

## FCC - TEST REPORT

Report Number : **60.792.18.004.01R01** Date of Issue : May 17, 2018

Model : HG04125A-US / HG04125B-US

Product Type : On ear bluetooth headphones

Applicant : Lidl US LLC.

Address : 3500 South Clark Street, Arlington, VA 22202

Production Facility : Huizhou New Leader Industry CO., Ltd

Address : Baiyunshan road, Chenjiang town, Huizhou city, Guangdong Province, China.

Test Result :  Positive  Negative

Total pages including Appendices : 41

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# 1 Table of Contents

1 Table of Contents.....	2
2 Description of Equipment Under Test .....	3
3 Summary of Test Standards .....	4
4 Details about the Test Laboratory .....	5
4.1 Test Equipment Site List .....	6
4.2 Measurement System Uncertainty .....	7
5 Summary of Test Results.....	8
6 General Remarks .....	9
7 Emission Test Results .....	10
7.1 Conducted Emission .....	10
7.2 Spurious Radiated Emission .....	12
7.3 20dB & 99% Bandwidth .....	18
7.4 Peak Output Power.....	27
7.5 Spurious Emissions at Antenna Terminals.....	30
7.6 100kHz Bandwidth of band edges.....	33
7.7 Minimum. Number of Hopping Frequencies .....	37
7.8 Minimum Hopping Channel Carrier Frequency Separation .....	38
7.9 Average Channel Occupancy Time.....	39
7.10 Antenna Requirement .....	40
8 Appendix C - General Product Information .....	41

## 2 Description of Equipment Under Test

### Description of the Equipment Under Test

Product:	On ear bluetooth headphones
Model no.:	HG04125A-US / HG04125B-US
FCC ID:	2AJ9O-HG4125
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, $\pi/4$ DQPSK and 8DPSK



### 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
<b>FCC Part 15 Subpart C</b>	
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	Site 2
FCC Title 47 Part 15.207(a) AC Line Conducted Emission	Site 2
FCC Title 47 Part 15.247(a)(1) 20dB & 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 15.203 & 15.247(b) Antenna Requirement	Site 2

## 4.1 Test Equipment Site List

### Conducted Emission Test – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	14-Jul-18
LISN	Rohde & Schwarz	ENV4200	100249	14-Jul-18
LISN	Rohde & Schwarz	ENV432	101318	14-Jul-18
LISN	Rohde & Schwarz	ENV216	100326	14-Jul-18
ISN	Rohde & Schwarz	ENY81	100177	14-Jul-18
ISN	Rohde & Schwarz	ENY81-CA6	101664	14-Jul-18
High Voltage Probe	Rohde & Schwarz	TK9420(VT94 20)	9420-584	14-Jul-18
RF Current Probe	Rohde & Schwarz	EZ-17	100816	14-Jul-18
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	07-Jul-18
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398	2018-7-14
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A

### 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,

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		
		Pas s	Fail	N/A
FCC Title 47 Part 15.207(a) AC Line Conducted Emission	10-11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	12-17	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(2) 20dB & 99% Bandwidth	18-26	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(b) Peak Output Power	27-29	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	30-32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	33-36	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(1) Min. No. of Hopping Frequencies	37	<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	38	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	40	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 6 General Remarks

### Remarks

Client informs that the HG04125A-US, HG04125B-US have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with On ear bluetooth headphones , HG04125A-US The difference lies only on different color of the different models.

EMC Tests were performed on model: HG04125B-US

#### SUMMARY:

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

■ - Performed

□ - **Not** Performed

- The Equipment Under Test

■ - **Fulfills** the general approval requirements.

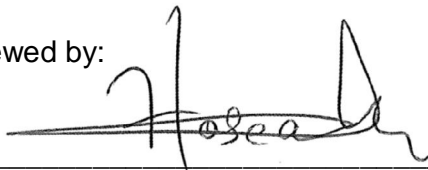
□ - **Does not** fulfill the general approval requirements.

Sample Received Date: April 13, 2018

Testing Start Date: April 16, 2018

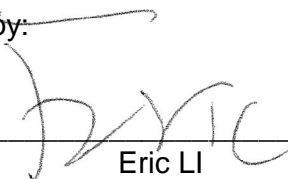
Testing End Date: April 25, 2018

Reviewed by:



Hosea CHAN  
EMC Project Engineer

Prepared by:



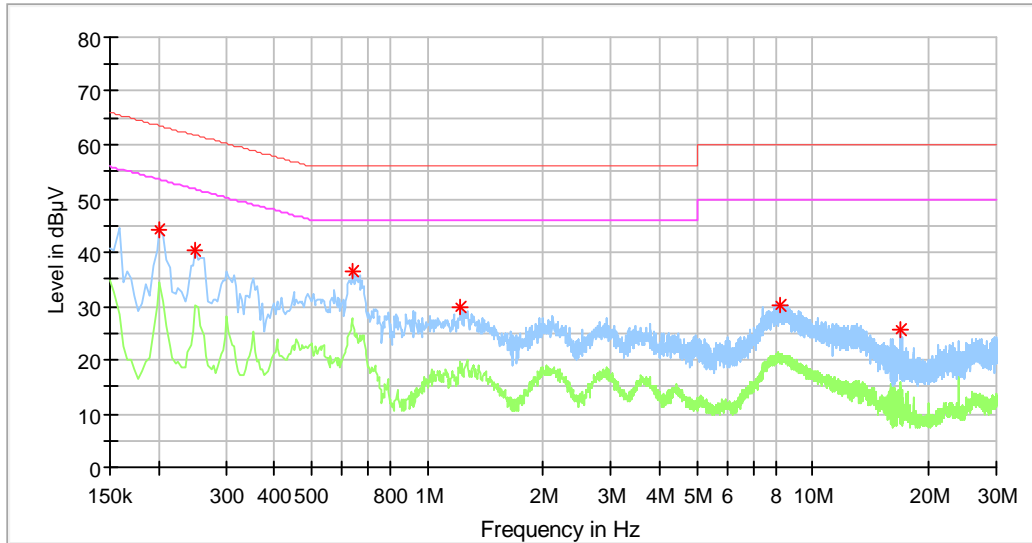
Eric LI  
EMC Senior Project Engineer

## 7 Emission Test Results

### 7.1 Conducted Emission

EUT: HG04125B-US  
 Op Condition: Operated, Charging Mode  
 Test Specification: FCC15.207, AC Mains, L Line  
 Comment: 120VAC, 60Hz

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



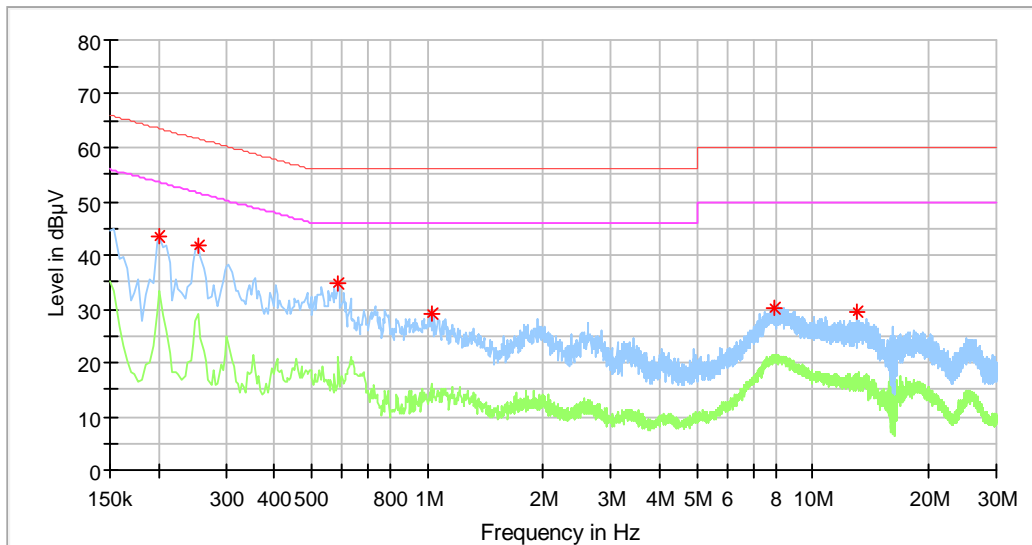
Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)
0.202000	44.10	---	63.53	19.43
0.250000	40.35	---	61.76	21.40
0.638000	36.48	---	56.00	19.52
1.218000	29.79	---	56.00	26.21
8.218000	30.25	---	60.00	29.75
16.902000	25.53	---	60.00	34.47

Remark: Bluetooth function is disabled when charging.

### Conducted Emission

EUT: HG04125B-US  
 Op Condition: Operated, Charging Mode  
 Test Specification: FCC15.207, AC Mains, L Line  
 Comment: 120VAC, 60Hz

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



Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)
0.202000	43.64	---	63.53	19.89
0.254000	41.66	---	61.63	19.97
0.586000	34.84	---	56.00	21.16
1.022000	29.11	---	56.00	26.89
7.990000	30.32	---	60.00	29.68
13.046000	29.64	---	60.00	30.36

Remark: Bluetooth function is disabled when charging.

## 7.2 Spurious Radiated Emission

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (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 dBµV/m	Limit dBµV/m	Margin dB	Detector
61.740	19.00	40.00	-21.00	Quasi Peak
94.936	12.14	43.50	-31.36	Quasi Peak
191.990	24.49	43.50	-19.01	Quasi Peak
364.003	27.66	46.00	-18.34	Quasi Peak
439.932	24.88	46.00	-21.12	Quasi Peak
704.473	18.98	46.00	-27.02	Quasi Peak
4803.750	38.29	74.00	-35.71	Peak
4803.750	19.18	54.00	-34.83	Average
7205.156	44.42	74.00	-29.58	Peak
7205.156	22.24	54.00	-31.76	Average
9609.843	45.85	74.00	-28.15	Peak
9609.843	22.96	54.00	-31.05	Average

**Spurious Radiated Emission**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (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 dBµV/m	Limit dBµV/m	Margin dB	Detector
47.406	17.87	40.00	-22.13	Quasi Peak
62.872	19.49	40.00	-20.51	Quasi Peak
266.410	15.57	46.00	-30.43	Quasi Peak
371.978	18.73	46.00	-27.27	Quasi Peak
599.928	18.30	46.00	-27.70	Quasi Peak
909.466	21.90	46.00	-24.10	Quasi Peak
4803.750	38.29	74.00	-35.71	Peak
4803.750	44.42	54.00	-29.58	Average
7205.625	41.14	74.00	-32.86	Peak
7205.625	20.60	54.00	-33.40	Average
8749.218	41.21	74.00	-32.79	Peak
8749.218	20.64	54.00	-33.37	Average
10113.750	42.02	74.00	-31.98	Peak
10113.750	21.04	54.00	-32.96	Average

**Spurious Radiated Emission**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (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 dBµV/m	Limit dBµV/m	Margin dB	Detector
47.406	17.61	40.00	-22.39	Quasi Peak
62.872	19.58	40.00	-20.42	Quasi Peak
266.410	15.18	46.00	-30.82	Quasi Peak
371.978	18.34	46.00	-27.66	Quasi Peak
599.928	18.82	46.00	-27.18	Quasi Peak
909.466	21.46	46.00	-24.54	Quasi Peak
4882.031	41.43	74.00	-32.57	Peak
4882.031	20.75	54.00	-33.26	Average
7322.343	50.59	74.00	-23.41	Peak
7322.343	25.33	54.00	-28.68	Average
9761.718	45.94	74.00	-28.06	Peak
9761.718	23.00	54.00	-31.00	Average

### Spurious Radiated Emission

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2441MHz)  
 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 $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Detector
47.406	16.42	40.00	-23.58	Quasi Peak
62.872	18.54	40.00	-21.46	Quasi Peak
266.410	13.21	46.00	-32.79	Quasi Peak
371.978	18.84	46.00	-27.16	Quasi Peak
599.928	18.28	46.00	-27.72	Quasi Peak
909.466	21.46	46.00	-24.54	Quasi Peak
4882.031	40.12	74.00	-33.88	Peak
4882.031	20.09	54.00	-33.91	Average
7323.281	44.90	74.00	-29.10	Peak
7323.281	22.48	54.00	-31.52	Average
9214.218	42.24	74.00	-31.76	Peak
9214.218	21.15	54.00	-32.85	Average

**Spurious Radiated Emission**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (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 dBµV/m	Limit dBµV/m	Margin dB	Detector
47.406	16.16	40.00	-23.84	Quasi Peak
62.872	18.85	40.00	-21.15	Quasi Peak
266.410	13.87	46.00	-32.13	Quasi Peak
371.978	18.26	46.00	-27.74	Quasi Peak
599.928	18.43	46.00	-27.57	Quasi Peak
909.466	20.56	46.00	-25.44	Quasi Peak
4959.843	40.06	74.00	-33.94	Peak
4959.843	20.06	54.00	-33.94	Average
7440.000	52.55	74.00	-21.45	Peak
7440.000	26.31	54.00	-27.70	Average
9917.812	45.33	74.00	-28.67	Peak
9917.812	22.70	54.00	-31.31	Average
12400.000	43.12	74.00	-30.88	Peak
12400.000	15.35	54.00	-38.65	Average



**Spurious Radiated Emission**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (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 dBµV/m	Limit dBµV/m	Margin dB	Detector
47.406	15.64	40.00	-24.36	Quasi Peak
62.872	18.31	40.00	-21.69	Quasi Peak
266.410	15.21	46.00	-30.79	Quasi Peak
371.978	18.54	46.00	-27.46	Quasi Peak
599.928	18.86	46.00	-27.14	Quasi Peak
909.466	20.15	46.00	-25.85	Quasi Peak
4959.843	39.22	74.00	-34.78	Peak
4959.843	19.64	54.00	-34.36	Average
7440.468	41.98	74.00	-32.02	Peak
7440.468	21.02	54.00	-32.98	Average
9223.593	41.31	74.00	-32.69	Peak
9223.593	20.69	54.00	-33.32	Average
12400.000	43.12	74.00	-30.88	Peak
12400.000	16.05	54.00	-37.95	Average

### 7.3 20dB & 99% Bandwidth

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz) 2DH5  
 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

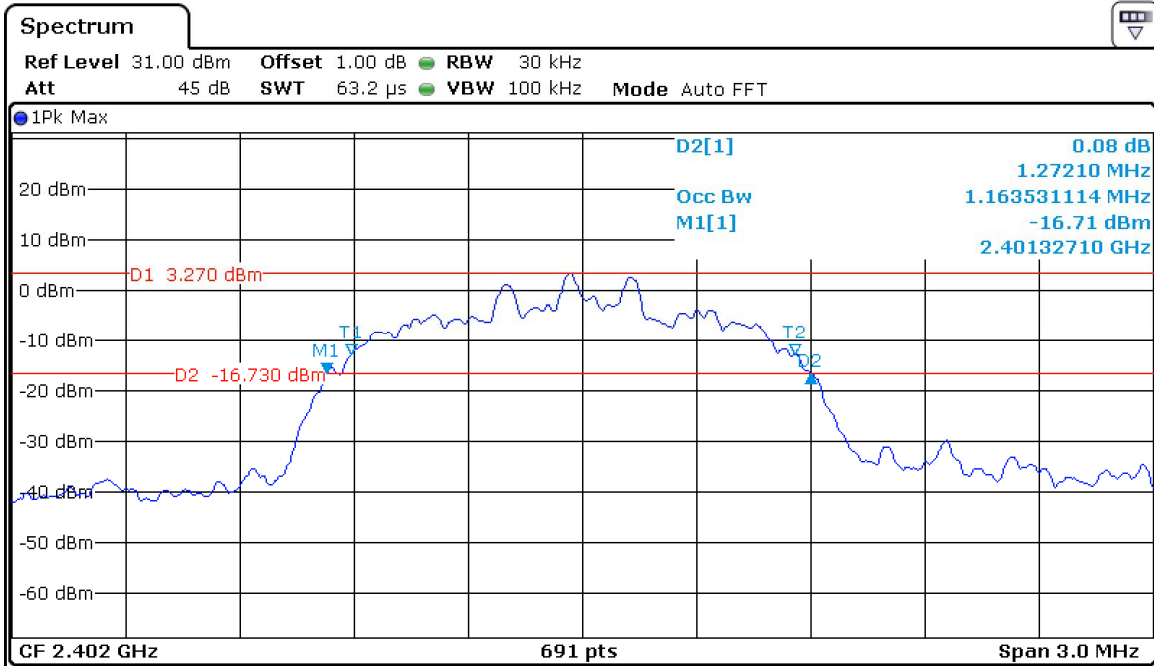


20dB bandwidth	99% bandwidth
1272.100 kHz	1808.973 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz) 3DH5  
 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

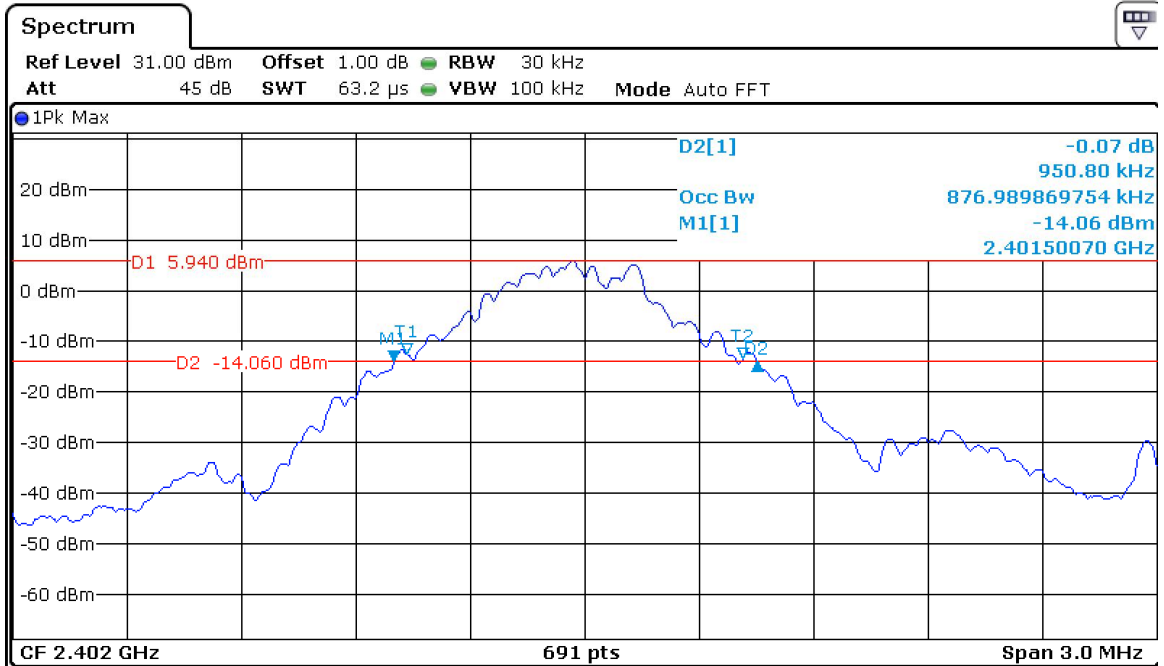


20dB bandwidth	99% bandwidth
1272.100 kHz	1163.500 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz) DH5  
 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

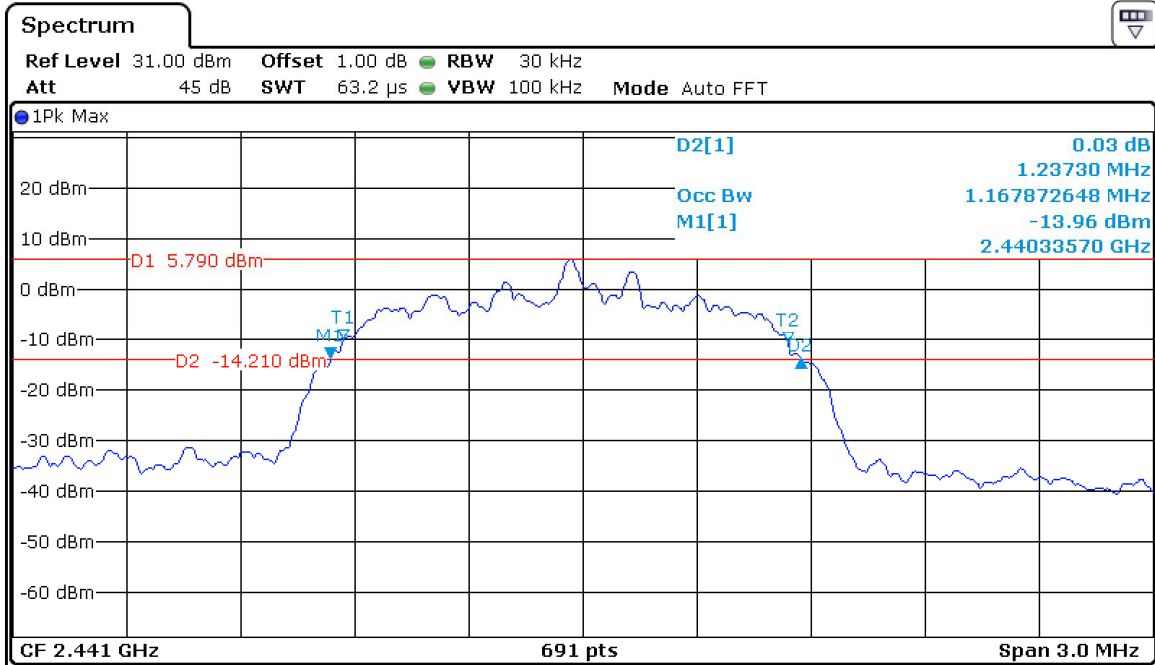


20dB bandwidth	99% bandwidth
950.800 kHz	876.980 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2441MHz) 2DH5  
 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

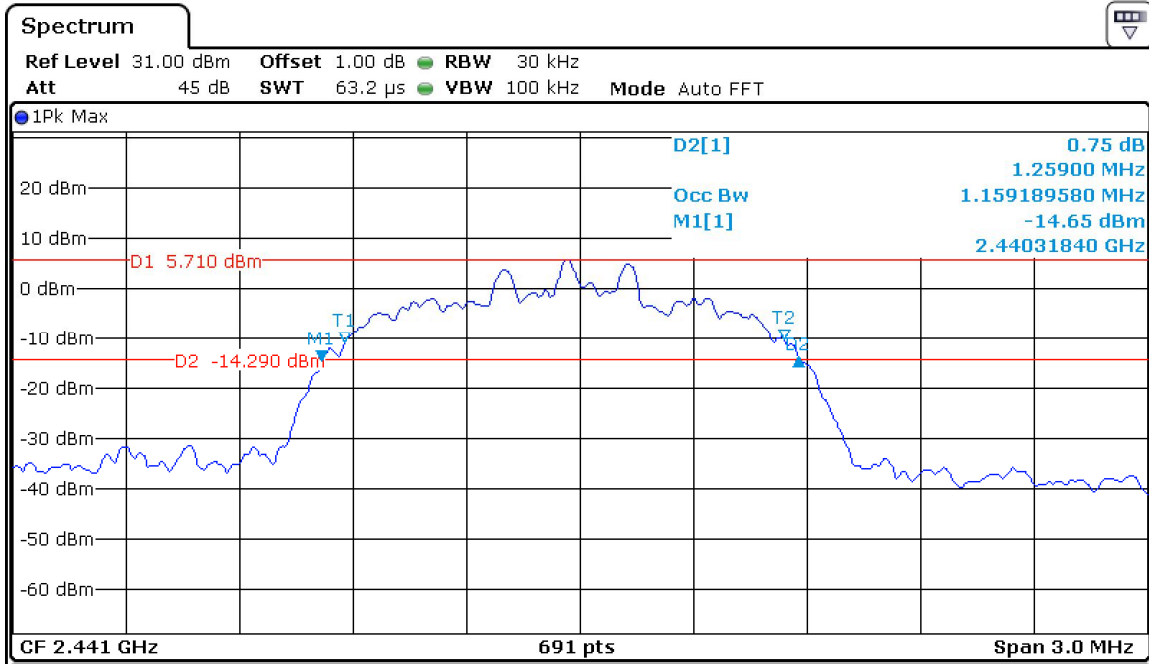


20dB bandwidth	99% bandwidth
1237.300 kHz	1167.873 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2441MHz) 3DH5  
 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

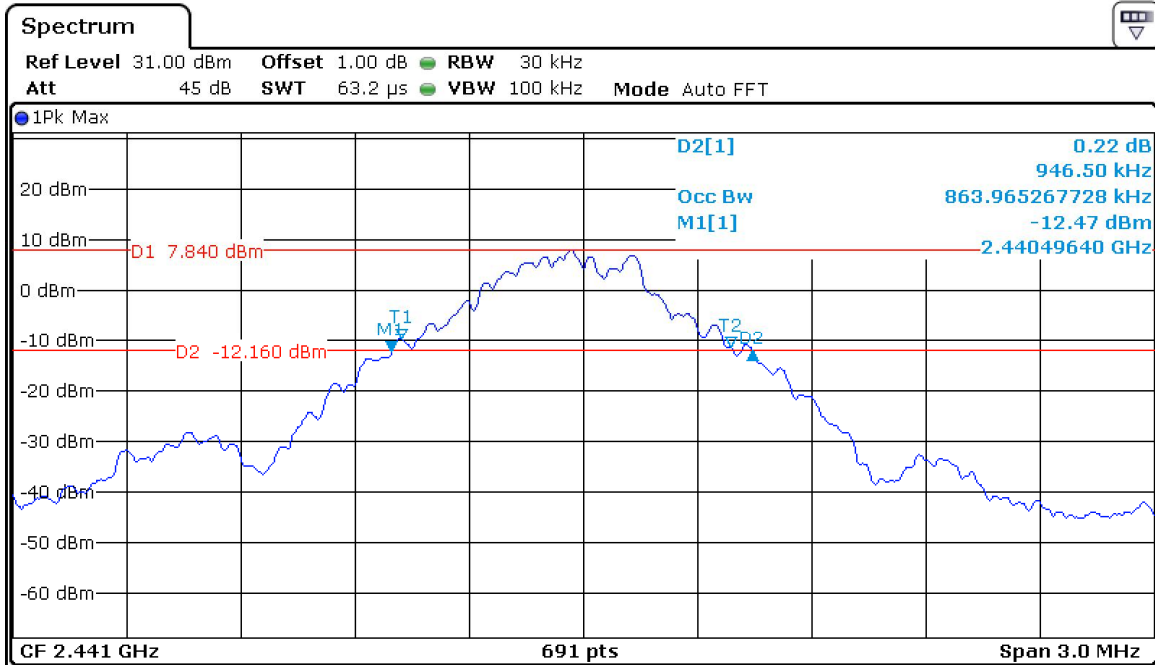


20dB bandwidth	99% bandwidth
1259.0000 kHz	1159.189 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2441MHz) DH5  
 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

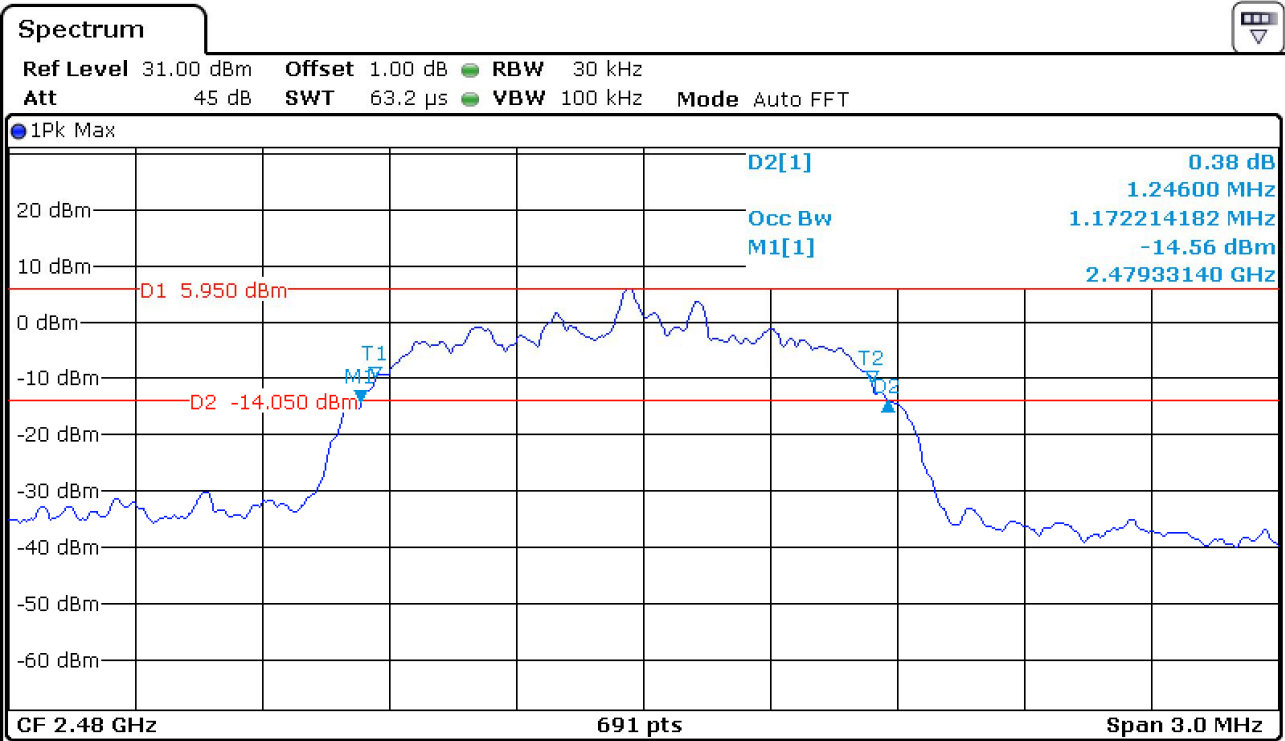


20dB bandwidth	99% bandwidth
946.500 kHz	863.965 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2480MHz) 2DH5  
 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



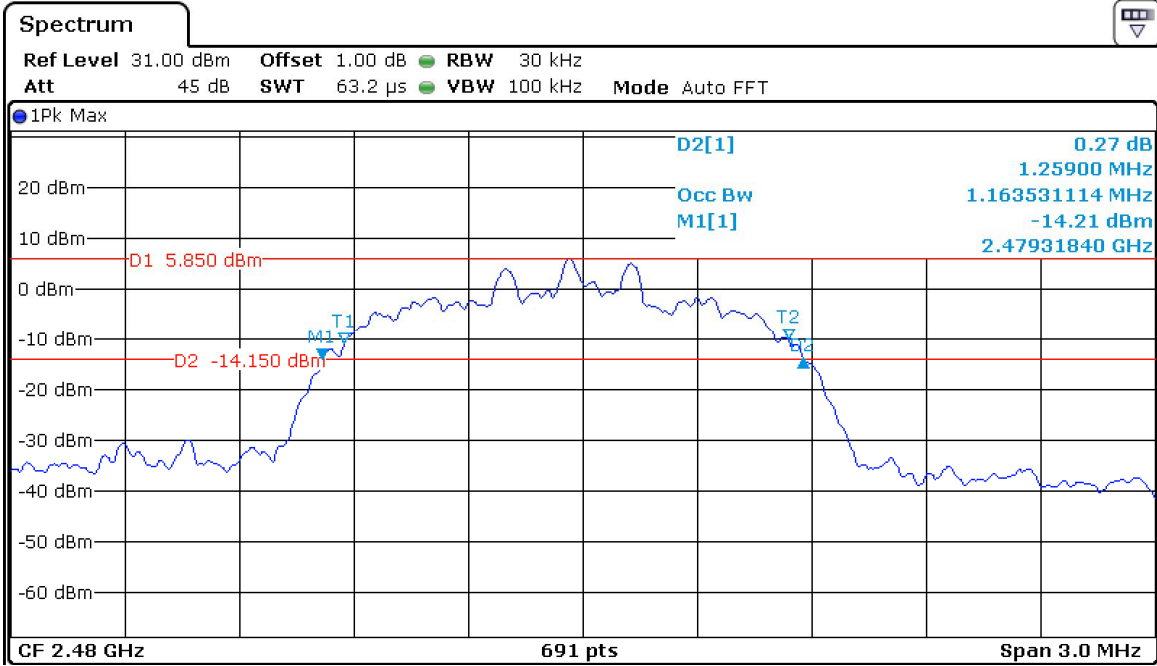
20dB bandwidth	99% bandwidth
1246.000 kHz	1172.214 kHz



**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2480MHz) 3DH5  
 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

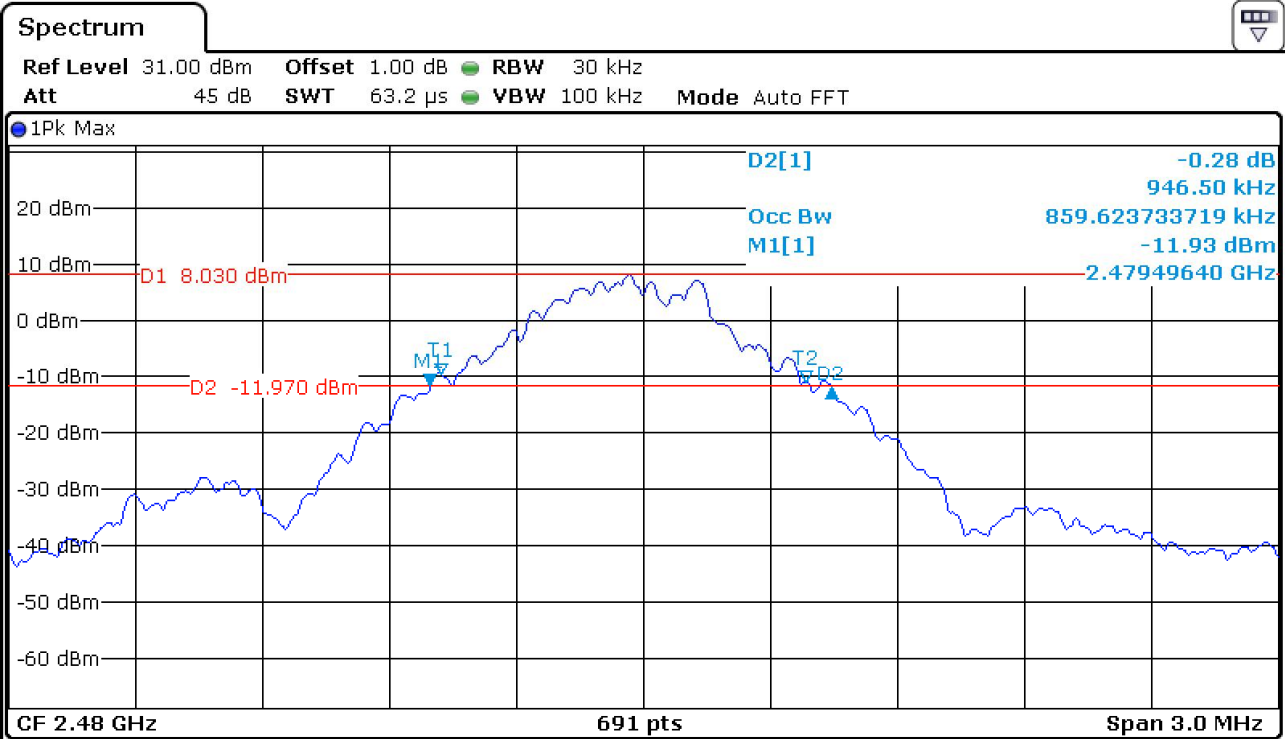


20dB bandwidth	99% bandwidth
1259.000 kHz	1163.531 kHz

**20dB & 99% Bandwidth**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2480MHz) DH5  
 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

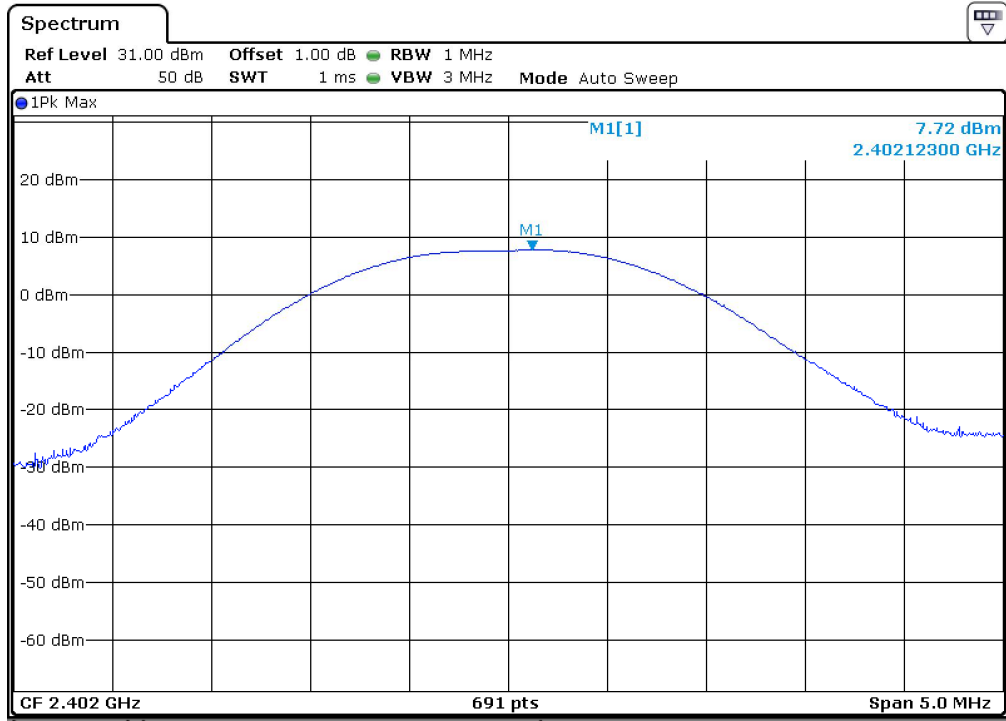


20dB bandwidth	99% bandwidth
946.500 kHz	859.623 kHz

### 7.4 Peak Output Power

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz)  
 (Worst case)  
 Test Specification: FCC15.247(b)  
 Comment: 3.7VDC

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

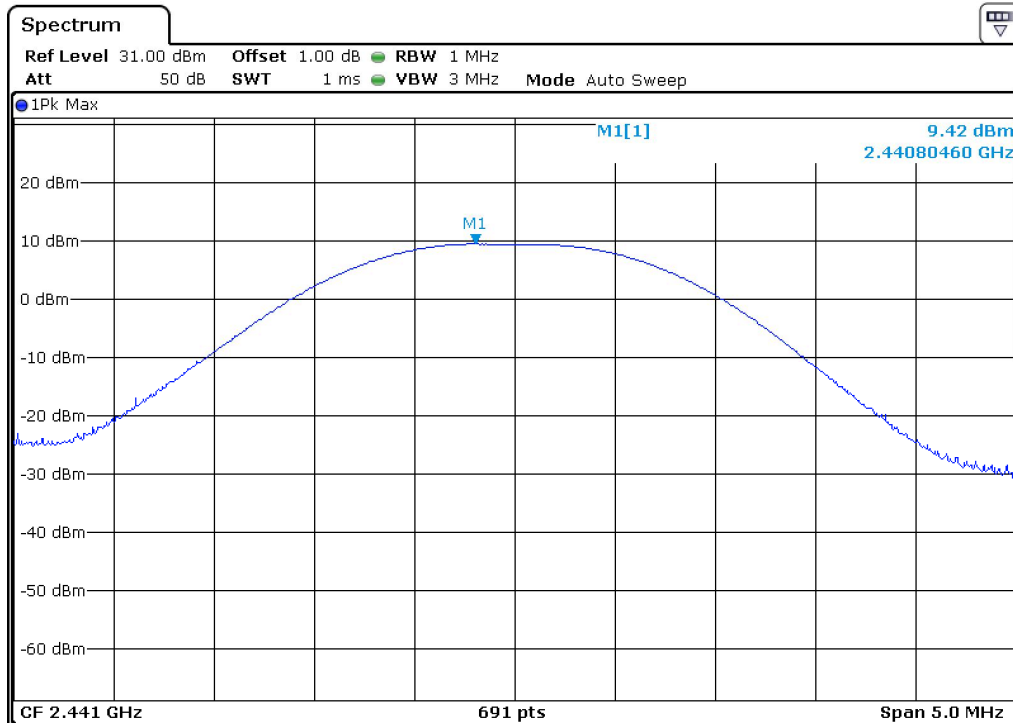


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
7.72	5.916	125.0

**Peak Output Power**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2441MHz)  
 (Worst case)  
 Test Specification: FCC15.247(b)  
 Comment: 3.7VDC

Test Result  
 Passed  
 Not Passed

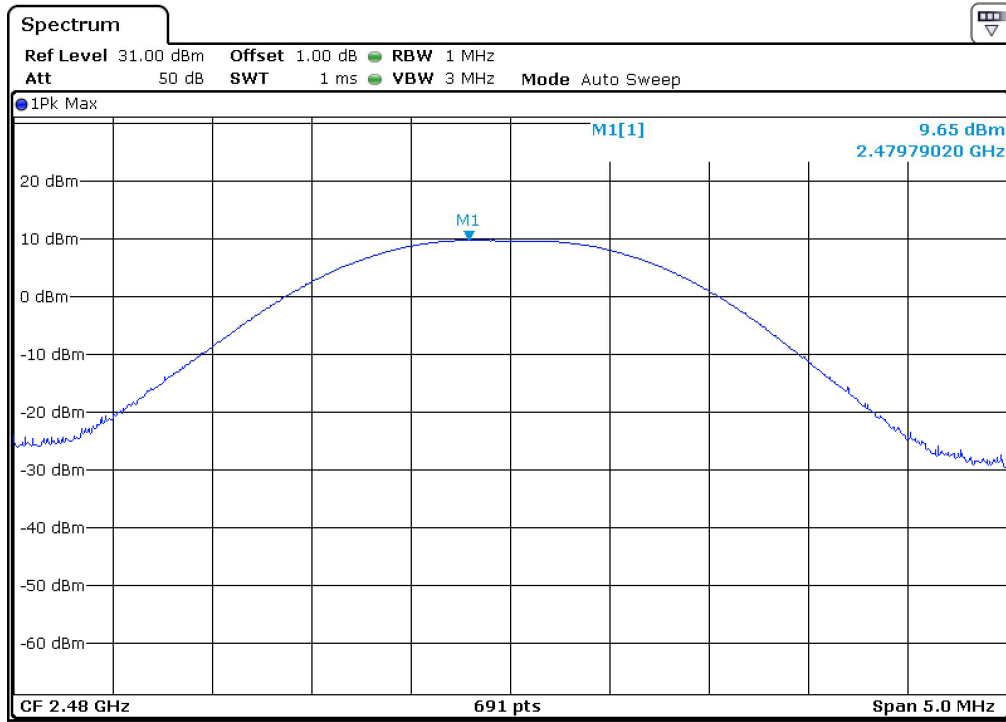


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
9.42	8.750	125.0

**Peak Output Power**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2480MHz)  
 (Worst case)  
 Test Specification: FCC15.247(b)  
 Comment: 3.7VDC

Test Result  
 Passed  
 Not Passed

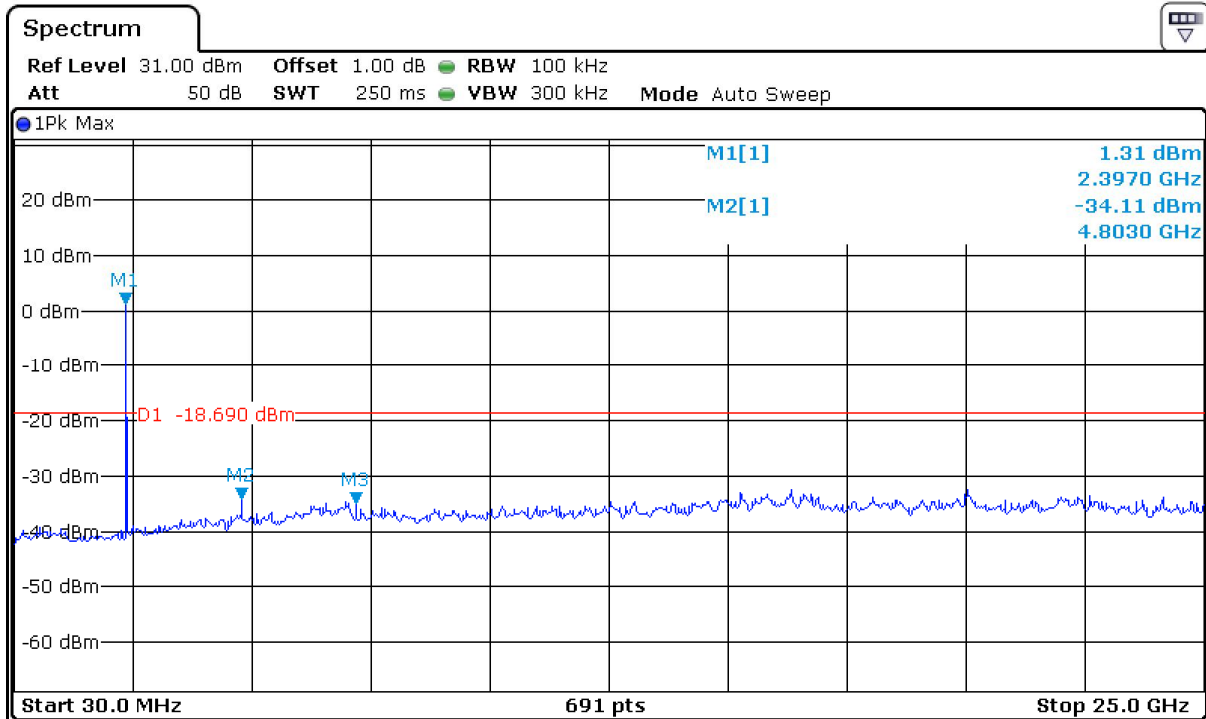


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
9.65	9.226	125.0

### 7.5 Spurious Emissions at Antenna Terminals

EUT: HG04125B-US  
Op Condition: Operated, TX Mode (2402MHz) 2DH5 (Worst case)  
Test Specification: FCC2.1051 & 15.247(d)  
Comment: 3.7VDC

Test Result  
 Passed  
 Not Passed

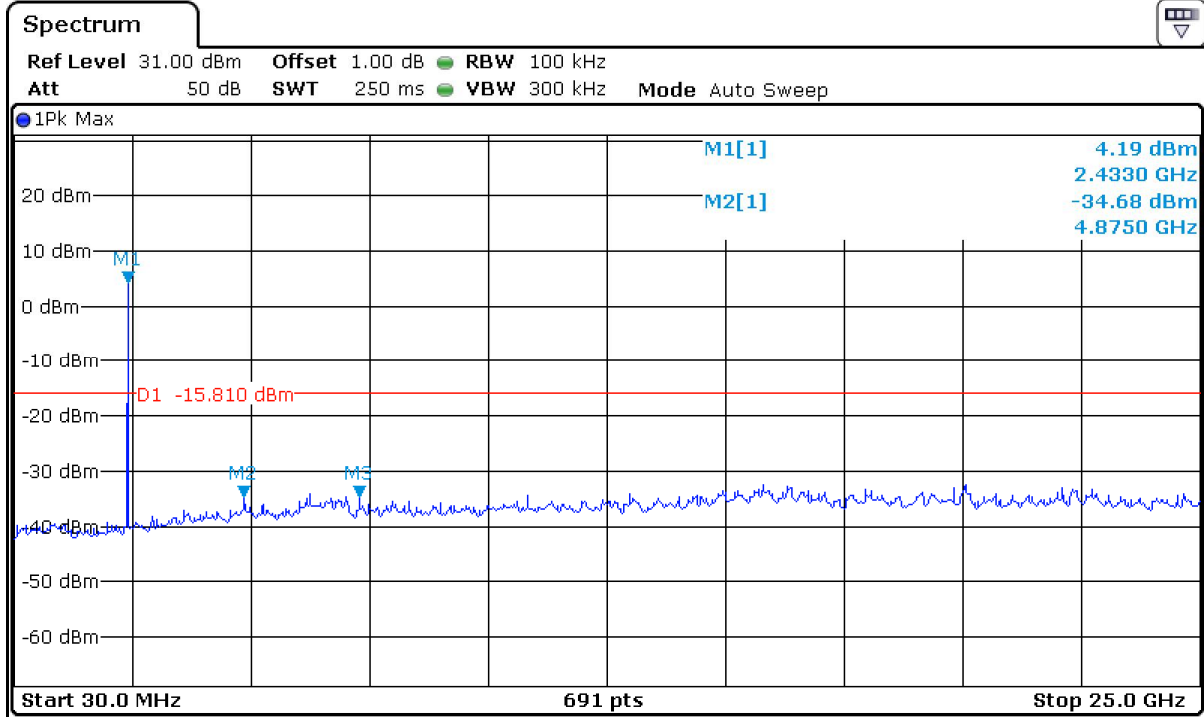


Limit: 20dB below the highest level of the desired power in the passband

### Spurious Emissions at Antenna Terminals

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2441MHz) 2DH5 (Worst case)  
 Test Specification: FCC2.1051 & 15.247(d)  
 Comment: 3.7VDC

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

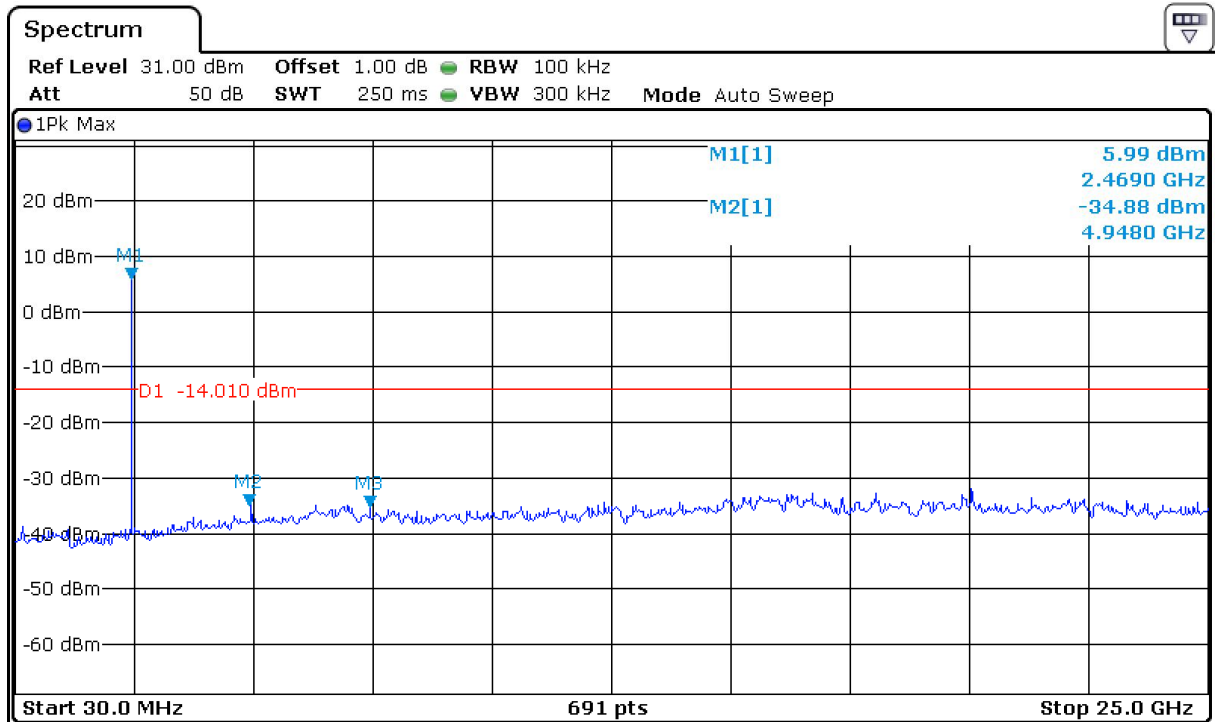


Limit: 20dB below the highest level of the desired power in the passband

### Spurious Emissions at Antenna Terminals

EUT: HG04125B-US  
Op Condition: Operated, TX Mode (2480MHz) 2DH5 (Worst case)  
Test Specification: FCC2.1051 & 15.247(d)  
Comment: 3.7VDC

Test Result  
 Passed  
 Not Passed



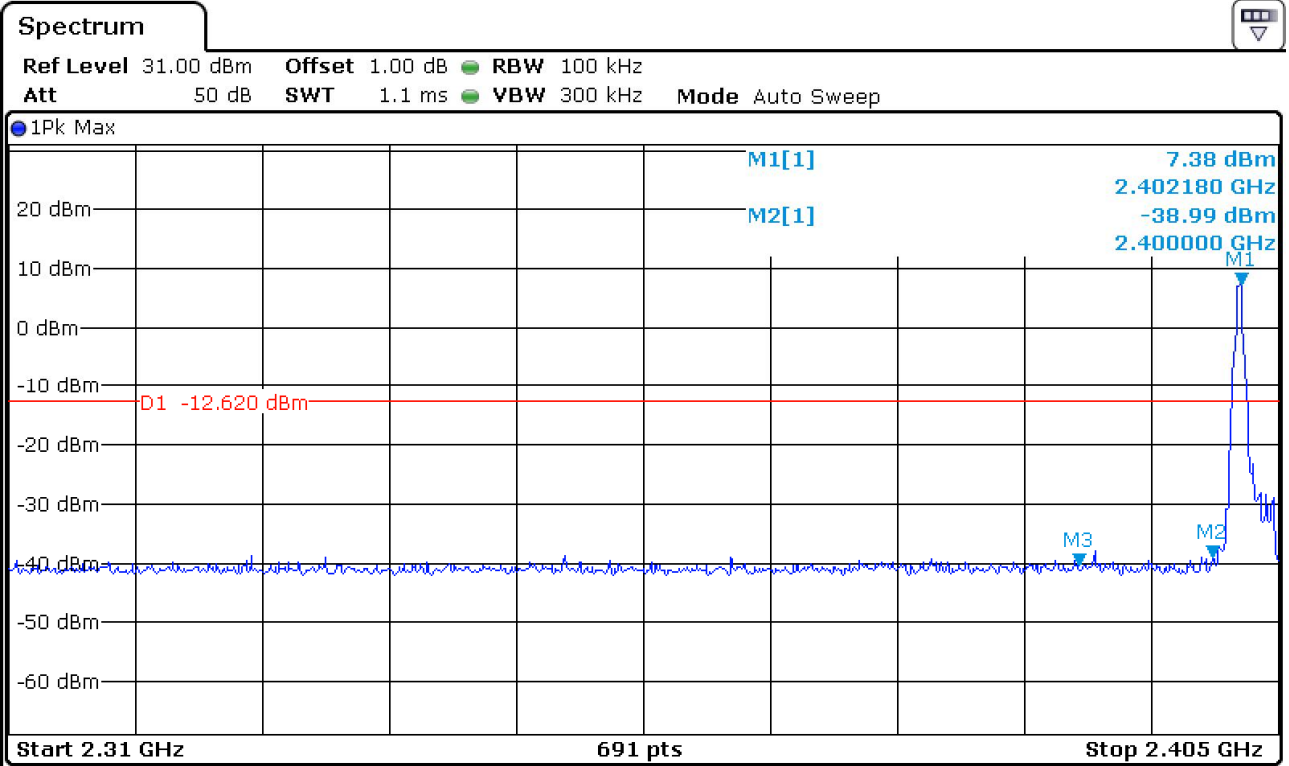
Limit: 20dB below the highest level of the desired power in the passband



### 7.6 100kHz Bandwidth of band edges

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz) DH5 (Worst case)  
 Test Specification: FCC15.247(d), Conducted  
 Comment: 3.7VDC

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



Band edges	Limit
38.99 dB	> 20dB

**100kHz Bandwidth of band edges**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz)  
 (Worst case)  
 Test Specification: FCC15.247(d), Radiated  
 Comment: 3.7VDC

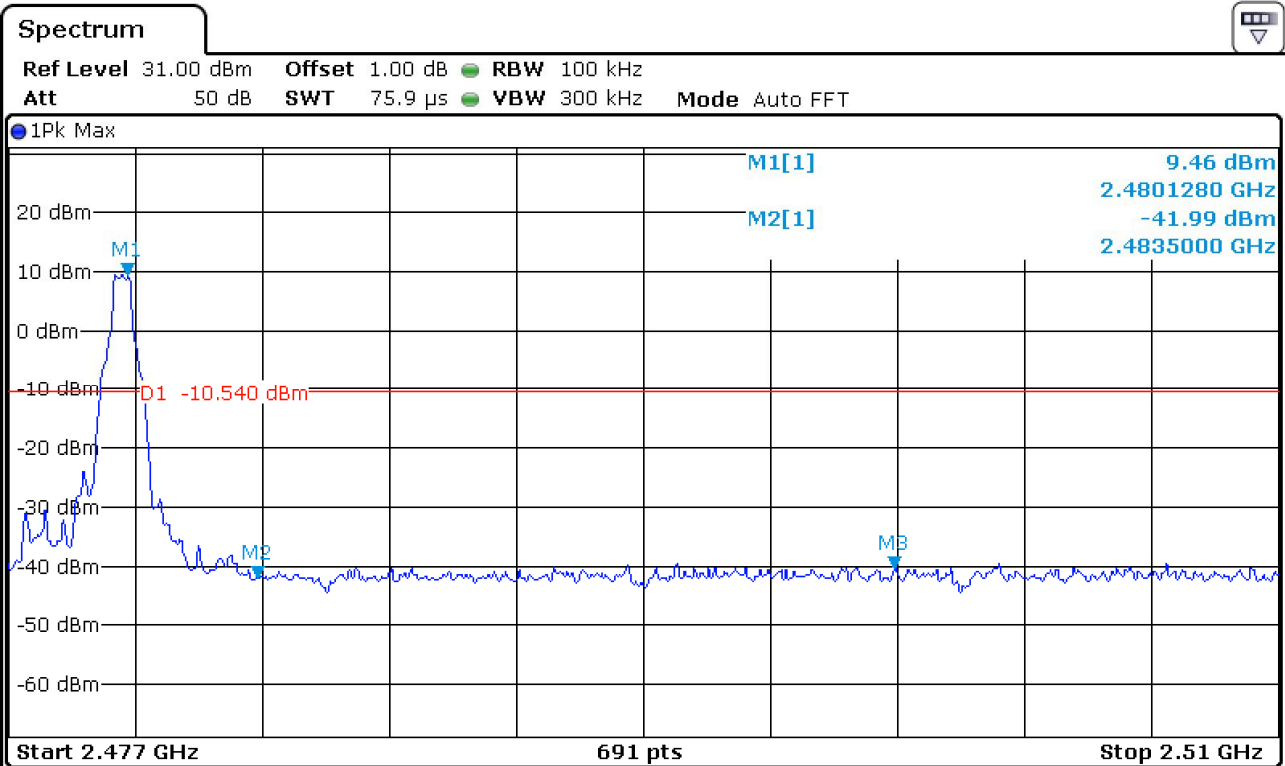
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2390.000	41.55	74	-32.45	Peak
2390.000	40.62	54	-13.38	Average

**100kHz Bandwidth of band edges**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2480MHz) DH5 (Worst case)  
 Test Specification: FCC15.247(d), Conducted  
 Comment: 3.7VDC

Test Result  
 Passed  
 Not Passed



Band edges	Limit
41.99 dB	> 20dB

**100kHz Bandwidth of band edges**

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2480MHz)  
 (Worst case)  
 Test Specification: FCC15.247(d), Radiated  
 Comment: 3.7VDC

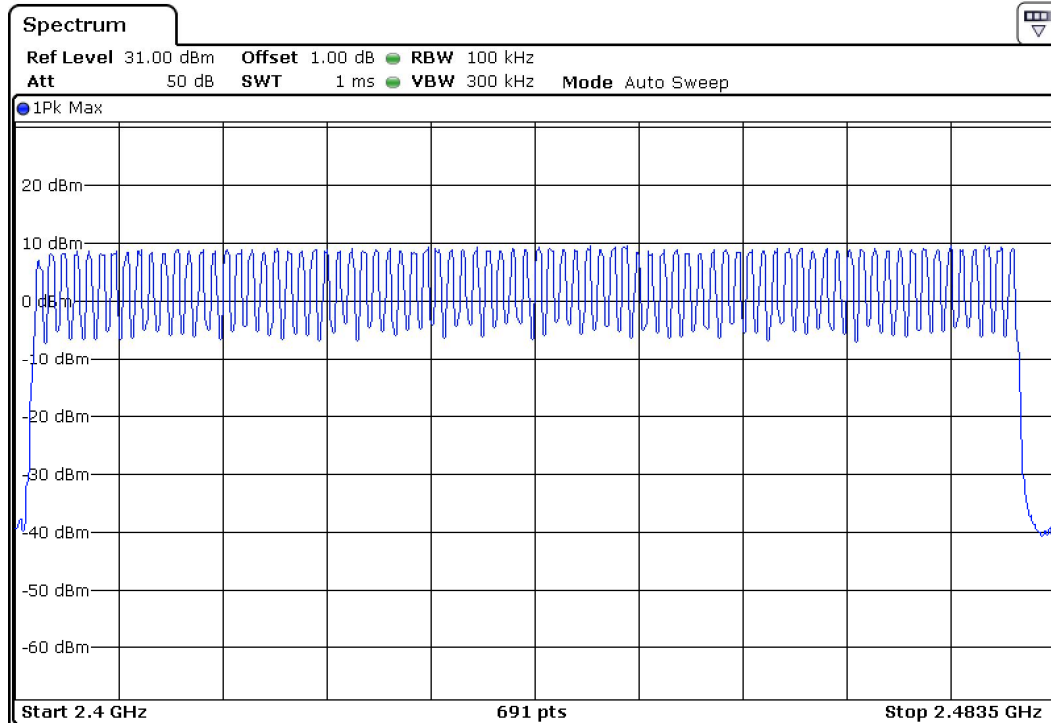
Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
2483.500	40.79	74	-33.21	Peak
2483.500	40.89	54	-13.11	Average

## 7.7 Minimum. Number of Hopping Frequencies

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402-2480MHz) DH5 (Worst case)  
 Test Specification: FCC15.247(a)(1)  
 Comment: 3.7VDC

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



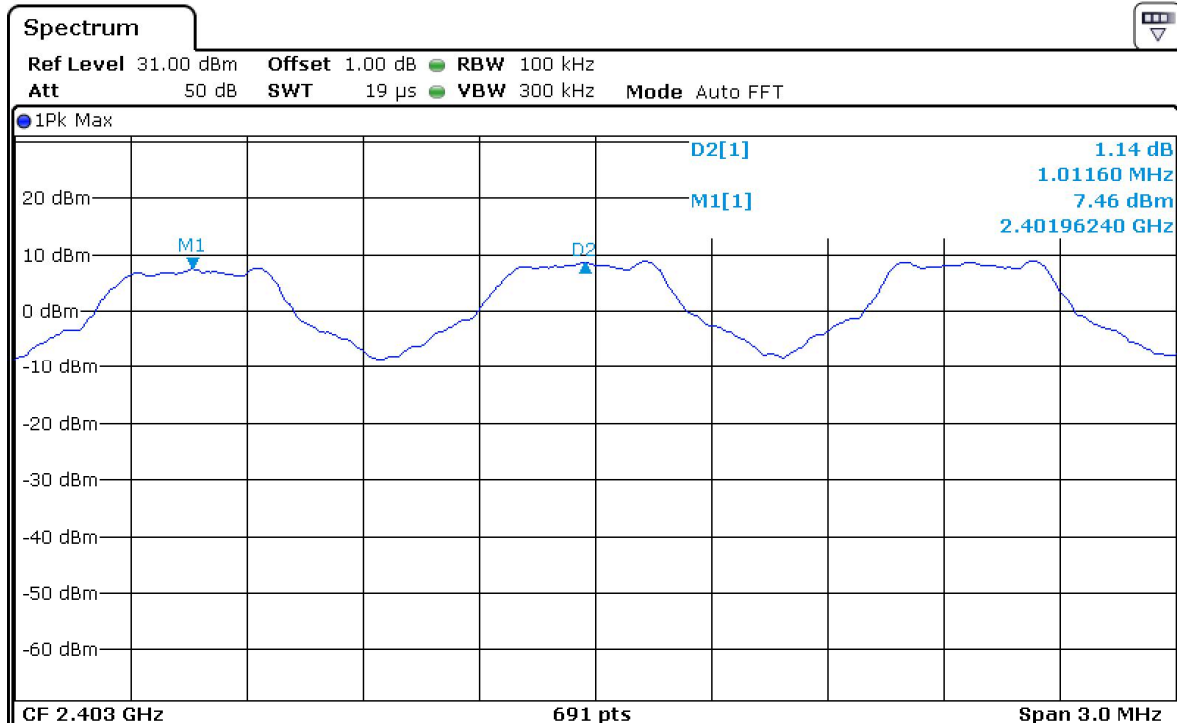
Hopping Channels	Limit
79	≥ 15

Remark \* All mode has been tested only worst case has shown.

## 7.8 Minimum Hopping Channel Carrier Frequency Separation

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402-2480MHz) DH5 (Worst case)  
 Test Specification: FCC15.247(a)(1)  
 Comment: 3.7VDC

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



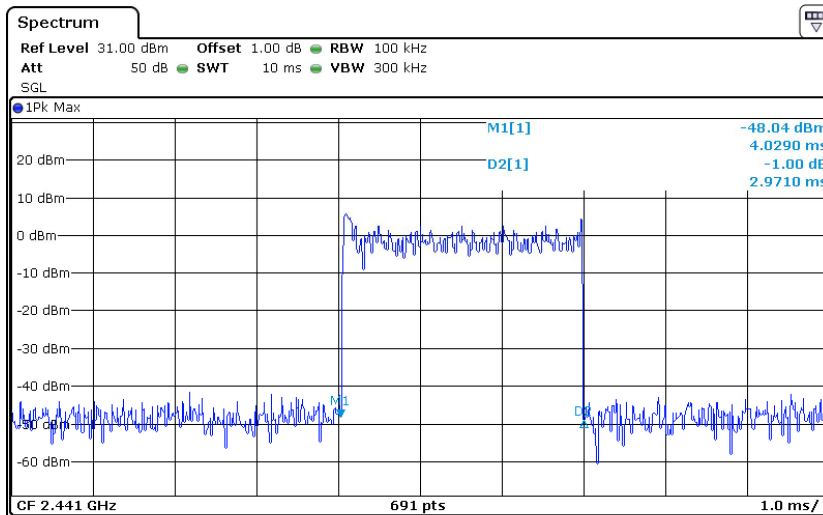
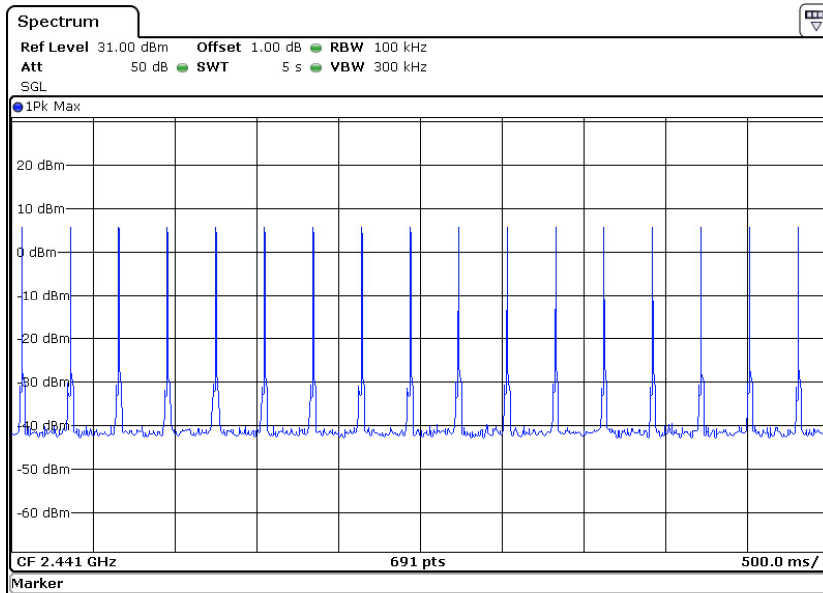
Chanel Separation	Limit
1011.6 kHz	924 kHz

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

## 7.9 Average Channel Occupancy Time

EUT: HG04125B-US  
 Op Condition: Operated, TX Mode (2402MHz) 2DH5 (Worst case)  
 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: 2.971ms Average time of occupancy: 2.971 ms x 108 = 0.3207 sec.	0.4 Seconds

## 7.10 Antenna Requirement

EUT: HG04125B-US  
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 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  $\leq 50$  mm, the Numeric threshold is determined as

Step a)

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]

·  $[\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR

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

Step a)

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

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

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

>> The power of EUT measured (2402MHz) is: 7.72dBm = 5.916mW  
The power of EUT measured (2440MHz) is: 9.42dBm = 8.750mW  
The power of EUT measured (2480MHz) is: 9.65dBm = 9.226mW  
Which is smaller than the Numeric threshold.  
Therefore, the device is exempt from stand-alone SAR test requirements.