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CERTIFICATION TEST REPORT
Class II Permissive Change

PART 15.247C
IC RSS-210

For The Wireless Exit Controller
Model: WDC

FCC ID: WEF-WDC
IC: 7713A-WDC

PREPARED FOR:

Stanley Security Solutions
6161 E. 75th Street
Indianapolis, IN 46250

Prepared on: October 22, 2009

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DOCUMENT HISTORY

REVISION	DATE	COMMENTS
-	October 22, 2009	Prepared By: Alan Laudani
-	October 22, 2009	Initial Release: Alan Laudani

NOTE: Nemko USA, Inc. hereby makes the following statements so as to conform to Chapter 10 (Test Reports) Requirements of ANSI C63.4 (2003) "Methods and Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz":

- The unit described in this report was received at Nemko USA, Inc.'s facilities on September 28, 2009.
- Testing was performed on the unit described in this report on October 5, 2009 to October 21, 2009
- The Test Results reported herein apply only to the Unit actually tested, and to substantially identical Units.
- This report does not imply the endorsement of the Federal Communications Commission (FCC), Industry Canada, NVLAP or any other government agency.

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CERTIFICATION

Nemko USA, Inc., an independent Electromagnetic Compatibility (EMC) Test Laboratory, produced this Test Report and performed the Radio Frequency Interference (RFI) testing and data evaluation contained herein.

Nemko USA, Inc.'s measurement facility is currently registered with the United States Federal Communications Commission (FCC) in accordance with the provisions of 47 United States Code (CFR) Part 2, Subpart I, Section 2.948(a). A current description of Nemko USA, Inc.'s measurement facility is on file with the FCC. Nemko USA Inc. has additionally satisfied the FCC that it complies with the requirements set forth in 47 CFR Part 2, Subpart I, Section 2.948(d) regarding the accreditation of EMC laboratories.

The RFI testing, test data collection and test data evaluation were accomplished in accordance with the ANSI C63.4–2003 Standard, and in accordance with the applicable sections of the FCC rules (47 CFR Parts 2 and 15). The testing was also accomplished in accordance with Industry Canada's ICES-003 standard for unintentional radiating device per EMCAB-3, Issue 3 (May 1998). The administrative summary of this test report provides a description of the test sample.

I hereby certify that the test data, test data evaluation, and equipment configurations used to compile this test report are a true and accurate representation of the test sample's radio frequency interference characteristics as of the test date(s), and, for the design of the test sample.

Alan Laudani
EMC Engineer

1. ADMINISTRATIVE DATA AND TEST SUMMARY

1.1. Administrative Data

CLIENT:	Stanley Security Solutions 6161 E. 75th Street Indianapolis, IN 46250
CONTACT: E-Mail:	Troy Brown tbrown2@stanleyworks.com
DATE (S) OF TEST:	October 5, 2009 to October 21, 2009
EQUIPMENT UNDER TEST (EUT):	Wireless Exit Controller
MODEL: Serial Number:	WDC NA
CONDITION UPON RECEIPT:	Suitable for Test
TEST SPECIFICATION:	FCC, Part 15.247, Subpart C Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz bands and RSS 210 (Issue 7, June 2007) Annex 8 - Frequency Hopping and Digital Modulation Systems Operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

1.2. Test Summary

Class II Permissive change to qualify this product using less RF shielding.
Power was reduced to meet bandedge emissions.

Specification	***Frequency Range***	***Compliance Status***
FCC, CFR 47, Section 15.207	0.15 MHz - 30.00 MHz	NA[1]
FCC, CFR 47, Section 15.209	30 MHz – 10th Harmonic	PASS[2]
FCC CFR 47, §15.247 Plus Bandedge	2405– 2480 MHz	PASS
RSS-210 - Low Power License Exempt Radio-communication Devices (All Frequency Bands)	2405– 2480 MHz	PASS

[1]Conductive emissions were not required as this was a battery powered device.
[2]Testing was started at 30 MHz as there are no RF signals generated below this frequency.
Refer to the test results section for further details.

2. SYSTEM CONFIGURATION

2.1. Description and Method of Exercising the EUT

The WDC is a Wireless Exit Controller. Its function is to control the security of a doorway and open the door's lock. The EUT was exercised by putting the transmitter into continuous transmit mode on a selected channel. In normal functioning of the device, transmitting does not occur until the keyboard is operated or a interrogating signal from the security system's radio polls for status of the lock..

2.2. System Components and Power Cables

DEVICE	MANUFACTURER MODEL # SERIAL #	POWER CABLE
EUT - Wireless Exit Controller	Stanley Security Solutions Model: WDC Serial #: NA	

2.3. Device Interconnection and I/O Cables

Connection	I/O Cable
No Connections	

2.4. Design Modifications for Compliance

The following design modifications were made to the EUT during testing.

No design modifications were made to the EUT during testing.

2.5. Technical Specifications of the EUT

Manufacturer: Stanley Security Solutions

Operating Frequencies And **Radiated Field Strength**		**Rated Output Power: (Corrected for Ant. Gain)**
2405-2465 MHz:	111.8 dBuV/m @ 3m	14 mW
2470-2470 MHz:	107.9 dBuV/m @ 3m	5.6 mW
2475-2475 MHz:	105.1 dBuV/m @ 3m	3.0 mW
2480-2480 MHz:	89.5 dBuV/m @ 3m	0.08 mW

Modulation: Digital

Antenna: Internal to enclosure: Southwest Antennas PN 1055-036 — Gain 5 dBi

Antenna Conne Internal from radio board to antenna –cannot be accessed by user

Power Source: (4) 1.5 V AA batteries in series

3. DESCRIPTION OF TEST SITE AND ENVIRONMENT

3.1. Description of Test Site

The test site is located at 11696 Sorrento Valley Road, Suite F, San Diego, CA 92121. The site is physically located 18 miles Northwest of downtown San Diego. The general area is a valley 1.5 miles east of the Pacific Ocean. This particular part of the valley tends to minimize ambient levels, i.e. radio and TV broadcast stations and land mobile communications. The three and ten-meter Open Area Test Site (OATS) is located behind the office/lab building. It conforms to the normalized site attenuation limits and construction specifications as set in the EN 55022 (1987), CISPR 16 and 22 (1985) and ANSI C63.4-2001 documents. The OATS normalized site attenuation characteristics are verified for compliance every year, and registered with the Federal Communications Commission under Registration Number 90579 and Industry Canada under 2040B-1 and 2040B-2.

3.2. Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	18.8 – 25 ^{O}C
Humidity range	:	52 - 93%
Pressure range	:	87 - 105 kPa
Power supply range	:	Fresh batteries

4. DESCRIPTION OF TESTING METHODS

4.1. Introduction

As required in 47 CFR, Parts 2 and 15, the methods employed to test the radiated and conducted emissions (as applicable) of the EUT are those contained within the American National Standards Institute (ANSI) document ANSI C63.4–2003, titled "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz." All applicable FCC Rule Sections that provide further guidance for performance of such testing are also observed.

For General Test Configuration please refer to Figure 1 on the following page.

Digital devices sold in Canada are required to comply with the Interference Causing Equipment Standard for Digital Apparatus, ICES-003. These test methods and limits are specified in the Canadian Standards Association's (CSA) Standard C108.8-M1983 (1-1-94 version) and are "essentially equivalent" with FCC, Part 15 and CISPR 22 (EN55022) rules for unintentional radiators per EMCAB-3, Issue 3 (May 1998). No further testing is required for compliance to ICES-003.

4.2. Configuration and Methods of Measurements for Conducted Emissions

Section 7 of ANSI C63.4 determines the general configuration of the EUT and associated equipment, as well as the test platform for conducted emissions testing. Tabletop devices are placed on a non-conducting surface 80 centimeters above the ground plane floor and 40 centimeters from the ground plane wall. The EUT and associated system are configured to operate continuously, representing a "normally operating" mode. The EUT is powered via a Line Impedance Stabilization Network (LISN). The emissions are recorded using the required bandwidth of 9 kHz in the quasi-peak mode. The average amplitude is also observed employing a 10 kHz bandwidth to determine the presence of broadband RFI. When such interference is caused by broadband sources (as defined by the FCC and ANSI Rules), the deviation guidelines contained in Section 11.3.1 of ANSI C63.4 are employed, which allows a correction factor of 13 dB to be subtracted from the quasi-peak reading. The emission levels are then compared to the applicable FCC limits to determine compliance.

4.3. Configuration and Methods of Measurements for Frequency Identification

When performing all testing of equipment, the actual emissions of the EUT are segregated from ambient signals present within the laboratory or the open-field test range. Preliminary testing is performed to ensure that ambient signals are sufficiently low to allow for proper observation of the emissions from the EUT. Incoming power lines are filtered using a 120 dB, 30-ampere; 115/208-volt filter to assist in reducing ambient signals for tests of levels of conducted emissions. Ambients within the laboratory are compared to those noted at the nearby open-field site to discriminate between signals produced from the EUT and ambient signals. In the event that a significant emission is produced by the EUT at a frequency which is also demonstrating significant ambient signals, the spectrum analyzer is placed in the peak mode, the bandwidth is narrowed, the EUT's signal is centered on the analyzer, the scan width is expanded to 50 kHz while monitoring the audio to ensure that only the EUT signal is present, the analyzer is switched to quasi-peak mode, and the level of the EUT signal is recorded.

4.4. Configuration and Methods of Measurements for Radiated Emissions

Section 8 of ANSI C63.4 determines the general configuration and procedures for measuring the radiated emissions of equipment under test. Initially, the primary emission frequencies are identified inside the test lab by positioning a broadband receive antenna one meter from the EUT to locate frequencies of significant radiation. Next, the EUT and associated system are placed on a turntable on a ten meter open area test site (registered with the FCC in accord with its Rules and ANSI C63.4) and the receive antenna is located at a distance of ten meters from the EUT.

The EUT and associated system are configured to operate continuously, representing a "normally operating" mode. All significant radiated emissions are recorded when maximum radiation on each frequency is observed, in accordance with part 8 of ANSI C63.4–2003 and Section 15.33 of the FCC Rules. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to horizontal and vertical polarities, and the turntable is also rotated to determine the worst emitting configuration. The numerical results of the test are included herein to demonstrate compliance.

The numerical results that are applied to the emissions limits are arrived at by the following method:
Example: A=RR+CL+AF
A = Amplitude dBuV/m
RR = Receiver Reading dBuV
CL = cable loss dB
AF = antenna factor dB/m

Example Frequency = 110MHz
18.5 dBuV (spectrum analyzer reading)
+3.0 dB (cable loss @ frequency)
21.5 dBuV
+15.4 dB/m (antenna factor @ frequency)
36.9 dBuV/m Final adjusted value

The final adjusted value is then compared to the appropriate emission limit to determine compliance.

5. Test Results

5.1. Out-of-band Emissions / Radiated Emissions within Restricted Bands

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

Frequency (MHz)	Field Strength (uV/meter)	Measurement Distance (meter)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Sec. 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a) (see Sec. 15.205(c)).

A8.5 Out-of-band Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

Radiated Emissions Data

Job # : 32378-1 Date : 10-21-09 Page 1 of 1
NEX #: 110482 Time : 1410
Staff : AAL

Client Name : Stanley Security Solutions
EUT Name : Wireless Lock
EUT Model # : WDC
EUT Serial # : NA
EUT Config. : Transmitting, modulated, test mode

EUT Voltage : BATT
EUT Frequency :
Phase:
NOATS
SOATS X
Distance < 1000 MHz: 3 m
Distance > 1000 MHz: 3 m

Specification : CFR47 Part 15, Subpart B, Class B
Loop Ant. #: NA
Bicon Ant.#: NA Temp. (°C) : 26
Log Ant.#: NA Humidity (%) : 41
DRG Ant. # 877 Spec Analyzer #: 835
Cable LF#: SOATS Analyzer Display #: 835
Cable HF#: 40ft_blue Quasi-Peak Detector #: NA
Preamp LF#: NA Preselector #: NA
Preamp HF# 317

Quasi-Peak	RBW:	120 kHz
	Video Bandwidth	300 kHz
Peak	RBW:	1 MHz
	Video Bandwidth	3 MHz
Average	RBW:	1 MHz
	Video Bandwidth	10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.
Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
2400.0	30.4	23.7	P	-	1.0	30.4	66.4	91.8	-25.4	Pass	100 kHz BW
2400.0	18.7	12.3	A	-	1.0	18.7	54.7	89.5	-34.8	Pass	
2405.0	75.8	71.0	P	-	1.0	75.8	111.8	125.0	-13.2	Pass	Full power
2405.0	73.5	68.6	A	-	1.0	73.5	109.5	125.0	-15.5	Pass	15
4810.0	49.7	50.6	P	-	1.0	50.6	61.4	74.0	-12.5	Pass	
4810.0	37.7	38.9	A	-	1.0	38.9	49.7	54.0	-4.2	Pass	
2445.0	74.7	70.5	P	-	1.0	74.7	110.7	125.0	-14.3	Pass	Full power
2445.0	72.6	68.1	A	-	1.0	72.6	108.6	125.0	-16.4	Pass	15
4890.0	49.2	49.0	P	-	1.0	49.2	60.0	74.0	-13.9	Pass	
4890.0	37.2	36.9	A	-	1.0	37.2	48.0	54.0	-5.9	Pass	
2465.0	74.4	69.1	P	-	1.0	74.4	110.4	125.0	-14.6	Pass	Full power
2465.0	72.1	67.0	A	-	1.0	72.1	108.1	125.0	-16.9	Pass	15
2483.5	28.4	26.7	P	-	1.0	28.4	64.4	74.0	-9.6	Pass	
2483.5	15.6	14.3	A	-	1.0	15.6	51.6	54.0	-2.4	Pass	
4930.0	50.2	47.5	P	-	1.0	50.2	61.1	74.0	-12.9	Pass	
4930.0	37.8	33.6	A	-	1.0	37.8	48.7	54.0	-5.3	Pass	
2470.0	71.9	69.7	P	-	1.0	71.9	107.9	125.0	-17.1	Pass	Reduced power
2470.0	70.2	67.3	A	-	1.0	70.2	106.2	125.0	-18.8	Pass	11
2483.5	29.8	27.5	P	-	1.0	29.8	65.8	74.0	-8.2	Pass	
2483.5	17.2	16.2	A	-	1.0	17.2	53.2	54.0	-0.8	Pass	
4940.0	47.6	47.4	P	-	1.0	47.6	58.5	74.0	-15.5	Pass	
4940.0	36.4	33.8	A	-	1.0	36.4	47.3	54.0	-6.7	Pass	
2475.0	69.1	61.6	P	-	1.0	69.1	105.1	125.0	-19.9	Pass	next highest
2475.0	66.7	59.0	A	-	1.0	66.7	102.7	125.0	-22.3	Pass	frequency
2483.5	30.7	27.5	P	-	1.0	30.7	66.7	74.0	-7.3	Pass	Reduced power
2483.5	17.5	14.3	A	-	1.0	17.5	53.5	54.0	-0.5	Pass	to meet band
											edge 8
2480.0	53.5	47.9	P	-	1.0	53.5	89.5	125.0	-35.5	Pass	Reduced power
2480.0	50.9	45.3	A	-	1.0	50.9	86.9	125.0	-38.1	Pass	to meet band
2483.5	30.4	26.5	P	-	1.0	30.4	66.4	74.0	-7.6	Pass	edge 2
2483.5	17.8	15.1	A	-	1.0	17.8	53.8	54.0	-0.2	Pass	

Test Results: EUT complies.

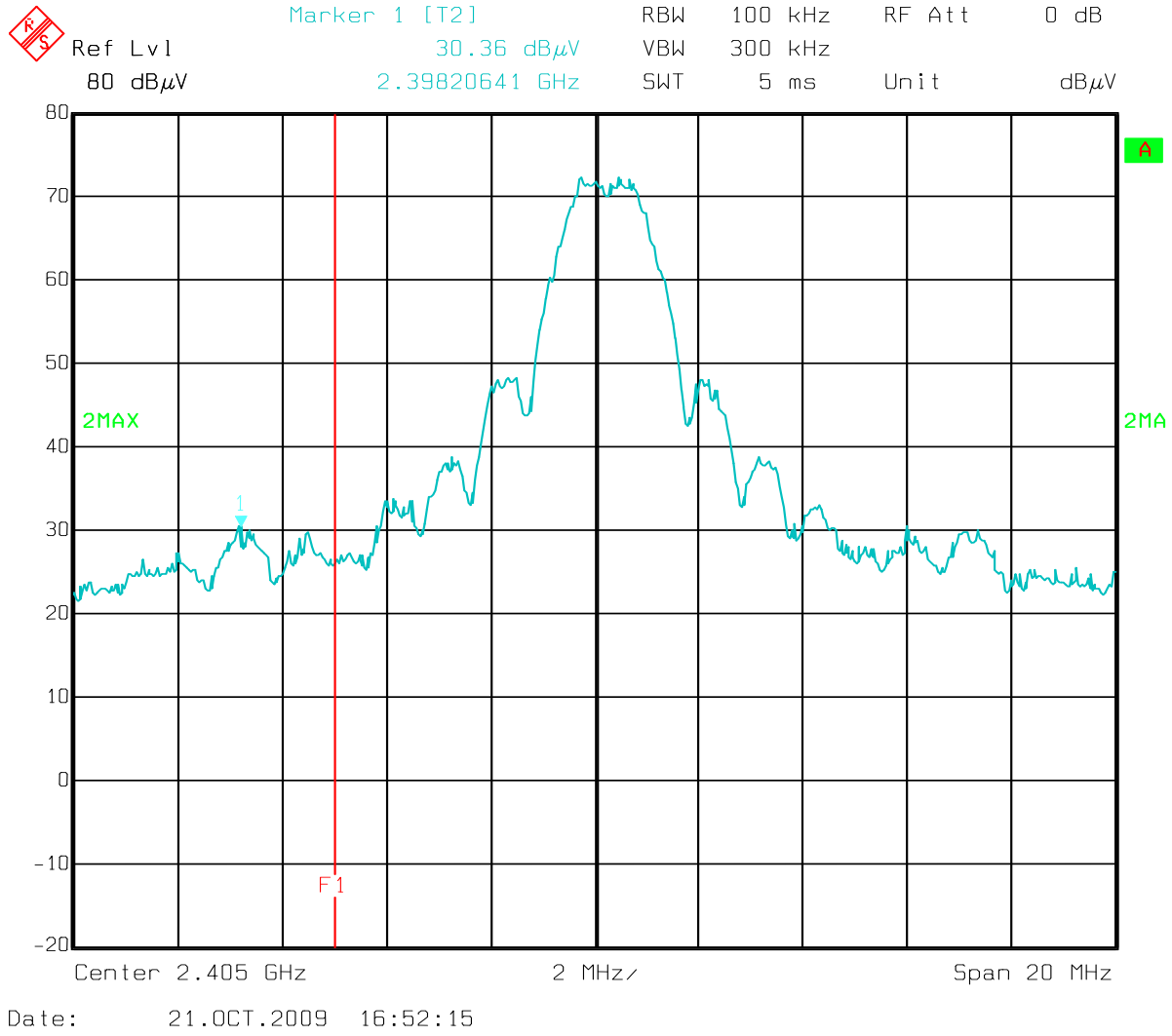
Additional Observations:

- The Spectrum was searched from 30MHz to the 10th Harmonic, 25000 MHz. There are no emissions found that do not comply to the restricted bands defined in **FCC Part 15 Subpart C, 15.205** or **Part 15.247(d)**.
- Radiated Measurements below 1GHz were performed at 3m with a Quasi-Peak detector (RBW 120kHz/VBW 300kHz) while Peak (RBW 1MHz/VBW 3MHz) and Average (RBW 1MHz/VBW 10Hz) measurements conducted above 1GHz. Duty cycle 100 %.

Emissions calculation example:

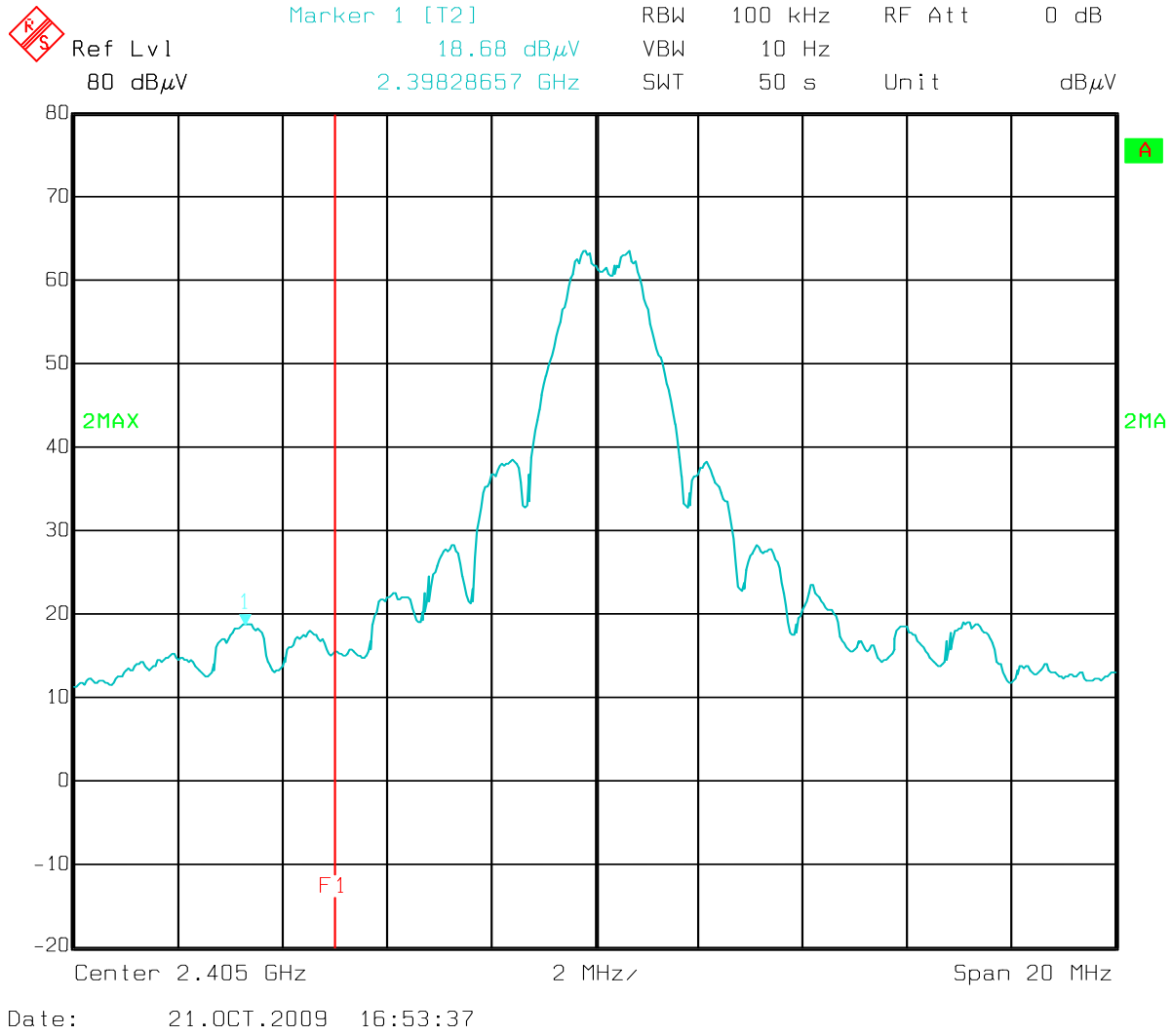
Frequency 4810 MHz average
Maximum measured vertically – average detector max hold = 40.0 dBµV
Add 31.9 dB/m for antenna factor = 71.9 dBµV/m
Add 10.8 dB for cable loss = 82.7 dBµV/m
Subtract 31.8 dB for preamplifier gain = 50.9 dBµV/m (spreadsheet doesn't allow for rounding)
Result is 3.1 below limit of 15.209, therefore frequency emission passes.

5.2. Bandedge Measurements



Low Channel 2405 MHz (Peak Measurement)

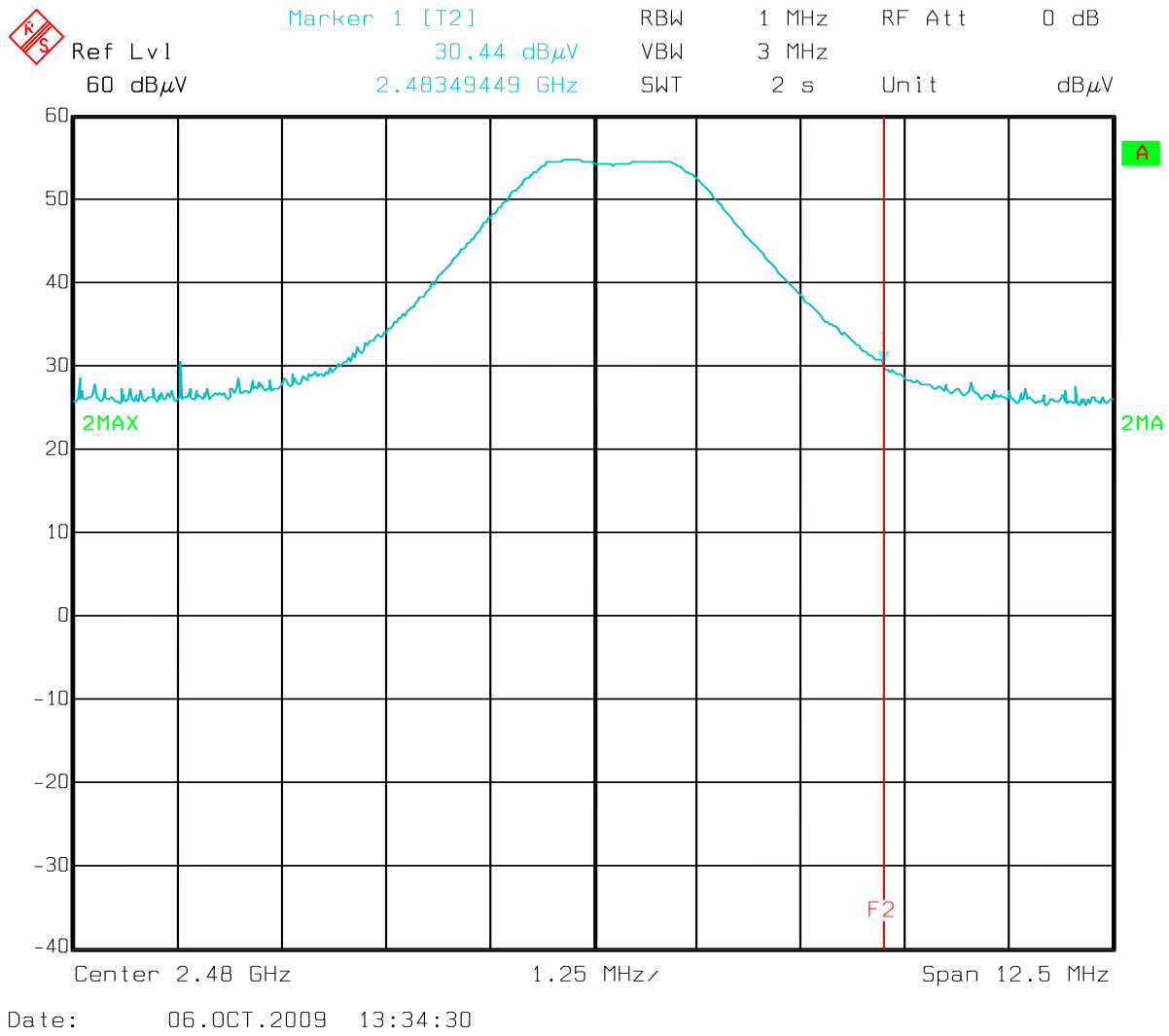
Marker frequency is 2400MHz
Limit used is 20dB from peak max hold.



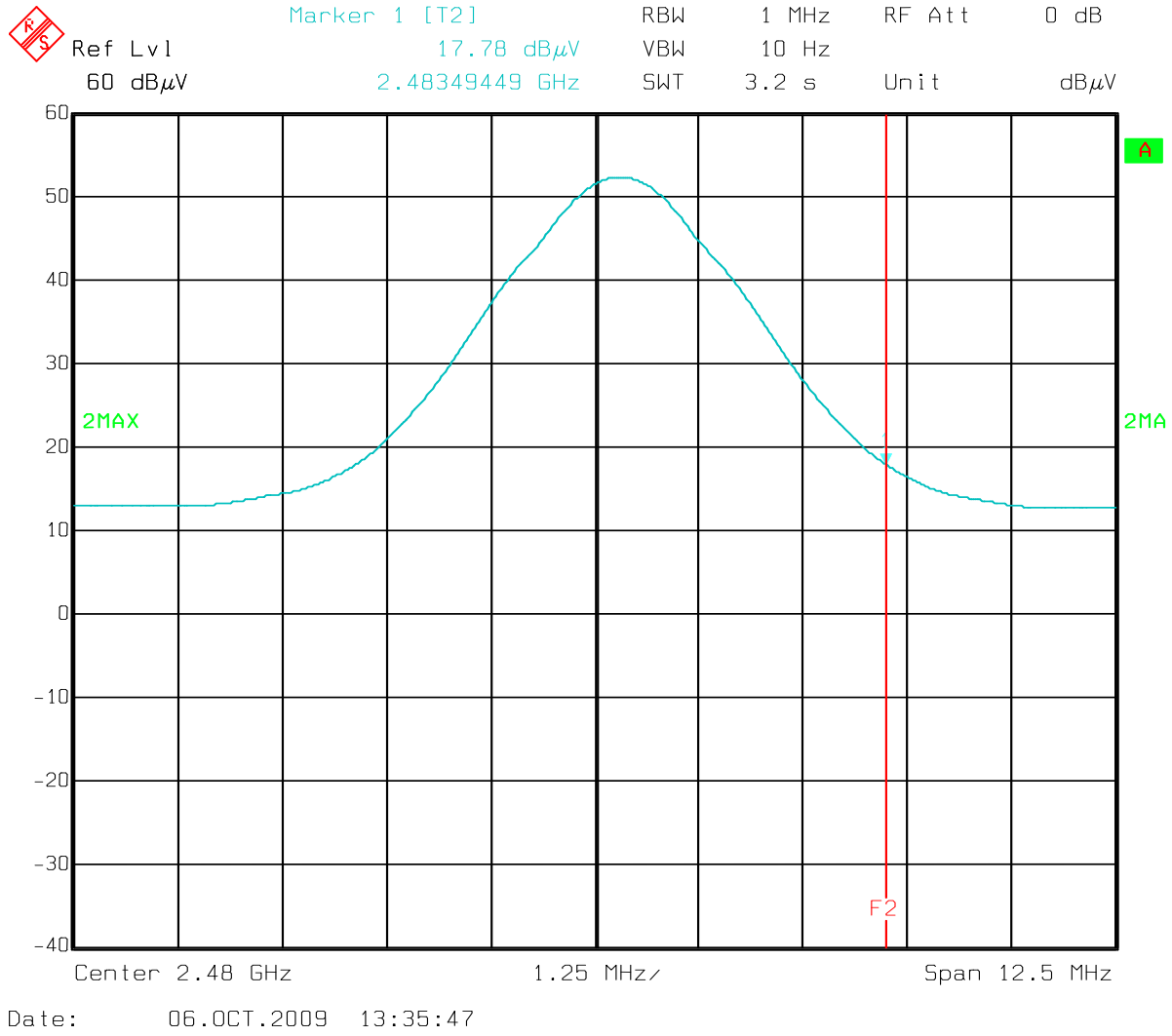
Low Channel 2405 MHz (Average Measurement)

Marker frequency is 2400MHz
Limit used is 20dB from average max hold.

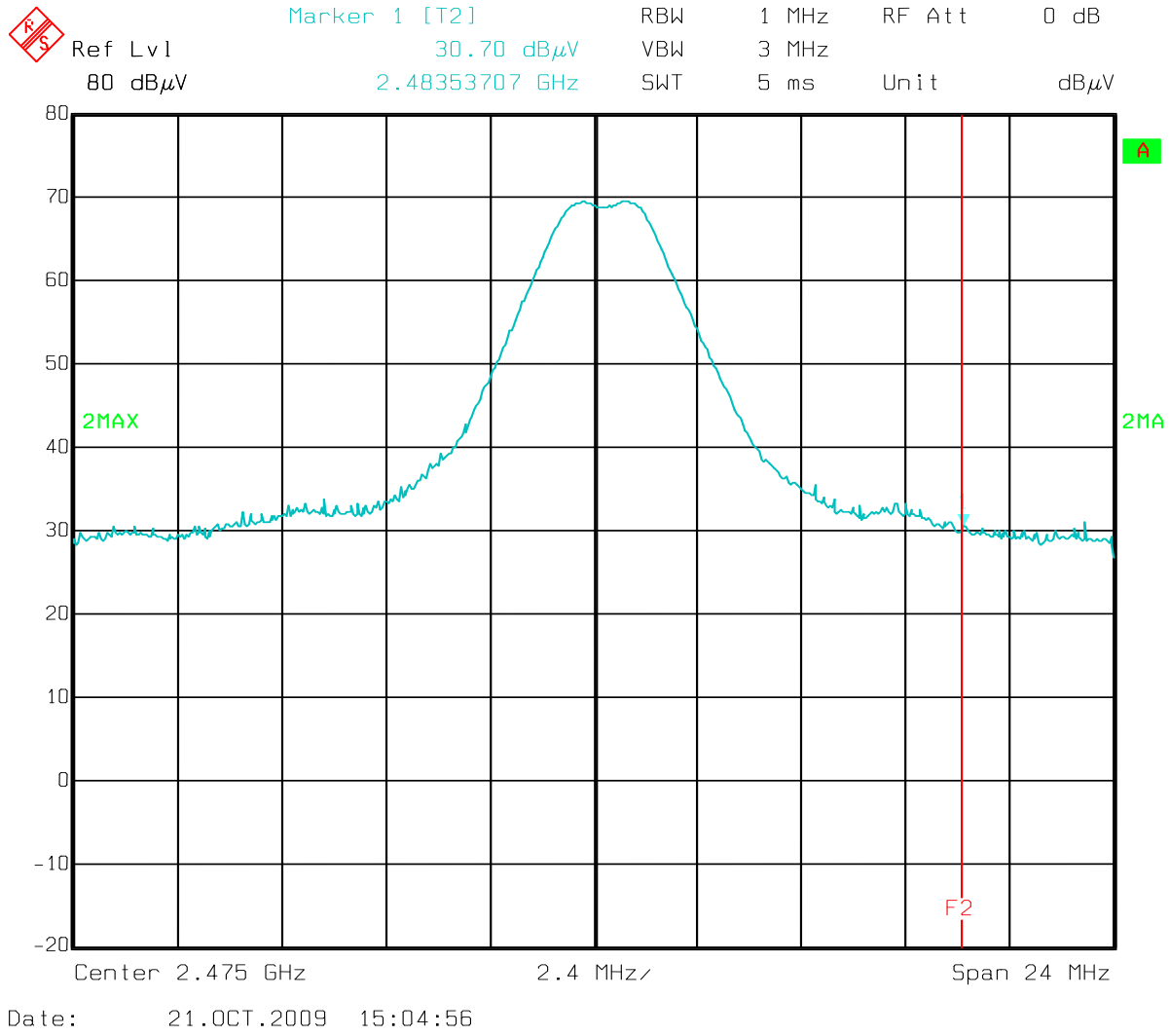
Upper Band Edge
Power reduced to meet limit,
therefore each next higher frequency is presented
until the full power is used.



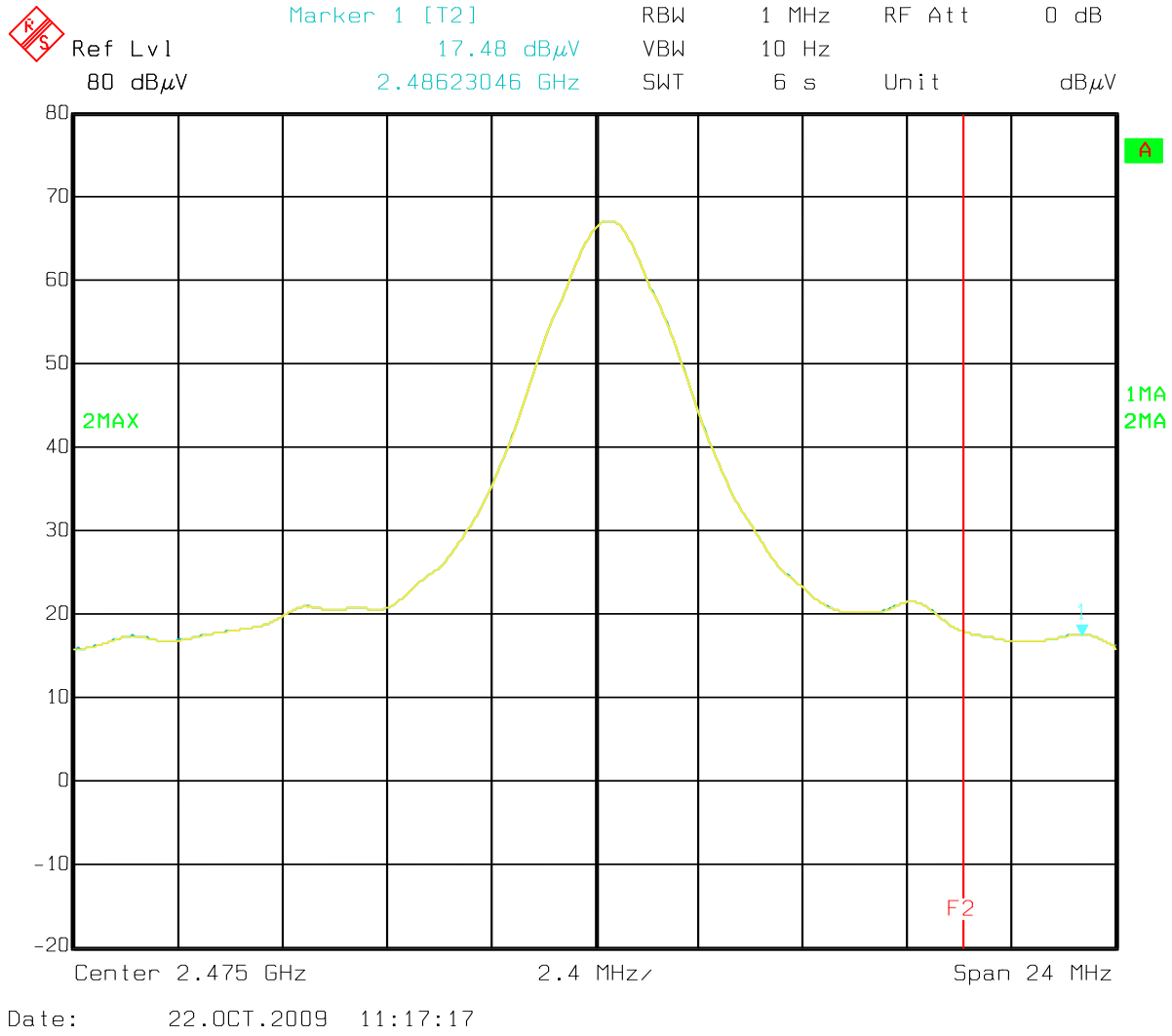
High Channel 2480 MHz (Peak Measurement)
Max hold.
Marker frequency is 2483.5 MHz
Limit used is 74 dB per 15.209 and 15.205
Power reduced to meet limit.



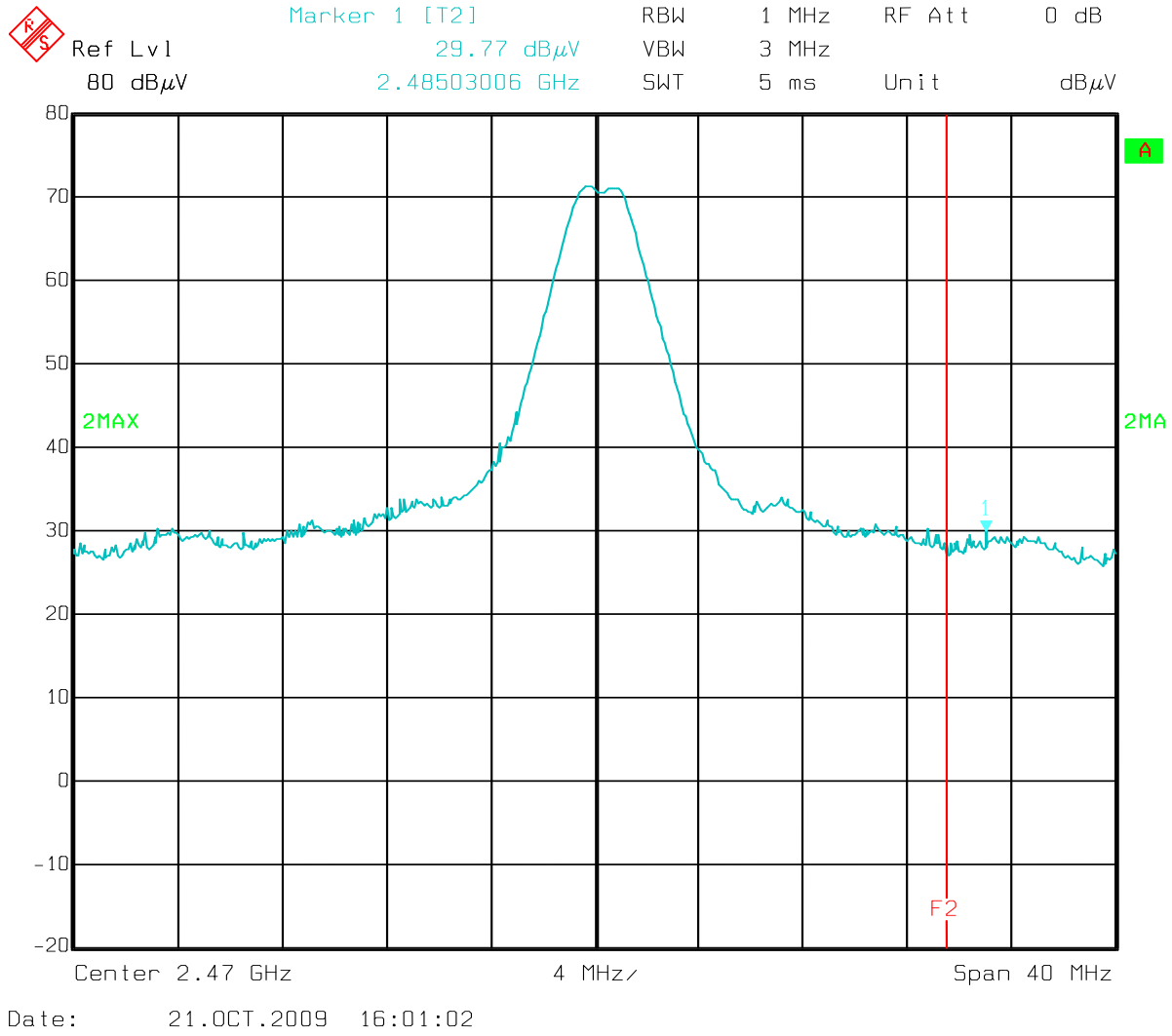
High Channel 2480 MHz (Average Measurement)
Max hold.
Marker frequency is 2483.5 MHz
Limit used is 54 dB per 15.209 and 15.205
Power reduced to meet limit.



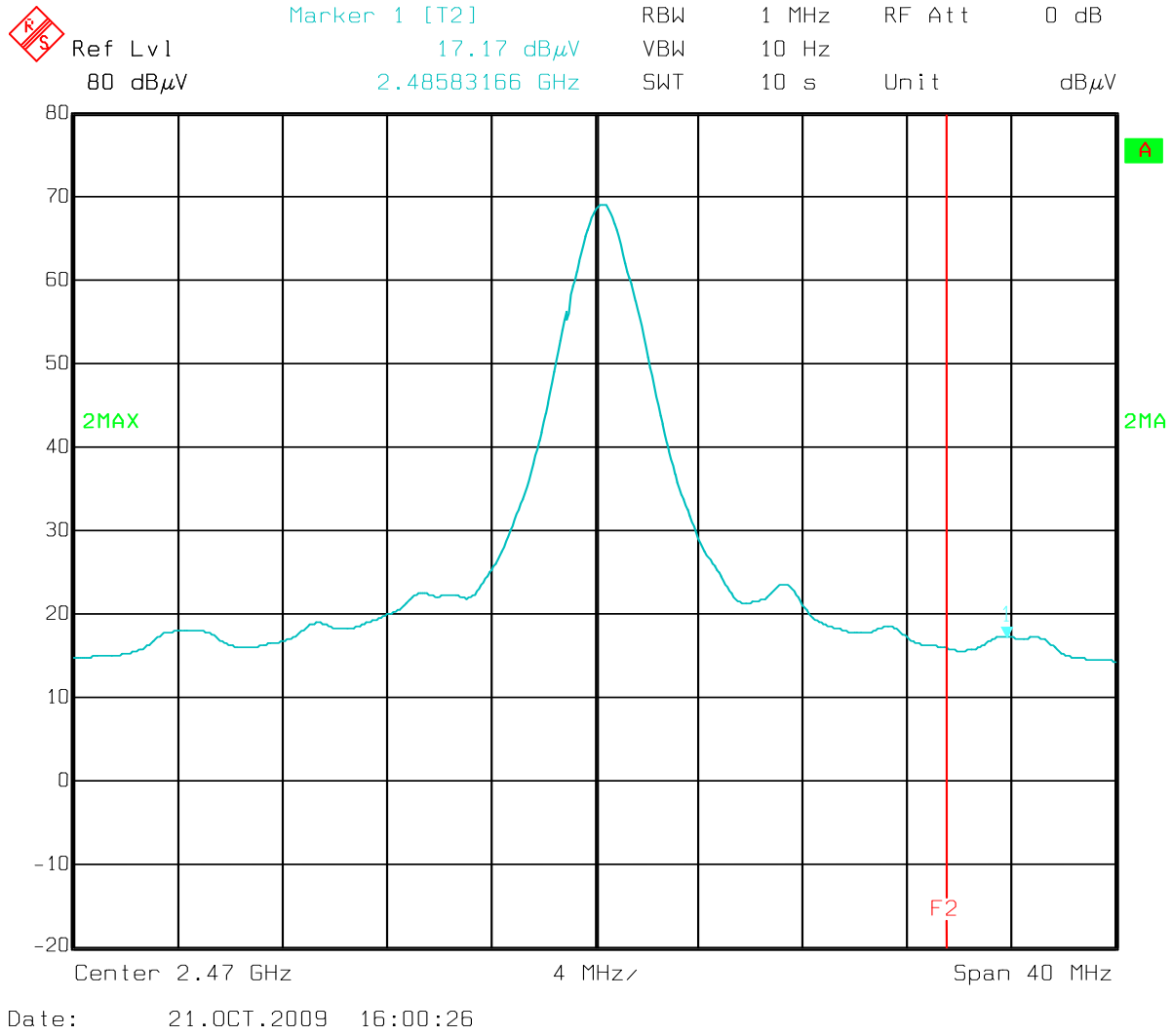
High Channel 2475 MHz (Peak Measurement)
Max hold.
Center frequency is 2483.5 MHz
Limit used is 74 dB per 15.209 and 15.205
Power reduced to meet limit.



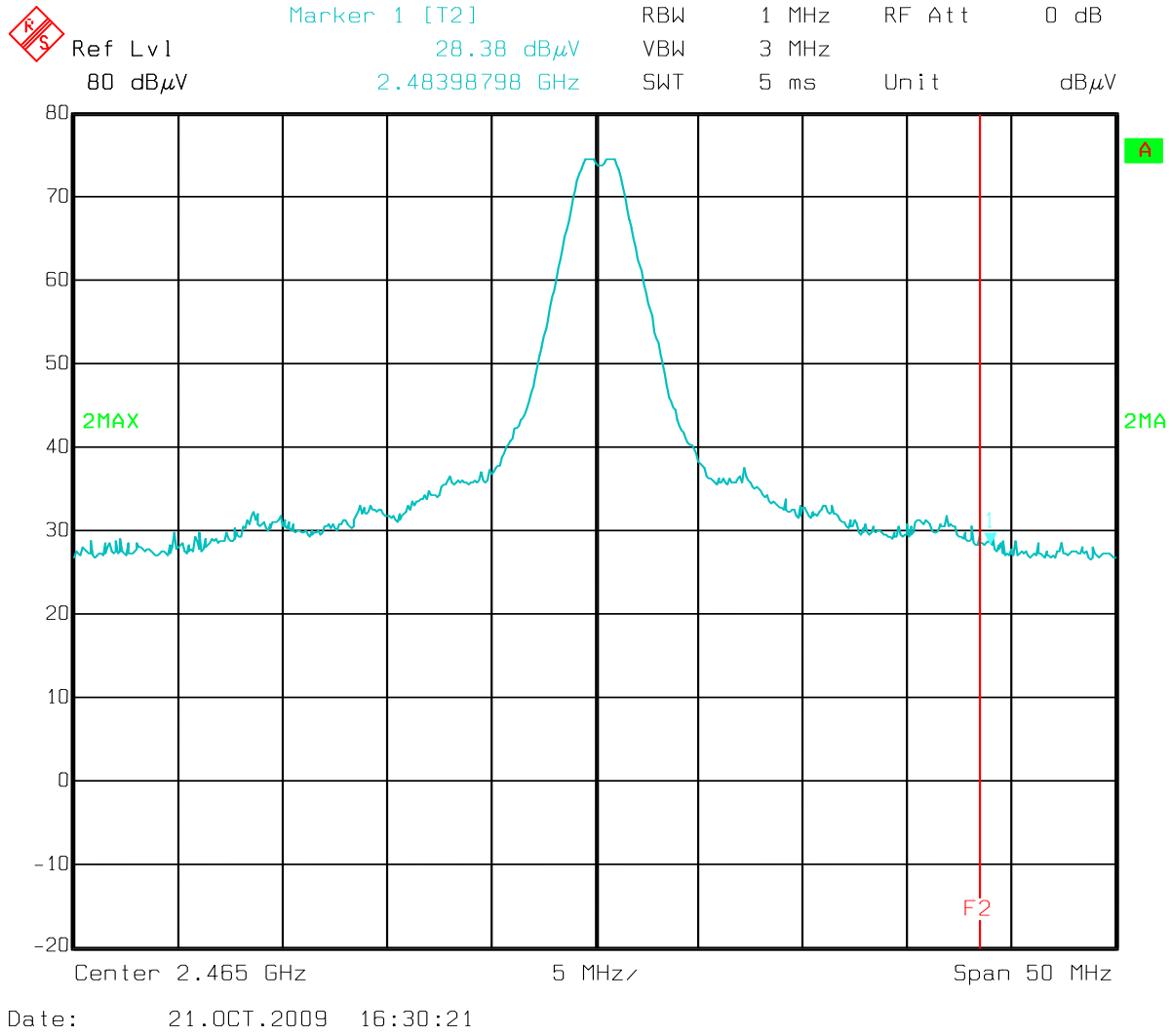
High Channel 2475 MHz (Average Measurement)
Max hold.
Marker frequency is 2483.5 MHz
Limit used is 54 dB per 15.209 and 15.205
Power reduced to meet limit.



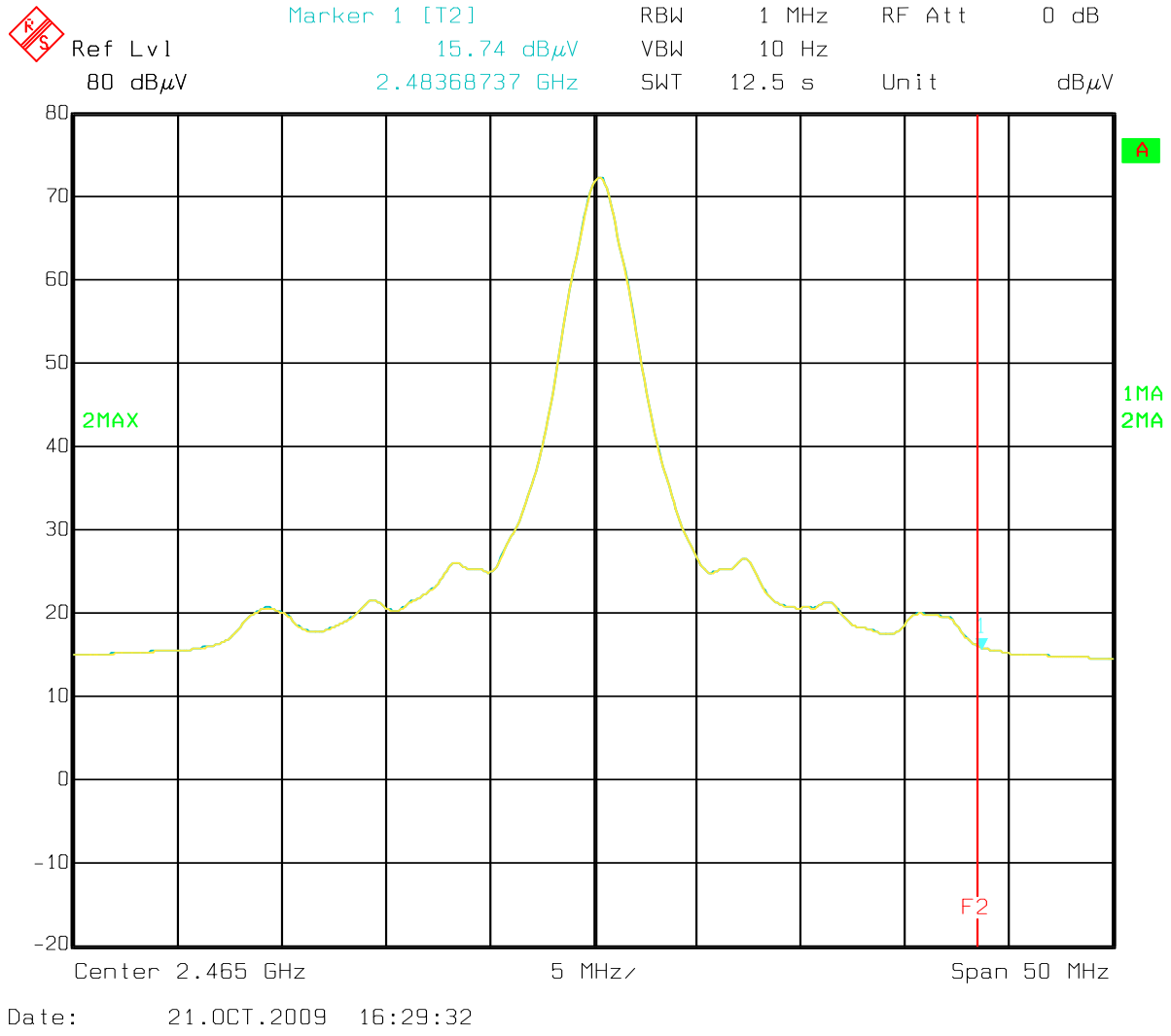
High Channel 2470 MHz (Peak Measurement)
Max hold.
Center frequency is 2483.5 MHz
Limit used is 74 dB per 15.209 and 15.205
Power reduced to meet limit



High Channel 2470 MHz (Average Measurement)
Max hold.
Marker frequency is 2483.5 MHz
Limit used is 54 dB per 15.209 and 15.205
Power reduced to meet limit



High Channel 2465 MHz (Peak Measurement)
Max hold.
Center frequency is 2483.5 MHz
Limit used is 74 dB per 15.209 and 15.205
Full available Power



High Channel 2465 MHz (Average Measurement)
Max hold.
Center frequency is 2483.5 MHz
Limit used is 44 dB per 15.209 and 15.205
Full available Power

5.3. Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
110	Antenna, LPA	Electrometrics	LPA-25	1217	1/10/2009	2/10/2011
115	Antenna, Bicon	EMCO	3104	3020	9/15/2008	9/15/2010
317	Preamplifier	HP	8449A	2749A00167	4/16/2009	4/16/2010
625	Antenna, Dbl Ridge Horn	EMCO	3116	2325	5/19/2009	5/19/2011
835	Spectrum Analyzer	Rohde & Schwarz	RHDFSEK	829058/005	3/31/2009	3/31/2010
877	Antenna, DRG Horn, .7-18GHz	AH Systems	SAS-571	688	7/28/2008	7/28/2010