



2DH5-Ant1-2441-PASS



2DH5-Ant1-2480-PASS



3DH5-Ant1-2402-PASS



3DH5-Ant1-2441-PASS



3DH5-Ant1-2480-PASS



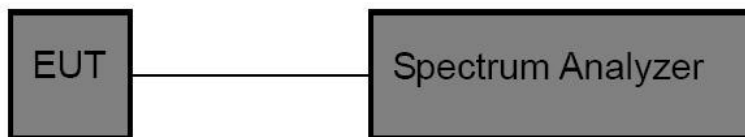


9 20DB Occupy Bandwidth Test

9.1 Test Standard

Test Standard	FCC Part15 C Section 15.247 (a)(1)
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9.2 Test Setup



9.3 Test Procedure

Using the following spectrum analyzer settings:

1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.
2. Set the RBW = 30 kHz.
3. Set the VBW = 100 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

9.4 Test Data

Test Item	:	20dB BW	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 3.7V	Temperature	:	24.5°C
Test Result	:	PASS	Humidity	:	55%RH

**L:**

TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.954	2401.526	2402.480	---	---
DH5	Ant1	2441	0.957	2440.526	2441.483	---	---
DH5	Ant1	2480	0.960	2479.529	2480.489	---	---
2DH5	Ant1	2402	1.338	2401.325	2402.663	---	---
2DH5	Ant1	2441	1.317	2440.337	2441.654	---	---
2DH5	Ant1	2480	1.326	2479.328	2480.654	---	---
3DH5	Ant1	2402	1.305	2401.340	2402.645	---	---
3DH5	Ant1	2441	1.308	2440.346	2441.654	---	---
3DH5	Ant1	2480	1.293	2479.346	2480.639	---	---

R:

TestMode	Antenna	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.966	2401.526	2402.492	---	---
DH5	Ant1	2441	0.954	2440.532	2441.486	---	---
DH5	Ant1	2480	0.948	2479.535	2480.483	---	---
2DH5	Ant1	2402	1.317	2401.337	2402.654	---	---
2DH5	Ant1	2441	1.335	2440.328	2441.663	---	---
2DH5	Ant1	2480	1.374	2479.310	2480.684	---	---
3DH5	Ant1	2402	1.299	2401.352	2402.651	---	---
3DH5	Ant1	2441	1.308	2440.343	2441.651	---	---
3DH5	Ant1	2480	1.311	2479.343	2480.654	---	---



Test Graphs:

L:





2DH5-Ant1-2402



2DH5-Ant1-2441



2DH5-Ant1-2480



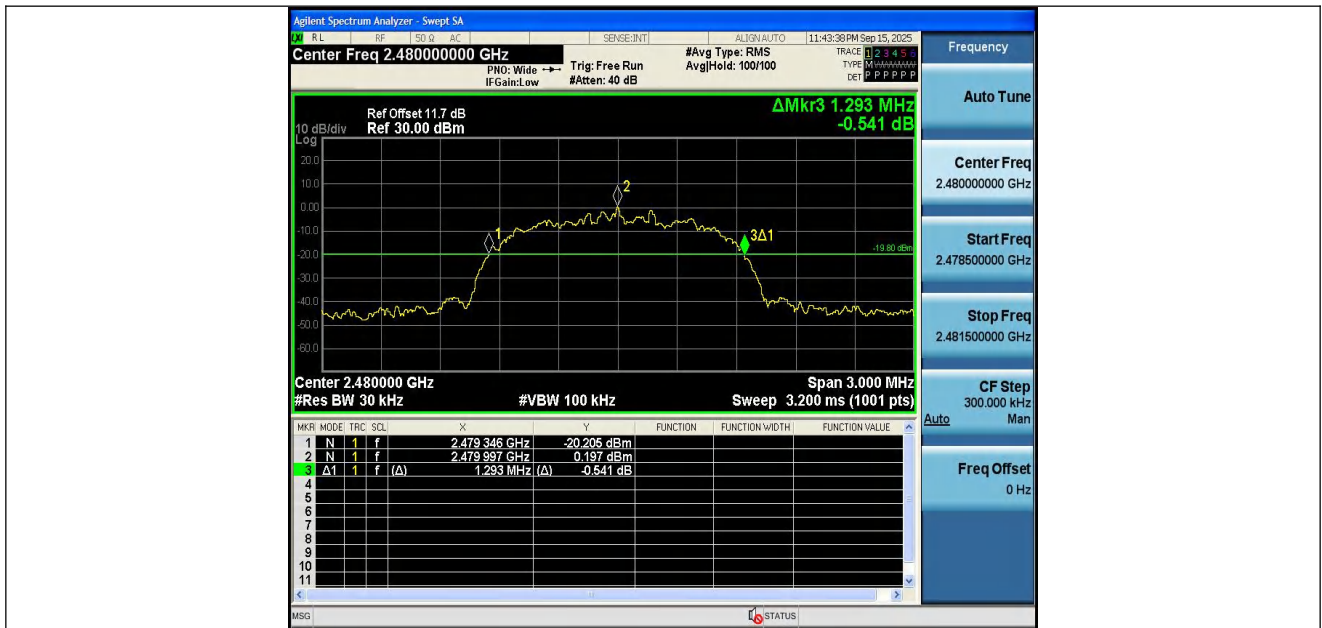
3DH5-Ant1-2402



3DH5-Ant1-2441



3DH5-Ant1-2480





R:

DH5-Ant1-2402



DH5-Ant1-2441



DH5-Ant1-2480



2DH5-Ant1-2402



2DH5-Ant1-2441



2DH5-Ant1-2480



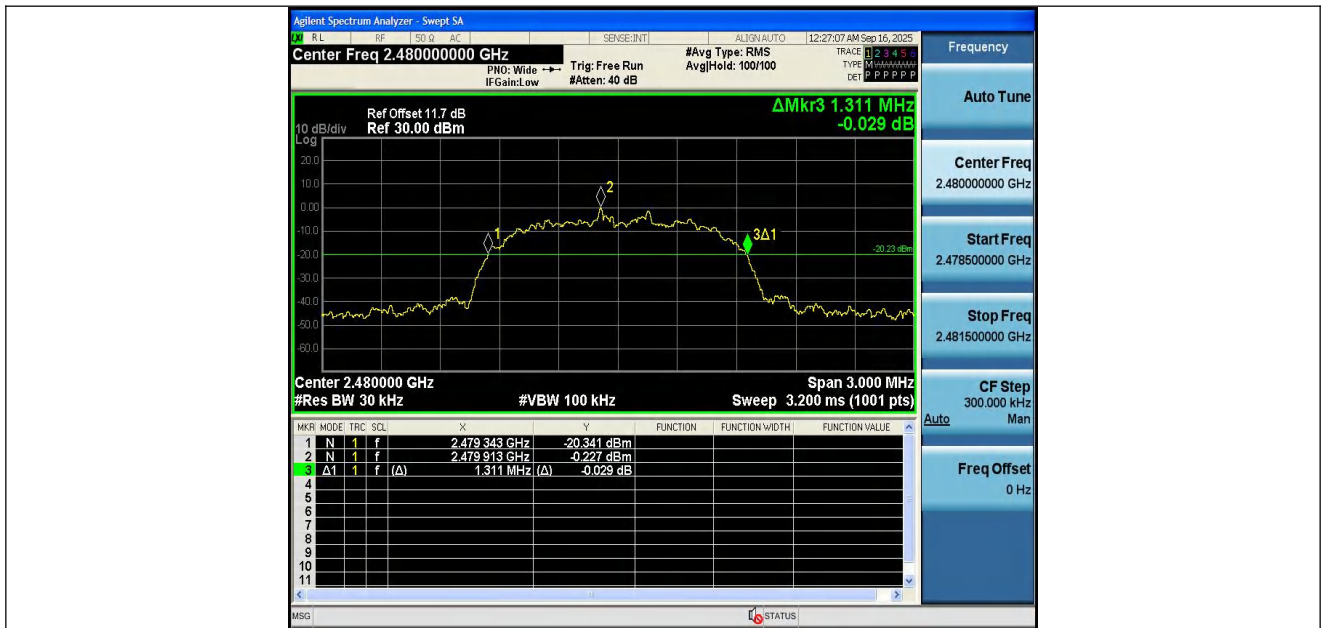
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3DH5-Ant1-2441



3DH5-Ant1-2480



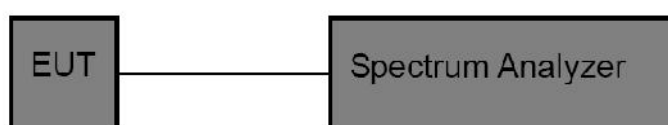


10 Carrier Frequency Separation Test

10.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1)
Test Limit	>25KHz or >two-thirds of the 20 dB bandwidth

10.2 Test Setup



10.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer settings:

1. Span= Wide enough to capture the peaks of two adjacent channels
2. Set the RBW = 300 kHz.
3. Set the VBW = 300 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

10.4 Test Data

Test Item	:	Frequency Separation	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 3.7V	Temperature	:	24.5°C
Test Result	:	PASS	Humidity	:	55%RH



L:

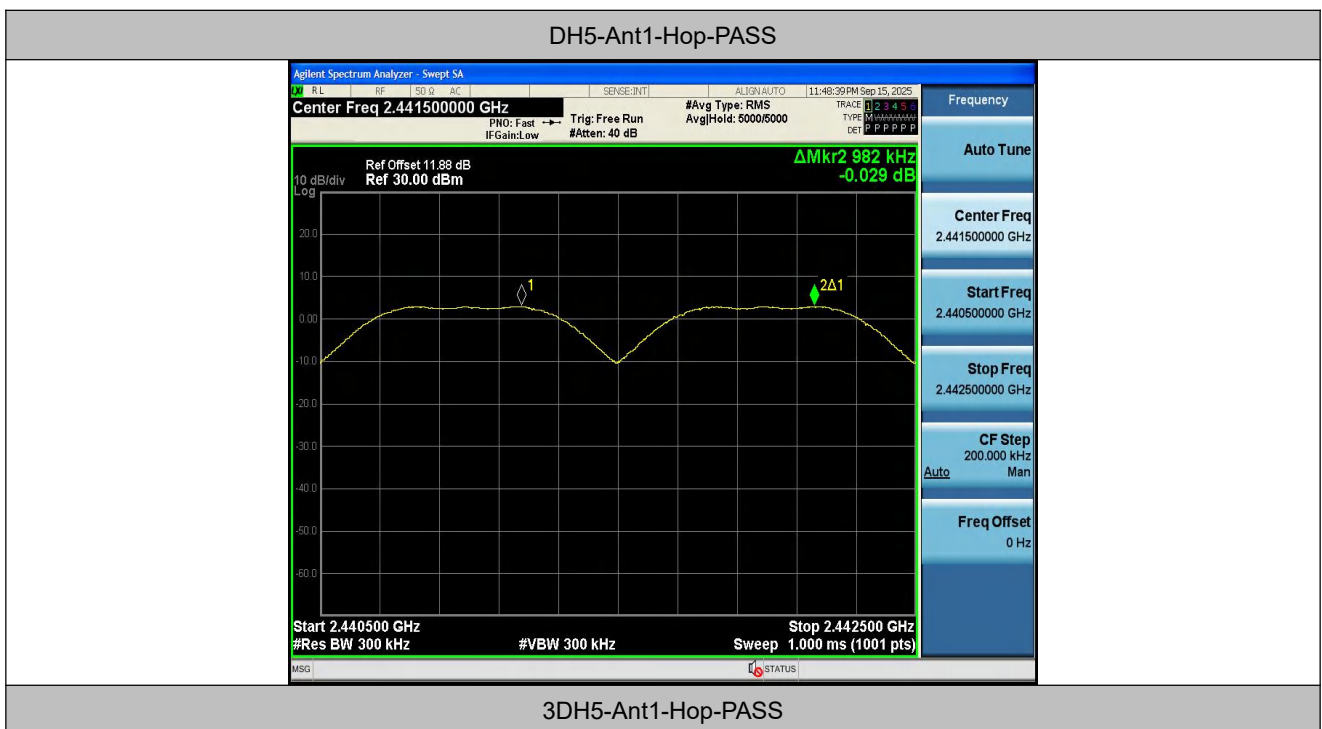
TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.982	≥ 0.960	PASS
3DH5	Ant1	Hop	1.164	≥ 0.872	PASS
2DH5	Ant1	Hop	0.942	≥ 0.892	PASS

R:

TestMode	Antenna	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.006	≥ 0.966	PASS
3DH5	Ant1	Hop	1.348	≥ 1.311	PASS
2DH5	Ant1	Hop	1.352	≥ 0.916	PASS

Test Graphs:

L:





2DH5-Ant1-Hop-PASS





R:

DH5-Ant1-Hop-PASS



3DH5-Ant1-Hop-PASS



2DH5-Ant1-Hop-PASS



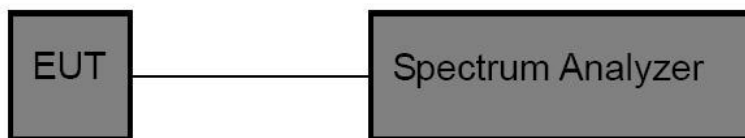


11 Number of Hopping Channel Test

11.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1)
Test Limit	>15 channels

11.2 Test Setup



11.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer setting:

1. Span= the frequency band of operation
2. Set the RBW = 300kHz.
3. Set the VBW = 300kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.



11.4 Test Data

Test Item	: Number of Hopping Frequency	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 3.7V	Temperature	: 24.5℃
Test Result	: PASS	Humidity	: 55%RH

L:

TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS

R:

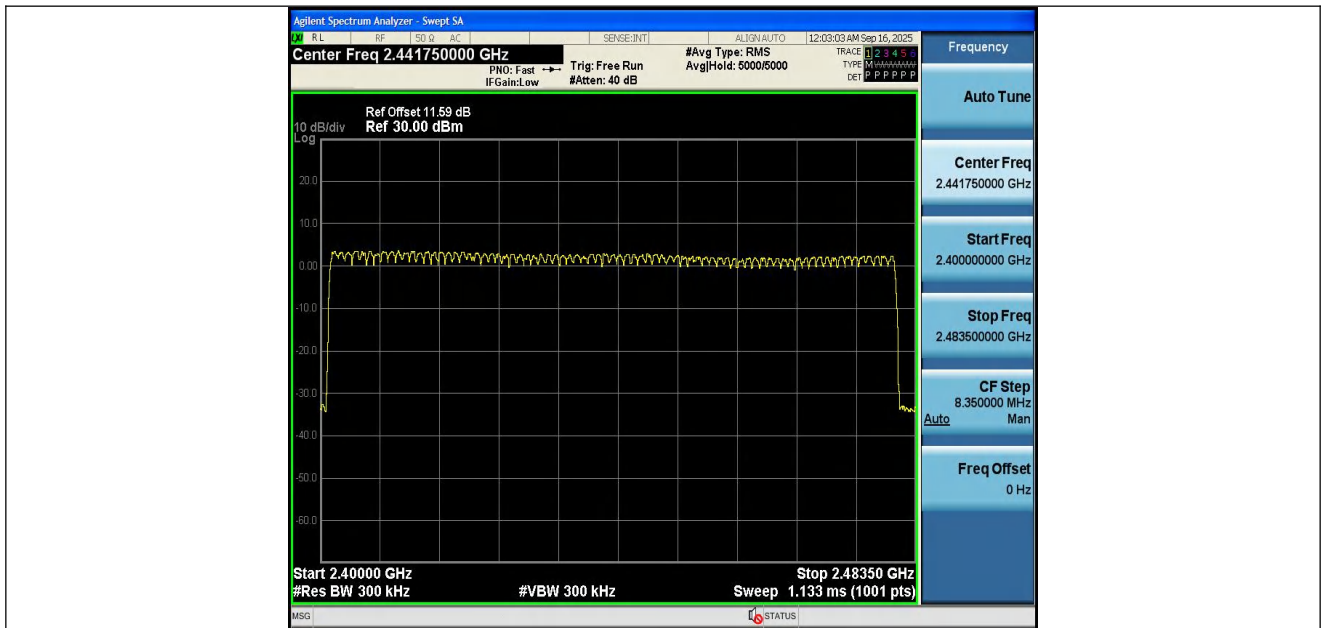
TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
2DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS



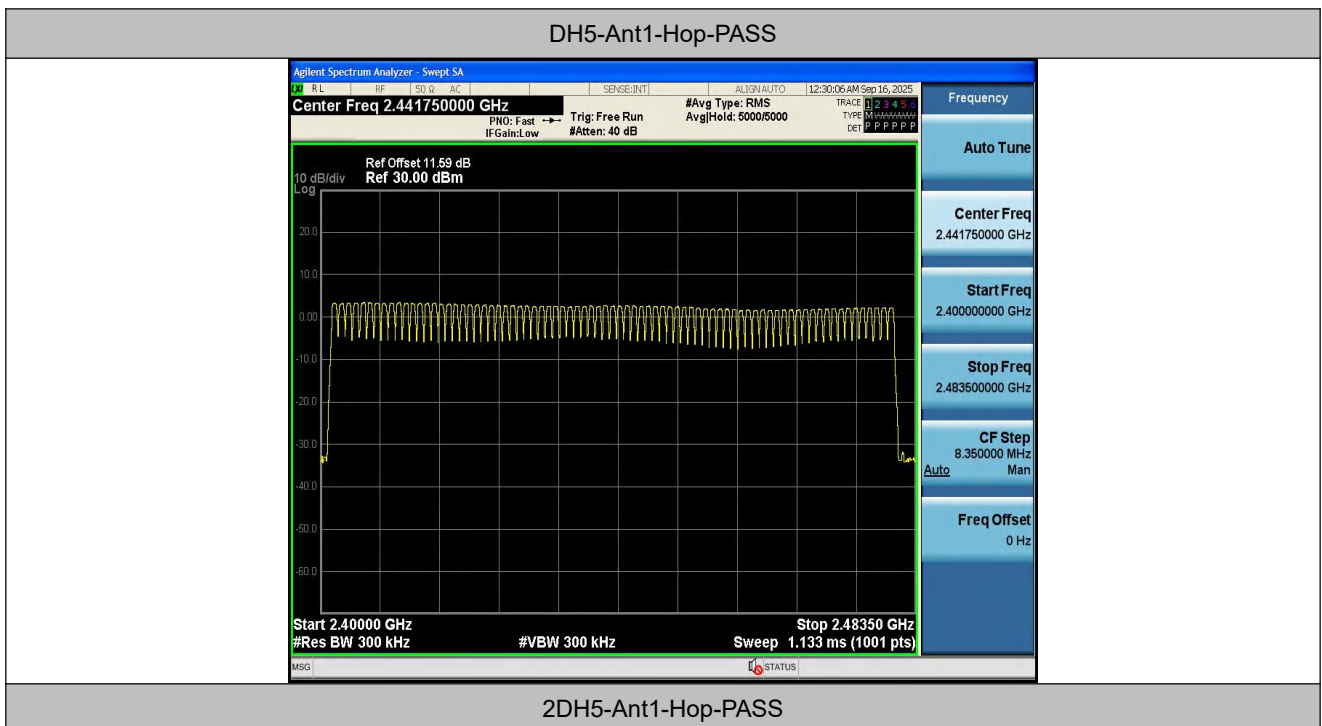
Test Graphs:

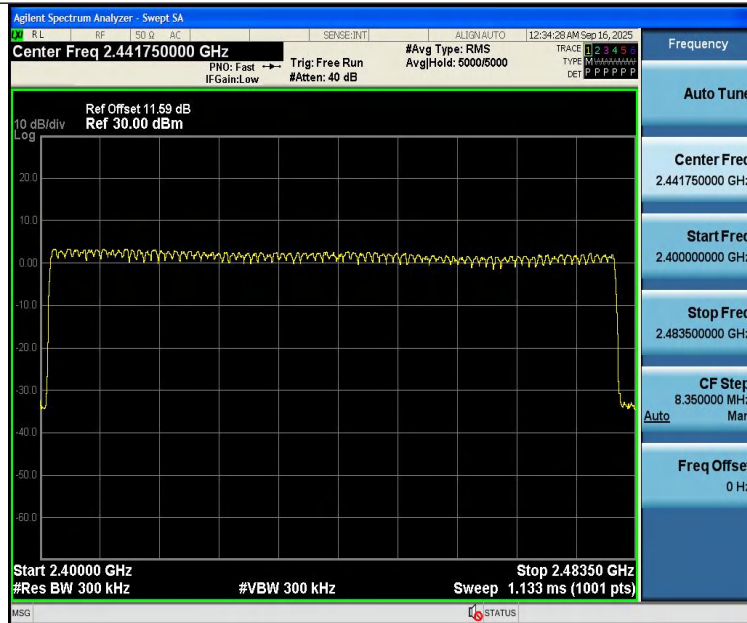
L:



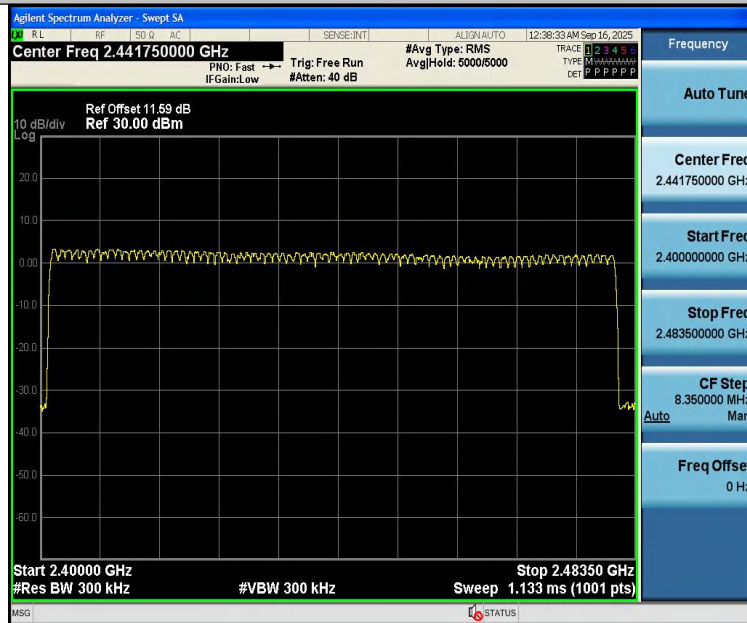


R:





3DH5-Ant1-Hop-PASS



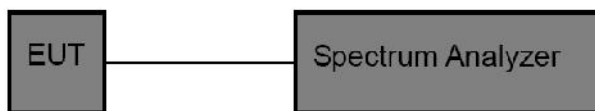


12 Dwell Time Test

12.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1)
Test Limit	0.4 sec

12.2 Test Setup



12.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span= zero span, centered on a hopping channel
2. Set the RBW = 1 MHz.
3. Set the VBW = 3 MHz.
4. Sweep time = as necessary to capture the entire dwell time per hopping channel.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.



12.4 Test Data

Test Item : Time of Occupancy
 Test Voltage : DC 3.7V
 Test Result : PASS

Test Mode : CH Low ~ CH High
 Temperature : 24.5℃
 Humidity : 55%RH

L:

TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.906	106.67	0.31	≤0.4	PASS
2DH5	Ant1	Hop	2.911	106.67	0.311	≤0.4	PASS
3DH5	Ant1	Hop	2.912	106.67	0.311	≤0.4	PASS
DH1	Ant1	Hop	0.400	320	0.128	≤0.4	PASS
2DH1	Ant1	Hop	0.410	320	0.131	≤0.4	PASS
3DH1	Ant1	Hop	0.410	320	0.131	≤0.4	PASS
DH3	Ant1	Hop	1.657	160	0.265	≤0.4	PASS
2DH3	Ant1	Hop	1.663	160	0.266	≤0.4	PASS
3DH3	Ant1	Hop	1.661	160	0.266	≤0.4	PASS

R:

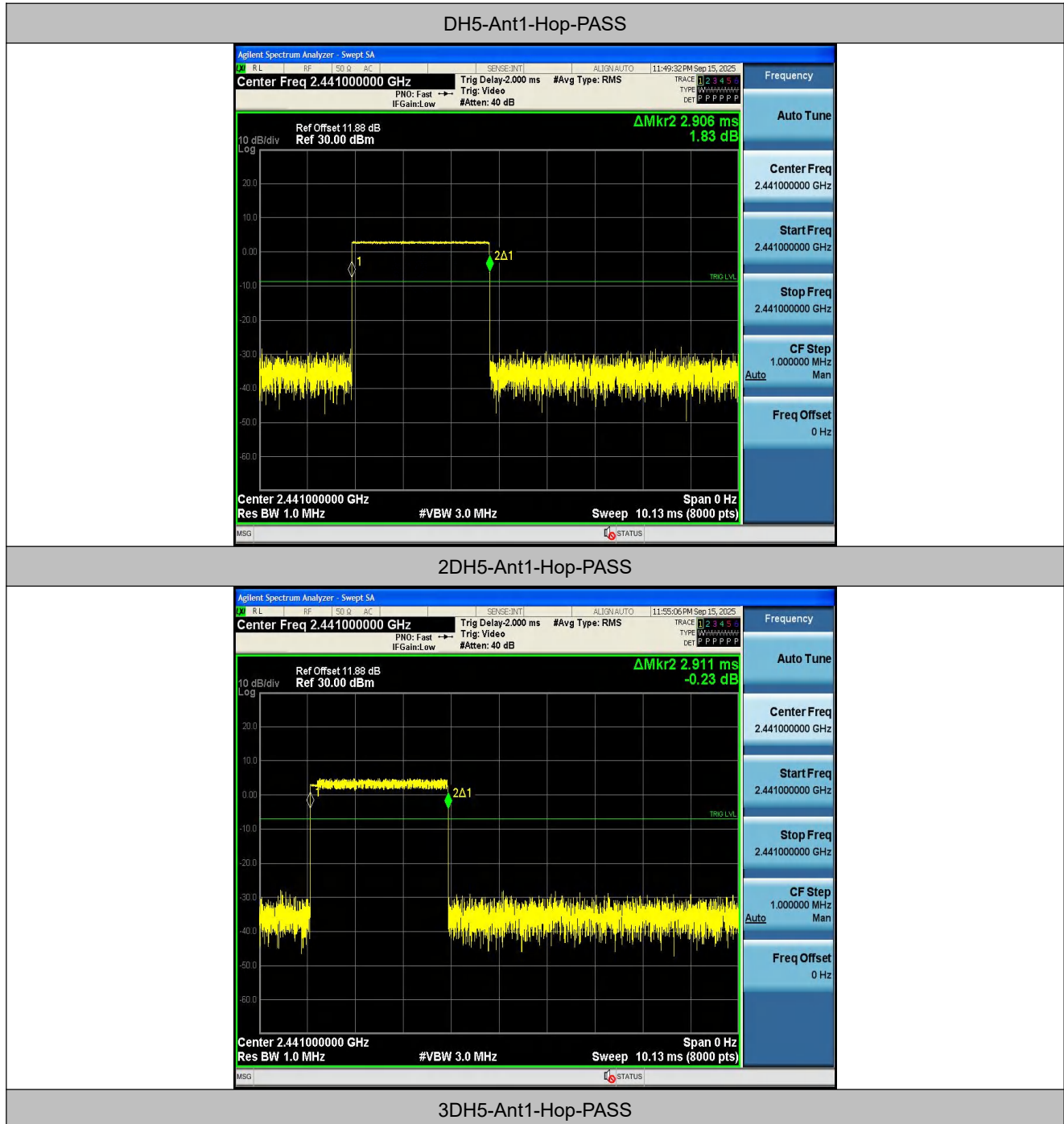
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.904	106.67	0.31	≤0.4	PASS
2DH5	Ant1	Hop	2.910	106.67	0.31	≤0.4	PASS
3DH5	Ant1	Hop	2.912	106.67	0.311	≤0.4	PASS
DH1	Ant1	Hop	0.402	320	0.129	≤0.4	PASS
2DH1	Ant1	Hop	0.412	320	0.132	≤0.4	PASS
3DH1	Ant1	Hop	0.410	320	0.131	≤0.4	PASS
DH3	Ant1	Hop	1.657	160	0.265	≤0.4	PASS
2DH3	Ant1	Hop	1.662	160	0.266	≤0.4	PASS
3DH3	Ant1	Hop	1.661	160	0.266	≤0.4	PASS

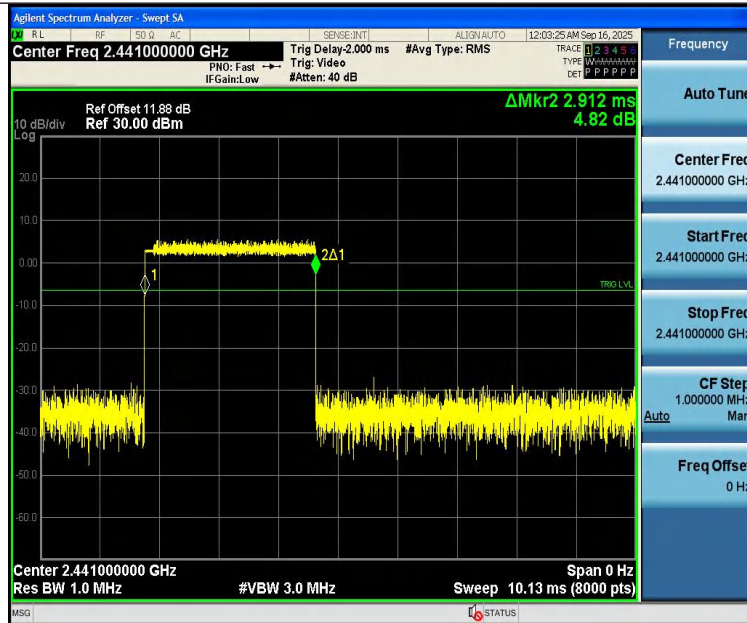
Note:

- 1.DH1/2DH1 Dwell Time: Reading * (1600/2)*31.6/(channel number).
- 2.DH3/2DH3 Dwell Time: Reading * (1600/4)*31.6/(channel number).
- 3.DH5/2DH5 Dwell Time: Reading * (1600/6)*31.6/(channel number).

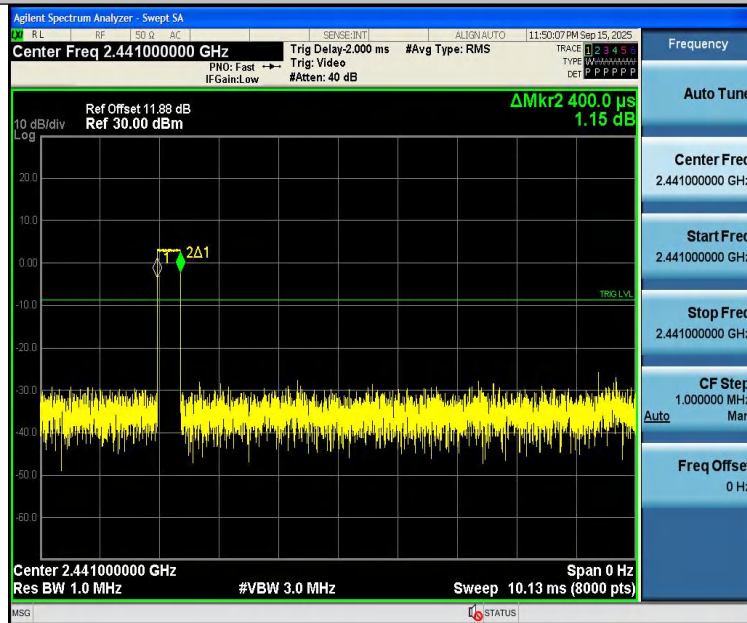
Test Graphs:

L:

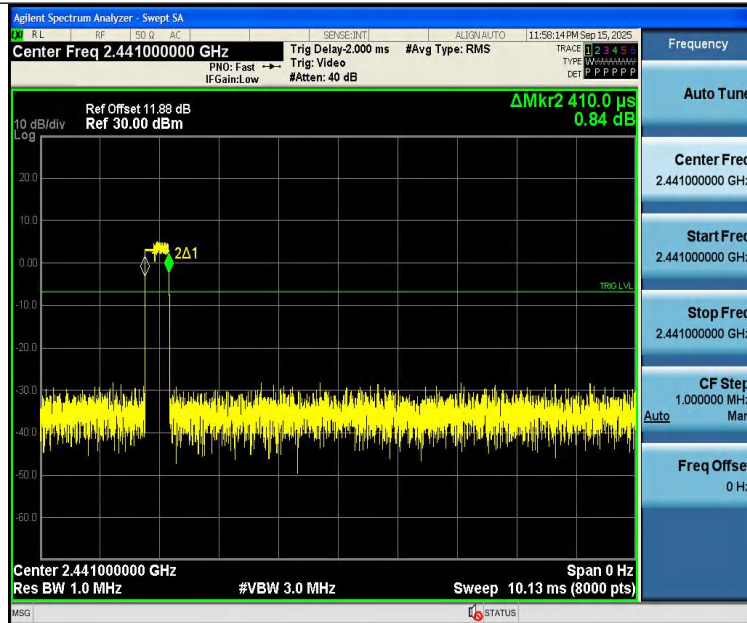




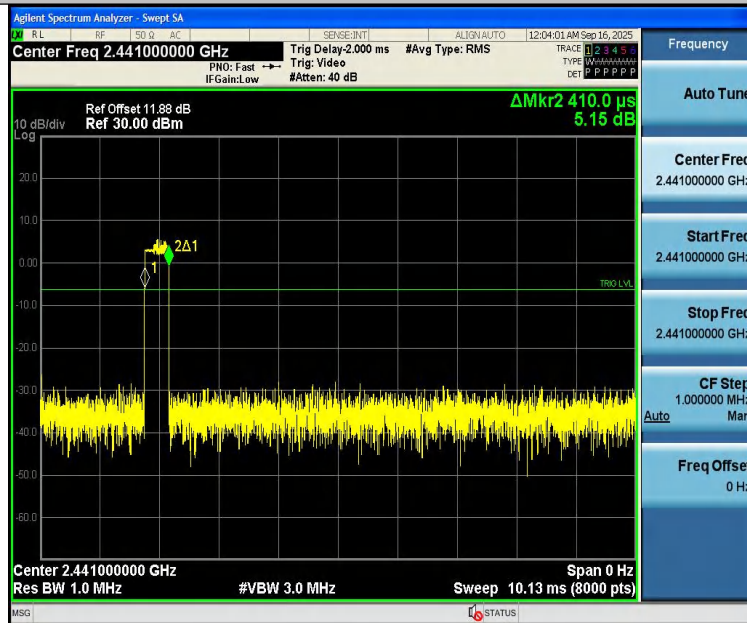
DH1-Ant1-Hop-PASS



2DH1-Ant1-Hop-PASS



3DH1-Ant1-Hop-PASS



DH3-Ant1-Hop-PASS