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### TEST REPORT

CFR 47, Part 15, Subpart D  
RSS 213, Issue 2  
Isochronous UPCS Device  
1920 – 1930 MHz

Report Reference No. .... : 10236228\_trf1

Compiled by (+ signature) ..... : David Light

Approved by (+ signature) ..... : Michael Cantwell

Date of issue ..... : 14-Mar-13

Report Revision ..... : 5

Total number of pages ..... : 92

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Applicant's name ..... : Uniden America Corporation

Address ..... : 4700 Amon Carter Boulevard, Fort Worth, Texas 76155

Model(s) Tested ..... : D1680v and D1660v cordless telephone base

FCC ID ..... : AMWUN368

**Test specification:**

Standard ..... : CFR 47, Part 15, Subpart D and RSS 213, Issue 2

Test procedure ..... : ANSI C63.17-2006

Non-standard test method ..... : N/A

TRF Revision ..... : 14-Mar-13



## Revision History

#	Description	Date
0	Original Report Release	28-Feb-13
1	Corrected s/n of D1680v and added s/n for D1660v(pg. 5); Added engineering judgment(pg. 6); changed "AC/DC" to "AC/AC" and corrected s/n(pg. 7)	4-Mar-13
2	Corrected model no. pg. 6	7-Mar-13
3	Added powerline conducted emissions data for D1660v model	14-Mar-13
4	Changed D1660 to D1660v and D1680 to D1680v throughout report	21-Mar-13
5	Corrected frequency range throughout test report	21-Mar-13

## Notices:

1. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
2. The test results presented in this report relate only to the object tested.
3. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.
4. "(see Enclosure #)" refers to additional information appended to the report.
5. Throughout this report a point is used as the decimal separator.
6. Dimensions in English units for convenience only, metric units prevail.
7. It is the manufacturer's responsibility to provide special instructions, if needed, to the user regarding the use of special cables (length, shielded/unshielded, type, grounding, etc.), clamp-on ferrite beads, etc for use with their product(s).

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## Normative References

The following document(s) have been appropriately considered in the performance of the test results detailed in this report.

CFR Title 47, Part 2, Subpart J – Equipment Authorization Procedures

CFR Title 47, Part 15, Subpart D – Unlicensed Personal Communication Services (UPCS) Devices

ANSI C63.17 : 2006 – Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices

RSS 213, Issue 2 : Dec 2005 – 2 GHz Licence-exempt Personal Communications Service Devices (LE-PCS)

## Equipment Under Test (EUT)

### Details:

#### Test item description:

Model ..... : D1680v and D1660v  
Serial Number ..... : TAD1(D1680v), CID3 (D1660v)  
Production Status ..... :  Production  Pre-Production  Prototype  
Other Status Info ..... : [Click here to enter text.](#)  
EUT Received Date ..... : 17-Dec-12  
Ratings ..... : 120VAC, 60 Hz  1 $\phi$   3 $\phi$   
Product Type..... : Base  
Modulation Type ..... : GFSK  
Operating Frequency Range ..... : 1920 - 1930 MHz  
Number of Channels..... : 5  
  
User Frequency Adjustment..... : None

#### General product description:

The EUT is a cordless telephone base unit. The cordless phone uses DECT 6.0 protocol with changes to frequency range to make the phone operate within the frequency band 1920 to 1930 MHz as required by CFR 47, Part 15, Subpart D. Power to the base unit is supplied by an external power adapter.

#### Modifications to the EUT required for compliance:

There have been no modifications to the EUT as a result of this evaluation.

#### Deviations from Test Methodology:

None



**Engineering Judgements:**

Model D1680v and model D1660v are electrically identical in the radio and telecom interface circuit. Full testing was performed on model D1680v. Since the two models are electrically identical, the test data in this report is considered to be representative of model D1680v and D1660v.

Approved by (+ signature).....:  Tom Tidwell

*Table 1 – EUT Internal Operating Frequencies*

Frequency (MHz)	Description	Frequency (MHz)	Description
1920.672 MHz - 1927.584 MHz	Local oscillator		
1880 – 1935 MHz	PLL		
2829 – 2903 MHz	VCO		
13.824 MHz	Crystal Oscillator		

*Table 2 – EUT Operating Modes*

Mode #	Description
1	Transmit continuous data burst mode
2	
3	

## EUT Configuration

Figure 1 – EUT Configuration Diagram

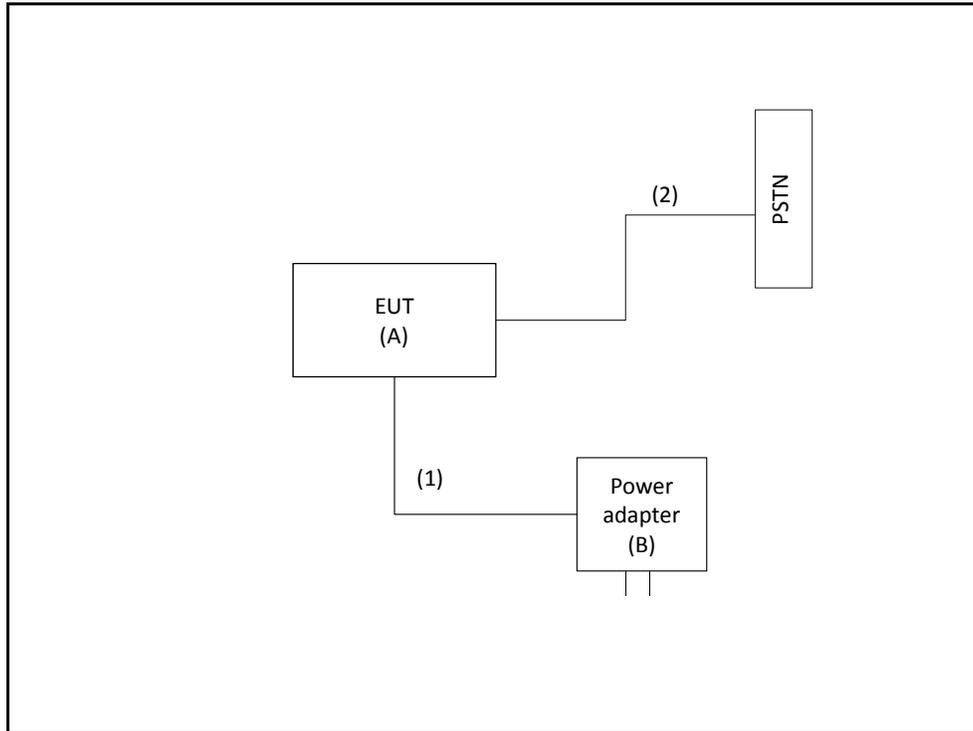


Table 3 – EUT & Auxilliary Equipment List

Item	Use*	Product Type	Manufacturer	Model	Serial No.
A	EUT	Cordless phone base	Uniden Corp. Japan	D1680v	TAD1
B	AE	AC/AC adapter	Uniden Corp. Japan	PS0035	None
C					
D					
E					
F					

Note:  
 \* Use = EUT – Equipment Under Test,  
 AE – Auxiliary/Associated Equipment, or  
 SIM – Simulator (Not Subjected to Test)

Table 4 – Interconnecting Cables List

Item	Use*	Cable Type
1	AE	Two wire power cord. Permanently attached to adapter. Unshielded
2	EUT	Two conductor unshielded phone cord. RJ45 connector on each end.
3		
4		
5		
6		
7		

**EUT Photo(s)**

Photo 1	EUT Photo – Front/Top View	
		
<p><b>Supplemental Information:</b></p>		
<p>D1680v</p>		

Photo 2 EUT Photo – Rear/Side View



**Supplemental Information:**

D1680v

Photo 3 EUT Photo – Front/Top View



**Supplemental Information:**

D1660v



## Summary of Testing – CFR Title 47, Part 15, Subpart D

### Possible test case verdicts:

- test case does not apply to the test object : N/A
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement : F (Fail)
- not tested (not part of this evaluation)..... : NT

Date(s) of performance of tests..... : Jan. 16 – Feb 19, 2013

Clause	Test Description	Verdict	Comment
15.307	Coordination with fixed microwave		
15.319(b)	Digital modulation techniques	P	
15.19(a)(3)	Labelling requirements	P	
15.203, 15.317	Antenna requirement	P	
15.107(a), 15.207(a)	Power line conducted emissions	P	
15.323(a)	Emission bandwidth	P	
15.323(d)	In-band emissions	P	
15.323(d)	Out-of-band emissions	P	
15.319(c), 15.31(e)	Peak transmit power	P	
15.319(d)	Power spectral density	P	
15.319(f)	Automatic discontinuation of transmission	P	
15.323(f)	Carrier frequency stability	P	
15.323(e)	Frame repetition stability	P	
15.323(e)	Frame period and jitter	P	
15.323(c)(2);(5);(9)	Monitoring threshold, Least Interfered Channel	P	
15.323(c)(1)	Monitoring of intended transmit window and maximum reaction time	P	
15.323(c)(7)	Threshold monitoring bandwidth	P	
15.323(c)(1);(5);(7)	Reaction time and monitoring interval	P	
15.323(c)(4);(6)	Access criteria test interval	N/A	Note 1
15.323(c)(4);(6)	Access criteria functional test	N/A	Note 1
15.323(c)(4)	Acknowledgements	P	
15.323(c)(3)	Transmission duration	P	
15.323(c)(10)	Dual access criteria	P	
15.323(c)(10)(11)	Alternative monitoring interval	N/A	Note 2
15.323(d)	Spurious emissions (antenna conducted)	P	
15.319(g) 15.109(a) 15.209(a)	Spurious emissions (radiated)	P	



**Notes:**

<sup>1</sup>Only applies for equipment that transmits unacknowledged control and signalling information.

<sup>2</sup>The client declares that the tested equipment does not implement this provision.

<sup>3</sup>The tested equipment has integrated antennas only.

**General remarks:**

**Summary of compliance with national requirements:**

Compliance with this standard provides one means of demonstrating conformity with the specified requirements of CFR Title 47, Part 15, Subpart D.

## Summary of Testing – RSS 213, Issue 2

### Possible test case verdicts:

- test case does not apply to the test object : N/A
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement : F (Fail)
- not tested (not part of this evaluation)..... : NT

Date(s) of performance of tests..... : Jan. 16 – Feb 19, 2013

Clause	Test Description	Verdict	Comment
6.1	Digital modulation techniques	P	
RSS-GEN 5.2	Labelling requirements	P	
4.1(e)	Antenna requirement	P	
6.3 RSS-GEN 7.2.2	Power line conducted emissions	P	
6.4	Emission bandwidth	P	
6.7.2	In-band emissions	P	
6.7.1	Out-of-band emissions	P	
6.5	Peak transmit power	P	
4.3.2.1	Power spectral density	P	
4.3.4(a)	Automatic discontinuation of transmission	P	
6.2	Carrier frequency stability	P	
4.3.4(c)	Frame repetition stability	P	
4.3.4(c)	Frame period and jitter	P	
4.3.4(b)	Monitoring threshold, Least Interfered Channel	P	
4.3.4	Monitoring of intended transmit window and maximum reaction time	P	
4.3.4	Threshold monitoring bandwidth	P	
4.3.4	Reaction time and monitoring interval	P	
4.3.4	Access criteria test interval	N/A	Note 1
4.3.4	Access criteria functional test	N/A	Note 1
4.3.4	Acknowledgements	P	
4.3.4	Transmission duration	P	
4.3.4	Dual access criteria	P	
4.3.4	Alternative monitoring interval	N/A	Note 2
6.7.1	Spurious emissions (antenna conducted)	P	
4.3.3 RSS-GEN 7.2.3	Spurious emissions (radiated)	P	
6.8	Receiver spurious emissions	P	

<b>Notes:</b>
<sup>1</sup> Only applies for equipment that transmits unacknowledged control and signalling information. <sup>2</sup> The client declares that the tested equipment does not implement this provision. <sup>3</sup> The tested equipment has integrated antennas only.
<b>General remarks:</b>
<b>Summary of compliance with national requirements:</b>
Compliance with this standard provides one means of demonstrating conformity with the specified requirements of RSS 213, Issue.

<b>Testing Location</b>	
<b>Testing Laboratory:</b>	Nemko USA, Inc. (Dallas)
Testing location/ address .....	802 N. Kealy Ave. Lewisville, TX 75057 USA
Testing procedure: TMP	
Tested by (name + signature) :	
Approved by (+ signature) :	
Testing location/ address .....	
<b>Supplemental Information:</b>	
Testing results contained herein were performed at the location(s) listed above.	

## Test Methods

Battery operated products: Batteries used for testing are as supplied. Testing is performed with fully charged battery.

Products powered by AC mains connection: Testing is performed at 120 VAC. The voltage is varied to determine if the rf power output varies with voltage variation.

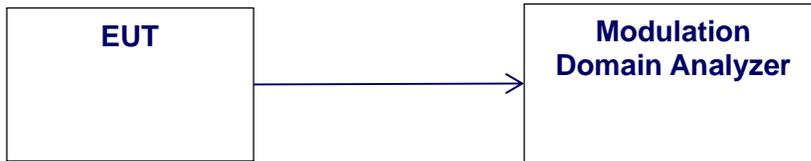
Temperature and humidity:

*Normal Conditions*

Parameter	Minimum	Nominal	Maximum
Temperature (°C)	21	---	23
Relative Humidity (%)	20	---	40

Testing is performed according to ANSI C63.17:2006

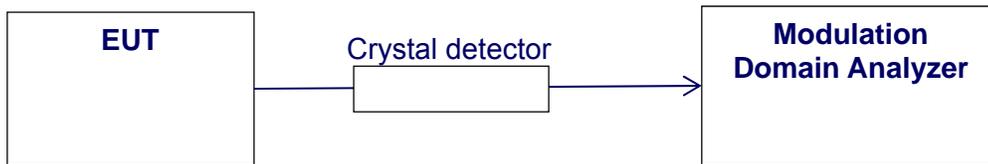
**Frequency Measurements**



Carrier frequency stability at normal and extreme temperatures

Modulation pattern: 010101...

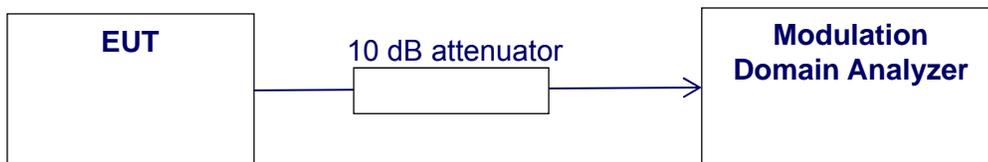
**Timing Measurements**



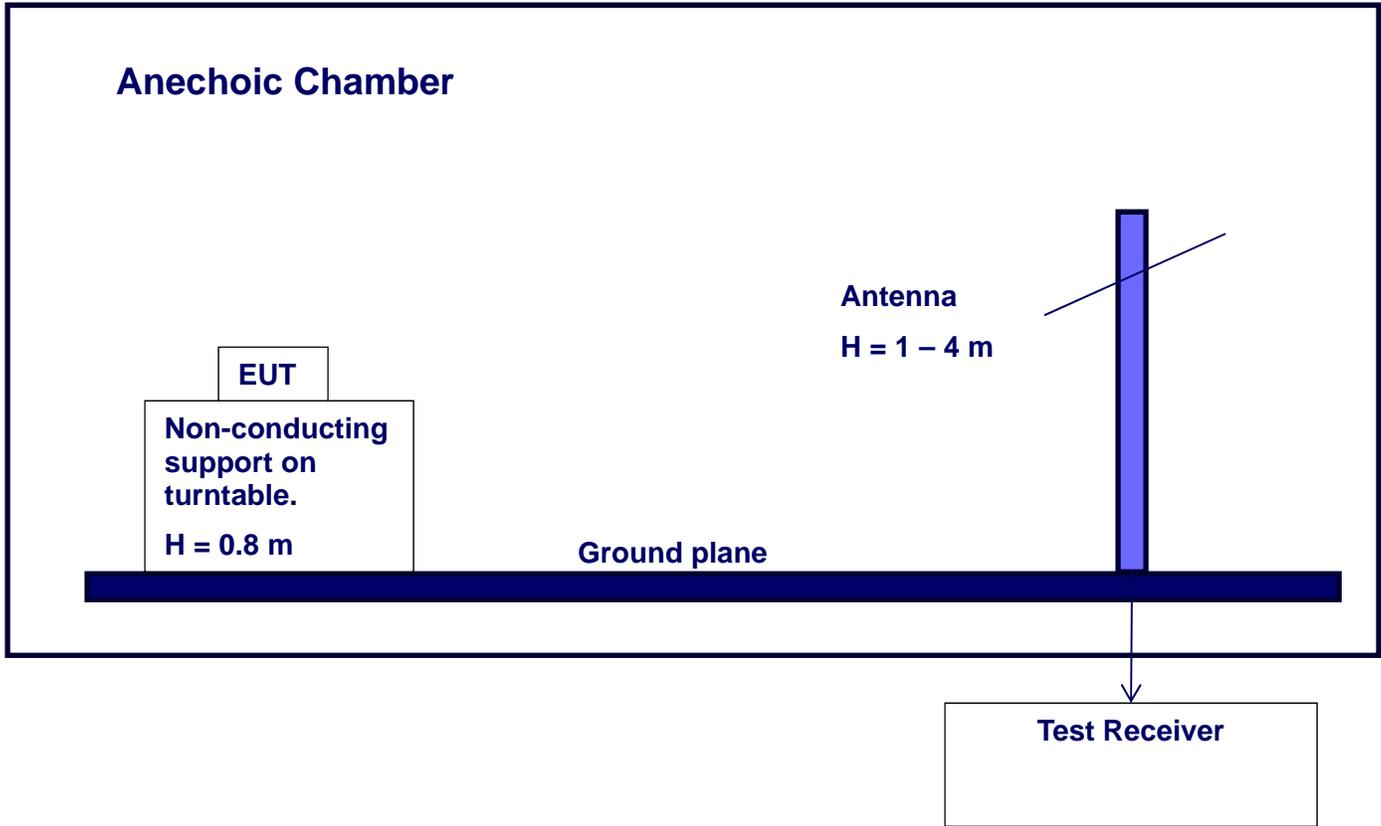
Frame repetition stability, Frame period and Jitter

Modulation pattern: 010101...

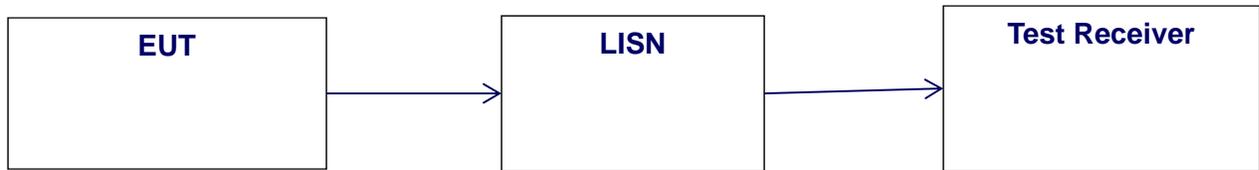
**Antenna Conducted Emission Measurement**



### Radiated Emissions Testing

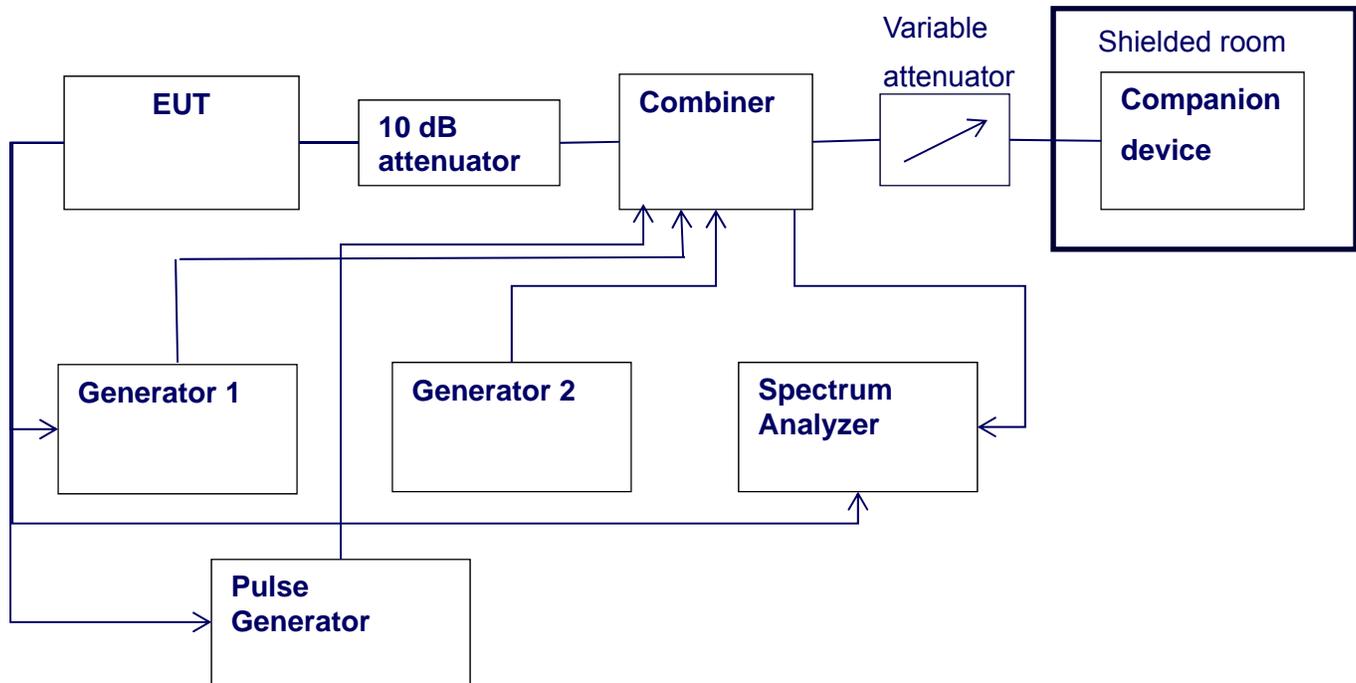


### Power Line Conducted Emissions



Measurement range (MHz)	Receiver bandwidth	Detector
0.150 to 30	10 kHz	Peak
0.150 to 30	9 kHz	Average
0.150 to 30	9 kHz	CISPR Quasi-Peak

## Monitoring Tests



Path loss between the generators and the EUT is measured using a calibrated spectrum analyzer before the test.

The CLK100 signal is used to synchronize the pulse signal generator, the interfering signal generators and the spectrum analyzer to the start of the DECT frame. CLK100 always comes from the base station, therefore, if the EUT is a handset then the CLK100 comes from the Companion Device in the above drawing.

The EUT was limited by administrative commands to operate on only two RF carriers. Generator 1 is an I/Q generator capable of generating an interference signal on multiple channels. Generator 2 is used to block specific channels as required. The pulse generator was used to generate 50 µsec and 35 µsec. rf pulses.

## List of Test Equipment

The following test equipment was used in the performance of the testing herein.

*Table 5 – Test Equipment Used*

Asset Tag	Description	Manufacturer	Model	Serial Number	Cal. Cycle
1016	Preamplifier	Hewlett Packard	8449A	2749A00159	1 YR
1036	Spectrum Analyzer	Rohde & Schwartz	FSEK30	830844/006	2 YR
1052	Generator, I/Q Modulation	Rohde & Schwartz	AMIQ	830848/0005	N/R
1053	Generator, Vector Signal 300 KHz	Rohde & Schwartz	SMIQ 03	DE22081	N/R
1094	Combiner	Mini Circuits	ZA3PD-2	-	N/R
1095	Combiner	Mini Circuits	ZA3PD-4	-	N/R



1289	Watkins Johnson 1 to 6GHz Pre Amplifier	Nemko USA, Inc.	CRA53	162001	1 YR
1310	Antenna, Horn	Electro Metrics	RGA-60	6174	2 YR
1733	Antenna, Active Loop	EMCO	6507	45939	1 YR
1763	Antenna, Bilog	Schaffner	CBL 6111D	22926	1 YR
1767	Receiver, EMI Test 20Hz - 26.5 GHz - 150 - +30 dBm LCD	Rohde & Schwartz	ESIB26	837491/0002	1 YR
1824	Generator, Vector Signal 300k-3GHz	Rohde & Schwarz	SMIQ-03B	835467/007	N/R
1783	Cable Assy. 3m Chamber	Nemko	Chamber	-	1 YR
1937	PSG Analog Signal Generator	Agilent Technologies	E8257D	MY51500351	1 YR
-	Crystal detector	RLC Electronics	CR-232	-	N/R
1467	Attenuator, 10 dB	MCL, Inc.	BW-S10W 2 10db-2WD C	-	Verify before use
1468	Attenuator, 10 dB	MCL, Inc.	BW-S10W 2 10db-2WD C	-	Verify before use
1663	Spectrum Analyzer	Rohde & Schwarz	FSP3	100073	2 YR
703	LISN	Rohde & Schwarz	ESH2-Z5	871884/048	1 YR
4030	Modulation Domain Analyzer	HP	53310A	3121A01845	1 YR
1258	LISN .15mhz-30mhz	EMCO	3825/2	1305	1 YR
1555	150KHz to 30MHz High Pass Filter	Solar Electronics	7930-5.0	933125	1 YR
1887	3.0m Cable	Nemko USA	1887 RG 214	1	1 YR
1949	Transient Limiter 150kHz - 30 MHz, 10dB, 2W max	Com-Power	LIT-153	531129	N/R





## Labeling requirements

Table No. 3	Labeling requirements	Verdict
See separate label exhibit document.		P
<b>Requirement:</b>		
<p>The FCC identifier shall be displayed on the label and the device shall bear the following statement in a conspicuous location on the device or in the user manual, if the device is too small:</p> <p><i>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</i></p> <p>The label shall be of a permanent type, and shall last the life of the equipment.</p>		
<p>Evaluated by (+ signature) ..... : David Light </p>		

## Antenna requirement

Table No. 4	Antenna requirement	Verdict
<p>Does the EUT have a detachable antenna? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If detachable, is the antenna connector non-standard? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>The EUT has only integral antenna. The conducted tests were performed on a sample with a temporary antenna connector.</p>		P
<b>Requirement:</b>		
The antenna shall be non-detachable or shall be a unique connector.		
<p>Evaluated by (+ signature) ..... : David Light </p>		

## Channel frequencies

UPCS Channel	Frequency (MHz)
Upper band edge	1930.000
0	1928.448
1	1926.720
2	1924.992
3	1923.264
4	1921.536
Lower band edge	1920.000

### Requirement:

The frequency must remain within 1920 – 1930 MHz band for isochronous devices.

## **Test Results – Automatic discontinuation of transmission**



Table No. 5	<b>Automatic discontinuation of transmission</b>	Verdict
		P

The EUT transmits control and signaling information?  Yes  No

Type of EUT:  Initiating device  Responding device

Number	Test	EUT reaction	Verdict
1	Power removed from the EUT	C - Connection breakdown. Companion device transmits control and signaling information.	Pass
2	EUT switch off	C - Connection breakdown. Companion device transmits control and signaling information.	Pass
3	Hook-On by companion device	N/A	Pass
4	Hook-On by EUT	C - Connection breakdown. Companion device transmits control and signaling information.	Pass
5	Power removed from companion device	A - Connection breakdown. Transmissions cease.	Pass
6	Companion device switch off	N/A	Pass

**Requirement:**

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Tested by (+ signature) .....

David Light

## Test Results – Peak power output



Table No. 6	<b>Peak power output</b>	Verdict
		P

Test Requirement .....: 15.319(c)(f)  
 Test Method.....: ANSI C63.17, clause 6.1.2  
 EUT Configuration .....: Transmit max. power  
 Test Date .....: 21-Jan-13  
 Temperature .....: 21°C Relative Humidity ....: 22.3 %  
 Test Equipment Asset Tag List : 1036, 1310, 1783 (radiated), 1036, 1467, 1468 (conducted)

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Maximum Radiated Output Power (dBm)	Maximum Antenna Gain (dBi)
4	1921.536	+16.61	+18.5	1.9
2	1924.992	+16.91	+19.0	2.1
0	1928.448	+16.98	+19.0	2.0

Freq. (MHz)	P <sub>meas</sub> Meter reading (dBm)	G <sub>R</sub> RX antenna gain (dBi)	L <sub>C</sub> Cable loss (dB)	G <sub>amp</sub> Pre-amp Gain (dB)	P <sub>R</sub> Adjusted RX Power (dBm)	L <sub>P</sub> Free-space propagation loss (dB)	EIRP (dBm)	G <sub>T</sub> TX antenna gain (dBi)	P <sub>T</sub> Transmit power at antenna port (dBm)	P <sub>T</sub> Transmit power at antenna port (mW)
1928.5	-22.6	7.5	1.4	0.0	-28.7	47.7	19.0	2.0	17.0	50.662
1925.0	-22.8	7.3	1.4	0.0	-28.7	47.7	19.0	2.1	16.9	49.329
1921.5	-23.3	7.3	1.4	0.0	-29.2	47.7	18.5	1.9	16.6	45.869

The EIRP is calculated from measured field strength by the formula in DA00-705.

The EUT was rotated in 3 planes for the antenna gain test.

Limit:

$$B = 1418837 \text{ Hz}$$

Conducted:  $100\mu W \times \sqrt{1418837} = 119 \text{ mW} = 20.8 \text{ dBm}$ , where  $B$  is the measured emission bandwidth in Hz.

The antenna gain is less than 3 dBi, therefore no reduction of power is required.

**Requirement:**

Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in hertz

The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

Tested by (+ signature) .....

David Light







## Test Results – Emission bandwidth







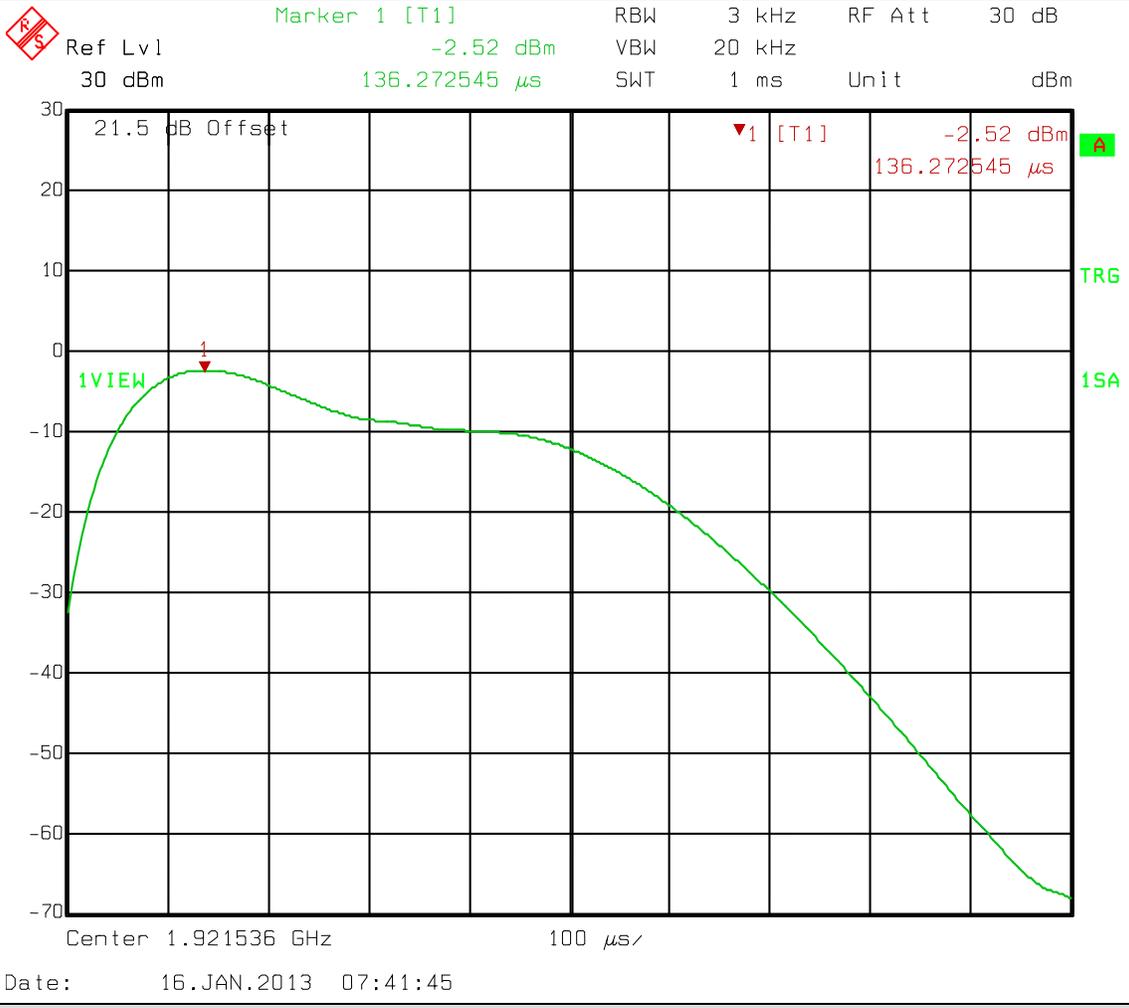


## Test Results – Power spectral density





Table No. 15	Power spectral density – Lower channel	Verdict
		P

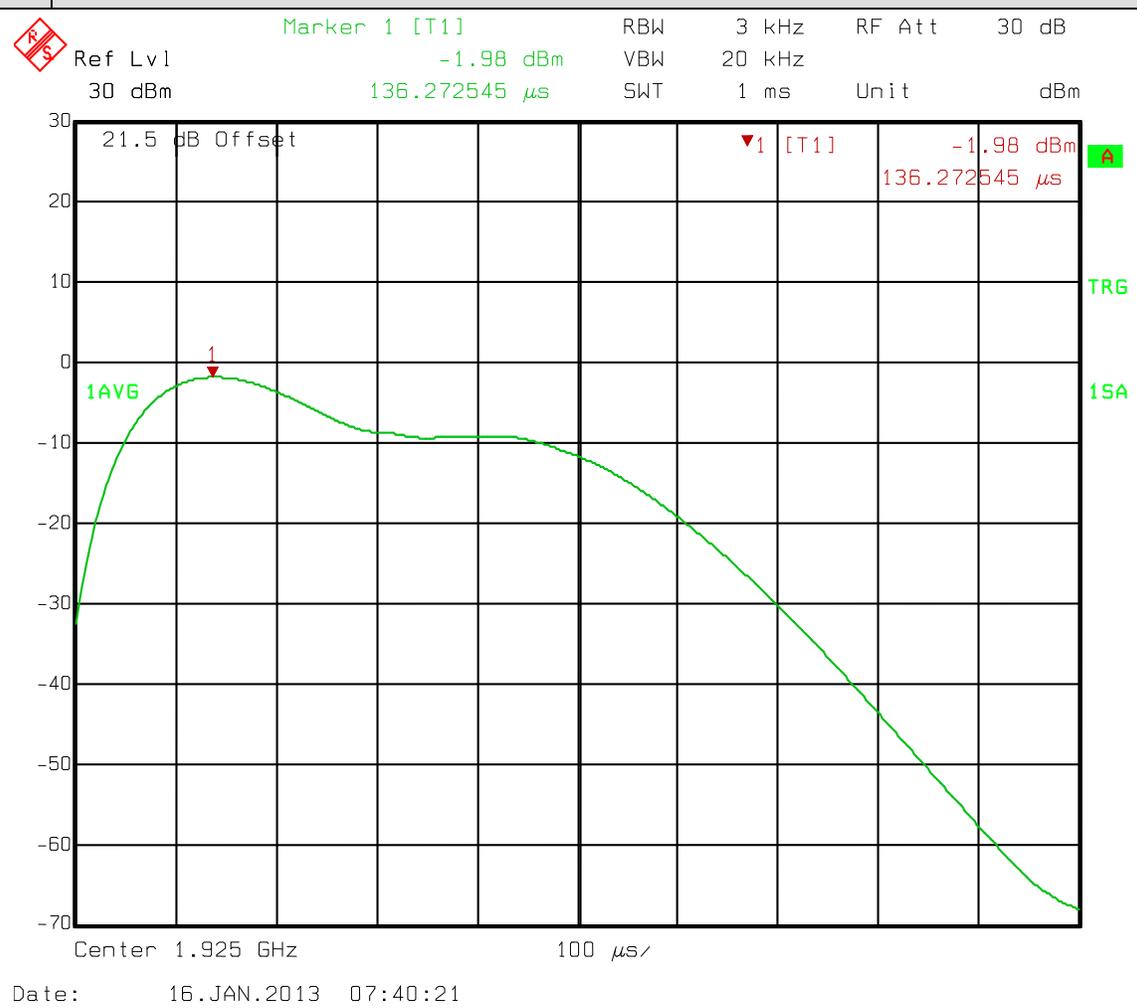


**Supplemental Information:**

Tested by (+ signature) ..... : *David Light* David Light



Table No. 16	<b>Power spectral density – Middle channel</b>	Verdict
		P



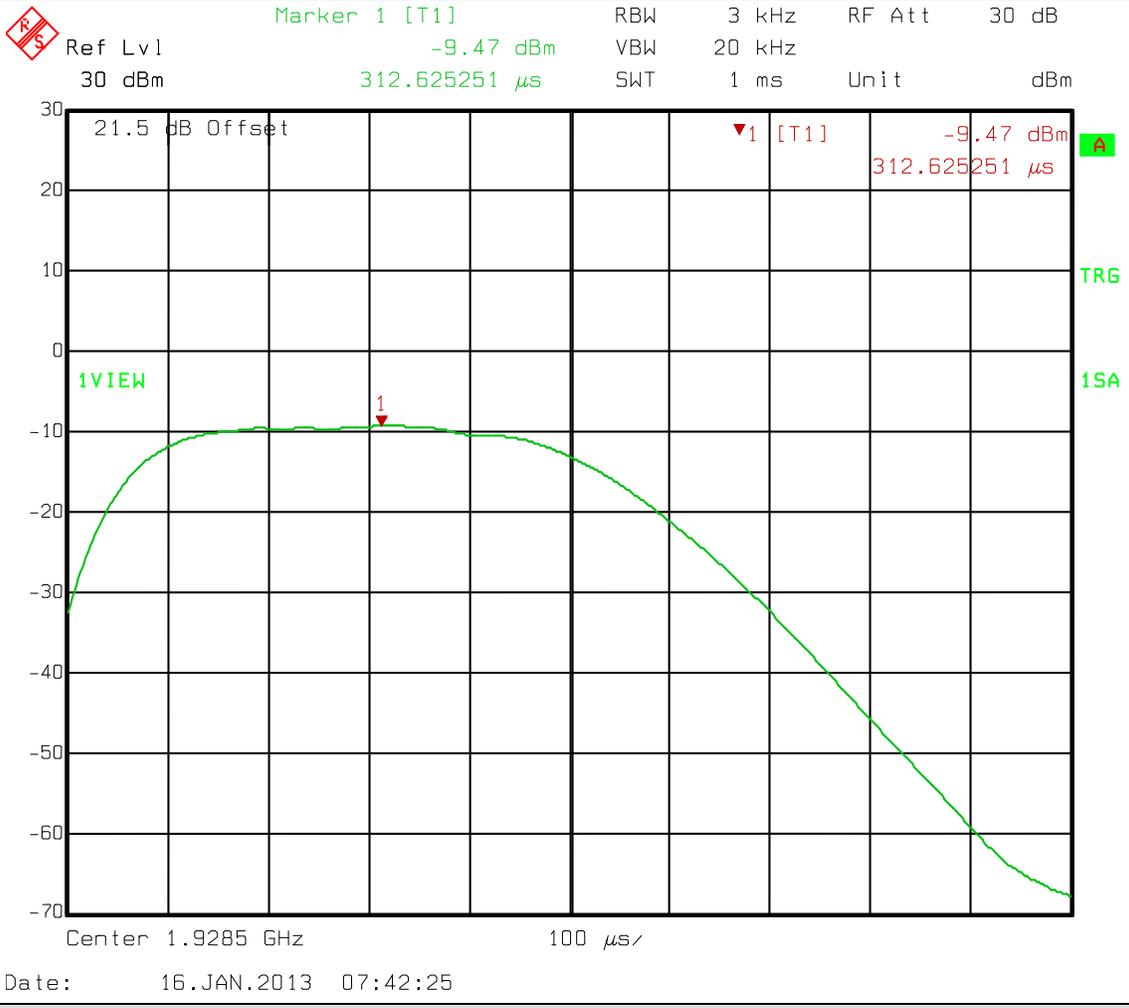
**Supplemental Information:**

Averaged over 1000 sweeps  
 Detector: Sample

Tested by (+ signature) ..... : David Light 



Table No. 17	<b>Power spectral density – Upper channel</b>	Verdict
		P



**Supplemental Information:**

Tested by (+ signature) ..... :      David Light      *David Light*

## Test Results – In-band unwanted emissions







## Test Results – Out-of-band emissions





















## Test Results – Carrier frequency stability



## Test Results – Frame repetition stability



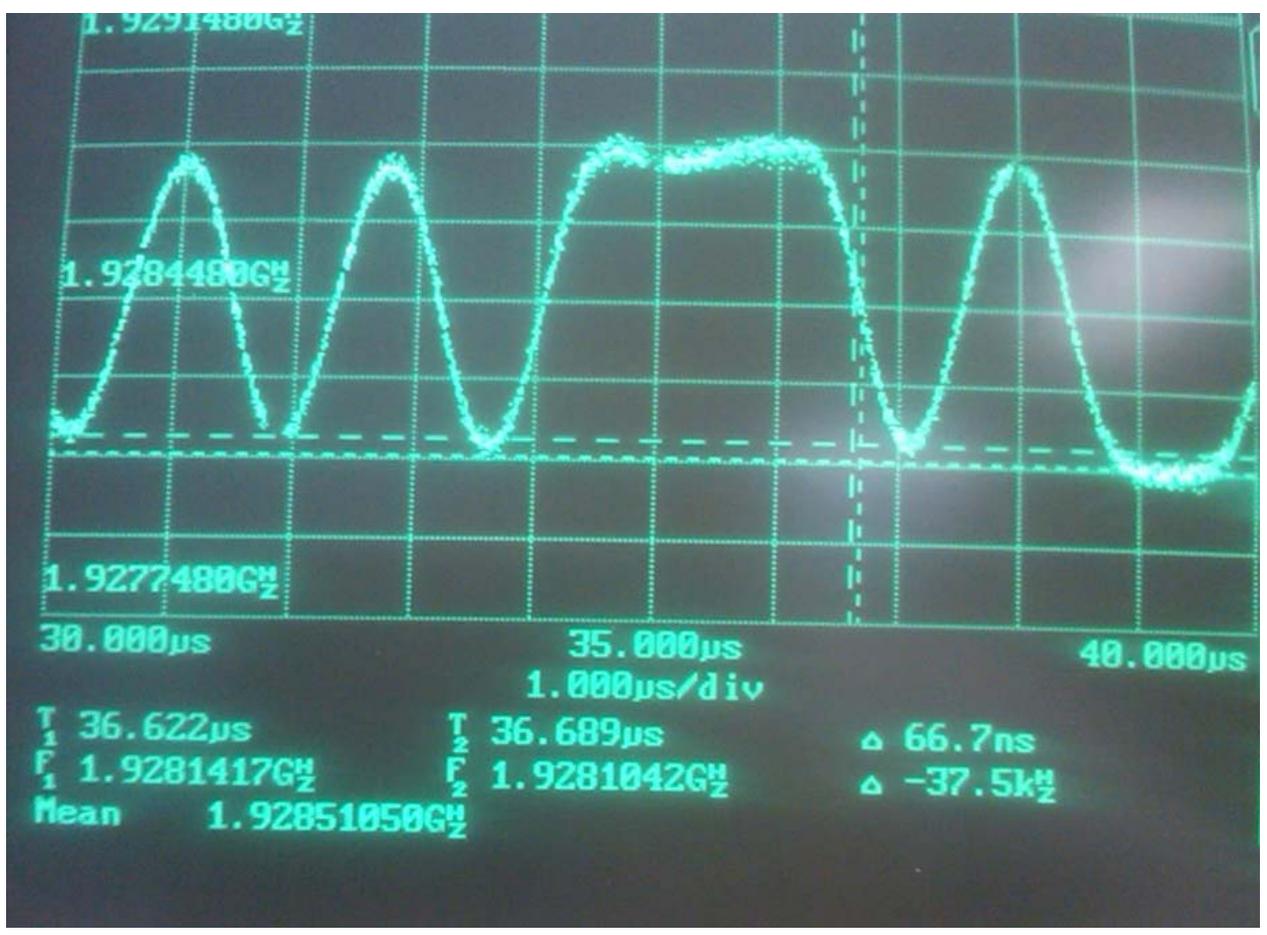


## Test Results – Frame period and jitter



Table No. 35	Frame period and jitter	Verdict
		P

Test Requirement ..... : 15.323(e)  
 Test Method..... : ANSI C63.17, clause 6.2.3  
 EUT Configuration ..... :  
 Test Date ..... : 16-Jan-13  
 Temperature ..... : 21°C                      Relative Humidity .... : 22.3 %  
 Test Equipment Asset Tag List :



**Supplemental Information:**

Tested by (+ signature) ..... :                      David Light                      *David Light*

## Test Results – Monitoring threshold, LIC







## Test Results – Threshold monitoring bandwidth



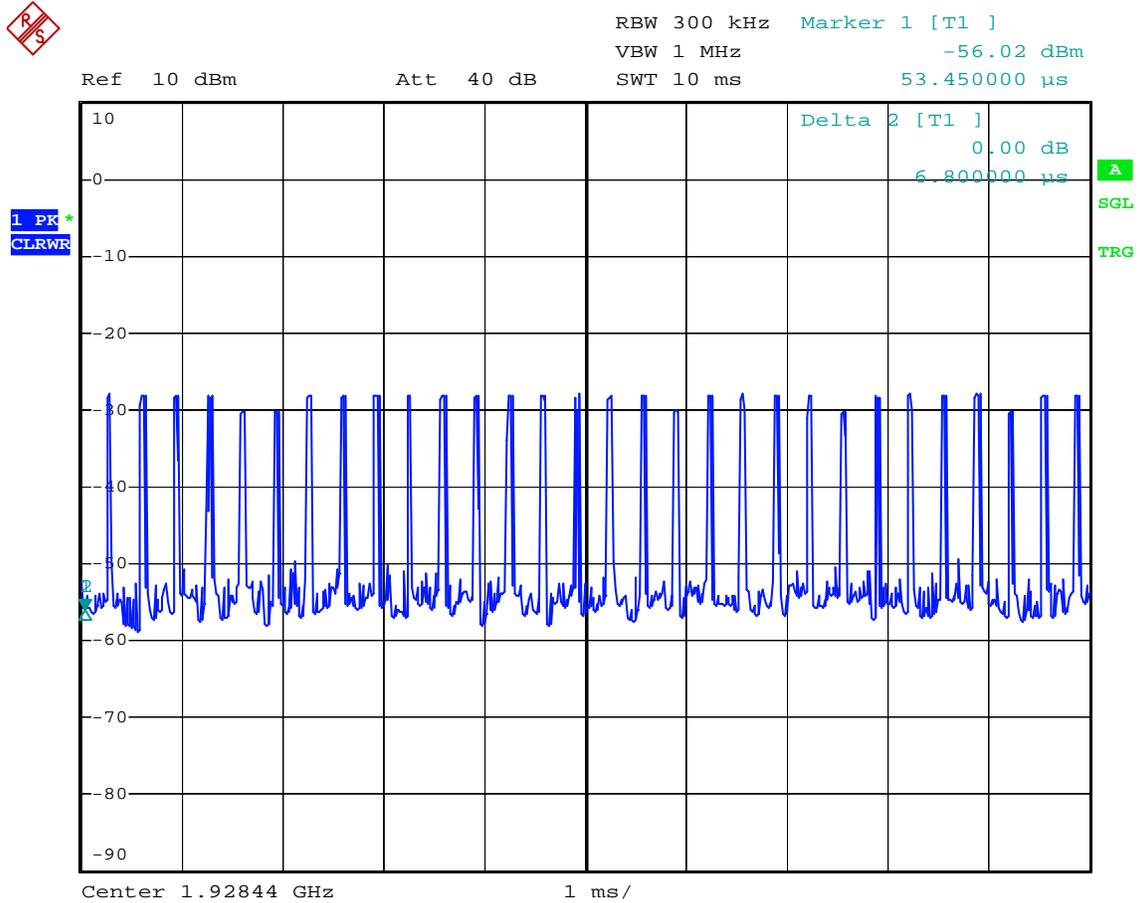
## **Test Results – Reaction time and monitoring interval**





Table No. 41	<b>50 <math>\mu</math>s pulses</b>	Verdict
		P

Test Requirement ..... : 15.323(c)(1), (5), and (7)  
 Test Method..... : ANSI C63.17, clause 7.5  
 Test Date ..... : 1-Feb-13  
 Temperature ..... : 22°C Relative Humidity .... : 23.6 %  
 Test Equipment Asset Tag List : 1036, 1052, 1053, 1094, 1095, 1824, 1937, 1467, 1468



Date: 1.FEB.2013 17:34:28

**Supplemental Information:**

Tested by (+ signature) ..... : David Light *David Light*



## **Test Results – Time and Spectrum Window Access Procedure**

Table No. 43	<b>Reaction time and monitoring interval</b>	Verdict
		NT

Test Requirement ..... : 15.323(c)(6)  
 Test Method..... : ANSI C63.17, clause 8.1  
 Test Date ..... : Click here to enter a date.  
 Temperature ..... : Click here to enter text.°C      Relative Humidity .... : Click here to enter text. %  
 Test Equipment Asset Tag List : 1036, 1052, 1053, 1094, 1095, 1824, 1937, 1467, 1468

**Test results:**

Access Criteria, ref. to ANSI C63.17, clause 8.1.1	Observation	Verdict
b) Check that the EUT transmits on the interference-free time slot.		N/A
b) The EUT must terminate or pause in its repetitive transmission of the control and signaling channel on the open channel to repeat the access criteria not less frequently than every 30 s.		N/A

Access Criteria, ref. to ANSI C63.17, clause 8.1.2	Observation	Verdict
b) Check that the EUT changes to an interference-free slot when interference is introduced on the time slot in use.		N/A

Access Criteria, ref. to ANSI C63.17, clause 8.1.3	Observation	Verdict
b) – d) Check that the EUT uses random waiting interval before continuing transmission on an interfered time slot.		N/A

This requirement is only for devices which transmit unacknowledged control and signaling information.

**This device does not transmit unacknowledged control and signaling information.**

**Limits:**

FCC 15.323(c)(4): Once access to specific combined time and spectrum windows is obtained, an acknowledgement for a system participant must be received by the initiating transmitter within one second or transmission must cease. Periodic acknowledgements must be received at least every 30 seconds or transmission must cease. Channels used exclusively for control and signaling information may transmit continuously for 30 seconds without receiving an acknowledgement, at which time the access criteria must be repeated.

15/323(c)(6): If the selected combined time and spectrum windows are unavailable, the device may either monitor and select different windows or seek to use the same windows after waiting an amount of time, randomly chosen from a uniform random distribution between 10 and 150 milliseconds, commencing when the channel becomes available.

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David Light





## **Test Results – Acknowledgements and Transmission Duration**





## Test Results – Dual access criteria check



## Test Results – Alternative monitoring interval

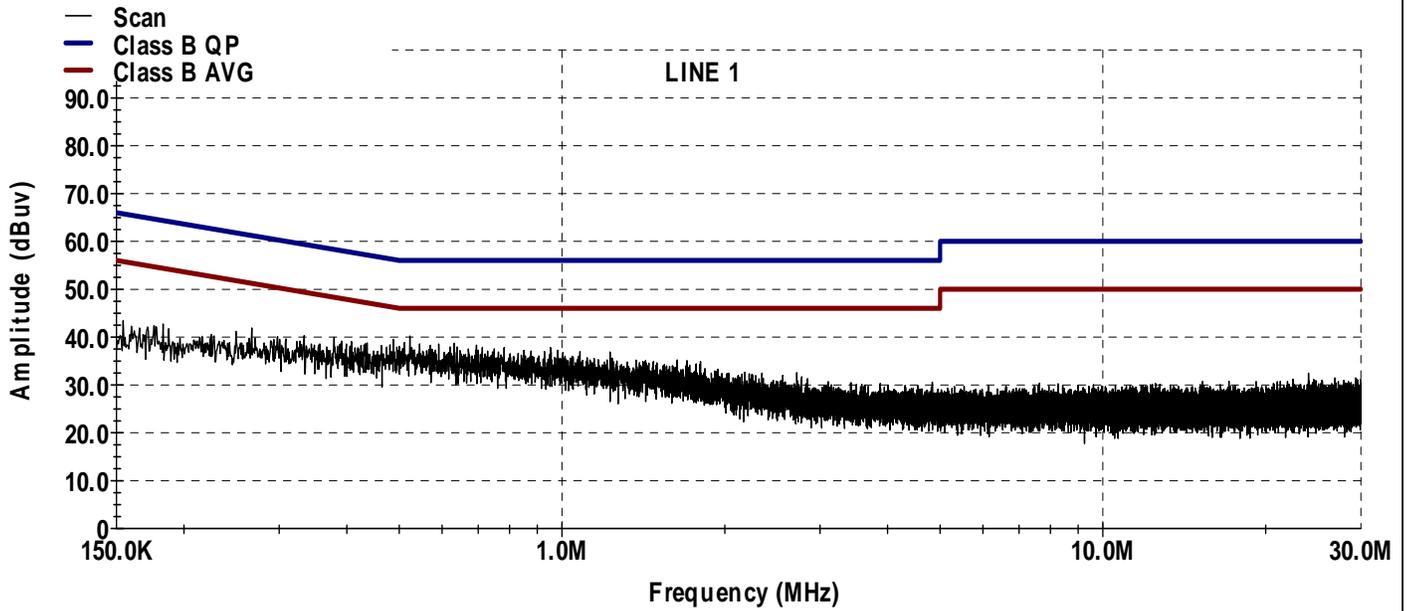


## **Test Results – Power line conducted emissions**



Table No. 48	Phase conductor	Verdict
		P

Frequency Range ..... : 0.150 to 30 MHz  
 Test Requirement ..... : CFR 47, Part 15.207, RSS-GEN  
 Test Method..... : ANSI C63.4:2009 and RSS-GEN  
 EUT Configuration ..... : Transmit max. power  
 Test Date ..... : 19-Feb-13  
 Temperature ..... : 21.8°C Relative Humidity .... : 30.4 %  
 Test Equipment Asset Tag List : 1663, 703, 1783



**Supplemental Information:**

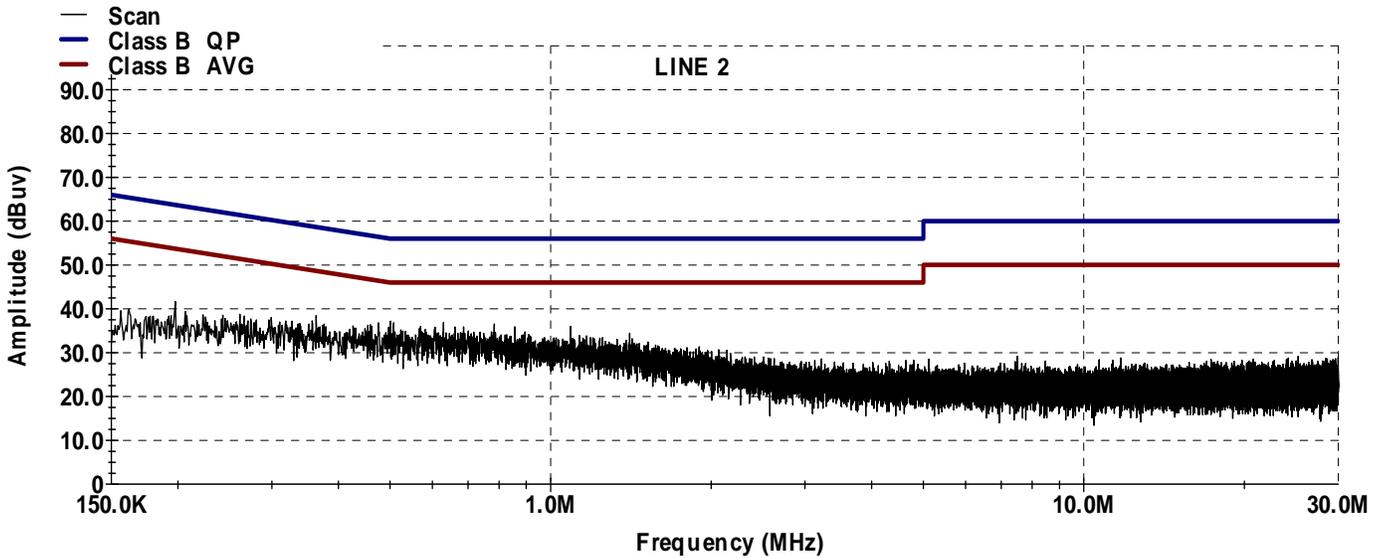
Model D1680v

Tested by (+ signature) .....

David Light

Table No. 49	<b>Neutral conductor</b>	Verdict
		P

Frequency Range ..... : 0.150 to 30 MHz  
 Test Requirement ..... : CFR 47, Part 15.207, RSS-GEN  
 Test Method..... : ANSI C63.4:2009 and RSS-GEN  
 EUT Configuration ..... : Transmit max. power  
 Test Date ..... : 19-Feb-13  
 Temperature ..... : 21.8°C Relative Humidity .... : 30.4 %  
 Test Equipment Asset Tag List : 1663, 703, 1783



**Supplemental Information:**

Model D1680v

Tested by (+ signature) .....

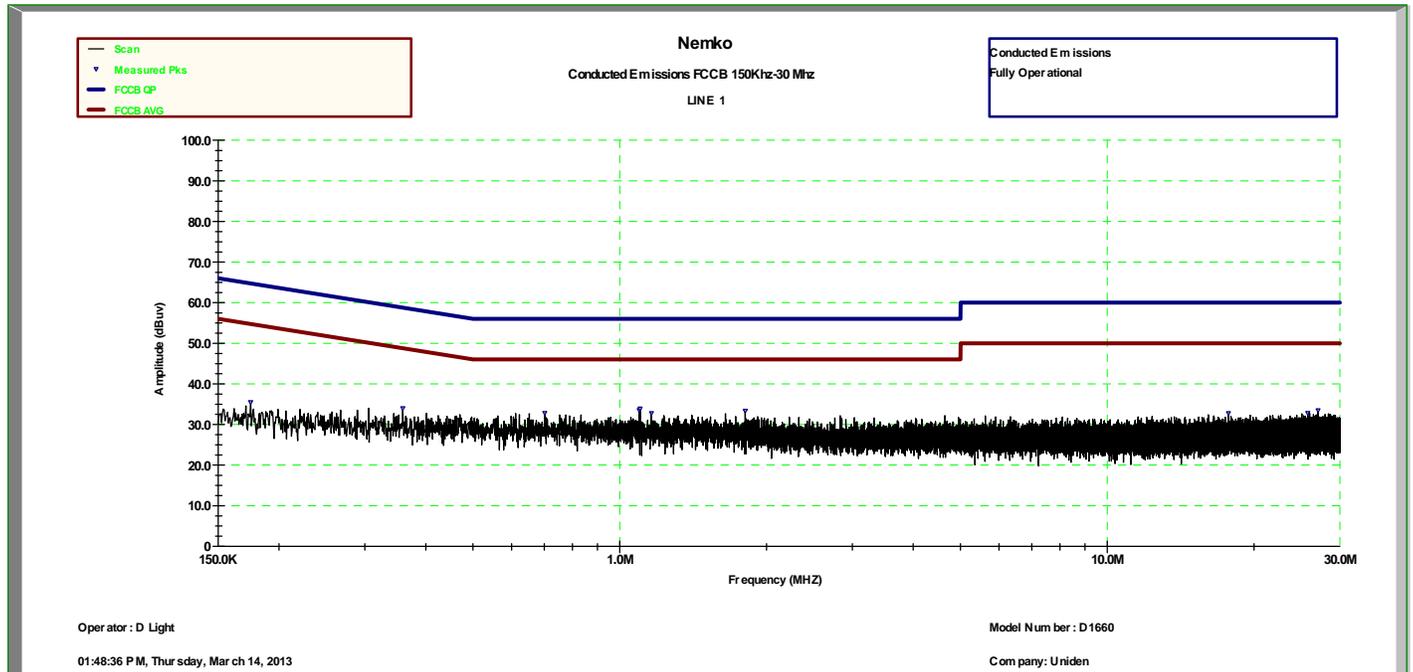
David Light





Table No. 50	Phase conductor	Verdict
		P

Frequency Range ..... : 0.150 to 30 MHz  
 Test Requirement ..... : CFR 47, Part 15.207, RSS-GEN  
 Test Method..... : ANSI C63.4:2009 and RSS-GEN  
 EUT Configuration ..... : Transmit max. power  
 Test Date ..... : 14-Mar-13  
 Temperature ..... : 23°C Relative Humidity .... : 31 %  
 Test Equipment Asset Tag List : 1663-1949-1887-1555-1258



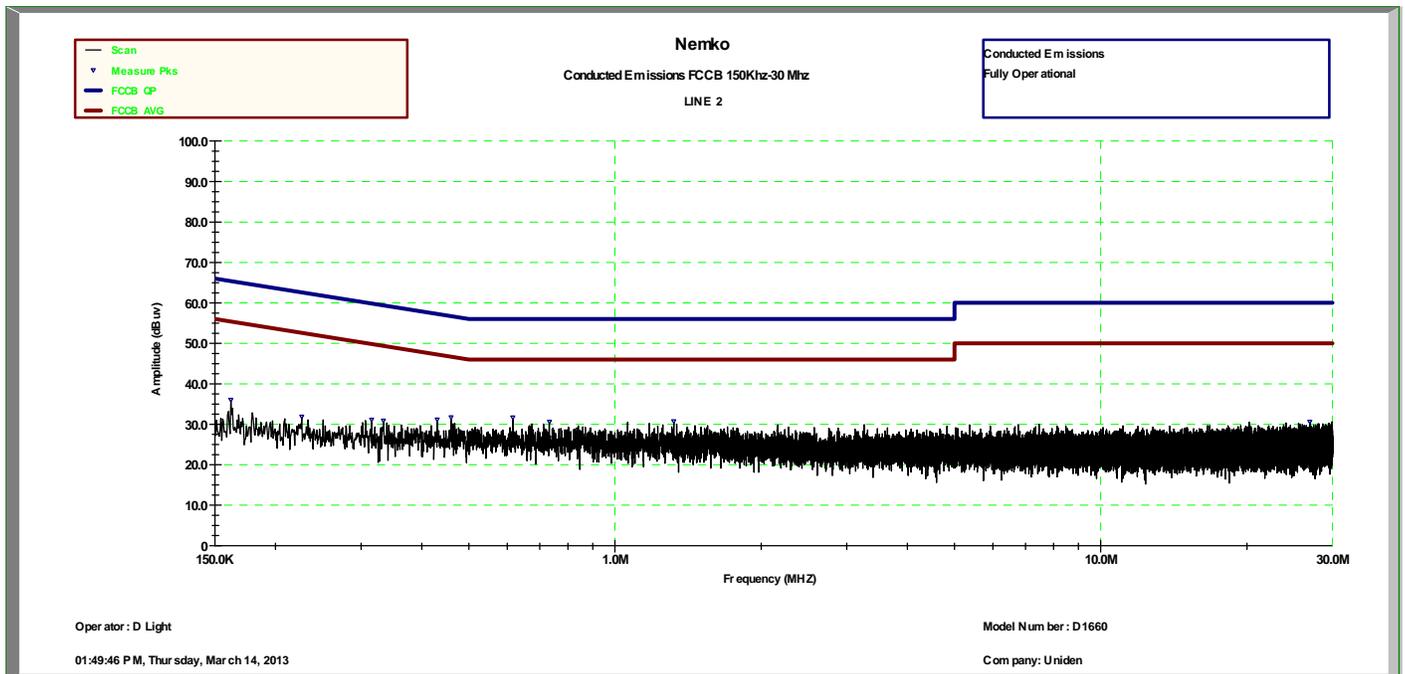
**Supplemental Information:**

Model D1660v

Tested by (+ signature) ..... : David Light *David Light*

Table No. 51	<b>Neutral conductor</b>	Verdict
		P

Frequency Range ..... : 0.150 to 30 MHz  
 Test Requirement ..... : CFR 47, Part 15.207, RSS-GEN  
 Test Method..... : ANSI C63.4:2009 and RSS-GEN  
 EUT Configuration ..... : Transmit max. power  
 Test Date ..... : 14-Mar-13  
 Temperature ..... : 23°C Relative Humidity .... : 31 %  
 Test Equipment Asset Tag List : 1663-1949-1887-1555-1258



**Supplemental Information:**

Model D1660v

Tested by (+ signature) .....

David Light



## Test Results – Radiated Spurious Emissions





## Setup Photos

Photo 6	<b>Test Setup – Radiated Emissions</b>	
		
<b>Supplemental Information:</b>		

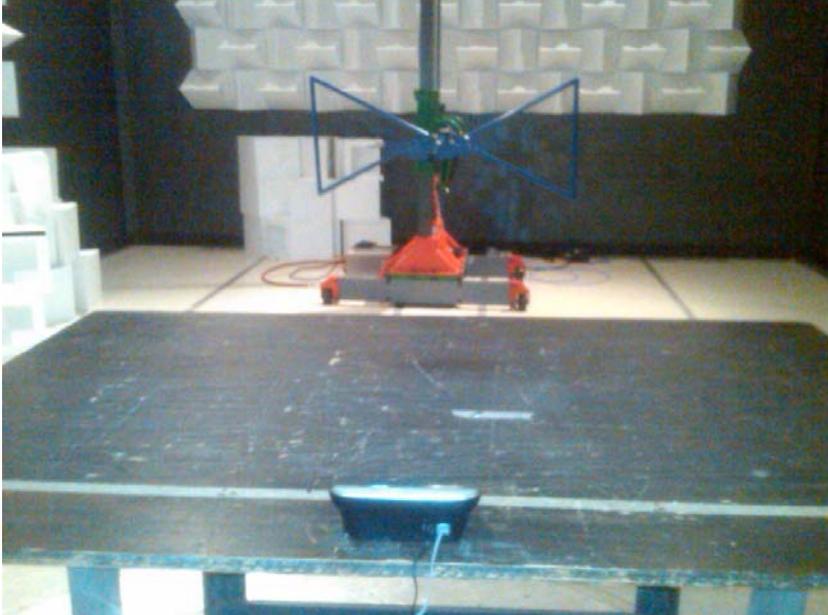
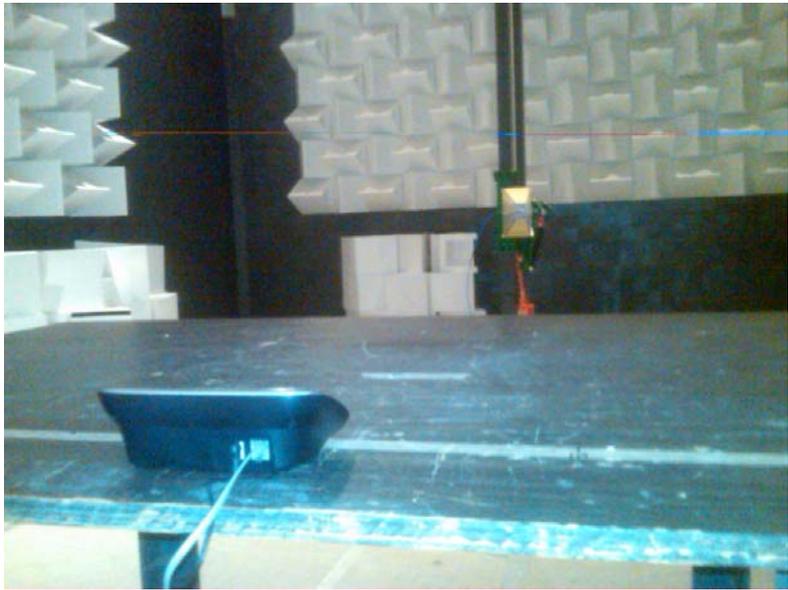
Photo 7	<b>Test Setup – Radiated Emissions</b>	
		
<b>Supplemental Information:</b>		

Photo 8 **Test Setup – Radiated Emissions**



**Supplemental Information:**

Photo 9 **Test Setup – Power line conducted emissions**



**Supplemental Information:**  
D1680v

Photo 10

Test Setup – Power line conducted emissions



**Supplemental Information:**

D1660v