


FCC TEST REPORT FCC 47 CFR Part 15D Unlicensed Personal Communication Service Devices Industry Canada RSS-213 2GHz License-exempt Personal Communications Service Devices (LE-PCS)	
Report Reference No.	G0M-1304-2736-TFC15D-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	<div style="text-align: center;">  <p>A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A</p> </div>
Applicant's name	Spectralink Corporation
Address	6001 Great America Center 95002 San Jose USA
Test specification:	
Standard.....	47 CFR Part 15D 47 CFR Part 15C 47 CFR Part 15B RSS-213, Issue 2, 2005-12 RSS-Gen, Issue 3, 2010-12 ANSI C63.17:2006 ANSI C63.4:2003
Test scope.....	Class II Permissive Change
Equipment under test (EUT):	
Product description	DECT application module
Model No.	KT4587
Hardware version	003
Firmware / Software version	001
	FCC-ID: PXA-PK4587 IC: 4604A-PK4587
Test result	Passed

Possible test case verdicts:


- not applicable.....: N/A
- test object does meet the requirement: PASS
- test object does not meet the requirement: FAIL


Testing:

Date of receipt of test item.....: 2013-04-11

Date (s) of performance of tests.....: 2013-04-06 - 2013-04-17

Compiled by.....: Christian Weber

Tested by (+ signature): Wilfried Treffke 
 (Testing Manager)

Approved by (+ signature).....: Toralf Jahn 
 (Test Lab Manager)

Date of issue.....: 2013-05-24

Total number of pages: 67

General remarks:

The test results presented in this report relate only to the object tested.
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.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

The test results in this test report are intended for the verification of all relevant test cases influenced by the changes and modifications reported in the corresponding class II permissive change letter.

The external dedicated antenna of the device has to be connected to the module using 1 of 3 well-defined cable types and lengths. Due to the minimum cable loss and maximum radiated power, the measurements were performed with the dedicated antenna and the shortest (1.0 m) cable length.

Version History

Version	Issue Date	Remarks	Revised by
01	2013-05-24	Initial Release	

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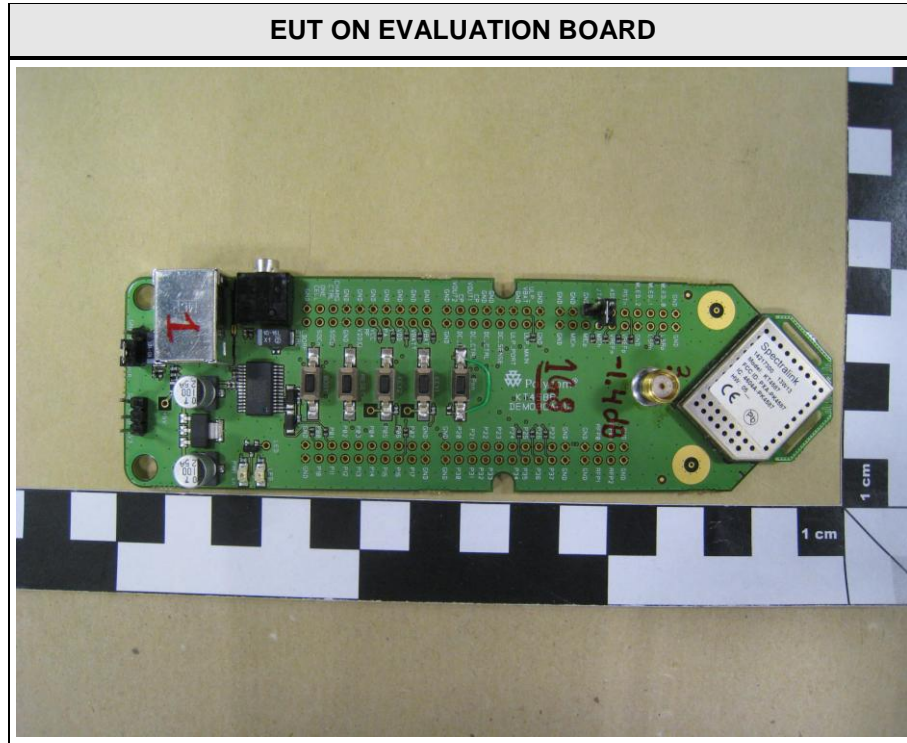
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1 Equipment (Test item) Description

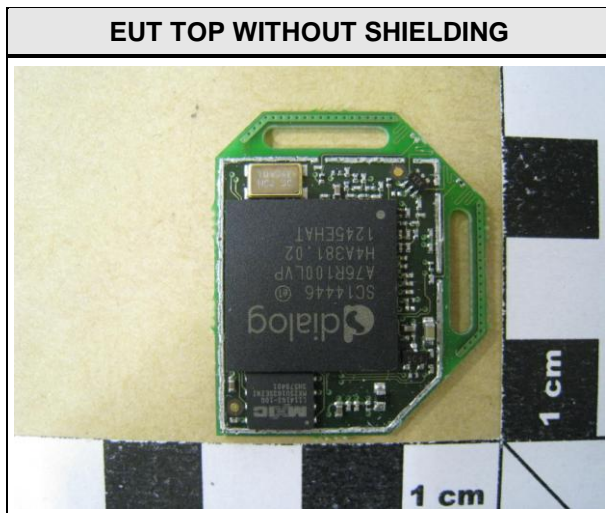
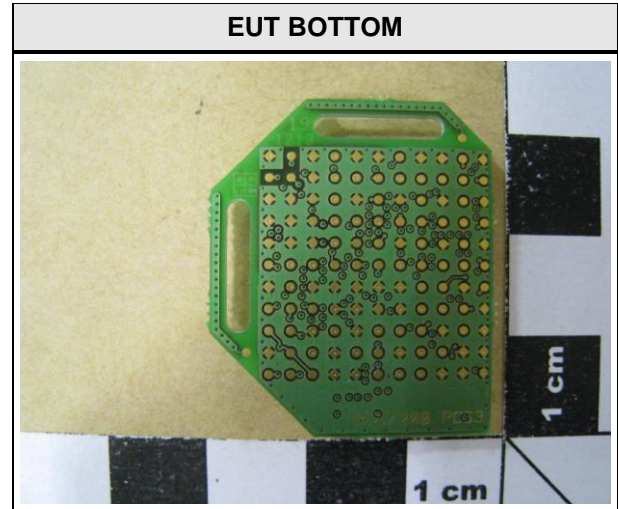
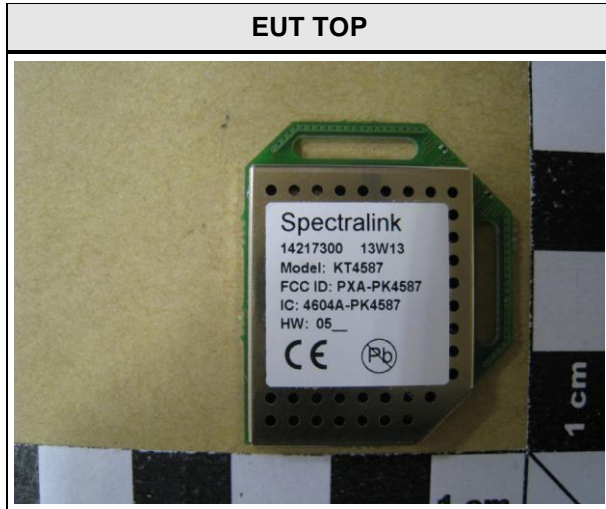
Description	DECT application module	
Model	KT4587	
Serial number	-	
Hardware version	003	
Software / Firmware version	001	
FCC-ID	PXA-PK4587	
IC	4604A-PK4587	
Equipment type	Radio Module	
Radio type	DECT Fixed Part	
Number of Radios	1 transceivers is built into the device	
Radio technology	DECT 6.0	
Operating frequency range	1921.536 - 1928.448MHz	
Assigned frequency band	1920 - 1930MHz	
Number of RF channels	5	
Supported slots	even and odd	
Number of time slots	12 x Tx + 12 x RX = 24	
Channels	F ₀	Ch:0 / 1928.448MHz
	F ₁	Ch:1 / 1926.720MHz
	F ₂	Ch:2 / 1924.992MHz
	F ₃	Ch:3 / 1923.264MHz
	F ₄	Ch:4 / 1921.536MHz
Main test frequencies	F _{LOW}	Ch:4 / 1921.536MHz
	F _{MID}	Ch:2 / 1924.992MHz
	F _{HIGH}	Ch:0 / 1928.448MHz
Modulations	GFSK	
Emission designator	F7D	
Nominal emission bandwidth	1.42 MHz	
Nominal receive bandwidth	864 MHz	
Channel spacing	1728kHz	
Spectrum access	Listen before transmit	
Nominal lower threshold	N/A	
Nominal upper threshold	-60 dBm	
Number of antennas	2 per transceiver	

Antenna 1 (Original Filing)	Type	integrated
	Model	printed inverted f antenna
	Manufacturer	see Manufacturer
	Gain	0 dBi
Antenna 2 (Original Filing)	Type	integrated
	Model	printed inverted f antenna
	Manufacturer	see Manufacturer
	Gain	0 dBi
Antenna 3	Type	external dedicated
	Model	KEA K008 circular polarized antenna
	Manufacturer	see Manufacturer
	Gain	8 dBC (5dBi) + 1.35 dB cable loss + 1.4 dB transmission line loss = 2.25 dBi
Manufacturer	Spectralink Europe ApS Langmarksvej 34 8700 Horsens Denmark	
Power supply	V _{NOM}	3.325 VDC
	V _{MIN}	3.2 VDC
	V _{MAX}	3.45 VDC
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A
Temperature	T _{NOM}	20°C
	T _{MIN}	-20°C
	T _{MAX}	85°C

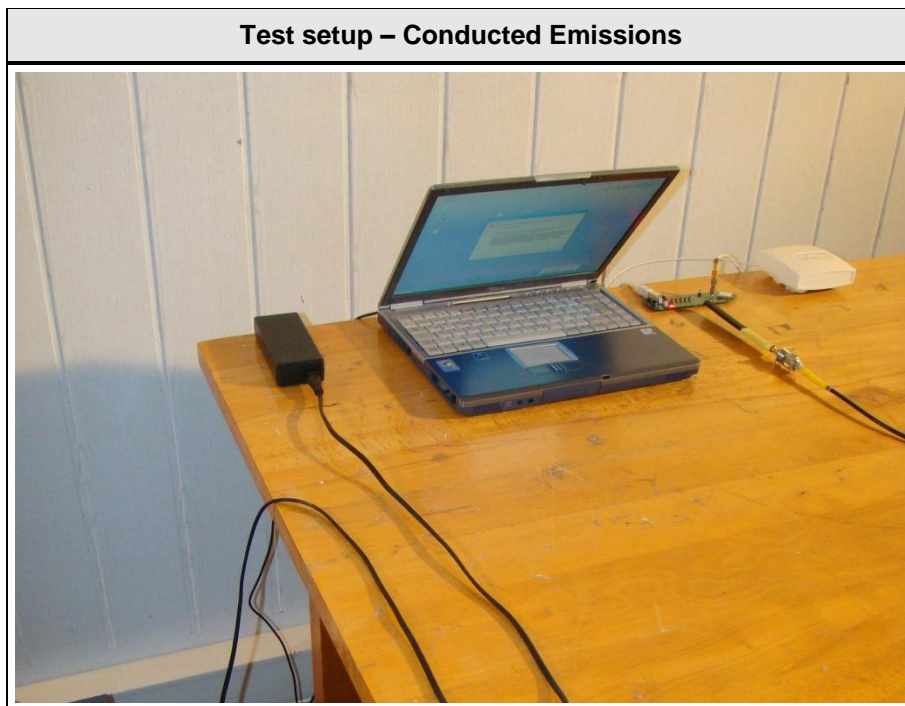
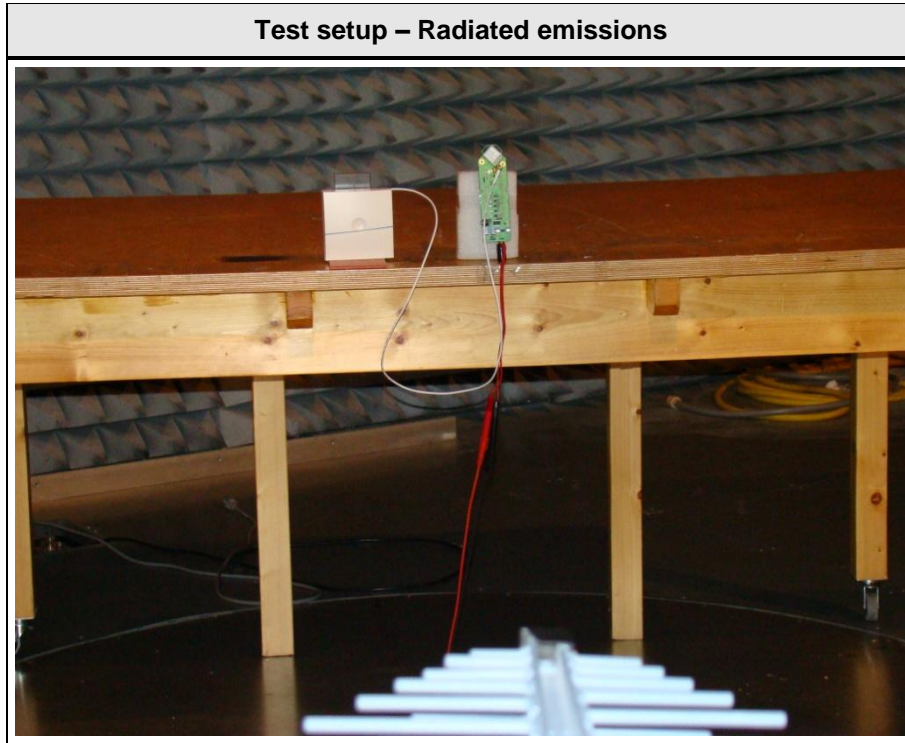
1.1 Photos - Equipment external



1.2 Photos - Equipment internal



1.3 Photos – Test setup



1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Portable Part	Polycom		

***Note:** Use the following abbreviations:

AE : Auxiliary/Associated Equipment, or

SIM : Simulator (Not Subjected to Test)

CABL : Connecting cables

1.5 Test Modes

Mode #	Description	
TDMA	General conditions:	EUT powered by laboratory power supply. Active connection to companion device.
	Radio conditions:	Mode = Transmit mode Modulation = GFSK Duty cycle = 1/24 Power level = Maximum
Receive	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone receive Modulation = GFSK
AC-Powerline	General conditions:	EUT connected to and powered via evaluation board. Active data connection between EUT and companion device. AC connection evaluation board.
	Radio conditions:	Mode = Transmit mode Modulation = GFSK Duty cycle = 1/24 Power level = Maximum

1.6 Test Equipment Used During Testing

Conducted					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01
Signal Generator	R&S	SMP 04	EF00167	2012-09	2014-09
Signal Generator	R&S	SMIQ 03B	EF00153	2012-09	2014-09
Signal Generator	R&S	SMIQ 03B	EF00152	2012-08	2014-08
Signal Generator	R&S	SME 03	EF00169	2013-04	2015-04
Signal Generator	R&S	SMT 03	EF00164	2013-04	2015-04
Step Attenuator	R&S	RSP	EF00129	2011-09	2013-09
Frequency Standard	EFRATOM Elektronik GmbH	MFS	EF00407	2012-02	2015-02
Power Meter	R&S	NRVD	EF00139	2012-06	2013-06
Diode Power Sensor	R&S	NRV-Z1	EF00159	2012-09	2014-09

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	--	--
Fully-anechoic chamber	Frankonia	AC 2	EF00199	--	--
Spectrum Analyzer	R&S	FSIQ26	EF00242	2012-05	2013-05
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2011-02	2014-02
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

AC powerline conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2012-10	2014-10
AMN	R&S	ESH3-Z5	EF00036	2012-11	2014-11
EMI Test Receiver	R&S	ESCS 30	EF00295	2012-08	2013-08

1.7 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dB μ V. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dB μ V/m). The FCC limits are given in units of μ V/m. The following formula is used to convert the units of μ V/m to dB μ V/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 * \log (\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

$$\begin{array}{rclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

2 Result Summary

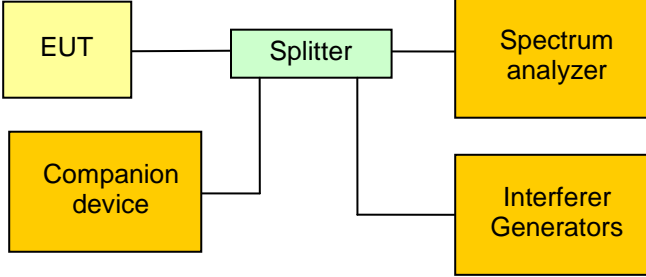
FCC 47 CFR Part 15D, 15C, IC RSS-213, IC RSS-Gen				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
FCC 15.307	Coordination with fixed microwave service	declaration	N/A	
FCC 15.309(b)	Cross reference to subpart B	declaration	PASS	
FCC 15.315 FCC 15.207 IC RSS-213 6.3 IC RSS-213 4.2 IC RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	PASS	
FCC 15.317 FCC 15.203 IC RSS-213 4.1(e)	Antenna requirements	visual inspection	PASS	
FCC 15.319(b) IC RSS-213 6.1	Digital modulation	ANSI C63.17 6.1.4	N/A	
IC RSS-213 6.4 RSS-Gen 4.6.1	Occupied bandwidth	RSS-Gen 4.6.1	PASS	
FCC 15.323(a)	Emission Bandwidth	ANSI C63.17 6.1.3	N/A	
FCC 15.319(c) FCC 15.319(e) IC RSS-213 6.5 IC RSS-213 4.3.1	Peak transmit power	ANSI C63.17 6.1.2	PASS	
FCC 15.319(d) IC RSS-213 6.6 IC RSS-213 4.3.2	Power spectral density	ANSI C63.17 6.1.5	N/A	
FCC 15.323(f) IC RSS-213 6.2	Frequency stability	ANSI C63.17 6.2	PASS	
FCC 15.323(d) IC RSS-213 6.7.2	Transmitter in-band unwanted emissions	ANSI C63.17 6.1.6	PASS	
FCC 15.323(d) IC RSS-213 6.7.1	Transmitter out-of-band emissions	ANSI C63.17 6.1.6 ANSI C63.4	PASS	
IC RSS-213 6.8 IC RSS-Gen 4.10, 6	Receiver spurious emissions	ANSI C63.4	PASS	
FCC 15.319(f) IC RSS-213 4.3.4(a)	Automatic discontinuation of transmission	functional test	N/A	
FCC 15.319(i) RSS-102	Radiofrequency radiation exposure	dedicated report	PASS	
FCC 15.323(c)(2),(5),(9) IC RSS-213 4.3.4(b)(2),(5),(9)	Monitoring threshold + Monitoring threshold relaxation	ANSI C63.17 7.3.1	N/A	
FCC 15.323(c)(5) IC RSS-213 4.3.4(b)(5)	LIC confirmation	ANSI C63.17 7.3.4 / 7.3.4	N/A	
FCC 15.323(c)(5) IC RSS-213 4.3.4(b)(5)	LIC selection	ANSI C63.17 7.3.2 / 7.3.3	N/A	
FCC 15.323(c)(8) IC RSS-213 4.3.4(b)(8)	Monitoring antenna	ANSI C63.17 4	N/A	

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FCC 15.323(c)(1) IC RSS-213 4.3.4(b)(1)	Monitoring time	ANSI C63.17 7.3.4	N/A	
FCC 15.323(c)(7) IC RSS-213 4.3.4(b)(7)	Monitoring bandwidth	ANSI C63.17 7.4	N/A	
FCC 15.323(c)(7) IC RSS-213 4.3.4(b)(7)	Monitoring reaction time	ANSI C63.17 7.5	N/A	
FCC 15.323(c)(4) IC RSS-213 4.3.4(b)(4)	System Acknowledgement	ANSI C63.17 8.1 / 8.2	N/A	
FCC 15.323(c)(6) IC RSS-213 4.3.4(b)(6)	Random waiting	ANSI C63.17 8.1.3	N/A	
FCC 15.323(c)(3) IC RSS-213 4.3.4(b)(3)	Maximum transmit period	ANSI C63.17 8.2.2	N/A	
FCC 15.323(c)(5) IC RSS-213 4.3.4(b)(5)	Maximum spectrum occupancy	declaration	N/A	
FCC 15.323(c)(10) IC RSS-213 4.3.4(b)(10)	Duplex system LBT	ANSI C63.17 8.3	N/A	
FCC 15.323(c)(11) IC RSS-213 4.3.4(b)(11)	Co-located device LBT	ANSI C63.17 8.4	N/A	
FCC 15.323(c)(12) IC RSS-213 4.3.4(b)(12)	Fair access	declaration	N/A	
FCC 15.323(e)(1),(4),(5) IC RSS-213 4.3.4(c)(1),(4),(5)	Frame period and Jitter	ANSI C63.17 6.2.3	PASS	
FCC 15.323(e)(2),(3) IC RSS-213 4.3.4(c)(2),(3)	Frame and TDMA repetition stability	ANSI C63.17 6.2.2	PASS	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to IC RSS-213				Verdict: PASS
Test according to measurement reference	Reference Method			
	IC RSS-213 4.3.2, 6.4 / IC RSS-Gen 4.6.1			
Tested frequencies	$F_{LOW} / F_{MID} / F_{HIGH}$			
EUT test mode	TDMA			
Limits				
0.05MHz ≤ Occupied Bandwidth < 2.5MHz				
Test setup				
 <pre> graph LR EUT[EUT] --- Splitter[Splitter] Splitter --- SA[Spectrum analyzer] Splitter --- IG[Interferer Generators] CD[Companion device] --- Splitter </pre>				
Test procedure				
<ol style="list-style-type: none"> 1. EUT is restricted to test channel with the interferes 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set to 1% of span 4. Occupied Bandwidth (99%) measurement with spectrum analyzer built in measurement function 				
Test results				
Channel	Center frequency [MHz]	Lower edge [MHz]	Upper edge [MHz]	Occupied Bandwidth [MHz]
F_{LOW}	1921.536	1920.928	1922.136	01.210
F_{MID}	1924.992	1924.384	1925.592	01.210
F_{HIGH}	1928.448	1927.840	1929.056	01.220
Comments:				

3.2 Test Conditions and Results – Cross reference to subpart B

Cross reference to subpart B acc. to FCC 47 CFR 15D		Verdict: N/A
EUT requirement rule parts and clause	Reference	
	FCC 15.309(b)	
Test according to measurement reference	Reference Method	
	Declaration	
Requirements		
The requirements of subpart D apply only to the radio transmitter contained in the PCS device. Other aspects of the operation of a PCS device may be subject to requirements contained elsewhere in this chapter. In particular, a PCS device that includes digital circuitry not directly associated with the radio transmitter also is subject to the requirements for unintentional radiators in subpart B.		
Result		
The EUT does not contain any digital circuitry not directly associated with the radio transmitter		

3.3 Test Conditions and Results – AC power line conducted emissions

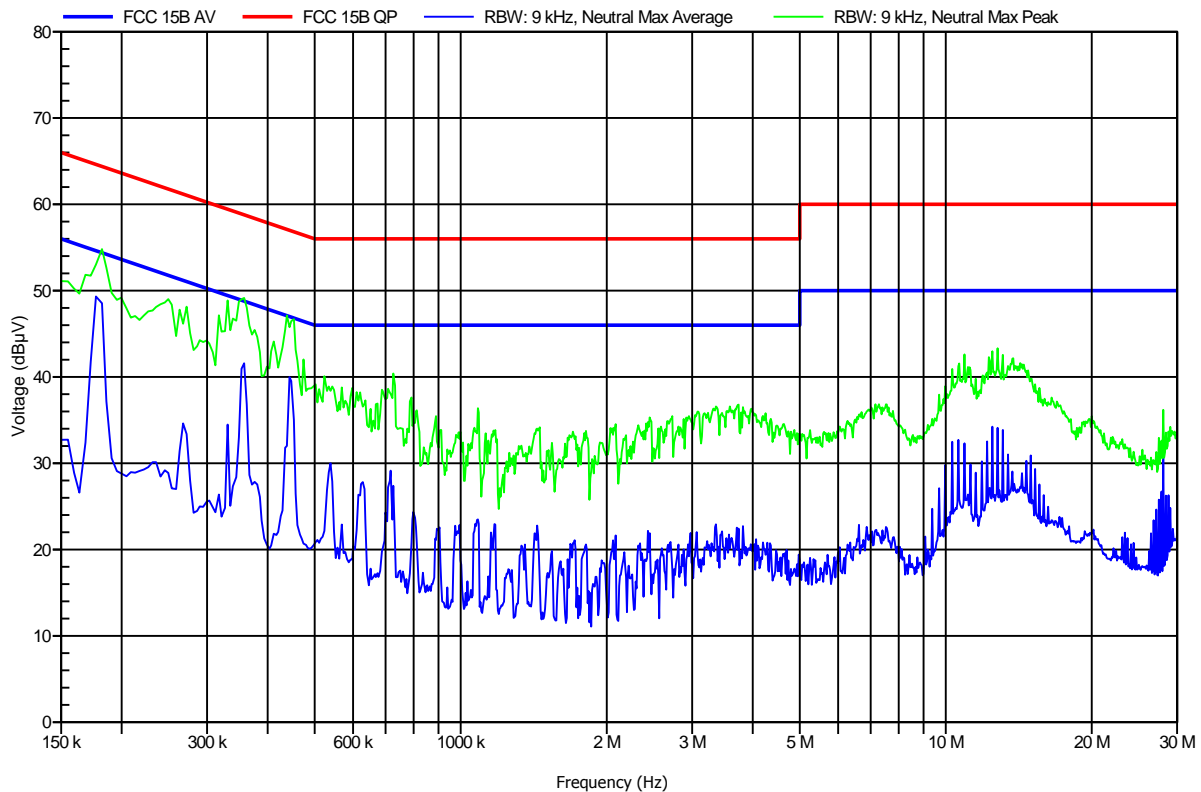
Conducted emissions acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS		
EUT requirement rule parts and clause	Reference			
	FCC 15.315 / FCC 15.207 / IC RSS-213 6.3, 4.2			
Test according referenced standards	Reference Method			
	ANSI C63.4			
Fully configured sample scanned over the following frequency range	Frequency range			
	0.15MHz to 30MHz			
Points of Application	Application Interface			
AC Mains	LISN			
EUT test mode	AC-Powerline			
Limits and results				
Frequency [MHz]	Quasi-Peak [dB μ V]	Result	Average [dB μ V]	Result
0.15 to 5	66 to 56*	PASS	56 to 46*	PASS
0.5 to 5	56	PASS	46	PASS
5 to 30	60	PASS	50	PASS
Comments: * Limit decreases linearly with the logarithm of the frequency.				

Conducted Emissions
EMI voltage test in the ac-mains according to FCC part 15 B||

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120VAC(AC/DC-adaptor FUJITSU N18214)
 LISN: ESH2-Z5 N
 Mode: active DECT link
 Test Date: 2013-04-17
 Note: feeding usb-port FUJITSU SIEMENS Laptop E series LIFEBOOK

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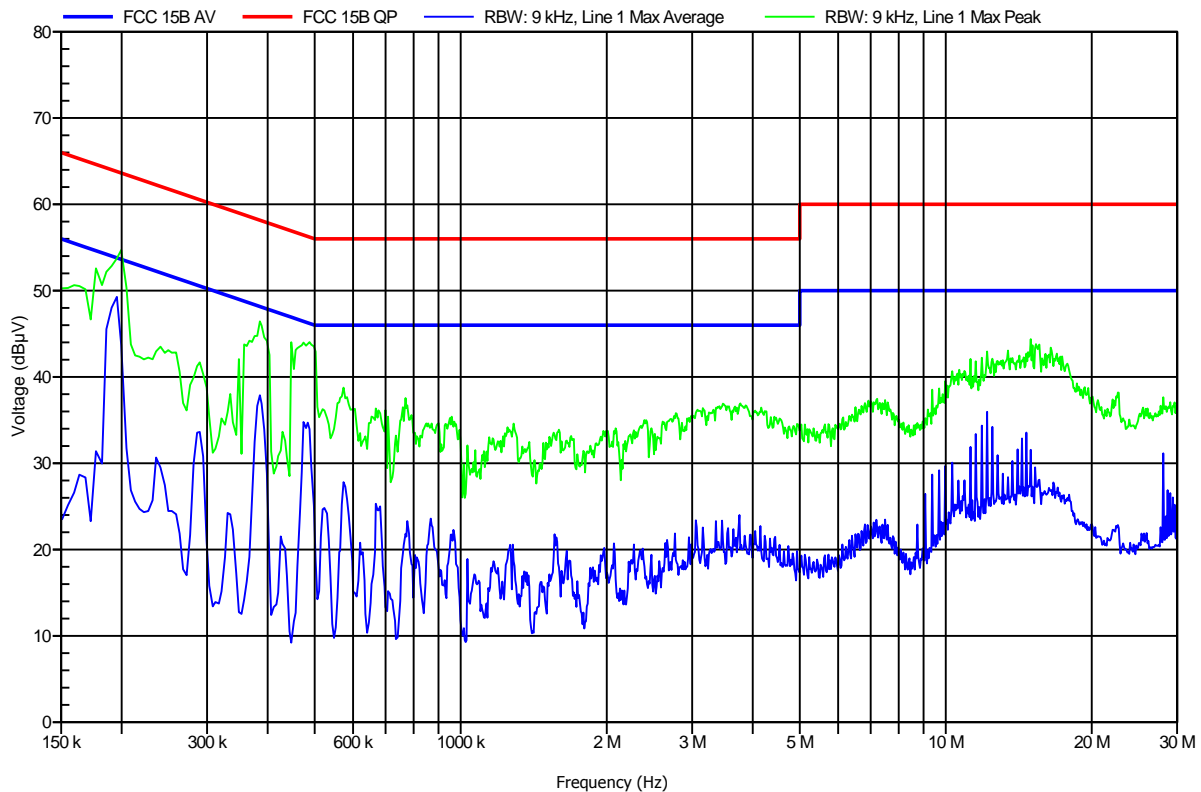


Conducted Emissions
EMI voltage test in the ac-mains according to FCC part 15 B||

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Manufacturer: Spectralink
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 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Handrik
 Test Conditions: Tnom: 22°C, Unom: 120VAC(AC/DC-adaptor FUJITSU N18214)
 LISN: ESH2-Z5 L
 Mode: active DECT link
 Test Date: 2013-04-17
 Note: feeding usb-port FUJITSU SIEMENS Laptop E series LIFEBOOK

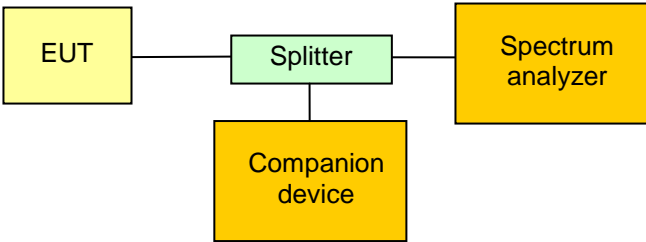
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3.4 Test Conditions and Results – Antenna requirement

Antenna requirement acc. to FCC 47 CFR 15D / IC RSS-213			Verdict: PASS
EUT requirement rule parts and clause	Reference		
	FCC 15.317 / FCC 15.203 / IC RSS-213 4.1(e)		
Test according to measurement reference	Reference Method		
	visual inspection & declaration		
Requirements			
<p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>When an antenna conducted measurement is used to determine the RF output power of the device, the effective gain of the antenna intended for the device must be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 3 dBi (3 dB above isotropic gain) shall be added to the measured RF output power before using the power limits</p>			
Results			
Antenna No.	Type	Antenna gain [dBi]	Antenna gain in excess of 3dBi
1	internal	0	0
2	internal	0	0
3	external	2.25	0

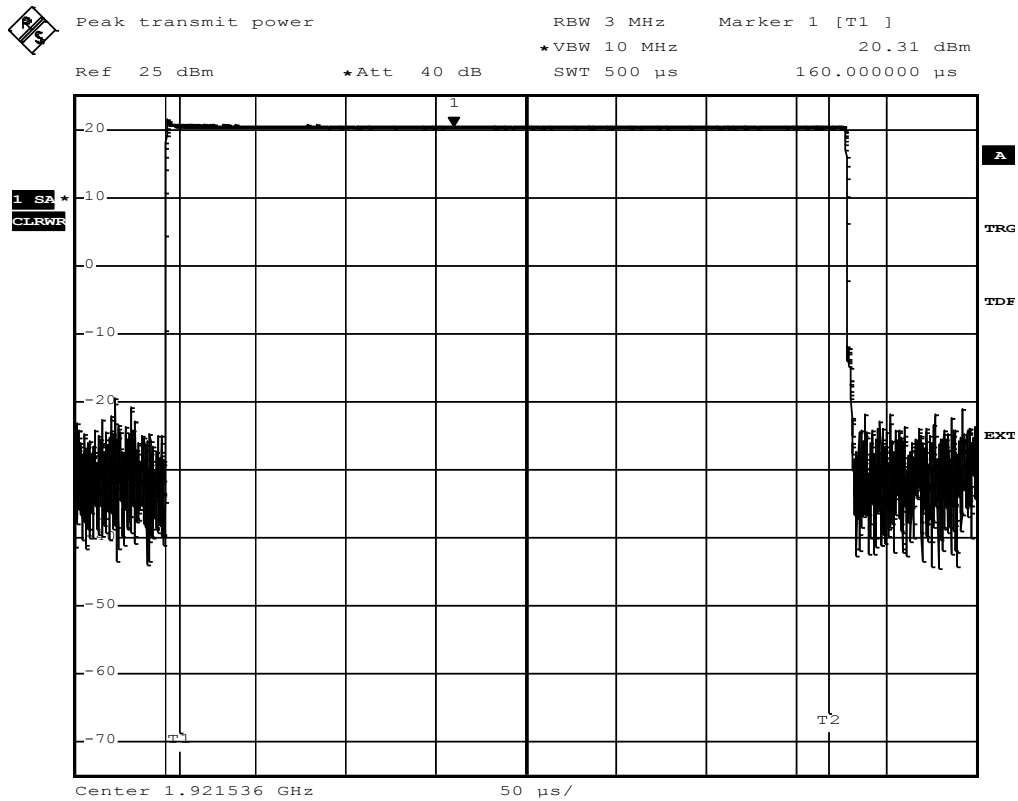
3.6 Test Conditions and Results – Peak transmit power

Peak transmit power acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 15.319(c),(e) / IC RSS-213 4.3.1, 6.5	
Test according to measurement reference	Reference Method	
	ANSI C63.17 6.1.2	
Tested frequencies	F_{LOW} / F_{HIGH}	
EUT test mode	TDMA	
Antenna excess gain	0.91 dB	
Limits		
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.		
$P_{EUT}[dBm] \leq P_{limit} \text{ where } P_{limit} = \begin{cases} P_{max} - G_A - g, & \text{when } G_A > 3 \text{ dBi} \\ P_{max}, & G_A < 3 \text{ dBi} \end{cases}$		
$P_{max}[dBm] = 5 \log \text{ Emission/Occupied Bandwidth [Hz]} - 10 \text{ dBm}$		
Test setup		
 <pre> graph LR EUT[EUT] --- Splitter[Splitter] Splitter --- SA[Spectrum analyzer] Splitter --- CD[Companion device] </pre>		
Test procedure		
<ol style="list-style-type: none"> 1. EUT set to test mode 2. The RBW is set to be larger than the emission bandwidth and $VBW \geq RBW$ 3. Transmission burst is measured in zero span and peak detector 4. The maximum level in the burst is recorded as peak transmit power 		

Test results – Port Antenna 1						
Channel	Frequency [MHz]	Peak Power [dbm]	Emission Bandwidth [Hz]	Excess gain [dB]	Limit [dbm]	Margin [dB]
F _{LOW}	1921.536	20.70	1482000	0	20.85	-00.15
F _{HIGH}	1928.448	20.64	1482000	0	20.85	-00.21
Test results – Port Antenna 2						
Channel	Frequency [MHz]	Peak Power [dbm]	Emission Bandwidth [Hz]	Excess gain [dB]	Limit [dbm]	Margin [dB]
F _{LOW}	1921.536	20.48	1482000	0	20.85	-00.37
F _{HIGH}	1928.448	20.45	1482000	0	20.85	-00.40
Test results – Port Antenna 3						
Channel	Frequency [MHz]	Peak Power [dbm]	Emission Bandwidth [Hz]	Excess gain [dB]	Limit [dbm]	Margin [dB]
F _{LOW}	1921.536	20.59	1482000	0	20.85	-00.26
F _{HIGH}	1928.448	20.65	1482000	0	20.85	-00.20
Comments:						

Peak Power – Antenna 1 - F_{Low}
FCC Part 15.319 Peak Transmit Power limit
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Peak transmit power
Supply	Vnom
Measured Bandwidth	1.482MHz
Max. Permitted Power	20,85 dBm
Measured Power	20,7 dBm
Test result	Verdict = PASS, Antenna 1

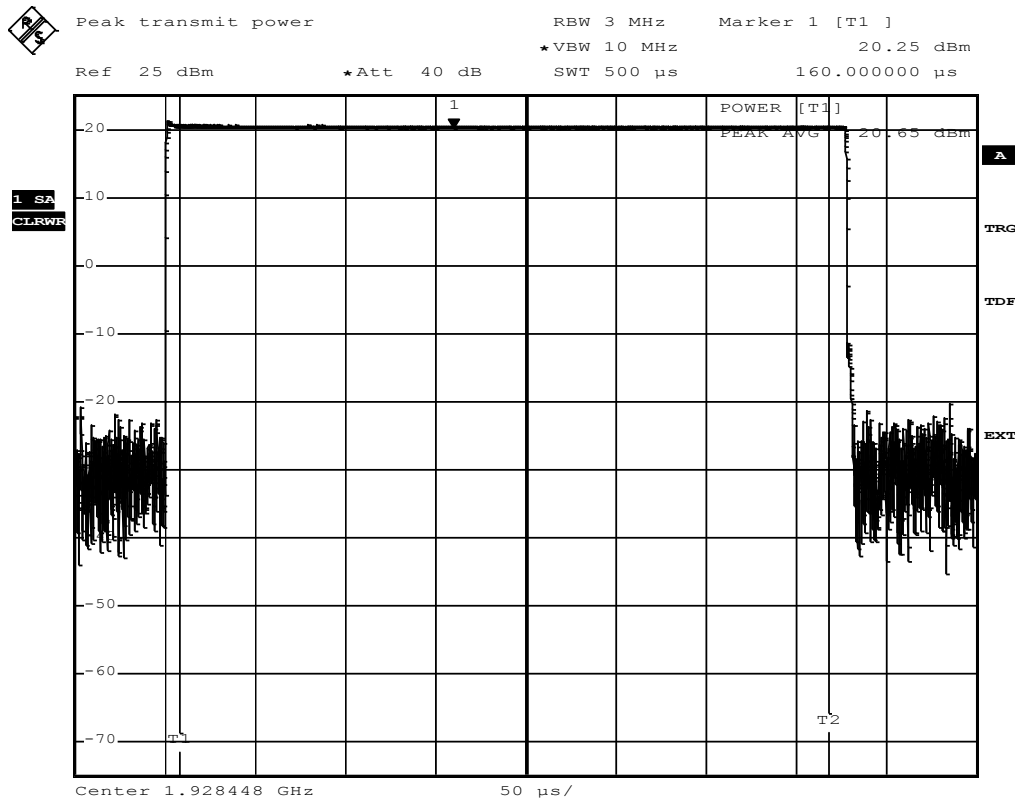


Comment: Ansi C63.17-2006 6.1.2

Date: 9.APR.2013 14:49:35

Peak Power – Antenna 1 - F_{HIGH}
FCC Part 15.319 Peak Transmit Power limit
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Peak transmit power
Supply	Vnom
Measured Bandwidth	1.482MHz
Max. Permitted Power	20,85 dBm
Measured Power	20,64 dBm
Test result	Verdict = PASS, Antenna 1

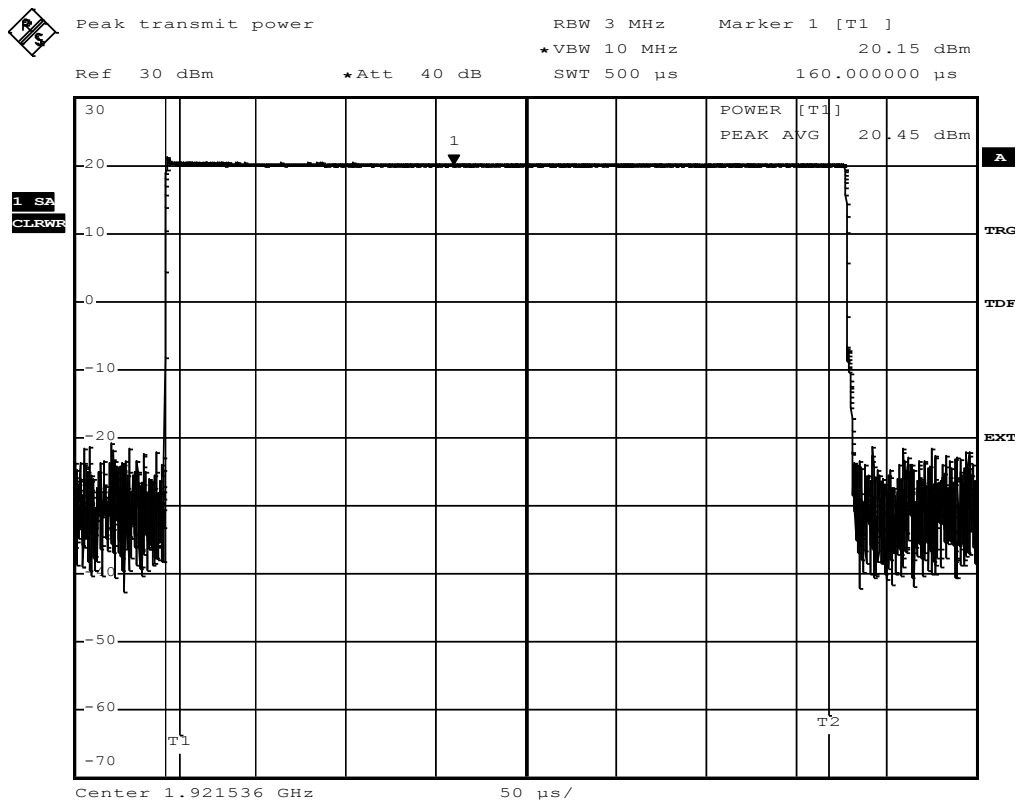


Comment: Ansi C63.17-2006 6.1.2

Date: 9.APR.2013 14:51:15

Peak Power – Antenna 2 - F_{Low}
FCC Part 15.319 Peak Transmit Power limit
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Peak transmit power
Supply	Vnom
Measured Bandwidth	1.482MHz
Max. Permitted Power	20,85 dBm
Measured Power	20,48 dBm
Test result	Verdict = PASS, Antenna 2

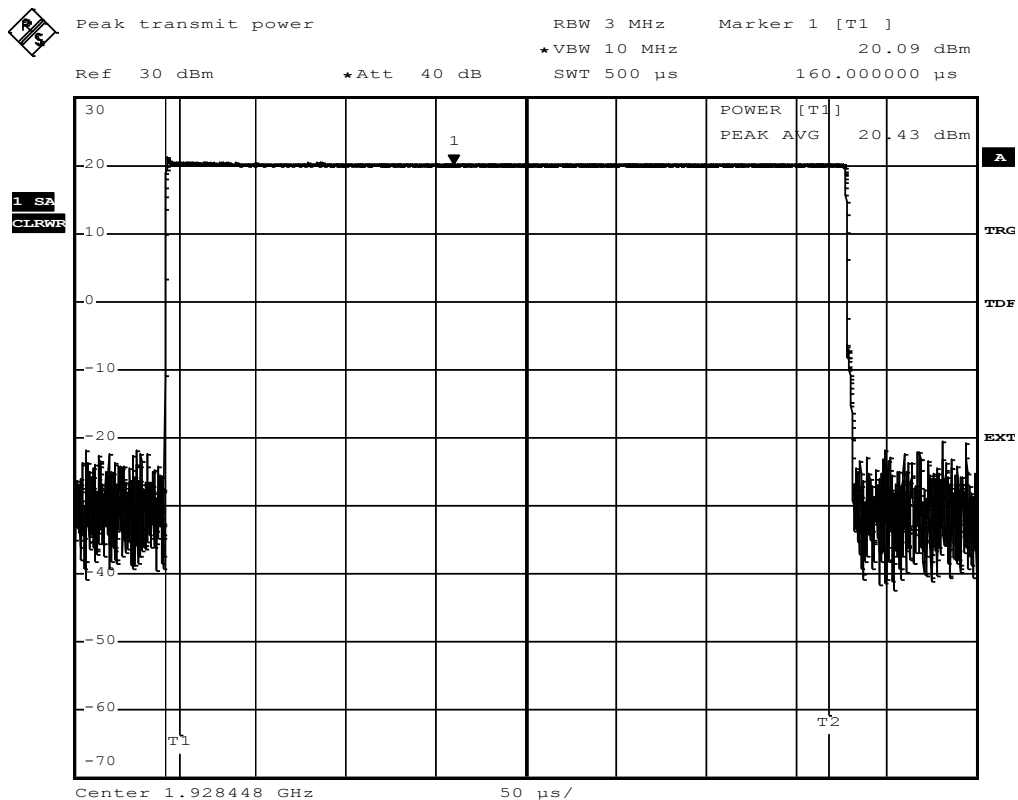


Comment: Ansi C63.17-2006 6.1.2

Date: 9.APR.2013 15:06:30

Peak Power – Antenna 2 - F_{HIGH}
FCC Part 15.319 Peak Transmit Power limit
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Peak transmit power
Supply	Vnom
Measured Bandwidth	1.482MHz
Max. Permitted Power	20,85 dBm
Measured Power	20,45 dBm
Test result	Verdict = PASS, Antenna 2

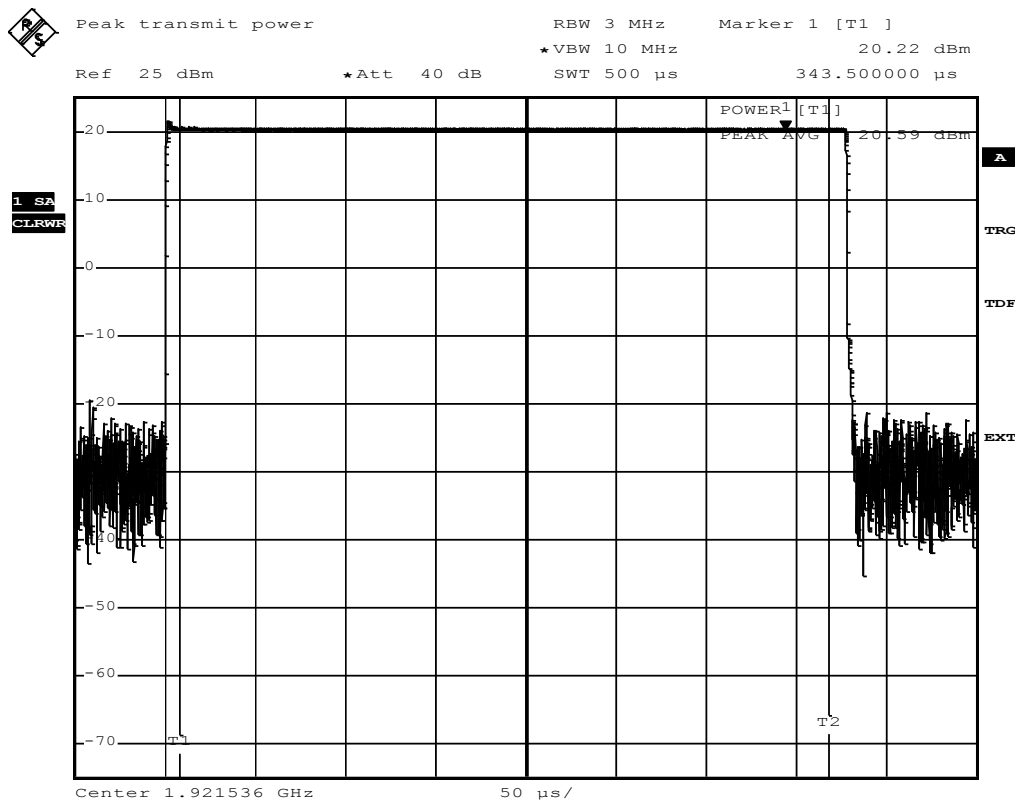


Comment: Ansi C63.17-2006 6.1.2

Date: 9.APR.2013 15:04:12

Peak Power – Antenna 3 - F_{Low}
FCC Part 15.319 Peak Transmit Power limit
Testprocedure ANSI 63.17
UPCS

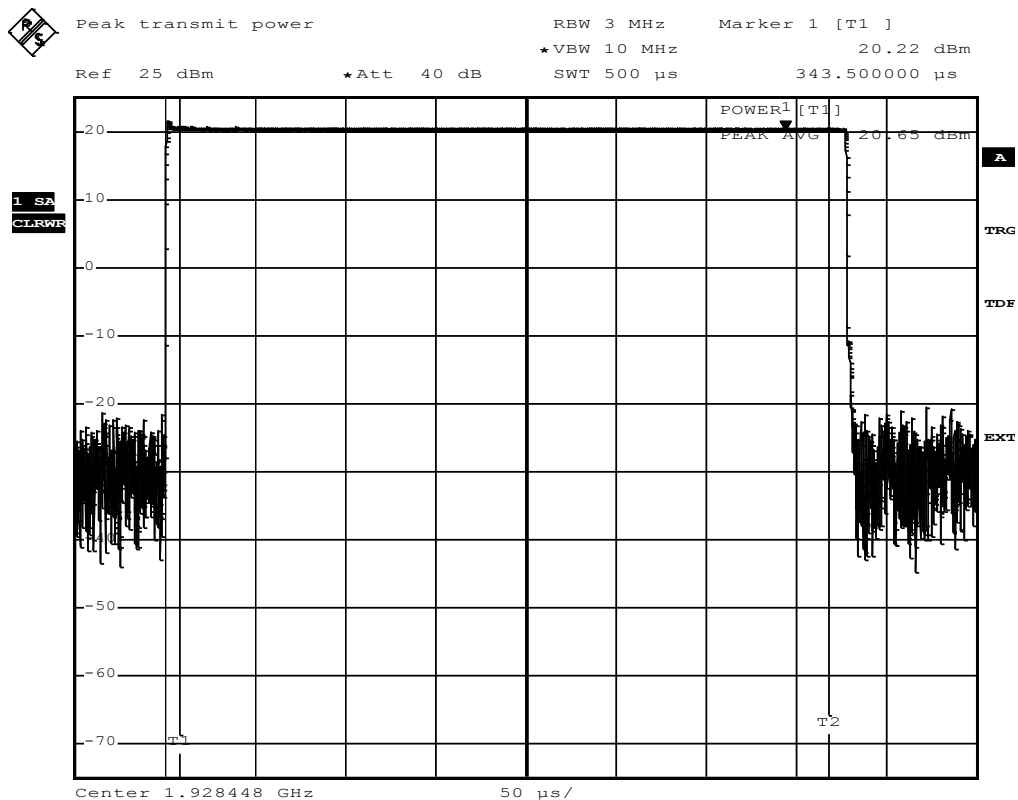
EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Peak transmit power
Supply	Vnom / antenna 3
Measured Bandwidth	1.482MHz
Max. Permitted Power	20.85 dBm
Measured Power	20.59 dBm
Test result	Verdict = PASS



Comment: Ansi C63.17-2006 6.1.2
 Date: 11.APR.2013 12:42:42

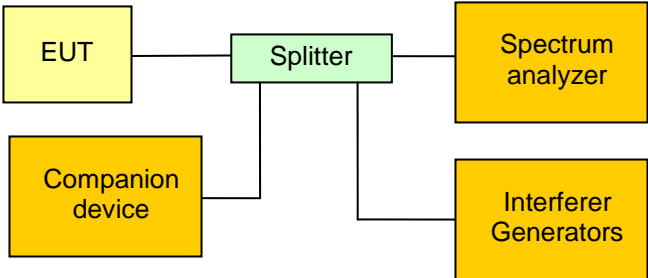
Peak Power – Antenna 3 - F_{HIGH}
FCC Part 15.319 Peak Transmit Power limit
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Peak transmit power
Supply	Vnom / antenna 3
Measured Bandwidth	1.482MHz
Max. Permitted Power	20.85 dBm
Measured Power	20.65 dBm
Test result	Verdict = PASS



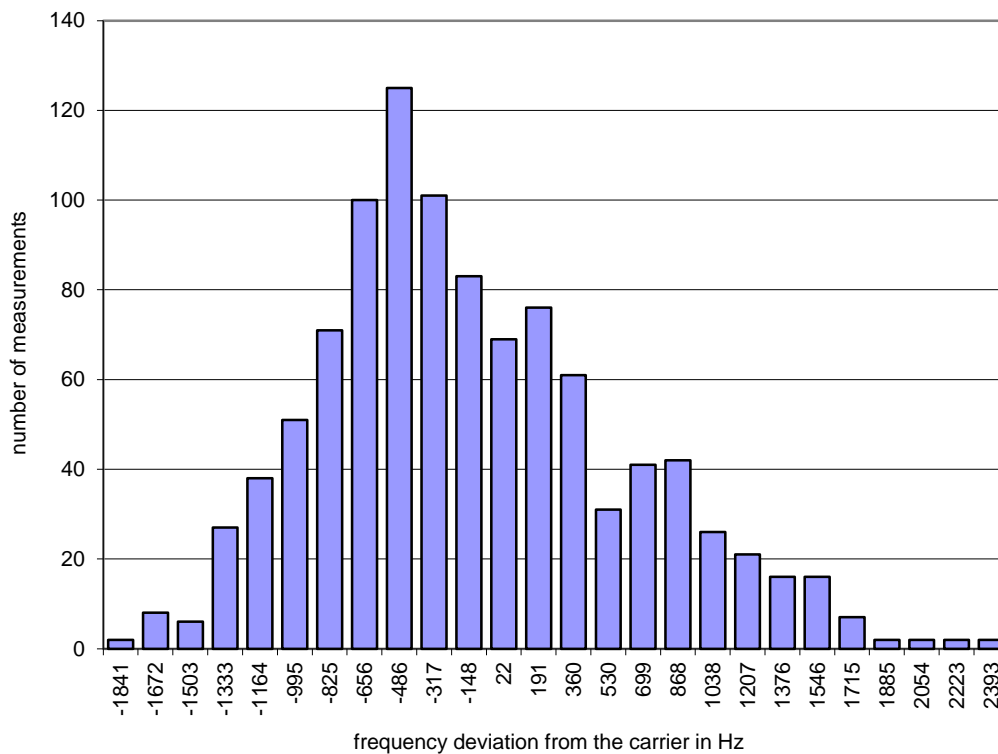
Comment: Ansi C63.17-2006 6.1.2
Date: 11.APR.2013 12:51:06

3.7 Test Conditions and Results – Frequency stability

Frequency stability acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS		
EUT requirement rule parts and clause	Reference			
	FCC 15.323(f) / IC RSS-213 6.2			
Test according to measurement reference	Reference Method			
	ANSI C63.17 6.2			
Tested frequencies	F _{MID}			
EUT test mode	TDMA			
Limits				
± 10 ppm / hour				
Test setup				
 <pre> graph LR EUT[EUT] --- Splitter[Splitter] Splitter --- SA[Spectrum analyzer] Splitter --- IG[Interferer Generators] CD[Companion device] --- Splitter </pre>				
Test procedure				
<ol style="list-style-type: none"> 1. With interferer signals the EUT is forced to center channel and communication to companion device is established. 2. The demodulated carrier EUT signal is captured over time 3. The mean frequency is determined under all supply voltage and temperature conditions 				
Test results – Port Antenna 3				
Voltage	Temperature	Maximum Frequency deviation [ppm]	Limit [ppm]	Margin [ppm]
3.325 VDC	20°C	1.31	±10.0	-08.69
3.2 VDC	20°C	0.90	±10.0	-09.10
3.45 VDC	20°C	1.38	±10.0	-08.62
3.325 VDC	-20°C	1.30	±10.0	-08.70
3.325 VDC	85°C	1.67	±10.0	-08.33
Comments:				

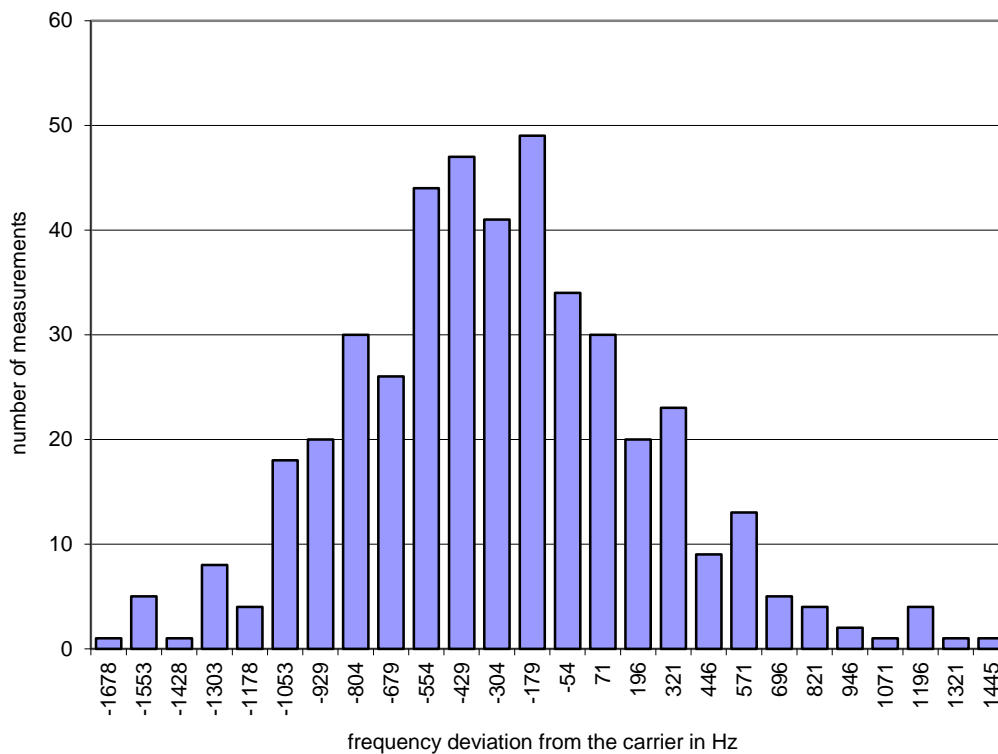
Carrier stability – Frequency stability – T_{NOM} V_{NOM}
**FCC Part 15.323 Frequency Stability
Testprocedure ANSI 63.17**

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	20 °C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frequency stability
Power supply	Vnom
Frequency of carrier	1924,993115 MHz
Measured mean	1924,993115 MHz
Stability (supply temp)	0,0 ppm (reference)
Result	Verdict = PASS
Stability over time	fmax : 1,31 ppm fmin : 0,89 ppm
Result	Verdict = PASS

Histogram


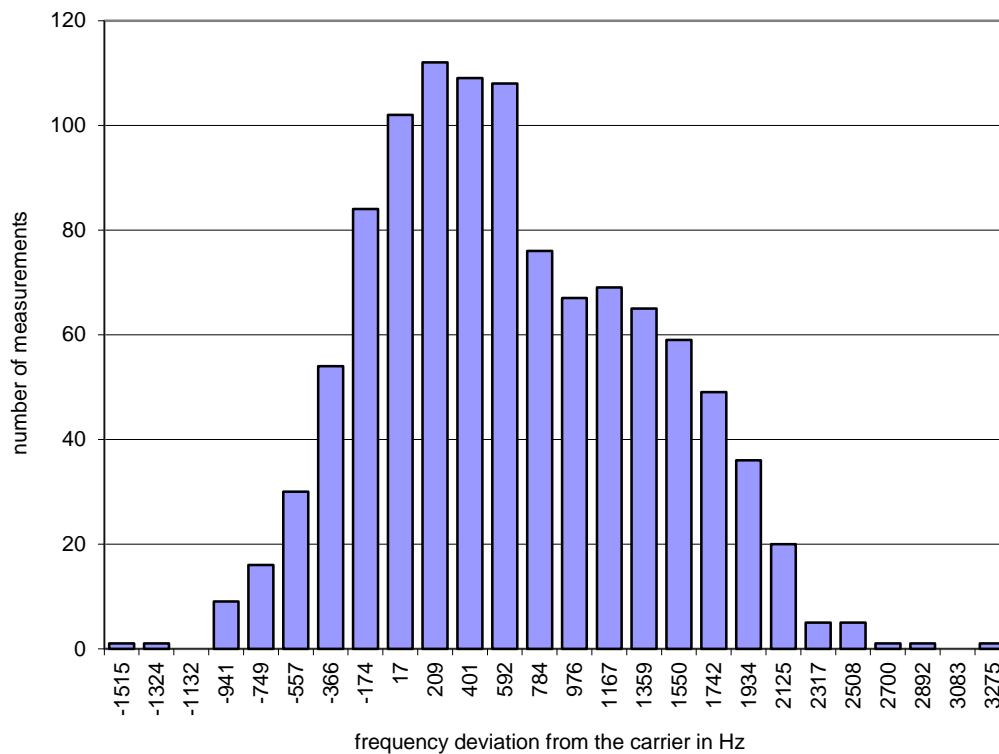
Carrier stability – Frequency stability – T_{NOM} V_{MIN}
**FCC Part 15.323 Frequency Stability
Testprocedure ANSI 63.17**

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	20 °C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frequency stability
Power supply	Vmin
Frequency of carrier	1924,993115 MHz
Measured mean	1924,992821 MHz
Stability (supply temp)	0,15 ppm
Result	Verdict = PASS
Stability over time	fmax : 0,90 ppm fmin : 0,72 ppm
Result	Verdict = PASS

Histogram


Carrier stability – Frequency stability – T_{NOM} V_{MAX}
**FCC Part 15.323 Frequency Stability
Testprocedure ANSI 63.17**

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	20 °C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frequency stability
Power supply	Vmax
Frequency of carrier	1924,992821 MHz
Measured mean	1924,993445 MHz
Stability (supply temp)	-0,32 ppm
Result	Verdict = PASS
Stability over time	fmax : 1,38 ppm fmin : 1,11 ppm
Result	Verdict = PASS

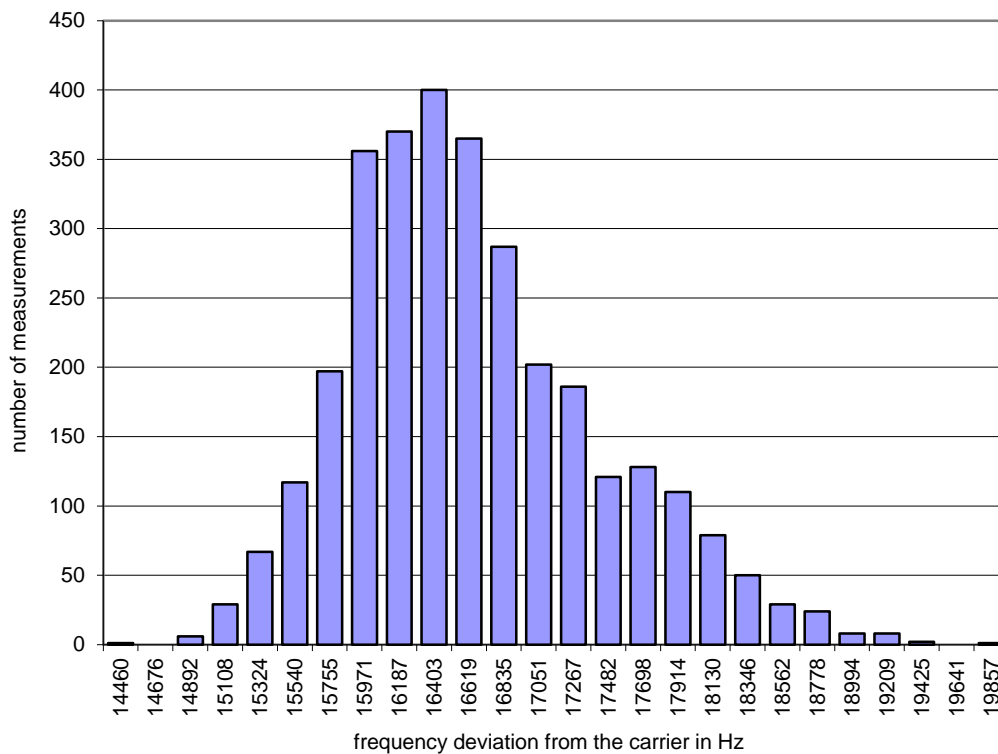
Histogram


Carrier stability – Frequency stability – T_{MAX} V_{NOM}

FCC Part 15.323 Frequency Stability
Testprocedure ANSI 63.17

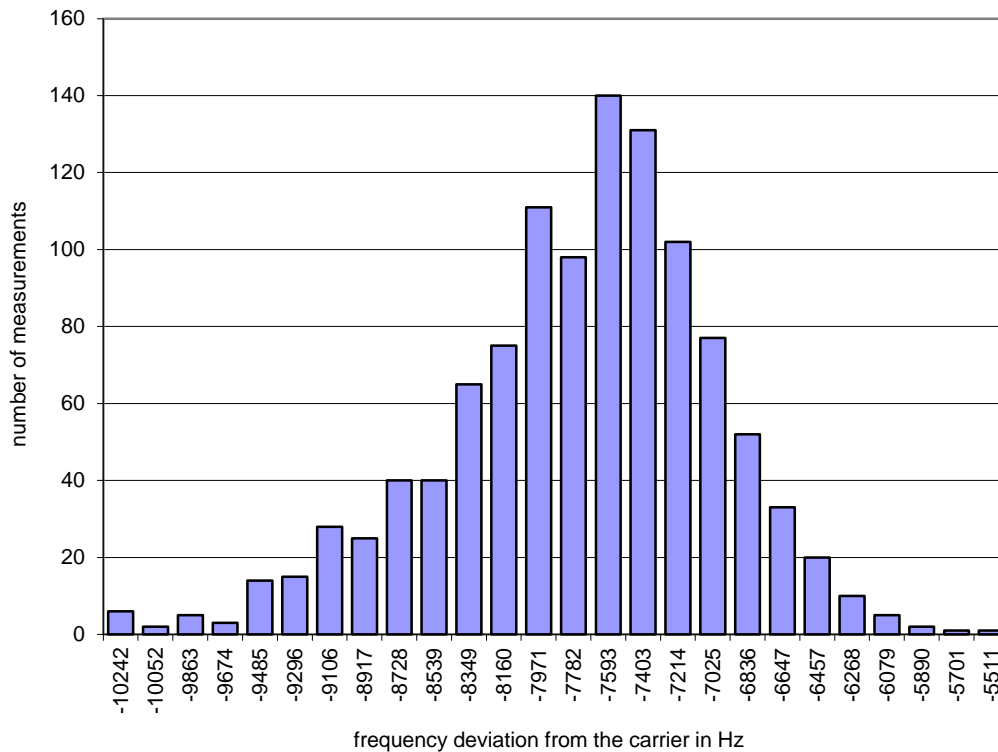
EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	85 °C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frequency stability
Power supply	Vnom
Frequency of carrier	1924,993115 MHz
Measured mean	1925,009765 MHz
Stability (supply temp)	8,65 ppm
Result	Verdict = PASS
Stability over time	fmax : 1,67 ppm fmin : 1,14 ppm
Result	Verdict = PASS

Histogram



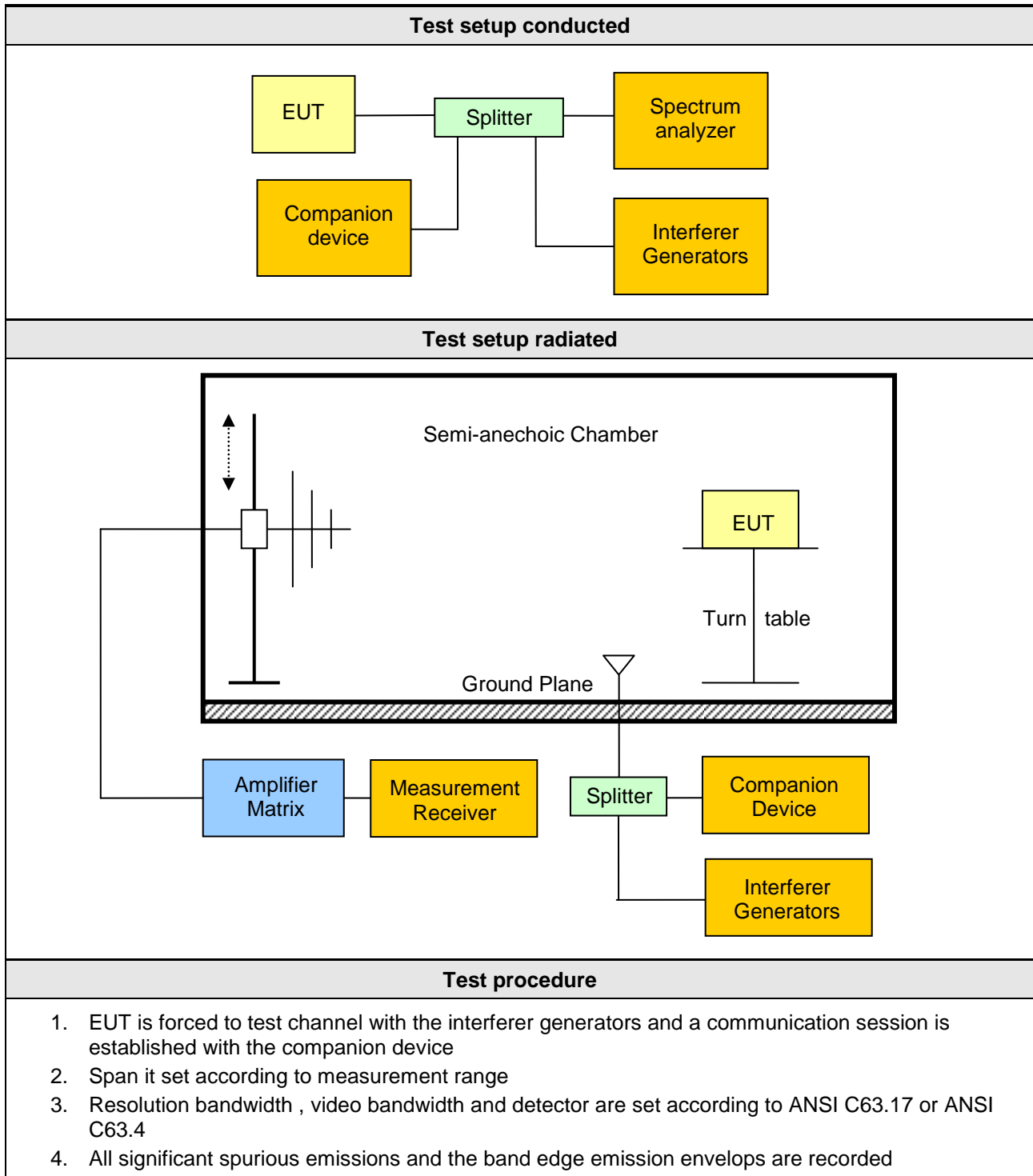
Carrier stability – Frequency stability – T_{MIN} V_{NOM}
**FCC Part 15.323 Frequency Stability
Testprocedure ANSI 63.17**

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	-20 °C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frequency stability
Power supply	Vnom
Frequency of carrier	1924,993115 MHz
Measured mean	1924,985369 MHz
Stability (supply temp)	-4,02 ppm
Result	Verdict = PASS
Stability over time	fmax : 1,16 ppm fmin : 1,30 ppm
Result	Verdict = PASS

Histogram


3.8 Test Conditions and Results – Transmitter out-of-band emissions

Transmitter out-of-band emissions acc. to FCC 47 CFR 15D / IC RSS-213			Verdict: PASS
Test according referenced standards	Reference Method		
	FCC 15.323(d) / IC RSS-213 6.7.1		
Test according to measurement reference	Reference Method		
	ANSI C63.17 6.1.6		
Tested frequencies	F_{LOW} / F_{HIGH}		
Tested frequency range	30 MHz – 10 th Harmonic		
Test option	Tested according to option a), b) and d) in C63.17 6.1.6.2		
Limits			
Frequency range [MHz]	Detector	Limit	Limit Distance [m]
30 – 88	Quasi-Peak	100 μ V/m (40 dB μ V/m)	3
88 – 216	Quasi-Peak	150 μ V/m (43.5 dB μ V/m)	3
216 – 960	Quasi-Peak	200 μ V/m (46 dB μ V/m)	3
960 – 1000	Quasi-Peak	500 μ V/m (54 dB μ V/m)	3
1000 – 1917.5	Average	500 μ V/m (54 dB μ V/m)	3
1917.5 – 1918.75	Peak	-39.5 dBm *	N/A
1918.75 – 1920	Peak	-29.5 dBm *	N/A
1930 – 1931.25	Peak	-29.5 dBm *	N/A
1931.25 – 1932.5	Peak	-39.5 dBm *	N/A
1932.5 - 20000	Average	500 μ V/m (54 dB μ V/m)	3
<p>Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).</p> <p>When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.</p> <p>* Measurement is performed with conducted measurement setup</p>			



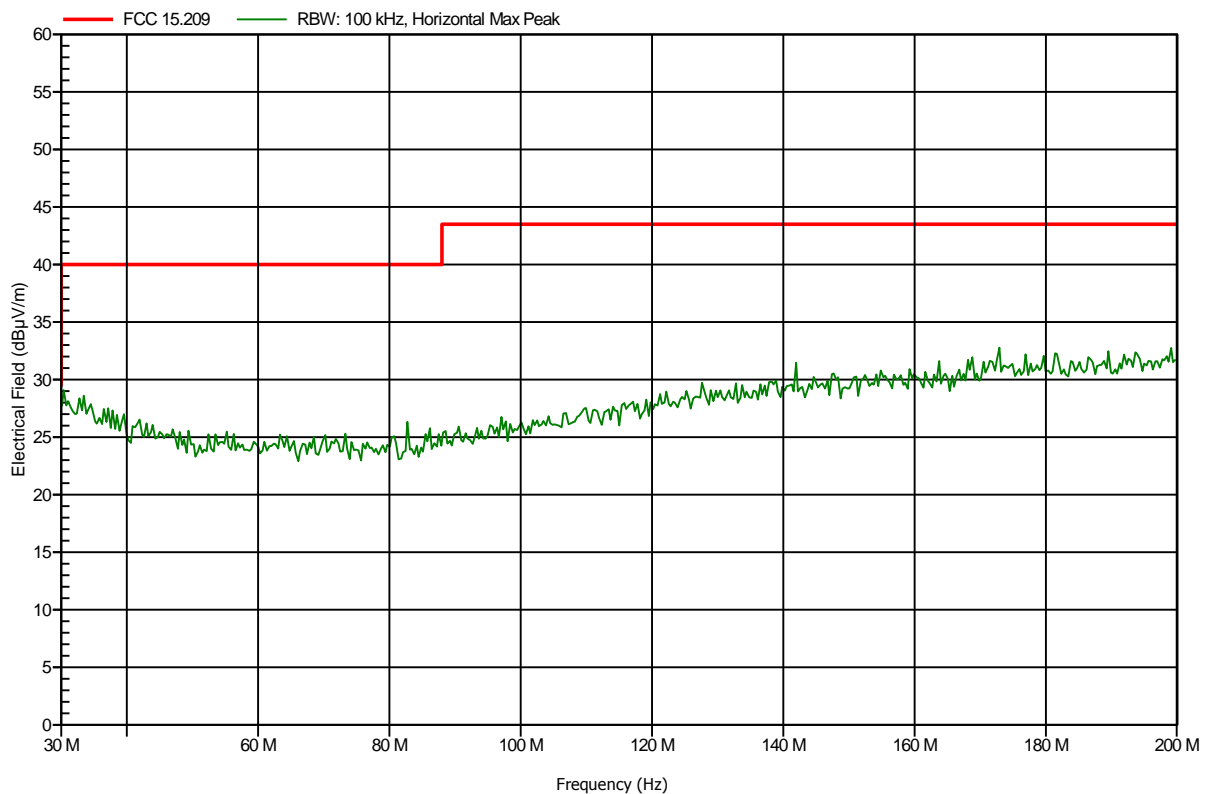
Test results									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [db μ V/m]	Det.	Pol.	Limit [db μ V/m]	Limit dist. [m]*	Margin [dB]
0	1928.448	Antenna 3	1932.6	69.41	pk	hor	73.90	3	-04.49
0	1928.448	Antenna 3	1932.6	27.61	avg	hor	53.90	3	-26.29
4	1921.536	Antenna 3	1917.5	68.88	pk	hor	73.90	3	-05.02
4	1921.536	Antenna 3	1917.5	26.70	avg	hor	53.90	3	-27.20
Comments: * Physical distance between EUT and measurement antenna.									

Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	worst case

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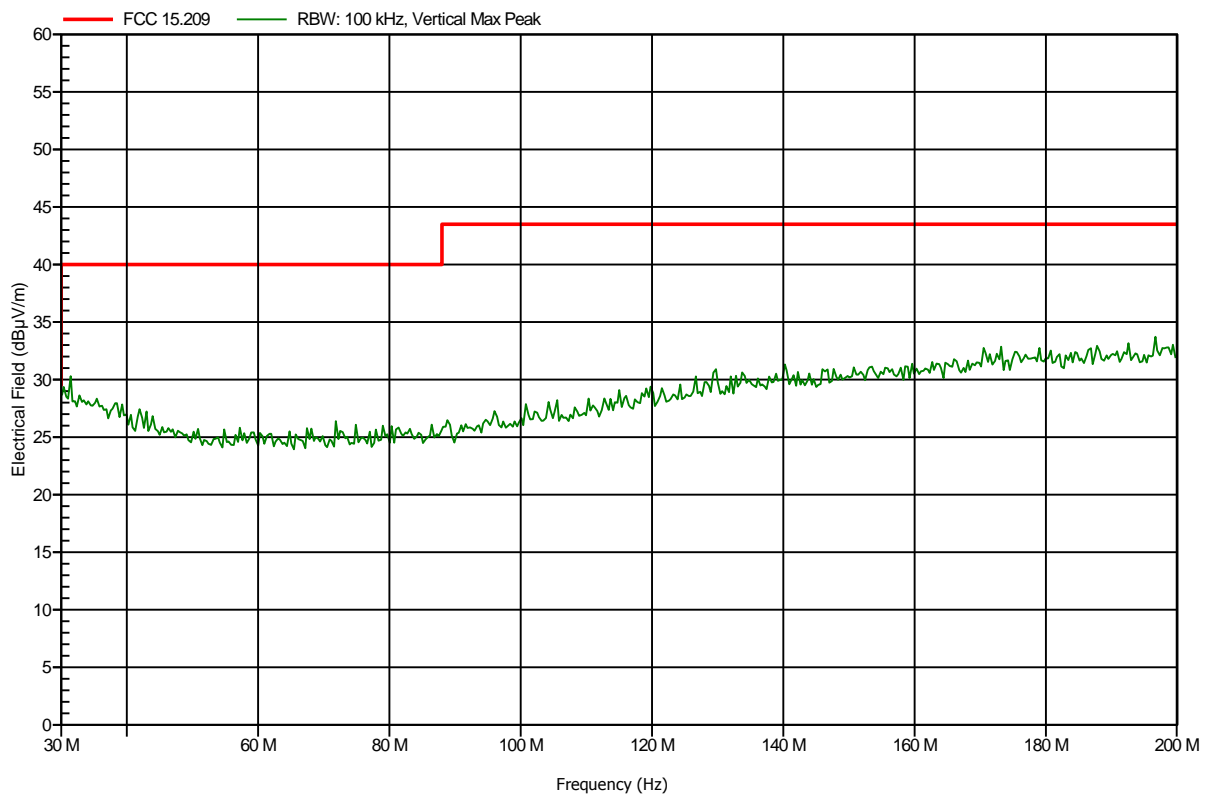


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	worst case

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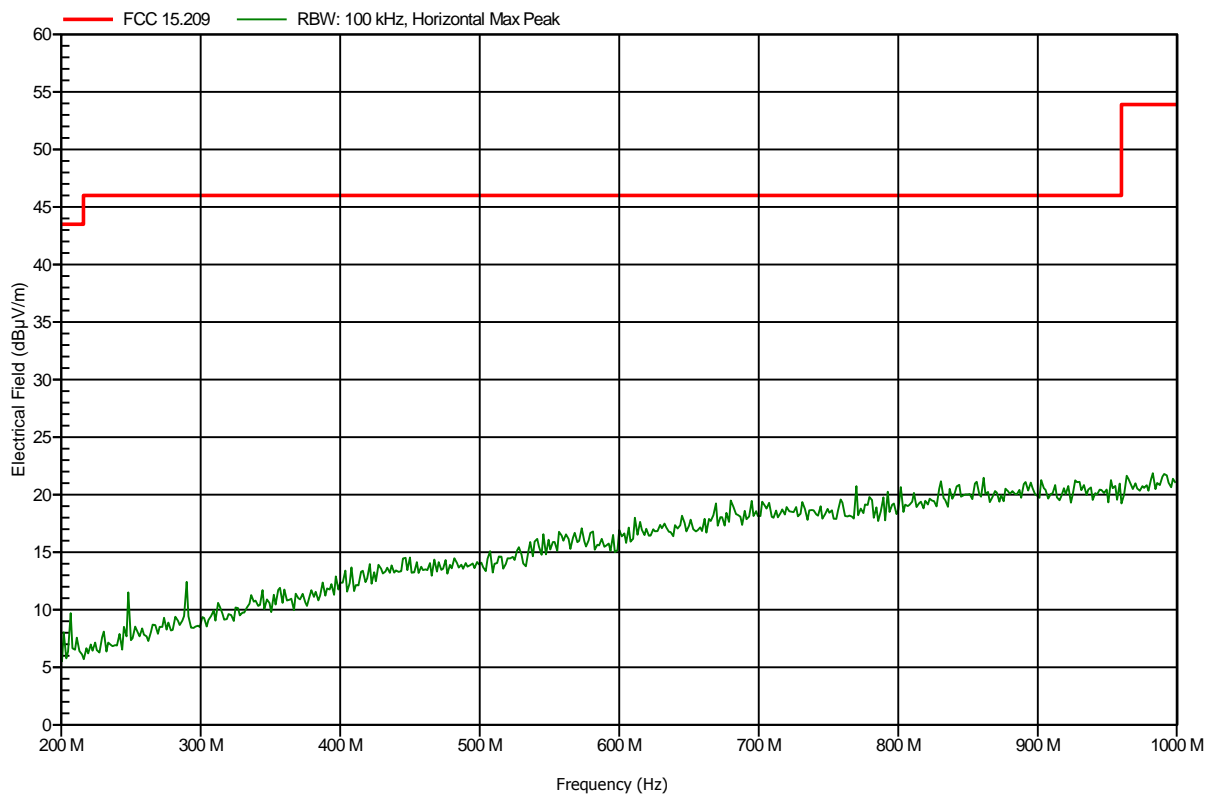


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	worst case

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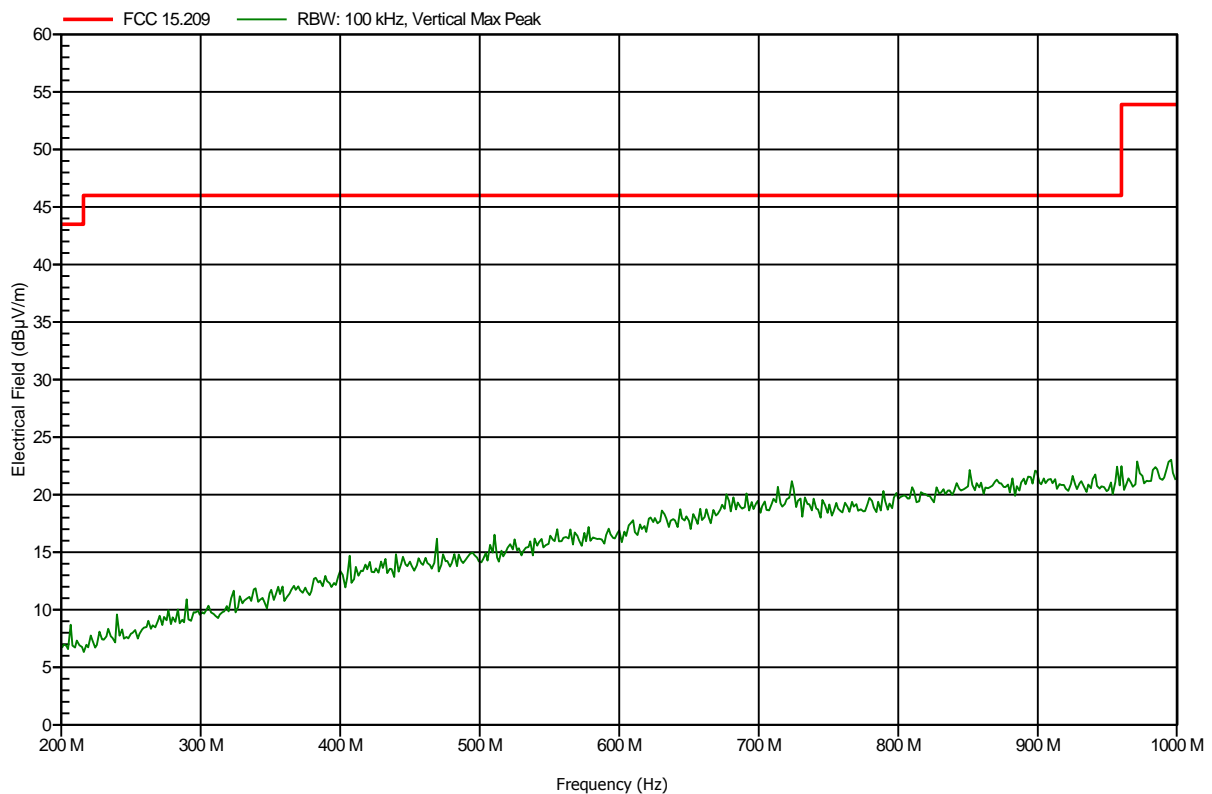


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	worst case

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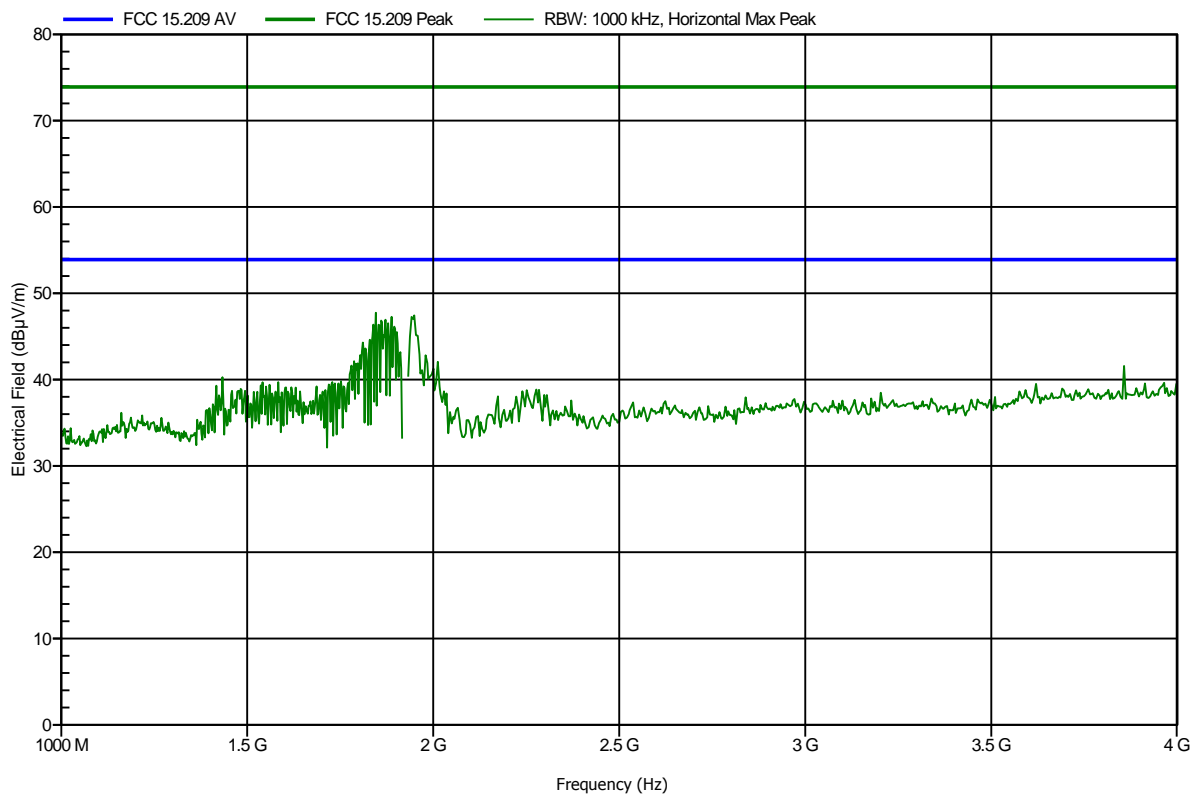


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	with notch-filter

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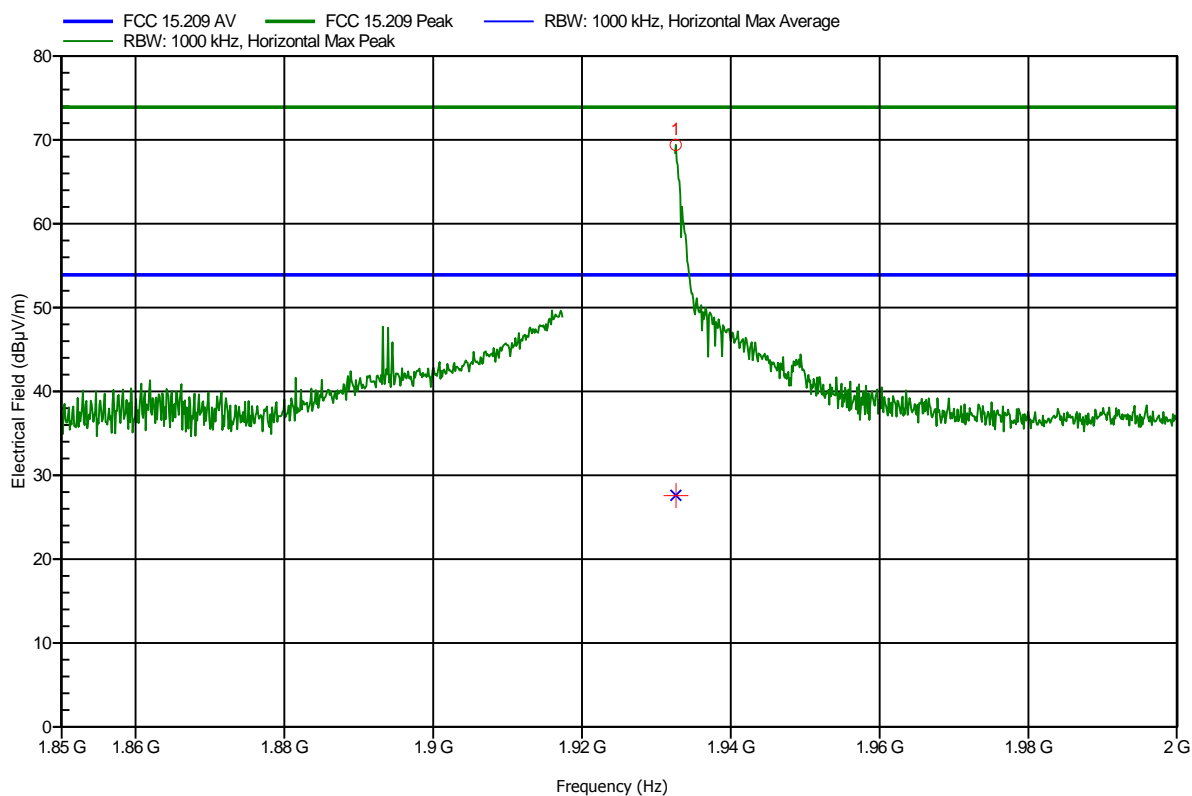


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 3.325 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: Tx; ch.0, ant 3
 Test Date: 2013-04-12
 Note: worst case

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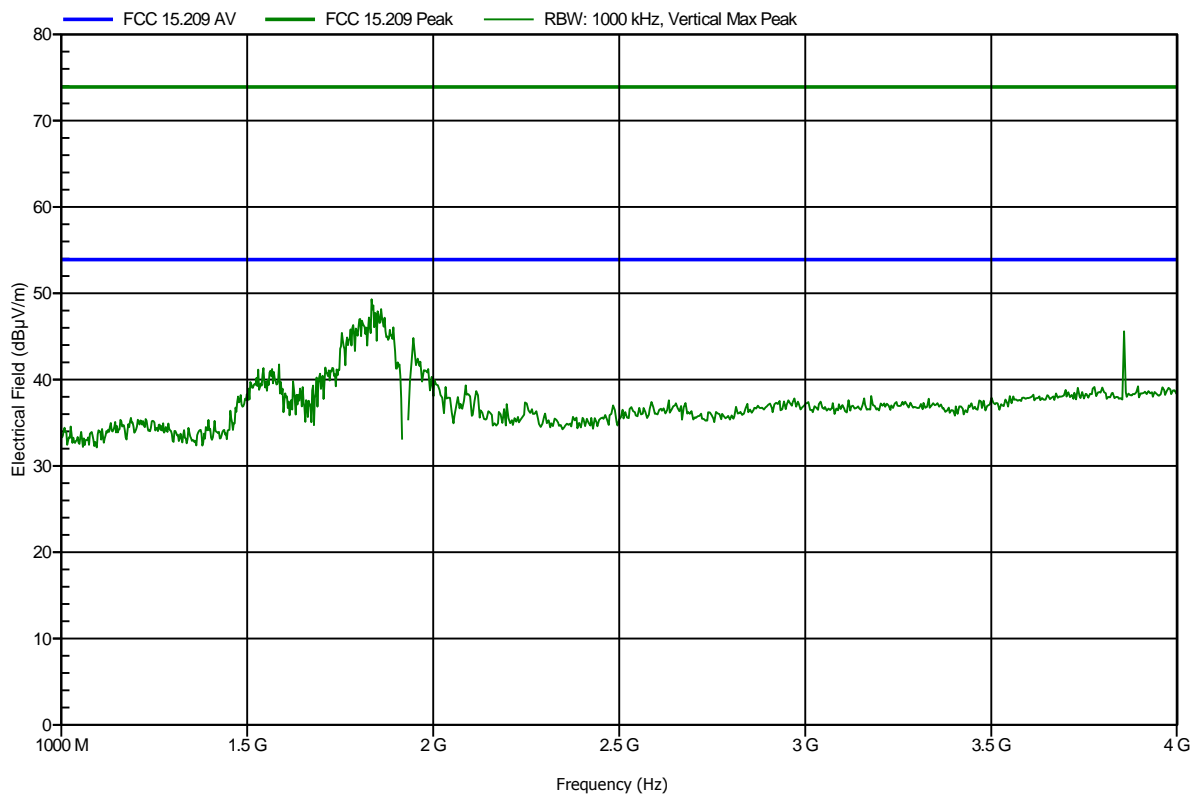
Frequency	Peak	Peak Limit	Peak Difference	Status
1.9326 GHz	69.41 dBµV/m	73.9 dBµV/m	-4.49 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
1.9326 GHz	27.61 dBµV/m	53.9 dBµV/m	-26.29 dB	Pass

Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	with notch-filter

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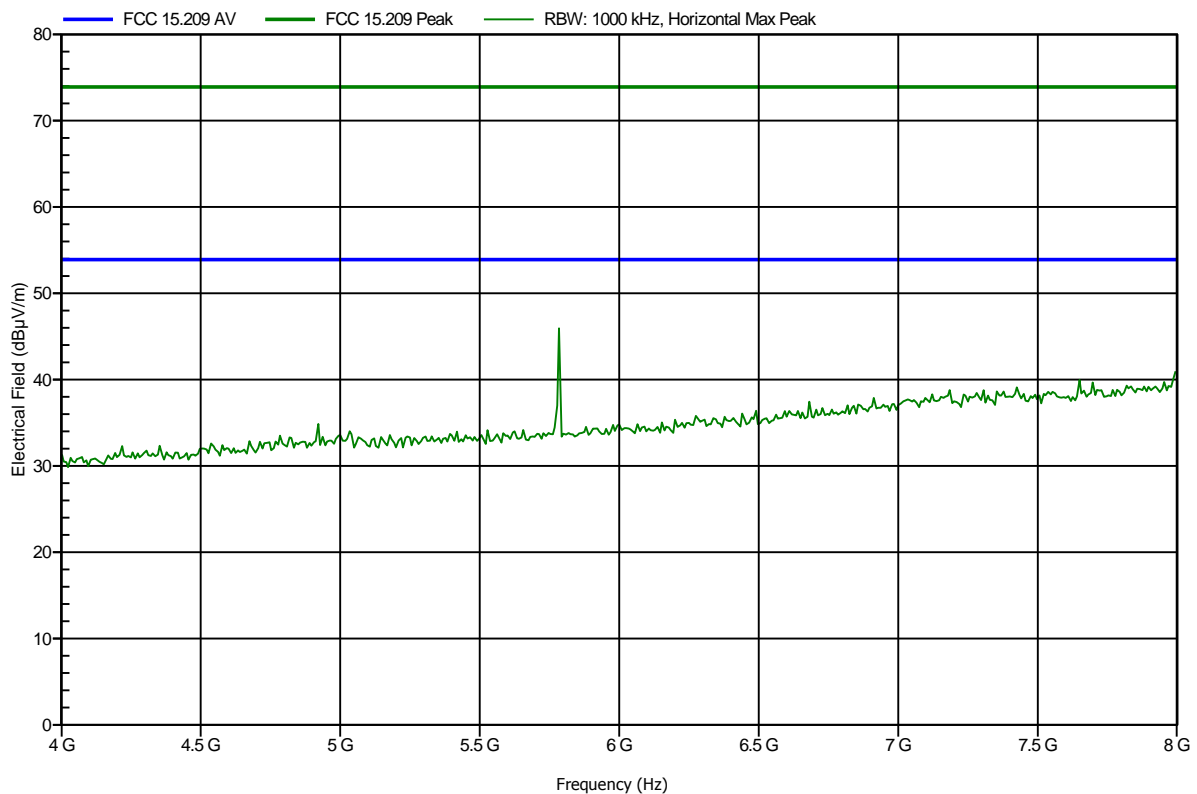


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	

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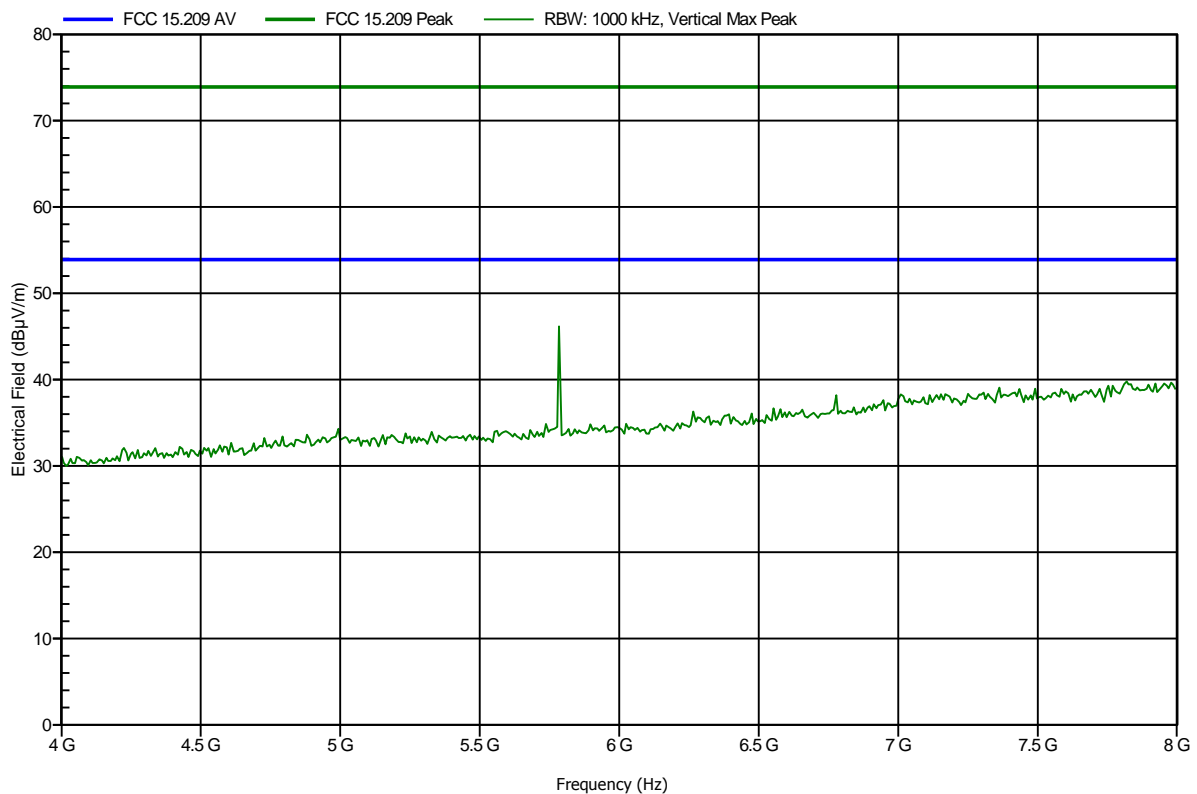


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	

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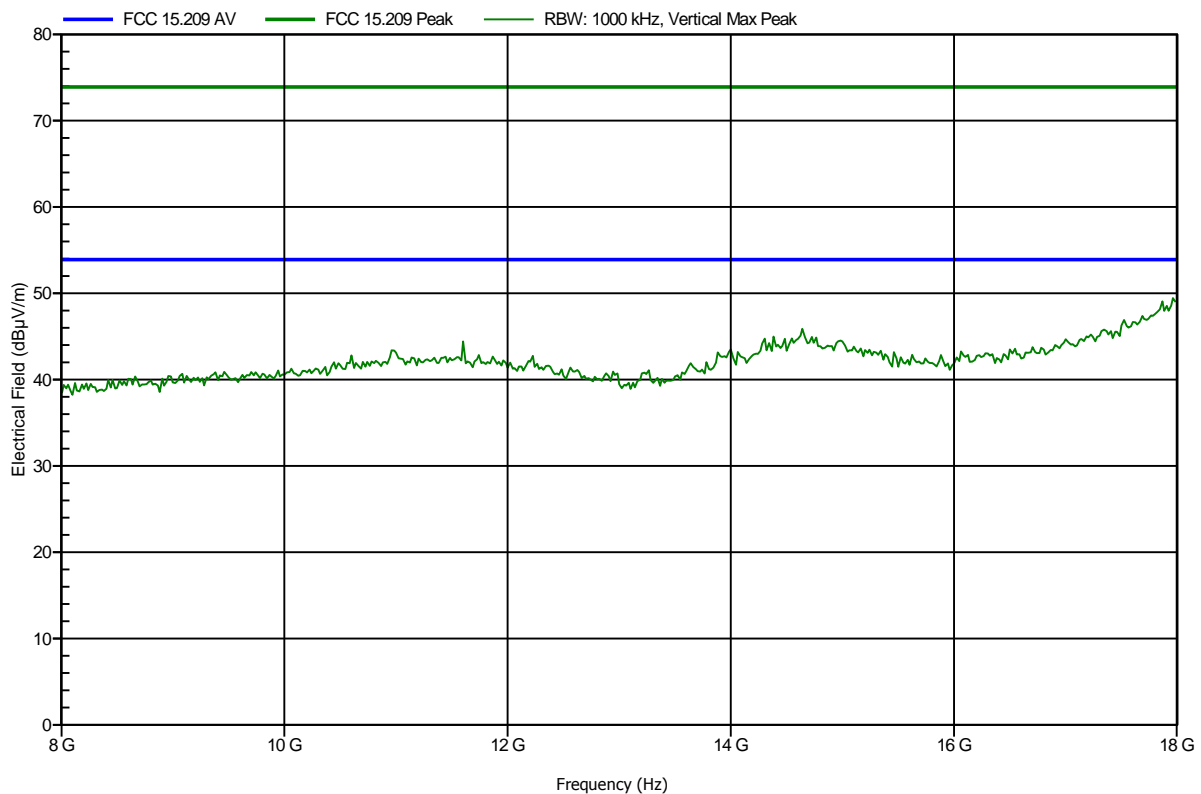


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	

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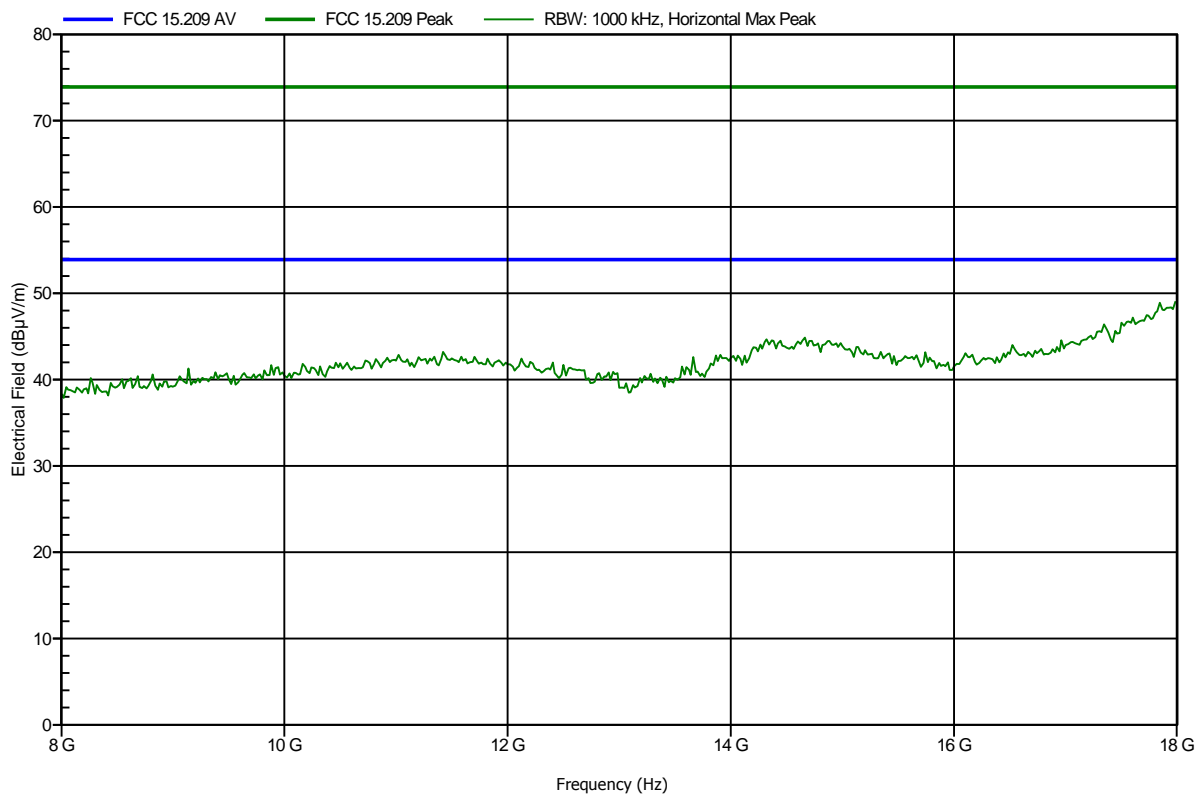


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.0, ant 3
Test Date:	2013-04-12
Note:	

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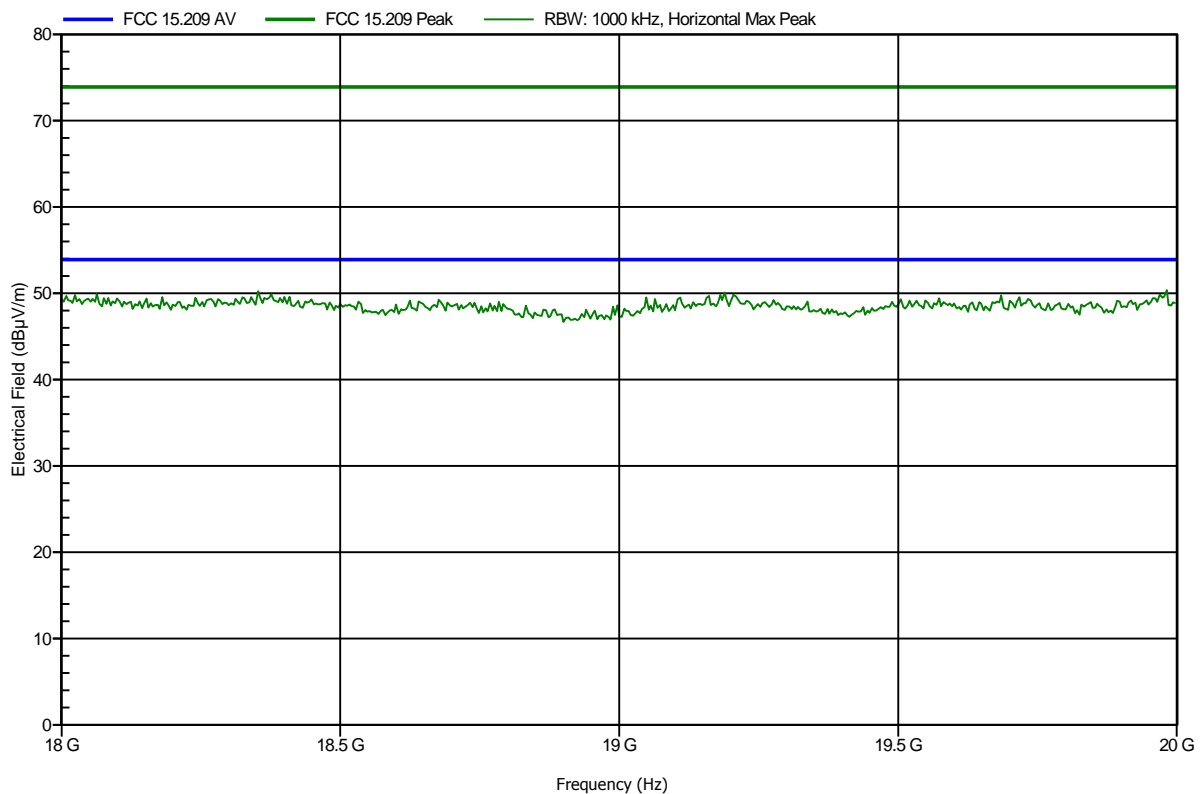


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 3.325 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1m converted to 3m
 Mode: Tx; ch.0, ant 3
 Test Date: 2013-04-12
 Note:

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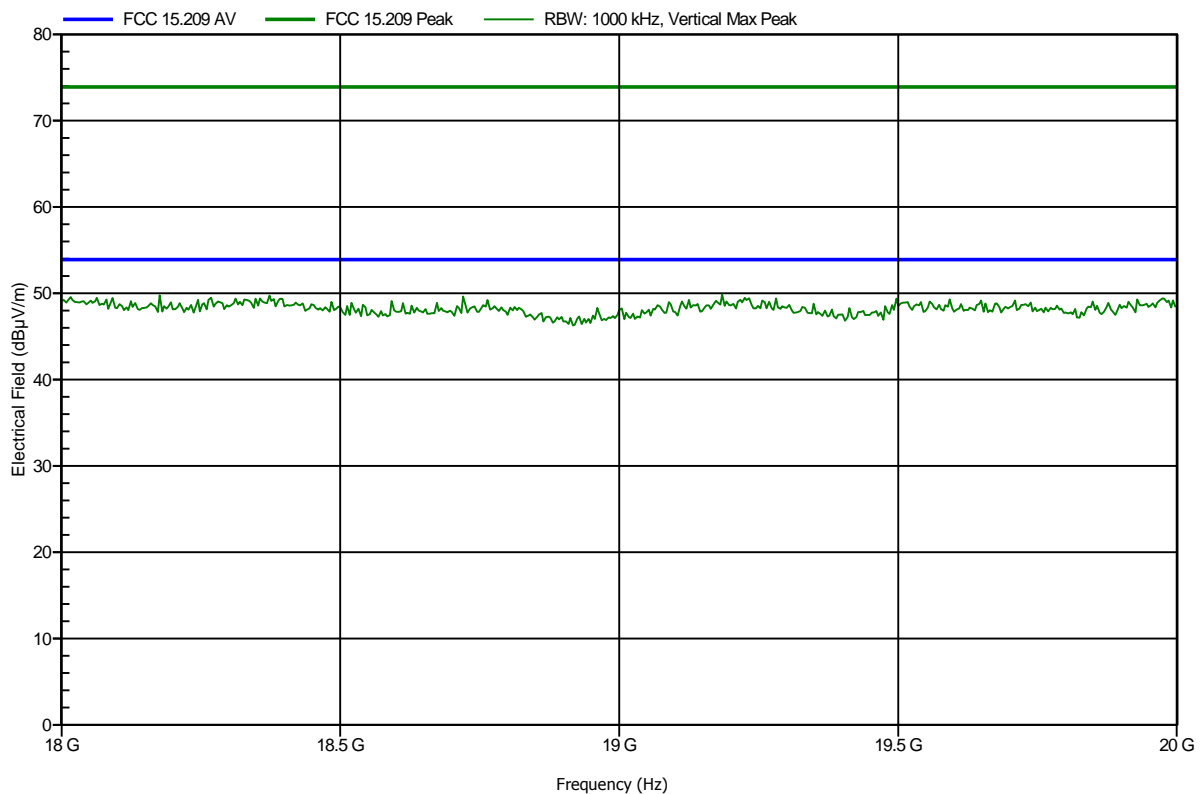


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 3.325 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1m converted to 3m
 Mode: Tx; ch.0, ant 3
 Test Date: 2013-04-12
 Note:

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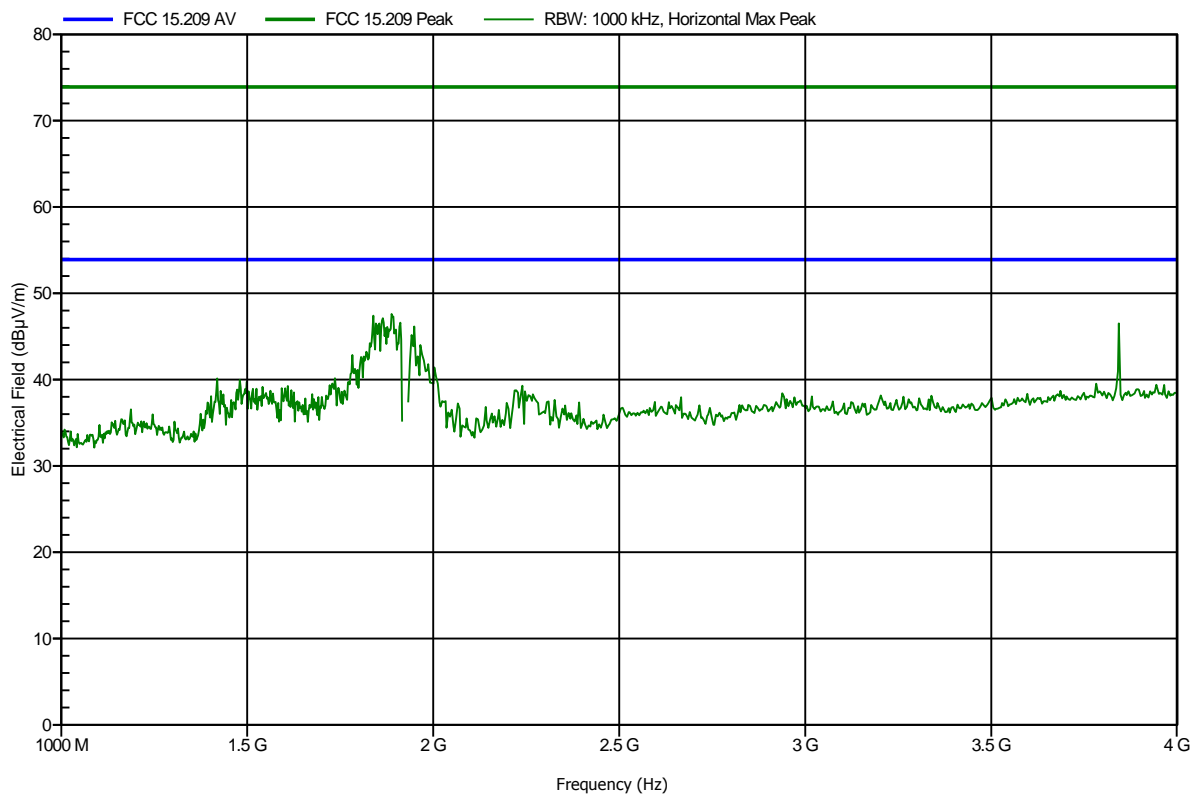


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Tx; ch.4, ant 3
Test Date:	2013-04-12
Note:	with notch-filter

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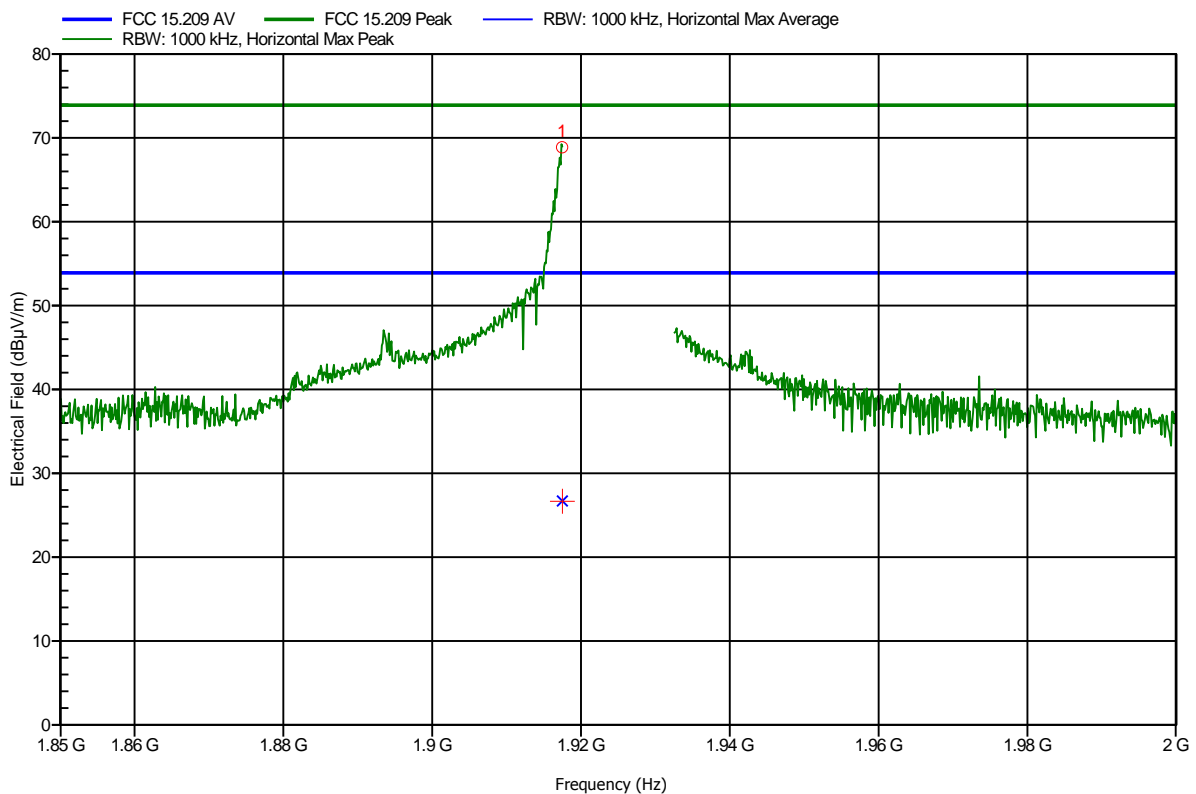


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 3.325 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: Tx; ch.4, ant 3
 Test Date: 2013-04-12
 Note: worst case

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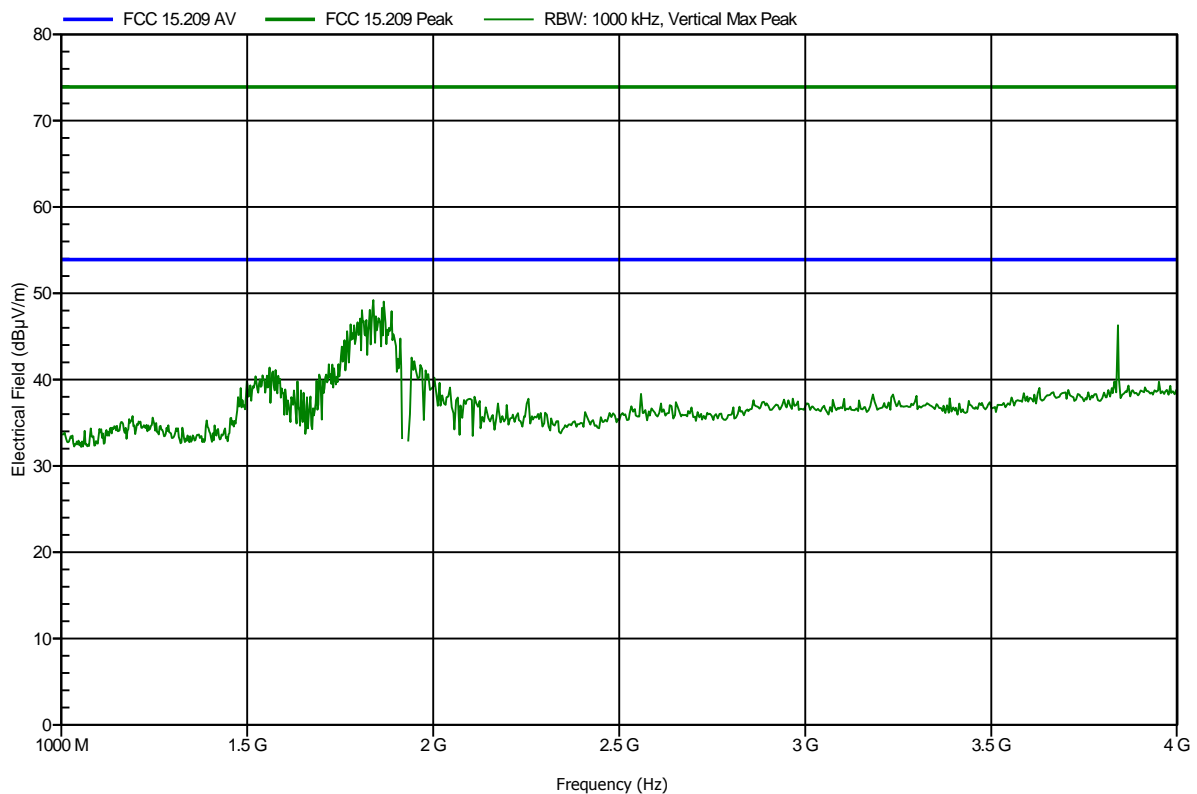
Frequency	Peak	Peak Limit	Peak Difference	Status
1.9175 GHz	68.88 dBµV/m	73.9 dBµV/m	-5.02 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
1.9175 GHz	26.7 dBµV/m	53.9 dBµV/m	-27.2 dB	Pass

Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Tx; ch.4, ant 3
Test Date:	2013-04-12
Note:	with notch-filter

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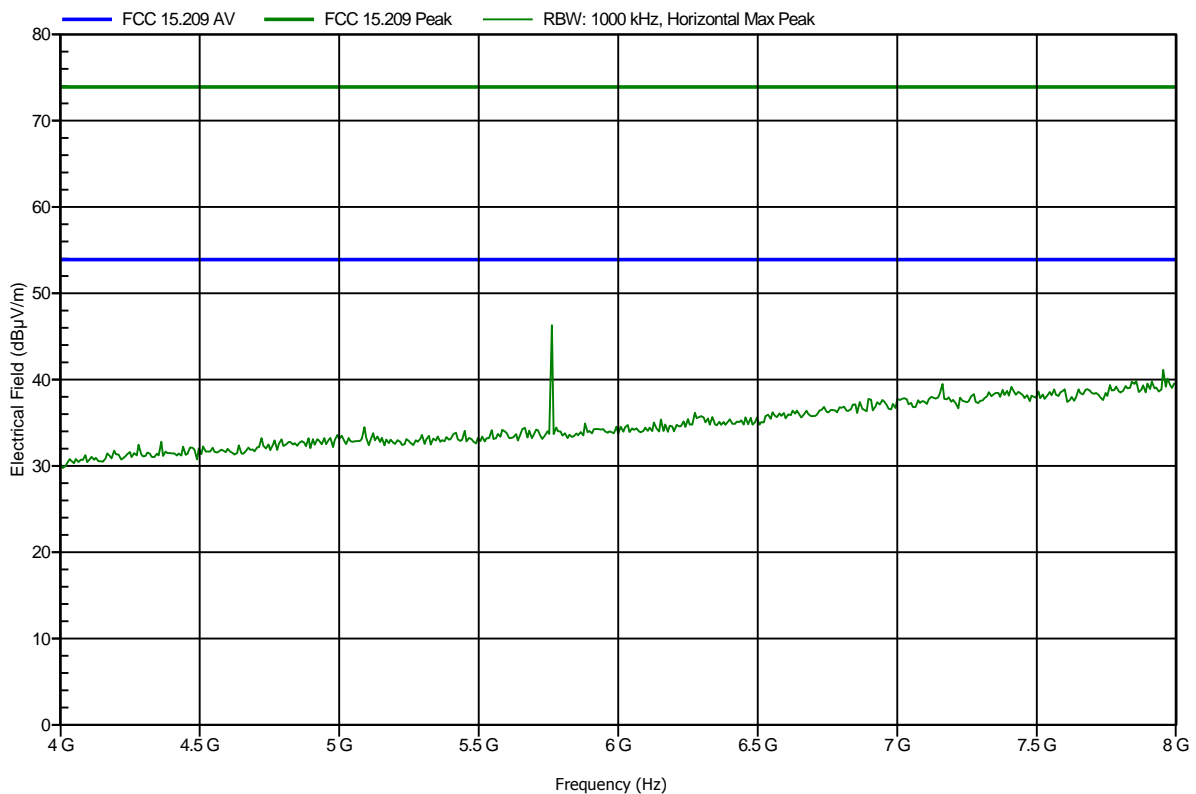


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.4, ant 3
Test Date:	2013-04-12
Note:	

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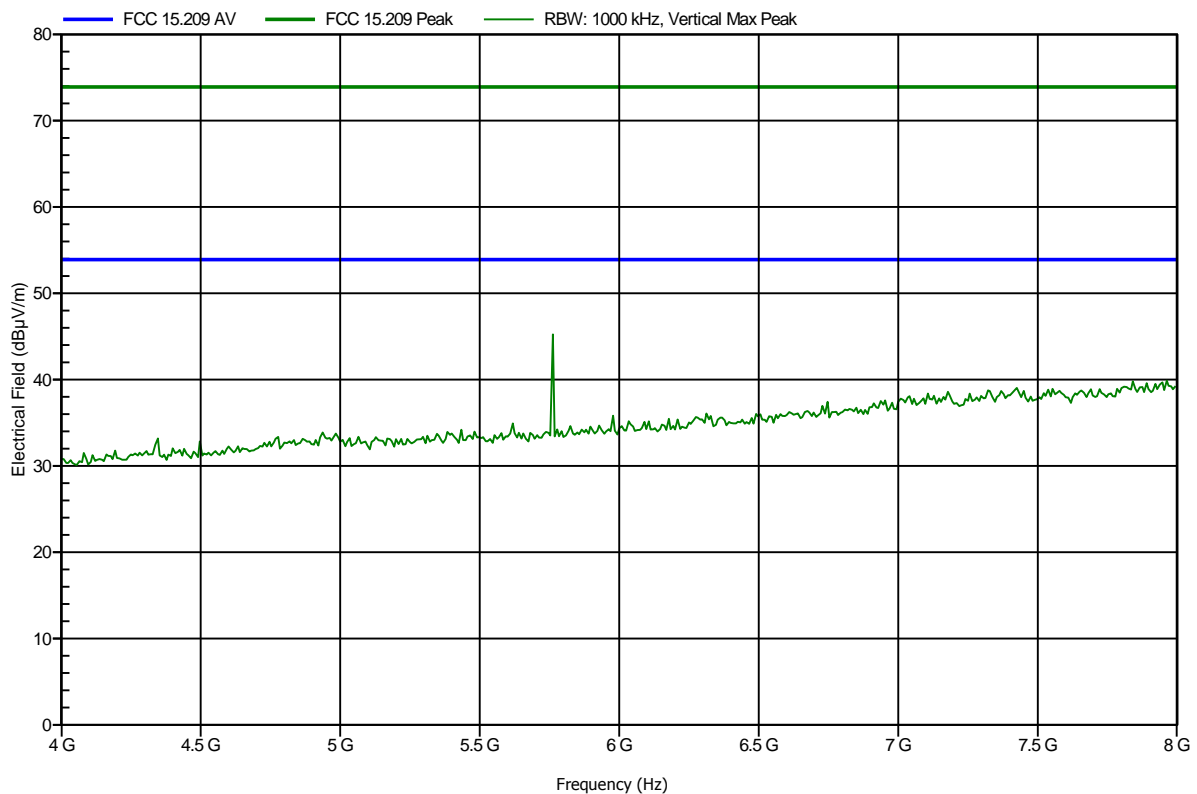


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.4, ant 3
Test Date:	2013-04-12
Note:	

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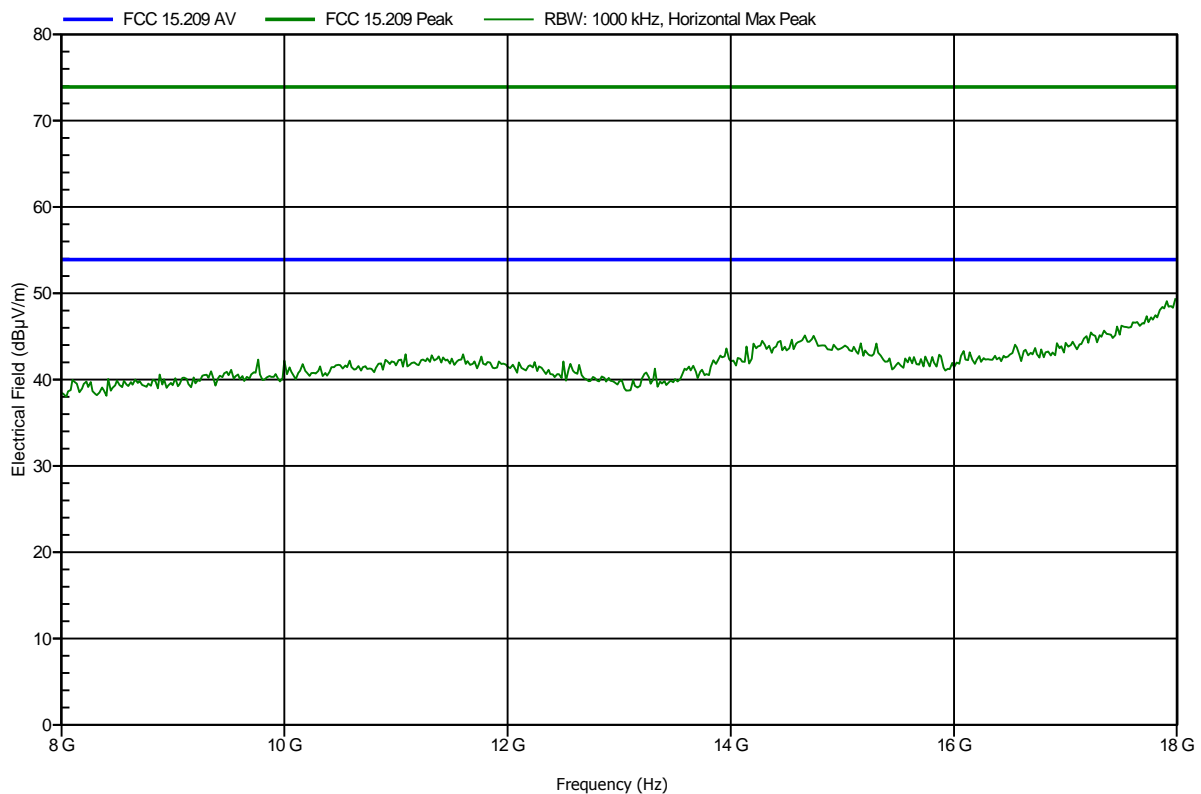


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.4, ant 3
Test Date:	2013-04-12
Note:	

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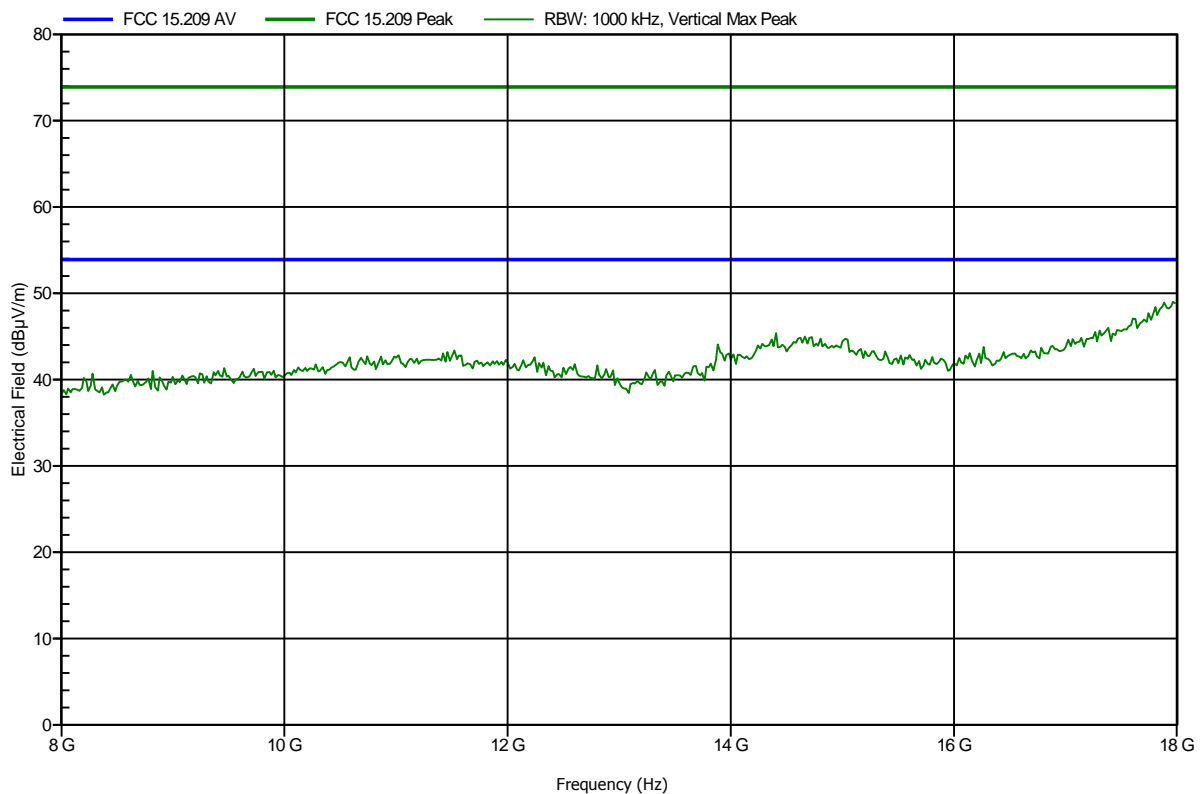


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer:	Spectralink
EUT Name:	DECT Application module
Model:	KT4587
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 3.325 V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1m converted to 3m
Mode:	Tx; ch.4, ant 3
Test Date:	2013-04-12
Note:	

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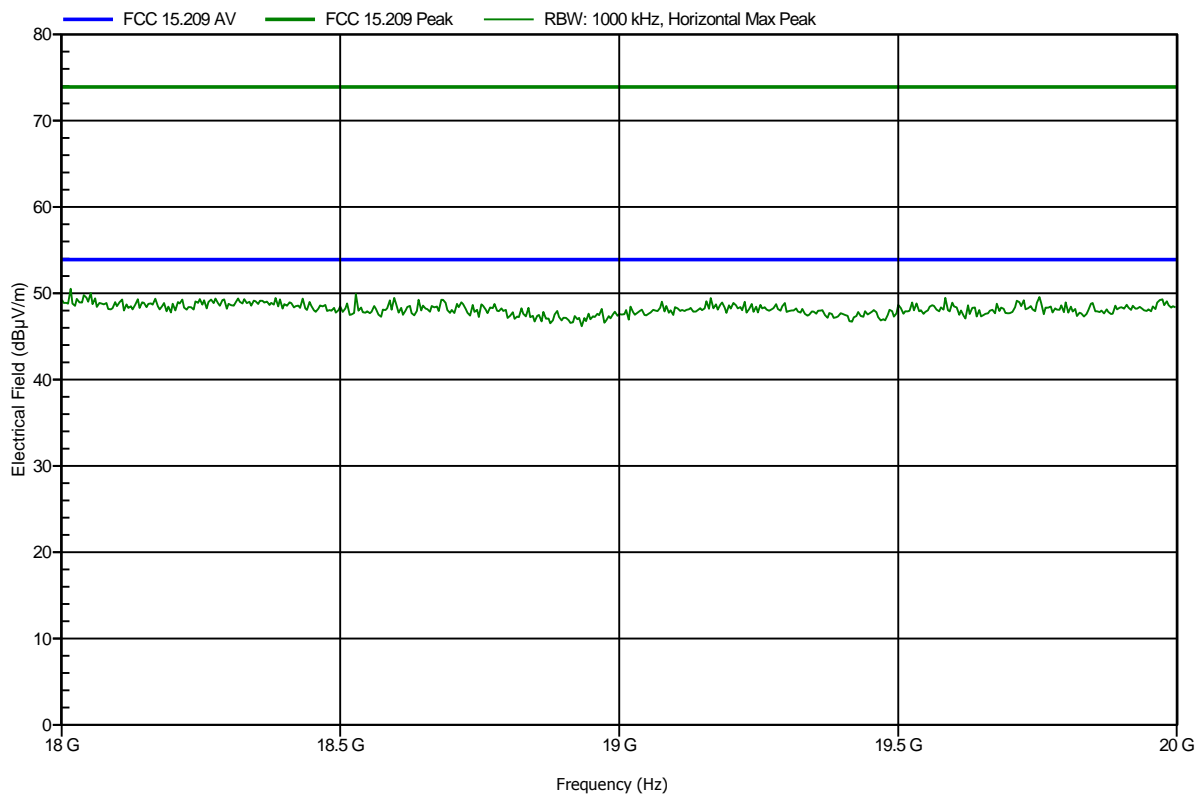


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 3.325 V DC
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1m converted to 3m
 Mode: Tx; ch.4, ant 3
 Test Date: 2013-04-12
 Note:

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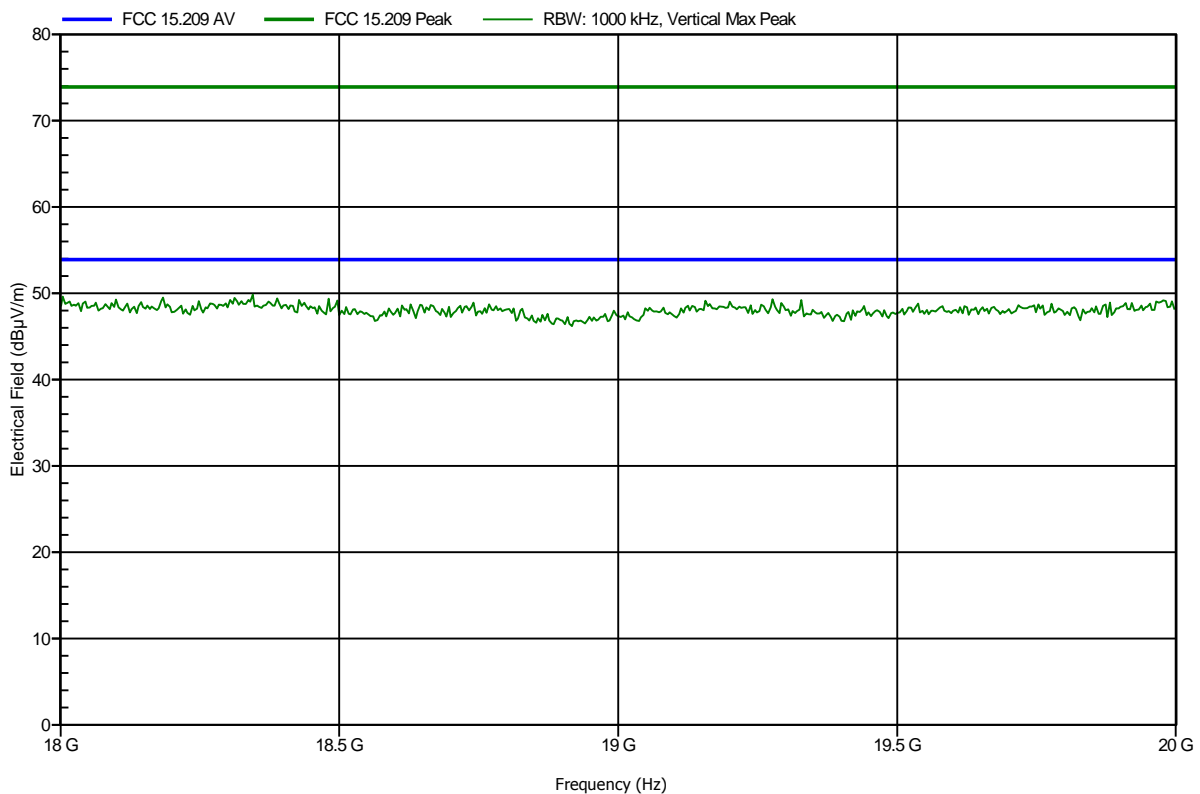


Spurious emissions according to FCC 15.209

Project number: G0M-1304-2736

Manufacturer: Spectralink
 EUT Name: DECT Application module
 Model: KT4587
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 25°C, Vnom: 3.325 V DC
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1m converted to 3m
 Mode: Tx; ch.4, ant 3
 Test Date: 2013-04-12
 Note:

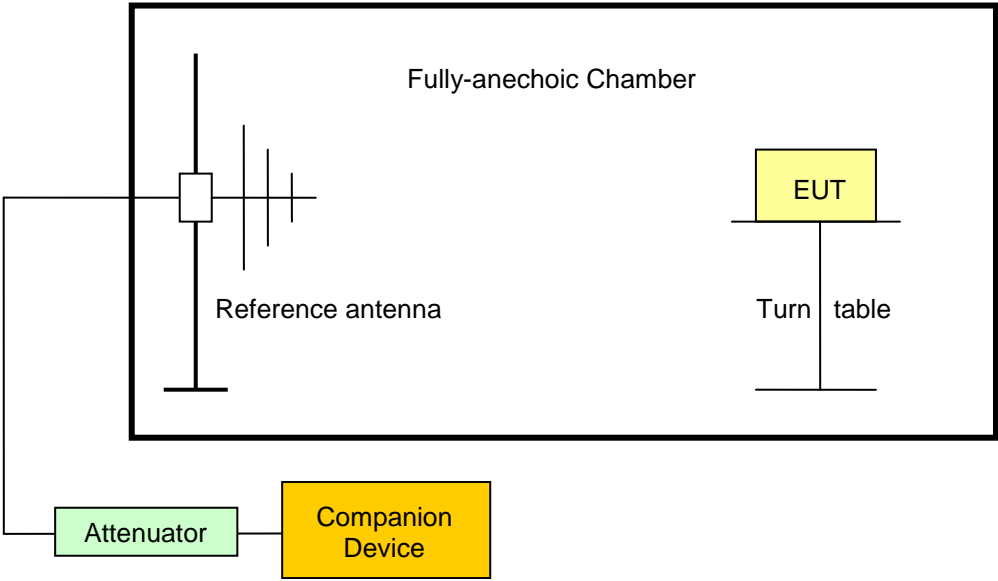
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3.10 Test Conditions and Results – Radiofrequency radiation exposure

Radiofrequency radiation exposure acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 15.319(c)(i) / IC RSS-Gen 5.6	
Requirements		
<p>FCC: Unlicensed PCS devices are subject to the radiofrequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091 and 2.1093. All equipment shall be considered to operate in a “general population/uncontrolled” environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.</p> <p>IC: Category I and Category II equipment shall comply with the applicable requirements of RSS-102.</p>		
Result		
	Reference	Verdict
	see dedicated report : G0M-1304-2736-TFC091M-V01 issued by Eurofins Product Service GmbH	PASS

3.11 Test Conditions and Results – Monitoring antenna

Monitoring antenna acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 15.319(c)(8) / IC RSS-213 (b)(8)	
Test according to measurement reference	Reference Method	
	ANSI C63.17 4.6	
Monitoring antenna	The same as transmitting antenna	
Requirements		
The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.		
Test setup radiated (monitoring and transmit antenna are not the same)		
 <p>The diagram shows a Fully-anechoic Chamber containing a Reference antenna and an EUT (Equipment Under Test) on a Turn table. The Reference antenna is connected to an Attenuator and a Companion Device. The EUT is positioned to receive radiation from the Reference antenna.</p>		
Test procedure (collocated monitoring antenna of different type)		
<ol style="list-style-type: none"> 1. The reference antenna is orientated for horizontal polarization 2. The EUT is placed so that the direction of maximum radiation of the transmitting antenna is facing the direction of the main lobe of the reference antenna 3. A signal with threshold power level is applied to the reference antenna 4. It is observed whether or not an connection can be established 5. The polarization of the reference antenna is changed to vertical polarization 6. It is observed whether or not an connection can be established 		

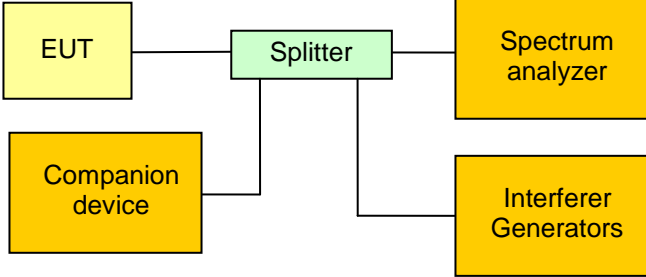
Test procedure (arbitrarily placed monitoring antenna)

1. The reference antenna is orientated for horizontal polarization
2. The EUT is placed so that the direction of maximum radiation of the transmitting antenna is facing the direction of the main lobe of the reference antenna
3. The distance between the reference antenna and the EUT is increased by the maximum distance between the monitoring and transmitting antenna
4. The EUT is aligned in such a way that the direction of minimum sensitivity faces the reference antenna
5. A signal with threshold power level is applied to the reference antenna and the EUT is illuminated
6. It is observed whether the EUT can connect to the companion device or not
7. The polarization of the reference antenna is changed to vertical polarization
8. It is observed whether or not an connection can be established

Results

Connection status	Verdict
N/A (monitoring antenna identical to transmitting antenna)	PASS

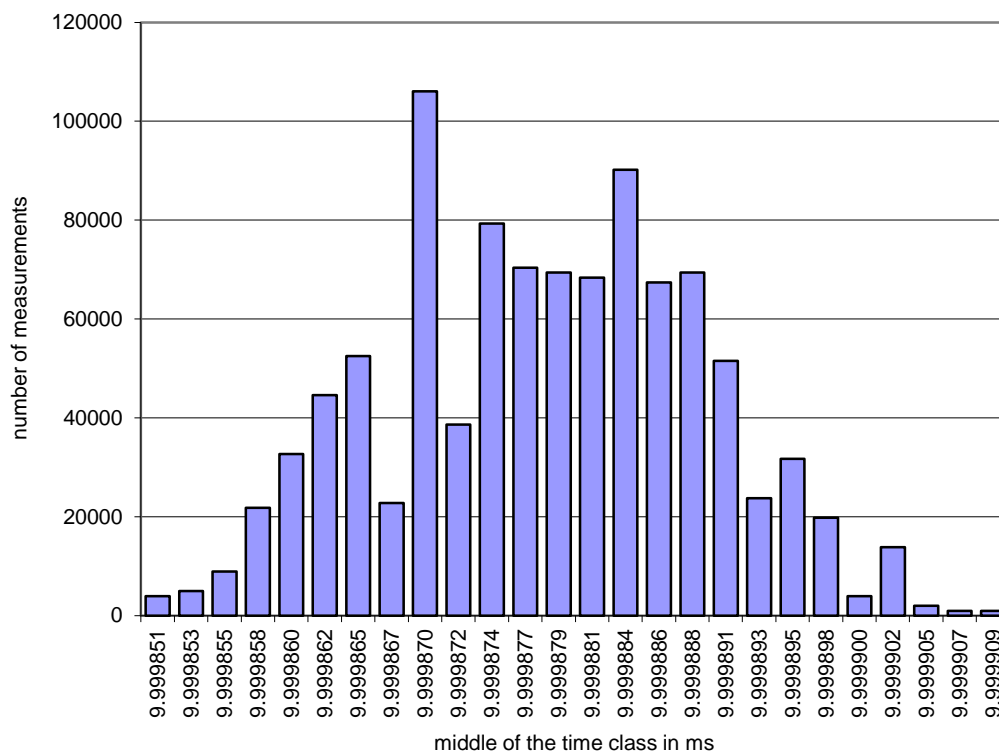
3.12 Test Conditions and Results – Frame period and Jitter

Frame period and Jitter acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS
EUT requirement rule parts and clause	Reference	
	FCC 15.323(e)(1),(4) / IC RSS-213 4.3.4(c)(1),(4)	
Test according referenced standards	Reference Method	
	ANSI C63.17 6.2.3	
Requirements		
<p>The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in this sub-band shall be 20 milliseconds/X where X is a positive whole number.</p> <p>The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25 microseconds for any two consecutive transmissions.</p>		
Test setup		
 <pre> graph LR EUT[EUT] --- Splitter[Splitter] Companion[Companion device] --- Splitter Splitter --- SA[Spectrum analyzer] Splitter --- IG[Interferer Generators] </pre>		
Test procedure		
<ol style="list-style-type: none"> 1. With a spectrum analyzer the frame periods are measured over time 2. 100 000 frames are measured 3. The peak-to-peak, mean and standard deviation values are computed 		
Test results – Frame period		
Mean value [ms]	Divider X (10ms/X)	Verdict
9.999878 = 10.00 – 0.000122	1	PASS
Test results – Jitter		
Maximum difference between frames [µs]	Limit [µs]	Verdict
0.059	25 – 0.000122 = 24.999878	PASS
Comments:		

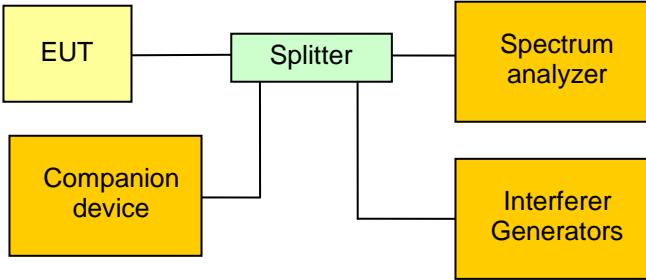
Frame period and Jitter
FCC Part 15.323 Frame Period and jitter
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frame Period and jitter

Width of the time class	0,002347 μ s
Mean	9,999878 ms
Deviation	0,000011
Max-Min	0,058673 μ s
Test result	Verdict = PASS

Histogram


3.13 Test Conditions and Results – Frame and TDMA repetition stability

Frame repetition stability acc. to FCC 47 CFR 15D / IC RSS-213		Verdict: PASS	
EUT requirement rule parts and clause	Reference		
	FCC 15.323(e)(2),(3) / IC RSS-213 4.3.4(c)(2),(3)		
Test according referenced standards	Reference Method		
	ANSI C63.17 6.2.2		
Access scheme used	Time Division Multiple Access		
Requirements			
<p>Each device that implements time division for the purpose of maintaining a duplex connection on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per millions (ppm).</p> <p>Each device which further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm.</p>			
Test setup			
 <pre> graph LR EUT[EUT] --- Splitter[Splitter] Companion[Companion device] --- Splitter Splitter --- SA[Spectrum analyzer] Splitter --- IG[Interferer Generators] </pre>			
Test procedure			
<ol style="list-style-type: none"> 1. With a spectrum analyzer the frame repetition periods are measured over time 2. 1 000 frame repetitions are measured 3. The mean and standard deviation values are computed 			
Test results			
Access scheme	Error [ppm]	Limit [ppm]	Verdict
Time Division Access	N/A	50	N/A
Time Division Multiple Access	0.037636	10	PASS
Comments:			

Frame and TDMA repetition stability
FCC Part 15.323 Frame repetition
Testprocedure ANSI 63.17
UPCS

EUT	DECT application modul
Model	KT4587
Applicant	Spectralink Corp.
Temperature	23°C
Test Site / Operator	Eurofins Product Service GmbH
Test Specification	Frame repetition

Width of the frequency class	0,000000 Hz
Mean	99,999940 Hz
Deviation	0,000001
Stability in ppm	0,037636 ppm
Test result	Verdict = PASS

Histogram
