



Test Lab  
Cert 2764.01

FCC LISTED, REGISTRATION  
NUMBER: 2764.01

ISED LISTED REGISTRATION  
NUMBER: 23595-1

Test report No:  
2262ERM.005A1

## Test report

USA FCC Part 15.247, 15.209, 15.207  
CANADA RSS-247, RSS-Gen

Radio Frequency Devices. Operation within the bands 902 - 928 MHz,  
2400 -2483.5 MHz, and 5725 - 5850 MHz.

Digital Transmission Systems (DTSs), Frequency Hopping Systems  
(FHSs) and License-Exempt Local Area Network (LE-LAN) Devices.

Identification of item tested	Wireless Module
Trademark	Telit
Model and /or type reference	WL865E4-P
Other identification of the product	FCC: RI7WL865E4 IC ID: 5131A-WL865E4
Features	BT LE +Wi-Fi 802.11 a/b/g/n/ac @ 2.4 GHz and @ 5GHz
Manufacturer	Telit Communications S.p.A. Viale Stazione di Prosecco 5/b 34010 Sgonico, Trieste, Italy
Test method requested, standard	USA FCC Part 15.247, 10-1-18 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209, 10-1-18 Edition: Radiated emission limits; general requirements CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (April 2018). 558074 D01 15.247 Meas Guidance v05r02. Guidance for Compliance Measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under section §15.247 of the FCC Rules ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	2019-10-23
Report template No	FDT08_21

## Index

Competences and guarantees .....	3
General conditions .....	3
Uncertainty .....	3
Data provided by the client.....	4
Usage of samples .....	4
Test sample description .....	5
Identification of the client.....	6
Testing period and place.....	6
Document history .....	6
Modifications to the reference test report .....	7
Environmental conditions .....	7
Remarks and comments .....	8
Testing verdicts.....	8
Summary .....	8
List of equipment used during the test.....	10
Appendix A: Test results (Bluetooth LE).....	11
Appendix B: Test results (WIFI b/g/n20).....	63

## Competences and guarantees

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DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

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## General conditions

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

## Uncertainty

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Uncertainty (factor  $k=2$ ) was calculated according to the DEKRA Certification internal document PODT000.

Frequency (MHz)	U(k=2)	Units
30-180	3.82	dB
180-1000	2.61	dB
1000-18000	2.92	dB
18000-40000	2.15	dB

## Data provided by the client

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WiFi / BLE module.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

## Usage of samples

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Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
2262.04	WL865E-P on debug board	WL865E-P	00217E249E8C	05/07/2019
2262.05	USB Cable	--	--	05/07/2019

---

1. Sample S/01 has undergone following test(s):

All conducted tests indicated in appendix A & B.

Sample S/02 is composed of the following elements:


Control N°	Description	Model	Serial N°	Date of reception
2262.03	WL865E-P on debug board	WL865E-P	00217E249E74	05/07/2019
2262.05	USB Cable	--	--	05/07/2019
2323.04	Antenna	T-AT9552	1RR0100174TLB	05/07/2019
2323.03	Antenna	T-AT9552	1RR0100174TLB	05/07/2019

1. Sample S/02 has undergone following test(s):

All radiated tests indicated in appendix A & B.

## Test sample description

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded		
	USB		0.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
				<input type="checkbox"/>	<input type="checkbox"/>		
			<input type="checkbox"/>	<input type="checkbox"/>			
Supplementary information to the ports..... :	<i>Not provided data</i>						
Rated power supply .....	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	DC					
<input checked="" type="checkbox"/>	DC: 3.3V typ.						
Rated Power .....	<i>No Data Provided</i>						
Clock frequencies .....	<i>40 MHz</i>						
Other parameters..... :	<i>No provided data</i>						
Software version .....	<i>MOG.000002</i>						
Hardware version..... :	<i>HW 0.0</i>						
Dimensions in cm (L x W x D) .....	<i>2.44 x 0.29 x 2.44</i>						
Mounting position..... :	<input type="checkbox"/>	Table top equipment					
	<input type="checkbox"/>	Wall/Ceiling mounted equipment					
	<input type="checkbox"/>	Floor standing equipment					
	<input type="checkbox"/>	Hand-held equipment					
	<input checked="" type="checkbox"/>	Other:					
Modules/parts .....	Module/parts of test item		Type	Manufacturer			
	<i>No provided data</i>						
Accessories (not part of the test item) .....	Description		Type	Manufacturer			
	<i>WL865E4-P EVB IF</i>		<i>Interface board</i>	<i>Telit</i>			
	<i>Micro USB cable</i>		<i>Cable</i>				
	<i>T-AT9552 external antenna</i>		<i>Antenna</i>	<i>ATEL-ANTENNAS</i>			

Documents as provided by the applicant.....:	Description	File name	Issue date
	Equipment declaration Data	FDT30_14_FCC_TELI T_WL865E4-P_rev0	2019-02-04
<b>Copy of marking plate:</b>			
			

## Identification of the client

TELIT COMMUNICATIONS S.P.A  
 VIALE STAZIONE DI PROSECCO 5/B,  
 34010 SGONICO, TRIESTE, ITALY.

## Testing period and place

<b>Test Location</b>	DEKRA Certification Inc.
<b>Date (start)</b>	2019-05-07
<b>Date (finish)</b>	2019-05-17

## Document history

Report number	Date	Description
2262ERM.005	2019-06-03	First release
2262ERM.005A1	2019-10-23	Second release

## Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 2262ERM.005 related with the same samples, in the next clauses and sub-clauses:

Clauses/ Sub-Clauses	Modification	Justification
Page 122,135,145/Radiated Emissions	Removed co-location statement	Documentation error

This modification test report cancels and replaces the test report 2262ERM.005

## Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

<b>Temperature</b>	Min. = 15 °C Max. = 35 °C
<b>Relative humidity</b>	Min. = 30 % Max. = 75 %
<b>Air pressure</b>	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

<b>Temperature</b>	Min. = 15 °C Max. = 35 °C
<b>Relative humidity</b>	Min. = 30 % Max. = 75 %
<b>Air pressure</b>	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

<b>Temperature</b>	Min. = 15 °C Max. = 35 °C
<b>Relative humidity</b>	Min. = 30 % Max. = 60 %
<b>Air pressure</b>	Min. = 860 mbar Max. = 1060 mbar

## Remarks and comments

The tests have been performed by the technical personnel: Divya Adusumilli, Poojita Bhattu and Koji Nishimoto.

## Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

## Summary

FCC PART 15 PARAGRAPH / RSS-247 (Bluetooth Low Energy)					
Section	15.247 Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
A.1	§ 2.1049	RSS-Gen 6.7	99% Occupied Bandwidth	P	N/A
A.2	§ 15.247 (a) (2)	RSS-247 5.2. (a)	6dB Emission Bandwidth	P	N/A
A.3	§ 15.247 (b) (3)	RSS-247 5.4. (d)	Maximum peak conducted output power and antenna gain	P	N/A
A.4	§ 15.247 (d)	RSS-247 5.5.	Band-edge emissions compliance (Transmitter)	P	N/A
A.5	§ 15.247 (e)	RSS-247 5.2. (b)	Power spectral density	P	N/A
A.6	§15.207 (a)	RSS Gen 8.8	Conducted Emission Limits	P	N/A
A.7	§ 15.247 (d)	RSS-Gen 8.9 & 8.10.	Emission limitations radiated (Transmitter)	P	N/A
<u>Supplementary information and remarks:</u>					
N/A					



FCC PART 15 PARAGRAPH (WIFI 2.4GHz)					
Section	15.247 Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
C.1	§ 2.1049 & §15.247 (a) (2)	RSS-247 5.2 (a)	99% Occupied Bandwidth & 6dB Bandwidth	P	N/A
C.2	§ 15.247 (b)	RSS-247 5.4 (d)	Maximum Output Power and antenna gain	P	N/A
C.3	§ 15.247 (d)	RSS-247 5.5	Band-edge conducted emissions compliance (Transmitter)	P	N/A
C.4	§ 15.247 (e)	RSS-247 5.2 (b)	Power Spectral Density	P	N/A
C.5	§15.247(d)	RSS-247 5.5	Emission limitations Conducted (Transmitter)	P	N/A
C.6	§15.247 (d)	RSS-247 5.5	Emission limitations Radiated (Transmitter)	P	N/A
<u>Supplementary information and remarks:</u> N/A					

## List of equipment used during the test

### Conducted Measurements

Test system Rohde & Schwarz TS 8997:

CONTROL NUMBER	DESCRIPTION	LAST CALIBRATION	NEXT CALIBRATION
1039	Signal analyzer Rohde & Schwarz FSV40	2017/03	2020/03
1040	Switch unit Rohde & Schwarz with power detector OSP120 / OSP-B157	2017/03	2020/03
1041	RF generator Rohde & Schwarz SMB100A	2017/04	2020/04
1042	RF generator Rohde & Schwarz SMBV100A	2018/01	2020/01

### Radiated Measurements

CONTROL NUMBER	DESCRIPTION	LAST CALIBRATION	NEXT CALIBRATION
1179	Semi anechoic Absorber Lined Chamber Frankonia SAC 3 plus "L"	N/A	N/A
1064	BiconicalLog antenna ETS LINDGREN 3142E	2017/03	2020/03
1057	Double-ridge Waveguide Horn antenna 1-18 GHz	2017/03	2020/03
1056	Double-ridge Waveguide Horn antenna 18-40 GHz	2017/03	2020/03
1014	Spectrum analyzer Rohde & Schwarz FSV40	2017/03	2020/03
0980	RF pre-amplifier 30 MHz-6 GHz Bonn Elektronik BLMA 0360-01N	2017/05	2019/05
0981	RF pre-amplifier 1-18 GHz Bonn Elektronik BLMA 0118-2A	2017/05	2019/05
1015, 1017, 1019, 1020	Rohde & Schwarz EMC32 software	N/A	N/A

## Appendix A: Test results (Bluetooth Low Energy)

## Appendix A Content

PRODUCT INFORMATION .....	13
DESCRIPTION OF TEST CONDITIONS .....	14
TEST A.1: 99% OCCUPIED BANDWIDTH .....	15
TEST A.2: 6DB EMISSION BANDWIDTH.....	20
TEST A.3: MAXIMUM PEAK CONDUCTED OUTPUT POWER AND ANTENNA GAIN.....	25
TEST A.4: BAND-EDGE EMISSIONS COMPLIANCE (TRANSMITTER).....	30
TEST A.5: POWER SPECTRAL DENSITY .....	35
TEST A.6: CONDUCTED EMISSION LIMITS .....	40
TEST A.7: EMISSION LIMITATIONS RADIATED (TRANSMITTER).....	45

## PRODUCT INFORMATION

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The following information is provided by the client

Information	Description
Modulation	Other than FHSS
Adaptive	Non-adaptive Equipment
Operation mode	
- Operating Frequency Range	2402 – 24835 MHz
- Nominal Channel Bandwidth	1 MHz & 2 MHz
- RF Output Power	4 dBm
Extreme operating conditions	
- Temperature range	-40 °C to +85 °C
Antenna type	Dedicated Antenna
Antenna gain	2.5 dBi
Nominal Voltage	
- Supply Voltage	3.3 Vdc
- Type of power source	DC Voltage
Equipment type	Bluetooth Low Energy
Geo-location capability	No

## DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS	DESCRIPTION
<p>TC#01 (1 Mbps)</p>	<p><u>Power supply (V):</u>  <math>V_{\text{nominal}} = 3.3 \text{ Vdc}</math></p> <p>Data Rate: 1 Mbps            Bandwidth: 1 MHz</p> <p><u>Test Frequencies for Conducted/ Radiated tests:</u>            Lowest channel: 2402 MHz            Middle channel: 2440 MHz            Highest channel: 2480 MHz</p>
<p>TC#02 (2 Mbps)</p>	<p><u>Power supply (V):</u>  <math>V_{\text{nominal}} = 3.3 \text{ Vdc}</math></p> <p>Data Rate: 2 Mbps            Bandwidth: 2 MHz</p> <p><u>Test Frequencies for Conducted/ Radiated tests:</u>            Lowest channel: 2402 MHz            Middle channel: 2440 MHz            Highest channel: 2480 MHz</p>

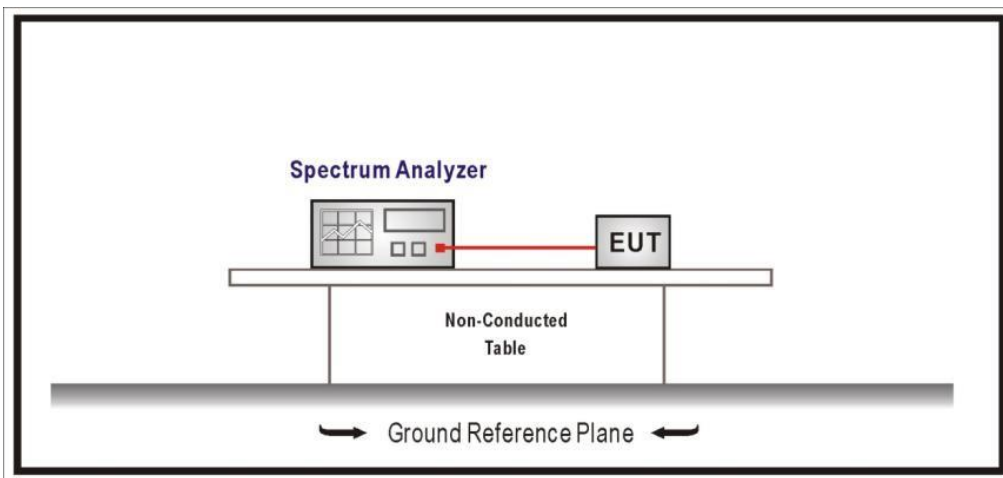
### TEST A.1: 99% OCCUPIED BANDWIDTH

<b>LIMITS:</b>	Product standard:	§ 2.1049 and RSS-Gen
	Test standard:	§ 2.1049 and RSS-Gen 6.7

LIMITS

The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs

### TEST SETUP

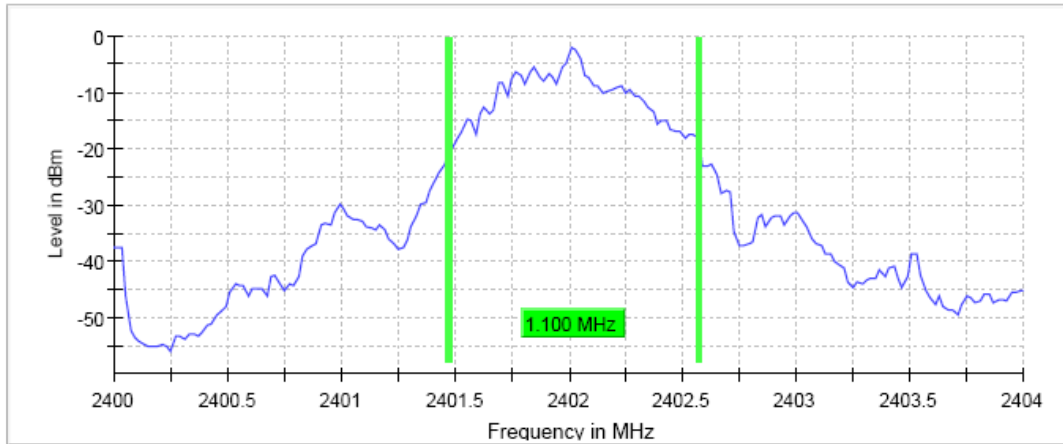


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

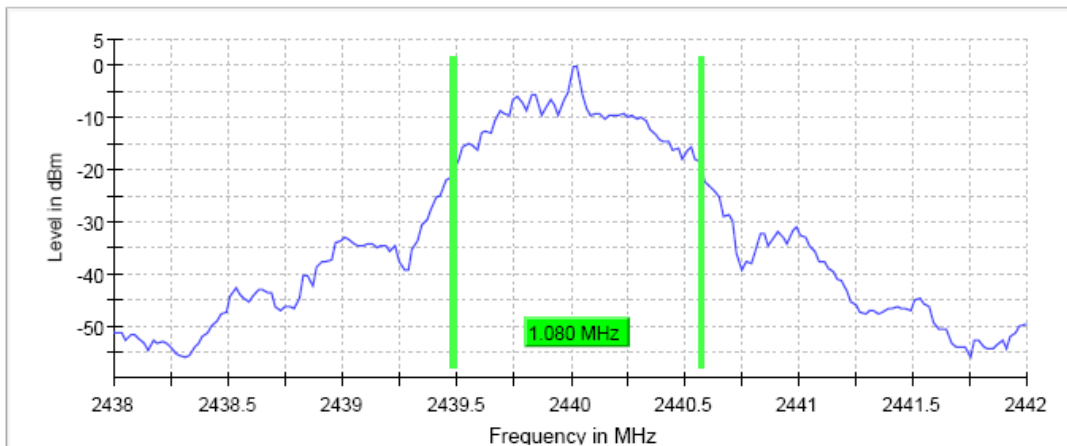
	Lowest frequency	Middle frequency	Highest frequency
	2402 MHz	2440 MHz	2480 MHz
99% bandwidth (MHz)	1.10	1.08	1.08
Measurement uncertainty (kHz)	<± 8.33		

**TEST RESULTS (Cont.):**

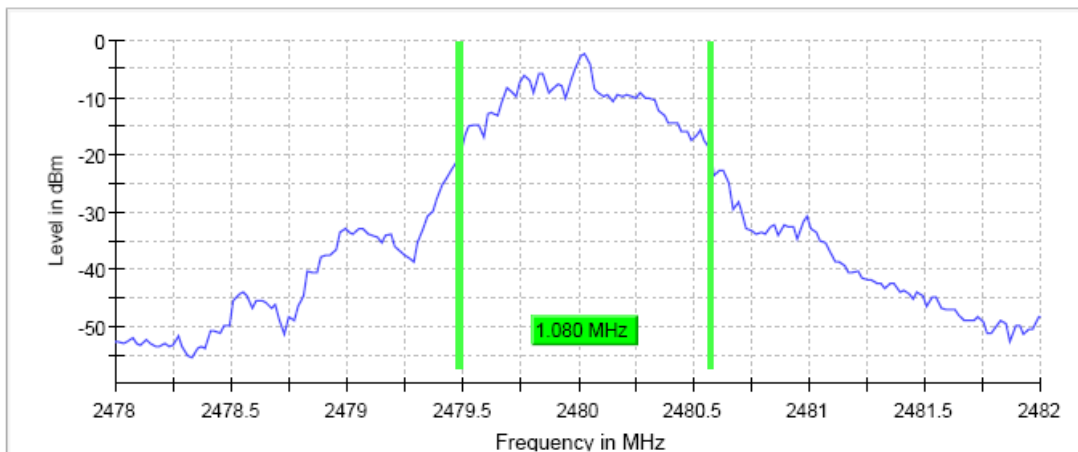
**Lowest Channel**



**Middle Channel**



**Highest Channel**





**TEST RESULTS (Cont.):**

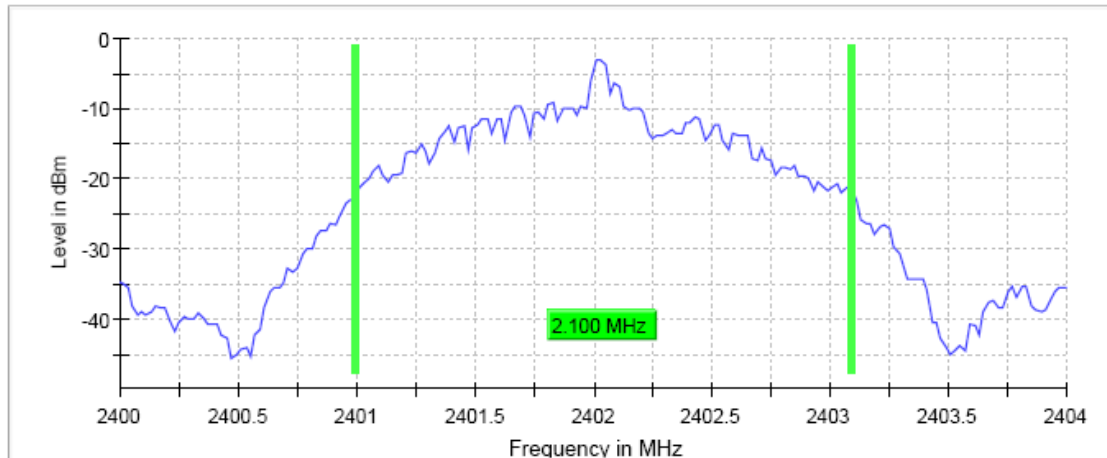
**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	2.000 MHz	2.000 MHz	2.000 MHz
RBW	10.000 kHz	10.000 kHz	10.000 kHz
VBW	30.000 kHz	30.000 kHz	30.000 kHz
Sweep Points	200	200	200
Sweep time	189.620 $\mu$ s	189.620 $\mu$ s	189.620 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	4 / max. 150	8 / max. 150	6 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.18 dB	0.17 dB	0.23 dB

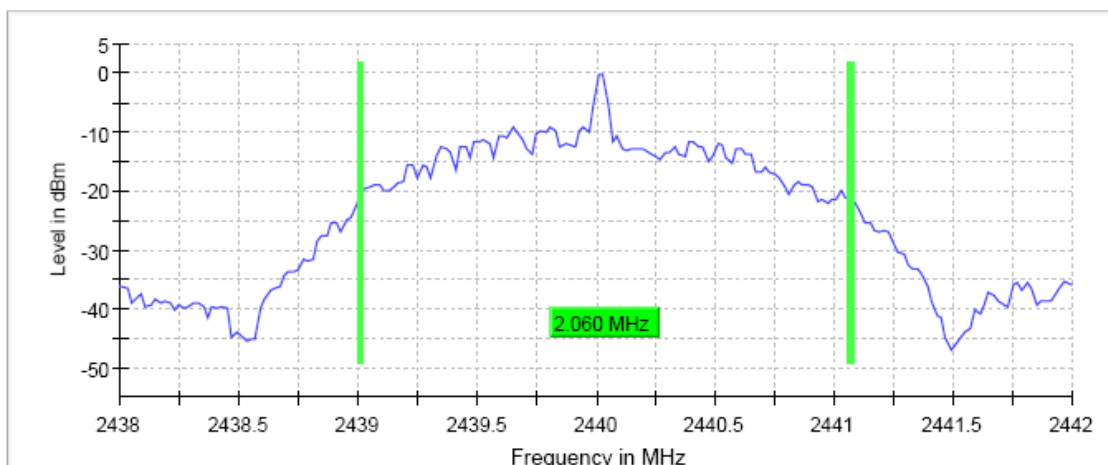
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2Mbps)
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2402 MHz	Middle frequency 2440 MHz	Highest frequency 2480 MHz
99% bandwidth (MHz)	2.10	2.06	2.10
Measurement uncertainty (kHz)	<± 8.33		

**Lowest Channel**

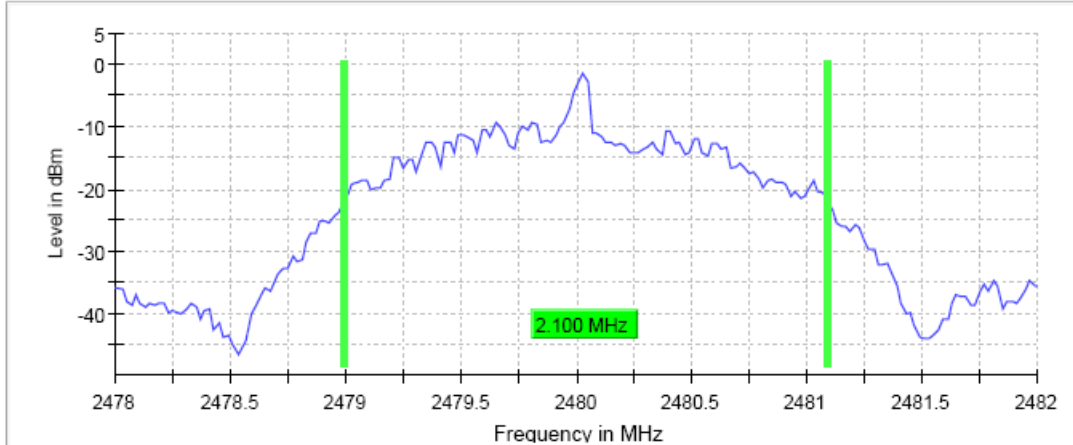


**Middle Channel**



**TEST RESULTS (Cont.):**

**Highest Channel**



**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz	4.000 MHz
RBW	20.000 kHz	20.000 kHz	20.000 kHz
VBW	100.000 kHz	100.000 kHz	100.000 kHz
Sweep Points	200	200	200
Sweep time	94.810 $\mu$ s	94.810 $\mu$ s	94.810 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	11 / max. 150	12 / max. 150	14 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.15 dB	0.15 dB	0.23 dB

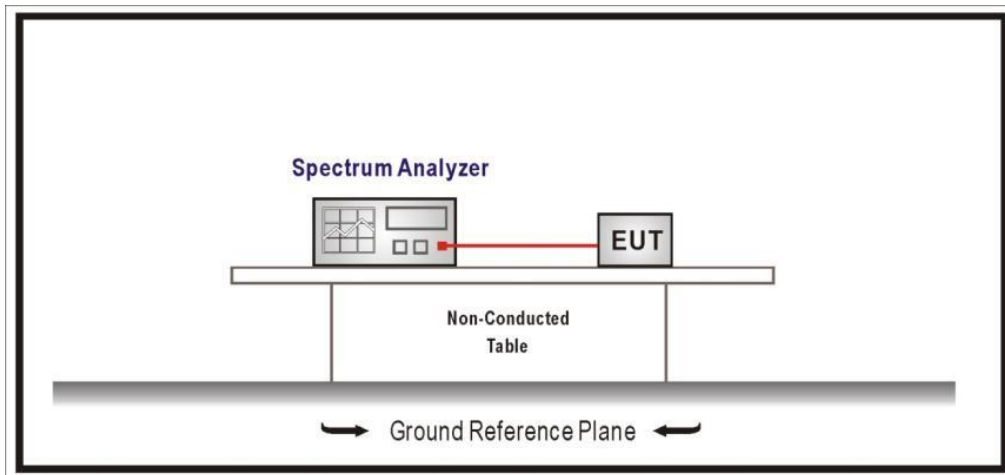
## TEST A.2: 6DB BANDWIDTH

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(a)(2) and RSS-247 5.2(a)

### LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### TEST SETUP

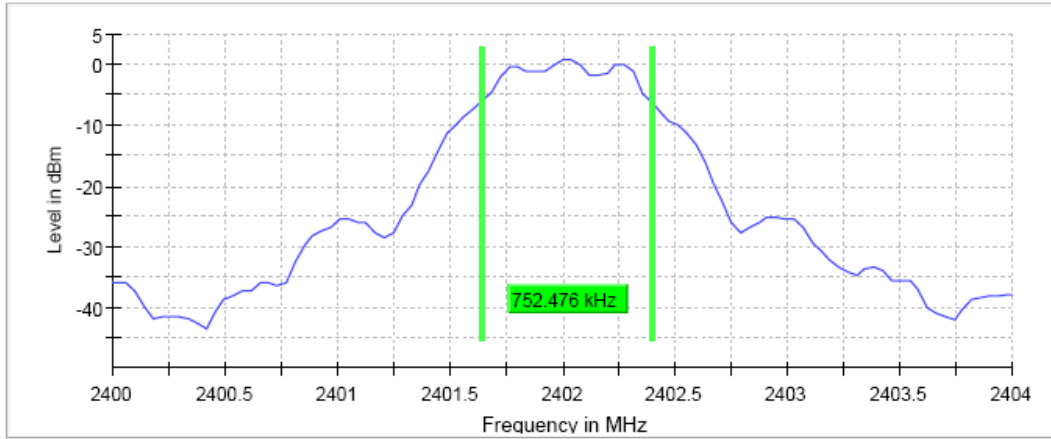


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

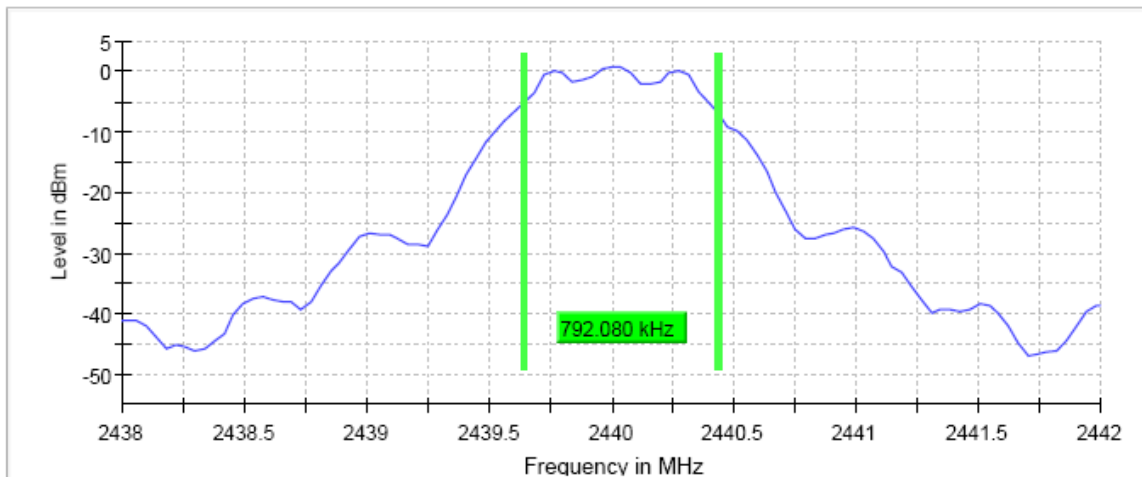
	Lowest frequency	Middle frequency	Highest frequency
	2402 MHz	2440 MHz	2480 MHz
6 dB Spectrum bandwidth (kHz)	752.476	792.080	831.684
Measurement uncertainty (kHz)	<±20.0		

**TEST RESULTS (Cont.):**

**Low Channel:**

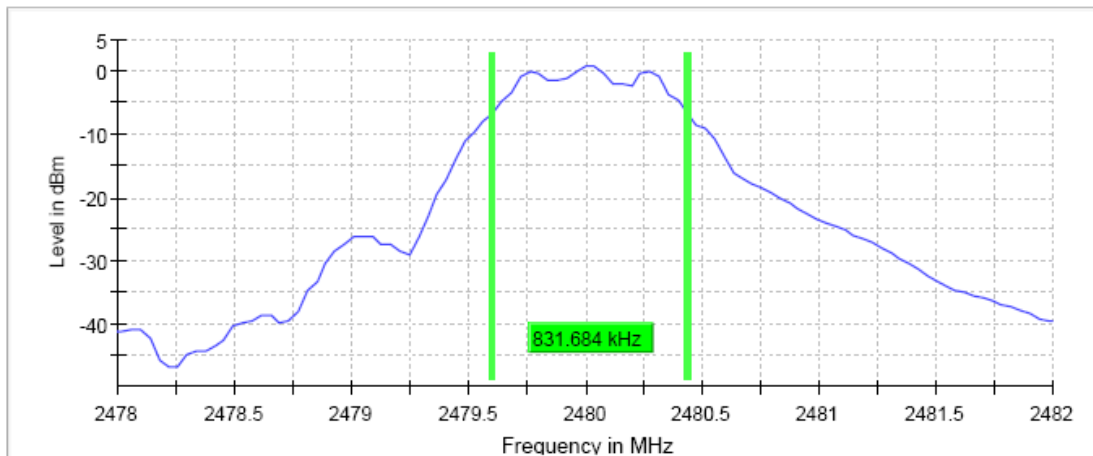


**Mid Channel:**



**TEST RESULTS (Cont.):**

**High Channel:**



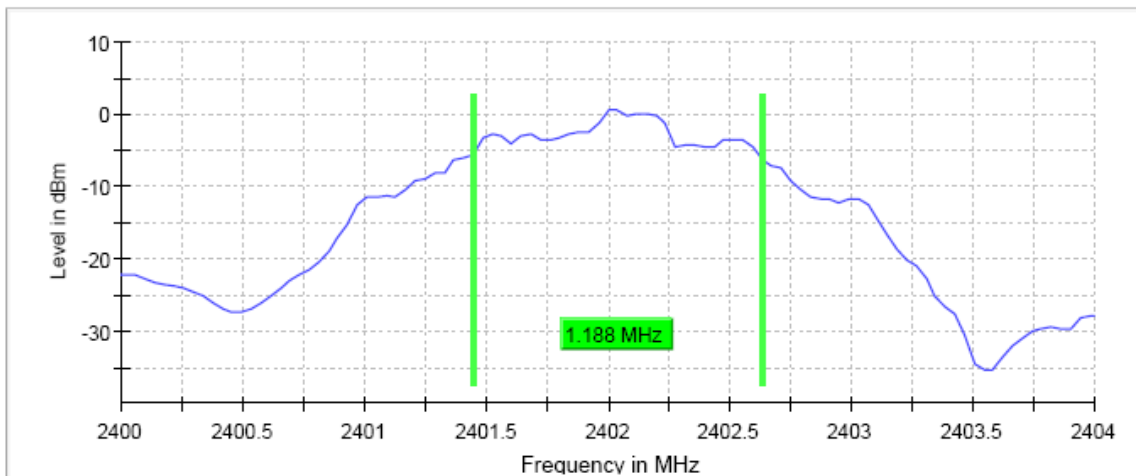
**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	2.000 MHz	2.000 MHz	2.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
Sweep Points	101	101	101
Sweep time	18.938 $\mu$ s	18.938 $\mu$ s	18.938 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	11 / max. 150	10 / max. 150	8 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.00 dB

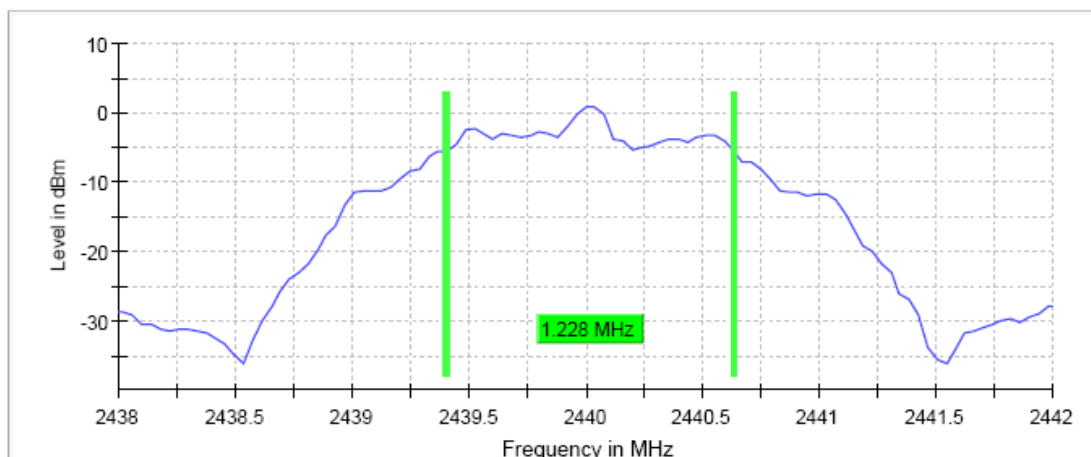
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2 Mbps)
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2402 MHz	Middle frequency 2440 MHz	Highest frequency 2480 MHz
6 dB Spectrum bandwidth (MHz)	1.188	1.228	1.228
Measurement uncertainty (kHz)	<±20.0		

**Low Channel:**

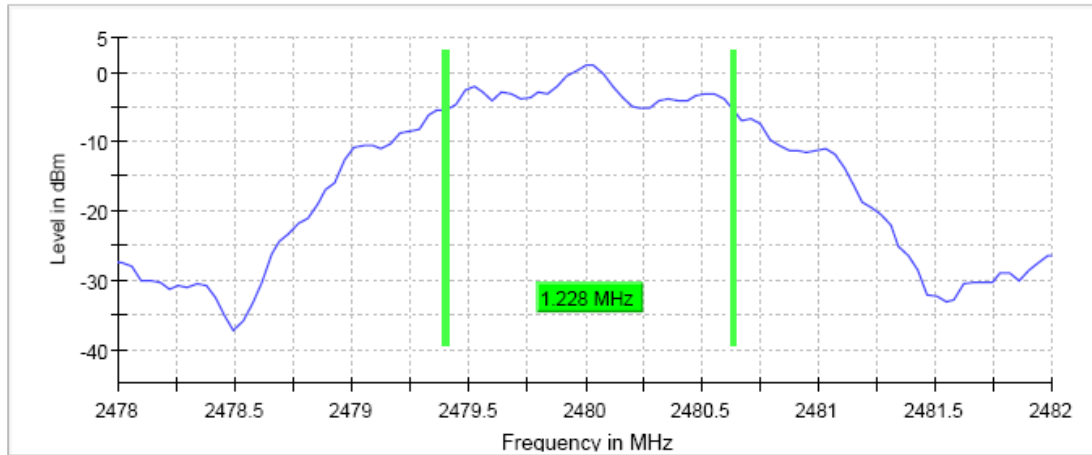


**Mid Channel:**



**TEST RESULTS (Cont.):**

**High Channel:**



**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.43800 GHz	2.47800 GHz
Stop Frequency	2.40400 GHz	2.44200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz	4.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
Sweep Points	101	101	101
Sweep time	18.938 $\mu$ s	18.938 $\mu$ s	18.938 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	14 / max. 150	13 / max. 150	13 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.43 dB	0.00 dB	0.00 dB



### TEST A.3: MAXIMUM PEAK CONDUCTED OUTPUT POWER AND ANTENNA GAIN

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(b)(3) and RSS-247 5.4(d)

**LIMITS**

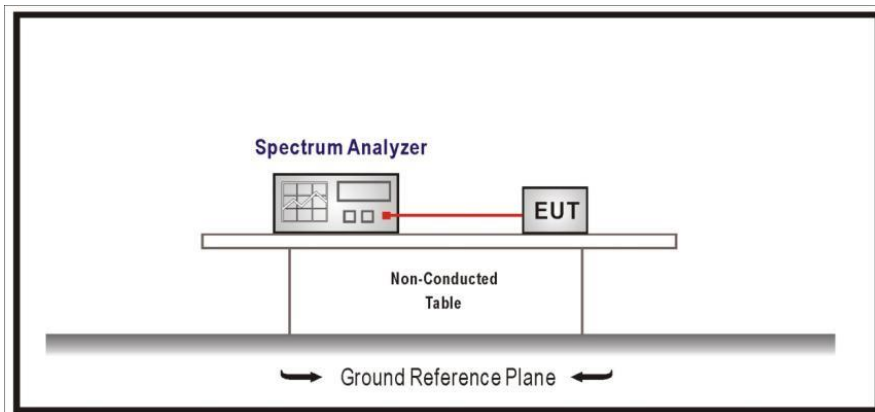
§15.247(b)(3) and RSS-247 5.4(d): For systems using digital modulation in the 2400-2483.5 MHz band: 1 watt (30 dBm).

RSS-247 5.4(d): The e.i.r.p. shall not exceed 4 W (36 dBm)

### TEST SETUP

The maximum peak conducted output power was measured using the method according to point 9.1.1. of Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 558074 D01 DTS Meas Guidance v04 dated 05/04/2017.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power

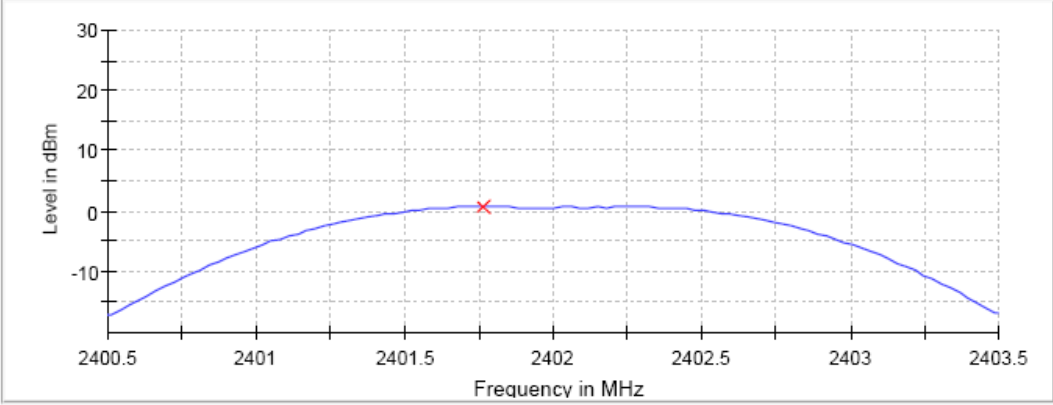
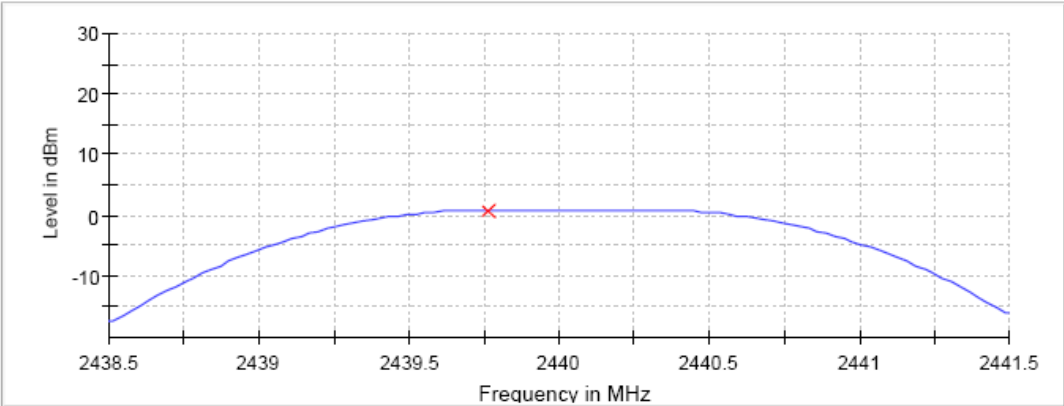
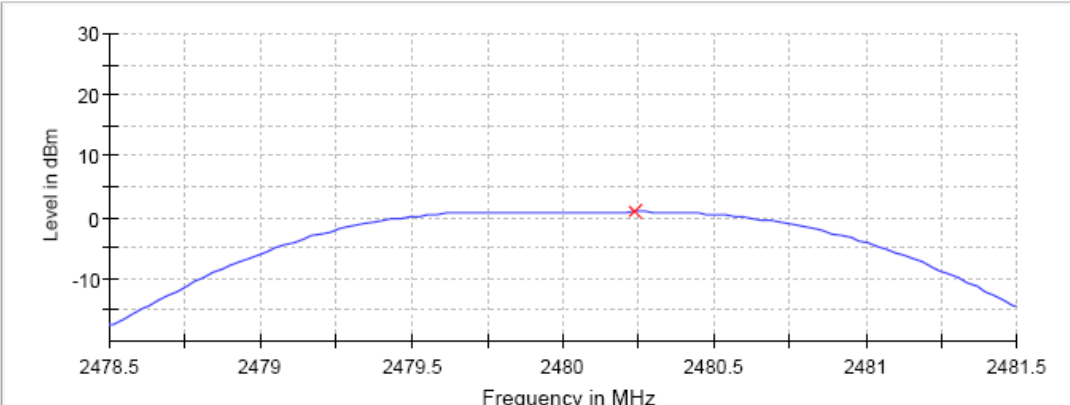


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2402 MHz	Middle frequency 2440 MHz	Highest frequency 2480 MHz
Maximum conducted power (dBm)	0.7	0.9	0.9
Maximum EIRP power (dBm)	3.2	3.4	3.4
Measurement uncertainty (dB)	<±0.78		

Maximum declared antenna gain: 2.5 dBi

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

TEST RESULTS (Cont.):	CONDUCTED PEAK POWER
<b>Lowest Channel</b>	
 <p data-bbox="272 853 774 880"> <span style="color: blue;">—</span> Connector 1     <span style="color: red;">x</span> Peak Connector 1         </p>	
<b>Middle Channel</b>	
 <p data-bbox="261 1384 774 1411"> <span style="color: blue;">—</span> Connector 1     <span style="color: red;">x</span> Peak Connector 1         </p>	
<b>Highest Channel</b>	
 <p data-bbox="255 1883 774 1910"> <span style="color: blue;">—</span> Connector 1     <span style="color: red;">x</span> Peak Connector 1         </p>	

**TEST RESULTS (Cont.):**

**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40050 GHz	2.43850 GHz	2.47850 GHz
Stop Frequency	2.40350 GHz	2.44150 GHz	2.48150 GHz
Span	3.000 MHz	3.000 MHz	3.000 MHz
RBW	1.000 MHz	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz	3.000 MHz
Sweep Points	101	101	101
Sweep time	1.907 $\mu$ s	1.907 $\mu$ s	1.907 $\mu$ s
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	4 / max. 150	4 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.03 dB	0.08 dB	0.04 dB

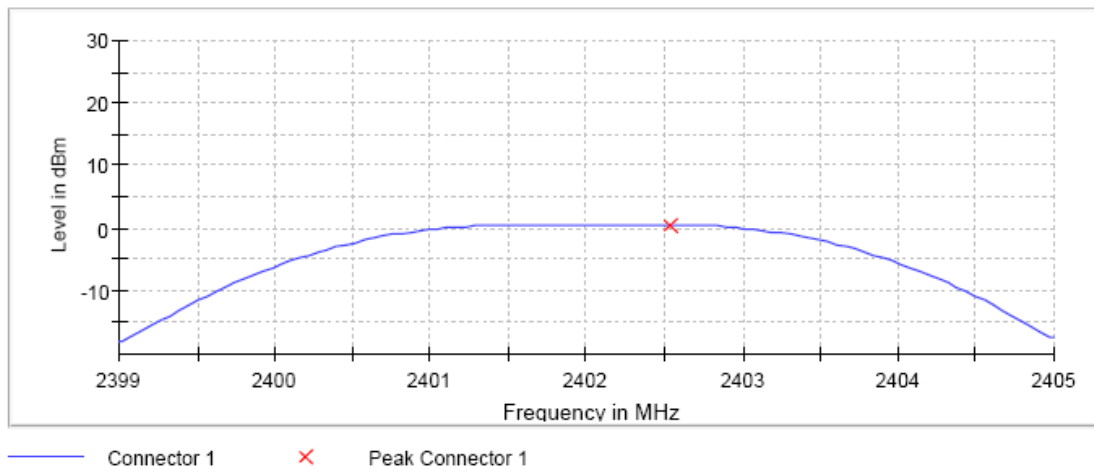
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2 Mbps)
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2402 MHz	Middle frequency 2440 MHz	Highest frequency 2480 MHz
Maximum conducted power (dBm)	0.6	0.9	1.0
Maximum EIRP power (dBm)	3.1	3.4	3.5
Measurement uncertainty (dB)	<±0.78		

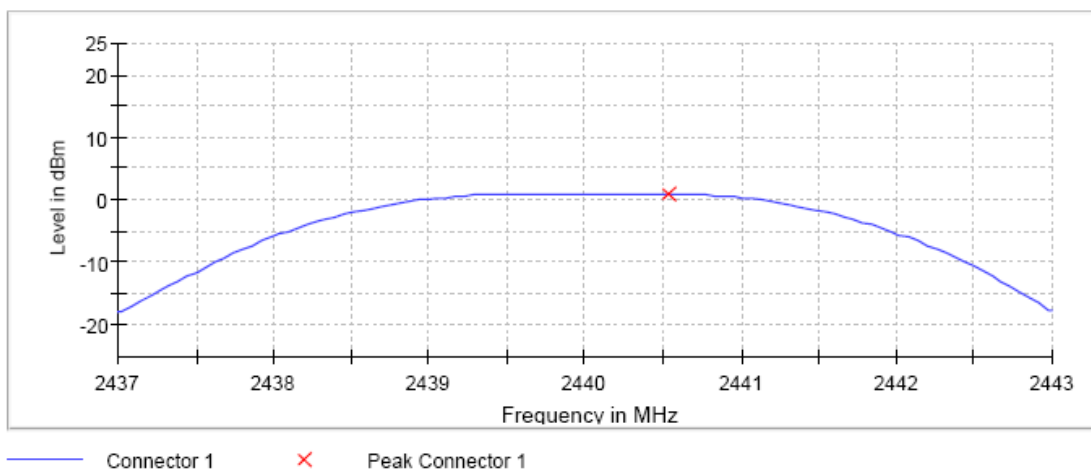
Maximum declared antenna gain: 2.5 dBi

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

**Lowest Channel**



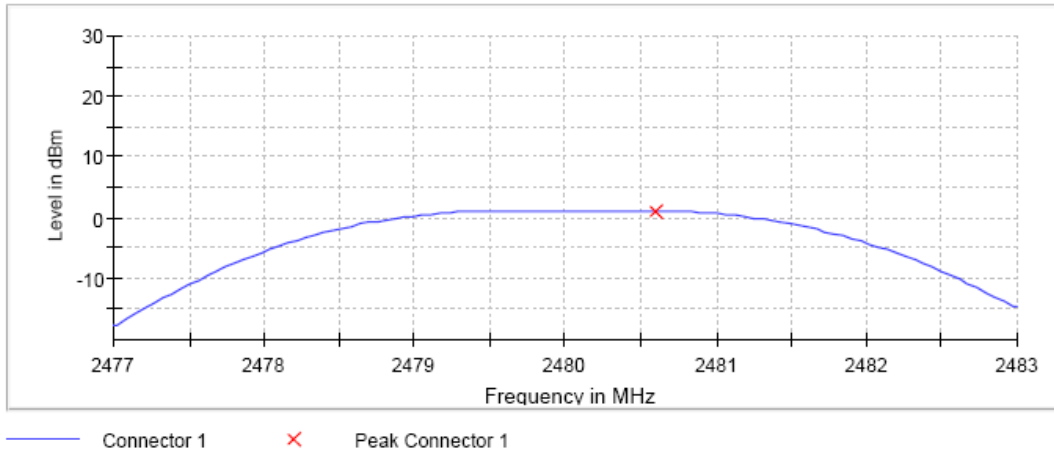
**Middle Channel**



**TEST RESULTS (Cont.):**

**CONDUCTED PEAK POWER**

**Highest Channel**



**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39900 GHz	2.43700 GHz	2.47700 GHz
Stop Frequency	2.40500 GHz	2.44300 GHz	2.48300 GHz
Span	6.000 MHz	6.000 MHz	6.000 MHz
RBW	2.000 MHz	2.000 MHz	2.000 MHz
VBW	10.000 MHz	10.000 MHz	10.000 MHz
Sweep Points	101	101	101
Sweep time	953.450 ns	953.450 ns	953.450 ns
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	4 / max. 150	4 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.04 dB	0.03 dB	0.00 dB

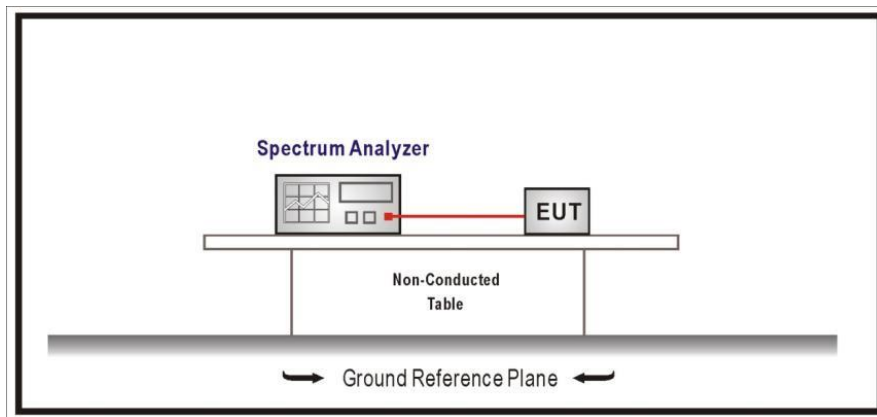
### TEST A.4: BAND-EDGE EMISSIONS COMPLIANCE (TRANSMITTER)

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(d) and RSS-247 5.5

**LIMITS**

In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB instead of 20 dB.

### TEST SETUP

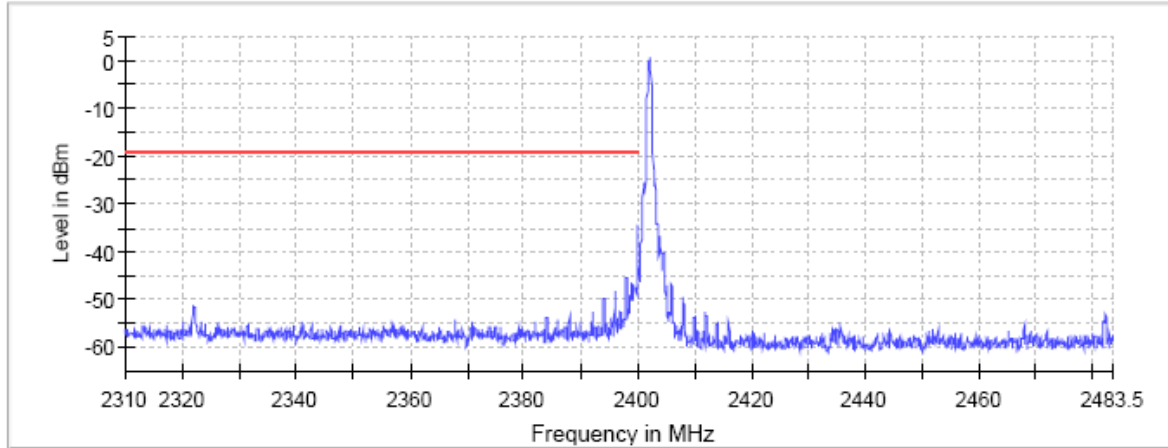


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

Note: Radiated measurements were used to show compliance with the limits in the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz.

**TEST RESULTS (Cont.):**

**Lowest Channel**



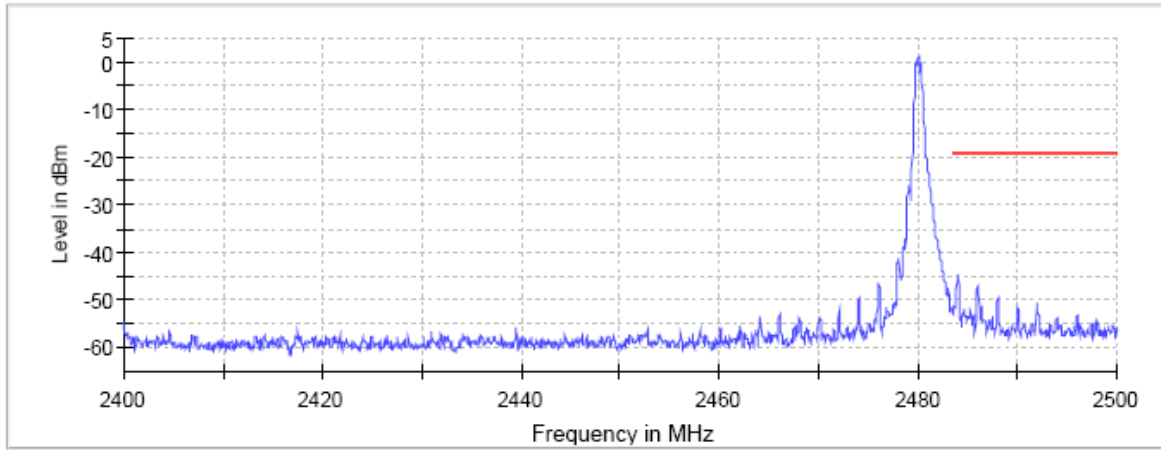
— Limit    — Sum Level    × Fail

**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.31000 GHz	2.40000 GHz
Stop Frequency	2.40000 GHz	2.48350 GHz
Span	90.000 MHz	83.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1800	1670
Sweep time	113.672 $\mu$ s	94.727 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	4 / max. 150	6 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.44 dB	0.22 dB

**TEST RESULTS (Cont.):**

**Highest Channel**



— Limit      — Sum Level      × Fail

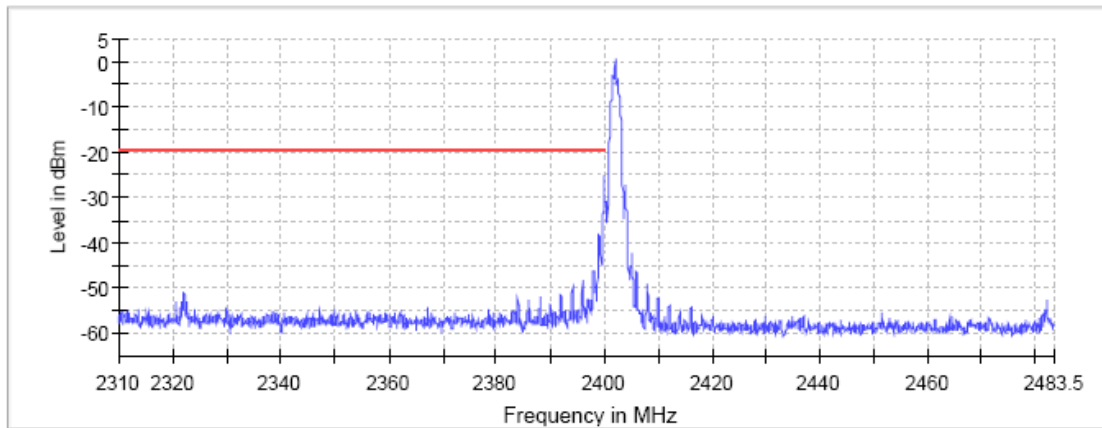
**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.48350 GHz
Stop Frequency	2.48350 GHz	2.50000 GHz
Span	83.500 MHz	16.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1670	330
Sweep time	94.727 $\mu$ s	18.945 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	8 / max. 150	6 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.14 dB	0.00 dB



<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2 Mbps)
<b>TEST RESULTS</b>	<b>PASS</b>

**Lowest Channel**



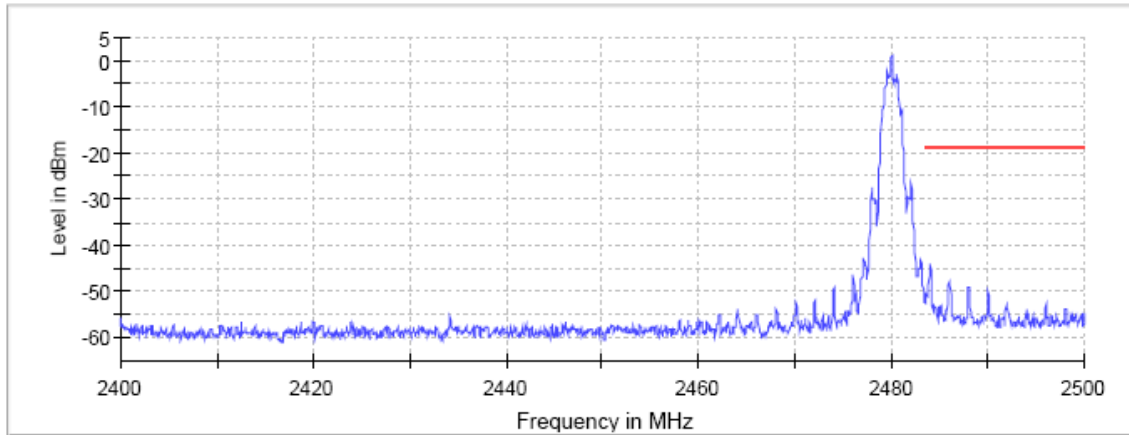
— Limit    — Sum Level    × Fail

**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.31000 GHz	2.40000 GHz
Stop Frequency	2.40000 GHz	2.48350 GHz
Span	90.000 MHz	83.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1800	1670
Sweep time	113.672 μs	94.727 μs
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	4 / max. 150	11 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.00 dB	0.35 dB

**TEST RESULTS (Cont.):**

**Highest Channel**



— Limit    — Sum Level    × Fail

**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.48350 GHz
Stop Frequency	2.48350 GHz	2.50000 GHz
Span	83.500 MHz	16.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1670	330
Sweep time	94.727 $\mu$ s	18.945 $\mu$ s
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	11 / max. 150	7 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.06 dB	0.00 dB

### TEST A.5: POWER SPECTRAL DENSITY

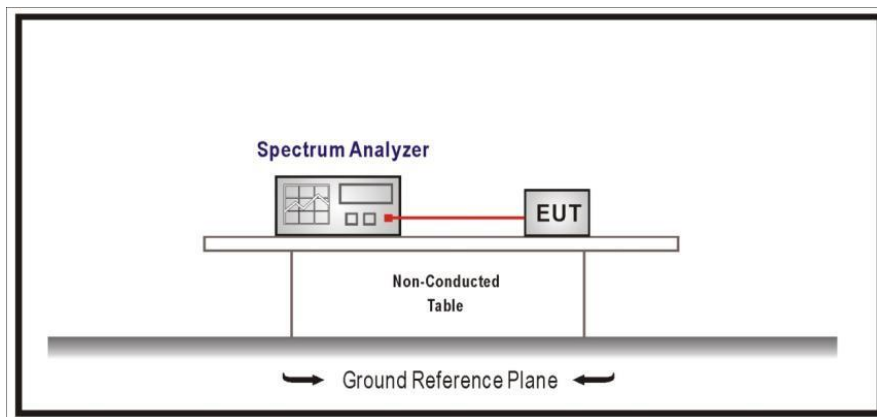
<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(e) and RSS-247 5.2 (b)

LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

**TEST SETUP**

The maximum power spectral density level in the fundamental emission was measured using the method PKPSD (Peak PSD) according to point 10.2. of Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 558074 D01 DTS Meas Guidance v04 dated 05/04/2017.

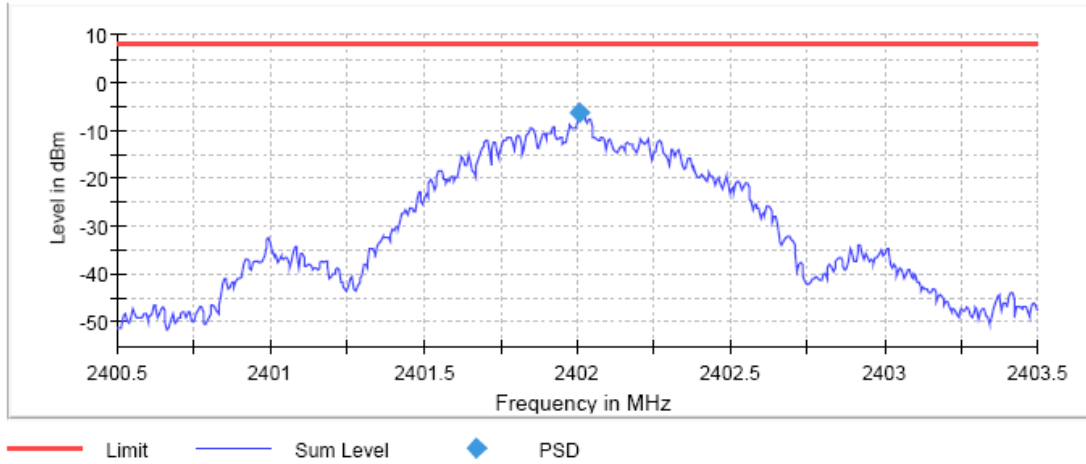


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

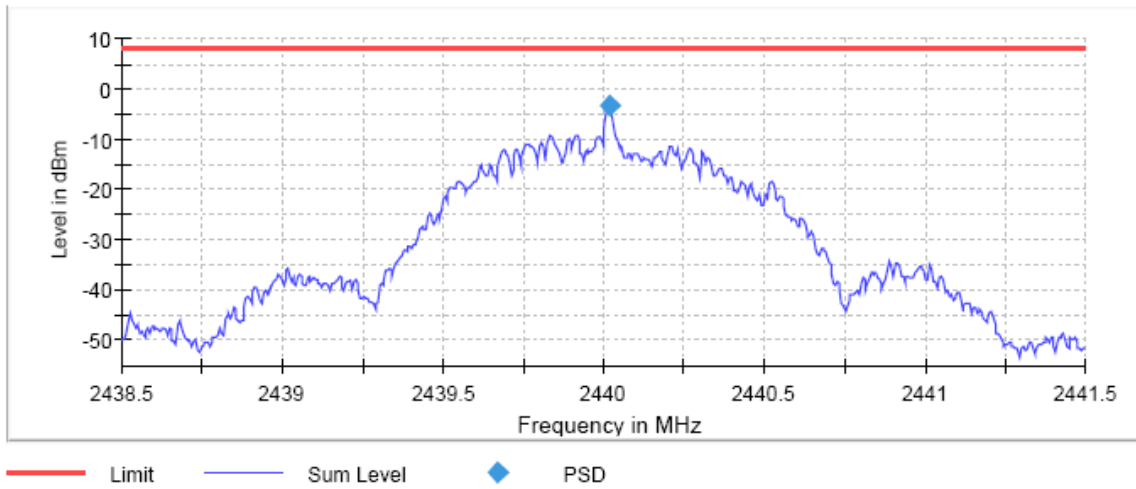
	Lowest frequency 2402 MHz	Middle frequency 2440 MHz	Highest frequency 2480 MHz
Power spectral density (dBm)	-6.108	-3.368	-6.020
Measurement uncertainty (dB)	<±0.78		

TEST RESULTS (Cont.):

Low Channel:

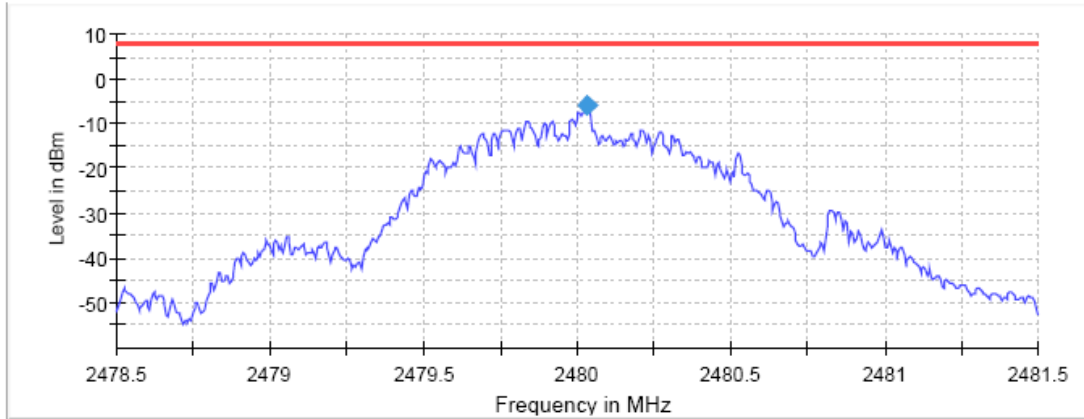


Mid Channel:



**TEST RESULTS (Cont.):**

**High Channel:**



— Limit    — Sum Level    ◆ PSD

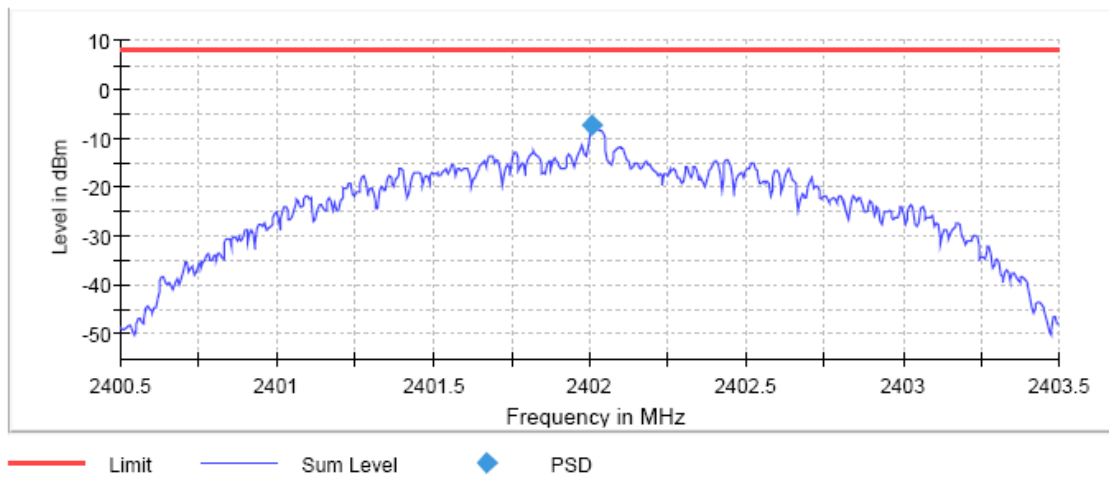
**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40050 GHz	2.43850 GHz	2.47850 GHz
Stop Frequency	2.40350 GHz	2.44150 GHz	2.48150 GHz
Span	3.00 MHz	3.00 MHz	3.00 MHz
RBW	10.000 kHz	10.000 kHz	10.000 kHz
VBW	30.000 kHz	30.000 kHz	30.000 kHz
Sweep Points	600	600	600
Sweep time	3.000 ms	3.000 ms	3.000 ms
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	Sweep	Sweep	Sweep
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	8 / max. 150	5 / max. 150	6 / max. 150
Stable	2 / 2	2 / 2	2 / 2
Max Stable Difference	0.47 dB	0.32 dB	0.18 dB

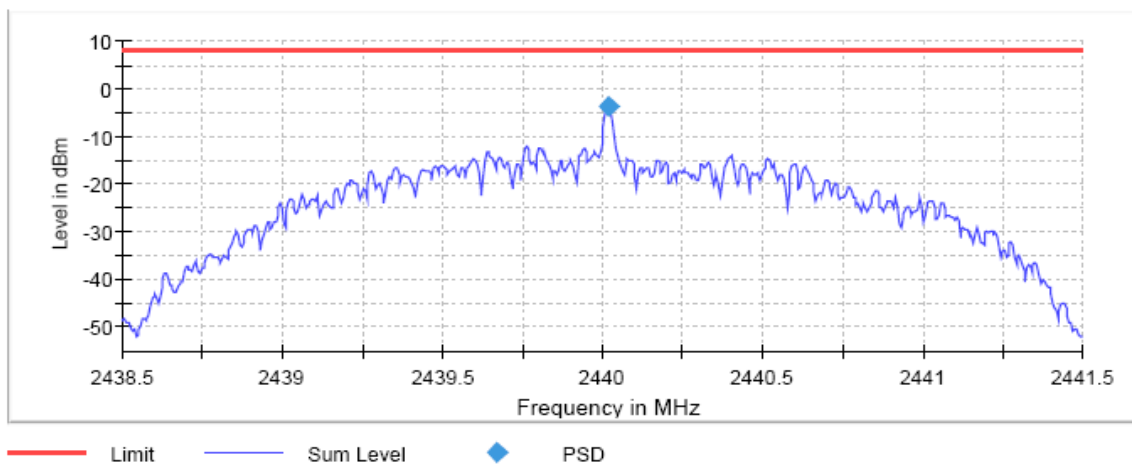
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2 Mbps)
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2402 MHz	Middle frequency 2440 MHz	Highest frequency 2480 MHz
Power spectral density (dBm)	-7.311	-3.509	-5.004
Measurement uncertainty (dB)	<±0.78		

**Low Channel:**

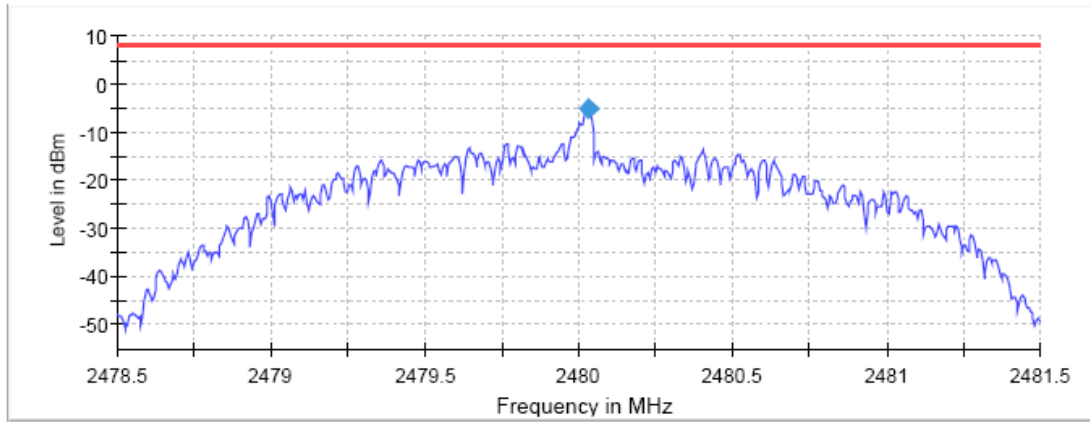


**Mid Channel:**



**TEST RESULTS (Cont.):**

**High Channel:**



— Limit    — Sum Level    ◆ PSD

**Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.40050 GHz	2.43850 GHz	2.47850 GHz
Stop Frequency	2.40350 GHz	2.44150 GHz	2.48150 GHz
Span	3.00 MHz	3.00 MHz	3.00 MHz
RBW	10.000 kHz	10.000 kHz	10.000 kHz
VBW	30.000 kHz	30.000 kHz	30.000 kHz
Sweep Points	600	600	600
Sweep time	3.000 ms	3.000 ms	3.000 ms
Reference Level	10.000 dBm	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	30.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	Sweep	Sweep	Sweep
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	10 / max. 150	5 / max. 150	8 / max. 150
Stable	2 / 2	2 / 2	2 / 2
Max Stable Difference	0.32 dB	0.15 dB	0.35 dB

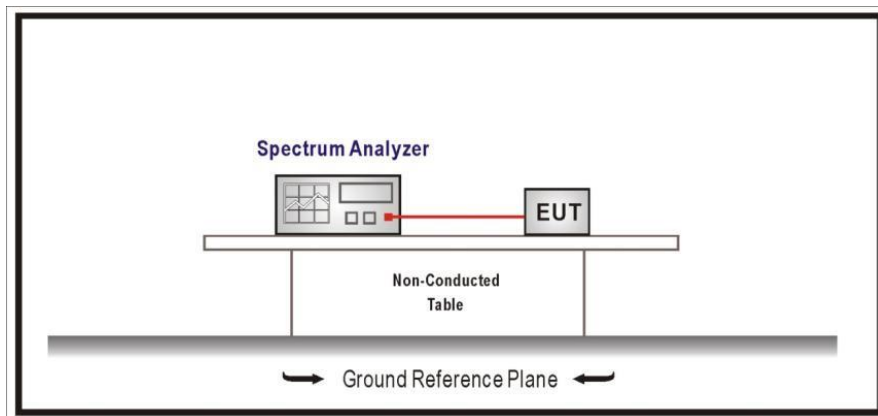
**TEST A.6: EMISSION LIMITATIONS CONDUCTED (TRANSMITTER)**

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(d) and RSS-Gen 8.9 and 8.10

SPECIFICATION

In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB instead of 20 dB.

**TEST SETUP**



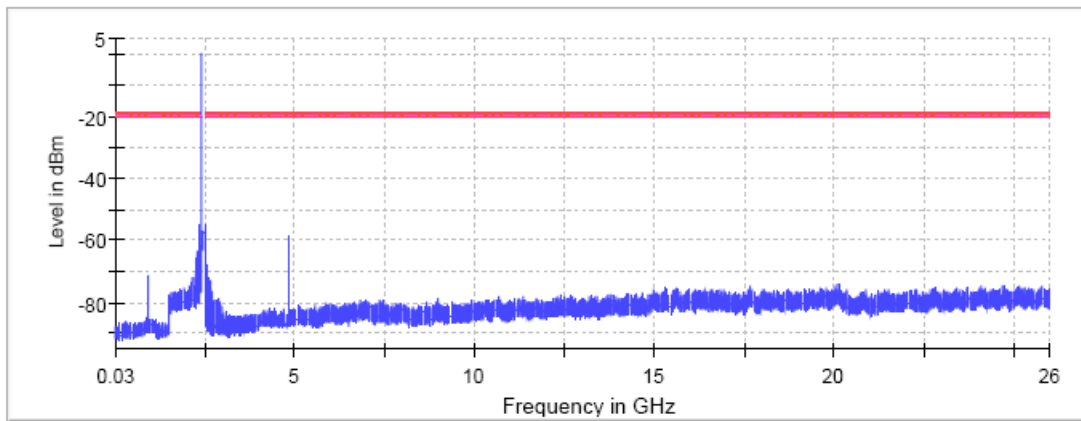


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

**Frequency range 30 MHz – 26 GHz**

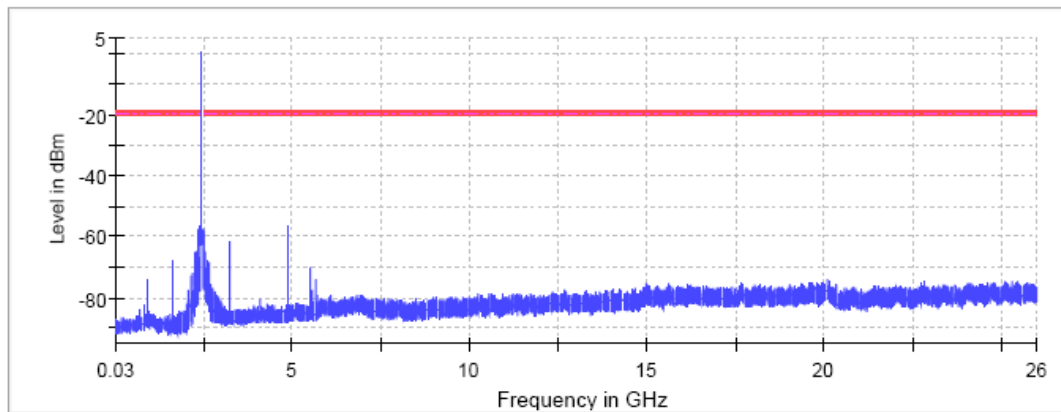
No conducted spurious signals were detected at less than 20 dB respect to the limit for low and high operating channels.

**Low Channel:**



— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

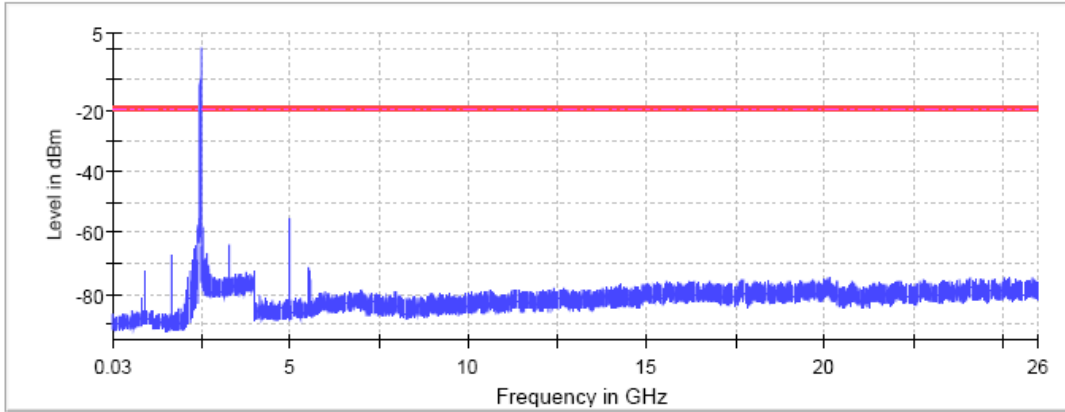
**Mid Channel:**



— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

**TEST RESULTS (Cont.):**

**High Channel:**



— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

**Measurement**

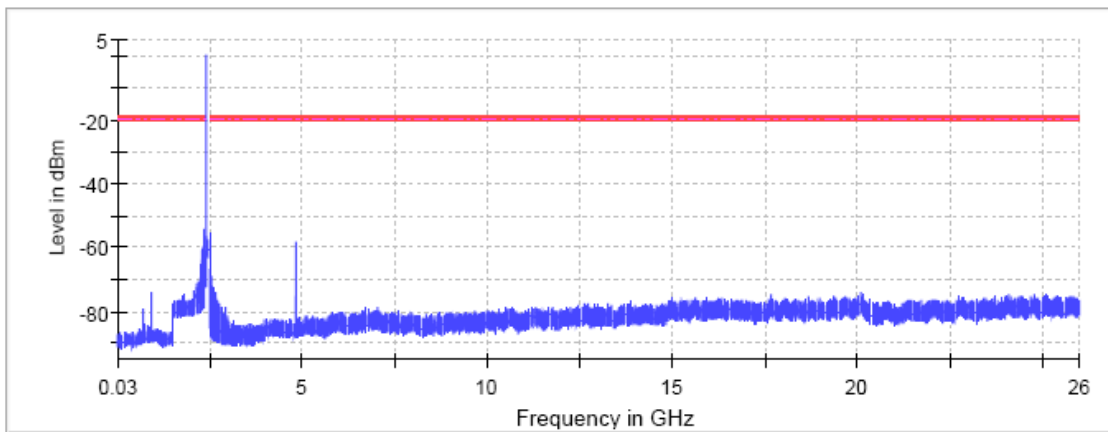
Setting	Instrument Value	Instrument Value
RBW	100.000 kHz	1.000 MHz
VBW	300.000 kHz	3.000 MHz
Sweep Points	29400	28010
Sweep time	29.4 ms	2.800 ms
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	Sweep
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	28 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.00 dB	0.00 dB

<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2 Mbps)
<b>TEST RESULTS:</b>	PASS

**Frequency range 30 MHz – 26 GHz**

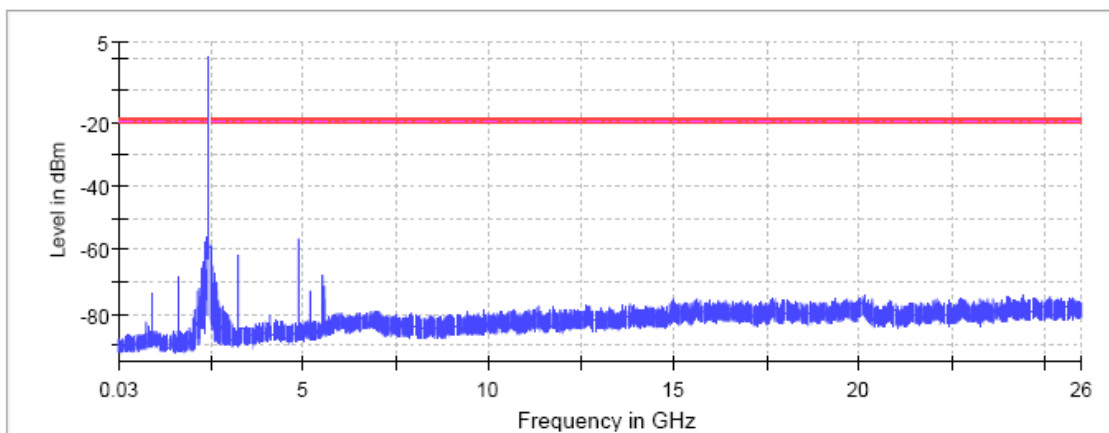
No conducted spurious signals were detected at less than 20 dB respect to the limit for low and high operating channels.

**Low Channel:**



— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

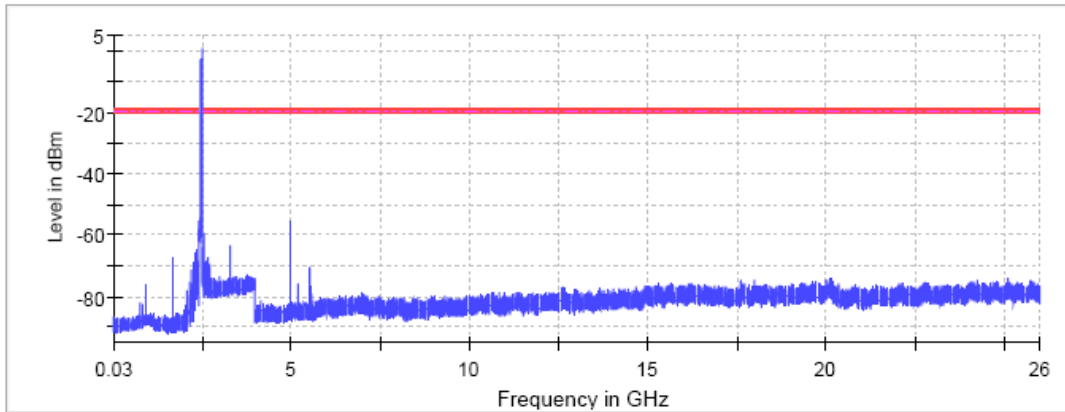
**Mid Channel:**



— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

**TEST RESULTS (Cont.):**

**High Channel:**



— Limit    — Sum Level    - - - Threshold    × Critical    × Final Critical

**Measurement**

Setting	Instrument Value	Instrument Value
RBW	100.000 kHz	1.000 MHz
VBW	300.000 kHz	3.000 MHz
Sweep Points	29400	28010
Sweep time	29.4 ms	2.800 ms
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	30	30
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	Sweep
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	60 / max. 150	5 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.00 dB	0.00 dB

## TEST A.7: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(d) and RSS-Gen 8.9 and 8.10

### LIMITS

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required

## TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30-1000 MHz (Bilog antenna) and at a distance of 1m for the frequency range 1-26 GHz (1 GHz-18 GHz and 18 GHz-26 GHz Double ridge horn antennas).

For radiated emissions in the range 1-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

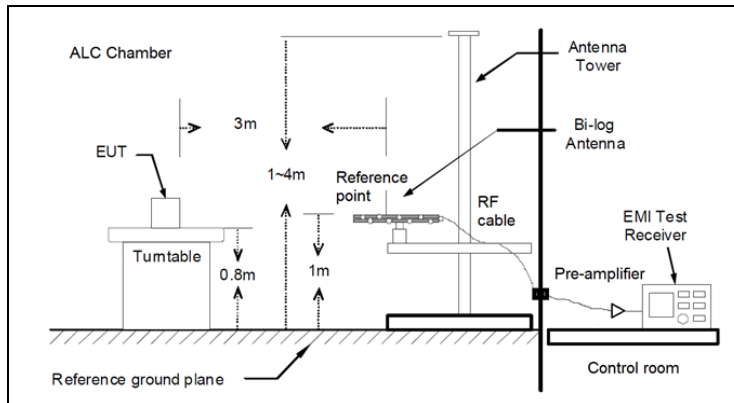
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

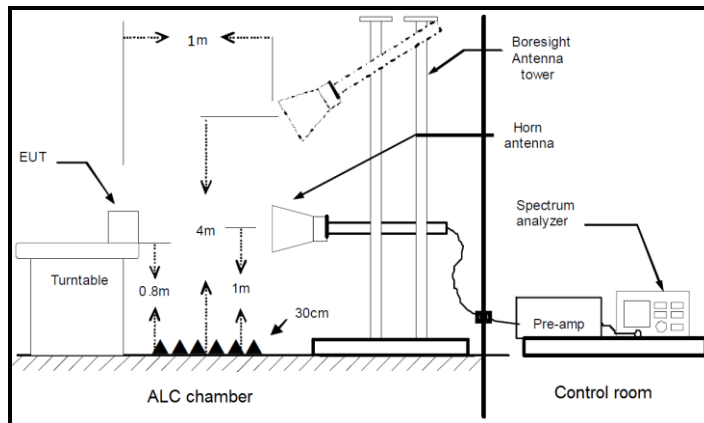
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

**TEST SETUP (CONT.)**

**Radiated measurements Setup  $f < 1$  GHz**



**Radiated measurements setup  $f > 1$  GHz**



<b>TESTED SAMPLES:</b>	S/02
<b>TESTED CONDITIONS MODES:</b>	TC#01
<b>TEST RESULTS:</b>	PASS

**Frequency range 30 MHz – 1000 MHz**

The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.

The worst case selected was 1 Mbps at Middle Channel. The results in the following plots and tables shows the measured levels in this range at or above 20 dB below the limit.

**Frequency range 1 GHz – 26 GHz**

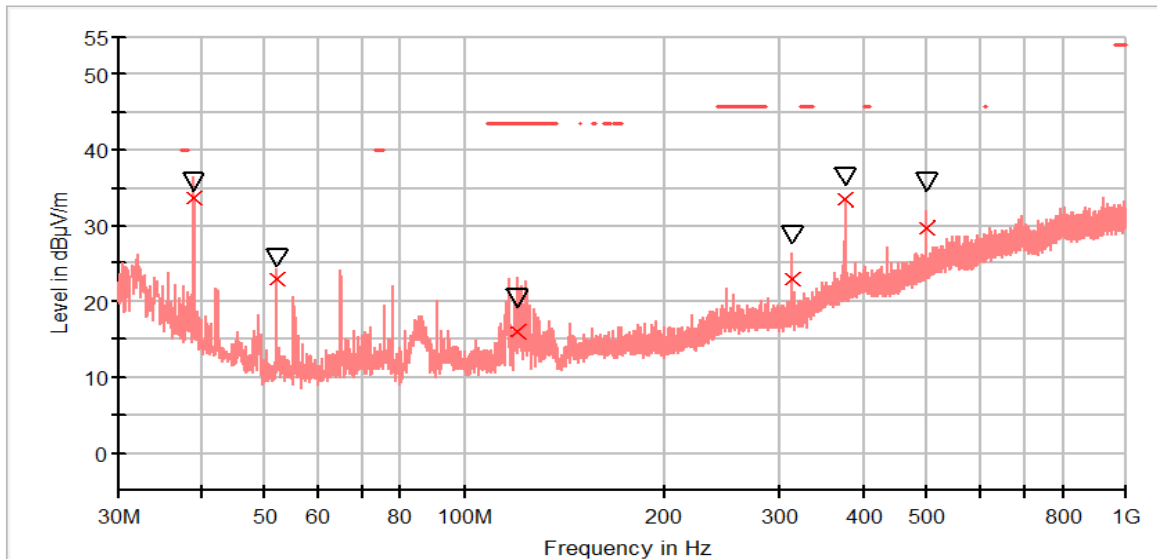
The results in the following plots and tables show the maximum measured levels in the 1-26 GHz range including restricted bands.

TEST RESULTS (Cont.):

30-1000 MHz

Middle Channel

RF\_FCC\_15.247\_E Field\_30MHz\_1GHz



- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (30MHz to 1GHz) Restricted Bands QPK Limit
- ▽ MaxPeak-PK+ (Single)
- × QuasiPeak-QPK (Single)

Result Table\_Single

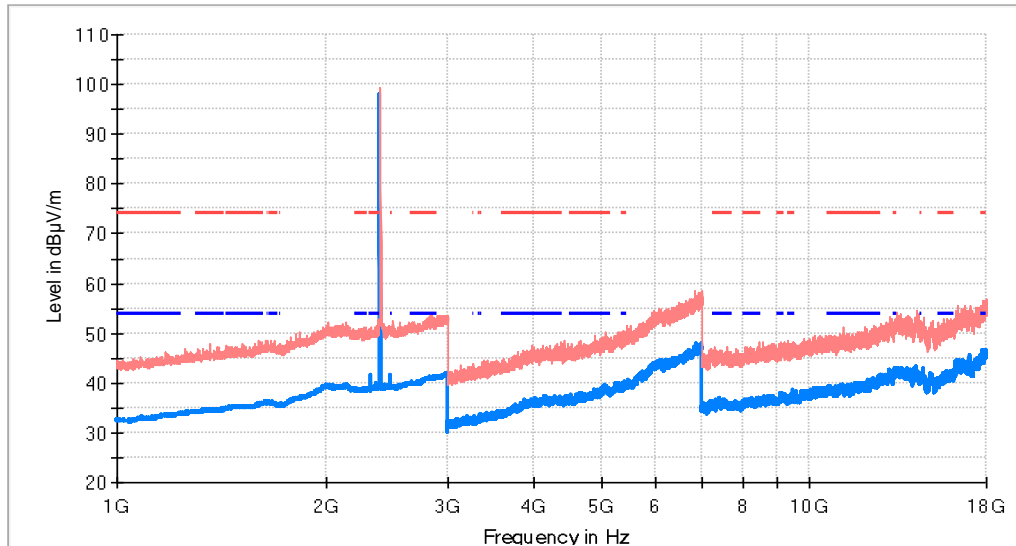
Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Pol
39.021000	35.84	33.70	V
52.067500	25.73	23.04	V
120.452500	20.37	15.95	V
312.512500	28.87	22.91	H
374.980500	36.55	33.54	H
500.013500	35.89	29.88	H



TEST RESULTS (Cont.):

1-18 GHz (Lowest Channel)

1GHz\_18GHz\_HP & VP\_CH Low



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

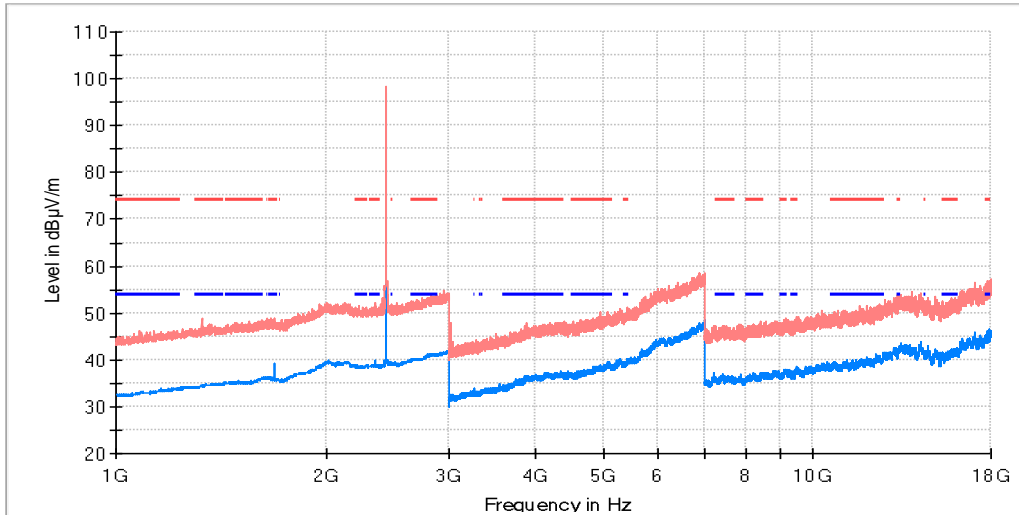
Maximizations

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Comment
2322.000000	51.10	41.66	V	
2402.000000	99.49	97.89	V	Fundamental
17985.500000	56.88	45.35	V	

TEST RESULTS (Cont.):

1-18 GHz (Middle Channel)

1GHz\_18GHz\_HP & VP\_CH Mid



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

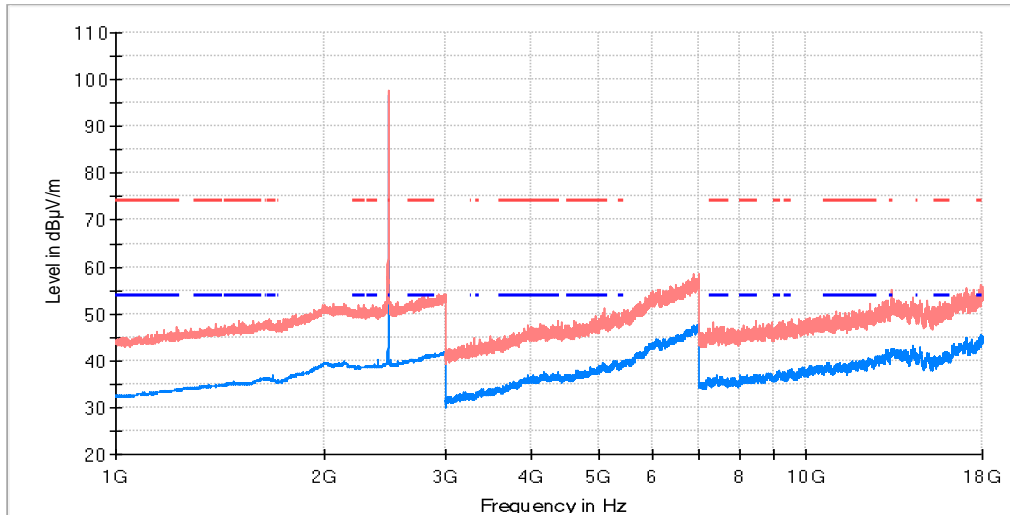
Maximizations

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Comment
1687.500000	48.01	39.11	H	
2440.000000	98.37	96.97	H	Fundamental
14273.500000	53.95	43.86	V	
17021.000000	54.88	45.84	V	

**TEST RESULTS (Cont.):**

**1-18 GHz (Highest Channel)**

1GHz\_18GHz\_HP & VP\_CH High



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

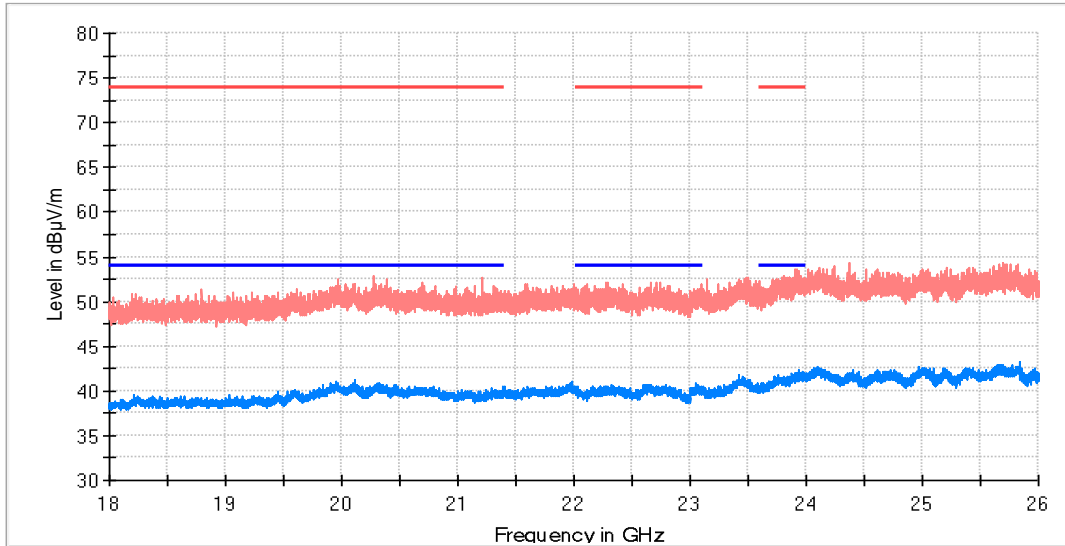
**Maximizations**

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	PoI	Comment
2480.000000	97.8	96.8	V	Fundamental
14259.000000	51.4	43.2	V	
17024.500000	53.3	44.9	V	

TEST RESULTS (Cont.):

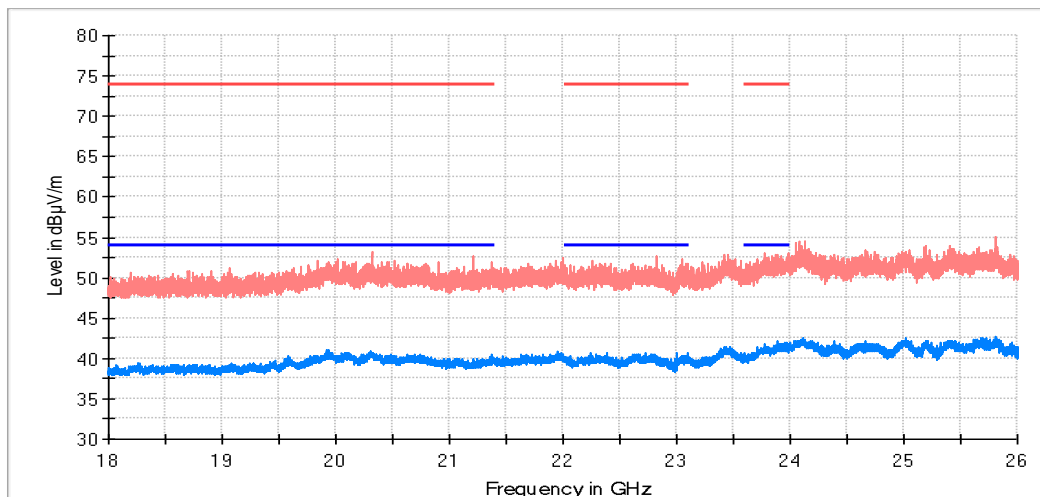
18 – 26 GHz

Low Channel



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

Middle Channel

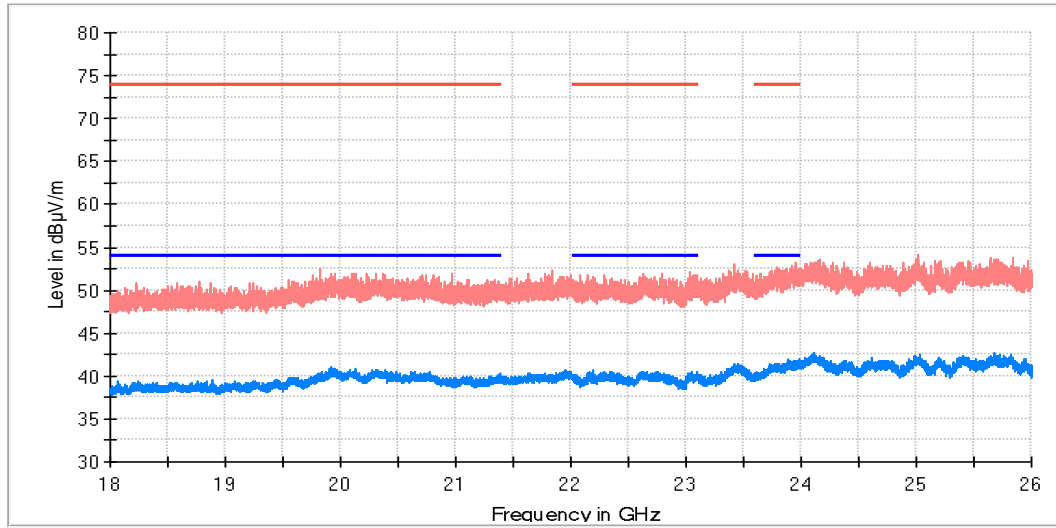


- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.):

18 – 26 GHz

Highest Channel

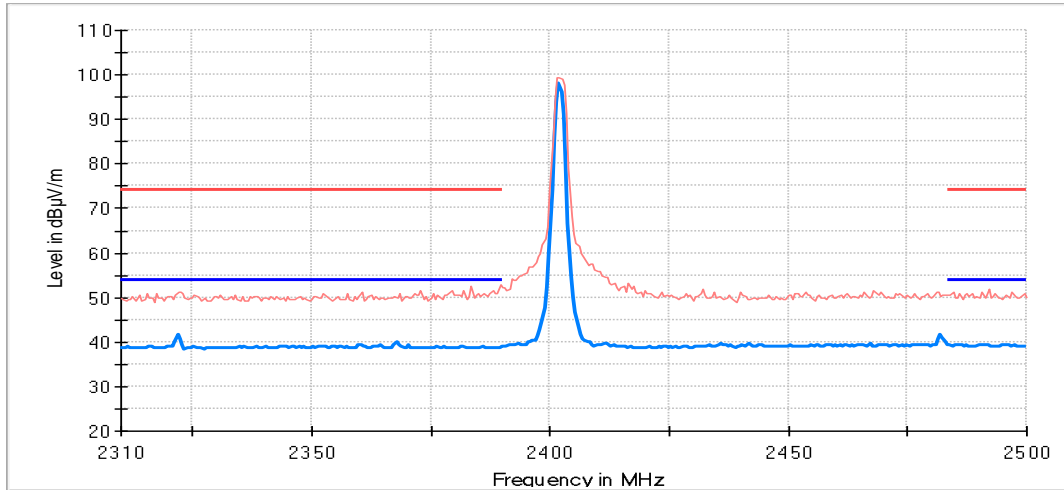


- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.):

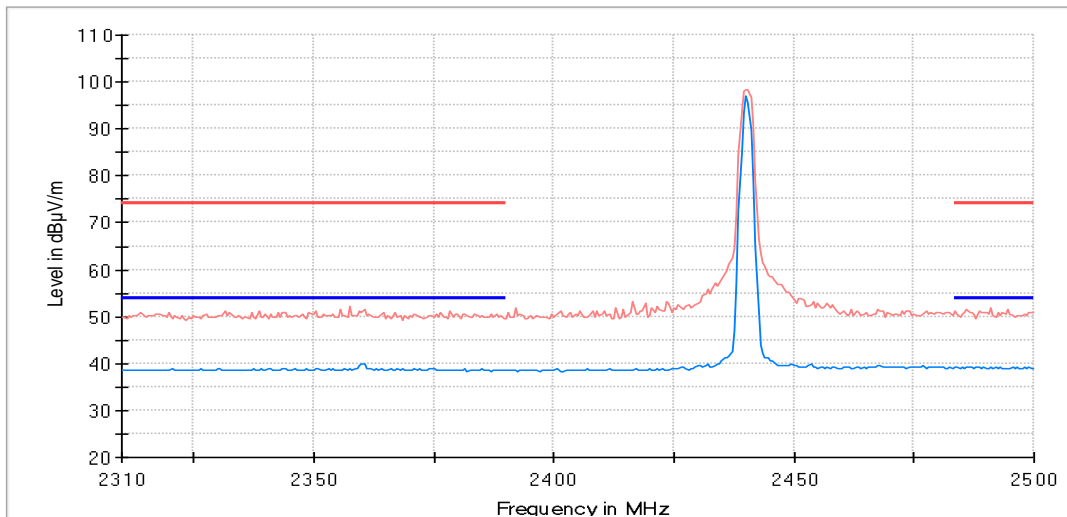
Restricted Bands (2.31 GHz – 2.5 GHz)

Low Channel



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

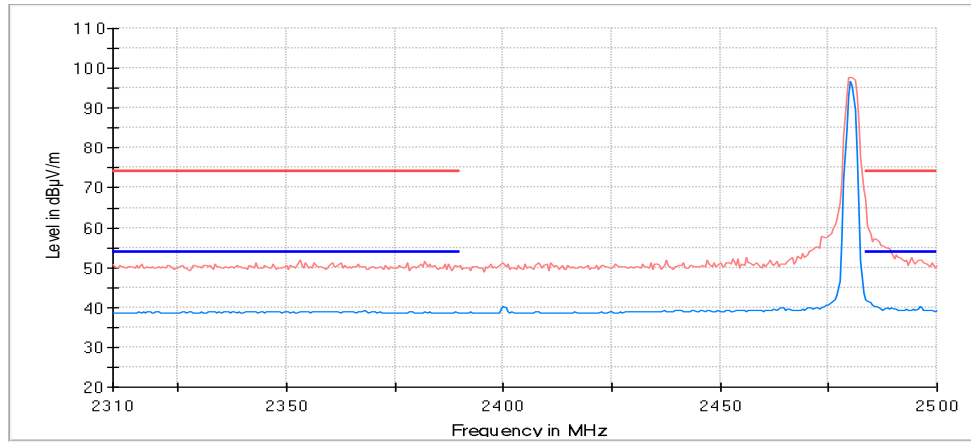
Middle Channel



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.):

Highest Channel



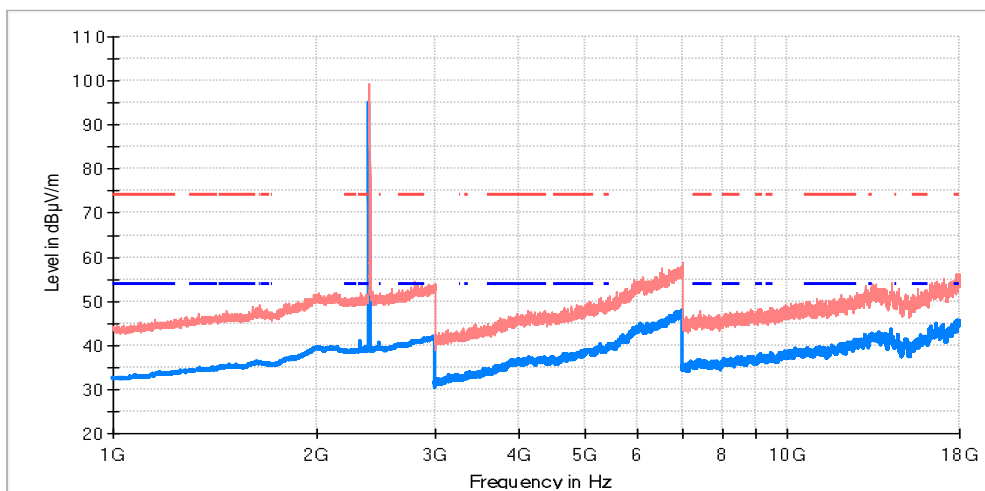
- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.2.47 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.2.47 (1 GHz to 26 GHz) Restricted Bands AVG Limit

<b>TESTED SAMPLES:</b>	S/02
<b>TESTED CONDITIONS MODES:</b>	TC#02 (2 Mbps)
<b>TEST RESULTS:</b>	PASS

**Frequency range 1 GHz – 26 GHz**

The results in the following plots and tables show the maximum measured levels in the 1-26 GHz range including restricted bands.

<b>TEST RESULTS (Cont.):</b>	<b>1-18 GHz (Lowest Channel)</b>
------------------------------	----------------------------------



- AVG\_MAXH
- PK+\_MAXH
- - - TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- - - TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

**Maximizations**

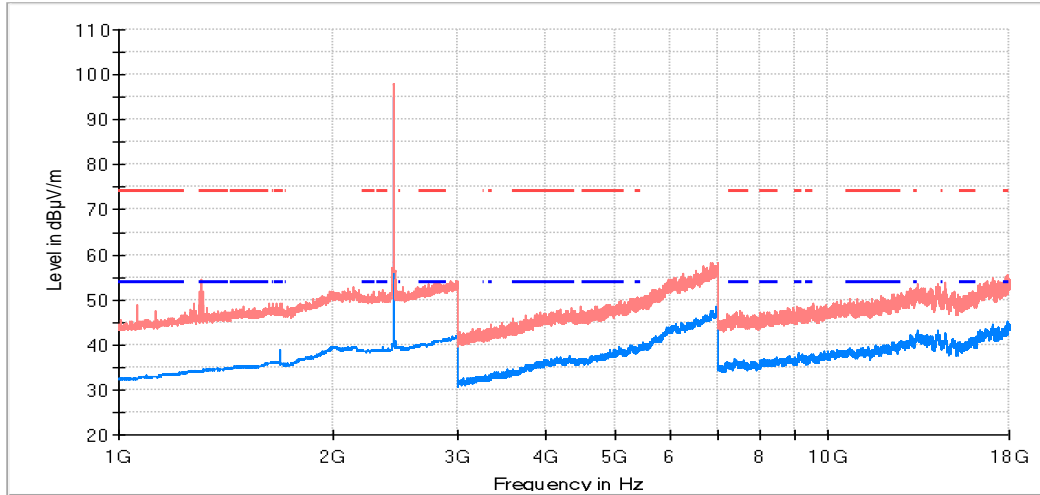
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Comment
2322.000000	49.76	41.06	V	
2401.500000	99.29	92.45	V	Fundamental
17957.000000	56.17	45.27	V	



TEST RESULTS (Cont.):

1-18 GHz (Middle Channel)

1GHz\_18GHz\_HP & VP\_CH Mid



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.2.47 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.2.47 (1GHz to 26 GHz) Restricted Bands AVG Limit

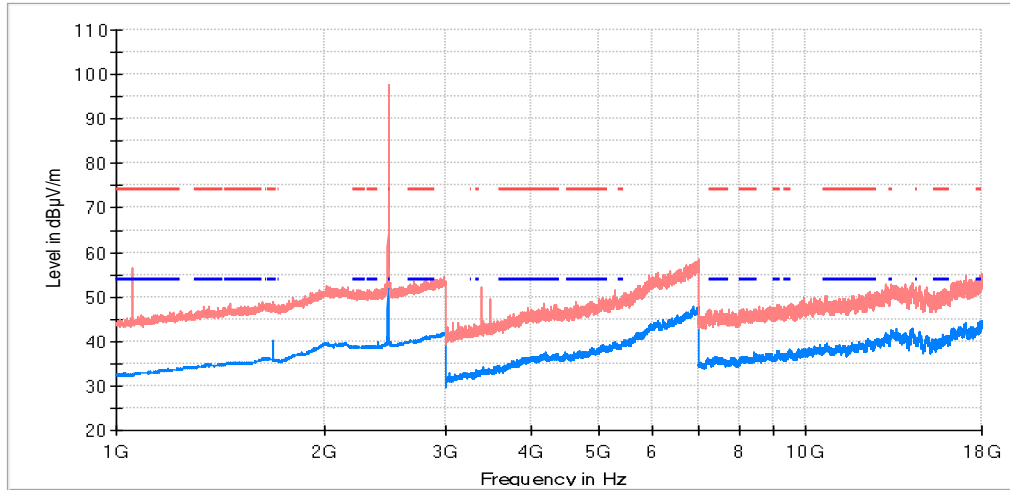
Maximizations

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Comment
1687.000000	47.66	38.41	V	
2440.000000	97.80	95.09	V	Fundamental
14240.000000	50.98	42.73	V	

TEST RESULTS (Cont.):

1-18 GHz (Highest Channel)

1GHz\_18GHz\_HP & VP\_CH High



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

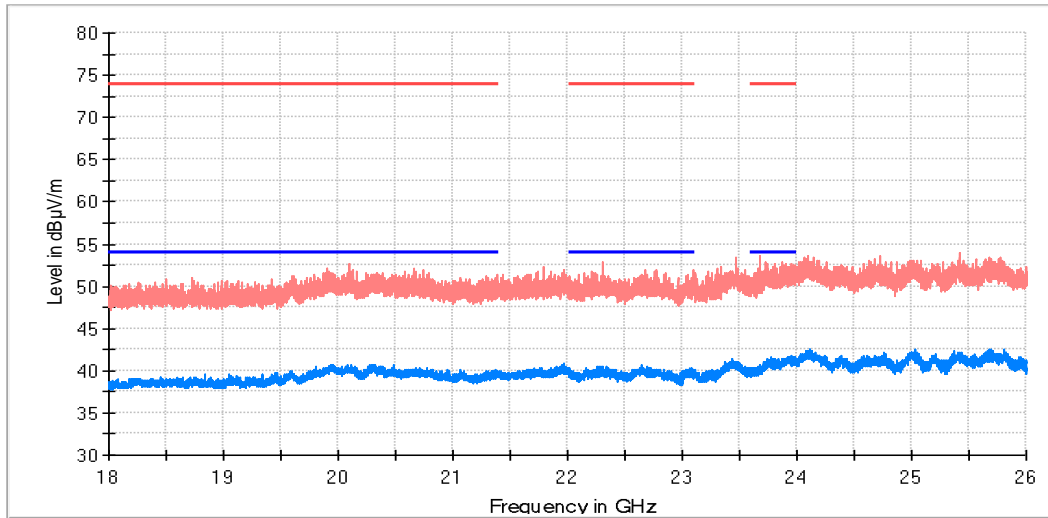
Maximizations

Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	PoI	Comment
1687.500000	49.01	40.23	V	
2480.000000	97.68	94.89	V	Fundamental
14275.500000	50.99	43.02	V	

**TEST RESULTS (Cont.):**

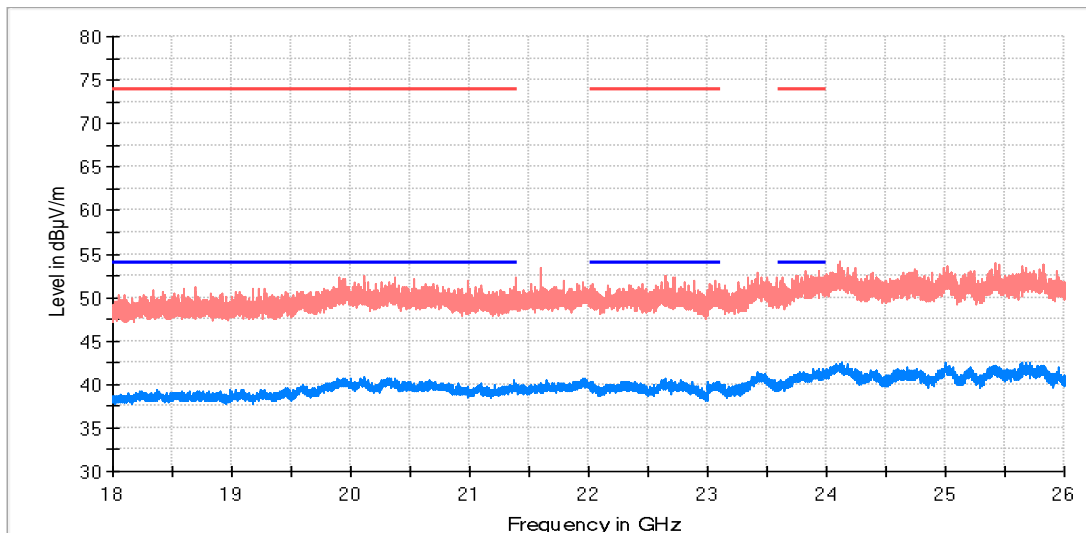
**18 – 26 GHz**

**Low Channel**



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

**Middle Channel**

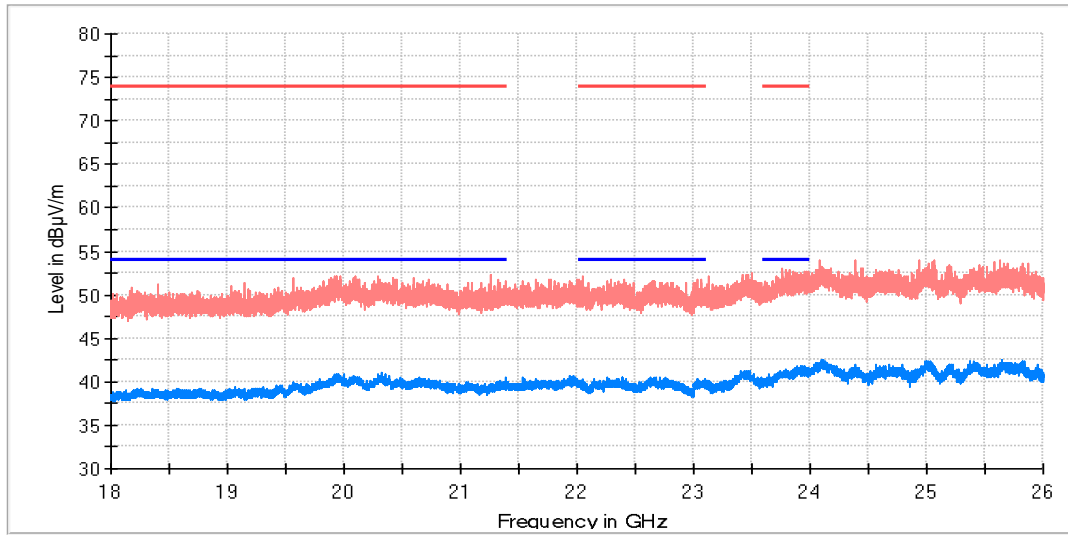


- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.):

18 – 26 GHz

Highest Channel

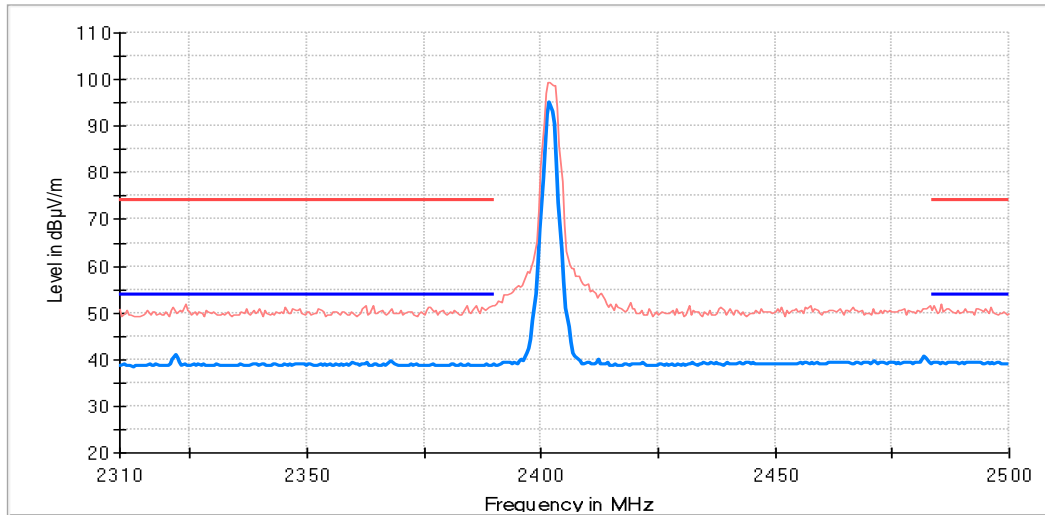


- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

**TEST RESULTS (Cont.):**

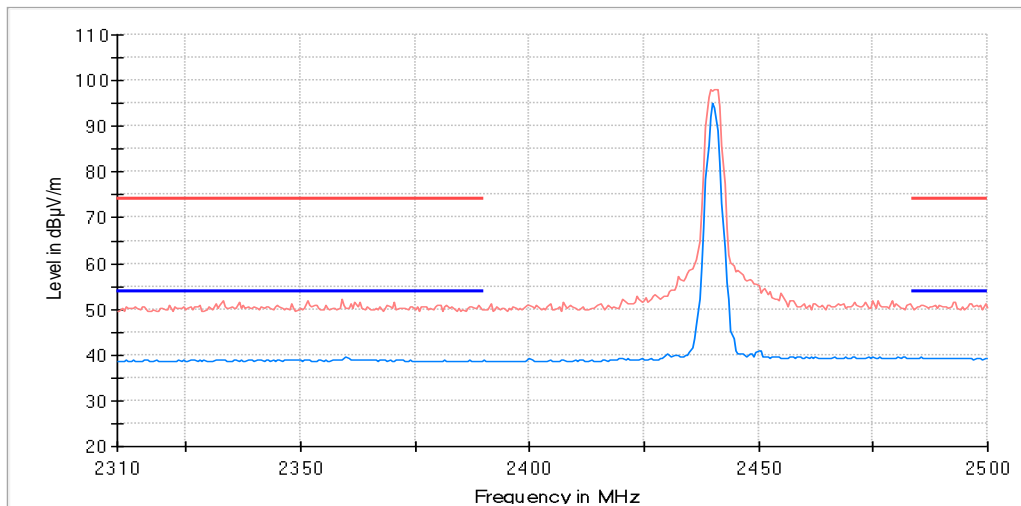
**Restricted Bands (2.31 GHz – 2.5 GHz)**

**Low Channel**



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

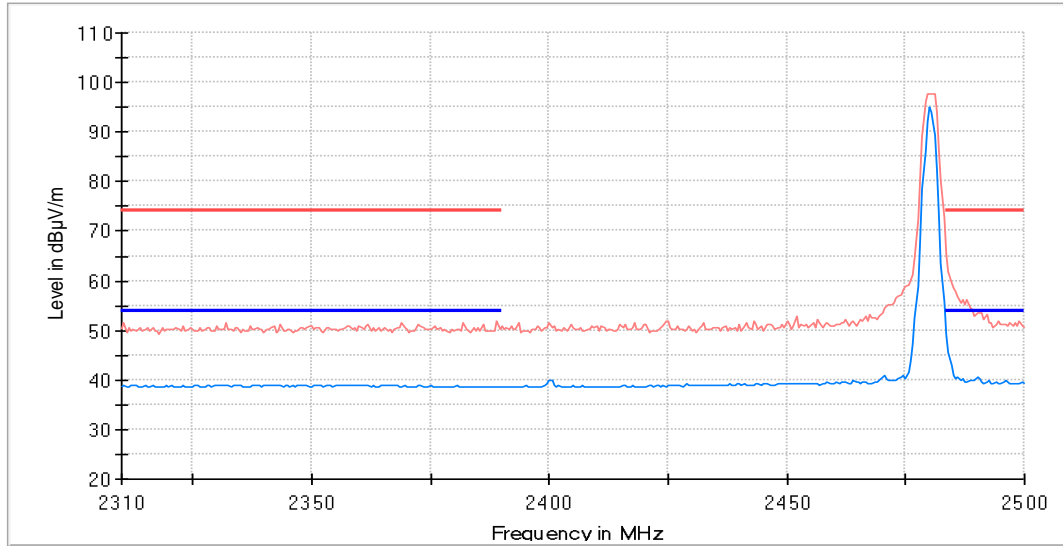
**Middle Channel**



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1 GHz to 26 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.):

Highest Channel



- AVG\_MAXH
- PK+\_MAXH
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC1 5.247 (1GHz to 26 GHz) Restricted Bands AVG Limit

## Appendix B: Test results (WIFI 2.4GHz b/g/n20)

## Appendix B Content

PRODUCT INFORMATION .....	65
DESCRIPTION OF TEST CONDITIONS .....	66
TEST B.1: 99% OCCUPIED BANDWIDTH AND 6DB BANDWIDTH.....	67
TEST B.2: MAXIMUM CONDUCTED OUTPUT POWER AND ANTENNA GAIN .....	80
TEST B.3: BAND-EDGE EMISSIONS COMPLIANCE (TRANSMITTER).....	90
TEST B.4: POWER SPECTRAL DENSITY .....	107
TEST B.5: EMISSION LIMITATIONS CONDUCTED (TRANSMITTER).....	114
TEST B.6: EMISSION LIMITATIONS RADIATED (TRANSMITTER).....	121



## PRODUCT INFORMATION

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The following information is provided by the supplier, in accordance with clause 5.4.1:

Information	Description
Modulation	DSSS/OFDM
Maximum RF Output Power	b mode = 20 dBm g mode = 19.5 dBm n mode = 19 dBm
Operation mode	Equipment with only one antenna
- Operating Frequency Range	2412 – 2472 MHz
- Nominal Channel Bandwidth	20 MHz
Extreme operating conditions	
- Temperature range	-40 °C to +85 °C
Antenna type	Dedicated Antenna
Antenna gain	+2.5 dBi
Nominal Voltage	
- Supply Voltage	3.3 Vdc
- Type of power source	DC voltage
Equipment type	WIFI 2.4GHz b/g/n20
Geo-location capability	No

## DESCRIPTION OF TEST CONDITIONS

During transmitter test the EUT was being controlled by the SW tool to operate in a continuous transmit mode on the test channel as required and in each of the different modulation modes.

TEST CONDITIONS	DESCRIPTION
<p>TC#01<sup>(1)</sup> <b>(b mode)</b></p>	<p><u>Power supply (V):</u> <math>V_{\text{nominal}} = 3.3 \text{ Vdc}</math></p> <p><u>Channel Bandwidth:</u> 20 MHz</p> <p><u>Test Frequencies for Conducted/Radiated tests:</u> Lowest channel: 2412 MHz Middle channel: 2437 MHz Highest channel: 2462 MHz</p> <p><u>Canada Test Frequency for Conducted/Radiated Tests:</u> Highest channel: 2472 MHz</p>
<p>TC#02<sup>(1)</sup> <b>(g mode)</b></p>	<p><u>Power supply (V):</u> <math>V_{\text{nominal}} = 3.3 \text{ Vdc}</math></p> <p><u>Channel Bandwidth:</u> 20 MHz</p> <p><u>Test Frequencies for Conducted/Radiated tests:</u> Lowest channel: 2412 MHz Middle channel: 2437 MHz Highest channel: 2462 MHz</p> <p><u>Canada Test Frequency for Conducted/Radiated Tests:</u> Highest channel: 2472 MHz</p>
<p>TC#03<sup>(1)</sup> <b>(n mode)</b></p>	<p><u>Power supply (V):</u> <math>V_{\text{nominal}} = 3.3 \text{ Vdc}</math></p> <p><u>Channel Bandwidth:</u> 20 MHz</p> <p><u>Test Frequencies for Conducted:</u> Lowest channel: 2412 MHz Middle channel: 2437 MHz Highest channel: 2462 MHz</p> <p><u>Canada Test Frequency for Conducted/Radiated Tests:</u> Highest channel: 2472 MHz</p>

Note (1): For spurious emissions for OFDM modes 802.11g and 802.11n20 a preliminary scan was performed to determine the worst case. The following tables and plots show the results for the worst case in DSSS modulation (802.11b) and OFDM modulation (802.11g).

The data rates of 1Mb/s for 802.11b, 6Mb/s for 802.11g, MCS0 for 802.11n20/n40 were selected based on preliminary testing that identified those rates corresponding to the worst cases.

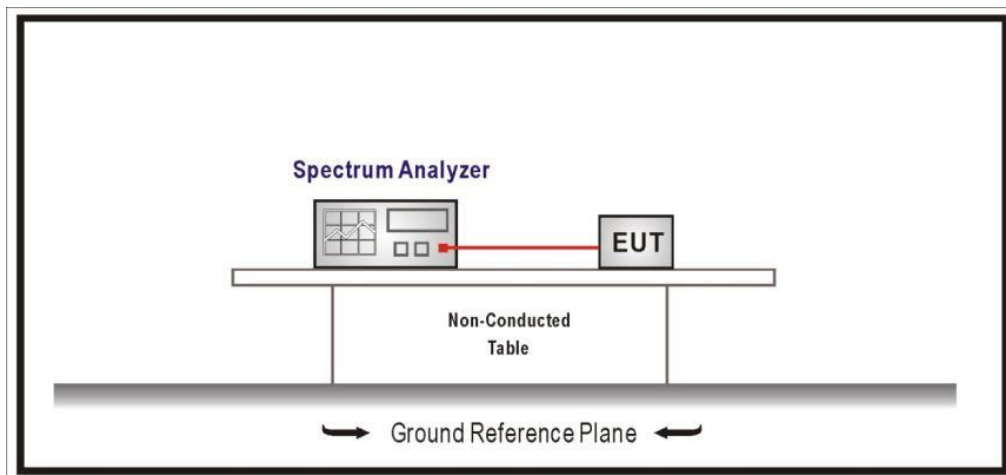
### TEST B.1: 99% OCCUPIED BANDWIDTH AND 6DB BANDWIDTH

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	§2.1049, Part 15 Subpart C §15.247(a)(2) and RSS-247 5.2(a)

**LIMITS**

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 KHz.

### TEST SETUP



<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01 (b mode)
<b>TEST RESULTS:</b>	PASS

Type of equipment: Adaptive equipment without the possibility to switch to a non-adaptive mode.

	Lowest frequency 2412 MHz	Middle frequency 2437 MHz	Highest frequency 2462 MHz
6dB Bandwidth (MHz)	10.30	10.30	10.30
Occupied bandwidth (MHz)	14.4	14.2	14.2
Measurement uncertainty (kHz)	<± 1.80		

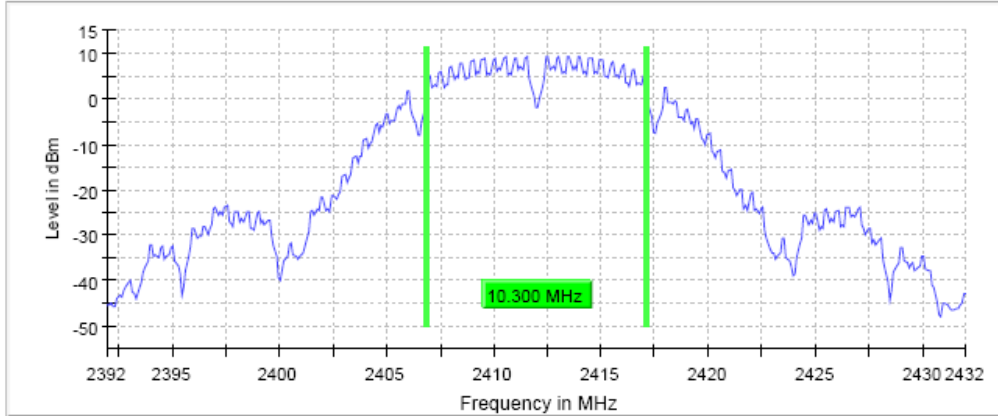
#### 6dB Measurement

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40.00 MHz	40.000 MHz	40.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
Sweep Points	400	800	400
Sweep time	56.886 µs	56.836 µs	56.886 µs
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	9 / max. 150	8 / max. 150	14 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.24 dB	0.11 dB	0.00 dB

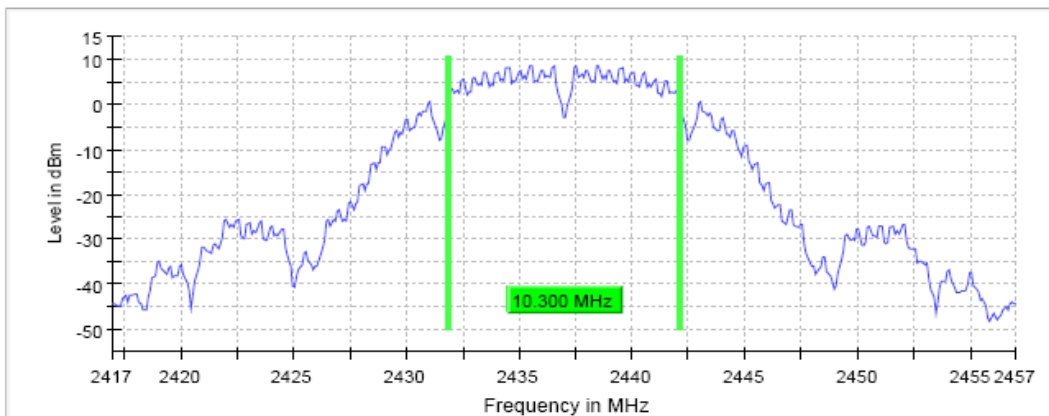
TEST RESULTS (Cont.):

6 dB BANDWIDTH

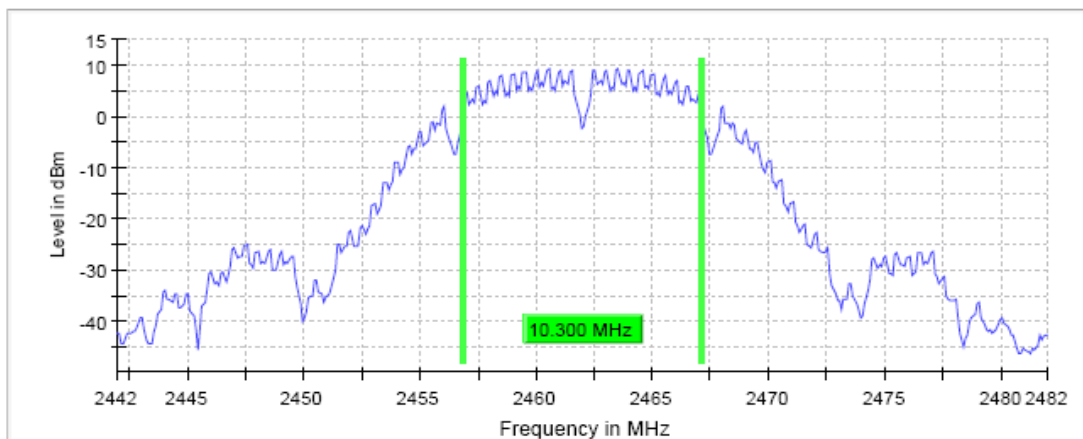
Lowest Channel



Middle Channel



Highest Channel



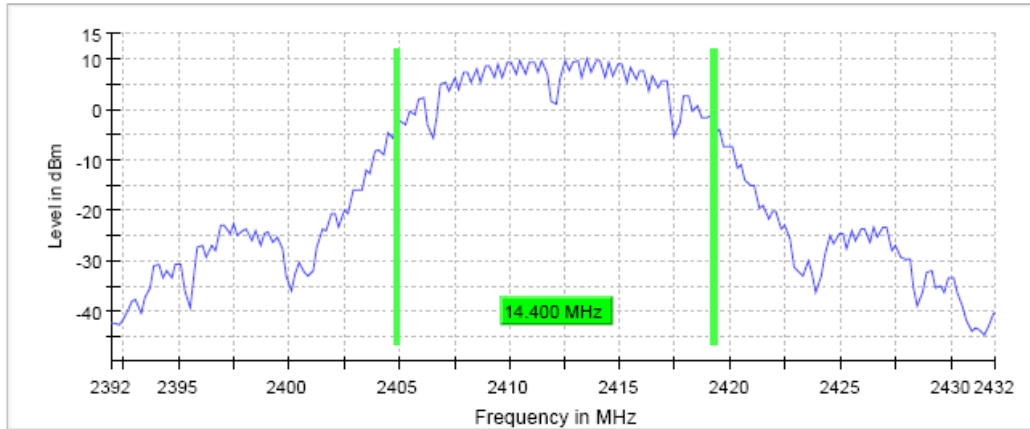
**TEST RESULTS (Cont.):**

**OBW Measurement**

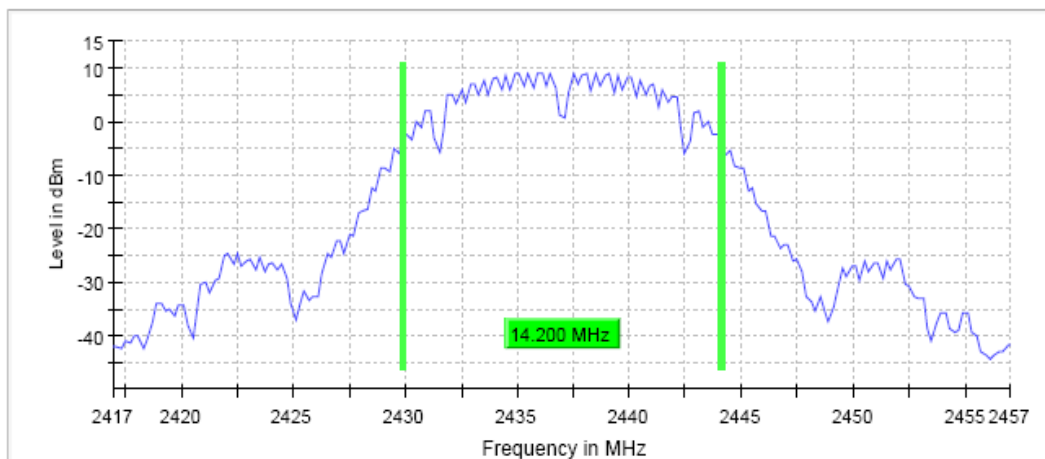
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40.00 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	200	200	200
Sweep time	28.443 µs	28.443 µs	28.443 µs
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	4 / max. 150	6 / max. 150	9 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.28 dB	0.15 dB	0.02 dB

<b>TEST RESULTS (Cont.):</b>	<b>OCCUPIED BANDWIDTH</b>
------------------------------	---------------------------

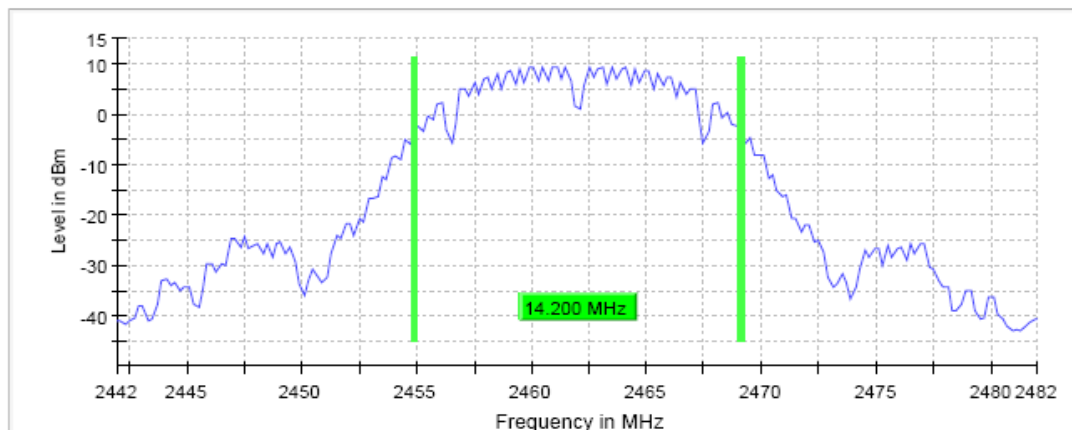
**Lowest Channel**



**Middle Channel**



**Highest Channel**



<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (g mode)
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2412 MHz	Middle frequency 2437 MHz	Highest frequency 2462 MHz
6dB bandwidth (MHz)	16.50	16.5	16.5
Occupied bandwidth (MHz)	17.2	17	17
Measurement uncertainty (kHz)	<± 1.80		

**6dB Measurement**

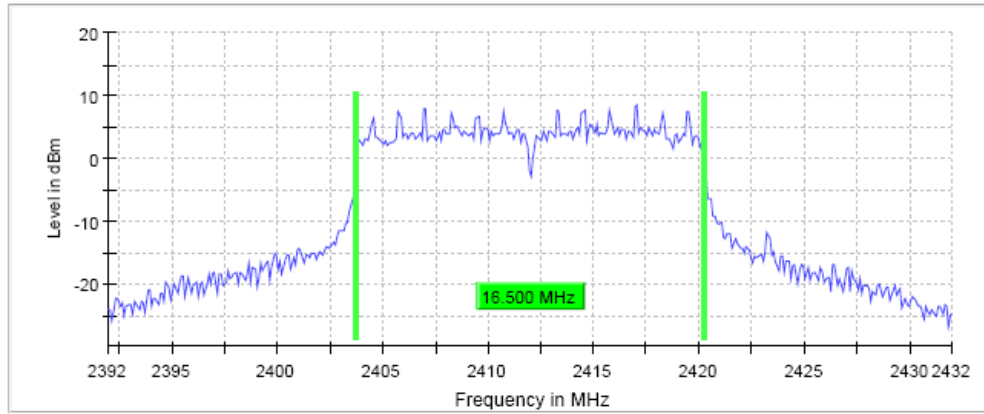
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40.00 MHz	40.000 MHz	40.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
Sweep Points	800	800	400
Sweep time	56.836 µs	56.836 µs	56.886 µs
Reference Level	20.000 dBm	20.000 dBm	10.000 dBm
Attenuation	40.000 dB	40.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	34 / max. 150	37 / max. 150	39 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.47 dB	0.13 dB	0.08 dB



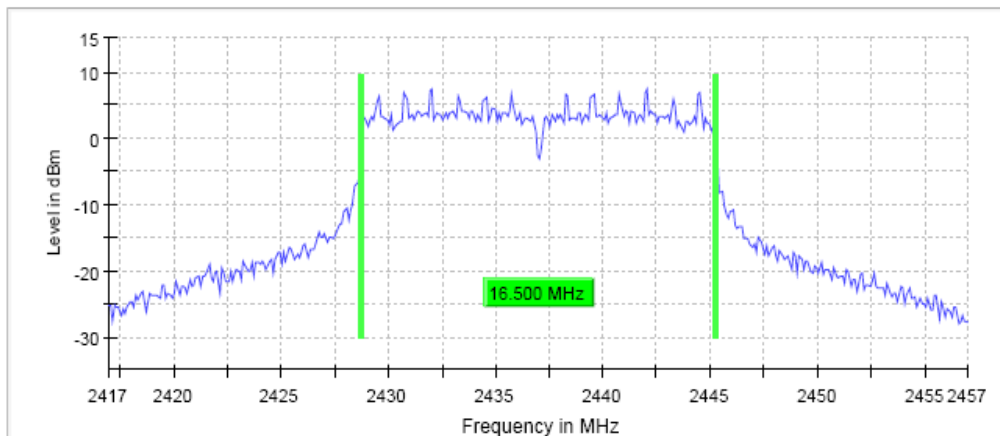
TEST RESULTS (Cont.):

6 dB BANDWIDTH

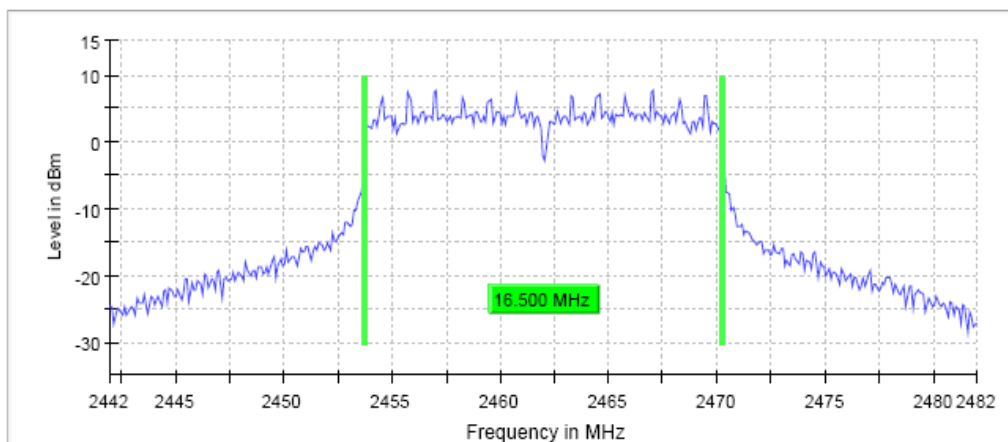
Lowest Channel



Middle Channel



Highest Channel



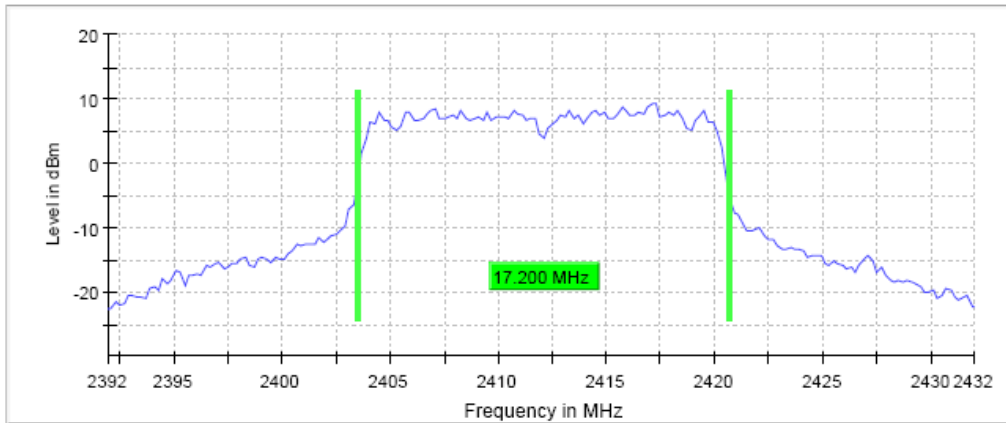
**TEST RESULTS (Cont.):**

**OBW Measurement**

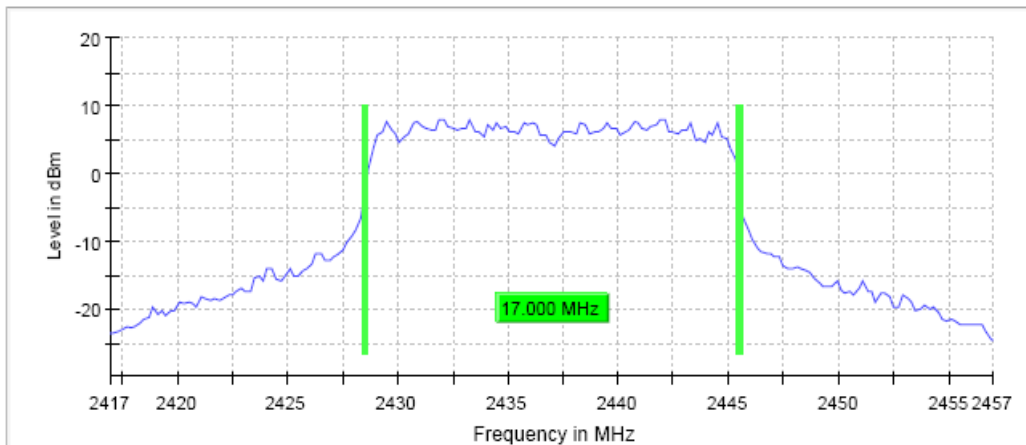
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40.00 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	200	200	200
Sweep time	28.443 $\mu$ s	28.443 $\mu$ s	28.443 $\mu$ s
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	38 / max. 150	39 / max. 150	41 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.09 dB	0.07 dB	0.00 dB

<b>TEST RESULTS (Cont.):</b>	<b>OCCUPIED BANDWIDTH</b>
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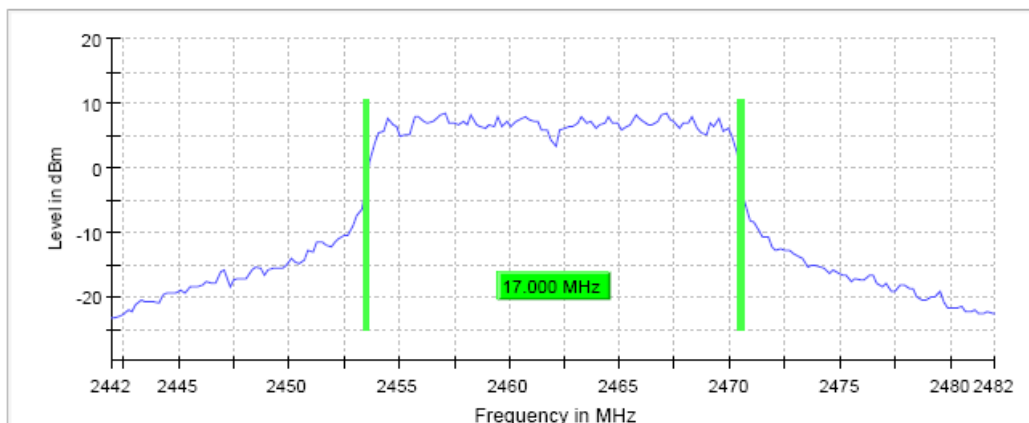
**Lowest Channel**



**Middle Channel**



**Highest Channel**



<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#03 (n20 mode)
<b>TEST RESULTS:</b>	PASS

	Lowest frequency 2412 MHz	Middle frequency 2437 MHz	Highest frequency 2462 MHz
6dB bandwidth (MHz)	17.7	17.7	17.1
Occupied bandwidth (MHz)	18.2	17.8	17.8
Measurement uncertainty (kHz)	<± 1.80		

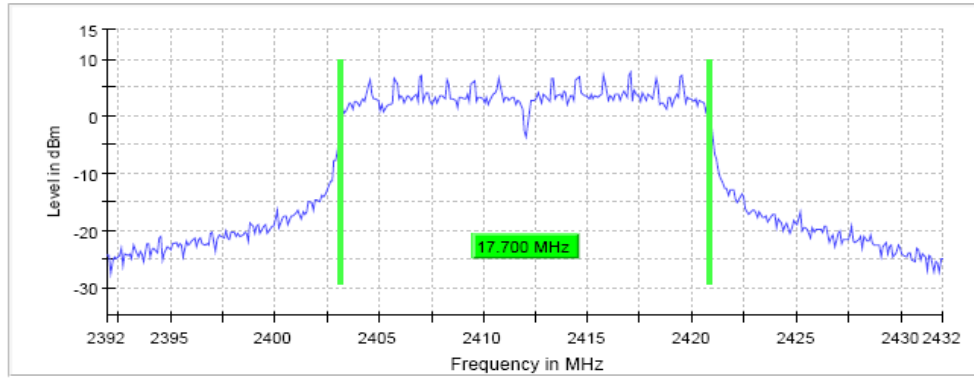
**6dB Measurement**

Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40.00 MHz	40.000 MHz	40.000 MHz
RBW	100.000 kHz	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz	300.000 kHz
Sweep Points	400	400	400
Sweep time	56.886 µs	56.886 µs	56.886 µs
Reference Level	20.000 dBm	20.000 dBm	10.000 dBm
Attenuation	40.000 dB	40.000 dB	30.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.50 dB	0.50 dB	0.50 dB
Run	33 / max. 150	36 / max. 150	34 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.38 dB	0.49 dB	0.31 dB

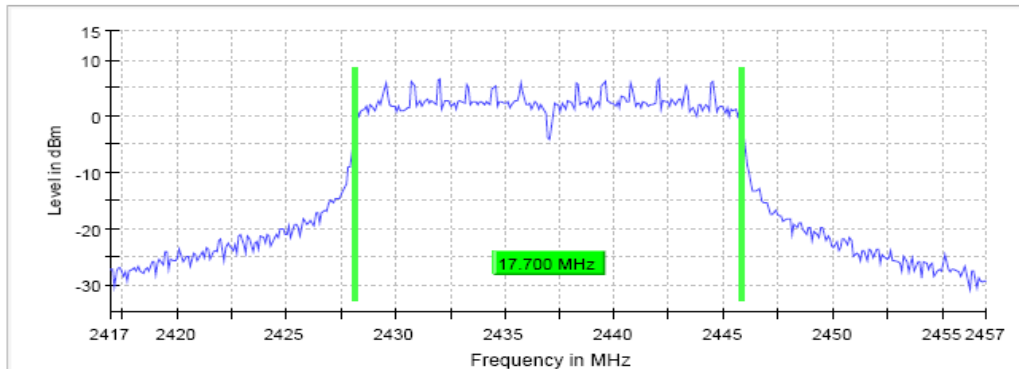
**TEST RESULTS (Cont.):**

**6 dB BANDWIDTH**

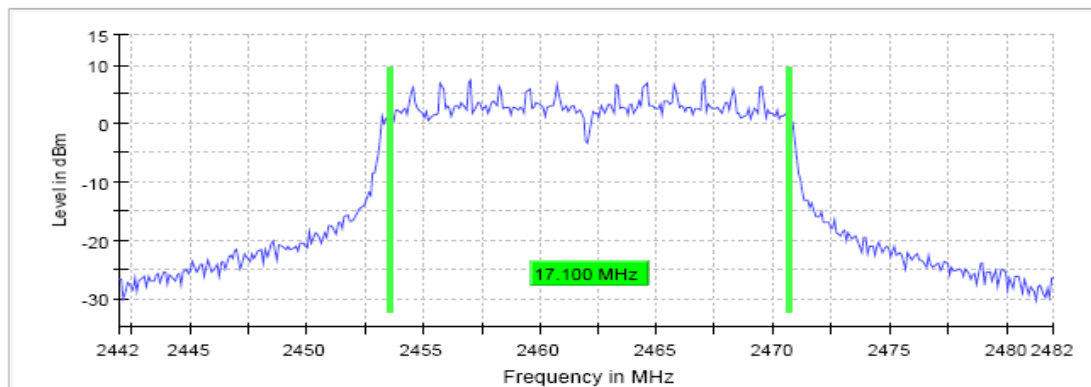
**Lowest Channel**



**Middle Channel**



**Highest Channel**



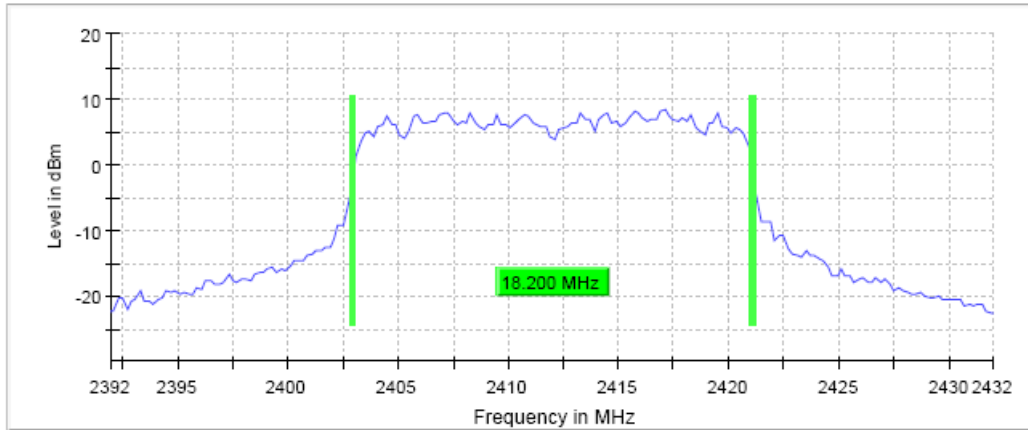
**TEST RESULTS (Cont.):**

**OBW Measurement**

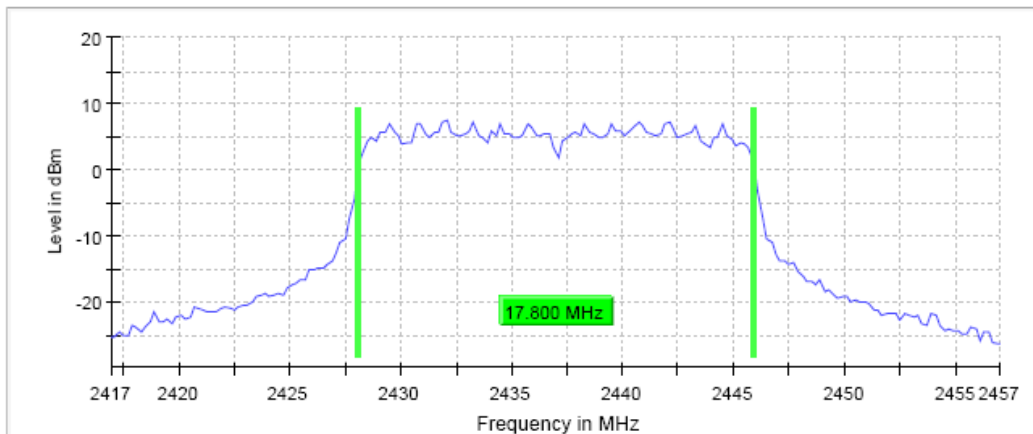
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	2.39200 GHz	2.41700 GHz	2.44200 GHz
Stop Frequency	2.43200 GHz	2.45700 GHz	2.48200 GHz
Span	40.00 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
Sweep Points	200	200	200
Sweep time	28.443 $\mu$ s	28.443 $\mu$ s	28.443 $\mu$ s
Reference Level	20.000 dBm	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
Sweep Count	100	100	100
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
Sweep type	FFT	FFT	FFT
Preamp	off	off	off
Stable mode	Trace	Trace	Trace
Stable value	0.30 dB	0.30 dB	0.30 dB
Run	56 / max. 150	36 / max. 150	56 / max. 150
Stable	3 / 3	3 / 3	3 / 3
Max Stable Difference	0.00 dB	0.27 dB	0.00 dB

<b>TEST RESULTS (Cont.):</b>	<b>OCCUPIED BANDWIDTH</b>
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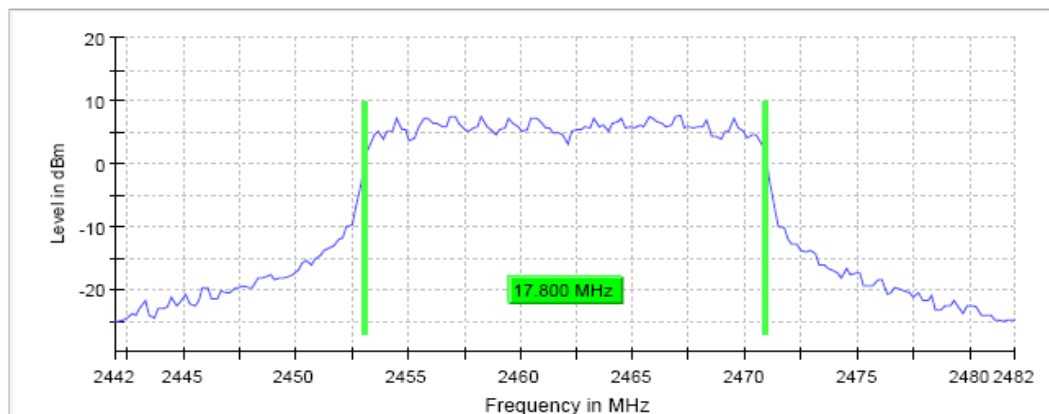
**Lowest Channel**



**Middle Channel**



**Highest Channel**



## TEST B.2: MAXIMUM CONDUCTED OUTPUT POWER AND ANTENNA GAIN

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(b) and RSS-247 5.4(d)

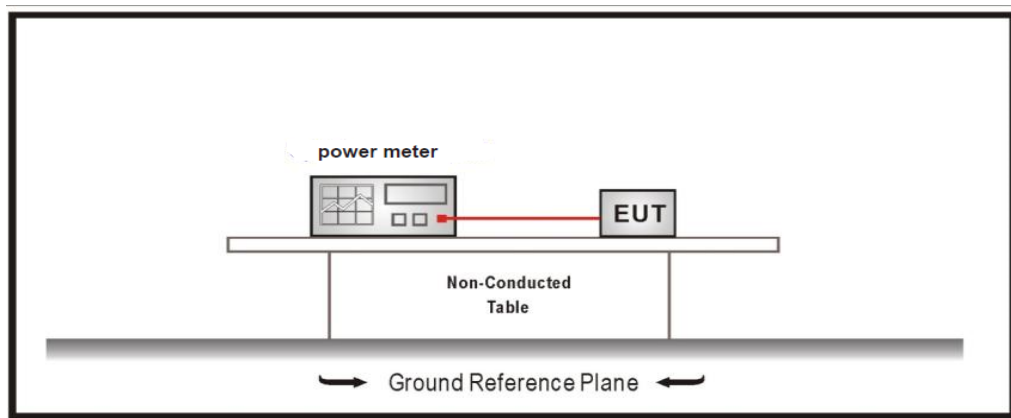
### LIMITS

For systems using digital modulation in the 2400 -2483.5 MHz band: 1 watt (30 dBm).

The e.i.r.p. shall not exceed 4 W (RSS-247).

### TEST SETUP

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power





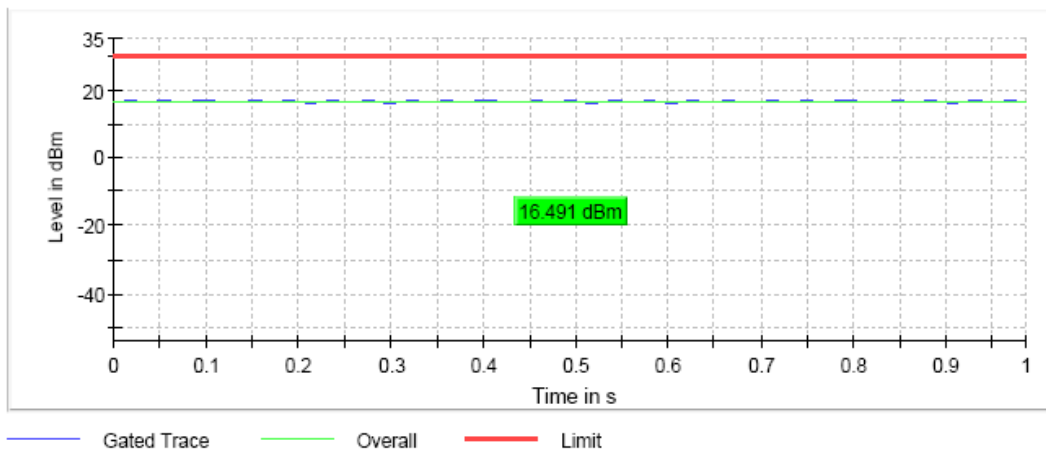
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01 (b mode)
<b>TEST RESULTS:</b>	PASS

Maximum declared antenna gain: 2.5 dBi

	Lowest frequency 2412 MHz	Middle frequency 2437 MHz	Highest frequency 2462 MHz
Maximum conducted power (dBm)	16.5	16.4	16.4
Maximum EIRP power (dBm)	19	18.9	18.9
Measurement uncertainty (dB)	<±0.78		

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

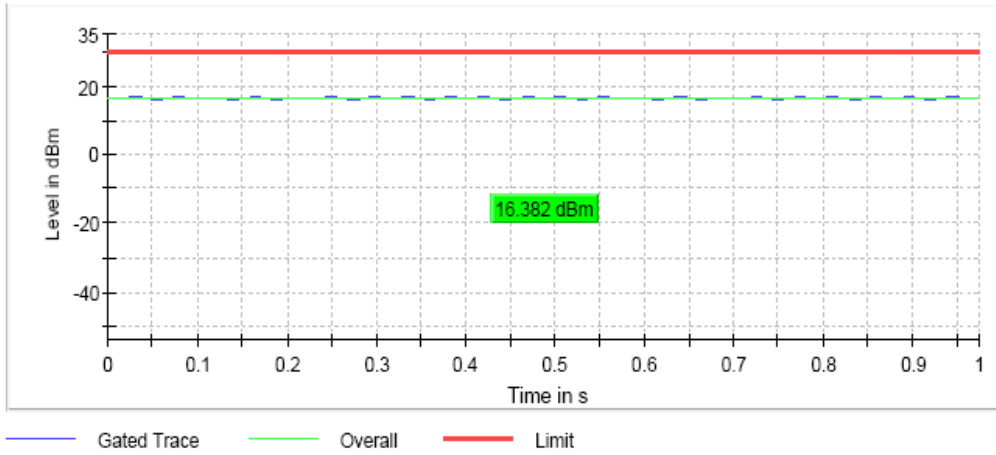
**Lowest Channel**



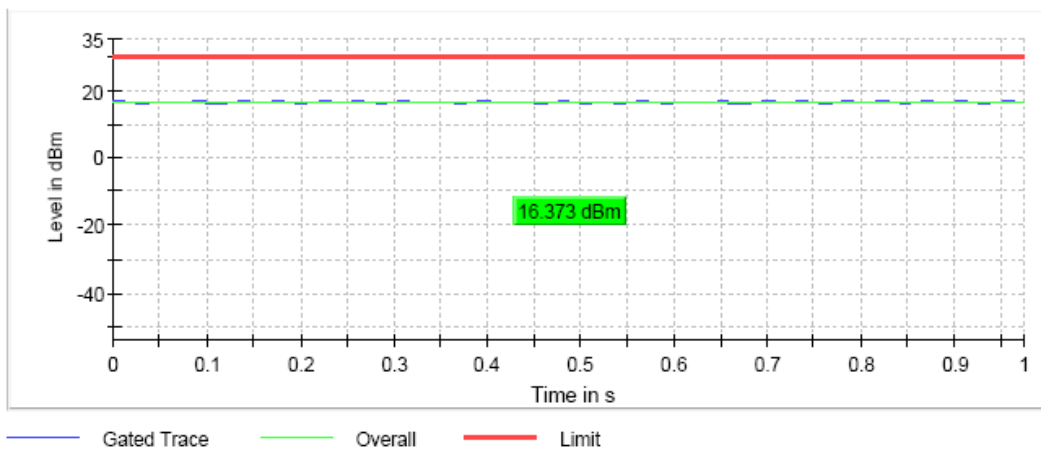
TEST RESULTS (Cont.):

CONDUCTED OUTPUT POWER

Middle Channel



Highest Channel



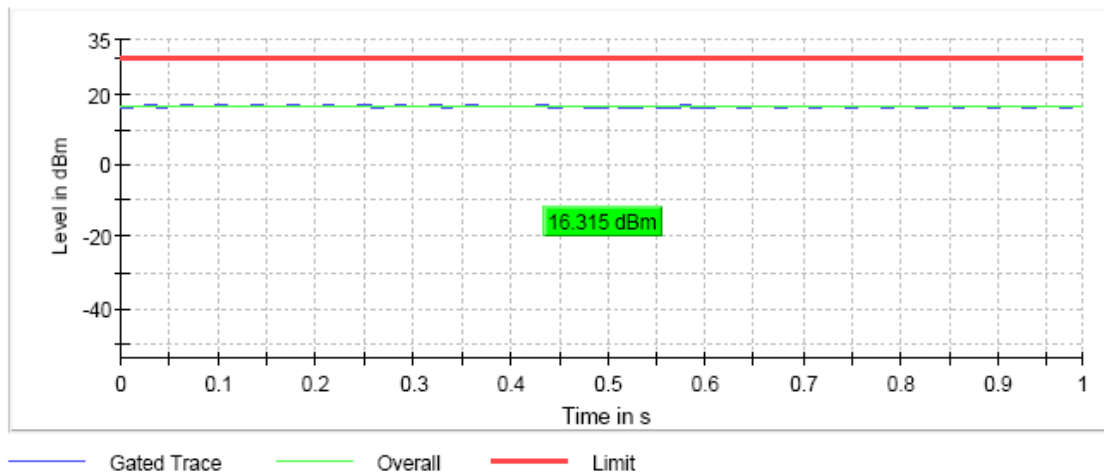
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01 (b mode) RSS Channel
<b>TEST RESULTS:</b>	PASS

Maximum declared antenna gain: 2.5 dBi

	Highest frequency 2472 MHz
Maximum conducted power (dBm)	16.3
Maximum EIRP power (dBm)	18.8
Measurement uncertainty (dB)	<±0.78

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

### Highest Channel



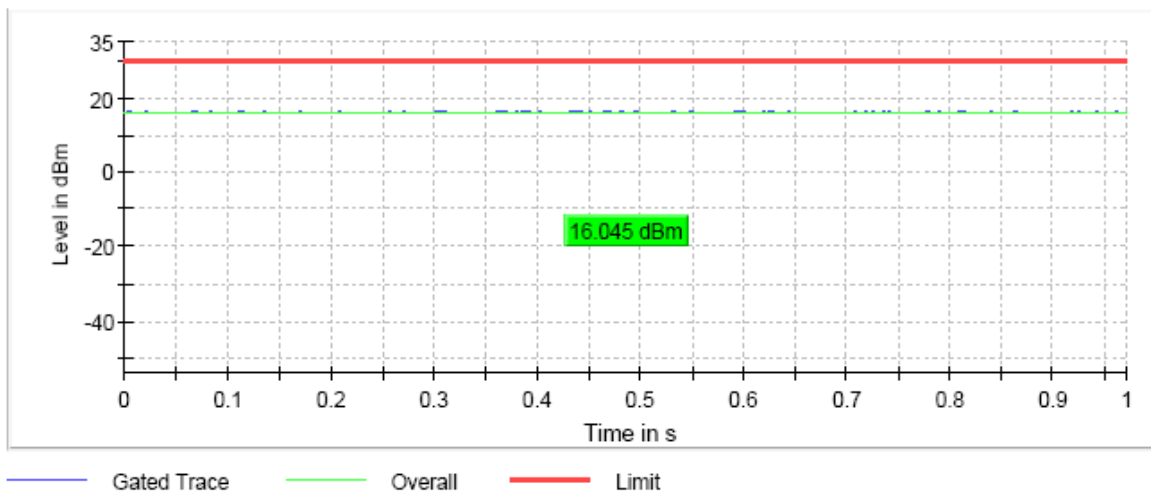
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (g mode)
<b>TEST RESULTS:</b>	PASS

Maximum declared antenna gain: 2.5 dBi

	Lowest frequency 2412 MHz	Middle frequency 2437 MHz	Highest frequency 2462 MHz
Maximum conducted power (dBm)	16	15.9	15.9
Maximum EIRP power (dBm)	18.5	18.4	18.4
Measurement uncertainty (dB)	<±0.78		

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

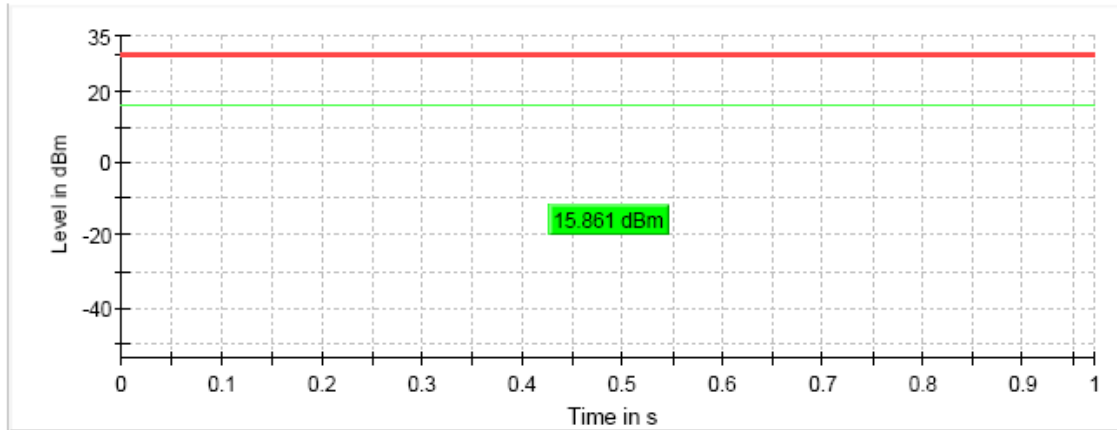
**Lowest Channel**



TEST RESULTS (Cont.):

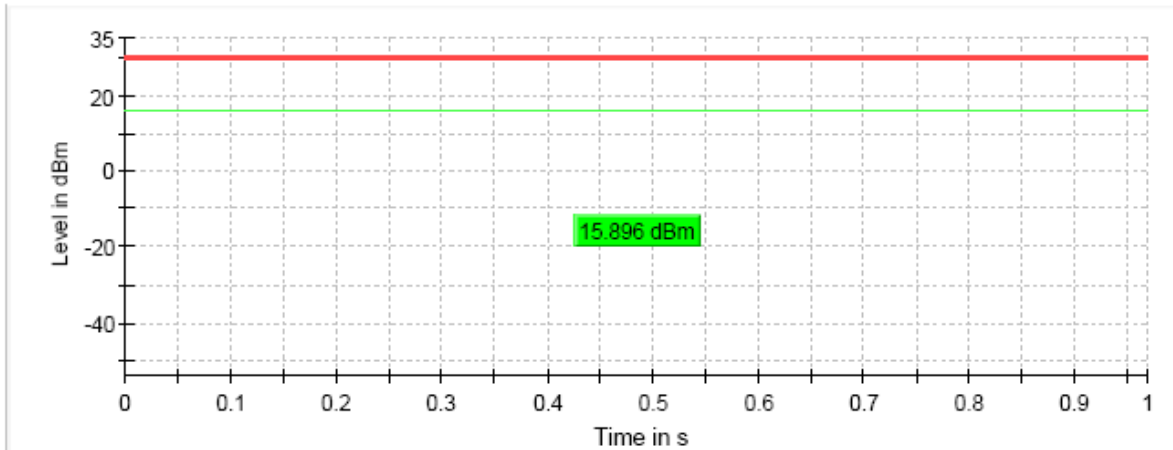
CONDUCTED OUTPUT POWER

Middle Channel



— Gated Trace — Overall — Limit

Highest Channel



— Gated Trace — Overall — Limit

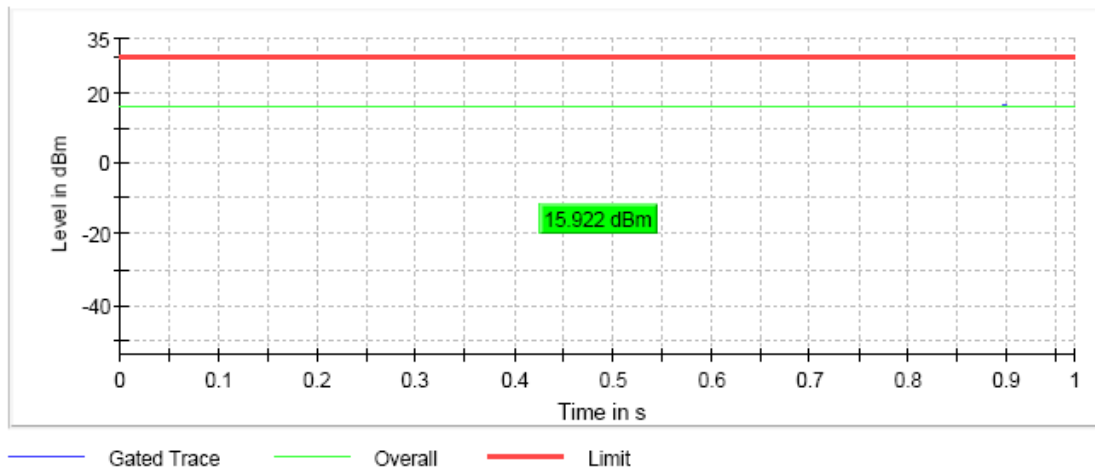
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (g mode) RSS Channel
<b>TEST RESULTS:</b>	PASS

Maximum declared antenna gain: 2.5 dBi

	Highest frequency 2472 MHz
Maximum conducted power (dBm)	15.9
Maximum EIRP power (dBm)	18.4
Measurement uncertainty (dB)	<±0.78

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

### Highest Channel



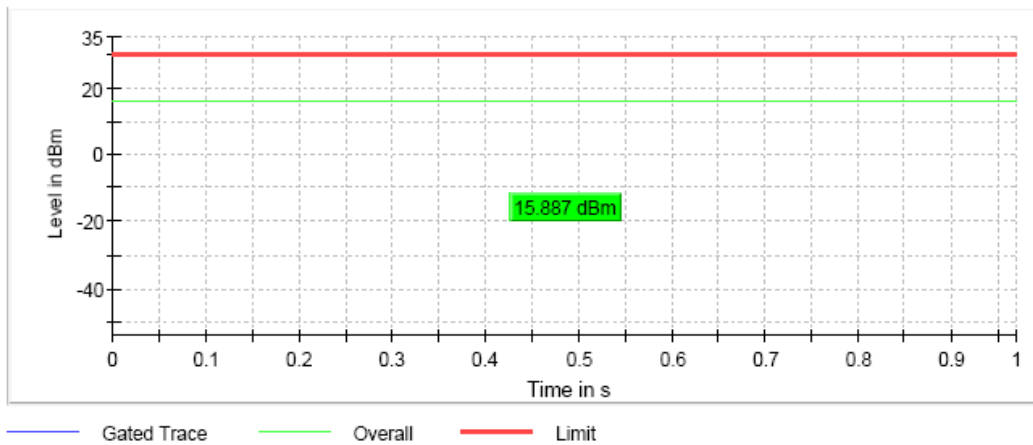
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#03 (n20 mode)
<b>TEST RESULTS:</b>	PASS

Maximum declared antenna gain: 2.5 dBi

	Lowest frequency 2412 MHz	Middle frequency 2437 MHz	Highest frequency 2462 MHz
Maximum conducted power (dBm)	15.9	15.5	15.6
Maximum EIRP power (dBm)	18.4	18.0	18.1
Measurement uncertainty (dB)	<±0.78		

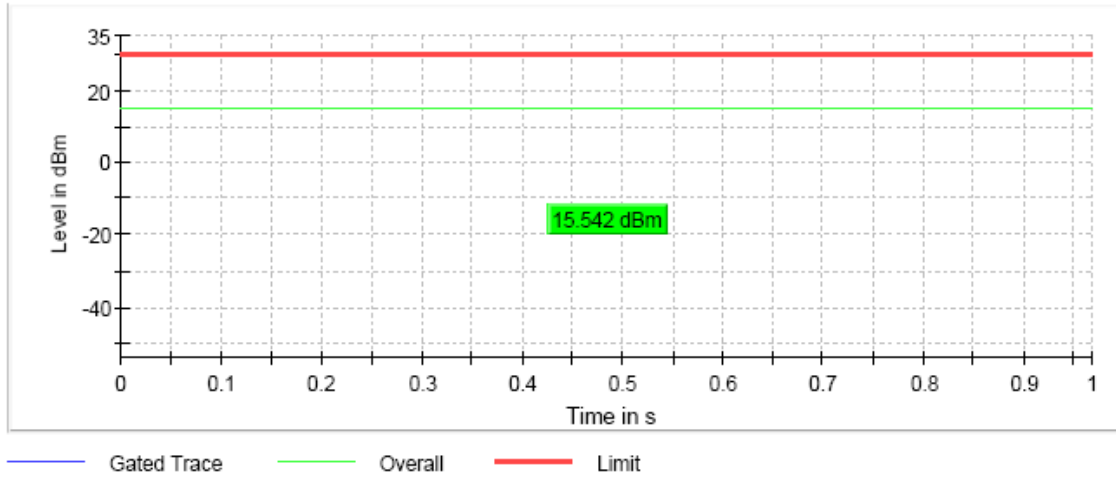
The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

**Lowest Channel**

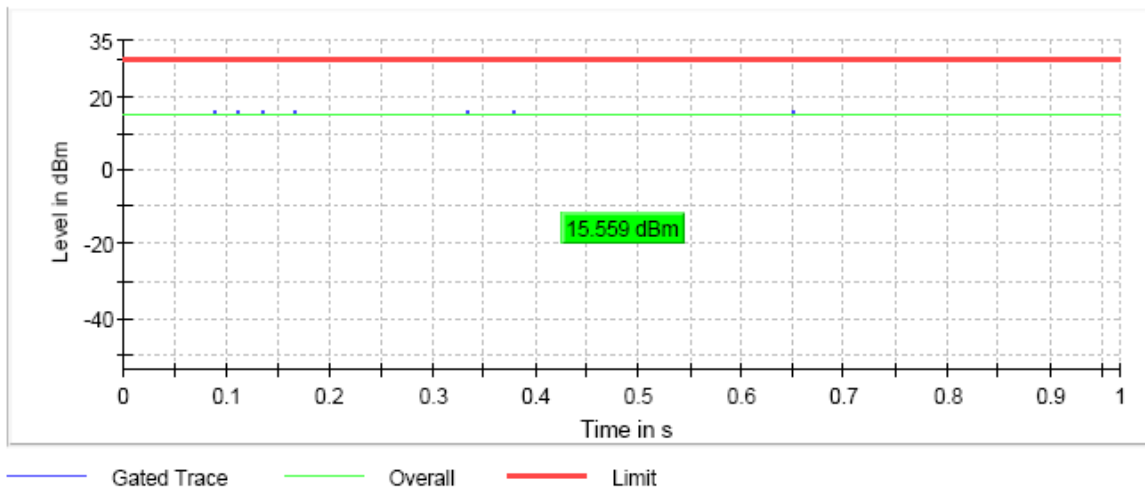


### TEST RESULTS (Cont.)

#### Middle Channel



#### Highest Channel





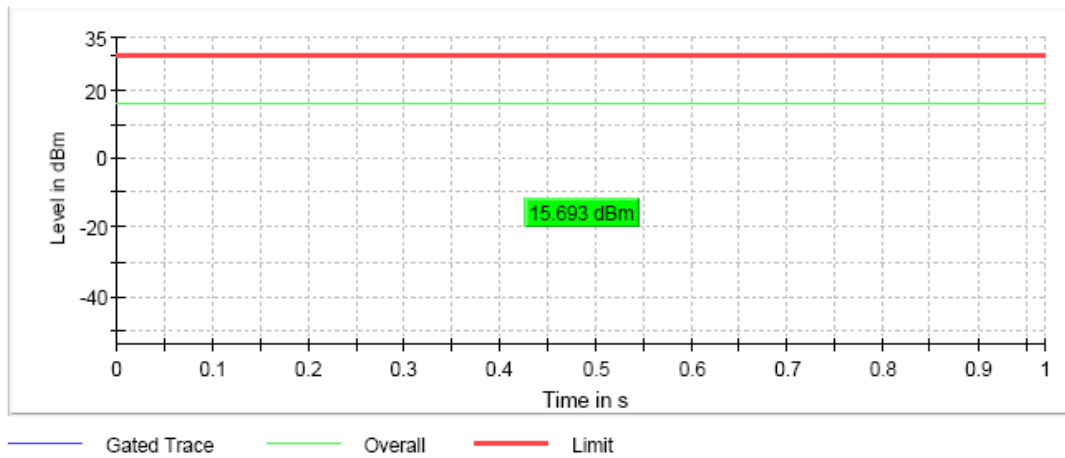
<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#03 (n mode) RSS Channel
<b>TEST RESULTS:</b>	PASS

Maximum declared antenna gain: 2.5 dBi

	Highest frequency 2472 MHz
Maximum conducted power (dBm)	15.7
Maximum EIRP power (dBm)	18.2
Measurement uncertainty (dB)	<±0.78

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

### Highest Channel



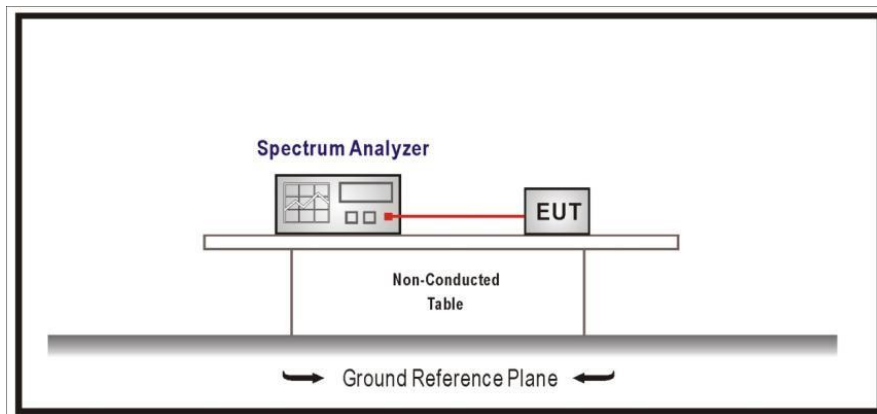
### TEST B.3: BAND-EDGE EMISSIONS COMPLIANCE (TRANSMITTER)

<b>LIMITS:</b>	Product standard:	Part 15 Subpart C §15.247 and RSS-247
	Test standard:	Part 15 Subpart C §15.247(d) and RSS-247 5.5

**LIMITS**

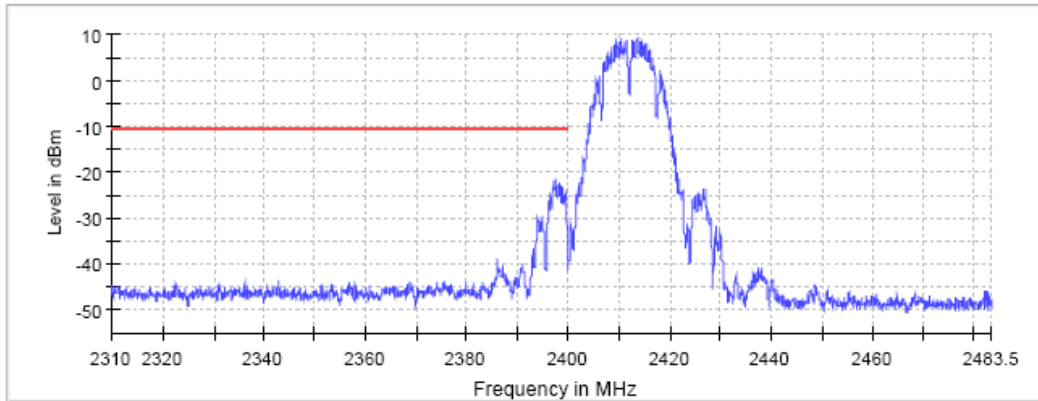
In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB instead of 20 dB.

### TEST SETUP

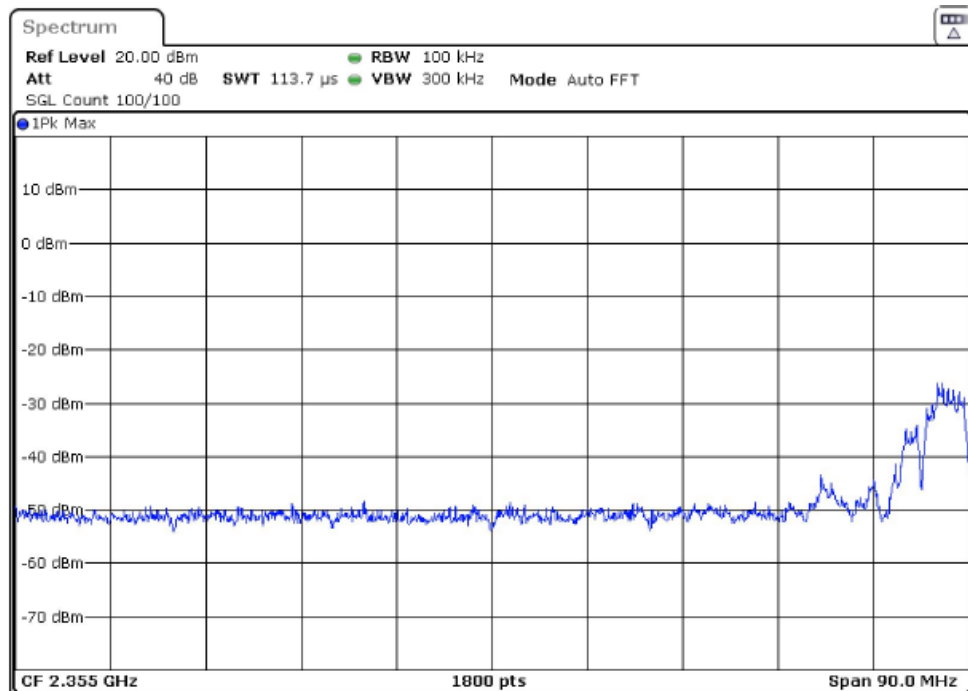


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01 (b mode)
<b>TEST RESULTS:</b>	PASS

**Lowest Channel**

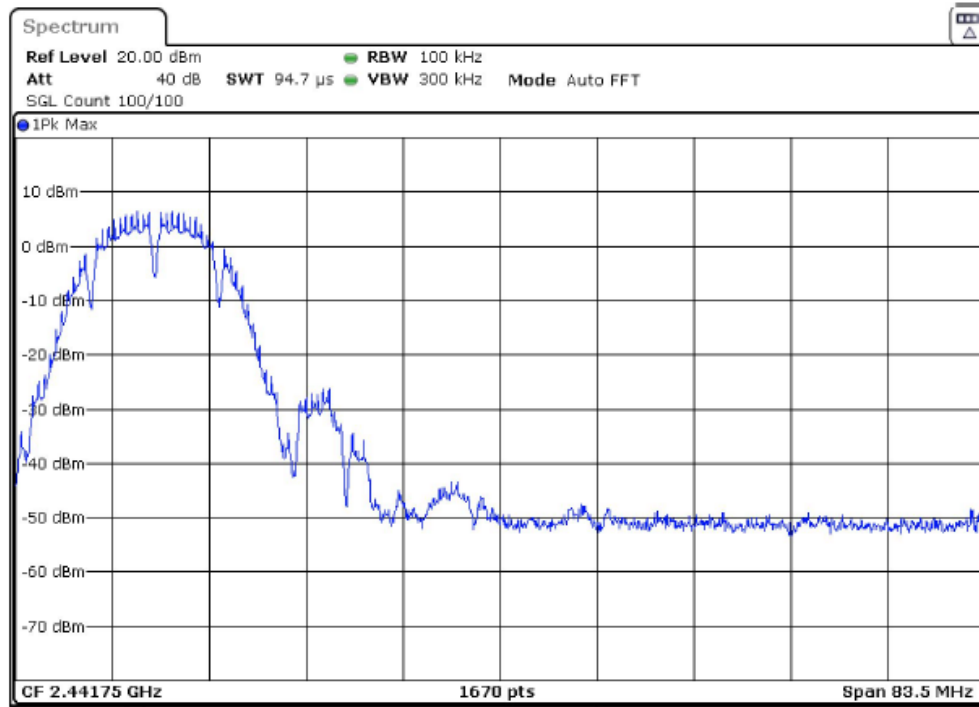


— Limit    — Sum Level    × Fail



**TEST RESULTS (Cont.):**

**Lowest Channel**



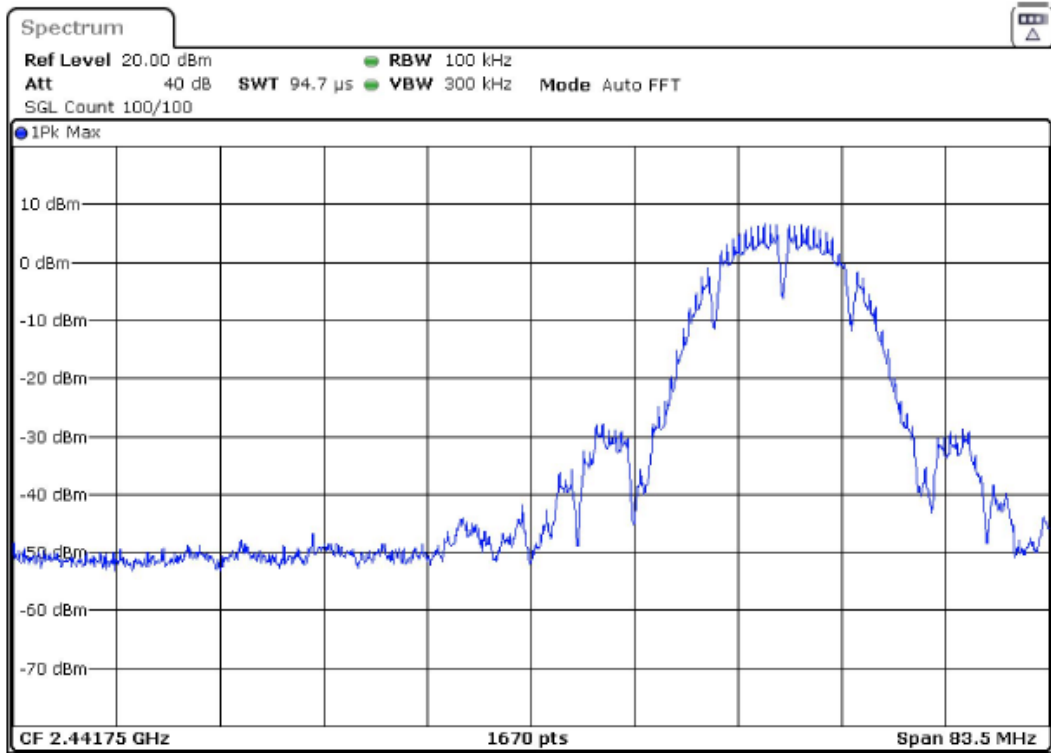
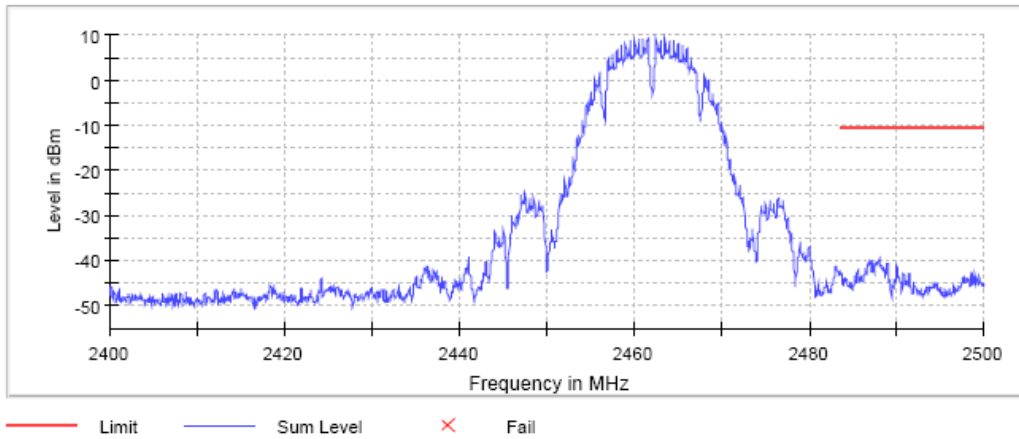
**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.31000 GHz	2.40000 GHz
Stop Frequency	2.40000 GHz	2.48350 GHz
Span	90.000 MHz	83.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1800	1670
Sweep time	113.672 $\mu$ s	94.727 $\mu$ s
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	11 / max. 150	7 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.14 dB	0.14 dB

TEST RESULTS (Cont.):

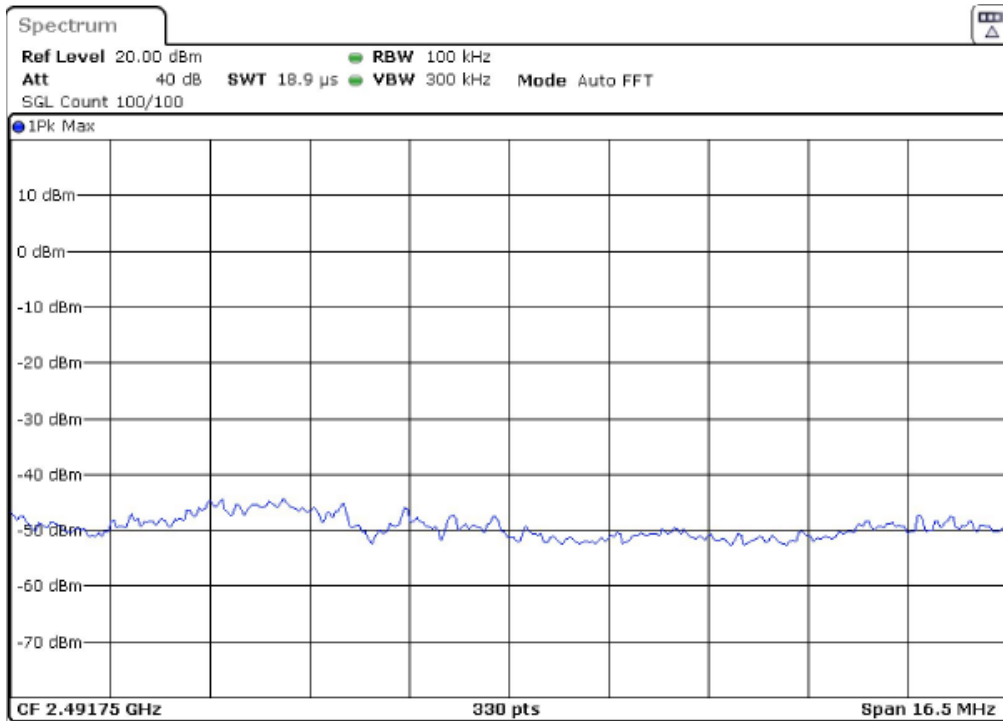
Highest Channel

Highest Channel



**TEST RESULTS (Cont.):**

**Highest Channel**

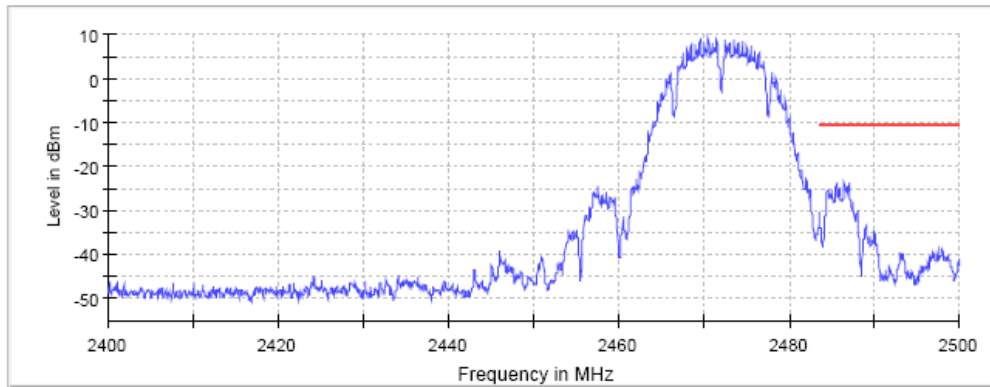


**Measurement**

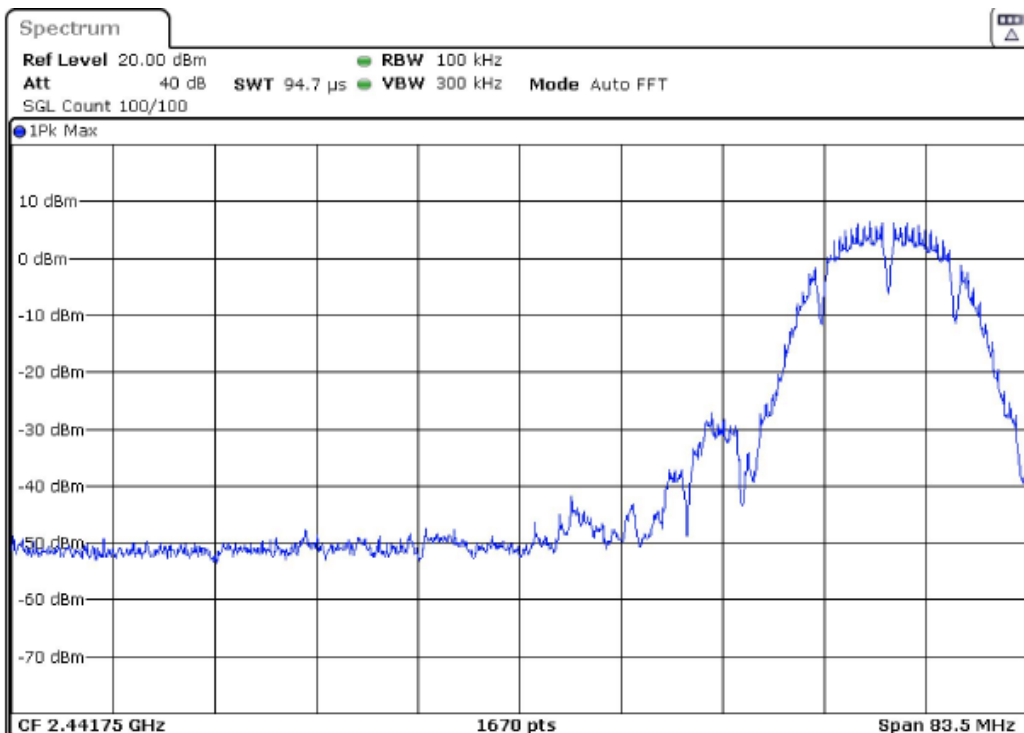
Setting	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.48350 GHz
Stop Frequency	2.48350 GHz	2.50000 GHz
Span	83.500 MHz	16.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1670	330
Sweep time	94.727 $\mu$ s	18.945 $\mu$ s
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	12 / max. 150	4 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.33 dB	0.00 dB

<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#01 (b mode) RSS Channel
<b>TEST RESULTS:</b>	PASS

**Highest Channel**

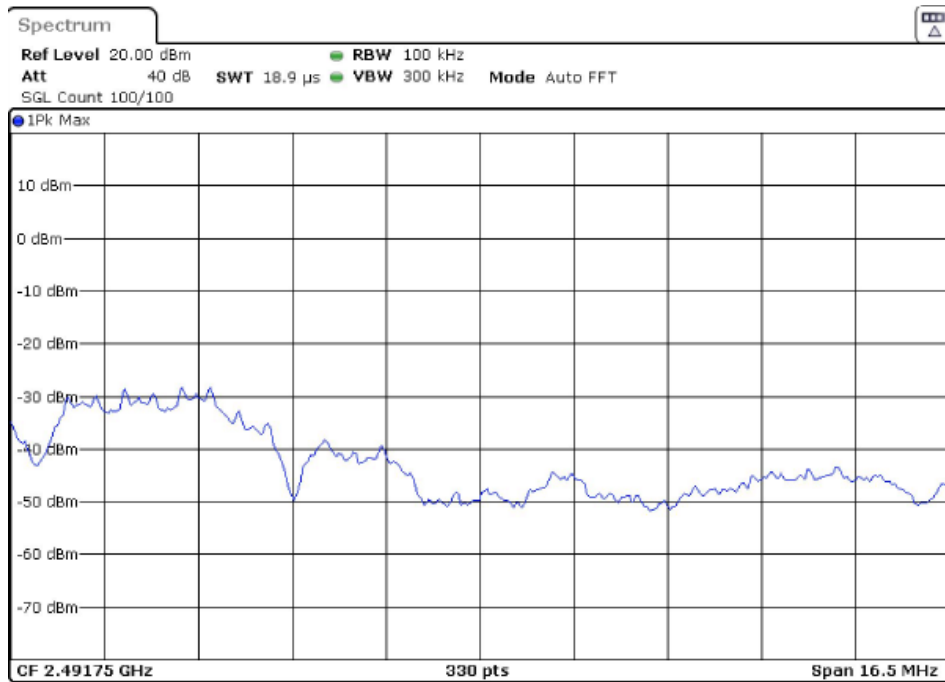


— Limit    — Sum Level    × Fail



**TEST RESULTS (Cont.):**

**Highest Channel**



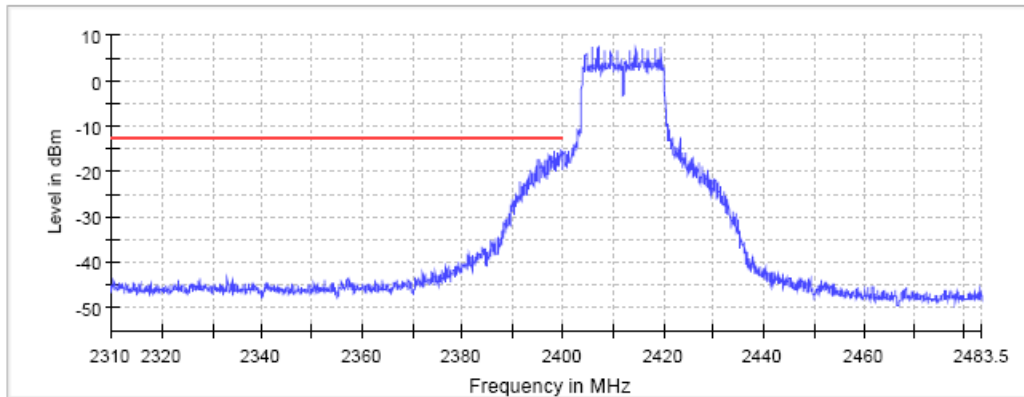
**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.48350 GHz
Stop Frequency	2.48350 GHz	2.50000 GHz
Span	83.500 MHz	16.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1670	330
Sweep time	94.727 μs	18.945 μs
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	10 / max. 150	8 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.06 dB	0.37 dB

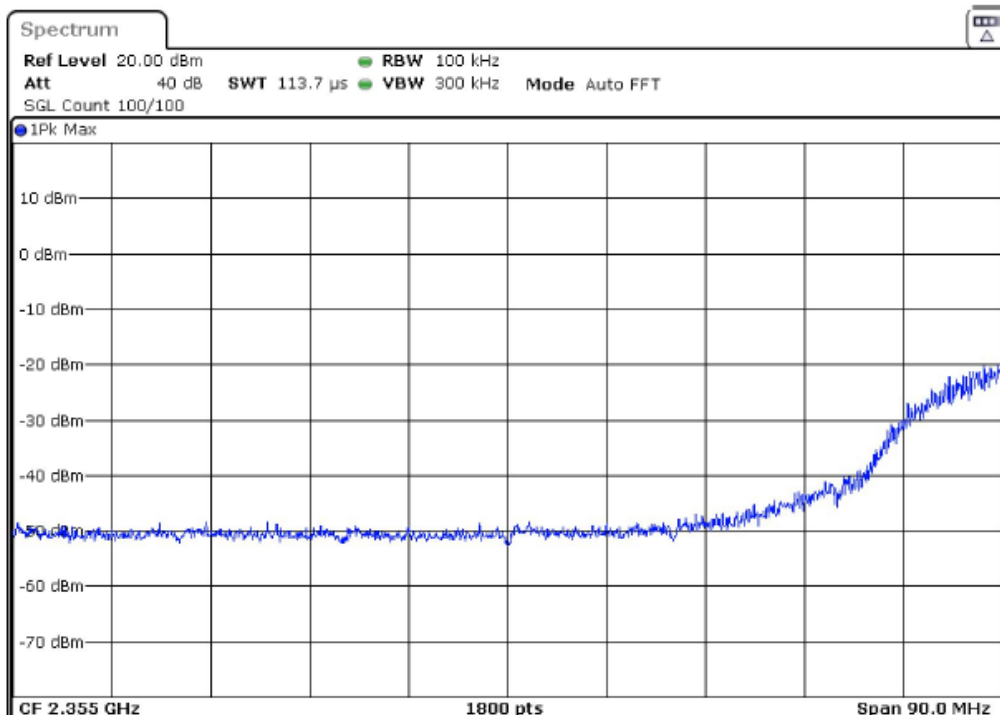


<b>TESTED SAMPLES:</b>	S/01
<b>TESTED CONDITIONS MODES:</b>	TC#02 (g mode)
<b>TEST RESULTS:</b>	PASS

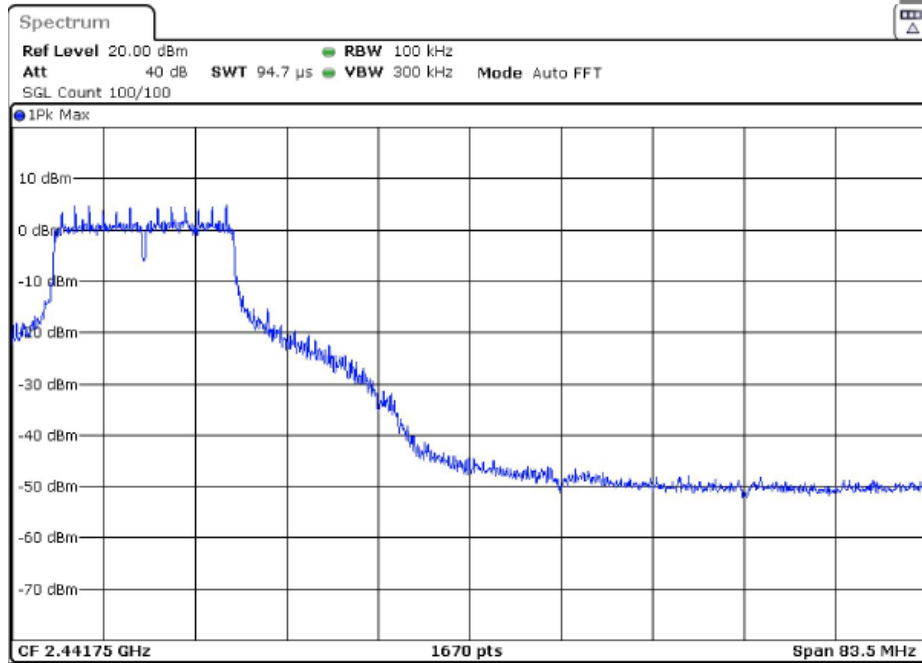
**Lowest Channel**



— Limit    — Sum Level    × Fail



**TEST RESULTS (Cont.):**

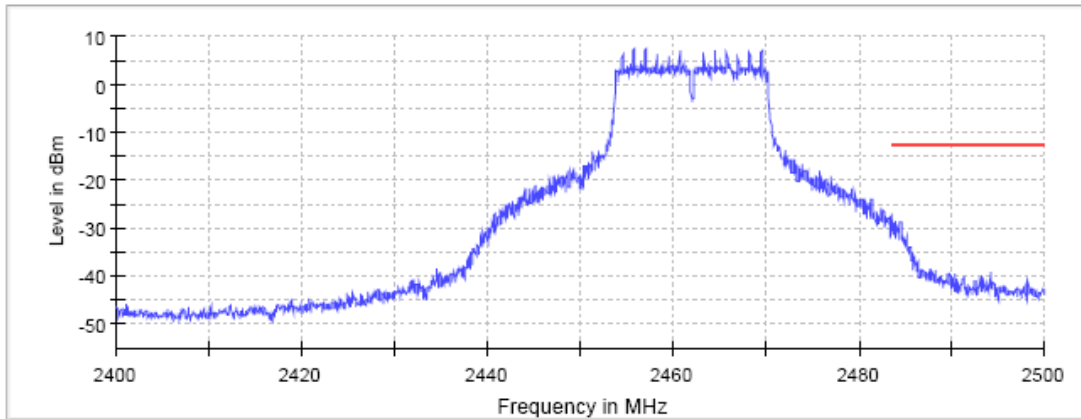


**Measurement**

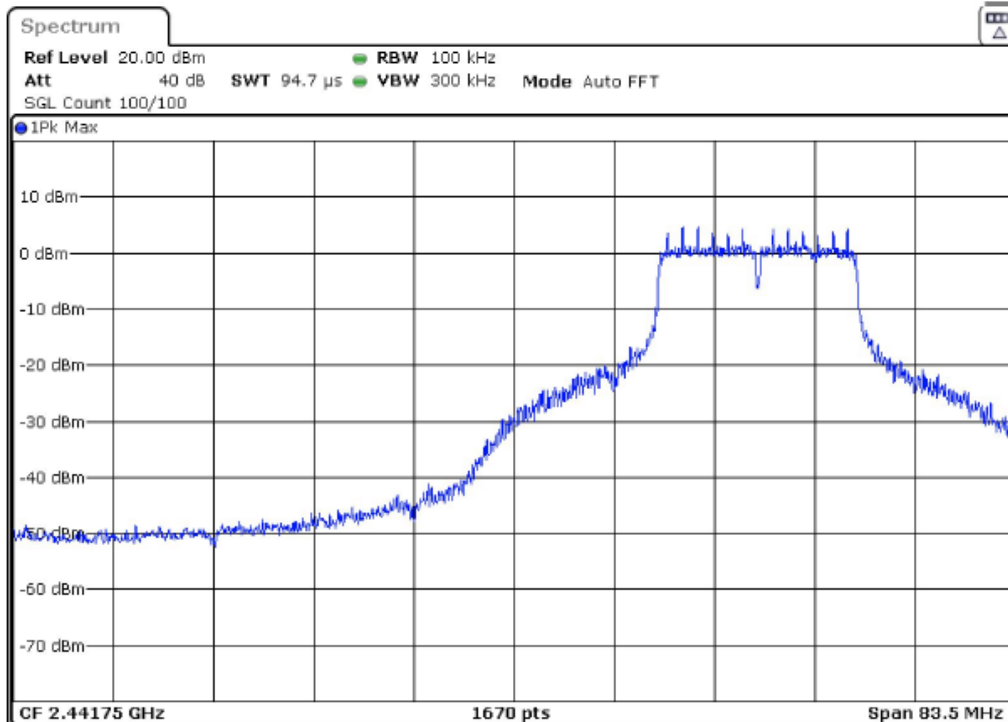
Setting	Instrument Value	Instrument Value
Start Frequency	2.31000 GHz	2.40000 GHz
Stop Frequency	2.40000 GHz	2.48350 GHz
Span	90.000 MHz	83.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1800	1670
Sweep time	113.672 μs	94.727 μs
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	33 / max. 150	41 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.26 dB	0.36 dB

<b>TEST RESULTS (Cont.):</b>	<b>Highest Channel</b>
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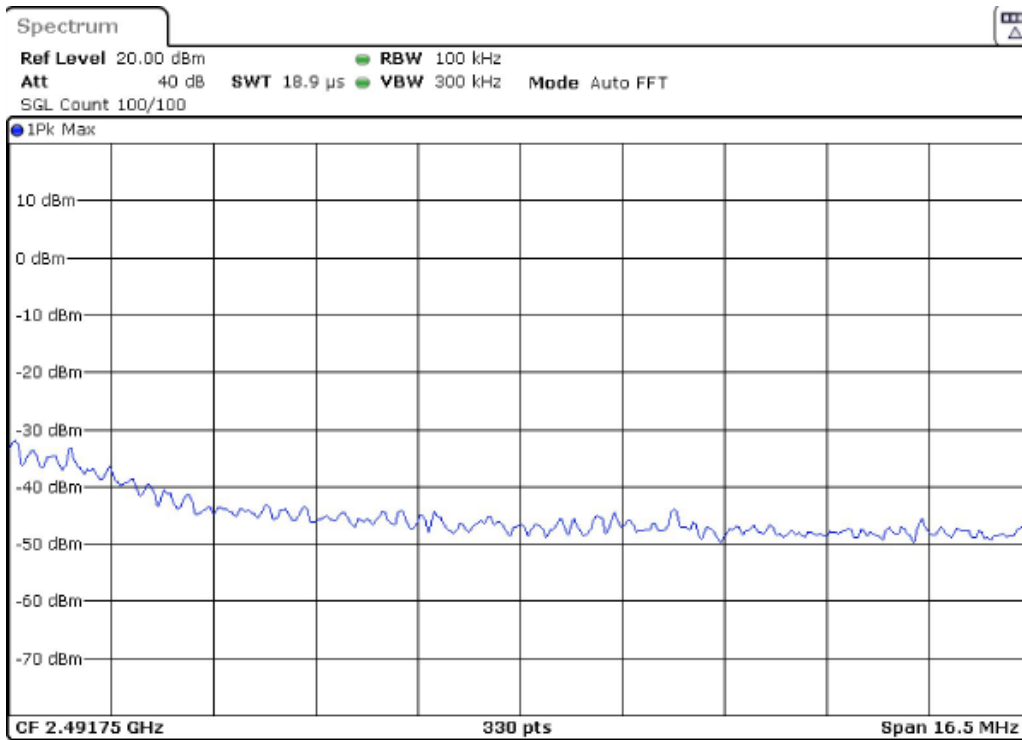
**Highest Channel**



— Limit    — Sum Level    × Fail



**TEST RESULTS (Cont.):**



**Measurement**

Setting	Instrument Value	Instrument Value
Start Frequency	2.40000 GHz	2.48350 GHz
Stop Frequency	2.48350 GHz	2.50000 GHz
Span	83.500 MHz	16.500 MHz
RBW	100.000 kHz	100.000 kHz
VBW	300.000 kHz	300.000 kHz
Sweep Points	1670	330
Sweep time	94.727 $\mu$ s	18.945 $\mu$ s
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 dB	40.000 dB
Detector	MaxPeak	MaxPeak
Sweep Count	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweep type	FFT	FFT
Preamp	off	off
Stable mode	Trace	Trace
Stable value	0.50 dB	0.50 dB
Run	30 / max. 150	19 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.20 dB	0.00 dB