

Report No. 264013-9

# **Test Report**

Product	UPCS Headset			
Name and address of the applicant	Sennheiser Communications A/S Industriparken 27, 2750 Ballerup Denmark			
Name and address of the manufacturer	Same as above			
Model	D 10 HS			
Rating	3.7V DC (Secondary Battery)			
Trademark	Sennheiser			
Serial number	/			
Additional information	DECT 6.0			
Tested according to	FCC Part 15, subpart D Isochronous UPCS Device, 1920 – 1930 MHz Industry Canada RSS 213, Issue 2 2 GHz License-exempt Personal Communications Service Devices (LE-PCS)			
Order number	264013			
Tested in period	2014.07.02 to 2014.10.14			
Issue date	2015.02.23			
Name and address of the testing laboratory	Norway         FCC No: 994405 IC OATS: 2040D-1           Instituttveien 6 Kjeller, Norway         TEL: (+47) 22 96 03 30 FAX: (+47) 22 96 05 50			
	Free AC Sveinsen       When Manual Manu			

Template version: B



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# 1 INFORMATION

### 1.1 Tested Item

Name :	Sennheiser
Model name :	D 10 HS
FCC ID :	DMOCDHDGG
Industry Canada ID :	2099-D10HS
Serial number :	/
Hardware identity and/or version:	V3C
Software identity and/or version :	V0122
Tested to IC Radio Standard (RSS) :	RSS-213 Issue 2, RSS-GEN Issue 4
Test Site IC Reg. Number :	IC 2040D-1
Frequency Range :	1921.536 – 1928.448 MHz
Number of Channels :	5 RF Channels, 5x12 = 60 TDMA Duplex Channels
Type of Modulation :	Digital (Gaussian Frequency Shift Keying)
Conducted Output Power :	69 mW (Peak)
Antenna Connector :	None
Number of Antennas :	2
Antenna Diversity Supported :	Yes
Desktop Charger :	Integrated in Base Station
Power Supply :	Secondary Battery (3.7V, Li-Ion)

### 1.2 Description of Tested Device

The EUT is a DECT Headset and is an initiating device as described in ANSI C63.17 and is designed to operate together with a DECT fixed part (i.e. a base station), which is the responding device.



### 1.3 Exposure Evaluation

The EUT is a portable device and is designed to be held to ear or worn in a belt clip when used. A test reports with the measured SAR values for both configurations are submitted with the application.

### 1.4 Test Environment

Temperature:	20.5 – 24.3 °C
Relative humidity:	36 – 58 %
Normal test voltage:	3.7 V DC (Secondary Battery)

The values are the limit registered during the test period.

### 1.5 Test Engineer(s)

Frode Sveinsen

#### 1.6 Test Equipment

See list of test equipment in clause 6.

#### 1.7 Other Comments

The Monitoring and Time and Spectrum Window Access tests were performed with Test Set-Up 6 (Ref. clause 5). A clock signal from the companion device was used to synchronize the Pulse Pattern Generator and the Spectrum Analyzer to the start of the DECT time window. The EUT was limited by administrative commands to operate on only two frequency carriers. For the tests where the EUT was required to operate on only one frequency carrier, one carrier was blocked by applying a CW interfering signal from RF Generator 3. The Pulse Pattern Generator was used to apply time synchronized interference to time windows where this was required.

Since the EUT was programmed to operate on only two RF carriers, it was only necessary with two RF generators for the monitoring tests, however a third generator was applied for the tests that required specific time slots to be blocked.

The tested EUT supports both normal DECT slot length and DECT Long slot. Long slot is an extended DECT slot that allows a higher data rate for bit rates higher than 32kbps.

This EUT supports Least Interfered Channel procedure (LIC) when using normal DECT slots, but not when using Long slots. Monitoring and Time and Spectrum Window Access tests were conducted both with and without LIC where applicable.

All tests except Power-Line Conducted Emissions were performed in conducted mode with a temporary antenna connector.



# 2 TEST REPORT SUMMARY

### 2.1 General

All measurements are traceable to national standards.

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC CFR47 Part 15D for Isochronous UPCS Devices and Industry Canada RSS-213 Issue 2 / RSS-GEN Issue 4 / RSP-100 Issue 10.

All tests were conducted is accordance with ANSI C63.4-2009 and ANSI C63.17-2013. Antenna Gain tests were made in a 3m fully-anechoic chamber.

A description of the test facility is on file with the FCC and Industry Canada.

New Submission

Production Unit

Pre-production Unit

Class II Permissive Change

PUE Equipment Code

Family Listing



#### THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

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### 2.2 Test Summary

Name of test	FCC CFR 47 Paragraph #	IC RSS-213 Paragraph #	Verdict
Power Line Conducted Emission	15.107(a) 15.207(a)	6.3 RSS-GEN 8.8	Complies
Digital Modulation Techniques	15.319(b)	6.1	Complies
Labeling requirements	15.19(a)(3)	3 RSP-100 3.1	Complies
Antenna Requirement	15.317, 15.203	RSS-GEN 8.3	Complies
Channel Frequencies	15.303	1	Complies
Automatic discontinuation of transmission	15.319(f)	4.3.4(a)	Complies
Emission Bandwidth	15.323(a)	6.4 RSS-GEN 6.6	Complies
In-band emissions	15.323(d)	6.7.2	Complies
Out-of-band emissions	15.323(d)	6.7.1	Complies
Output Power and Antenna Gain	15.319(c)(e), 15.31(e)	6.5 and 4.1(e) RSS-GEN 8.3	Complies
Power Spectral Density	15.319(d)	4.3.2.1	Complies
Carrier frequency stability	15.323(f)	6.2	Complies
Frame repetition stability	15.323(e)	4.3.4(c)	Complies
Frame period and jitter	15.323(e)	4.3.4(c)	Complies
Monitoring threshold, Least interfered channel	15.323(c)(2);(5); (9)	4.3.4(b)	Complies
Monitoring of intended transmit window and maximum reaction time	15.323(c)(1)	4.3.4(b)	Complies
Threshold monitoring bandwidth	15.323(c)(7)	4.3.4(b)	Complies
Reaction time and monitoring interval	15.323(c)(1);(5); (7)	4.3.4(b)	Complies
Access criteria test interval	15.323(c)(4);(6)	4.3.4(b)	N/A <sup>1</sup>
Access Criteria functional test	15.323(c)(4);(6)	4.3.4(b)	N/A <sup>1</sup>
Acknowledgements	15.323(c)(4)	4.3.4(b)	Complies
Transmission duration	15.323(c)(3)	4.3.4(b)	Complies
Dual access criteria	15.323(c)(10)	4.3.4(b)	Complies
Alterative monitoring interval	15.323(c)(10);(11)	4.3.4(b)	N/A <sup>2</sup>
Spurious Emissions (Radiated)	15.319(g) 15.109(a) 15.209(a)	4.3.3 RSS-GEN 8.9	N/A <sup>3</sup>

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

<sup>1</sup> Only applies for EUT that can be initiating device

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

<sup>3</sup> Not required if the Conducted Out-of-Band Emissions test is Passed



## **3 TEST RESULTS**

### 3.1 **Power Line Conducted Emissions**

FCC Part 15.207(a)

RSS-213 Clause 6.3, RSS-GEN Clause 8.8

Date of Test: 16-Jul-2014

Measurement procedure: ANSI C63.4-2009 using 50  $\mu$ H/50 ohms LISN.

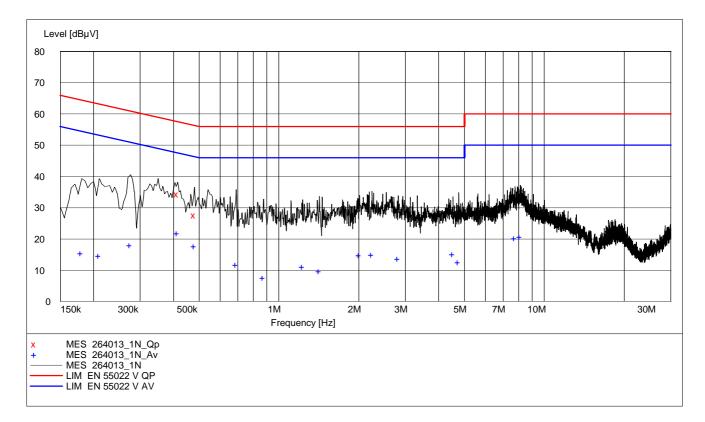
Test Results:	Complies
Measurement Data:	See attached graph, (Peak detector).

#### Highest measured value (L1 and N):

#### On Hook, Charging:

Frequency	Level	Af	Limit	Margin	Det	Position	Verdict
[MHz]	[dBuV]	[dB]	[dBuV]	[dB]			[Pass/Fail]
0.415000	34.40	10.20	57.50	23.10	QP	Ν	Pass
0.480000	27.60	10.20	56.30	28.70	QP	Ν	Pass
0.180000	15.40	10.10	54.50	39.10	AV	N	Pass
0.210000	14.70	10.10	53.20	38.50	AV	L1	Pass
0.275000	18.10	10.10	51.00	32.90	AV	L1	Pass
0.415000	21.90	10.20	47.50	25.60	AV	Ν	Pass
0.480000	17.70	10.20	46.30	28.60	AV	Ν	Pass
0.690000	11.80	10.20	46.00	34.20	AV	Ν	Pass
0.875000	7.70	10.20	46.00	38.30	AV	Ν	Pass
1.230000	11.10	10.20	46.00	34.90	AV	L1	Pass
1.420000	9.70	10.20	46.00	36.30	AV	L1	Pass
2.015000	14.80	10.20	46.00	31.20	AV	Ν	Pass
2.245000	15.00	10.30	46.00	31.00	AV	Ν	Pass
2.820000	13.80	10.30	46.00	32.20	AV	Ν	Pass
4.530000	15.20	10.40	46.00	30.80	AV	Ν	Pass
4.760000	12.70	10.40	46.00	33.30	AV	Ν	Pass
7.765000	20.30	10.50	50.00	29.70	AV	N	Pass
8.120000	20.70	10.60	50.00	29.30	AV	Ν	Pass





**On Hook, Charging** 



### 3.2 Digital Modulation Techniques

The EUT uses Multi Carrier / Time Division Multiple Access / Time Division Duplex and Digital GFSK modulation. For further details see the operational description provided by the applicant.

#### Requirement, FCC 15.319(b):

All transmissions must use only digital modulation techniques.

### 3.3 Labeling Requirements

See separate documents showing the label design and the placement of the label on the EUT.

#### Requirements FCC 15.19

The FCC Identifier shall be displayed on the label, and the device(s) shall bear the following statement in a conspicuous location on the device or in the user manual if the device is too small:

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.

The label itself shall be of a permanent type, not a paper label, and shall last the lifetime of the equipment.

#### 3.4 Channel Frequencies

UPCS CHANNEL	FREQUENCY (MHz)
Upper Band Edge	1930.000
0 (Highest)	1928.448
1	1926.720
2	1924.992
3	1923.264
4 (Lowest)	1921.536
Lower Band Edge	1920.000

#### Requirement: FCC 15.303

Within 1920 -1930 MHz band for isochronous devices.



### 3.5 Antenna Requirement

🗌 Yes 🛛 🖾 No

□ No

☐ Yes

If detachable, is the antenna connector(s) non-standard?

The tested equipment has only integral antennas. The conducted tests were performed on a sample with a temporary antenna connector.

Requirement: FCC 15.203, 15.204, 15.317.

### 3.6 Automatic Discontinuation of Transmission

Does the EUT transmit Control and	Signaling Information?	⊠ NO
TYPE OF EUT :		NDING DEVICE

The following tests simulate the reaction of the EUT in case of either absence of information to transmit or operational failure after a connection with the companion device is established.

Number	Test	EUT Reaction	Verdict
1	Power removed from EUT	С	Pass
2	Switch Off EUT	С	Pass
3	Hook-On by EUT	С	Pass
4	Power Removed from Companion Device	A	Pass
5	Switch Off Companion Device	N/A	Pass
6	Hook-On by Companion Device	N/A	Pass

A - Connection breakdown, Cease of all transmissions

B - Connection breakdown, EUT transmits control and signaling information

C - Connection breakdown, Companion Device transmits control and signaling information

N/A - Not Applicable (Companion Device does not have On/Off switch and cannot perform Hook-On)

#### Requirements, FCC 15.319(f)

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.



### 3.7 Peak Power Output

#### **Test Method:**

ANSI C63.17, clause 6.1.2.

#### **Test Results: Complies**

#### **Measurement Data:**

#### **Maximum Conducted Output Power**

Channel No.	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Antenna Gain (dBi)	Maximum Radiated Output Power (dBm)
4	1921.536	18.4	2.0*	20.4
2	1924.992	18.4	2.0*	20.4
0	1928.448	18.4	2.0*	20.4

\*Antenna Gain is value declared by manufacturer

#### Limit:

Conducted: 100  $\mu$ W x SQRT(*B*) where *B* is the measured Emission Bandwidth in Hz

FCC 15.319(c)(e): 20.75 dBm (119 mW)

RSS-213, Issue 2: 20.44 dBm (111 mW)

The antenna gain is below 3 dBi, no reduction in transmit power is necessary.

### Requirements, FCC 15.319(c)(e); RSS-213, Issue 2; RSS-GEN, Issue 4

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.



# **Conducted Peak Output Power**

MultiView 😁	,								
Ref Level 30.0 Att TRG:RFP(8GHz)	0 dBm Offse 20 dB ● SWT	et 10.30 dB ● RB 500 µs VB	W 3 MHz W 10 MHz						
1 Time Domain I	Power								●1Pk Max
								M1[	
									111.000 µs
00 d0			M1						
20 dBm			J						
10 dBm									
10 0.000									
0 dBm									
-10 dBm									
-20 dBm									
-30 dBm									
Lunan									
140 roberty mark									an arm we were
r≥40/dBm									https://www.com.com/
50.10									
-50 dBm									
-60 dBm									
-00 dbm									
TRG									
CF 1.921536 GH	IZ			100	l pts				50.0 µs/
2 Marker Table									
Type Ref	Trc	X-Value		Y-Value	Fund	tion	F	unction Result	
M1	1	111.0 µs	1	8.40 dBm	TD Pow Pe	ak		18.40 dBm	
						1	<u></u>		08.09.2014
							Measuring	••••	14:12:11

#### Lower Channel

MultiView 🗄 Spect	trum					
Ref Level 30.00 dBm Att 20 dB TRG:RFP(8GHz)	Offset 10.30 dB ● RBW 3 SWT 500 µs VBW 10					
1 Time Domain Power			_			●1Pk Max
					M1	
			M1			238.500 µs
20 dBm			¥			
10 dBm						
0 dBm						
-10 dBm						
-10 0.011						
-20 dBm					h	1
						1
-30 dBm						
-40 dBm						about drow worlder dock
-50 dBm						
-30 UBI/I						
-60 dBm						
TRG						
CF 1.928448 GHz		1001	nts			 50.0 μs/
2 Marker Table		1001	P10			2010 µ37
Type   Ref   Trc	X-Value	Y-Value	Functi	ion	Function Result	
M1 1	238.5 µs	18.36 dBm	TD Pow Peal	k	18.36 dBm	
				Measurin	ıg 🗰 🖬 🗰	08.09.2014
						14:09:59

### Upper Channel



MultiView 8	Spectrum							
Ref Level 30.0 Att TRG:RFP(8GHz)	00 dBm Offse 20 dB • SWT	at 10.30 dB ● R 500 µs V	BW 3 MHz BW 10 MHz					
1 Time Domain	Power							●1Pk Max
20 dBm					M1		M1[	
20 UBIII-					¥	 		
10 dBm								
0 dBm								
-10 dBm								
-20 dBm							l l	
-30 dBm								
- MON & BAME								andra a ron without
-50 dBm								
-60 dBm	3							
CF 1.924992 GH				100	l pts			50.0 µs/
2 Marker Table						 _		
Type Ref	Trc   1	X-Value <b>241.0 μs</b>		Y-Value L8.37 dBm	TD Pow Pe	Fu	unction Result L8.37 dBm	
						Measuring	••••	08.09.2014 14:10:56

Middle Channel



### 3.8 Emission Bandwidth *B*

#### **Test Method:**

ANSI C63.17, clause 6.1.3.

#### **Test Results: Complies**

#### Measurement Data:

Channel No.	Frequency (MHz)	26 dB Bandwidth <i>B</i> (kHz)
4	1921.536	1410
0	1928.448	1410

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
2	1924.992	1223

Channel No.	Frequency (MHz)	6 dB Bandwidth (kHz)
4	1921.536	N/A
0	1928.448	N/A
Channel No.	Frequency (MHz)	12 dB Bandwidth (kHz)
Channel No. 4		

#### Requirements, FCC 15.323(a)

The 26 dB Bandwidth *B* shall be larger than 50 kHz and less than 2.5 MHz.

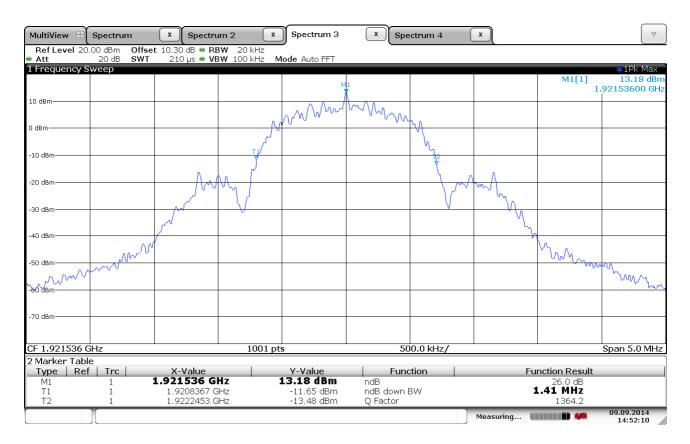
#### Requirements, RSS-213 Issue 2, clause 6.4

The 99% Bandwidth shall be larger than 50 kHz and less than 2.5 MHz.

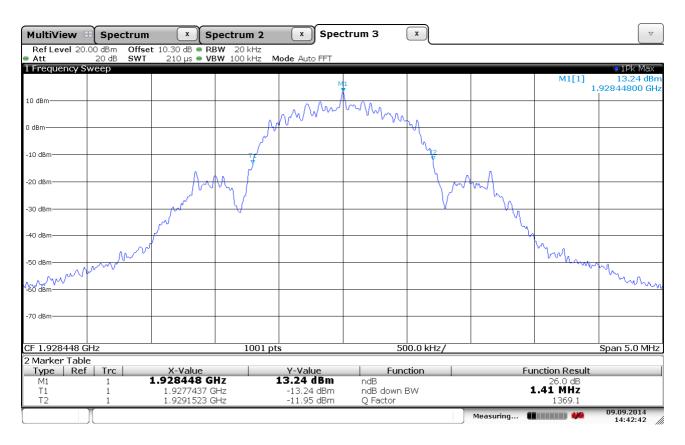
No requirements for 6 and 12 dB Bandwidth, these values are only used for testing Monitoring Bandwidth if the Simple Compliance test fails (ANSI C63.17, clause 7.4).

99% BW is measured according to RSS-GEN Issue 4, clause 6.6.



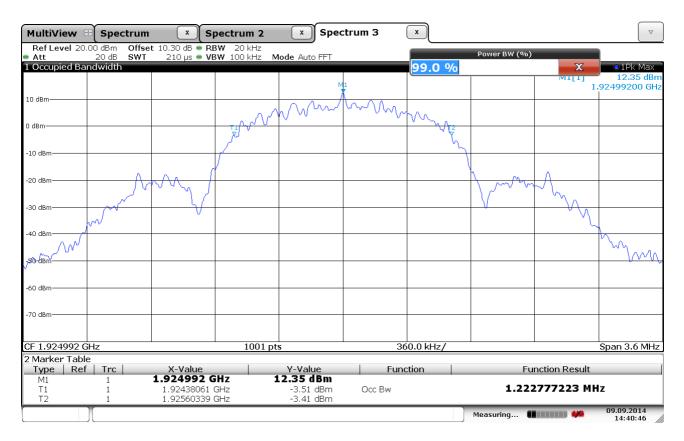


#### Emission Bandwidth B, Lower Channel



#### Emission Bandwidth B, Upper Channel





99% Bandwidth, Middle Channel



### 3.9 **Power Spectral Density**

#### **Test Method:**

ANSI C63.17, clause 6.1.5.

#### **Test Results: Complies**

#### **Measurement Data:**

Channel No.	Frequency (MHz)	Power Spectral Density (dBm)
4	1921.536	2.9
0	1928.448	2.8

Averaged over 1000 sweeps.

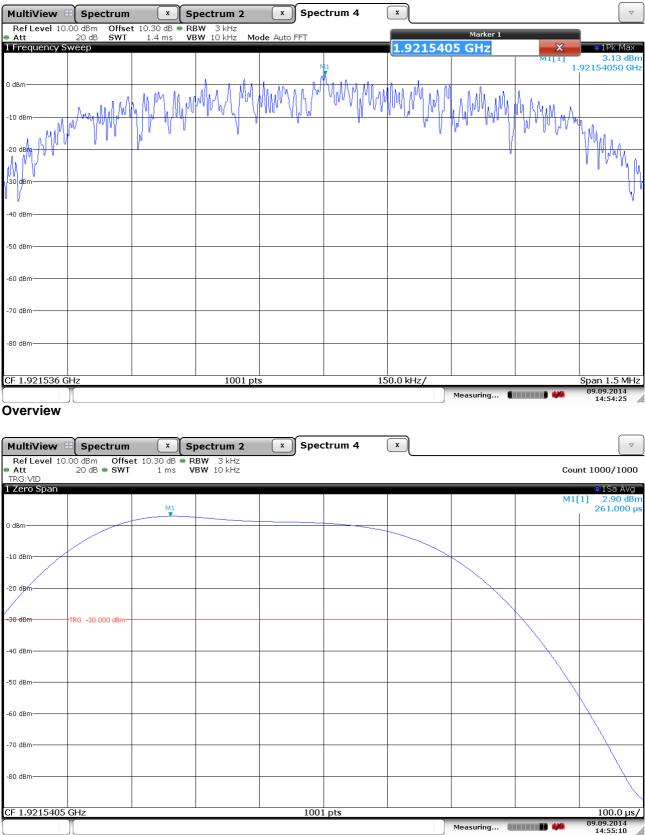
#### Requirements, FCC 15.319(d)

The Power Spectral Density shall be less than 3 mW (4.77 dBm) when averaged over at least 100 sweeps.



### **Power Spectral Density**

#### Lower Channel:



Averaged, 1000 Sweeps



### **Upper Channel:**

MultiView 😁	Spectrum	X Spectru	ım 2 🛛 🗶	Spectrum 3	× Spe	ectrum 4	x		
RefLevel 10 Att	20 dB SWT	t 10.30 dB 👄 RE 1.4 ms VE		de Auto FFT		[	Marker 1		
1 Frequency S	Sweep					1.928449	95 GHz	X	<ul> <li>1Pk Max</li> <li>3.08 dBm</li> </ul>
0 dBm			1 . 0.		1			1.	92844950 GHz
		MM M.M	Mra A Mi	MMMAAA M	MAN MAN	IMA AMA AA M	a halfa saha	1 .	
-10 dBm	L. Anny MARINE	<u> in the states of the states </u>		MM. ANN				M. M.M. M. M.	
MM			¥			• 0	r	P P V * *	Male.
-20 dBh							+		V MMA A
-30 dBm									
V									V "
-40 dBm									
-50 dBm									
-60 dBm									
70.10									
-70 dBm									
-80 dBm									
CF 1.928448 (	GHz		1001 pt	S	15	50.0 kHz/			Span 1.5 MHz
Overview	Л						Measuring 📗		09.09.2014 14:48:11 //
Overview									
MultiView 🔠	Spectrum	× Spectru	ım 2 🛛 🗴	Spectrum 3	× Spe	ectrum 4 (	x		
RefLevel 10 Att		et 10.30 dB • R		Spectrum 3	x Spe	ectrum 4 (	×	Cou	▼ nt 1000/1000
Ref Level 10	.00 dBm Offse	et 10.30 dB • R	BW 3 kHz	Spectrum 3	x Spe	ectrum 4 (	×		nt 1000/1000 • 1Sa Avg
Ref Level 10 Att TRG:VID	.00 dBm Offse	et 10.30 dB • R	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	x	Cour	nt 1000/1000 • 1Sa Avg
Ref Level 10 Att TRG:VID	.00 dBm Offse	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	x Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10 Att TRG:VID 1 Zero Span 0 dBm	.00 dBm Offse	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	setrum 4	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10 Att TRG:VID 1 Zero Span	.00 dBm Offse	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	×		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10 Att TRG:VID 1 Zero Span 0 dBm	.00 dBm Offse	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	x Spe	ectrum 4	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att           TRG:VID           1 Zero Span           0 dBm           -10 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	×		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10 Att TRG:VID 1 Zero Span 0 dBm -10 dBm	.00 dBm Offse	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att           TRG:VID           1 Zero Span           0 dBm           -10 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	×		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att           TRG:\/ID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att           TRG:\/ID           1 Zero Span           0 dBm           -10 dBm           -20 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att           TRG:\/ID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	× Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att TRG:∨ID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att TRG:∨ID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	× Spe	2ctrum 4 (	X		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att TRG:VID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -50 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	ectrum 4 (	x		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att TRG:VID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3	X Spe	2ctrum 4 (	X		nt 1000/1000 • 1Sa Avg 2.81 dBm
Ref Level 10           Att TRG:VID           1 Zero Span           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm	.00 dBm Offse 20 dB = SWT	et 10.30 dB • R 1 ms V	BW 3 kHz	Spectrum 3			X	M1[1]	nt 1000/1000 • 1Sa Avg 2.81 dBm

Averaged, 1000 Sweeps



### 3.10 In-Band Unwanted Emissions, Conducted

#### **Test Method:**

ANSI C63.17, clause 6.1.6.1.

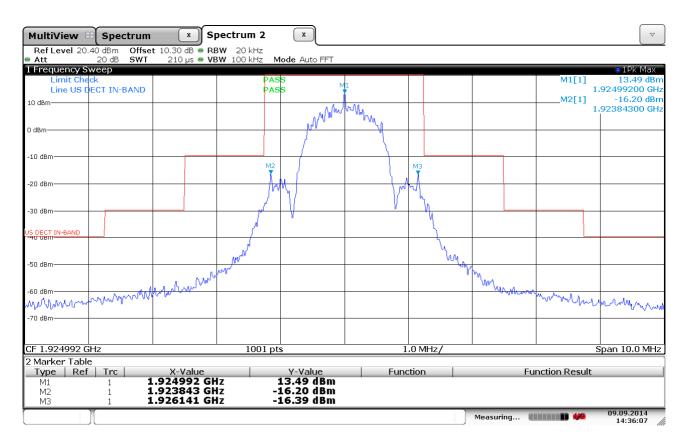
#### **Test Results: Complies**

#### **Measurement Data:**

See plots.

#### Requirements, FCC 15.323(d):

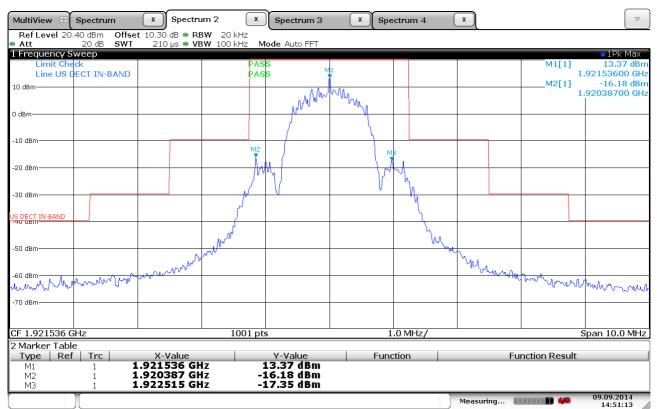
 $B < f \le 2B$ :at least 30 dB below max. permitted peak power $2B < f \le 3B$ :at least 50 dB below max. permitted peak power $3B < f \le$  UPCS Band Edge : at least 60 dB below max. permitted peak power



#### Middle Channel



### In-Band Unwanted Emissions, Conducted



#### Lower Channel

MultiView 8	Spectrum	x Spe	ctrum 2	× Spec	trum 3	x			
Ref Level 20.4 Att	40 dBm Offse 20 dB SWT	t 10.30 dB • RBW 210 μs • VBW		ode Auto FFT					
1 Frequency Sv									●1Pk Max
Limit Che Line US D			PAS PAS		1			M1[1]	13.32 dBm 92844800 GHz
10 dBm								M2[1]	-16.47 dBm
				MMW	www.			1.	92959700 GHz 
0 dBm				v^v *					
				1	l (				
-10 dBm									
			M3	ل ا		M2			
-20 dBm				A		w.A			
			)*`	٦/	$\Gamma = \Gamma$	ľ h			
-30 dBm			pl	V	V	<u> </u>			
	J		ا الم			1			
JS DECT IN-BAND									
			N			That			
-50 dBm			p <sup>r</sup>			lus .	h		
		marrawharland					My My March 100		
-60 dBm	Manna	were from the					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Mr. William	1.n
Longo and and and								· · · · ·	- marine
-70 dBm									
CF 1.928448 di	Hz		1001 pts		1	.0 MHz/		9	pan 10.0 MHz
2 Marker Table			1				_		
Type Ref		X-Value L.928448 GHz	1	Y-Value .3.32 dBm	Func	ction	Fur	nction Result	
M2	1 1	L.929597 GHz	-1	.6.47 dBm					
MЗ	1 1	L.927299 GHz	-1	.6.09 dBm					00.00.001.1
							Measuring 🚺		09.09.2014 14:45:00 //

#### **Upper Channel**



### 3.11 Out-of-band Emissions, Conducted

#### **Test Method:**

ANSI C63.17, clause 6.1.6.2.

#### **Test Results: Complies**

#### Measurement Data:

See plots.

#### Requirements, FCC 15.323(d):

$f \le 1.25$ MHz outside UPCS band :	≤ -9.5dBm
$1.25$ MHz $\leq f \leq 2.5$ MHz outside UPCS band :	≤ -29.5 dBm
$f \ge 2.5$ MHz outside UPCS band :	≤ -39.5 dBm

### **Out-of-Band Emissions, Conducted**

#### Lower Channel:

MultiView 🗄 Spectrum 🛛 🗴	Spectrum 2 🛛 🔍			
	RBW 20 kHz VBW 100 kHz Mode Auto FFT			
L Frequency Sweep Limit Check Line US DECT OUT-OF-BAND	PASS PASS			12k Max M1[1] -66.68 dBm 1.8912540 GHz
0 dBm				
-10 dBm				
-20 dBm				
-30 dBm				
IS DECT OUT-OF-BAND				
-50 dBm				
-60 dBm	M1			hand hand have the
Radination and and the section of the	المتلفة والمتلية والمتلقية والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد والمتعاد وال	my water the water and the second	nunthally Abreat Million	waythan to have the state
-80 dBm				
1.87 GHz	1001 pts	5.0 MHz/		1.92 GHz



# **Out-of-Band Emissions, Conducted**

#### Lower Channel:

Mult	iView	B Spectrum	×S	pectrum 2	×					
Att		20 dB SWT	t 10.30 dB • RE 12.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT					
1 Fre	quency S Limit Che			PAS	c				M1[1]	●1Pk Max -69.03 dBm
		ECT OUT-OF-B	AND	PAS					WILIJ	1.070830 GHz
0 dBm-										
-10 dB	n									
-20 dB	m									
-30 dB	m									
US DEC	T OUT-OF-BA	ND								
-50 dB	n									
-60 dB	m									
	М1									
-70 dB	Murpuly	Mohrismanna	Mallebury	al grow work where	www.thurpuzol	winkindally republican	water	upphlon with he	mun hand	with the group when the most
-80 dB	2									
-00 00										
1.0 0	Hz			1001 pts	5	8.	7.0 MHz/			1.87 GHz
1.0 (		) (		1001 pt.	3	0		Measuring 【	••••	09.09.2014
										14:57:46
	B finne (	C		postrum 2						
	i <b>View</b>	(.		pectrum 2 BW 20 kHz	×					
Ref Att	Level 10	.00 dBm Offse 20 dB SWT	t 10.30 dB • RE							
Ref Att	Level 10 quency S Limit Che	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref • Att 1 Fre	Level 10 quency S Limit Che Line US [	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	• 1Pk Max
Ref Att	Level 10 quency S Limit Che Line US [	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref • Att 1 Fre	Level 10 quency S Limit Che Line US [	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref Att 1 Fre	Level 10 quency S Limit Che Line US [	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref Att 1 Fre	Level 10 quency S Limit Che Line US [	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref Att 1 Fre 0 dBm- -10 dB -20 dB	Level 10 quency S Limit Che Line US I	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref Att 1 Fre 0 dBm-	Level 10 quency S Limit Che Line US I	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
<ul> <li>Ref</li> <li>Att</li> <li>1 Fre</li> <li>0 dBm-</li> <li>-10 dB</li> <li>-20 dB</li> <li>-30 dB</li> </ul>	Level 10 quency S Limit Che Line US I	.00 dBm Offse 20 dB SWT weep ck FECT OUT-OF-B,	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
<ul> <li>Ref</li> <li>Att</li> <li>1 Fre</li> <li>0 dBm-</li> <li>-10 dB</li> <li>-20 dB</li> <li>-30 dB</li> </ul>	Level 10 quency S Limit Che Line US I	.00 dBm Offse 20 dB SWT weep ck FECT OUT-OF-B,	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
<ul> <li>Ref</li> <li>Att</li> <li>1 Fre</li> <li>0 dBm-</li> <li>-10 dB</li> <li>-20 dB</li> <li>-30 dB</li> </ul>	Level 10 quency S Limit Che Limit Che In n n n T T OUT-OF-BA	.00 dBm Offse 20 dB SWT weep ck FECT OUT-OF-B,	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
Ref Att I Fre 0 dBm- -10 dB -20 dB -30 dB US DEC -50 dB	Level 10 quency S Limit Che Line US I n n TOUT-OF-BA	.00 dBm Offse 20 dB SWT weep ck FECT OUT-OF-B,	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -66.32 dBm
<ul> <li>Ref</li> <li>Att</li> <li>I Free</li> <li>0 dBm-</li> <li>-10 dB</li> <li>-20 dB</li> <li>-30 dB</li> <li>US DEC</li> </ul>	Level 10 quency S Limit Che Line US I n n TOUT-OF-BA	.00 dBm Offse 20 dB SWT weep ck FECT OUT-OF-B,	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT	1			M1[1]	●1Pk Max -66.32 dBm
Ref Att I Fre 0 dBm- -10 dB -20 dB -30 dB US DEC -50 dB	Level 10 quency S Limit Che Line US I n n n n n n n n n n n n n n n n n n n	ND	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz M BW 100 kHz M PAS PAS	ode Auto FFT	1 1 1 1	Margad dayod yog u kalada		M1[1]	• 1Pk Max -66.32 dBm 501.500 MHz
Ref Att I Fre 0 dBm- -10 dB -20 dB -30 dB US DEC -50 dB	Level 10 quency S Limit Che Line US I n n n n n n n n n n n n n n n n n n n	.00 dBm Offse 20 dB SWT weep ck FECT OUT-OF-B,	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz M BW 100 kHz M PAS PAS	ode Auto FFT S S	1 1 1				• 1Pk Max -66.32 dBm 501.500 MHz
Ref Att I Fre 0 dBm- -10 dB -20 dB -30 dB US DEC -50 dB	Level 10 quency S Linit Che Linit Che	ND	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz M BW 100 kHz M PAS PAS	ode Auto FFT S S	1 Lipply way Mr	Mar (ad land, organish dar	Land and marked and any body		• 1Pk Max -66.32 dBm 501.500 MHz
Ref Att 1 Fre 0 dBm -10 dB -20 dB -30 dB US DEC -50 dB -60 dB -50 dB	Level 10 quency S Linit Che Linit Che	ND	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz M BW 100 kHz M PAS PAS	ode Auto FFT S S	1 Liplanne	Merlindung ushier	Jacqual Jacob Jacob Jacob		• 1Pk Max -66.32 dBm 501.500 MHz
Ref Att 1 Fre 0 dBm -10 dB -20 dB -30 dB US DEC -50 dB -60 dB -50 dB	Level 10 quency S Limit Che Line US I	ND	t 10.30 dB • RE 14.5 ms • VE	BW 20 kHz M BW 100 kHz M PAS PAS	ode Auto FFT S S		Mundund aquad da			• 1Pk Max -66.32 dBm 501.500 MHz



### **Out-of-Band Emissions, Conducted**

#### Upper Channel:

Instruction         Spectrum         Spectrum         Spectrum         Number of the second secon	Mult	iView 8	B Spectrum	×S	pectrum 2	x					
I H ROUND       PAS       MI(1)       6.77.0 Gm         Link U BLCC OUT OF INVID       PASS       MI(1)       0.0000050 GL         Link U BLCC OUT OF INVID       PASS       MI(1)       0.0000050 GL         Al UT OF INVID       PASS       MI(1)       0.0000050 GL         Al UT OF INVID       PASS       MI(1)       0.0000050 GL         Al UT OF INVID       PASS       MI(1)       0.0000050 GL         31 GB       IIII OF INVID       IIII OF INVID       IIIII OF INVID       IIIII OF INVID         32 GB       IIIII OF INVID       IIIII OF INVID       IIIII OF INVID       IIIIII OF INVID         33 GB       IIIIII OF INVID       IIIIII OF INVID       IIIIII OF INVID       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Ref	Level 10.	.00 dBm Offse	t 10.30 dB • RI							
Line UB CCI OUT-DE-BAD         PASS         1.9600350 GBF           CBm         Image: Common Sector				1.05 ms 🔍 VI	3WF 100 kHz - M	ode Auto FFT					●1Pk Max
с din										M1[1]	
Sector of each						Ŭ					
10 80. 10 80.	o ubiii										
10 80. 10 80.	·-										
30 The	US DEC	T OUT-OF-BA	ND								
30 The	-20 dBr	m									
44 301     1     1     1     1     1     1       65 58a     1     1     1     1     1     1       65 58a     1     1     1     1     1     1       65 58a     1     1     1     1     1     1       66 58a     1     1     1     1     1     1       67 58a     1     1     1     1     1     1       103 GHz     1001 pts     7.0 MHz/     2.0 GHz     2     2       Measuring       Measuring <td>20 00</td> <td></td>	20 00										
44 301     1     1     1     1     1     1       65 58a     1     1     1     1     1     1       65 58a     1     1     1     1     1     1       65 58a     1     1     1     1     1     1       66 58a     1     1     1     1     1     1       67 58a     1     1     1     1     1     1       103 GHz     1001 pts     7.0 MHz/     2.0 GHz     2     2       Measuring       Measuring <td>-30 dBr</td> <td>m</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-30 dBr	m									
30 dbn											
30 dbn	-40 dBr	n									
48         dom         41         44											
20 dbn       444 444 444 444 444 444 444 444 444 44	-50 dBr	n									
20 dbn       444 444 444 444 444 444 444 444 444 44	1										
20 dbn       444 444 444 444 444 444 444 444 444 44	-60 dBr	m									
270 cm     444 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Why w	aha				M1					
80 d8m       1,33 GHz       1001 pts       7.0 MHz/       2.0 GHz         1,33 GHz       1001 pts       7.0 MHz/       2.0 GHz       000303.001         Multiview       Spectrum 2       5       5       5       5         Ref Level 10.00 d8m       Offset 10.30 d8       9.88W       20 Hz       5       <	-70 dBr	n <del></del>	man with the way	Math March Men	the work of the second	when the when	and how you	adethe Monthan Has	- Aska MA Landudidi um	A Ball 1 alada sono alla cel	Hardmarkhark
1.93 GHz       1.001 pts       7.0 MHz/       2.0 GHz         1.93 GHz       1.001 pts       7.0 MHz/       2.0 GHz         MultiView       Spectrum       X       V         Part Level       10.00 dfm       Offset       10.00 dfm       11.03 0 dfm       V         Part Level       10.00 dfm       Offset       10.00 dfm       V       V         Intro Check       20.06 WE       PASS       M1[1]       -06.03 2d dfm         0 dfm       0       0       PASS       M1[1]       -06.03 2d dfm         -10 dfm       0       0       0       0       0       0         -20 dfm       0       0       0       0       0       0       0         -20 dfm       0       0       0       0       0       0       0       0       0       0         -20 dfm       0 </td <td></td> <td></td> <td>  * * * * * 4</td> <td></td> <td></td> <td></td> <td>· · · · · ·</td> <td></td> <td></td> <td>No for all a later</td> <td></td>			* * * * * 4				· · · · · ·			No for all a later	
MultiView         Spectrum         Spectrum         Comment	-80 dBr	n									
MultiView         Spectrum         Spectrum         Comment											
MultiView         Spectrum         Spectrum         Community         P8002014 14:59:53           MultiView         Spectrum         C         C         C           Ref Level 10:00 dBm         Offset 10:30 dB         RBW 20 kHz         C         C           Hirduratory Sweep         57.6 mg         VBW 100 kHz         Mode Auto FFT         C         C           Hirduratory Sweep         57.6 mg         VBW 100 kHz         Mode Auto FFT         C         C         C           Limit Check         D         PASS         M1[1]         C	1.93	GHz			1001 pt	s	7	.0 MHz/			2.0 GHz
MultiView         Spectrum         Spectrum         Spectrum         Image: Control of the second	1150	OT IL	Y		1001 pt.	5			Measuring 【		09.09.2014
IFFEQUENCY SWEEP       0101 Max         Limit US DECT OUT-OF-BAND       PASS         0 d8m       10 d8m         -20 d8m       -20 d8m         -30 d8m       -20 d8m         -30 d8m       -20 d8m         -20 d8m       -20 d8m         -50 d8m       -20 d8m         -20 d8m       -20 d8m <th></th>											
Line US DECT OUT-OF-BAND       PASS       M1[1]      68.32 dBm         0 dBm       20 dBm       20 dBm       20 dBm       20 dBm       20 dBm         -20 dBm       20 dBm <td< th=""><th>Ref</th><th>Level 10.</th><th>.00 dBm Offse</th><th>t 10.30 dB • RI</th><th>B<b>W</b> 20 kHz</th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	Ref	Level 10.	.00 dBm Offse	t 10.30 dB • RI	B <b>W</b> 20 kHz						
0 d8m 10 d8m	Ref • Att	Level 10.	.00 dBm Offse 20 dB SWT	t 10.30 dB • RI	B <b>W</b> 20 kHz						
-10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -30 dBm -50 dBm -60 dBm -40	Ref • Att 1 Fre	Level 10. quency S Limit Che	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-20 dBm	Ref • Att 1 Fre	Level 10. quency S Limit Che Line US D	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-20 dBm	Ref • Att 1 Fre	Level 10. quency S Limit Che Line US D	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-30 dBm	Ref Att 1 Free 0 dBm-	Level 10. quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-30 dBm	Ref Att 1 Free 0 dBm-	Level 10. quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
JS DECT OUT-OF-BAND     JS DECT OUT-OF-B	Ref Att 1 Fre 0 dBm- -10 dBr	Level 10. quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
JS DECT OUT-OF-BAND     JS DECT OUT-OF-B	Ref Att 1 Fre 0 dBm- -10 dBr	Level 10. quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-50 dBm -60 dBm -60 dBm -60 dBm -60 dBm -60 dBm -60 dBm -20 GHz -0 dBm -0 dBm	Ref Att 1 Fre 0 dBm- -10 dBr -20 dBr	Level 10. quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-50 dBm -60 dBm -60 dBm -60 dBm -60 dBm -60 dBm -60 dBm -20 GHz -0 dBm -0 dBm	Ref Att 1 Fre 0 dBm- -10 dBr -20 dBr	Level 10. quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-60 dBm M1 tj/Ald&Bm	Ref Att 1 Free 0 dBm- -10 dBr -20 dBr -30 dBr	Level 10. quency S Limit Che Line US E	OO dBm Offse 20 dB SWT weep (ck ECT OUT-OF-B)	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
M1     M2     M3     <	Ref Att 1 Free 0 dBm- -10 dBr -20 dBr -30 dBr	Level 10. quency S Limit Che Line US E	OO dBm Offse 20 dB SWT weep (ck ECT OUT-OF-B)	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
M1     M2     M3     <	Ref Att 1 Fre 0 dBm- -10 dBr -20 dBr -30 dBr	Level 10. quency S Limit Che Line US D n n n	OO dBm Offse 20 dB SWT weep (ck ECT OUT-OF-B)	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
1220 demonstration of the second of the seco	Ref Att 1 Fre 0 dBm- -10 dBr -20 dBr -30 dBr	Level 10. quency S Limit Che Line US D n n n	OO dBm Offse 20 dB SWT weep (ck ECT OUT-OF-B)	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
1220 demonstration of the second of the seco	Ref Att. 1 Free 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm	Level 10. quency S Limit Che Line US E n n n n n n n TOUT-OF-BA	OO dBm Offse 20 dB SWT weep (ck ECT OUT-OF-B)	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-60 dBm 2.0 GHz 1001 pts 400.0 MHz/ 6.0 GHz	Ref Att Att 1 Fre 0 dBm- -10 dBr -20 dBr -30 dBr -50 dBr -60 dBr	Level 10. quency S Limit Che Line US E n n n n n n n TOUT-OF-BA	OO dBm Offse 20 dB SWT weep (ck ECT OUT-OF-B)	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M	ode Auto FFT				M1[1]	●1Pk Max -68.32 dBm
-60 dBm 2.0 GHz 1001 pts 400.0 MHz/ 6.0 GHz	Ref Att Att I Fre 0 dBm- -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -60 dBm MI	Level 10. quency S Line US E	ND	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	s					• 1Pk Max -68.32 dBm 2.08990 GHz
2.0 GHz 1001 pts 400.0 MHz/ 6.0 GHz 09.09.2014	Ref Att Att I Fre 0 dBm- -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -60 dBm MI	Level 10. quency S Line US E	ND	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	s					• 1Pk Max -68.32 dBm 2.08990 GHz
2.0 GHz 1001 pts 400.0 MHz/ 6.0 GHz 09.09.2014	Ref Att I Fre 0 dBm- -10 dBr -20 dBr -30 dBr -50 dBr -50 dBr M1 172 dBr	Level 10. quency S Line US E n n n n n n n n n n n n n n n n n n n	ND	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	s	bladneshirth foorny				• 1Pk Max -68.32 dBm 2.08990 GHz
	Ref Att I Fre 0 dBm- -10 dBr -20 dBr -30 dBr -50 dBr -50 dBr M1 172 dBr	Level 10. quency S Line US E n n n n n n n n n n n n n n n n n n n	ND	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	s			UnuMash V How Higher		• 1Pk Max -68.32 dBm 2.08990 GHz
Measuring	Ref Att I Fre 0 dBm- -10 dBr -20 dBr -30 dBr -30 dBr -50 dBr _50 dBr _70 dBr _70 dBr -80 dBr	Level 10. quency S Line US E n n n n n n n n n n n n n n n n n n n	ND	t 10.30 dB • RI 57.6 ms • VE	BW 20 kHz M BW 100 kHz M PAS PAS	ode Auto FFT S S			an Mary Mary Mary		• 1Pk Max -68.32 dBm 2.08990 GHz



### **Out-of-Band Emissions, Conducted**

#### Upper Channel:

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	Limit Che		AND	PAS PAS					M1[1]	-65.60 dBm 11.16980 GHz
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6.0 (	GHz	V		1001 pts	S	60	0.0 MHz/			12.0 GHz 09.09.2014
Ref		.00 dBm Offse	t 10.30 dB • RE		×					
Ref • Att	Level 10	.00 dBm Offse 20 dB SWT	t 10.30 dB • RE	-						
Ref • Att	Level 10 quency S Limit Che	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	B <b>W</b> 20 kHz	ode Auto FFT				M1[1]	<ul> <li>▼</li> <li>● 1Pk Max</li> <li>−64.03 dBm</li> <li>18.89310 GHz</li> </ul>
Ref • Att	Level 10 quency S Limit Che Line US [	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre 0 dBm <sup>-</sup>	Level 10 quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref • Att 1 Fre	Level 10 quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre 0 dBm <sup>-</sup>	Level 10 quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre 0 dBm <sup>-</sup> -10 dB -20 dB	Level 10 quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att I Fre	Level 10 quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre -10 dB -20 dB -30 dB	Level 10 quency S Limit Che Line US E	.00 dBm Offse 20 dB SWT weep ck ECT OUT-OF-B/	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre -10 dB -20 dB -30 dB	Level 10 quency S Limit Che Line US I m m m m	.00 dBm Offse 20 dB SWT weep ck ECT OUT-OF-B/	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre -10 dB -20 dB -30 dB	Level 10 quency S Limit Che m m T OUT-OF-BA	.00 dBm Offse 20 dB SWT weep ck ECT OUT-OF-B/	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT				M1[1]	●1Pk Max -64.03 dBm
Ref Att 1 Fre 0 dBm -10 dB -20 dB -30 dB	Level 10 quency S Limit Che Line US E m m T OUT-OF-BA	.00 dBm Offse 20 dB SWT weep ck ECT OUT-OF-B/	t 10.30 dB • RE 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	ode Auto FFT					• 1Pk Max -64.03 dBm 18.89310 GHz
Ref Att 1 Frc 0 dBm -10 dB -20 dB -30 dB US DEC -50 dB -60 dB	Level 10 quency S Limit Che Line US I m T OUT-OF-BA m m	NND	t 10.30 dB • RF 128 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	s					• 1Pk Max -64.03 dBm 18.89310 GHz
Ref Att 1 Frc 0 dBm -10 dB -20 dB -30 dB US DEC -50 dB -60 dB	Level 10 quency S Limit Che Line US E m m T OUT-OF-BA	NND	t 10.30 dB • RF 128 ms • VE	BW 20 kHz BW 100 kHz M PAS	s			the content of the first and the content of the con	M1[1]	• 1Pk Max -64.03 dBm 18.89310 GHz
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Ref Att 1 Frc 0 dBm -10 dB -20 dB -30 dB US DEC -50 dB -60 dB	Level 10 quency S Limit Che m m m m m m m m m m m m m m m m m m m	NND	t 10.30 dB • RF 128 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	s			Hanne band Michael Market		• 1Pk Max -64.03 dBm 18.89310 GHz
Ref Att 1 Fre 0 dBm -10 dB -20 dB -30 dB -30 dB -50 dB -60 dB -60 dB	Level 10 quency S Limit Che Line US I m m TOUT-OF-BA m m m m m m m m m m m m m m m m m m m	NND	t 10.30 dB • RF 128 ms • VE	BW 20 kHz BW 100 kHz M PAS PAS	S S Jululumanne			Contraction of the second seco		• 1Pk Max -64.03 dBm 18.89310 GHz



### 3.12 Carrier Frequency Stability

#### **Test Method:**

ANSI C63.17, clause 6.2.1.

#### **Test Results: Complies**

#### Measurement Data:

The Frequency Stability is measured with the RTX2011. The RTX2011 was logged by a computer programmed to get new readings as fast as possible (about 3 readings per second) over the noted time period or number of readings. The peak-to-peak difference was recorded and the mean value and deviation in ppm was calculated.

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode.

#### Carrier Frequency Stability over Time at Nominal Temperature

Average Mean Carrier	Max. Diff.	Min. Diff.	Max. Dev.	Limit
Frequency (MHz)	(kHz)	(kHz)	(ppm)	
1924.990721	0.2	-3.0	-0.9	±10 ppm

Deviation ppm = ((Diff. - Mean Diff) / Mean Carrier Freq.)  $x \ 10^{6}$ 

Deviation (ppm) is calculated from 3000 readings.

#### Frequency Stability over Power Supply Voltage at Nominal Temperature

Voltage	Measured Carrier Frequency (MHz)	Difference (kHz)	Deviation (ppm)	Limit
V <sub>nom</sub>	/	0	0	
85% of V <sub>nom</sub>	/	/	/	±10 ppm
115% of V <sub>nom</sub>	/	/	/	

Deviation ppm = ((Mean – Measured Frequency) / Mean) x 10<sup>6</sup>

This test does not apply for EUT that is powered from batteries.

#### **Frequency Stability over Temperature**

Temperature	Measured Carrier Frequency (MHz)	Difference (kHz)	Deviation (ppm)	Limit
T = +20 °C	1925.000120	0	0	
T = -20 °C	1924.999312	-0.8	-0.4	±10 ppm
T = +50 °C	1924.993856	-6.3	-3.3	

Deviation ppm = ((Mean – Measured Frequency) / Mean) x  $10^{6}$ 



### 3.13 Frame Repetition Stability

#### **Test Method:**

ANSI C63.17, clause 6.2.2.

#### **Test Results: Complies**

#### Measurement Data:

The envelope of the RF signal from the EUT is detected with a Crystal Detector and the mean and standard deviation of the frame repetition frequency is then gated over 100 frames and measured with a Frequency Domain Analyzer. The frame repetition stability is 3 times the standard deviation.

Carrier Frequency	Mean	Standard Deviation	Frame Repetition
(MHz)	(Hz)	(Hz)	Stability (ppm)
1924.992	100.000	0.000002	0.075

Limit:

Frame Repetition Stability	±10 ppm (TDMA)
----------------------------	----------------

Ref. FCC 15.323(e), ANSI C63.17, clause 6.2.2

### 3.14 Frame Period and Jitter

#### **Test Method:**

ANSI C63.17, clause 6.2.3.

#### **Test Results: Complies**

**Measurement Data:** 

Carrier Frequency	Frame Period	Max Jitter	3xStandard Deviation
(MHz)	(ms)	(μs)	of Jitter (μs)
1924.992	10.000	-0.066	-0.042

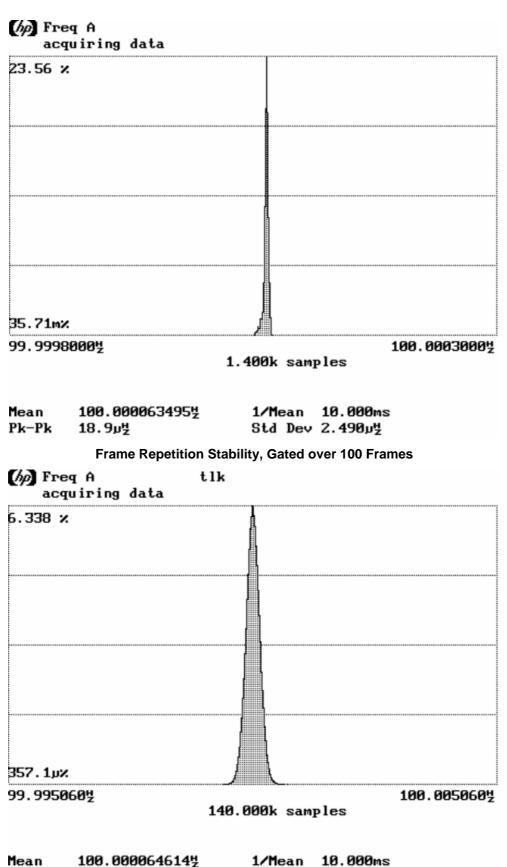
Max Jitter = (1/ (Frame period + Pk-Pk/2)) - (1/Frame Period), when Pk-Pk and Frame Period are in Hz  $3xSt.Dev.Jitter = 3x (1/(Frame Period + St.Dev) - 1/St.Dev) x 10^{6}$ 

Limit:

Frame Period	20 or 10 ms	
Max Jitter	25 µs	
3 times St.Dev of Jitter	12.5 µs	

Ref. FCC 15.323(e), ANSI C63.17, clause 6.2.3





Pk-Pk 1	.314m¥
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Std Dev 141.457אַע Frame Period and Jitter



### 3.15 Monitoring Threshold, Least Interfered Channel

#### Monitoring Threshold Limits:

#### Lower Threshold:

 $T_L = 15 \log B - 184 + 30 - P_{EUT}$  (dBm)

Upper Threshold:

 $T_{U} = 15 \log B - 184 + 50 - P_{EUT}$  (dBm)

B is measured Emission Bandwidth in Hz PEUT is measured Transmitter Power in dBm

Calculated values:

	FCC 15.323	RSS-213, Issue 2
Lower Threshold	-80.2 dBm	-81.1 dBm
Upper Threshold	N/A	-61.1 dBm

Least Interfered Channel Procedure (LIC) may only be used by systems with more than 20 duplex system access channels. Systems with less than 20 duplex system access channels are not allowed to transmit when interferer level is above Lower Threshold.

Upper Threshold has been removed from FCC 15D but still exists in Industry Canada RSS-213.

The tested EUT does not use Least Interfered Channel Procedure when Wideband Audio (DECT Long Slot) is used.

#### **Measurement Procedure:**

The Upper or Lower Threshold is found by the procedure defined in ANSI C63.17 clause 7.3.1 or 7.3.2.

Least Interfered Channel Procedure NOT used:				
Lower Threshold (Long Slot) -77.0 dBm				
Least Interfered Channel Procedure:				
Upper Threshold (Full Slot) -57.0 dBm				

#### Least Interfered Channel (LIC) Procedure Test, FCC 15.323(b), (c)(2) and (c)(5)

ANSI C63.17 clause 7.3.3 ref.	Observation	Verdict
b) $f_1 T_L + 13 \text{ dB}$ , $f_2 \text{ at } T_L + 6 \text{ dB}$	Transmission always on $f_2$	Pass
c) $f_1 T_L + 6 \text{ dB}$ , $f_2 \text{ at } T_L + 13 \text{ dB}$	Transmission always on $f_I$	Pass
d) $f_1 T_L + 7 dB$ , $f_2 at T_L$	Transmission always on $f_2$	Pass
e) $f_1 T_L$ , $f_2$ at $T_L$ + 7 dB	Transmission always on $f_1$	Pass

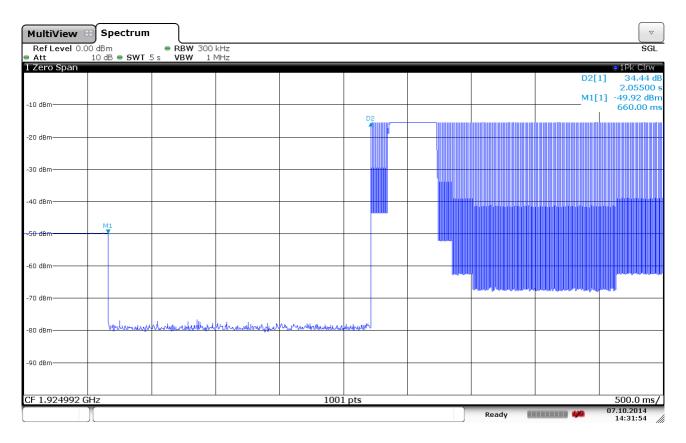


#### Selected Channel Confirmation, FCC 15.323(c)(1) and (5)

ANSI C63.17 clause 7.3.4	Observation	Verdict
b) Shall <b>not</b> transmit on $f_I$	EUT transmits on $f_2$	Pass
d) Shall <b>not</b> transmit on $f_2$	EUT transmits on $f_l$	Pass

#### Limits:

	FCC 15.323	RSS-213, Issue 2
Lower Threshold + 6 dB margin	-74.2 dBm	-75.1 dBm
Upper Threshold + 6 dB margin	N/A	-55.1 dBm



#### 7.3.4 Selected Channel Confirmation, Connection 2.1s After Interferer Removed



### 3.16 Threshold Monitoring Bandwidth

This test is only required if a dedicated monitoring receiver is used. However, if the test is not carried out the manufacturer shall declare and provide proper evidence that the monitoring is made through the radio receiver used for communication.

#### **Measurement Procedure:**

Simple Compliance Test, ANSI C63.17, clause 7.4.1

More Detailed Test, ANSI C63.17, clause 7.4.2

The test is passed if **either** the Simple Compliance Test or the More Detailed test is passed.

During this test the spectrum analyzer is observed visually to see if the EUT transmits or not.

#### **Test Results:**

Test performed	Observation	Verdict
Simple Compliance test, at $\pm 30\%$ of B	N/A	N/A
More Detailed Test, at -6 dB points	N/A	N/A
More Detailed Test, at -12 dB points	N/A	N/A

The more detailed test must be pass at both the -6 and -12 dB points if the Simple Compliance test fails.

**Comment:** The manufacturer declares that the tested EUT uses the same receiver for monitoring and communication, this test is therefore not required.

#### Limits, FCC 15.323(c)(7):

The monitoring system bandwidth must be equal to or greater than the emission bandwidth of the intended transmission.



### 3.17 Reaction Time and Monitoring Interval

#### **Measurement Procedure**

ANSI C63.17, clause 7.5

#### Test results:

By administrative commands and out-of-operating region interference, the EUT is restricted to operate on two RF carrier frequencies.

A CW interferer signal at a level  $T_U + U_M$  is applied on  $f_1$  and time-synchronized pulsed interference at a level TU + UM +7 dB is applied on  $f_2$ . The level on  $f_2$  was raised 6 dB for part d) with 35 µs pulses.

The pulses are synchronized with the EUT timeslots and applied centered within all timeslots.

For both tests the test is passed if the EUT transmits on  $f_l$ .

Pulse Width, ref. to ANSI C63.17 clause 7.5	Observation	Verdict
c) > largest of 50 $\mu$ s and 50*SQRT(1.25/ <i>B</i> )	EUT transmits on $f_1$	Pass
d) > largest of 35 μs and 35*SQRT(1.25/ <i>B</i> ), and with interference level raised 6 dB	EUT transmits on $f_I$	Pass

**Comment:** Since *B* is larger than 1.25 MHz the test was performed with pulse lengths of 50 µs and 35 µs.

#### Limits, FCC 15.323(c)(1), (5) and (7)

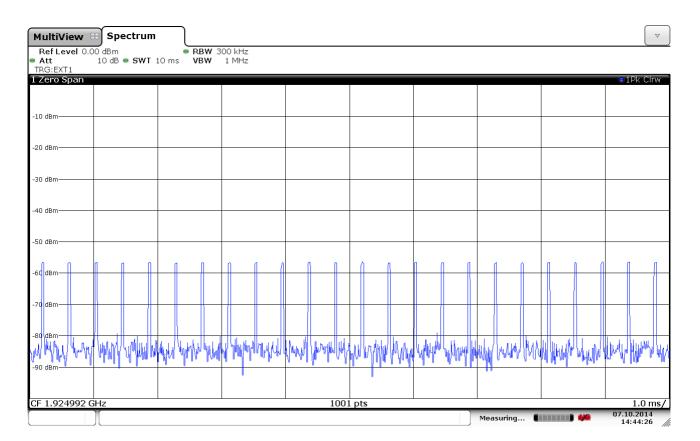
The maximum reaction time must be less than 50xSQRT (1.25/emission bandwidth in MHz) microseconds for signals at the applicable threshold level but shall not be required to be less than 50 microseconds.

If a signal is detected that is 6 dB or more above the applicable threshold level, the maximum reaction time shall be 35xSQRT (1.25/emission bandwidth in MHz) microseconds but shall not be required to be less than 35 microseconds.



MultiView 8	Spectrum								
Ref Level 0.0 Att TRG:EXT1	0 dBm 10 dB ● SWT 1	RBW 3	00 kHz 1 MHz						
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-40 dBm									
-50 dBm									
-60 dBm	a o m	<i>4</i> 0	A	2 0	12 0	n d d	0.0		
-70 dBm									
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-90 dBm			ý ž	~		- U - U			
CF 1.924992 G	Hz			1001	l pts		Measuring		1.0 ms/ 07.10.2014 14:45:00

#### 50 µs Pulses



#### 35 µs Pulses



### 3.18 Time and Spectrum Window Access Procedure

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

#### **Measurement Procedure:**

Timing for EUTs using control and signaling channel type transmissions: ANSI C63.17, clause 8.1

#### 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	N/A
b) The EUT must terminate or pause in its repetitive transmission of the control and signalling channel on the open channel to repeat the access criteria not less frequently than every 30 s	N/A	N/A

#### If FCC 15.323(c)(6) option, If Random Waiting Interval is NOT implemented

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	N/A

#### If FCC 15.323(c)(6) option, Only if Random Waiting Interval is implemented

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	N/A

Comment: The tested EUT 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 from 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.

#### FCC 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.



### 3.19 Acknowledgements and Transmission Duration

#### **Measurement Procedure:**

Acknowledgements: ANSI C63.17, clause 8.2.1

Transmission Duration: ANSI C63.17, clause 8.2.2

During the test **Initial transmission without acknowledgements** the signal from the EUT to the companion device is blocked by circulators in addition to the tunable attenuator.

The test **Transmission time after loss of acknowledgements** is performed by cutting-off the signal from the companion device by a RF switch and measuring the time until the EUT stops transmitting.

The **Transmission Duration** test is performed by monitoring the slot in use and measuring the time until the EUT changes to a different slot.

#### **Test Results:**

#### Acknowledgements

Test ref. to ANSI C63.17 clause 8.2.1	Observation	Verdict
a) Initial transmission without acknowledgements	0.55 sec	Pass
c) Transmission time after loss of acknowledgements	5.0 sec	Pass

#### **Transmission Duration**

Test ref. to ANSI C63.17 clause 8.2.2	Observation	Verdict
b) Transmission duration on same time and frequency window	10 min	Pass

Comment: /

#### Limits, FCC 15.323(c)(3) and (4)

Occupation of the same combined time and spectrum windows by a device or group of cooperating devices continuously over a period of time longer than 8 hours is not permitted without repeating the access criteria.

Once access to specific combined time and spectrum windows is obtained an acknowledgement from 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.



MultiView	Spectrum	, J															
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-90 dBm		+				+											

1001 pts

#### 8.2.1a) Initial Transmission Without Acknowledgements

CF 1.924992 GHz

200.0 ms/ 07.10.2014 11:10:39

Ready



### 3.20 Dual Access Criteria Check

#### **Measurement Procedure:**

EUTs that does not implement LIC Procedure: ANSI C63.17, clause 8.3.1

EUTs that implement LIC Procedure: ANSI C63.17, clause 8.3.2

This test is required for equipment that uses the access criteria in FCC 15.323(c)(10).

#### Test Results:

#### EUTs that do NOT implements the LIC procedure:

Test ref. to ANSI C63.17 clause 8.3.1	Observation	Verdict
b) EUT is restricted to a single carrier <i>f</i> <sup><i>j</i></sup> for TDMA systems. The Test is Pass if EUT can transmit	EUT can transmit	Pass
c) d) Interference at level $T_L$ + $U_M$ on all timeslots except one <b>receive</b> slot where interference is at least 10 dB below $T_L$	No transmissions from EUT	Pass
e) f) Interference at level $T_L + U_M$ on all timeslots except one <b>transmit</b> slot where interference is at least 10 dB below $T_L$	No transmissions from EUT	Pass

#### EUTs that implements the LIC procedure:

Test ref. to ANSI C63.17 clause 8.3.2	Observation	Verdict
b) EUT is restricted to a single carrier $f_l$ for TDMA systems. The Test is Pass if EUT can transmit	EUT can transmit	Pass
c) d) Transmission on interference-free <b>receive</b> time/spectrum window	EUT transmits on interference free <b>receive</b> slot	Pass
e) f) Transmission on interference-free <b>transmit</b> time/spectrum window	EUT transmits on interference free <b>transmit</b> slot	Pass

Comment: See plots.

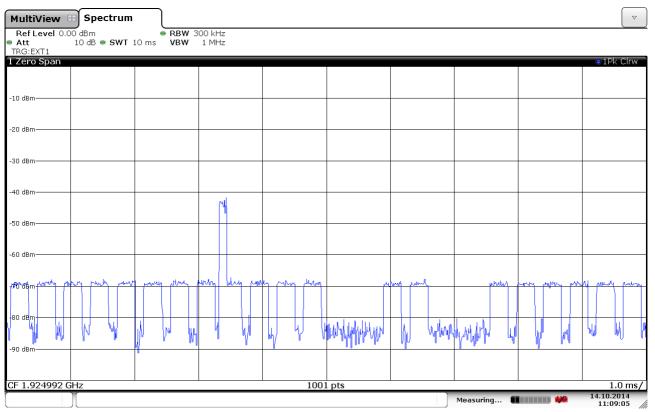
#### Limits, FCC 15.323(c)(10)

An initiating device may attempt to establish a duplex connection by monitoring both its intended transmit and receive time and spectrum windows. If both the intended transmit and receive time and spectrum windows meet the access criteria, then the initiating device can initiate a transmission in the intended transmit time and spectrum window. If the power detected by the responding device can be decoded as a duplex connection signal from the initiating device, then the responding device may immediately begin transmitting on the receive time and spectrum window monitored by the initiating device.



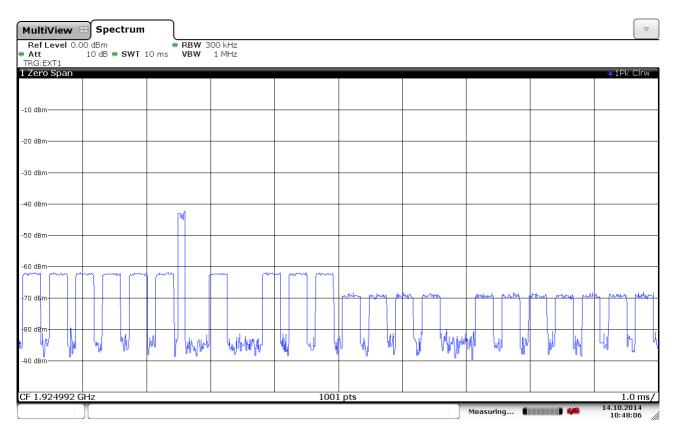
MultiView 8	Spectrum								
Ref Level 0.00 Att TRG:EXT1	0 dBm 10 dB ● SWT 10	RBW 3 Oms VBW	00 kHz 1 MHz						
1 Zero Span									●1Pk Clrw
-10 dBm									
-20 dBm									
-30 dBm									
-40 dBm			2						
-50 dBm									
-60 dBm									
-70 dBm	hay marting	whether	mul land all	h when have	man phul ph	ryt- pawler, prwede	han Mary	which become them	n proved private
-80 dBm	W WW	herselfer the			p (p h	W W	W W W	M M	
								Ü	
CF 1.924992 G	Hz			1001	pts		Measuring		1.0 ms/ 14.10.2014
]	L						measuring		11:07:42 //

#### 8.3.1c) Interference Free RECEIVE Slot

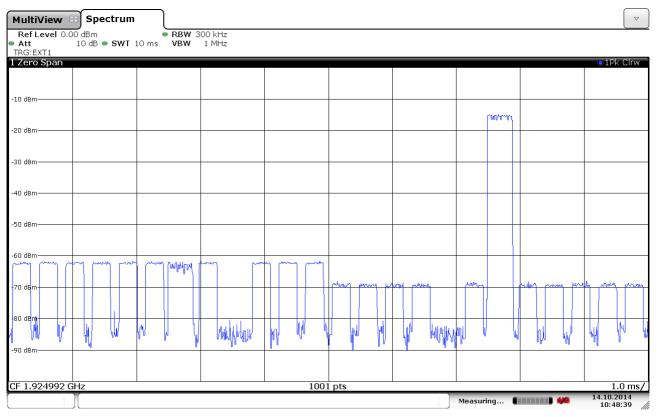


#### 8.3.1e) Interference Free TRANSMIT Slot



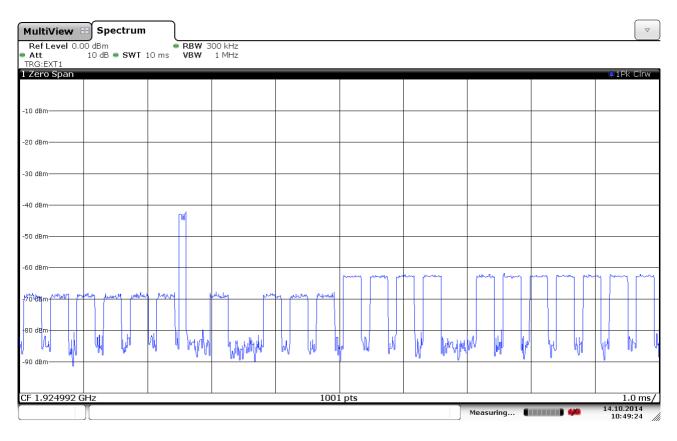


#### 8.3.2c) EUT Transmits on Interference Free RECEIVE Slot, BEFORE

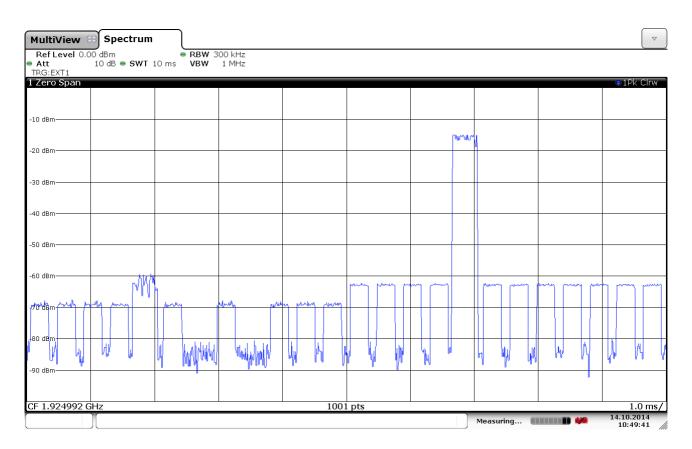


8.3.2c) EUT Transmits on Interference Free RECEIVE Slot, AFTER





#### 8.3.2e) EUT Transmits on Interference Free TRANSMIT Slot, BEFORE



#### 8.3.2e) EUT Transmits on Interference Free TRANSMIT Slot, AFTER



### 3.21 Alternative Monitoring Interval

Test procedure described in ANSI C63.17 clause 8.4.

This test is required if the EUT implements the provisions of FCC 15.323(c)(11).

#### Test result:

Not Tested. The tested EUT does not implement this provision. See manufacturers' declaration.



# 4 Measurement Uncertainty

Measurement Uncertainty Values						
Test Item	Uncertainty					
Output Power	±0.5 dB					
Power Spectral Density		±0.5 dB				
Out of Band Emissions, Conducted (RBW < 100 kHz)	Out of Band Emissions, Conducted (RBW < 100 kHz) < 3.6 GHz					
	> 3.6 GHz	±0.9 dB				
Spurious Emissions, Radiated	±2.5 dB					
	> 1 GHz	±2.2 dB				
Emission Bandwidth		±4 %				
Power Line Conducted Emissions		+2.9 / -4.1 dB				
Spectrum Mask Measurements	Frequency	±5 %				
	Amplitude	±1.0 dB				
Frequency Error	±0.6 ppm					
Timing and Jitter Measurements		±2.0 ns				
Frame Timing Measurements	±1.4 ppm					
Receiver Blocking Levels	±1.0 dB					
Temperature Uncertainty		±1 °C				

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2



# 5 Test Setups

### 5.1 Frequency Measurements

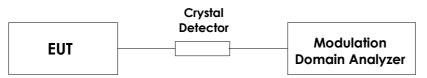


Test equipment included: 5, 9, 28

Test Set-up 1

This setup is used for measuring Carrier frequency stability at normal and extreme temperatures.

### 5.2 Timing Measurements

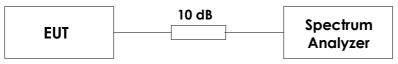


Test equipment included: 5, 7, 9, 28

#### Test Set-up 2

This setup is used for measuring Frame repetition stability, Frame period and Jitter.

### 5.3 Conducted Emission Test

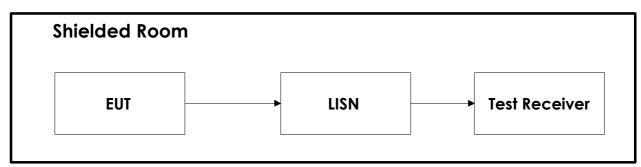


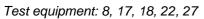
Test equipment included: 1, 2, 9, 26

#### Test Set-up 3

This setup is used for all conducted emission tests.

### 5.4 Power Line Conducted Emissions Test

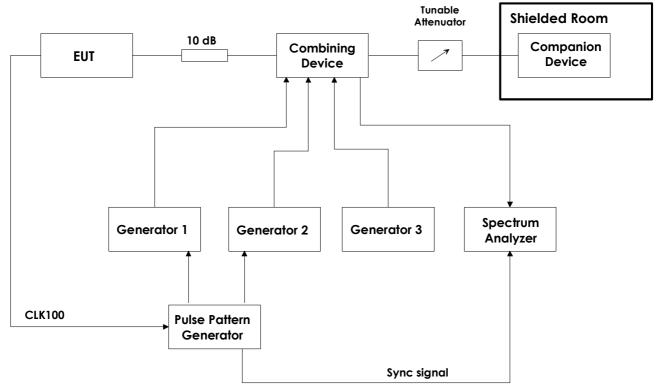




### Test Set-Up 5



### 5.5 Monitoring Tests



Test equipment: 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 14, 15, 19, 23, 24, 25, 26

#### Test Set-Up 6

This test setup is used for all Monitoring and Time and Spectrum Access Procedure tests. The path loss from the signal generators to the EUT is measured with a power meter before the testing is started.

The CLK100 is used to synchronize the Pulse-/ Pattern generator to the start of the DECT frame, this signal always comes from the base station. If the EUT is a DECT Portable Part (i.e. a handset) the CLK100 signal will come form the Companion Device.

The sync signal to the Spectrum Analyzer is the CLK100 signal that is regenerated in the Pulse-/ Pattern Generator, this is used to synchronize the Spectrum Analyzer to the DECT frame when in zero span. The Pulse-/ Pattern Generator is used for tests that require time synchronized pulses or blocking of specific time slots.



# 6 Test Equipment Used

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Testhouse.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW26	Spectrum Analyzer	Rohde & Schwarz	LR 1640	2014.09.22	2015.09.22
2	SME03	Signal generator	Rohde & Schwarz	LR 1238	2013.03.19	2015.03.19
3	SMIQ03B	Signal generator	Rohde & Schwarz	LR 1516	Cal b4 use	
4	SMHU52	Signal generator	Rohde & Schwarz	LR 1240	Cal b4 use	
5	53310A	Modulation Domain Analyzer	Hewlett Packard	LR 1483	2013.08.14	2015.08.14
6	81104A	Pulse-/ Pattern Generator	Agilent	LR 1502	2013.03.19	2015.03.19
7	8470B	Crystal Detector	Hewlett Packard	LR 1207	N/A	
8	ESHS10	Measuring Receiver	Rohde & Schwarz	N- 3528	2014.09.15	2015.09.15
9	4768-10	Attenuator	Narda	LR1356	Cal b4 use	
10	745-69	Step Attenuator	Narda	LR 1442	N/A	
11	WE 1506A	Power Splitter	Weinchel	LR 244	Cal b4 use	
12	WE 1506A	Power Splitter	Weinchel	LR 245	Cal b4 use	
13	H-9	Hybrid	Anzac	LR 86	Cal b4 use	
14	H-9	Hybrid	Anzac	LR 257	Cal b4 use	
15	S212DS	RF Switch	Narda	LR 1244	N/A	
17	ESH3-Z5	Two Line V-Network	Rohde & Schwarz	LR 1076	Cal b4 use	
18	ESH3-Z2	Pulse Limiter	Rohde & Schwarz	LR 1074	N/A	
19	6812B	AC Power Source	Agilent	LR 1515	2013.10.28	2014.10.28
22	Model 87 V	Multimeter	Fluke	N-4672	2014.09.17	2015.09
23	87H35-1	Circulator	Racal-MESL	s.no.: 140	N/A	
24	87H35-1	Circulator	Racal-MESL	s.no.: 141	N/A	
25	87H35-1	Circulator	Racal-MESL	s.no.: 142	N/A	
26	U2000A	Average Power Sensor	Agilent	LR 1523	2013.10.24	2015.10.24
27	RTX2011	DECT Tester	RTX Telecom	LR 1587	Cal b4 use	