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FCC TEST REPORT

FCC 47 CFR Part 15C
Industry Canada RSS-210

Intentional radiator operating within the 2400 – 2483.5 MHz band

Report Reference No. ..... :	G0M-1611-6080-TFC249DT-V01
Testing Laboratory ..... :	Eurofins Product Service GmbH
Address ..... :	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation ..... :	A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name ..... :	TE Connectivity Germany GmbH
Address ..... :	Pfnorstraße 1 64293 Darmstadt GERMANY
Test specification:	
Standard..... :	47 CFR Part 15C RSS-210, Issue 8, 2010-12
Test scope…….. ..... :	complete Radio compliance test
Equipment under test (EUT):	
Product description	ARISO Contactless Connectivity (PN 2287598-3, Power Transmitter, Data Transceiver)
Model No.	TXM030S012PNP8A, RXM030S012PNP8A
Additional Model(s)	TXM030S012PNP2A, RXM030S012PNP2A,TXM030S012PNP8A, RXM030S012PNP8B
Brand Name(s)	ARISO M30 GPIO Contactless Coupler
Hardware version	A2
Firmware / Software version	RC15
	FCC-ID: 2ADK7-ARISO IC: 12496A-ARISO
Test result	**Passed**

Possible test case verdicts:	
- neither assessed nor tested ..... :	N/N
- required by standard but not appl. to test object ..... :	N/A
- required by standard but not tested ..... :	N/T
- not required by standard for the test object ..... :	N/R
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)

Testing:		
Test Lab Temperature ..... :	20 – 23 °C	
Test Lab Humidity ..... :	32 – 38 %	
Date of receipt of test item ..... :	2016-11-25	
Date of performance of tests ..... :	2016-11-28	
Compiled by ..... :	Sebastian Suckow	
Tested by (+ signature) ..... : (Responsible for Test)	Wilfried Treffke	.....
Approved by (+ signature) ..... : (Head of Lab)	Christian Weber	.....
Date of issue ..... :	2016-12-21	
Total number of pages ..... :	45	

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:

Beside the tested models the following models also exist: TXM030S012PNP2A, RXM030S012PNP2A, TXM030S012PNP8A, RXM030S012PNP8B. The PCBs of all models are identical. Only the number of interface lines varies between the models.

Version History

Version	Issue Date	Remarks	Revised by
01	2016-12-21	Initial Release	

REPORT INDEX

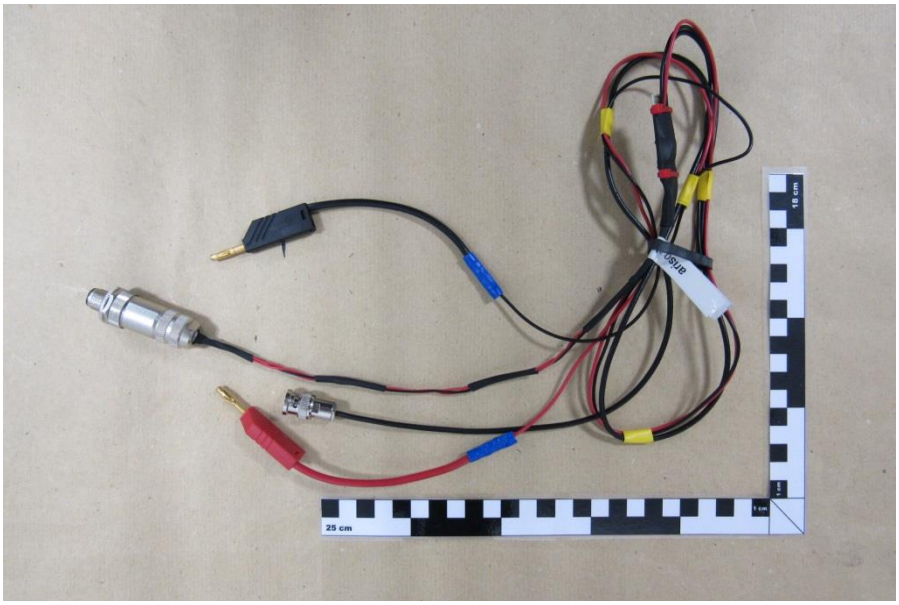
1 Equipment (Test item) Description:

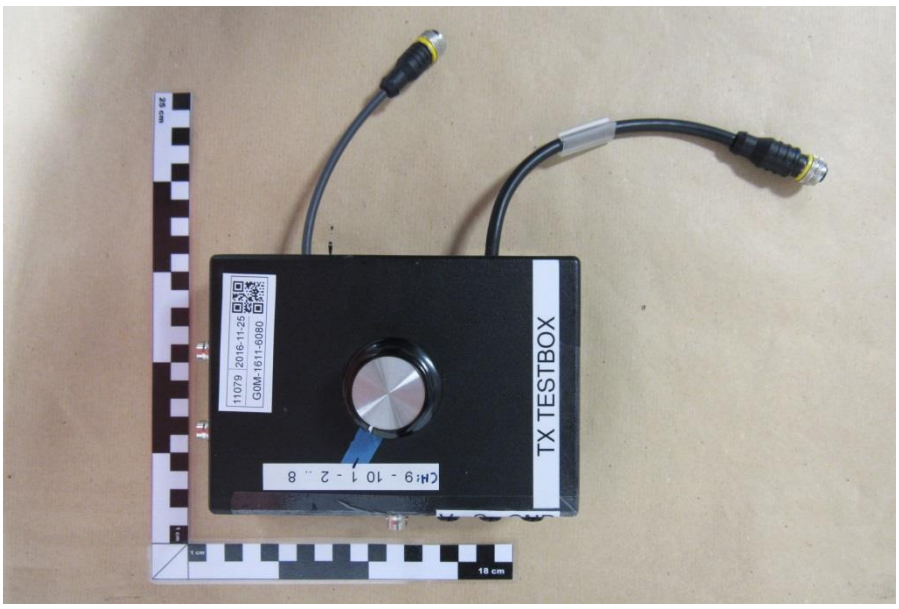
Description	ARISO Contactless Connectivity (PN 2287598-3, Power Transmitter, Data Transceiver)	
Model	TXM030S012PNP8A, RXM030S012PNP8A	
Additional Model(s)	None	
Brand Name(s)	ARISO M30 GPIO Contactless Coupler	
Serial number	None	
Hardware version	A2	
Software / Firmware version	RC15	
PMN	N/A	
HVIN	TXM030S012PNP8A, RXM030S012PNP8A	
FVIN	N/A	
HMN	N/A	
FCC-ID	2ADK7-ARISO	
IC	12496A-ARISO	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	custom	
Operating frequency range	2400 - 2482 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Frequency range	$F_{LOW/HIGH}$	2401 / 2482 MHz
Spreading	None	
Modulations	GFSK	
Number of channels	2	
Channel spacing	None	
Number of antennas	1	
Antenna	Type	integrated
	Model	Data Antenna (Loop Antenna)
	Manufacturer	TE Connectivity Germany GmbH
	Gain	unspecified
Manufacturer	TE Connectivity Germany GmbH Pfnorstraße 1 64293 Darmstadt GERMANY	
Power supply	V_{NOM}	24 VDC
	V_{MIN}	N/A
	V_{MIN}	N/A

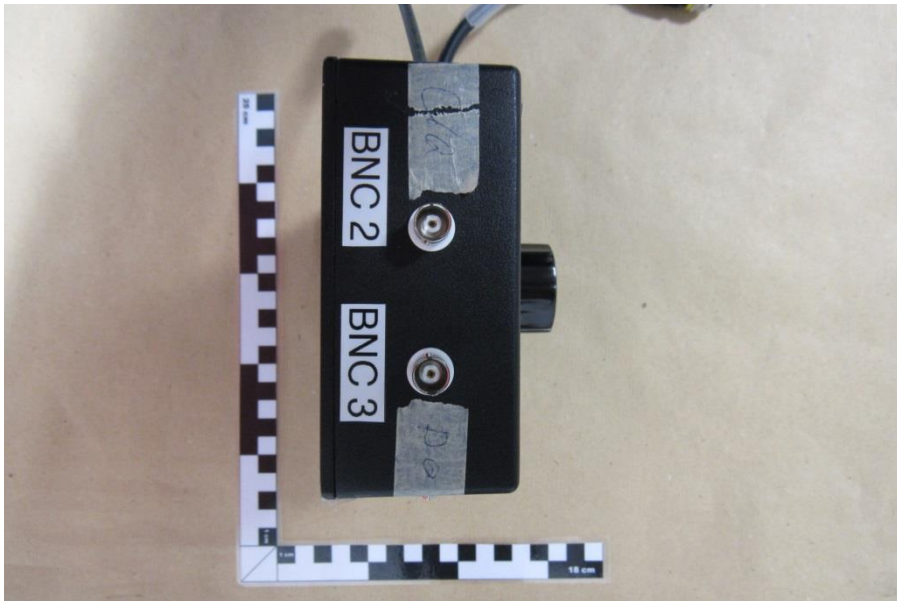
1.1 Photos – Equipment External

EUT Top


EUT Side

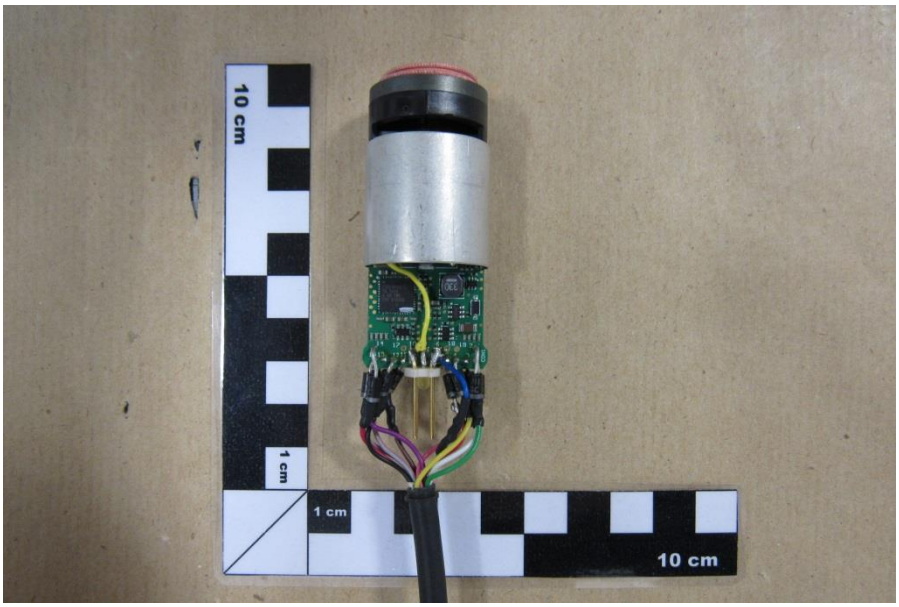

Adapter Cable


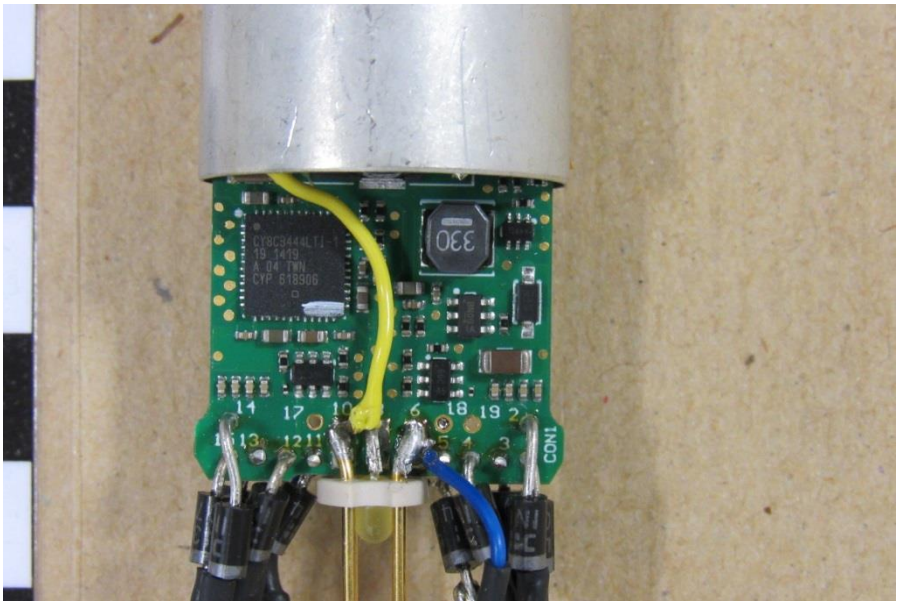
Test Box Top


Test Box Connection Side 1


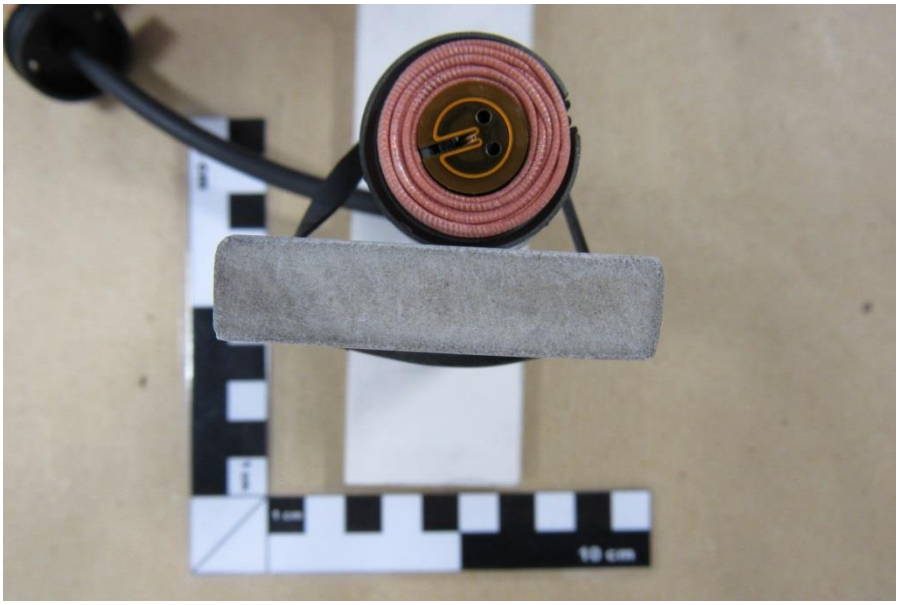
Test Box Connection Side 2

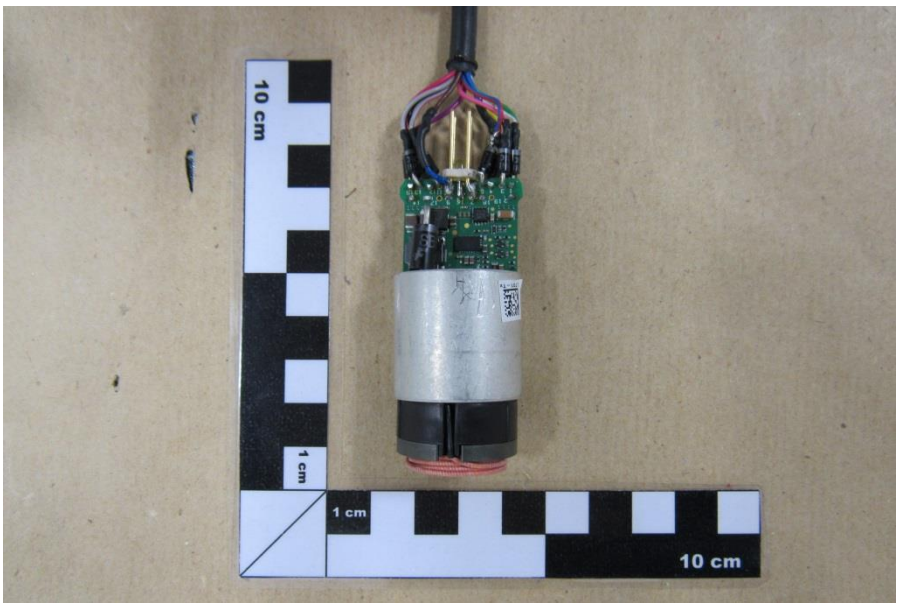

1.2 Photos – Equipment internal

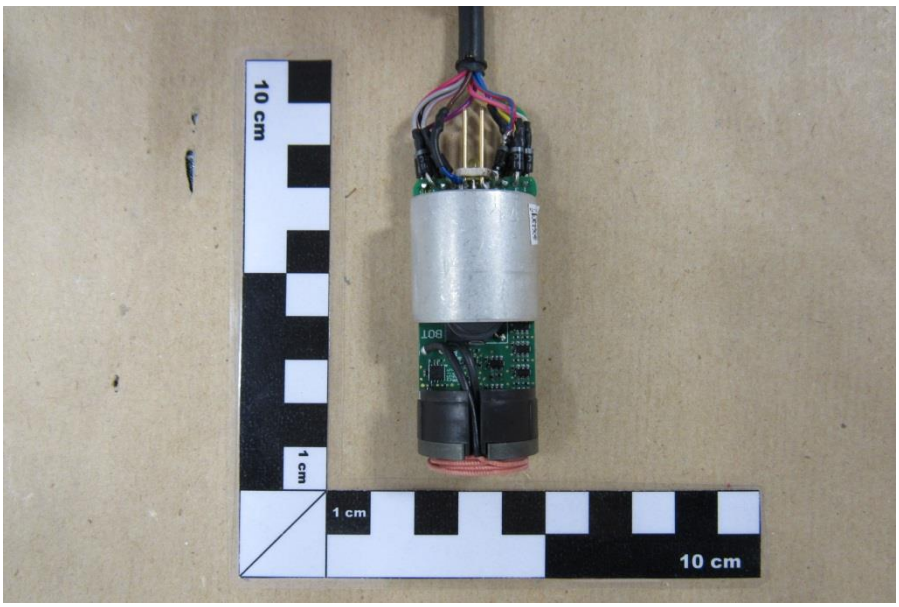
PCB Top 1


PCB Detail


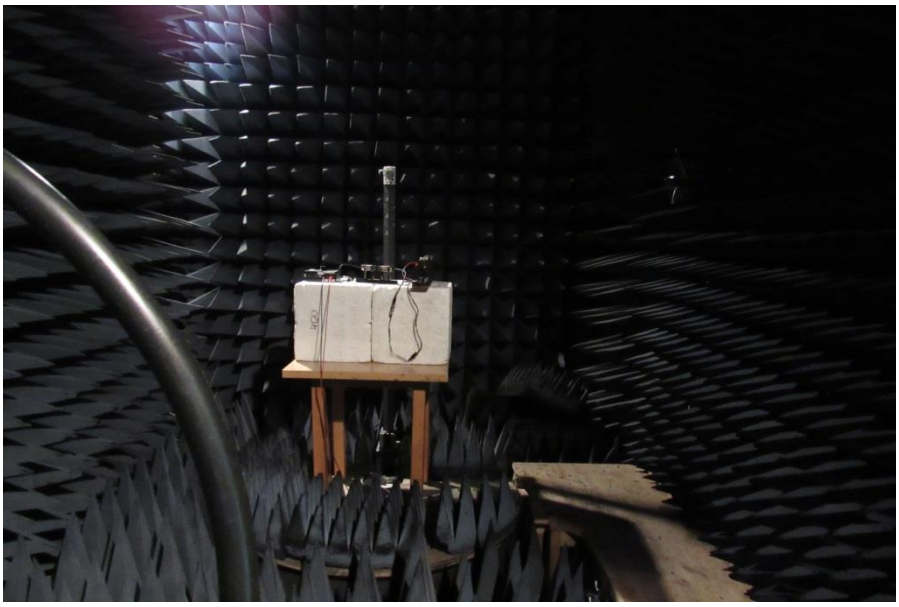
PCB Top 2

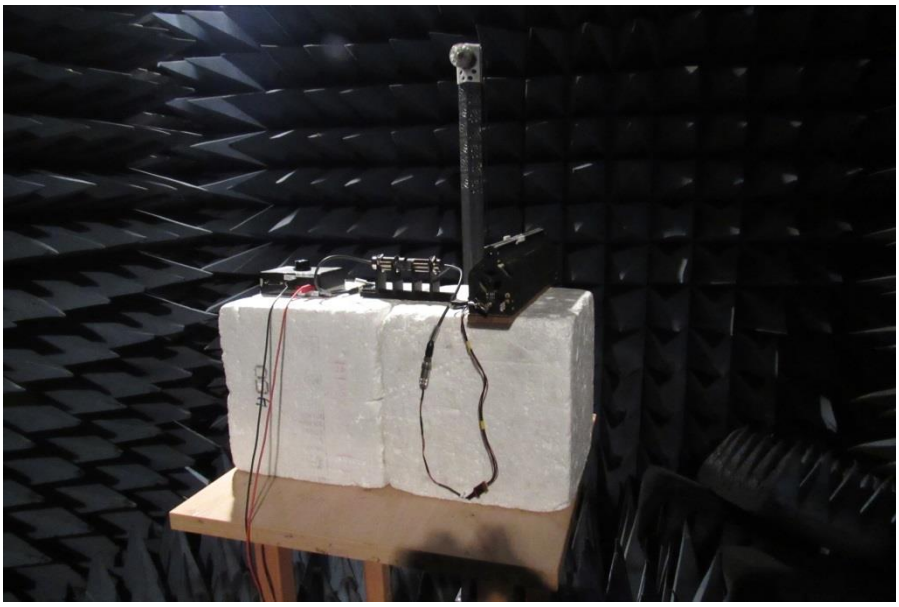

EUT Antenna


PCB Bottom 1


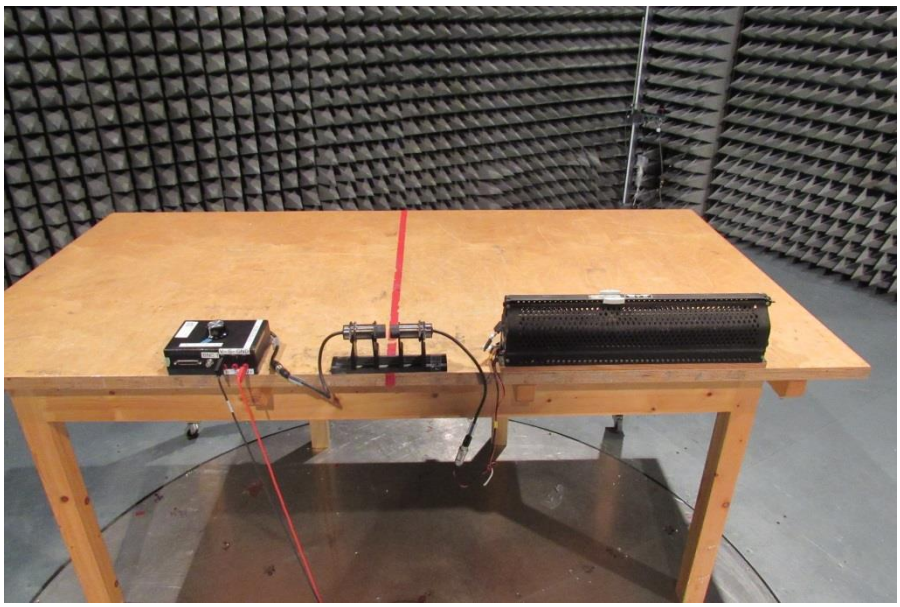
PCB Bottom 2


1.3 Photos – Test setup

Setup radiated emission below 30 MHz


Setup radiated emission below 30 MHz Detail


Setup radiated emission above 30 MHz


Setup radiated emission above 30 MHz Detail


Setup AC powerline


Setup AC powerline 2


1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	TX Test Box	TE Connectivity	-	Used for signaling
CABL	RX M12 Cable +Connector	TE Connectivity	-	-

***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	
Single	General conditions:	EUT powered by laboratory power supply
	Radio conditions:	Mode = standalone transmit Modulation = GFSK Power level = Maximum

1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2015.2.4

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2016-05	2016-12

Field strength emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC 2	EF00196	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2016-04	2017-04
Loop Antenna	R&S	HFH2-Z2	EF00184	2014-11	2016-11
Biconical Antenna	R&S	HK116	EF00203	2016-06	2018-06
Logarithmic Periodic Antenna	R&S	HL223	EF00187	2016-05	2019-05
Horn Antenna	Schwarzbeck	BBHA9120D	EF01153	2016-07	2017-07
Horn Antenna	Amplifier Research	AT4560	EF00302	2016-01	2017-01

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 dBµV. 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:

Reading on Analyzer (dBµV) + A.F. (dB) = Net field strength (dBµV/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 dBµV/m). The FCC limits are given in units of µV/m. The following formula is used to convert the units of µV/m to dBµV/m:

Limit (dBµV/m) = 20*log (µV/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:

Reading	+	AF	=	Net Reading	:	Net reading - FCC limit	= Margin
21.5 dBµV	+	26 dB	=	47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m	= -9.5 dB

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	**Requirement – Test**	**Reference Method**	**Result**	**Remarks**
RSS-Gen 6.6	Occupied Bandwidth	RSS-Gen 6.6	N/R	Informational only
FCC 15.249(a),(c),(e) IC RSS-210 A2.9(a)	Fundamental field strength emissions	ANSI C63.4	PASS	
FCC 15.249(a),(c),(d),(e) IC RSS-210 A2.9(a),(b)	Emission radiated outside the specified frequency band	ANSI C63.4	PASS	
IC RSS-210 Section 2.3 IC RSS-Gen 7.1	Receiver radiated spurious emissions	ANSI C63.4	N/R	RX and TX Mode cannot be separated
FCC § 15.207 IC RSS-Gen 8.8	AC power line conducted emissions	ANSI C63.4	PASS	
Remarks:				

3 Test Conditions and Results

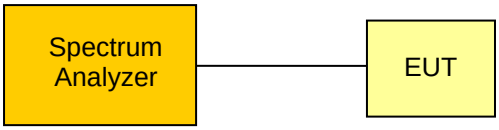
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to IC RSS-Gen	**Verdict: PASS**
Test according to measurement reference	Reference Method
	RSS-Gen 6.6
Test frequency range	Tested frequencies
	F_{LOW} / F_{HIGH}
EUT test mode	Single

Limits

None (Informational only)

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
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

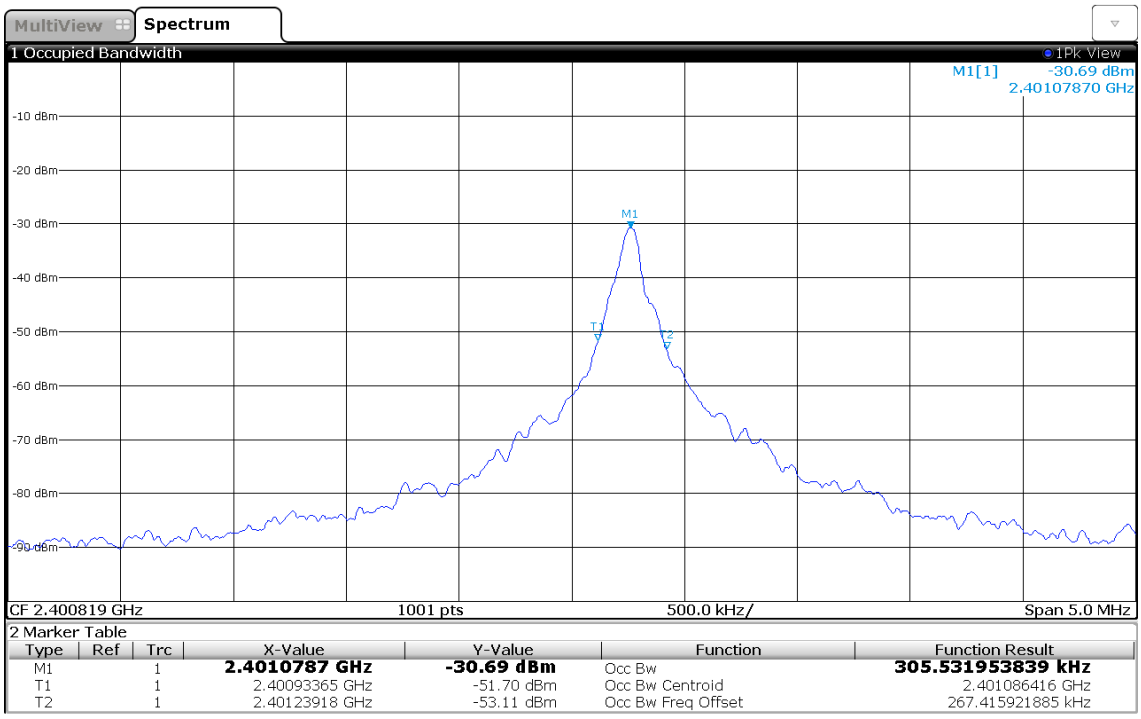
Channel	Frequency [MHz]	Occupied Bandwidth [kHz]
F_{LOW}	2401	305.53
F_{HIGH}	2482	365.81

Comments: Measurement is applicable to all variants

Occupied Bandwidth – F_{LOW}

Occupied Bandwidth 2401 MHz

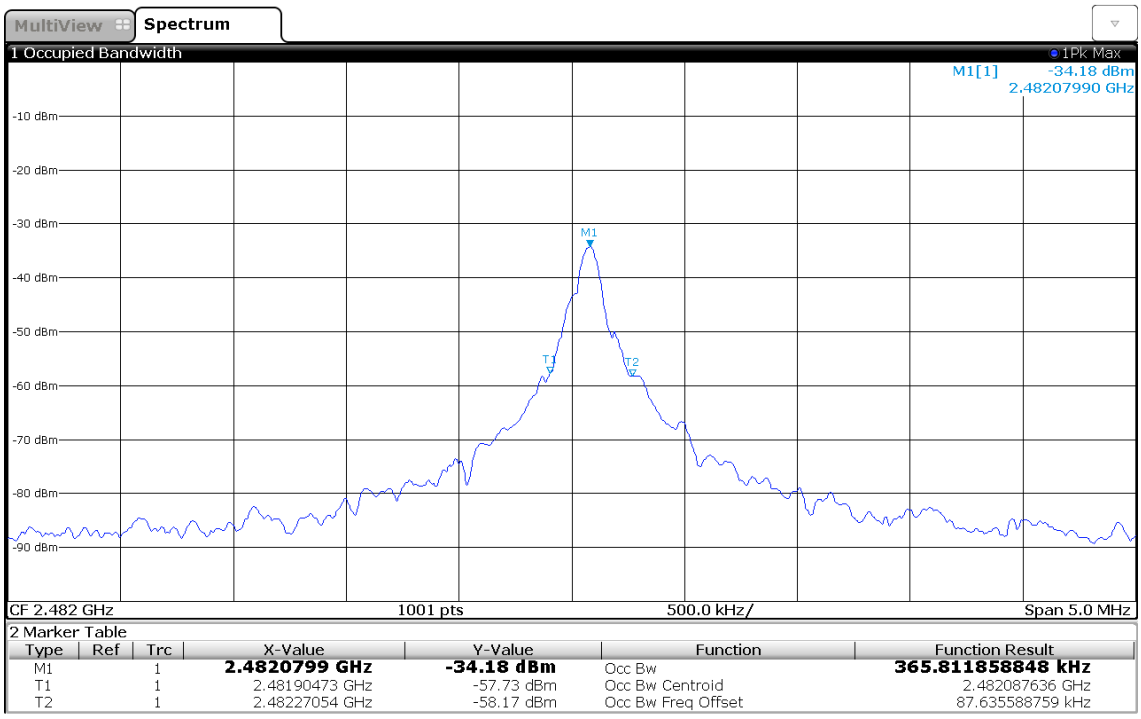
Project Number:	G0M-1611-6080
Applicant	TE Connectivity Germany GmbH
Model Description	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Sample ID:	11078
Operator:	S. Suckow
Test Site:	Eurofins Product Service GmbH
Test Date:	2016-11-28



Occupied Bandwidth – F_{HIGH}

Occupied Bandwidth 2482 MHz

Project Number:	G0M-1611-6080
Applicant	TE Connectivity Germany GmbH
Model Description	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Sample ID:	11078
Operator:	S. Suckow
Test Site:	Eurofins Product Service GmbH
Test Date:	2016-11-29



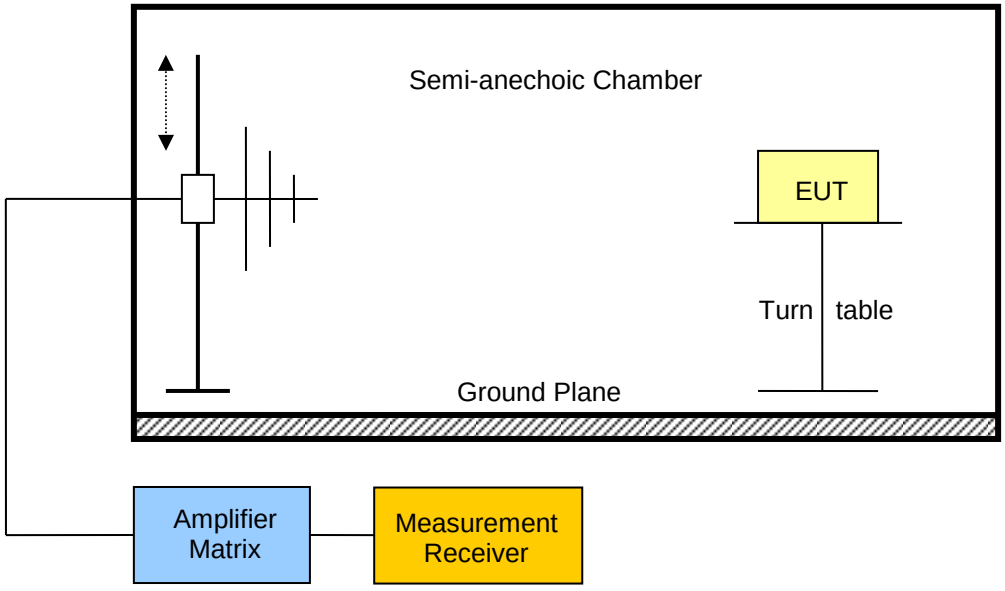
3.2 Test Conditions and Results – Fundamental field strength emissions

Field strength emissions acc. to FCC 47 CFR 15.249 / IC RSS-210				**Verdict: PASS**
Test according referenced standards		Reference Method		
		FCC 15.249(a),(c),(e) / IC RSS-210 A2.9(a)		
Test according to measurement reference		Reference Method		
		ANSI C63.4		
Test frequency range		Tested frequencies		
		F_{LOW} / F_{HIGH}		
EUT test mode		Single		
Limits				
Frequency range [MHz]	Detector	Limit [mV/m]	Limit [dBµV/m]	Limit Distance [m]
902 – 928	Quasi-Peak	50	94	3
2400 – 2483.5	Average	50	94	3
5725 - 5875	Average	50	94	3

FCC 15.249(e) : for frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Below 1GHz a CISPR quasi-peak detector is used.

Test setup



Test procedure
1. EUT set to test mode 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to maximum emission levels

Test results

Channel	Frequency [MHz]	Emission [MHz]	Level [dbµV/m]	Detector	Pol.	Limit [dbµV/m]	Limit distance [m]*	Margin [dB]
F_{LOW}	2401	2401	32.20	pk	hor	94.00	3	-61.80
F_{LOW}	2401	2401	40.58	pk	ver	94.00	3	-53.42
F_{HIGH}	2482	2482	41.07	pk	hor	94.00	3	-52.93
F_{HIGH}	2482	2482	44.39	pk	ver	94.00	3	-49.61

Comments: * Physical distance between EUT and measurement antenna.

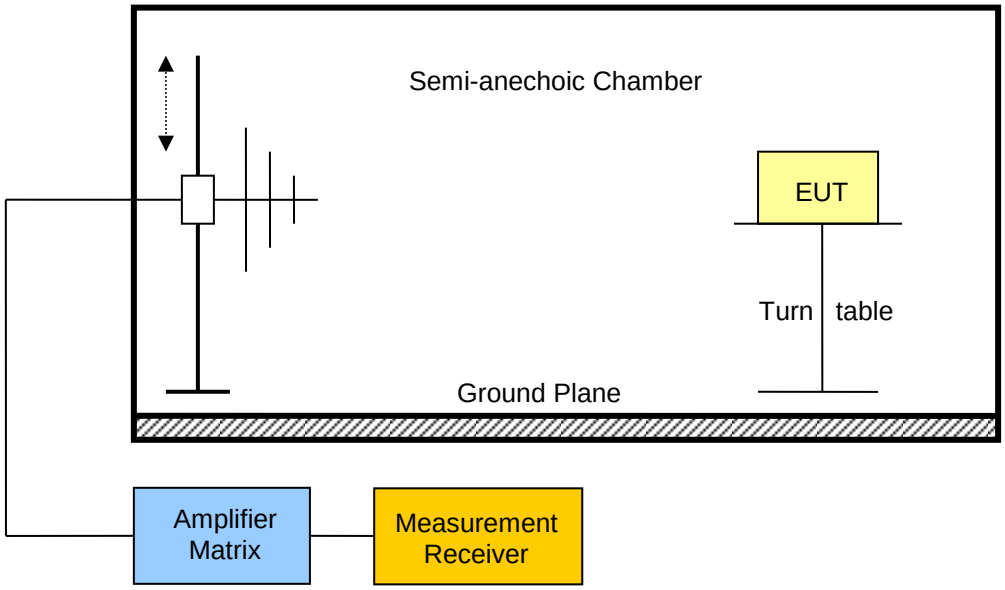
3.3 Test Conditions and Results – Emissions radiated outside the specified frequency band

Radiated out-of-band band emissions acc. to FCC 47 CFR 15.249 / IC RSS-210				**Verdict: PASS**
Test according referenced standards		Reference Method		
		FCC 15.249(a),(c),(d),(e) / IC RSS-210 A2.9(a),(b)		
Test according to measurement reference		Reference Method		
		ANSI C63.4		
Test frequency range		Tested frequencies		
		30 MHz – 10th harmonic		
EUT test mode		Single		
Limits - Harmonics				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
902 – 928	Quasi-Peak	500	54	3
2400 – 2483.5	Average	500	54	3
5725 - 5875	Average	500	54	3
Limits - General				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

FCC 15.249(e) : for frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Except the higher order harmonics, emission radiated outside the specified frequency band shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in 15.209 / RSS-Gen, whichever is less stringent.

Test setup



Test procedure

1. EUT set to test mode
2. Span it set according to measurement range
3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz
4. Markers are set to maximum emission levels

Test results

Channel	Frequency [MHz]	Emission [MHz]	Level [dbµV/m]	Detector	Pol.	Limit [dbµV/m]	Limit distance [m]*	Margin [dB]
F_{LOW} / F_{HIGH}	2401 / 2482	194.5373	40.90	qpk	hor	43.50	3	-02.56
F_{LOW} / F_{HIGH}	2401 / 2482	210.4	37.30	pk	ver	43.50	5	-06.20
F_{LOW} / F_{HIGH}	2401 / 2482	230.9	44.30	pk	hor	46.00	3	-01.72
F_{LOW} / F_{HIGH}	2401 / 2482	4800	42.33	pk	hor	74.00	3	-31.67

Comments: * Physical distance between EUT and measurement antenna.

3.4 Test Conditions and Results – AC power line conducted emissions

Power line conducted emissions acc. to FCC 47 CFR 15.207 / IC RSS-Gen				**Verdict: PASS**
Test according referenced standards	Reference Method			
	ANSI C63.4			
Fully configured sample scanned over the following frequency range	Frequency range			
	0.15 MHz to 30 MHz			
Points of Application	Application Interface			
AC Mains	LISN			
EUT test mode	AC-Powerline			
Limits and results				
Frequency [MHz]	Quasi-Peak [dBµV]	Result	Average [dBµV]	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 15B

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	ARISO Contactless Connectivity (PN 2287598-3, Power Transmitter, Data Transceiver)
Model:	TXM030S012PNP8A, RXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Laurisch
Test Conditions:	Tnom: 23°C, Unom: 24 VDC via AC/DC-adapter
LISN:	ESH3-Z5 (N)
Mode:	14 dBM 200 kHz CP2
Test Date:	2016-12-21
Note:	Pass

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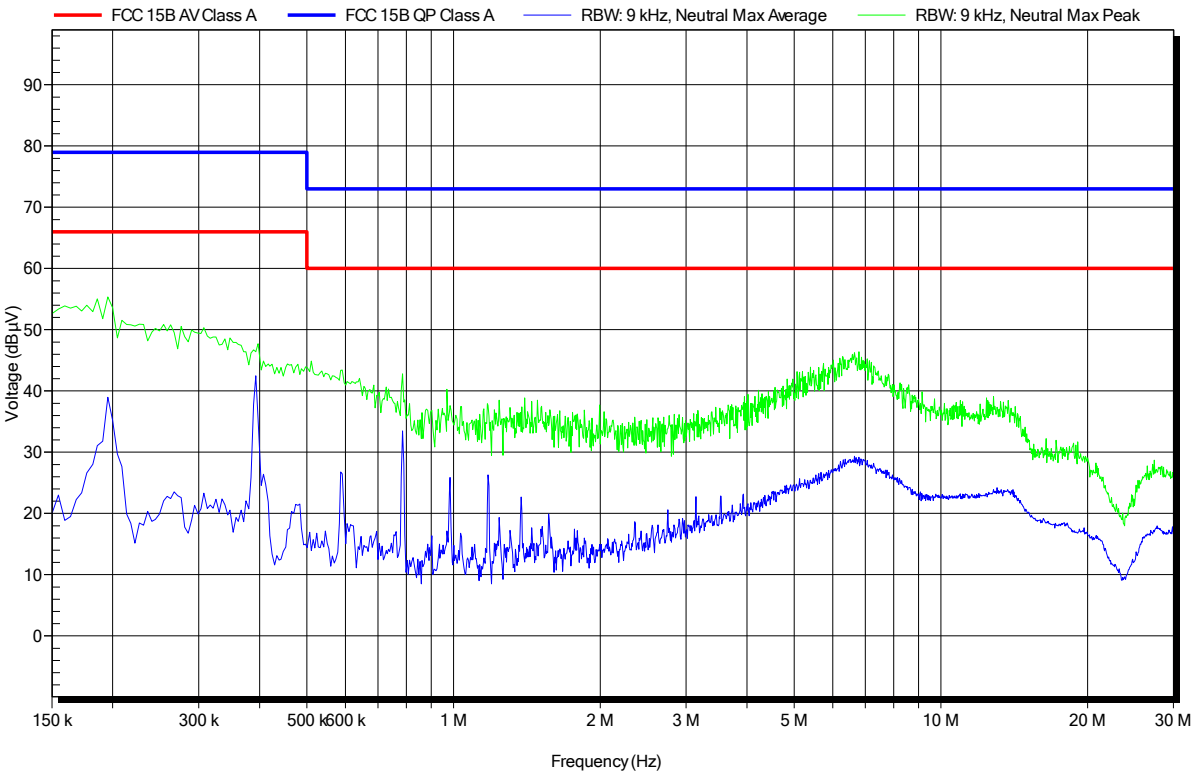

Conducted Emissions

EMI voltage test in the ac-mains according to FCC 15B

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	ARISO Contactless Connectivity (PN 2287598-3, Power Transmitter, Data Transceiver)
Model:	TXM030S012PNP8A, RXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Laurisch
Test Conditions:	Tnom: 23°C, Unom: +24VDC via AC/DC-adapter
LISN:	ESH3-Z5 (L)
Mode:	14 dBM 200 kHz CP2
Test Date:	2016-12-21
Note:	Pass

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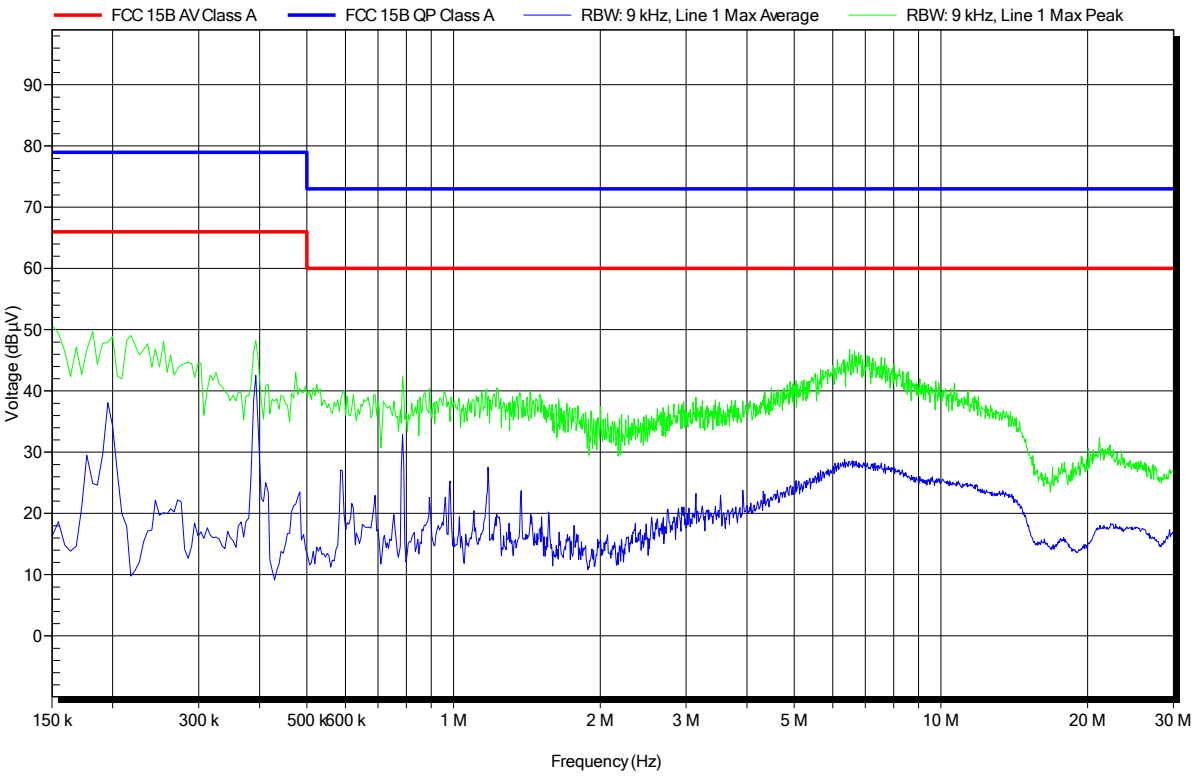

ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	MA 100 TT 360

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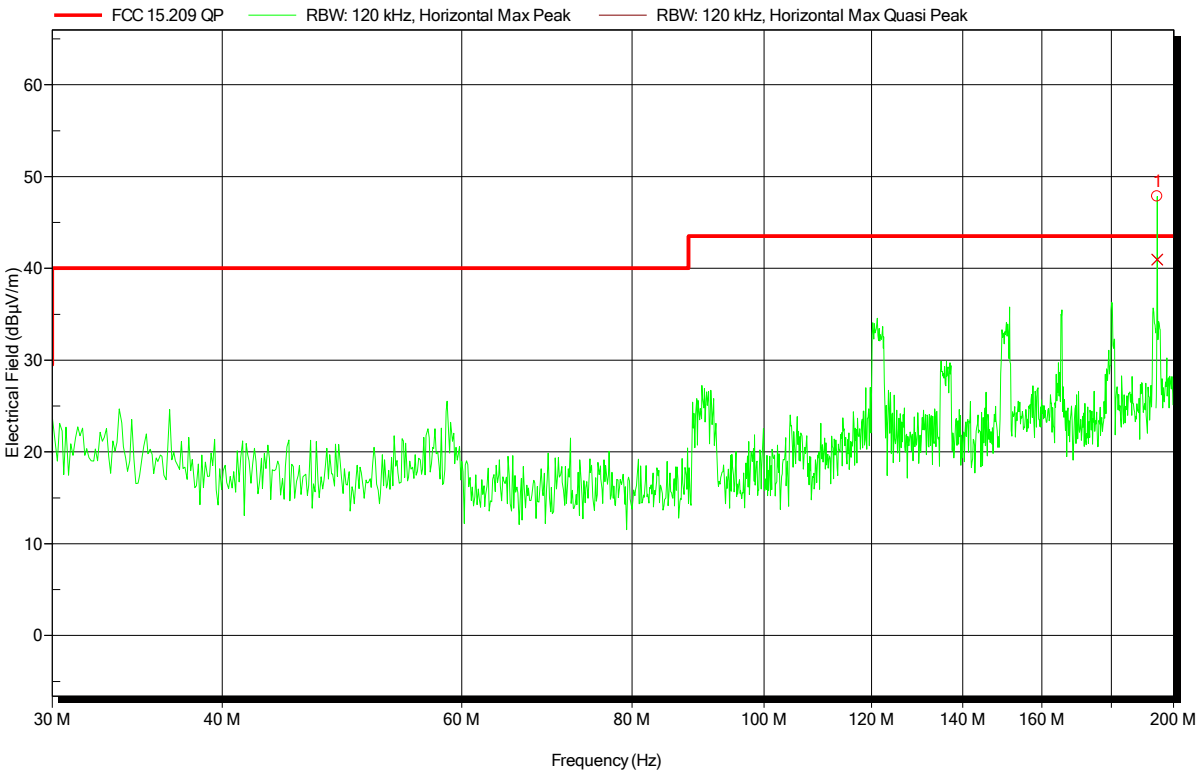

Frequency	Peak	Peak Limit	Peak Difference	Status
194,5373 MHz	47,8 dBµV/m	43,5 dBµV/m	4,33 dB	Fail

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
194,5373 MHz	40,9 dBµV/m	43,5 dBµV/m	-2,56 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	MA 100 TT 268

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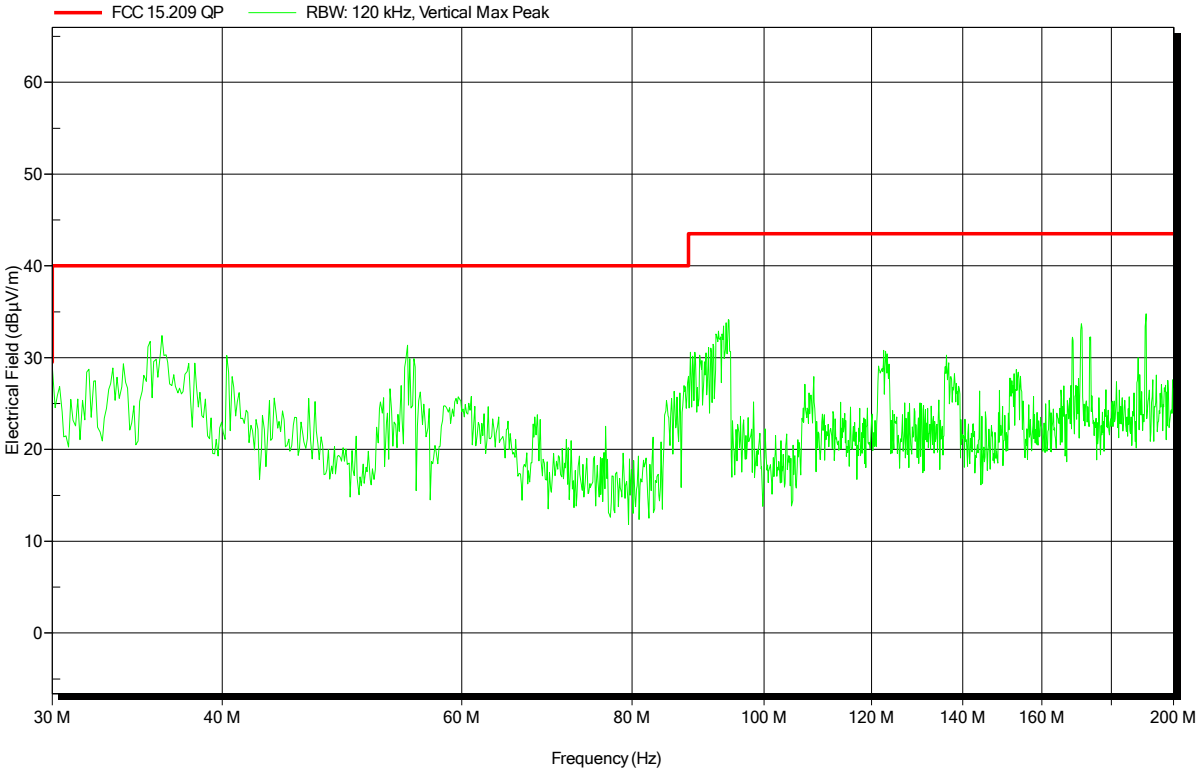

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	MA 100 TT 0

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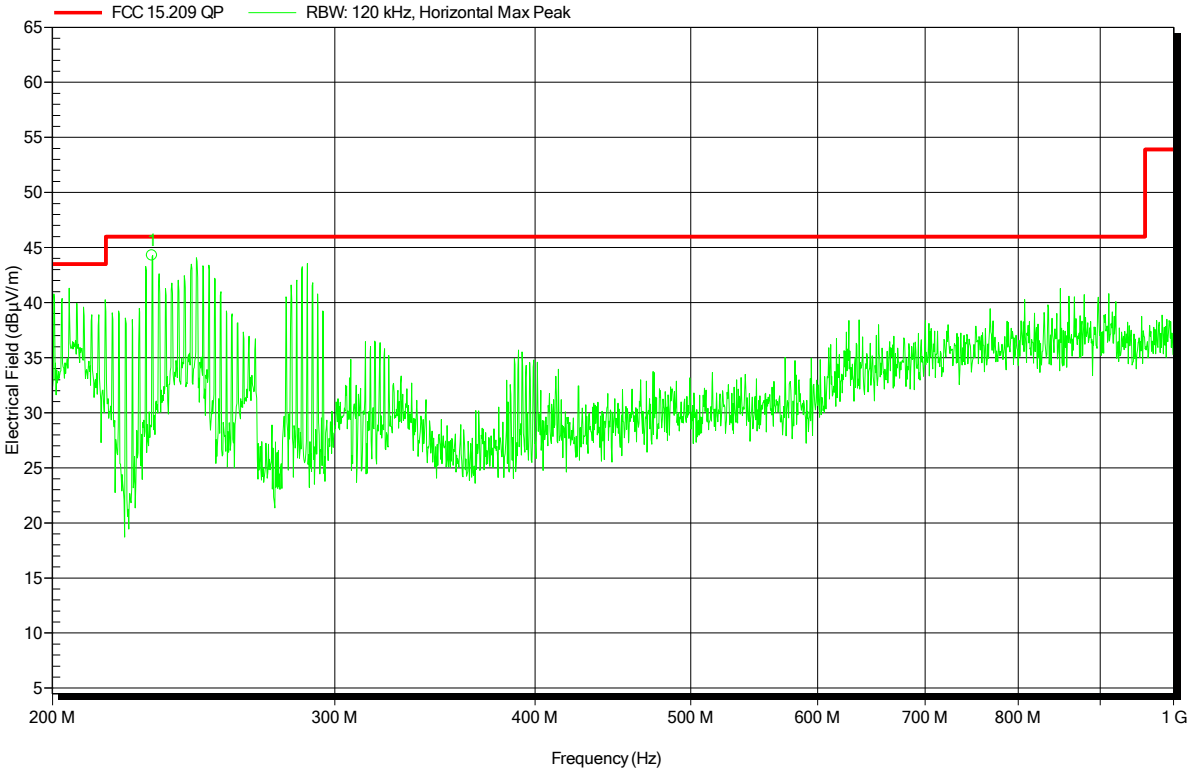

Frequency	Peak	Peak Limit	Peak Difference	Status
230,9 MHz	44,3 dBµV/m	46 dBµV/m	-1,72 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

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EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	MA 100 TT 360

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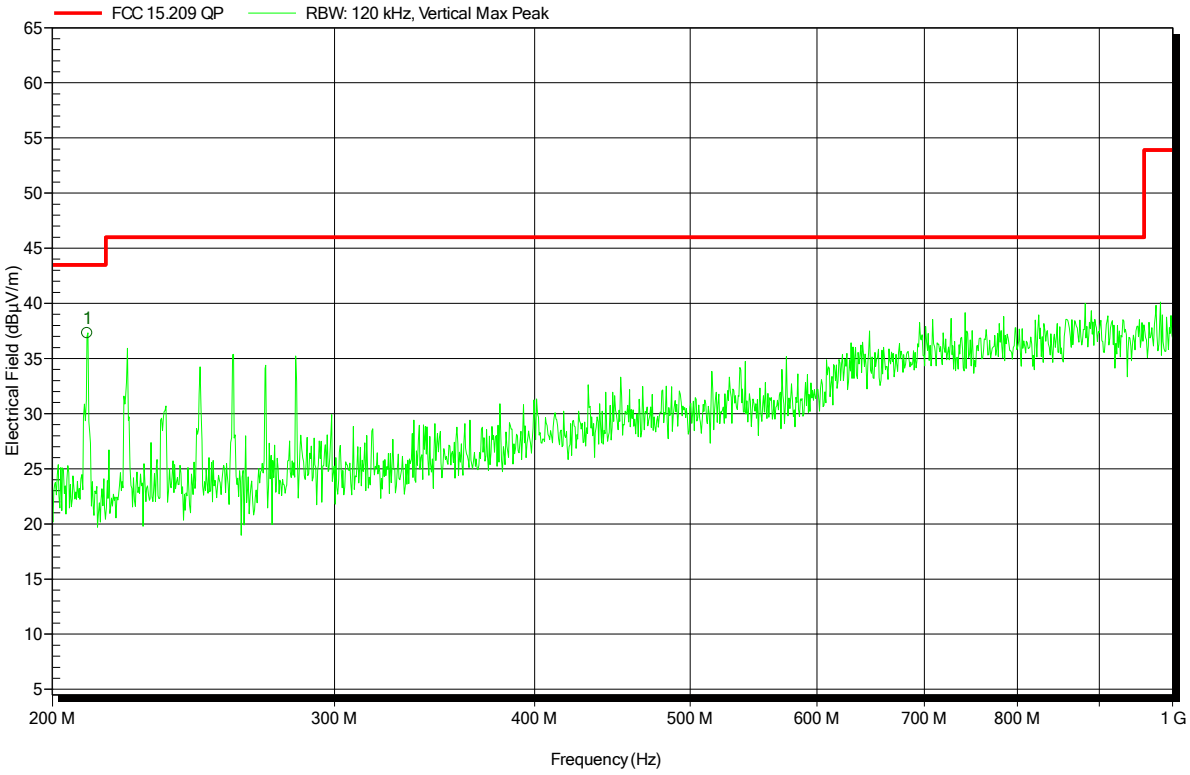

Frequency	Peak	Peak Limit	Peak Difference	Status
210.4 MHz	37.3 dBµV/m	43.5 dBµV/m	-6.2 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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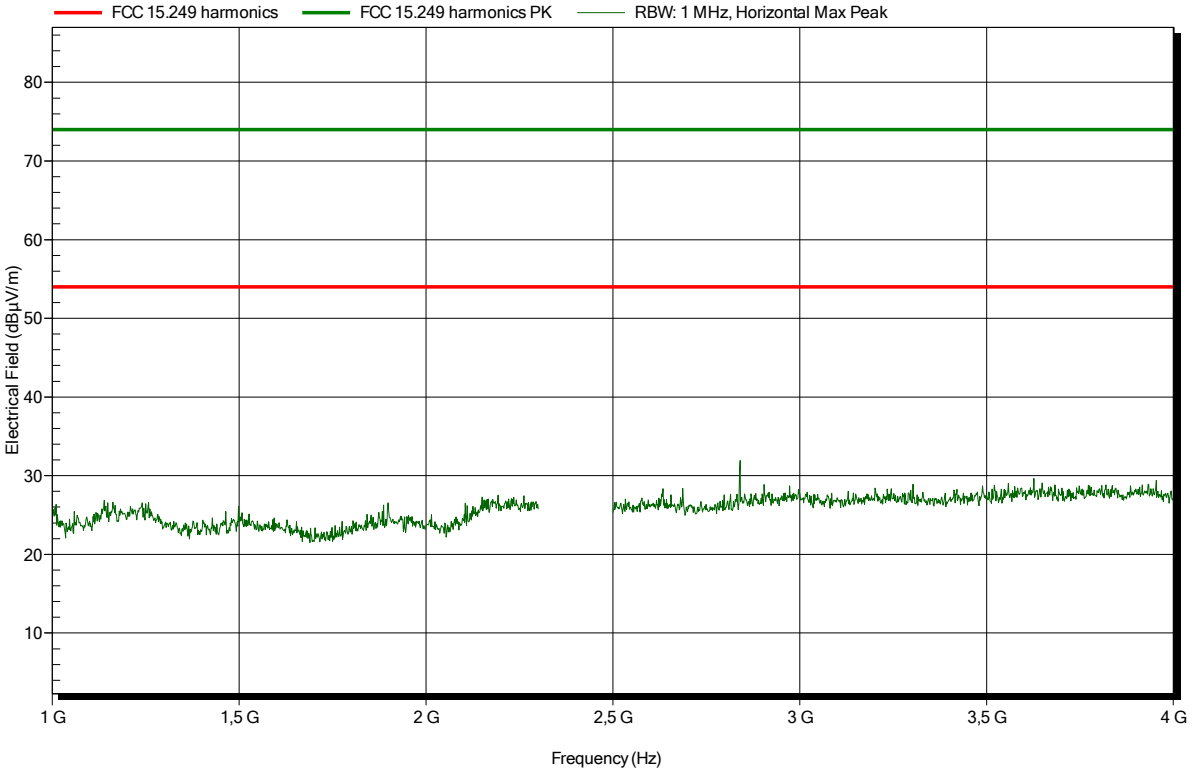

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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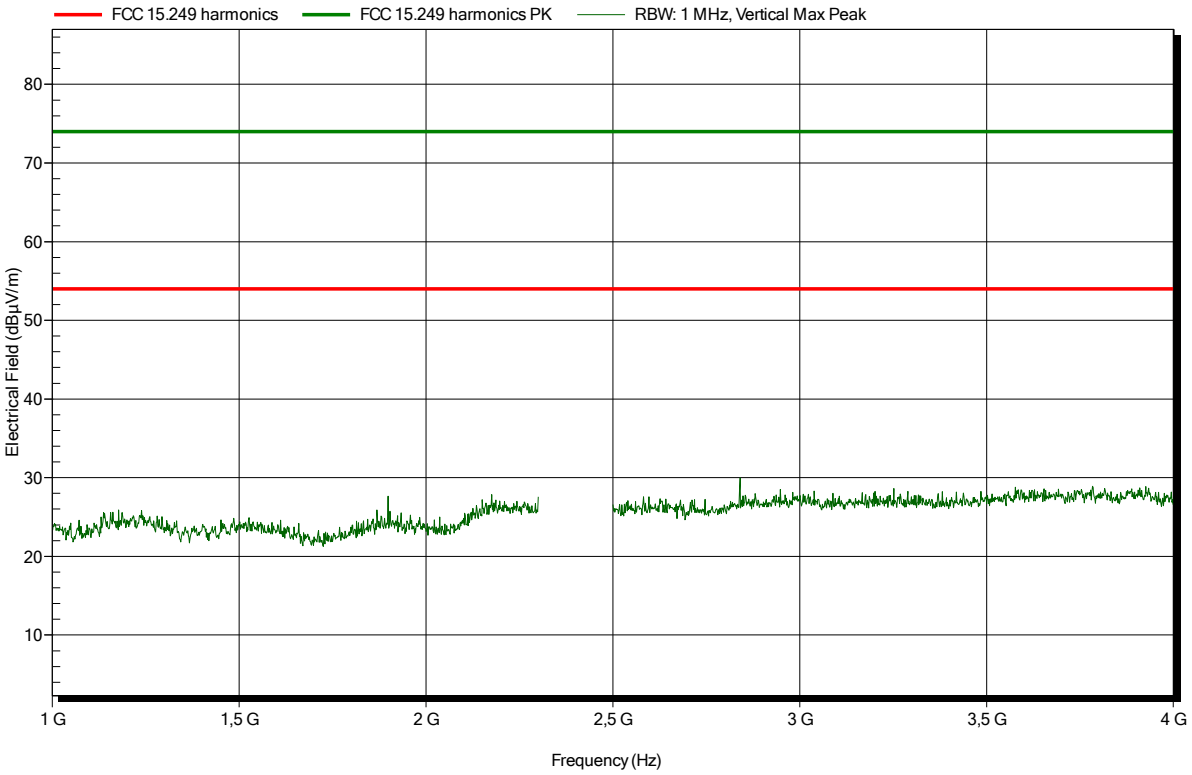

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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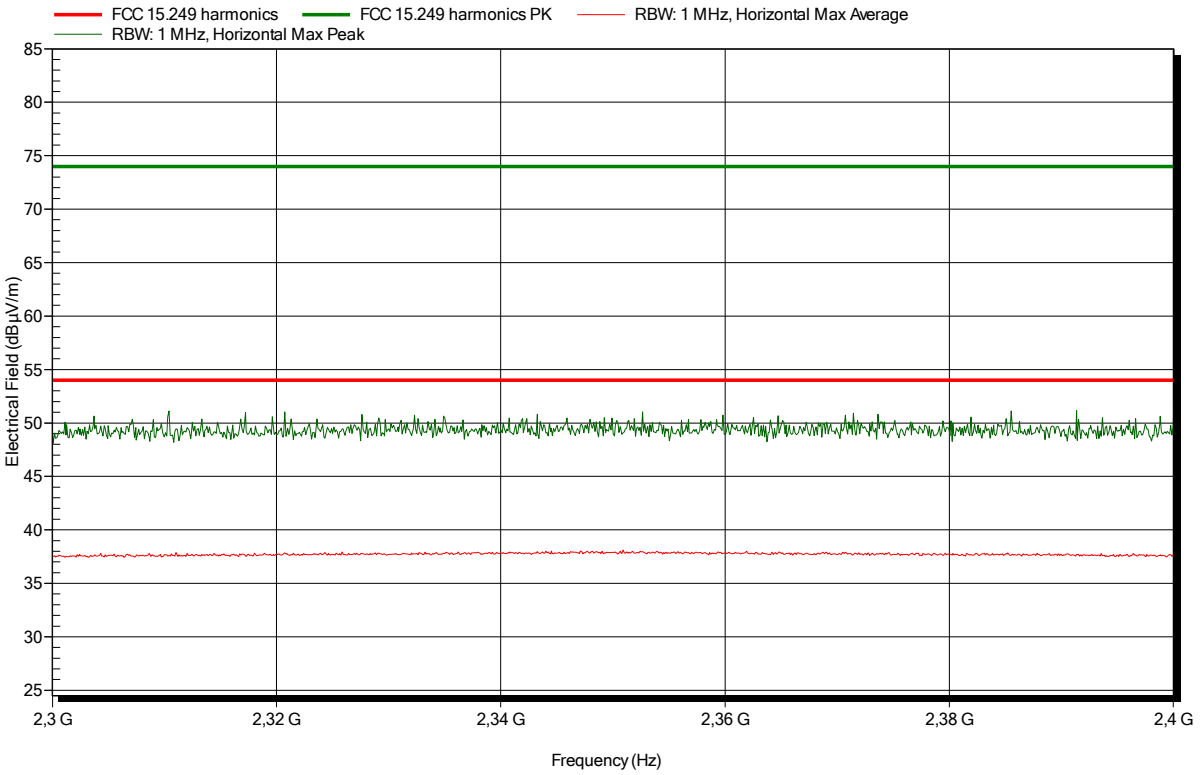

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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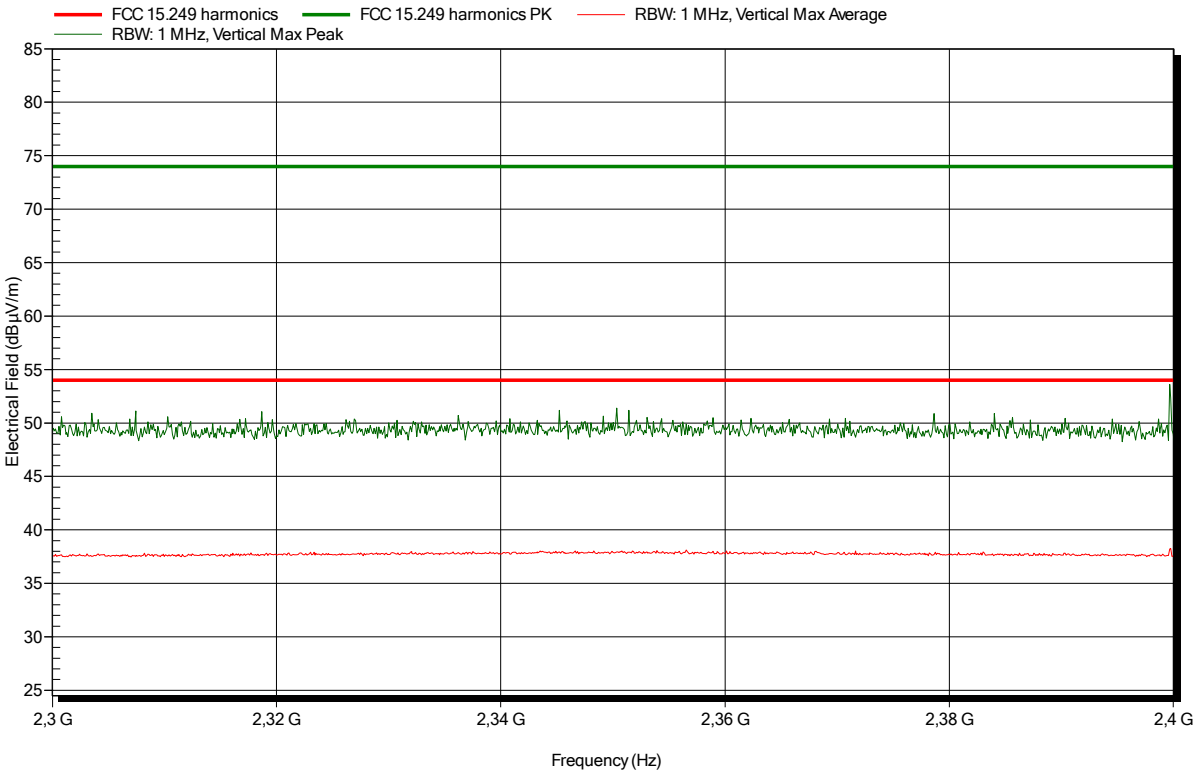

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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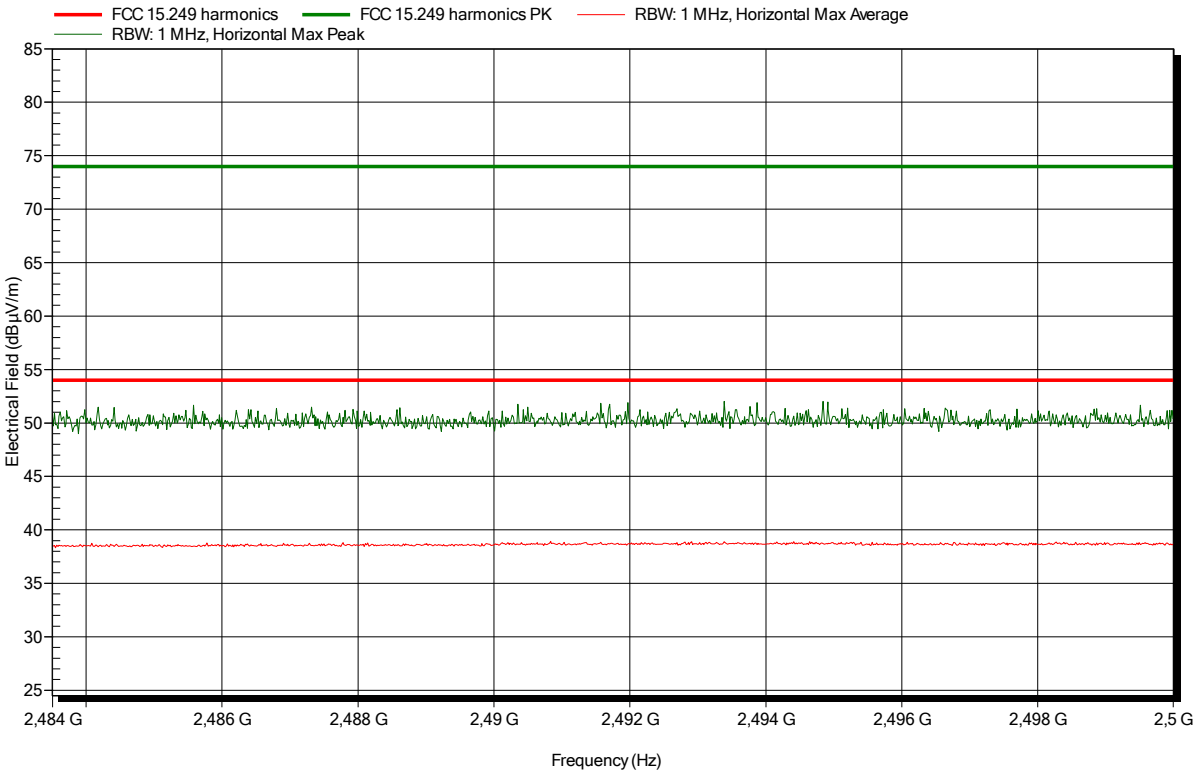

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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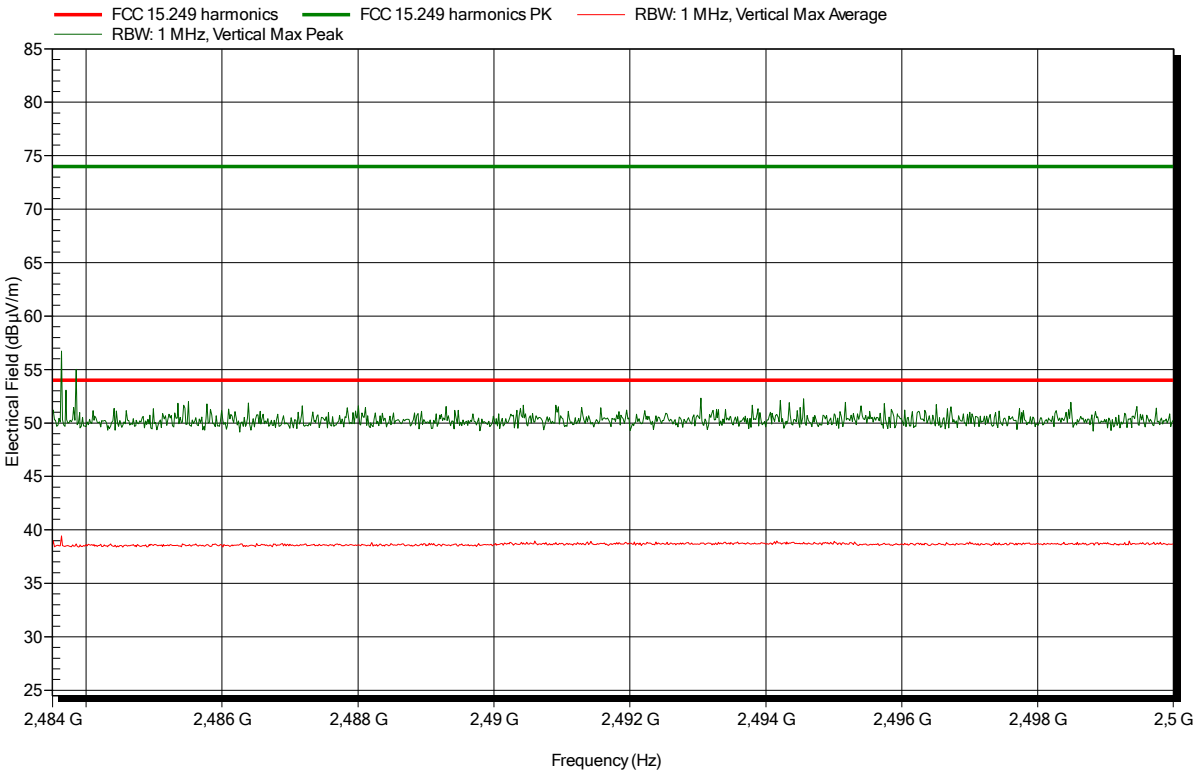

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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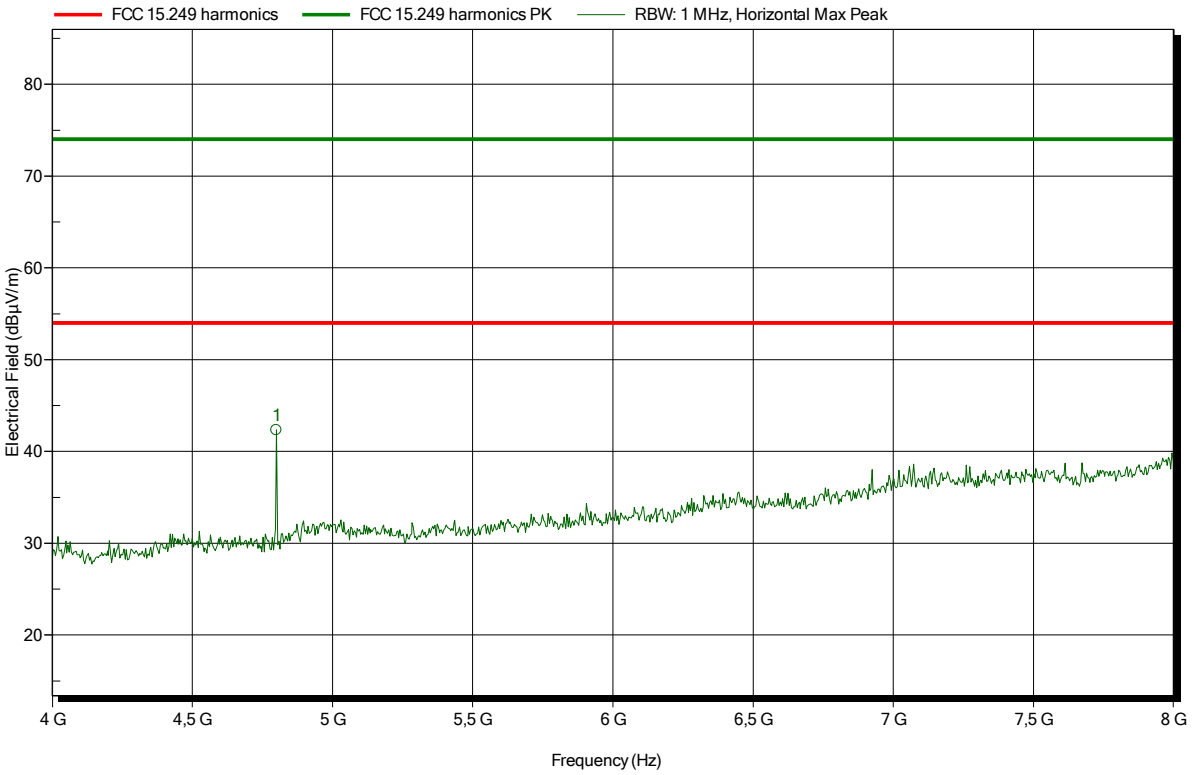

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4,8 GHz	42,33 dBµV/m	74 dBµV/m	-31,67 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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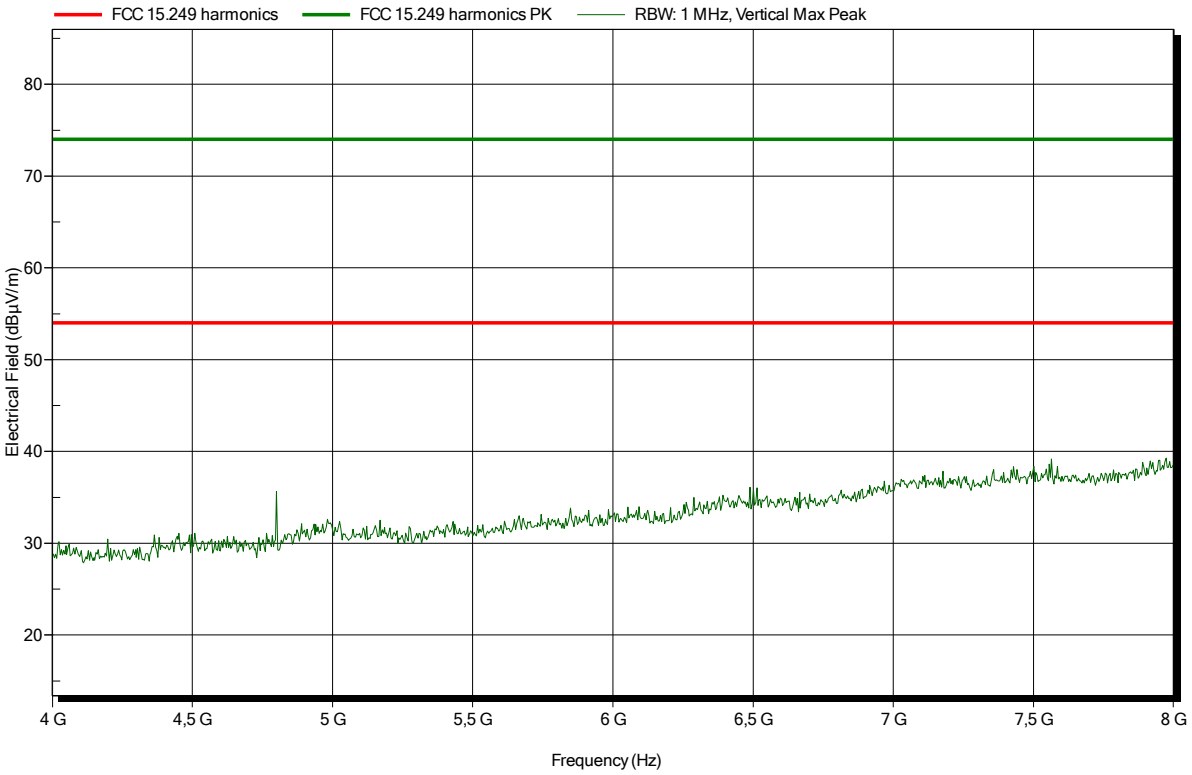

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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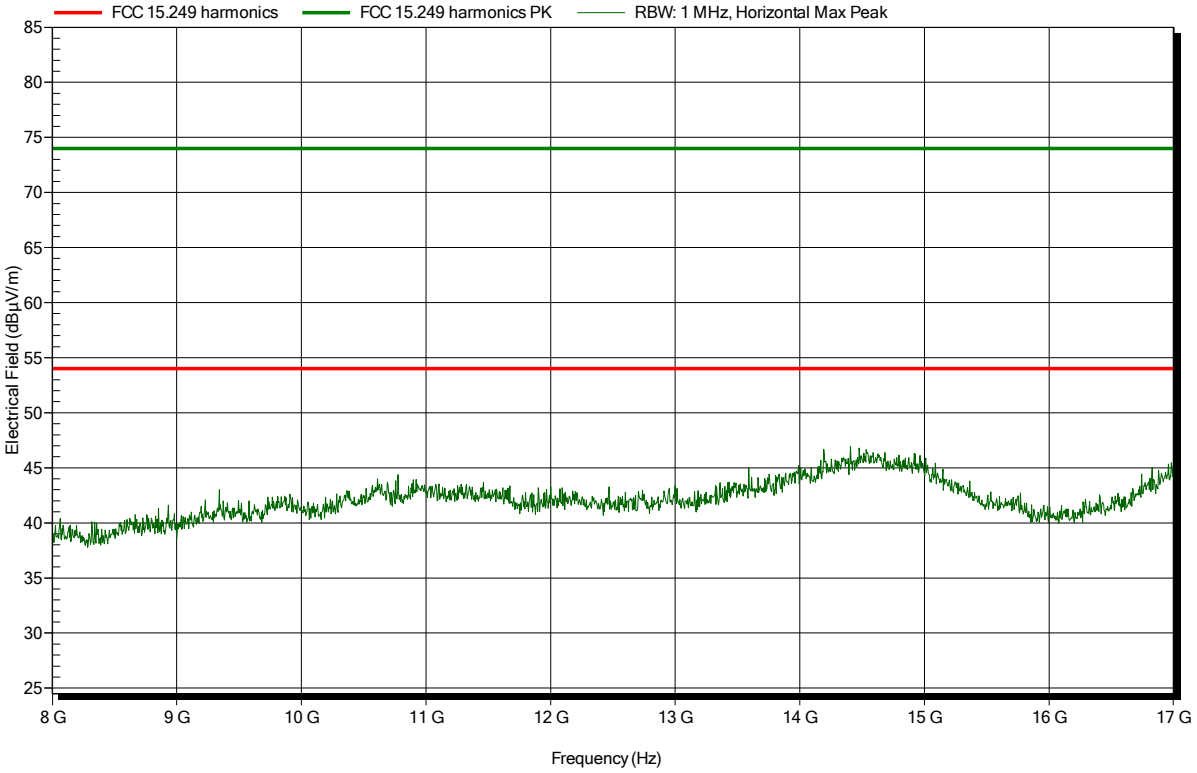

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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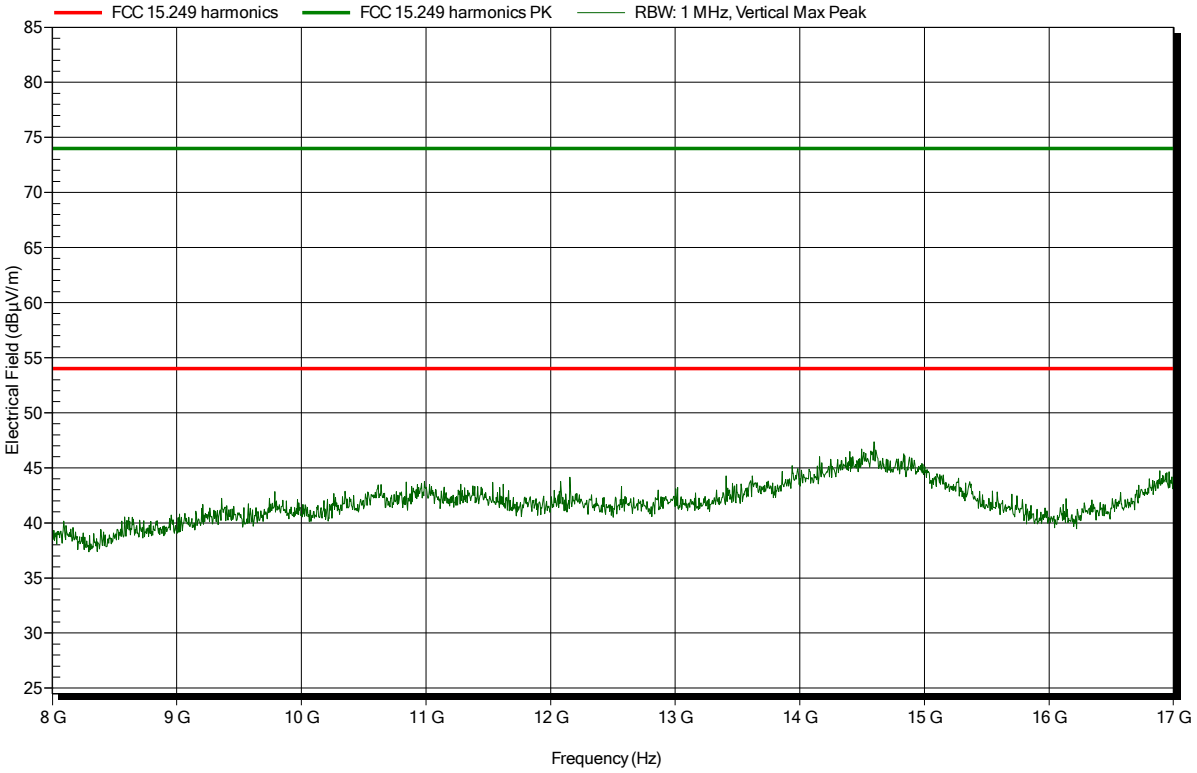

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Amplifier Research AT 4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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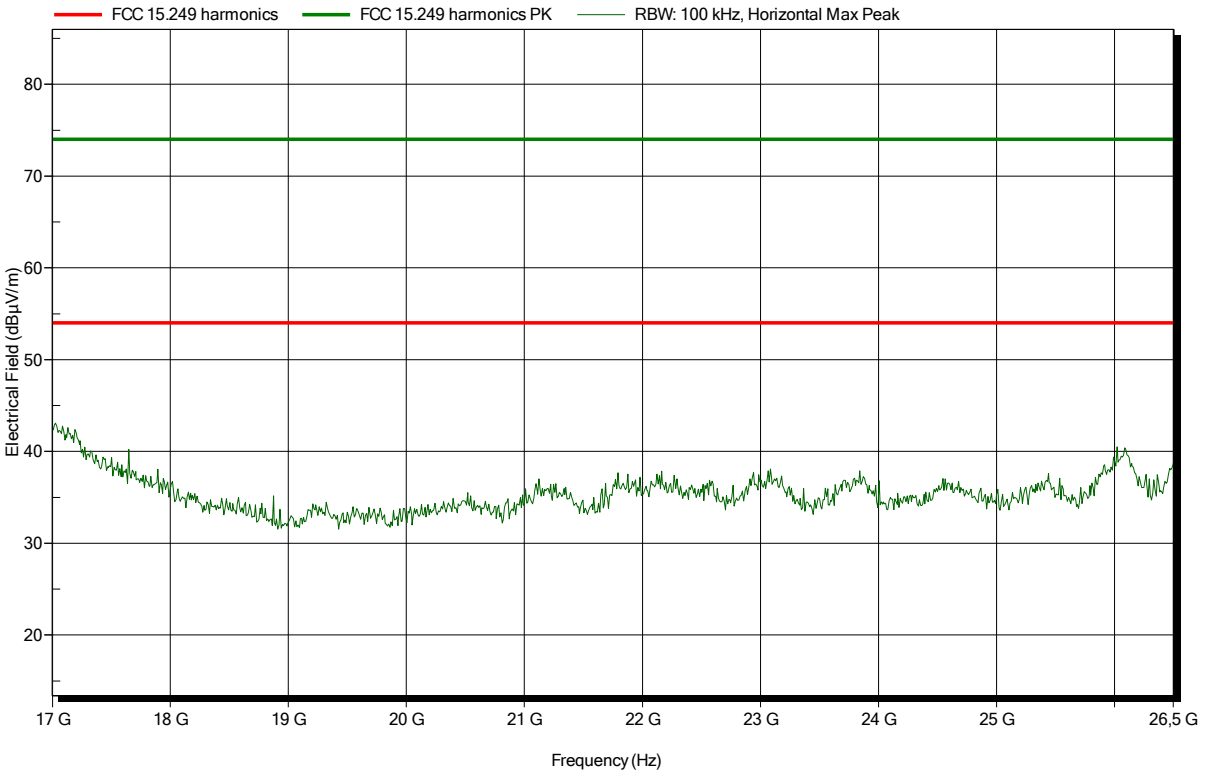

Spurious emissions according to FCC 15.249

Project number: G0M-1611-6080

Applicant:	TE Connectivity Germany GmbH
EUT Name:	PN 2287598-3, Power Transmitter, Data Transceiver
Model:	TXM030S012PNP8A
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Suckow
Test Conditions:	Tnom: 25°C, Vnom: 24 VDC
Antenna:	Amplifier Research AT 4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; 2.4 GHz SRD
Test Date:	2016-11-28
Note:	

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