Nemko USA, Inc.
11696 Sorrento Valley Rd., Suite F
San Diego, CA 92121-1024
Phone (858) 755-5525 Fax (858) 452-1810

Test Report:	**2009 03123208 FCC**
Project number:	24964
Applicant:	Hunter Douglas Window Fashions ONE Duette Way 80020 Broomfield, Colorado
Equipment Under Test (EUT):	Wall Switch
Model:	2986340000
In Accordance With:	FCC Part 15 Subpart C, 15.249 RSS-210. Issue 7, June 2007
FCC ID Number: **IC:**	UXUWS4U 7316A-WS4U
Tested By:	Nemko USA Inc. 11696 Sorrento Valley Road, Suite F San Diego, CA 92121
Authorized By:	 Alan Laudani, RF/EMC Test Engineer
Date:	March 10, 2009
Total Number of Pages:	21

Section 1. Summary of Test Results

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. Radiated tests were conducted is accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed:	Wall Switch 2986340000
Specification:	FCC Part 15 Subpart C, 15.249 RSS-210 Issue 7, June 2007 A2.9
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None

Report Release History:

REVISION	DATE	COMMENTS
-	March 10, 2009	Prepared By: Chip Fleury
-	March 10, 2009	Initial Release: Alan Laudani

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

Nemko USA Inc. authorizes the applicant to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Alan Laudani, RF/EMC Test Engineer

TABLE OF CONTENTS

Section 2: Equipment Under Test

2.1 Theory of Operation

The 2986340000 is a Wall Switch. Its function is to control Venetian blinds in the home by remote control. The EUT was exercised in a test mode providing continuous transmitting of low, mid and high frequencies at full strength continuously with worst-case duty cycle. Two AAA batteries power the Wall Switch. Each test was begun with a fresh set of batteries.

The EUT's performance during test was evaluated against the performance criterion specified by applicable test standards. Performance results are detailed in the test results section of this report.

Highest frequency generated or used: **2471 MHz**

2.4 Technical Specifications of the EUT

Manufacturer:	SKM Electronics Corp.
Operating Frequency:	2433 to 2471 MHz in the 2400 to 2483.5 MHz Band
Measured Power:	82.6 dBuV/m @ 3m or 13.5 mV/m
Modulation:	GFSK
Antenna Data:	Circuitry trace – Not available
Antenna Connector:	NONE
Power Source:	2 AAA batteries 3 Vdc

Section 3: Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.249 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz bands.

RSS-210 Issue 7 June 2007 Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

3.2 Deviations From Laboratory Test Procedures

No deviations from Laboratory Test Procedure

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	14 – 22 ^{o}C
Humidity range	:	32--66 %
Pressure range	:	102.0 kPa
Power supply range	:	+/- 5% of rated voltages

3.4 Test Equipment

Nemko ID	Device	Mfr.	Model	Serial Number	Cal Date	Cal Due Date
110	Antenna, LPA	EMCO	3146	1217	10-Jan-09	10-Feb-11
114	Antenna, Bicon	EMCO	3110	2997	10-Feb-09	10-Feb-10
317	Preamplifier	HP	8449A	2749A00167	31-Mar-08	31-Mar-09
438	Quasi-Peak Adapter	HP	85650A	2521A00618	21-Mar-08	21-Mar-09
752	Antenna, DRWG	EMCO	3115	4943	12-Nov-08	12-Nov-10
835	Spectrum Analyzer	Rohde & Schwarz	RHDFSEK	829058/005	27-Jun-08	27-Jun-09
839	Spectrum Analyzer Display	HP	85662A	3014A18995	21-Mar-08	21-Mar-09
840	Spectrum Analyzer	HP	8566B	2416A00394	21-Mar-08	21-Mar-09

Section 4: Observations

4.1 Modifications Performed During Assessment

No modifications were performed during assessment.

4.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

4.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

4.4 Tests Deleted

No Tests were deleted from this assessment.

4.5 Additional Observations

There were no additional observations made during this assessment.

Section 5: Results Summary

This section contains the following:

FCC Part 15 Subpart C: Test Results.

The column headed “Required” indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No: not applicable / not relevant
Y Yes: Mandatory i.e. the apparatus shall conform to these tests.
N/T Not Tested, mandatory but not assessed. (See section 4.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

5.1 FCC Part 15 Subpart C Test Results

Part 15	Test Description	Required	Result
15.207 (a)	Power line Conducted Emissions	N	
15.209 (a)	Radiated Emissions within Restricted Bands	Y	Pass
15.215 (c)	Occupied Bandwidth	Y	Pass
15.249 (a)	Radiated Emissions not in Restricted Bands	Y	Pass
15.249 (b)	Operation in the 2400-2483.5 MHZ Band Fixed, point-to-point operation	N	
15.249 (d)	Spurious Emissions (except Harmonics)	Y	Pass
RSS-210			
A2.9	Annex 2 - Devices Operating in Frequency Bands for Any Application A2.9 902-928, 2400-2483.5 and 5725-5875 MHz	Y	Pass

Appendix A: Test Results

Conducted Emissions Test Data

Client	SKM Electronics Corp.	Temperature		°C
Pan #	24964	Relative Humidity		%
EUT Name	Wall Switch	Barometric Pressure		kPa
EUT Model	2986340000	Test Location	Enclosure 1	
Governing Doc	CFR 47, Part 15B	Test Engineer	Chip Fleury	
Basic Standard	Sec. 15.207 Class "B" Transmit	Date of test		
Test Parameters	Peak RBW: 100kHz VBW: 100kHz Quasi-Peak: RBW 9kHz, VBW 30 kHz Average: RBW 9kHz, VBW 30 kHz Quasi-Peak Limit Blue Line, Average Limit Green Line			

Not tested, EUT is not AC line powered.

Clause 15.215(c) Occupied Bandwidth

Test Conditions:

Client	**SKM Electronics Corp.**	Temperature	14	°C
Pan #	24964	Relative Humidity	40	%
EUT Name	**Wall Switch**	Barometric Pressure	102.8	kPa

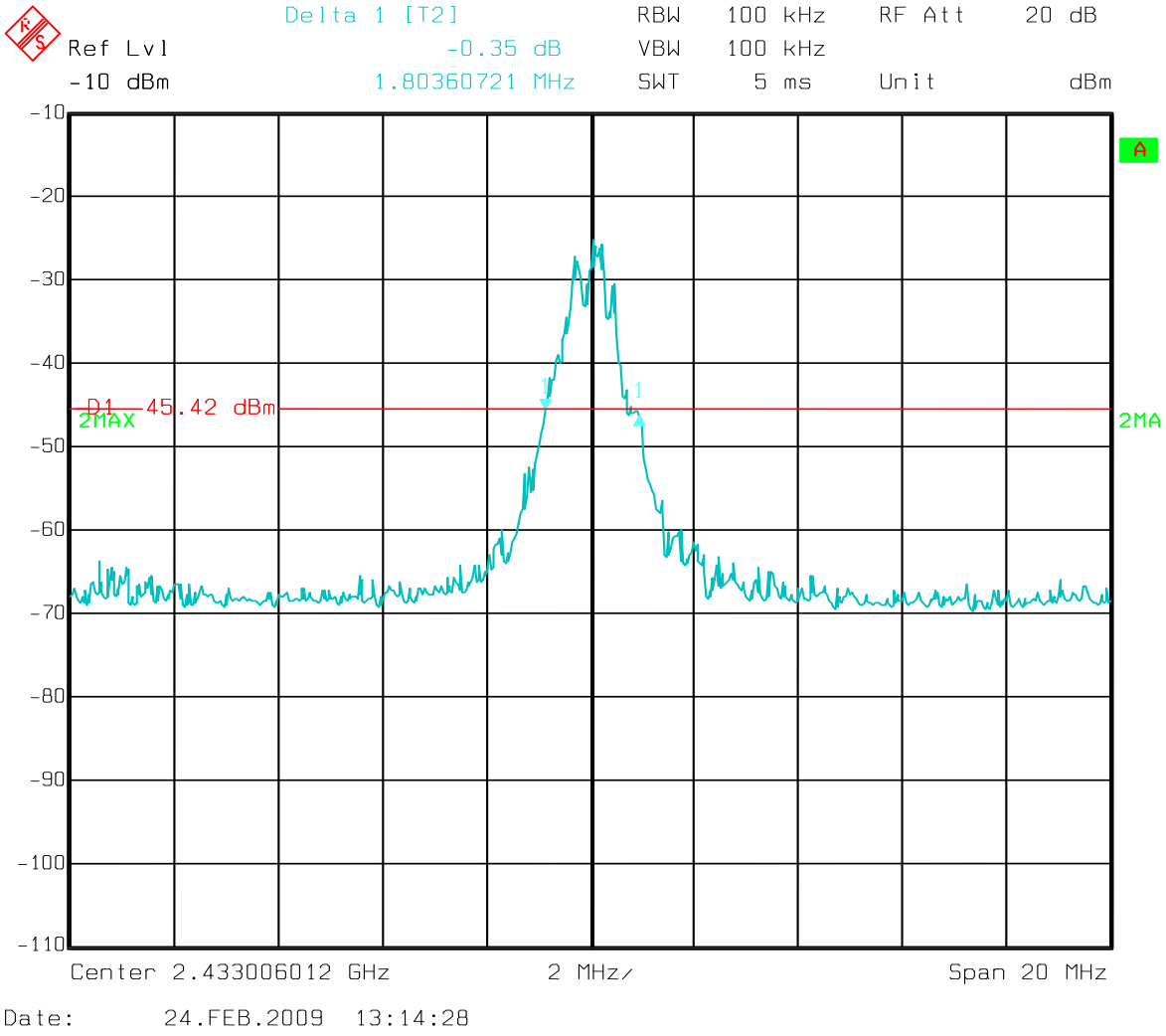
EUT Model	2986340000	Test Location	Enclosure 2
Governing Doc	CFR 47, Part 15C	Test Engineer	Chip Fleury
Basic Standard	Sec. 15.249 Transmit	Date of test	February 24, 2009

15.215(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in Sec. Sec. 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

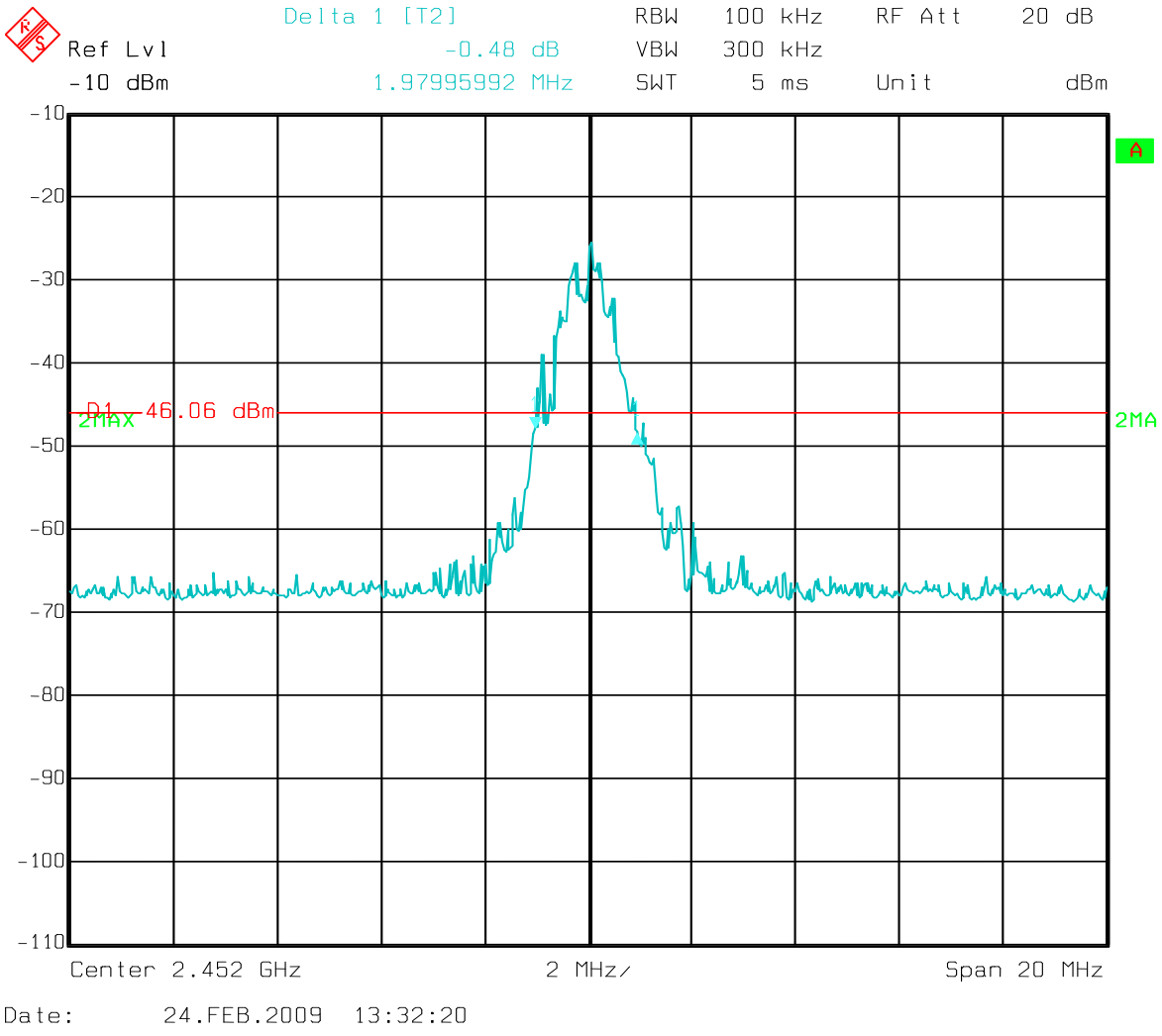
Test Results: 20dB bandwidth is contained in the authorized band.

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2433	1.80
Mid	2452	1.98
High	2471	1.68

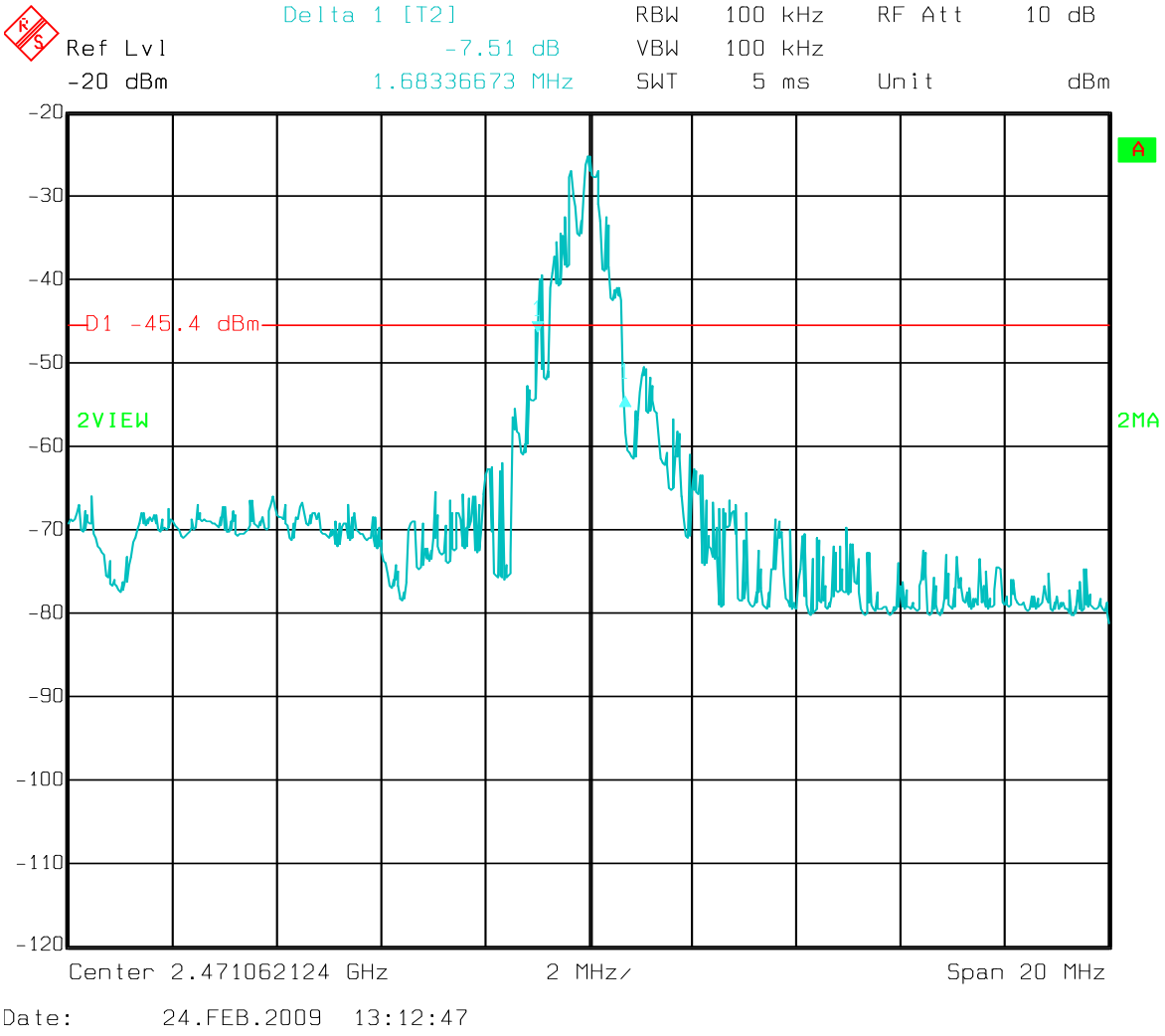
Low Channel Occupied Bandwidth: 1.80 MHz



Mid Channel Occupied Bandwidth: 1.98 MHz



High Channel Occupied Bandwidth: 1.68 MHz



Clause 15.209(a) 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

Clause 15.249(a) Radiated Emissions

Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (mV/meter)	Field strength of harmonics (uV/meter)
902-928	**50**	**500**
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Clause 15.249(d) Spurious Emissions

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Sec. 15.209, whichever is the lesser attenuation.

A2.9 902-928, 2400-2483.5 and 5725-5875 MHz

This section provides standards for low-power devices that can be used for any application provided the following conditions are met:

(a) The field strengths measured at 3 metres shall not exceed the following:

Fundamental Frequencies (MHz)	Field Strength (milliVolts/m)	
	Fundamental	Harmonics
902-928	50 (Note 1)	0.5
2400-2483.5	50 (Note 1)	0.5
5725-5875	50 (Note 1)	0.5

Note 1: Equivalent to 0.75 mW e.i.r.p.

(b) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to Table 2 limits, whichever is the less stringent.

Test Results:

See Table and plots below. EUT complies for fundamental power, bandedges and spurious emissions.

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic (24710 MHz). No other emissions found within 20 dB of the limits.

New batteries were installed prior to test.

Measurements made at the 3 meter Outside Area Test Site, all measurements max hold after peaking for EUT rotation and antenna height from 1 to 4 meters.

Fundamental power was measured at 3 MHz RBW, 3 MHz VBW to ensure capture of entire emissions envelope.

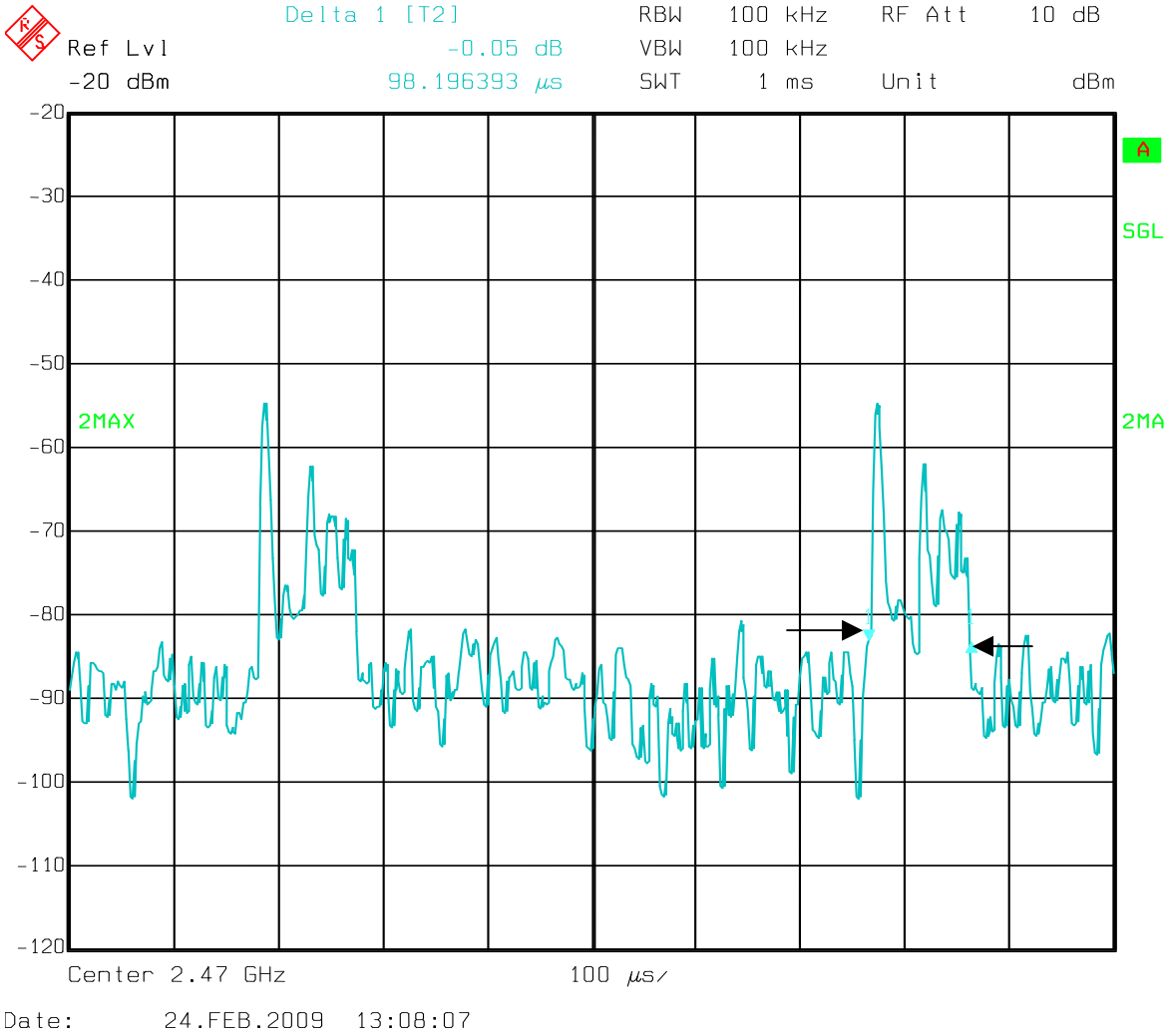
Average = Peak + Duty Cycle Factor.

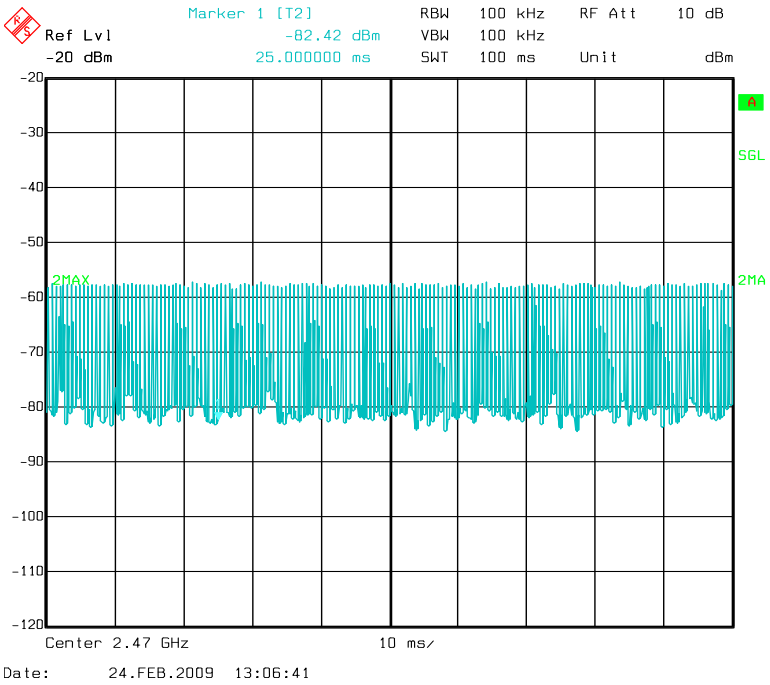
And the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Field Strength Limit is 50 mV/m average at 3 meters. EUT complies at 13.5 mV.m
$0.0135 = 10^{((82.6-120/20)}$

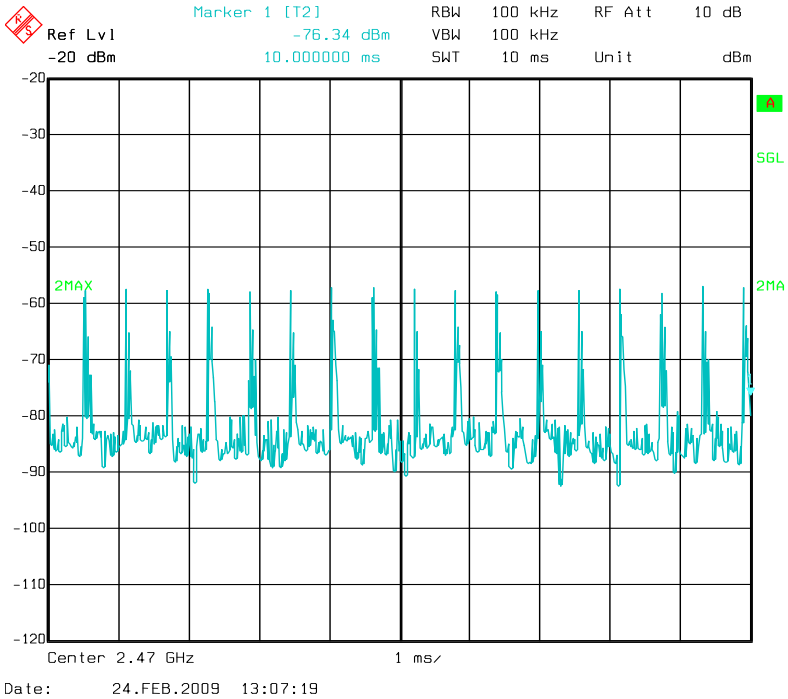
Duty Cycle Factor:

170 (emissions counted in 100 ms) x 0.098 ms = 16.7 ms
20 x log (0.167) = -15.6 dB





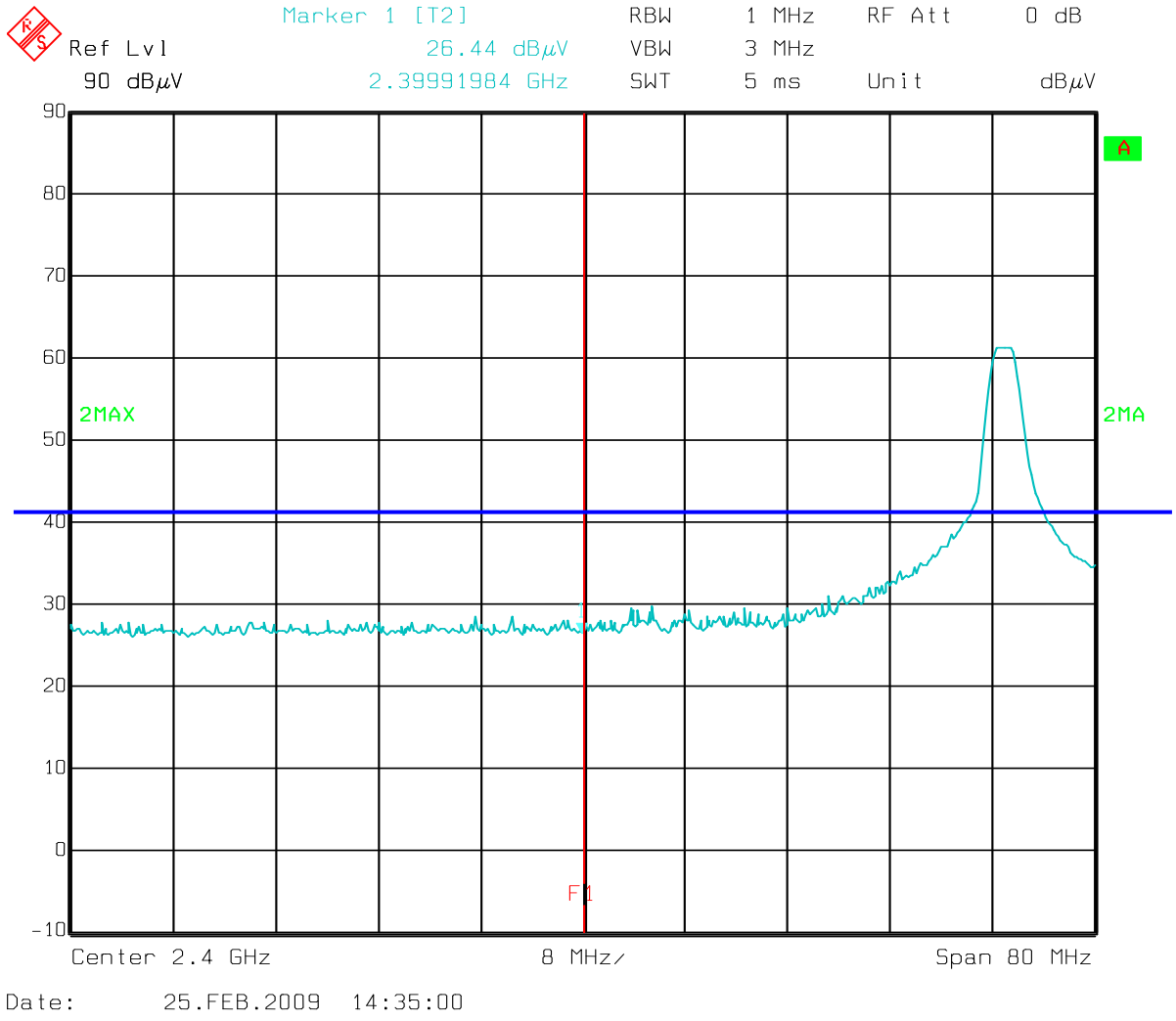
17 count in 10 ms, 170 count in 100 ms



EUT passes Bandedge.

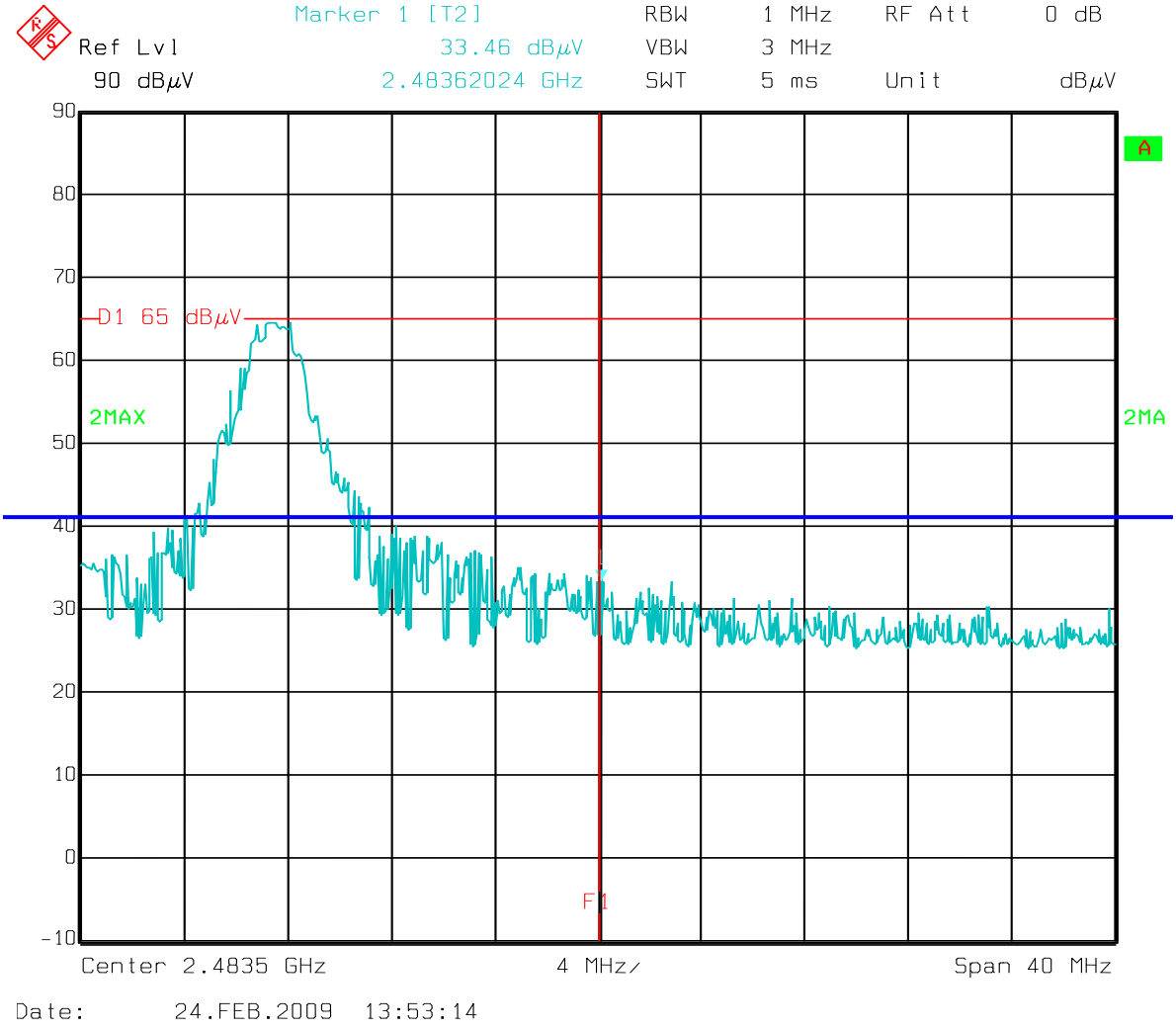
Red line is band edge 2400 MHz
Antenna Factor + Cable Loss = 33 dB
Peak limit 74 dBuV/m
74 – 33 = 41 dBuV/m blue line
Emission = 26.4 dBuV/m, Peak passes.

Average limit is 54 dBuV/m
54 – 33 = 21 dBuV/m
Average = Peak + DCF = 26.4 – 15.6 = 10.8 dBuV/m, Average Passes



Red line is band edge 2400 MHz
Antenna Factor + Cable Loss = 33.2 dB
Peak limit 74 dBuV/m
74 – 33.2 = 40.8 dBuV/m blue line
Emission = 33.5 dBuV/m, Peak passes.

Average limit is 54 dBuV/m
54 – 33 = 21 dBuV/m
Average = Peak + DCF = 33.5 – 15.6 = 17.9 dBuV/m, Average Passes



Radiated Emissions Data

Complete	YES				Job # :	24964-1	Test # : 1
Preliminary					Page	1	of 1
Client Name :	SMK Electronics Corp. USA						
EUT Name :	HD Wall Switch						
EUT Model # :	HD Wall Switch						
EUT ANTENNA Part # :	NA						
EUT Serial # :	NA						
EUT Config. :	Transmit						
	FCC Part 15.249						
Specification :	FCC Part 15.209 (a)						
Rod. Ant. #:	NA	Temp. (deg. C) :	14			Date :	2/25/2009
Bicon Ant.#:	114	Humidity (%) :	40			Time :	1300
Log Ant.#:	110	EUT Voltage :	3 VDC			Staff :	FRF
DRG Ant. #	752	EUT Frequency :					
Dipole Ant.#:	NA	Phase:			Bandedge	Peak Res Bandwidth:	1 MHz
Cable#:	40ft	Location:	SOATS			Peak Video Bandwidth	3 MHz
Preamp#:	317	Distance:	3 m		Output Power	Peak Res Bandwidth:	3 MHz
Spec An.#:	835	Duty Cycle Factor	-15.6			Peak Video Bandwidth	3 MHz
QP #:	NA						

Meas. Freq. (MHz)	Vertical (dBuV) pk	Vertical (dBuV) av	Horizontal (dBuV) pk	Horizontal (dBuV) av	CF (db)	Max Level (dBuV/m) pk	Max Level (dBuV/m) av	Spec. Limit (dBuV/m) pk	Spec. Limit (dBuV/m) av	Margin dB pk	Margin dB av	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
2400.00	25.6	10.0	25.5	9.9	33.0	58.6	43.0	74.0	54.0	-15.4	-11.0	-	1.1	Pass	Upright Config
2400.00	26.4	10.8	25.3	9.7	33.0	59.0	43.8	74.0	54.0	-15.0	-10.2	-	1.1	Pass	Horizontal Config
2400.00	25.1	9.5	25.2	9.6	33.0	58.2	42.5	74.0	54.0	-15.8	-11.5	-	1.1	Pass	Flat Config
2433.00	63.4	47.8	64.0	48.4	33.1	97.1	81.5	114.0	94.0	-16.9	-12.5	-	1.1	Pass	Upright Config
2433.00	63.8	48.2	60.6	45.0	33.1	96.9	81.3	114.0	94.0	-17.1	-12.7	-	1.1	Pass	Horizontal Config
2433.00	57.8	42.2	55.7	40.1	33.1	90.9	75.3	114.0	94.0	-23.1	-18.7	-	1.1	Pass	Flat Config
2452.00	63.1	47.5	64.0	48.4	33.2	97.2	81.6	114.0	94.0	-16.8	-12.4	-	1.3	Pass	Upright Config
2452.00	64.4	48.8	58.1	42.5	33.2	97.6	82.0	114.0	94.0	-16.4	-12.0	-	1.1	Pass	Horizontal Config
2452.00	58.2	42.6	56.4	40.8	33.2	91.4	75.8	114.0	94.0	-22.6	-18.2	-	1.1	Pass	Flat Config
2471.00	64.0	48.4	65.0	49.4	33.2	98.2	82.6	114.0	94.0	-15.8	-11.4	-	1.3	Pass	Upright Config
2471.00	65.0	49.4	59.0	43.4	33.2	98.2	82.6	114.0	94.0	-15.8	-11.4	-	1.1	Pass	Horizontal Config
2471.00	56.9	41.3	57.4	41.8	33.2	90.6	75.0	114.0	94.0	-23.4	-19.0	-	1.1	Pass	Flat Config
2483.50	32.1	16.5	33.4	17.8	33.2	65.3	51.0	74.0	54.0	-8.7	-3.0	-	1.1	Pass	Upright Config
2483.50	33.5	17.9	32.0	16.4	33.2	59.7	49.6	74.0	54.0	-14.3	-4.4	-	1.1	Pass	Horizontal Config
2483.50	29.8	14.2	28.5	12.9	33.2	61.7	46.1	74.0	54.0	-12.3	-7.9	-	1.1	Pass	Flat Config