

FCC - TEST REPORT

Report Number : **60.790.17.029.01R01** Date of Issue : August 21, 2017

Model : **SHB4385**

Product Type : **Bluetooth Headphone**

Applicant : Gibson Innovations Limited

Address : 5/F Philips Electronics Building, 5 Science Park East Avenue, Hong Kong Science Park, Shatin, N.T., Hong Kong

Production Facility : INNOVATION SOUND TECHNOLOGY CO., LTD

Address : Building 2nd, Industrial Area of Huaide Cuihai Fengtang Road, Fuyong Town, Shenzhen

Test Result : **Positive** **Negative**

Total pages including Appendices : 102

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2 Description of Equipment Under Test

Description of the Equipment Under Test

Product:	Bluetooth Headphone
Model no.:	SHB4385
FCC ID:	2AANUSHB4385
Rating:	1) 3.7VDC (1 x 3.7VDC Rechargeable battery) 2) 5.0VDC (USB port)
Frequency:	2402MHz-2480MHz
Antenna gain:	0 dBi
Number of operated channel:	79
Modulation:	GFSK

3 Summary of Test Standards

Test Standards

FCC Part 15 Subpart C 10-1-16 Edition Federal Communications Commission, PART 15 — Radio Frequency Devices, Subpart C — Unintentional Radiators

4 Details about the Test Laboratory

Site 1

Company name: TÜV SÜD Hong Kong Ltd.
3/F, West Wing, Lakeside 2,
10 Science Park West Avenue,
Science Park, Shatin, Hong Kong

Site 2

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13 Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2,
Shenzhen 518052, P.R.China
FCC Registration Number: 502708

Emission Tests	
Test Item	Test Site
FCC Part 15 Subpart C	
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	Site 2
FCC Title 47 Part 15.247(a)(1) 20dB & 99% Bandwidth	Site 2
FCC Title 47 Part 15.247(a)(2) 6dB & 99% Bandwidth	Site 2
FCC Title 47 Part 15.247(b) Peak Output Power	Site 2
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	Site 2
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	Site 2
FCC Title 47 Part 15.247(a)(1) Minimum Number of Hopping Frequencies	Site 2
FCC Title 47 Part 15.247(a)(1) Minimum Hopping Channel Carrier Frequency Separation	Site 2
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	Site 2
FCC Title 47 Part 15.247(e) Power Spectral Density	Site 2
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	Site 2

4.1 Test Equipment Site List

Radiated emission Test – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	14-July-18
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	14-July-18
Horn Antenna	Rohde & Schwarz	HF907	102294	14-July-18
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	14-July-18
3m Semi-anechoic chamber	TDK	9X6X6	---	14-July-20

20dB & 99% Bandwidth, Peak Output Power, Spurious Emissions at Antenna Terminals, 100kHz Bandwidth of band edges, Min. No. of Hopping Frequencies, Power Spectral Density Min. Hopping Channel Carrier Frequency Separation and Average Time of Occupancy – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	07-July-18
Signal Analyzer	Rohde & Schwarz	FSV40	101030	07-July-18
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	07-July-18
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	07-July-18

4.2 Measurement System Uncertainty

Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.54dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.83dB; Vertical: 4.91dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 4.89dB; Vertical: 4.88dB;
Uncertainty for Conducted RF test	2.04dB

5 Summary of Test Results

Emission Tests				
FCC Part 15 Subpart C				
Test Condition	Pages	Test Result		
		Pass	Fail	N/A
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	10-21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(1) 20dB & 99% Bandwidth	22-27	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(2) 6dB & 99% Bandwidth	28-33	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(b) Peak Output Power	34-45	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	46-57	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	58-73	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(1) Min. No. of Hopping Frequencies	74-75	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(1) Min. of Hopping Channel Carrier Frequency Separation	76-77	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	78-79	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(e) Power Spectral Density	80-85	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	86	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6 General Remarks

Remarks

NIL

SUMMARY:

- All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

- The Equipment Under Test

- **Fulfills** the general approval requirements.

- **Does not** fulfill the general approval requirements.

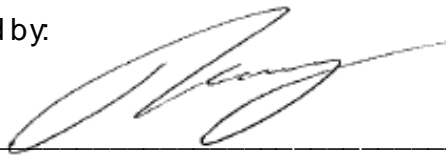
Sample Received Date: July 3, 2017

Testing Start Date: July 4, 2017

Testing End Date: August 11, 2017

- TÜV SÜD HONG KONG LTD. -

Reviewed by:



TSENG Chi Kit
EMC Project Engineer

Prepared by:



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EMC Project Engineer

7 Emission Test Results

7.1 Spurious Radiated Emission

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Horizontal
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
46.328	20.94	40.0	-19.06	Quasi Peak
284.032	17.49	46.0	-28.51	Quasi Peak
541.405	18.37	46.0	-27.63	Quasi Peak
1535.562	46.46	74.0	-27.54	Peak
1535.562	40.28	54.0	-13.72	Average
2027.437	28.90	74.0	-45.10	Peak
2027.437	21.26	54.0	-32.74	Average
4803.750	41.57	74.0	-32.43	Peak
4803.750	35.79	54.0	-18.21	Average
8727.656	40.77	74.0	-33.23	Peak
8727.656	34.35	54.0	-19.65	Average
16373.437	48.31	74.0	-25.69	Peak
16373.437	40.91	54.0	-13.09	Average

Spurious Radiated Emission

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Vertical
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
31.724	19.07	40.0	-20.93	Quasi Peak
46.382	21.00	40.0	-19.00	Quasi Peak
500.881	17.67	46.0	-28.33	Quasi Peak
1535.562	40.80	74.0	-33.20	Peak
1535.562	36.15	54.0	-17.85	Average
2046.750	27.51	74.0	-46.49	Peak
2046.750	22.62	54.0	-31.38	Average
4803.750	43.28	74.0	-30.72	Peak
4803.750	38.66	54.0	-15.34	Average
8777.343	40.90	74.0	-33.10	Peak
8777.343	35.76	54.0	-18.24	Average
12451.875	43.96	74.0	-30.04	Peak
12451.875	39.28	54.0	-14.72	Average

Spurious Radiated Emission

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Horizontal
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
72.165	21.88	40.0	-18.12	Quasi Peak
125.005	22.07	43.5	-21.43	Quasi Peak
248.350	25.34	46.0	-20.66	Quasi Peak
1535.562	46.15	74.0	-27.85	Peak
1535.562	41.26	54.0	-12.74	Average
2371.375	29.26	74.0	-44.74	Peak
2371.375	24.72	54.0	-29.28	Average
4882.031	43.13	74.0	-30.87	Peak
4882.031	38.14	54.0	-15.86	Average
7495.781	39.67	74.0	-34.33	Peak
7495.781	32.91	54.0	-21.09	Average
15056.250	47.91	74.0	-26.09	Peak
15056.250	42.47	54.0	-11.53	Average

Spurious Radiated Emission

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Vertical
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
72.165	21.82	40.0	-18.18	Quasi Peak
120.150	22.07	43.5	-21.43	Quasi Peak
241.225	23.15	46.0	-22.85	Quasi Peak
1535.562	41.31	74.0	-32.69	Peak
1535.562	37.09	54.0	-16.91	Average
1798.063	33.19	74.0	-40.81	Peak
1798.063	28.41	54.0	-25.59	Average
4881.031	45.46	74.0	-28.54	Peak
4881.031	41.14	54.0	-12.86	Average
8775.937	41.66	74.0	-32.34	Peak
8775.937	37.63	54.0	-16.37	Average
14995.312	48.00	74.0	-26.00	Peak
14995.312	44.22	54.0	-9.78	Average

Spurious Radiated Emission

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Horizontal
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
54.550	20.85	40.0	-19.15	Quasi Peak
195.207	22.44	43.5	-21.06	Quasi Peak
450.885	23.26	46.0	-22.74	Quasi Peak
1176.562	31.28	74.0	-42.72	Peak
1176.562	26.11	54.0	-27.89	Average
1535.562	46.50	74.0	-27.50	Peak
1535.562	41.39	54.0	-12.61	Average
4959.843	45.12	74.0	-28.88	Peak
4959.843	39.86	54.0	-14.14	Average
8796.093	41.15	74.0	-32.85	Peak
8796.093	35.79	54.0	-18.21	Average
14719.218	46.23	74.0	-27.77	Peak
14719.218	40.88	54.0	-13.12	Average

Spurious Radiated Emission

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Vertical
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
55.940	20.59	40.0	-19.41	Quasi Peak
144.660	21.58	43.5	-21.92	Quasi Peak
305.690	23.59	46.0	-22.41	Quasi Peak
1535.562	41.24	74.0	-32.76	Peak
1535.562	37.91	54.0	-16.09	Average
2182.312	28.89	74.0	-45.11	Peak
2182.312	24.07	54.0	-29.93	Average
4959.843	43.24	74.0	-30.76	Peak
4959.843	38.11	54.0	-15.89	Average
7439.531	41.42	74.0	-32.58	Peak
7439.531	37.05	54.0	-16.95	Average
14964.843	46.84	74.0	-27.16	Peak
14964.843	41.53	54.0	-12.47	Average

Spurious Radiated Emission

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Horizontal
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
46.328	21.44	40.0	-18.56	Quasi Peak
544.638	18.68	46.0	-27.32	Quasi Peak
944.925	22.10	46.0	-23.90	Quasi Peak
1535.625	41.19	74.0	-32.81	Peak
1535.625	36.01	54.0	-17.99	Average
2709.875	30.93	74.0	-43.07	Peak
2709.875	26.12	54.0	-27.88	Average
4806.093	44.49	74.0	-29.51	Peak
4806.093	39.23	54.0	-14.77	Average
8070.937	39.67	74.0	-34.33	Peak
8070.937	33.86	54.0	-20.14	Average
10123.593	41.89	74.0	-32.11	Peak
10123.593	37.26	54.0	-16.74	Average

Spurious Radiated Emission

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Vertical
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
31.185	18.60	40.0	-21.40	Quasi Peak
46.328	22.19	40.0	-17.81	Quasi Peak
941.693	21.66	46.0	-24.34	Quasi Peak
1535.562	37.41	74.0	-36.59	Peak
1535.562	32.22	54.0	-21.78	Average
2272.000	31.79	74.0	-42.21	Peak
2272.000	27.08	54.0	-26.92	Average
4806.093	44.36	74.0	-29.64	Peak
4806.093	38.86	54.0	-15.14	Average
8788.125	40.28	74.0	-33.72	Peak
8788.125	36.22	54.0	-17.78	Average
11846.718	43.21	74.0	-30.79	Peak
11846.718	37.53	54.0	-16.47	Average

Spurious Radiated Emission

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Horizontal
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
72.228	19.77	40.0	-20.23	Quasi Peak
125.192	23.15	43.5	-20.35	Quasi Peak
248.778	24.19	46.0	-21.81	Quasi Peak
1535.500	43.45	74.0	-30.55	Peak
1535.500	38.77	54.0	-15.23	Average
2255.875	28.38	74.0	-45.62	Peak
2255.875	23.41	54.0	-30.59	Average
4882.031	45.05	74.0	-28.95	Peak
4882.031	40.72	54.0	-13.28	Average
8083.125	39.97	74.0	-34.03	Peak
8083.125	35.10	54.0	-18.90	Average
11774.062	43.07	74.0	-30.93	Peak
11774.062	38.74	54.0	-15.26	Average

Spurious Radiated Emission

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Vertical
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
72.249	20.19	40.0	-19.81	Quasi Peak
120.270	21.74	43.5	-21.76	Quasi Peak
241.442	22.30	46.0	-23.70	Quasi Peak
1535.500	42.06	74.0	-31.94	Peak
1535.500	38.49	54.0	-15.51	Average
2276.875	33.27	74.0	-40.73	Peak
2276.875	28.69	54.0	-25.31	Average
4882.031	45.47	74.0	-28.53	Peak
4882.031	40.96	54.0	-13.04	Average
6000.000	38.92	74.0	-35.08	Peak
6000.000	32.16	54.0	-21.84	Average
11846.250	43.56	74.0	-30.44	Peak
11846.250	37.90	54.0	-16.10	Average

Spurious Radiated Emission

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Horizontal
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
54.720	19.89	40.0	-20.11	Quasi Peak
195.852	21.21	43.5	-22.29	Quasi Peak
450.309	22.68	46.0	-23.32	Quasi Peak
1535.562	43.27	74.0	-30.73	Peak
1535.562	38.09	54.0	-15.91	Average
2373.000	35.99	74.0	-38.01	Peak
2373.000	31.34	54.0	-22.66	Average
3070.781	38.36	74.0	-35.64	Peak
3070.781	32.84	54.0	-21.16	Average
4961.718	45.35	74.0	-28.65	Peak
4961.718	40.10	54.0	-13.90	Average
14998.593	47.85	74.0	-26.15	Peak
14998.593	42.41	54.0	-11.59	Average

Spurious Radiated Emission

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC15.205, 15.209 & 15.247(d) Antenna: Vertical
 Comment: 3.7VDC
 Remark: 9kHz to 25GHz

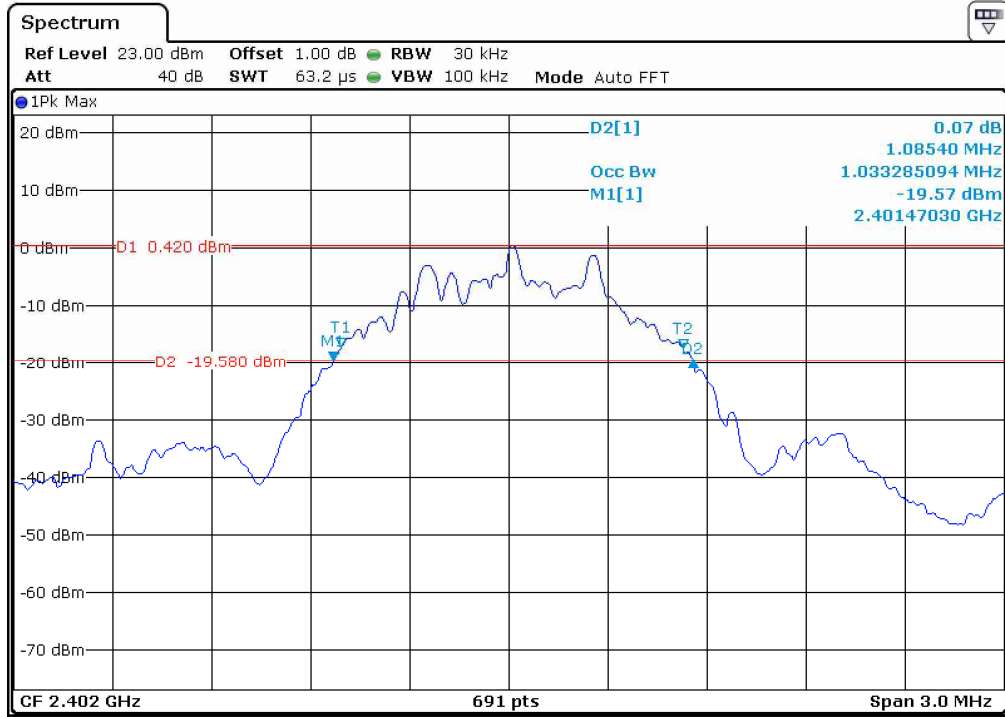
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector
55.995	21.95	40.0	-18.05	Quasi Peak
144.428	20.84	43.5	-22.66	Quasi Peak
305.540	21.67	46.0	-24.33	Quasi Peak
1535.562	41.81	74.0	-32.19	Peak
1535.562	38.07	54.0	-15.93	Average
2367.000	28.89	74.0	-45.11	Peak
2367.000	34.38	54.0	-19.62	Average
4961.718	44.36	74.0	-29.64	Peak
4961.718	39.92	54.0	-14.08	Average
7494.843	40.64	74.0	-33.36	Peak
7494.843	35.71	54.0	-18.29	Average
11710.781	42.94	74.0	-31.06	Peak
11710.781	38.16	54.0	-15.84	Average

7.2 20dB & 99% Bandwidth

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

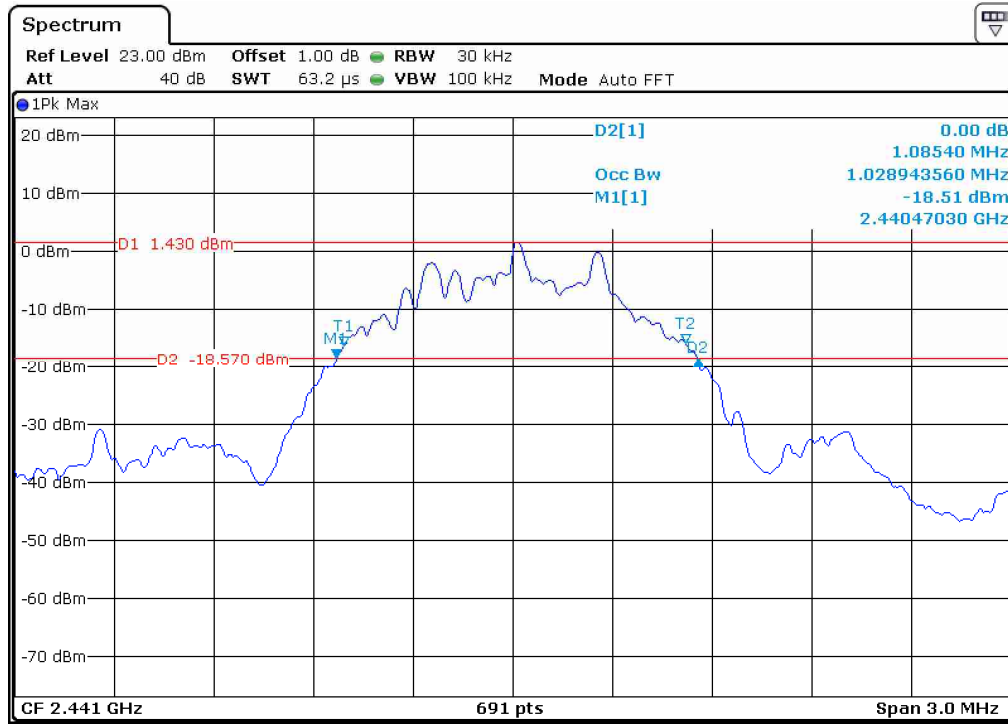


20dB bandwidth	99% bandwidth
1085.540 kHz	1033.285 kHz

20dB & 99% Bandwidth

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

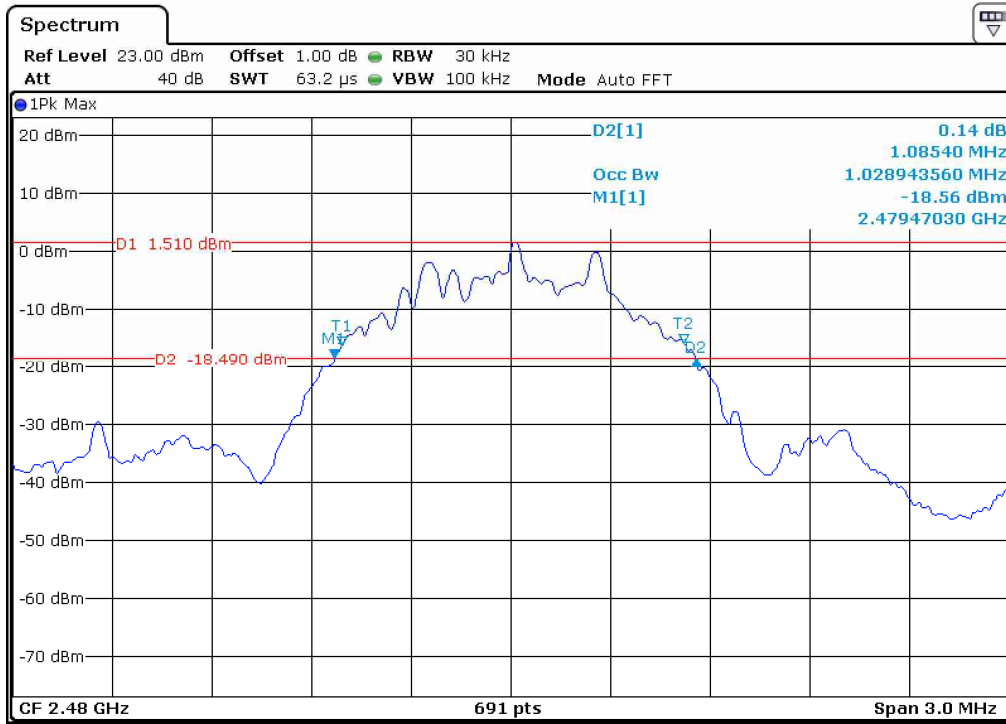


20dB bandwidth	99% bandwidth
1085.400 kHz	1028.943 kHz

20dB & 99% Bandwidth

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

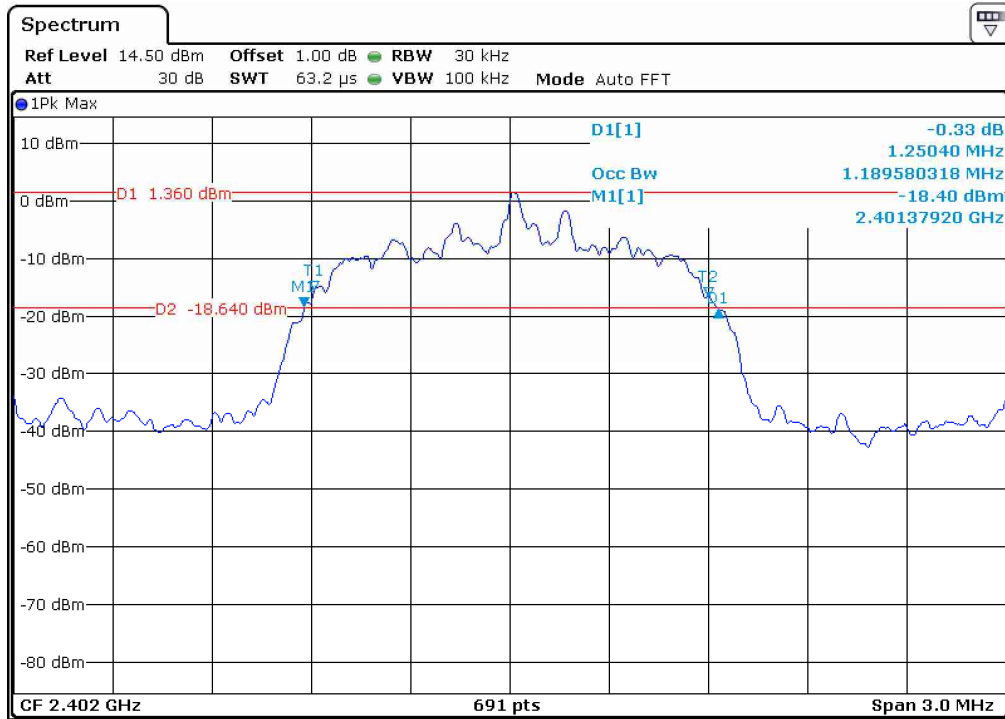


20dB bandwidth	99% bandwidth
1085.400 kHz	1028.943 kHz

20dB & 99% Bandwidth

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

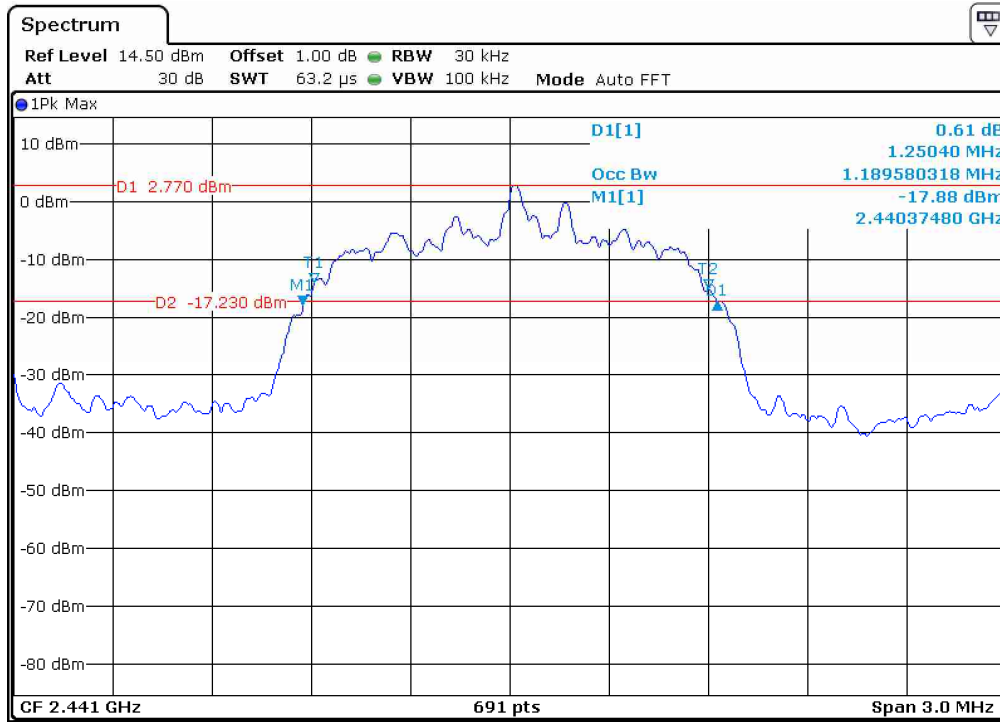


20dB bandwidth	99% bandwidth
1250.400 kHz	1189.580 kHz

20dB & 99% Bandwidth

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

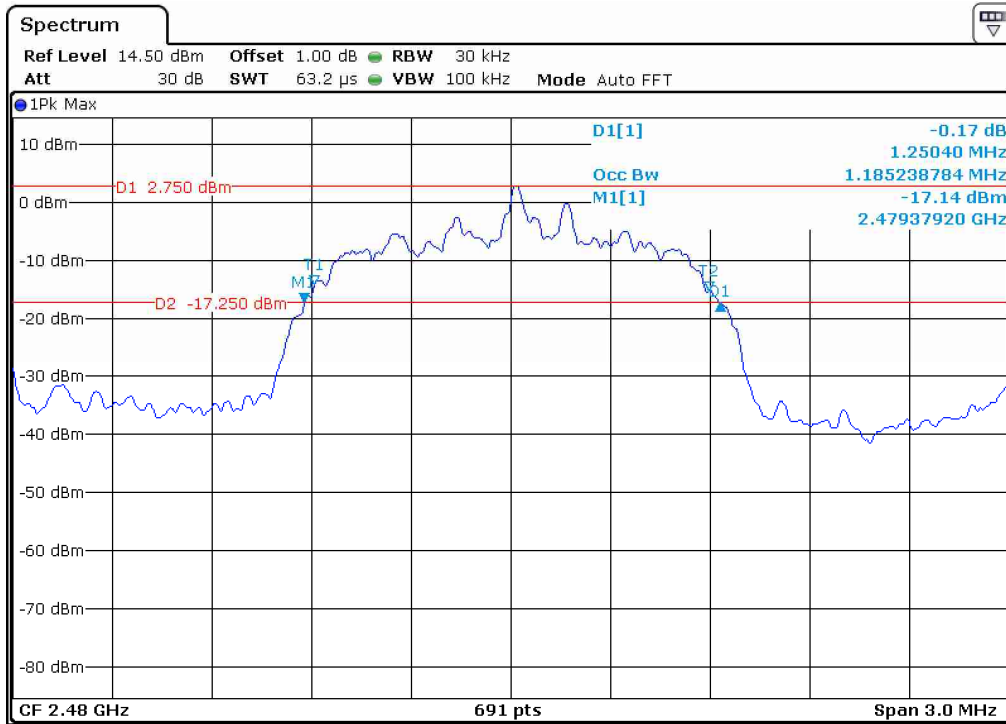


20dB bandwidth	99% bandwidth
1250.400 kHz	1189.580 kHz

20dB & 99% Bandwidth

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

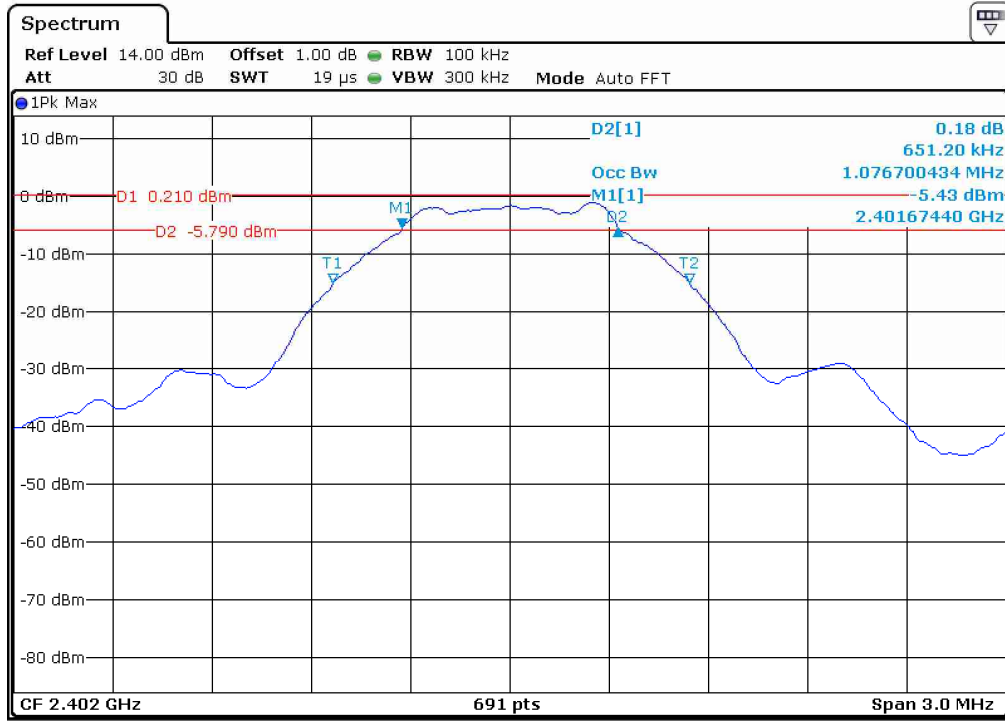


20dB bandwidth	99% bandwidth
1250.400 kHz	1185.238 kHz

7.3 6dB & 99% Bandwidth

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC15.247(a)(2), 6dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



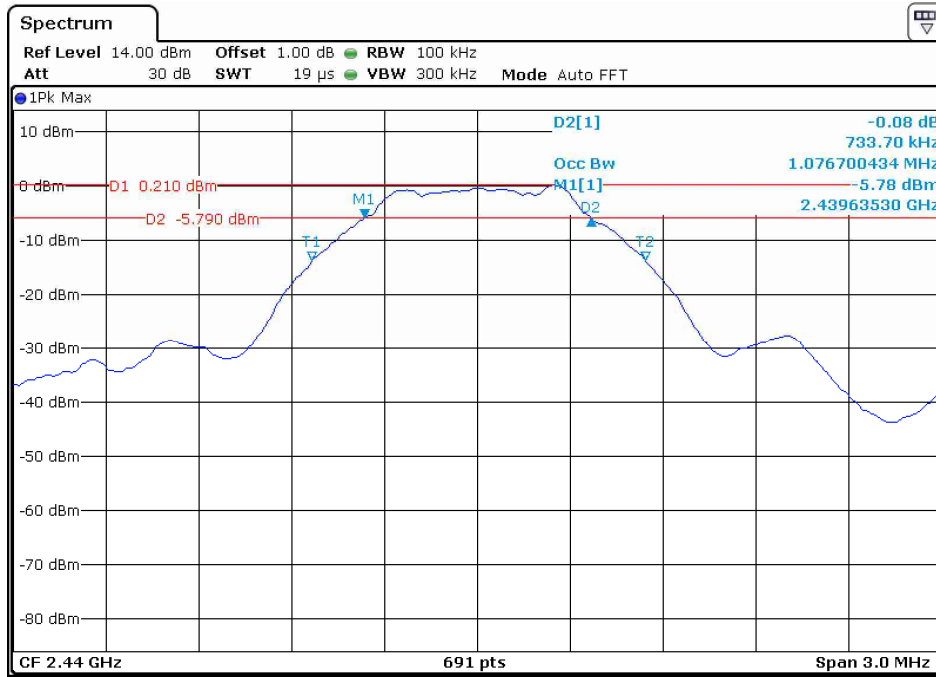
6dB bandwidth	Limit
651.200 kHz	>500 kHz

99% bandwidth
1076.700 kHz

6dB & 99% Bandwidth

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC15.247(a)(2), 6dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



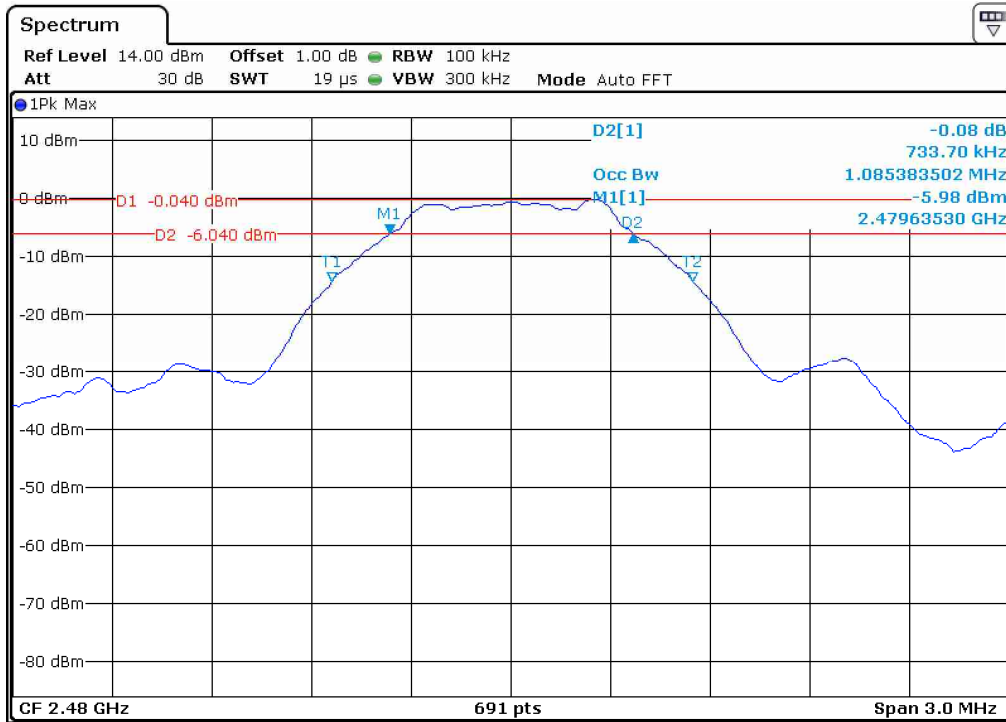
6dB bandwidth	Limit
733.700 kHz	>500 kHz

99% bandwidth
1076.700 kHz

6dB & 99% Bandwidth

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC15.247(a)(2), 6dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



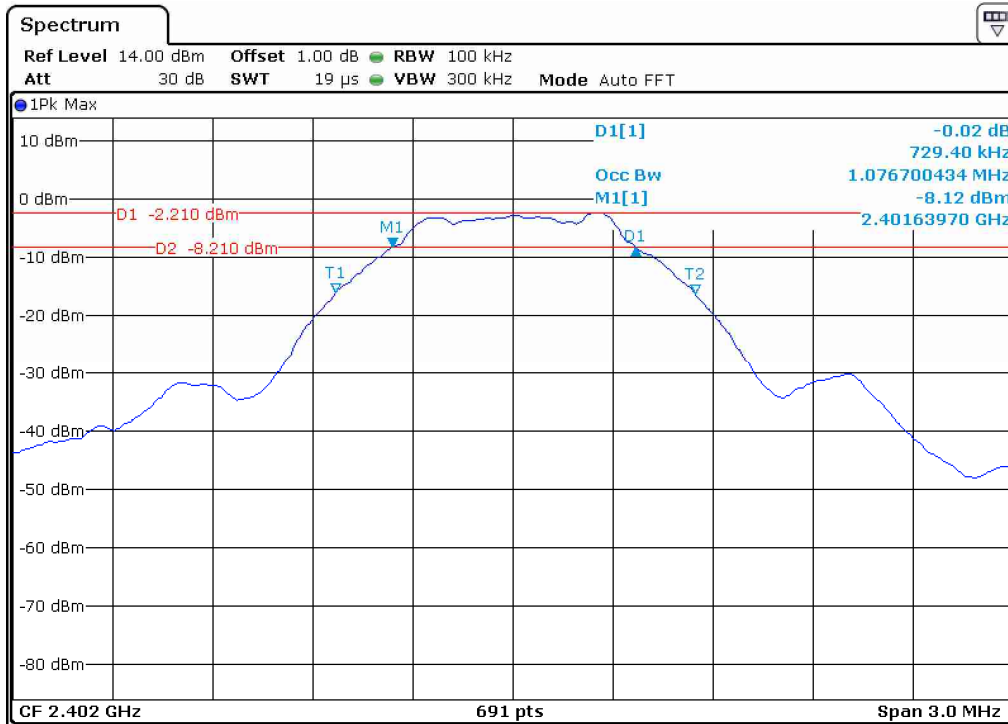
6dB bandwidth	Limit
733.700 kHz	>500 kHz

99% bandwidth
1085.383 kHz

6dB & 99% Bandwidth

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC15.247(a)(2), 6dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



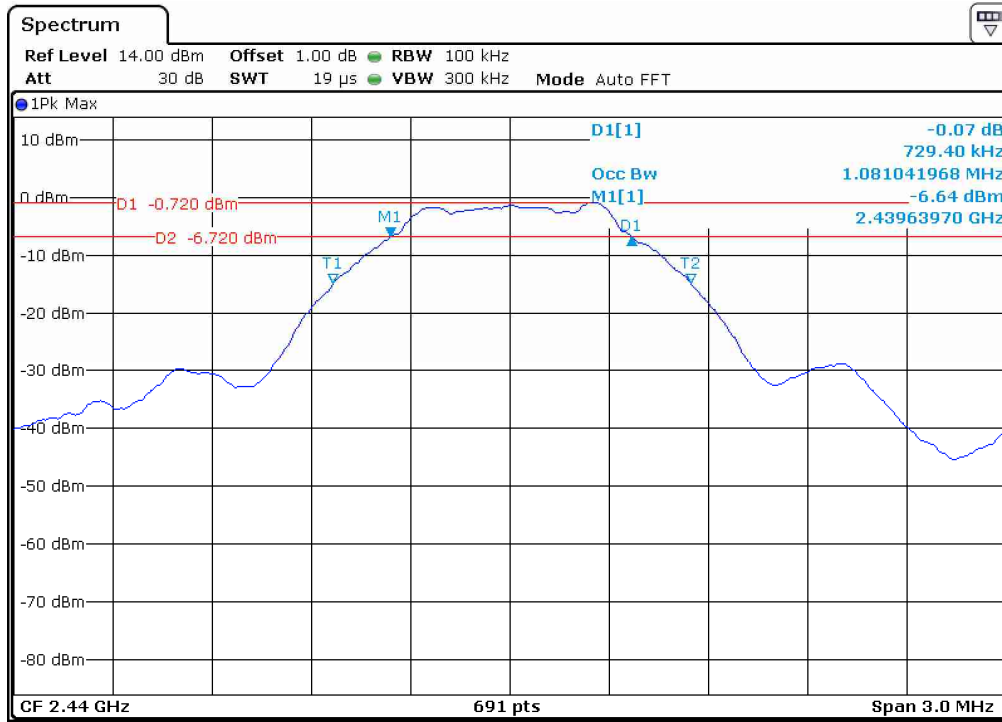
6dB bandwidth	Limit
729.400 kHz	>500 kHz

99% bandwidth
1076.700 kHz

6dB & 99% Bandwidth

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC15.247(a)(2), 6dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



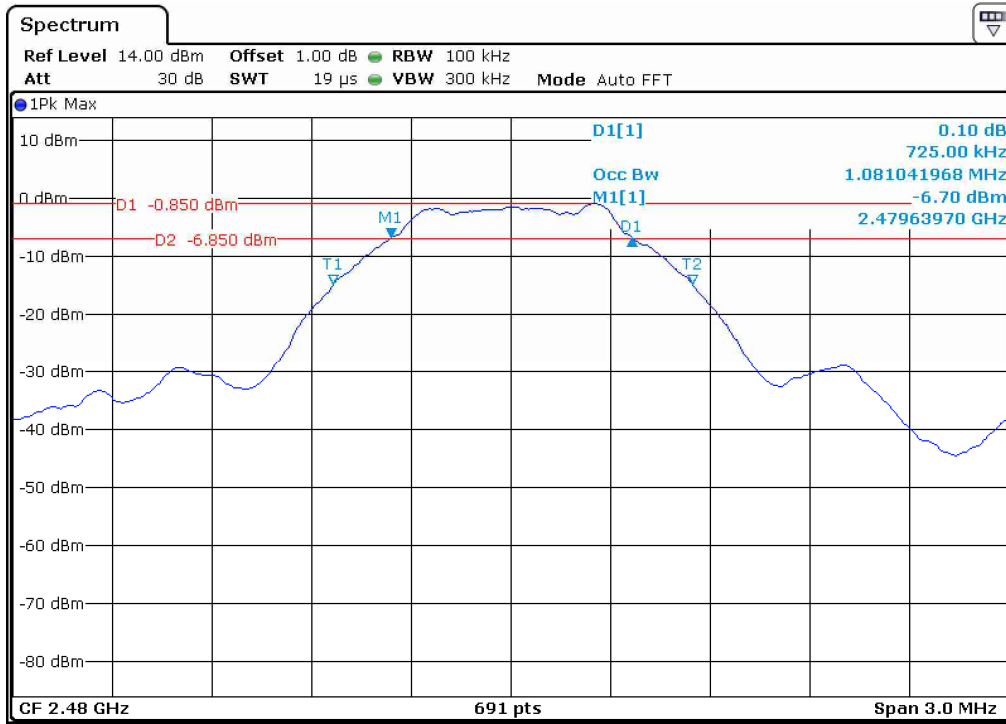
6dB bandwidth	Limit
729.400 kHz	>500 kHz

99% bandwidth
1081.041 kHz

6dB & 99% Bandwidth

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC15.247(a)(2), 6dB Bandwidth & 99% Bandwidth
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



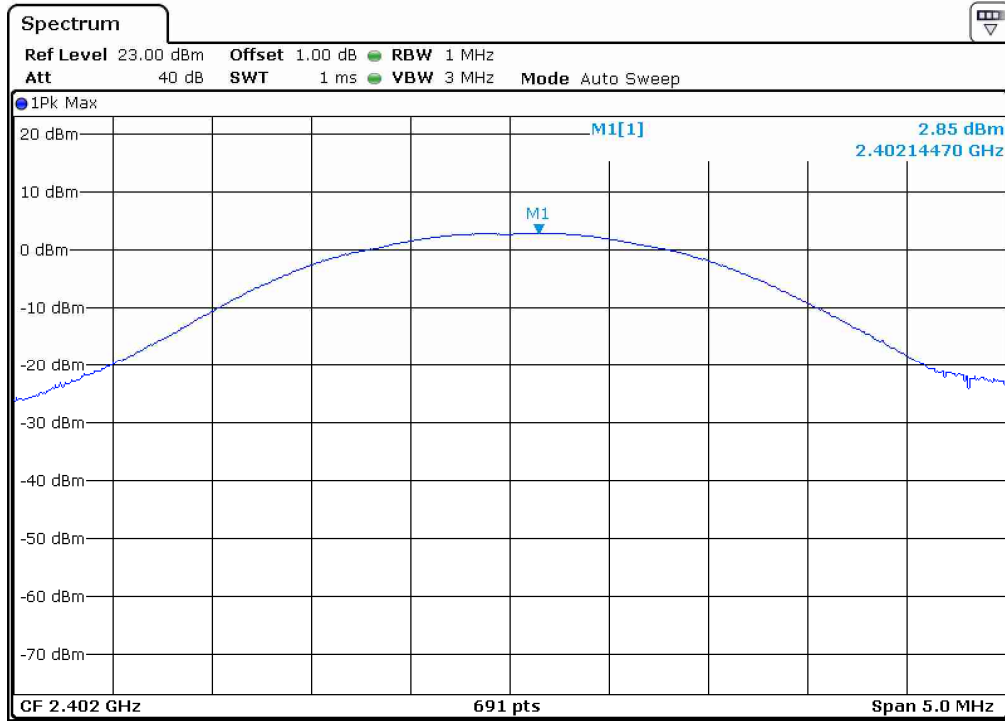
6dB bandwidth	Limit
725.000 kHz	>500 kHz

99% bandwidth
1081.041 kHz

7.4 Peak Output Power

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

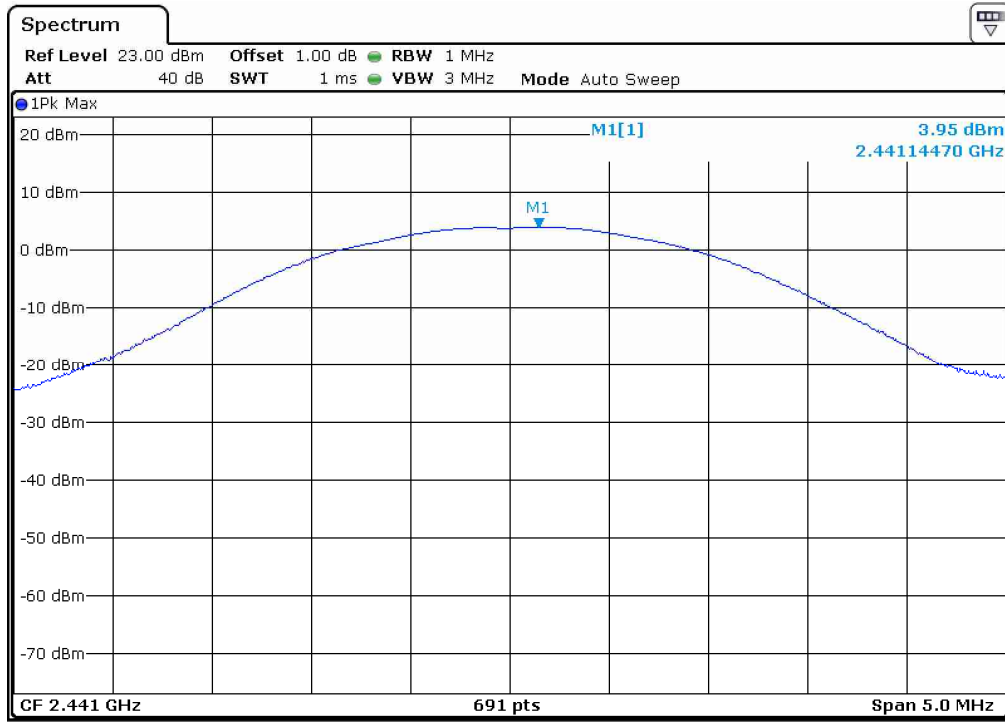


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
2.85	1.927	125.0

Peak Output Power

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

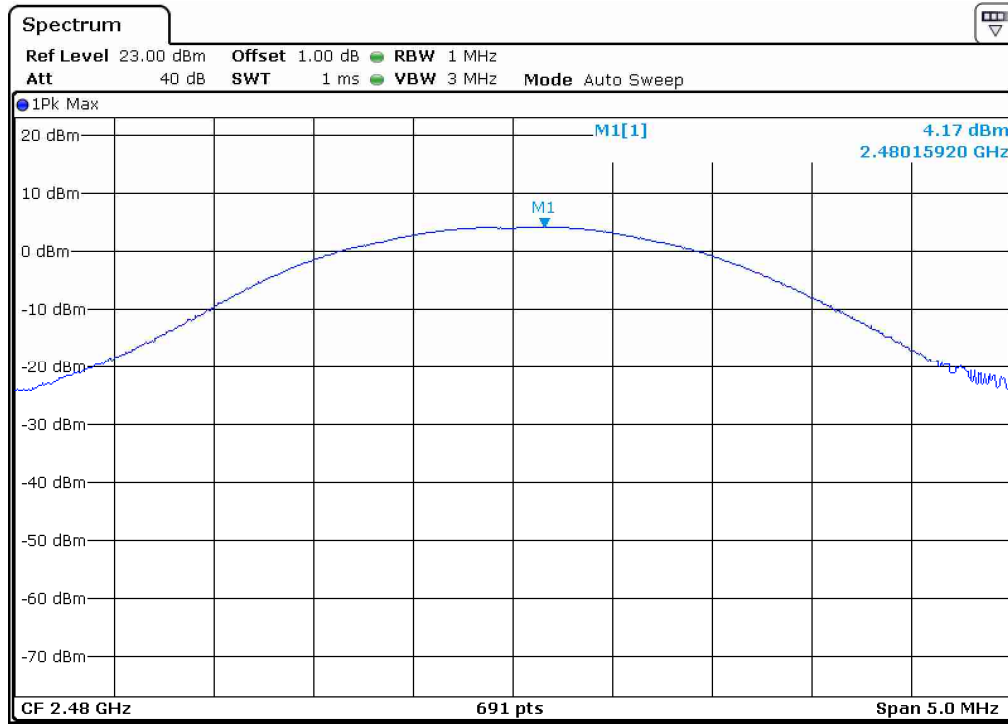


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
3.95	2.483	125.0

Peak Output Power

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

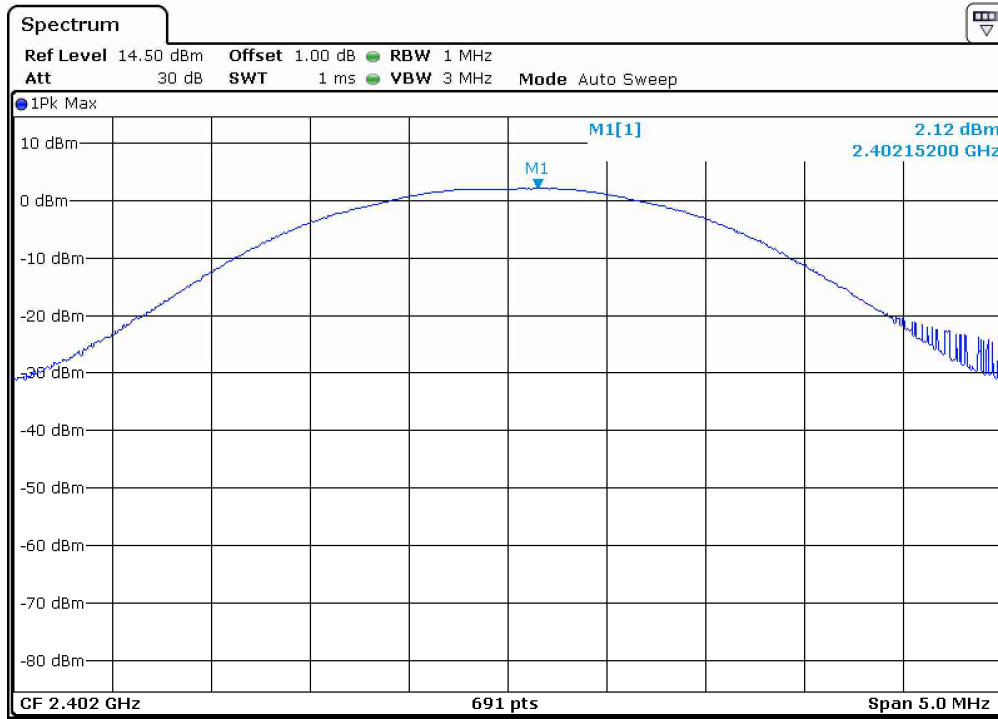


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
4.17	2.612	125.0

Peak Output Power

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

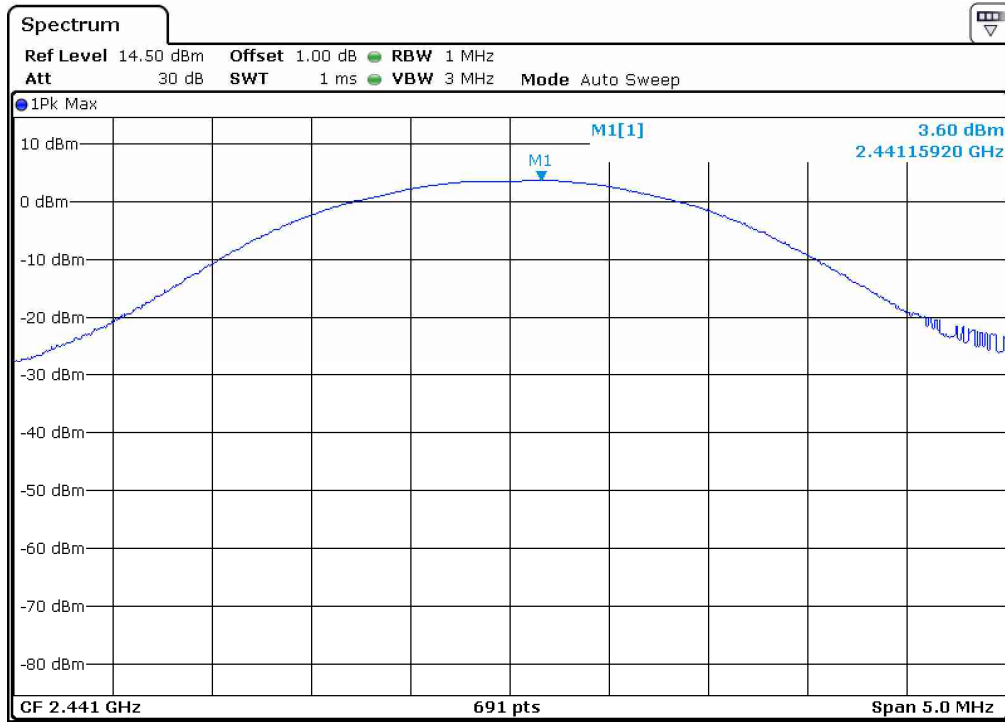


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
2.12	1.629	125.0

Peak Output Power

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

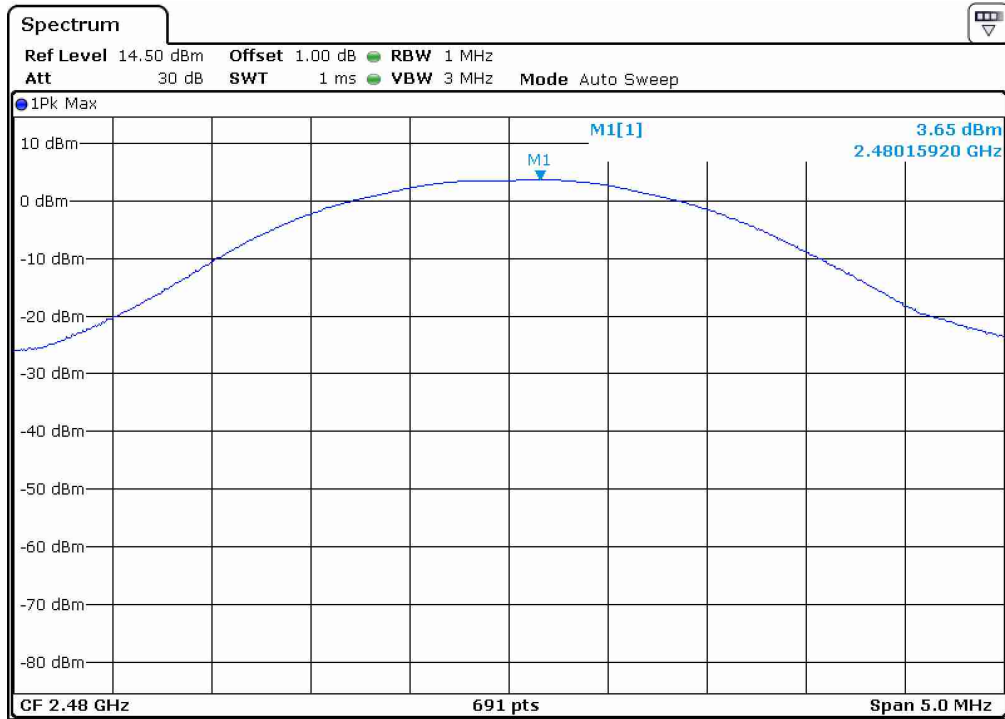


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
3.60	2.291	125.0

Peak Output Power

EUT: SHB4385
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

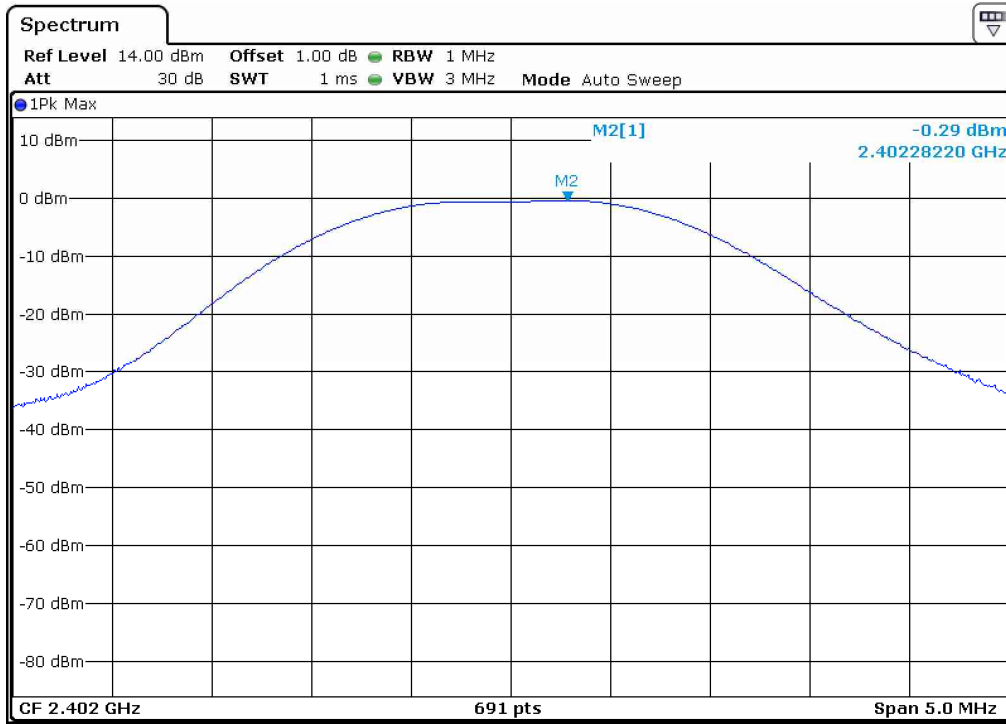


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
3.65	2.317	125.0

Peak Output Power

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

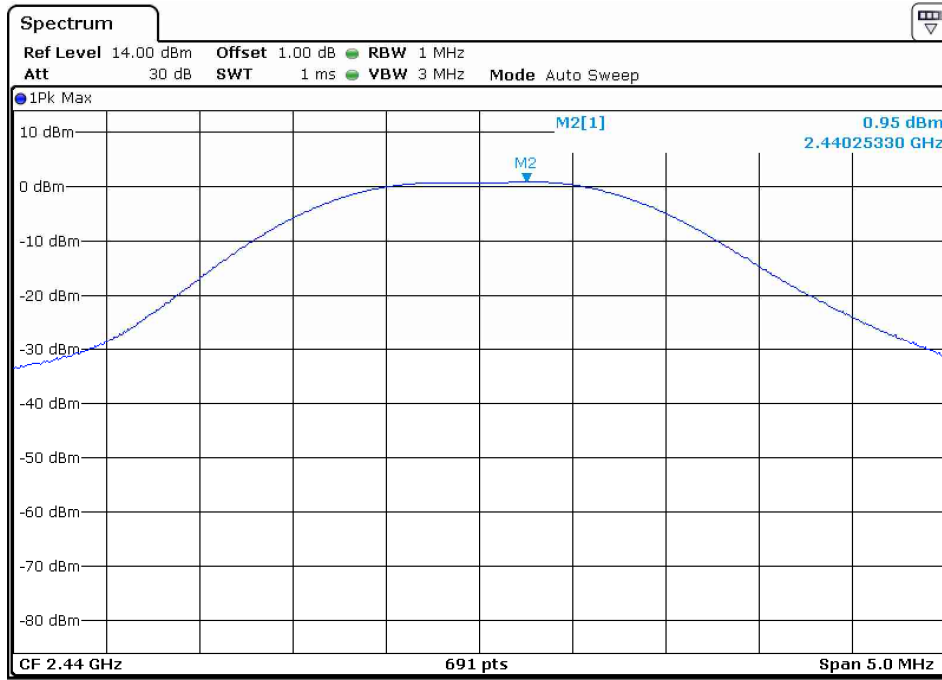


Conducted Output Power (dBm)	Limit (dBm)
-0.29	30

Peak Output Power

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

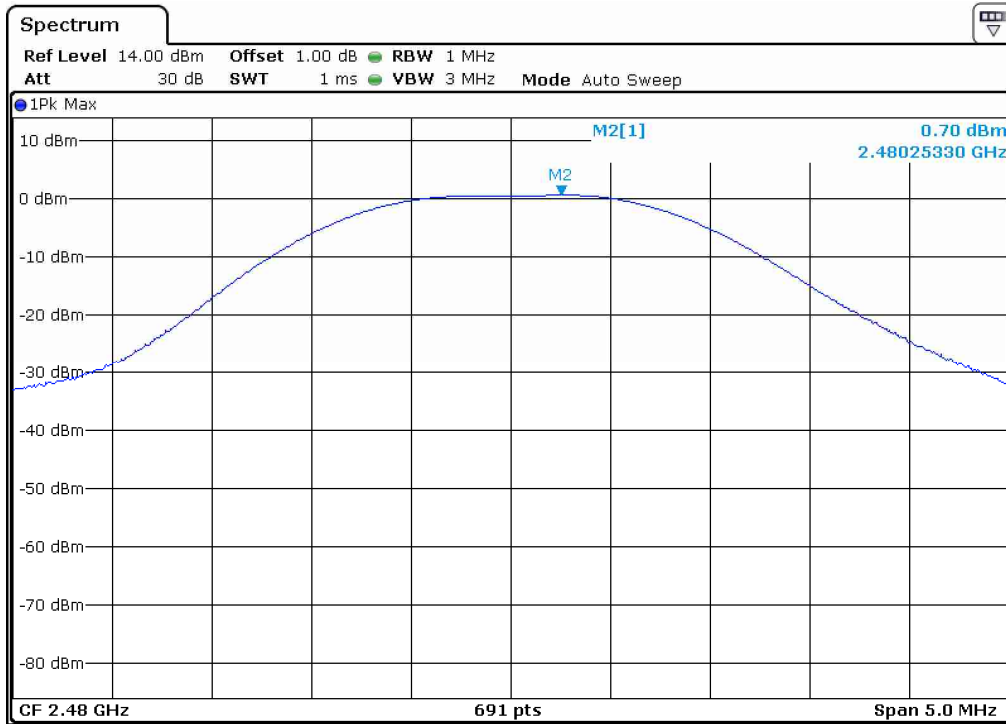


Conducted Output Power (dBm)	Limit (dBm)
0.95	30

Peak Output Power

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

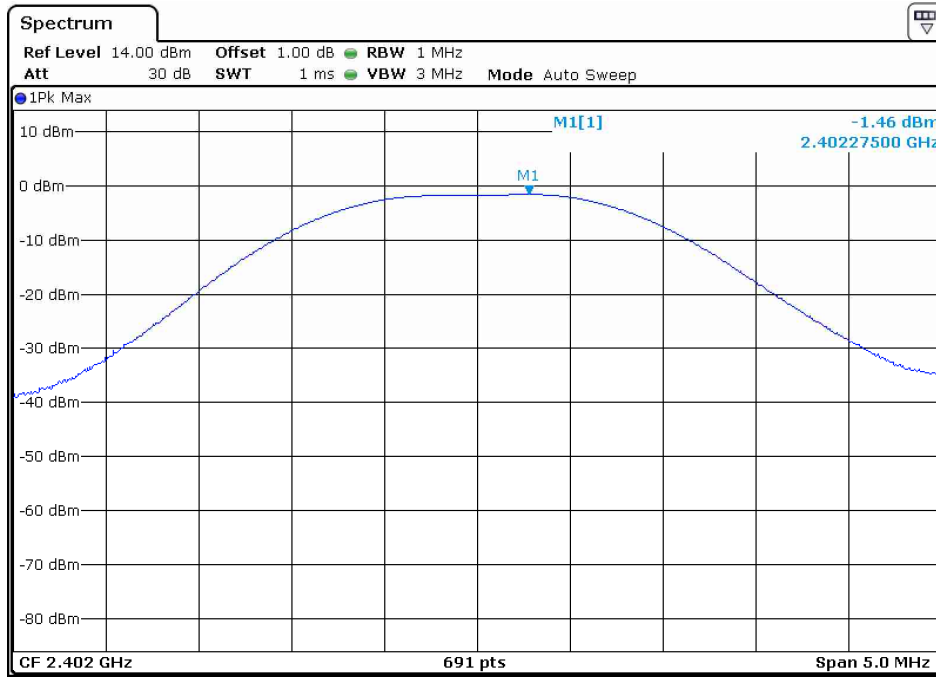


Conducted Output Power (dBm)	Limit (dBm)
0.70	30

Peak Output Power

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

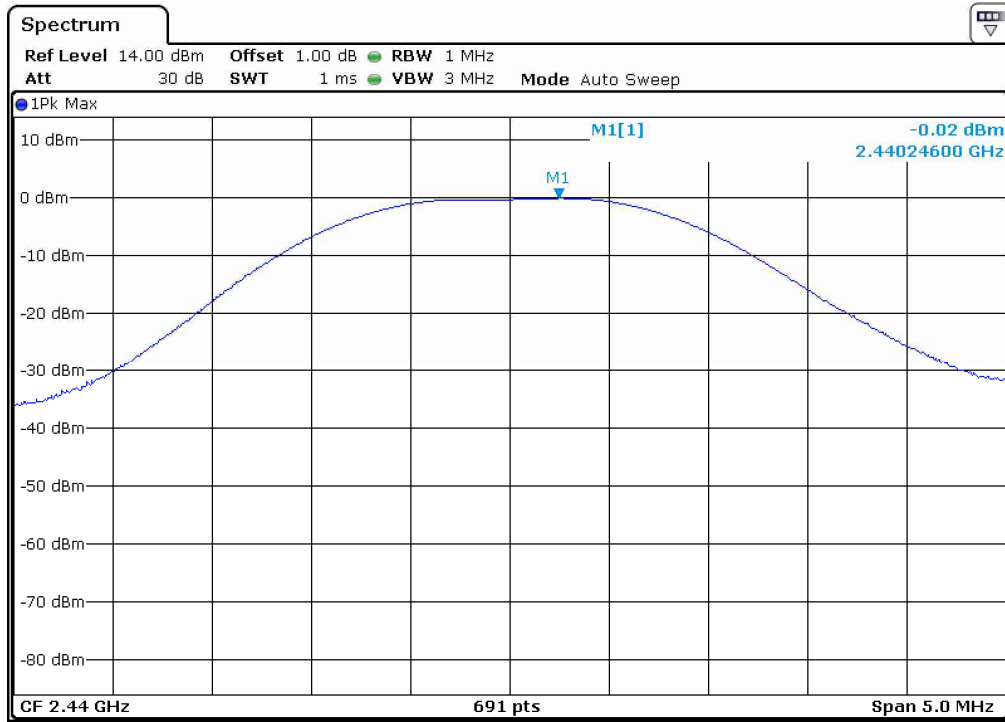


Conducted Output Power (dBm)	Limit (dBm)
-1.46	30

Peak Output Power

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

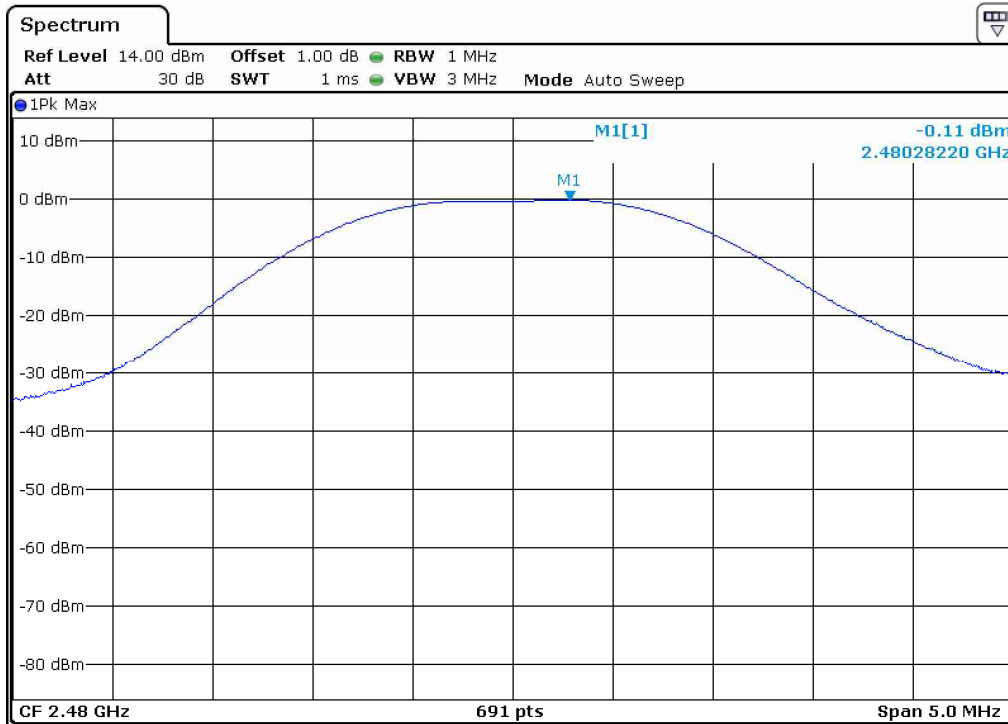


Conducted Output Power (dBm)	Limit (dBm)
-0.02	30

Peak Output Power

EUT: SHB4385
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC15.247(b)
 Comment: 3.7VDC, Antenna gain: 0 dBi, Cable Loss: 0.5dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

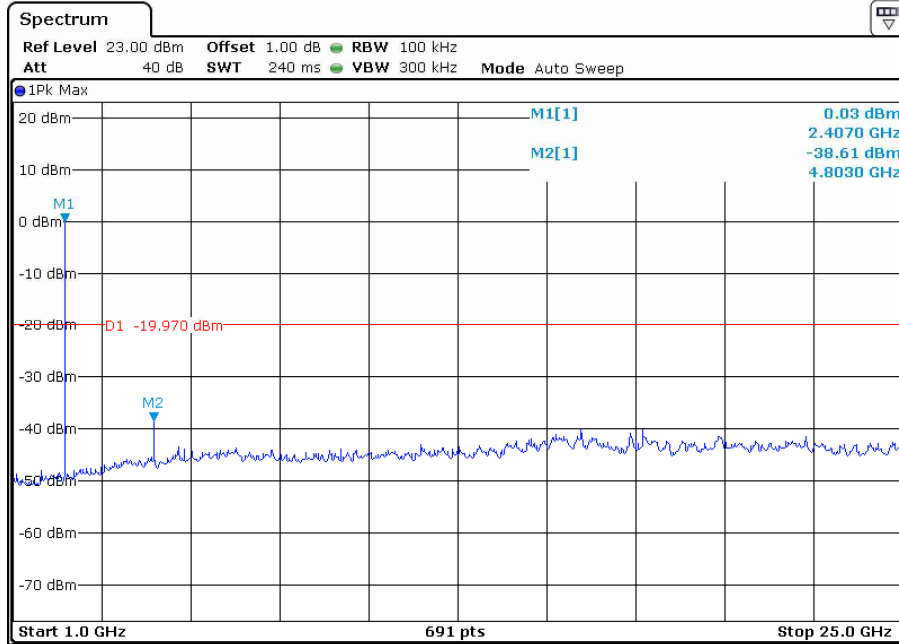
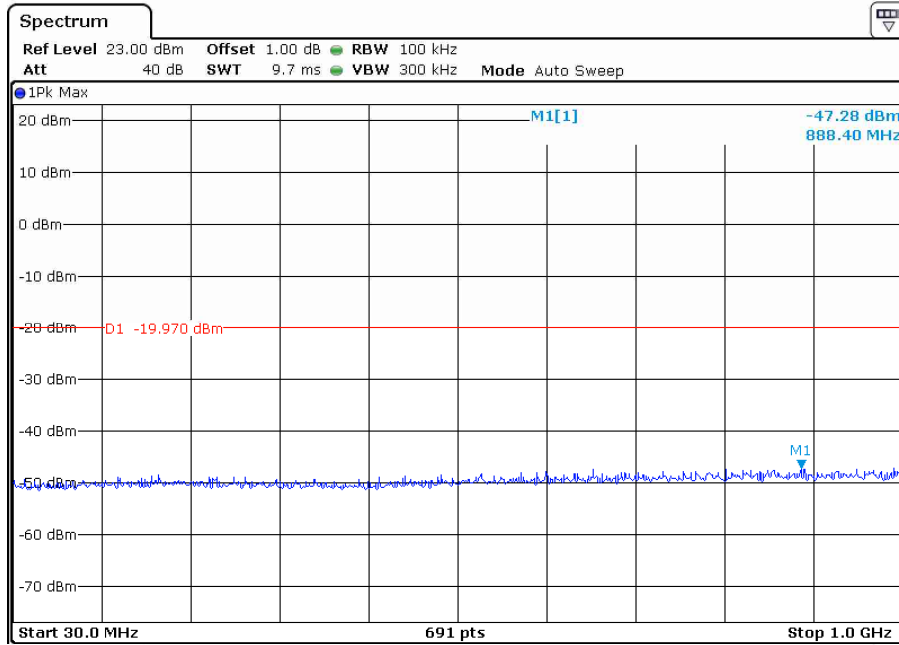


Conducted Output Power (dBm)	Limit (dBm)
-0.11	30

7.4 Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

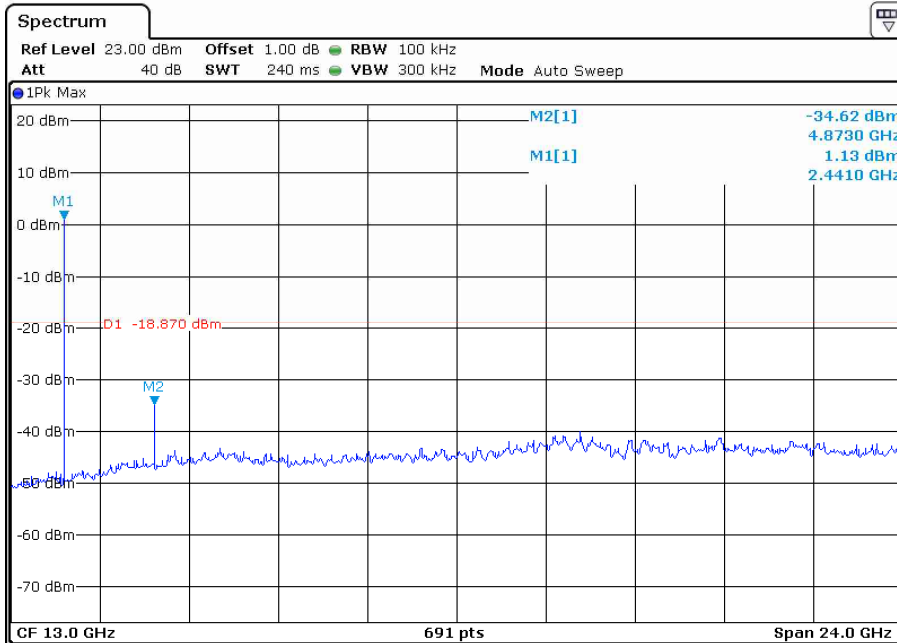
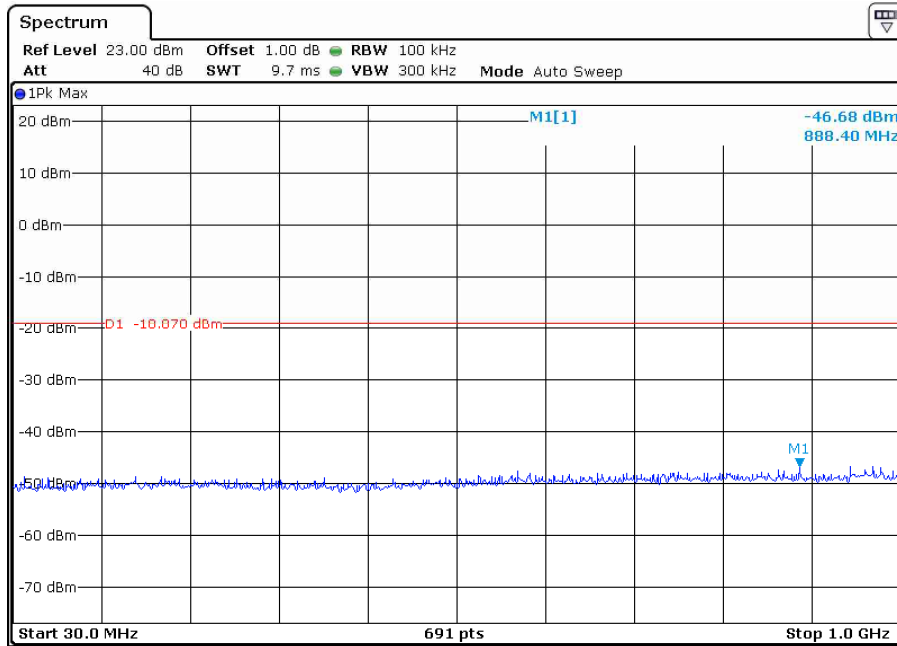


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

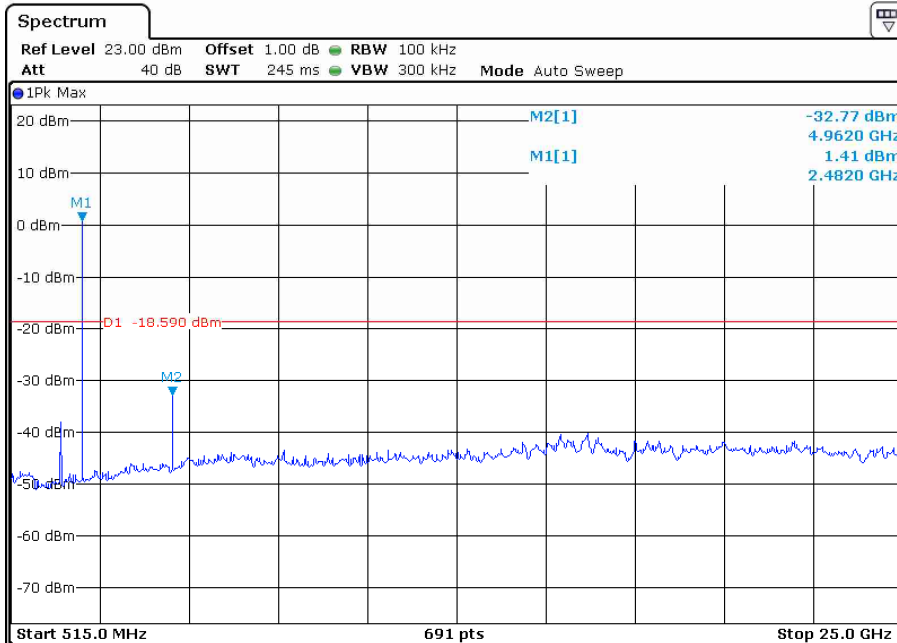
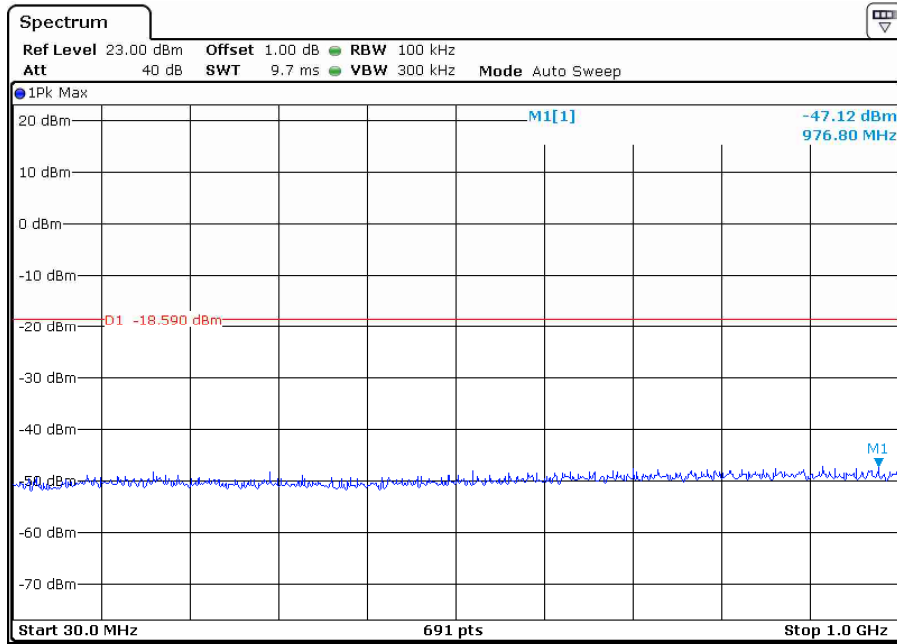


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

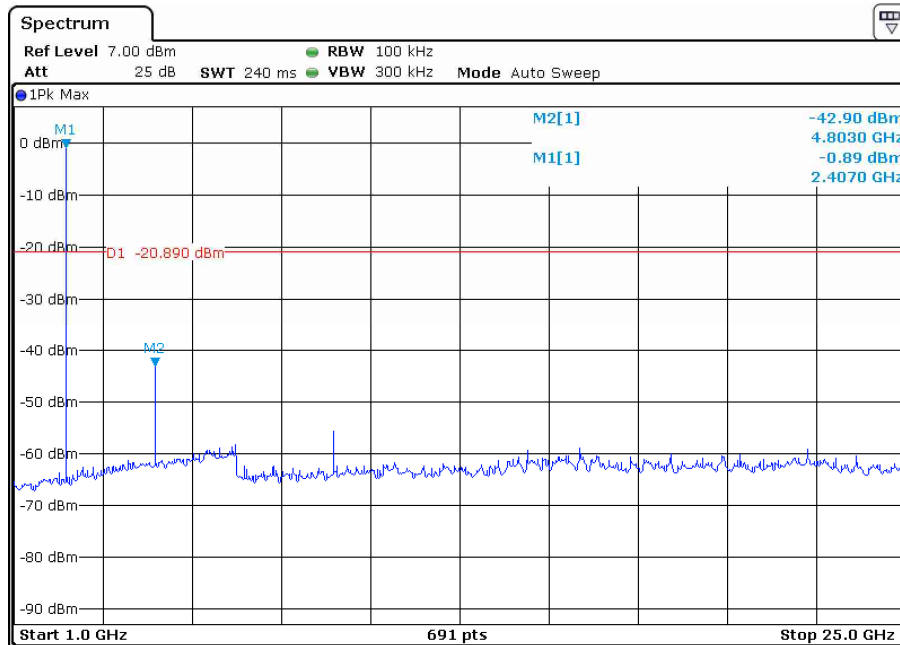
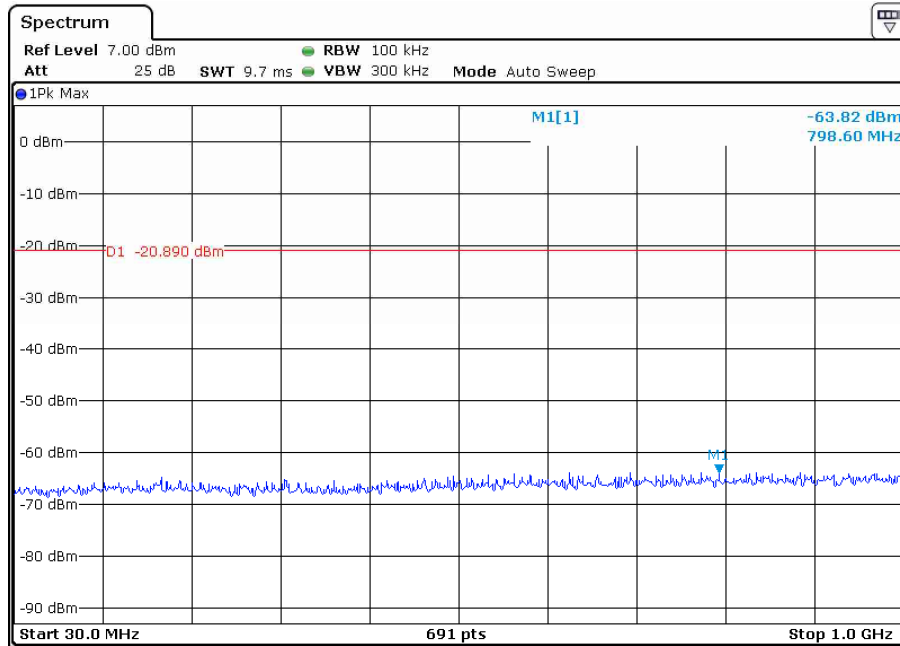


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2402MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

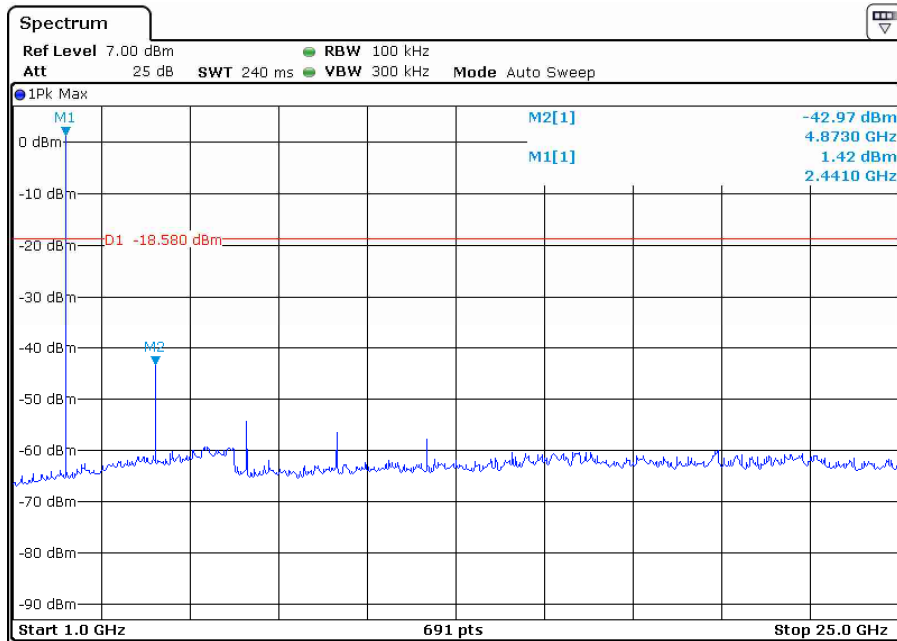
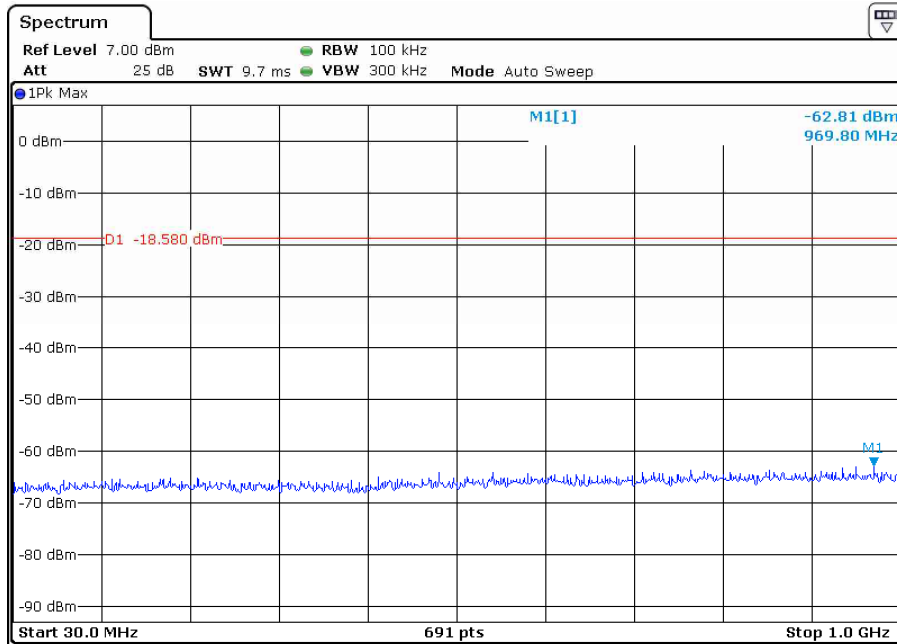


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2441MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

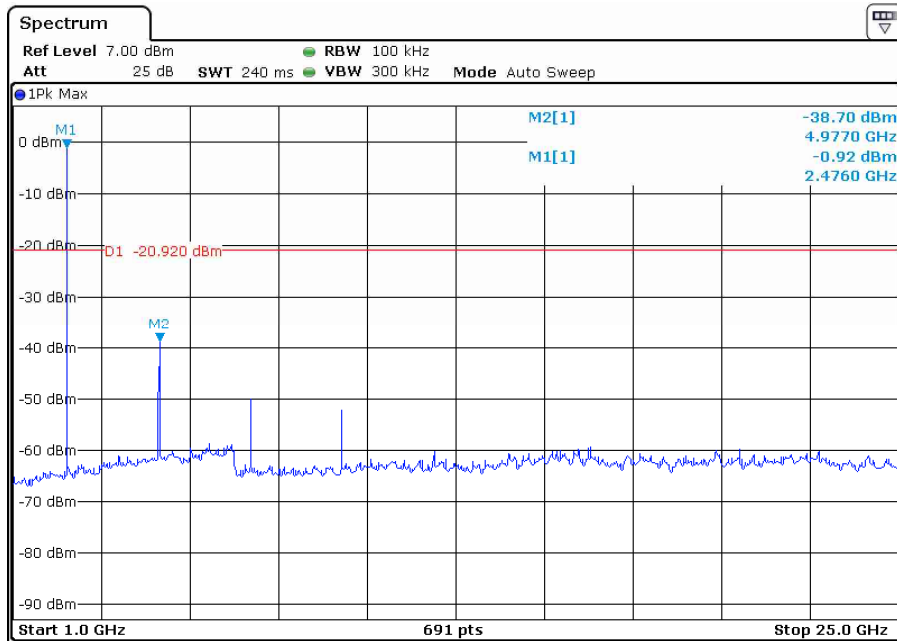
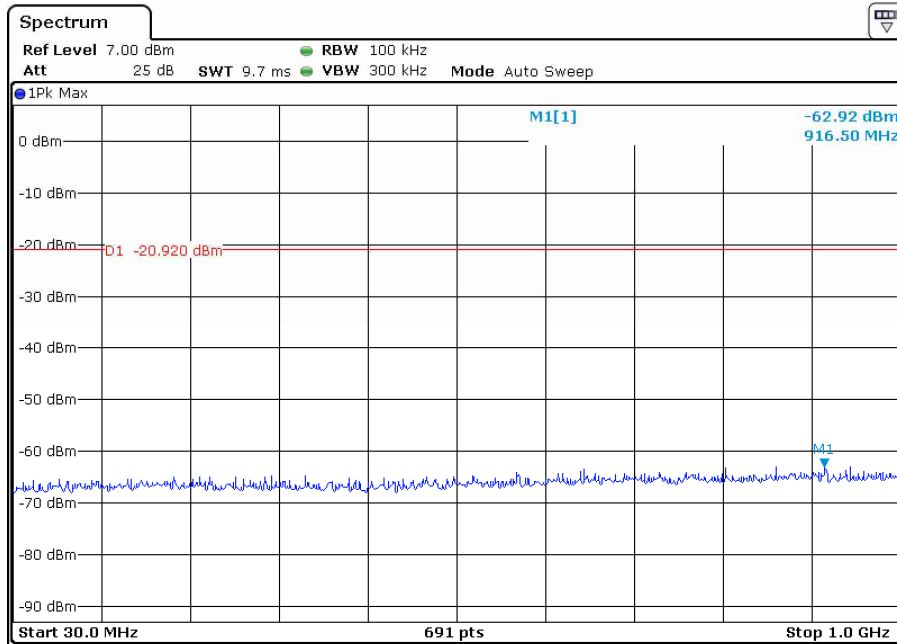


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

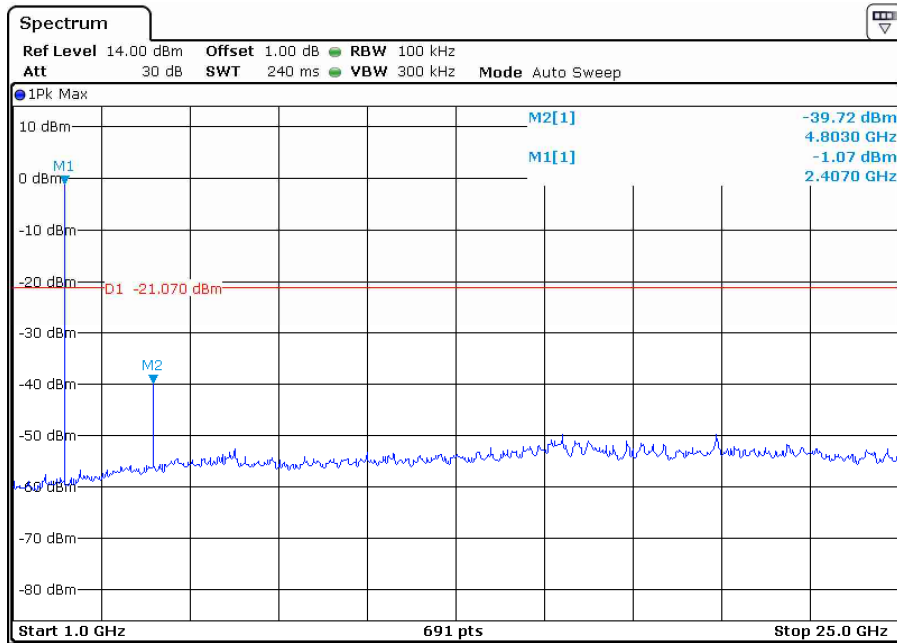
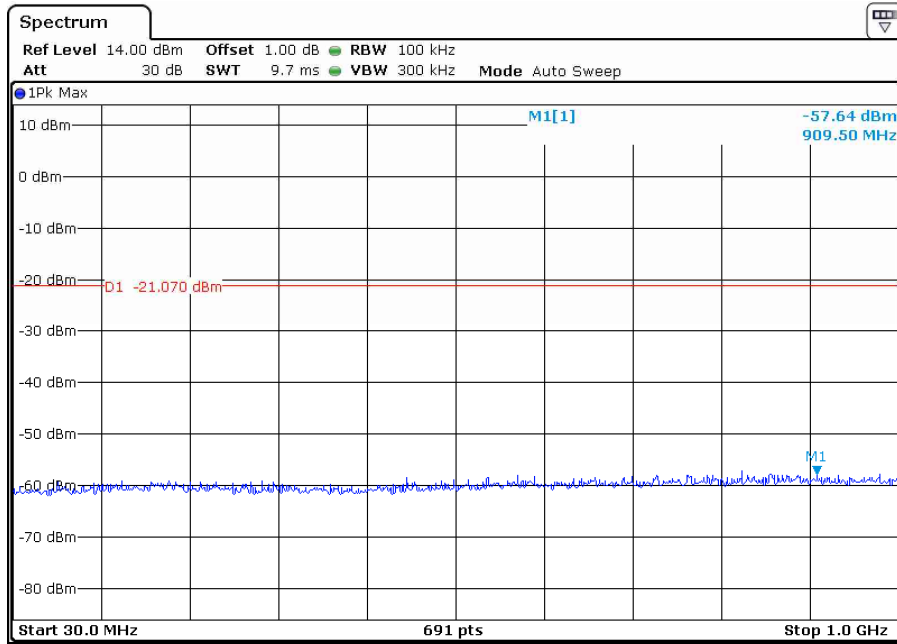


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2402MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

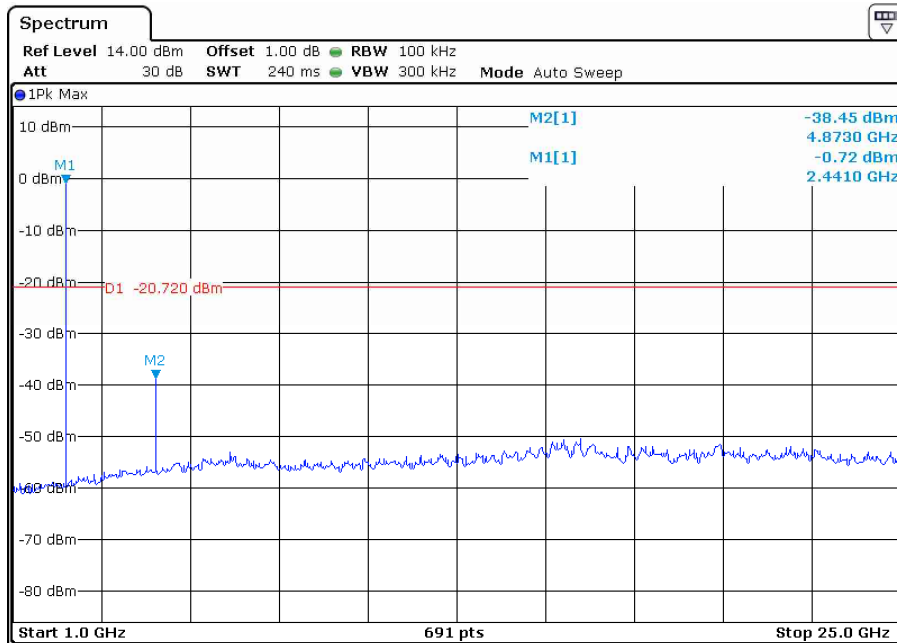
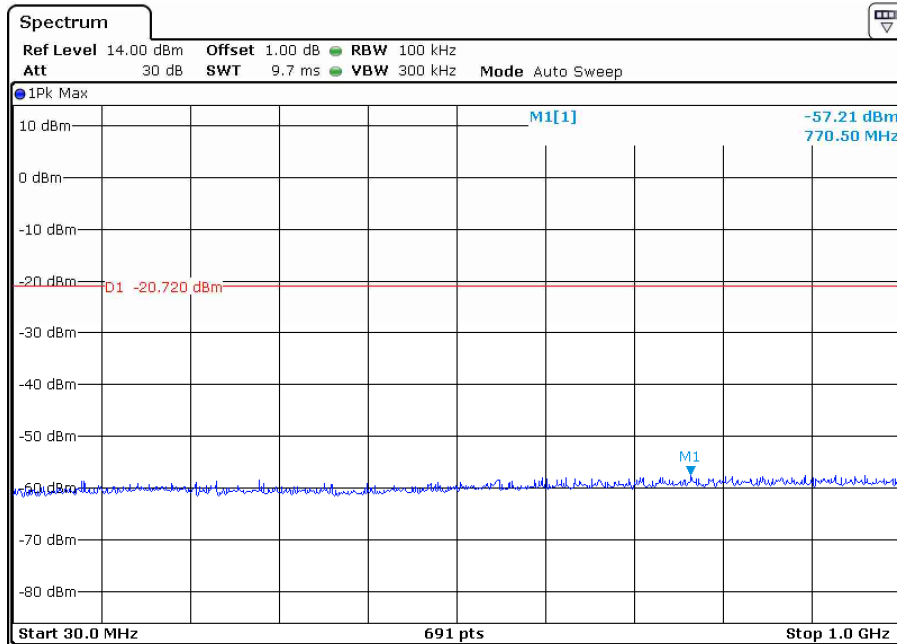


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

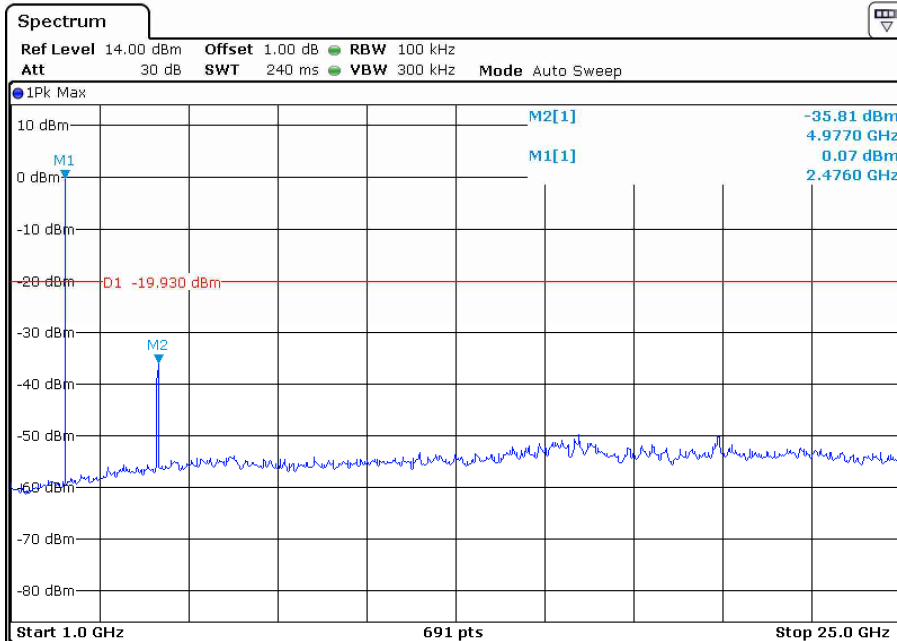
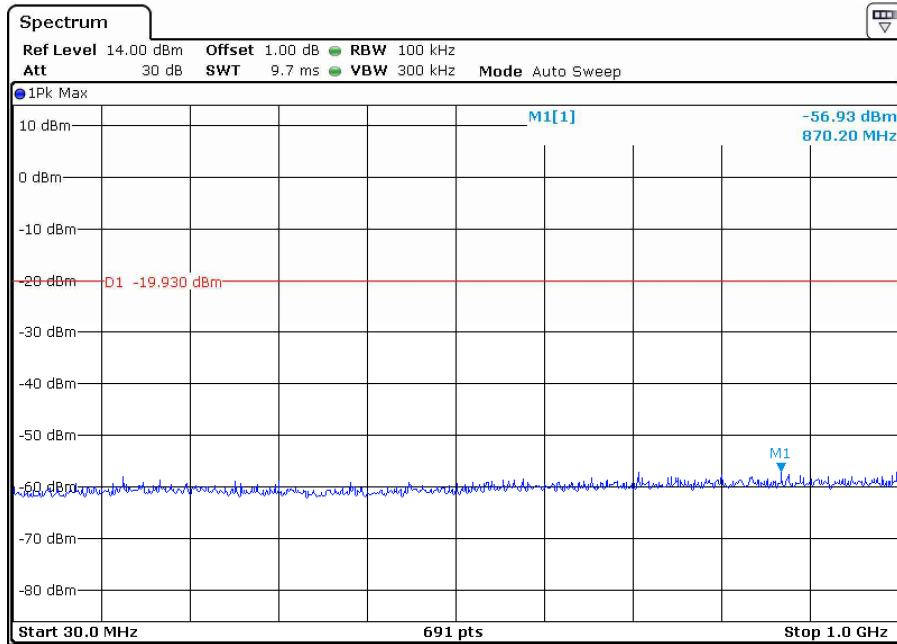


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE (2480MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

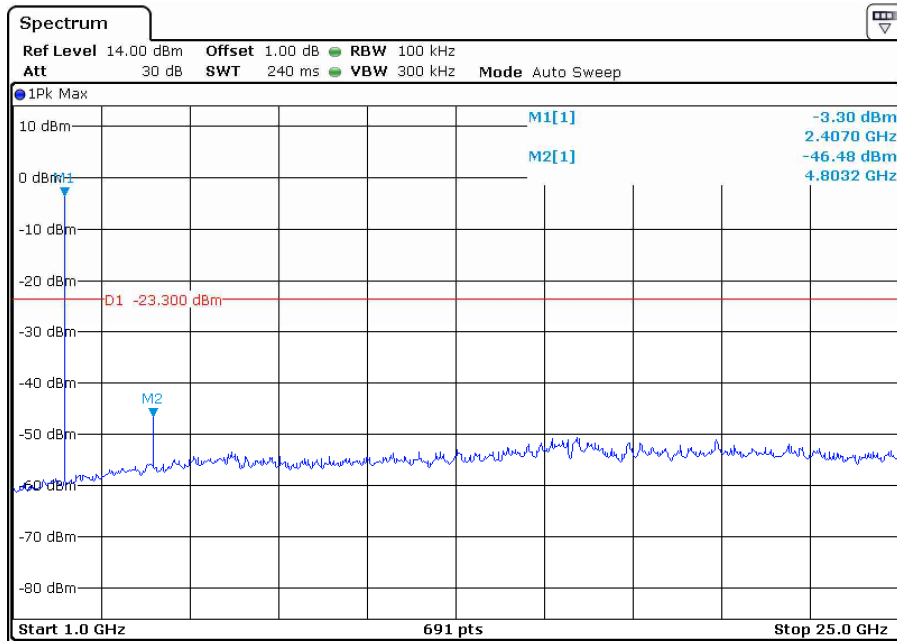
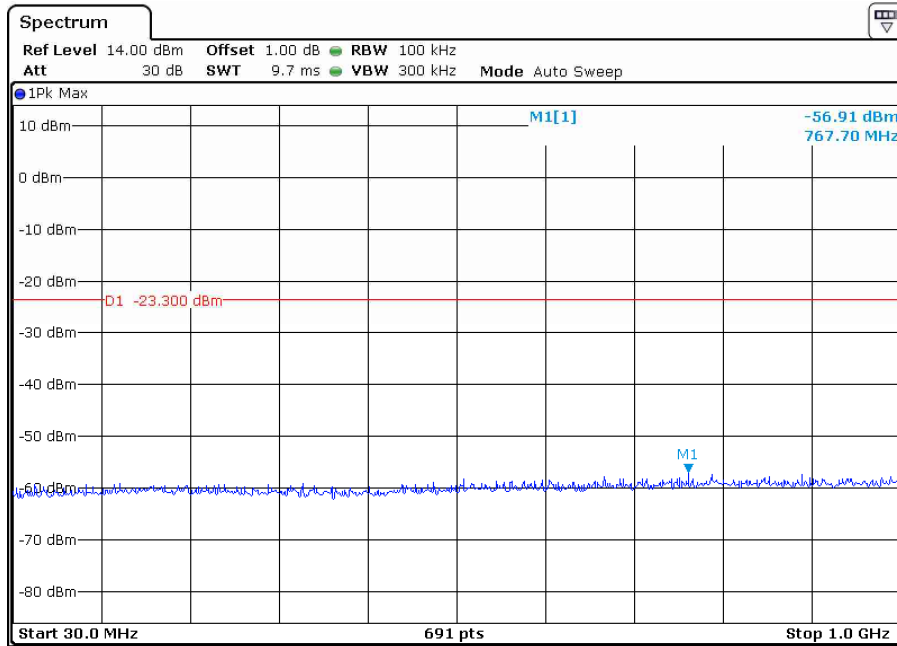


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Right)
Op Condition: Operated, TX Mode, BLE (2402MHz)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 3.7VDC

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

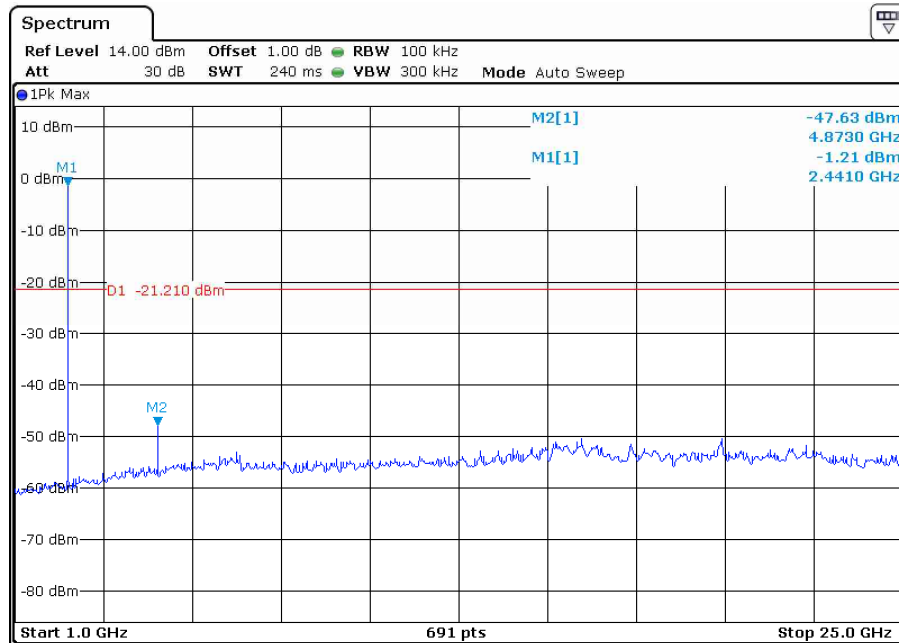
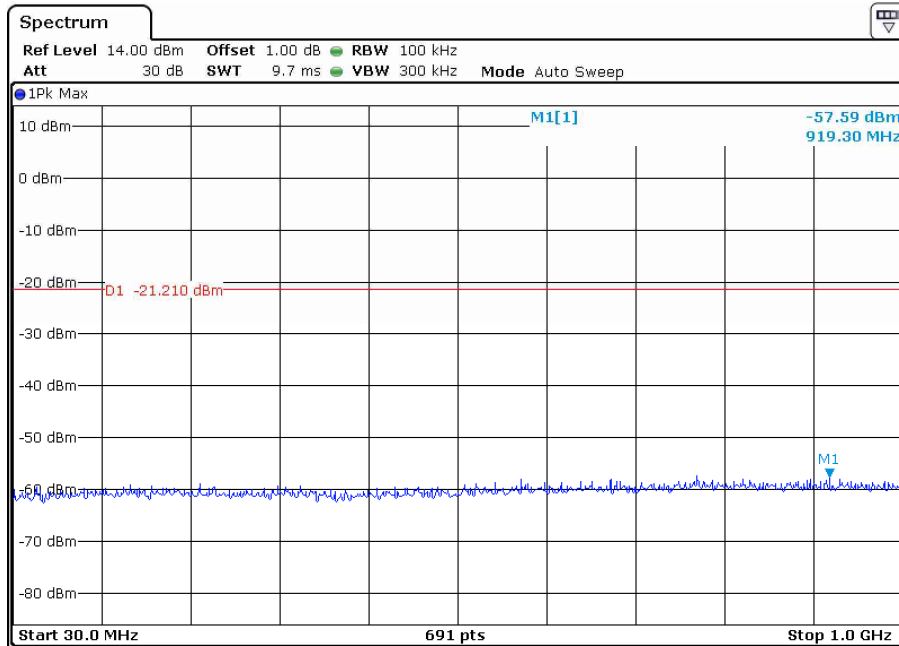


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE (2440MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

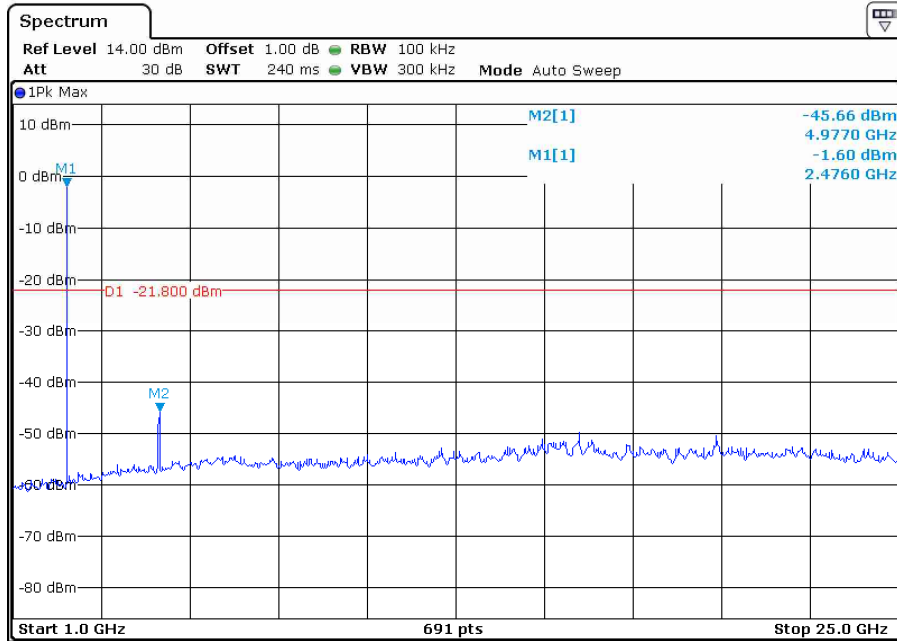
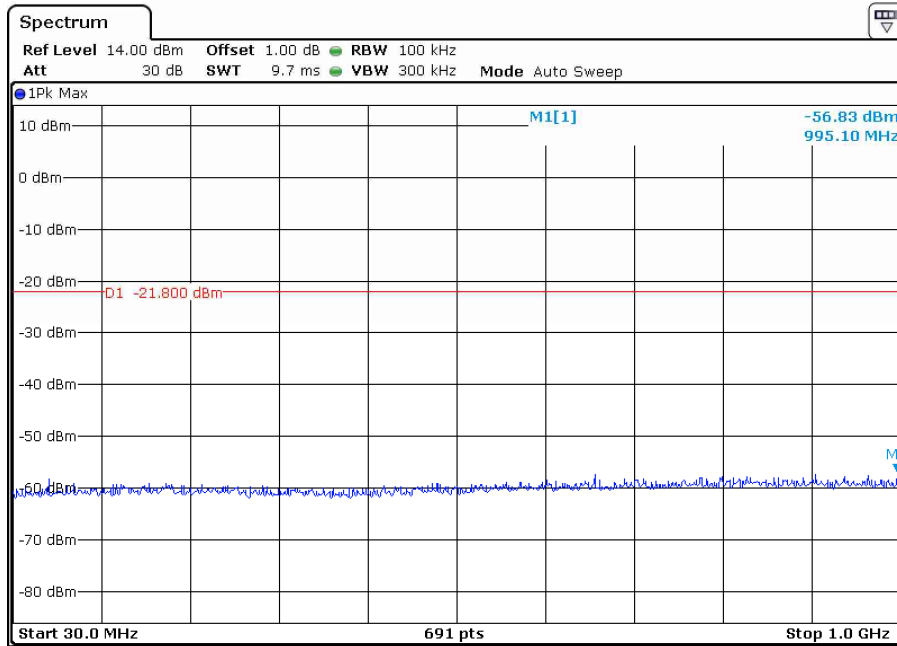


Limit: 20dB below the highest level of the desired power in the passband

Spurious Emissions at Antenna Terminals

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS (2480MHz)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7VDC

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

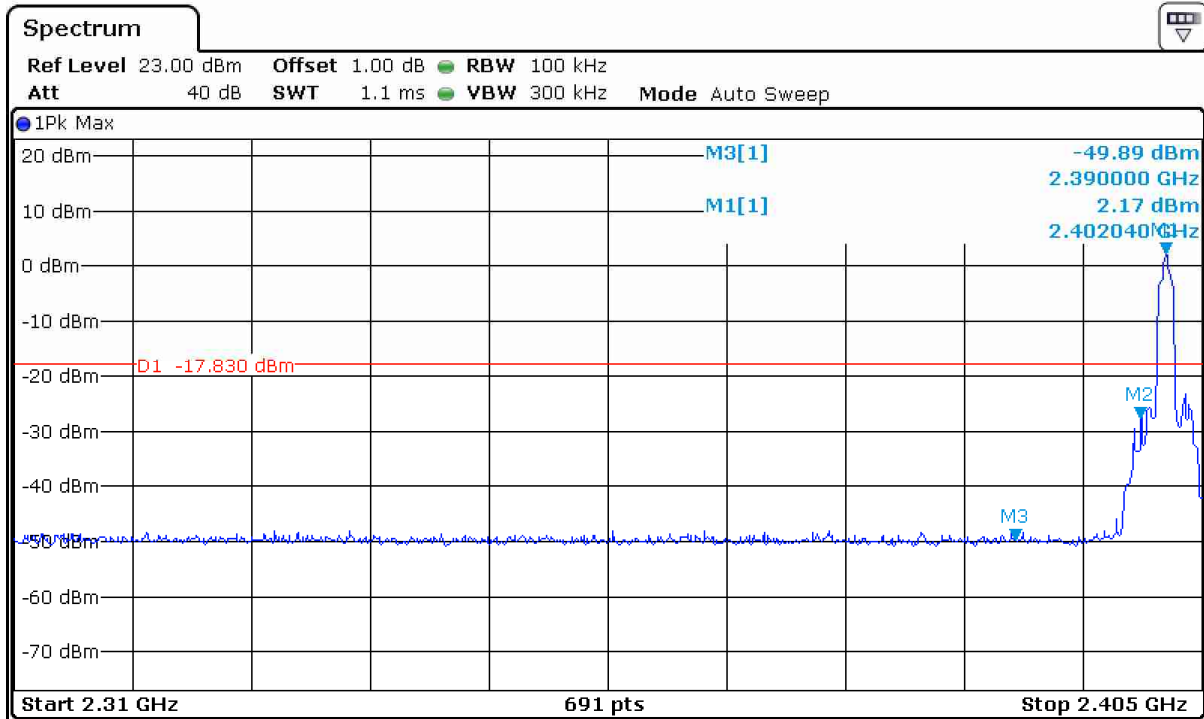


Limit: 20dB below the highest level of the desired power in the passband

7.5 100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2402MHz)
 Test Specification: FCC15.247(d), Conducted
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
29.98 dB	> 20dB

100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

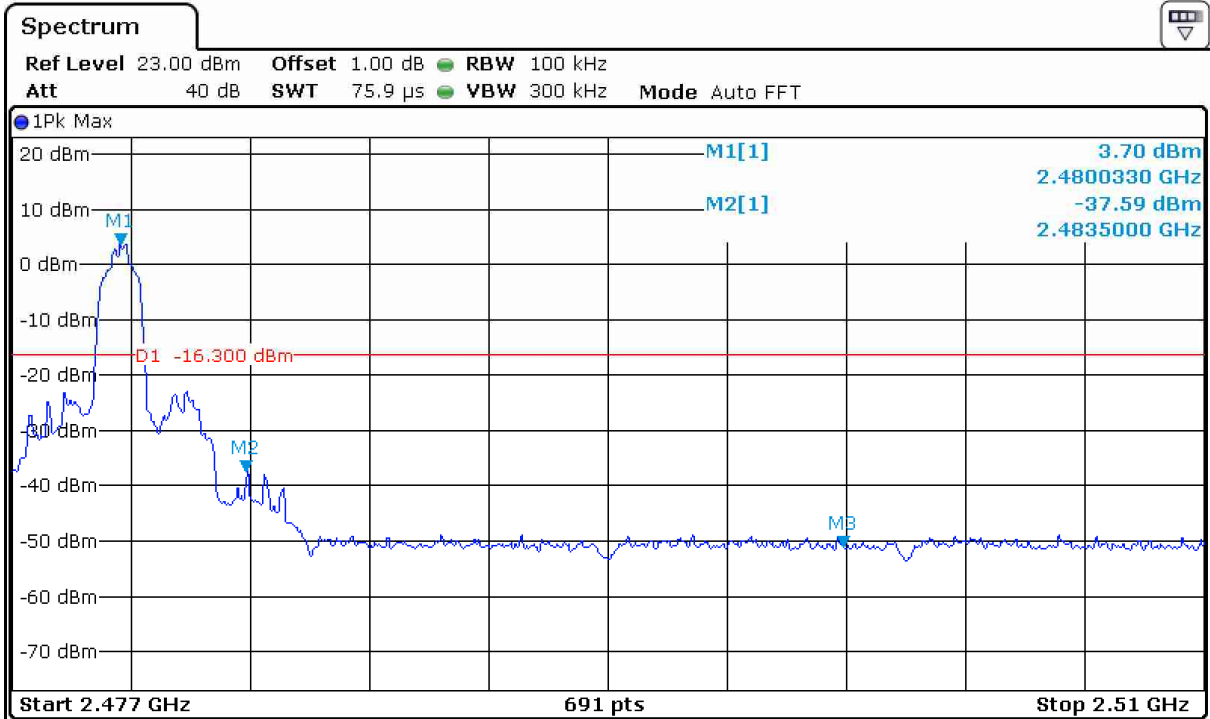
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2390.000	45.34	74	-28.66	Peak
2390.000	40.67	54	-13.33	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2480MHz)
 Test Specification: FCC15.247(d), Conducted
 Comment: 3.7VDC

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed



Band edges	Limit
41.29 dB	> 20dB



100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2480MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

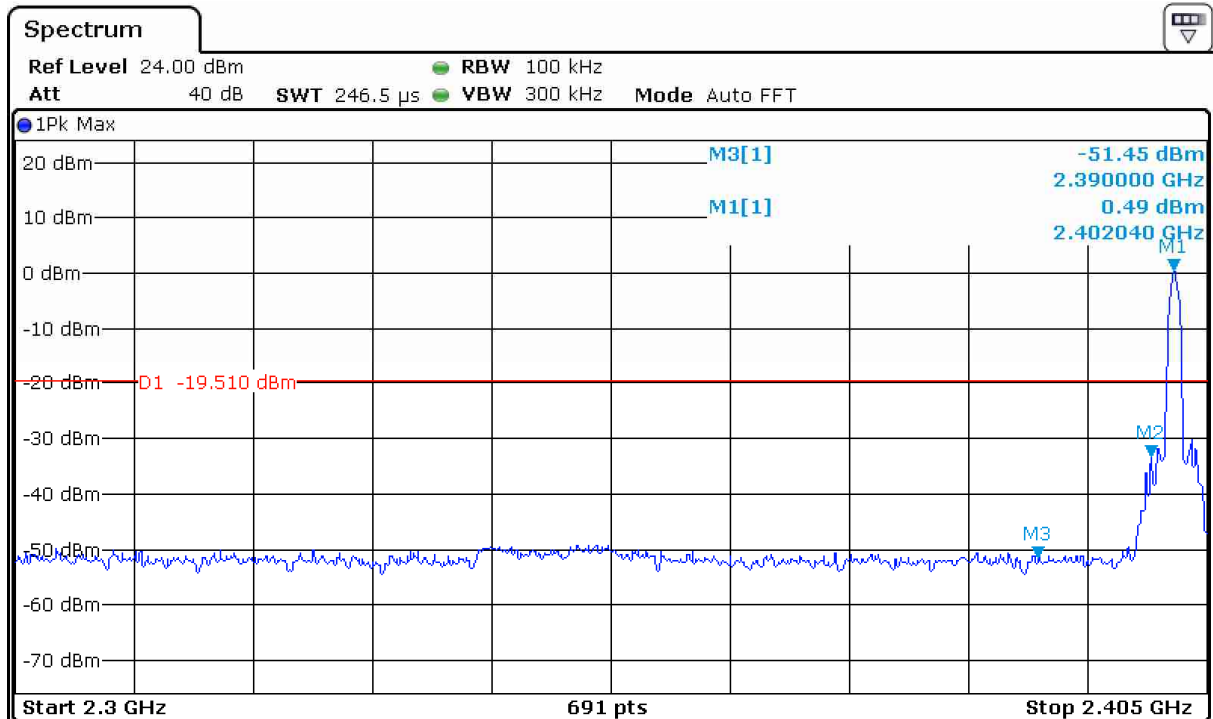
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2483.500	55.64	74	-18.36	Peak
2483.500	49.28	54	-4.72	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS, (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
33.58 dB	> 20dB

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS, (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

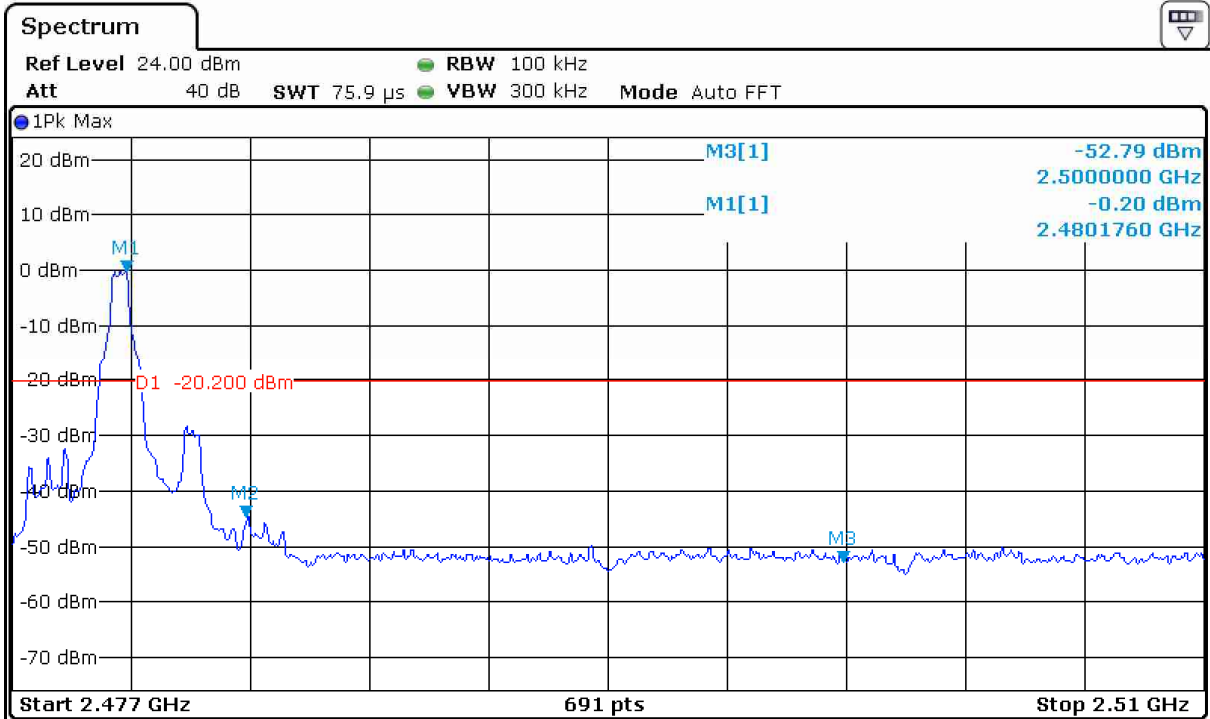
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2390.000	43.78	74	-30.22	Peak
2390.000	38.14	54	-15.86	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS, (2480MHz)
 Test Specification: FCC15.247(d), Conducted
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
44.50 dB	> 20dB

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS, (2480MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

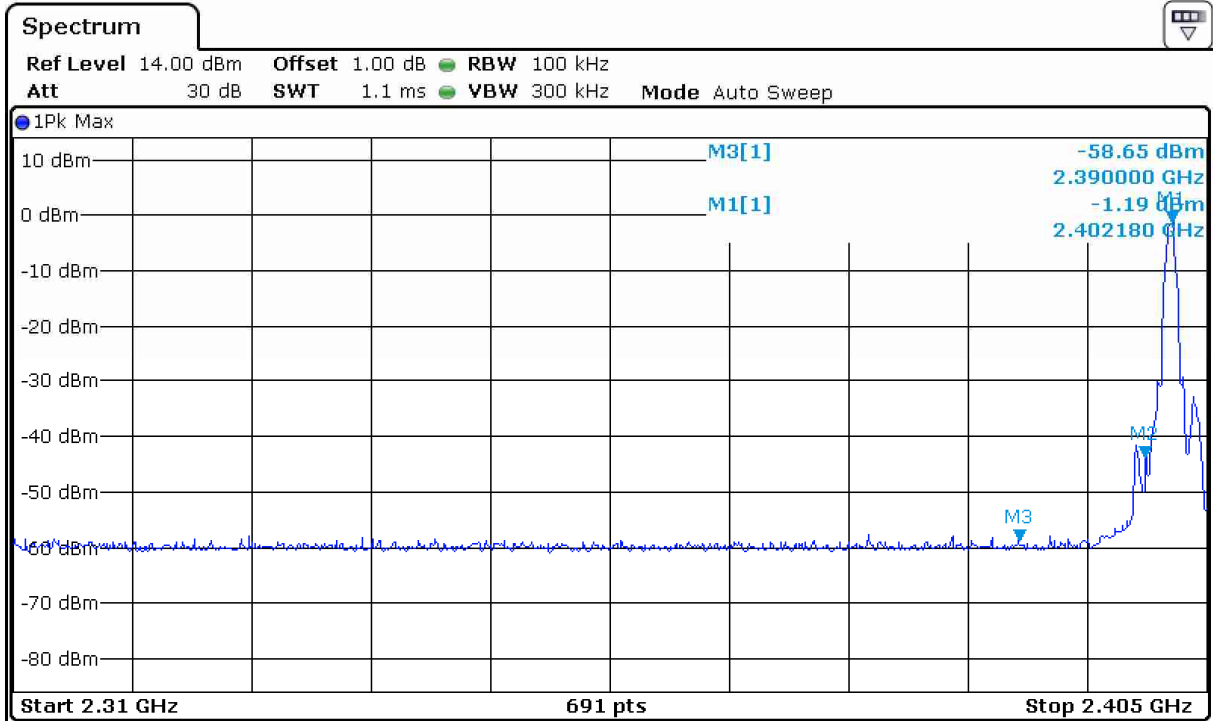
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2483.500	50.53	74	-23.47	Peak
2483.500	44.16	54	-9.84	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE , (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
42.66 dB	> 20dB



100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE , (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

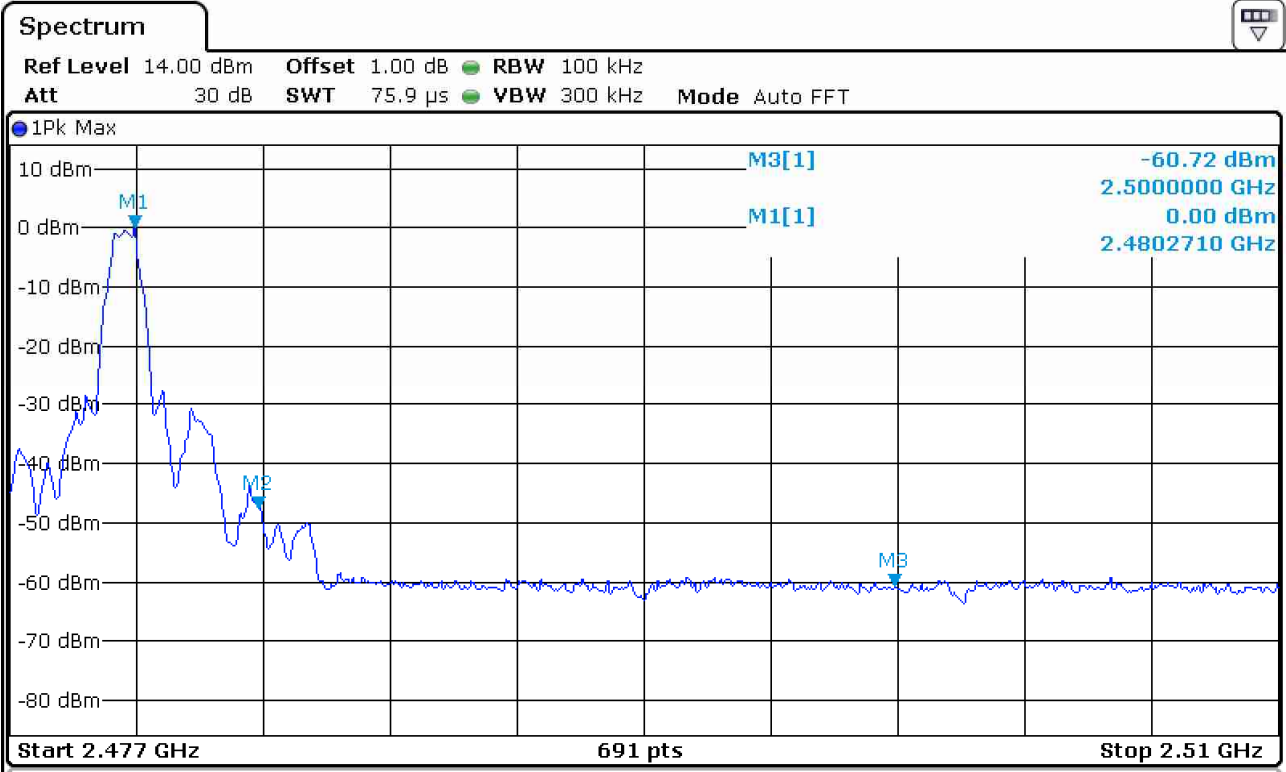
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2390.000	36.58	74	-37.42	Peak
2390.000	31.09	54	-22.91	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE , (2480MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
47.54 dB	> 20dB



100kHz Bandwidth of band edges

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE , (2480MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

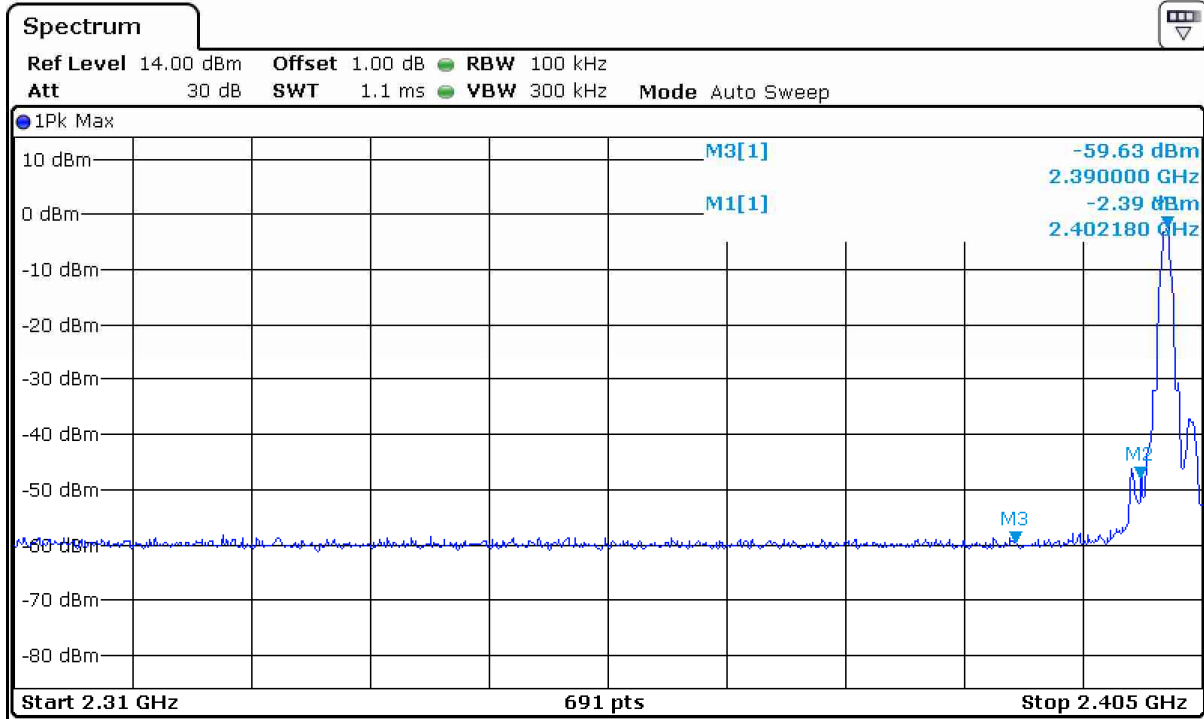
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2483.500	47.69	74	-26.31	Peak
2483.500	41.92	54	-12.08	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE, (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
45.39 dB	> 20dB



100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE , (2402MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

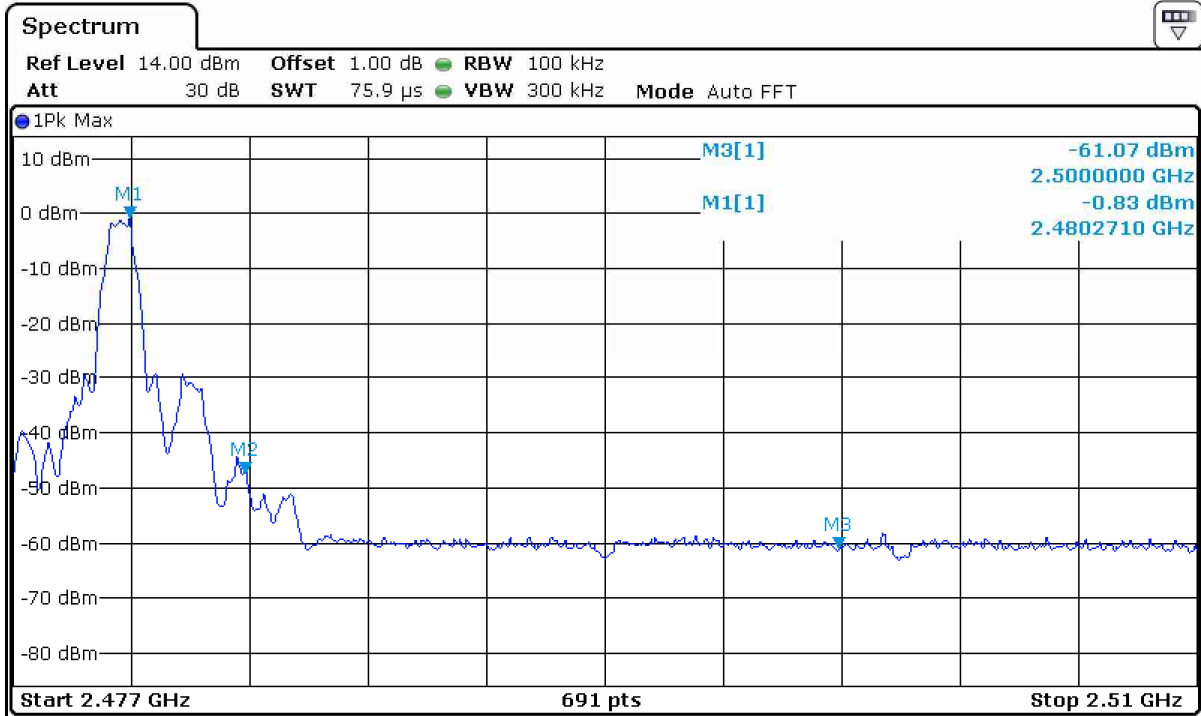
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2390.000	35.60	74	-38.40	Peak
2390.000	29.86	54	-24.14	Average

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE, (2480MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



Band edges	Limit
46.68 dB	> 20dB

100kHz Bandwidth of band edges

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE , (2480MHz)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7VDC

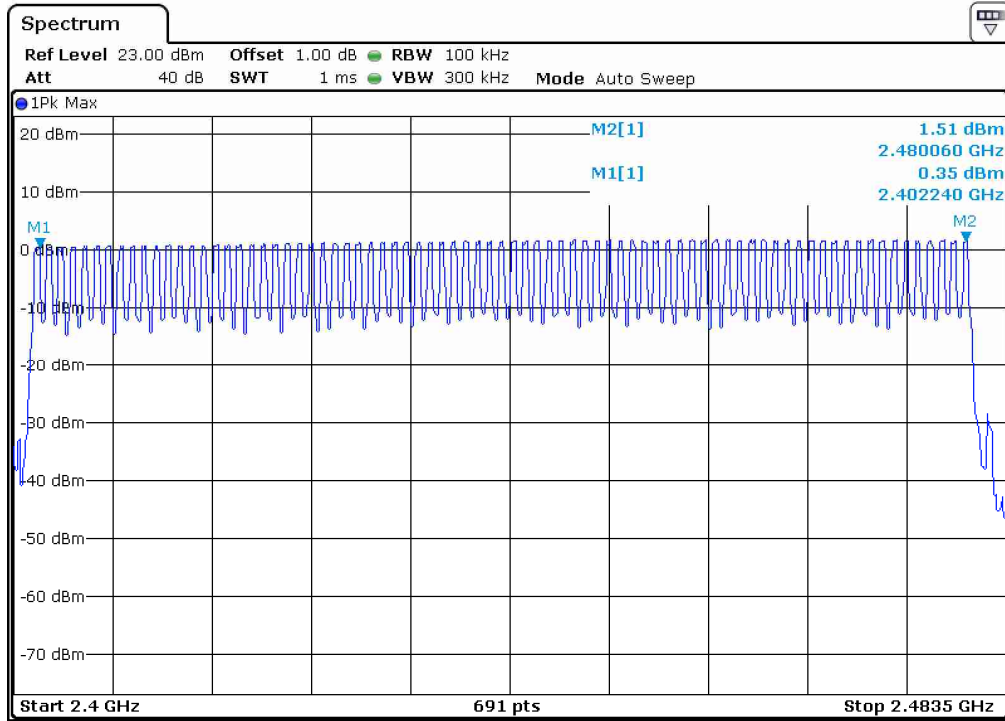
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2483.500	47.92	74	-26.08	Peak
2483.500	41.66	54	-12.34	Average

7.6 Minimum. Number of Hopping Frequencies

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2402-2480MHz)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

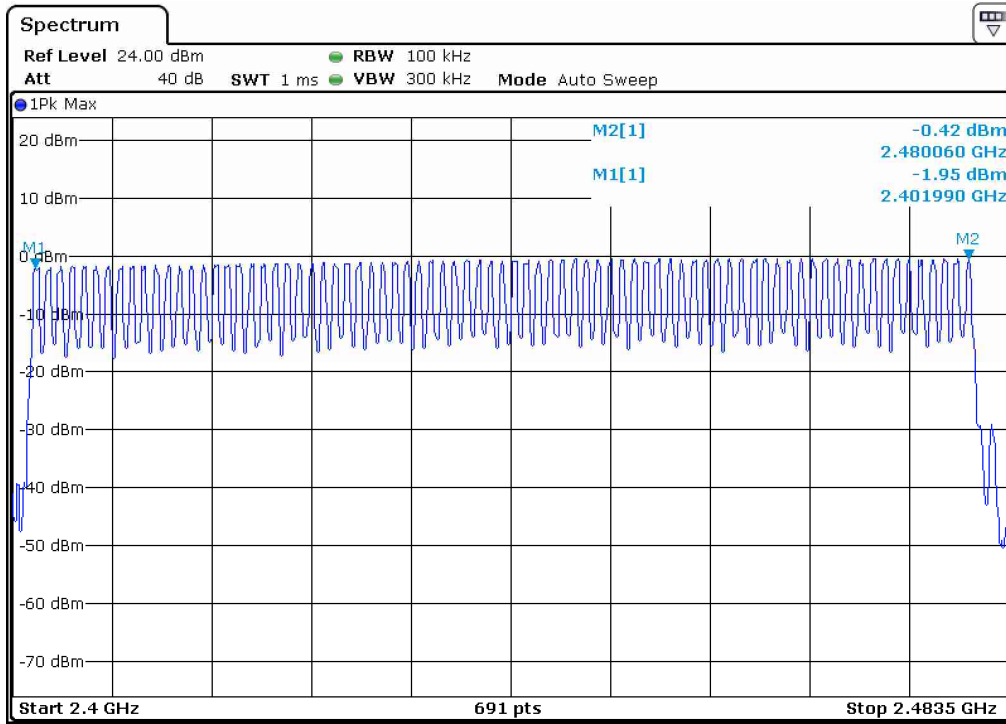


Hopping Channels	Limit
79	≥ 15

Minimum. Number of Hopping Frequencies

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, FHSS, (2402-2480MHz)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

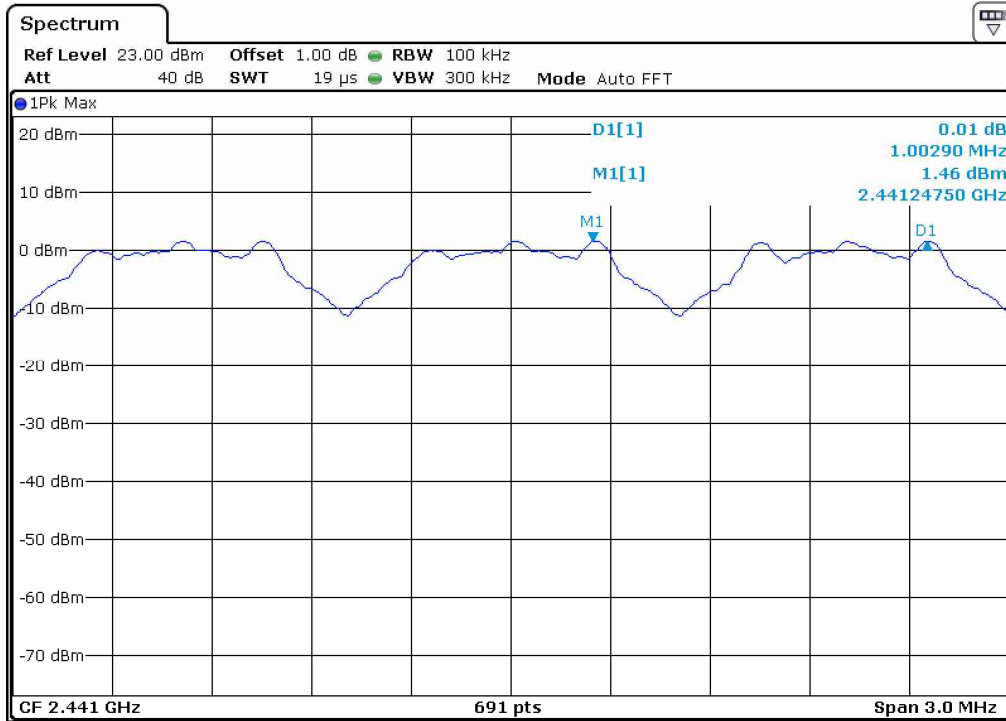


Hopping Channels	Limit
79	≥ 15

7.7 Minimum Hopping Channel Carrier Frequency Separation

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2402-2480MHz)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



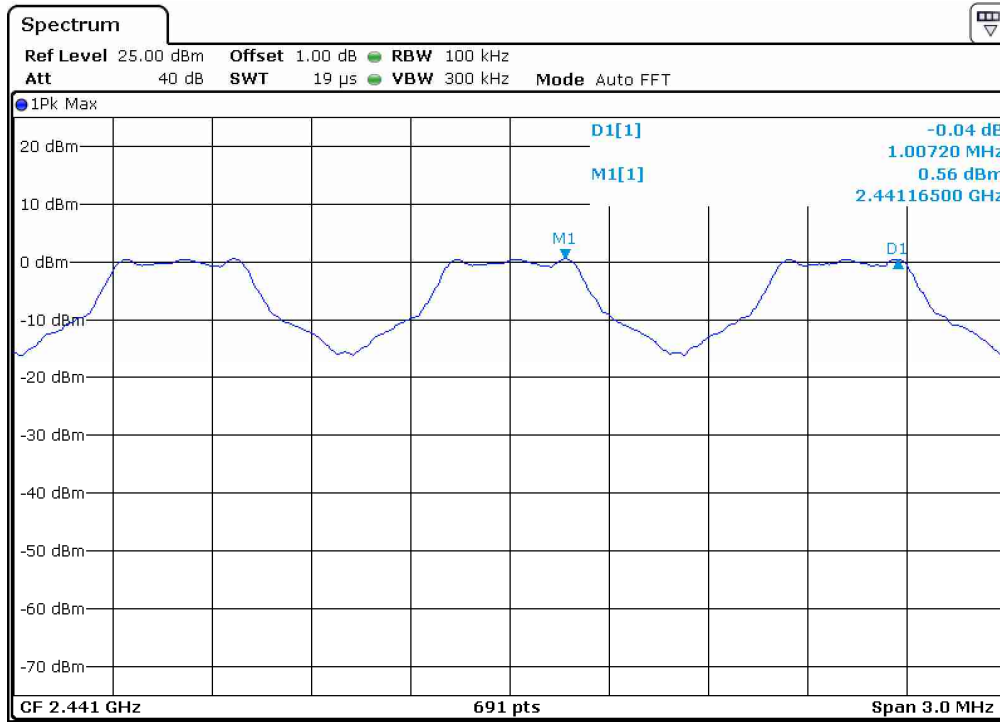
Channel Separation	Limit
1002.90 kHz	723.600 kHz

Limit: 2/3 of 20dB bandwidth of hopping channel

Minimum Hopping Channel Carrier Frequency Separation

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, FHSS, (2402-2480MHz)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



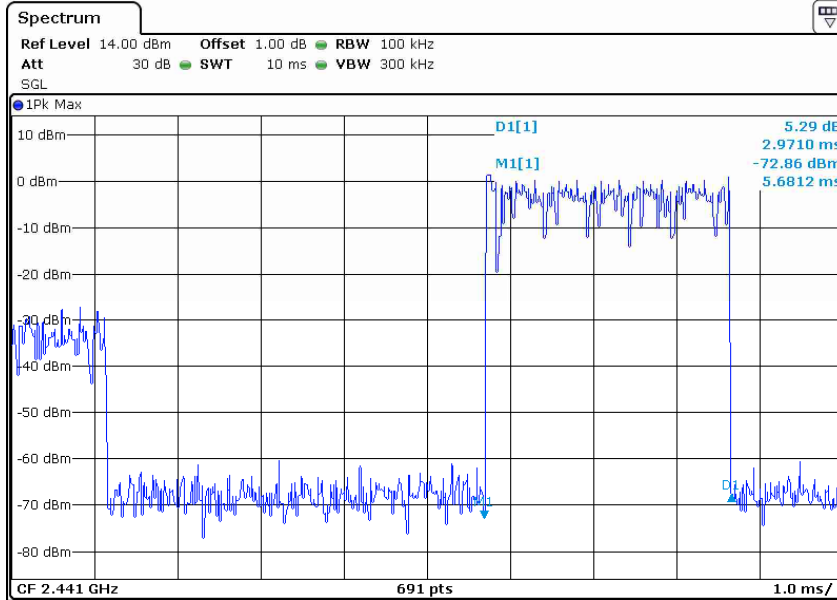
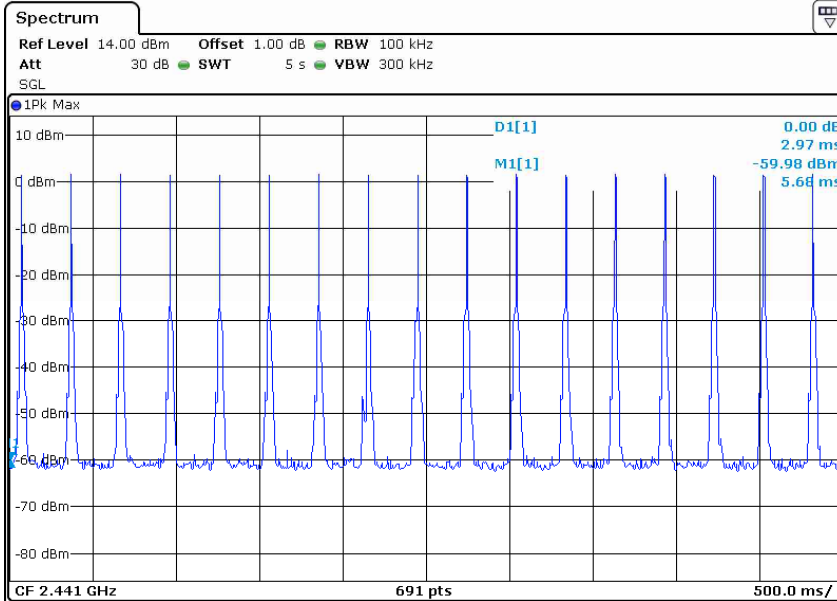
Chanel Separation	Limit
1007.200	833.600 kHz

Limit: 2/3 of 20dB bandwidth of hopping channel

7.8 Average Channel Occupancy Time

EUT: SHB4385
 Op Condition: Operated, TX Mode (2402MHz)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

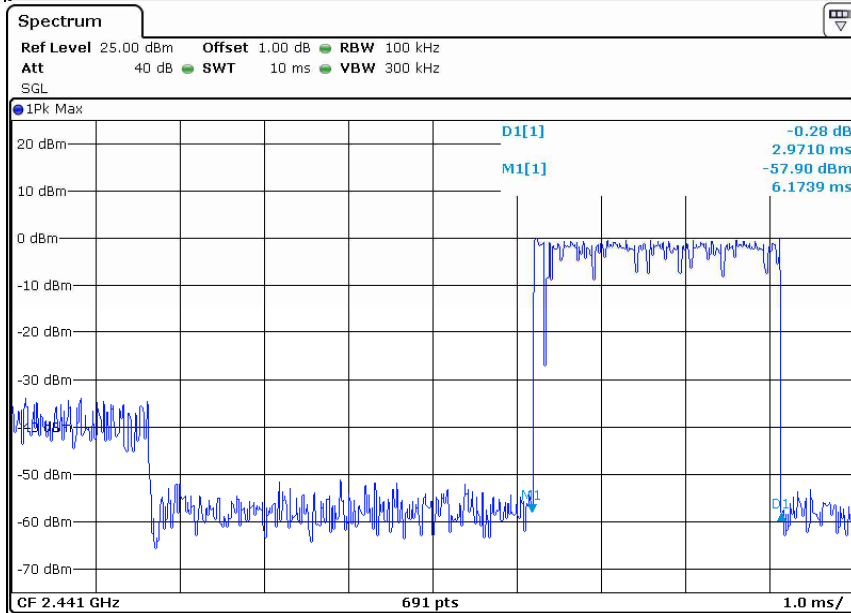
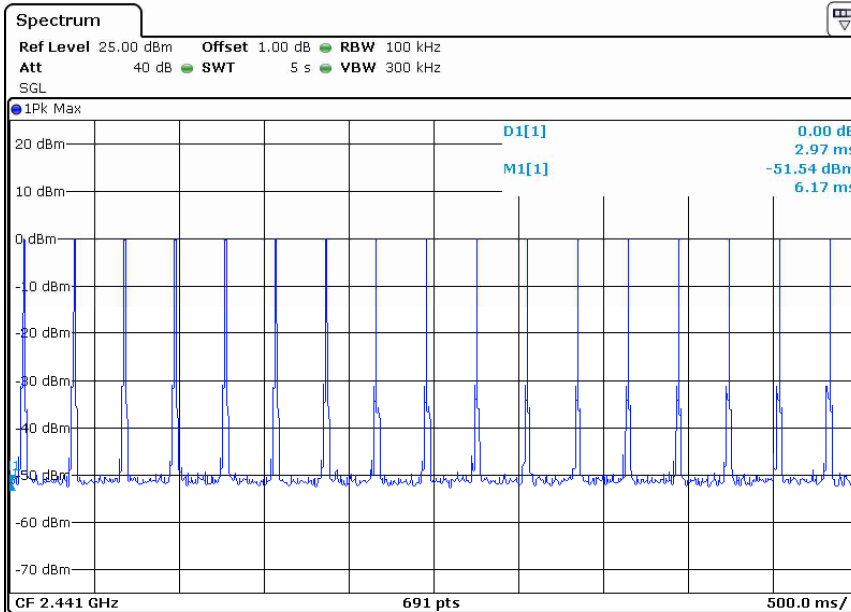


Average time of occupancy	Limit
Number of hops in 5 sec.: 17 Period: 0.4 x 79 Ch. = 31.6 sec. Total number of hops in 31.6 sec.: (17/5)*31.6=108 Time of single pulse: 2.971 ms Average time of occupancy: 2.971 ms x 108 = 0.3208 sec.	0.4 Seconds

Average Channel Occupancy Time

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode (2441MHz)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

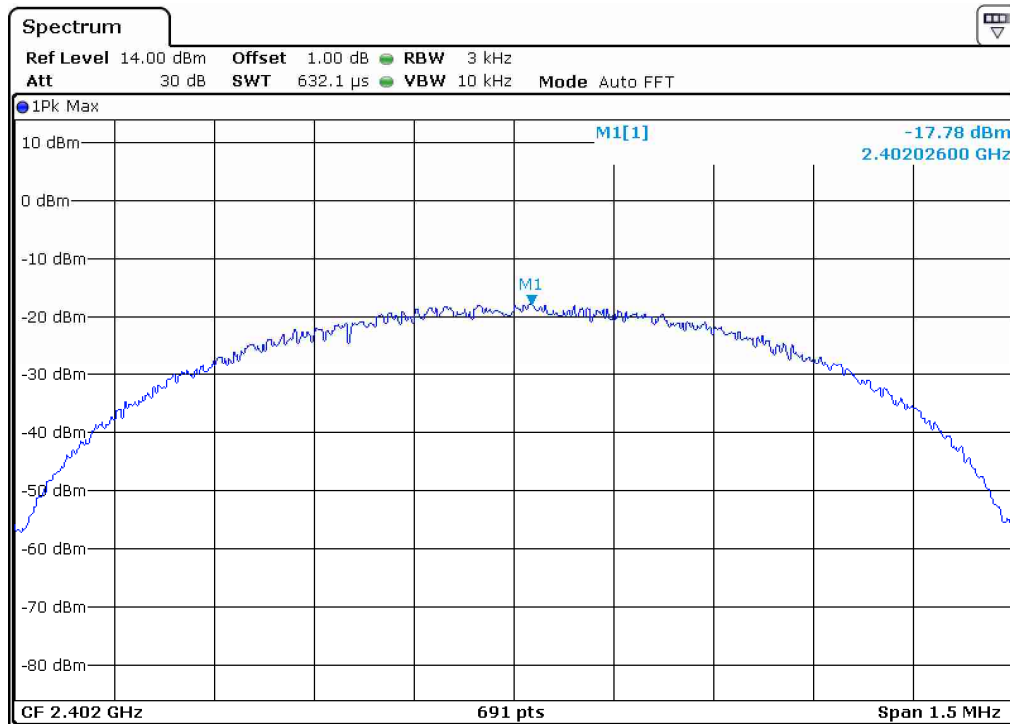


Average time of occupancy	Limit
Number of hops in 5 sec.: 17 Period: 0.4 x 79 Ch. = 31.6 sec. Total number of hops in 31.6 sec.: (17/5)*31.6=108 Time of single pulse: 2.971 ms Average time of occupancy: 2.971 ms x 108 = 0.3208 sec.	0.4 Seconds

7.9 Power Spectral Density

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE, (2402MHz)
 Test Specification: FCC15.247(e)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

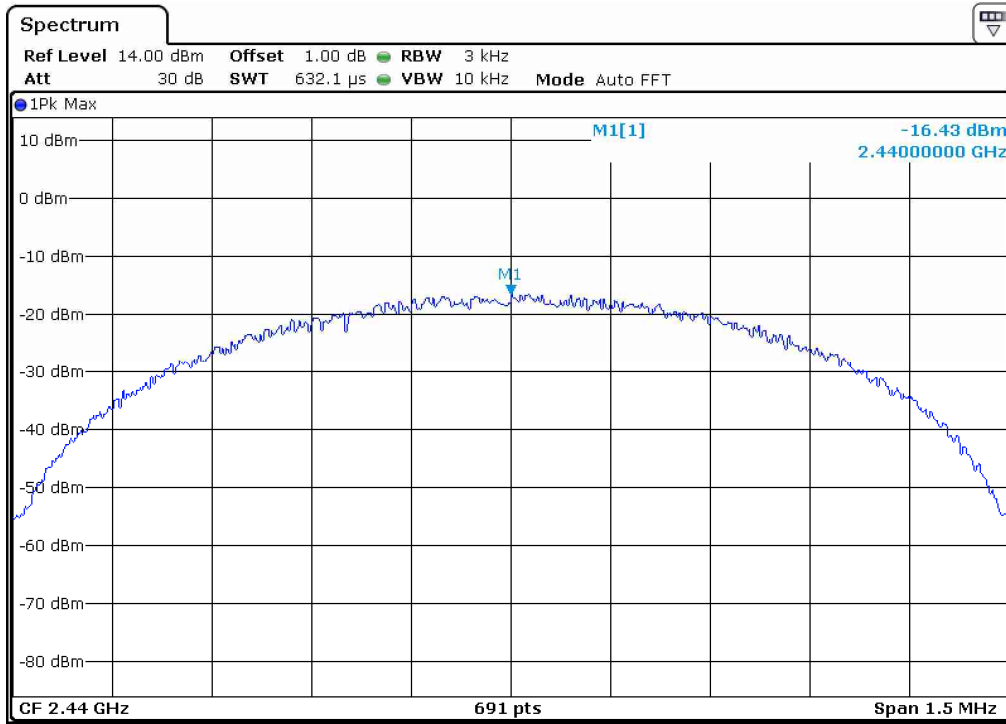


PSD	Limit
-17.78 dBm	< 8 dBm

Power Spectral Density

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE, (2440MHz)
 Test Specification: FCC15.247(e)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

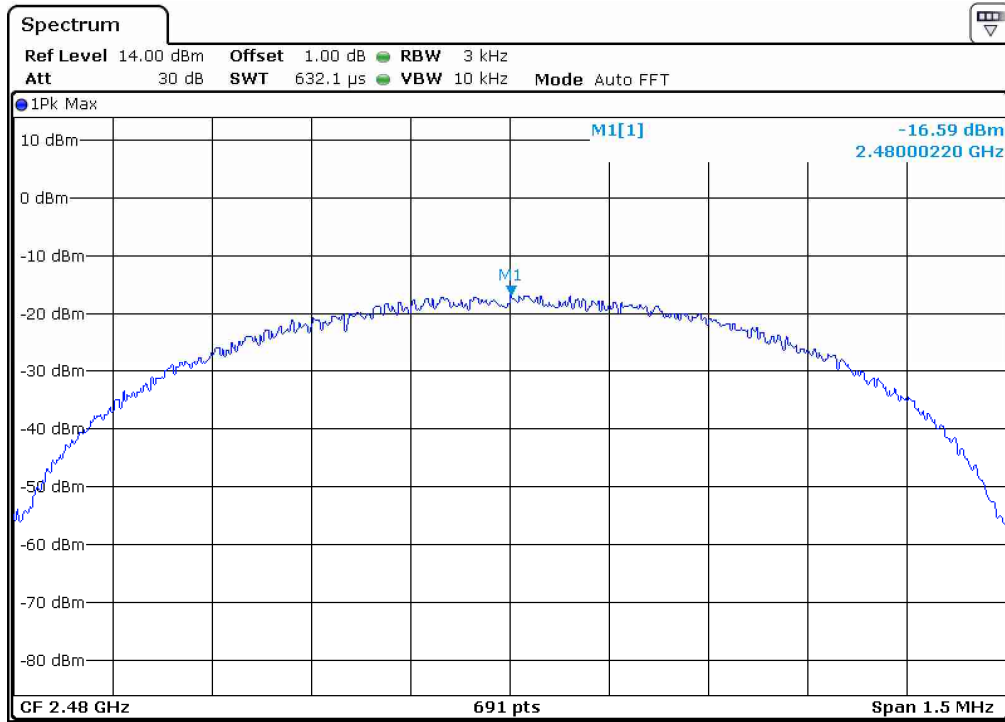


PSD	Limit
-16.43 dBm	< 8 dBm

Power Special Density

EUT: SHB4385 (Left)
 Op Condition: Operated, TX Mode, BLE , (2480MHz)
 Test Specification: FCC15.247(e)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

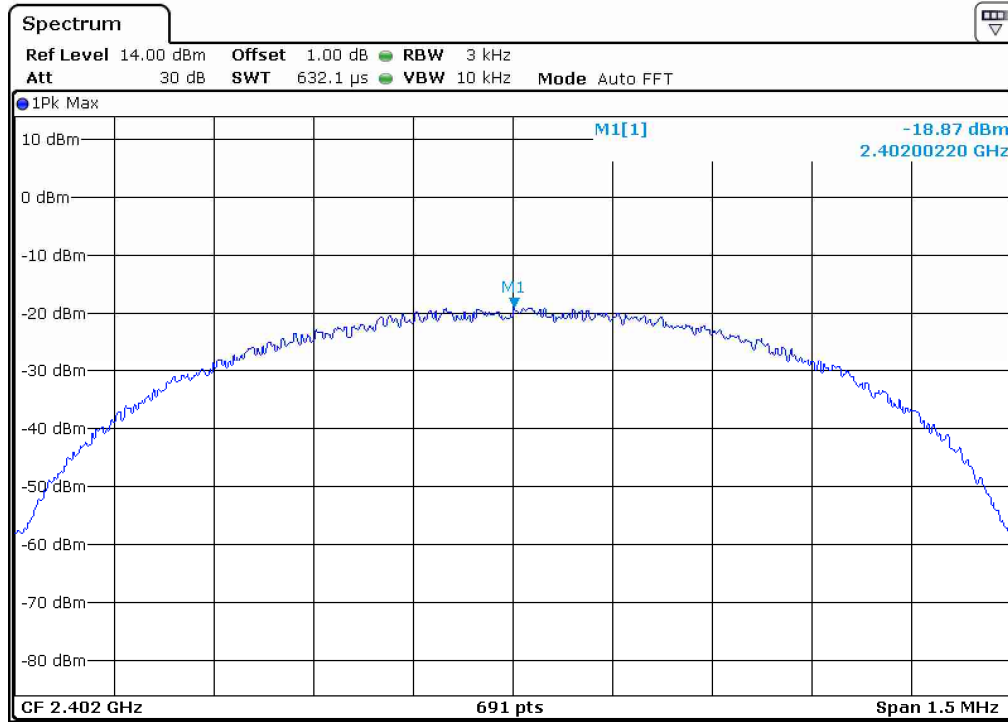


PSD	Limit
-16.59 dBm	< 8 dBm

Power Special Density

EUT: SHB4385 (Right)
Op Condition: Operated, TX Mode, BLE , (2402MHz)
Test Specification: FCC15.247(e)
Comment: 3.7VDC

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

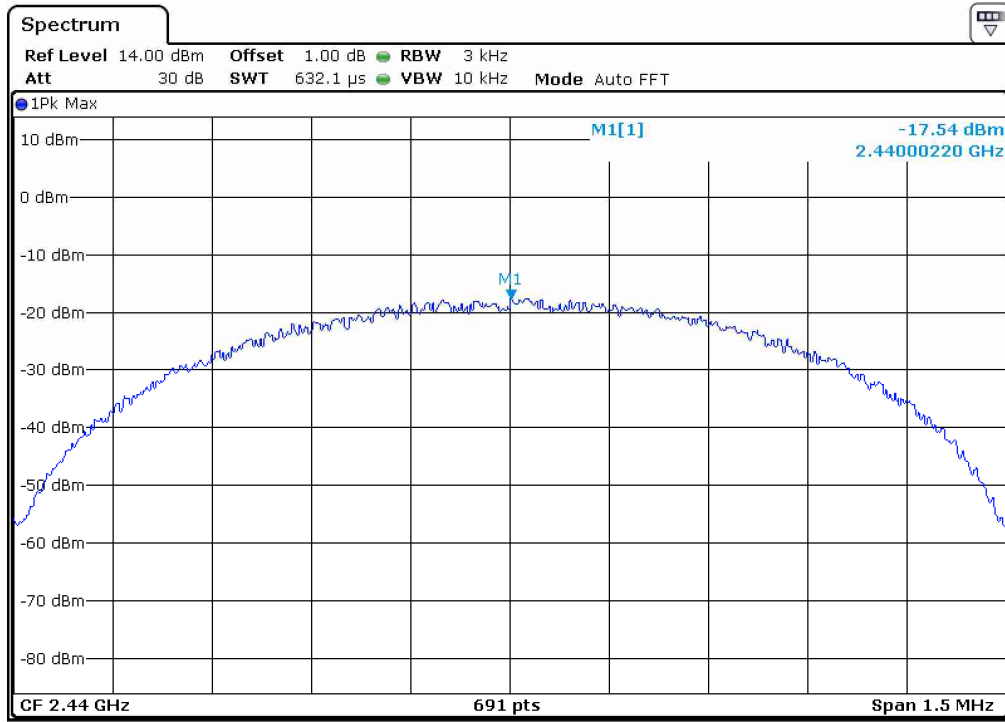


PSD	Limit
-18.87 dBm	< 8 dBm

Power Special Density

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE , (2440MHz)
 Test Specification: FCC15.247(e)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

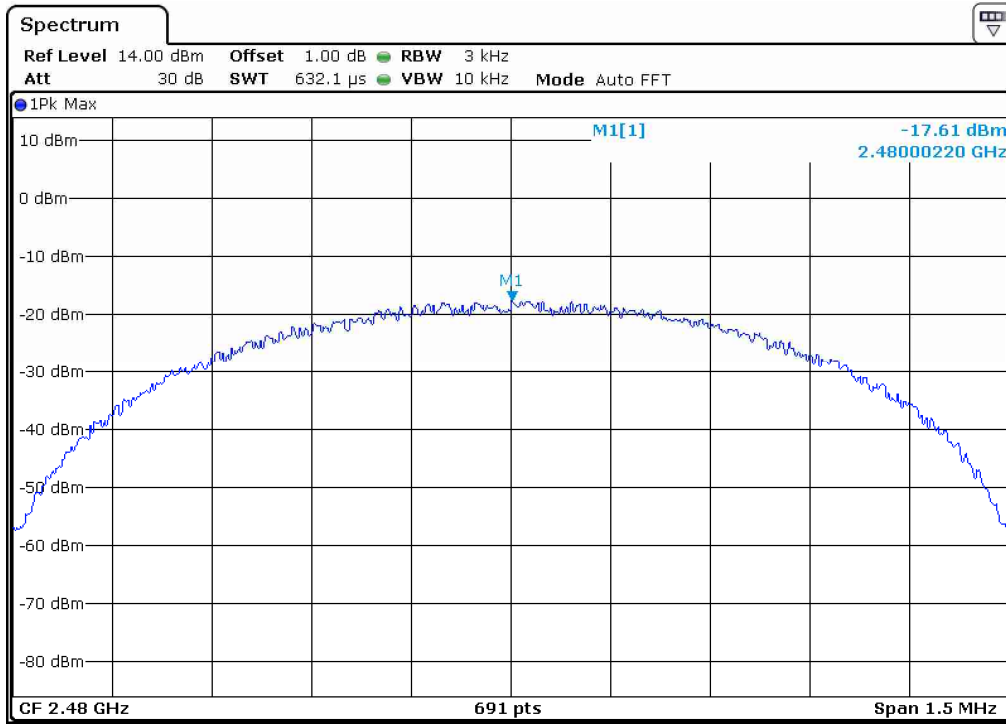


PSD	Limit
-17.54 dBm	< 8 dBm

Power Special Density

EUT: SHB4385 (Right)
 Op Condition: Operated, TX Mode, BLE , (2480MHz)
 Test Specification: FCC15.247(e)
 Comment: 3.7VDC

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed



PSD	Limit
-17.61 dBm	< 8 dBm

7.9 Antenna Requirement

EUT: SHB4385
Op Condition: Operated, TX Mode
Test Specification: FCC15.203 & 15.247(b)
Comment: 3.7VDC

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Limit

For intentional device, according to FCC Title 47 Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC Title 47 Part 15.247(b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The antenna used in this product is PCB antenna, and the maximum gain of this antenna is 0.0 dBi.

8 Appendix A - Photographs of EUT



Appendix A



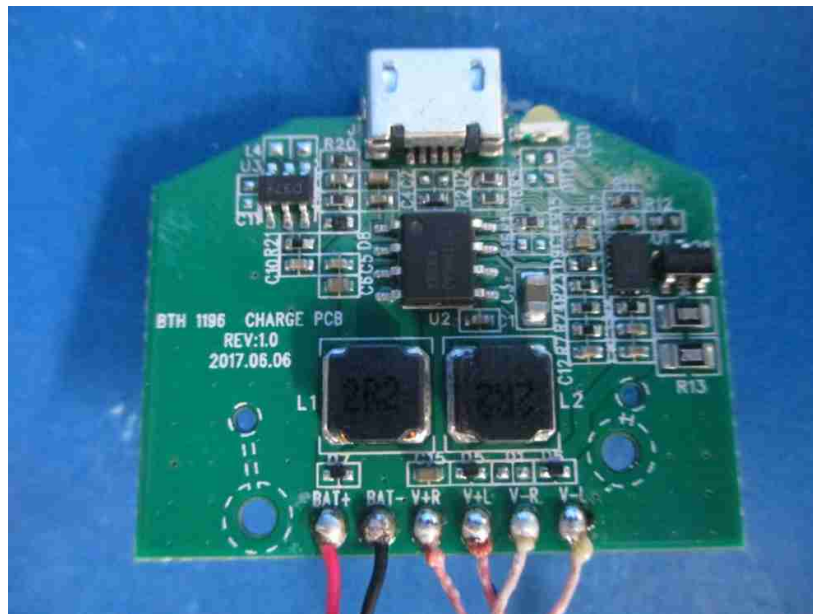
Appendix A



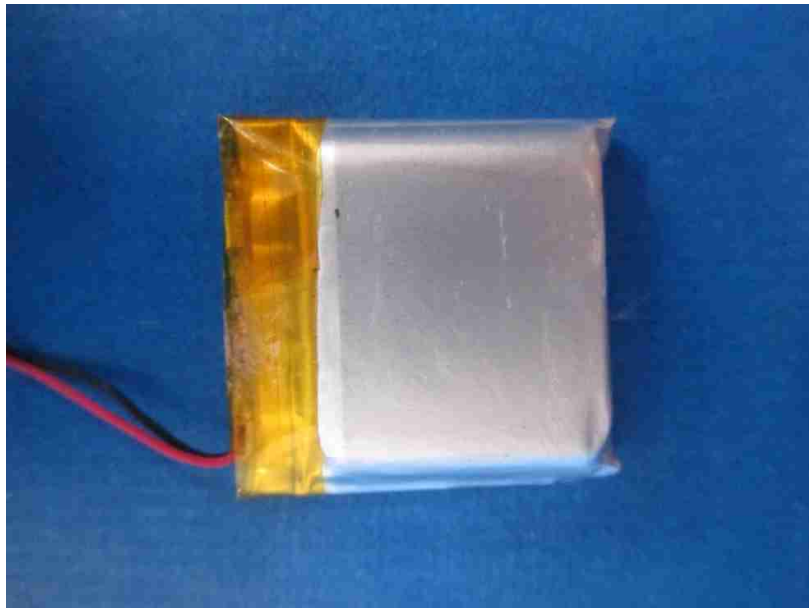
Appendix A



Appendix A



Appendix A



Appendix A



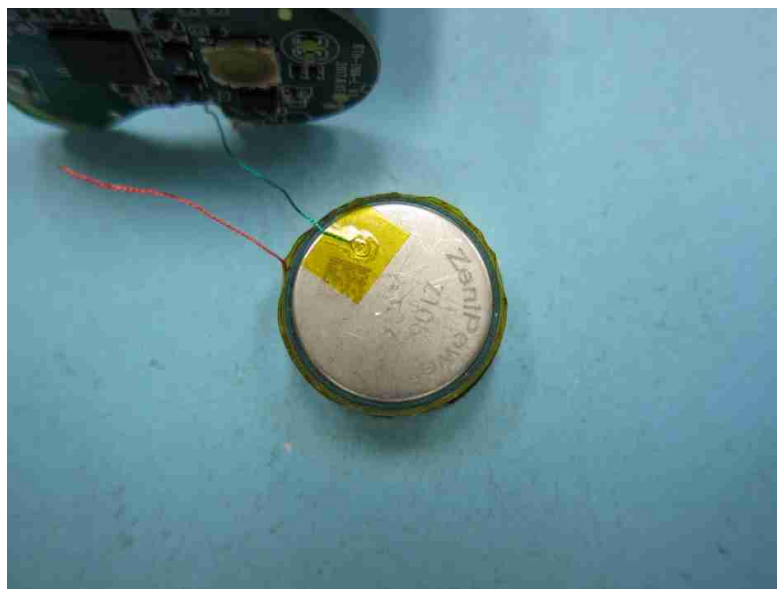
Appendix A



Appendix A

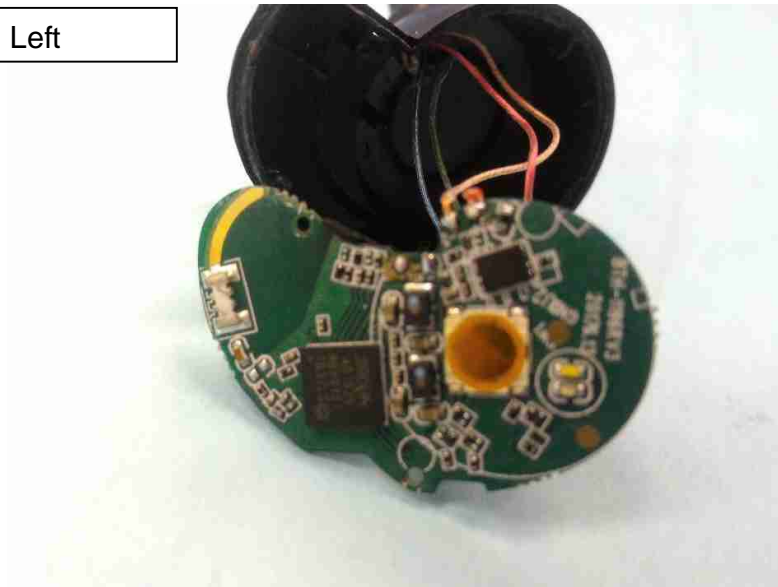


Appendix A

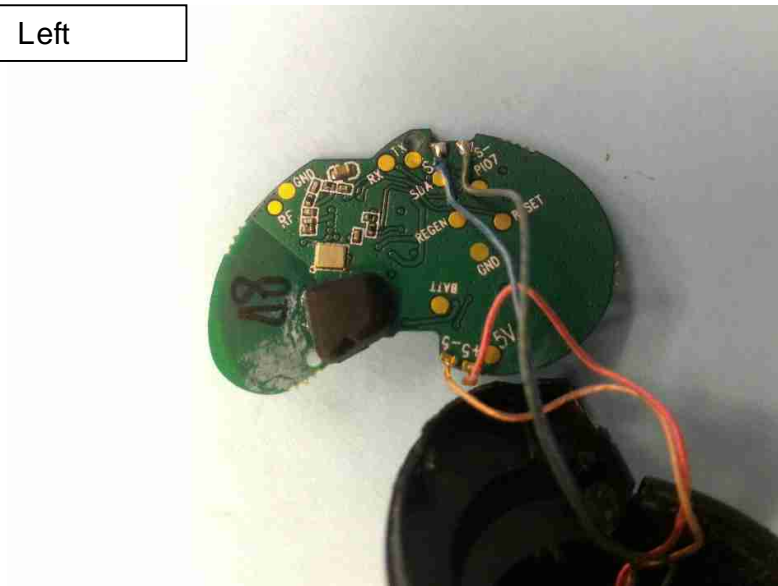


Appendix A

Left

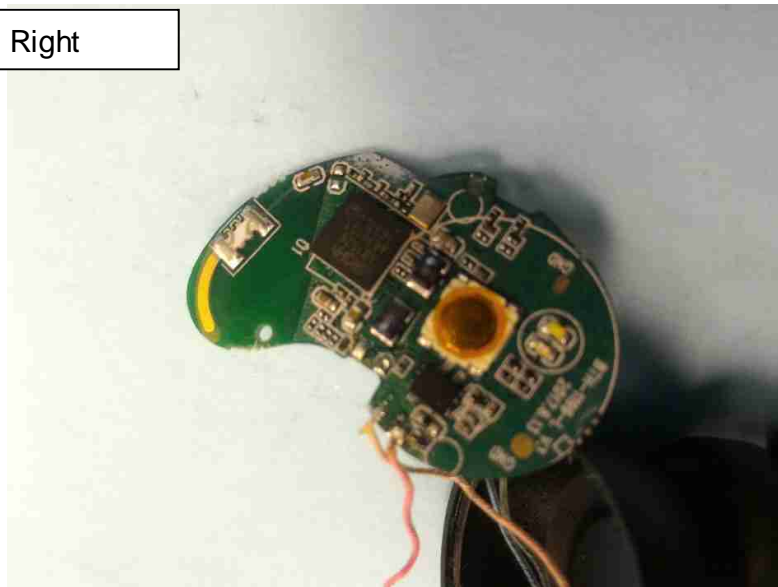


Left

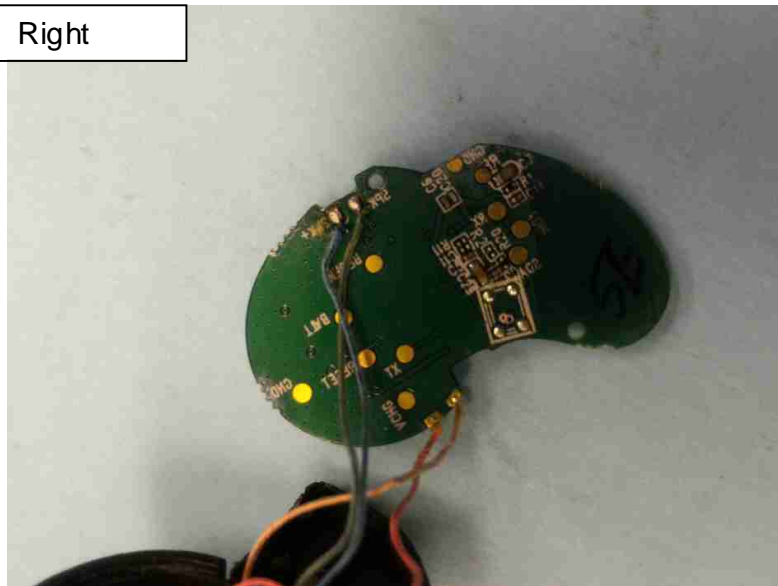


Appendix A

Right



Right



9 Appendix B - Setup Photographs of EUT

Spurious Radiated Emission

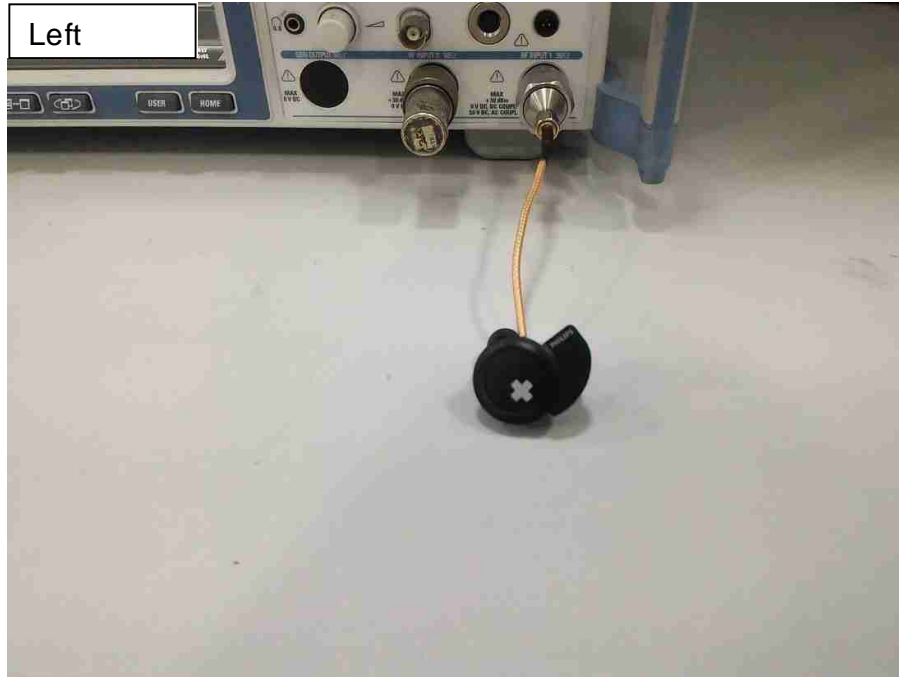


Appendix B



Appendix B

**20dB & 99% Bandwidth, Peak Output Power,
Spurious Emissions at Antenna Terminals,
100kHz Bandwidth of band edges, Min. No. of Hopping Frequencies,
Min. Hopping Channel Carrier Frequency Separation, Average Time of Occupancy**



10 Appendix C - General Product Information

Radiofrequency radiation exposure evaluation

According to KDB 447498 D01v06 section 4.3.1, For frequencies between 100 MHz to 6GHz and test separation distances ≤ 50 mm, the Numeric threshold is determined as

Step a)

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR

>> The fundamental frequency of the EUT is 2402-2480MHz
 the test separation distance is ≤ 50 mm.
 (Manufacturer specified the separation distance is: 5mm)

Step a)

>> Numeric threshold (2402MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.402\text{GHz}} \leq 3.0$
 Numeric threshold (2402MHz) $\leq 9.678\text{mW}$

>> Numeric threshold (2440MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.441\text{GHz}} \leq 3.0$
 Numeric threshold (2440MHz) $\leq 9.601\text{mW}$

>> Numeric threshold (2480MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.480\text{GHz}} \leq 3.0$
 Numeric threshold (2480MHz) $\leq 9.525\text{mW}$

Left, FHSS:

>> The power of EUT measured (2402MHz) is: 2.85dBm = 1.927mW
 The power of EUT measured (2441MHz) is: 3.95dBm = 2.483mW
 The power of EUT measured (2480MHz) is: 4.17dBm = 2.612mW

Left, BLE:

>> The power of EUT measured (2402MHz) is: -0.29dBm = 0.935mW
 The power of EUT measured (2440MHz) is: 0.95dBm = 1.244mW
 The power of EUT measured (2480MHz) is: 0.70dBm = 1.174mW

Right, FHSS:

>> The power of EUT measured (2402MHz) is: 2.12dBm = 1.629mW
 The power of EUT measured (2441MHz) is: 3.60dBm = 2.291mW
 The power of EUT measured (2480MHz) is: 3.65dBm = 2.371mW

Right, BLE:

>> The power of EUT measured (2402MHz) is: -1.46dBm = 0.714mW
 The power of EUT measured (2440MHz) is: -0.02dBm = 0.995mW
 The power of EUT measured (2480MHz) is: -0.11dBm = 0.975mW

Which is smaller than the Numeric threshold.

Therefore, the device is exempt from stand-alone SAR test requirements.