

RADIO REPORT FCC 47 CFR Part 15C ISED Canada RSS-247 Digital transmission systems operating within the 2400.0 MHz - 2483.5 MHz band	
Report Reference No	G0M-2101-9569-TFC247BL-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	    DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	Panasonic Industrial Devices Europe GmbH
Address	Zeppelinstr. 19 21337 Lüneburg GERMANY
Test Specification	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, Amendment 1, 2019-03
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
Model(s)	ENWF9408A1EF
Additional Model(s)	None
Brand Name(s)	PAN9028
Hardware Version(s)	04
Software Version(s)	01
FCC ID	T7V9028
IC	216Q-9028
Test Result	PASSED

Possible test case verdicts:		
Required by standard but not tested	N/T	
Not required by standard	N/R	
Not applicable to EUT	N/A	
Test object does meet the requirement	P(PASS)	
Test object does not meet the requirement	F(FAIL)	
Testing:		
Test Lab Temperature	20 °C - 30 °C	
Test Lab Humidity	25 % - 55 %	
Date of receipt of test item	2021-05-27	
Report:		
Compiled by	Wilfried Treffke	
Tested by (+ signature) (Responsible for Test)	Wilfried Treffke	
Approved by (+ signature) (Deputy Head of Lab)	Toralf Jahn	
Date of Issue	2021-08-20	
Total number of pages	135	
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:		

ADDITIONAL VARIANTS

Additional Variants (not tested and not evaluated variants)		
Not-tested Variant	Description	
1	Product Type Description	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
	Model name	ENWF9408A2EF
	Brand name	PAN9028
	Hardware Version	04
	Software Version	01
	PMN	PAN9028
	HVIN	ENWF9408A2EF
	FVIN	n/a
	HMN	n/a
Comment: Those named additional variants above have not been tested. Those additional variants of the series have been declared by the manufacturer. The test report explicitly states that those variants were neither tested nor assessed nor evaluated.		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2021-08-20	Initial Release	

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V _{NOM}	Nominal supply voltage

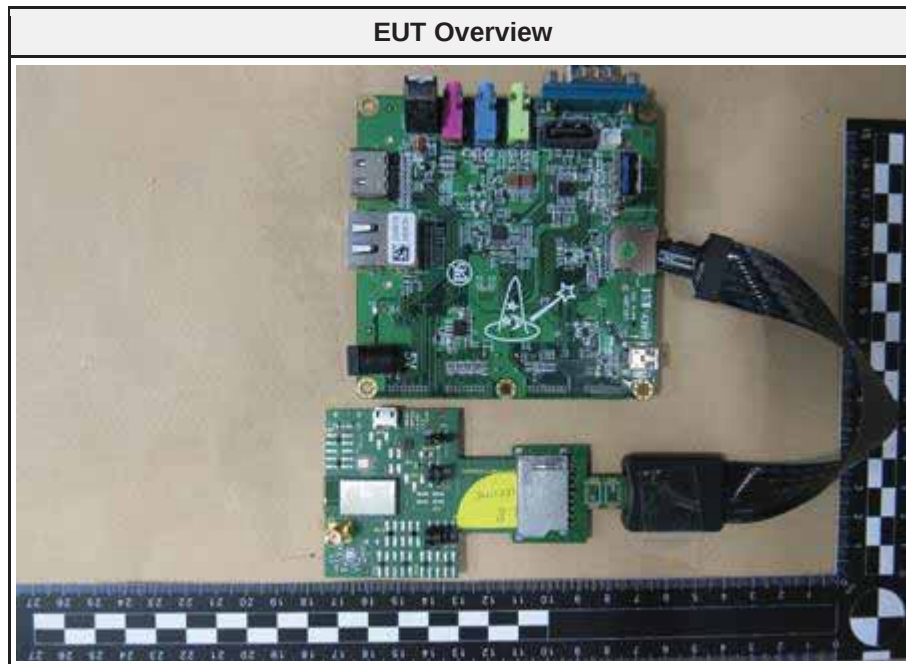
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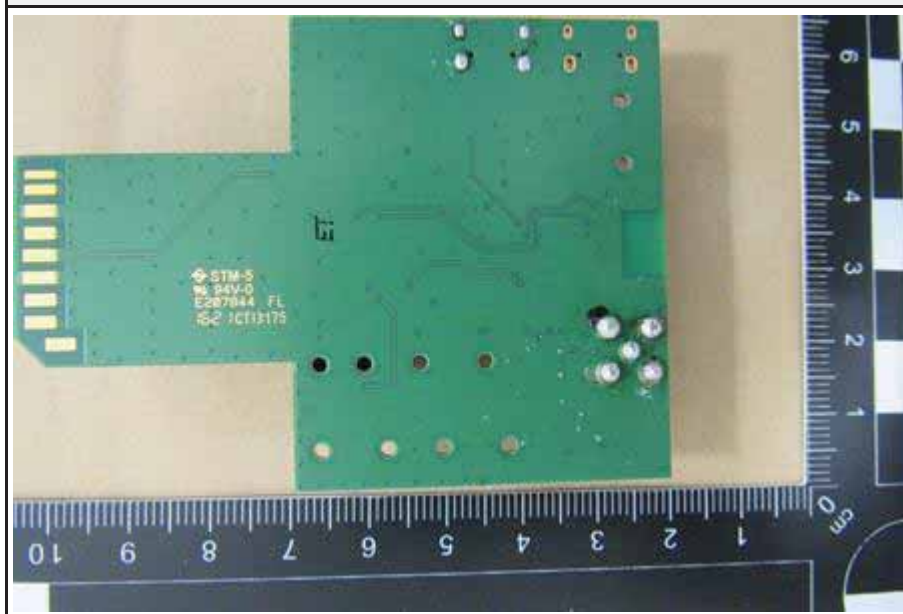
1 Equipment (Test Item) Under Test

Description	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module	
Model	ENWF9408A1EF	
Additional Model(s)	None	
Brand Name(s)	PAN9028	
Serial Number(s)	A1 8 SerNr: 826	Radiated Test Sample ID 34968
Hardware Version(s)	04	
Software Version(s)	01	
PMN	PAN9028	
HVIN	ENWF9408A1EF	
FVIN	n/a	
HMN	n/a	
FCC ID	T7V9028	
IC	216Q-9028	
Equipment type	Radio Module	
Radio type	Transceiver	
Assigned frequency bands	2400.0 MHz - 2483.5 MHz	
Radio technology	Bluetooth LE 5.0	
Bluetooth Specification	LE 1M PHY	Yes
	LE 2M PHY	Yes
	LE Coded PHY S=8 (125 kbit)	No
	LE Coded PHY S=2 (500 kbit)	No
	Stable Modulation Index - Transmitter	Yes
	Stable Modulation Index - Receiver	Yes
Modulation	GFSK	
Number of antenna ports	1	
Antenna	Type	Integrated antenna
	Model	ANT162442DT-2001A2
	Manufacturer	TDK
	Gain	2.1 dBi (declared by applicant)
Supply Voltage	V _{NOM}	3.3 VDC
Operating Temperature	T _{NOM}	25 °C
AC/DC-Adaptor	Model	None
Manufacturer	Panasonic Industrial Devices Europe GmbH Zeppelinstr. 19 21337 Lüneburg GERMANY	

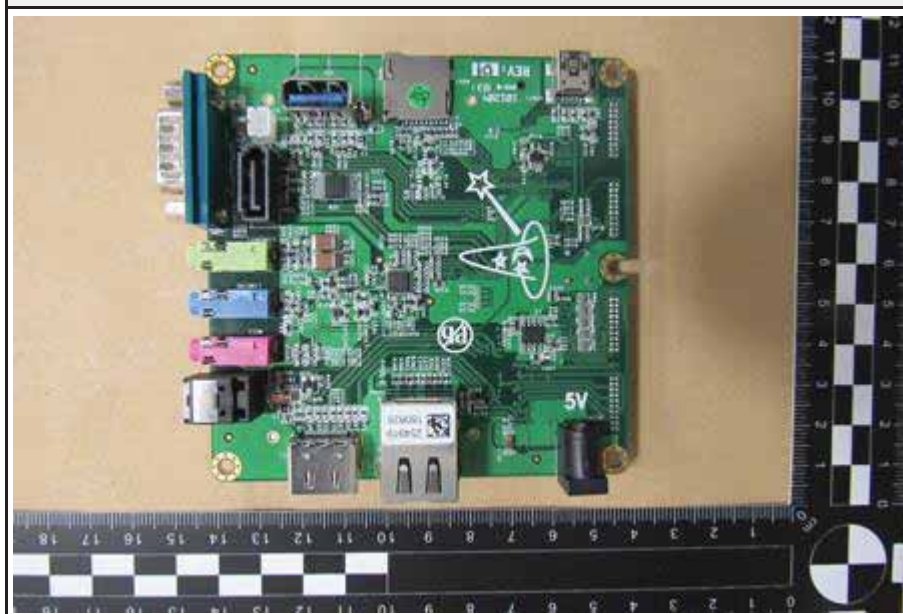
1.1 Photos – Equipment External



EUT Bottom View



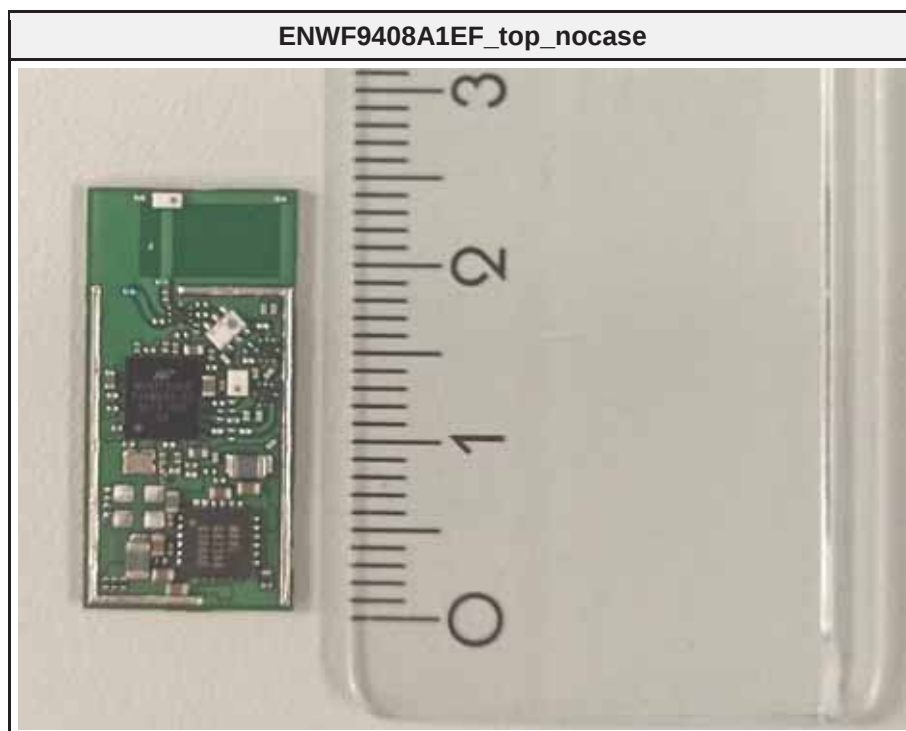
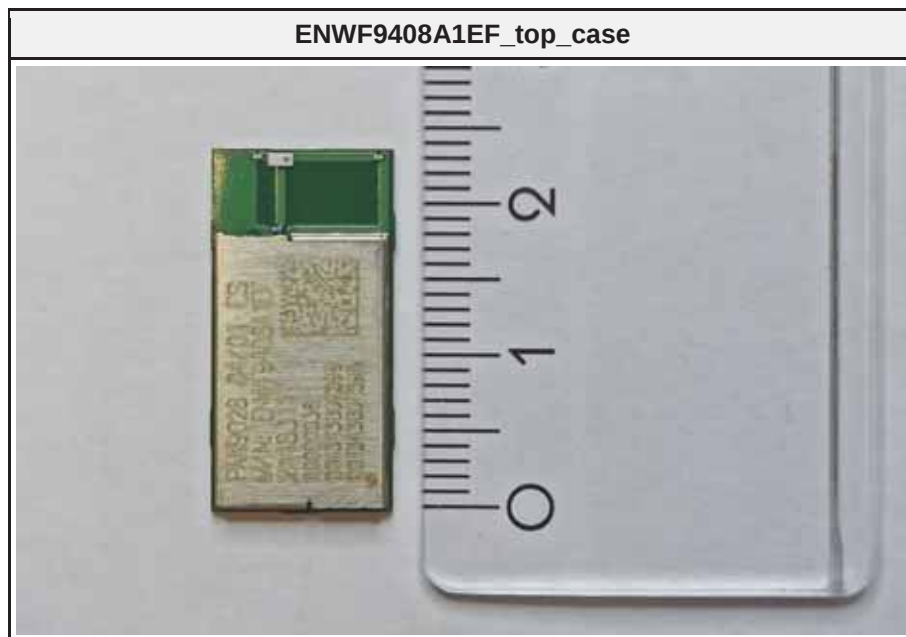
AE 1: Wandboard WBIMX6U, Top View



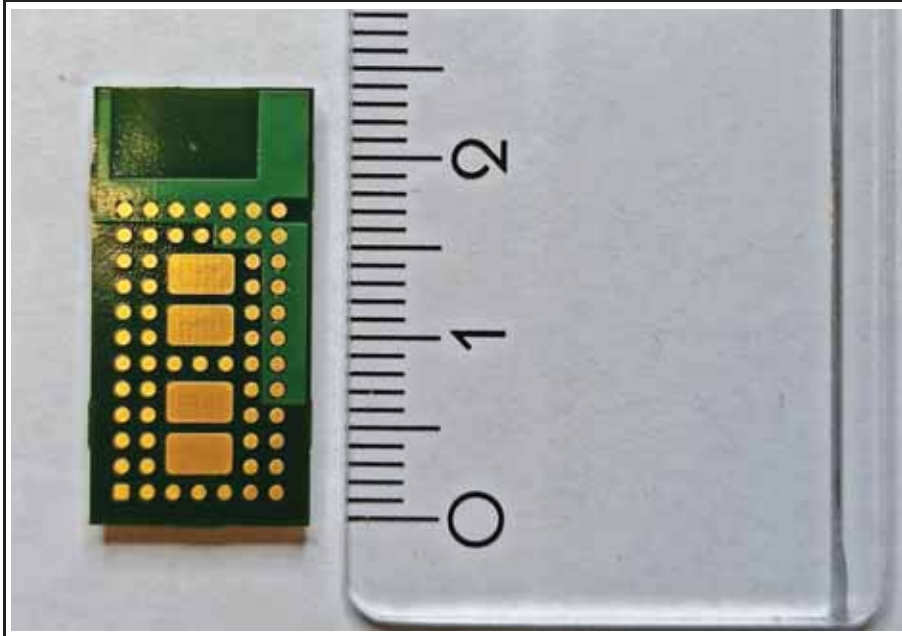
AE 1: Wandboard WBIMX6U, Bottom View



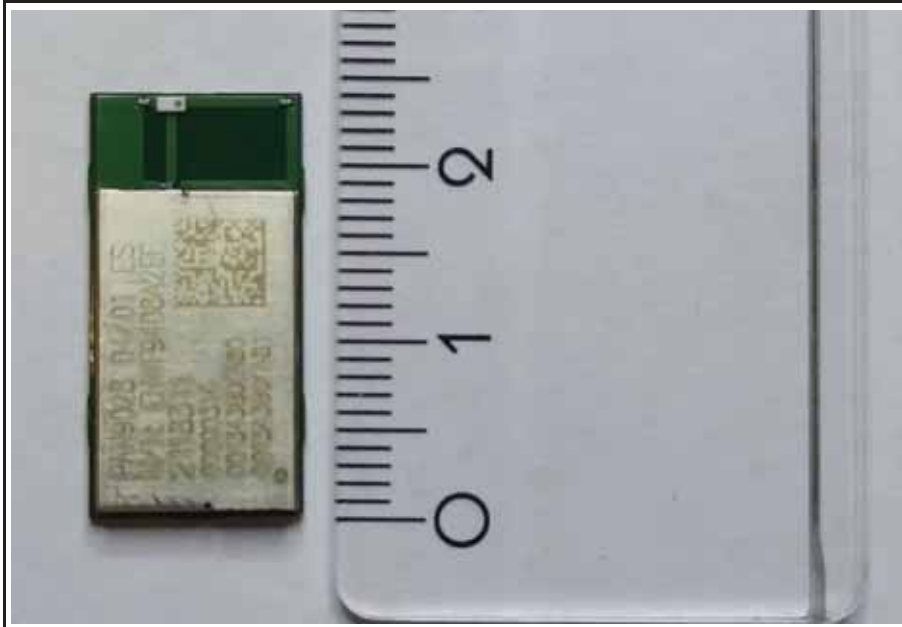
1.2 Photos – Equipment Internal



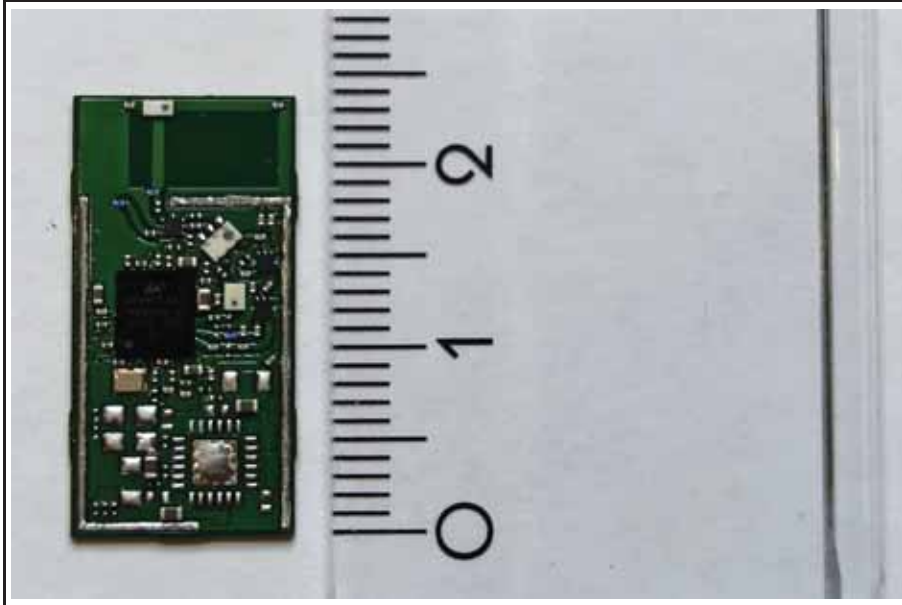
ENWF9408A1EF_back



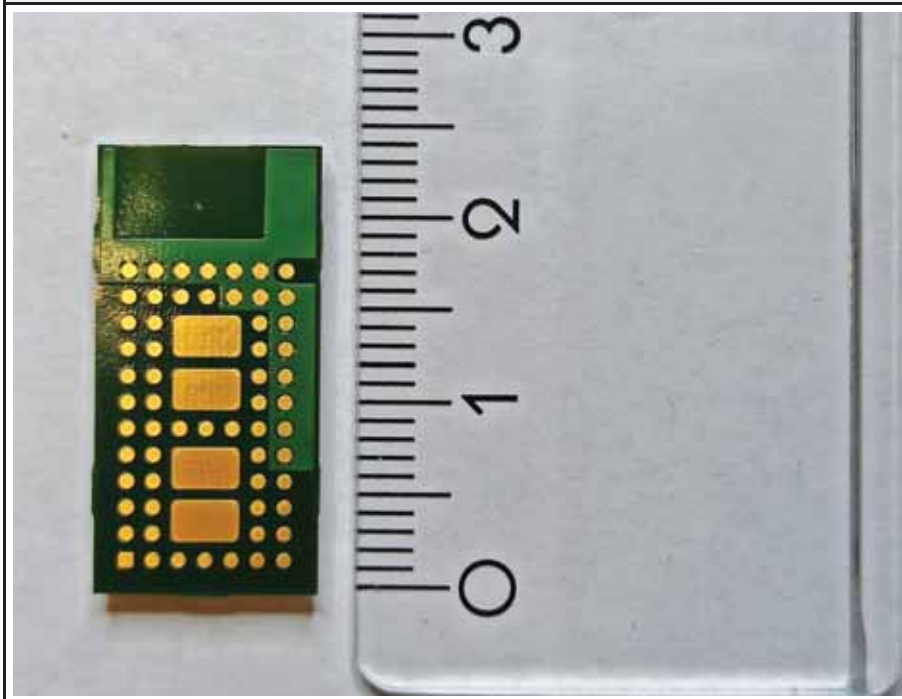
ENWF9408A2EF_top_case



ENWF9408A2EF_top_nocase

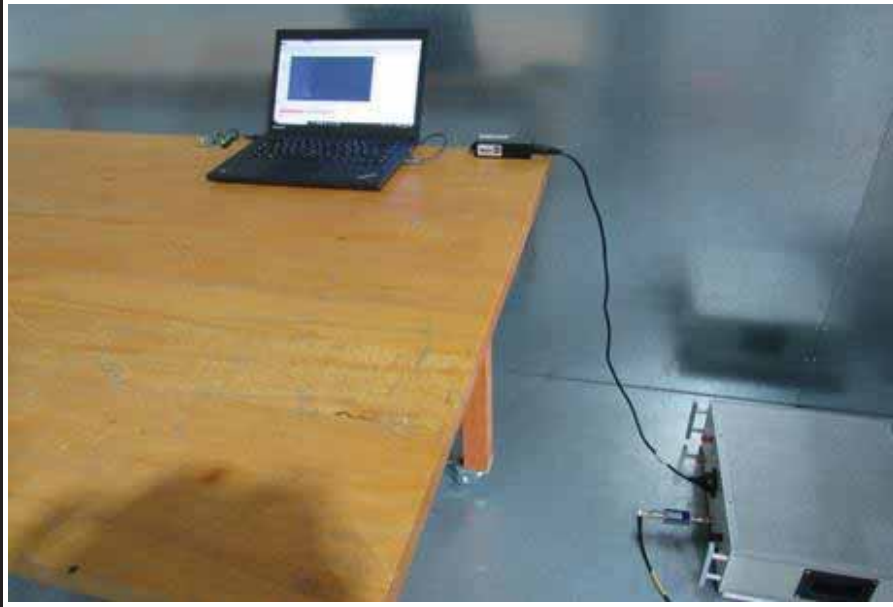


ENWF9408A2EF_back



1.3 Photos – Test Setup

Test setup A - conducted measurement



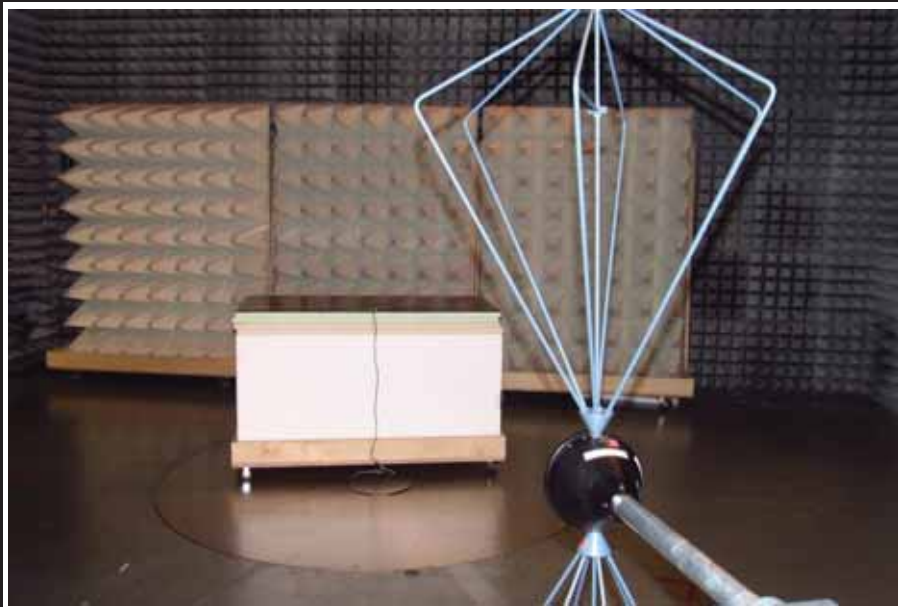
Test setup B - conducted measurement



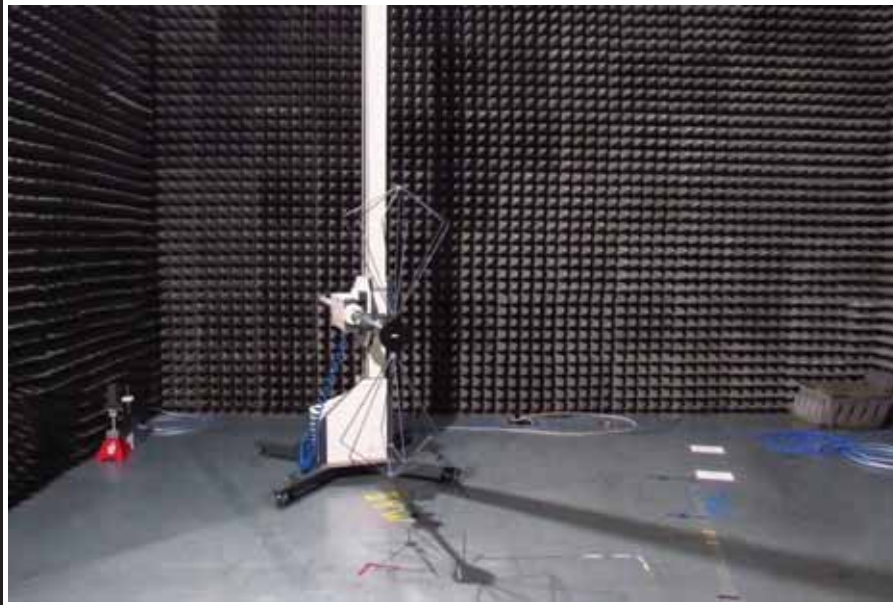
Radiated Setup - view A



Radiated Setup - view B



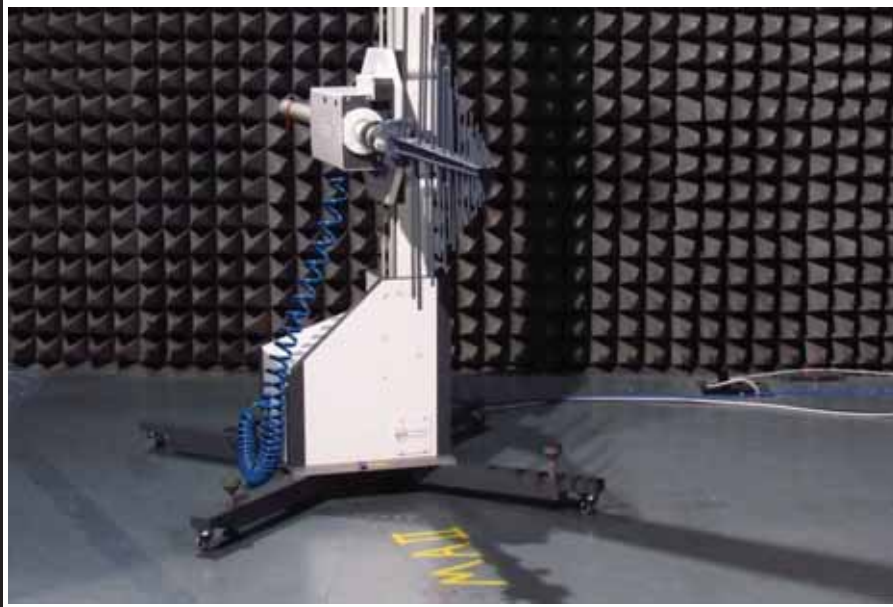
Radiated Setup - view C



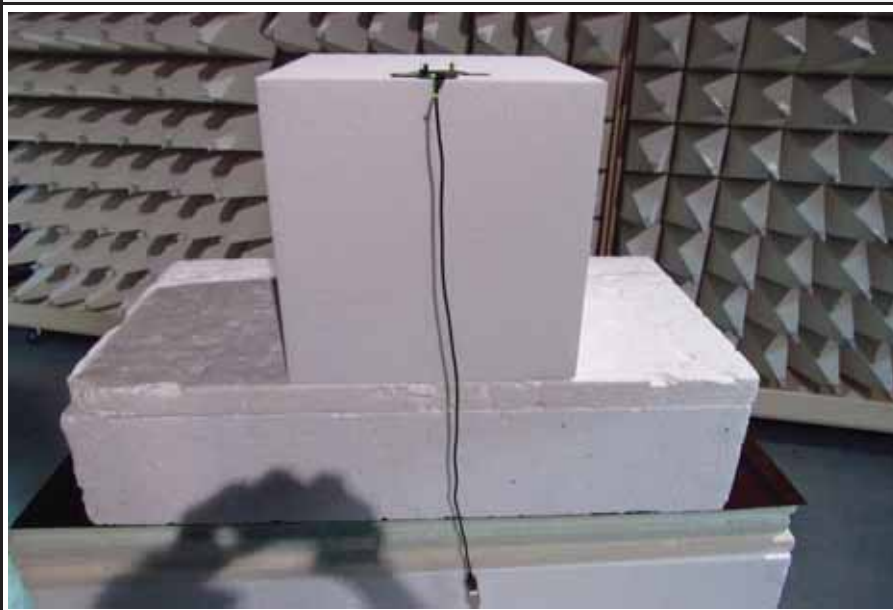
Radiated Setup - view D



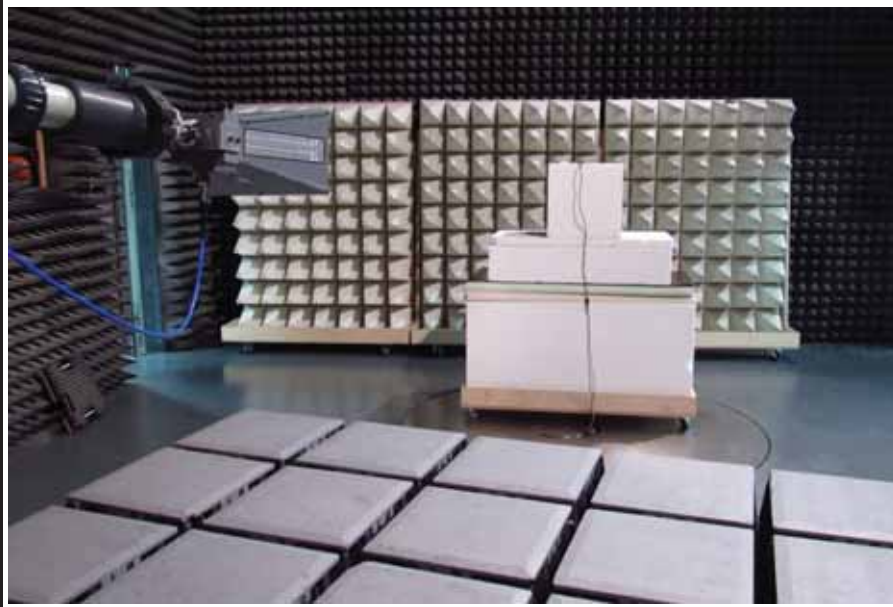
Radiated Setup - view E



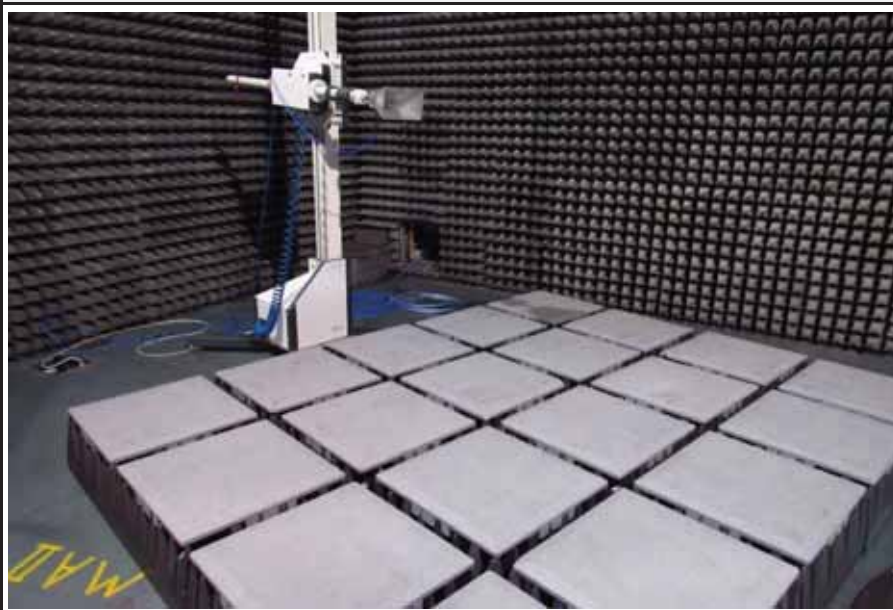
Radiated Setup - view F



Radiated Setup - view G



Radiated Setup - view H



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Controller	Wandboard	WBIMX6U	Wandboard with i.MX6 Dual Core
AE	PAN9028 EngBrd_V30	Panasonic Industrial Devices Europe	PAN9028 EngBrd_V30	SDIO Stick
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
SFT Note: The Equipment Under Test used an operating system with a test firmware. The driver for the tested technology was running in a manufacturer mode.				
Comment:				

1.5 Test Modes

Mode	Description
GFSK	Mode = Transmit Modulation = GFSK Spreading = None Duty cycle = 64%
Receive	Mode = Receive
Comment:	

1.6 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	0	2402
F2	Tx / Rx	19	2440
F3	Tx / Rx	39	2480

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:

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

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:

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

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
ISED RSS-Gen, Issue 5 (section 6.7)	Occupied Bandwidth	ANSI C63.10-2013	N/R	Informational only
FCC § 15.247(a)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	PASS	
FCC § 15.247(b) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	PASS	
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	PASS	
FCC § 15.207 ISED RSS-247, Issue 2 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) FCC § 15.209 ISED RSS-Gen, Issue 5 (section 6.13)	Transmitter radiated spurious emissions	ANSI C63.10-2013	PASS	
ISED RSS-247, Issue 2 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.10-2013	PASS	
Comment:				

Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

3 Test Conditions and Results

3.1 Test Conditions and Results - Occupied bandwidth

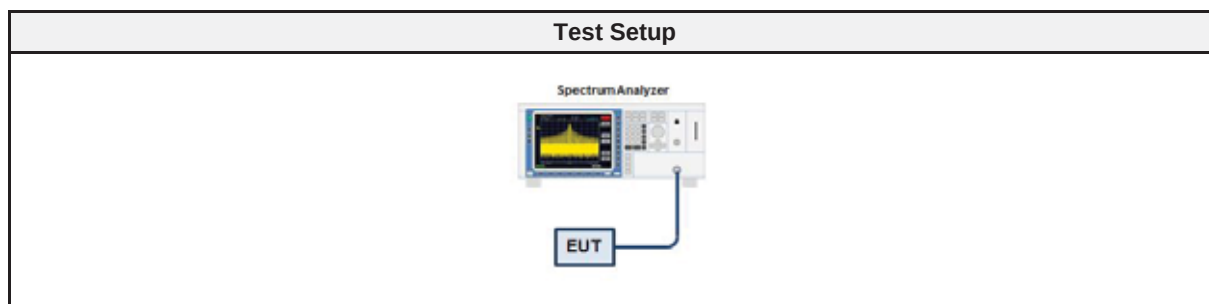
3.1.1 Information

Test Information	
Reference	ISED RSS-Gen, Issue 5 (section 6.7)
Measurement Method	ANSI C63.10 6.9.3
Measurement Uncertainty	$\pm 1.26 \%$
Test Sample ID	34968 (A1 8 SERNR: 826)
Operator	Wilfried Treffke
Date	2021-07-26

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Gigalane	SMS111B	EF00779 CAAZ	2020-12	2021-12

3.1.5 Procedure

Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth 4. The occupied bandwidth is measured with the build-in analyzer function

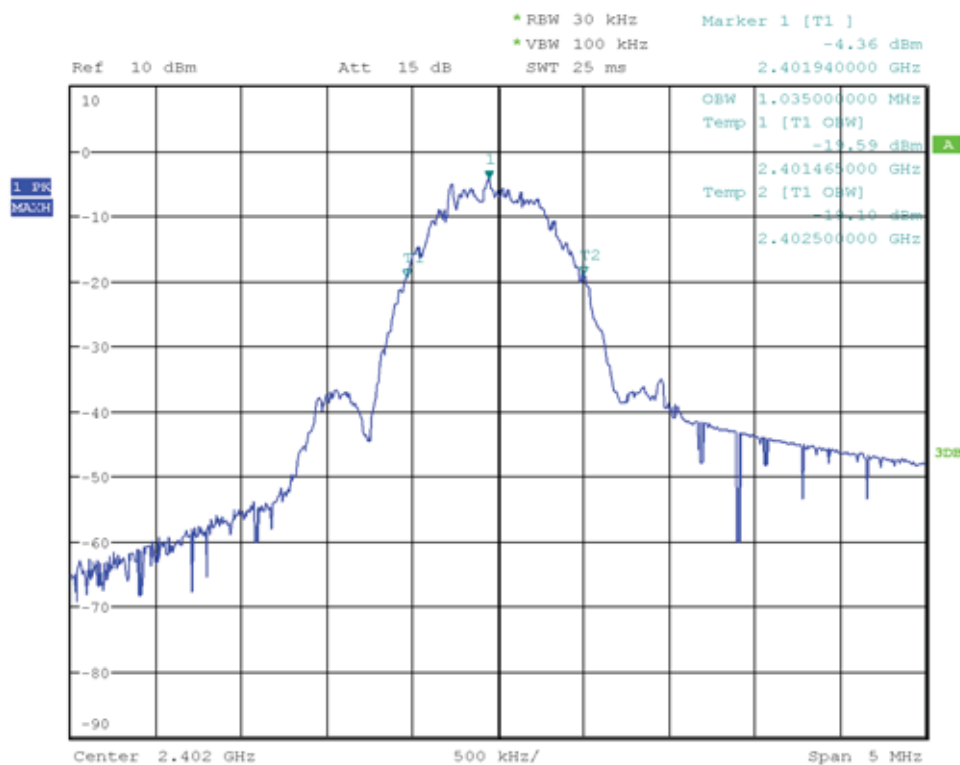
3.1.6 Results

Test Results – 1Mbps		
Mode	Frequency [MHz]	Bandwidth [kHz]
GFSK	2402	1035
GFSK	2440	1035
GFSK	2480	1035

Test Results – 2Mbps		
Mode	Frequency [MHz]	Bandwidth [kHz]
GFSK	2402	2060
GFSK	2440	2065
GFSK	2480	2060

Occupied Bandwidth

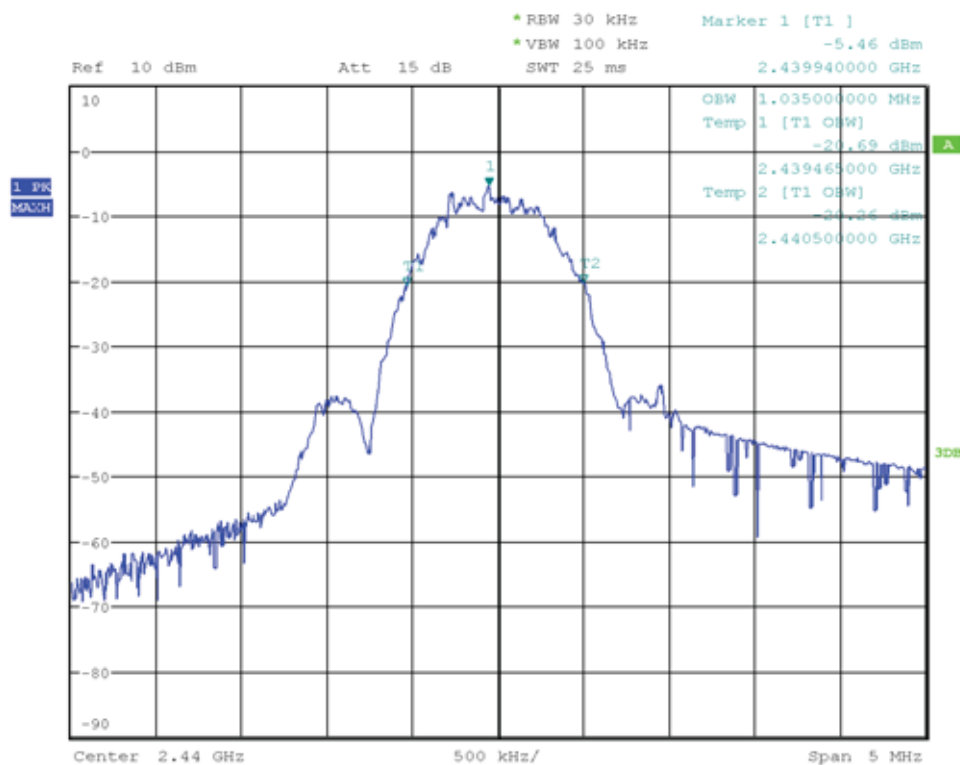
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Occupied Bandwidth [MHz]: 1.035



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Occupied Bandwidth

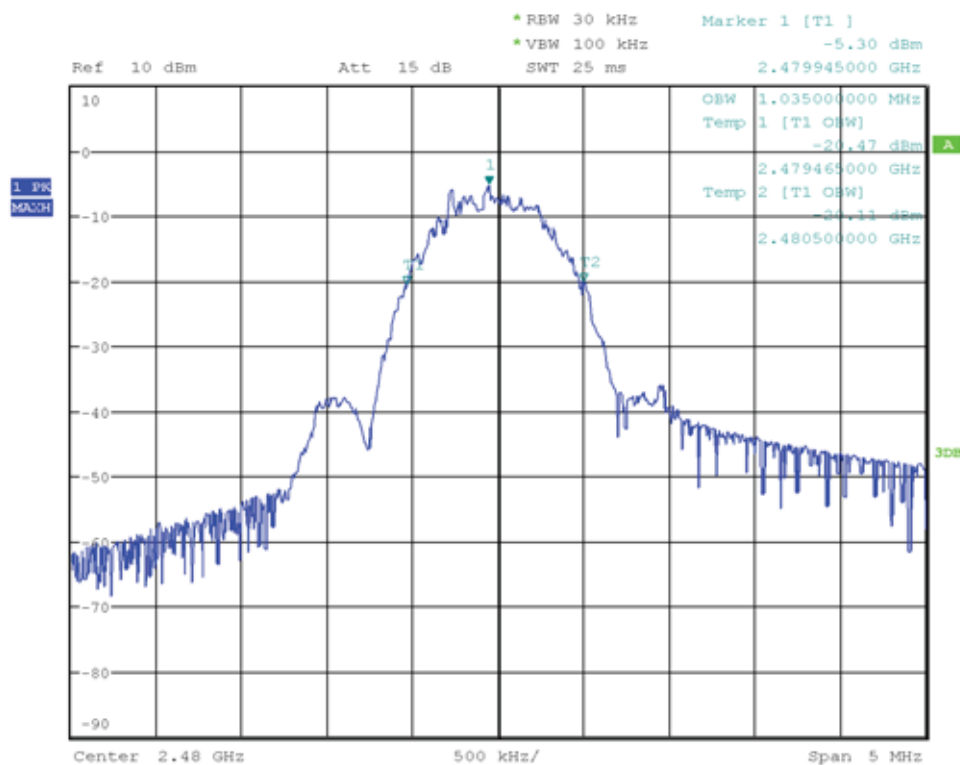
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Occupied Bandwidth [MHz]: 1.035



Date: 26.JUL.2021 13:55:47

Occupied Bandwidth

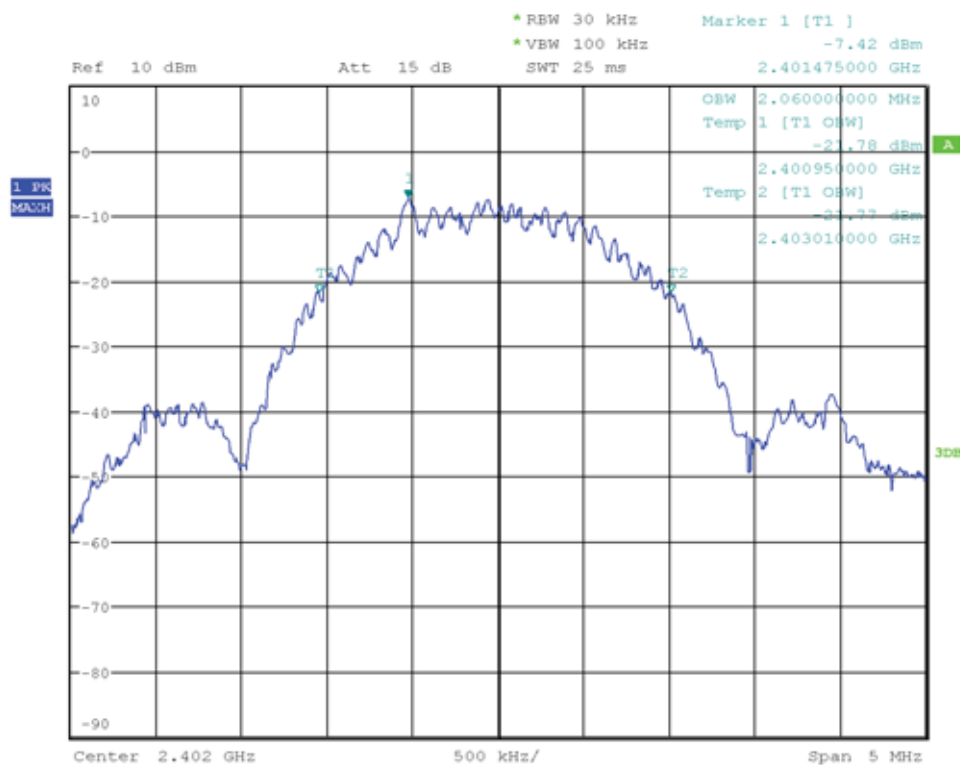
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 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Occupied Bandwidth [MHz]: 1.035



Date: 26.JUL.2021 13:56:44

Occupied Bandwidth

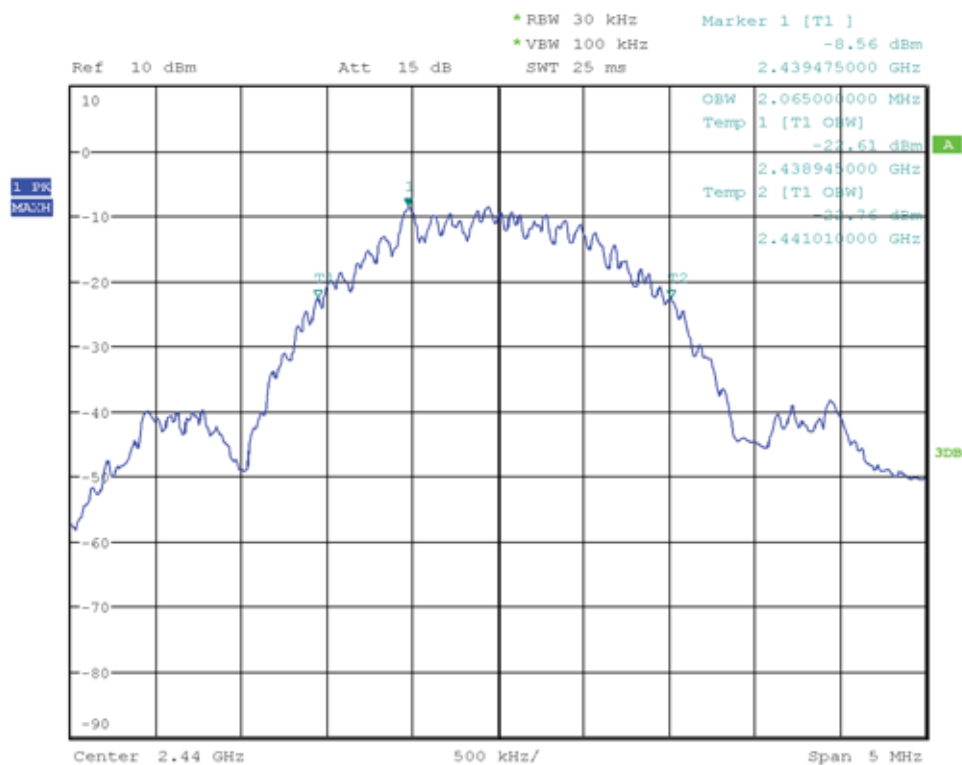
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 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Occupied Bandwidth [MHz]: 2.060



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Occupied Bandwidth

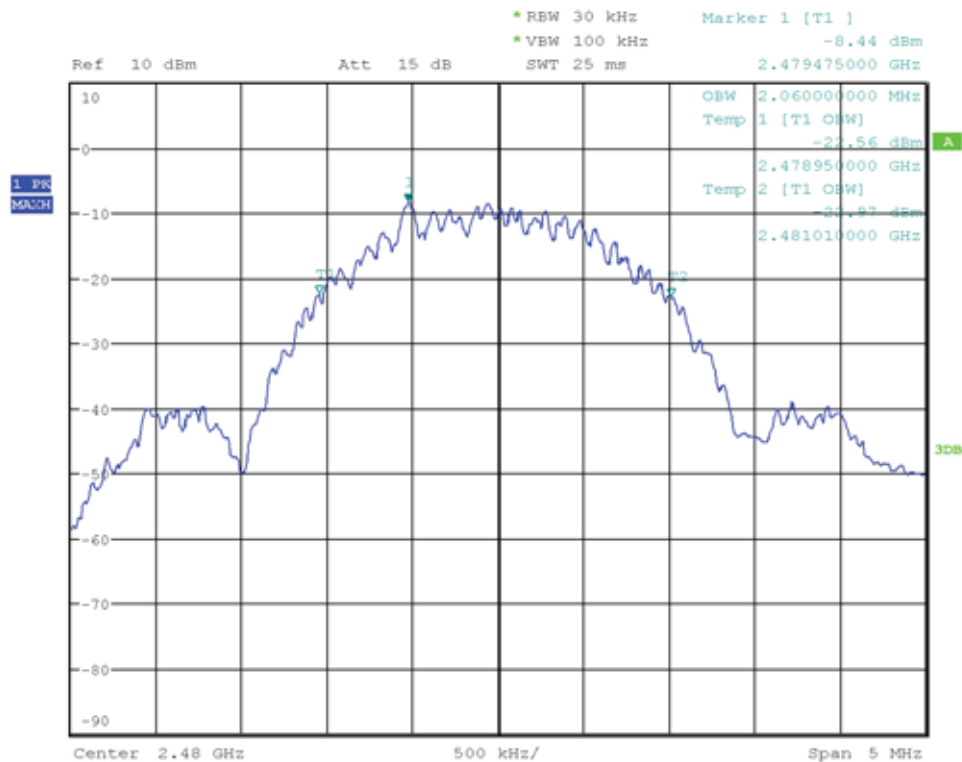
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 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Occupied Bandwidth [MHz]: 2.065



Date: 26.JUL.2021 14:04:43

Occupied Bandwidth

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Occupied Bandwidth [MHz]: 2.060



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3.2 Test Conditions and Results - 6 dB bandwidth

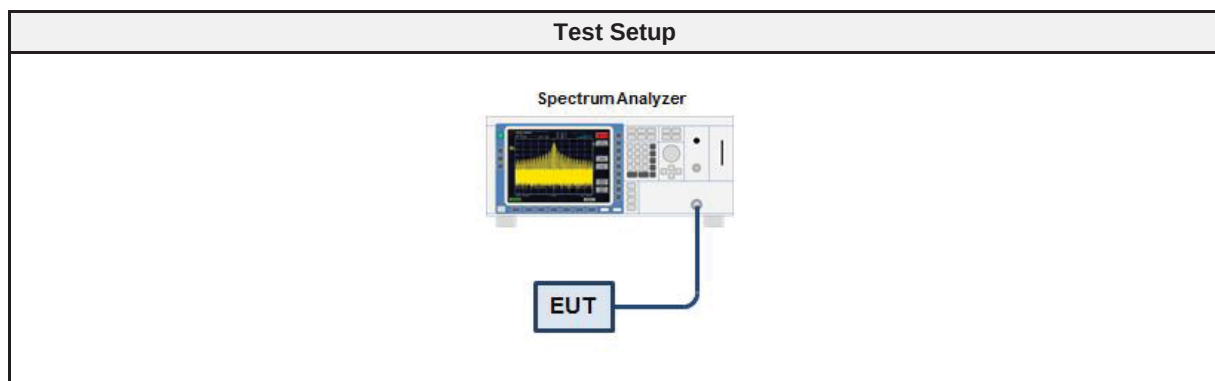
3.2.1 Information

Test Information	
Reference	FCC § 15.247(a)(2); ISED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.8
Measurement Uncertainty	± 1.26 %
Operator	Wilfried Treffke
Date	2021-07-26

3.2.2 Limits

Limits
≥ 500kHz

3.2.3 Setup



3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Gigalane	SMS111B	EF00779 CAAZ	2020-12	2021-12

3.2.5 Procedure

Test Procedure
1. EUT set to test mode 2. Span set to at least twice the emission spectrum 3. Detector set to peak and max hold and RBW is set to 100 kHz 4. Envelope peak value of emission spectrum is selected 5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak 6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak 7. 6 dB Bandwidth is determined by marker frequency separation

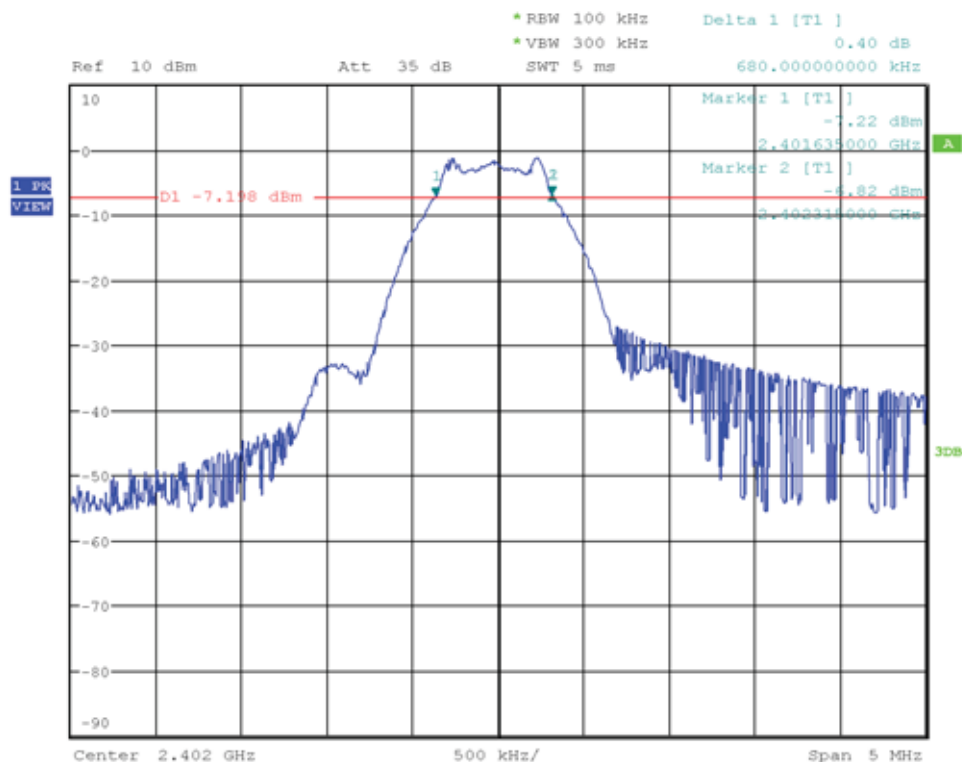
3.2.6 Results

Test Results – 1 Mbps				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
GFSK	2402	680	500	PASS
GFSK	2440	685	500	PASS
GFSK	2480	695	500	PASS

Test Results – 2 Mbps				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
GFSK	2402	1170	500	PASS
GFSK	2440	1180	500	PASS
GFSK	2480	1185	500	PASS

DTS (6 dB) Bandwidth

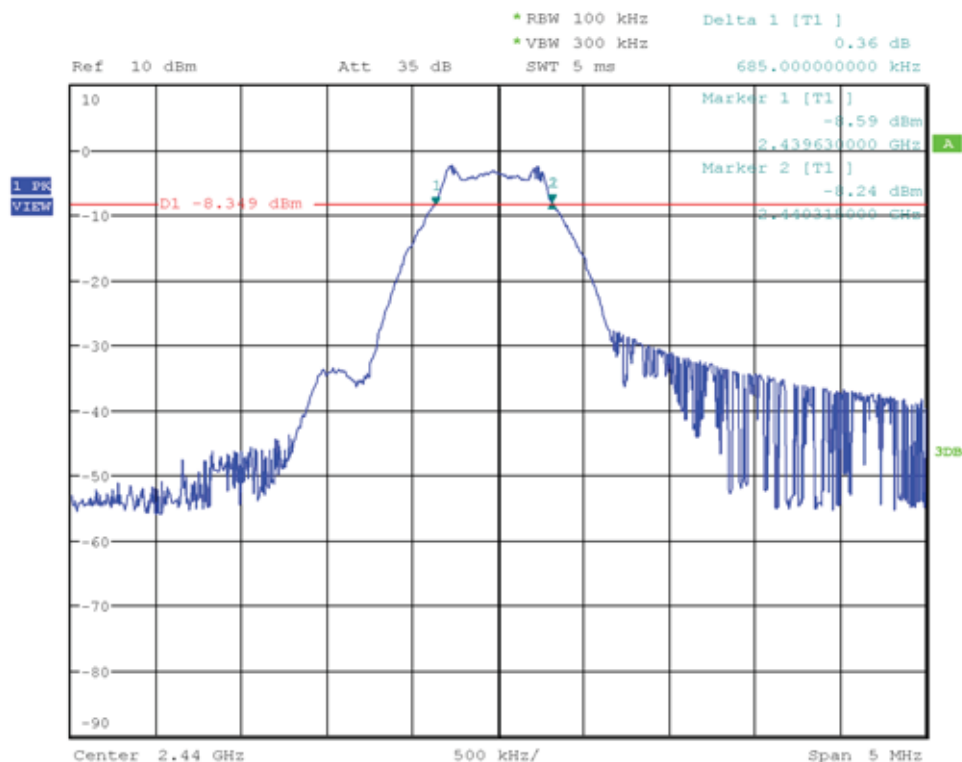
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Lower Frequency [MHz]: 2401.635
 Upper Frequency [MHz]: 2402.315
 6 dB Bandwidth [kHz]: 680



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DTS (6 dB) Bandwidth

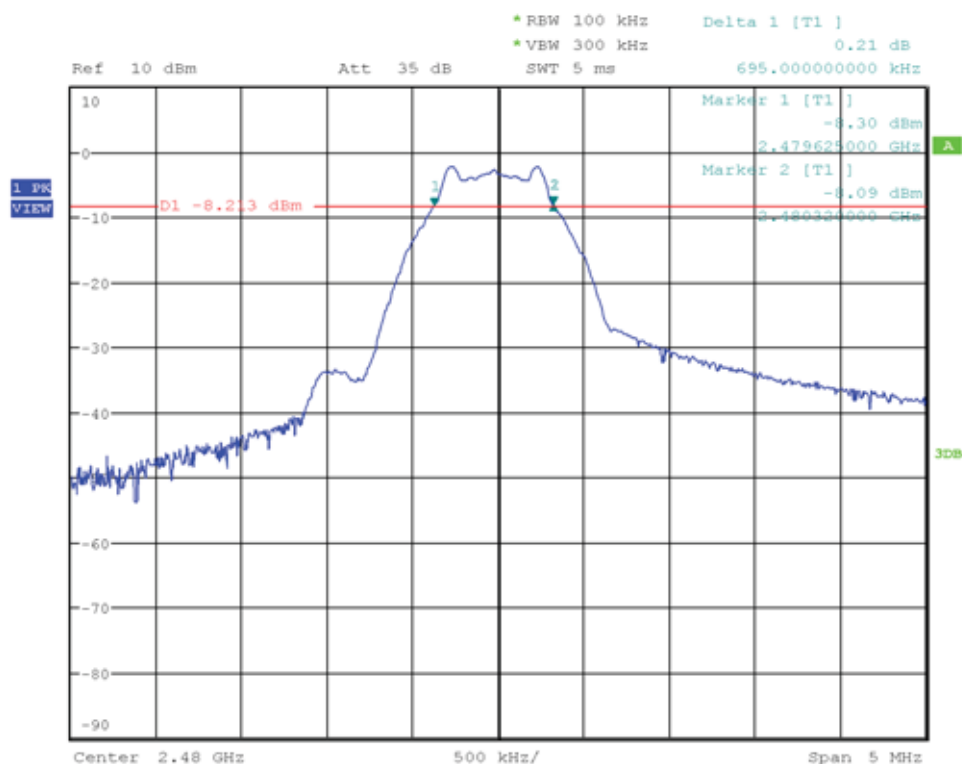
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Lower Frequency [MHz]: 2439.630
 Upper Frequency [MHz]: 2440.315
 6 dB Bandwidth [kHz]: 685



Date: 26.JUL.2021 14:24:15

DTS (6 dB) Bandwidth

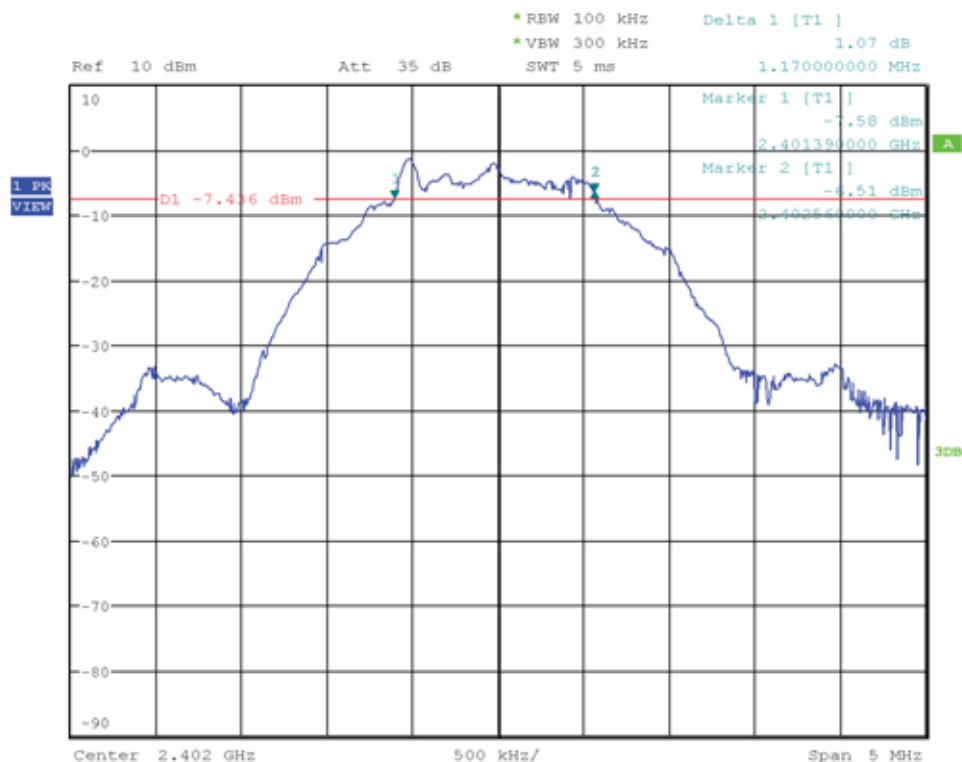
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Lower Frequency [MHz]: 2479.625
 Upper Frequency [MHz]: 2480.320
 6 dB Bandwidth [kHz]: 695



Date: 26.JUL.2021 14:26:22

DTS (6 dB) Bandwidth

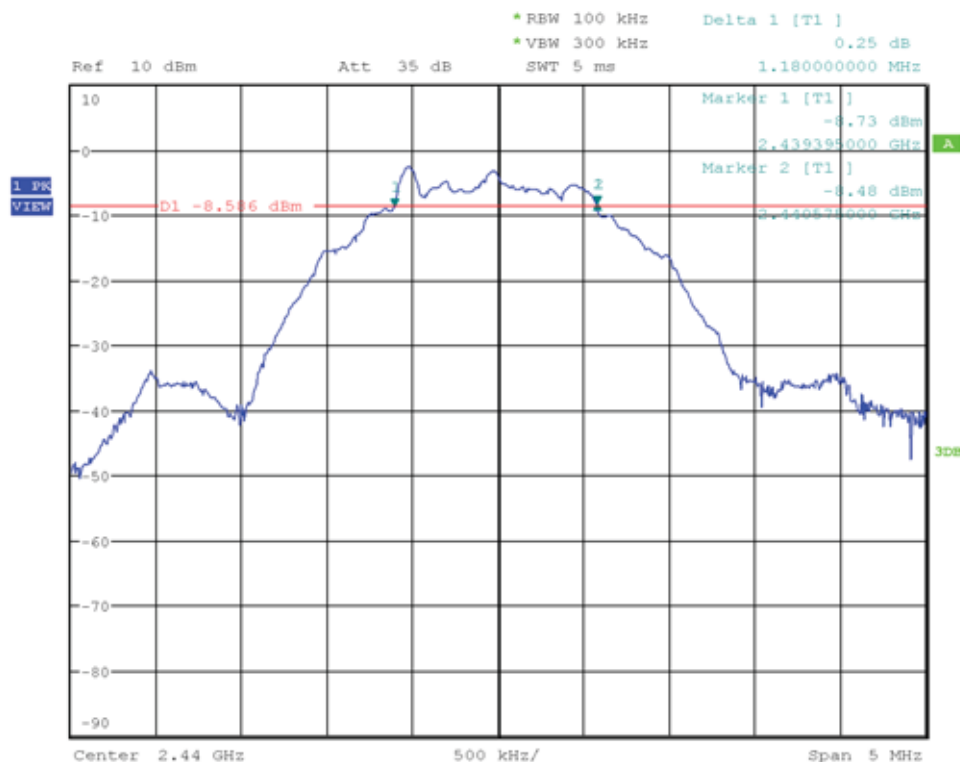
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Lower Frequency [MHz]: 2401.390
 Upper Frequency [MHz]: 2402.560
 6 dB Bandwidth [kHz]: 1170



Date: 26.JUL.2021 14:28:31

DTS (6 dB) Bandwidth

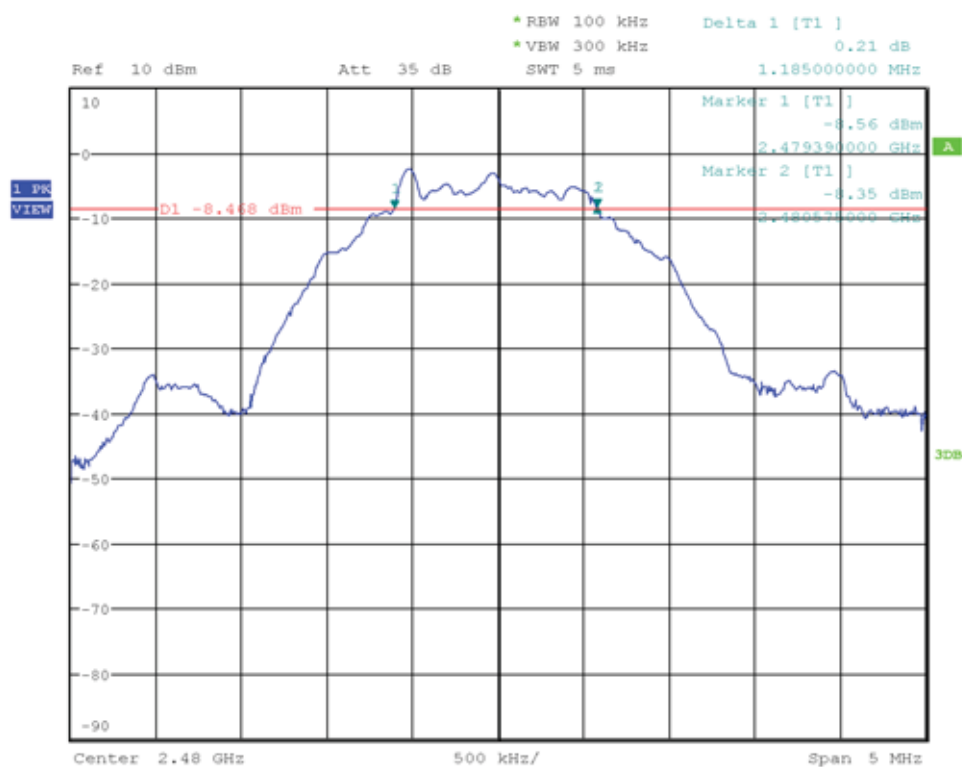
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Lower Frequency [MHz]: 2439.395
 Upper Frequency [MHz]: 2440.575
 6 dB Bandwidth [kHz]: 1180



Date: 26.JUL.2021 14:29:53

DTS (6 dB) Bandwidth

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Lower Frequency [MHz]: 2479.390
 Upper Frequency [MHz]: 2480.575
 6 dB Bandwidth [kHz]: 1185



Date: 26.JUL.2021 14:32:04

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.3 Test Conditions and Results - Maximum peak conducted output power

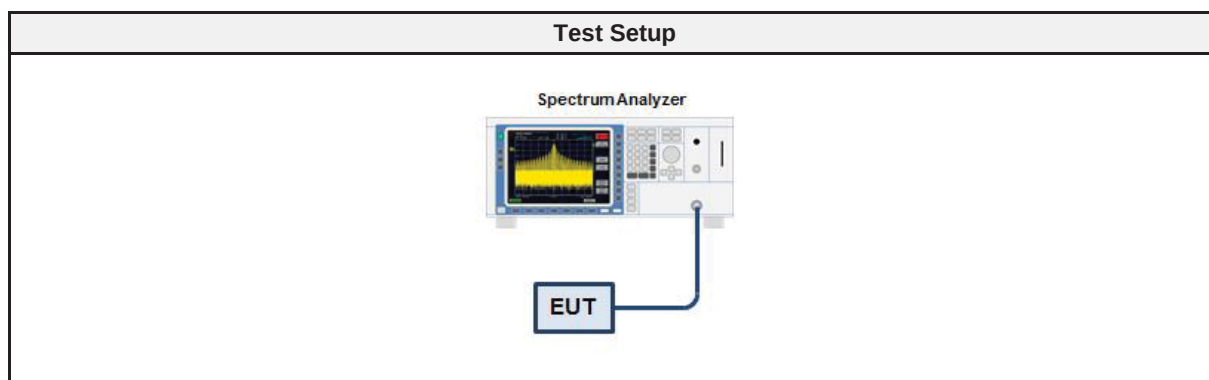
3.3.1 Information

Test Information	
Reference	FCC § 15.247(b); ISED RSS-247, Issue 2 (section 5.4)
Measurement Method	ANSI C63.10 11.9.1
Measurement Uncertainty	± 2.86 dB
Operator	Wilfried Treffke
Date	2021-07-26

3.3.2 Limits

Limits
1 W (30 dBm)
The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.3 Setup



3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Gigalane	SMS111B	EF00779 CAAZ	2020-12	2021-12

3.3.5 Procedure

Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Analyzer resolution bandwidth is set $\geq$ DTS bandwidth 3. Detector set to peak and max hold 4. Sweep time is set to auto 5. After the trace has stabilized a marker is set to peak of envelope

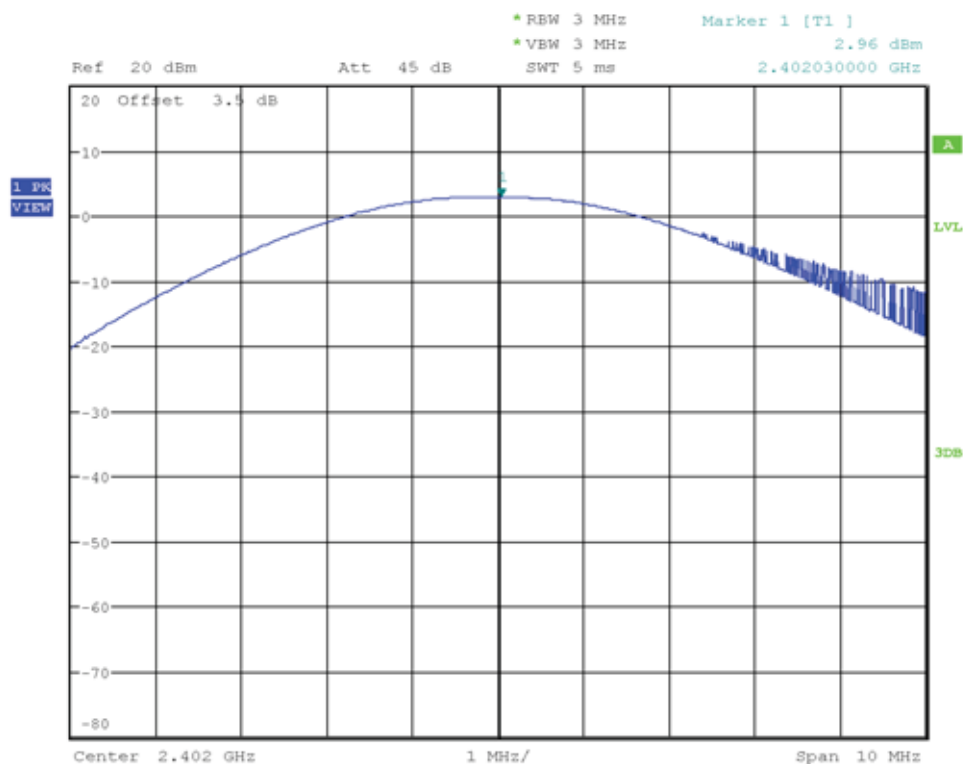
3.3.6 Results

Test Results – 1Mbps				
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Verdict
2402	2.957	0.0020	1.0	PASS
2440	1.730	0.0015	1.0	PASS
2480	2.194	0.0017	1.0	PASS

Test Results – 2Mbps				
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Verdict
2402	3.009	0.0020	1.0	PASS
2440	1.725	0.0015	1.0	PASS
2480	2.158	0.0016	1.0	PASS

Peak Conducted Output Power

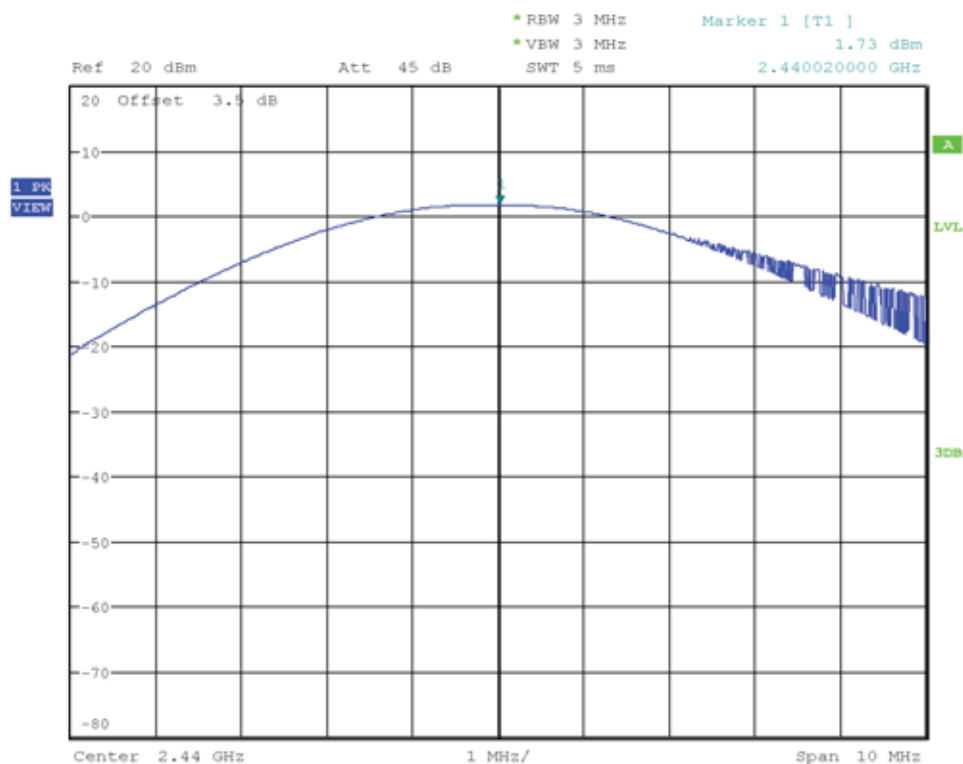
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.9.1.1
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Peak Power [dBm]: 2.957
 Peak Power [W]: 0.0020



Date: 26.JUL.2021 14:36:23

Peak Conducted Output Power

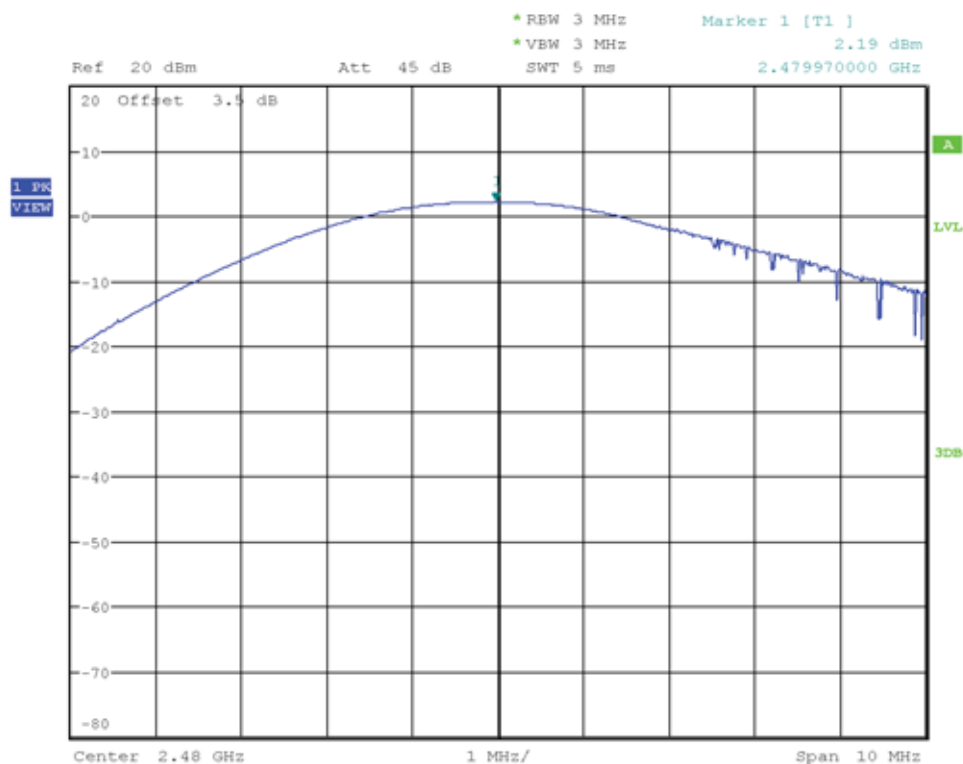
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.9.1.1
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Peak Power [dBm]: 1.730
 Peak Power [W]: 0.0015



Date: 26.JUL.2021 14:37:38

Peak Conducted Output Power

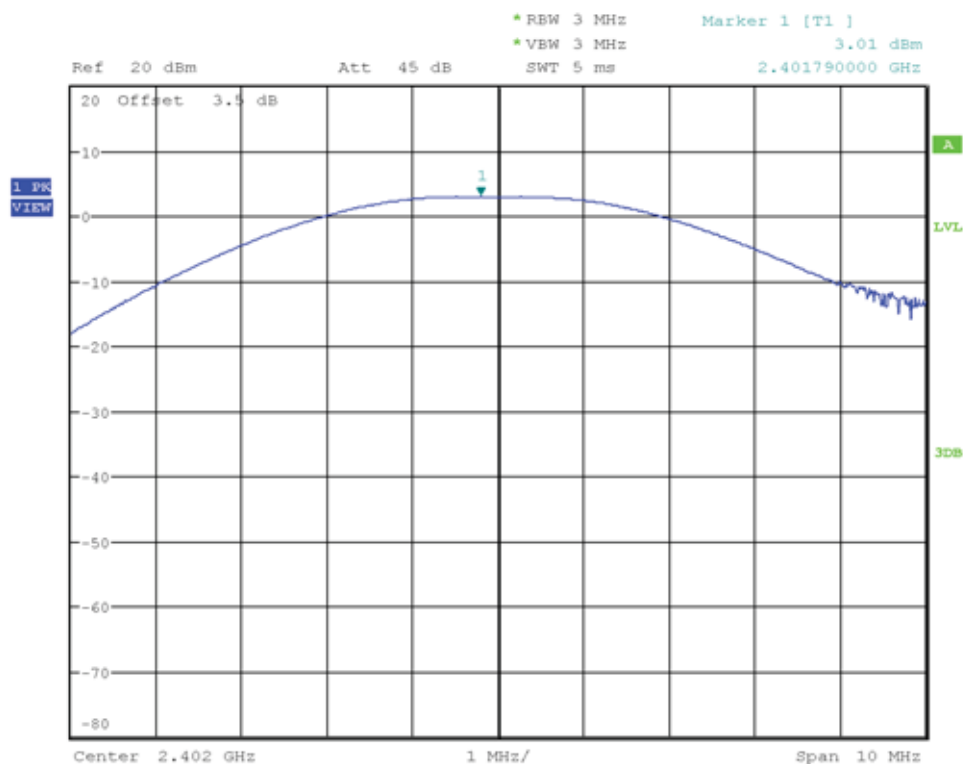
Project Number:	G0M-2101-9569
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
Model:	ENWF9408A1EF
Test Sample ID:	34968, (A1 8 SERNR: 826)
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-07-26
Note:	1 Mbps
Peak Power [dBm]:	2.194
Peak Power [W]:	0.0017



Date: 26.JUL.2021 14:39:10

Peak Conducted Output Power

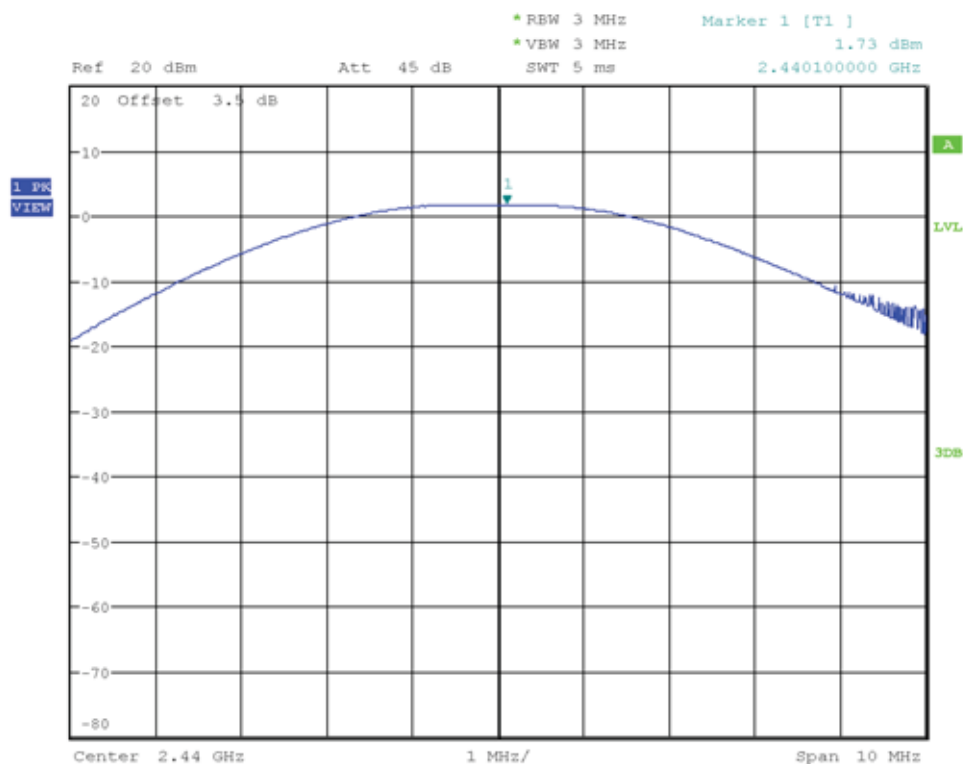
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.9.1.1
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Peak Power [dBm]: 3.009
 Peak Power [W]: 0.0020



Date: 26.JUL.2021 14:41:07

Peak Conducted Output Power

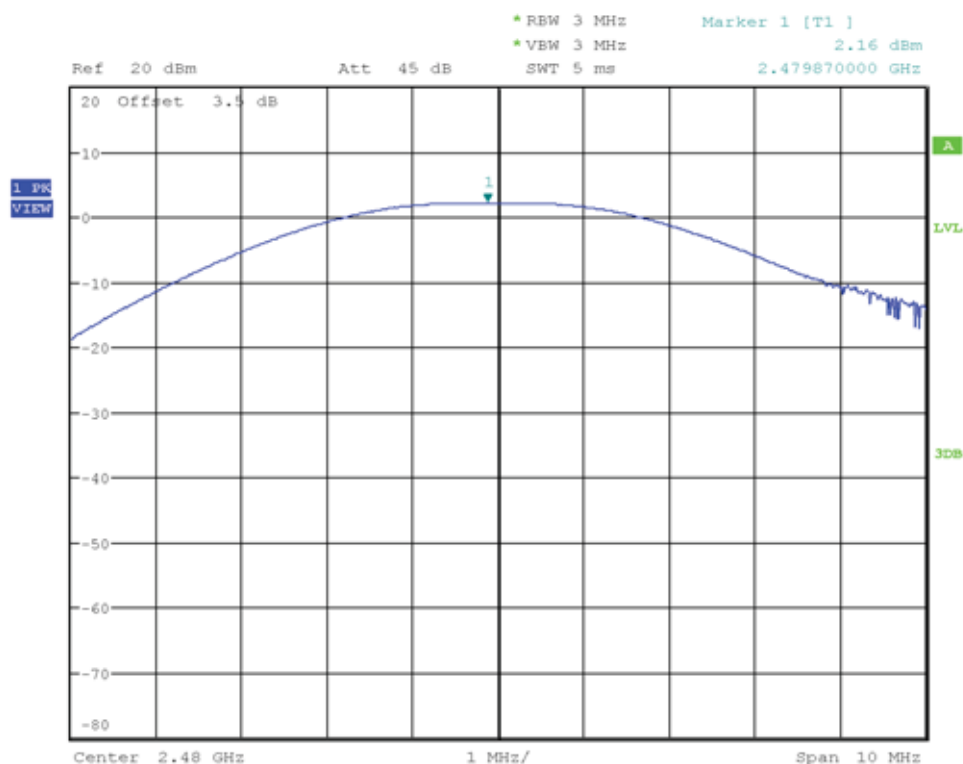
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.9.1.1
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Peak Power [dBm]: 1.725
 Peak Power [W]: 0.0015



Date: 26.JUL.2021 14:43:41

Peak Conducted Output Power

Project Number:	G0M-2101-9569
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
Model:	ENWF9408A1EF
Test Sample ID:	34968, (A1 8 SERNR: 826)
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-07-26
Note:	2 Mbps
Peak Power [dBm]:	2.158
Peak Power [W]:	0.0016



Date: 26.JUL.2021 14:45:06

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.4 Test Conditions and Results - Power spectral density

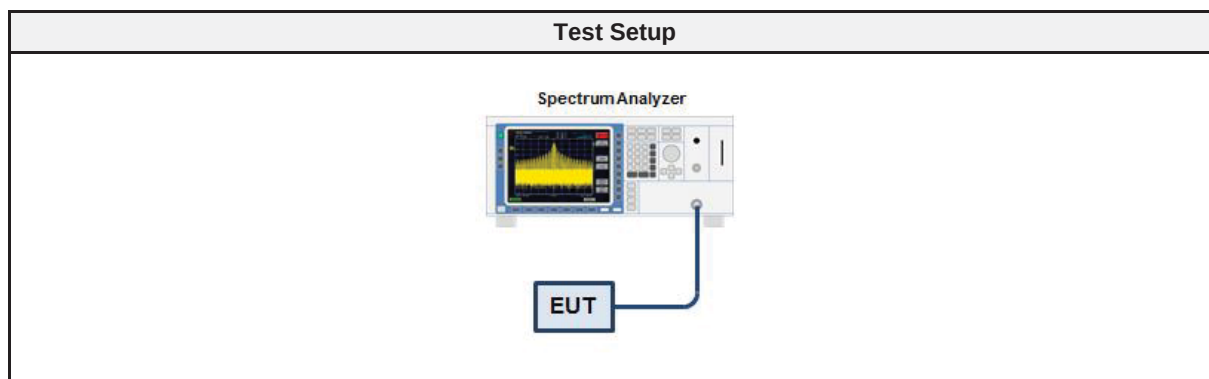
3.4.1 Information

Test Information	
Reference	FCC § 15.247(e); ISSED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.10.2, 14.3.2
Measurement Uncertainty	± 2.86 dB
Operator	Wilfried Treffke
Date	2021-07-26

3.4.2 Limits

Limits
8 dBm / 3 kHz

3.4.3 Setup



3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Gigalane	SMS111B	EF00779 CAAZ	2020-12	2021-12

3.4.5 Procedure

Test Procedure
1. EUT set to test mode 2. The analyzer is set to DTS channel center frequency with a span of 1.5 times the DTS bandwidth 3. The RBW is set to 100 kHz with VBW $\geq$ RBW and the detector is set to peak with max hold 4. After the trace has stabilized a marker is set to the envelope maximum 5. If the power spectral density is above the limit the RBW is reduced (not lower than 3 kHz) and the measurement is repeated 6. If the EUT has more than one transmit chain the procedure is repeated for each transmit chain

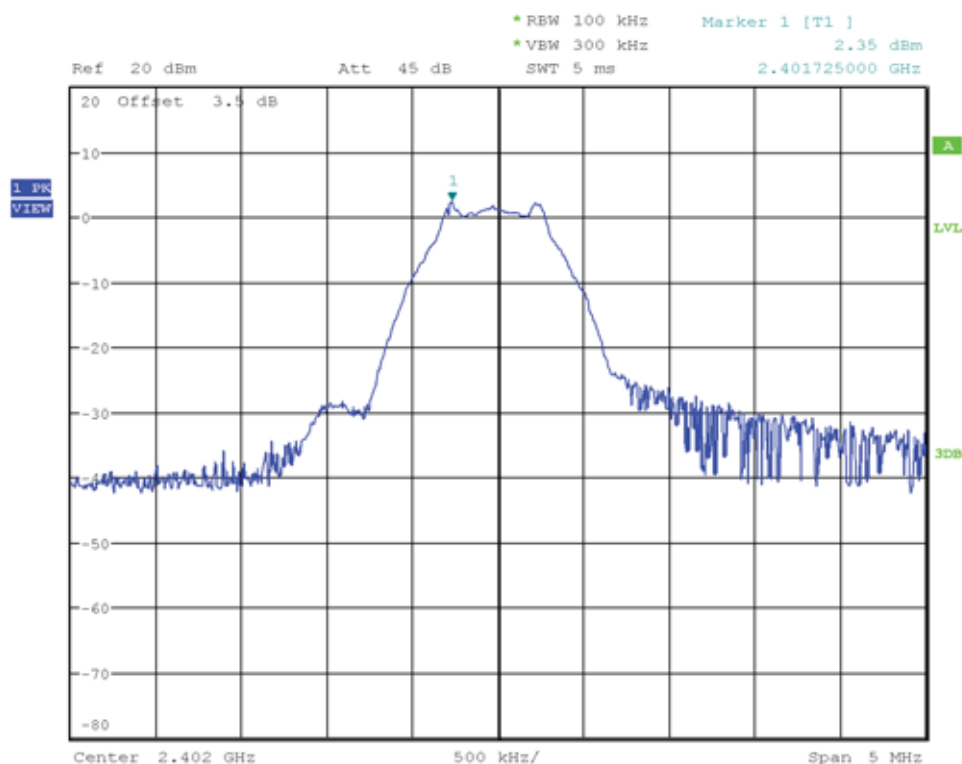
3.4.6 Results

Test Results – 1 Mbps			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2402	2.353	8.0	PASS
2440	1.107	8.0	PASS
2480	1.506	8.0	PASS
RBW = 100 kHz			

Test Results – 2 Mbps			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2402	2.137	8.0	PASS
2440	0.850	8.0	PASS
2480	1.239	8.0	PASS
RBW = 100 kHz			

Peak Power Spectral Density

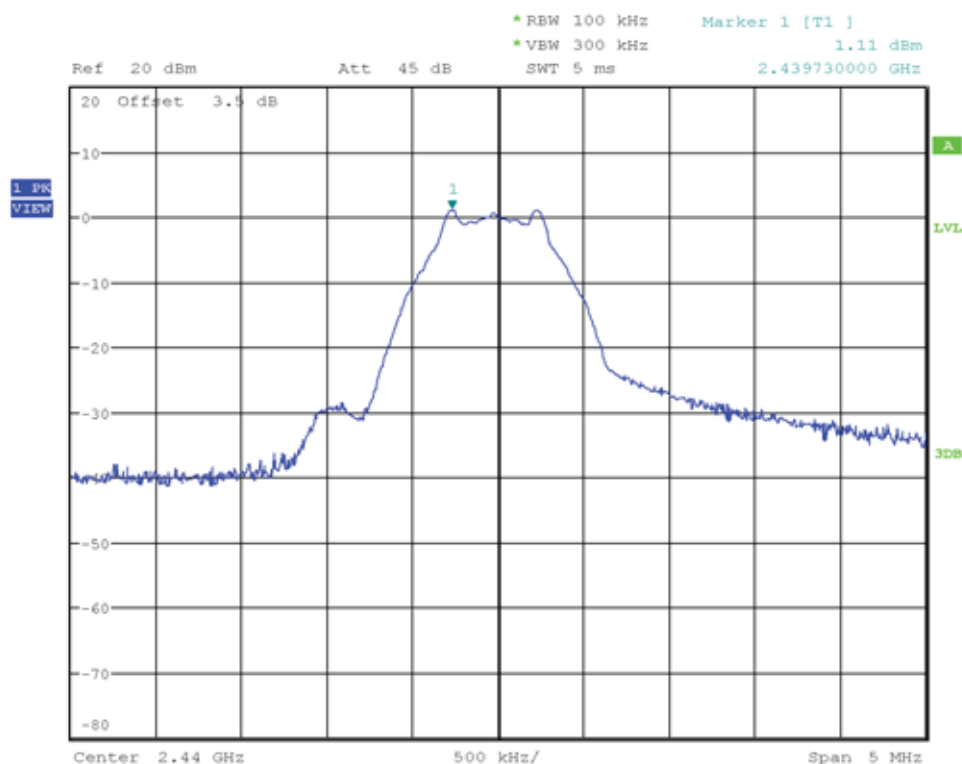
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.10.2
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Peak Frequency [MHz]: 2401.725
 Spectral Density [dBm/RBW]: 2.353
 Resolution Bandwidth [kHz]: 100 kHz



Date: 26.JUL.2021 15:05:52

Peak Power Spectral Density

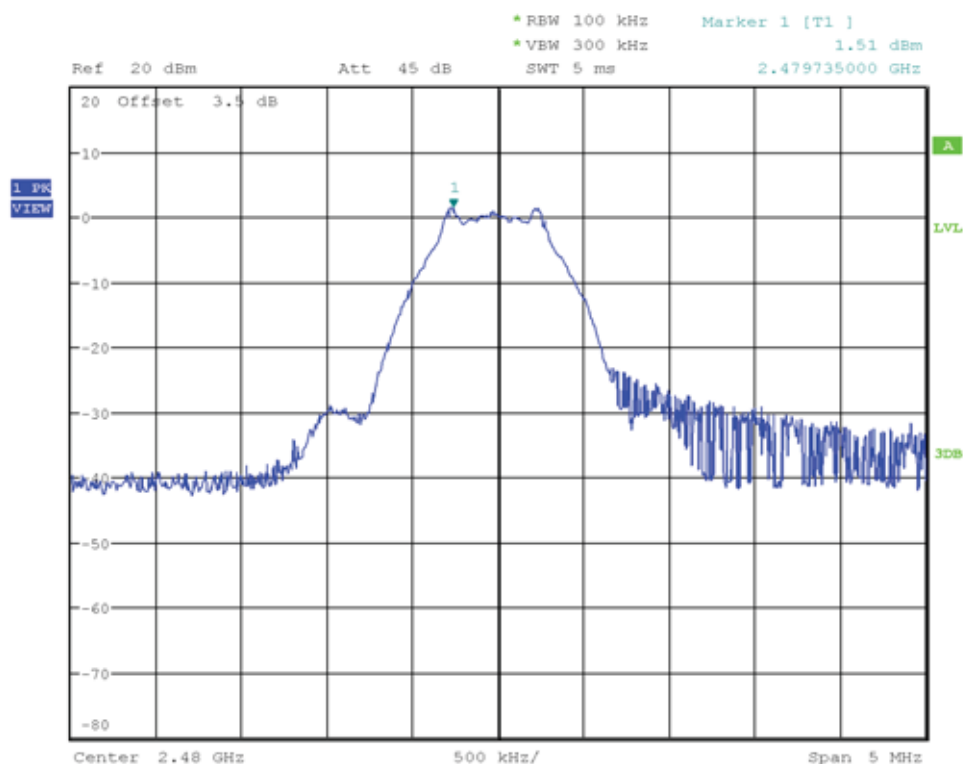
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.10.2
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Peak Frequency [MHz]: 2439.730
 Spectral Density [dBm/RBW]: 1.107
 Resolution Bandwidth [kHz]: 100 kHz



Date: 26.JUL.2021 14:52:08

Peak Power Spectral Density

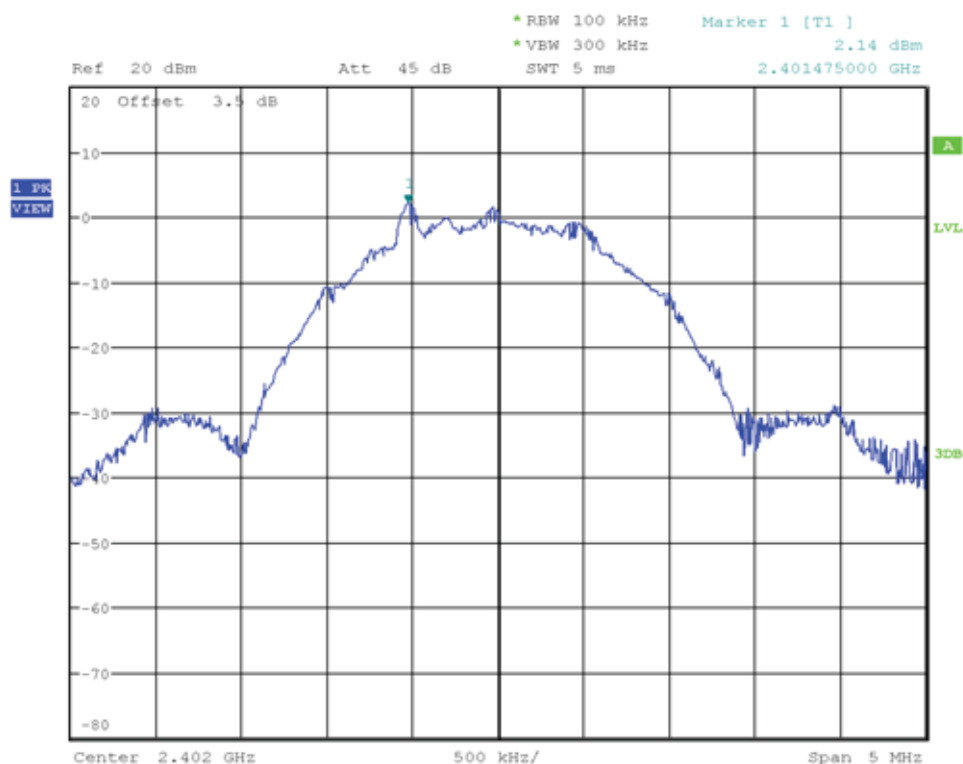
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.10.2
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Peak Frequency [MHz]: 2479.735
 Spectral Density [dBm/RBW]: 1.506
 Resolution Bandwidth [kHz]: 100 kHz



Date: 26.JUL.2021 14:53:07

Peak Power Spectral Density

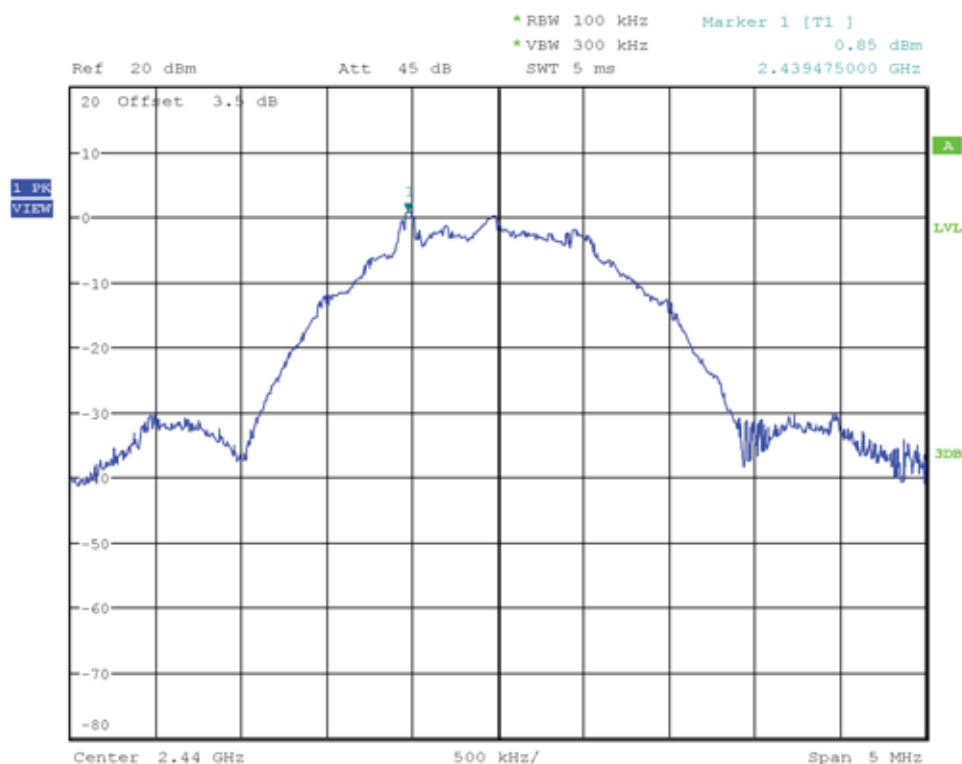
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.10.2
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Peak Frequency [MHz]: 2401.475
 Spectral Density [dBm/RBW]: 2.137
 Resolution Bandwidth [kHz]: 100 kHz



Date: 26.JUL.2021 14:54:27

Peak Power Spectral Density

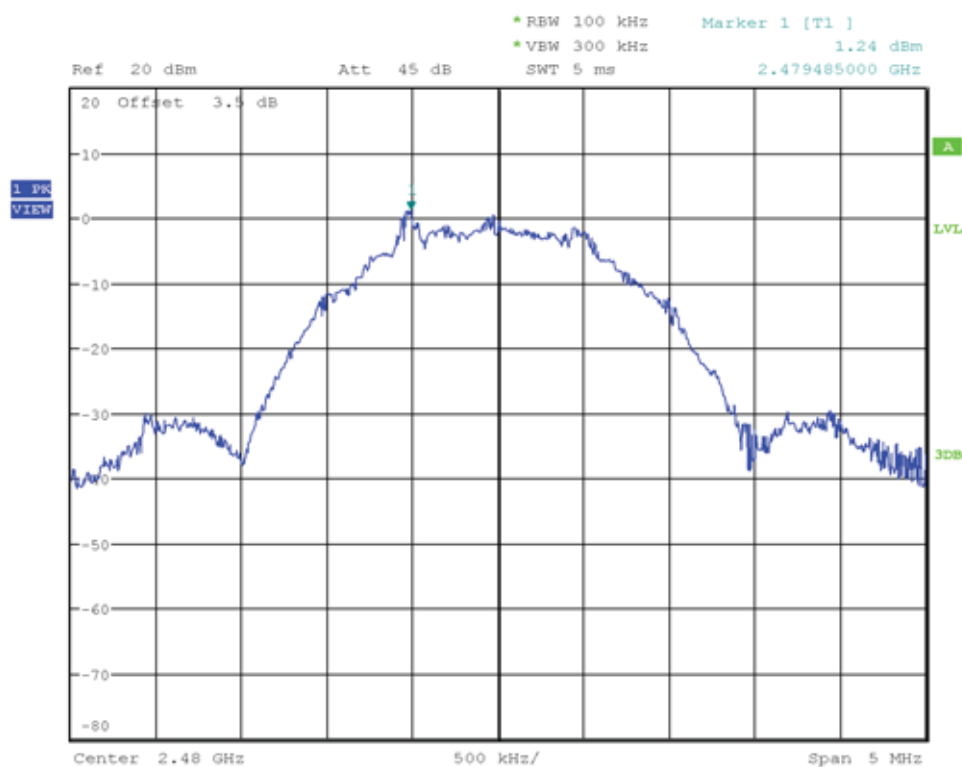
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.10.2
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Peak Frequency [MHz]: 2439.475
 Spectral Density [dBm/RBW]: 0.850
 Resolution Bandwidth [kHz]: 100 kHz



Date: 26.JUL.2021 14:55:28

Peak Power Spectral Density

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SERNR: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.10.2
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Peak Frequency [MHz]: 2479.485
 Spectral Density [dBm/RBW]: 1.239
 Resolution Bandwidth [kHz]: 100 kHz



Date: 26.JUL.2021 14:56:33

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.5 Test Conditions and Results - AC powerline conducted emissions

3.5.1 Information

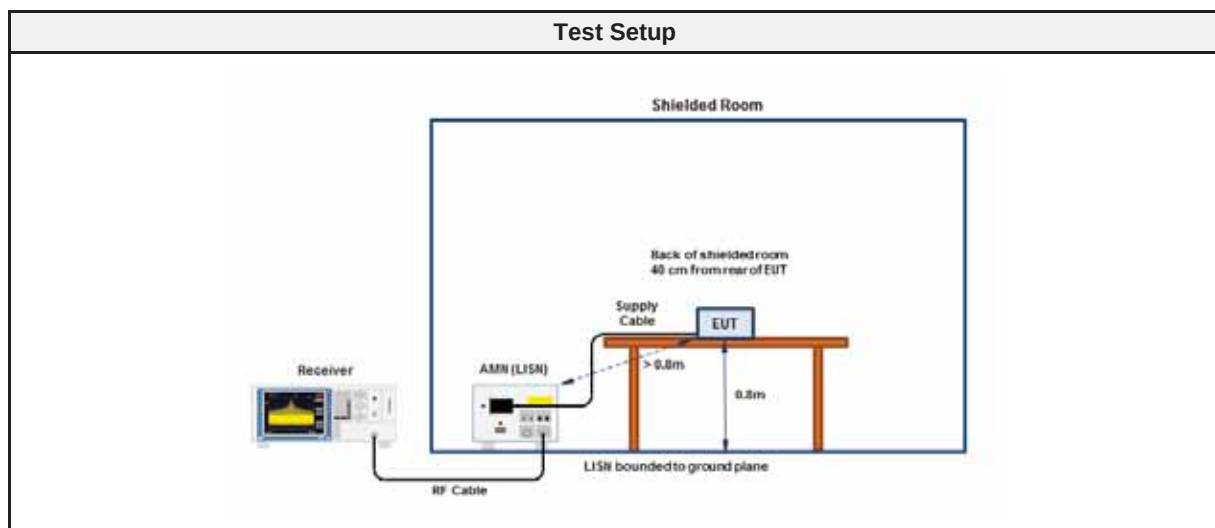
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Measurement Uncertainty	± 3.82 dB
Operator	Wilfried Treffke
Date	2021-06-10

3.5.2 Limits

Limits		
Frequency [MHz]	Quasi-Peak [dB μ V]	Average [dB μ V]
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

* Limit decreases linearly with the logarithm of the frequency

3.5.3 Setup



3.5.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2020.1.8

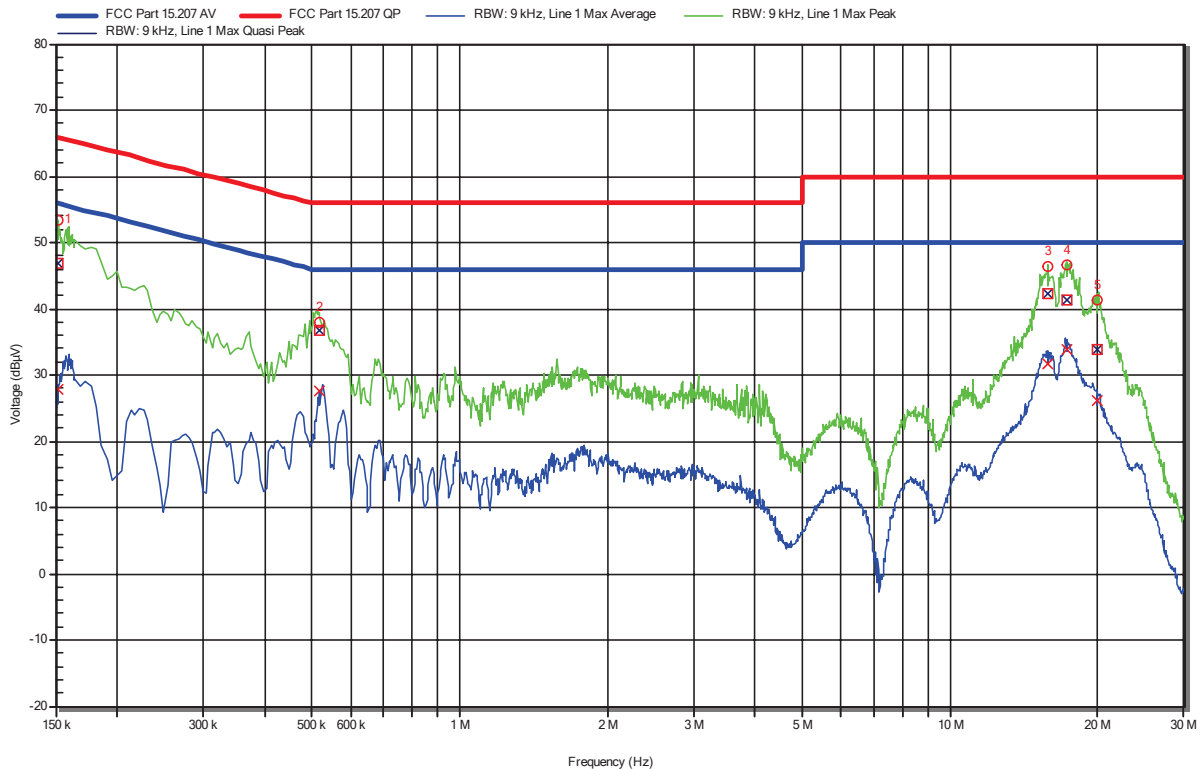
Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2020-07	2021-07
Pulse Limiter	R&S	ESH3-Z2	EF01222	2020-07	2021-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2020-07	2021-07

**Conducted emissions at the mains power port
according to FCC 47 CFR Part 15 Subpart C**

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34967
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Date: 2021-06-10
 Operating Conditions: ambient temperature: 22 °Celsius
 power input: 120 VAC
 LISN: Schwarzbeck NSLK 8127 RC L
 Operational Mode & Applied to Port: BLE; 2402 MHz
 AC mains

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RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	151.8 kHz	46.75 dBμV	65.9 dBμV	-19.15 dB	Pass	Line 1
2	518.55 kHz	36.74 dBμV	56 dBμV	-19.26 dB	Pass	Line 1
3	15.864 MHz	42.21 dBμV	60 dBμV	-17.79 dB	Pass	Line 1
4	17.309 MHz	41.33 dBμV	60 dBμV	-18.67 dB	Pass	Line 1
5	19.946 MHz	33.94 dBμV	60 dBμV	-26.06 dB	Pass	Line 1
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	151.8 kHz	27.92 dBμV	55.9 dBμV	-27.98 dB	Pass	Line 1
2	518.55 kHz	27.66 dBμV	46 dBμV	-18.34 dB	Pass	Line 1
3	15.864 MHz	31.8 dBμV	50 dBμV	-18.2 dB	Pass	Line 1
4	17.309 MHz	33.94 dBμV	50 dBμV	-16.06 dB	Pass	Line 1
5	19.946 MHz	26.1 dBμV	50 dBμV	-23.9 dB	Pass	Line 1

Test Report No.: G0M-2101-9569-TFC247BL-V01

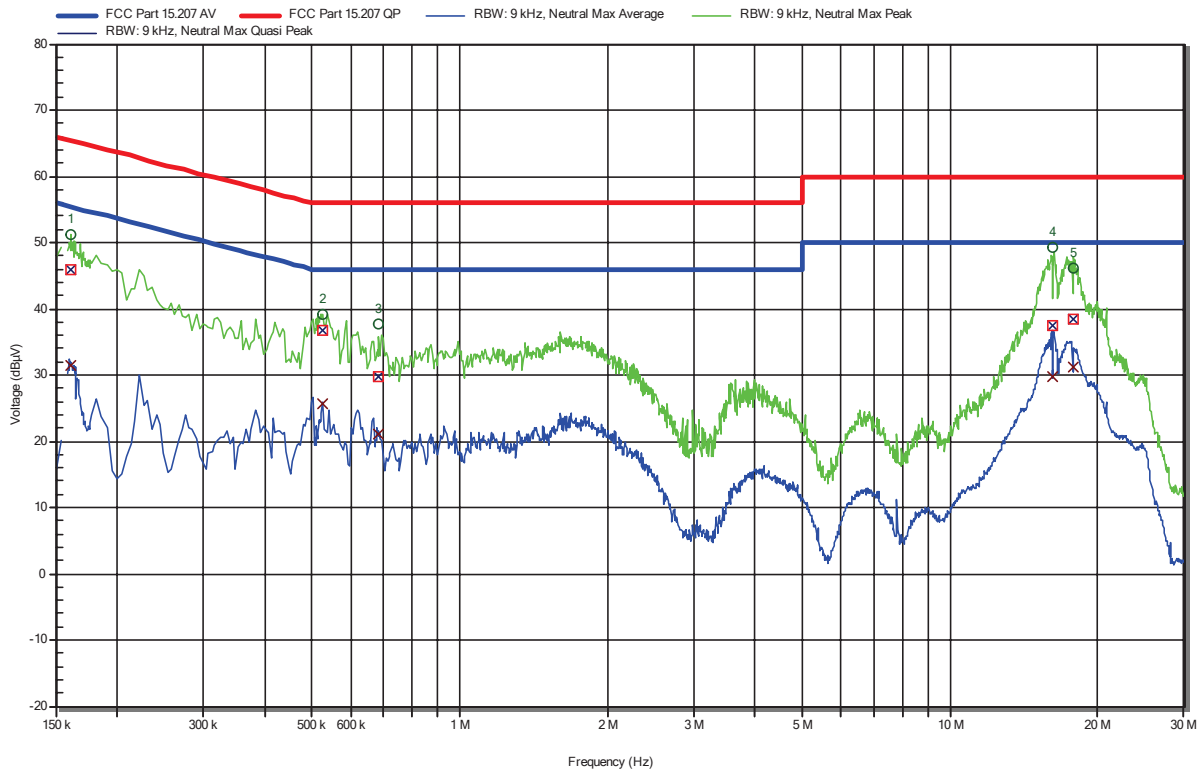
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

**Conducted emissions at the mains power port
according to FCC 47 CFR Part 15 Subpart C**

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34967
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Date: 2021-06-10
 Operating Conditions: ambient temperature: 22 °Celsius
 power input:
 LISN: Schwarzbeck NSLK 8127 RC N
 Operational Mode & Applied to Port: BLE; 2402 MHz
 AC mains

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RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	160.8 kHz	45.83 dBμV	65.42 dBμV	-19.59 dB	Pass	Neutral
2	523.5 kHz	36.66 dBμV	56 dBμV	-19.34 dB	Pass	Neutral
3	681 kHz	29.76 dBμV	56 dBμV	-26.24 dB	Pass	Neutral
4	16.179 MHz	37.37 dBμV	60 dBμV	-22.63 dB	Pass	Neutral
5	17.777 MHz	38.35 dBμV	60 dBμV	-21.65 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	160.8 kHz	31.37 dBμV	55.42 dBμV	-24.05 dB	Pass	Neutral
2	523.5 kHz	25.65 dBμV	46 dBμV	-20.35 dB	Pass	Neutral
3	681 kHz	21.11 dBμV	46 dBμV	-24.89 dB	Pass	Neutral
4	16.179 MHz	29.79 dBμV	50 dBμV	-20.21 dB	Pass	Neutral
5	17.777 MHz	31.23 dBμV	50 dBμV	-18.77 dB	Pass	Neutral

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.6 Test Conditions and Results - Band-edge compliance

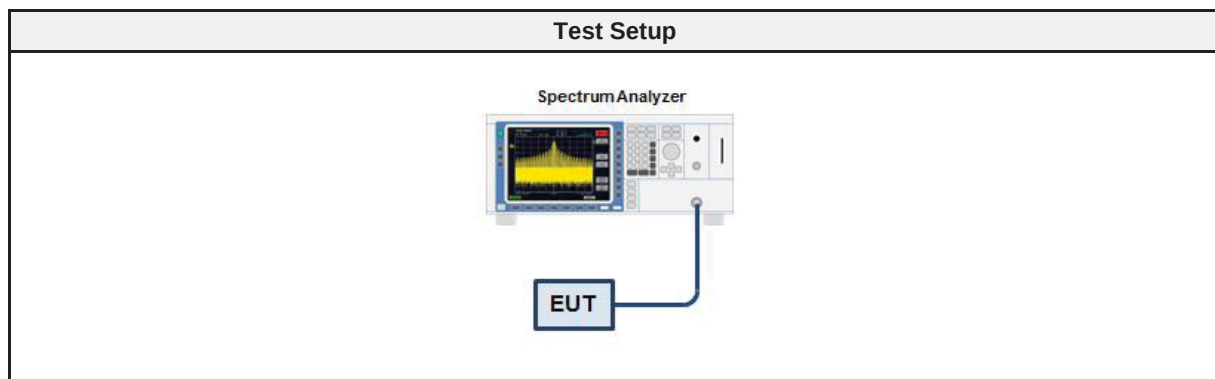
3.6.1 Information

Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Uncertainty	± 3.64 dB
Measurement Method	ANSI C63.10 11.13
Operator	Wilfried Treffke
Date	2021-07-26

3.6.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.6.3 Setup



3.6.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Gigalane	SMS111B	EF00779 CAAZ	2020-12	2021-12

3.6.5 Procedure

Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Span set around lower band edge and detector is set to peak and max hold 3. Resolution bandwidth is set to 100 kHz 4. Markers are set to peak emission levels within frequency band and outside frequency band 5. Band edge attenuation is determined from level difference

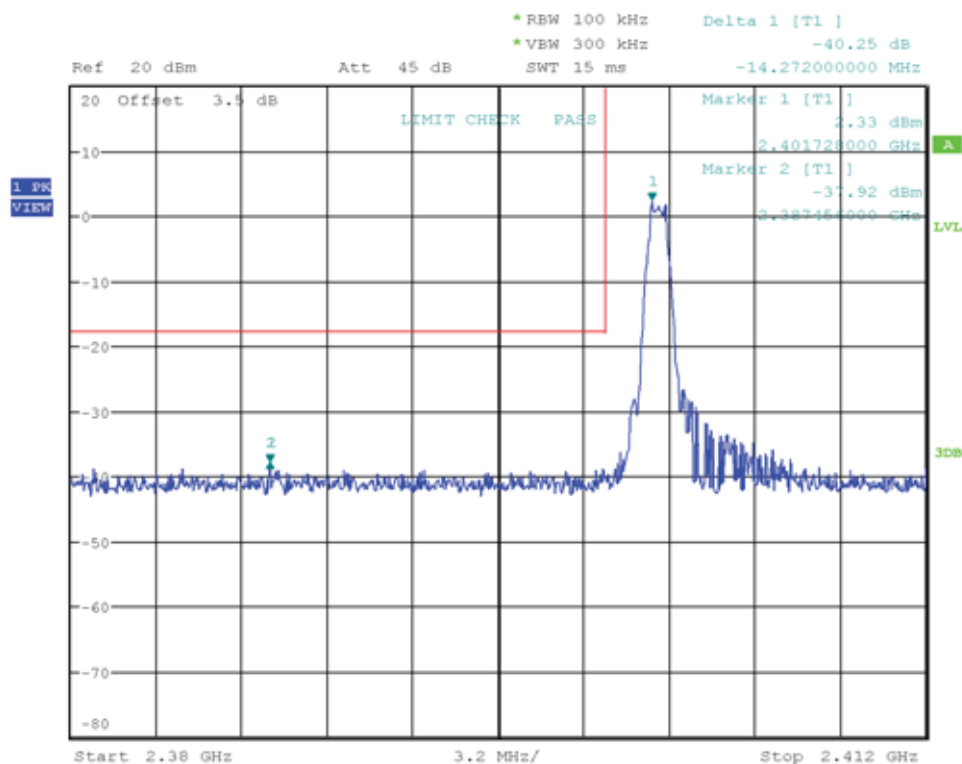
3.6.6 Results

Test Results – 1 Mbps				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK	2402	-40.25	-20	PASS
GFSK	2480	-35.97	-20	PASS

Test Results – 2 Mbps				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK	2402	-31.38	-20	PASS
GFSK	2480	-38.29	-20	PASS

Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2101-9569
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
Model:	ENWF9408A1EF
Test Sample ID:	34968, (A1 8 SERNR: 826)
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-07-26
Note:	1 Mbps
Band-edge	Lower
In-band Frequency [MHz]:	2401.728
Max. in-band Level [dBm/100 kHz]:	2.33
Out-of-band Frequency [MHz]:	2387.456
Max. out-of-band Level [dBm/100 kHz]:	-37.925
Attenuation [dB]:	-40.25



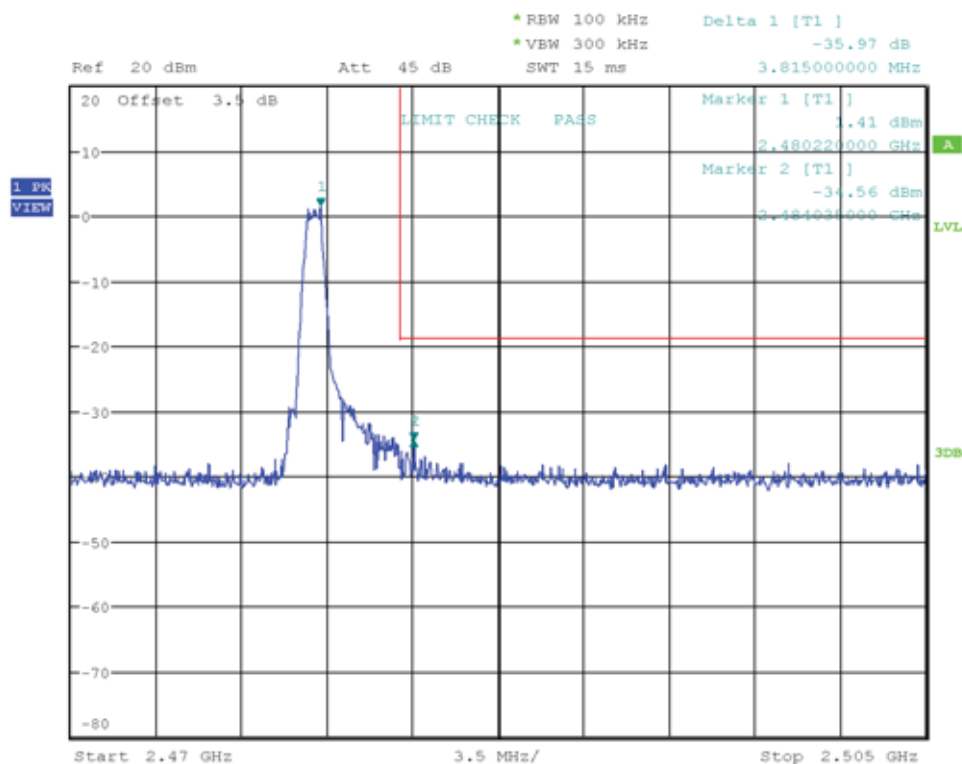
Date: 26.JUL.2021 15:33:58

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2101-9569
Applicant:	Panasonic Industrial Devices Europe GmbH
Model Description:	Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
Model:	ENWF9408A1EF
Test Sample ID:	34968, (A1 8 SERNR: 826)
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Wilfried Treffke
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-07-26
Note:	1 Mbps
Band-edge	Upper
In-band Frequency [MHz]:	2480.22
Max. in-band Level [dBm/100 kHz]:	1.411
Out-of-band Frequency [MHz]:	2484.035
Max. out-of-band Level [dBm/100 kHz]:	-34.555
Attenuation [dB]:	-35.97



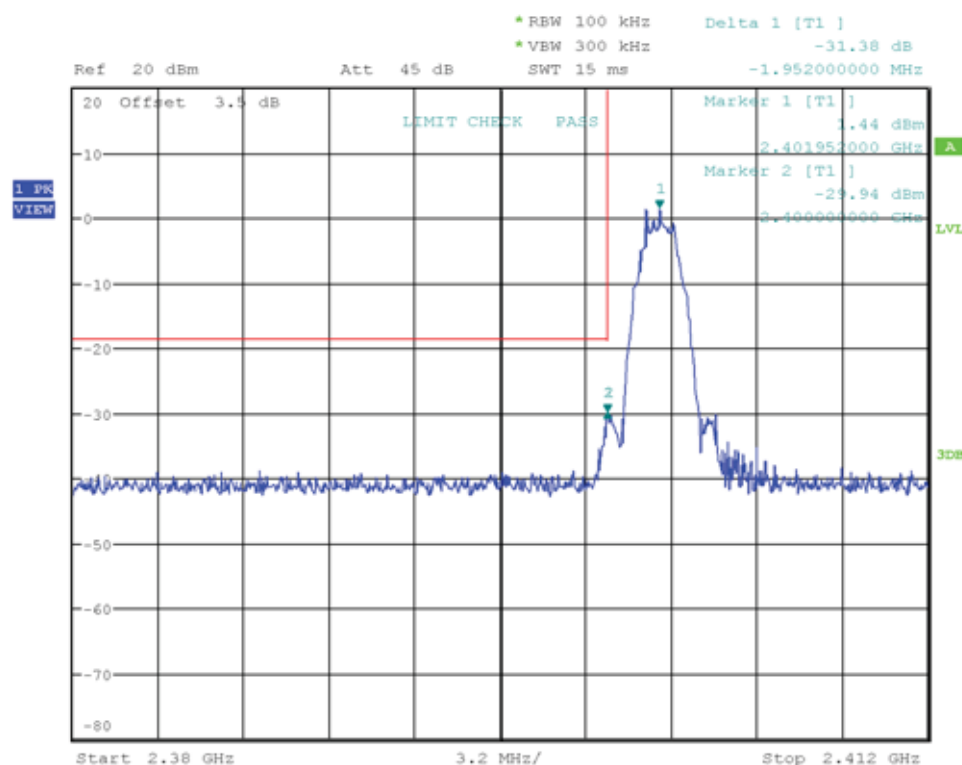
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Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 7.8.6, 6.10.4
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Band-edge: Lower
 In-band Frequency [MHz]: 2401.952
 Max. in-band Level [dBm/100 kHz]: 1.436
 Out-of-band Frequency [MHz]: 2400.0
 Max. out-of-band Level [dBm/100 kHz]: -29.942
 Attenuation [dB]: -31.38



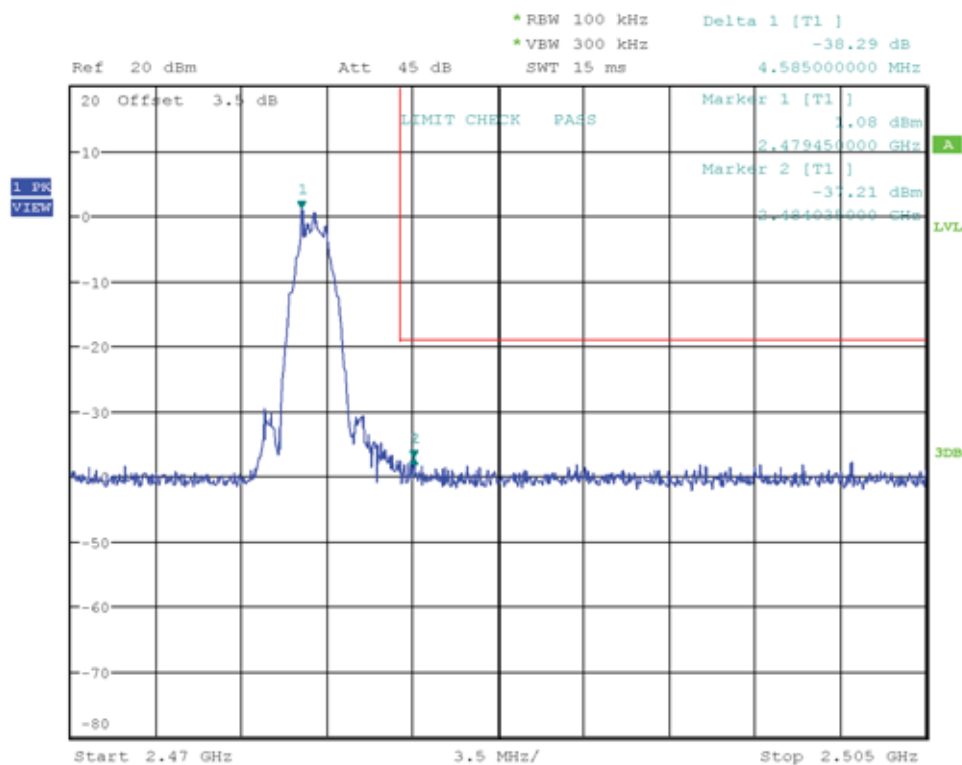
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Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 7.8.6, 6.10.4
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Band-edge: Upper
 In-band Frequency [MHz]: 2479.45
 Max. in-band Level [dBm/100 kHz]: 1.08
 Out-of-band Frequency [MHz]: 2484.035
 Max. out-of-band Level [dBm/100 kHz]: -37.212
 Attenuation [dB]: -38.29



Date: 26.JUL.2021 15:38:38

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.7 Test Conditions and Results - Conducted spurious emissions

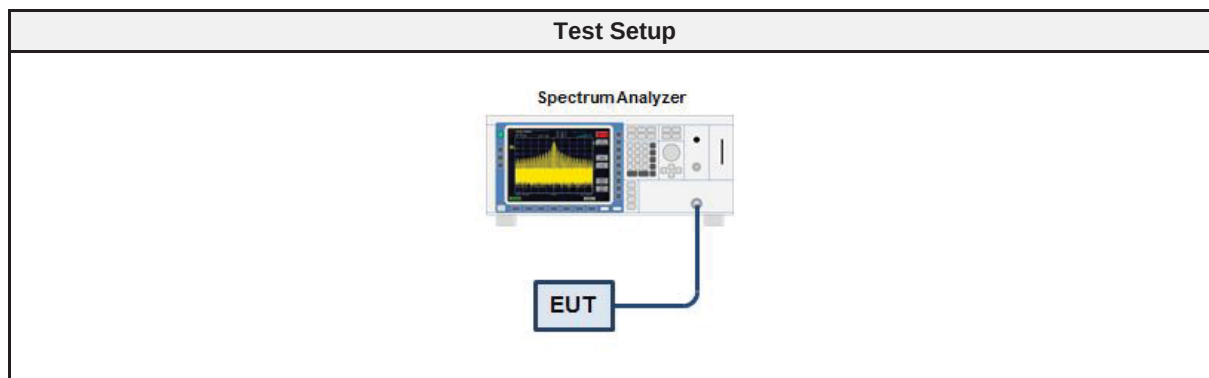
3.7.1 Information

Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Uncertainty	± 4.25 dB
Measurement Method	ANSI C63.10 11.11
Operator	Wilfried Treffke
Date	2021-07-26

3.7.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.7.3 Setup



3.7.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01709	2021-02	2022-02
Cable	Gigalane	SMS111B	EF00779 CAA AZ	2020-12	2021-12

3.7.5 Procedure

Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Span set around lower band edge and detector is set to peak and max hold 3. Resolution bandwidth is set to 100 kHz 4. Markers are set to peak emission levels outside frequency band

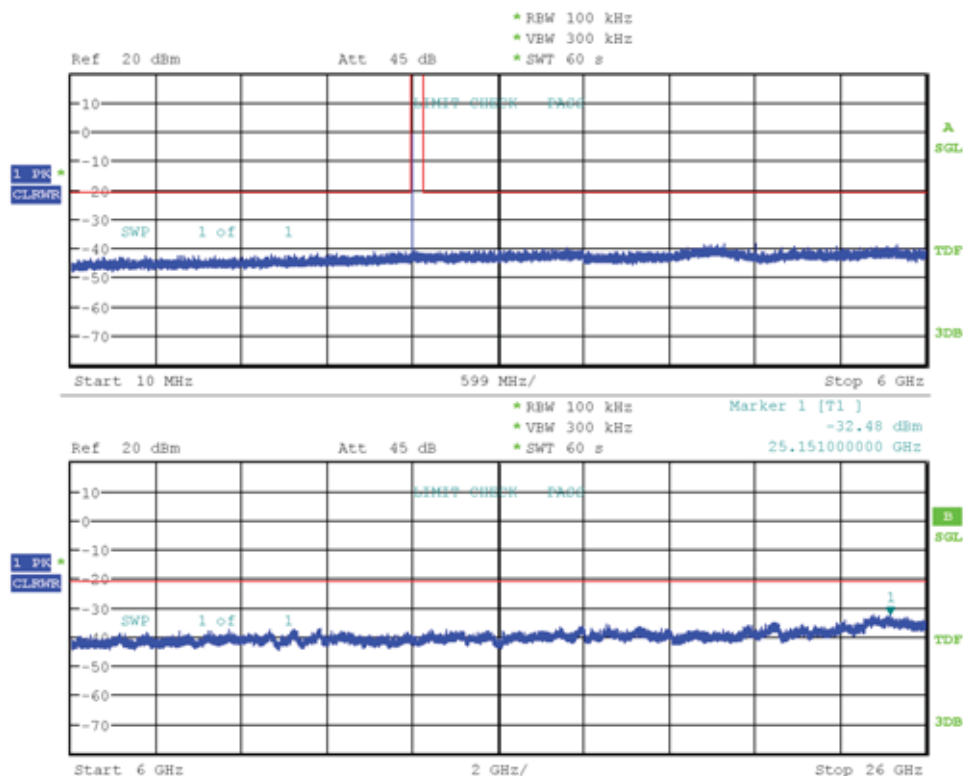
3.7.6 Results

Test Results - 1 Mbps		
Mode	Channel [MHz]	Verdict
GFSK	2402	PASS
GFSK	2440	PASS
GFSK	2480	PASS

Test Results - 2 Mbps		
Mode	Channel [MHz]	Verdict
GFSK	2402	PASS
GFSK	2440	PASS
GFSK	2480	PASS

Conducted Spurious Emissions

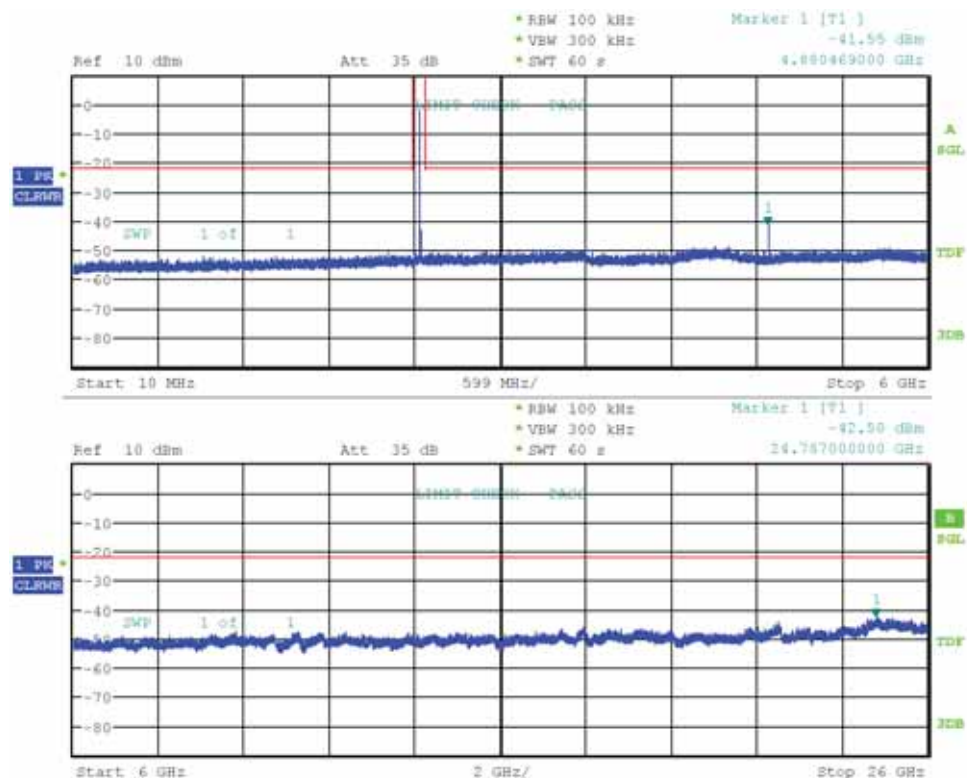
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Max. in-band Frequency [MHz]: 2401.7
 Max. in-band Level [dBm/100 kHz]: -0.6
 Out-of-band Limit [dBm/100 kHz]: -20.6



Date: 26.JUL.2021 15:48:11

Conducted Spurious Emissions

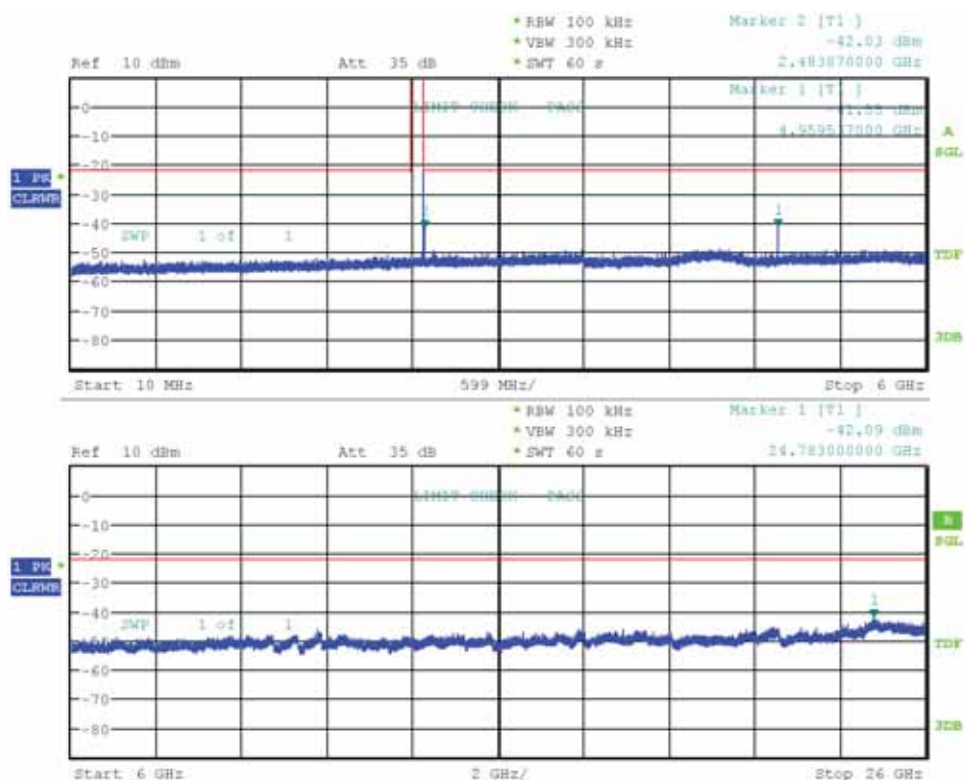
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Max. in-band Frequency [MHz]: 2439.7
 Max. in-band Level [dBm/100 kHz]: -1.8
 Out-of-band Limit [dBm/100 kHz]: -21.8



Date: 26.JUL.2021 15:53:10

Conducted Spurious Emissions

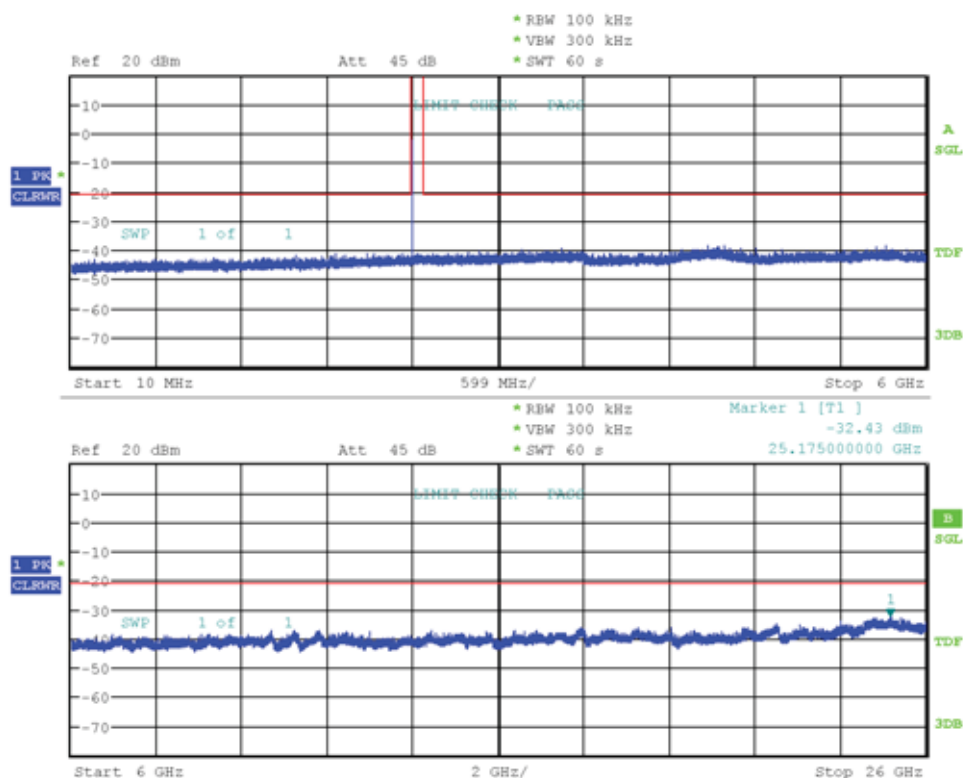
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 1 Mbps
 Max. in-band Frequency [MHz]: 2479.7
 Max. in-band Level [dBm/100 kHz]: -1.6
 Out-of-band Limit [dBm/100 kHz]: -21.6



Date: 26.JUL.2021 15:58:15

Conducted Spurious Emissions

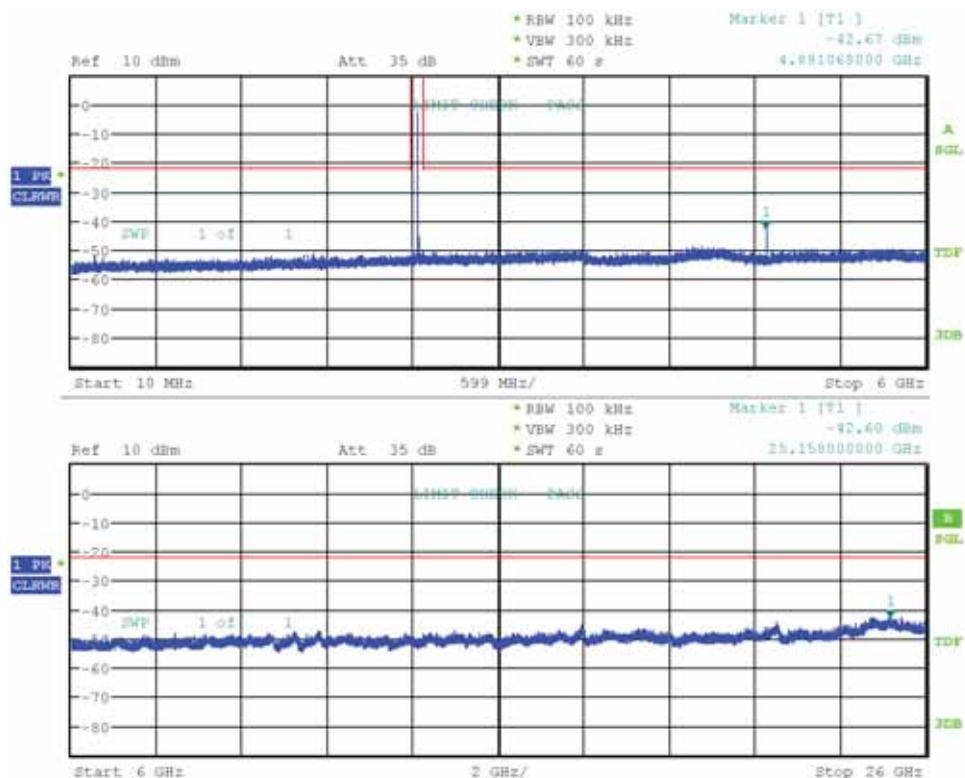
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Max. in-band Frequency [MHz]: 2401.5
 Max. in-band Level [dBm/100 kHz]: -0.8
 Out-of-band Limit [dBm/100 kHz]: -20.8



Date: 26.JUL.2021 16:02:39

Conducted Spurious Emissions

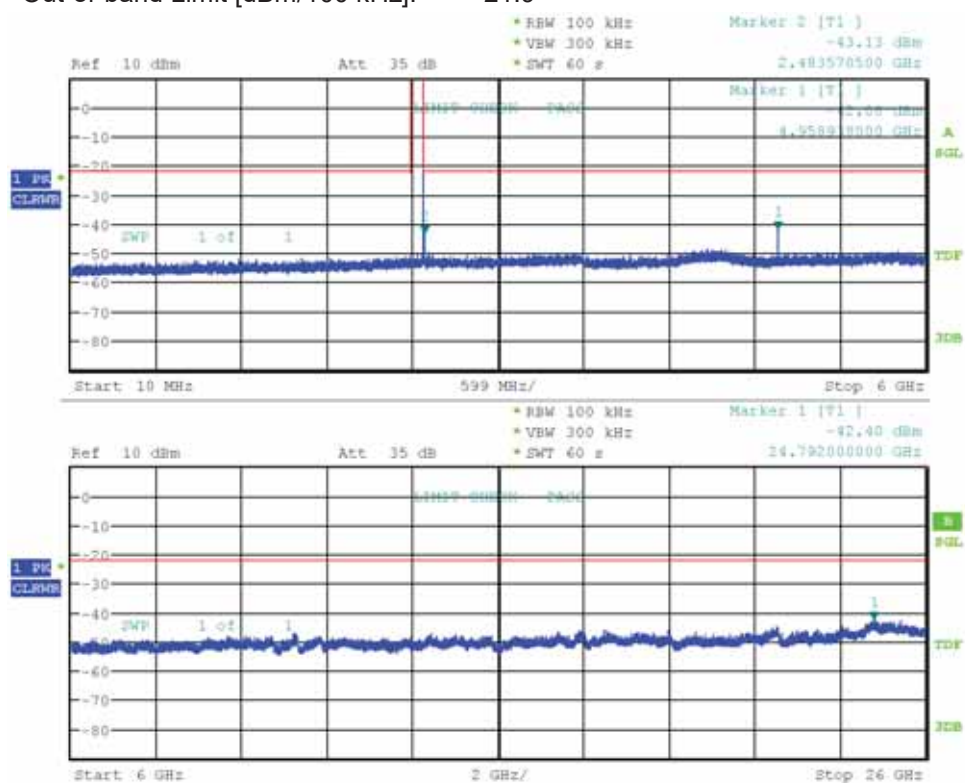
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Max. in-band Frequency [MHz]: 2439.5
 Max. in-band Level [dBm/100 kHz]: -2.0
 Out-of-band Limit [dBm/100 kHz]: -22.0



Date: 26.JUL.2021 16:08:54

Conducted Spurious Emissions

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968, (A1 8 SerNr: 826)
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.11
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2021-07-26
 Note: 2 Mbps
 Max. in-band Frequency [MHz]: 2479.5
 Max. in-band Level [dBm/100 kHz]: -1.9
 Out-of-band Limit [dBm/100 kHz]: -21.9



Date: 26.JUL.2021 16:17:19

3.8 Test Conditions and Results - Transmitter radiated emissions

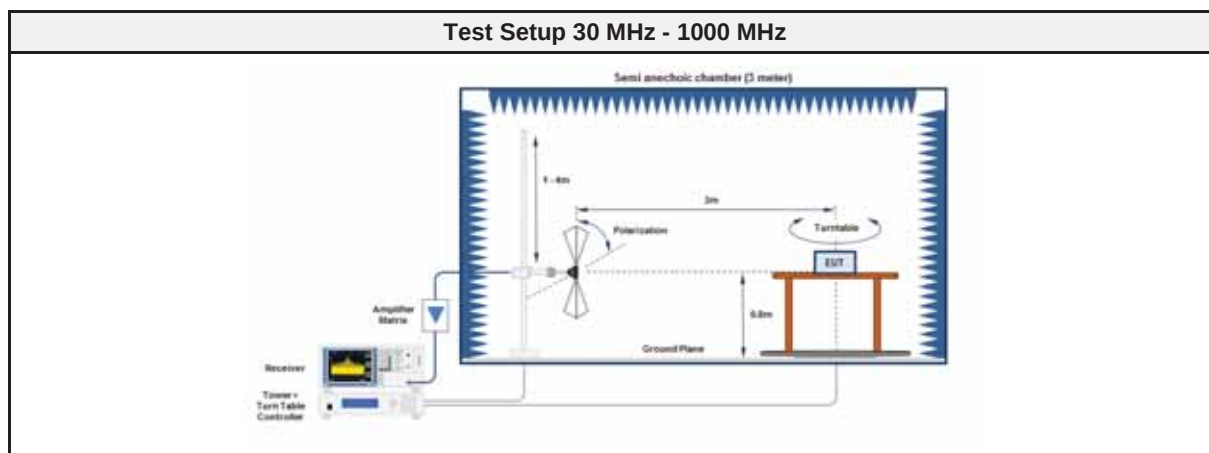
3.8.1 Information

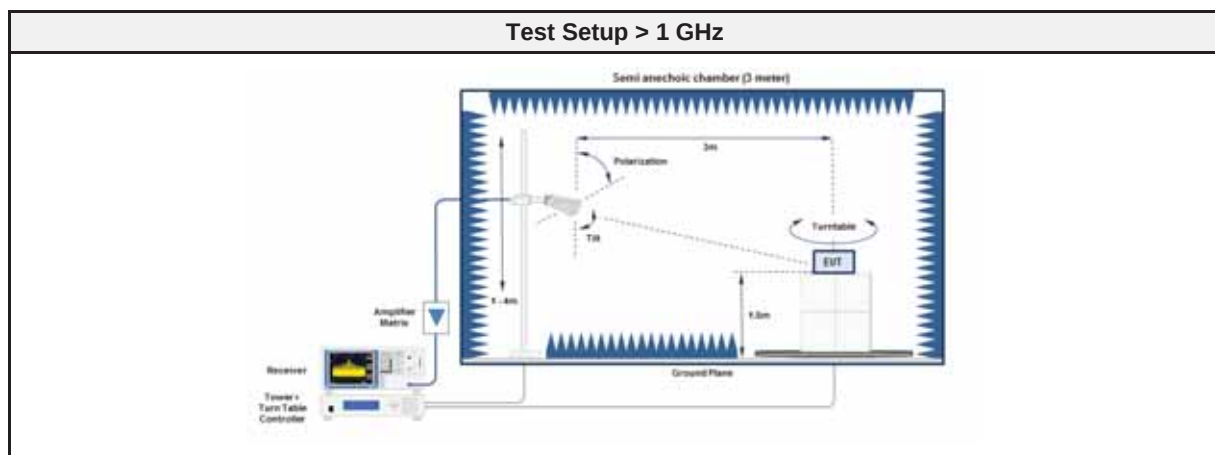
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISSED RSS-Gen, Issue 5 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Wilfried Treffke
Date	2021-07-27

3.8.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.8.3 Setup





3.8.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2020.1.8

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-07	2021-07
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-07	2021-07
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2020-11	2021-11
Antenna	Amplifier Research	AT4560	EF01152	2020-11	2022-11

3.8.5 Procedure

Test Procedure 30 MHz - 1000 MHz	
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector	

Test Procedure > 1 GHz	
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector	

3.8.6 Results

Test Results – 1Mbps						
Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
2402	2387.5	60.03	pk	hor	74.00	-13.97
2402	2387.5	37.93	avg	hor	54.00	-16.07
2402	4801	38.06	pk	ver	74.00	-35.94
2440	2366.3	45.28	pk	hor	74.00	-28.72
2480	2484.3	58.98	pk	hor	74.00	-15.02
2480	2484.3	38.65	avg	hor	54.00	-15.35
2480	2487.8	58.96	pk	hor	74.00	-15.04
2480	2487.8	38.92	avg	hor	54.00	-15.08
2480	2494.8	55.57	pk	hor	74.00	-18.43
2480	2494.8	38.81	avg	hor	54.00	-15.19

Test Results – 2Mbps						
Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
2402	2386.1	51.12	pk	ver	74.00	-22.88
2402	2386.1	37.95	avg	ver	54.00	-16.05
2402	2389.1	60.70	pk	hor	74.00	-13.30
2402	2389.1	37.97	avg	hor	54.00	-16.03

3.9 Test Conditions and Results - Receiver radiated emissions

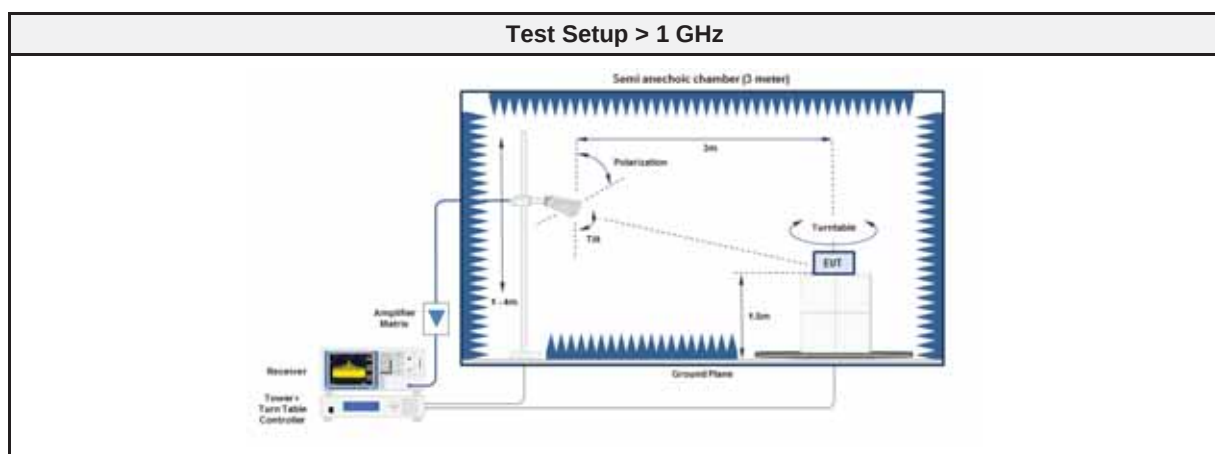
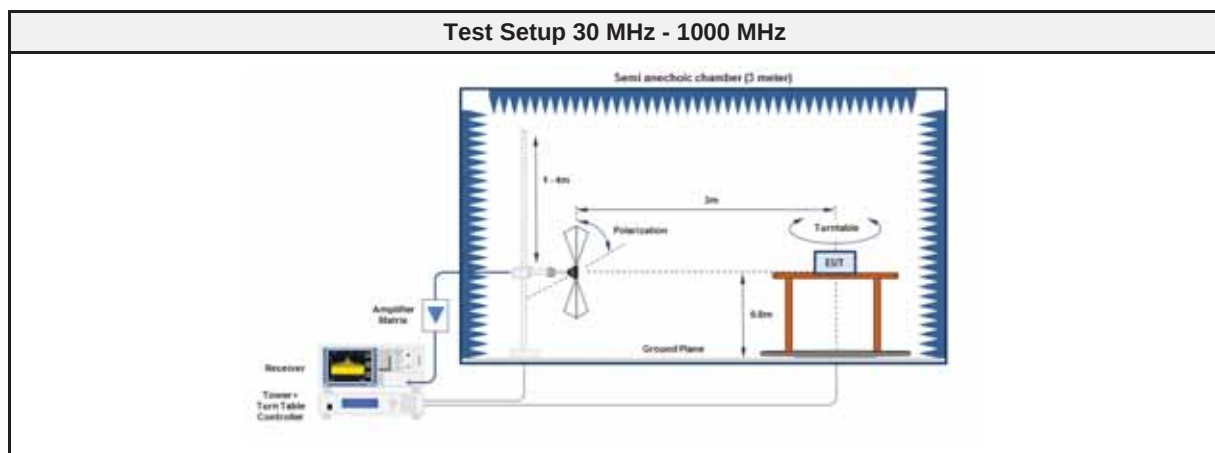
3.9.1 Information

Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.5, 6.6, 11.12
Operator	Wilfried Treffke
Date	2021-07-22

3.9.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [$\mu\text{V/m}$]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.9.3 Setup



3.9.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2020.1.8

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-07	2021-07
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-07	2021-07
Antenna	Schwarzbeck	BBHA 9120D	EF01153	2020-11	2021-11

3.9.5 Procedure

Test Procedure 30 - 1000 MHz	
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector	

Test Procedure > 1 GHz	
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant emissions are measured again using the corresponding final detector	

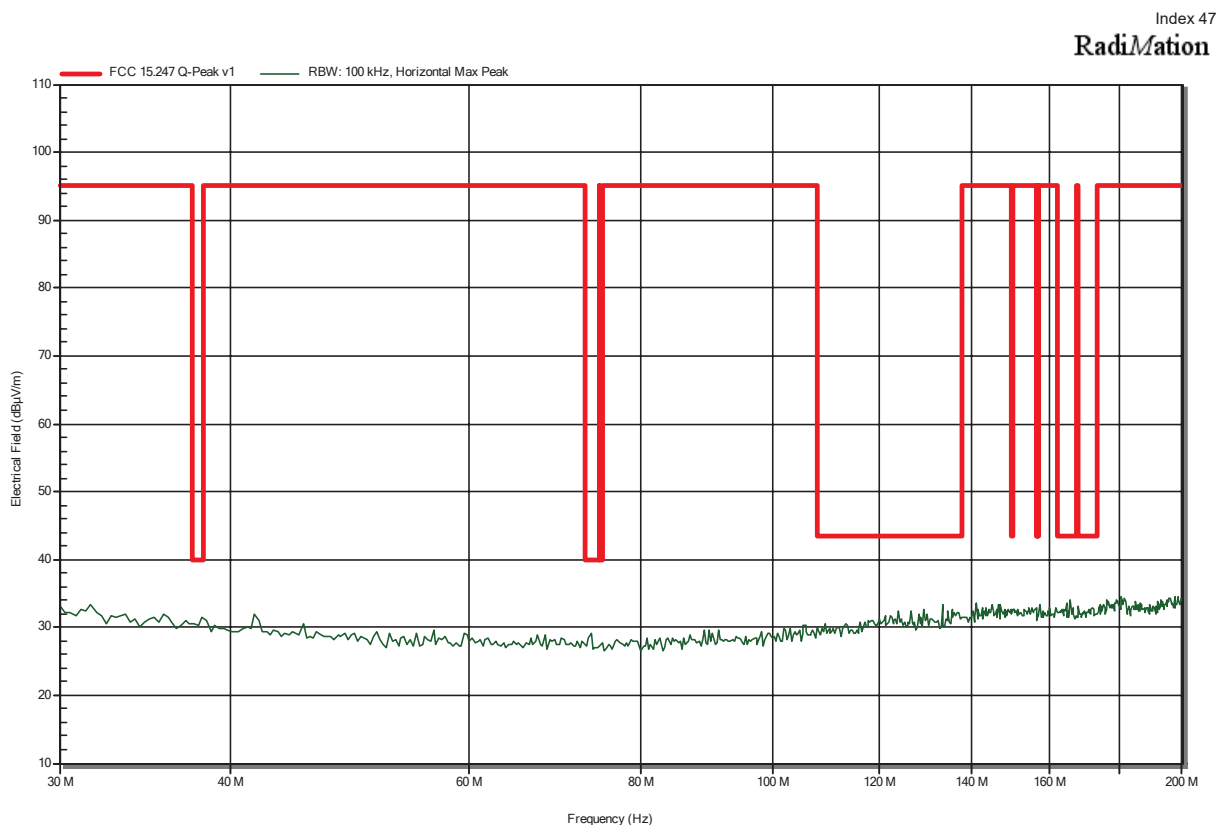
3.9.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
2440	4000	30.86	pk	ver	53.98	-23.12
2440	7981	39.67	pk	hor	53.98	-14.31
2440	10329	44.64	pk	hor	53.98	-09.34
2440	10661	44.63	pk	hor	53.98	-09.35

ANNEX A Transmitter spurious emissions

Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

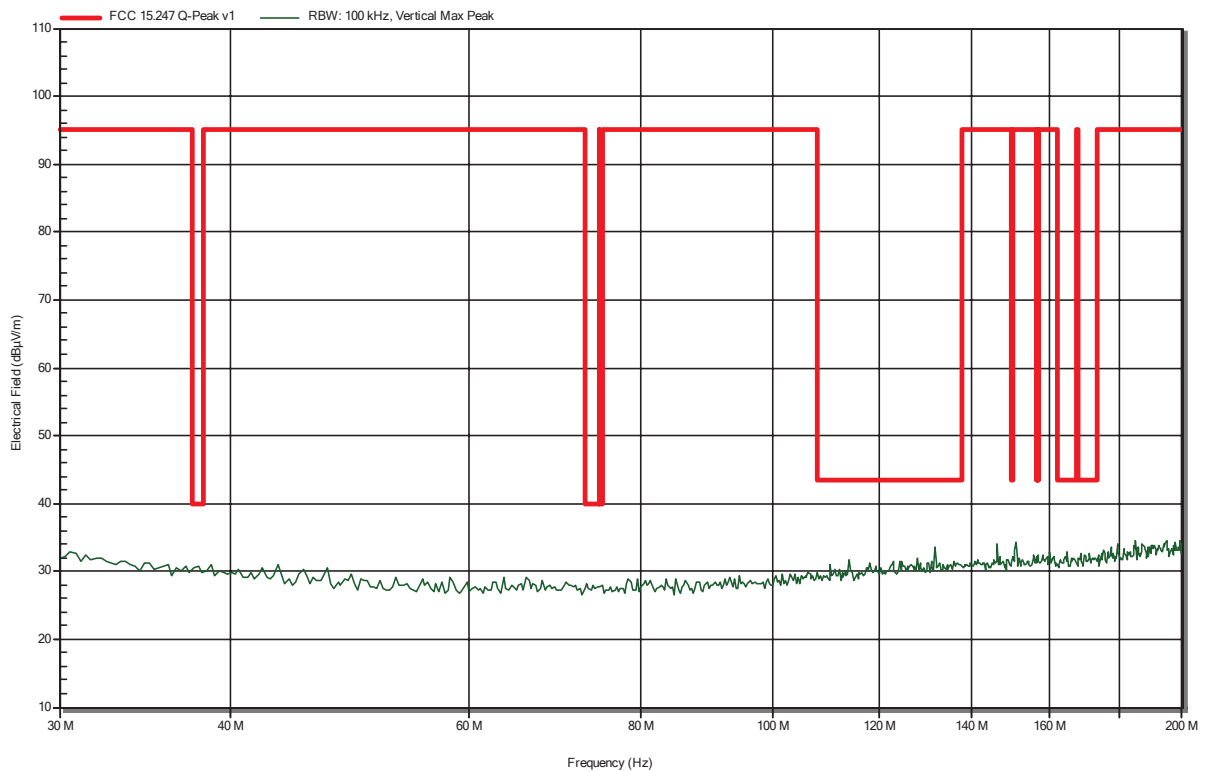


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

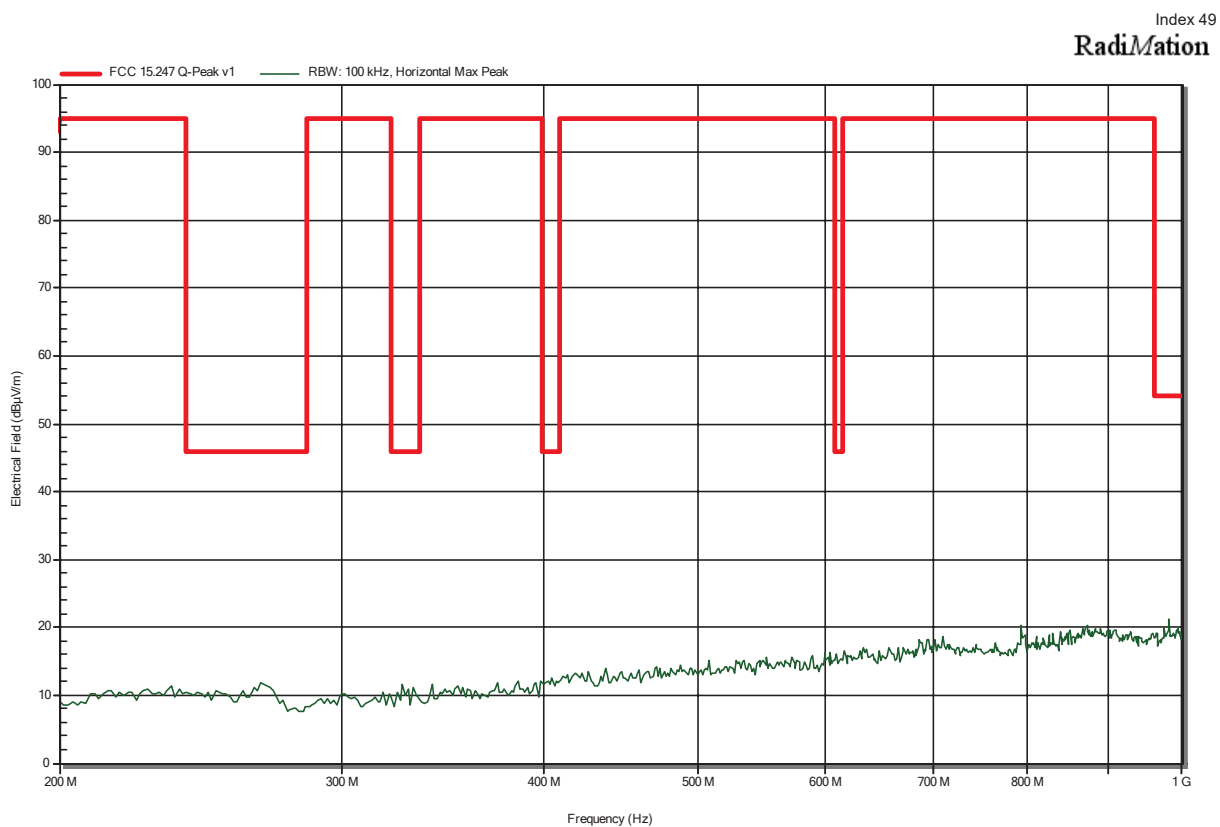
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RadiMation



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

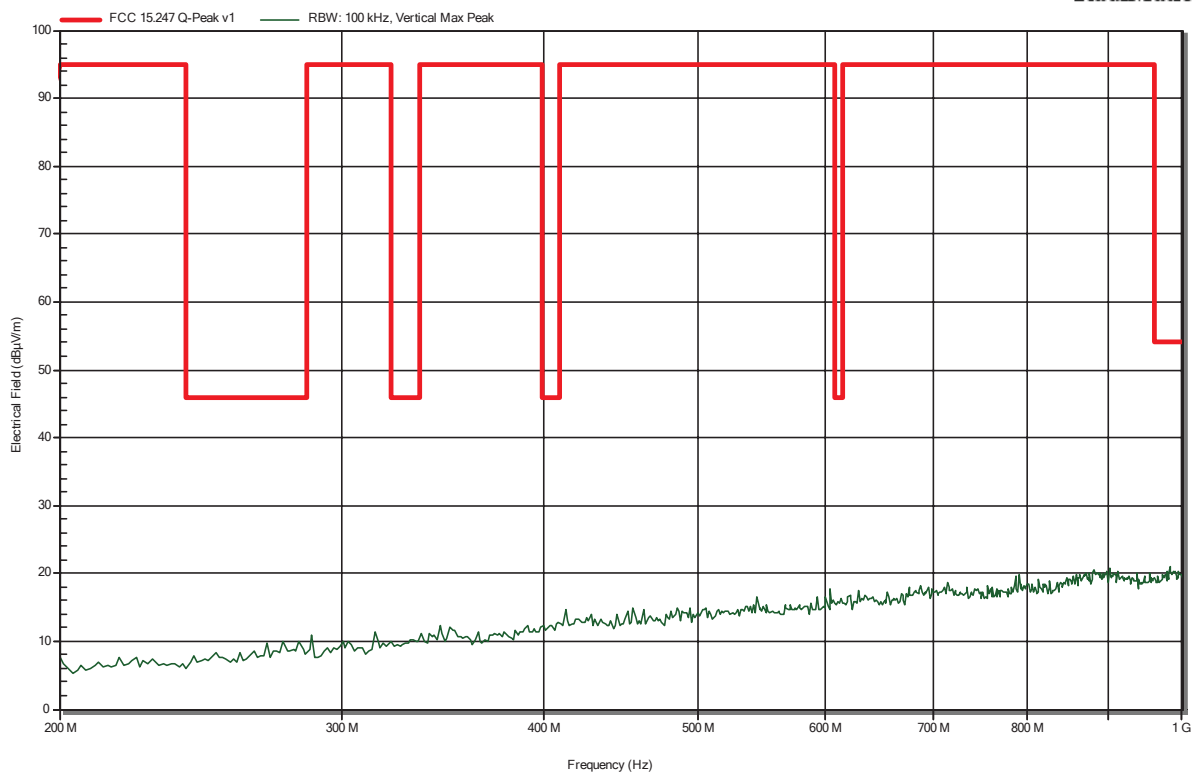


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

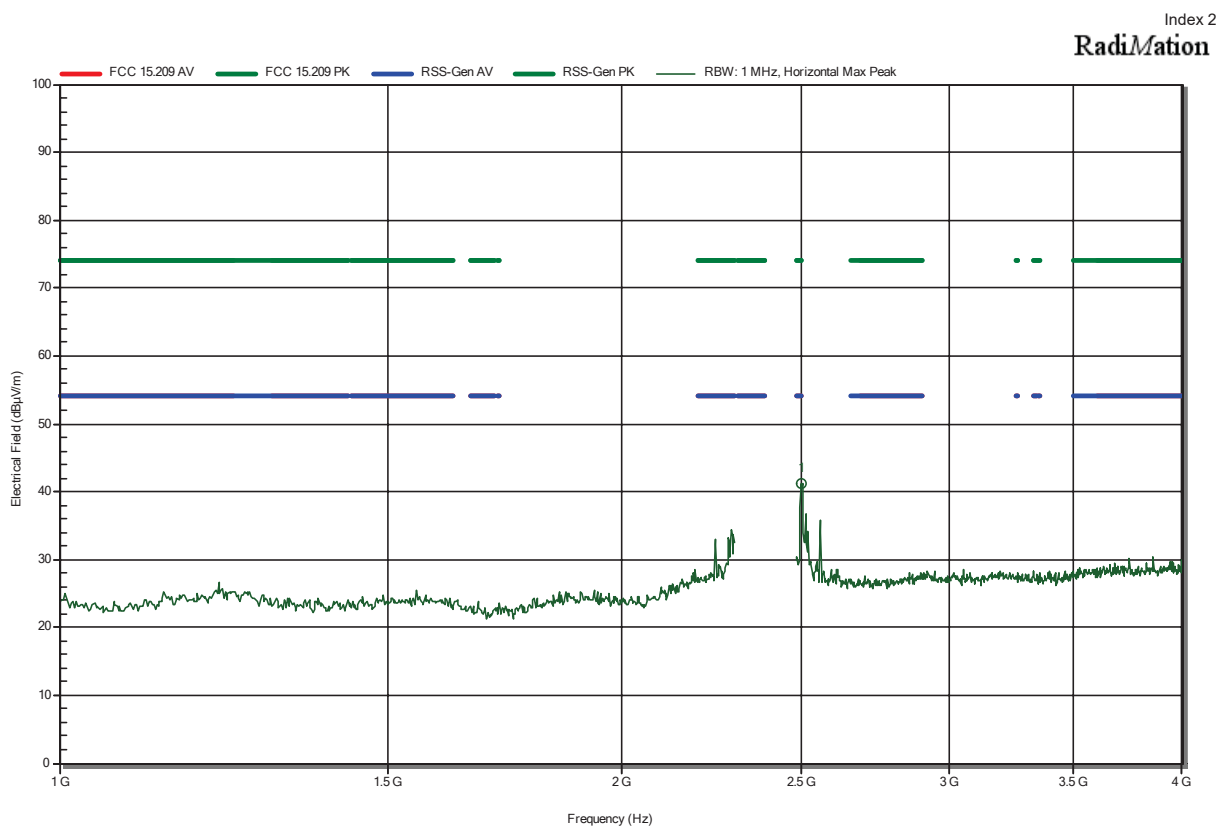
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RadiMation



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



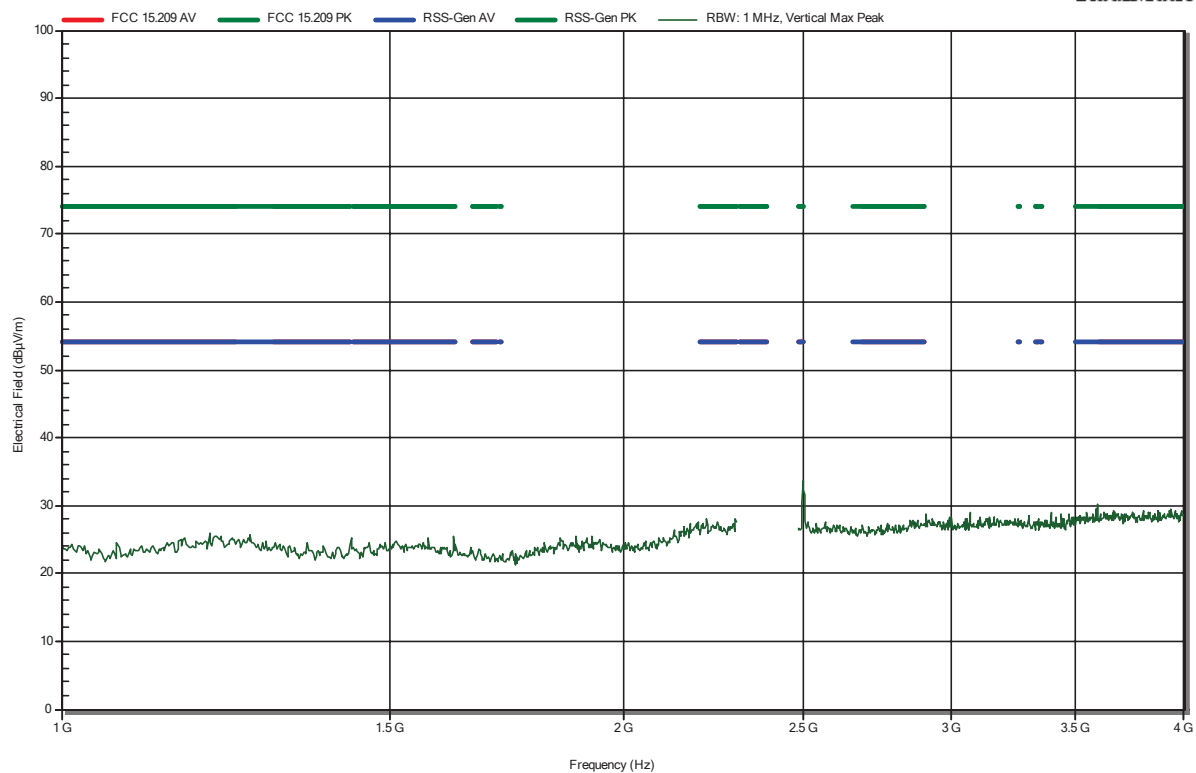
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4981 GHz	41.2 dBµV/m	74 dBµV/m	-32.8 dB	Pass

Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
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 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
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 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

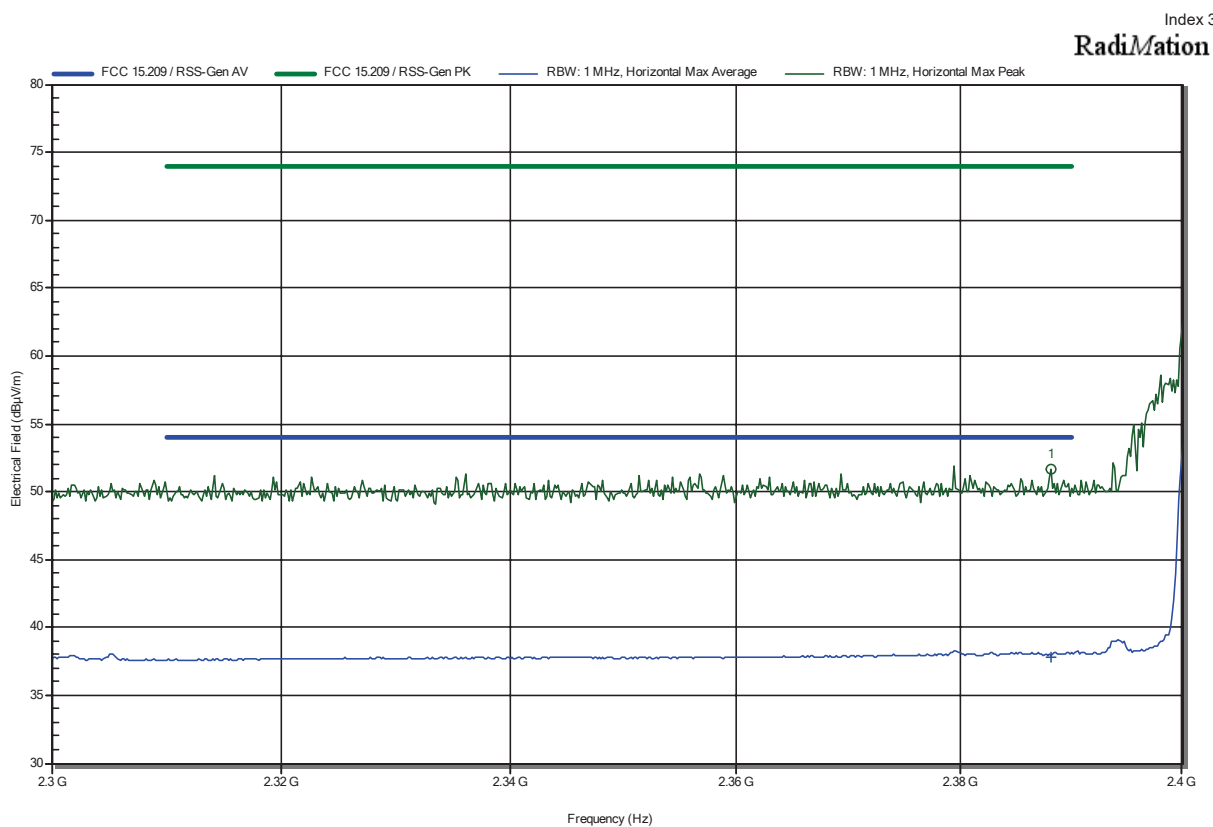
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RadiMation



Radiated Spurious Emissions according to FCC 47 CFR 15.247

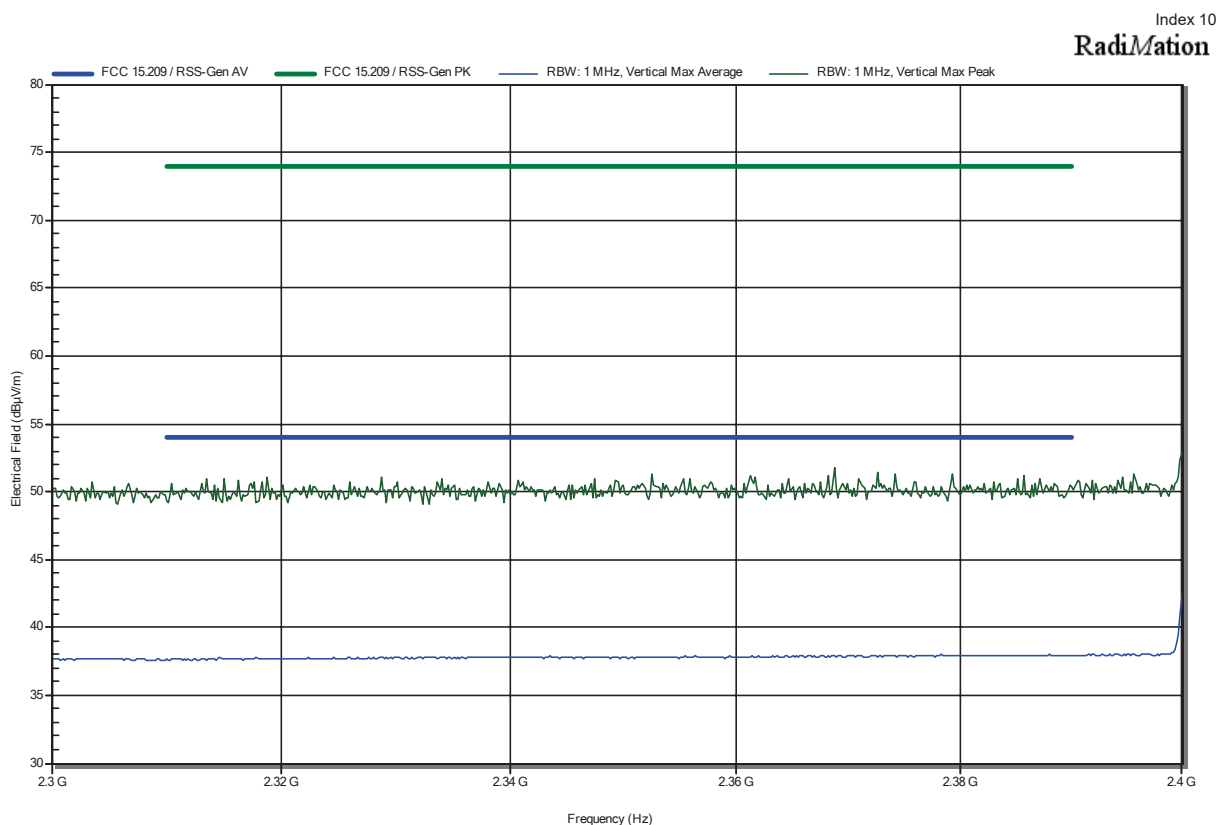
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: lower bandedge



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3881 GHz	51.63 dBµV/m	74 dBµV/m	-22.37 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
2.3881 GHz	37.81 dBµV/m	54 dBµV/m	-16.19 dB	Pass

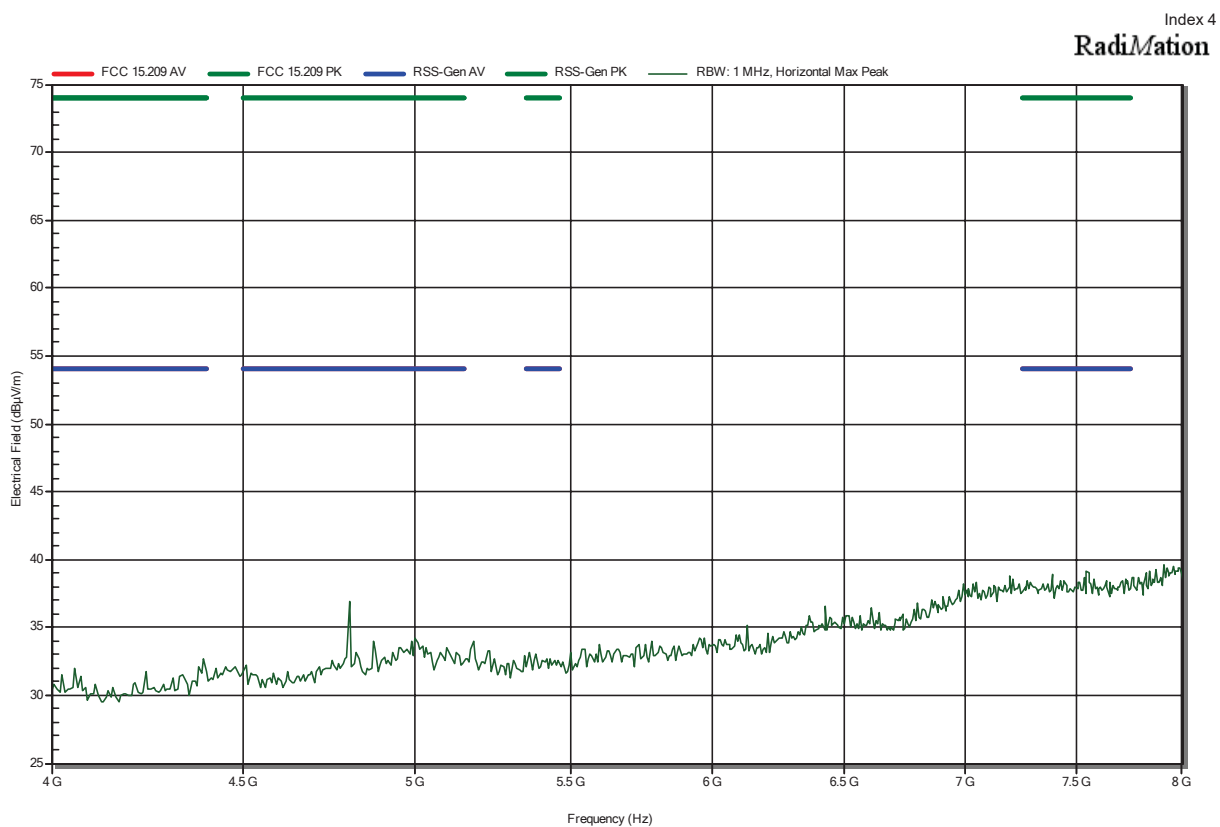
Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
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 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: lower bandedge



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
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 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

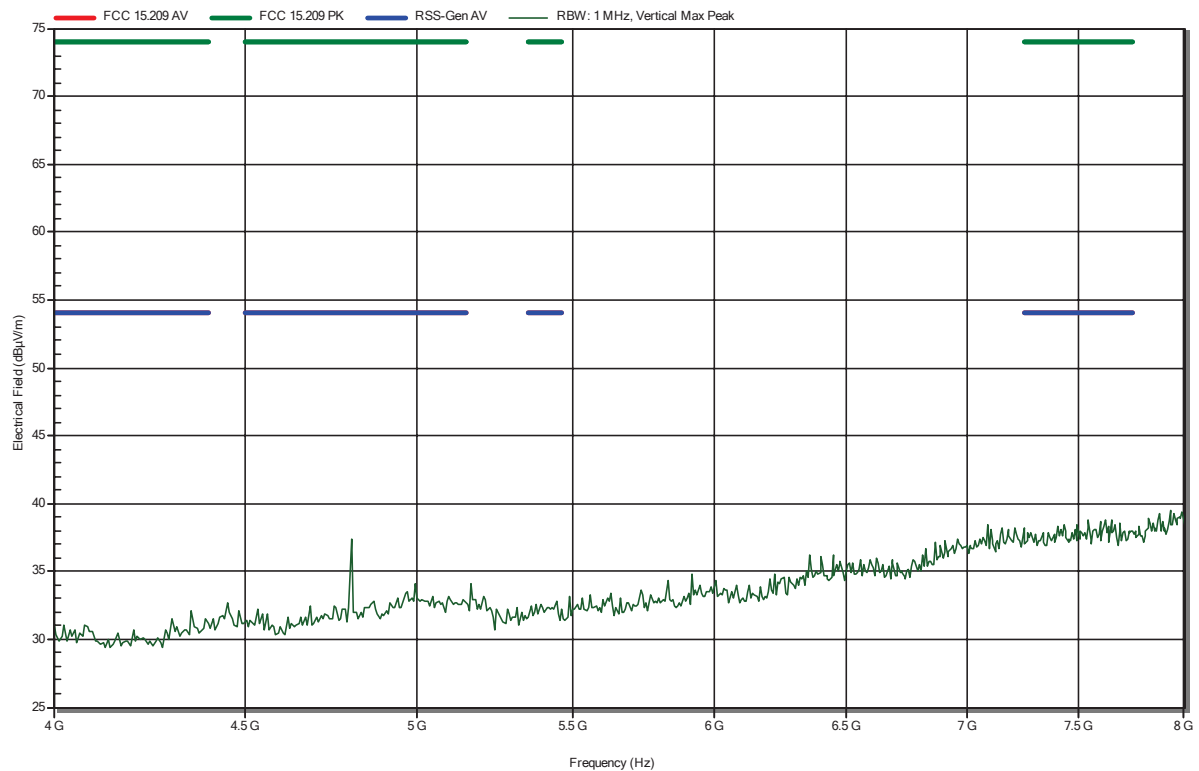


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 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

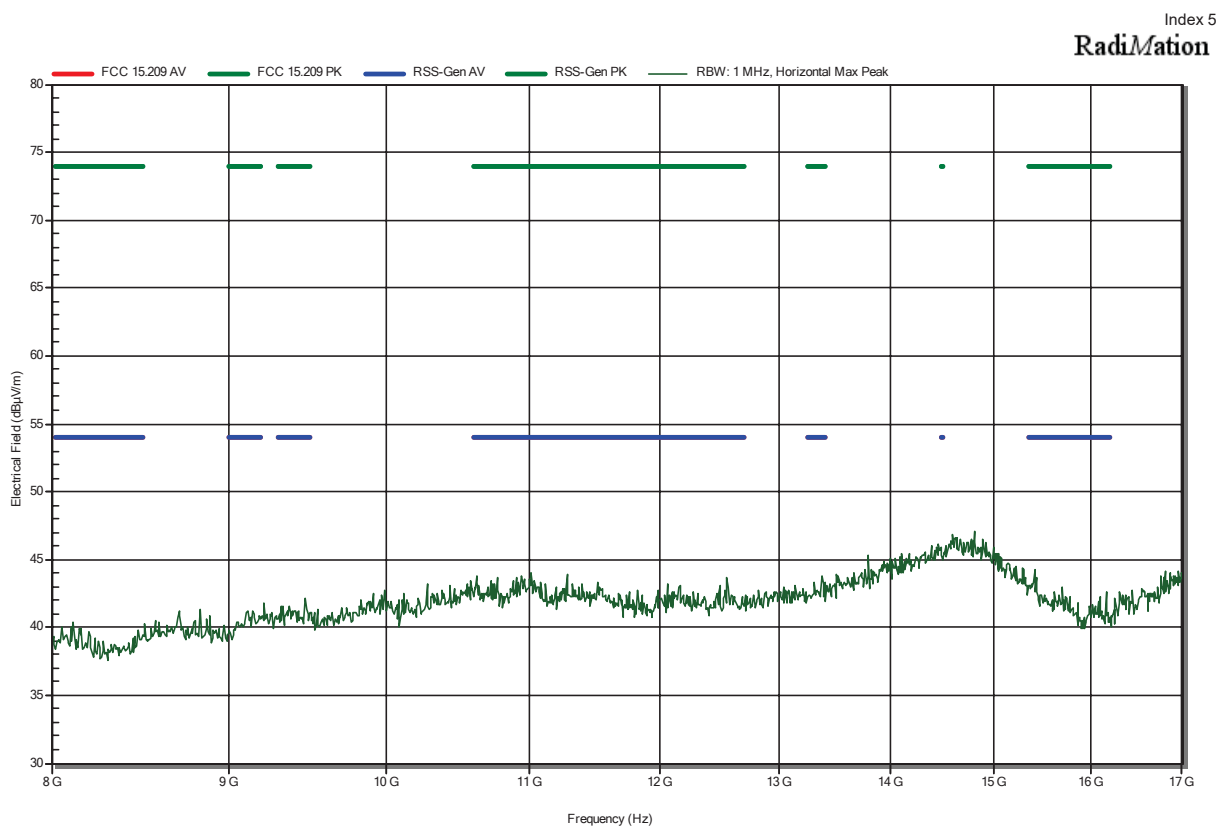
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RadiMation



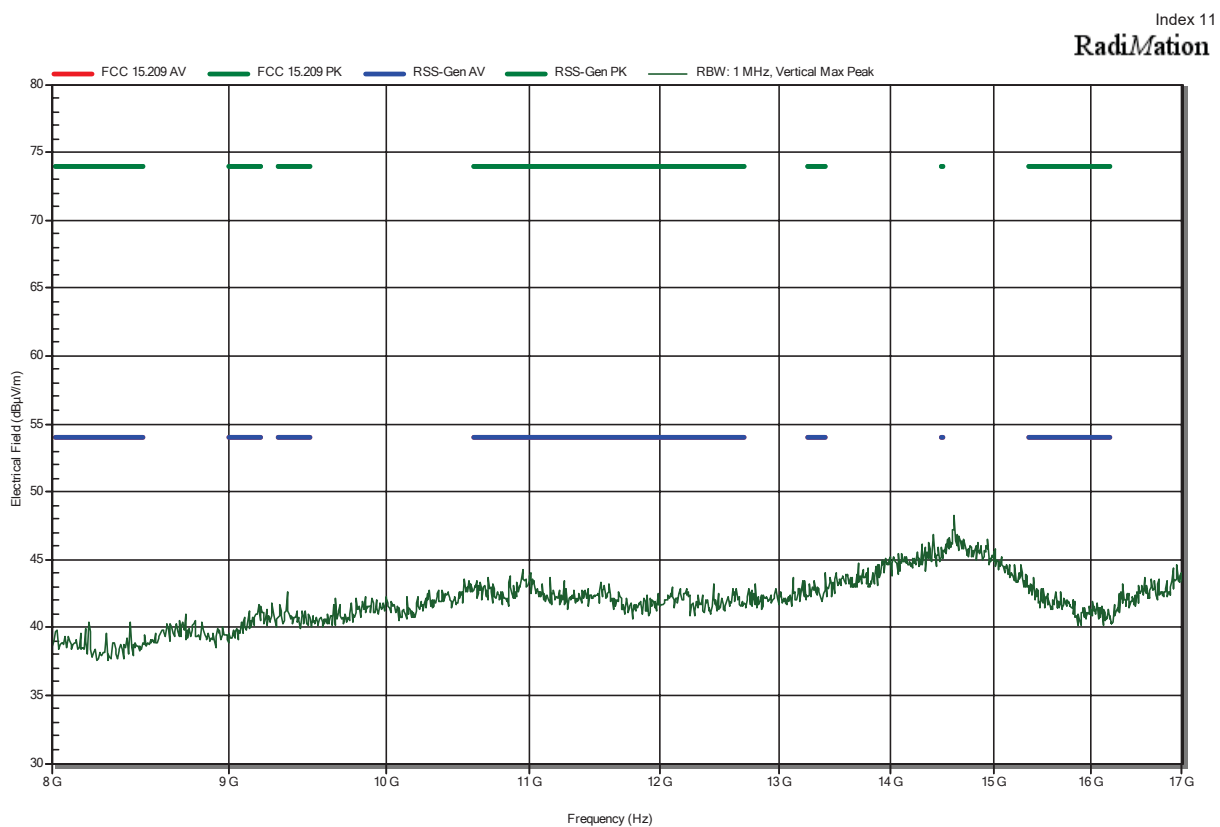
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 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



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 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

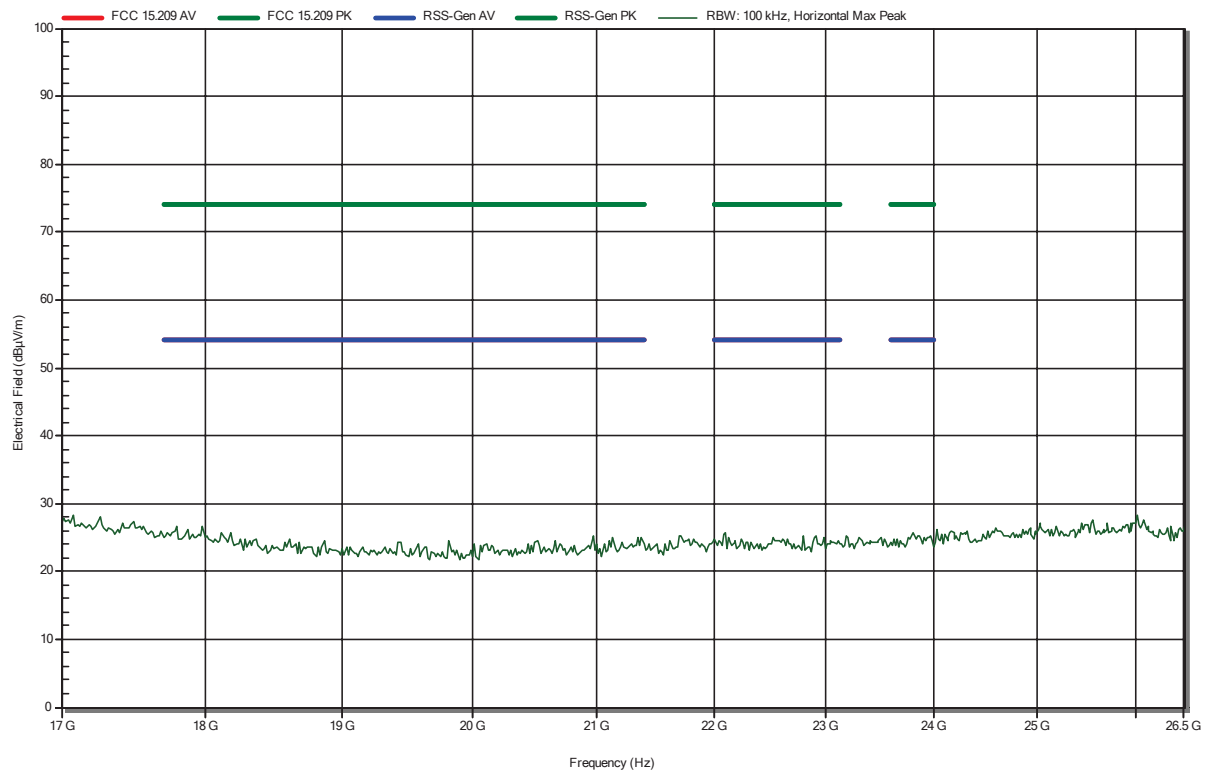


Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Model: ENWF9408A1EF
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 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Amplifier Research AT4560, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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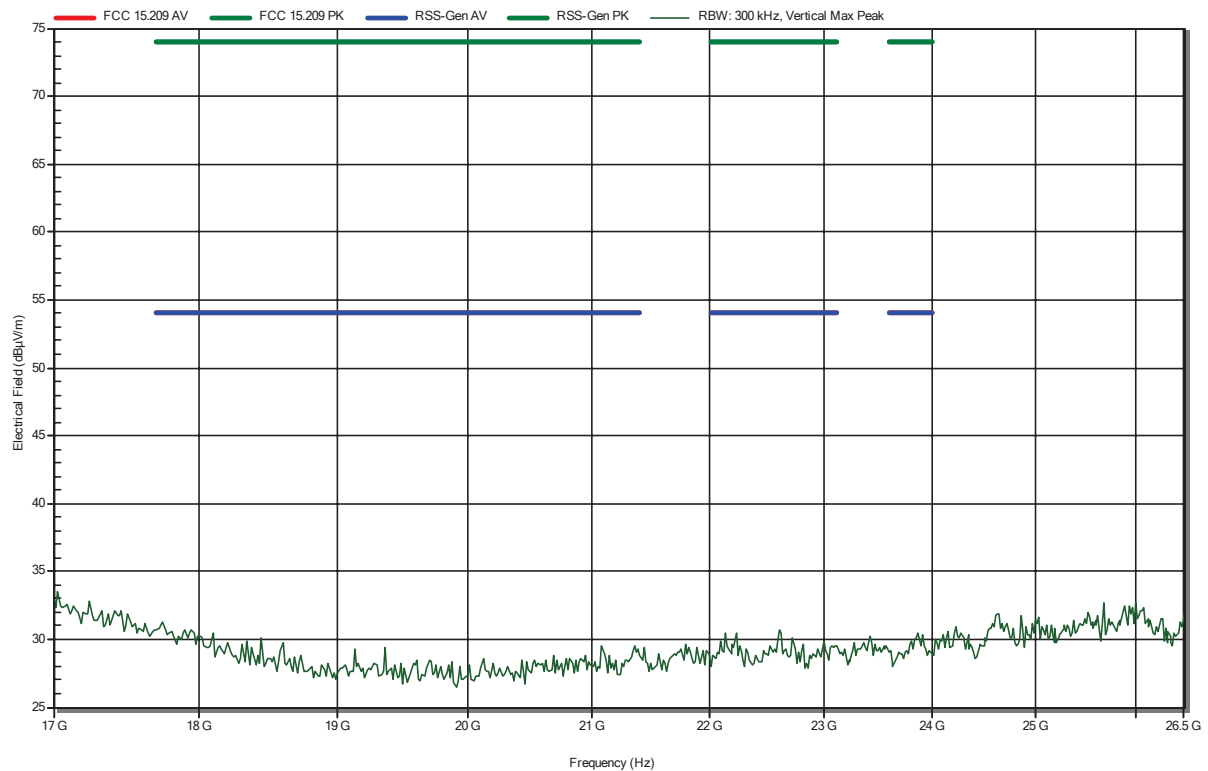


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Amplifier Research AT4560, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

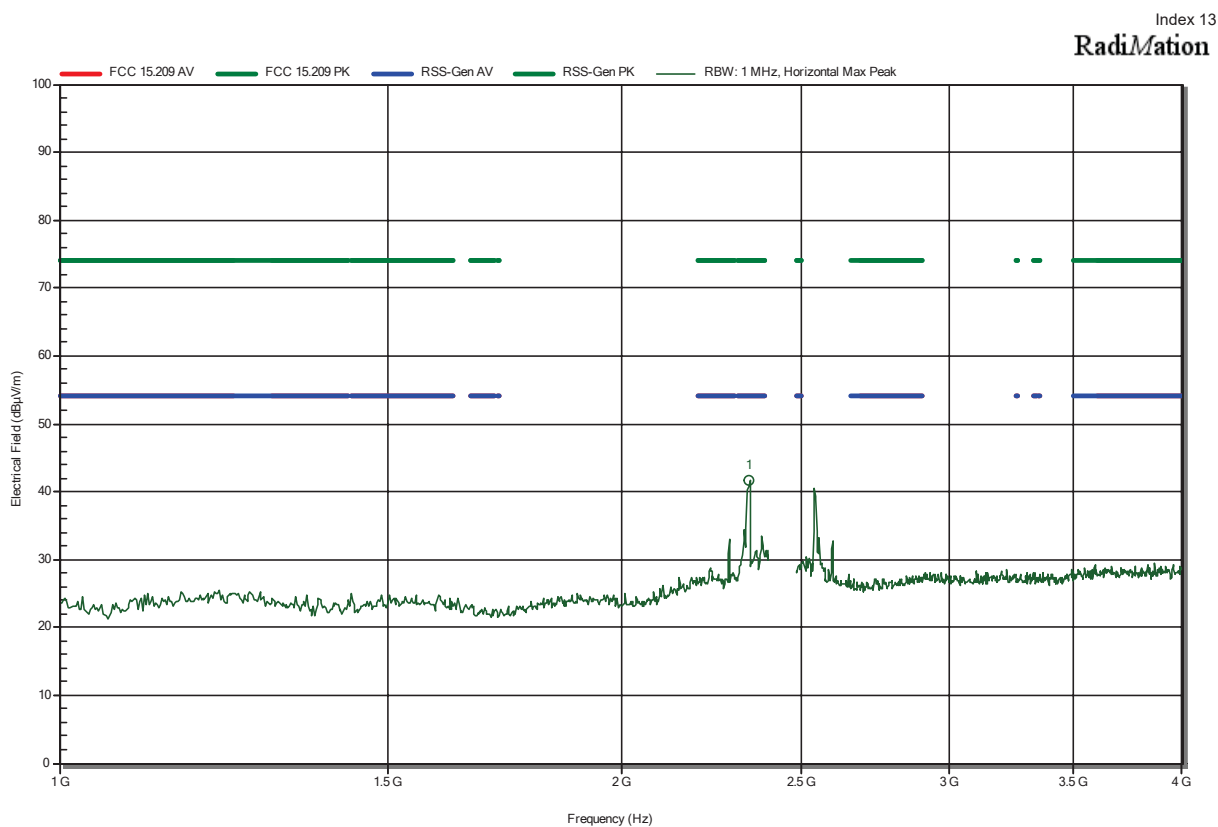
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Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



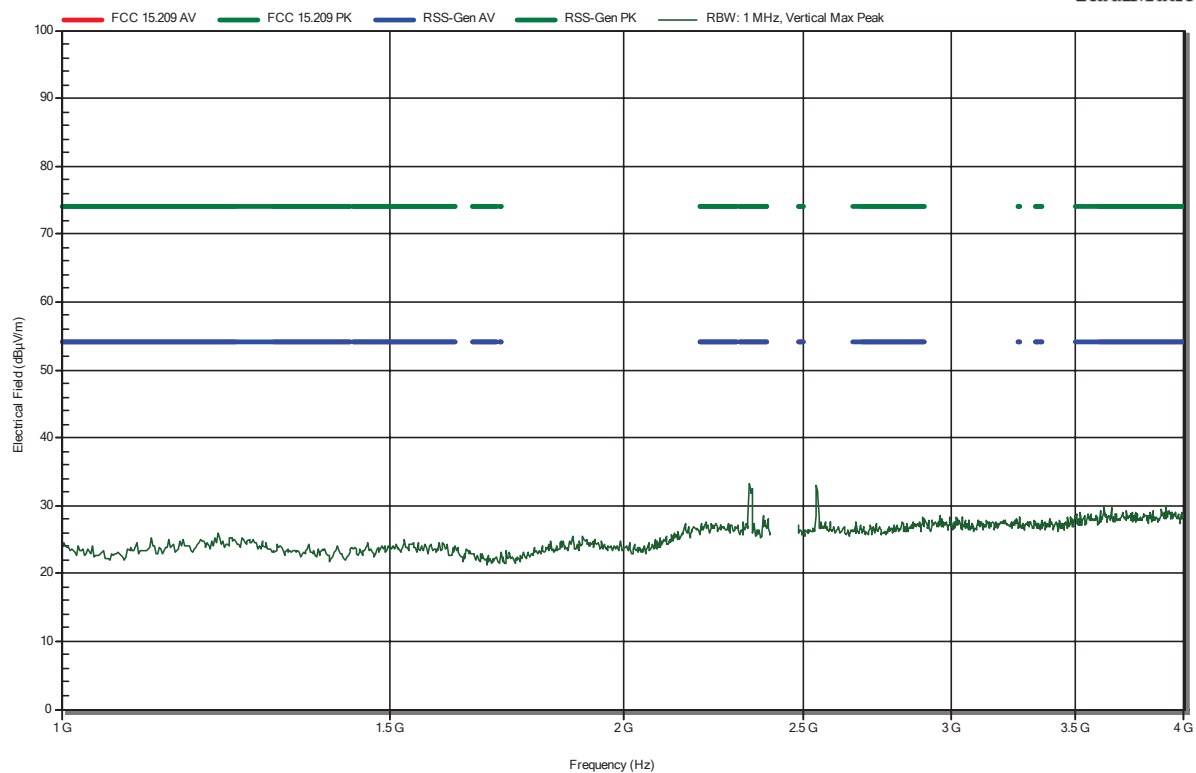
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3439 GHz	41.78 dBµV/m	74 dBµV/m	-32.22 dB	Pass

Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

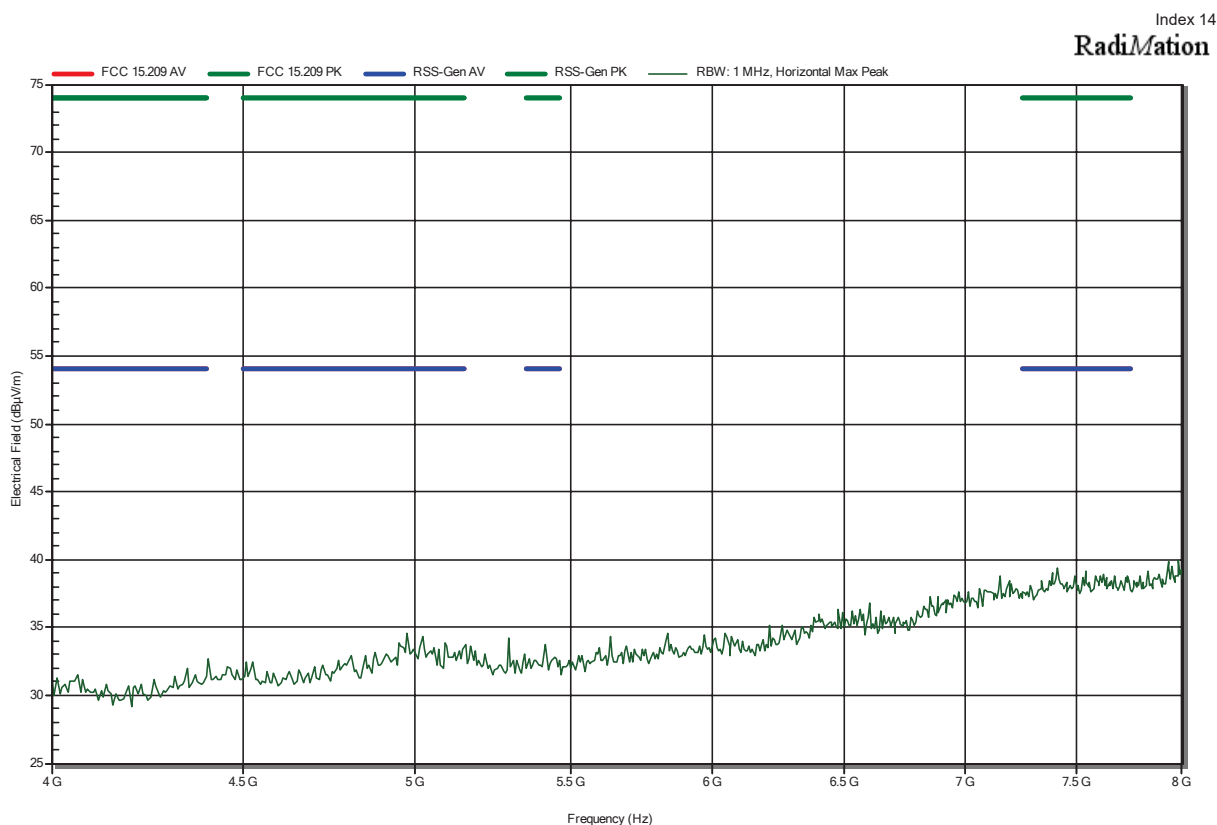
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RadiMation



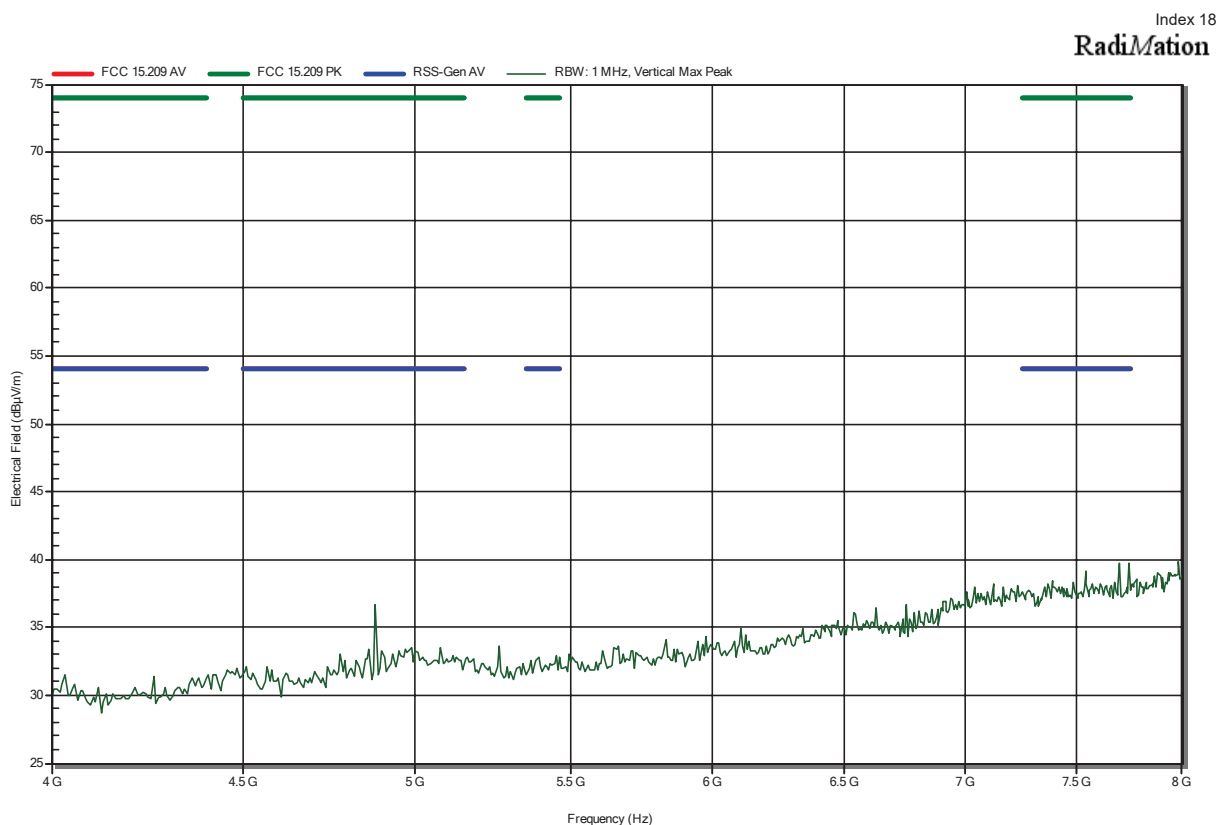
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 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
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 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



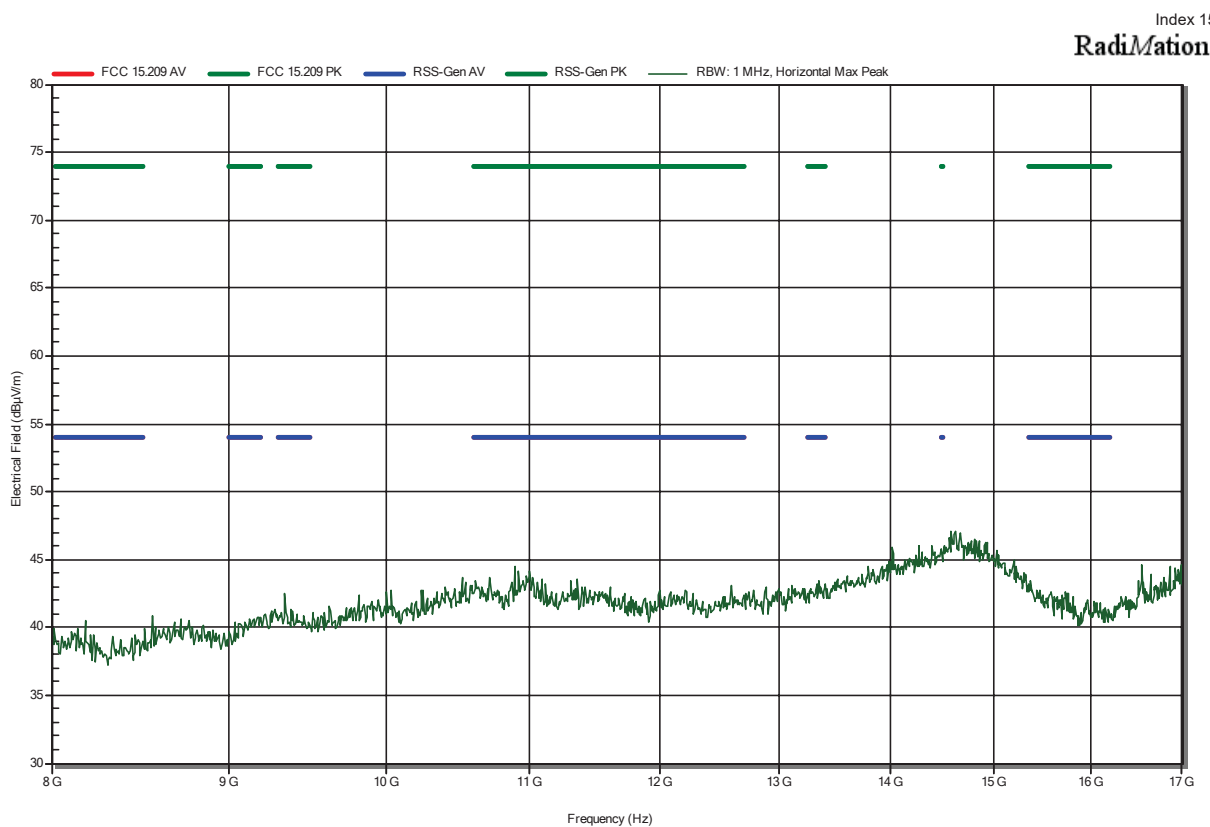
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 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



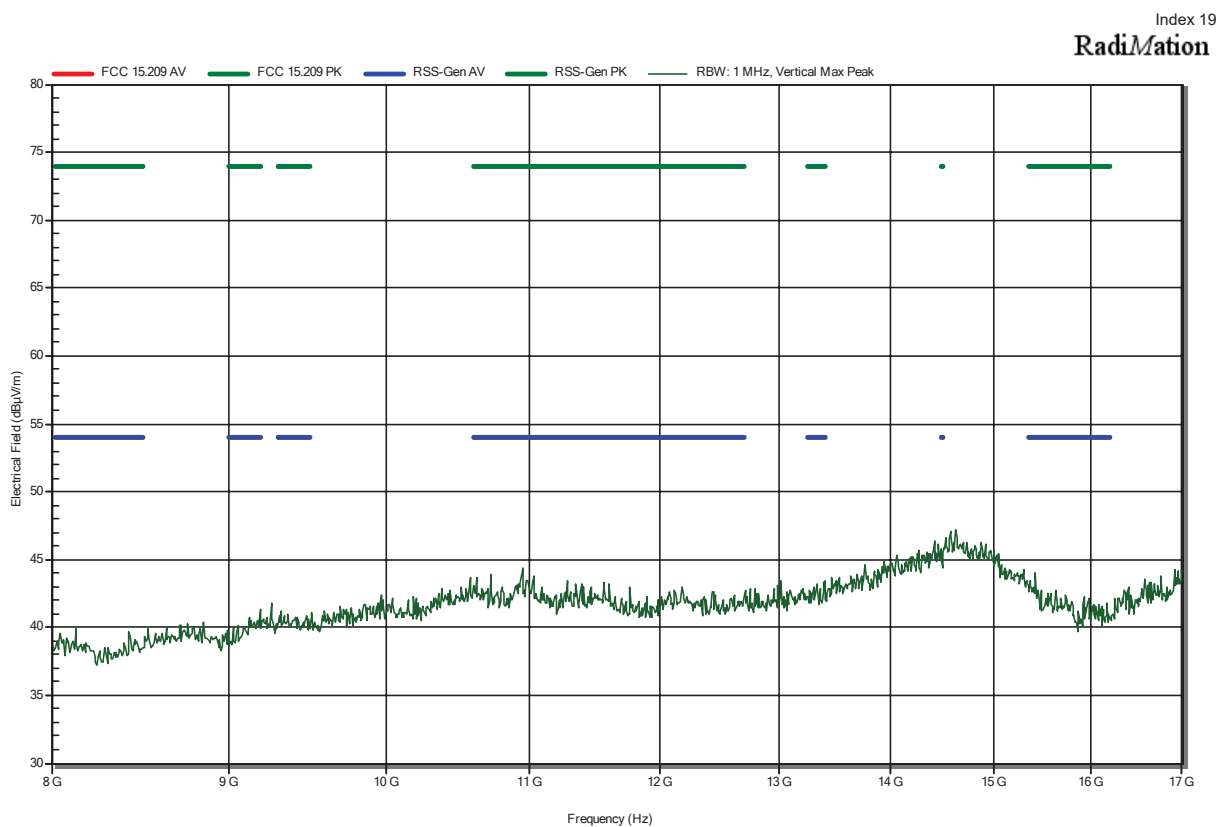
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 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
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 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

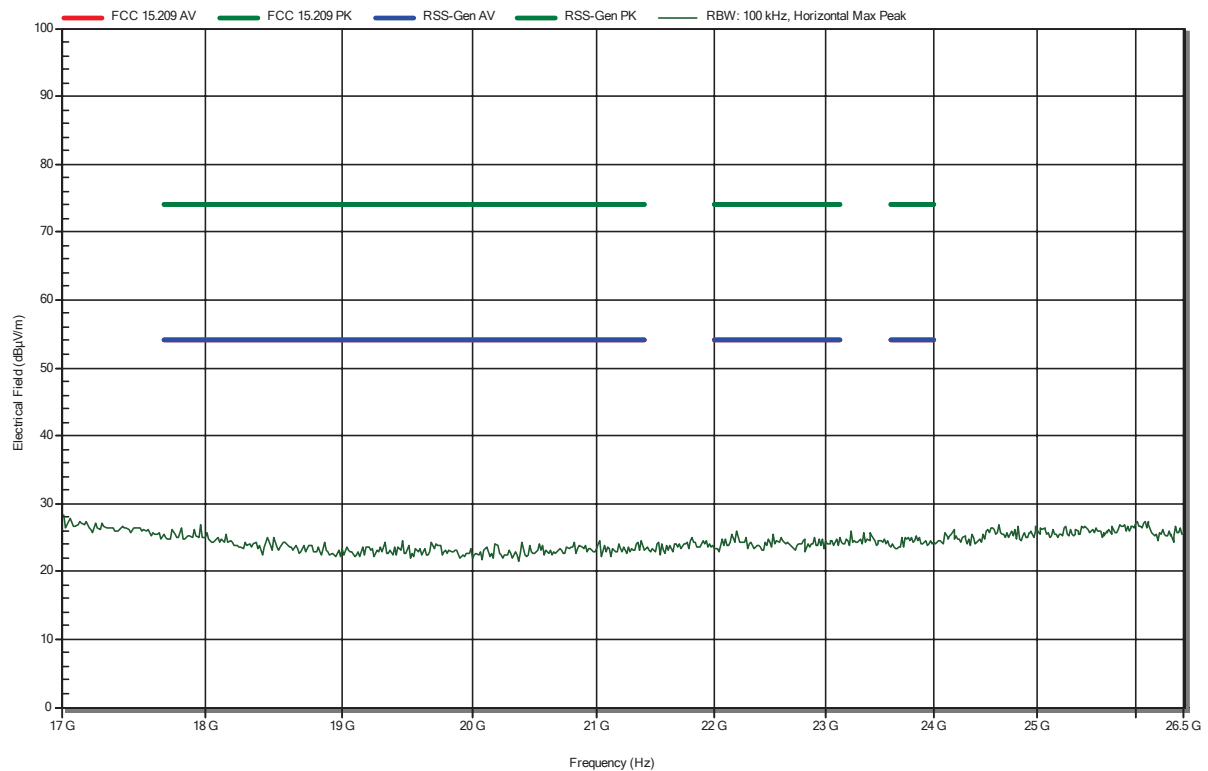


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 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Amplifier Research AT4560, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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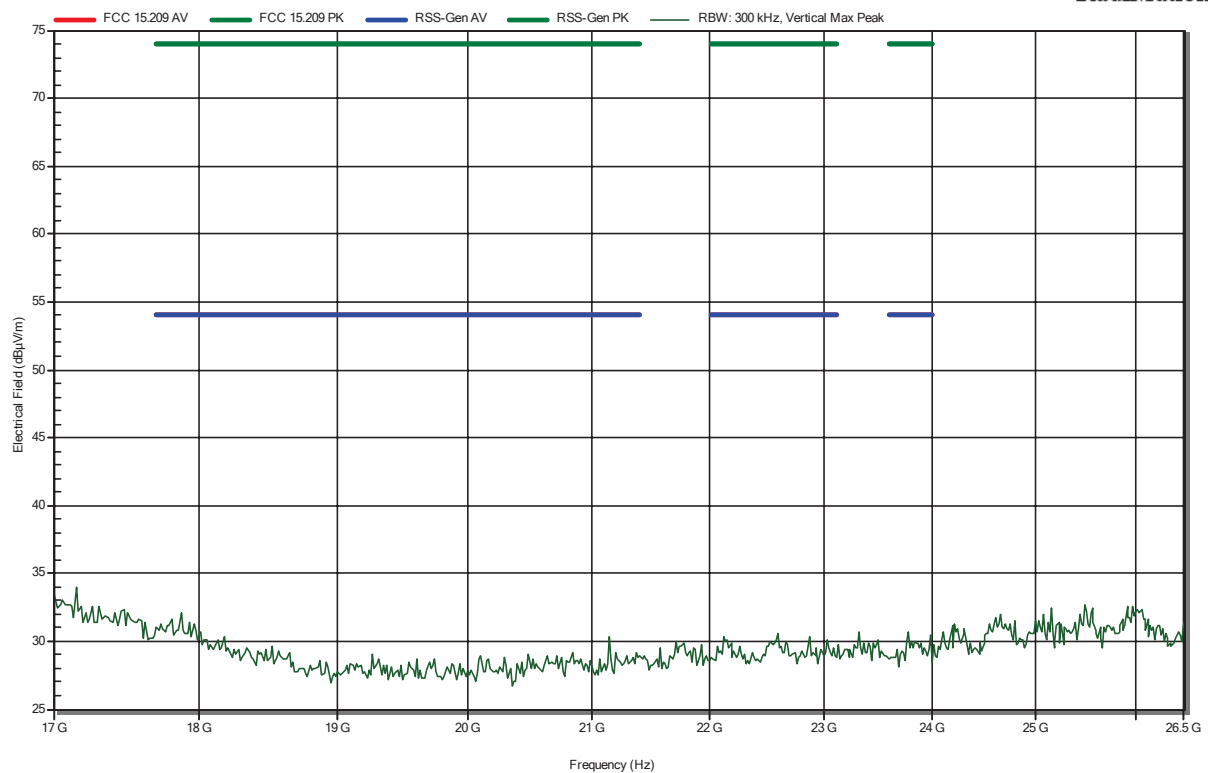


Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Antenna: Amplifier Research AT4560, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

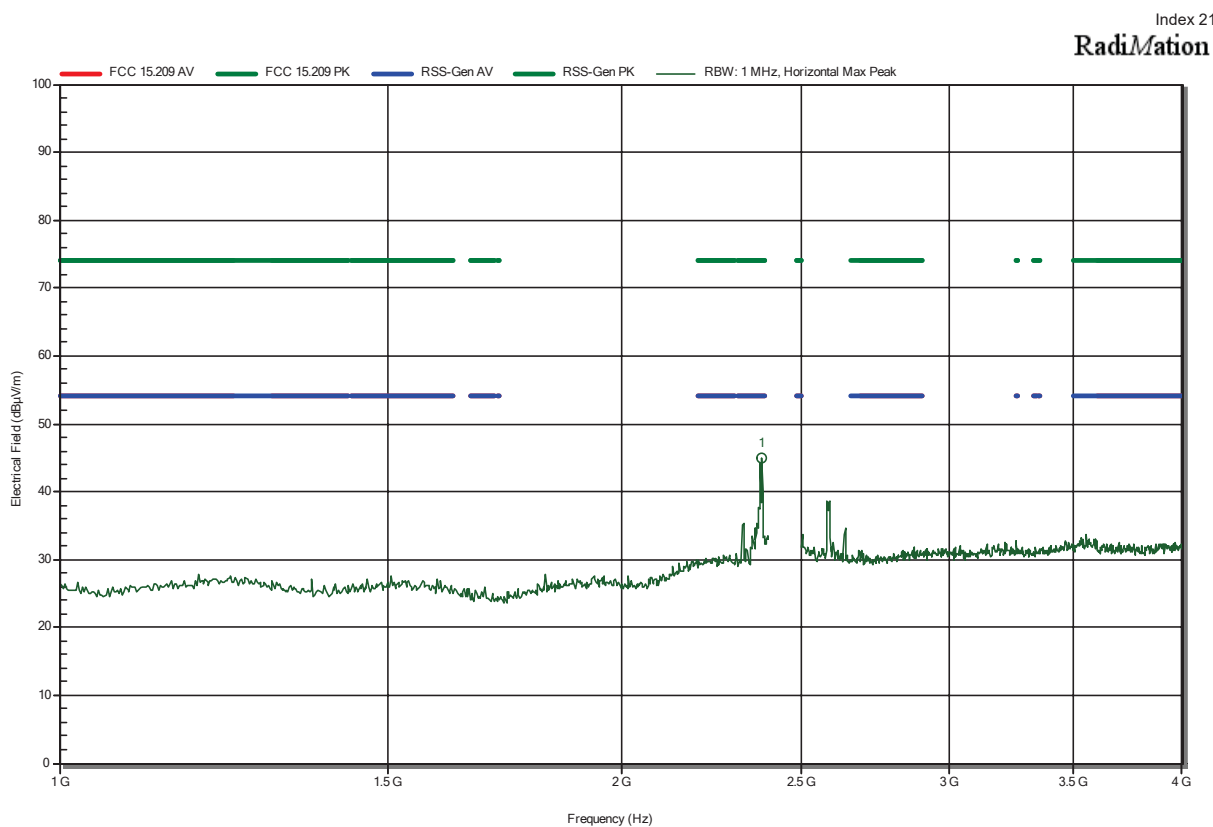
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Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



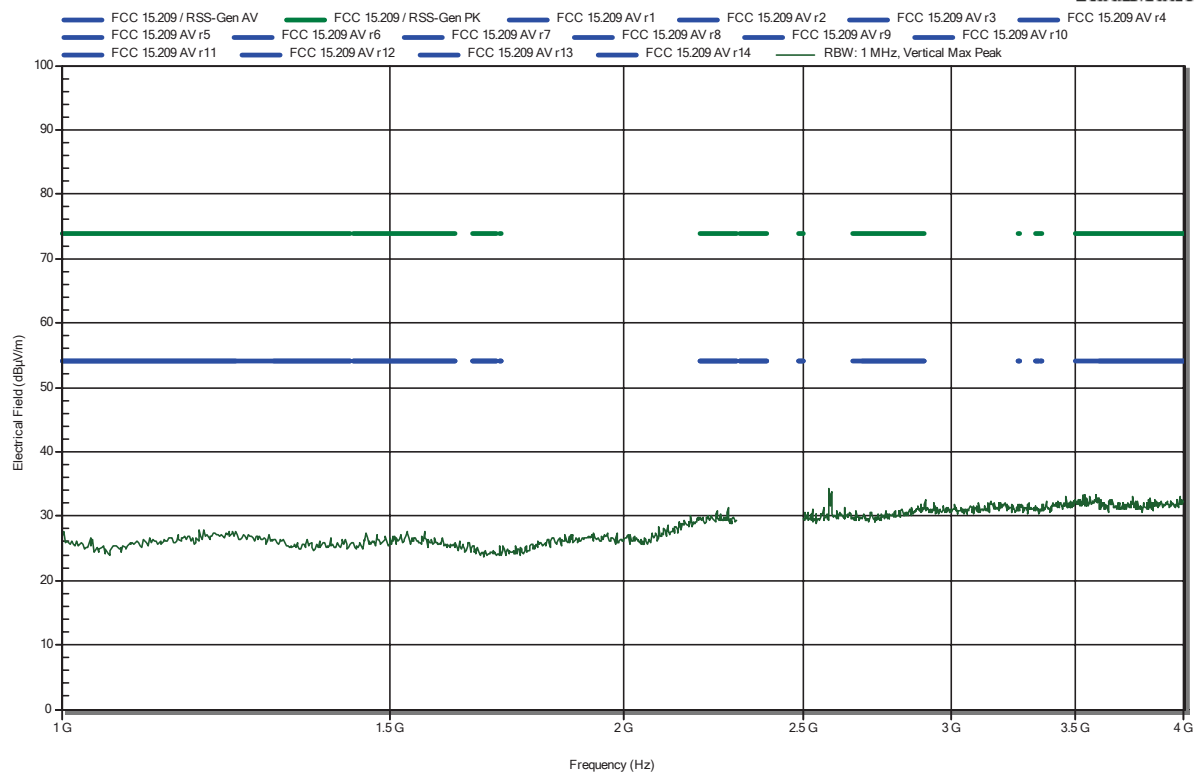
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.38 GHz	44.85 dBμV/m	74 dBμV/m	-29.15 dB	Pass

Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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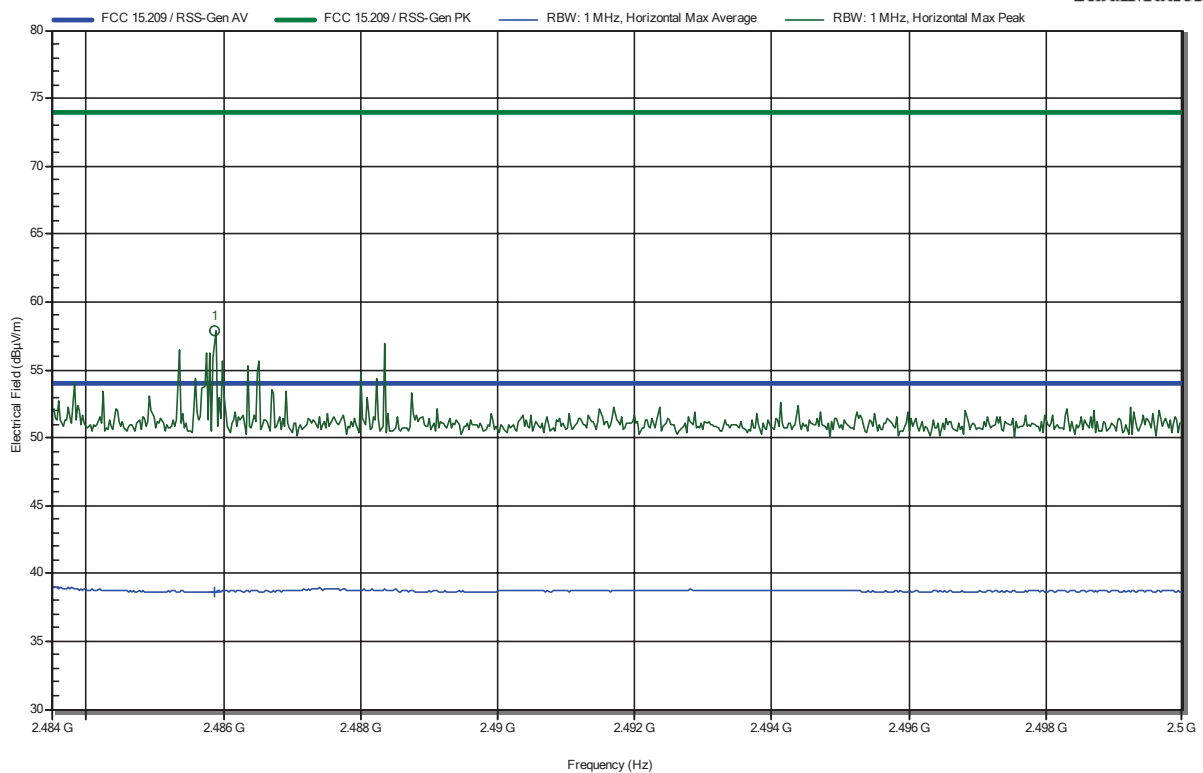


Radiated Spurious Emissions according to FCC 47 CFR 15.247

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 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: upper bandedge

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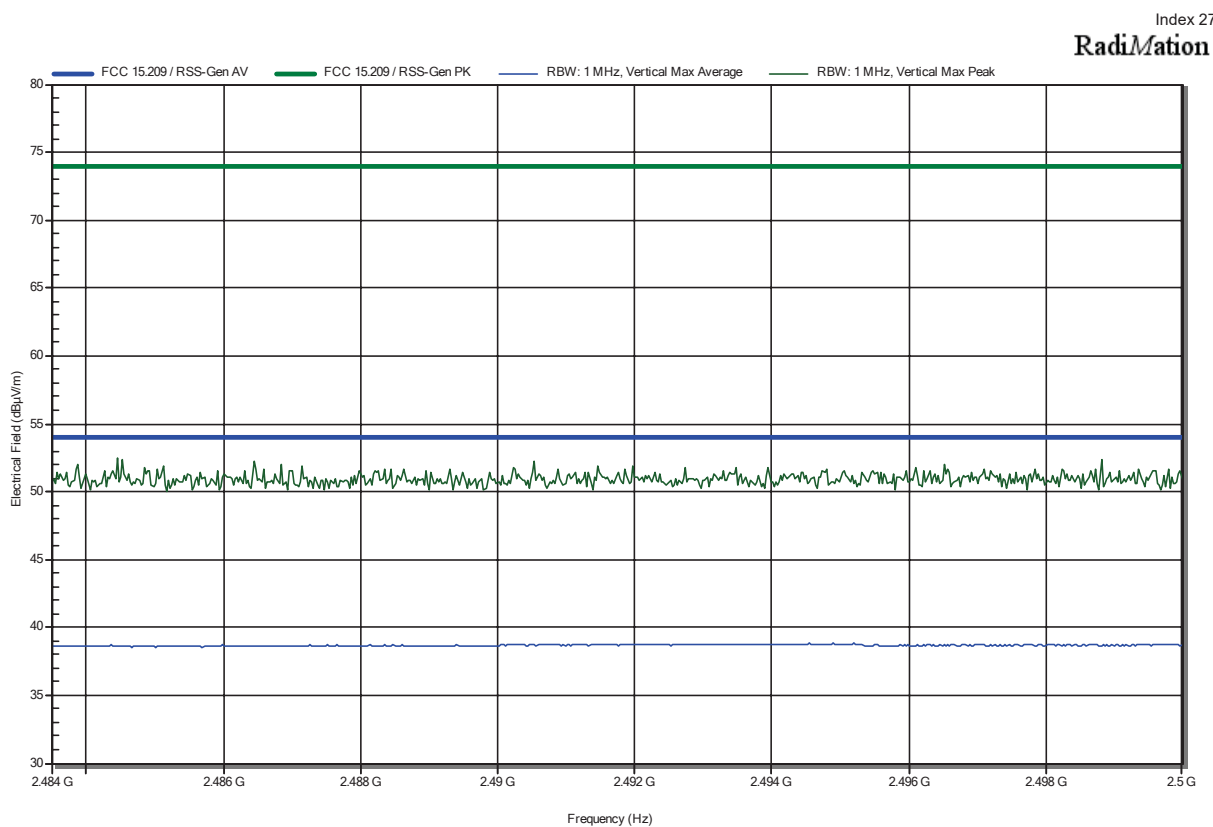
RadiMation



Frequency 2.4859 GHz	Peak 57.89 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -16.11 dB	Peak Status Pass
Frequency 2.4859 GHz	Average 38.57 dBμV/m	Average Limit 54 dBμV/m	Average Difference -15.43 dB	Average Status Pass

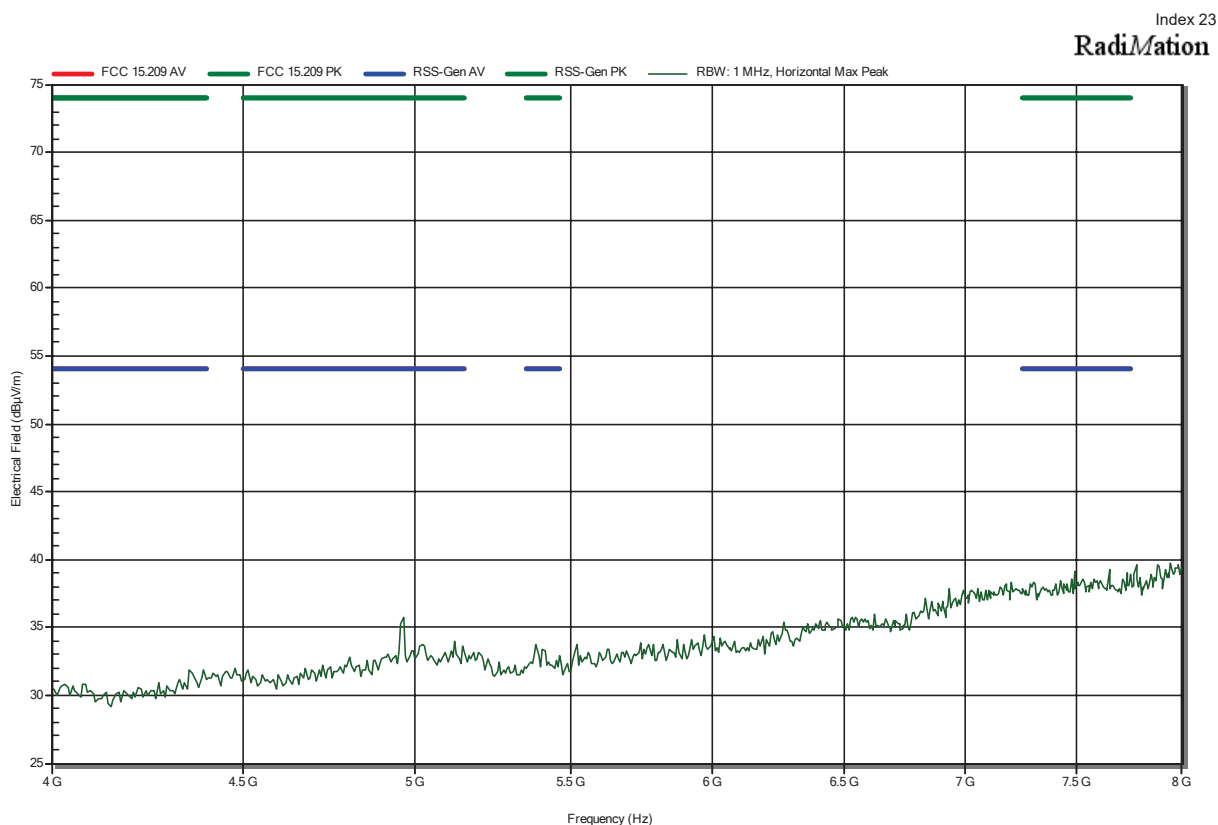
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 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: upper bandedge



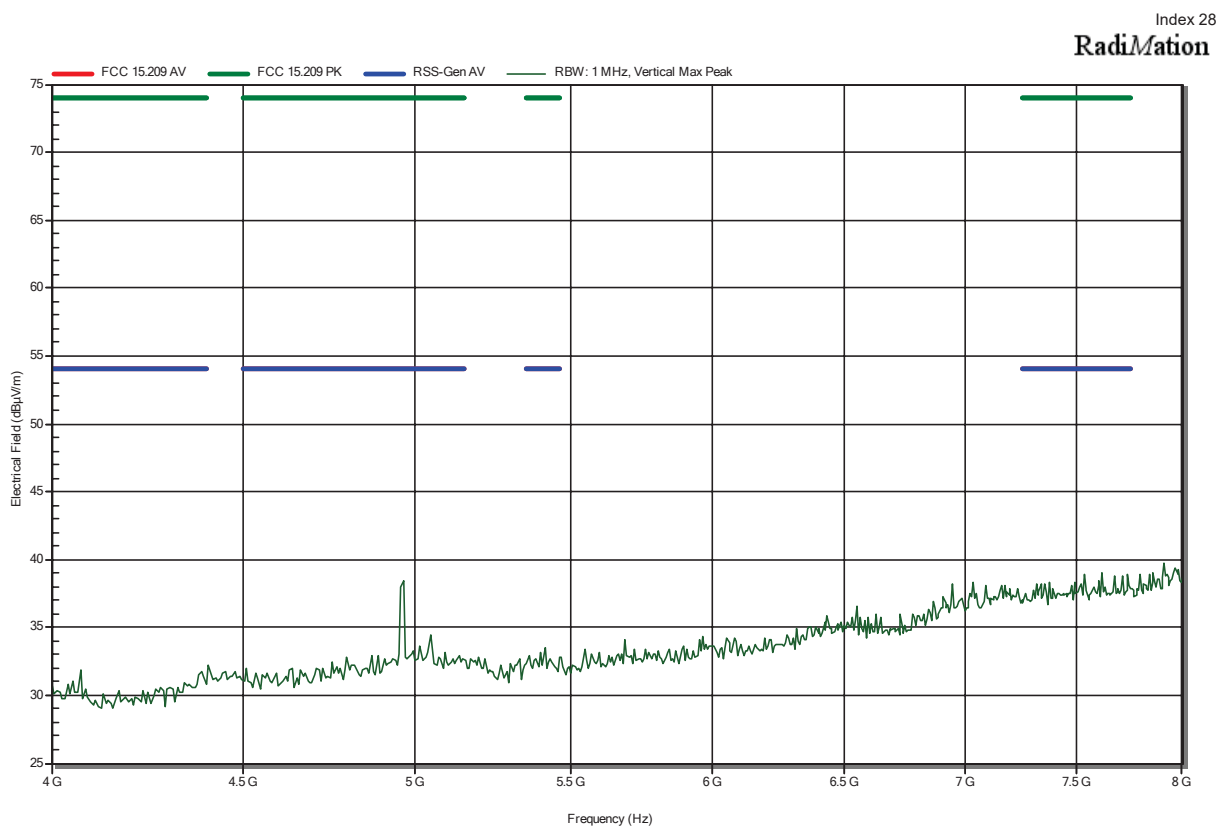
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 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
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 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

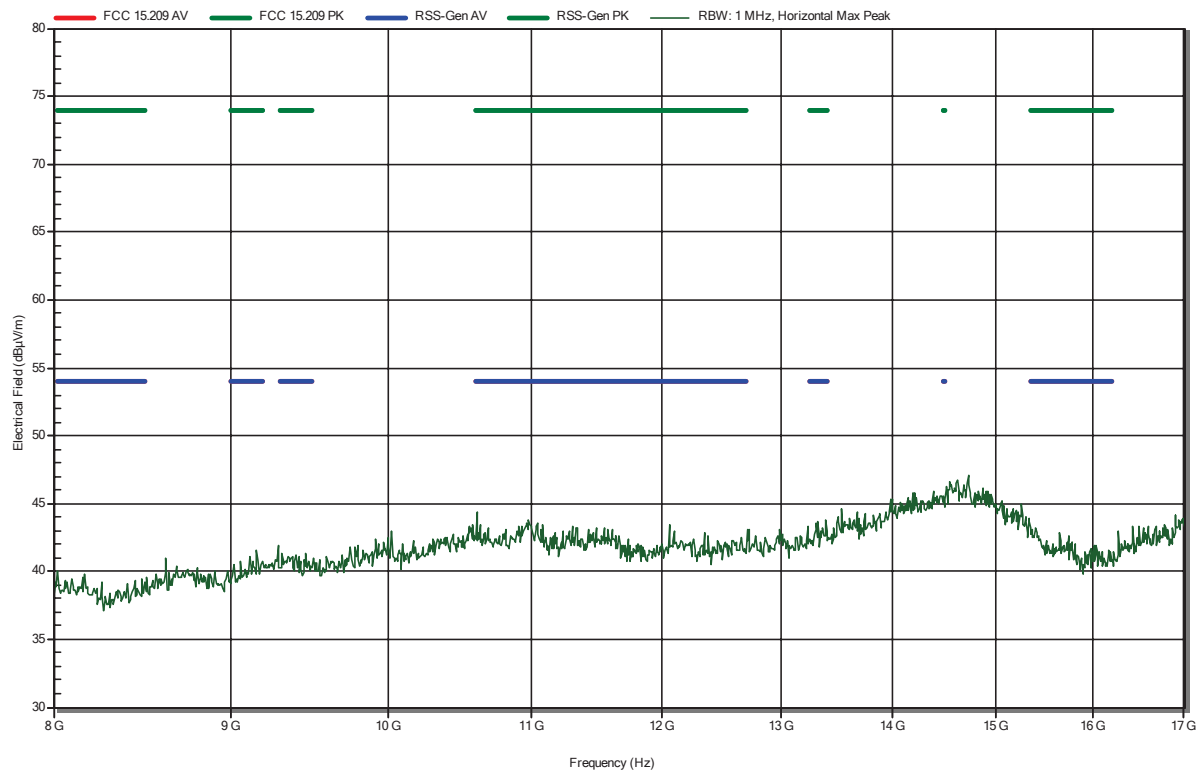


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 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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RadiMation

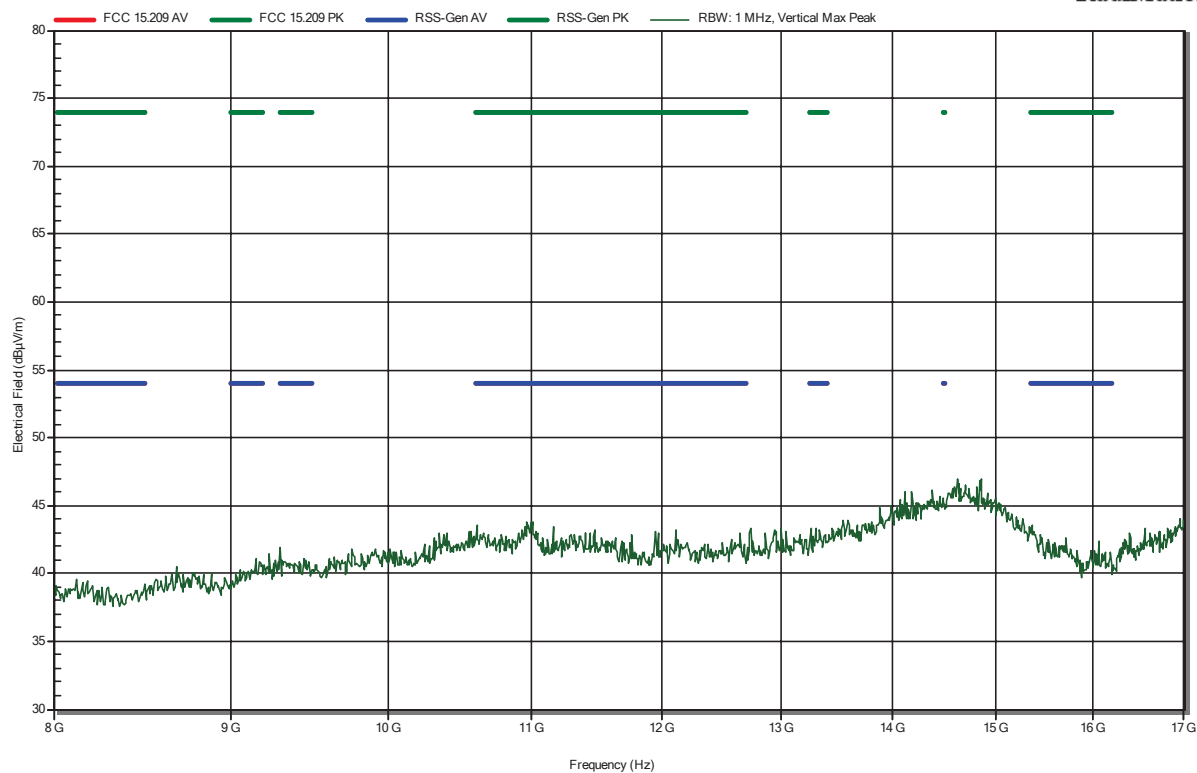


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

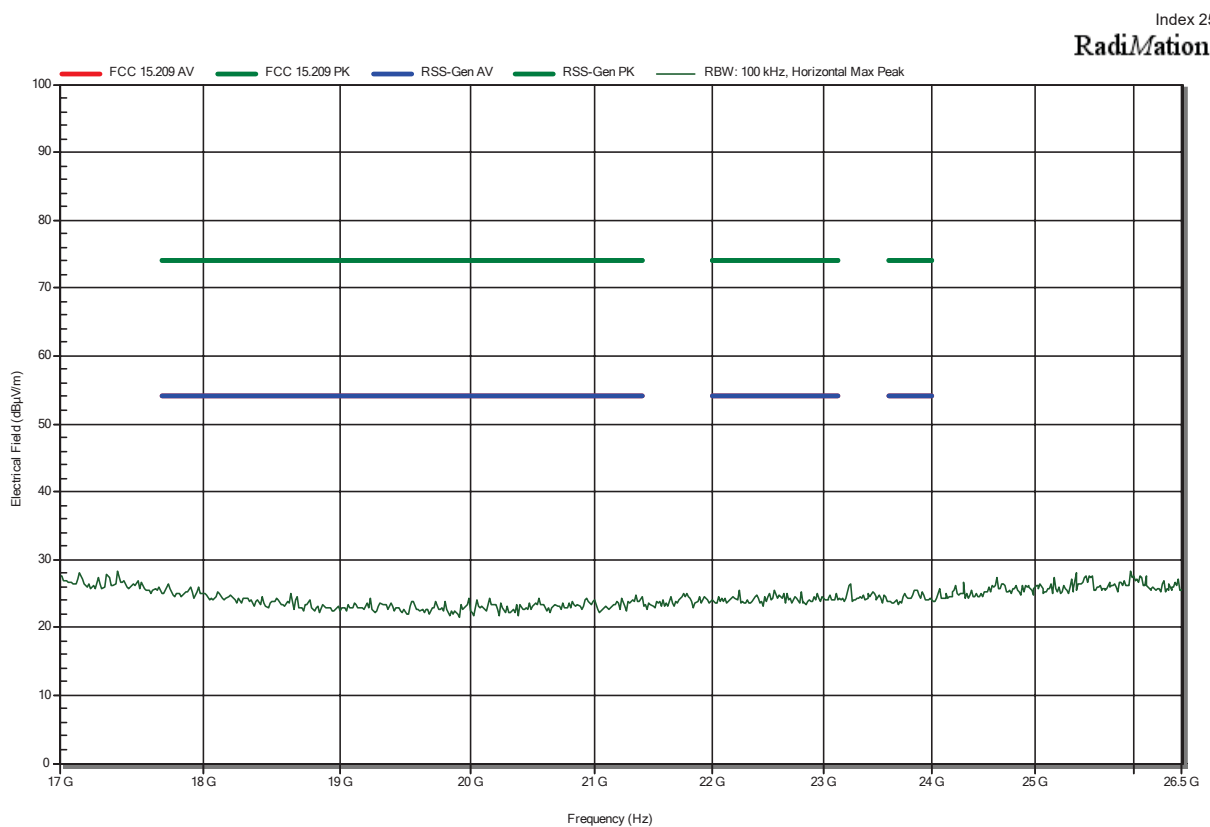
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RadiMation



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Amplifier Research AT4560, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

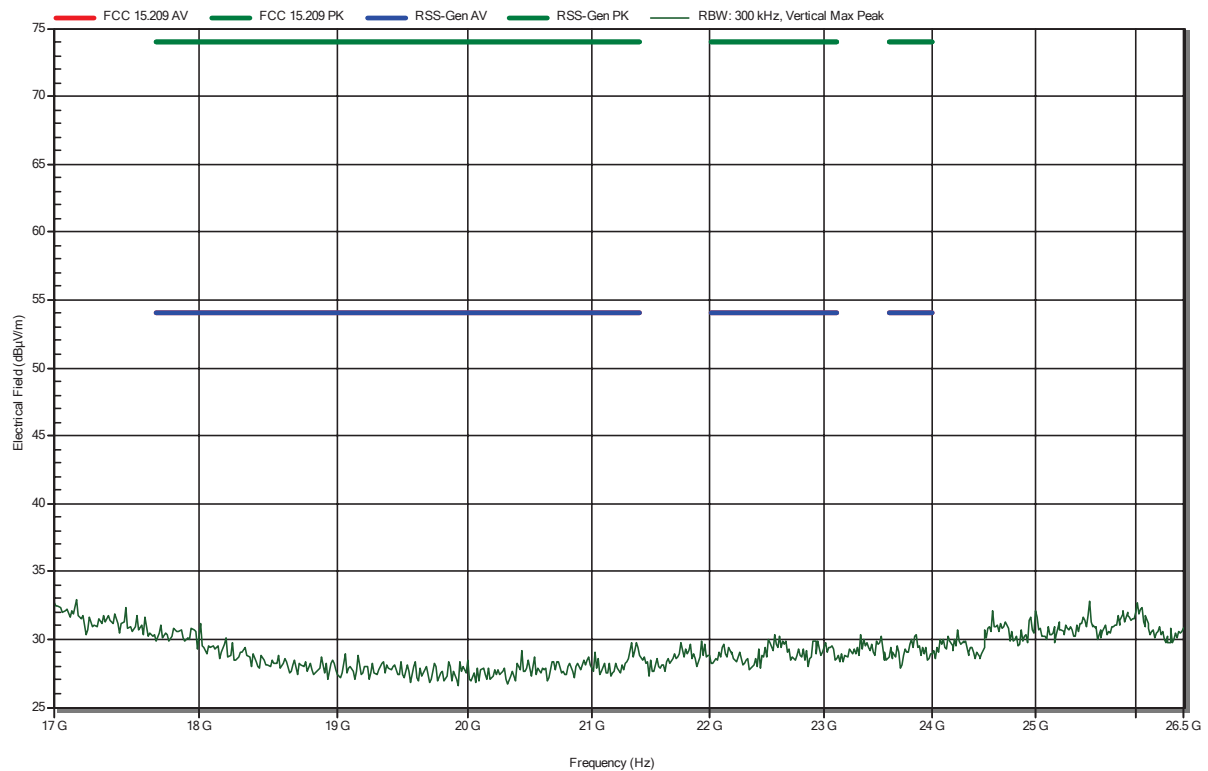


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Amplifier Research AT4560, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; DH5; 1Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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RadiMation

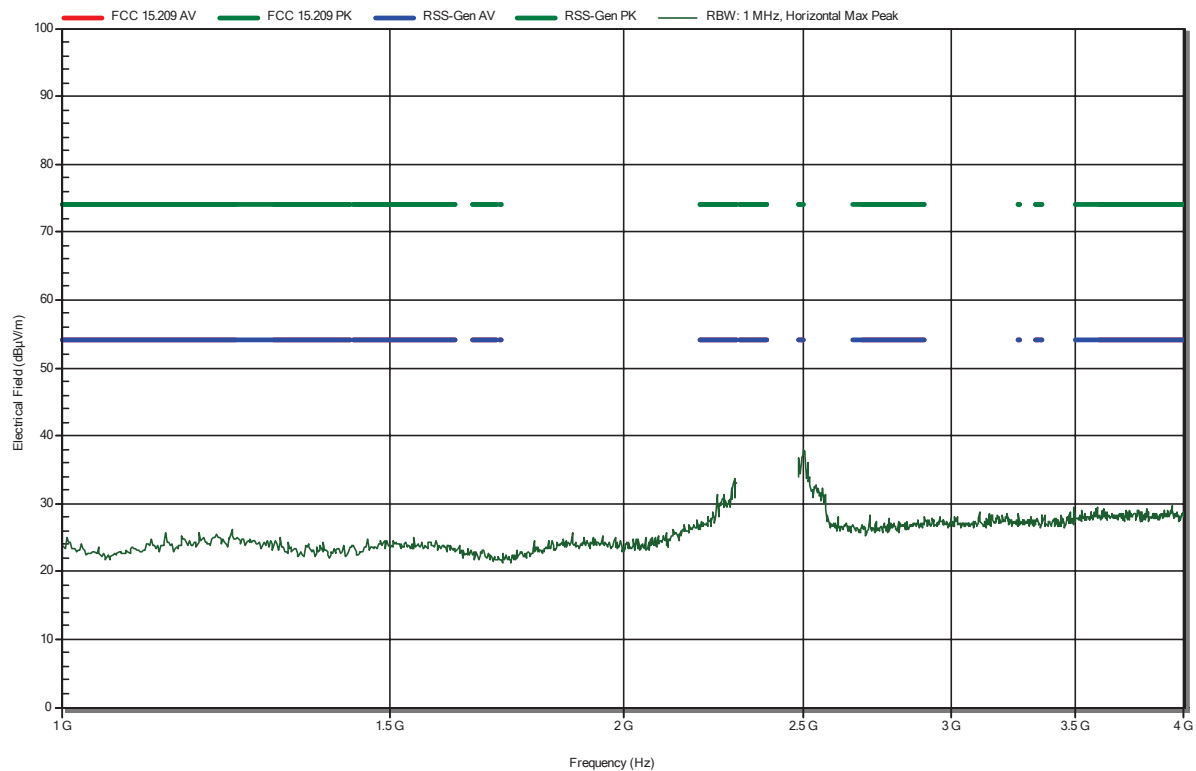


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

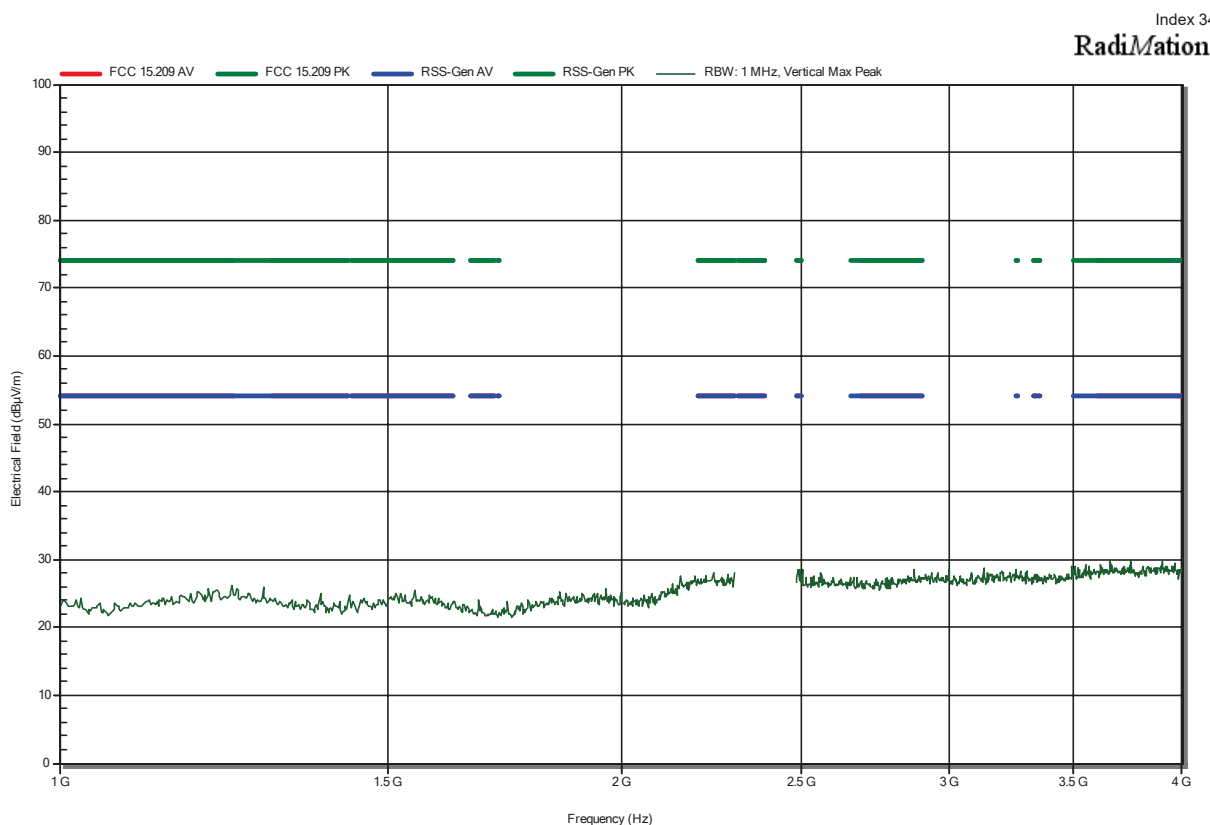
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RadiMation



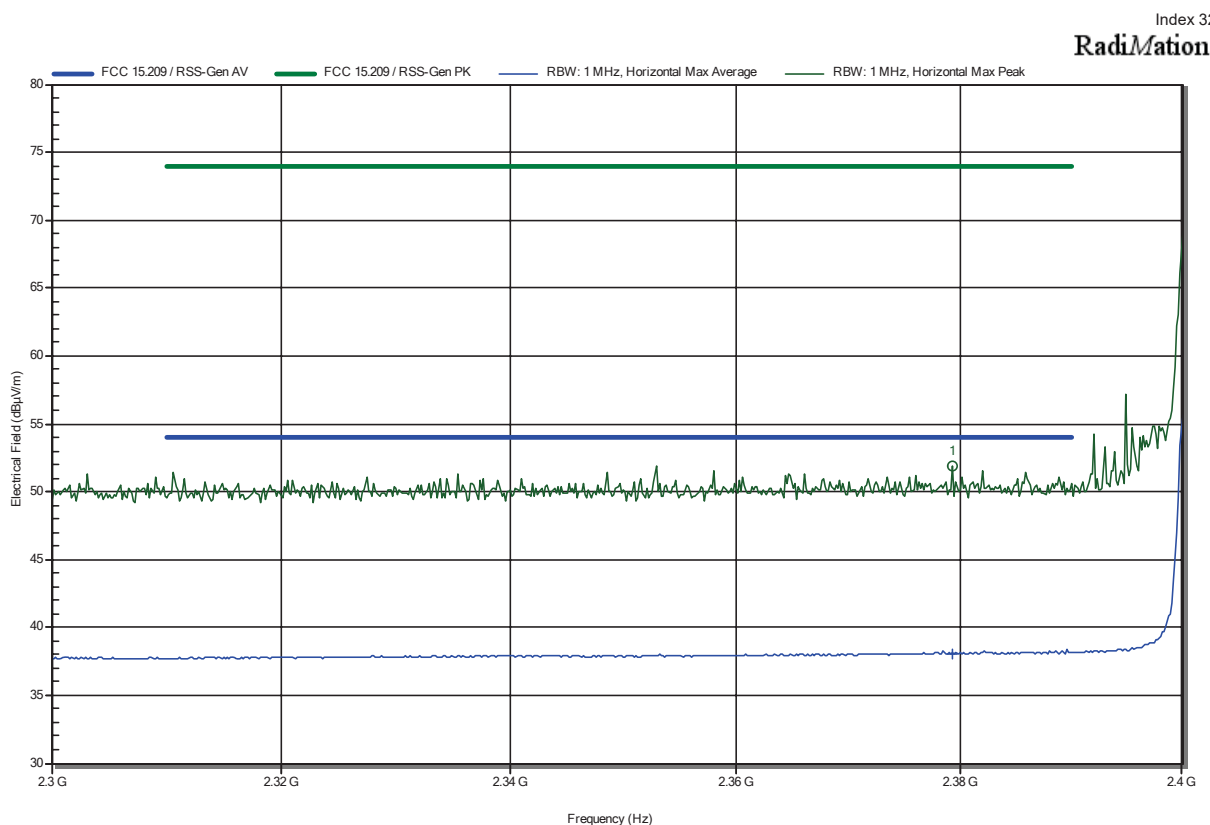
Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: lower bandedge



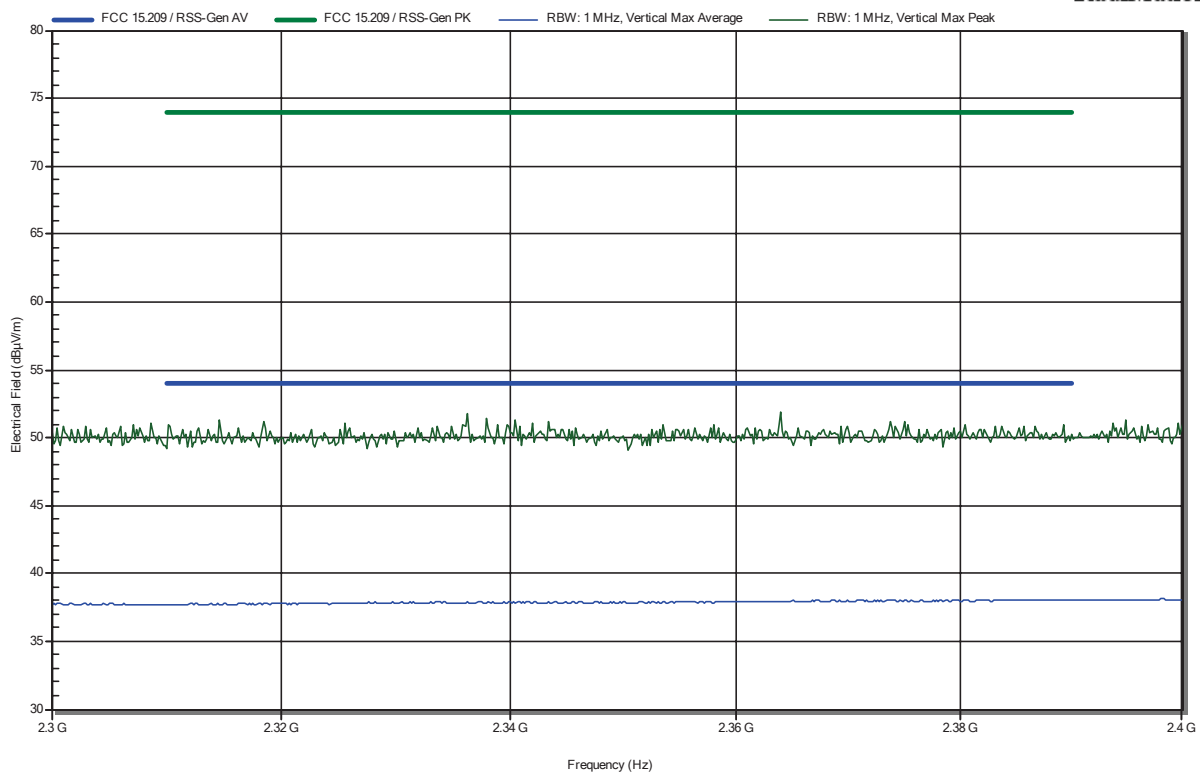
Frequency 2.3793 GHz	Peak 51.92 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -22.08 dB	Peak Status Pass
Frequency 2.3793 GHz	Average 38.01 dBµV/m	Average Limit 54 dBµV/m	Average Difference -15.99 dB	Average Status Pass

Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: lower bandedge

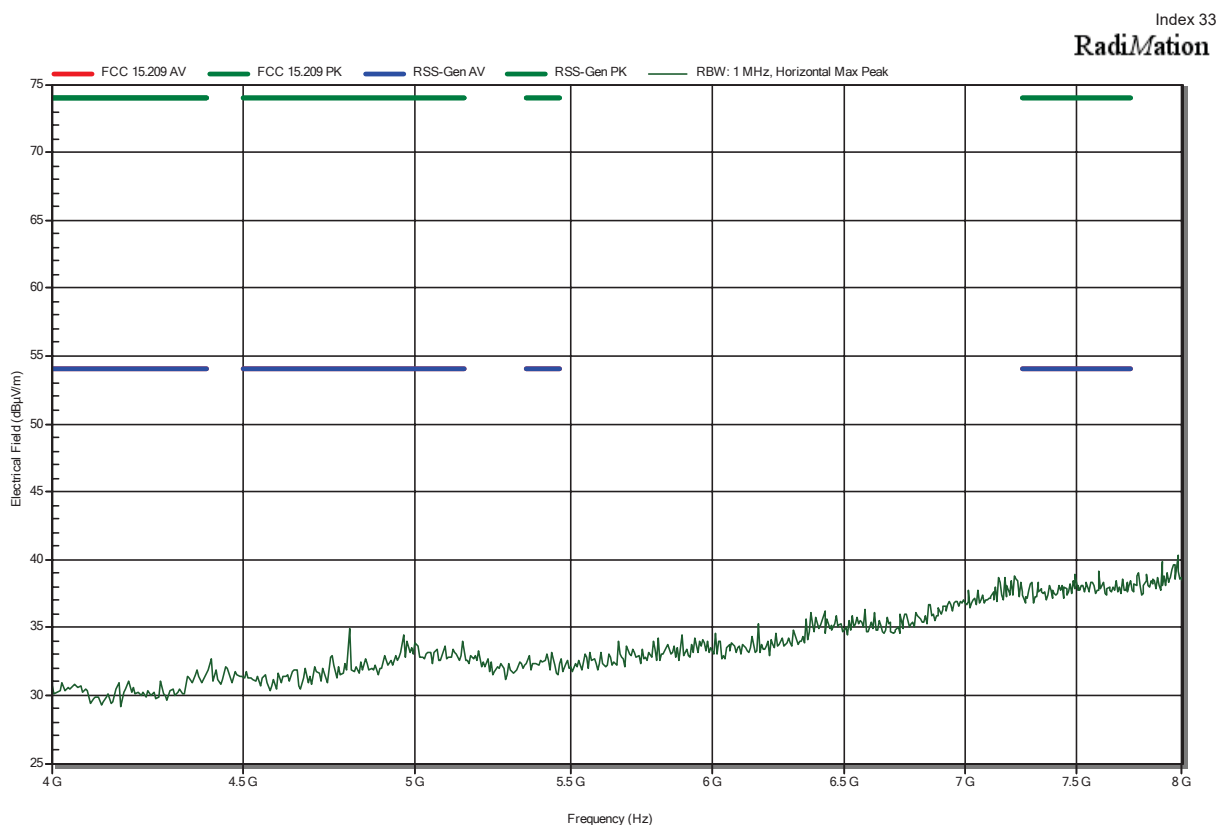
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RadiMation



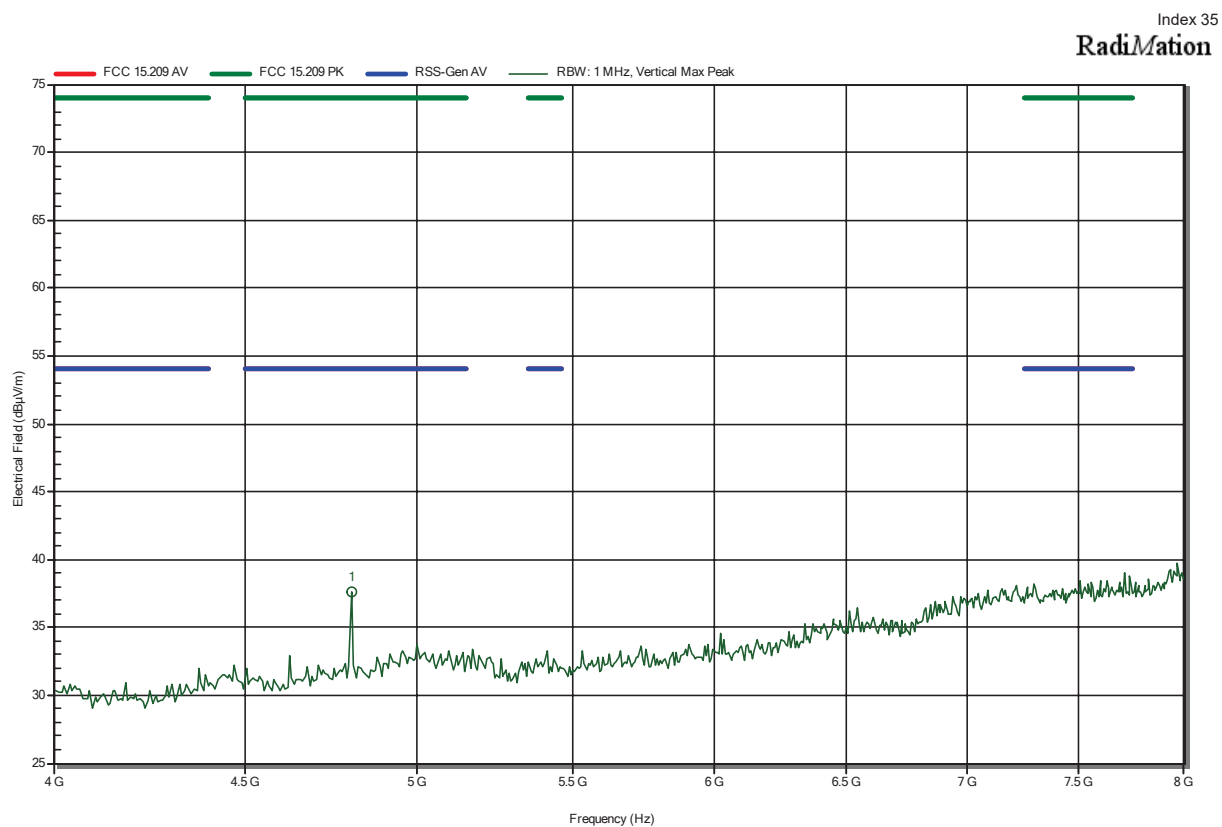
Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2402 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



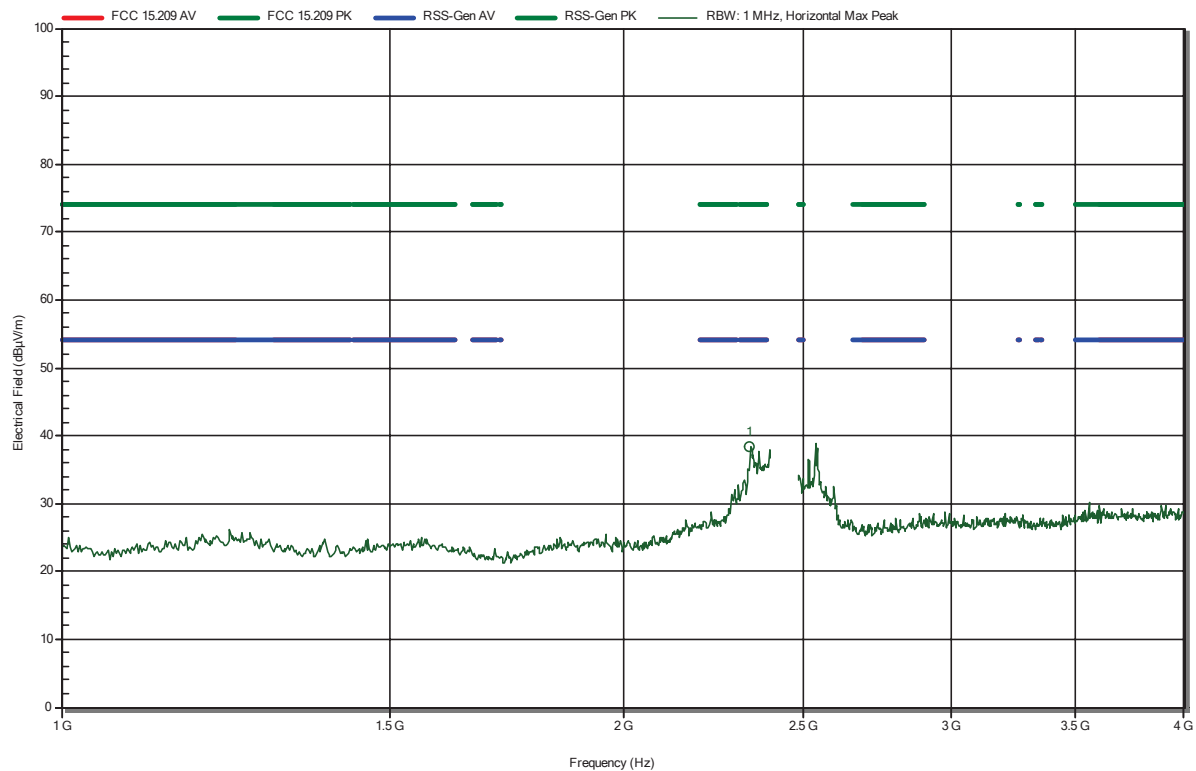
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.801 GHz	37.64 dBµV/m	74 dBµV/m	-36.36 dB	Pass

Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3394 GHz	38.47 dBμV/m	74 dBμV/m	-35.53 dB	Pass

Test Report No.: G0M-2101-9569-TFC247BL-V01

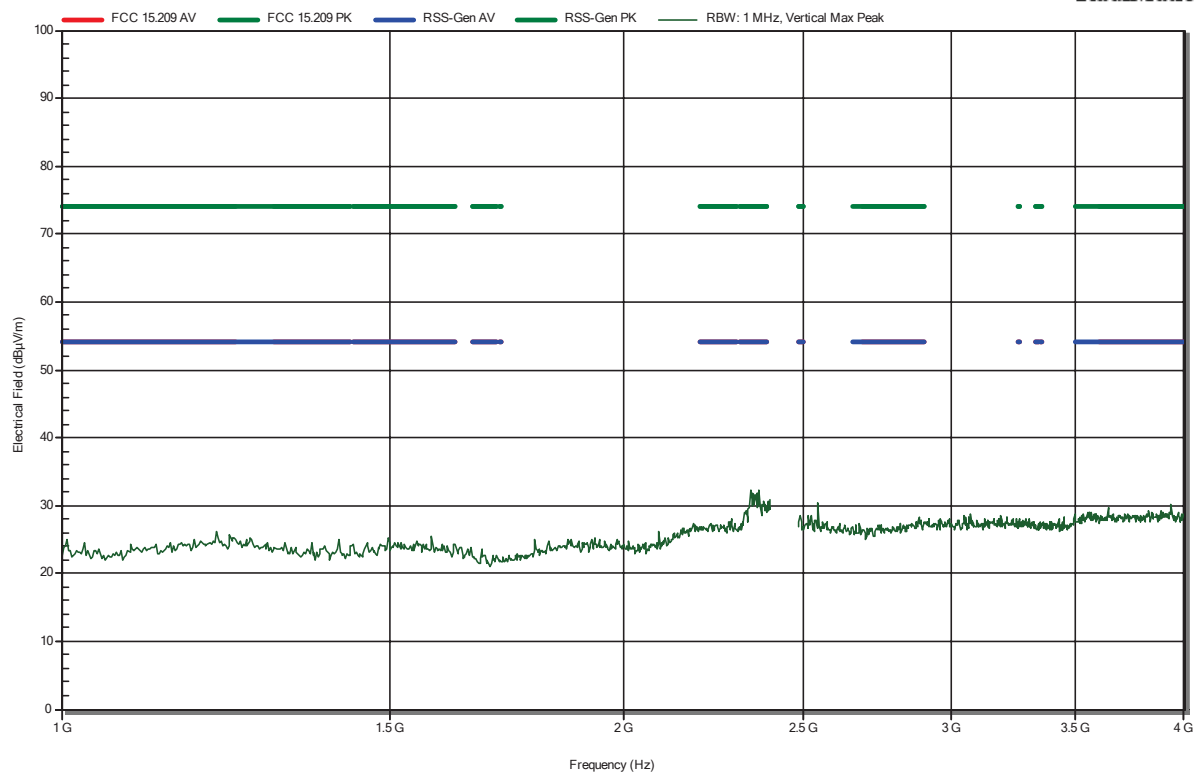
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

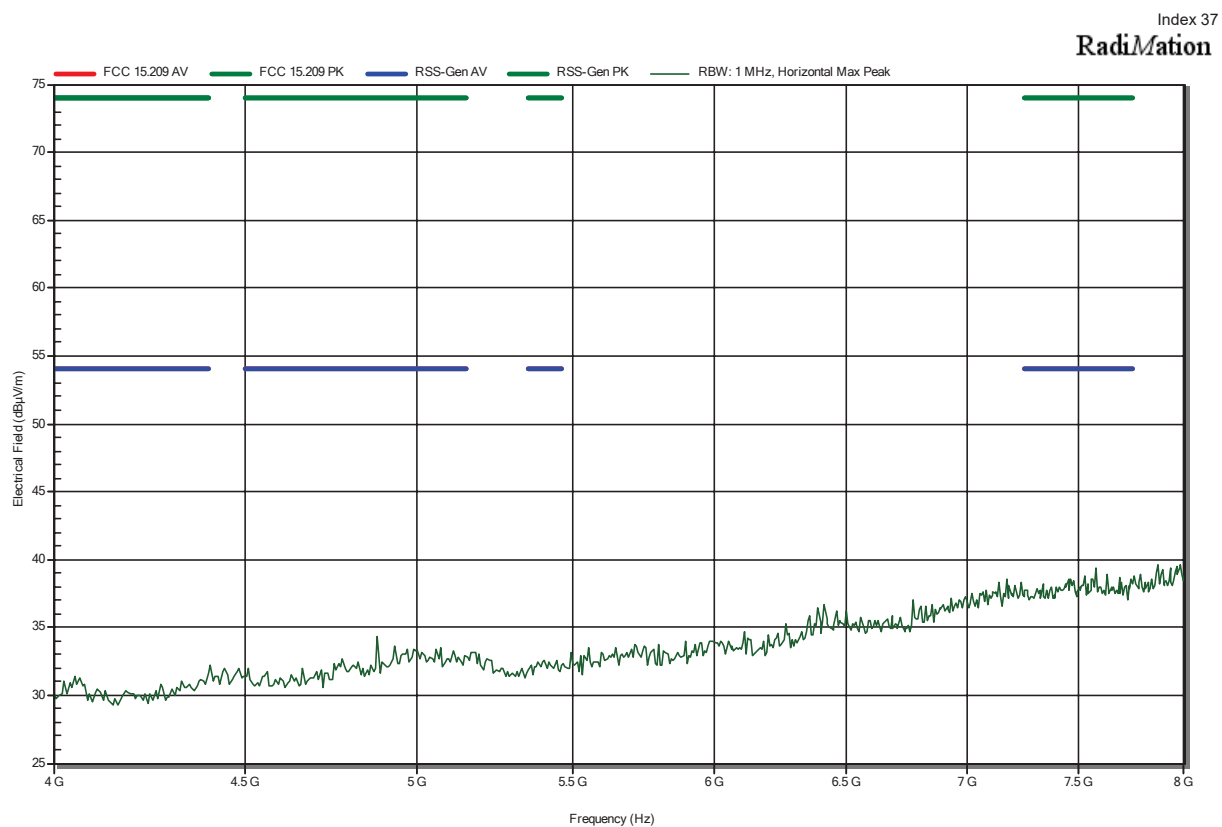
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RadiMation



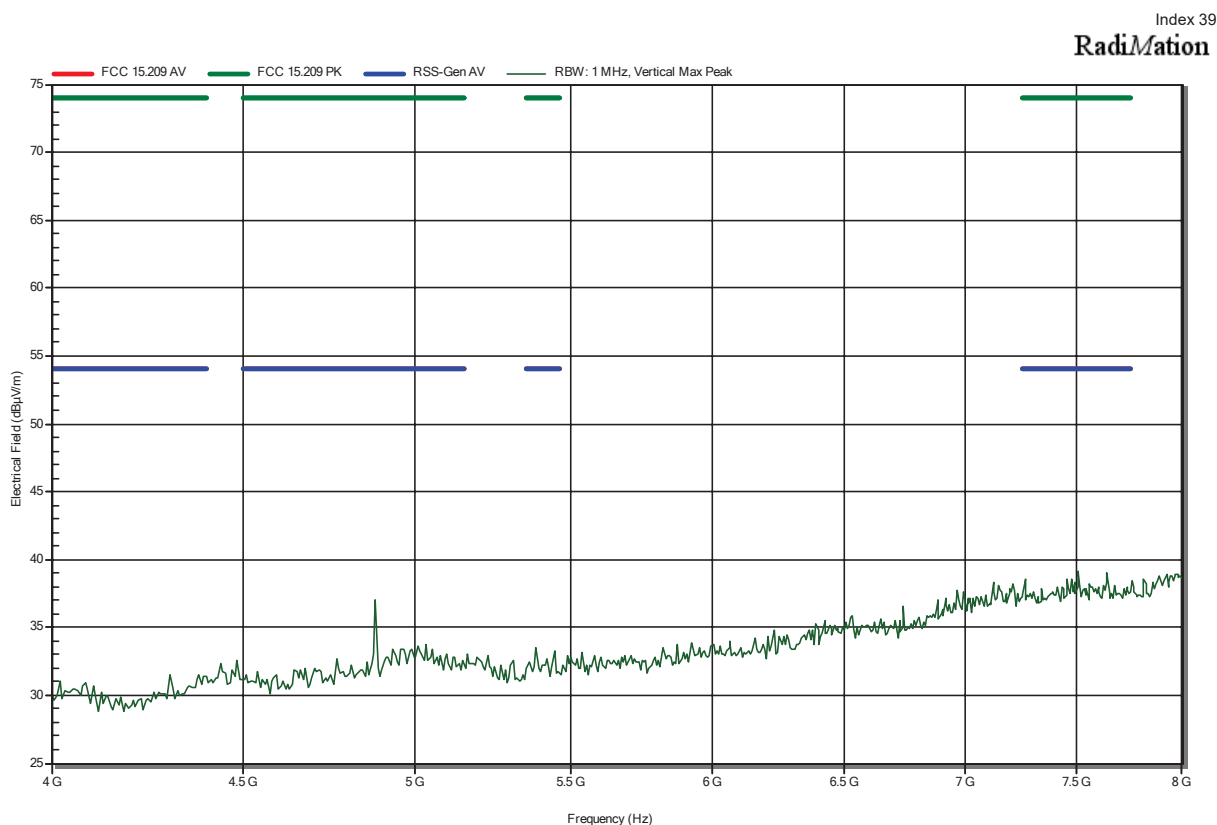
Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



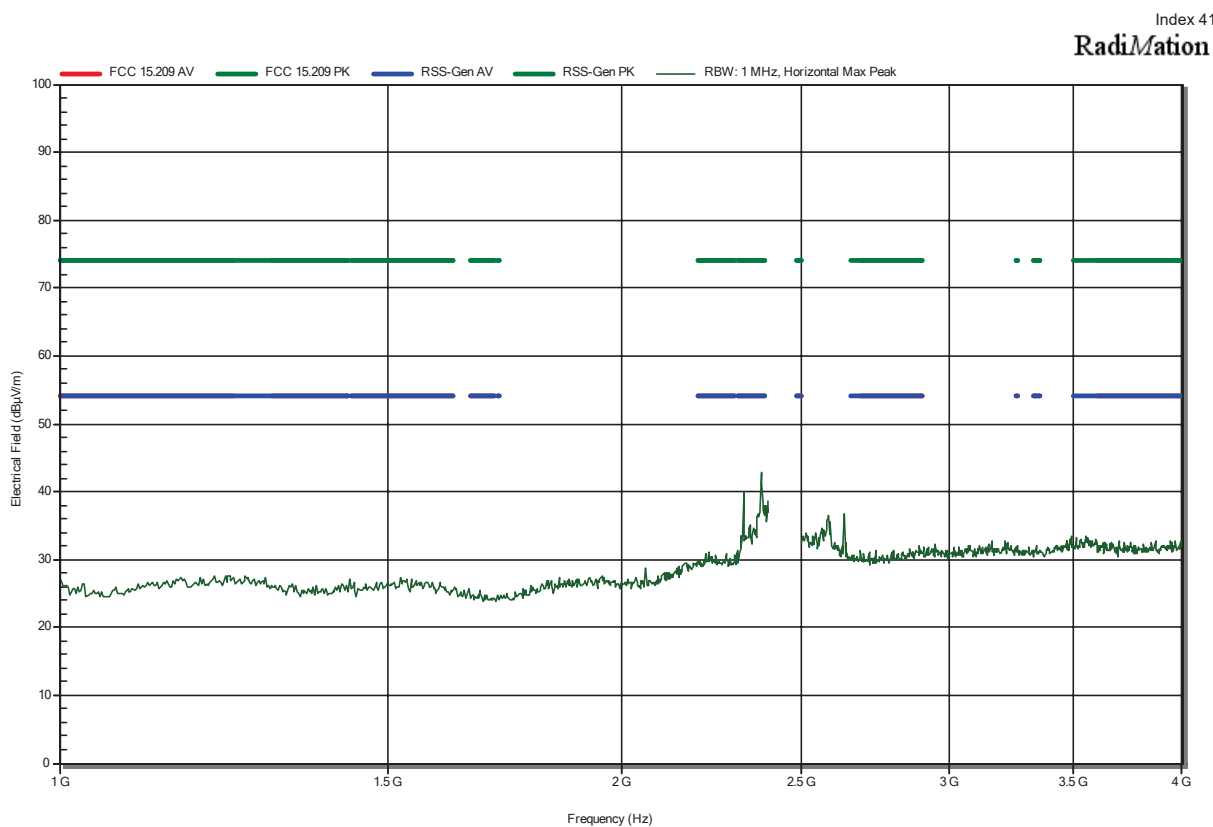
Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2441 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



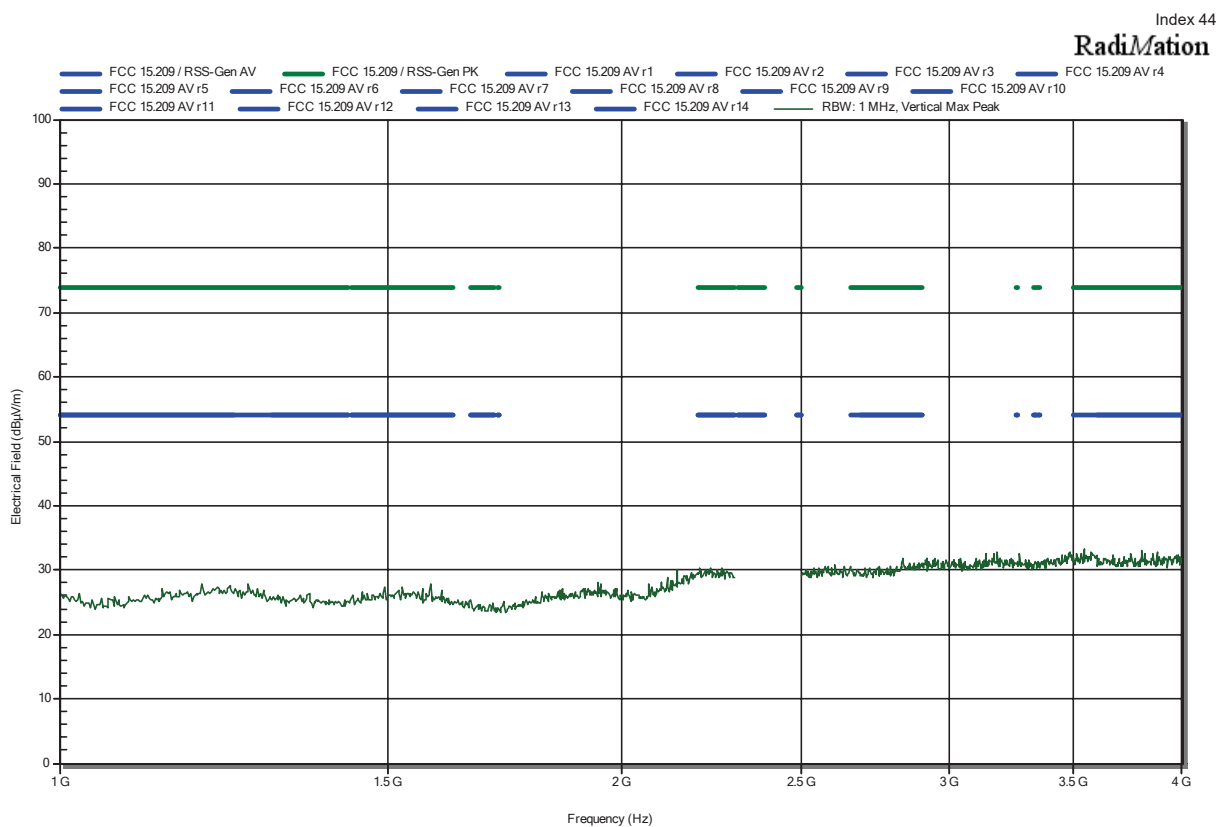
Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

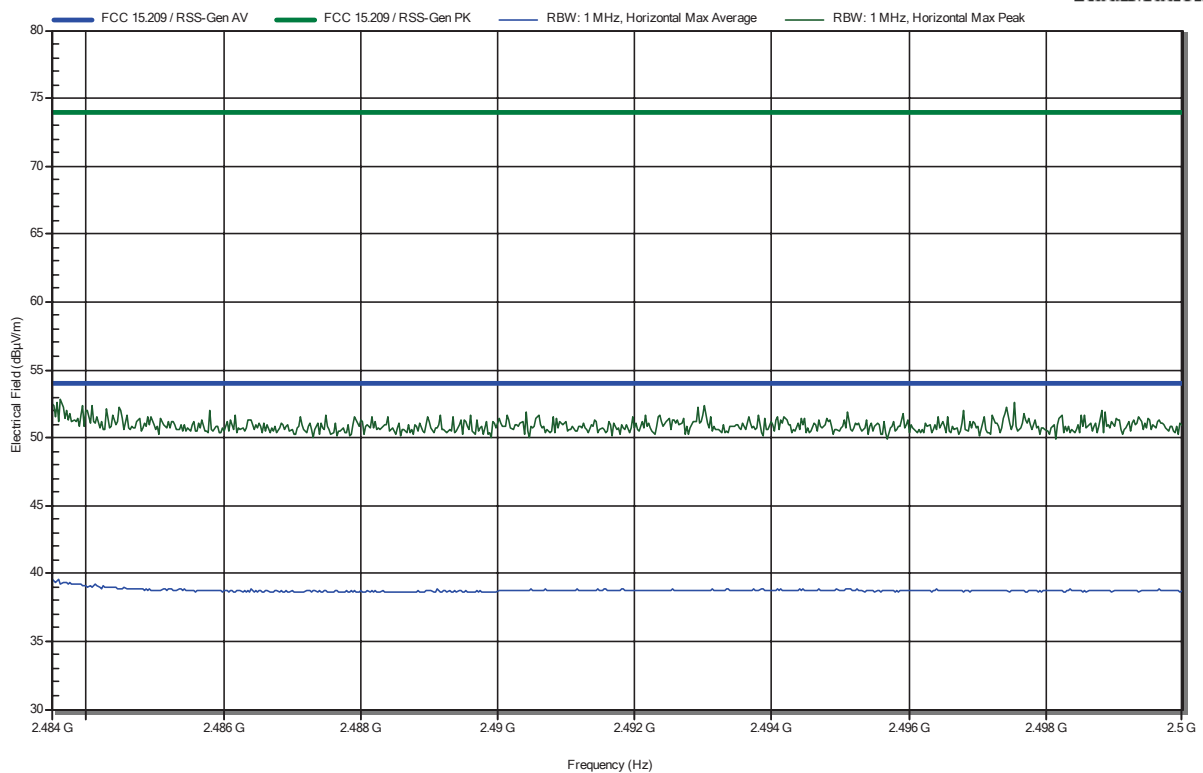


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: upper bandedge

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RadiMation

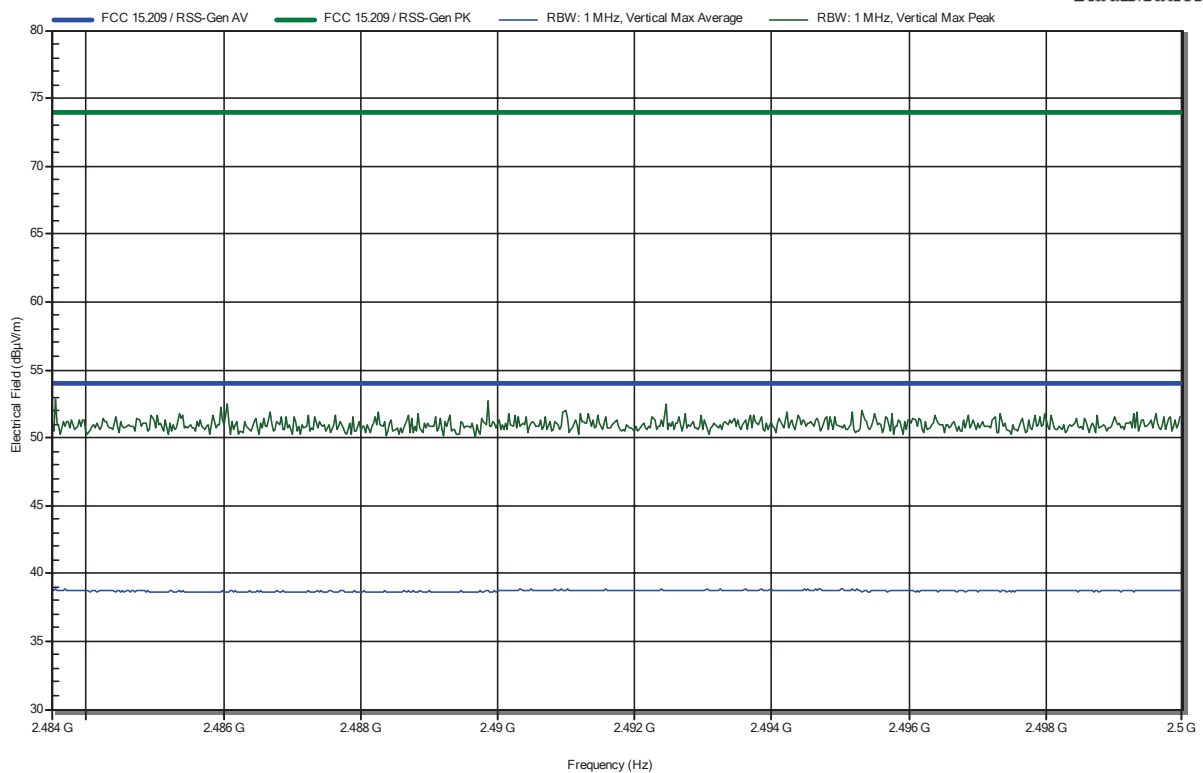


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: upper bandedge

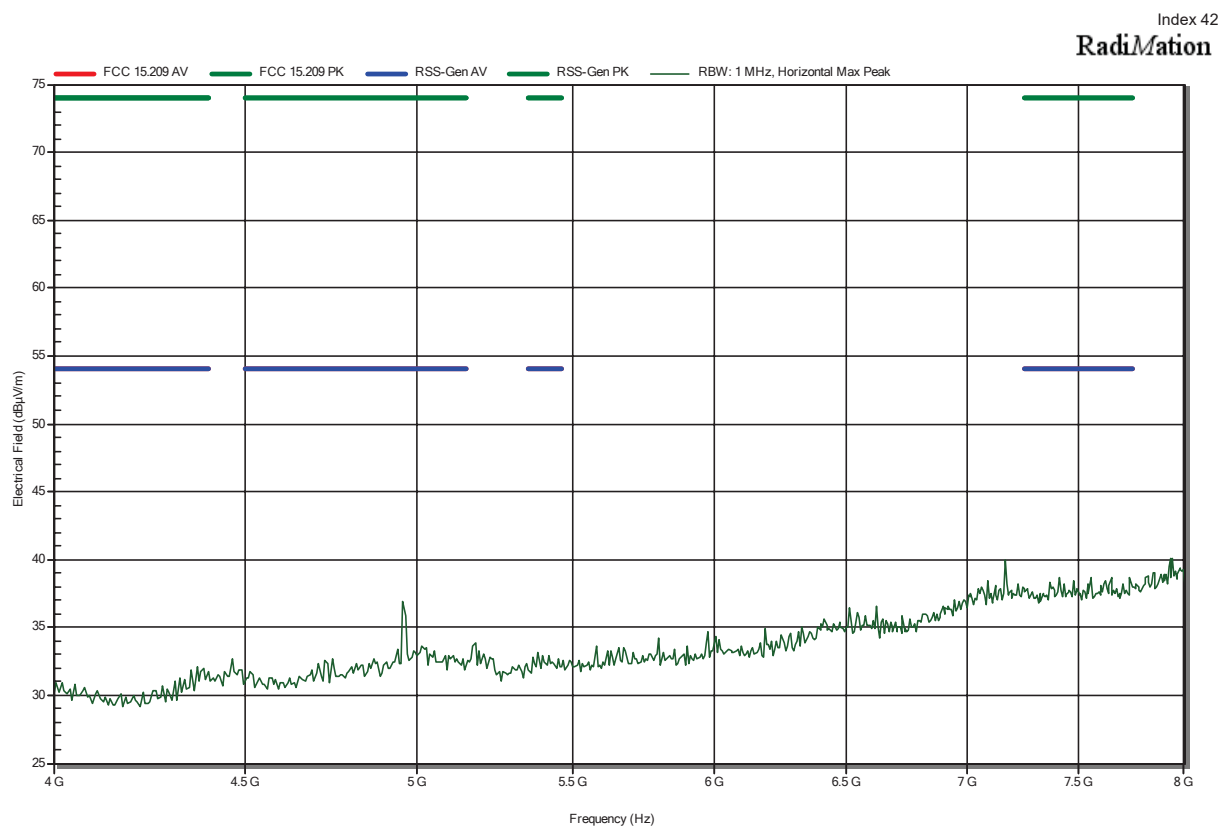
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RadiMation



Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

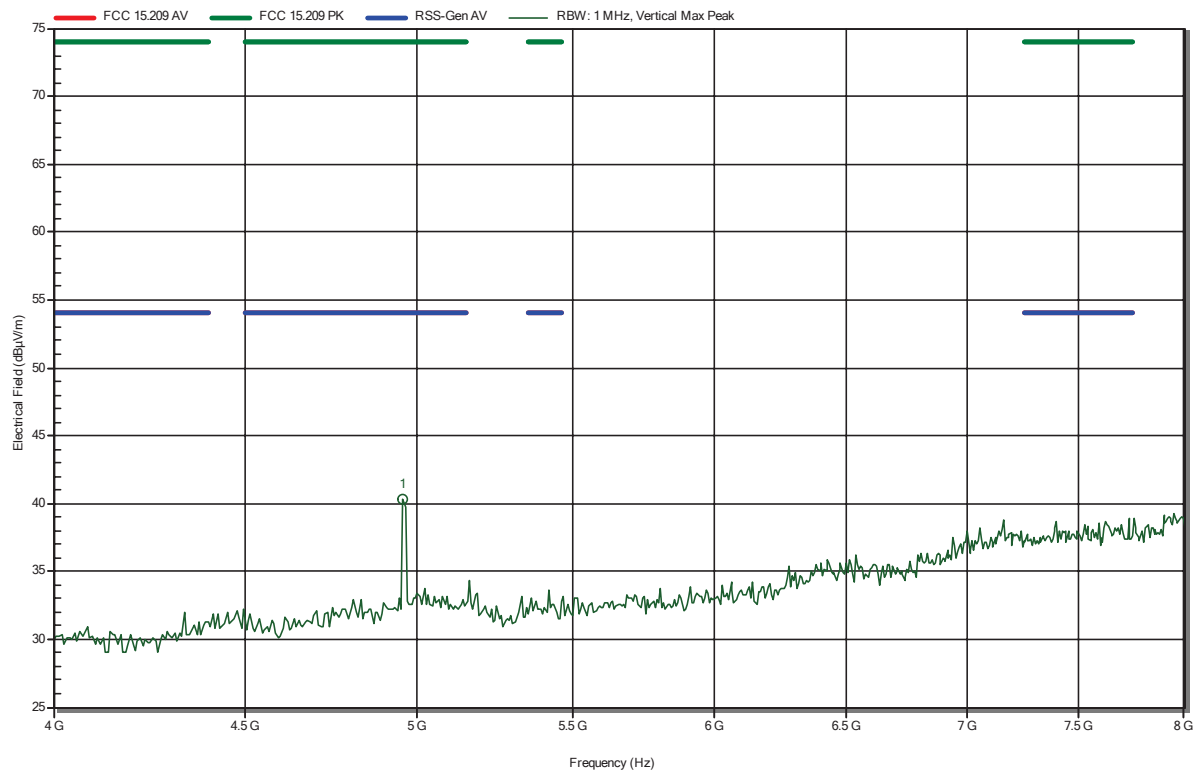


Radiated Spurious Emissions according to FCC 47 CFR 15.247

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 25 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m, converted to 3 m
 Mode: Tx; BT; 3DH5; 3Mbps; 2480 MHz
 Test Date: 2021-07-27
 Note: EUT horizontal

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RadiMation

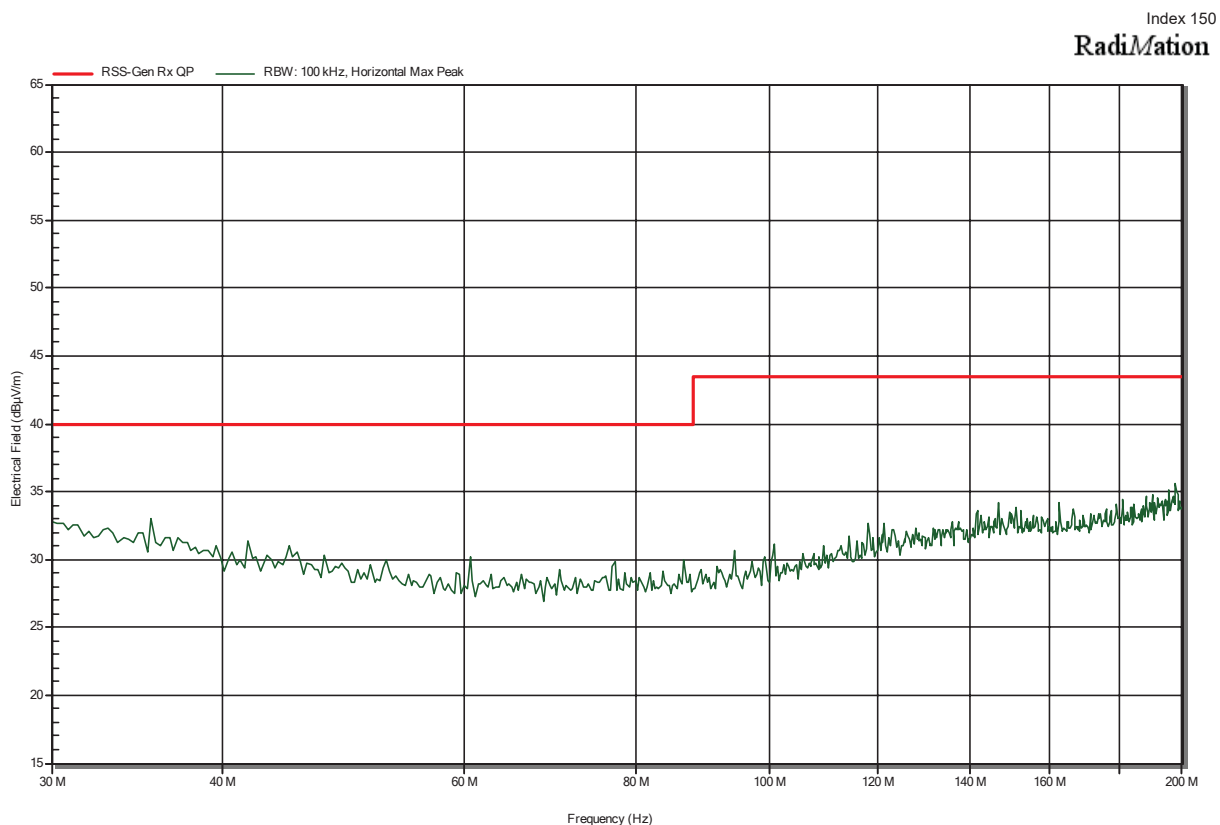


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.955 GHz	40.31 dBµV/m	74 dBµV/m	-33.69 dB	Pass

ANNEX B Receiver spurious emissions

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal

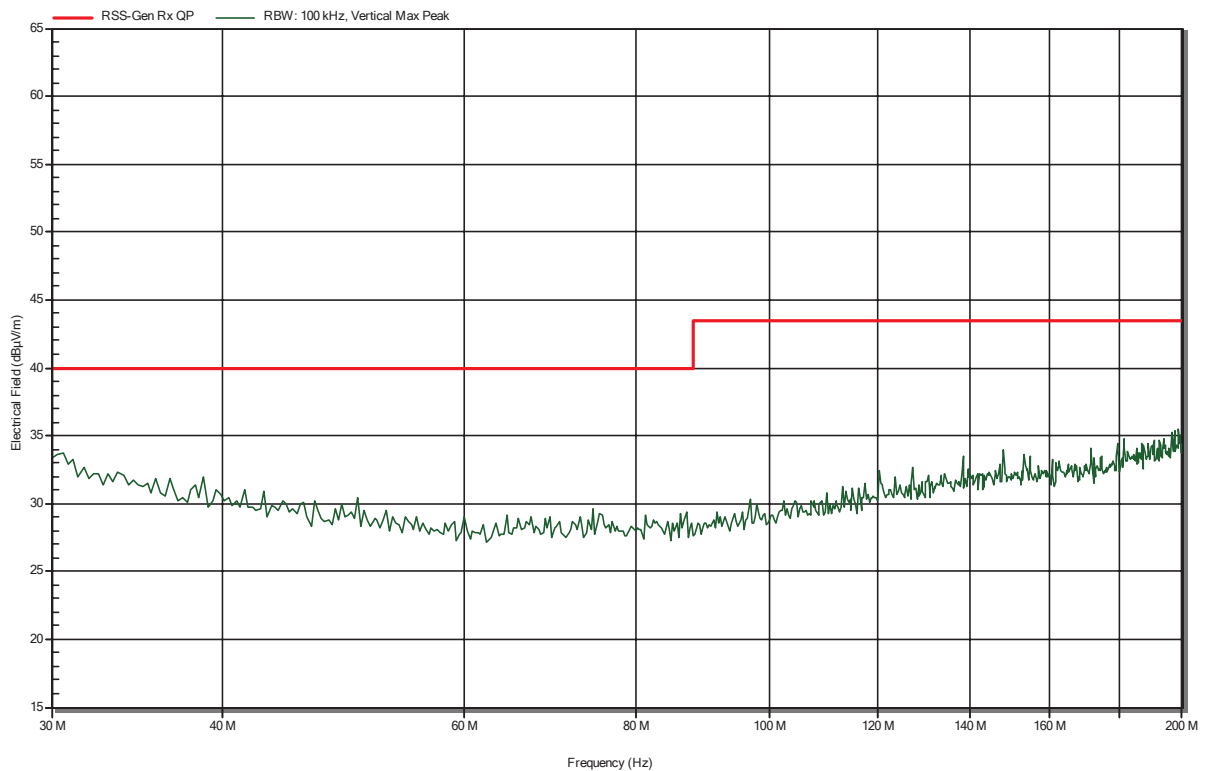


Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal

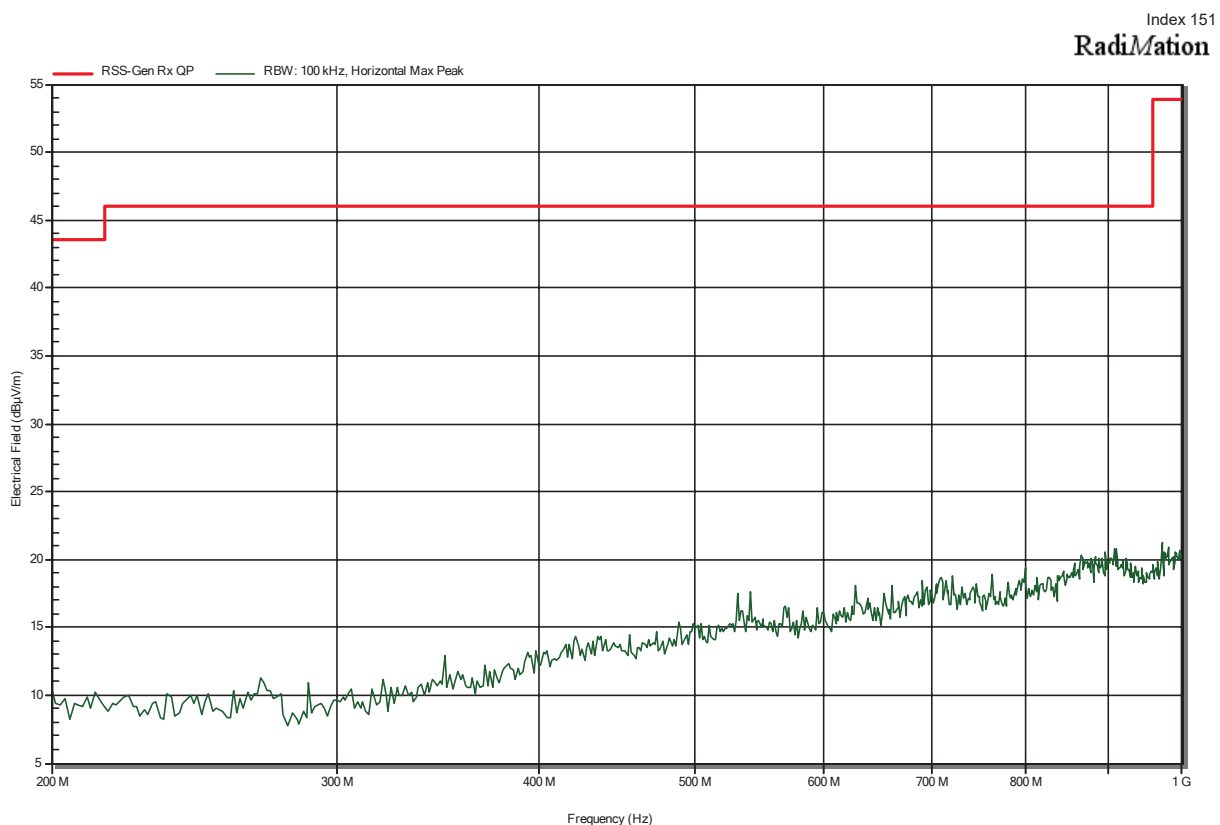
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RadiMation



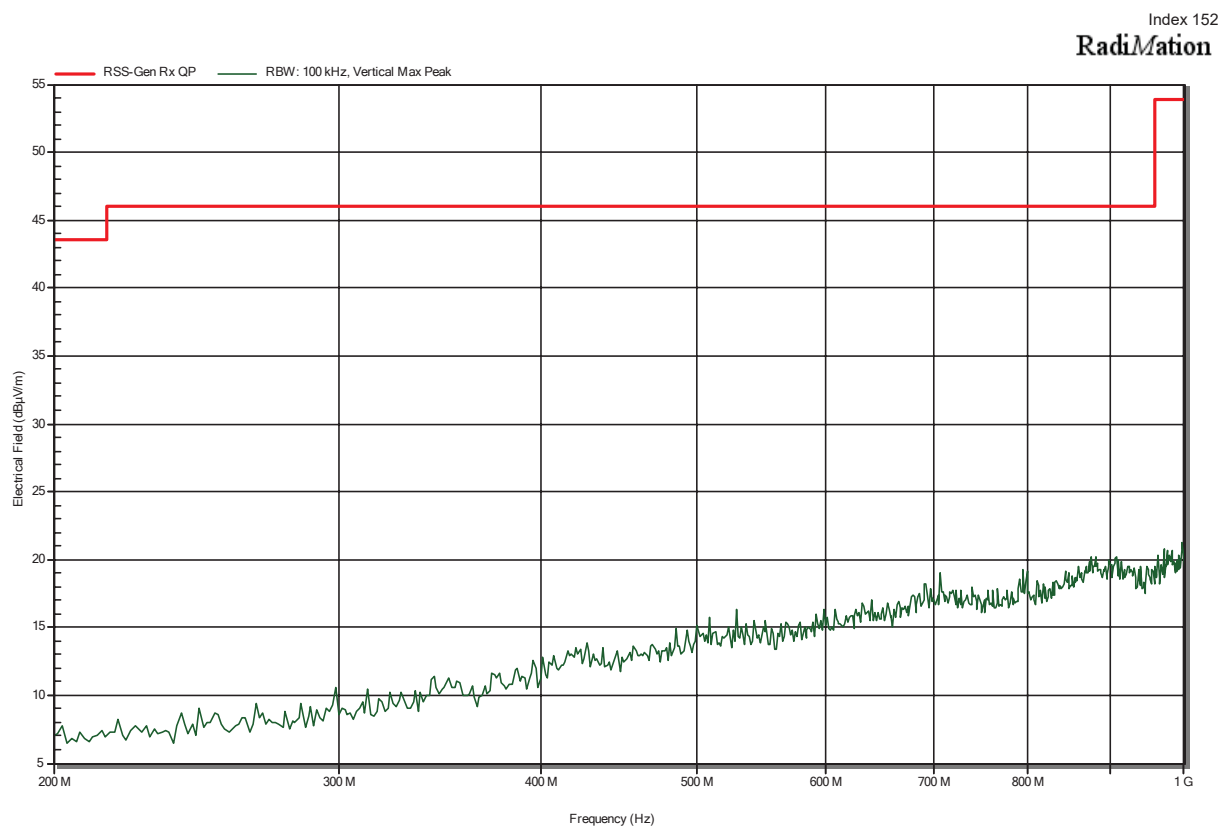
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



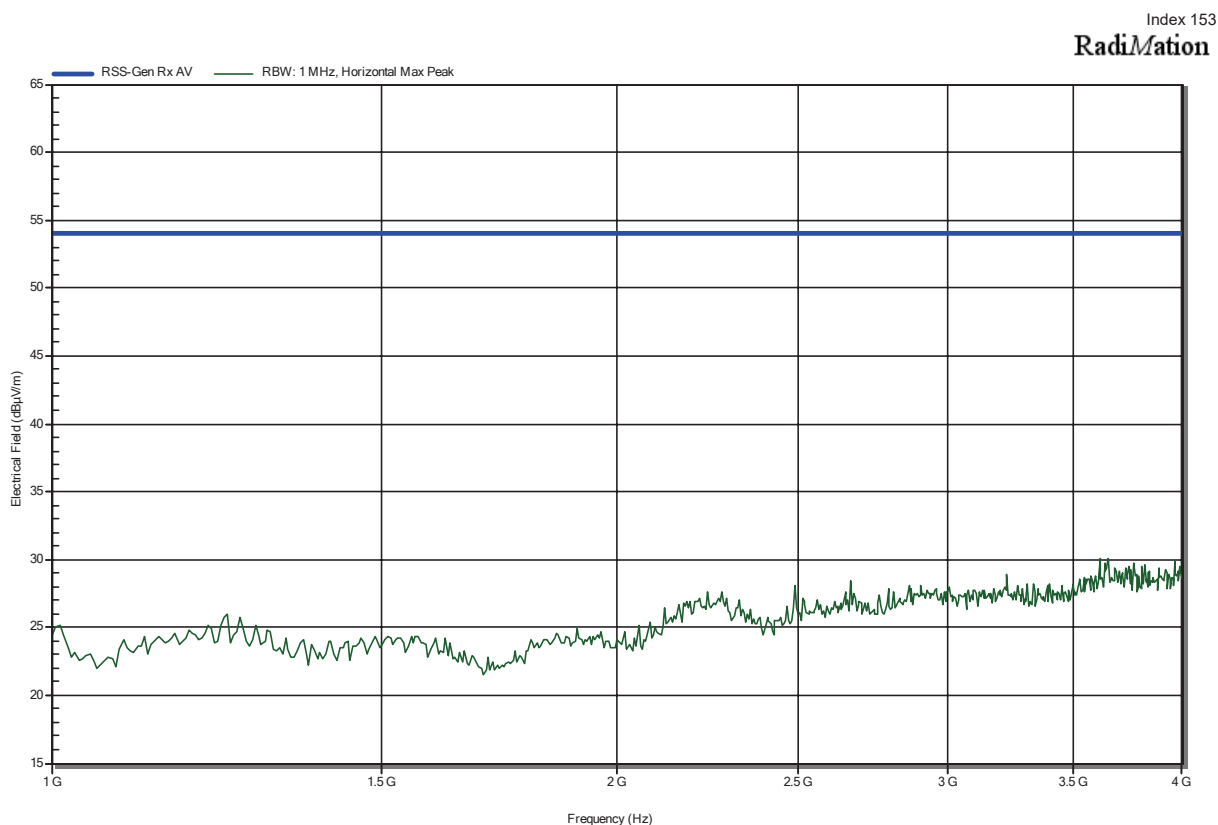
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



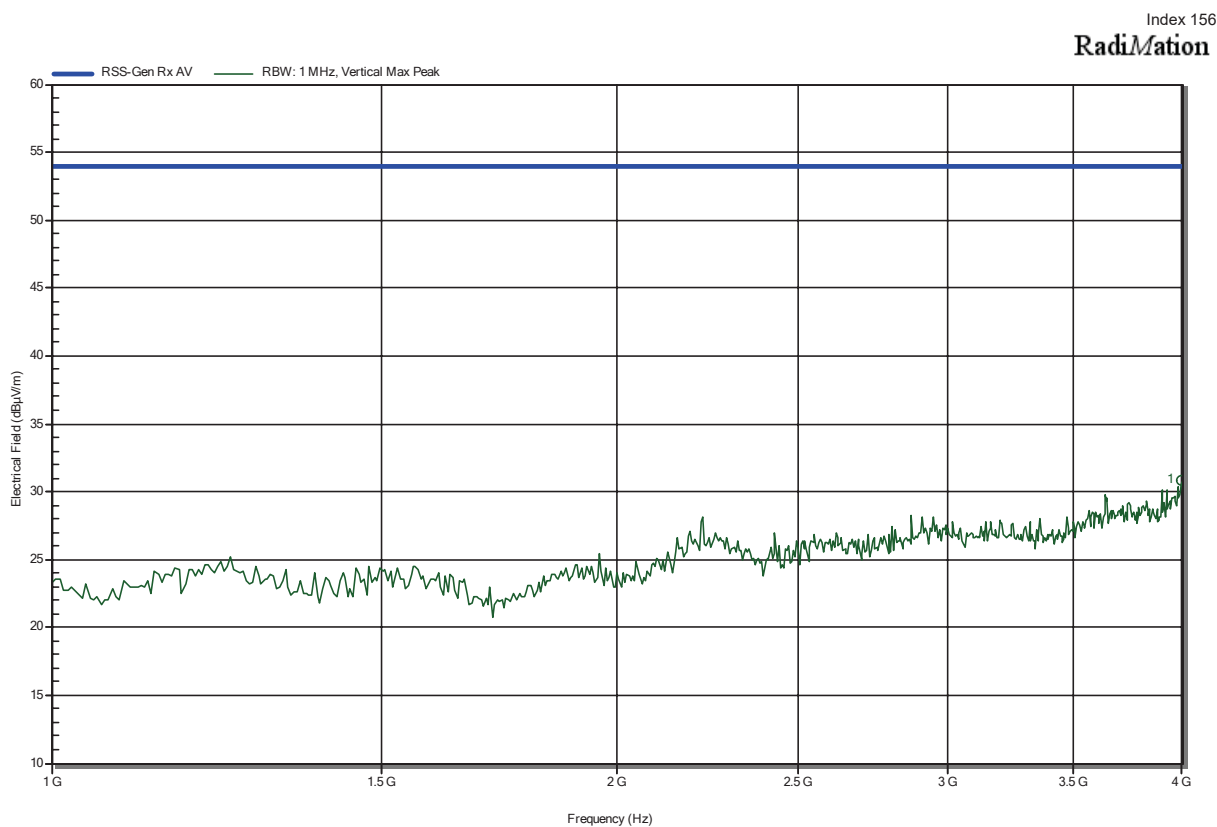
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

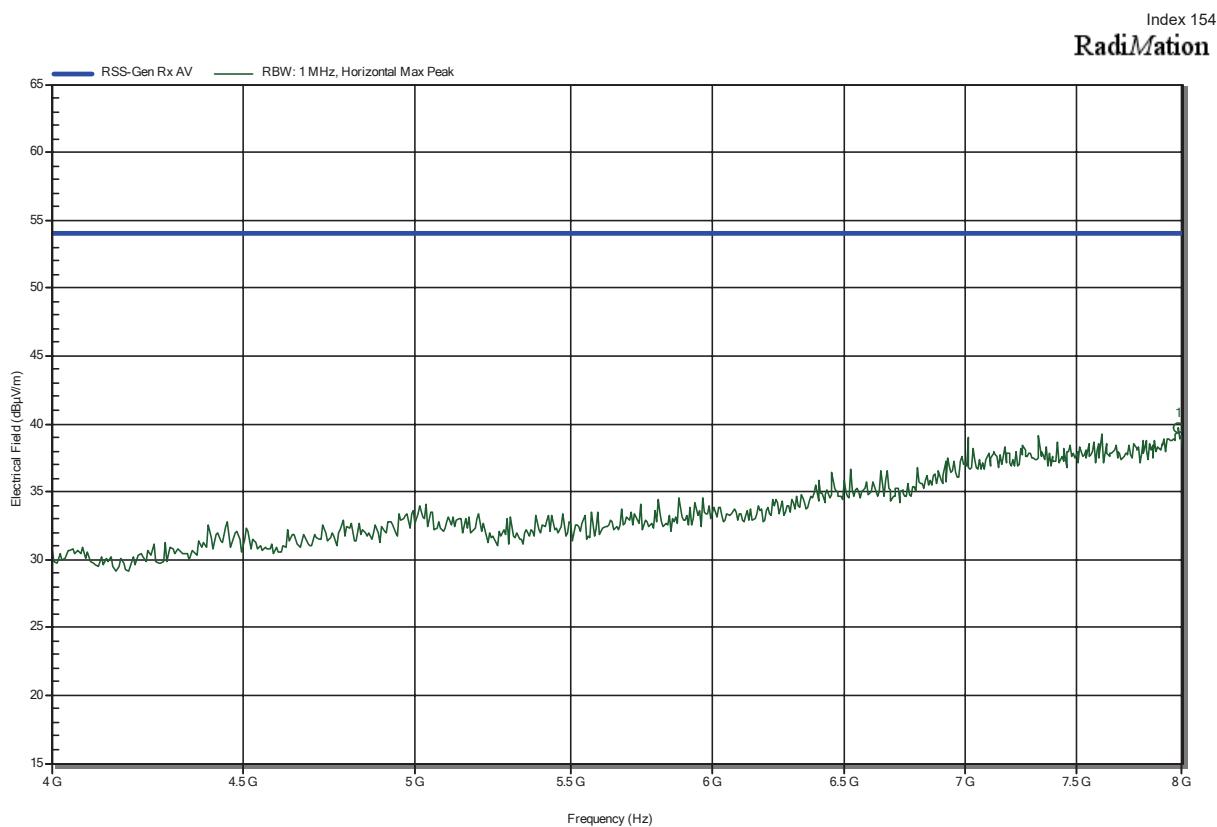
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4 GHz	30.86 dBµV/m	53.98 dBµV/m	-23.12 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



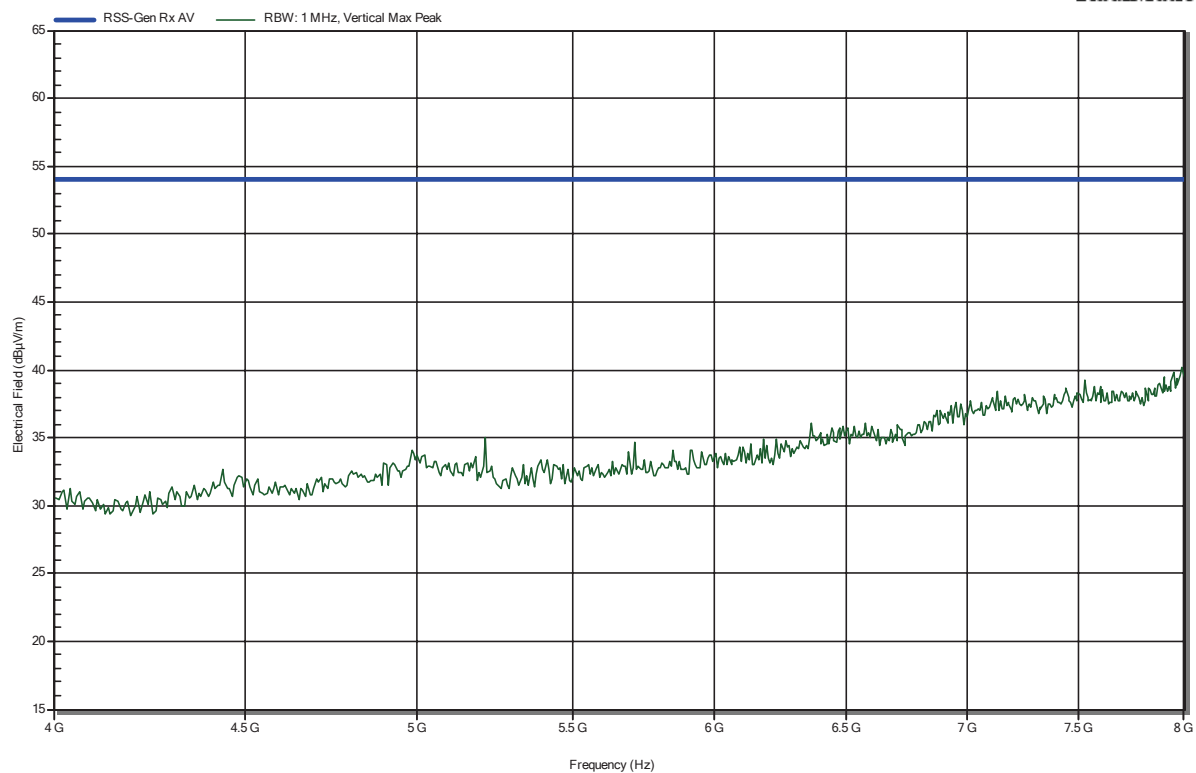
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.981 GHz	39.67 dBµV/m	53.98 dBµV/m	-14.31 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal

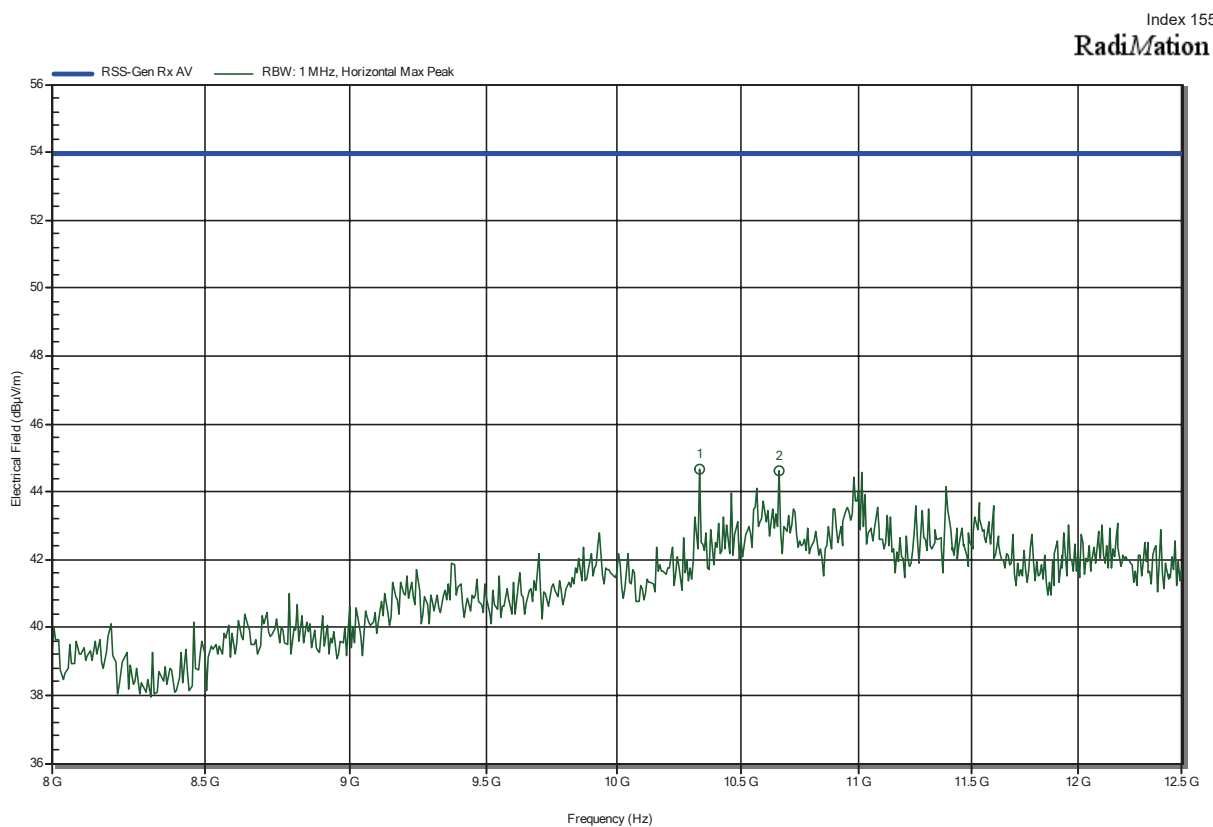
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RadiMation



Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

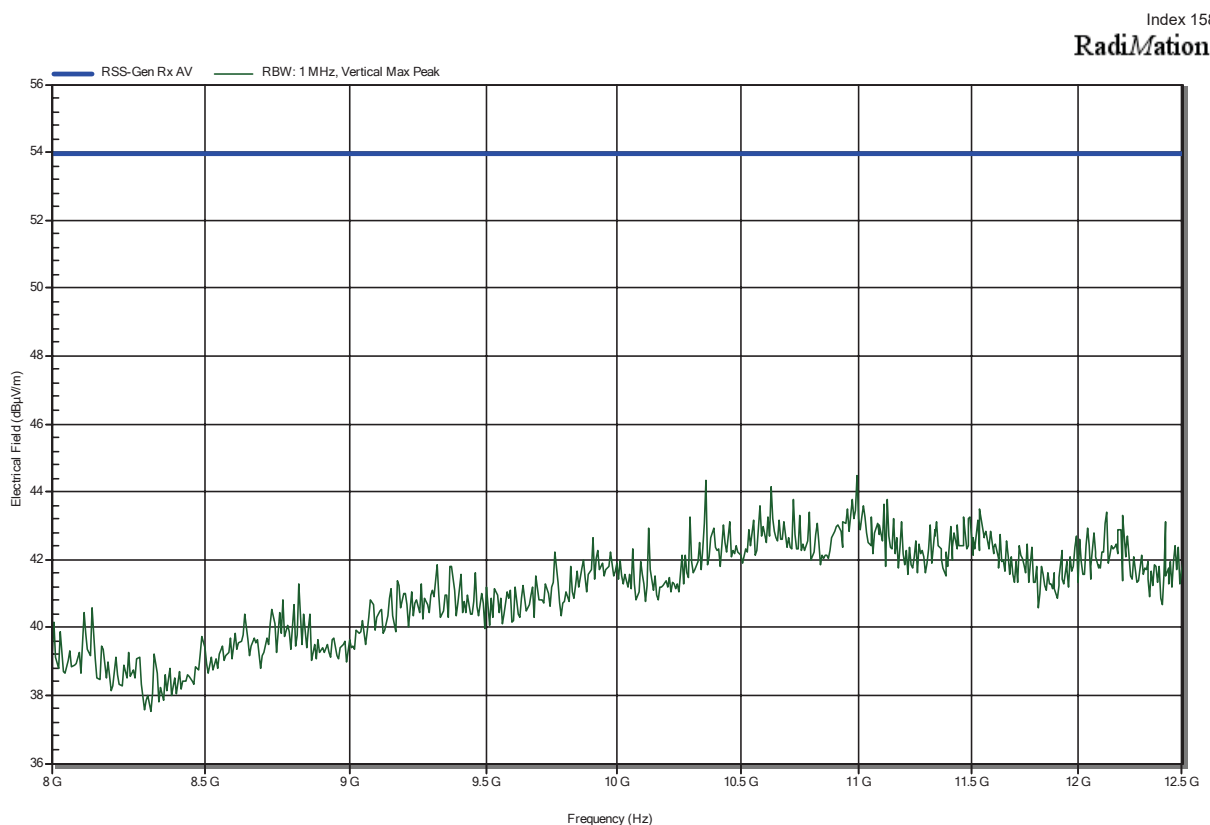
Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
10.329 GHz	44.64 dBµV/m	53.98 dBµV/m	-9.34 dB	Pass
10.661 GHz	44.63 dBµV/m	53.98 dBµV/m	-9.35 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number: G0M-2101-9569
 Applicant: Panasonic Industrial Devices Europe GmbH
 Model Description: Wi-Fi Dual Band 2.4/5 GHz and Bluetooth Module
 Model: ENWF9408A1EF
 Test Sample ID: 34968 (A1 8 SerNr: 826)
 Test Site: Eurofins Product Service GmbH
 Operator: Wilfried Treffke
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 3.3 V DC
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m
 Mode: Rx; BLE; GFSK; 2440 MHz
 Test Date: 2021-07-22
 Note: EUT horizontal



== END OF TEST REPORT ==

Test Report No.: G0M-2101-9569-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany