.

NAME OF TEST: Spurious Emission at Antenna Terminals PARA. NO.: 2.1051

Antenna Conducted:

A portion of the transmitted signal is coupled to a Spectrum Analyzer with a resolution bandwidth of =>1 MHz for emissions above 1 GHz. Below 1 GHz the resolution bandwidth is chosen so as not to reduce the peak level of the measured waveform.

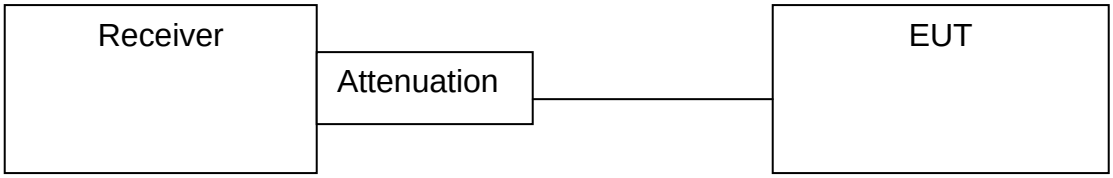
The appropriate limit line is applied to the output waveform to verify compliance.

NAME OF TEST: Field Strength of Spurious Radiation PARA. NO.: 2.1053

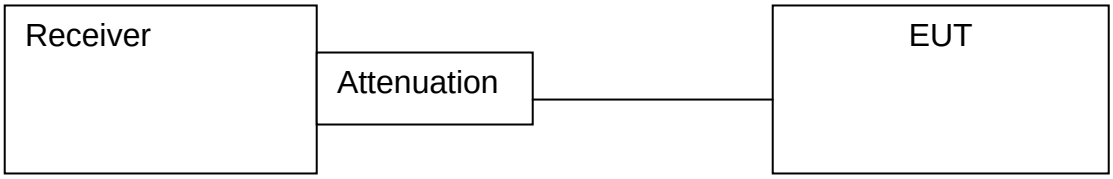
The antenna substitution method was used to determine the equivalent radiated power at spurious frequencies. The spurious emissions were measured at a distance of 3 meters. The EUT was then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna was fed with a signal at the spurious frequency. The level of the signal was adjusted to repeat the previously measured level. The resulting erp is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

ANNEX B - TEST DIAGRAMS

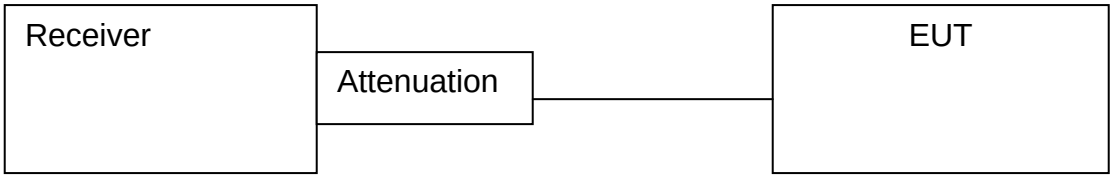
Para. No. 2.1046 - R.F. Power Output



Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Radiation